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Pesticide residues in food 2016

Joint FAO/WHO Meeting on Pesticide Residues

REPORT 2016

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Report of the Joint Meeting of the FAO Panel of Experts on Pesticide Residues in Food and the Environment and the WHO Core Assessment Group on Pesticide Residues
Rome, Italy, 13–22 September 2016

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Contents

R, residue and analytical aspects; T, toxicological evaluation

* New compound

** Evaluated within the periodic review programme of the Codex Committee on Pesticide Residues

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2016 Joint FAO/WHO Meeting on Pesticide Residues

ROME, 13–22 SEPTEMBER 2016

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ABBREVIATIONS

ADI	acceptable daily intake
AHS	Agricultural Health Study
ai	active ingredient
AIC	Akaike Information Criterion
AR	applied radioactivity
ARfD	acute reference dose
as	as received
asp gr fn	aspirated grain fraction
AU	Australia
AUC	area under the plasma concentration–time curve
BBCH	**B**iologischen Bundesanstalt, **B**undessortenamt und **CH**emische Industrie
BMD	benchmark dose
BMD_{10}	benchmark dose for a 10% response
BMDL	lower 95% confidence limit on the benchmark dose
$BMDL_{10}$	lower 95% confidence limit on the benchmark dose for a 10% response
BMDS	Benchmark Dose Software
BSA	3,4,4-trifluorobut-3-ene-1-sulfonic acid
bw	body weight
CA	Chemical Abstracts
CAC	Codex Alimentarius Commission
CAS	Chemical Abstracts Service
CCN	Codex classification number (for compounds or commodities)
CCPR	Codex Committee on Pesticide Residues
*c*GAP	Critical GAP
C_{max}	maximum concentration in plasma
CSAF	chemical-specific adjustment factor
CYP/Cyp	cytochrome P450
DAA	days after application
DALA	days after last application
DAT	days after treatment
DM	dry matter
DNA	deoxyribonucleic acid
DT_{50}	time required for 50% dissipation of the initial concentration
DT_{90}	time required for 90% dissipation of the initial concentration

dw	dry weight
ECD	electron capture detector
EFSA	European Food Safety Authority
EHC	Environmental Health Criteria monograph
EU	European Union
19F-NMR	Fluorine-19 nuclear magnetic resonance
F_0	parental generation
F_1	first filial generation
F_2	second filial generation
FAO	Food and Agriculture Organization of the United Nations
fw	fresh weight
GAP	good agricultural practice
GC	gas chromatography
GC-ECD	gas chromatography with electron capture detection
GC/MS	gas chromatography/mass spectrometry
GC-NPD	gas chromatography coupled with nitrogen-phosphorus detector
GEMS/Food	Global Environment Monitoring System – Food Contamination Monitoring and Assessment Programme
GGT	gamma-glutamyltransferase
GI	gastrointestinal
GLP	good laboratory practice
GPC	gel permeation chromatography
HPLC	high performance liquid chromatography
HPLC-UV	high performance liquid chromatography with UV detector
HPRT	hypoxanthine–guanine phosphoribosyltransferase
HR	highest residue in the edible portion of a commodity found in trials used to estimate a maximum residue level in the commodity
HR-P	highest residue in a processed commodity calculated by multiplying the HR of the raw commodity by the corresponding processing factor
IEDI	international estimated daily intake
IESTI	international estimate of short-term dietary intake
ISO	International Organization for Standardization
IUPAC	International Union of Pure and Applied Chemistry
JECFA	Joint FAO/WHO Expert Committee on Food Additives
JMPR	Joint FAO/WHO Meeting on Pesticide Residues
JP	Japan
LC_{50}	median lethal concentration

LD_{50}	median lethal dose
LOAEL	lowest-observed-adverse-effect level
LOD	limit of detection
log P_{ow}	octanol-water partition coefficient
LOQ	limit of quantification
MeS	2-methylsulfonyl-1,3-thiazole
MRL	maximum residue limit
MS	mass spectrometry
MS/MS	tandem mass spectrometry
NOAEC	no-observed-adverse-effect concentration
NOAEL	no-observed-adverse-effect level
OECD	Organisation for Economic Co-operation and Development
PBI	plant back interval
PES	post extraction solids
Pf	processing factor
PHI	pre-harvest interval
ppm	parts per million
QSAR	quantitative structure–activity relationship
RAC	raw agricultural commodity
RSD	relative standard deviation
RTI	re-treatment interval
S9	9000 × *g* supernatant fraction from rat liver homogenate
SC	suspension concentrate
SL	soluble liquid
SPE	solid phase extraction
STMR	supervised trials median residue
STMR-P	supervised trials median residue in a processed commodity calculated by multiplying the STMR of the raw commodity by the corresponding processing factor
T_3	triiodothyronine
T_4	thyroxine
T_{max}	time to reach the maximum concentration in plasma/blood
TRR	total radioactive residues
TSA	5-chloro-1,3-thiazole-2-sulfonic acid
TSH	thyroid stimulating hormone
TTC	threshold of toxicological concern
UK	United Kingdom

USA	United States of America
US/CAN	United States and Canada
USEPA	United States Environmental Protection Agency
WG	wettable granule
WHO	World Health Organization
WP	wettable powder

USE OF JMPR REPORTS AND EVALUATIONS BY REGISTRATION AUTHORITIES

Most of the summaries and evaluations contained in this report are based on unpublished proprietary data submitted for use by JMPR in making its assessments. A registration authority should not grant a registration on the basis of an evaluation unless it has first received authorization for such use from the owner of the data submitted for the JMPR review or has received the data on which the summaries are based, either from the owner of the data or from a second party that has obtained permission from the owner of the data for this purpose.

PESTICIDE RESIDUES IN FOOD

REPORT OF THE 2016 JOINT FAO/WHO MEETING OF EXPERTS

1. INTRODUCTION

A Joint Meeting of the Food and Agriculture Organization of the United Nations (FAO) Panel of Experts on Pesticide Residues in Food and the Environment and the World Health Organization (WHO) Core Assessment Group on Pesticide Residues (JMPR) was held at FAO Head-quarters, Rome (Italy), from 13 to 23 September 2016. The FAO Panel Members met in preparatory sessions from 8–12 September.

The Meeting was opened by Mr Bill Murray, Deputy Director, Plant Production and Protection Division (AGP), FAO. On behalf of FAO and WHO, Mr Murray welcomed and thanked the participants for providing their expertise and for devoting significant time and effort to the work of the JMPR. Mr Murray noted the important contribution of the JMPRs work in trade facilitation through the establishment of global standards for pesticide residues in food and feed, and in food safety via the published pesticide risk assessments, further underscoring the continued relevance of the JMPRs work.

Mr Murray also acknowledged the progress made by the JMPR in recent years in improving the transparency of its procedures and operational efficiencies while at the same time continuing to consider and incorporate new scientific principles and methodologies. He suggested the success of these efforts was demonstrated by the increasing importance and impact of the JMPRs work internationally. He highlighted recent examples such as the incorporation of JMPR Evaluations by national and regional regulatory authorities into their assessments; the increasing level of adoption by member countries of CODEX MRLs as recommended by JMPR; and the contribution of the JMPRs recent assessment of glyphosate to the global discussion on its continued use.

Mr Murray then suggested that perhaps the most significant example of JMPRs success was the continued and growing demand for JMPR assessments, with the number of compound nominations from member countries, through the Codex Committee on Pesticide Residues (CCPR), having increased by 70% from 2010 to 2015, while noting the constraints under which the JMPR operates.

During the meeting, the FAO Panel of Experts was responsible for reviewing residue and analytical aspects of the pesticides under consideration, including data on their metabolism, fate in the environment and use patterns, and for estimating the maximum levels of residues that might occur as a result of use of the pesticides according to good agricultural practice (GAP). Maximum residue levels and supervised trials median residue (STMR) values were estimated for commodities of animal origin. The WHO Core Assessment Group was responsible for reviewing toxicological and related data in order to establish acceptable daily intakes (ADIs) and acute reference doses (ARfDs), where necessary.

The Meeting evaluated 29 pesticides, including nine new compounds and three compounds that were re-evaluated within the periodic review programme of the CCPR, for toxicity or residues, or both.

The Meeting established ADIs and ARfDs, estimated maximum residue levels and recommended them for use by CCPR, and estimated STMR and highest residue (HR) levels as a basis for estimating dietary intake.

The Meeting also estimated the dietary exposures (both short-term and long-term) of the pesticides reviewed and, on this basis, performed dietary risk assessments in relation to their ADIs or ARfDs. Cases in which ADIs or ARfDs may be exceeded were clearly indicated in order to facilitate the decision-making process of CCPR. The rationale for methodologies for long- and short-term dietary risk assessment are described in detail in the FAO Manual on the submission and evaluation of pesticide residue data for the estimation of maximum residue levels in food and feed (2016).

The Meeting considered a number of current issues related to the risk assessment of chemicals, the evaluation of pesticide residues and the procedures used to recommend maximum residue levels.

1.1 Declaration of Interests

The Secretariat informed the Meeting that all experts participating in the 2016 JMPR had completed declaration-of-interest forms and that no conflicts had been identified.

2. GENERAL CONSIDERATIONS

2.1 Update on the revision of *Principles and Methods for Risk Assessment of Chemicals in Food* (EHC 240)

2.1.1 Benchmark dose

The present Meeting utilized the results of benchmark dose (BMD) modelling in its assessment of teflubenzuron (see section 5.24). Although Environmental Health Criteria (EHC) 239 (*Principles for modelling dose–response for the risk assessment of chemicals*; http://www.inchem.org/documents/ehc/ehc/ehc239.pdf) and EHC 240 (http://www.who.int/foodsafety/publications/chemical-food/en/) provide guidance on the application, performance and interpretation of dose–response modelling, the Meeting felt that a number of additional points had emerged since publication of these guidance documents that need to be considered or emphasized.

In the BMD approach, criteria for judging model relevance using biological understanding are paramount. This includes the judgement of which types of data (e.g. external versus internal doses) should be put into the model. Biological considerations should take precedence over mathematical analysis when a clear way forward is not obvious. The results should be assessed for model fit using criteria described, for example, in the United States Environmental Protection Agency's (USEPA) Benchmark Dose Software (BMDS) guidance document (https://www.epa.gov/sites/production/files/2015-01/documents/benchmark_dose_guidance.pdf). The criteria consist of adequacy determinations of *P*-value, scaled residual, visual fit, determining whether the remaining models reflect no particular influence of the individual models (e.g. ratio between BMD and lower 95% confidence limit on the BMD, or BMDL), Akaike Information Criterion (AIC) and expert judgement. Each of these criteria needs to be addressed and also weighed in the sequence suggested, in order to make choices that are most biologically reasonable.

As this is a general item, the Meeting recommended that EHC 240 be updated to reflect experience gained in the application of dose–response modelling since the guidance was published.

2.1.2 Chemical-specific adjustment factors (CSAFs)

The Meeting received an overview of the CSAF approach. Dr Richard Brown of WHO then updated the Meeting on an ongoing activity within the WHO Risk Assessment Network, in which experience, progress and obstacles in the application of the CSAF approach since its introduction in 2005 were being evaluated. Following compilation of CSAFs both successfully and unsuccessfully applied in risk assessment, a review workshop was held, and the outcome will be published in the peer-reviewed literature. The need for clear terminology, templates for common reporting format and updated guidance was identified and will be the subject of further activity. Once complete, this may necessitate an update to the relevant section of EHC 240.

2.1.3 Guidance on the use and interpretation of statistical evaluations and historical control data

In EHC 240, some guidance is given on the use and interpretation of statistical evaluations and historical control data within the evaluation of toxicological data of compounds. Further details are provided in the JMPR guidance document for WHO monographers and reviewers (http://www.who.int/foodsafety/publications/JMPR-guidance-document/en/). However, the Meeting noted that some aspects of the use of statistics and the use of historical control data need elaboration or clarification. For example, this Meeting discussed the issues of multiple comparisons (e.g. pendimethalin; see section 5.19) and the use of historical control data (e.g. pinoxaden; see section 5.20).

In view of the relevance of these issues, the Meeting recommended that a joint JMPR/Joint FAO/WHO Expert Committee on Food Additives (JECFA) electronic working group be convened to consider possible amendments to EHC 240.

2.2 JMPR guidance documents for WHO monographers and reviewers

The Meeting recommended that the JMPR guidance document for WHO monographers and reviewers (http://www.who.int/foodsafety/publications/JMPR-guidance-document/en/) be updated, as appropriate, with the results of discussions on the issues raised in section 2.1.

2.3 Evaluation of genotoxicity data

The Meeting considered a number of issues related to genotoxicity evaluations, including a weight of evidence approach. The Meeting noted the intention of WHO to establish a working group to update the EHC 240 guidance on genotoxicity and expressed the need for specific considerations on pesticide residues. The Meeting raised in particular the need for guidance to balance data from regulatory dossiers and from published studies, the former usually providing more detailed information on the methodology and findings.

2.4 Update of the OECD Livestock Animal Burden Feed Table

The Meeting noted that the OECD Livestock animal dietary burden feed table, used for the estimation of livestock animal dietary burden, has been updated (Guidance Document on Residues in Livestock, Series on Pesticides No. 73, ENV/JM/MONO(2013)8; http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote = env/jm/mono(2013)8&doclanguage = en).

The Meeting decided to incorporate this update, using the consolidated feed compositions for USA/Canada, the EU, Australia and Japan, beginning with the 2017 Meeting.

3. RESPONSES TO SPECIFIC ISSUES

3.1 Concerns raised by the the Codex Committee on Pesticide Residues (CCPR)

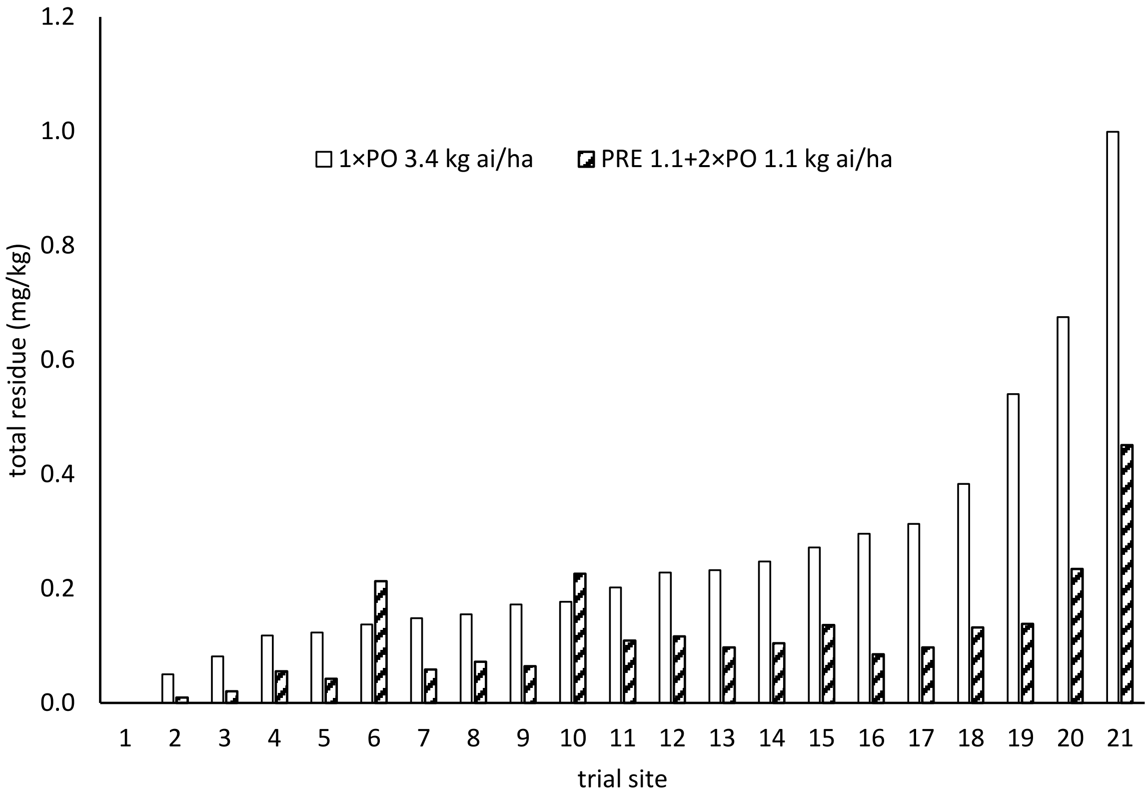
3.1.1 Acetochlor (280)

Background

Acetochlor was first evaluated by the JMPR in 2015. Following the 48th Session of the CPPR a concern form was submitted by the USA relating to the 2015 JMPR not recommending a maximum residue level for soya beans. In the USA acetochlor is approved for use on soya beans. GAP in the USA is applications pre-plant, pre-emergence or post-emergence but before the R2 growth stage (full flowering) at up to 1.7 kg ai/ha with a PHI not required. The maximum rate per year is 3.4 kg ai/ha.

No recommendation was made as the 2015 Meeting considered none of the trials as matching critical GAP (2 ×1.7 kg ai/ha post-emergence applications) as they included a pre-plant/pre-emergent application and that none were deemed suitable for application of the proportionality approach. The concern form proposed that the proportionality approach could be used for the soya bean trials and noted that:

- In the acetochlor soya bean metabolism study, total radioactive residues (TRR) in the soya beans resulting from a single 3.4 kg ai/ha pre-plant application were low. Scaled to an application rate of 1.12 kg ai/ha, the 45-day pre-plant application would result in TRR of 0.06 mg equiv/kg in soya bean seed at harvest.
- In the confined rotational crop study where soya beans were planted 30-days after a 3.1 kg ai/ha application of acetochlor to bare ground, TRR in the harvested soya beans were low. Scaled to an application rate of 1.12 kg ai/ha, the TRR in soya bean seed were 0.03 mg equiv/kg.
- A comparison of residues following a single application of 3.4 kg ai/ha at growth stage R1/R2 with those following a pre-plant and two post-emergence applications of 1.12 kg ai/ha each shows the post-emergence application at growth stage R1/R2 accounts for most of the residues at harvest, see figure below. Although the total applied acetochlor is (3.4 kg ai/ha) is the same for the two treatments, the application rate at growth stage R1/R2 for the single spray at 3.4 kg ai/ha is 3 × the application rate at growth stage R1/R2 for three applications at 1.12 kg ai/ha. If all residues in seed at harvest were due to the R1/R2 application alone, the residues following the three applications should be 3 × those following the single application. On average, the ratio of residues in seed at each site is 2.5, indicating that the last post-emergence application contributes most to the residues in seed.



- The pre-plant application (included in the residue study treatment but not in the cGAP) makes a negligible contribution to residues at harvest, compared to the two subsequent post-emergence applications at growth stages V3 and R1/R2.

Comments by JMPR

The Meeting noted that the trials submitted to the 2015 JMPR either involved a single post-emergent application at a nominal rate of 3.4 kg ai/ha at growth stage R1-R2 (beginning flowering to full flowering) or three applications, one pre-plant (45 days prior to planting), and two post-emergence (3^{rd} trifoliate leaf and R1-R2), each nominally at 1.12 kg ai/ha to give a seasonal application rate of 3.4 kg ai/ha.

The CCPR developed "Principles and guidance for application of the proportionality concept for estimation of maximum residue limits for pesticides" that restrict the use of the proportionality approach. Principle 4 states "*Scaling is only acceptable if the application rate is the* only *deviation from critical GAP (cGAP). In agreement with JMPR practice, additional use of the ±25% rule for other parameters such as PHI is not acceptable. For additional uncertainties introduced, e.g. use of global residue data, these need to be considered on a case-by-case basis so that the overall uncertainty of the residue estimate is not increased*".

The available trials utilised three applications compared to critical GAP which is two post-emergent applications, each at 1.7 kg ai/ha with the last prior to full flowering (R2 growth stage). The 2015 JMPR considered trials with three applications could be considered for use of the proportionality approach if the initial pre-emergent application did not contribute to the final residue. However, pre-plant and pre-emergence applications give rise to residues in soya beans at harvest as noted above. In a rotational crop study residues in soya bean follow crops were planted 253-425 days after application to a primary maize crop at 2.2 kg ai/ha, residues in grain ranged from < 0.02 to

0.1 mg/kg suggesting the pre-plant application might contribute < 0.02 to 0.05 mg/kg to the terminal residue.

The Meeting confirmed its previous conclusion that, based on the CCPR principles and guidance, the data are not suitable for the application of the proportionality approach. With regards to maize, application of the proportionality approach by the 2015 JMPR was possible as in that case, residues at harvest from the pre-plant applications were <LOQ.

3.1.2 Chlorothalonil (081)

se of chlorothalonil on cranberries were evaluated by the 2015 JMPR, concluding storage stability data for both parent chlorothalonil and its metabolite SDS-3701 indicated a potential degradation within 10 months, which was the only interval tested. Samples from supervised field trials have been stored for such an interval and were therefore considered invalid by the Meeting.

At the 48th Session of the CCPR, the USA raised a concern to this decision, pointing out that under consideration of the procedural recovery data correction for the degradation could be made and that a dietary intake concern does not arise from residues of chlorothalonil in cranberries.

The Meeting reviewed the data submitted in 2015. In the respective storage stability study residues recovered in cranberry samples were generally below 70% for both analytes (55–70% for chlorothalonil, 38–39% for SDS-3701). In addition, procedural recoveries were also below 70% for both analytes (58–64% for chlorothalonil, 66-74% for SDS-3701). Since both, fortified sample recoveries and procedural recoveries were below 70%, the study is generally unsuitable to draw conclusions on the stability of chlorothalonil and SDS-3701 residues in cranberries. The Meeting therefore confirms its previous conclusion on the invalidity of the study.

3.1.3 Flonicamid (282)

Background

At the 48th Meeting of the Codex Committee on Pesticide Residues (CCPR), the JMPR Secretariat advised the Committee that the livestock dietary burden for flonicamid would be reviewed by the 2016 JMPR and the Committee agreed to hold the proposed draft MRLs for commodities of animal origin and for animal feed (and associated) commodities at Step 4 and to advance all other proposed draft MRLs to Step 5/8.

The Committee noted that the USA had submitted a concern form requesting a review of the JMPR decision on MRLs for cucurbits based upon the greenhouse cucumber data. The JMPR Secretariat clarified that with the current principle JMPR was not able to make an estimation on MRLs for cucurbits but that the 2016 JMPR would provide a reply to the concern form for consideration by CCPR49.

JMPR responses

Fruiting vegetables, Cucurbits

The label from the USA allows foliar or soil/growth media applications to greenhouse cucumbers. Based on the supervised residue trials on greenhouse cucumbers reviewed by the 2015 Meeting, the foliar application was determined to be the method which resulted in the highest residues (0.54 mg/kg). Due to there being only four trials matching the critical GAP of the USA, the Meeting considered these trials insufficient to recommend a maximum residue level for greenhouse cucumbers. The Meeting confirms its previous recommendation of a maximum residue level of 0.2 mg/kg and an STMR of 0.04 mg/kg for Fruiting Vegetables, Cucurbits.

Residues in animal commodities

The estimated dietary burdens of farm animals and the estimated maximum residue levels for animal commodities were recalculated by the current Meeting to incorporate livestock feeds from the *Brassica* leafy vegetables subgroup (e.g., kale, turnip tops/greens, etc.), as recommended by the 2015 JMPR, using the estimated HR of 8.31 mg/kg and STMR of 4.59 mg/kg for mustard greens.

Estimated dietary burdens of farm animals

Maximum and mean dietary burden calculations for flonicamid are based on the feed items evaluated for cattle and poultry as presented in Annex 6. The calculations were made according to the livestock diets from Australia, the EU, Japan and US-Canada in the OECD feeding table.

	Livestock dietary burden, flonicamid, ppm of dry matter							
	US-Canada		EU		Australia		Japan	
	Max	Mean	Max	Mean	Max	Mean	Max	Mean
Beef cattle	0.27	0.13	17.6	10.1	27.7[A]	15.3[B]	0.005	0.005
Dairy cattle	0.12	0.12	11.2	6.2	22.2[C]	12.2[D]	0.003	0.003
Poultry - broiler	0.03	0.03	0.008	0.008	0.02	0.02	0	0
Poultry-layer	0	0	2.8[E]	1.5[F]	0	0	0	0

[A] Suitable for MRL estimates for mammalian meat, fat and edible offal

[B]. Suitable for STMR estimates for mammalian meat, edible offal

[C]. Suitable for MRL estimates for milks

[D]. Suitable for STMR estimates for milks

[E] Suitable for MRL estimates for eggs, meat, fat and edible offal of poultry

[F] Suitable for STMR estimates for eggs, meat, fat and edible offal of poultry

Animal commodities maximum residue level estimation

	Feed level (ppm) for milk residues	Total flonicamid and TFNA-AM residues in milk (mg/kg)	Feed level for tissue residues (ppm)	Flonicamid and TFNA-AM Residues			
				Muscle	Liver	Kidney	Fat
Maximum residue level - beef or dairy cattle							
Feeding study	6.89 23.69	0.03 0.11	6.89 23.69	0.06 0.11	0.07 0.15	0.06 0.15	<0.02 0.03
Dietary burden and residue estimate	22.2	0.10	27.7	0.12	0.17	0.17	0.03
STMR - beef or dairy cattle							
Feeding study	6.89 23.69	0.03 0.10	6.89 23.69	0.05 0.08	0.06 0.14	0.06 0.13	0.02 0.02
Dietary burden and residue estimate	12.2	0.05	15.3	0.06	0.10	0.10	0.02

	Feed level (ppm) for egg residues	Total flonicamid and TFNA-AM residues in eggs (mg/kg)	Feed level for tissue residues (ppm)	Flonicamid and TFNA-AM Residues		
				Muscle	Liver	Fat
Maximum residue level – poultry broiler or layer						
Feeding study	2.51 7.47	0.11 0.38	2.51 7.47	0.07 0.20	0.08 0.20	0.04 0.09
Dietary burden and residue estimate	2.8	0.12	2.8	0.08	0.09	0.04
STMR – poultry broiler or layer						
Feeding study	0.26 2.51	0.02 0.10	0.26 2.51	<0.02 0.06	<0.02 0.06	<0.02 0.03
Dietary burden and residue estimate	1.5	0.06	1.5	0.04	0.04	0.04

The Meeting recommends the maximum residue levels of 0.05 mg/kg for mammalian fats and 0.15 mg/kg for each, meat from mammals other than marine mammals and milks and 0.20 mg/kg for edible offal (mammalian), to replace those estimated at the 2015 Meeting. The STMRs for mammalian fats, milks, meat from mammals other than marine mammals and edible offal (mammalian) are 0.02 mg/kg, 0.05 mg/kg, 0.06 mg/kg and 0.10 mg/kg, respectively.

In addition, the Meeting recommends maximum residue levels of 0.15 mg/kg for eggs, 0.05 mg/kg for poultry fats and 0.10 mg/kg for each, edible offal and meat of poultry, to replace those estimated at the 2015 Meeting. The STMR is 0.06 mg/kg for eggs and 0.04 mg/kg for each meat, edible offal and fat.

Dietary risk assessment

Long-term dietary exposure

The International Estimated Dietary Intakes (IEDIs) of flonicamid were re-calculated for the 17 GEMS/Food cluster diets using revised STMRs for animal commodities estimated by the current Meeting (Annex 3). The ADI is 0–0.07 mg/kg bw and the calculated IEDIs were 0–10% of the maximum ADI. The Meeting concluded that the long-term exposure to residues of flonicamid, resulting from the revised dietary burdens is unlikely to present a public health concern.

Short-term dietary exposure

No ARfD was considered necessary. The Meeting concluded that the short-term dietary exposure to flonicamid residues from uses considered by the present Meeting is unlikely to present a public health concern.

3.1.4 Penthiopyrad (253)

The Meeting received confirmative GAP information from Australia for consideration, since maximum residue levels for penthiopyrad are currently retained at Step 4 awaiting JMPR assessment of an animal dietary burden that excludes forage and fodder crops from the Australian diet. In addition, consideration of an alternative GAP for mustard greens should be explored since an exceedance of the ARfD (150%) was identified for this commodity based on US GAP. No study data were submitted to the current Meeting.

The Meeting noted that the confirmative Australian GAP information submitted for penthiopyrad is identical to the Australian GAP already considered by the 2013 Meeting. It was also noted, that the maximum and mean dietary burdens of livestock animals estimated by the 2013

Meeting already considered the registered Australian uses. In 2013 it was decided to exclude feed and fodder commodities (e.g., soya bean forage and fodder) from the calculation for the Australian livestock animal dietary burden, as penthiopyrad is not registered for such uses in Australia and respective feed items are not imported due to quarantine constraints. Thus the maximum and mean livestock animal dietary burdens for ruminants and poultry were estimated for the US-Canadian and EU region, respectively, which were also the basis for the estimation of maximum residue levels, STMR and HR values in animal commodities.

Since both the US-Canadian and the EU livestock animal dietary burdens are unaffected by the confirmative Australian GAP information sent to this Meeting, the 2013 recommendations for penthiopyrad in animal commodities are confirmed. The Meeting points out, that the maximum residue levels recommended in 2013 for penthiopyrad are already based on a refined estimation of the livestock animal dietary burden and that residues in animal commodities were derived using intrapolation between dose levels of the feeding studies available.

GAP information provided by Australia allowed no consideration for an alternative GAP for mustard greens. Supervised field trial data on mustard greens are available from Canada and the USA (see 2012 Evaluation), but did not match the newly submitted GAP information from Australia.

3.2 OTHER MATTERS OF INTEREST

3.2.1 Bentazone (172)

Background

Bentazone is the International Organization for Standardization (ISO)–approved common name for 3-isopropyl-1*H*-2,1,3-benzothiadiazin-4(3*H*)-one-2,2-dioxide (International Union of Pure and Applied Chemistry), with the Chemical Abstracts Service (CAS) number 25057-89-0. Bentazone is a post-emergence herbicide that acts by interfering with photosynthesis.

Bentazone was evaluated by JMPR in 2012, as part of the periodic review programme of the Codex Committee on Pesticide Residues (CCPR). The 2012 Meeting established an acceptable daily intake (ADI) of 0–0.09 mg/kg body weight (bw), based on a no-observed-adverse-effect level (NOAEL) of 9 mg/kg bw per day from a 2-year study of toxicity and carcinogenicity in rats for prolonged blood coagulation and clinical chemistry changes indicative of effects on liver and kidney at 35 mg/kg bw per day and application of a safety factor of 100. The 2012 Meeting also reaffirmed its previous conclusion that no acute reference dose (ARfD) was necessary, as the Meeting considered that the post-implantation loss seen in the rat developmental toxicity study was not caused by a single dose and that no other effects were observed in repeated-dose toxicity studies that could be due to a single dose.

During the review of the background document on bentazone for the development of the WHO Guidelines for Drinking-water Quality, which was based on the 2012 JMPR evaluation, two comments were received that pertained to JMPR’s conclusion that an ARfD for bentazone was unnecessary. The first comment, received from the European Food Safety Authority (EFSA), referred to its evaluation of bentazone, published in 2015, which concluded that an ARfD of 1 mg/kg bw was required based on the NOAEL of 100 mg/kg bw per day for increased post-implantation loss, reduced number of live fetuses and retarded fetal development observed in the developmental toxicity study in rats and application of an uncertainty factor of 100. The second comment, from Health Canada, identified an acute neurotoxicity study in rats, published in 2012, that was used by the USEPA in 2014 to set an ARfD of 0.5 mg/kg bw.

JMPR, at its meeting in 2015, recommended that bentazone be re-evaluated specifically to determine whether there is a need to establish an ARfD.

Biochemical and toxicological data

Several new biochemical and toxicological studies were made available to the present Meeting. The Meeting evaluated these studies and concluded that only the acute neurotoxicity study would have an impact on the consideration of the need to establish an ARfD for bentazone.

In an acute neurotoxicity study in which rats were administered bentazone by gavage at a single dose of 0, 50, 150 or 400 mg/kg bw, the NOAEL was 50 mg/kg bw, based on decreased motor activity in males observed on day 0 at 150 mg/kg bw.

Toxicological evaluation

Owing to the availability of new data, the Meeting established an ARfD of 0.5 mg/kg bw, based on a NOAEL of 50 mg/kg bw for decreased motor activity in males observed on day 0 in an acute neurotoxicity study in rats, using a safety factor of 100.

An addendum to the toxicological monograph was prepared.

Residue and analytical aspects

Bentazone, a post-emergence herbicide to control dicotyledonous weeds, it was originally evaluated by the JMPR in 1991 and re-evaluated under the periodic review program for toxicology in 2012 and for residues in 2013. The 2012 JMPR established an ADI for bentazone of 0-0.09 mg/kg bw and concluded that no ARfD was necessary. In the present Meeting, the WHO Core Assessment Group reviewed new data and established an ARfD for bentazone of 0.5 mg/kg bw.

Based on the uses assessed by the 2013 Meeting, the short-term dietary exposure for bentazone was estimated by the present Meeting. In the 2013 Meeting, the following residue definition was derived by the Meeting:

Definition of the residue (for compliance with the MRL and for dietary risk assessment for plant and animal commodities): *bentazone*

The residue is not fat soluble.

Dietary risk assessment

In 2013 no HR values were derived for bentazone by the Meeting. Based on the highest residues from datasets used for recommendations, the following HR values were estimated for the short-term dietary exposure calculation, if required: onion, bulb (0.02 mg/kg); spring onions (0.04 mg/kg); sweet corn on the cob (0.01 mg/kg); peas (pods and succulent = immature seeds) (0.74 mg/kg); beans except broad beans and soya beans (0.01 mg/kg); beans, shelled (0); potato (0.06 mg/kg); peanuts (0); herbs, except dry hops (0.05 mg/kg); poultry meat (0); poultry fats (0); poultry edible offal (0) and eggs (0).

Long-term dietary exposure

No changes to the established ADI of 0-0.09 mg/kg bw or additional GAPs were considered by the current Meeting. The previous conclusion, that the long-term exposure to residues of bentazone, resulting from the uses that have been considered by JMPR, is unlikely to present a public health concern, is confirmed.

Short-term dietary exposure

The International Estimated Short term Intake (IESTI) for bentazone was calculated for all food commodities (and their processed fractions) for which recommendations were made by the 2013 Meeting and for which consumption data were available. The results are shown in Annex 4 of the 2016 Report.

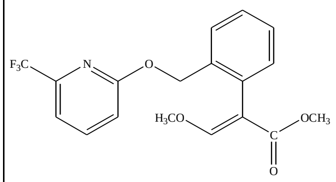
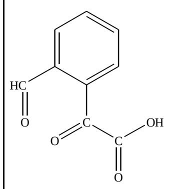
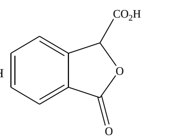
For benntazone the IESTI represented 0-1% of the ARfD (0.5 mg/kg bw) for the general population and 0-3% of the ARfD for children. On the basis of information provided to the Meeting it was concluded that the short-term exposure to residues of bentazone, when used in ways that have been considered by the JMPR, is unlikely to present a public health concern.

3.2.2 Picoxystrobin (258)

Background

Picoxystrobin was evaluated as a new compound by the 2012 JMPR for toxicology and residues. The 2012 JMPR established an ADI of 0-0.09 mg/kg bw for picoxystrobin and an ARfD of 0.09 mg/kg bw.

The 2012 JMPR proposed a residue definition for enforcement of picoxystrobin and estimated a number of maximum residue levels. However, the 2012 JMPR was unable to conclude on the toxicological relevance of two metabolites IN-H8612 and 2-(2-formylphenyl)-2-oxoacetic acid tentatively identified in plant metabolism studies, for which IEDIs were above the threshold of toxicological concern of 0.15 µg/person/day for compounds with alerts for genotoxicity. As a result, it was not possible to propose a residue definition for dietary risk assessment or calculate dietary intakes, and maximum residue levels were not recommended.

Common names	Chemical name	Structure
Picoxystrobin, ZA 1963, DPX-YT669	Methyl (E)-3-methoxy-2-[2-(6-trifluoromethyl-2-pyridyloxymethyl)-phenyl]acrylate	
IN-H8612	1,3-Dihydro-3-oxoisobenzofuran-1-carboxylic acid	 
	2-(2-Formylphenyl)-2-oxoacetic acid	

The 2013 JMPR received additional toxicological data (a mouse micronucleus study) for IN-H8612 which showed no evidence of genotoxicity. Conservative estimates for chronic and acute exposure to IN-H8612 were both below the relevant TTC values for Cramer class III compounds with no evidence of genotoxicity. The 2013 JMPR concluded that there was no concern for dietary exposure to IN-H8612. However, no toxicological data were submitted for 2-(2-formylphenyl)-2-oxoacetic acid, as the compound was unable to be synthesised in sufficient amounts. Although argument was provided that levels in soya beans were likely to be extremely low, the 2013 JMPR concluded that genotoxicity data or additional residues information would be required to allow further evaluation of 2-(2-formylphenyl)-2-oxoacetic acid.

Assessment of new data

During the current Meeting, the FAO panel received a new metabolism study for picoxystrobin in soya bean intended to address the concerns regarding 2-(2-formylphenyl)-2-oxoacetic acid, which was reported as a metabolite in mature seed in the soya bean metabolism study considered by the 2012 JMPR.

A preliminary evaluation of the new study indicates that the metabolic pathway for picoxystrobin in soya beans is broadly similar to that observed in the earlier study. Metabolites identified in the new soya bean study were mostly also identified in the plant metabolism studies provided to the 2012 JMPR (for wheat, canola, soya bean and rotational crops).

The 2-(2-formylphenyl)-2-oxoacetic acid metabolite was not identified in the new soya bean study. The Meeting noted that IN-H8612 was a significant metabolite in soya bean matrices in the new study, particularly mature seed. Further, IN-H8612 is a structural isomer of 2-(2-formylphenyl)-2-oxo-acetic acid, and in chromatography conducted for the new metabolism study, IN-H8612 was reported as eluting as two peaks.

Conclusion

The Meeting concluded that further information was required on the possible interconversion of IN-H8612 and 2-(2-formylphenyl)-2-oxoacetic acid, possibly through ring-chain tautomerism.

4. DIETARY RISK ASSESSMENT FOR PESTICIDE RESIDUES IN FOOD

4.1 Long-term dietary exposure

At the present Meeting, an International Estimated Daily Intake (IEDI) was calculated for each compound for which an ADI was established, by multiplying the median concentrations of residues (STMRs and/or STMR-Ps) for each commodity for which maximum residue levels were recommended by the average daily per capita consumption estimated on the basis of the 17 GEMS/Food Consumption cluster diets[1]. Detailed description of the method is in the Environment Health Criteria 240 (EHC 240)[2].

The long-term dietary risk assessment was not conducted for sulfoxaflor as no new recommendations for maximum residue levels were made.

Fenpropimorph was evaluated for toxicology and an ADI and ARfD were established. Long-term and short-term dietary risk assessments will be conducted when the compound is evaluated for residues.

These IEDIs are expressed as a percentage of the upper bound of the ADIs for a 55 kg or 60 kg person, depending on the cluster diet (Table 1). The spreadsheet application is available at http://www.who.int/foodsafety/areas_work/chemical-risks/gems-food/en/.

The detailed calculations of chronic dietary exposure assessments are given in Annex 3.

Table 1: Summary of chronic dietary exposure assessments (IEDI)

CCPR code	**Compound name**	**ADI (mg/kg body weight)**	**Range of IEDI, as % of the upper bound of the ADI**
288	Acibenzolar-*S*-methyl	0–0.08	0–1
261	Benzovindiflupyr	0–0.05	0–2
172	Bentazone	0–0.09	0
262	Bixafen	0–0.02	1–9
173	Buprofezin	0–0.009	0–40
230	Chlorantraniliprole	0–2	0–1
135	Deltamethrin	0–0.01	0–50
225	Dimethomorph	0–0.2	0–2
202	Fipronil	0–0.0002	20–90
282	Flonicamid	0–0.07	0–10
283	Fluazifop-P-butyl	0–0.004	40–160
265	Fluensulfone	0–0.01	1–3
285	Flupyradiflurone	0–0.08	7–20
289	Imazethapyr	0–0.6	0
290	Isofetamid	0–0.05	0–1
147	Methoprene assessed as S-methoprene (see below)	0–0.09	
147	S-Methoprene	0–0.05	10–60
278	Metrafenone	0–0.3	0–10
291	Oxathiapiprolin	0–4	0
182	Penconazole	0–0.03	0–3
292	Pendimethalin	0–0.1	0

[1] https://extranet.who.int/sree/Reports?op=vs&path=/WHO_HQ_Reports/G7/PROD/EXT/GEMS_cluster_diets_2012&userid=G7_ro&password=inetsoft123

[2] http://apps.who.int/iris/bitstream/10665/44065/9/WHO_EHC_240_9_eng_Chapter6.pdf

CCPR code	Compound name	ADI (mg/kg body weight)	Range of IEDI, as % of the upper bound of the ADI
293	Pinoxaden	0–0.1	0–1
251	Saflufenacil	0–0.05	2–20
294	Spiromesifen	0–0.03	2–20
190	Teflubenzuron	0–0.005	1–30
269	Tolfenpyrad	0–0.006	0–8

4.2 Short-term dietary exposure

At the present Meeting, an International Estimated Short-Term Intake (IESTI) was calculated for compounds for which an Acute Reference Dose was established. For each relevant food commodity, the highest expected residue (HR or HR-P) and the highest large portion data for general population (all ages), women of childbearing age (14–50 years), and children (6 years and under) were used for the calculation of the IESTI. Detailed description of the method is in the Environment Health Criteria 240 (EHC 240)[1].

These IESTI results are expressed as a percentage of the ARfD (Table 2). The spreadsheet application is available at: http://www.who.int/foodsafety/areas_work/chemical-risks/gems-food/en/

The Meeting agreed that an ARfD for imazethapyr, oxathiapiprolin, spiromesifen and teflubenzuron were unnecessary and short-term dietary exposure assessments were not conducted.

The detailed calculations of acute dietary exposure are given in Annex 4 to the 2016 Report.

Table 2 Summary of acute dietary exposure assessments (IESTI)

CCPR code	Compound name	ARfD (mg/kg bw)	Max. percentage of ARfD and exceedances	
				For exceedances, population, age in years (country)
288	Acibenzolar-*S*-methyl	0.5	10	
261	Benzovindiflupyr	0.1	70	
172	Bentazone	0.5	3	
262	Bixafen	0.2	20	
173	Buprofezin	0.5	0	
135	Deltamethrin	0.05	0	
225	Dimethomorph	0.6	60	
202	Fipronil	0.003	20	
283	Fluazifop-P-butyl	0.4	40	
265	Fluensulfone	0.3	9	
285	Flupyradiflurone	0.2	Spinach (130) Spinach (420) Leaf lettuce (250) Mustard greens (250) Mustard greens (610) Celery (120) Others (80)	General population (South Africa) Children (South Africa) Children (China) General population (China) Children (China) Children (China)
290	Isofetamid	3	10	
182	Penconazole	0.8	10	
292	Pendimethalin	1	10	

1 http://apps.who.int/iris/bitstream/10665/44065/9/WHO_EHC_240_9_eng_Chapter6.pdf

CCPR code	Compound name	ARfD (mg/kg bw)	Max. percentage of ARfD and exceedances	
				For exceedances, population, age in years (country)
293	Pinoxaden	0.3	1	
269	Tolfenpyrad	0.01	0	

Possible refinement when the IESTI exceeds the ARfD

As no alternative GAP was available to the Meeting to estimate a lower HR value, no refinement of the short-term dietary exposure is currently possible for the considered commodities.

The Meeting recognized that the ARfD for flupyradiflurone may be conservative and a refinement might be possible if new data became available.

The present Meeting recognised that any refinement of the ARfD for flupyradiflurone is unlikely to result in an increase of sufficient magnitude that would alter the conclusion that short-term dietary exposure of flupyradiflurone from the consumption of spinach, leaf lettuce, mustard greens and celery may represent a public health concern.

5. EVALUATION OF DATA FOR ACCEPTABLE DAILY INTAKE AND ACUTE REFERENCE DOSE FOR HUMANS, MAXIMUM RESIDUE LEVELS AND SUPERVISED TRIALS MEDIAN RESIDUE VALUES

5.1 ACIBENZOLAR-*S*-METHYL (288)

TOXICOLOGY

Acibenzolar-*S*-methyl is the ISO-approved common name for *S*-methyl 1,2,3-benzothiadiazole-7-carbothioate (IUPAC), with the CAS number 135158-54-2. It is a fungicide in the benzothiadiazole class.

Acibenzolar-*S*-methyl has not been evaluated previously by JMPR and was reviewed by the present Meeting at the request of CCPR.

All critical studies contained statements of compliance with good laboratory practice (GLP) and were conducted in accordance with relevant national or international test guidelines, unless otherwise indicated.

Biochemical aspects

Acibenzolar-*S*-methyl was rapidly absorbed after oral administration to rats. The maximum concentration in plasma was reached within 4 hours, and excretion was rapid (90% for the low dose and 70% for the high dose in the first 24 hours) and predominantly in the urine. The amount of radiolabel eliminated in the faeces was less than 5%. The route and rate of excretion were independent of the sex, dose level and treatment regimen. At low and repeated doses, quantifiable levels of radioactivity were detected only in the liver and kidney. There were no indications of a potential for acibenzolar-*S*-methyl to accumulate in tissues.

The biotransformation of acibenzolar-*S*-methyl in the rat was predominantly by 1) cleavage of the *S*-methyl ester moiety, leading to the corresponding carboxylic acid, 1,2,3-benzothiadiazole-7-carboxylic acid or acibenzolar acid (CGA210007/A2079A), and subsequent conjugation with glycine or glucuronic acid; 2) reduction of the carboxylic group of acibenzolar acid, leading to the alcohol benzo[1,2,3]thiadiazole-7-yl-methanol (CGA243093); and 3) hydroxylation of the phenyl ring of acibenzolar acid, leading to the hydroxyacids 5-hydroxy acibenzolar acid (CGA324041) and 4-hydroxy acibenzolar acid (CGA323060). The major metabolite of acibenzolar-*S*-methyl was acibenzolar acid. No unchanged parent was detected in the urine.

Toxicological data

The acute oral toxicity of acibenzolar-*S*-methyl was low. The oral median lethal dose (LD_{50}) in rats was greater than 2000 mg/kg bw. The dermal LD_{50} in rats was greater than 2000 mg/kg bw. The single-exposure 4-hour acute inhalation median lethal concentration (LC_{50}) was greater than 5 mg/L in rats. Acibenzolar-*S*-methyl showed slight skin irritation in one study in rabbits, but not in another study using the same strain of rabbit. Acibenzolar-*S*-methyl was slightly irritating to rabbit eyes in one study, but not in another study. Acibenzolar-*S*-methyl caused dermal sensitization in the guinea-pig (maximization method).

The main toxic effects of acibenzolar-*S*-methyl in short- and long-term toxicity studies were haemolytic effects and related changes observed in spleen, liver or bone marrow of mice, rats and dogs.

In a 3-month oral toxicity study in mice fed acibenzolar-*S*-methyl at a dietary level of 0, 200, 1000 or 4000 parts per million (ppm) (equal to 0, 30.6, 152 and 624 mg/kg bw per day for males and 0, 47.4, 220 and 803 mg/kg bw per day for females, respectively), the NOAEL was 200 ppm (equal to

30.6 mg/kg bw per day), based on increased haemosiderosis in the spleen at 1000 ppm (equal to 152 mg/kg bw per day).

In a 28-day oral toxicity study in rats administered acibenzolar-*S*-methyl by oral gavage at a daily dose of 0, 10, 100 or 800 mg/kg bw per day, the NOAEL was 100 mg/kg bw per day, based on haemolytic effects and related changes in haematology, bone marrow and spleen and lower body weights at 800 mg/kg bw per day.

In a 90-day oral toxicity study in rats administered acibenzolar-*S*-methyl in the diet at a level of 0, 40, 400, 2000 or 8000 ppm (equal to 0, 2.42, 24.6, 126 and 516 mg/kg bw per day for males and 0, 2.64, 26.3, 131 and 554 mg/kg bw per day for females, respectively), the NOAEL was 2000 ppm (equal to 126 mg/kg bw per day), based on lower body weights and feed consumption, slight haemolytic effects and histopathological findings in the spleen and liver at 8000 ppm (equal to 516 mg/kg bw per day).

In a 90-day oral toxicity study in dogs treated with acibenzolar-*S*-methyl in gelatine capsules at 0, 10, 50 or 200 mg/kg bw per day, the NOAEL was 50 mg/kg bw per day, based on haemolytic effects and related histopathological changes in the spleen at 200 mg/kg bw per day.

In a 52-week oral toxicity study in dogs administered acibenzolar-*S*-methyl in gelatine capsules at a dose of 0, 5, 25 or 200 mg/kg bw per day, the NOAEL was 25 mg/kg bw per day, based on haemolytic effects and related histopathological changes in the spleen and hepatotoxicity at 200 mg/kg bw per day. The marginal decreases in haematological parameters at 25 mg/kg bw per day were not considered adverse.

In an 18-month carcinogenicity study in mice administered acibenzolar-*S*-methyl at a dietary concentration of 0, 10, 100, 2000 or 6000 ppm (equal to 0, 1.14, 11.1, 237 and 698 mg/kg bw per day for males and 0, 1.14, 10.8, 234 and 696 mg/kg bw per day for females, respectively), the NOAEL was 100 ppm (equal to 10.8 mg/kg bw per day), based on haemosiderosis in the spleen at 2000 ppm (equal to 234 mg/kg bw per day). No treatment-related increase in tumour incidence was observed.

In a 2-year toxicity and carcinogenicity study in rats administered acibenzolar-*S*-methyl at a dietary concentration of 0, 20, 200, 2500 or 7500 ppm (equal to 0, 0.77, 7.77, 96.9 and 312 mg/kg bw per day for males and 0, 0.90, 9.08, 111 and 388 mg/kg bw per day for females, respectively), the NOAEL was 200 ppm (equal to 7.77 mg/kg bw per day), based on lower body weights and haemosiderosis in the spleen at 2500 ppm (equal to 96.9 mg/kg bw per day). No treatment-related increase in tumour incidence was observed.

The Meeting concluded that acibenzolar-*S*-methyl is not carcinogenic in mice or rats.

Acibenzolar-*S*-methyl was tested for genotoxicity in an adequate range of assays, both in vitro and in vivo. No evidence of genotoxicity was found.

The Meeting concluded that acibenzolar-*S*-methyl is unlikely to be genotoxic.

On the basis of the lack of genotoxicity and the absence of carcinogenicity in mice and rats, the Meeting concluded that acibenzolar-*S*-methyl is unlikely to pose a carcinogenic risk to humans.

In a two-generation reproductive toxicity study, male and female rats were given acibenzolar-*S*-methyl in the diet at a concentration of 0, 20, 200, 2000 or 4000 ppm (equal to, respectively, 0, 1.5, 15.3, 155 and 306 mg/kg bw per day for males and 0, 1.6, 16.2, 167 and 321 mg/kg bw per day for females in the F_0 generation; and 0, 1.7, 17.2, 169 and 356 mg/kg bw per day for males and 0, 1.7, 17.5, 173 and 364 mg/kg bw per day for females in the F_1 generation at premating). The NOAEL for parental toxicity was 200 ppm (equal to 15.3 mg/kg bw per day), based on increased severity of splenic haemosiderosis in both males and females in the F_0 and F_1 generations at 2000 ppm (equal to 155 mg/kg bw per day). The NOAEL for offspring toxicity was 200 ppm (equal to 16.2 mg/kg bw per day), based on reduced pup body weight and body weight gain in the F_1 and F_2 generations at 2000 ppm (equal to 167 mg/kg bw per day). The NOAEL for reproductive toxicity was 4000 ppm (equal to 306 mg/kg bw per day), the highest dose tested.

Two developmental toxicity studies were conducted in two different laboratories with related strains of rats. In the first study, pregnant rats were administered acibenzolar-*S*-methyl by gavage at a dose level of 0, 10, 50, 200 or 400 mg/kg bw per day during gestation days 6–15. The NOAEL for maternal toxicity was 50 mg/kg bw per day, based on decreased feed consumption in dams at 200 mg/kg bw per day. The NOAEL for embryo/fetal toxicity was also 50 mg/kg bw per day, based on an equivocal increase in visceral malformations, including anophthalmia and microphthalmia in one litter, at 200 mg/kg bw per day. At 400 mg/kg bw per day, there was marked maternal toxicity, and the incidences of resorptions and of malformations and skeletal anomalies were significantly increased.

In the second developmental toxicity study in rats administered acibenzolar-*S*-methyl by gavage at a dose level of 0, 10, 75, 150 or 350 mg/kg bw per day during gestation days 6–15, the NOAEL for maternal toxicity was 350 mg/kg bw per day, the highest dose tested. The NOAEL for embryo/fetal toxicity was 150 mg/kg bw per day, based on an increased incidence of skeletal variation in lumbar ribs at 350 mg/kg bw per day. No treatment-related malformations were observed.

Two additional studies were conducted to clarify the critical period for embryotoxicity, including malformations, observed in the first developmental toxicity study in rats. In the first additional study, pregnant rats were administered acibenzolar-*S*-methyl by gavage at 400 mg/kg bw per day for 2 consecutive days (gestation days 6–7, 8–9, 10–11, 12–13 or 14–15). Although there was no increase in malformations, treatment with acibenzolar-*S*-methyl during gestation days 6–11 caused embryotoxicity (decreased fetal weight, increased post-implantation loss) and maternal toxicity (clinical signs).

In the second additional study, acibenzolar-*S*-methyl was administered by gavage at 300 mg/kg bw per day during various periods, such as gestation days 6–15, 6–7, 8–9, 10–11, 12–13 and 14–15. Maternal toxicity (decreased body weight gain and clinical signs) was observed at all durations except gestation days 14–15. The treatment during gestation days 6–15 caused embryo/fetal toxicity (decreased fetal weight, increased post-implantation loss), but there was no indication of teratogenicity.

In a developmental toxicity study in rabbits administered acibenzolar-*S*-methyl by gavage at a dose of 0, 10, 50, 300 or 600 mg/kg bw per day during gestation days 7–19, the NOAEL for maternal toxicity was 50 mg/kg bw per day, based on increased mortality of dams at 300 mg/kg bw per day and above. The NOAEL for embryo/fetal toxicity was 300 mg/kg bw per day, based on a slight increase in skeletal anomalies at 600 mg/kg bw per day. Acibenzolar-*S*-methyl was not teratogenic in rabbits in this study.

The Meeting concluded that acibenzolar-*S*-methyl has a potential for teratogenicity in rats at dose levels causing marked maternal toxicity. The Meeting noted that the malformations observed in one study at 200 mg/kg bw per day were equivocal, as they were not reproducible in three follow-up studies at the same or higher doses. The Meeting concluded that acibenzolar-*S*-methyl was not teratogenic in rabbits.

In an acute neurotoxicity study in rats administered acibenzolar-*S*-methyl by gavage at a dose of 0 or 2000 mg/kg bw, the NOAEL for acute neurotoxicity in rats was 2000 mg/kg bw, the highest dose tested.

In a 90-day neurotoxicity study in rats fed diets containing acibenzolar-*S*-methyl at a concentration of 0, 400, 2000 or 8000 ppm (equal to 0, 24.4, 126 and 575 mg/kg bw per day for males and 0, 26, 143 and 628 mg/kg bw per day for females, respectively), the NOAEL was 2000 ppm (equal to 126 mg/kg bw per day), based on lower body weight gain and feed consumption at 8000 ppm (equal to 575 mg/kg bw per day). Acibenzolar-*S*-methyl was not neurotoxic at 8000 ppm (equal to 575 mg/kg bw per day), the highest dose tested.

In a developmental neurotoxicity study, rats were administered acibenzolar-*S*-methyl in the diet at 0, 100, 1000 or 4000 ppm (equal to 0, 8.2, 82 and 326 mg/kg bw per day during gestation and 0, 15.5, 154 and 608 mg/kg bw per day during lactation, respectively) from gestation days 7 to 22.

The NOAEL for maternal toxicity was 326 mg/kg bw per day, the highest dose tested. The NOAEL for systemic toxicity in offspring was 82 mg/kg bw per day, based on lower body weights at 326 mg/kg bw per day. The NOAEL for developmental neurotoxicity in rats was 82 mg/kg bw per day, based on a decrease in the thickness of the molecular layer in the cerebellum in males at postnatal day 63 and an increase in responses to auditory startle amplitude in females at postnatal day 23 at 326 mg/kg bw per day.

The Meeting concluded that acibenzolar-*S*-methyl was unlikely to be neurotoxic to humans at dietary exposure levels.

In an immunotoxicity study in female mice fed acibenzolar-*S*-methyl in the diet at a concentration of 0, 100, 500 or 2000 ppm (equal to 0, 15, 75 and 406 mg/kg bw per day, respectively) for 28 consecutive days, there was no evidence of toxicity or of an immunosuppressant effect. The NOAEL was 2000 ppm (equal to 406 mg/kg bw per day), the highest dose tested.

The Meeting concluded that acibenzolar-*S*-methyl is not immunotoxic.

On the basis of a number of mechanistic studies, the haemolytic effect induced by acibenzolar-*S*-methyl was not considered to be caused by antibody formation against acibenzolar-*S*-methyl or its serum albumin conjugate. The complete mode of action remains undetermined; however, a plausible mechanism leading to haemolytic anaemia was postulated through glutathione depletion in erythrocytes, altered haemoglobin and increased lipid peroxidation.

Toxicological data on metabolites and/or degradates

The main metabolite in rats is acibenzolar acid (CGA210007/CA2079A), which is also found in plants. The oral LD_{50} of acibenzolar acid in rats was greater than 2000 mg/kg bw. Acibenzolar acid was weakly irritating to the skin and eye of rabbits. Acibenzolar acid was weakly sensitizing or non-sensitizing in guinea-pigs (maximization test). In a 28-day oral toxicity study of acibenzolar acid in rats administered by gavage at a dose of 0, 10, 100, 300 or 1000 mg/kg bw per day, the NOAEL was 100 mg/kg bw per day, based on changes in haematological and blood chemistry analysis and gastrointestinal damage at 300 mg/kg bw per day. Acibenzolar acid was not genotoxic in vitro or in vivo. The toxicological profile of acibenzolar acid was similar to that of the parent.

Other minor metabolites, 4-hydroxy acibenzolar acid (CGA323060) (rat and plants), 5-hydroxy acibenzolar acid (CGA324041) (rat and plants) and 3-methanesulfinyl-benzoic acid (CGA379019) (rice only), showed low acute toxicity (LD_{50} > 2000 mg/kg bw), and benzo[1,2,3]thiadiazole-7-yl-methanol (CGA243093) (rat and plants) had an LD_{50} between 300 and 2000 mg/kg bw. All of the metabolites were negative in genotoxicity tests in vitro.

No other toxicological information is available. However, owing to the structural similarities of the three minor metabolites in rats with the parent, the Meeting concluded that they are unlikely to be of greater toxicity than the parent.

Human data

Acibenzolar-*S*-methyl and its formulations have been handled in large quantities for nearly 20 years at a number of sites with the use of appropriate control strategies, and no adverse health effects associated with the material have been reported in the workforce, with the exception of isolated cases of skin irritation and one case of respiratory tract irritation.

A search of the public literature did not reveal any relevant publications.

The Meeting concluded that the existing database for acibenzolar-*S*-methyl was adequate to characterize the potential hazards to the general population, including fetuses, infants and children.

Toxicological evaluation

The Meeting established an ADI of 0–0.08 mg/kg bw on the basis of the NOAEL of 7.77 mg/kg bw per day in a 2-year study in rats for haemosiderosis in the spleen in males observed at 96.9 mg/kg bw per day. A safety factor of 100 was applied.

The Meeting established an ARfD of 0.5 mg/kg bw on the basis of the NOAEL of 50 mg/kg bw per day in a rat developmental toxicity study for decreased maternal feed consumption early during treatment and an equivocal increase in malformations observed at 200 mg/kg bw per day. A safety factor of 100 was applied.

Acibenzolar acid (CGA210007/CA2079A), the major metabolite, is toxicologically similar to the parent and was considered to be covered by the ADI and ARfD of acibenzolar-*S*-methyl.

A toxicological monograph was prepared.

Levels relevant to risk assessment of acibenzolar-S-methyl

Species	**Study**	**Effect**	**NOAEL**	**LOAEL**
Mouse	Eighteen-month study of toxicity and carcinogenicity[a]	Toxicity	100 ppm, equal to 10.8 mg/kg bw per day	2 000 ppm, equal to 234 mg/kg bw per day
		Carcinogenicity	6 000 ppm, equal to 696 mg/kg bw per day[b]	–
Rat	Two-year study of toxicity and carcinogenicity[a]	Toxicity	200 ppm, equal to 7.77 mg/kg bw per day	2 500 ppm, equal to 96.9 mg/kg bw per day
		Carcinogenicity	7 500 ppm, equal to 312 mg/kg bw per day[b]	–
	Two-generation study of reproductive toxicity[a]	Reproductive toxicity	4 000 ppm, equal to 306 mg/kg bw per day[b]	–
		Parental toxicity	200 ppm, equal to 15.3 mg/kg bw per day	2 000 ppm, equal to 155 mg/kg bw per day
		Offspring toxicity	200 ppm, equal to 16.2 mg/kg bw per day	2 000 ppm, equal to 167 mg/kg bw per day
	Developmental toxicity study[c]	Maternal toxicity	50 mg/kg bw per day	200 mg/kg bw per day
		Embryo and fetal toxicity	50 mg/kg bw per day	200 mg/kg bw per day
	Developmental neurotoxicity study[a]	Neurotoxicity	82 mg/kg bw per day	326 mg/kg bw per day
Rabbit	Developmental toxicity study[c]	Maternal toxicity	50 mg/kg bw per day	300 mg/kg bw per day
		Embryo and fetal toxicity	300 mg/kg bw per day	600 mg/kg bw per day
Dog	One-year study of toxicity[d]	Toxicity	25 mg/kg bw per day	200 mg/kg bw per day

[a] Dietary administration.

[b] Highest dose tested.

[c] Gavage administration.

[d] Capsule administration.

Acceptable daily intake (ADI; applies to acibenzolar-S-methyl and acibenzolar acid, expressed as acibenzolar-S-methyl)

0–0.08 mg/kg bw

Acute reference dose (ARfD; applies to acibenzolar-S-methyl and acibenzolar acid, expressed as acibenzolar-S-methyl)

0.5 mg/kg bw

Information that would be useful for the continued evaluation of the compound

Results from epidemiological, occupational health and other such observational studies of human exposure

Critical end-points for setting guidance values for exposure to acibenzolar-S-methyl

Absorption, distribution, excretion and metabolism in mammals	
Rate and extent of oral absorption	90% absorbed; T_{max} within 0.5 h at low dose
Dermal absorption	Moderately to well absorbed
Distribution	Widely distributed; highest levels in liver and kidney
Potential for accumulation	No indication for accumulation in tissues
Rate and extent of excretion	Rapidly excreted (> 90% within 24 h at low dose)
Metabolism in animals	Cleavage of the *S*-methyl ester to carboxylic acid, and subsequent conjugation; hydrolysis, oxidation and conjugation with glycine or glucuronic acid
Toxicologically significant compounds in animals and plants	Acibenzolar-*S*-methyl, acibenzolar acid (CGA210007/CA2079A)
Acute toxicity	
Rat, LD_{50}, oral	> 2 000 mg/kg bw
Rat, LD_{50}, dermal	> 2 000 mg/kg bw
Rat, LC_{50}, inhalation	> 5 mg/L
Rabbit, dermal irritation	Slightly irritating to skin
Rabbit, ocular irritation	Slightly irritating to eye
Guinea-pig, dermal sensitization	Sensitizing (maximization test)
Short-term studies of toxicity	
Target/critical effect	Haemolytic effects (dog)
Lowest relevant oral NOAEL	25 mg/kg bw per day (dog)
Lowest relevant dermal NOAEL	1 000 mg/kg bw per day, highest dose tested (rat)
Lowest relevant inhalation NOAEC	No data

Long-term studies of toxicity and carcinogenicity	
Target/critical effect	Red blood cells/haemolysis–related histopathological findings in the spleen (rat)
Lowest relevant NOAEL	7.77 mg/kg bw per day (rat)
Carcinogenicity	Not carcinogenic in mice or rats[a]
Genotoxicity	
	No evidence of genotoxicity[a]
Reproductive toxicity	
Target/critical effect	Spleen/haemosiderosis (rat)
Lowest relevant parental NOAEL	15.3 mg/kg bw per day (rat)
Lowest relevant offspring NOAEL	16.2 mg/kg bw per day (rat)
Lowest relevant reproductive NOAEL	306 mg/kg bw per day, highest dose tested (rat)
Developmental toxicity	
Target/critical effect	Decreased feed consumption and equivocal increase in malformations (rat)
Lowest relevant maternal NOAEL	50 mg/kg bw per day (rat)
Lowest relevant embryo/fetal NOAEL	50 mg/kg bw per day (rat)
Neurotoxicity	
Acute neurotoxicity NOAEL	2 000 mg/kg bw, highest dose tested (rat)
Subchronic neurotoxicity NOAEL	575 mg/kg bw per day, highest dose tested (rat)
Developmental neurotoxicity NOAEL	82 mg/kg bw per day (rat)
Other toxicological studies	
Immunotoxicity NOAEL	406 mg/kg bw per day, highest dose tested (mouse)
Studies on toxicologically relevant metabolites	
Acibenzolar acid (CGA210007/CA2079A)	Oral LD_{50}: > 2 000 mg/kg bw (rat)
	28-day NOAEL: 100 mg/kg bw per day on the basis of haematological and blood chemistry changes (rat)
	Not genotoxic in vitro or in vivo
Human data	
	No adverse effects noted in medical surveillance reports on manufacturing plant personnel; isolated cases of skin irritation and one case of respiratory irritation reported during handling of formulations

[a] Unlikely to pose a carcinogenic risk to humans via exposure from the diet.

Summary

	Value	**Study**	**Safety factor**
ADI[a]	0–0.08 mg/kg bw	Two-year study of toxicity and carcinogenicity (rat)	100
ARfD[a]	0.5 mg/kg bw	Developmental toxicity study (rat)	100

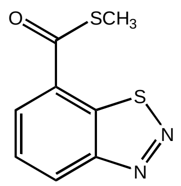
[a] Applies to acibenzolar-*S*-methyl and acibenzolar acid, expressed as acibenzolar-*S*-methyl.

RESIDUE AND ANALYTICAL ASPECTS

Acibenzolar-S-methyl is a plant activator that stimulates the natural, inherent defence mechanisms of plants. Through this activation, control of *Erysiphe graminis* (powdery mildew of cereals) and *Mycosphaerella musci* (Black Sigatoka of banana) is achieved. This activation also results in partial control of *Septoria* spp. (side effect only) and *Puccinia* spp. (side effect only) in cereals. At the 47th Session of the CCPR (2015), it was scheduled for the evaluation as a new compound by the 2016 JMPR.

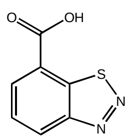
The Meeting received information on the metabolism of acibenzolar-S-methyl in lactating goats and laying hens, cotton, lettuce, sorghum, sunflower, rice, tomato, tobacco and wheat, as well as follow crops, methods of residue analysis, freezer storage stability, GAP information, supervised residue trials on citrus fruit (orange, grapefruit, lemon), pome fruit (apples, pears), stone fruit (apricot, peach), strawberries, bananas, kiwifruit, onions, brassica vegetables (cabbage, broccoli, mustard greens), cucurbits (cucumbers, melons, squash), tomatoes, leafy vegetables (lettuce, spinach), celery, potatoes and wheat as well as a livestock transfer study (lactating cow).

Acibenzolar-S-methyl is *S*-methyl 1,2,3-benzothiadiazole-7-carbothioate

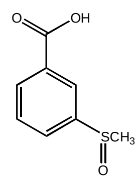


Metabolites referred to in the appraisal were addressed by their company codes:

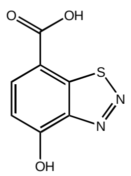
Acibenzolar acid (CGA210007)



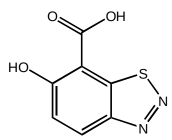
3-Methanesulfinyl-benzoic acid (CGA379019)



4-OH acibenzolar acid (CGA323060)



6-OH acibenzolar acid (SYN546642)



Studies on the metabolism in plants and livestock and environmental fate all utilised [^{14}C-U-phenyl]-acibenzolar-S-methyl.

Plant metabolism

Acibenzolar-S-methyl is typically used for four different situations:

- as a seed treatment
- as a foliar application
- as a soil treatment for rice at transplanting
- application to the soil beneath a growing crop

The Meeting received plant metabolism studies with acibenzolar-S-methyl following seed treatment (sunflower, cotton, sorghum), foliar applications to lettuce, tobacco, tomato and wheat and soil treatment at transplanting rice.

Seed treatment

Residues in commodities at harvest of crops of cotton, sorghum and sunflower grown from seeds that were treated with [^{14}C]-acibenzolar-S-methyl prior to planting (0.0006-0.001 mg ai/seed cotton; 0.0065 mg ai/seed sorghum; 0.048 mg ai/seed sunflower), were low at 0.002-0.006 mg equiv/kg for cotton plants, stalks, fibre and seed, < 0.001-0.002 mg equiv/kg for sorghum forage, stover and grain and 0.002 mg equiv/kg for sunflower seeds.

Foliar application

Tomato

The metabolism of [^{14}C]-acibenzolar-S-methyl in tomato plants grown outdoors following three foliar sprays at 15 g ai/hL at 14 day intervals.

TRR found at harvest were 0.312 mg equiv/kg in tomato fruit (30 days after last application) and 0.72 mg equiv/kg in foliage (60 DALA). The ^{14}C recovered in surface washes of fruit decreased from 35% TRR (one hour after third application) to 1.4% TRR (one month after third application).

Extractability of ^{14}C residues with the solvent system (CH_3CN/H_2O) used was 97% of the TRR for tomato fruit at maturity, 30 DALA.

The metabolites identified in tomato fruit and foliage primarily resulted from initial hydrolysis of acibenzolar-S-methyl to give acibenzolar acid (CGA210007) followed by oxidation to give various metabolites hydroxylated at the phenyl ring. Acibenzolar-S-methyl was detected in foliage and fruit samples on the day of application and for up to a further 30 days, albeit at very low levels. At harvest, acibenzolar-S-methyl accounted for 0.8% TRR in fruit, free acibenzolar acid accounted for 8.1% TRR and conjugates of acibenzolar acid liberated by cellulase/mild base hydrolysis of the solvent extracts accounted for a further 56% TRR.

Lettuce

The metabolism of [^{14}C]-acibenzolar-S-methyl in lettuce plants grown outdoors following three foliar sprays at 35 g ai/hL (1 ×) at 7 day intervals. An additional set of plants were treated at 105 g ai/ha (3 ×). The first applications were made at the 7-9 leaf stage (BBCH 17-19).

TRR in lettuce plants harvested one week after final application were 1.0 mg equiv/kg (1 × rate) and 3.7 mg equiv/kg (3 × rate). In these samples, parent acibenzolar-S-methyl residues were 0.17 and 0.71 mg/kg, respectively. Surface rinses contained 20% (1 ×) and 23% (3 ×) of TRR, with penetrated residue amounting to 83% (1 ×) and 74% (3 ×) of the TRR (7 DALA).

Solvent (CH_3CN/H_2O) extracted ≥ 81% of the TRR. Acibenzolar-S-methyl accounted for 17-19% TRR while free acibenzolar acid represented ≤ 5% TRR. The solvent extracts were sequentially treated with 0.1N NaOH/cellulase to investigate the presence of conjugates. Based on the increase in acibenzolar acid on hydrolysis, conjugates of acibenzolar acid represented 12-20%TRR. The only other metabolite(s) present at levels >10% TRR were conjugates of 4-OH acibenzolar acid which represented 19-22% TRR. In contrast, free 4-OH acibenzolar acid only represented 0.9-1.1% TRR.

Tobacco

The metabolic fate of [^{14}C]-acibenzolar-S-methyl in tobacco plants maintained outdoors was examined following three foliar sprays, starting when plants were at the seven leaf stage, of 20, 50 and 100 g ai/ha with intervals of 21 and 34 days.

Translocation of the radioactivity into new grown leaves was low. Residues found 21 days after the first application were 0.60 and 0.031 mg equiv/kg in treated and new grown leaves respectively. At maturity, TRRs in tobacco plants were 1.4 mg equiv/kg in lower leaves, 0.43 mg eq./kg in upper leaves and 0.022 mg equiv/kg in stems.

Solvent (CH_3CN/H_2O) extracted ≥ 88% of the TRR present in leaf samples collected 0 to 52 DALA.

Parent acibenzolar-S-methyl was present in low amounts in tobacco leaves 17–52 DALA (max. 6.1% TRR) with free acibenzolar acid present at 6.4–9.0% TRR. The major component of the ^{14}C residue was conjugates of acibenzolar acid which liberate acibenzolar acid on cellulase/0.1N NaOH treatment, accounting for a further 61% TRR.

Wheat

The metabolism of [^{14}C]-acibenzolar-S-methyl in wheat grown outdoors was studied following application to plants at the end of tillering at 50 g ai/ha. Total radioactive residues in shoots on the day of application were 1.8 mg equiv/kg, declining to 0.29 mg equiv/kg after 14 days. At harvest, 75 days after application, levels of ^{14}C in grain, husks and straw were 0.014, 0.23 and 0.33 mg eq/kg respectively.

Solvent (CH_3CN/H_2O) extracted ≥87% of the TRR present in immature plant parts (shoots) collected 0–14 days after application. Extraction of ^{14}C present at harvest (75 days after application) was low at 41% for grain, 39% for husks and 30% for straw.

Apart from on the day of application, acibenzolar-S-methyl was not detected in any of the samples. The metabolites identified primarily resulted from initial hydrolysis of acibenzolar-S-methyl to form acibenzolar acid followed by oxidation of the phenyl ring to give a range of hydroxy acibenzolar acid metabolites. Acibenzolar acid, and metabolites hydroxylated at the phenyl ring, can form conjugates with natural compounds such as sugars or bind to cell components such as proteins. Free acibenzolar acid accounted for 8.4, 12 and 14% TRR in grain, husks and straw respectively. Based on the increase in acibenzolar acid after mild base hydrolysis of the solvent extracts, conjugates of acibenzolar acid accounted for 15, 11 and 7.8% TRR for grain, husks and straw respectively.

The majority of the ^{14}C present in the solids after the initial solvent extraction (PES) were associated with natural products, 21% TRR for grain, 29% for husks and 36% TRR for straw; especially starch, protein, lignin and cellulose. The severe conditions utilised for further examination of ^{14}C residues in PES liberated additional acibenzolar acid, presumably bound to various natural components. The additional liberated acibenzolar acid accounted for a further 16, 17 and 23%TRR for grain, husks and straw respectively.

Soil treatment at transplanting

Rice

The metabolism of [^{14}C]-acibenzolar-S-methyl in greenhouse grown rice plants was studied following application to soil of a granular formulation to three-week old rice plants one day prior to transplanting at a rate equivalent to 200 g ai/ha. Plants with soil were transplanted into containers and flooded with water. Mature plants were harvested 119 days after application.

Residues in paddy water reached a maximum of 25% AR at 1–2 weeks after soil application and flooding, declining to 15% AR by 40 days after application (DAA). Thereafter the ^{14}C residues in paddy water declined rapidly to reach 0.4% AR by 60 DAA. Free acibenzolar acid was the major metabolite/degradate present in paddy water representing 32% TRR at 11 DAA and 57% TRR at 78 DAA.

One DAA, rice seedlings had taken up 1.3% AR, rising to 11.1% AR at maturity (harvest 119 DAA). At maturity, 0.2% AR was located in grain, 0.2% AR in husks and 11% AR in straw while 81% AR remained in the soil. Solvent (CH_3CN/H_2O) extracted only 6.4% TRR for grain, 33% TRR for husks and 41% TRR for straw. Parent acibenzolar-S-methyl was only detected in samples of leaves collected 1 DAA. The major metabolite identified in leaves collected 11-78 DAA was free acibenzolar acid at 6.7-11% TRR in leaves and at 1.7–10% TRR in rice commodities (grain, husks, straw) at harvest, 119 DAA.

The presence of conjugated residues in the solvent extracts was investigated. Following hydrolysis the proportion of unidentified ^{14}C decreased and there was a concomitant increase in the proportion of acibenzolar acid and to a lesser extent 3-methanesulfinyl benzoic acid. Based on the hydrolysis results, conjugated acibenzolar acid accounted for 38, 11 and 2.0% TRR in straw, husks and grain, respectively. Conjugates of 3-methanesulfinyl benzoic acid accounted for 5.3, 3.1 and 0.7% TRR in straw, husks and grain, respectively.

As the unextracted ^{14}C in plant samples was high, the PES were subject to harsh alkaline and acid conditions to assist further characterisation. Following hydrolysis of PES under harsh alkaline and acid conditions, the unextracted residues remaining in grain were reduced from 92% TRR to 39% TRR. While small amounts of additional acibenzolar acid were liberated (1.8–8.1% TRR), 3-methanesulfinyl benzoic acid was the major component released by the harsh treatment and accounted for 18% TRR in grain. Further investigation also revealed incorporation of ^{14}C into natural products, 24% TRR for grain, 31% TRR for husks and 17% TRR for straw.

In summary, the metabolism of acibenzolar-S-methyl by plants is well understood. Primary metabolic pathways of acibenzolar-S-methyl in plants included: 1) hydrolysis of the S-methyl group to form acibenzolar acid; 2) oxidation at the phenyl ring to form a range of hydoxy derivatives including 4-OH acibenzolar acid; 3) opening of the thiadiazole ring to form 3-methanesulfinyl benzoic acid; and 4) formation of conjugates, principally with sugars.

With the exception of 3-methanesulfinyl benzoic acid (CGA379019), all plant metabolites were also identified in the rat metabolism though the conjugate partners may differ.

Crop		Tomato	Tobacco	Lettuce	Wheat			Rice		
DALA		30	17-45	7	75	75	75	119	119	119
Matrix		Fruit	Leaf	Leaf	Grain	Husks	Straw	Grain	Husks	Straw
Acibenzolar-S-methyl		0.8	6.1	16.9-19.3						
Acibenzolar acid	Free	8.1	6.4-9.0	<5	8.4	12.1	14.4	1.7	3.7	10.2
	Conj	56.2	61.4	11.5-20.1	15.1	11.4	7.8	2.0	11.3	37.9
	Bound				15.8	17.4	23.1	1.9	1.8	8.1
4-OH acibenzolar acid	Free			0.9-1.1						
	Conj			19-21.5						

Crop		Tomato	Tobacco	Lettuce	Wheat			Rice		
DALA		30	17-45	7	75	75	75	119	119	119
Matrix		Fruit	Leaf	Leaf	Grain	Husks	Straw	Grain	Husks	Straw
3-methanesulfinyl benzoic acid	Free							0.6	3.7	5.3
	Conj							0.7	3.1	5.3
	Bound							17.5	1.1	2.5

Animal metabolism

The plant metabolism studies show that livestock are unlikely to be exposed to parent acibenzolar-S-methyl. Rather, animals will be exposed to a range of metabolites that are mostly comprised of free and conjugated acibenzolar acid. Metabolism studies were made available to the Meeting that utilised dosing lactating goats and laying hens with acibenzolar-S-methyl. As acibenzolar-S-methyl is rapidly hydrolysed to acibenzolar acid, and conjugates of acibenzolar acid are readily cleaved to produce acibenzolar acid, the use of acibenzolar-S-methyl in the livestock metabolism studies is acceptable.

Lactating goats were orally dosed once daily for four consecutive days with [^{14}C]-acibenzolar-S-methyl at a dose equivalent to 12 ppm in the feed. The majority of the ^{14}C residues was recovered in the excreta (urine 64%AD, faeces 12% AD). For tissues, ^{14}C residues were highest in kidney, (0.28 mg equiv/kg), followed by liver (0.041 mg equiv/kg) with muscle (0.003 mg equiv/kg) and fat (0.002–0.003 mg equiv/kg) containing very low residues. TRR in milk reached 0.12 mg equivalents/kg before the end of dosing. Solvent (CH_3CN and CH_3CN/H_2O) extracted >86% of the TRR in milk and tissues. No intact acibenzolar-S-methyl was detected in tissues or milk. The majority of the residues were present as free (33–90% TRR) and soluble conjugated forms (2.3–22% TRR) of acibenzolar acid. Significant additional acibenzolar acid was released from muscle (27% TRR) when harsh extraction conditions were used on radioactivity in solids remaining after solvent extraction.

Laying hens were orally dosed once a day for four consecutive days with [^{14}C]-acibenzolar-S-methyl at a dose equivalent to 19 ppm in the feed. The majority of the ^{14}C residues was recovered in the excreta (87% AD). Radioactivity in eggs reached 0.001 mg equiv/kg, with average concentrations of 0.002 mg equiv/kg for yolk and 0.001 mg equiv/kg for egg whites. Mean levels of TRR were 0.90 mg equiv/kg in kidney, 0.33 mg equiv/kg in liver, 0.013 mg equiv/kg in breast muscle, 0.013 mg equiv/kg in peritoneal fat, and 0.045 mg equiv/kg in skin plus subcutaneous fat. Solvent (CH_3CN and CH_3CN/H_2O) extracted >82% of the TRR in eggs and tissues. No intact acibenzolar-S-methyl was detected in tissues or eggs. Free acibenzolar acid accounted for the majority of the residue (50–77% TRR) with significant amounts of acibenzolar acid released from conjugates in egg white (18% TRR) when harsh extraction conditions were used.

In summary, the metabolism of acibenzolar-S-methyl in goats and laying hens is similar to metabolism in laboratory animals with acibenzolar acid (free and conjugated) the major component of the residue.

Environmental fate

The Meeting received information on soil aerobic metabolism, aqueous photolysis and aqueous hydrolysis properties of [^{14}C]-acibenzolar-S-methyl. Studies were also received on the behaviour of [^{14}C]-acibenzolar-S-methyl in a rotational crop situation.

The degradation of acibenzolar-S-methyl in soil maintained under aerobic conditions was rapid with acibenzolar acid and 6-OH acibenzolar acid, the major degradation products formed. While parent acibenzolar-S-methyl was degraded quickly in soils, the degradates formed are moderately to highly persistent. In the laboratory studies, soil DT_{50} values for parent acibenzolar-S-methyl ranged from 0.031 to 2.1 days while for acibenzolar acid DT_{50} values ranged from 4.1 to 91 days and for 6-OH acibenzolar acid 130 to >1000 days.

Acibenzolar-S-methyl was stable to hydrolysis in aqueous solutions at pH 5 and 7 but undergoes rapid hydrolysis at pH 9 and above suggesting hydrolysis plays a negligible role in its degradation under environmental conditions. The main hydrolysis degradate was acibenzolar acid which was stable at all pH values.

The soil photolysis of acibenzolar-S-methyl in dry and wet soils was investigated. Light enhanced the degradation of acibenzolar-S-methyl on both wet and dry soils. Acibenzolar acid was essentially stable on dry soils but moderately degraded in the irradiated wet soils. No other metabolites were reported to reach levels above 5% AR. Hydrolysis of acibenzolar-S-methyl to form acibenzolar acid was more rapid on wet compared to dry soils.

In a confined rotational crops study with lettuce, radish, maize and wheat, a plot of clay soil was treated with [^{14}C]-acibenzolar-S-methyl at the equivalent of 50 g ai/ha and crops sown 30, 113, 141 and 337 days after the soil application. Lettuce was sampled at 50% maturity and at full maturity (61 and 82 DAA), radish was sampled at 180 DAA, wheat samples were taken at 180, 370 and 414 DAA and maize was sampled at 50% and full maturity (404 and 498 DAA). The uptake of radioactivity in rotational crops was very low for lettuce, winter wheat, maize and radish: all residue levels in the crops were ≤ 0.001 mg equiv/kg.

In a separate confined rotational crop study a sandy loam soil was treated with [^{14}C]-acibenzolar-S-methyl at the equivalent of 421 g ai/ha and radish, wheat and mustard sown at 30, 60 and 210 days after application. The metabolism of acibenzolar-S-methyl in rotated crops was similar for all crop types and proceeded by hydrolysis of the S-methyl ester leading to formation of the major metabolite, acibenzolar acid which existed as polar conjugates that could be cleaved by treatment with cellulase plus NaOH. Subsequent hydroxylation of the phenyl ring gave metabolites 5-OH acibenzolar acid and 4-OH acibenzolar acid. Comparison with primary metabolism studies shows that the pathway in rotational crops is consistent with that in primary crops.

The major degradates in soil were acibenzolar acid and 6-OH acibenzolar acid, however, no 6-OH acibenzolar acid was detected in crops.

In summary, acibenzolar-S-methyl related residues in soil are unlikely to be observed at significant levels in rotational crops following application at maximum permitted seasonal rates of up to 332 g ai/ha for non-permanent crops.

Methods of Analysis

Methods have been reported in the scientific literature for the analysis of acibenzolar-S-methyl in food, including multi-residue methods. These literature methods do not involve a hydrolysis step and the residue measured is therefore parent compound (acibenzolar-S-methyl).

The metabolism of acibenzolar-S-methyl in crops results in a complex mixture of metabolites, most of which produce acibenzolar acid on base hydrolysis. Any non-metabolised parent acibenzolar-S-methyl that might be present would be converted to acibenzolar acid upon base hydrolysis. Consequently most of the methods developed to quantify acibenzolar-S-methyl residues in supervised trials on animal and plant commodities involve hydrolytic conversion of parent compound and metabolites to acibenzolar acid. This analyte is quantified and expressed in acibenzolar-S-methyl equivalents. LOQs are typically 0.01 mg/kg.

The common moiety methods all involve homogenisation and base hydrolysis (1N NaOH, typically 60–65 °C) followed by extraction of the hydrolysed samples with an organic/aqueous solvent mixture, typically CH_3OH. The main differences between methods involve clean-up conditions, instrumentation for quantification (HPLC-UV, HPLC-ECD, LC-MS/MS), and scale. Acibenzolar-S-methyl and acibenzolar acid are used as reference materials for fortification and method validation. In addition, radiovalidation studies demonstrated the acceptability of the extraction and hydrolysis used in the common moiety method as measured residues accounted for

75–110% of the residues of acibenzolar-S-methyl and acibenzolar acid (free and conjugated) identified in metabolism studies.

The methods involving hydrolysis are suitable for analysis of acibenzolar-S-methyl and acibenzolar acid (free and conjugated) in plant and animal matrices.

Multi-residue methods are currently not validated for the sum of acibenzolar-S-methyl and acibenzolar acid (free and conjugated).

A method was also made available for the analysis of 4-OH acibenzolar acid in lettuce and spinach. Following extraction with acidified acetonitrile:water, soluble conjugates were cleaved using cellulase and residues quantified using HPLC-UV (252 nm). The LOQ was 0.02 mg/kg.

Stability of pesticide residues in stored analytical samples

The Meeting received information on the stability of acibenzolar-S-methyl and acibenzolar acid in various matrices on freezer storage (-18 °C).

The periods of demonstrated stability cover the frozen storage intervals used in the residue studies on crops.

Residues of acibenzolar-S-methyl when measured by the common moiety method were stable in dry commodities (wheat grain) for 24 months and in high water commodities (cabbage, squash, lettuce, tomatoes, and turnip roots) and tobacco for 21 months. Residues were stable in banana for 24 months. Residues were stable in dry commodities (wheat grain) for 24 months and in high water commodities (cabbage, squash, lettuce, tomatoes, and turnip roots) and tobacco for 21 months.

The stability of acibenzolar-S-methyl in animal commodities was studied in the lactating cow residue transfer study with fortified samples stored for the same intervals as experimental samples. Acibenzolar-S-methyl, measured using the common moiety method, was stable in muscle for 87 days, kidney for 131 days, fat for 129 days and milk for 115 days. In liver, the amount remaining after 124 days was 51% of the spike concentration.

Definition of the residue

Following application of acibenzolar-S-methyl to crops the parent compound was generally only detected at short intervals after application and other than on the day of application, only as a relatively minor component of the ^{14}C residue in the case of lettuce (17–19% TRR); tomato (0.8% TRR) and tobacco (6.1% TRR). For the other crops investigated where the interval between application and sampling was longer, parent compound was not detected (cotton, rice, sorghum, sunflower and wheat).

In crops where levels of ^{14}C were sufficiently high to allow identification of metabolites, the major component of the ^{14}C could generally be attributed to acibenzolar acid free+conjugated+bound: wheat grain 8.4+15+16% TRR; wheat husks 12+11+17% TRR; wheat straw 14+7.8+23% TRR; tomato fruit 8.1+56.2+0% TRR; tobacco leaf 9.0+61+0; lettuce <5+20+0% TRR; rice grain 1.7+2.0+1.9% TRR; rice husks 3.7+11+1.8% TRR and rice straw 10+38+8.1% TRR. The other components that exceeded 10% TRR were 4-OH acibenzolar acid free+conjugated in lettuce leaf (1.1+22% TRR) and 3-methanesulfinyl-benzoic acid free+conjugated+bound in rice grain (0.6+0.7+18% TRR) and rice straw (5.3+5.3+2.5% TRR).

Residues of acibenzolar-S-methyl and acibenzolar acid (free and conjugated) are unlikely to occur at significant levels in rotational (follow) crops.

There is no obvious single compound for use as a suitable marker for compliance. It is noted that the majority of the residue in crops is present as conjugates of acibenzolar acid that can easily be converted to acibenzolar acid on base hydrolysis. Acibenzolar-S-methyl is also converted to acibenzolar acid on base hydrolysis. As such a common moiety residue definition would allow residues to be monitored in all crops and derived commodities. Validated analytical methods are available for the determination of acibenzolar-S-methyl together with free and conjugated acibenzolar acid in crop matrices.

The Meeting decided the residue definition for compliance with MRLs in plants should be the sum of acibenzolar-S-methyl and acibenzolar acid, free and conjugated, expressed as acibenzolar-S-methyl.

In deciding which additional compounds should be included in the residue definition for risk assessment the Meeting considered the toxicological properties and likely occurrence of the candidates: acibenzolar acid (free and conjugated), 4-OH acibenzolar acid (free and conjugated) and 3-methylsulfinyl benzoic acid (free and conjugated). The toxicological properties of the various metabolites were considered. Acibenzolar acid has similar potency to the parent compound, while 4-OH acibenzolar acid is considered to be of no greater lower toxicity than the parent compound. Acibenzolar acid (free and conjugated) is the major residue in most plant commodities and should be included in the residue definition for risk assessment. The 4-OH acibenzolar acid metabolite (free and conjugated) was only significant in leafy vegetables (lettuce) where it occurred at half the level of the sum of parent compound and acibenzolar acid (free and conjugated). The Meeting agreed an adjustment factor of 1.5 could be applied to residues in leafy vegetables measured according to the residue definition for compliance to convert residues to the equivalent sum of acibenzolar-S-methyl, acibenzolar acid (free and conjugated) and 4-OH acibenzolar acid (free and conjugated). The Meeting agreed residues of 4-OH acibenzolar acid (free and conjugated) should be included in the residue definition for dietary risk assessment.

The metabolite 3-methanesulfinyl benzoic acid was only detected in rice and then only at low levels. No information was available on the toxicity of 3-methanesulfinyl benzoic acid. The Meeting agreed that as rice is not among the uses currently under consideration, residues of 3-methanesulfinyl benzoic acid are not expected and the compound does not need to be considered further. If uses on rice are considered in the future, a dietary risk assessment comparing exposures against the Cramer class TTC values should be conducted.

The Meeting decided the residue definition for dietary risk assessment in plants should be: *the sum of acibenzolar-S-methyl and acibenzolar acid, (free and conjugated) and 4-OH acibenzolar acid (free and conjugated), expressed as acibenzolar-S-methyl*

The plant metabolism studies show that livestock are unlikely to be exposed to parent acibenzolar-S-methyl. Livestock will be exposed to a range of metabolites that are mostly comprised of free and conjugated acibenzolar acid. As acibenzolar-S-methyl is rapidly hydrolysed to acibenzolar acid, and conjugates of acibenzolar acid are readily cleaved to produce acibenzolar acid, the use of acibenzolar-S-methyl in the livestock metabolism studies is acceptable.

In lactating goats no intact acibenzolar-S-methyl was detected in tissues or milk. The majority of the residues were present as free (33–90% TRR) and conjugated forms (2.3–22% TRR) of acibenzolar acid. In laying hens no intact acibenzolar-S-methyl was detected in tissues or eggs. Free acibenzolar acid accounted for the majority of the residue (50–77% TRR) with conjugates of acibenzolar acid only present at significant proportion of ^{14}C in egg white (18% TRR).

Analytical methods are available that determine residues of acibenzolar-S-methyl and acibenzolar acid, free and conjugated.

Based on the above, the Meeting decided the residue definition for animal commodities for compliance with MRLs and dietary risk assessment should be as follows:

sum of acibenzolar-S-methyl and acibenzolar acid, free and conjugated, expressed as acibenzolar-S-methyl

There is insufficient data to characterise whether the sum of residues in the residue definition (sum of acibenzolar-S-methyl and free and conjugated acibenzolar acid) is fat soluble. Total radioactive residues in muscle compared to fat and egg white compared to egg yolk suggest the residues, measured according to the residue definition might be higher in fat however, the data are inconclusive. The log K_{ow} for acibenzolar-S-methyl is 3.1 and the log K_{ow} values of acibenzolar acid and its conjugates are expected to be lower, suggesting the residue does not preferentially partition into fatty matrices.

On the weight of evidence, the Meeting decided the residue is not *fat soluble*.

Results of supervised residue trials on crops

Supervised residue trial data were available for acibenzolar-S-methyl on citrus (oranges, grapefruit, lemons), pome fruit (apples, pears), stone fruit (peaches, apricots), strawberries, bananas, kiwifruit, brassica vegetables (cabbage, broccoli, mustard greens), leafy vegetables (head lettuce, leaf lettuce, spinach, celery), cucurbits (cucumber, melon, squash), tomatoes, potatoes, and wheat.

The residue definition for exposure assessment includes 4-OH acibenzolar acid (free and conjugated). As residues of 4-OH acibenzolar acid (free and conjugated) are only expected in leafy crops and these residues were not measured in field trials, an adjustment factor of 1.5 (see above) was used to convert residues measured using the compliance definition to that for dietary risk assessment. The Meeting considered the factor would only be applied to the highest residues of leafy vegetables to estimate the relevant STMR and HR values required for dietary risk assessment.

Citrus fruits

The Meeting received supervised residue trial data for acibenzolar-S-methyl on citrus fruit from the USA. The critical GAP for citrus in the USA is applications to soil under trees at 112 g ai/ha with a PHI of 0 days. The maximum rate per year is 448 g ai/ha. In trials approximating critical GAP in the USA residues in citrus fruit were:

Oranges: (n = 10) < 0.01 (9), 0.01 mg/kg

Lemons: (n = 5) < 0.01 (5) mg/kg

Grapefruit: (n = 6): < 0.01 (6) mg/kg.

The Meeting noted that residues following soil application to citrus are generally ≤LOQ and decided to combine the data for oranges, lemons and grapefruit to estimate a group maximum residue level. The Meeting recommended a maximum residue level, STMR and HR of 0.015, 0.01 and 0.01 mg/kg respectively for citrus fruit.

Pome fruits – apples and pears

In Italy acibenzolar-S-methyl is approved for use on apples and pears. cGAP in Italy for apples is applications at 100 g ai/ha at 5–14 day intervals and a PHI of 7 days. In trials conducted in EU member states approximating critical GAP in Italy residues in apples were: (n = 16) < 0.01 (11), 0.01 (2), 0.03, 0.16, 0.17 mg/kg. The Meeting recommended maximum residue level, STMR and HR of 0.3, 0.01 and 0.17 mg/kg respectively for apples.

cGAP in Italy for pears is applications at 100 g ai/ha at intervals of 5–7 days (pre-flowering) and 14–28 days (fruiting) with a PHI of 14 days. In trials conducted in EU member states approximating critical GAP in Italy residues in pears were: (n = 4) < 0.02 (4) mg/kg. The Meeting considered four trials insufficient to estimate a maximum residue level for pears and as the GAPs for apples and pears were different, and did not consider extrapolation of the data on apples to pears.

Peaches

Supervised residue trial data for acibenzolar-S-methyl on peaches and apricots were made available. cGAP in Italy is applications at 75 g ai/ha at intervals of 7–14 days with a PHI of 7 days.

In trials conducted in the EU approximating critical GAP in Italy residues in peaches were (n = 7): 0.02, 0.02, 0.02, 0.05, 0.05, 0.05 and 0.09 mg/kg.

In trials conducted in the EU approximating critical GAP in Italy residues in apricots were (n = 4): 0.05, 0.07, 0.08, 0.13 mg/kg.

A Mann-Whitney U-test suggest the residues in apricots and peaches are from similar populations and the Meeting decided to combine the data to estimate a maximum residue level for the Codex sub-group peaches.

Residues in eleven trials on apricots and peaches were (n = 11): 0.02, 0.02, 0.02, 0.05, 0.05, 0.05, 0.05, 0.07, 0.08, 0.09, 0.13 mg/kg.

The Meeting recommended a maximum residue level, STMR and HR of 0.2, 0.05 and 0.13 mg/kg respectively for the sub-group peaches (includes apricots and nectarines).

Low growing berries, including strawberries

The Meeting received supervised residue trial data for acibenzolar-S-methyl on strawberries. Critical GAP in the USA on low growing berries including strawberries (USA subgroup 13-07G) is applications at 26 g ai/ha with a PHI of 0 days. The maximum rate per year is 210 g ai/ha. In trials approximating critical GAP in the USA residues in strawberries were: (n = 10) 0.02, 0.02, 0.03, 0.03, 0.04, 0.05, 0.06, 0.06, 0.07, 0.08 mg/kg.

The Meeting noted residues for strawberries can be extrapolated to Codex Subgroup 004E, low growing berries and recommended a maximum residue level, STMR and HR of 0.15, 0.045 and 0.08 mg/kg respectively.

Banana

The Meeting received supervised residue trial data for acibenzolar-S-methyl on banana from Colombia, Costa Rica, Ecuador, Guatemala, France (Martinique), Malaysia and Mexico. GAP in Guatemala is applications at up to 40 g ai/ha at 30-40 day intervals with a PHI of 0 days. In trials approximating critical GAP in Guatemala residues in unbagged bananas were: (n = 15): < 0.02, < 0.02, < 0.02, < 0.02, < 0.02, < 0.02, < 0.02, < 0.02, < 0.02, < 0.02, < 0.02, < 0.02, 0.03, 0.04, 0.05 mg/kg. The Meeting recommended a maximum residue level of 0.06 mg/kg.

Residues in the edible portion (pulp) were: < 0.02, < 0.02, < 0.02, < 0.02, < 0.02, < 0.02, < 0.02, < 0.02, < 0.02, < 0.02, < 0.02, < 0.02, < 0.02, 0.02, 0.03 mg/kg. The Meeting recommended a STMR and HR of 0.02 and 0.03 mg/kg respectively for banana (pulp).

The Meeting noted that residues in bagged bananas from 15 trials were all < 0.02 mg/kg for both whole fruit and pulp.

Kiwifruit

Acibenzolar-S-methyl is approved in Italy and NZ for use on kiwifruit.

cGAP in Italy is a foliar application at 6 ×75 g ai/ha with a 14 day interval or 6 ×100 g ai/ha with a 21 day interval and a PHI of 90 days. No trials matched cGAP of Italy.

cGAP in NZ is foliar or soil applications to actively growing plants at 4 ×100 g ai/ha (10 g ai/hL). Foliar sprays are not to be applied between flowering and harvest while the PHI for soil application is 14 days. The foliar application at flowering does not lead to residues in fruit at harvest. In fourteen trials conducted in NZ that matched the GAP for soil application, residues were: (n = 14) < 0.01 (11) 0.01, 0.02, 0.02 mg/kg. The Meeting recommended a maximum residue level, STMR and HR of 0.03, 0.01 and 0.02 mg/kg respectively for kiwifruit.

Bulb onions

The Meeting received supervised residue trial data for acibenzolar-S-methyl on onions. cGAP in the USA for the US onion crop group 3-07A is applications at 35 g ai/ha at 7 – 10 day intervals with a PHI of 7 days. The maximum rate per year is 140 g ai/ha. In twelve trials that approximated critical GAP, residues were (n = 12): < 0.01, < 0.01, 0.01, 0.02, <u>< 0.05</u> (7), 0.06 mg/kg. The Meeting recommended a maximum residue level, STMR and HR of 0.15, 0.05 and 0.06 mg/kg respectively for onions, bulb.

The Meeting noted residues on bulb onions can be extrapolated to garlic and shallots and also recommended a maximum residue level, STMR and HR of 0.15, 0.05 and 0.06 mg/kg respectively for garlic and shallots.

Brassica vegetables

Supervised residue trial data for acibenzolar-S-methyl on Brassica vegetables were available. cGAP in the USA for Brassica (cole) crops (USA group 5) is applications at 35 g ai/ha at intervals of 7 days with a PHI of 7 days. The maximum rate per year is 140 g ai/ha.

In trials conducted in the USA on cabbages the application rate (53 g ai/ha) was higher than the current GAP (35 g ai/ha) and the Meeting agreed to utilise the proportionality approach to estimate residues matching cGAP. Unscaled residues for cabbage heads with wrapper leaves were (n = 9): 0.08, 0.13, 0.19, 0.21, 0.31, 0.32, 0.39, 0.51, 0.58 mg/kg.

After scaling using a scaling factor of 0.66 (35/53), the following residues in cabbages were obtained: 0.05, 0.09, 0.13, 0.14, 0.20, 0.21, 0.26, 0.34, 0.38 mg/kg.

In trials conducted in the USA on broccoli the application rate was higher (53 g ai/ha) than the current GAP in the USA (35 g ai/ha) and the Meeting agreed to apply proportionality in assessing the data. Unscaled residues were (n = 6): 0.20, 0.31, 0.46, 0.47, 0.55, 0.62 mg/kg.

The scaling of residues (scaling factor 53/35 = 0.66) in broccoli to match cGAP results in the following: 0.13, 0.20, 0.30, 0.31, 0.36, 0.41 mg/kg.

GAP in the USA for Brassica vegetables and a group maximum residue level recommendation may be possible based on the data for cabbages and broccoli. The medians for the two datasets differed by less than a factor of five and the Meeting decided to recommend a group maximum residue level. In deciding which datasets to use for the recommendation, as a Mann-Whitney U-test indicated the populations were not different, it was decided to combine the datasets. The combined dataset is (n = 15): 0.05, 0.09, 0.13, 0.13, 0.14, 0.20, 0.20, <u>0.21</u>, 0.26, 0.30, 0.31, 0.34, 0.36, 0.38, 0.41 mg/kg.

The Meeting recommended a maximum residue level, STMR and HR of 0.7, 0.315 (= 1.5 ×0.21) and 0.62 (= 1.5 ×0.41) mg/kg respectively for Brassica (cole or cabbage) vegetables, Head cabbages, Flowerhead brassicas.

Fruiting vegetables, Cucurbits

Supervised residue trial data for acibenzolar-S-methyl on cucurbit vegetables were available. cGAP in the USA for cucurbits (crop group 9) is applications at 35 g ai/ha at intervals of 7 days with a PHI of 0 days. The maximum rate per year is 280 g ai/ha.

In trials conducted in the USA on field grown cucumbers, melons and summer squash the application rate (68 to 71 g ai/ha) was higher than the current GAP (35 g ai/ha) and the Meeting agreed to utilise the proportionality approach (scaling factor 0.48 to 0.51) to estimate residues matching cGAP. Unscaled residues for cucumbers were (n = 11): 0.07, 0.12, 0.13, 0.14, 0.15, 0.17, 0.18, 0.28, 0.46, 0.48, 0.77 mg/kg.

After scaling the following residues in cucumbers were obtained: 0.04, 0.06, 0.07, 0.07, 0.08, 0.09, 0.09, 0.14, 0.23, 0.24, 0.39 mg/kg.

For melons, unscaled residues were (n = 12): 0.15, 0.25, 0.26, 0.31, 0.31, 0.33, 0.35, 0.60, 0.63, 0.83, 0.87, 0.98 mg/kg.

Scaled residues were: 0.08, 0.13, 0.13, 0.15, 0.16, 0.17, 0.18, 0.31, 0.32, 0.42, 0.44, 0.47 mg/kg.

For summer squash, unscaled residues were (n = 4): 0.04, 0.13, 0.14, 0.18 mg/kg.

Scaled residues in summer squash were: 0.02, 0.07, 0.07, 0.09 mg/kg.

GAP in the USA is for cucurbit vegetables and a group maximum residue level recommendation may be possible based on the data for cucumber, melons and summer squash. The medians for the three datasets differed by less than a factor of five and the Meeting decided to recommend a group maximum residue level. In deciding which datasets to use for the recommendation, as a Kruskal-Wallis H-test indicated the data were not from the same population it was decided to use the dataset with the highest residues, melons, to estimate a maximum residue level for the group.

Using the melon dataset (0.08, 0.13, 0.13, 0.15, 0.16, 0.17, 0.18, 0.31, 0.32, 0.42, 0.44, 0.47 mg/kg), the Meeting recommended a maximum residue level, STMR and HR of 0.8, 0.175 and 0.47 mg/kg respectively for fruiting vegetables cucurbits.

Tomato

Supervised residue trial data for acibenzolar-S-methyl on field grown tomato were available. GAP in the USA is applications at 26 g ai/ha at intervals of 7 days with a PHI of 14 days. No trials matched USA cGAP.

GAP in France is applications at 6 ×25 g ai/ha at intervals of 7days with a PHI of 3 days. In trials conducted in the EU approximating critical GAP in France residues in tomatoes were (n = 13): 0.04, 0.05, 0.05, 0.06, 0.06, 0.07, 0.09, 0.10, 0.10, 0.12, 0.13, 0.14, 0.15 mg/kg.

The Meeting recommended a maximum residue level, STMR and HR of 0.3, 0.09 and 0.15 mg/kg respectively for tomatoes.

Lettuce

Supervised residue trial data for acibenzolar-S-methyl on lettuce were available. GAP in the USA is applications at 4 ×35 g ai/ha at intervals of 7-10 days with a PHI of 7 days. The maximum rate per year is 332 g ai/ha. In trials conducted in the US approximating critical GAP residues in lettuce were:

Head lettuce (n = 6): 0.04, 0.04, 0.05, 0.06, 0.08, 0.10 mg/kg.

Leaf lettuce (n = 6): 0.04, 0.06, 0.10, 0.14, 0.14, 0.18 mg/kg.

The Meeting recommended a maximum residue level, STMR and HR of 0.2, 0.0825 (= 1.5 ×0.055) and 0.15 (= 1.5 ×0.10) mg/kg respectively for head lettuce.

The Meeting recommended a maximum residue level, STMR and HR of 0.4, 0.18 (= 1.5 ×0.12) and 0.27 (= 1.5 ×0.18) mg/kg respectively for leaf lettuce.

Spinach

Supervised residue trial data for acibenzolar-S-methyl on spinach were available.

GAP in France is applications at 3 ×12.5 g ai/ha with a PHI of 10 days. In trials conducted in the EU approximating critical GAP in France residues in spinach were (n = 7): 0.04, 0.06, 0.06, 0.11, 0.12, 0.16, 0.18 mg/kg.

Critical GAP in the USA is applications at 4 ×26 g ai/ha at intervals of 7-10 days with a PHI of 7 days. The maximum rate per year is 332 g ai/ha.

In trials conducted in the USA on spinach the application rate was higher (35 g ai/ha) than the current GAP and the Meeting agreed to utilise the proportionality approach (scaling factor 26/35 = 0.74) to estimate residues matching cGAP. The following scaled residues in spinach matched cGAP

Unscaled residues for spinach were: 0.12, 0.18, 0.21, 0.24, 0.26, 0.29, 0.29, 0.33, 0.48 mg/kg.

After scaling the following residues in spinach were obtained (n = 9): 0.09, 0.13, 0.16, 0.18, 0.19, 0.22, 0.22, 0.25, 0.36 mg/kg.

The Meeting noted residues matching cGAP were higher in the dataset from the US than France and decided to use these residue data to estimate a maximum residue level for spinach.

The Meeting recommended a maximum residue level, STMR and HR of 0.6, 0.285 (= 1.5 ×0.19) and 0.54 (= 1.5 ×0.36) mg/kg respectively for spinach.

Brassica leafy vegetables

Supervised residue trial data for acibenzolar-S-methyl on mustard greens were available. GAP in the USA for Brassica (cole) crops (USA group 5) is applications at 35 g ai/ha at intervals of 7 days with a PHI of 7 days. The maximum rate per year is 140 g ai/ha.

In trials conducted in the USA on mustard greens the application rate (53 g ai/ha) was higher than the current GAP and the Meeting agreed to utilise the proportionality approach (scaling factor 35/53 = 0.66) to estimate residues matching cGAP. Unscaled residues were: 0.16, 0.29, 0.59, 0.67, 0.76 mg/kg. The following scaled residues in mustard greens matched cGAP (n = 5): 0.11, 0.19, 0.39, 0.44, 0.50 mg/kg

The Meeting recommended a maximum residue level, STMR and HR of 1, 0.585 (= 1.5 ×0.39) and 0.795 (= 1.5 ×0.53) (highest individual sample) mg/kg respectively for mustard greens. As the use pattern includes all Brassica leafy vegetables, the meeting agreed to extrapolate the recommendations to all Brassica leafy vegetables (VL 0054).

Potato

Supervised residue trial data for acibenzolar-S-methyl on potato were available. GAP in Brazil is 6 ×12.5 g ai/ha at intervals of 7days with a PHI of 14 days. None of the trials matched cGAP (number of sprays, application rate) for Brazil.

Wheat

Supervised residue trial data for acibenzolar-S-methyl on wheat were available. Critical GAP in Brazil is 3 ×12.5 g ai/ha at intervals of 14 days with a PHI of 21 days. In trials conducted in the Argentina and Brazil approximating critical GAP in Brazil residues in wheat grain were (n = 4): < 0.01, < 0.01, 0.03 and 0.04 mg/kg. The Meeting considered the number of trials insufficient for the estimation of a maximum residue limit.

Fate of residues during processing

The Meeting received information on the fate of incurred residues of acibenzolar-S-methyl during the processing of oranges, pears and tomatoes. A study of the nature of the residue of acibenzolar-S-methyl under simulated processing conditions (pasteurization 20 minutes at 90 °C, pH 4, baking/brewing/boiling 60 minutes at 100 °C, pH 5, sterilization 20 minutes at 120 °C, pH 6) showed acibenzolar-S-methyl, if present, is hydrolytically stable under processing conditions representative of pasteurisation and baking/boiling/brewing; a significant degradation of the parent compound into acibenzolar acid (CGA210007) occurred under sterilisation conditions. A hydrolysis study demonstrated that acibenzolar acid (CGA210007), once formed, is stable to hydrolysis.

Summary of relevant processing factors calculated for the sum of acibenzolar-S-methyl and free and conjugated acibenzolar acid is provided below.

	Processed Fraction	Processing Factor	Best estimate PF	RAC STMR or median	STMR×PF = STMR-P
Oranges	Dried pulp Juice Oil	4.5 < 0.625 < 0.625	4.5 < 0.625 < 0.625	< 0.01	< 0.045 < 0.0062 < 0.0062
Pome fruit [A]	Dried pomace	2.0 3.0 3.2 3.4	3.1	< 0.01	< 0.031
Tomato	Peeled fruit Juice Preserved fruit Purée Ketchup	0.83 0.50 0.67 0.75 0.80 1.0 0.5 0.5 0.8 0.83 1.17 1.75 2.0 3.33 1.75 2.0	0.67 0.78 0.66 1.88 1.89	0.09	0.060 0.070 0.059 0.169 0.170

[A] Pfs are based on results for pear and are indicative only as the residue in the RAC used to calculate the PF was between LOD and LOQ.

The HR-P for peeled tomato fruit is 0.15 mg/kg × 0.67 = 0.10 mg/kg and for preserved (canned) tomato fruit is 0.15 mg/kg × 0.66 = 0.099 mg/kg.

Residues in animal commodities

Farm animal feeding studies

The Meeting received information on the residue levels in tissues and milk of dairy cows dosed with acibenzolar-S-methyl at the equivalent of 0.25, 1.27 and 2.48 ppm in the feed for 28 consecutive days.

Residues in milk were < 0.005 mg/kg and tissues < 0.02 mg/kg for the 2.48 ppm dose group for all samples.

A laying hens transfer study was not available.

Estimation of livestock dietary burdens

Dietary burden calculations for beef cattle and dairy cattle and poultry are provided below. The dietary burdens were estimated using the OECD diets listed in Appendix IX of the 2016 edition of the FAO Manual.

Potential cattle feed items include: cabbage wrapper leaves, kale, apple pomace and citrus pulp.

Summary of livestock dietary burden (ppm acibenzolar-S-methyl equivalents of dry matter diet)

	US-Canada		EU		Australia		Japan	
	Max	Mean	Max	mean	max	Mean	max	Mean
Beef cattle	0.005	0.005	0.71	0.53	0.01	0.01	-	-
Dairy cattle	0.005	0.005	0.72	0.53	1.4 [AB]	1.0 [CD]	-	-
Broilers	-	-	-	-	-	-	-	-
Layers	-	-	0.18 [E]	0.13 [F]	-	-	-	-

[A] Highest maximum beef or dairy cattle dietary burden suitable for MRL estimates for mammalian meat

[B] Highest maximum dairy cattle dietary burden suitable for MRL estimates for mammalian milk

[C] Highest mean beef or dairy cattle dietary burden suitable for STMR estimates for mammalian meat.

[D] Highest mean dairy cattle dietary burden suitable for STMR estimates for milk.

[E] Highest maximum poultry dietary burden suitable for MRL estimates for poultry meat and eggs

[F] Highest mean poultry dietary burden suitable for STMR estimates for poultry meat and eggs

Animal commodity maximum residue levels

No residues were detected in milk and tissues of lactating dairy cows dosed at 2.5 ppm in the diet, 1.8 times the maximum livestock dietary burden. The storage stability of residues in liver was poor with 51% remaining after the freezer storage period of 124 days. However, the Meeting noted that as residues were not present in liver in animals dosed at 1.8 times the maximum livestock dietary burden, even if residues had declined by 50% on storage, no residues are expected to have been present in liver.

The Meeting estimated the following maximum residue levels: milk 0.01* mg/kg; meat (mammalian except marine mammals) 0.02* mg/kg, mammalian fat (except milk fat) 0.02* mg/kg and edible offal 0.02* mg/kg. The Meeting estimated the following STMR and HR values: mammalian meat 0 mg/kg; mammalian fat 0 mg/kg; mammalian edible offal 0 mg/kg and milk 0 mg/kg.

Although a laying hens transfer study was not available, in a metabolism study where hens were dosed at the equivalent of 19.1 ppm in the diet for four days residues of acibenzolar-S-methyl and free and conjugated acibenzolar acid were < 0.01 mg/kg in eggs, 0.29 mg/kg in liver, 0.01 mg/kg in muscle and 0.03 mg/kg in skin/fat.

At the maximum dietary burden for poultry (0.18 ppm), no residues above the LOQ for analytical methods are expected in eggs (< 0.01 ×0.14/19.1 = < 0.00007 mg/kg), liver (0.002 mg/kg), muscle (0.00007 mg/kg) and skin/fat (0.0002 mg/kg). The Meeting estimated the following maximum residue levels for poultry commodities: poultry meat 0.02* mg/kg; poultry edible offal 0.02* mg/kg, poultry fat 0.02* mg/kg and eggs 0.02* mg/kg. The Meeting estimated the following STMR and HR values: poultry meat 0 mg/kg; poultry fat 0 mg/kg; poultry edible offal 0 mg/kg and eggs 0 mg/kg.

RECOMMENDATIONS FURTHER WORK OR INFORMATION

On the basis of the data obtained from supervised residue trials the Meeting concluded that the residue levels listed in Annex 1 are suitable for establishing maximum residue limits and for IEDI and IESTI assessment.

Definition of the residue for compliance with MRL for animal and plant commodities and for dietary risk assessment for animal commodities: *Sum of acibenzolar-S-methyl and 1,2,3-benzothiadiazole-7-carboxylic acid (acibenzolar acid) (free and conjugates), expressed as acibenzolar-S-methyl*

Definition of residue (for dietary risk assessment for plants): *Sum of acibenzolar-S-methyl and 1,2,3-benzothiadiazole-7-carboxylic acid (acibenzolar acid), (free and conjugated) and 1,2,3-benzothiadiazole-4-hydroxy-7-carboxylic acid (4-OH acibenzolar acid) (free and conjugated), expressed as acibenzolar-S-methyl*

The residue is not fat soluble.

DIETARY RISK ASSESSMENT

Long-term dietary exposure

The 2016 JMPR established an Acceptable Daily Intake (ADI) of 0–0.08 mg/kg bw for acibenzolar-S-methyl.

The evaluation of acibenzolar-S-methyl resulted in recommendations for MRLs and STMR values for raw and processed commodities. Where data on consumption were available for the listed food commodities, dietary intakes were calculated for the 17 GEMS/Food Consumption Cluster Diets. The results are shown in Annex 3.

The IEDIs in the seventeen Cluster Diets, based on the estimated STMRs were 0–1% of the maximum ADI (0.08 mg/kg bw). The Meeting concluded that the long-term dietary exposure to residues of acibenzolar-S-methyl from uses that have been considered by the JMPR is unlikely to present a public health concern.

Short-term dietary exposure

The 2016 JMPR established an Acute Reference Dose (ARfD) of 0.5 mg/kg bw for acibenzolar-S-methyl. The IESTI of acibenzolar-S-methyl for the commodities for which STMR, HR and maximum residue levels were estimated by the current Meeting are shown in Annex 4. The IESTI represented 0–10% of the ARfD (0–9% general population, 0–10% children 8 months–6 years old).

The Meeting concluded that the short-term dietary exposure to residues of acibenzolar-S-methyl resulting from uses that have been considered by the JMPR is unlikely to present a public health concern.

5.2 BENZOVINDIFLUPYR (261)

RESIDUE AND ANALYTICAL ASPECTS

Benzovindiflupyr is a broad-spectrum fungicide first evaluated by JMPR in 2013 (Toxicology) and 2014 (Residue). For the parent compound, an ADI of 0–0.05 mg/kg bw and an ARfD of 0.1 mg/kg bw were established.

The 2014 JMPR Meeting recommended that the residue definition for plant and animal commodities (for compliance with MRLs and for estimation of dietary intake) is: *benzovindiflupyr*. *The residue is fat soluble*.

In 2014 the JMPR evaluated uses for benzovindiflupyr in soya beans and livestock feeding studies.

The current Meeting received information on use patterns for benzovindiflupyr in multiple crops (including wheat, barley, grapes, apple, pear, pulses (peas and beans), soya bean, tomato, peppers, cucumber, summer squash, melons (cantaloupe), sweet corn, maize, cotton, peanuts, potatoes, sugarcane, rapeseed and coffee) and additional analytical methods and supervised field trials on these crops.

Methods of analysis

Analytical methods for benzovindiflupyr in food-feedstuffs of plant origin were evaluated by the 2014 JMPR. The Meeting received two new analytical methods for benzovindiflupyr, with its procedure improved upon method GRM042.03A. These methods were used in the supervised field trials on sugarcane and peanuts.

Method POPIT MET.125, applicable to sugarcane, cereal grains and their processed products, used homogenization with acetonitrile and water (80:20, v/v). Following solid phase extraction (SPE) clean-up or liquid-liquid partition clean-up, benzovindiflupyr was analyzed by high-performance liquid chromatography separation and triple-quadrupole mass spectrometry (LC-MS/MS). The method was successfully validated (70–110% recovery, RSD < 20%, typical LOQs at 0.01mg/kg) for sugarcane and its processed products, including cane juice, cane molasses, bagasse and sugar.

The second method POPIT MET.133 is applicable to peanuts and other matrices including beans, sunflower, cotton, coffee and its processed products, and used homogenization with acetonitrile and water (80:20 v/v). Following liquid-liquid partition clean-up, benzovindiflupyr was analyzed by high-performance liquid chromatography separation and triple-quadrupole mass spectrometry (LC-MS/MS). The method was successfully validated (70–110% recovery, RSD < 20%, typical LOQs at 0.01 mg/kg) for peanuts.

Stability of pesticide residues in stored analytical samples

The storage stability of benzovindiflupyr in raw and processed plant commodities and in animal commodities was evaluated by the 2014 JMPR. No additional storage stability data was submitted to the Meeting.

Storage stability studies showed that benzovindiflupyr, when stored at -18 °C was stable for at least 24 months in crop commodities representative of the high water, high acid, high starch, high protein and high oil commodity groups as well as in wheat straw. Benzovindiflupyr was stable for at least 24 months at -10 °C in various processed commodities: flour (maize, soya), meal (maize), oil (maize, soya), soymilk, dried fruits (grape, apple) and fruit juice (apple).

Results of supervised residue trials on crops

The Meeting received supervised trial data for applications of benzovindiflupyr on various fruit and vegetable crops, cereal grains, oil crops and coffee conducted in Brazil, Canada and the USA.

Pome fruits

Benzovindiflupyr is registered in Canada and USA on pome fruits with a rate of 4 × 0.05 kg ai/ha with a PHI of 30 days. Supervised field trials on apples from Canada and USA (13 trials) matching this GAP were submitted to the Meeting. Nine residue trials on pears from Canada and USA matching the GAP were submitted.

Residues of benzovindiflupyr in apple from trials following treatment according to Canada and USA GAP were (n = 13): 0.031, 0.034, 0.038, 0.039, 0.041, 0.042, 0.048, 0.061, 0.067, 0.069, 0.074, 0.096 and 0.16 mg/kg.

Residues of benzovindiflupyr in pear from trials following treatment according to Canada and USA GAP were (n = 9): 0.021, 0.040, 0.044, 0.057, 0.059, 0.062, 0.067, 0.087 and 0.10 mg/kg.

The Meeting noted that the median residues in apple and pear from the field trials were within a 5-fold range (0.048 vs 0.059). From the Mann-Whitney U-test statistical evaluation, it was found that the two residue data populations were not from different resources. A combined residue data set on pome fruit is: 0.021, 0.031, 0.034, 0.038, 0.039, 0.040, 0.041, 0.042, 0.044, 0.048, 0.057, 0.059, 0.061, 0.062, 0.067(2), 0.069, 0.074, 0.087, 0.096, 0.10 and 0.16 mg/kg.

The Meeting estimated a maximum residue level of 0.2 mg/kg, an HR of 0.17 mg/kg (individual highest residue) and an STMR of 0.058 mg/kg for benzovindiflupyr in pome fruits.

Small fruit vine climbing

Grapes

In Canada, the GAPs for benzovindiflupyr in grapes is for a maximum application rate of 0.075 kg ai/ha, a maximum of 4 applications with a spray interval of 7 days and a 21 day PHI. Twelve trials conducted in the USA matches the Canada cGAP.

Residues at 21 days PHI were: 0.10, 0.11, 0.15, 0.16, 0.17, 0.23, 0.35, 0.39, 0.41, 0.47, 0.55, and 0.77 mg/kg.

The Meeting estimated a maximum residue level of 1 mg/kg, an HR of 0.81 mg/kg (highest residue of replicate samples) and an STMR of 0.29 mg/kg for benzovindiflupyr in grapes.

Fruiting vegetables, Cucurbits

Benzovindiflupyr is registered in the USA and Canada in cucurbits at 4 × 0.075 kg ai/ha with 7 days application interval and a 0-1 day PHI respectively.

Cucumber

Six trials conducted in the USA on cucumber according to the USA GAP gave residues of < 0.01, 0.01, 0.013, 0.018, 0.033 and 0.052 mg/kg.

Summer squash

Five trials were conducted in the USA on summer squash according to USA GAP gave residues of 0.017, 0.022(2), 0.023 and 0.050mg/kg.

Melons

Six trials were conducted in the USA according to USA GAP on melons (cantaloupe). The trials conducted in the USA on melons （cantaloupe） gave residues of < 0.01, 0.026, 0.049, 0.053, 0.12 and 0.14mg/kg.

The Meeting noted that the GAP covered the whole cucurbit crop group and decided to explore a group MRL for cucurbits.

The Meeting further noted that the median residues in cucumber, summer squash and melons from the field trials were within a 5-fold range (0.016–0.051). From the Kruskal-Wallis statistical evaluation, it was found that the three data population on cucumber, summer squash and melons could be combined to represent the whole cucurbits vegetable group. Therefore, a combined residue data set is: < 0.01, < 0.01, 0.01, 0.013, 0.017, 0.018, 0.022, 0.022, 0.023, 0.026, 0.033, 0.049, 0.05, 0.052, 0.053, 0.12 and 0.14 mg/kg.

The Meeting estimated a maximum residue level of 0.2 mg/kg, an HR of 0.16 mg/kg (highest individual residue) and an STMR of 0.023 mg/kg for benzovindiflupyr in the cucurbit crop group.

Fruiting vegetables other than Cucurbits

Benzovindiflupyr is registered in Canada and USA in fruiting vegetables other than cucurbits at 4 × 0.075 kg ai/ha with7 day application interval, and a PHI of 1 day for Canada,; the PHI is 0 days for the USA.

Peppers

Nine supervised field trials on peppers from the USA matching the GAP were submitted to the Meeting. In peppers following treatment with benzovindiflupyr according to USA GAP, residues were (n = 9): 0.04,0.054, 0.059, 0.061,0.093, 0.10, 0.35, 0.36,0.62 mg/kg.

Tomatoes

Eleven trials were conducted in the USA according to this GAP. In tomatoes following treatment according to USA GAP, benzovindiflupyr residues were < 0.01, 0.040, 0.044, 0.053, 0.061, 0.085, 0.11, 0.14, 0.20, 0.38 and 0.43 mg/kg.

The GAP in the US is for the fruiting vegetables crop group; the median residues in peppers and tomatoes from the field trials were within a 5-fold range (0.093 mg/kg vs 0.085 mg/kg) and the Kruskal-Wallis test indicated that the residues from field trials were not from different populations. The Meeting decided to estimate a group maximum residue level. The residues were combined as: < 0.01, 0.04, 0.04, 0.044, 0.053, 0.054, 0.059, 0.061, 0.061, 0.085, 0.093, 0.1, 0.11, 0.14, 0.2, 0.35, 0.36, 0.38, 0.43 and 0.62 mg/kg.

The Meeting estimated a maximum residue level of 0.9 mg/kg, an HR of 0.62 mg/kg (highest residue of replicate samples) and an STMR of 0.089 mg/kg for benzovindiflupyr in fruiting vegetables other than cucurbits (except sweet corn and mushrooms). The Meeting also agreed to recommend a maximum residue level, an HR and STMR of 9 mg/kg, 6.2 mg/kg and 0.89 mg/kg respectively for chili pepper dried, based a default processing factor of 10.

Sweet corn

Benzovindiflupyr is registered in Canada and USA in sweet corn at 2 × 0.075 kg ai/ha foliar application with 7 day interval for Canada and 14 day interval for the USA; the PHI is a 7 days. The Canadian GAP was considered as cGAP because of the shorter interval time. Fifteen trials were conducted in USA with 4 × 0.075 kg ai/ha foliar application with 7 day interval and a 7 day PHI.

In sweet corn, residue data from 15 trials in USA were: < 0.01 (15) mg/kg.

These trials were conducted with 4 applications of 0.075 kg ai/ha dose rather than 2 in Canada cGAP. Considering the residues were all below 0.01 mg/kg, the Meeting estimated a maximum residue level of 0.01* mg/kg, an HR of 0.01 mg/kg and an STMR of 0.01 mg/kg for benzovindiflupyr in sweet corn (corn-on-the-cob).

Pulses

Dry beans and dry peas

Benzovindiflupyr is registered in Canada in pulses (not including soya beans) at 2 × 0.075 kg ai/ha foliar application with a 7 day interval and a 15 day PHI. Thirteen trials were conducted in Canada and USA matching the GAP for dry beans. Eleven trials were conducted in Canada and USA matching the GAP for dry peas.

In thirteen trials conducted in Canada and USA for beans (dry seeds), residues at 14 day PHI were: < 0.01(6), 0.011, 0.011, 0.016, 0.020, 0.044, 0.045 and 0.078mg/kg.

In 11 trials conducted in Canada and USA for peas (dry seeds), residues at mature stages were: < 0.01 (5), 0.011, 0.017, 0.028, 0.033, 0.049 and 0.11 mg/kg.

The Meeting estimated a maximum residue level of 0.15 mg/kg and an STMR of 0.011 mg/kg for benzovindiflupyr in beans (dry).

The Meeting estimated a maximum residue level of 0.2 mg/kg and an STMR of 0.011 mg/kg for benzovindiflupyr in peas (dry).

Soya beans (dry)

Six residue trials in Brazil were evaluated by 2014 JMPR. The Brazil trials (3 × 0.045 kg ai/ha, interval 19-59 and 14 days, DALA 21-28 days, with adjuvant added), matched the critical GAP of Paraguay (three foliar applications without adjuvant at 0.045 kg ai/ha at 14 day intervals with a PHI of 21 days). Benzovindiflupyr residues were: < 0.01, < 0.01, < 0.01, < 0.01, 0.01, 0.03 mg/kg (n = 6).

The current Meeting received 18 trials from USA. The USA GAP for benzovindiflupyr is 2 ×0.050 kg ai/ha, 14 day interval and a PHI of 14 days. The Canada GAP is also available, which is 2 ×0.075 kg ai/ha, 7 day interval and a PHI of 14 days. Considering a higher application rate and same PHIs, the Canada GAP was selected as the critical GAP.

Eighteen trials from USA matching Canada GAP gave residues at 14 days PHI: < 0.01 (n = 15), 0.012, 0.018 and 0.064 mg/kg.

The Meeting estimated a maximum residue level of 0.08 mg/kg to replace its previous recommendation (0.05 mg/kg) and an STMR of 0.01 mg/kg for benzovindiflupyr in soya beans (dry).

Potatoes

The USA GAP for benzovindiflupyr on potatoes is in-furrow use at planting at 1 ×0.10 kg ai/ha, and a PHI of 14 days. The Canada GAP is for foliar use, which is 4 ×0.075 kg ai/ha, 7 day interval and a PHI of 15 days. The Canada GAP was selected as the critical GAP. Twelve trials were conducted in the USA matching the cGAP with less than 25% deviation. Several trials were conducted with EC and WG formulations for residue comparison. Only the highest residue was selected from these trials at one site.

Benzovindiflupyr residues at 14 days PHI were: < 0.01 (n = 8), 0.01, 0.014（2）and 0.015 mg/kg.

The Meeting estimated a maximum residue level of 0.02 mg/kg, an HR of 0.015 mg/kg and an STMR of 0.01 mg/kg for benzovindiflupyr in potatoes.

Barley

Benzovindiflupyr is registered in Canada for use on cereals at 2 × 0.075 kg ai/ha (interval 14 days, not later than Feekes 10.5.4). In the USA, the WG formulation was registered on cereals for foliar use, with 2 ×0.050 kg ai/ha (not later than Feekes 10.5 full flower). Several trials from Canada and the USA on barley were received. One trial was not considered in the evaluation as benzovindiflupyr residues above the LOQ were detected in the control sample. Trials conducted with the last application after BBCH 71 were considered as not matching the cGAP.

In three trials conducted in Canada and nine trials conducted in USA according to Canada GAPs, benzovindiflupyr residues in barley were: 0.014, 0.029, 0.061, 0.079, 0.096, 0.14, 0.21, 0.26, 0.32, 0.42, 0.54 and 0.59 mg/kg.

Based on the trials matching the critical GAP (Canada), the Meeting estimated a maximum residue level of 1 mg/kg, an STMR of 0.175 mg/kg for benzovindiflupyr in barley. The Meeting agreed to extrapolate these estimations to oats.

Maize (corn)

Benzovindiflupyr is registered in Canada at GAP of 2 × 0.075 kg ai/ha (interval 14 days), and a 7 day PHI. In 2010, 19 trials (two of which were also decline studies) were conducted in the USA for field maize, using 4 × 0.075 kg ai/ha (interval 14 days), and a 7 day PHI.

None of the trials matched the critical GAP.

Wheat

Benzovindiflupyr is registered in Canada on cereals at GAP of 2 × 0.075 kg ai/ha (interval 14 days, not later than FK 10.5.4). In USA, the WG formulation was registered on cereals for foliar use, with 2 ×0.050 kg ai/ha (not later than FK 10.5 full flower). Trials from Canada and USA on wheat were received. Trials conducted at the last application after BBCH 71 were considered as not matching the cGAP.

In 12 trials conducted in Canada and 18 trials conducted in USA matching Canada cGAP, benzovindiflupyr residues in wheat were: < 0.01 (9), 0.012(2), 0.015, 0.017, 0.020, 0.021, 0.025 (2), 0.026(2), 0.027(1), 0.031, 0.032, 0.035, 0.041(2), 0.042, 0.046, 0.059, 0.067 and 0.072 mg/kg.

Based on the trials matching the critical GAP (Canada), the Meeting estimated a maximum residue level of 0.1 mg/kg, and an STMR of 0.023 mg/kg for benzovindiflupyr in wheat grain. The Meeting agreed to extrapolate these estimations to rye and triticale.

Sugar cane

Benzovindiflupyr was registered in Brazil on sugar cane, with a GAP of 5 ×0.030 kg ai/ha, 30 day spray interval and a 30 day PHI. In 2010-2011, trials were conducted in seven sites in Brazil. Among them, four trials on processing were also conducted. Three trials were with 3-5 times exaggerated rates and were given consideration in this evaluation using proportionality principles.

Benzovindiflupyr residues in the seven Brazilian trials matching the critical GAP and scaled to the GAP rate were: < 0.01(3), 0.02 (4) mg/kg.

The Meeting estimated a maximum residue level of 0.04 mg/kg, an HR of 0.02 mg/kg and an STMR of 0.02 mg/kg for benzovindiflupyr in sugar cane.

Cotton seed

Benzovindiflupyr was registered in the USA on cotton, with a GAP of 2 ×0.075 kg ai/ha, 14 day spray interval and a 45 day PHI as the cGAP. In 2010-2011, 16 trials were conducted in USA, with 3 ×0.075 kg ai/ha application rate, 14 day spray interval and a 45 day PHI.

No trials matched the critical GAP.

Peanut

Benzovindiflupyr was registered in Brazil on peanut, with a GAP of 4 ×0.045 kg ai/ha, 14 day spray interval and a 7 day PHI.

Six trials conducted in Brazil matched this cGAP within 25% (based on rates). Benzovindiflupyr residues in the 6 trials were: < 0.01 (4), 0.02, 0.02 mg/kg.

The Meeting estimated a maximum residue level of 0.04 mg/kg, and an STMR of 0.01 mg/kg for benzovindiflupyr in peanut.

Rape seed

Benzovindiflupyr was registered in Canada and the USA on rape seed, with foliar application of 1 ×0.075 kg ai/ha and a 30 day PHI. In 2011, nine independent residue trials matching the GAP were conducted in Canada.

Benzovindiflupyr residues in the nine trials matching the critical GAP were: < 0.01 (2), 0.011, 0.019, 0.023, 0.031, 0.045, 0.062 and 0.10 mg/kg.

The Meeting estimated a maximum residue level of 0.2 mg/kg, and an STMR of 0.023 mg/kg for benzovindiflupyr in rape seed.

Coffee beans

Benzovindiflupyr was registered in Brazil on coffee, with foliar application of 3 ×0.060 kg ai/ha, spray interval of 60 days and a 21 day PHI. In 2010, six trials were conducted in Brazil.

Benzovindiflupyr residues in the six trials matching the critical GAP were: < 0.01 (3), 0.02 (2), and 0.07 mg/kg.

The Meeting estimated a maximum residue level of 0.15 mg/kg, and an STMR of 0.015 mg/kg for benzovindiflupyr in coffee beans.

Animal feed commodities

Feed commodities were analyzed in the studies described previously for the edible commodities. Only the trials conducted according to GAP as described before were summarized herein. Maximum residue levels were not estimated for forage. Highest and/or medium residues were estimated for commodities listed in the OECD feeding table for dietary burden calculation purposes.

Forage

In the trials, the forage samples (described as forage, green material or rest of the plant) were harvested at different PHIs. Whenever data was available, the residues at cGAP PHI (or any day later that gave a higher residue) were chosen to represent the level of residues to which animals would be exposed. In cases where this data point was not available, the highest value from any PHI available (up to the grain PHI) would be taken, including from 0 day PHI.

Maize forage

Twenty trials were conducted on maize in Canada and USA according to 4 × 0.075 kg ai/ha foliar application with 7 days interval and a 7 day DALA. The Canada cGAP is 2 × 0.075 kg ai/ha rate, with a 7 day PHI.

The Meeting considered the trials did not match the cGAP.

Pea vines

In five trials conducted in peas in the USA according to GAP (2 applications at 0.075 kg ai/ha, 7 day interval and a 15 day PHI), benzovindiflupyr residues in pea vines were: 0.28, 0.29, 0.43, 0.51 and 0.96 mg/kg.

The Meeting estimated a median and a highest residue of 0.43 mg/kg (as received) and 0.96 mg/kg (as received), respectively, for benzovindiflupyr in pea vines.

Wheat, barley, oat, rye and triticale forage

Thirty two trials conducted on maize in Canada and USA matching Canada cGAP on cereals (2 applications at 0.075 kg ai/ha foliar application with 14 day spray interval, 7 day PHI for forage), gave benzovindiflupyr residues in wheat forage (n = 32) : < 0.01, 0.38, 0.40, 0.45, 0.48, 0.55 (2), 0.63, 0.67, 0.71, 0.73, 0.74, 0.82, 0.90, 0.95, 1.0, 1.1, 1.2 (2), 1.3(3), 1.4, 1.5(3), 1.8(1), 1.9(2), 2.1, 2.2 and 3.4 mg/kg.

The Meeting estimated a median and a highest residue of 1.1 mg/kg (as received) and 3.7 mg/kg (as received; based on the highest individual residue), respectively, for benzovindiflupyr in wheat forage. The Meeting agreed to extrapolate these estimations to barley, oat, rye and triticale.

Soya beans forage

According to the Canadian label, soya bean forage may be fed or harvested 1 day after the last application. No residue trials data were available to support a 1 day PHI.

Sweetcorn forage

Twelve trials in sweet corn were conducted in Canada and the USA according to 4 ×0.075 kg ai/ha foliar application with 7 day interval and forage samples were collected at 7-14 day DALA. The cGAP is 2 × 0.075 kg ai/ha rate, with a 7 days PHI.

No trials matched the cGAP.

Cotton gin trash

Five trials on cotton were conducted in the USA according to USA GAP 3 ×0.075 kg ai/ha, 14 days interval and a 45 days DALA). The cGAP is 2 ×0.075 kg ai/ha rate, with a 45 days PHI.

No trials matched the cGAP.

Straw, hay and/or fodder, stover

Barley and wheat

Trials conducted in barley in Canada and the USA according to Canada GAP (2 ×0.075 kg ai/ha, a 14 day interval, not later than BBCH 71 and 7 days PHI for hay), gave benzovindiflupyr residues in barley hay (n = 20) : 1.5, 1.6, 1.7, 2.3, 2.5, 2.6, 3.8, 4.0, 4.0, 4.7, 5.0, 5.1, 5.2， 5.4, 5.5, 6.1(2), 6.3, 7.9(2) mg/kg; and benzovindiflupyr residues in barley straw (as received, n = 18): 0.21, 0.40, 0.83, 1.6, 1.8, 1.9(2), 2.2, 2.4, 3.2, 3.3, 3.5, 3.7, 4.6, 5.0, 7.1, 7.8(2) mg/kg.

In 33 trials conducted in wheat in the Canada and the USA according to Canada GAP (2 ×0.075 kg ai/ha, a 14 days interval), benzovindiflupyr residues in wheat hay were: 0.54, 0.72, 0.78, 1.1, 1.5, 1.6, 1.7(2), 1.9, 2.0(2), 2.2(2), 2.5, 2.7, 2.9(2), 3.4, 3.8, 3.9(2), 4.1, 5.2, 5.4, 6.0, 6.2, 6.6, 6.9, 7.1, 7.2, 8.5, 8.6, 12 mg/kg and 28 trials on benzovindiflupyr residues in wheat straw were: < 0.01, 0.11, 0.17, 0.23, 0.38, 0.41, 0.54, 0.72, 0.96, 1.0, 1.3(2), 2.0, 2.2, 2.3(2), 2.9, 3.0, 3.7, 3.9, 4.1, 4.4(2), 4.7(2), 6.2,6.9, 8.4 mg/kg.

The medians for the residue data of wheat and barley hay and those for wheat and barley straw are within 5-fold range, and the Mann-Whitney U-test results also indicated they both came from the same population, the data sets for barley and wheat hay (as received) can be combined: 0.54, 0.72, 0.78, 1.1, 1.45, 1.5, 1.6(2), 1.65(2), 1.7, 1.9, 2,2(3), 2.3, 2.5(2), 2.6, 2.7, 2.9(2) , 3.4, 3.8(2), 3.9(2), 4 (2), 4.1, 4.7, 5, 5.1, 5.2 (2), 5.4(2) , 5.5, 6, 6.1(2) , 6.2, 6.3, 6.6, 6.9, 7.1, 7.2, 7.9(2), 8.5, 8.6, and 12 mg/kg.

Similarly, the combined data set for wheat and barley straw (fresh weight） are: 0.01, 0.11, 0.17, 0.21, 0.23, 0.38, 0.4, 0.41, 0.54, 0.72, 0.83, 0.96, 1, 1.3(2), 1.6, 1.8, 1.9(2), 2, 2.2(2) 2.3(2), 2.4, 2.9, 3, 3.2, 3.3, 3.5, 3.7(2) , 3.9, 4.05, 4.4(2), 4.6, 4.7(2), 5, 6.2, 6.85, 7.1, 7.8(2) and 8.4 mg/kg.

The Meeting noted that it is hard to distinguish straw and fodder of barley and wheat moving in trade due to their similarity in appearance. It also noted that there are common or similar GAPs existing for wheat and barley in Canada and the USA. The Meeting decided to recommend the maximum residue level, STMR and HR for barley straw and fodder based on the higher residue in hay. The Meeting then agreed to estimate median and highest residue for barley/wheat straw and fodder, dry at 3.9, 12 mg/kg for animal dietary burden evaluation. The Meeting agreed to recommend maximum residue level for barley/wheat straw and fodder, dry at 15 mg/kg (based on dry matter). The Meeting also agreed to extrapolate these estimates to oat, rye, and triticale.

Maize stover

Maize GAP in USA was available as 2 ×0.075 kg ai/ha, with 7 days PHI and 7 days application interval. 20 trials on maize were conducted in Canada and the USA according to 4 ×0.075 kg ai/ha and a 7 day PHI).

No trials matched the cGAP.

Peanut fodder

The USA registered use was 3 ×0.075 kg ai/ spray and a 30 day PHI with 14 day spray interval, or 2 applications at 0.1 kg ai/ha rate with 21 day interval and 30 days PHI. The 3 times application at 0.075 mg/kg dose from USA was used as cGAP. Fifteen trials conducted in the USA could not match this cGAP due to higher spray rates. The Meeting decided to use proportionality to scale the residues. A proportionality factor of 0.75 was applied to scale down terminal residues in peanut fodder. In 13 trials conducted in peanut in the USA according to 3 applications at 0.1 kg ai/ha, 14 days interval and a 30 day PHI, unscaled residues were: 0.43, 1.8, 2.7, 2.8, 2.9, 2.9, 3.0, 3.7, 6.3, 7.0, 7.1, 7.7 and 9.0 mg/kg; scaled benzovindiflupyr residues in peanut hay (n = 13) were: 0.32, 1.3, 2.1, 2.1, 2.1, 2.1, 2.2, 2.8, 4.7, 5.3, 5.3, 5.7 and 6.8 mg/kg.

The Meeting estimated a maximum residue level, a median and a highest residue of 15 mg/kg, 2.2 mg/kg (as received) and 7.6 mg/kg (as received, highest individual residue), respectively, for benzovindiflupyr in peanut fodder.

Pea hay

In 5 trials conducted in peas in the USA according to GAP (2 applications at 0.075 kg ai/ha, 7 day interval and a 15 day PHI), benzovindiflupyr residues in pea hay at DALA 14 days were: 1.2, 1.8, 2.2, 3.1 and 3.8 mg/kg.

The Meeting estimated maximum residue level, a median and a highest residue of 8 mg/kg, 2.2 mg/kg and 3.8 mg/kg, respectively, for benzovindiflupyr in pea hay or fodder, dry.

Soya beans hay

According to the Canadian label, soya bean hay may be fed or harvested 1 day after the last application. As no residue trial data are available to support a 1 day PHI, the Meeting made no recommendations.

Sweetcorn stover

Twelve trials in sweet corn were conducted in Canada and USA with 4 × 0.075 kg ai/ha foliar applications, with a 7 day interval and 7-14 day DALA. The Canada cGAP is : 2 × 0.075 kg ai/ha and 7 day PHI. The Meeting agreed that the trials don't match the cGAP.

Fate of residues during processing

In 2014 the JMPR Meeting concluded that benzovindiflupyr is stable under the conditions simulating pasteurization, baking/brewing/boiling and sterilization. 2014 JMPR also estimated the processing factors for soya beans products. The current Meeting received processing studies on apple, grape, potato, tomato, cotton seed, peanut, rapeseed, soya bean, barley, corn, wheat, coffee and sugarcane. Processing factors based on the residue for parent only are listed in the table below. Using the STMRs for raw agricultural commodities evaluated by the Current Meeting and considering 2014 JMPR evaluation results on soya bean processing factors, the Meeting estimated STMR-Ps for processed commodities to be used in the livestock dietary burden calculations and/or dietary risk assessment.

Raw commodity $STMR_{RAC}$, HR_{RAC} mg/kg	Processed commodity	Individual processing factors	Mean or best estimated processing factor (PF)	STMR-P = $STMR_{RAC}$ x PF (mg/kg)	HR-P = HR_{RAC} x PF (mg/kg)
Apple	Wet pomace	2.1,2.9, 4.0, 4.2	3.5	0.20	
	Dry pomace	11.4, 15.0, 15.9, 20.8	15.5	0.90	
	Juice	< 0.05,< 0.06,< 0.06, < 0.07	< 0.06	0.003	
	Sauce	0.12,0.22,0.67,1.0	0.45	0.026	
	Dried fruit	6.6, 6.8, 18.9, 22.2	12.9	0.75	2.19
	Jelly	0.04, 0.13	0.09	0.005	
	Canned fruit	< 0.03, < 0.06, < 0.06, 0.08	< 0.06	0.003	
Grape	Must	0.18, 0.49, 0.50, 0.62, 0.70,1.1, 1.5, 1.6	0.66	0.38	
	Wet pomace	1.1, 1.9, 1.9, 2,2, 2.4, 2.4, 2.5, 3, 3.1, 3.6, 4.2, 4.3, 4.4	2.5	1.20	
	Dry pomace	3.2, 3.5,4.4, 4.9, 5.2, 5.9, 6.8,7.1, 11.6,11.7, 17.2, 19.7	6.4	4.2	
	Grape juice	0.06, 0.06, 0.07, 0.08, 0.10, 0.19	0.075	0.022	
	White wine	0.02, 0.03, 0.05, 0.07	0.04	0.012	
	Red wine	0.03, 0.08, 0.08, 0.13	0.08	0.023	
	Dried grapes (Raisins)	4.0, 3.1, 2.5, 2.2, 1.9, 1.4	2.4	0.70	1.9
Potato	Peel	4.8	4.8	0.048	

Raw commodity STMR_RAC, HR_RAC mg/kg	Processed commodity	Individual processing factors	Mean or best estimated processing factor (PF)	STMR-P = STMR_RAC x PF (mg/kg)	HR-P = HR_RAC x PF (mg/kg)
	Peeled tubers	0.25	0.25	0.003	0.004
	Baked tubers	2.2	2.2	0.022	0.033
	Boiled/peeled tubers	0.25	0.25	0.003	0.004
	Flakes	0.50	0.50	0.005	
	Chips	< 0.25	< 0.25	0.003	
	Fried potatoes	< 0.25	< 0.25	0.003	0.004
Tomato	Paste	0.33, 0.50	0.42	0.037	
	Puree	0.15, 0.18	0.17	0.015	
	Canned fruit	0.02, 0.04	0.03	0.003	0.019
	Wet pomace	2.4, 12.5	7.5	0.67	
	Dried fruit	6.3, 11.4	8.9	0.79	5.52
	Juice	0.06, 0.11	0.09	0.008	
	Dried pomace	17.0, 53.6	35.3	3.14	
Peanut	Pressed meal	< 0.053, < 0.17, 1.3, 1.9	0.74	0.007	
	Refined oil	< 0.053, < 0.17, 3.0, 3.8	1.6	0.016	
	Peanut Butter	< 0.05, < 0.14, 1.0, 1.0	< 0.57	0.006	
Rapeseed (canola), seed	Meal	0.42, 0.63	0.53	0.012	
	Refined oil	0.72, 1.2	0.98	0.023	
Soya bean, seed	Meal	< 0.13,< 0.13, < 0.38, < 0.40	< 0.26	0.0026	
	Hulls	1.1, 2.5, 10,11	6.3	0.0063	
	fat flour	< 0.13, 0.13, < 0.34, < 0.44	< 0.24	0.0024	
	Soyamilk	< 0.13,< 0.13, < 0.32, < 0.44	< 0.23	0.0023	
	Tofu	< 0.13, < 0.13, 0.52, 0.58	0.33	0.0033	
	Soya sauce	< 0.13, < 0.13, < 0.34, < 0.36	< 0.23	0.0023	
	Crude oil	0.63, 0.77, 0.96, 2.0,	0.86	0.0086	
	Refined oil	0.38, 0.63, 0.65, 0.68	0.64	0.0064	
	Aspirated grain	7.4, 7.6, 7.7, 7.9, 8.3, 9.6, 11, 14, 191	8.3	0.083	
Barley, grain	Pearl barley	0.27, 0.64	0.46	0.083	
	Barley flour	0.24, 0.55	0.40	0.072	
	Bran	0.32, 0.45	0.39	0.070	
Wheat, grain	Bran, unprocessed	1.0, 1.3, 3.3, 4.0,	2.3	0.053	
	White flour	0.33, 0.33, 0.33, 0.50,	0.33	0.008	
	Wholemeal flour	0.33, 0.33, 1.0, 1.5,	0.67	0.015	
	Wholemeal bread	0.33, 0.33, 0.67, 1.0	0.50	0.012	
	Wheat germs	1.0, 1.0, 1.0, 1.0	1.0	0.023	
	Aspirated grain	22.7, 121.6	72	1.66	
	Flour	0.10, < 0.17	< 0.14	0.003	
	Middlings	0.16, < 0.17	< 0.17	0.004	
	Shorts	0.13, 0.17	0.15	0.003	
	Germ	< 0.17, 0.74	0.74	0.017	
Coffee, green beans	Roasted beans	< 0.33, < 0.50	< 0.42	0.006	
	Instant coffee	< 0.50	< 0.50	0.008	
Sugarcane, stalk	Bagasse	4.9, 5.6, 7.3, 8.25, 9.5, 10.4, 11, 12	8.9	0.18	
	Crystal sugar	0.1, 0.14,0.2, 0.25, 0.25, 0.33, 0.33, 0.5	< 0.25	0.005	
	Molasses	< 0.25, < 0.29, 0.3, < 0.33, < 0.33, < 0.4, < 0.5, 0.5	< 0.33	0.007	

For dried grape (raisins), a maximum reidue level, an STMR and HR of 3 mg/kg, 0.7 mg/kg, 1.9 mg/kg, respectively, are recommended by the Meeting.

Residues in animal commodities

The current Meeting received several field trial studies on benzovindiflupyr residues including those on feed commodities of sweet corn (forage and stover), pulses including peas and beans (hay and vines), soyabean (forage and hay), barley (hay and straw), maize (corn forage and stover), wheat (forage, hay and straw), peanut (hay).

The Meeting estimated the dietary burden of benzovindiflupyr residues on the basis of the livestock diets listed in the FAO manual appendix IX (OECD feedstuff table). For bulk commodities, calculation from STMR provides the levels in feed suitable for estimating maximum residue levels as well as STMR values for animal commodities. Commodities used in the dietary burden calculation are soya bean hay and hulls, wheat forage, barley grain and processed products, corn grain and corn gluten, pea seed, canola, rapeseed and peanut meal, and bean seed.

Dietary burden calculations for beef cattle, dairy cattle, broilers and laying poultry are provided in Annex 6 to the 2016 Report. A mean and maximum dietary burden for livestock, based on benzovindiflupyr use, is shown in the table below.

Livestock dietary burden for benzovindiflupyr residues, expressed as ppm of dry matter diet

		Animal dietary burden, benzovindiflupyr residues, ppm of dry matter diet			
		US-Canada	EU	Australia	Japan
Beef cattle	max	2.38	5.54	14.8 A	0.15
	mean	1.00	2.10	5.15 C	0.15
Dairy cattle	max	5.78	5.72	13.8 B	0.09
	mean	1.85	2.18	5.12 D	0.09
Poultry - broiler	max	0.16	0.15	0.04	0.02
	mean	0.16	0.15	0.04	0.02
Poultry - layer	max	0.16	2.1 E	0.04	0.01
	mean	0.16	0.85 F	0.04	0.01

[A] Highest maximum beef or dairy cattle dietary burden suitable for maximum residue level estimates for mammalian tissues

[B] Highest maximum dairy cattle dietary burden suitable for maximum residue level estimates for mammalian milk

[C] Highest mean beef or dairy cattle dietary burden suitable for STMR estimates for mammalian tissues.

[D] Highest mean dairy cattle dietary burden suitable for STMR estimates for milk.

[E] Highest maximum poultry dietary burden suitable for maximum residue level estimates for poultry tissues and eggs.

[F] Highest mean poultry dietary burden suitable for STMR estimates for poultry tissues and eggs.

Farm animal feeding studies

The 2014 JMPR evaluated and reported the farm animal feeding studies on dairy cows. The Meeting received no further information on feeding studies. Animal dietary burden were calculated using median and highest residue of related commodities estimated by the 2014 and current Meeting..

Animal commodities maximum residue levels

For MRL estimation in animal commodities, the residue definition is benzovindiflupyr, the residue is fat soluble.

Estimated residues in tissues and milk at the dietary burden are shown in the table below.

	Feed level (ppm) for milk residues	Residues (mg/kg) in milk	Feed level (ppm) for tissue residues	Residues (mg/kg) in			
				Muscle	Liver	Kidney	Fat
MRL beef or dairy cattle							
Feeding study [A]	3.5 16	< 0.01 < 0.01	3.5 16	< 0.01 < 0.01	< 0.01 0.07	< 0.01 0.01	< 0.01 0.02
Dietary burden and high residue	13.77	0.01	14.80	0.01	0.064	0.010	0.019
STMR beef or dairy cattle							
Feeding study [B]	3.5 16	< 0.01 < 0.01	3.5 16	< 0.01 < 0.01	< 0.01 0.037	< 0.01 0.01	< 0.01 0.013
Dietary burden and median residue estimate	5.12	< 0.01	5.15	0.01	0.014	0.01	0.010

[A] highest residues for tissues and mean residues for milk

[B] mean residues for tissues and mean residues for milk

The Meeting estimated maximum residue levels of 0.03 (fat), 0.1, 0.03, and *0.01 mg/kg in mammalian meat, mammalian edible offal, mammalian fat, and milk, respectively.

The Meeting estimated an STMR of 0 mg/kg in milk, as no residues from any milk samples at any experimental dose levels were found above the LOQ of 0.01 mg/kg. The Meeting estimated an STMR and HR of 0.01, 0.01 mg/kg, respectively, in mammalian muscle; 0.01 and 0.019 mg/kg, respectively, in mammalian fats; and 0.014 and 0.064 mg/kg, respectively, in mammalian edible offal. The residue in animal commodities is considered fat soluble.

The Meeting noted that no feeding study was conducted on poultry. From the metabolism study results on laying hens according to 2014 JMPR evaluation, at 17–20 ppm in the diets, benzovindiflupyr residues were found in egg yolk (0.0224 mg/kg), egg white (0.00374 mg/kg), poultry fat (0.00125–0.0189 mg/kg), poultry muscle (0.0008–0.0012 mg/kg) and poultry liver (0.0004–0.0005 mg/kg). At the maximum and mean dietary burden of 2.1 ppm and 0.85 ppm, residues of benzovindiflupyr were calculated using division factors of 8 and 20, to be all below 0.001 mg/kg. From these findings, the Meeting concluded that no potential residues are expected in poultry commodities.

The Meeting estimated maximum residue levels of 0.01* for eggs, poultry fat, poultry meat and poultry edible offal. The Meeting recommended an STMR and HR of 0 and 0 for eggs, poultry fat, poultry meat and poultry edible offal.

RECOMMENDATIONS

On the basis of the data from supervised trials the Meeting concluded that the residue levels listed in Annex 1 are suitable for establishing maximum residue limits and for IEDI and IESTI assessments.

Definition of the residue for compliance with the MRL and for dietary risk assessment for plant and animal commodities: *benzovindiflupyr*.

The residue is fat soluble.

DIETARY RISK ASSESSMENT

Long-term dietary exposure

The International Estimated Daily Intakes (IEDI) for benzovindiflupyr were calculated using STMRs estimated by the current and the 2014 Meeting, in combination with consumption data for corresponding food commodities. The results are shown in Annex 3 to the 2016 Report.

The IEDI of the 17 GEMS/Food cluster diets, represented 0–2% of the maximum ADI of 0.05 mg/kg bw.

The Meeting concluded that the long-term exposure to residues of benzovindiflupyr from uses considered by the Meeting is unlikely to present a public health concern.

Short-term dietary exposure

2013 JMPR established an ARfD of 0.1 mg/kg bw. The International Estimated Short Term Intake (IESTI) for benzovindiflupyr were calculated using STMRs/HRs estimated by the current and the 2014 Meeting, in combination with consumption data for corresponding food commodities. The results are shown in Annex 4 to the 2016 Report.

The calculated IESTI represented 0–70% of the ARfD (0.1 mg/kg bw) for the general population, and for children 0–60% of the ARfD. The Meeting concluded that the short-term dietary exposure to residues of benzovindiflupyr from uses considered by the Meeting is unlikely to present a public health concern.

5.3 BIXAFEN (262)

RESIDUE AND ANALYTICAL ASPECTS

Bixafen is a pyrazole-carboxamide fungicide used to control diseases on rape plants and cereals. It inhibits fungal respiration by binding to mitochondrial respiratory complex II. It was considered for the first time by the 2013 JMPR for toxicology and residues, when an ADI of 0-0.02 mg/kg bw and an ARfD of 0.2 mg/kg bw were established.

The 2013 Meeting also recognized that bixafen residues are persistent in soil and may lead to significant residues in rotational crops. Since no field rotational crop studies addressing estimated soil plateau levels were available, no recommendations on maximum residue levels in plant or animal commodities could be given and consequently a dietary risk assessment was not conducted.

However, the 2013 Meeting recommended the following residue definition for bixafen:

Definition of the residue (for compliance with MRLs) for plant commodities: *bixafen*

Definition of the residue (for compliance with MRLs) for animal commodities and (for dietary exposure assessment) for plant and animal commodities: *sum of bixafen and N-(3',4'-dichloro-5-fluorobiphenyl-2-yl)-3-(difluoromethyl)-1H-pyrazole-4-carboxamide (bixafen-desmethyl), expressed as bixafen*

The residue is fat soluble.

At the 47th Session of CCPR, bixafen was scheduled for the evaluation of additional data in the 2016 JMPR. The current Meeting received new information on residues in rotational crops grown in the field supported by additional analytical methods and storage stability data for the metabolites M43 and M44/45. Since the current residue definition includes residues of parent bixafen and bixafen-desmethyl only, they are not discussed further in the appraisal.

Environmental fate in soil

For bixafen the Meeting concluded in 2013 that the active substance is persistent in soil, accumulating after subsequent years of annual treatment. Confined rotational crop studies indicate a potential uptake of residues for bixafen and M21 (bixafen-desmethyl) into plant commodities.

The Meeting also recognized that field rotational crop studies involve soil treatment rates not addressing the soil concentrations expected after subsequent annual treatment. The Meeting concluded that bixafen residues accumulate in soil after subsequent annual treatments. Under consideration of the highest annual application rate reported in the authorised GAPs of 0.25 kg ai/ha, soil residue concentrations equivalent to single application rates to bare soil of 0.9 kg ai/ha could be reached.

Additional field rotational crop studies were submitted to the present Meeting. In three trials conducted in Europe (2 from Germany and one from the UK), the ground was treated with rates equivalent to 0.93 kg ai/ha and carrots, lettuce or wheat/barley were grown as rotational crops at plant-back intervals (PBI) of 19–31 days. In the UK trial the same crops (but in different order) were additionally sown as second and third rotations with PBIs of 124–181 days and 332–363 days, respectively. For the first rotation, residues for bixafen and bixafen-desmethyl (M21) in the rotated crops were:

Commodity	Residue in mg bixafen equivalents per kg (mean value)		
	Bixafen	Bixafen-desmethyl (M21)	Total
Carrot, tops	2 × < 0.01, 0.021 (0.014)	3 × < 0.01	2 × < 0.02, 0.031 (0.024)
Carrot, roots	0.014, 0.019, 0.028 (0.02)	3 × < 0.01	0.024, 0.029, 0.038 (0.03)
Lettuce, head	3 × < 0.01	3 × < 0.01	3 × < 0.02
Wheat, forage	3 × < 0.01	3 × < 0.01	3 × < 0.02

Commodity	Residue in mg bixafen equivalents per kg (mean value)		
	Bixafen	Bixafen-desmethyl (M21)	Total
Wheat, straw	< 0.01, 0.019, 0.049 (0.026)	0.036, 0.043, 0.07 (0.05)	0.036, 0.062, 0.12 (0.076)
Wheat, grain	3 × < 0.01	3 × < 0.01	3 × < 0.02

For the second and third rotation, which was conducted in one trial only, residues of bixafen and M21 were generally below 0.01 mg/kg, except for carrot roots (bixafen: 0.018 mg/kg, M21: < 0.01 mg/kg, total: 0.018 mg/kg) and wheat/barley straw (bixafen: 0.034 mg/kg, M21: 0.048 mg/kg, total: 0.082 mg/kg).

One additional trial utilised test-sites from long-term soil accumulation studies, which were treated with bixafen subsequently for over six years. Before sowing, the soil was analysed for the accumulated residues of bixafen still present at concentrations equivalent to 0.43–0.47 kg ai/ha (based on the first 20 cm layer). The residues being subject to sorption/desorption effects in soil ("aging") were complemented with an additional treatment of bixafen to bare soil for a total nominal soil concentration equivalent to 0.93 kg ai/ha (e.g., 0.43 kg ai/ha aged residue plus 1 × 0.5 kg ai/ha new treatment). Again, carrot, lettuce and wheat were grown in one crop rotation with PBIs of 19–21 days.

In carrots and lettuce, no residues of bixafen or M21 above the LOQ of 0.01 mg/kg were found. Wheat forage and grain were also < 0.01 mg/kg for all analytes, except for 0.012 mg/kg bixafen and 0.023 mg/kg M21 in the straw (total: 0.035 mg/kg).

The Meeting concluded that the transfer of bixafen and its metabolites bixafen-desmethyl (M21) into rotational crops is low. In aerial parts of rotated crops, residues of both compounds were mostly below the LOQ of 0.01 mg/kg, except for a single sample of carrot tops (0.021 mg/kg for bixafen) and in wheat straw (< 0.01–0.05 mg/kg). In soil covered parts (carrot roots), residues of bixafen were found in almost all samples analysed, but also at levels near the LOQ (0.014–0.028 mg/kg). M21 was not found in these samples.

Taking into account the very conservative basis for the estimated soil plateau concentration equivalent to 0.93 kg ai/ha, which addresses many years of subsequent application at the maximum annual GAP rate (up to 0.25 kg ai/ha and year), the Meeting concluded that under realistic field conditions no significant uptake (≥ 0.01 mg/kg) of bixafen or bixafen-desmethyl from soil into plants is to be expected.

No representative crops from the group of pulses/oilseeds or fruiting vegetables have been investigated as rotational crops to date. In view of the low transport of bixafen residues from soil into the investigated crops (root crops, leafy crops and cereal grains), significant residues at or above the LOQ are also not expected for pulses/oilseeds and fruiting vegetables.

Results of supervised residue trials on crops

The 2013 JMPR Meeting already assessed uses of bixafen on rape, barley and wheat according to European GAP.

The 2013 Meeting concluded that field rotational crop studies did not address residues in soil expected after subsequent annual application of bixafen and decided that no recommendations on maximum residue levels and median/highest residues could be made for bixafen in non-permanent crops.

Since such studies were submitted to the current Meeting, which indicate no significant contribution to plant residues by soil uptake, maximum residue levels and STMR values can be estimated based on the 2013 Report.

Therefore, median and highest residues already estimated by the 2013 Meeting for rape seed, small cereal grains (barley, wheat) and feed commodities thereof were directly transferred into estimations of maximum residue levels, STMR values and median/highest residue values by the present Meeting.

Residue values referred to as “total” describe the sum of bixafen and M21 (bixafen-desmethyl), expressed as bixafen.

Barley and oats

In 2013 the Meeting identified the following residues of bixafen and total bixafen for barley grain based on a GAP on barley and oats from the UK:

For MRL compliance purposes residues of parent bixafen in barley grain in the whole of Europe were (n = 19): 0.02, 0.03, 0.04(5), 0.05, 0.06, 0.06, 0.07, 0.08, 0.08, 0.09, 0.09, 0.1, 0.1, 0.25 and 0.34 mg/kg.

For dietary intake purposes the total residues in barley grain in the whole of Europe were (n = 19): 0.03, 0.04, 0.05(5), 0.06, 0.08(3), 0.1(3), 0.11(3), 0.29 and 0.38 mg/kg.

The 2016 Meeting estimated a maximum residue level of 0.4 mg/kg and an STMR value of 0.08 mg/kg for barley grain and decided to extrapolate its estimations to oats.

Wheat, rye and triticale

In 2013 the Meeting identified the following residues of bixafen and total bixafen for wheat grain based on a GAP for rye, triticale and wheat from the UK:

For monitoring purposes residues of parent bixafen in wheat grain in the whole of Europe were (n = 20): < 0.01(12), 0.01(3), 0.02, 0.02, 0.03, 0.03 and 0.03 mg/kg.

For dietary intake purposes the total residues in wheat grain in the whole of Europe were (n = 20): < 0.02(12), 0.02(3), 0.03, 0.03, 0.04, 0.04 and 0.04 mg/kg.

The 2016 Meeting estimated a maximum residue level of 0.05 mg/kg and an STMR value of 0.02 mg/kg for wheat grain and decided to extrapolate its estimations to rye and triticale grain also.

Rape seed

In 2013 the Meeting identified the following residues of bixafen and total bixafen for rape seed based on a GAP for oilseed rape from the UK:

For MRL compliance purposes residues of parent bixafen in rape seeds were (n = 10): < 0.01(6), 0.01(3), 0.017 mg/kg.

For dietary intake purposes the total residues in rape seeds were (n = 10): < 0.02(5), 0.02(4), 0.028 mg/kg.

The 2016 Meeting estimated a maximum residue level of 0.04 mg/kg and an STMR value of 0.02 mg/kg for rape seed.

Animal feeds

Barley, oats, rye, triticale and wheat – forage of cereals

In 2013 the Meeting identified the following residues of total bixafen in barley and wheat forage based on GAPs from the UK for barley/oats and rye/triticale/wheat:

For the calculation of the livestock animal dietary burden the total residues in barley forage (as received) in Europe were (n = 19): 2.1, 2.5, 2.6, 2.7, 2.9, 3.0, 3.2, 3.4, 3.4, 3.5, 3.7, 3.8, 3.9, 4.0, 4.3, 4.4, 4.5, 6.0, 7.3 mg/kg.

For the calculation of the livestock animal dietary burden the total residues in wheat forage (as received) in Europe were (n = 20): 1.5, 2.4, 2.6, 2.7, 2.8, 2.9, 2.9, 3.0, 3.1, 3.4, 3.6, 3.8, 3.9, 4.2, 4.5, 4.7, 4.8, 5.2, 5.5, 7.3 mg/kg.

The 2016 Meeting estimated a highest residue of 7.3 mg/kg and a median residue of 3.5 mg/kg for barley and wheat forage (as received) and decided to extrapolate the estimations to oats, rye and triticale forage also.

Oilseed rape, forage

The 2013 Meeting concluded that the reported GAP for bixafen is not relevant for the utilisation of oilseed rape as an animal forage crop.

Barley, oats, rye, triticale and wheat-straw and fodder, dry

In 2013 the Meeting identified the following residues of bixafen and total bixafen for barley and wheat straw:

For MRL compliance purposes residues of parent bixafen in barley straw (as received) in Europe were (n = 19): 0.46, 0.64, 0.7, 0.76, 0.77, 0.86, 1.1, 1.1, 1.2, 1.5, 1.9, 3.1, 3.7, 4.8, 5.2, 5.4, 5.7, 6.2, 10 mg/kg.

For the calculation of the livestock animal dietary burden the total residues in barley straw (as received) in Europe were (n = 19): 0.5, 0.72, 0.74, 0.85, 1.0, 1.0, 1.2, 1.2, 1.3, 1.6, 2.1, 3.3, 3.9, 5.2, 5.6, 5.6, 6.1, 6.7, 11 mg/kg.

For MRL compliance purposes residues of parent bixafen in wheat straw (as received) in Europe were (n = 20): 0.52, 0.79, 0.93, 0.95, 1.3, 1.4, 1.7, 1.8, 1.8, 1.9, 2.6, 3.2, 3.3, 3.6, 3.6, 4.1, 5.4, 5.7, 8.4, 10 mg/kg.

For the calculation of the livestock animal dietary burden the total residues in wheat straw (as received) in Europe were (n = 20): 0.78, 1.2, 1.2, 1.3, 1.5, 1.9, 1.9, 2.1, 2.2, 2.5, 3.2, 3.7, 3.9, 3.9, 4.1, 4.4, 6.0, 6.2, 9.6, 11 mg/kg.

The 2016 Meeting noted that straw and fodder of small cereal grains (barley, oats, rye, triticale and wheat) are very similar and difficult to distinguish. Therefore it was decided to consider residue distributions in barley and wheat straw for mutual support. Since the residue populations for barley and wheat straw reported in the 2013 Report are not significantly different (Kruskal-Wallis-Test), residues were combined for a more robust estimate:

For MRL compliance purposes residues of parent bixafen in barley and wheat straw (as received) in Europe were (n = 39): 0.46, 0.52, 0.64, 0.7, 0.76, 0.77, 0.79, 0.86, 0.93, 0.95, 1.1, 1.1, 1.2, 1.3, 1.4, 1.5, 1.7, 1.8, 1.8, 1.9, 1.9, 2.6, 3.1, 3.2, 3.3, 3.6, 3.6, 3.7, 4.1, 4.8, 5.2, 5.4, 5.4, 5.7, 5.7, 6.2, 8.4, 10 and 10 mg/kg.

For the calculation of the livestock animal dietary burden the total residues in barley and wheat straw (as received) in Europe were (n = 39): 0.5, 0.72, 0.74, 0.78, 0.85, 1.0, 1.0, 1.2(4), 1.3, 1.3, 1.5, 1.6, 1.9, 1.9, 2.1, 2.1, 2.2, 2.5, 3.2, 3.3, 3.7, 3.9(3), 4.1, 4.4, 5.2, 5.6, 5.6, 6.0, 6.1, 6.2, 6.7, 9.6, 11 and 11 mg/kg.

The 2016 Meeting estimated a maximum residue level of 20 mg/kg (dry-weight basis, based on 89% DM content), a highest residue of 11 mg/kg (as received) and a median value of 2.2 mg/kg (as received) for barley and wheat, straw and fodder, and decided to extrapolate the estimations to oats, rye and triticale straw and fodder, also.

Fate of residues during processing

The 2013 Meeting received information on the hydrolysis of radio-labelled bixafen as well as processing studies using unlabelled material on grown residues in oilseed rape, barley and wheat.

In a hydrolysis study using radio-labelled bixafen typical processing conditions were simulated (pH 4,5 and 6 with 90 °C, 100 °C and 120 °C for 20, 60 and 20 minutes). In duplicate samples of sterile buffer solution no degradation was observed.

The 2013 Meeting received information on the fate of bixafen and bixafen-desmethyl residues following simulating household and commercial processing of rape seed. Processing factors estimated by the 2013 Meeting, maximum residue levels and STMR-P values for the commodities considered by the 2016 Meeting are summarised below.

Raw commodity	Processed commodity	Bixafen		Total bixafen	
		Processing factor	Maximum residue level in mg/kg	Processing factor	STMR-P in mg/kg
Rape seed (STMR: 0.02 mg/kg, MRL: 0.04 mg/kg)	Oil, crude	0.75	n.n.	0.83	0.016
	Oil, refined	2	0.08	1.5	0.03
	Meal	2	n.n.	1.5	0.03
Barley (STMR: 0.08 mg/kg, MRL: 0.4 mg/kg)	Pearl barley	0.22	n.n.	0.25	0.02
	Beer	<0.065	n.n.	< 0.11	0.009
	Brewers grain	0.93	n.n.	0.93	0.074
	Brewers malt	0.86	n.n.	0.95	0.076
Wheat (STMR: 0.02 mg/kg, MRL: 0.05 mg/kg)	Flour	0.23	n.n.	0.37	0.007
	Bran, processed	2.7	0.15	2.6	0.052
	White bread	0.2	n.n.	< 0.37	0.007
	Wholemeal	0.9	n.n.	0.91	0.018
	Wholemeal bread	0.5	n.n.	0.63	0.012
	Germs	1	n.n.	1.1	0.022

n.n.not necessary, covered by the maximum residue level for the raw commodity or commodity is not relevant in trade

Residues in animal commodities

Farm animal feeding studies

The 2013 Meeting received feeding studies involving bixafen on lactating cows and laying hens. In the 2013 Report the following conclusions were presented:

"Three groups of lactating cows were dosed daily at levels of 4, 12 and 40 ppm in the diet (0.15, 0.45 and 1.5 mg/kg bw) for 28 consecutive days. Milk was collected throughout the whole study and tissues were collected on day 29 within 24 hrs after the last dose.

In milk highest mean total residues were 0.039 mg/kg for the 4 ppm group, 0.077 mg/kg for the 12 ppm group and 0.218 mg/kg for the 40 ppm group. Investigation of the distribution of the residue in cream gave a 9.9 fold higher concentration than in whole milk (15 between whole milk and milk fat).

Total residues in muscle for the 4, 12 and 40 ppm groups were 0.039–0.065 mg/kg (mean: 0.052 mg/kg), 0.081–0.26 mg/kg (mean: 0.162 mg/kg) and 0.63–1.0 mg/kg (mean: 0.82 mg/kg), respectively. In liver residues were 0.42–0.69 mg/kg (mean: 0.57 mg/kg) for the 4 ppm group, 1.2–1.7 mg/kg (mean: 1.4 mg/kg) for the 12 ppm group and 4.8–5.4 mg/kg (mean: 5.0 mg/kg) for the 40 ppm group. Kidney contained total residues of 0.1–0.15 mg/kg (mean: 0.14 mg/kg), 0.28–0.37 mg/kg (mean: 0.34 mg/kg) and 1.0–1.3 mg/kg (mean: 1.2 mg/kg) for the for the 4, 12 and 40 ppm group.

For fat three different tissues were analysed (perirenal, mesenteric and subcutaneous fat). Highest residues were found in perirenal fat with 0.14–0.21 mg/kg (mean: 0.18 mg/kg) for the 4 ppm group, 0.33–0.48 mg/kg (mean: 0.43 mg/kg) for the 12 ppm group and 0.8–1.9 mg/kg (mean: 1.4 mg/kg) for the 40 ppm group.

For laying hens three groups of animals were dosed with rates of 1.5, 4.5 and 15 ppm in the dry weight feed (0.1, 0.3 and 1.0 mg/kg bw) for 28 consecutive days. Eggs were collected throughout the whole study and tissues were collected on day 29 after the last dose.

In eggs total residues at the plateau phase were < 0.02–0.02 mg/kg (highest daily mean: 0.02 mg/kg) for the 1.5 ppm group and ranged between 0.05 to 0.07 mg/kg (highest daily mean: 0.063 mg/kg) for the 4.5 ppm and between 0.13 to 0.22 mg/kg (highest daily mean: 0.178 mg/kg) for the 15 ppm group.

In tissues no residues above the LOQ were found in muscle. Total residues in fat for the 1.5, 4.5 and 15 ppm groups were < 0.02–0.02 mg/kg (mean: 0.02 mg/kg), 0.05–0.06 mg/kg (mean: 0.057 mg/kg) and 0.06–0.09 mg/kg (mean: 0.07 mg/kg), respectively. In liver residues were < 0.02–0.02 mg/kg (mean: 0.02 mg/kg) for the 1.5 ppm group, 0.02–0.04 mg/kg (mean: 0.03 mg/kg) for the 4.5 ppm group and 0.03–0.05 mg/kg (mean: 0.04 mg/kg) for the 15 ppm group."

Estimated maximum and mean dietary burdens of livestock and animal commodities maximum residue levels

Dietary burden calculations for beef cattle, dairy cattle, broilers and laying poultry are presented in Annex IX. The calculations were made according to the livestock diets from US-Canada, EU, Australia and Japan in the OECD Table (Annex 6 of the 2006 JMPR Report).

	Livestock dietary burden, Total bixafen, ppm of dry matter diet							
	US-Canada		EU		Australia		Japan	
	max.	mean	max.	mean	max.	mean	max.	mean
Beef cattle	2.0	0.45	8.3	4.0	29 [A]	14 [C]	0.09	0.09
Dairy cattle	8.3	4.0	8.3	4.0	27 [B]	13 [D]	1.3	0.65
Poultry - broiler	0.07	0.07	0.07	0.07	0.03	0.03	0.01	0.01
Poultry - layer	0.07	0.07	3.0 [E]	1.5 [F]	0.05	0.02	0.005	0.05

[A] Highest maximum beef cattle burden suitable for MRL estimates for mammalian meat

[B] Highest maximum dairy cattle burden suitable for MRL estimates for milk

[C] Highest mean beef cattle burden suitable for STMR estimates for mammalian meat

[D] Highest mean dairy cattle burden suitable for STMR estimates for mammalian meat and milk

[E] Highest maximum broiler or laying hen burden suitable for MRL estimates for poultry products and eggs

[F] Highest mean broiler or laying hen burden suitable for STMR estimates for poultry products and eggs

Animal commodities maximum residue levels

For beef cattle a maximum and mean dietary burden of 29 ppm and 14 ppm were estimated, respectively. For dairy cattle a maximum and mean dietary burden of 27 ppm and 13 ppm were estimated. The estimated dietary burdens are evaluated against the dose levels of 12 and 40 ppm from a lactating cow feeding study.

Bixafen feeding study	Feed level	Total residue				
	(ppm)	(mg/kg) in milk	(mg/kg) in muscle	(mg/kg) in kidney	(mg/kg) in liver	(mg/kg) in fat
Maximum residue level: dairy cattle						
Feeding study (HR for each dose group, except for milk)	12 40	0.077 0.218	0.26 1.0	0.37 1.3	1.7 5.4	0.48 1.9

Bixafen feeding study	Feed level	Total residue				
	(ppm)	(mg/kg) in milk	(mg/kg) in muscle	(mg/kg) in kidney	(mg/kg) in liver	(mg/kg) in fat
Dietary burden and residue estimate	29 (beef) 27 (dairy)	0.15	0.71	0.93	3.9	1.3
STMR dairy cattle						
Feeding study (Mean for each dose group)	12 40	0.077 0.218	0.16 0.82	0.34 1.2	1.4 5.0	0.43 1.4
Dietary burden and residue estimate	14 (beef) 13 (dairy)	0.082	0.21	0.4	1.7	0.5

The Meeting estimated HR and STMR values of 0.71 and 0.21 mg/kg for muscle, 3.9 and 1.7 mg/kg for liver, 0.93 and 0.4 mg/kg for kidney and 1.3 and 0.5 mg/kg for fat. Corresponding maximum residue levels were estimated at 4 mg/kg for edible offal, mammalian (based on liver) and 2 mg/kg for meat (based on the fat) and mammalian fat (except for milk fat).

For milk, a STMR value and a maximum residue level of 0.082 mg/kg and 0.2 mg/kg were estimated, respectively. Based on an average fat content in whole milk of 4%, the Meeting also estimated a STMR value and a maximum residue level of 2.05 mg/kg and 5 mg/kg for bixafen in milk fat, respectively.

For poultry (laying hens) a maximum and mean dietary burden of 3 ppm and 1.5 ppm were estimated, respectively. The estimated dietary burdens are evaluated against the dose levels of 1.5 and 4.5 ppm from a laying hen feeding study.

Bixafen feeding study	Feed level	Total residue			
	(ppm)	(mg/kg) in eggs	(mg/kg) in muscle	(mg/kg) in liver	(mg/kg) in fat
Maximum residue level: laying hens					
Feeding study (HR)	1.5 4.5	0.02 0.07	< 0.02 < 0.02	0.02 0.04	0.02 0.06
Dietary burden and residue estimate	3	0.047	0.02* (<LOQ at all dose levels)	0.03	0.04
STMR laying hens					
Feeding study (Mean for each dose group)	1.5	0.02	< 0.02	0.02	0.02
Dietary burden and residue estimate	1.5	0.02	0 (< LOQ at all dose levels)	0.02	0.02

The Meeting estimated HR and STMR values of 0 and 0 mg/kg for poultry muscle, 0.03 and 0.02 mg/kg for poultry, edible offal of and 0.04 and 0.02 mg/kg for poultry fat. Corresponding maximum residue levels were estimated at 0.05 mg/kg for poultry, edible offal of, 0.02* mg/kg for poultry meat and 0.05 mg/kg for poultry fat.

For eggs, a STMR value, a HR value and a maximum residue level of 0.02 mg/kg, 0.047 mg/kg and 0.05 mg/kg were estimated, respectively.

RECOMMENDATIONS

On the basis of the data obtained from supervised residue trials the Meeting concluded that the residue levels listed in Annex 1 are suitable for establishing maximum residue limits and for IEDI and IESTI assessment.

Definition of the residue (for compliance with MRLs) for plant commodities: *bixafen*

Definition of the residue (for compliance with MRLs) for animal commodities and (for dietary exposure assessment) for plant and animal commodities: *sum of bixafen and N-(3',4'-*

dichloro-5-fluorobiphenyl-2-yl)-3-(difluoromethyl)-1H-pyrazole-4-carboxamide (bixafen-desmethyl), expressed as bixafen

The residue is fat soluble.

DIETARY RISK ASSESSMENT

Long-term dietary exposure

The International Estimated Daily Intakes (IEDI) for bixafen was calculated from recommendations for STMRs for raw and processed commodities in combination with consumption data for corresponding food commodities. The results are shown in Annex 3.

The IEDI of the 17 GEMS/Food cluster diets, based on the estimated STMRs represented 1% to 9% of the maximum ADI of 0.02 mg/kg bw. The Meeting concluded that the long-term exposure to residues of bixafen from uses considered by the Meeting is unlikely to present a public health concern.

Short-term dietary exposure

The International Estimated Short term Intake (IESTI) for bixafen was calculated for all food commodities and their processed fractions for which maximum residue levels were estimated and for which consumption data were available. The results are shown in Annex 4.

The IESTI represented 0–20% of the ARfD (0.2 mg/kg bw) for the general population and 0–20% of the ARfD for children. The Meeting concluded that the short-term dietary exposure to residues of bixafen, when used in ways that have been considered by the JMPR, is unlikely to present a public health concern.

5.4 BUPROFEZIN (173)

RESIDUE AND ANALYTICAL ASPECTS

The insecticide buprofezin was first evaluated by the JMPR in 1991 and under the Periodic Re-evaluation Programme in 2008 when an ADI of 0–0.009 mg/kg bw and an ARfD of 0.5 mg/kg bw were established. The residue definition for compliance with the MRL and estimation of dietary intake in plant commodities is buprofezin.

Buprofezin was scheduled by the 47th Session of the CCPR for the evaluation of additional uses by the 2016 JMPR. Residue data were submitted to the present Meeting on basil by the government of Thailand and on mango, papaya and soya bean by the company.

Methods of analysis

A GC-NPD method for determination of buprofezin in papaya involved extraction with acetone, acidification, partitioning with hexane, with further partitioning of the residues in the aqueous phase partitioned into dichloromethane before analysis. The lowest validated level was 0.05 mg/kg.

LC-MS/MS methods were validated for the analysis of buprofezin in mango and soya bean. The sample is extracted with acetonitrile and a salt-mixture and quantification was performed using either the ion m/z: 306 → 201 or 306 → 116. The method LOQ was 0.01 mg/kg.

In a GC-ECD method for determination of buprofezin in soya bean, the sample was extracted with dichloromethane and cleaned-up on deactivated florisil. The method was validated at an LOQ of 0.02 mg/kg.

A summary report of recovery data of an LC-MS/MS method for the analysis of buprofezin in basil was provided. Mean recoveries at 0.05 to 10 mg/kg levels ranged from 88 to 96% (n = 6 at each level), with % RSD < 7% in all cases.

Stability of pesticide residues in stored analytical samples

A storage stability study was provided for papaya fruit samples fortified with buprofezin at 2 mg/kg showing that residues were stable for 220 days at -20 °C.

No storage study was provided on soya bean.

Results of supervised residue trials on crops

Mango

In Brazil, GAP for buprofezin on mango is 3 applications at 0.05 kg ai/hL and 7 days PHI. In four trials conducted in Brazil according to GAP, residues in the whole fruit were 0.01 (2), 0.02_and 0.05 mg/kg.

The Meeting confirms its previous recommendation (2008) of a maximum residue level of 0.1 mg/kg for buprofezin in mango.

In Brazil, GAP for buprofexin on avocado is 3 applications at 0.05 kg ai/hL and a 7 day PHI. The meeting agreed to extrapolate the recommendation on mango to avocado along with an STMR and HR of 0.01 mg/kg.

Papaya

Buprofezin is registered in the USA to be used at 0.63 to 0.84 kg ai/ha, with a maximum of 5 applications or 3.2 kg ai/ha per season, and 3 days PHI. Two independent trials were conducted in the USA in 2004 using 5 × 0.43 kg ai/ha, giving residues of 0.50 and 0.65 mg/kg at 3 days DAT. The rate corresponds to 67% of the maximum rate per season. Applying the proportionality principle, the residues estimated if the trials were conducted according to the maximum GAP would be 0.75 and 0.97 mg/kg, respectively.

The Meeting agreed that two trials are not sufficient to estimate a maximum residue level for buprofezin in papaya.

Soya bean

Buprofezin is registered in Brazil to be used at 3 × 0.25 kg ai/ha and a 20 day PHI. In eight rials conducted in the country according to 2 × GAP (3 applications at 0.50 ai/ha), residues were < 0.01 (4) and < 0.02 mg/kg (4). Residues in samples harvested at 10 days DAT gave the same results.

The Meeting estimated a maximum residue level of 0.01* mg/kg and an STMR of 0.01 mg/kg for buprofezin in soya bean.

Basil

Buprofezin is registered on basil in Thailand at 2 × 0.08 kg ai/hL and a 7 day PHI. In three independent trials conducted in the country according to GAP, residues were 0.017, 0.45 and 0.72 mg/kg.

The Meeting estimated a maximum residue level of 1.5 mg/kg, an STMR of 0.45 mg/kg and an HR of 0.72 mg/kg for buprofezin in basil.

Residues in animal commodities

The estimation of residues of buprofezin in the crops considered by the current Meeting does not impact on the previous recommendations for residues in animal commodities made by the 2008 JMPR

RECOMMENDATIONS

On the basis of the data obtained from supervised residue trials the Meeting concluded that the residue levels listed in Annex 1 are suitable for establishing maximum residue limits and for IEDI and IESTI assessment.

DIETARY RISK ASSESSMENT

Long-term dietary exposure

The IEDI of buprofezin based on the STMRs estimated by the 2012 JMPR Meeting for the 17 GEMS/Food cluster diets were up to 40% of the maximum ADI of 0.009 mg/kg bw. The STMRs estimated for soya bean, avocado and basil made by the current Meeting did not change the previous conclusion that the long-term dietary exposure to residues of buprofezin is unlikely to present a public health concern

Short-term dietary exposure

The ARfD for buprofezin is 0.5 mg/kg bw. The International Estimated Short-Term Intake (IESTI) of buprofezin for the commodities for which STMR, HR and maximum residue levels were estimated by the current Meeting. The results are shown in Annex 4. The IESTI represented a maximum of 0.2% of the ARfD. The Meeting concluded that the short-term dietary exposure of buprofezin residues, from uses considered by the current Meeting, was unlikely to present a public health concern.

5.5 CHLORANTRANILIPROLE (230)

RESIDUE AND ANALYTICAL ASPECTS

Chlorantraniliprole was first evaluated for residues and toxicological aspects by the 2008 JMPR. The 2008 JMPR established an ADI for chlorantraniliprole of 0–2 mg/kg bw and concluded that an ARfD was unnecessary. The residue definition for compliance with MRL and for dietary intake for plant and animal commodities is chlorantraniliprole. The residue is considered fat soluble. It was last evaluated in 2014 for additional maximum residue levels. At the 47th Session of the CCPR (2015), chlorantraniliprole was listed for consideration of further additional maximum residue levels by the 2016 JMPR.

The Meeting received information on registered use patterns, supervised residue trials on spring onions, cereals (barley, sorghum, wheat) and peanuts that were previously submitted to the 2014 JMPR as well as a residue transfer study in laying hens. Product labels were available from Canada and the United States of America.

Methods of analysis

Residue trial samples in crops were analysed using LC-MS/MS methods based on those previously evaluated by the JMPR in 2008.

An analytical method was provided reported for the analysis of chlorantraniliprole and selected metabolites (IN-K9T00, IN-HXH44, IN-GAZ70, IN-EQW78) in poultry tissues and eggs. The basic approach employs homogenisation and extraction with acetonitrile:hexane. Clean-up of tissue extracts is by SPE (hydrophilic lipophilic balanced polymer and strong anion exchange in sequence). Residues are determined by LC-MS/MS. The analytical method for chlorantraniliprole and selected metabolites was validated with LOQs of 0.01 mg/kg for each analyte.

Stability of pesticide residues in stored analytical samples

As reported by the 2014 JMPR, samples were stored frozen for periods less than the period of stability demonstrated in studies provided to the 2008 Meeting and were satisfactory.

Results of supervised residue trials on crops

Supervised residue trial data for were available for chlorantraniliprole on spring onions, cereals (barley, sorghum, wheat) and peanuts. The trials were evaluated by the 2014 JMPR.

Bulb vegetables-green onion

The critical GAP for bulb vegetables (Crop group 3-07) in the USA is for applications at a maximum rate of 110 g ai/ha, with a maximum of 225 g ai/ha/season, at intervals of 7 days and a PHI of 1 day. None of the trials from Canada and the USA approximated critical GAP in the USA as the spray interval employed was too short at 3 days.

The critical GAP for bulb vegetables, green onions (US crop subgroup 3-07B) in Canada is for applications at a maximum rate of 75 g ai/ha, with a maximum of 225 g ai/ha/season, at intervals of 5 days and a PHI of 1 day. None of the trials from Canada and the USA approximated critical GAP in Canada. The data were not suitable for application of proportionality as the number of sprays, spray intervals and application rates deviated from critical GAP.

Cereals

Chlorantraniliprole is approved for use on cereals in Canada and the USA. Critical GAP in the USA for cereals (except corn and rice) is applications at up to 110 g ai/ha, maximum seasonal application 225 g ai/ha, at intervals of 7 days with a PHI of 1 day. In trials approximating critical GAP in the USA residues in cereal grain were:

Barley (n = 3): 1.9, 1.9 and 2.0 mg/kg

Sorghum (n = 3): 0.79, 1.2 and 1.5 mg/kg

Wheat (n = 5): 0.18, 0.19, 0.23, 0.25 and 0.41 mg/kg.

The Meeting considered the number of trials in the individual cereal crops insufficient to estimate maximum residue level for barley, sorghum and wheat and decided to consider whether it would be possible to estimate a group maximum residue level for cereal grains (except corn and rice). In considering whether a group maximum residue level is possible the Meeting noted the median residues differed by more than a factor of 5; as a result it would not be appropriate to combine the trials on the individual crops to make a larger dataset, the number of trials remained insufficient to estimate a maximum residue level.

Peanuts

The critical GAP in the USA is applications at 110 g ai/ha, a maximum of 224 g ai/ha/year, with a 5 day retreatment interval and a PHI of 1 day. In five trials conducted in peanuts in the USA in which two applications of chlorantraniliprole were made at 111–115 g ai/ha (total application rate of 224–228 g ai/ha) with a 5– 6 day retreatment interval and a PHI of 1 day residues were: < 0.01, < 0.01, < 0.01, 0.012, 0.034 mg/kg.

The Meeting estimated a maximum residue level of 0.06 mg/kg and STMR of 0.01 mg/kg for chlorantraniliprole in peanuts.

Animal feeds

Cereals

Chlorantraniliprole is approved for use on cereals in Canada and the USA. Critical GAP in the USA for cereals (except corn and rice) is application at a maximum of 110 g ai/ha, maximum seasonal application 225 g ai/ha, at intervals of 7 days with a PHI of 1 day (no PHI for forage or hay). In trials approximating critical GAP in the USA residues in cereal forage were:

Sorghum forage (n = 3): 2.7, 3.4, 4.1 mg/kg.

Wheat forage (n = 4): 4.3, 4.3, 4.4, 4.6 mg/kg.

The Meeting noted that residues in sorghum and wheat forage are similar and agreed to use them in mutual support to estimate a median and highest residue for cereal forage (except maize and rice) of 4.3 and 4.6 mg/kg (as received basis) respectively.

In trials approximating critical GAP in the USA residues in cereal fodder were:

Barley hay (n = 3): 5.5, 9.2, 11 mg/kg;

Wheat hay (n = 4): 8.6, 9.5, 11, 11 mg/kg; for hay, and

Barley straw (n = 3): 3.6, 12, 14 mg/kg;

Sorghum stover (n = 3): 3.4, 4.1, 5.9 mg/kg;

Wheat straw (n = 4): 0.19, 4.5, 6.4, 15 mg/kg; for straw and stover.

The Meeting agreed to utilise the data for straw and stover to estimate a maximum residue level for fodder of cereals (except maize and rice) and decided to combine the data for straw and stover. The combined dataset is:

0.19, 3.4, 3.6, 4.1, 4.5, 5.9, 6.4, 12, 14, 15 mg/kg.

The Meeting estimated a maximum residue level of 30 mg/kg (dry weight basis), median residue of 5.2 mg/kg (as received) and highest residue of 15 mg/kg (as received) for chlorantraniliprole in fodder of cereals (except corn and rice).

Residues in animal commodities

Farm animal feeding studies

The Meeting received information on the residue levels in tissues and eggs of laying hens dosed with chlorantraniliprole at the equivalent of 4.8, 18.8 and 51.9 ppm in the feed for 28 consecutive days.

Mean and highest residues of chlorantraniliprole (parent compound) in eggs were 0.132 and 0.147 mg/kg for the 4.8 ppm group, 0.296 and 0.512 mg/kg for the 18.8 ppm group, 0.447 and 0.680 mg/kg for the 51.9 ppm group.

Mean and highest residues of chlorantraniliprole (parent compound) in liver were 0.038 and 0.054 mg/kg for the 4.8 ppm group, 0.092 and 0.122 mg/kg for the 18.8 ppm group, 0.147 and 0.178 for the 51.9 ppm group.

Mean and highest residues of chlorantraniliprole (parent compound) in muscle were 0.011 and 0.016 mg/kg for the 4.8 ppm group, 0.027 and 0.036 mg/kg for the 18.8 ppm group, 0.049 and 0.054 for the 51.9 ppm group.

Mean and highest residues of chlorantraniliprole (parent compound) in skin and fat were 0.042 and 0.066 mg/kg for the 4.8 ppm group, 0.096 and 0.141 for the 18.8 ppm group, 0.168 and 0.212 for the 51.9 ppm group.

Estimation of livestock dietary burdens

The Meeting recalculated the livestock dietary burden based on the uses considered by the current Meeting and by the 2008, 2010, 2013 and 2014 Meetings on the basis of diets listed in the 2016 edition of the FAO Manual Appendix IX (OECD Feedstuff Table). The maximum dietary burdens are 36 ppm for beef cattle and 30 ppm for dairy cattle, while the mean dietary burdens are 18 ppm for beef cattle and 17 ppm for dairy cattle. These values have changed only marginally from those calculated by the 2013 Meeting (beef cattle maximum/mean of 31.7/15.7 ppm, and dairy cattle maximum/mean of 26.8/13.1 ppm). The Meeting confirmed its previous recommendations for maximum residue levels and STMR values for meat from mammals other than marine mammals, milks and edible offal (mammalian).

The maximum and mean dietary burdens for poultry were unchanged from those previously calculated. The current Meeting noted previous maximum residue level estimates for poultry commodities were based on a laying hen metabolism study and decided to estimate residues in poultry commodities using the newly available laying hen residue transfer study.

Summary of poultry dietary burden (ppm dry matter diet)

	US-Canada		EU		Australia		Japan	
	max	mean	Max	mean	max	Mean	max	Mean
Broilers	0.064	0.064	0.073	0.051	0.118	0.118	1.454	0.869
Layers	0.064	0.064	4.8[A]	3.6[B]	0.118	0.118	0.053	0.053

[A] Highest maximum poultry dietary burden suitable for MRL estimates for poultry meat and eggs

[B] Highest mean poultry dietary burden suitable for STMR estimates for poultry meat and eggs

Animal commodity maximum residue levels

The calculation used to estimate highest total residues for use in estimating maximum residue levels, STMR and HR values is shown below.

	Feed level (ppm) for egg residues	Residues (mg/kg) in eggs	Feed level (ppm) for tissue residues	Residues (mg/kg)		
				Muscle	Liver	Skin and Fat
MRL						
Feeding study [A]	4.8	0.162	4.8	0.016	0.054	0.066
Dietary burden and high residue estimates	4.8	0.162	4.8	0.016	0.054	0.066
STMR						
Feeding study [B]	4.8	0.132	4.8	0.011	0.038	0.042
Dietary burden and median residue estimates	3.6	0.099	3.6	0.008	0.028	0.031

[A] highest residues for tissues and eggs

[B] mean residues for tissues and eggs

The Meeting confirmed its previous recommendations for maximum residue level of 0.2 mg/kg and recommended an STMR of 0.099 mg/kg for eggs.

The meeting estimated maximum residue levels of 0.02 mg/kg for poultry meat, 0.07 mg/kg for poultry edible offal and 0.08 mg/kg for poultry fats to replace its previous recommendations of 0.01*and 0.01* and 0.01* mg/kg respectively. The Meeting also estimated the following STMR values: poultry muscle 0.008 mg/kg; poultry fat 0.031 mg/kg; poultry edible offal 0.028 mg/kg and eggs 0.099 mg/kg.

RECOMMENDATIONS FURTHER WORK OR INFORMATION

On the basis of the data obtained from supervised residue trials the Meeting concluded that the residue levels listed in Annex 1 are suitable for establishing maximum residue limits and for IEDI and IESTI assessment.

Definition of the residue (for compliance with MRL and for dietary risk assessment) for plant and animal commodities: *chlorantraniliprole.*

The residue is fat soluble.

DIETARY RISK ASSESSMENT

Long-term dietary exposure

The 2008 JMPR established an Acceptable Daily Intake (ADI) of 0–2 mg/kg bw for chlorantraniliprole.

The evaluation of chlorantraniliprole resulted in recommendations for MRLs and STMR values for raw and processed commodities. Where data on consumption were available for the listed food commodities, dietary intakes were calculated for the 17 GEMS/Food Consumption Cluster Diets. The results are shown in Annex 3.

The IEDIs in the seventeen Cluster Diets, based on the estimated STMRs were 0–1% of the maximum ADI (2 mg/kg bw). The Meeting concluded that the long-term dietary exposure to residues of chlorantraniliprole from uses that have been considered by the JMPR is unlikely to present a public health concern.

Short-term dietary exposure

The 2008 JMPR decided that an ARfD for chlorantraniliprole was unnecessary. The Meeting therefore concluded that the short-term dietary exposure to residues of chlorantraniliprole resulting from uses that have been considered by the JMPR is unlikely to present a public health concern.

5.6 DELTAMETHRIN (135)

RESIDUE AND ANALYTICAL ASPECTS

Deltamethrin, a non-systemic synthetic pyrethroid insecticide was reviewed by JMPR several times between 1980 and 1992 and full periodic reviews were conducted for toxicology in 2000 and for residues in 2002. Residues from the veterinary uses of deltamethrin were evaluated by JECFA in 1999 and 2003.

The 2000 JMPR established an ADI of 0–0.01 mg/kg bw/day and an acute RfD of 0.05 mg/kg bw for deltamethrin and the residue definition established by the 2002 JMPR for plant and animal commodities, for both compliance with MRLs and for dietary intake assessment is the *sum of deltamethrin and its α-R- and trans– isomers*. The 2002 JMPR also concluded that the residue is fat soluble but that residues in milk should be measured on whole milk.

Specifications for deltamethrin technical material and relevant formulations have been established by the JMPS, most recently in January 2015, and published on the AGP-FAO Specifications webpage.

Deltamethrin was scheduled by the 47th Session of the CCPR for the evaluation of additional uses by the 2016 JMPR. The meeting received new GAP information and residue data on rape seed (canola).

Methods of analysis

The Meeting received information on the analytical methods (XM-10 and BP/01/88) used for the determination of deltamethrin residues in rape seed. These methods are similar to the those reviewed by the 2002 JMPR, involving hexane or hexane/acetone extraction, clean-up of reduced extracts by gel permeation chromatography (GPC) or GPC plus alumina column and residue determination by gas chromatography with electron capture detection (ECD). The LOQs of these methods in rape seed, oil and meal ranged from 0.01 to 0.05 mg/kg for deltamethrin, α-R-deltamethrin and trans-deltamethrin.

Stability of pesticide residues in stored analytical samples

In 2002, JMPR concluded that deltamethrin and its *trans*- and α-*R*- isomers are stable in various stored frozen substrates including grain and soya bean seed for at least 9 months, and 13-38 months in cotton seed, with no significant isomerisation occurring during frozen storage. Based on this information, the Meeting concluded that deltamethrin was stable in rape seed samples stored for the periods associated with the supervised field trials (up to 12 months).

Results of supervised residue trials on crops

The Meeting received information from USA and Canada on supervised field trials involving foliar treatments of deltamethrin to oilseed rape. The Meeting also noted that trials on rape conducted in Europe had been reviewed by the 2002 JMPR.

For estimating maximum residue levels and calculating STMRs and HRs, mean residue values have been used where duplicate samples have been analysed, LOQ values have been used when residues were not detected and the highest values have been used from separate plots with distinguishing characteristics such as different formulations, varieties or treatment schedules.

Oilseeds

Rape seed

The critical GAPs for oilseed rape (canola) are in Australia (13.75 g ai/ha, PHI 7 days) and in Canada (10 g ai/ha, PHI 7 days).

In 16 independent field trials on canola conducted in North America, matching the GAP in Canada, deltamethrin residues in rape seed were: <0.05 (4), <0.06 (3), <0.07 (3), <0.09 (4), <0.11 and 0.14 mg/kg.

The Meeting estimated a maximum residue level of 0.2 mg/kg and an STMR of 0.07 mg/kg for deltamethrin in rape seed.

Fate of residues in processing

The Meeting noted that the 2002 JMPR had reviewed a processing study for rape seed and had concluded that the lack of significant residues the processed fractions precluded the estimation of processing factors for rape seed meal and refined oil, except to note they are less than 1.

Residues in animal commodities

Farm animal dietary burden

The Meeting recalculated the livestock dietary burden using the more recent diets listed in the FAO Manual Appendix IX (OECD Feedstuff Table) for the uses considered by the 2002 JMPR and a conservative estimated STMR-P of 0.07 mg/kg for rape seed meal.

	Animal dietary burden, deltamethrin, ppm of dry matter diet							
	US-Canada		EU		Australia		Japan	
	Max	Mean	Max	Mean	Max	Mean	Max	Mean
Beef cattle	2.68 [A]	2.68 [C]	1.46	1.35	2.21	1.58	1.81	1.81
Dairy cattle	1.44	1.28	1.43	1.27	2.12 [B]	1.61	1.62	1.62 [D]
Poultry – broiler	1.72 [E]	1.72 [F]	1.16	1.16	1.15	1.15	0.9	0.9
Poultry – layer	1.72 [G]	1.72 [H]	1.28	1.17	1.15	1.15	1.35	1.36

[A] Highest maximum beef or dairy cattle dietary burden suitable for MRL estimates for mammalian tissues

[B] Highest maximum dairy cattle dietary burden suitable for MRL estimates for mammalian milk

[C] Highest mean beef or dairy cattle dietary burden suitable for STMR estimates for mammalian tissues

[D] Highest mean dairy cattle dietary burden suitable for STMR estimates for milk

[E] Highest maximum poultry dietary burden suitable for MRL estimates for poultry tissues

[F] Highest mean poultry dietary burden suitable for STMR estimates for poultry tissues

[G] Highest maximum poultry dietary burden suitable for MRL estimates for poultry eggs

[H] Highest mean poultry dietary burden suitable for STMR estimates for poultry eggs

The revised maximum dietary burdens are 2.7 ppm for beef cattle (2002 JMPR = 7.0 ppm) and 2.1 ppm for dairy cattle (2002 JMPR = 6.3 ppm). The mean dietary burdens are 2.7 ppm for beef cattle (2002 JMPR = 5.9 ppm) and 1.6 ppm for dairy cattle ((2002 JMPR = 5.8 ppm).

For poultry, the maximum and mean dietary burdens for broilers and layers are all 1.7 ppm (2002 JMPR = 2.7 ppm).

Maximum residue levels – animal commodities

Since the recalculated livestock dietary burdens for cattle and poultry do not exceed those estimated by the 2002 JMPR, the Meeting agreed that the current maximum residue levels for animal commodities accommodate the additional use on rape seed (canola).

RECOMMENDATIONS

On the basis of the data from supervised trials the Meeting concluded that the residue levels listed in Annex 1 are suitable for establishing maximum residue limits and for dietary exposure assessments.

Definition of the residue (plant and animal commodities) for compliance with the MRL and for the estimation of dietary intake: *sum of deltamethrin and its α-R- and trans– isomers*

The residue is fat soluble.

DIETARY RISK ASSESSMENT

Long-term dietary exposure

The International Estimated Daily Intakes (IEDIs) for deltamethrin were calculated for the food commodities for which STMRs or HRs have been estimated and for which consumption data were available. The results are shown in Annex 3.

The International Estimated Daily Intakes of deltamethrin for the 17 GEMS/Food cluster diets, based on estimated STMRs were 0–50% of the maximum ADI of 0.01 mg/kg bw (Annex 3). The Meeting concluded that the long-term dietary exposure to residues of deltamethrin from uses that have been considered by the JMPR is unlikely to present a public health concern.

Short-term dietary exposure

The International Estimated Short-term Intakes (IESTIs) for deltamethrin were calculated for the food commodities for which STMRs or HRs were estimated and for which consumption data were available (Annex 4).

For deltamethrin the IESTI varied from 0–0% of the ARfD (0.05 mg/kg bw) and the Meeting concluded that the short-term dietary exposure to residues of deltamethrin, from uses considered by the Meeting, is unlikely to present a public health concern.

5.7 DIMETHOMORPH (225)

RESIDUES AND ANALYTICAL ASPECTS

Dimethomorph was first evaluated by JMPR in 2007 (T, R) and subsequently evaluated in 2014 for residues. The 2007 Meeting established an ADI of 0–0.2 mg/kg bw and an ARfD of 0.6 mg/kg bw, and defined the residue (for compliance with the MRL and for the estimation of dietary intake) for plant and animal commodities as dimethomorph (sum of isomers).

In the 2014 Meeting, a short-term dietary intake concern for children from consumption of leaf lettuce was identified and the 47th Session of the CCPR (2015) scheduled the evaluation of an alternative GAP and of additional MRLs for dimethomorph by 2016 JMPR. This Meeting re-considered residue trials on lettuce using provided and previous information.

Methods of analysis

Method 575/0 or 535/1 was used in lettuce residue trials. In contrast to previous JMPR Meetings, it was noted that in some supervised field trials used for the analysis of samples from greenhouse trials (Ref. 2005/1027640) the method used gave inadequate mean procedural analytical recoveries (< 70%) for head lettuce and lambs lettuce. The results from these trials were not suitable for an assessment.

Validation data reported in all other supervised field trial study reports demonstrated acceptable analytical recoveries and were considered suitable for the determination of dimethomorph in various plant matrices.

Stability of pesticide residues in stored analytical samples

In all residue trials, the samples were stored at below -18 °C until analysis within a storage period known as stable up to 18–24 months in crops.

Results of supervised residue trials on crops

The Meeting received the Italian GAP and the supporting lettuce residue trials (head lettuce and lambs lettuce) cultivated in outdoor and under greenhouse conditions. The greenhouse trials were evaluated by 2007 JMPR and re-submitted to this Meeting. Leaf lettuce trials were not submitted.

This Meeting re-evaluated residue trial data on lettuce (head, lambs and leaf) against Italy GAP, using newly and previously submitted data.

Leafy vegetables (including Brassica leafy vegetables)

Lettuce, head

Eight field trials and four greenhouse trials from Southern European countries matched Italian GAP (3 × 0.144 kg ai/ha on a 7-10 day interval and with a 3-day PHI).

The residues in outdoor head lettuce were (n = 8): 0.14, 0.16, 0.27, 0.33, 0.36, 0.85, 1.2 and 1.3 mg/kg.

The residues in greenhouse head lettuce were (n = 4): 0.79, 4.0, 4.5 and 7.1 mg/kg.

Based on the residues observed in the field and the greenhouse lettuce trials, the greenhouse trials resulted in the highest residues (7.1 mg/kg). As there were only four greenhouse trials reflecting the critical GAP in Italy, the Meeting considered these trials insufficient to recommend a maximum residue level for head lettuce.

Leaf lettuce

No new residue data supporting the Italian GAP were submitted. The Meeting considered the global data approach and decided to use residue data from the US supporting the GAP. Nine trials of eighteen outdoor trials from USA (evaluated by 2014 Meeting) could be scaled to match the Italian GAP (3 × 0.144 kg ai/ha on a 7–10 day interval and with a 3-day PHI). The trials were carried out at a higher rate of 0.225 kg ai/ha and then a scaling factor of 0.64 was used to estimate a maximum residue level.

The residues in outdoor leaf lettuce were (n = 9): 0.26, 0.43, 0.45, 1.1, 1.2, 1.3, 2.6, 3.2 and 9.7 mg/kg. The scaled residues were: 0.17, 0.28, 0.29, 0.70, 0.77, 0.83, 1.7, 2.0 and 6.2 mg/kg.

The Meeting estimated a maximum residue level of 9 mg/kg, an STMR of 0.77 mg/kg and an HR of 6.2 mg/kg.

Corn salad (Lambs lettuce)

Four new outdoor trials and three greenhouse trials from Southern European countries matched the Italian GAP (3 ×0.144 kg ai/ha on a 7-10 day interval and with a 3-day PHI).

The residues in outdoor Lambs lettuce were (n = 4): 0.35, 0.37, 3.5 and 9.7 mg/kg.

For the greenhouse Lambs lettuce trials, inadequate analytical recoveries were observed (< 70%). Therefore, residues found (6.8, 9.8 and 10 mg/kg) probably underestimated the actual residues.

Noting the use of dimethomorph on greenhouse Lambs lettuce is the critical GAP for Italy, the Meeting considered these greenhouse trials insufficient upon which to base a maximum residue level recommendation for Lambs lettuce.

Residues in animal commodities

No feed items were evaluated by the present Meeting.

RECOMMENDATIONS

On the basis of the data from supervised trials the Meeting concluded that the residue level listed in Annex 1is appropriate for establishing a maximum residue limit and for IEDI and IESTI assessment.

Definition of the residue (for compliance with the MRL and for estimation of dietary intake) for plant and animal commodities: *dimethomorph (sum of isomers)*

The residue is not fat soluble.

DIETARY RISK ASSESSMENT

Long-term dietary exposure

The International Estimated Daily Intakes (IEDIs) of dimethomorph were calculated for the 17 GEMS/Food cluster diets using STMRs/STMR-Ps estimated by the current and previous Meeting. The results are shown in Annex 3 to the 2016 JMPR Report.

The ADI is 0–0.2 mg/kg bw and the calculated IEDIs were 0–2% of the maximum ADI. The Meeting concluded that the long-term dietary exposure to residues of dimethomorph resulting from the use considered by the JMPR is unlikely to present a public health concern.

Short-term dietary exposure

The International Estimated Short Term Intakes (IESTIs) of dimethomorph were calculated for the food commodity using the HR estimated by the current Meeting. The results are shown in Annex 4 to the 2016 JMPR Report.

The ARfD is 0.6 mg/kg bw and the calculated IESTIs were 0–20% for general population and 0–60% for children. On the basis of the information provided, the Meeting concluded that the short-term dietary exposure to residues of dimethomorph, from uses considered by the Meeting is unlikely to present a public health concern.

5.8 FENPROPIMORPH (188)

TOXICOLOGY

Fenpropimorph is the ISO-approved common name for (±)-*cis*-4-[3-(4-*tert*-butylphenyl)-2-methyl-propyl]-2,6-dimethylmorpholine (IUPAC), with the CAS number 67564-91-4. Fenpropimorph belongs to the chemical class of morpholines; it acts by inhibition of two enzymes in the ergosterol biosynthetic pathway of fungi.

Fenpropimorph has been previously evaluated by JMPR in 1994, 2001 and 2004 and was reviewed by the present Meeting under the periodic review programme of CCPR. In 1994, JMPR established an ADI of 0–0.003 mg/kg bw on the basis of a NOAEL of 0.3 mg/kg bw per day in a 2-year study of toxicity and carcinogenicity in rats. In 2001, JMPR established an ARfD of 1 mg/kg bw on the basis of a NOAEL of 100 mg/kg bw in an acute neurotoxicity study in rats. In 2004, JMPR reviewed the data to determine the most appropriate end-point and NOAEL for establishing an ARfD and evaluated a new screening study of prenatal and postnatal developmental toxicity in rats; that Meeting established an ARfD of 0.2 mg/kg bw on the basis of an overall NOAEL of 15 mg/kg bw per day for embryo and fetal toxicity and teratogenicity in two studies of prenatal developmental toxicity in rabbits.

New studies on absorption, distribution, metabolism and excretion, acute toxicity, skin and eye irritation, skin sensitization, genotoxicity, multigeneration reproductive toxicity and developmental toxicity of the parent compound and genotoxicity studies on the rat and plant metabolite BF 421-10 were submitted. The current Meeting evaluated all previously submitted toxicological data in addition to new published and unpublished toxicological studies.

All critical studies contained statements of compliance with GLP and were conducted in accordance with relevant national or international test guidelines, unless otherwise specified.

Biochemical aspects

In oral gavage studies conducted in rats using [^{14}C-phenyl]fenpropimorph or [^{14}C-dimethyl-morpholine]fenpropimorph at a dose of 1 or 15 mg/kg bw, absorption from the gastrointestinal tract was rapid. Following a single dose, an initial peak plasma concentration was followed by a second peak plasma concentration over 1–8 hours, with plasma half-lives of approximately 4–24 hours. The second plasma peak was more apparent in rats administered 15 mg/kg bw and was a consequence of enterohepatic circulation. From mass balance experiments together with a study conducted in bile duct–cannulated rats, absorption was calculated to be approximately 90% in males and 70% in females with the phenyl-labelled compound at 1 mg/kg bw. For the 15 mg/kg bw dose, absorption was complete in both sexes with the phenyl-labelled compound and almost complete in both sexes with the dimethylmorpholine-labelled compound. The higher absorption calculated for the 15 mg/kg bw dose compared with the 1 mg/kg bw dose may be due to enterohepatic circulation, which may lead to an overestimation of the sum of radioactivity excreted in urine in the mass balance experiment and in bile in the biliary excretion experiment. Following absorption, radioactive material was distributed to all organs and tissues, with the highest concentrations of radioactivity found in the gastrointestinal tract and liver.

The excretion of radioactivity was rapid, with approximately similar amounts excreted in the urine and faeces; biliary excretion was significant. For dimethylmorpholine-labelled fenpropimorph, elimination also occurred in exhaled carbon dioxide. Slightly higher excretion in the faeces and lower excretion in the urine were seen in females compared with males. There was no evidence of accumulation of radioactivity in any tissue.

The parent compound was extensively metabolized by several hydroxylation, oxidation, sulfoxylation and demethylation processes, combined with cleavage of the morpholine ring. Besides biotransformation reactions, conjugation with glucuronic acid combined with further degradations and derivative processes occurred.

Toxicological data

The acute oral toxicity of fenpropimorph in rats and mice was low to moderate. The oral LD_{50} was greater than 500 mg/kg bw and equal to or less than 2000 mg/kg bw in female rats. The dermal LD_{50} in rats was greater than 5000 mg/kg bw. The 4-hour acute LC_{50} in rats was greater than 5.2 mg/L. Fenpropimorph was moderately irritating to the skin and slightly to moderately irritating to the eyes of rabbits. In guinea-pig maximization tests, no skin sensitization occurred.

In repeated-dose toxicity studies in mice, rats and dogs, the main adverse effects were liver toxicity and decreased body weight gain. Increased liver weight together with altered clinical chemistry parameters but without histopathological correlates was the most common finding in the short-term studies.

In a 28-day toxicity study in mice, which tested dietary concentrations of fenpropimorph of 0, 500, 1000, 2000 and 4000 ppm (equal to 0, 79.9, 169, 338 and 671 mg/kg bw per day for males and 0, 83.5, 203, 377 and 786 mg/kg bw per day for females, respectively), the NOAEL was 500 ppm (equal to 79.9 mg/kg bw per day), based on decreased body weight gain at 1000 ppm (equal to 169 mg/kg bw per day).

In a 42-day toxicity study in mice, which tested dietary concentrations of fenpropimorph of 0, 25, 50, 100 and 200 ppm, the 25 ppm concentration (for weeks 1–3) was increased to 400 ppm (for weeks 4–6). The achieved doses were equal to 0, 3.29/47.4, 6.64, 13.1 and 24.0 mg/kg bw per day for males and 0, 4.02/59.9, 8.00, 14.8 and 31.8 mg/kg bw per day for females, respectively. The NOAEL was 200 ppm (equal to 24.0 mg/kg bw per day), the highest dose tested for 42 days. No adverse effects were observed in the 25/400 ppm group.

In a 28-day toxicity study in rats, which tested dietary concentrations of fenpropimorph of 0, 100, 250, 625 and 1600 ppm (equal to 0, 10, 21, 62.5 and 148 mg/kg bw per day for males and 0, 10, 24, 60 and 154 mg/kg bw per day for females, respectively), the NOAEL was 100 ppm (equal to 10 mg/kg bw per day), based on increased bilirubin at 250 ppm (equal to 21 mg/kg bw per day).

In a 90-day toxicity study in rats, which tested dietary concentrations of fenpropimorph of 0, 6.25, 12.5 and 25 ppm (equal to 0, 0.39, 0.78 and 1.55 mg/kg bw per day for males and 0, 0.47, 0.93 and 1.82 mg/kg bw per day for females, respectively), the NOAEL was 25 ppm (equal to 1.55 mg/kg bw per day), the highest dose tested.

A combined subchronic toxicity and neurotoxicity study was also available in rats and is reported below.

In a 28-day toxicity study in dogs, which tested dietary concentrations of fenpropimorph of 0, 200, 400, 800 and 1600 ppm (equal to 0, 7, 12, 27 and 51 mg/kg bw per day for males and 0, 8, 15, 29 and 62 mg/kg bw per day for females, respectively), the NOAEL was 800 ppm (equal to 27 mg/kg bw per day), based on increased platelet count, increased absolute and relative liver weights and decreased absolute and relative testis weights at 1600 ppm (equal to 51 mg/kg bw per day).

In a 90-day toxicity study in dogs, which tested dietary concentrations of fenpropimorph of 0, 50, 100, 200 and 400 ppm (equal to 0, 1.5, 3.0, 6.5 and 11.6 mg/kg bw per day for males and 0, 1.9, 3.7, 7.8 and 14.8 mg/kg bw per day for females, respectively), the NOAEL was 200 ppm (equal to 6.5 mg/kg bw per day), based on increased alanine aminotransferase activity at 400 ppm (equal to 11.6 mg/kg bw per day).

In a 12-month toxicity study in dogs, which tested dietary concentrations of fenpropimorph of 0, 25, 100 and 400 ppm (equal to 0, 0.8, 3.2 and 12.7 mg/kg bw per day for males and females, respectively), the NOAEL was 25 ppm (equal to 0.8 mg/kg bw per day), based on increased alanine aminotransferase activity at 100 ppm (equal to 3.2 mg/kg bw per day).

In an 18-month toxicity and carcinogenicity study in mice, which tested dietary concentrations of fenpropimorph of 0, 5, 30, 150 and 1000 ppm (equal to 0, 0.5, 3.0, 16 and 106 mg/kg bw per day for males and 0, 0.5, 3.5, 17 and 118 mg/kg bw per day for females, respectively), the NOAEL for chronic toxicity was 150 ppm (equal to 16 mg/kg bw per day), based on decreased body weight gain and decreased haemoglobin (males) at 1000 ppm (equal to 106 mg/kg bw per day). No treatment-related increase in tumour incidence was observed in this study.

In a 2-year toxicity and carcinogenicity study in rats, which tested dietary concentrations of fenpropimorph of 0, 5, 10, 50 and 250 ppm (equal to 0, 0.2, 0.3, 1.7 and 8.8 mg/kg bw per day for males and 0, 0.2, 0.4, 2.1 and 11.2 mg/kg bw per day for females, respectively), the NOAEL for chronic toxicity was 10 ppm (equal to 0.4 mg/kg bw per day), based on decreased body weight and body weight gain in females at 50 ppm (equal to 2.1 mg/kg bw per day). No treatment-related increase in tumour incidence was observed in this study.

The Meeting concluded that fenpropimorph is not carcinogenic in mice or rats.

Fenpropimorph was tested for genotoxicity in an adequate range of in vitro and in vivo tests. No evidence of genotoxicity was found.

The Meeting concluded that fenpropimorph is unlikely to be genotoxic.

In view of the lack of genotoxicity and the absence of carcinogenicity in mice and rats, the Meeting concluded that fenpropimorph is unlikely to pose a carcinogenic risk to humans.

In a two-generation reproductive toxicity study in rats, which tested dietary concentrations of fenpropimorph of 0, 6.25, 12.6 and 25.0 ppm (equal to 0, 0.5, 1.0 and 2.0 mg/kg bw per day for males and 0, 0.7, 1.4 and 2.7 mg/kg bw per day for females, respectively), the NOAEL for reproductive, parental and offspring toxicity was 25.0 ppm (equal to 2.0 mg/kg bw per day for reproductive and parental toxicity and 2.7 mg/kg bw per day for offspring toxicity), the highest dose tested.

In a second two-generation reproductive toxicity study in rats, which tested dietary concentrations of fenpropimorph adjusted to achieve target doses of 0, 2, 4, 8 and 16 mg/kg bw per day, the NOAEL for reproductive toxicity was 16 mg/kg bw per day, the highest dose tested. The NOAEL for parental toxicity was 4 mg/kg bw per day, based on decreased body weight and body weight gain at 8 mg/kg bw per day. The NOAEL for offspring toxicity was 4 mg/kg bw per day, based on reduced pup body weight and body weight gain at 8 mg/kg bw per day.

In a non-standard prenatal/postnatal toxicity screening study in rats, which tested fenpropimorph doses of 0, 2.5, 10, 40 and 160 mg/kg bw per day administered by gavage from gestation day 15 until the end of lactation, the NOAEL for maternal toxicity was 2.5 mg/kg bw per day, based on marginally reduced body weight gain during lactation at 10 mg/kg bw per day. The NOAEL for embryo/fetal and offspring toxicity was 40 mg/kg bw per day, based on pup mortality, decreased body weight and body weight gain and delayed development (retardation of unfolding of the auricle and fur development and delayed opening of the eyes and auditory canal) at 160 mg/kg bw per day.

In a non-standard prenatal/postnatal toxicity screening study in rats, which tested dietary concentrations of fenpropimorph adjusted throughout gestation and lactation to achieve target doses of 0, 5, 10 and 15 mg/kg bw per day, the NOAEL for reproductive toxicity was 15 mg/kg bw per day, the highest dose tested. The NOAEL for maternal toxicity was 5 mg/kg bw per day, based on decreased body weight gain and feed consumption in dams at 10 mg/kg bw per day. The NOAEL for offspring toxicity was 10 mg/kg bw per day, based on decreased body weight and body weight gain in pups at 15 mg/kg bw per day.

In a developmental toxicity study in rats, which tested fenpropimorph doses of 0, 2.5, 10, 40 and 160 mg/kg bw per day administered by gavage, the NOAEL for maternal toxicity was 10 mg/kg bw per day, based on vaginal bleeding and decreased body weight gain at 40 mg/kg bw per day. The NOAEL for embryo/fetal toxicity was 40 mg/kg bw per day, based on total litter losses, early resorptions, a decrease in fetal weight and length, and an increase in variations/retardations, particularly cleft palate and asymmetrical sternebrae, in fetuses at 160 mg/kg bw per day.

In a second developmental toxicity study in rats, which tested fenpropimorph doses of 0, 4, 16 and 40 mg/kg bw per day administered by gavage, the NOAEL for maternal toxicity was 4 mg/kg bw per day, based on decreased body weight gain, feed consumption and clinical chemistry parameters that might suggest disturbance of liver function at 16 mg/kg bw per day. The NOAEL for embryo/fetal toxicity was 40 mg/kg bw per day, the highest dose tested.

In a developmental toxicity study in rabbits, which tested fenpropimorph doses of 0, 2.4, 12, 36 and 60 mg/kg bw per day administered by gavage, the NOAEL for maternal toxicity was 12 mg/kg bw per day, based on lethality, abortions, diarrhoea, salivation and inflammation of the vaginal region at 36 mg/kg bw per day. The NOAEL for embryo/fetal toxicity was 12 mg/kg bw per day, based on a slight increase in post-implantation loss and pseudoankylosis in fetuses at 36 mg/kg bw per day, a maternally toxic dose.

In a developmental toxicity study in rabbits, which tested fenpropimorph doses of 0, 7.5, 15 and 30 mg/kg bw per day administered by gavage, the NOAEL for maternal toxicity was 15 mg/kg bw per day, based on swelling of the anus and reduced feed consumption, body weight gain and gravid uterus weight at 30 mg/kg bw per day. The NOAEL for embryo/fetal toxicity was 15 mg/kg bw per day, based on reduced body weight, cleft palate, shortened bones of the forelimbs and hindlimbs along with position anomaly of these limbs and fused sternebrae at 30 mg/kg bw per day.

An overall NOAEL for maternal toxicity in the developmental toxicity studies in rabbits was 15 mg/kg bw per day, and an overall NOAEL for embryo and fetal toxicity was 15 mg/kg bw per day.

Fenpropimorph demonstrated only very low binding affinity to recombinant human androgen receptor in a cell-free in vitro system. Fenpropimorph did not show any estrogenic receptor–mediated activity in the in vitro E-screen assay.

The Meeting concluded that fenpropimorph is teratogenic in rats and rabbits at maternally toxic doses, exceedingly so in rats.

In an acute neurotoxicity study in rats, which tested fenpropimorph doses of 0, 100, 500 and 1500 mg/kg bw administered by gavage, the NOAEL for neurotoxicity was 1500 mg/kg bw, the highest dose tested. The NOAEL for systemic toxicity was 100 mg/kg bw, based on piloerection, behavioural signs and decreased body weight gain at 500 mg/kg bw.

In an acute study primarily investigating effects on cholinesterase activity in rats, which tested fenpropimorph doses of 0, 420, 1240 and 2290 mg/kg bw administered by gavage, no consistent effects on brain cholinesterase activity were observed, and erythrocyte cholinesterase activity was not affected.

In a combined 13-week toxicity and neurotoxicity study in rats, which tested dietary concentrations of fenpropimorph of 0, 1, 10, 100 and 1000 ppm (equal to 0, 0.1, 0.7, 7.1 and 71.0 mg/kg bw per day for males and 0, 0.1, 0.8, 8.5 and 77.7 mg/kg bw per day for females, respectively), the NOAEL for systemic toxicity was 10 ppm (equal to 0.7 mg/kg bw per day), based on decreased body weight gain, decreased landing foot splay and increased relative liver weight at 100 ppm (equal to 7.1 mg/kg bw per day); the observed change in landing foot splay was considered a secondary consequence of systemic toxicity. The NOAEL for neurotoxicity was 1000 ppm (equal to 71.0 mg/kg bw per day) the highest dose tested.

The Meeting concluded that fenpropimorph is not neurotoxic.

A 14-day dietary study investigating hepatic drug metabolizing enzyme activities in male rats indicates that fenpropimorph is an inducer of a number of hepatic P450 enzymes.

Toxicological data on metabolites and/or degradates

BF 421-10 (*cis*-2,6-dimethylmorpholine), a major metabolite in rats (and in plants), was tested in an adequate range of in vitro and in vivo genotoxicity tests. No evidence of genotoxicity was found.

BF 421-14 (fenpropimorph *N*-oxide), a reported plant metabolite and in vitro degradate/ metabolite seen following incubation of fenpropimorph with rat, mouse, dog or human liver microsomes, was evaluated in silico with the structure–activity relationship models OASIS TIMES and VEGA. No structural alerts indicating genotoxicity were identified, with the limitation that BF 421-14 was out of the prediction domain.

Human data

No information was provided on the health of workers involved in the manufacture or use of fenpropimorph. No information on accidental or intentional poisoning in humans is available.

The Meeting concluded that the existing database on fenpropimorph is adequate to characterize the potential hazards to the general population, including fetuses, infants and children.

Toxicological evaluation

The Meeting established an ADI of 0–0.004 mg/kg bw, based on a NOAEL of 0.4 mg/kg bw per day for decreased body weight and body weight gain in females in a 2-year combined toxicity and carcinogenicity study in rats, with the application of a 100-fold safety factor.

The previous ADI of 0–0.003 mg/kg bw was withdrawn.

The Meeting established an ARfD of 0.1 mg/kg bw, based on an overall NOAEL of 15 mg/kg bw per day for embryo and fetal toxicity and teratogenicity in two prenatal developmental toxicity studies in rabbits, with application of a 100-fold safety factor and rounding down to one significant figure in view of the severity of the effects at the lowest-observed-adverse-effect level (LOAEL), thus providing a margin of 300 between the ARfD and the LOAEL for teratogenicity. This ARfD applies to women of child-bearing age only.

The Meeting also established an ARfD of 0.4 mg/kg bw, based on decreased body weight and feed consumption observed in pregnant dams in a developmental toxicity study in rabbits at 60 mg/kg bw per day, which could not be excluded as being due to a single dose. These acute effects were not seen at 36 mg/kg bw per day. A safety factor of 100 was applied. This ARfD applies to the general population.

The Meeting withdrew the previous ARfD of 0.2 mg/kg bw.

A toxicological monograph was prepared.

Levels relevant to risk assessment of fenpropimorph

Species	Study	Effect	NOAEL	LOAEL
Mouse	Eighteen-month study of toxicity and carcinogenicity[a]	Toxicity	150 ppm, equal to 16 mg/kg bw per day	1 000 ppm, equal to 106 mg/kg bw per day
		Carcinogenicity	1 000 ppm, equal to 106 mg/kg bw per day[b]	–
Rat	Ninety-day study of toxicity/neurotoxicity[a]	Toxicity	10 ppm, equal to 0.7 mg/kg bw per day	100 ppm, equal to 7.1 mg/kg bw per day
		Neurotoxicity	1 000 ppm, equal to	–

Species	Study	Effect	NOAEL	LOAEL
			71.0 mg/kg bw per day[b]	
	Two-year study of toxicity and carcinogenicity[a]	Toxicity	10 ppm, equal to 0.4 mg/kg bw per day	50 ppm, equal to 2.1 mg/kg bw per day
		Carcinogenicity	250 ppm, equal to 8.8 mg/kg bw per day[b]	–
	Two-generation study of reproductive toxicity[a]	Reproductive toxicity	16 mg/kg bw per day[b]	–
		Parental toxicity	4 mg/kg bw per day	8 mg/kg bw per day
		Offspring toxicity	4 mg/kg bw per day	8 mg/kg bw per day
	Developmental toxicity study[c]	Maternal toxicity	4 mg/kg bw per day	16 mg/kg bw per day
		Embryo and fetal toxicity	40 mg/kg bw per day[b]	–
Rabbit	Developmental toxicity studies[c,d]	Maternal toxicity	15 mg/kg bw per day	30 mg/kg bw per day
		Embryo and fetal toxicity	15 mg/kg bw per day	30 mg/kg bw per day
Dog	One-year study of toxicity[a]	Toxicity	25 ppm, equal to 0.8 mg/kg bw per day	100 ppm, equal to 3.2 mg/kg bw per day

[a] Dietary administration.

[b] Highest dose tested.

[c] Gavage administration.

[d] Two or more studies combined.

Acceptable daily intake (ADI)

0–0.004 mg/kg bw

Acute reference dose (ARfD)

0.1 mg/kg bw (applies to women of child-bearing age only)

0.4 mg/kg bw (applies to the general population)

Information that would be useful for the continued evaluation of the compound

Results from epidemiological, occupational health and other such observational studies of human exposure

Critical end-points for setting guidance values for exposure to fenpropimorph

Absorption, distribution, excretion and metabolism in mammals	
Rate and extent of oral absorption	Rapid, with 70–100% absorption

Distribution	Rapid and extensive distribution
Potential for accumulation	No potential for accumulation
Rate and extent of excretion	Rapid and nearly complete excretion within 96 h
Metabolism in animals	Extensively metabolized
Toxicologically significant compounds in animals and plants	Fenpropimorph
Acute toxicity	
Rat, LD_{50}, oral	> 500 and < 2 000 mg/kg bw
Rat, LD_{50}, dermal	> 5 000 mg/kg bw
Rat, LC_{50}, inhalation	5.2 mg/L
Rabbit, dermal irritation	Moderately irritating
Rabbit, ocular irritation	Slightly to moderately irritating
Guinea pig, dermal sensitization	Non-sensitizing (maximization test)
Short-term studies of toxicity	
Target/critical effect	Decreased body weight gain
Lowest relevant oral NOAEL	0.7 mg/kg bw per day (rat)
Lowest relevant dermal NOAEL	2.0 mg/kg bw per day (rat)
Lowest relevant inhalation NOAEC	2.6 mg/kg bw per day (0.01 mg/L; rat)
Long-term studies of toxicity and carcinogenicity	
Target/critical effect	Decreased body weight and body weight gain
Lowest relevant NOAEL	0.4 mg/kg bw per day (rat)
Carcinogenicity	Not carcinogenic in mice or rats[a]
Genotoxicity	
	No evidence of genotoxicity[a]
Reproductive toxicity	
Reproduction target/critical effect	No evidence of reproductive toxicity; decreased body weight and body weight gain in dams and pups (rat)
Lowest relevant parental NOAEL	4 mg/kg bw per day (rat)
Lowest relevant offspring NOAEL	4 mg/kg bw per day (rat)
Lowest relevant reproduction NOAEL	16 mg/kg bw per day, highest dose tested (rat)
Developmental toxicity	
Developmental target/critical effect	Litter loss, early resorptions, decreased fetal weight and length and increase in variations, retardations and malformations (rat); post-implantation loss, decreased fetal weight, malformations (cleft palate) and skeletal anomalies (rabbit)
Lowest maternal NOAEL	4 mg/kg bw per day (rat)
Lowest embryo and fetal NOAEL	15 mg/kg bw per day (rabbit)
Neurotoxicity	
Acute neurotoxicity	1 500 mg/kg bw, highest dose tested (rat)

Subchronic neurotoxicity	71.0 mg/kg bw per day, highest dose tested (rat)
Developmental neurotoxicity	No data
Other toxicological studies	
Immunotoxicity	No data
Human data	
	No data

[a] Unlikely to pose a carcinogenic risk to humans via exposure from the diet.

Summary

	Value	Studies	Safety factor
ADI	0–0.004 mg/kg bw	Two-year toxicity and carcinogenicity study (rat)	100
ARfD	0.1[a]	Developmental toxicity studies (rabbit)	100
ARfD	0.4[b]	Developmental toxicity studies (rabbit)	100

[a] Applies to women of child-bearing age.

[b] Applies to the general population.

5.9 FIPRONIL (202)

RESIDUE AND ANALYTICAL ASPECTS

Fipronil was first evaluated by the JMPR in 1997 for toxicology and in 2001 for residues. The 2000 JMPR re-evaluated fipronil for toxicology and established an ADI of 0–0.0002 mg/kg bw and an ARfD of 0.003 mg/kg bw for fipronil and fipronil-desulfinyl, alone or in combination**.**

Residue definitions for compliance with MRLs are fipronil for plant commodities and sum of fipronil and fipronil-sulfone for animal commodities. Residue definitions for estimation of dietary intake are sum of fipronil, fipronil-desulfinyl, fipronil-sulfone and fipronil-thioether for plant and animal commodities, expressed as fipronil.

At the 47^{th} Session of the CCPR (2015), fipronil was scheduled for the evaluation of additional MRLs in 2016 JMPR. The Meeting received residue trials on basil from Thailand.

Methods of analysis

Residues in basil were extracted and cleaned-up using QuEChERS method. LC-MS/MS was used for determination of fipronil, fipronil-desulfinyl, fipronil-sulfone, fipronil-thioether and fipronil carboxamide. The LOQ was 0.01 mg/kg for each compound. Recoveries of each compound were satisfactory.

Another analytical method used involved extraction with acetone, partitioning with dichloromethane and a clean-up step. GC-µECD was used for determination of the compounds. The LOQ was 0.01 mg/kg for each compound. Recoveries of each compound were satisfactory.

Stability of pesticide residues in stored analytical samples

Stability of residues was not an issue as analyses was undertaken on the day of harvest.

Results of supervised residue trials on crops

Herbs

Basil

Five independent trials were conducted in Thailand according to the Thailand GAP (2 × 0.005 kg ai/hL with a 7-day interval and a 7-day PHI). In three trials, residues of fipronil-thioether were not measured.

From the trials where fipronil-thioether was analysed, the fipronil residues in basil were (n = 2): 0.093 and 0.24 mg/kg.

From the trials where fipronil-thioether was not analysed, the fipronil residues in basil were (n = 3): 0.023, 0.1 and 0.18 mg/kg.

The total residues (four compounds) in basil were (n = 2): 0.23 and 0.42 mg/kg.

The sum of residues of three compounds in basil were (n = 3): 0.080, 0.23 and 0.57 mg/kg.

Residues of fipronil-thioether did not contribute significantly to the total residue level (> 90% of total residues covered by sum of the three compounds). Therefore, the Meeting estimated STMR and HR values using all available data.

The total residues in basil were (n = 5): 0.080, 0.23, 0.23, 0.42 and 0.57 mg/kg.

The Meeting estimated a maximum residue level of 1.5 mg/kg, an STMR of 0.23 mg/kg and an HR of 0.57 mg/kg for basil.

Residues in animal commodities

No feed item was evaluated by this Meeting.

RECOMMENDATIONS

On the basis of the data from supervised trials the Meeting concluded that the residue level listed in Annex 1is appropriate for establishing a maximum residue limit and for IEDI and IESTI assessment.

Definition of the residue (for compliance with MRLs and for dietary risk assessment) for plant commodities: *fipronil*.

Definition of the residue (for compliance with MRLs and for dietary risk assessment) for animal commodities*: sum of fipronil and 5-amino-3-cyano-1-(2,6-dichloro-4-trifluoromethylphenyl)-4- trifluoromethylsulphonylpyrazole (MB 46136), expressed as fipronil*.

The residue is fat soluble.

DIETARY RISK ASSESSMENT

Long-term dietary exposure

The 2000 JMPR established an ADI of 0–0.0002 mg/kg bw for fipronil. The International Estimated Daily Intakes (IEDIs) of fipronil were calculated for the 17 GEMS/Food cluster diets using STMRs and STMR-Ps estimated by the current and previous Meeting. The results are shown in Annex 3 in the 2016 JMPR Report.

The calculated IEDIs represented 20–90% of the maximum ADI. The Meeting concluded that the long-term exposure to residues of fipronil from the use considered by the JMPR is unlikely to present a public health concern.

Short-term dietary exposure

The 2000 JMPR established an ARfD of 0.003 mg/kg bw. The International Estimated Short Term Intakes (IESTIs) of fipronil were calculated for the food commodity using the HR estimated by the current Meeting. The results are shown in Annex 4 in the 2016 JMPR Report.

The IESTIs represented 10% of the ARfD for the general population and 20% of the ARfD for children. On the basis of the information provided to the Meeting it was concluded that the short-term dietary exposure to residues of fipronil, resulting from the uses considered by the Meeting, are unlikely to present a public health concern.

5.10 FLUAZIFOP-P-BUTYL (283)

TOXICOLOGY

Fluazifop-P-butyl is the ISO-approved common name for the *R*-enantiomer of butyl-2-[4-(5-trifluoromethyl-2-pyridyloxy)phenoxy]propionate (IUPAC), with the CAS number 79241-46-6. It is a herbicide that acts by the inhibition of acetyl coenzyme A carboxylase.

Fluazifop-P-butyl has not been evaluated previously by JMPR and was reviewed by the present Meeting at the request of CCPR.

In the 1980s, fluazifop-butyl was developed and marketed as a racemic mixture of fluazifop-P-butyl, the *R*-enantiomer, and the *S*-enantiomer. It was subsequently discovered that the *R*-enantiomer is responsible for the herbicidal activity. Although this evaluation is on fluazifop-P-butyl, contained in the currently marketed products, studies on fluazifop-butyl and fluazifop acid, its main metabolite, have also been taken into consideration where appropriate.

All critical studies contained statements of compliance with GLP and were conducted in accordance with relevant national or international test guidelines, unless otherwise specified.

Biochemical aspects

At the low dose (1 mg/kg bw), absorption in rats calculated from radioactivity recovered in bile, urine and carcass was about 56% of the administered dose. At 1 mg/kg bw, the majority of the excretion in females (> 89% of the absorbed dose) occurred via urine, with less in faeces (3.5–8.2%); in males, urinary excretion accounted for 51% of the absorbed dose, and faecal excretion, 35–52%. The rate of urinary excretion was more rapid in females, being virtually complete within 2 days, compared with more than 3 days in males.

Biliary elimination was shown to be much more extensive in male rats than in females, which explains the sex differences observed in both the routes and rates of excretion. Male rats eliminated 41.5% of a fluazifop-butyl dose and 45.7% of a fluazifop-P-butyl dose in bile over 4 days as fluazifop acid (2-[4-(5-trifluoromethyl-2-pyridoxyloxy)phenoxy]propionic acid; metabolite II) and its taurine conjugate (2-[4-(5-trifluoromethyl-2-pyridoxyloxy)phenoxy]propionyl taurine). Predosing with the unlabelled compound over 14 days did not affect the metabolic fate of a single oral dose of 1 mg/kg bw. The data also suggest that in male rats, biliary excretion and, more specifically, taurine conjugation of fluazifop acid become saturated at high dose levels.

Comparative metabolism studies conducted on male and female rats have shown that fluazifop-butyl (*R*:*S* enantiomer ratio nominally 50:50) and fluazifop-P-butyl (*R*:*S* enantiomer ratio nominally 90:10), irrespective of the *R*:*S* enantiomer ratio, are predominantly metabolized to fluazifop acid in the blood, urine and faeces, with rapid and preferential formation of *R*-fluazifop acid. Other metabolites are produced only in minor proportions, including the plant and soil metabolite 2-(5-trifluoromethyl)pyridone. Following higher doses (a single oral dose of 200 mg/kg bw) of [^{14}C]fluazifop-butyl, significant levels of *S*-fluazifop acid were detected in the plasma of both male and female rats for up to 1 hour after dosing (*R*:*S* ratios of 82:18 in both male and female rats at 30 minutes after dosing).

Tissue concentrations of the absorbed dose were much lower in female rats than in males; following a dose of 1 mg/kg bw, males exhibited a slight tendency to accumulate radiolabel, as they retained 9.5% of the radioactive dose in tissues and carcass after 10 days, whereas females retained only 0.8% of the dose after 7 days. The highest residues were in fat, followed by kidney and liver. There was a similar profile of tissue levels following a high dose of 1000 mg/kg bw. The higher tissue concentrations in males are probably a consequence of the enterohepatic recirculation and slower excretion rates seen in male rats.

In mice given a single oral low dose (1 mg/kg bw of [^{14}C]fluazifop-butyl), almost 80% of the dose was eliminated within 48 hours, with females excreting a high proportion in urine. Tissue concentrations were slightly lower in males than in females, with fat showing the highest residues in both sexes. Also in mice, fluazifop-butyl was metabolized predominantly to fluazifop acid, which was conjugated with taurine in both sexes. At a higher dose level (150 mg/kg bw of [^{14}C]fluazifop-butyl), metabolism to fluazifop acid was similar, but a lower proportion was conjugated with taurine for excretion in urine and faeces. One of the minor metabolites, 2-(4-hydroxyphenoxy) propionic acid, accounted for 0.3–2.1% of radioactivity in urine, and a small amount (1.1%) appeared to correspond to 5-trifluoromethyl-pyrid-2-one (metabolite X; CF3-pyridone).

In hamsters, as in rats, a single oral dose of fluazifop-P-butyl was excreted rapidly, predominantly in urine, in both sexes. Following dietary administration, fluazifop-P-butyl was rapidly absorbed and distributed to almost all tissues. Except for abdominal fat, residue levels decreased rapidly after removal of the labelled diet. The levels of residues were generally lower in females than in males.

In dogs given a single oral low dose (1 mg/kg bw), [^{14}C]fluazifop-butyl was rapidly absorbed in both sexes, with a similar proportion of the dose excreted in urine and faeces. Fluazifop-butyl was metabolized to fluazifop acid and excreted in both urine and faeces and via bile as the unconjugated acid or as the taurine conjugate. After 5 days, tissue residues were very low.

In humans, the metabolic fate of fluazifop-butyl is very similar to that observed in the female rats and hamsters. The data reported for three male subjects showed rapid and extensive absorption (80–93% in urine), hydrolysis to fluazifop acid and its rapid and predominant elimination in urine.

Toxicological data

Where toxicological studies were performed only with fluazifop-butyl, not fluazifop-P-butyl, those studies are presented in this report. The Meeting considered this to be acceptable, as both produce very similar toxicology except in the area of developmental toxicity, where the adverse effects seen with fluazifop-butyl at high doses have not been reproduced with fluazifop-P-butyl.

The acute oral LD_{50} in rats was 2451 mg/kg bw, and the acute oral LD_{50} in mice was greater than 2000 mg/kg bw. The acute dermal LD_{50} in rabbits was greater than 2110 mg/kg bw, and the acute inhalation LC_{50} in rats was greater than 5.2 mg/L. Fluazifop-P-butyl is not irritating to the eyes or skin of rabbits, but it was sensitizing to the skin of mice, as determined by the local lymph node assay.

In short-term and long-term toxicity studies in the mouse, hamster, rat and dog, the primary target organs are testes, eyes, kidneys and liver, with associated clinical chemistry changes.

In a 90-day study in hamsters given fluazifop-P-butyl in the diet at 0, 250, 1000 or 4000 ppm (equal to 0, 19.5, 78.3 and 292 mg/kg bw per day for males and 0, 19.9, 79.0 and 320 mg/kg bw per day for females, respectively), the NOAEL was 1000 ppm (equal to 78.3 mg/kg bw per day) for significantly lower body weight, feed consumption and feed utilization in males, effects seen in the kidneys and liver (increased relative weights) of both sexes and haematological parameters (decreased red blood cells, haematocrit and haemoglobin) in males at 4000 ppm (equal to 292 mg/kg bw per day).

In a 90-day dietary study in which rats were given fluazifop-P-butyl at 0, 10, 100 or 2000 ppm (equivalent to 0, 1, 10 and 200 mg/kg bw per day, respectively), the NOAEL was 100 ppm (equivalent to 10 mg/kg bw per day) for decreased body weights in males, changes in blood clinical chemistry parameters in males (increased alanine aminotransferase, aspartate aminotransferase and alkaline phosphatase), decreased cholesterol, increased relative liver weight, increased swelling and eosinophilia of centrilobular hepatocytes, and increased kidney weights at 2000 ppm (equivalent to 200 mg/kg bw per day) in males.

In a 90-day study in dogs dosed with fluazifop-butyl at 0, 5, 25 or 250 mg/kg bw per day via gelatine capsules, the top dose was reduced to 125 mg/kg bw per day after 4 weeks of dosing because of severe ocular lesions that necessitated the premature termination of three dogs. The NOAEL was 25 mg/kg bw per day, based on haematological effects in males and increased bromosulfophthalein retention time in both sexes at 250/125 mg/kg bw per day.

In a 1-year study in which dogs were given fluazifop-butyl at 0, 5, 25 or 125 mg/kg bw per day in gelatine capsules, seven dogs were prematurely sacrificed because of severe clinical signs at 125 mg/kg bw per day during the 55-week treatment period. The NOAEL was 25 mg/kg bw per day, based on changes in red blood cells, platelets and bone marrow (reduced number of megakaryocytes and hypercellularity of particles), cataract, reduced cholesterol, increased liver enzymes and increased bromosulfophthalein retention time at 125 mg/kg bw per day in those dogs completing the dosing period.

In an 18-month study in which mice were administered fluazifop-butyl via the diet at 0, 1, 5, 20 or 80 ppm (equivalent to 0, 0.15, 0.75, 3 and 12 mg/kg bw per day for both males and females, respectively), the NOAEL was 20 ppm (equivalent to 3 mg/kg bw per day), based on liver hypertrophy, pigmentation and vacuolation at 80 ppm (equivalent to 12 mg/kg bw per day). Respiratory infection in all groups led to low survival of animals. No treatment-related effects on tumour incidence were observed.

In an 81-week study, mice were given fluazifop acid via the diet at concentrations adjusted to achieve target doses of 0, 0.1, 0.3, 1.0 and 3.0 mg/kg bw per day. No effects were observed at termination, other than an increase in absolute liver weight at 3.0 mg/kg bw per day in females only. The NOAEL was 3.0 mg/kg bw per day, the highest dose tested. Because of the high mortality in all groups, including control, this study was not considered suitable for assessing the carcinogenic effects of fluazifop acid in mice.

In an 83-week study in which hamsters were given fluazifop-P-butyl via the diet at 0, 200, 750 or 3000 ppm (equal to 0, 12.5, 47.4 and 194 mg/kg bw per day for males and 0, 12.1, 45.5 and 184 mg/kg bw per day for females, respectively), the NOAEL was 200 ppm (equal to 12.1 mg/kg bw per day) for effects on gallbladder, eye (cataractous change) and testis (decreased weight, histopathological changes, reduced spermatozoa) at 750 ppm (equal to 45.5 mg/kg bw per day). No treatment-related effects on tumour incidence were observed.

In a 24-month study, rats were given fluazifop-butyl in the diet at 0, 2, 10, 80 or 250 ppm (equal to 0, 0.09, 0.44, 3.6 and 11 mg/kg bw per day for males and 0, 0.1, 1.3, 4.6 and 14 mg/kg bw per day for females, respectively). Because of the high mortality (due to respiratory infection) in this study, it is not considered suitable for identification of a NOAEL for general toxicity. No treatment-related increase in the incidence of tumours was observed; however, given the limitations of the study, no conclusions can be drawn.

In a 24-month study in which rats were given fluazifop acid at 0, 0.1, 0.3, 1.0 or 3.0 mg/kg bw per day, the NOAEL was 1.0 mg/kg bw per day, based on an equivocal increase in early mortality in males at 3.0 mg/kg bw per day. No treatment-related effects on tumour incidence were observed.

The Meeting concluded that fluazifop-P-butyl is not carcinogenic in mice, hamsters or rats.

Fluazifop-P-butyl was tested for genotoxicity in an adequate range of assays, both in vitro and in vivo. No evidence of genotoxicity was found.

The Meeting concluded that fluazifop-P-butyl is unlikely to be genotoxic.

In view of the lack of genotoxicity and the absence of carcinogenicity in mice, hamsters and rats, the Meeting concluded that fluazifop-P-butyl is unlikely to pose a carcinogenic risk to humans.

In a two-generation study in which rats were given fluazifop-butyl at 0, 10, 80 or 250 ppm (equal to 0, 0.4, 3.5 and 11.2 mg/kg bw per day for males and 0, 0.6, 4.7 and 15.2 mg/kg bw per day for females, respectively), the NOAEL for reproductive toxicity was 10 ppm (equal to 0.6 mg/kg bw per day) for extended duration of gestation in the F_1 generation from 80 ppm (equal to 4.7 mg/kg bw per day). The NOAEL for parental toxicity was 10 ppm (equal to 0.4 mg/kg bw per day) for reduced relative testis weight in the F_1 and F_2 generations, reduced relative pituitary weight in females, reduced relative spleen weight in both sexes and reduced relative uterus weight in the F_2 generation, and pathological changes in the kidney in the F_1 generation at 80 ppm (equal to 3.5 mg/kg bw per day). The NOAEL for offspring toxicity was 80 ppm (equal to 4.7 mg/kg bw per day) for reduced F_1 pup weight on day 25 and reduced pup viability at 250 ppm (equal to 15.2 mg/kg bw per day).

In a three-generation study with a teratogenicity phase, rats were given fluazifop-butyl at 0, 10, 80 or 250 ppm (equal to 0, 0.44, 3.28 and 11.35 mg/kg bw per day for males and 0, 0.73, 5.78 and 17.8 mg/kg bw per day for females, respectively). The NOAEL for reproductive toxicity was 10 ppm (equal to 0.73 mg/kg bw per day) for extended gestation duration in F_0 second mating (F_{1B}) and F_1 first mating (F_{2A}) from 80 ppm (equal to 5.78 mg/kg bw per day). The NOAEL for parental toxicity was 10 ppm (equal to 0.44 mg/kg bw per day) for decreased body weight change between weeks 0 and 13 in F_2 males, prostate, testis and seminal vesicle weight changes in F_0 males, relative thyroid weight changes in F_2 males and relative pituitary weight changes in F_1 females at 80 ppm (equal to 3.28 mg/kg bw per day). The NOAEL for offspring toxicity was 10 ppm (equal to 0.73 mg/kg bw per day) for reduced pup weight on day 25 postpartum in the F_{2A} generation and hydronephrosis in F_{1A} males and females from 80 ppm (equal to 5.78 mg/kg bw per day). Developmental effects observed in the teratogenicity phase of this study are briefly described below.

The overall NOAEL for parental toxicity was 10 ppm (equal to 0.44 mg/kg bw per day), based on organ weight changes and decreased body weight at 80 ppm (equal to 3.28 mg/kg bw per day). The overall NOAEL for reproductive toxicity was 10 ppm (equal to 0.73 mg/kg bw per day), based on extended duration of gestation at 80 ppm (equal to 4.7 mg/kg bw per day). The overall NOAEL for offspring toxicity was 10 ppm (equal to 0.73 mg/kg bw per day), based on reduced pup weight and hydronephrosis at 80 ppm (equal to 5.78 mg/kg bw per day).

A number of short-term studies in male rats were conducted to evaluate the effects of fluazifop-butyl on testis weight. No indication of histopathological changes was observed that could explain the changes in testis weight. The intrinsic estrogenic, anti-estrogenic, androgenic and anti-androgenic activities of fluazifop-P-butyl, fluazifop-butyl and their predominant metabolites, fluazifop-P-acid and fluazifop acid, were assessed in recombinant yeast models that express either human estrogen or androgen receptor. None of these compounds had any effect on these receptors.

In two developmental toxicity studies, rats were administered fluazifop-P-butyl at 0, 2, 5 or 100 mg/kg bw per day (study A) or 0, 0.5, 1, 20 or 300 mg/kg bw per day (study B) from gestation days 7 to 16. The maternal toxicity NOAEL was 100 mg/kg bw per day, based on reduced body weight gain and feed consumption in study B at 300 mg/kg bw per day. The embryo and fetal toxicity NOAEL from the two studies was 5 mg/kg bw per day, based on fifth cervical arch partially ossified, parietals partially ossified and change in manus assessment score for delayed ossification at 20 mg/kg bw per day.

An additional developmental toxicity study was conducted on rats exposed to fluazifop-P-butyl at 0, 2, 5 or 100 mg/kg bw per day from gestation days 17 to 21. The NOAEL for maternal toxicity was 5 mg/kg bw per day, based on reduced body weight gain and feed consumption at 100 mg/kg bw per day. The embryo and fetal toxicity NOAEL was 5 mg/kg bw per day, based on odontoid not ossified at 100 mg/kg bw per day.

Another developmental toxicity study was conducted to investigate the fetal toxicity of fluazifop-P-butyl in rats from gestation days 7 to 21. Rats were administered fluazifop-P-butyl at 0, 2, 5 or 100 mg/kg bw per day. There was no maternal toxicity. The embryo and fetal toxicity NOAEL was 2 mg/kg bw per day, based on the occurrence of signs of delayed ossification at 5 mg/kg bw per day.

The overall NOAEL for maternal toxicity in the rat developmental toxicity studies was 20 mg/kg bw per day, based on reduced body weight gain and feed consumption at 100 mg/kg bw per day. The overall embryo and fetal toxicity NOAEL was 2 mg/kg bw per day, based on delayed ossification at 5 mg/kg bw per day.

In a developmental toxicity study conducted in rabbits, fluazifop-P-butyl was administered by gavage at 0, 2, 10 or 50 mg/kg bw per day from gestation days 8 to 20. The maternal and embryo/fetal toxicity NOAELs were both 10 mg/kg bw per day, based on weight loss and inappetence in the dams and incomplete ossification of sternebrae in the fetuses at 50 mg/kg bw per day.

The results of the teratogenicity phase of the three-generation rat study with fluazifop-butyl as well as two developmental toxicity studies in rats showed increased malformations. These are attributed to the presence of the *S*-enantiomer of fluazifop-butyl. As studies have demonstrated that no epimerization from *R*- to *S*-enantiomer occurs in animals and plants, the Meeting concluded that only those developmental toxicity studies conducted with fluazifop-P-butyl are relevant for the evaluation of the developmental toxicity of this compound.

The Meeting concluded that fluazifop-P-butyl is not teratogenic.

In an acute neurotoxicity study in rats in which fluazifop-P-butyl was given orally by gavage at 0, 500, 1000 or 2000 mg/kg bw, the NOAEL was 2000 mg/kg bw, the highest dose tested. No NOAEL for systemic toxicity could be established owing to the occurrence of effects (body weight loss, clinical signs of toxicity, lower body temperature and decreased locomotor activity) at all dose levels.

In a subchronic (90-day) neurotoxicity study in which fluazifop-P-butyl was given to rats via the diet at 0, 100, 250 or 1000 ppm (males) or 4000 ppm (females) (equal to 0, 6.7, 16.8 and 69.5 mg/kg bw per day for males and 0, 7.9, 20.2 and 328.1 mg/kg bw per day for females, respectively), the NOAEL for neurotoxicity was 1000 ppm (equal to 69.5 mg/kg bw per day) for males and 4000 ppm (equal to 328.1 mg/kg bw per day) for females, the highest dose levels tested in this study. The NOAEL for systemic toxicity for males was 250 ppm (equal to 16.8 mg/kg bw per day), based on increased liver weights at 1000 ppm (equal to 69.5 mg/kg bw per day). The NOAEL for systemic toxicity for females was 4000 ppm (equal to 328.1 mg/kg bw per day), the highest dose level used in this study.

In an immunotoxicity study, fluazifop-P-butyl was administered to female rats in the diet at 0, 100, 500 or 2000 ppm (equal to 0, 9, 44 and 173 mg/kg bw per day, respectively). No signs of immunotoxicity were observed.

The Meeting concluded that fluazifop-P-butyl is not immunotoxic.

An in vitro test in which rat, mouse, hamster and human hepatocytes were dosed with fluazifop-P-butyl at 25–2000 µmol/L showed that peroxisomal enzyme activity was increased (in decreasing order of sensitivity) in mouse, rat and hamster hepatocytes in a dose-related manner. There was minimal response to fluazifop-P-butyl in human hepatocytes. Fluazifop-P-butyl did not increase cell division rates in rat, mouse, hamster or human hepatocyte cultures in vitro.

In an in vivo study, male and female rats, mice and hamsters were administered fluazifop-P-butyl in the diet at 0, 80, 250, 500, 1000, 1500 or 2000 ppm (equivalent to 0, 8, 25, 50, 100, 150 and 200 mg/kg bw per day, 0, 12, 37.5, 75, 150, 225 and 300 mg/kg bw per day and 0, 8, 25, 50, 100, 150 and 200 mg/kg bw per day for rats, mice and hamsters, respectively). There was a dose-related increase in peroxisome proliferation in male rats, ranging from 2.7-fold at 80 ppm to 12.4-fold at 2000 ppm; there was a marginal increase only (1.3-fold) in females fed 2000 ppm fluazifop-P-butyl. At dose levels of 250 ppm or higher, significant increases in peroxisome proliferation were seen in male and female mice. In female hamsters, a small (1.6-fold) but statistically significant increase was seen in the 2000 ppm group. No significant effects were observed in male hamsters at any dose level. A similar effect to that described above was seen when rats were treated for 56 days. No significant increases in hepatocyte S-phase (either early or sustained) were observed in the rats fed diets containing up to 2000 ppm fluazifop-P-butyl for up to 56 days.

Toxicological data on metabolites and/or degradates

Metabolite X (CF3-pyridone)

Metabolite X (R154719; 5-trifluoromethyl-pyrid-2-one; compound 10) is a plant and soil metabolite of fluazifop-P-butyl that is not found in the rat or dog but is present in the mouse to a limited extent, where it is excreted in small amounts (approximately 1.1% of the applied dose) in the urine. Toxicokinetics, acute oral toxicity, short-term toxicity and four genotoxicity studies were performed with this metabolite.

In an excretion and absorption study conducted in rats, metabolite X, after oral administration to rats, was completely absorbed from the gastrointestinal tract into the systemic circulation and thereafter rapidly excreted. The majority of the absorbed test substance was excreted as unchanged parent, mainly in the urine.

The acute oral LD_{50} in rats was 3417 mg/kg bw. In the mouse bone marrow micronucleus assay, clinical signs in both sexes and mortality in females were observed after a single oral dose of 250 or 375 mg/kg bw, but not at 150 mg/kg bw.

In a 28-day study in rats fed diets containing metabolite X at 0, 200, 600 or 1600 ppm (equal to 0, 22.2, 65.7 and 177 mg/kg bw per day for males and 0, 21.2, 66.4 and 176 mg/kg bw per day for females, respectively), the NOAEL was 1600 ppm (equal to 176 mg/kg bw per day), the highest dose tested.

Two vitro gene mutation assays on *Salmonella typhimurium* were positive in strains TA1535 and TA100 (only 1.6-fold increase at highest dose) in the presence and absence of S9 and negative in strains TA1537, TA1538 and TA98 in the presence and absence of S9. In a chromosome aberration assay in human lymphocytes in vitro, metabolite X was negative. In a mouse bone marrow micronucleus assay in vivo, it was negative. In an unscheduled DNA synthesis assay in vivo, metabolite X was negative. The Meeting concluded that metabolite X is unlikely to be genotoxic in vivo, but this requires confirmation.

In a developmental toxicity study in rats dosed with metabolite X at 0, 20, 60 or 200 mg/kg bw per day from gestation days 6 to 19, the NOAEL for maternal toxicity was 60 mg/kg bw per day for reduced body weight gain seen at 200 mg/kg bw per day from gestation days 6 through 14. The NOAEL for embryo and fetal toxicity was 200 mg/kg bw per day, the highest dose tested.

The Meeting concluded that metabolite X (R154719) is toxicologically relevant and is of no greater toxicity than the parent in rats, but may be more acutely toxic in mice.

Metabolite III (despyridinyl acid)

Metabolite III (R118106; 2-(4-hydroxyphenoxy)propionic acid) is a plant metabolite of fluazifop-P-butyl that is found in the rat and mouse, where it is excreted in small amounts (approximately 0.7% and 2% of the applied dose in rats and mice, respectively) in the urine. Acute oral, eye and skin irritation, acute inhalation, skin sensitization and three genotoxicity studies were performed with this metabolite.

The acute oral LD_{50} in rats was greater than 5000 mg/kg bw. The acute inhalation LC_{50} in rats was estimated to be greater than 1.84 mg/L (analytical value). Metabolite III is not irritating to the skin, but it did elicit severe ocular lesions and was a weak skin sensitizer in the guinea-pig (Magnusson and Kligman).

Results from an in vitro gene mutation assay on *Salmonella typhimurium* showed that metabolite III is not mutagenic, independent of the presence of an auxiliary metabolizing system. Results from a second gene mutation assay in *S. typhimurium* and *E. coli* showed that metabolite III did not induce gene mutations in the presence or absence of metabolic activation. Results from an in vitro chromosome aberration test in Chinese hamster ovary cells showed that metabolite III is not clastogenic in the presence or absence of metabolic activation.

The Meeting concluded that metabolite III is not genotoxic in vitro.

On the basis of structural considerations, the Meeting concluded that metabolite III is unlikely to be of greater toxicity than the parent.

Metabolite XL (hydroxy fluazifop acid)

Metabolite XL is a plant metabolite of fluazifop-P-butyl that is not found in experimental animals. No toxicological information is available. However, owing to its structural similarity to the parent, the Meeting concluded that metabolite XL is unlikely to be of greater toxicity than the parent.

Human data

No information was provided or identified in the literature.

The Meeting concluded that the existing database on fluazifop-P-butyl was adequate to characterize the potential hazards to the general population, including fetuses, infants and children.

Toxicological evaluation

The Meeting established an ADI for fluazifop-P-butyl, expressed as fluazifop acid, of 0–0.004 mg/kg bw, based on an overall NOAEL of 0.44 mg/kg bw per day (for decreased body weight and organ weight changes) in two- and three-generation reproductive toxicity studies in rats performed with fluazifop-butyl, using a safety factor of 100.

The Meeting established an ARfD for fluazifop-P-butyl, expressed as fluazifop acid, of 0.4 mg/kg bw, based on systemic toxicity effects (body weight loss, clinical signs of toxicity, lower body temperature and decreased locomotor activity) in an acute neurotoxicity study in rats occurring at the lowest dose of 500 mg/kg bw, using a safety factor of 100 (for intraspecies and interspecies variability) and an additional safety factor of 10 for use of a LOAEL instead of a NOAEL and correcting for molecular weight.

The ADI and ARfD can be applied to fluazifop acid (metabolite II), metabolite III (despyridinyl acid), metabolite X (CF3-pyridone) and metabolite XL (hydroxy fluazifop acid). The Meeting noted that the ARfD provides a margin of 625-fold relative to the acute toxicity of metabolite X in mice.

Levels relevant to risk assessment of fluazifop-P-butyl

Species	Study	Effect	NOAEL	LOAEL
Mouse	Eighteen-month study of toxicity and carcinogenicity[a,b]	Toxicity	3.0 mg/kg bw per day[c]	–
Hamster	Twenty-month study of toxicity and carcinogenicity[a,d]	Toxicity	200 ppm, equal to 12.1 mg/kg bw per day	750 ppm, equal to 45.5 mg/kg bw per day
		Carcinogenicity	3 000 ppm, equal to 184 mg/kg bw per day[c]	–
Rat	Twenty-four-month study of toxicity and carcinogenicity[a,b]	Toxicity	1.0 mg/kg bw per day	3.0 mg/kg bw per day[e]
		Carcinogenicity	3.0 mg/kg bw per day[c]	–

Species	Study	Effect	NOAEL	LOAEL
	Two- and three-generation studies of reproductive toxicity[a,f,g]	Parental toxicity	10 ppm, equal to 0.44 mg/kg bw per day	80 ppm, equal to 3.28 mg/kg bw per day
		Offspring toxicity	10 ppm, equal to 0.73 mg/kg bw per day	80 ppm, equal to 5.78 mg/kg bw per day
		Reproductive toxicity	10 ppm, equal to 0.73 mg/kg bw per day	80 ppm, equal to 4.7 mg/kg bw per day
	Developmental toxicity studies[d,g]	Maternal toxicity	20 mg/kg bw per day	100 mg/kg bw per day
		Embryo and fetal toxicity	2 mg/kg bw per day	5 mg/kg bw per day[h]
	Acute neurotoxicity study[d,i]	Neurotoxicity	2 000 mg/kg bw[c]	–
		Toxicity	–	500 mg/kg bw[j]
	Subchronic neurotoxicity study[a,d]	Neurotoxicity	1 000 ppm, equal to 69.5 mg/kg bw per day[c]	–
		Toxicity	250 ppm, equal to 16.8 mg/kg bw per day	1 000 ppm, 69.5 mg/kg bw per day
Rabbit	Developmental toxicity study[d,i]	Maternal toxicity	10 mg/kg bw per day	50 mg/kg bw per day
		Embryo and fetal toxicity	10 mg/kg bw per day	50 mg/kg bw per day
Dog	One-year toxicity study[f,k]	Toxicity	25 mg/kg bw per day	125 mg/kg bw per day

[a] Dietary study.

[b] Study conducted with fluazifop acid.

[c] Highest dose tested.

[d] Study conducted with fluazifop-P-butyl.

[e] Marginal LOAEL.

[f] Study conducted with fluazifop butyl.

[g] Two or more studies combined.

[h] Not considered an acute effect.

[i] Gavage study.

[j] Lowest dose tested.

[k] Capsule administration.

Acceptable daily intake (ADI; applies to fluazifop-P-butyl, fluazifop acid [metabolite II], metabolite III [despyridinyl acid], metabolite X [CF3-pyridone] and metabolite XL [hydroxy fluazifop acid], expressed as fluazifop acid)

0–0.004 mg/kg bw

Acute reference dose (ARfD; applies to fluazifop-P-butyl, fluazifop acid [metabolite II], metabolite III [despyridinyl acid], metabolite X [CF3-pyridone] and metabolite XL [hydroxy fluazifop acid], expressed as fluazifop acid)

0.4 mg/kg bw

Information that would be useful for the continued evaluation of the compound

Results from epidemiological, occupational health and other such observational studies of human exposure

Studies on the mutagenicity of metabolite X in mammalian systems

Critical end-points for setting guidance values for exposure to fluazifop-P-butyl

Absorption, distribution, excretion and metabolism in mammals	
Rate and extent of oral absorption	More than 56%
Distribution	Fat, kidneys and liver; enterohepatic recirculation in male rat
Potential for accumulation	Slight tendency to accumulate in fat
Rate and extent of excretion	90% in female rats in urine, with half-life of 2.5 h; 90% in male rats via urine and bile, with half-life of 33–38 h
Metabolism in mammals	Extensively metabolized to the carboxylic acid metabolite fluazifop acid, further conjugated with taurine
Toxicologically significant compounds in animals and plants	Fluazifop-P-butyl, fluazifop acid (metabolite II), metabolite III (despyridinyl acid), metabolite X (CF3-pyridone) and metabolite XL (hydroxy fluazifop acid)
Acute toxicity	
Rat, LD_{50}, oral	> 2 451 mg/kg bw
Mouse, LD_{50}, oral	> 2 000 mg/kg bw
Rabbit, LD_{50}, dermal	> 2 110 mg/kg bw
Rat, LC_{50}, inhalation	> 5.2 mg/L (nose-only exposure)
Rabbit, dermal irritation	Non-irritating
Rabbit, ocular irritation	Non-irritating
Mouse, dermal sensitization	Sensitizing (local lymph node assay)
Short-term studies of toxicity	
Target/critical effect	Kidney and liver
Lowest relevant oral NOAEL	10 mg/kg bw per day (rat)
Lowest relevant dermal NOAEL	100 mg/kg bw per day (rabbit)
Lowest relevant inhalation NOAEC	No data
Long-term studies of toxicity and carcinogenicity	
Target/critical effect	Mortality
Lowest relevant NOAEL	1.0 mg/kg bw per day (rat)
Carcinogenicity	Not carcinogenic in hamsters or rats[a]
Genotoxicity	

	No evidence of genotoxicity[a]
Reproductive toxicity	
Target/critical effect	Parental: body weight and testis and other organ weights
	Reproductive: extended gestation
	Offspring: reduced pup weight and viability and hydronephrosis
Lowest relevant parental NOAEL	0.44 mg/kg bw per day
Lowest relevant offspring NOAEL	0.73 mg/kg bw per day
Lowest relevant reproductive NOAEL	0.73 mg/kg bw per day
Developmental toxicity	
Target/critical effect	Delayed ossification, reduced maternal body weight
Lowest relevant maternal NOAEL	10 mg/kg bw per day (rabbit)
Lowest relevant embryo/fetal NOAEL	2 mg/kg bw per day (rat)
Neurotoxicity	
Acute neurotoxicity NOAEL	2 000 mg/kg bw, highest dose tested (rat)
Subchronic neurotoxicity NOAEL	69.5 mg/kg bw per day, highest dose tested (rat)
Developmental neurotoxicity NOAEL	No data
Immunotoxicity	
	173 mg/kg bw per day, highest dose tested (rat)
Studies on toxicologically relevant metabolites	
Metabolite X	Complete absorption and rapid excretion in urine as unchanged parent
	LD_{50} (rat): 3 417 mg/kg bw
	28-day rat: NOAEL 176 mg/kg bw per day, highest dose tested
	Unlikely to be genotoxic in vivo, but needs confirmation
	Developmental toxicity (rat): maternal NOAEL 60 mg/kg bw per day; embryo and fetal toxicity NOAEL 200 mg/kg bw per day, highest dose tested
Metabolite III	LD_{50} (rat): > 5 000 mg/kg bw
	LC_{50} (rat): > 1.84 mg/L (analytical value)
	Not irritating to rabbit skin
	Severely irritating to rabbit eyes
	Weakly sensitizing in the guinea-pig
	Not genotoxic in vitro
Mechanistic/mode of action studies	In vivo and in vitro indications of peroxisome proliferation in mouse and male rat, mild effect in hamster and no effect in human hepatocytes (in vitro only)
	No estrogenic, anti-estrogenic, androgenic or anti-androgenic activity in vitro

[a] Unlikely to pose a carcinogenic risk to humans via exposure from the diet.

Summary

	Value	Study	Safety factor
ADI[a]	0–0.004 mg/kg bw	Multigeneration studies of reproductive toxicity (rat)	100
ARfD[a]	0.4 mg/kg bw	Acute neurotoxicity study (rat)	1 000

[a] Applies to fluazifop-P-butyl, fluazifop acid (metabolite II), metabolite III (despyridinyl acid), metabolite X (CF3-pyridone) and metabolite XL (hydroxy fluazifop acid), expressed as fluazifop acid.

RESIDUE AND ANALYTICAL ASPECTS

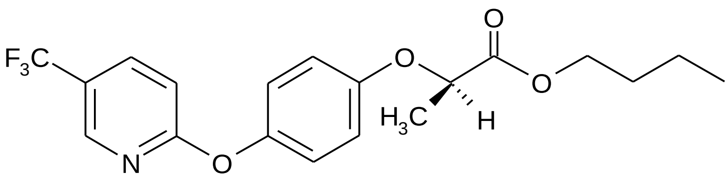
Fluazifop-P-butyl was scheduled for residue evaluation as a new compound by the 2015 JMPR at the 46th Session of the CCPR (2014). Because the dossier was considered incomplete at the start of the 2015 JMPR, the evaluation was postponed until the 2016 JMPR. Fluazifop-P-butyl is used for the post-emergence control of grass (graminaceous) weeds in a wide range of broad-leaved crops. Fluazifop-P-butyl is quickly absorbed across leaf surfaces. Its hydrolysis product, fluazifop-P-acid (or fluazifop-P), then distributes throughout the plant through both xylem and phloem transport and accumulates in the meristem tissue of the growing points of both shoots and roots. The speed of the herbicidal action increases with weed vigour.

The Meeting received information from the manufacturer on identity, metabolism, storage stability, residue analysis, use pattern, residues resulting from supervised trials on various crops, fate of residue during processing, and livestock feeding studies.

Chemical name

Fluazifop-P-butyl

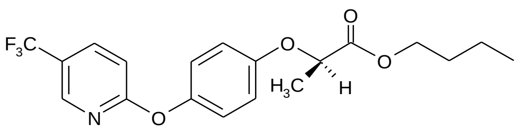
Butyl (R)-2-[4-(5-trifluoromethyl-2-pyridyloxy)phenoxy]propionate

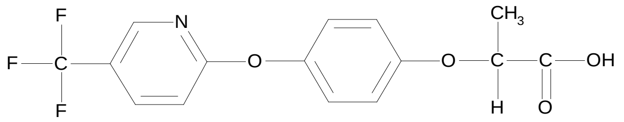
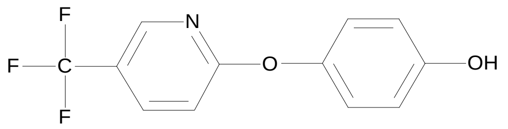
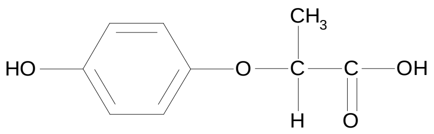
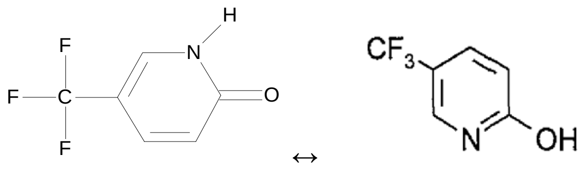
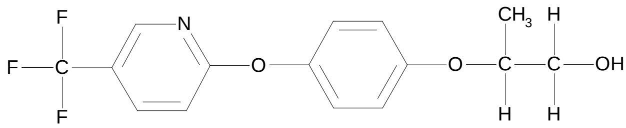
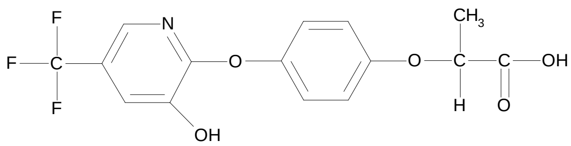


Fluazifop-P-butyl is the active purified (resolved) R-enantiomer of the racemate (RS)-fluazifop-butyl. This R-enantiomer possesses the majority of the herbicidal activity. The enantiomeric purity of fluazifop-P-butyl is 96–99% R-enantiomer and 1–4% S-enantiomer. The chiral carbon atom of the R-enantiomer is indicated in the figure above.

Fluazifop-butyl (racemate) contains R and S-enantiomers in a 50:50 w/w ratio. The biological activity of the racemate is due primarily to the R-enantiomer which gives equal herbicidal activity at half the rate of racemic (RS)-fluazifop-butyl. A formulation based on the racemate was marketed first and was replaced by a formulation based on the R-enantiomer in 1984. Several of the available studies have been performed with the racemate.

Compounds referred to in the appraisal:

Fluazifop-P-butyl (I) MW 383.4	

Fluazifop-P-acid (II) MW 327.3	
Pyr-Ph ether (IV) MW 255.20	
Despyridinyl acid (III) MW 182.17	
CF3-pyridone (X) MW 163.10	
Fluazifop alcohol (34, XXXIV)	
Hydroxyfluazifop acid (XL) MW 343.3	

Plant metabolism

The Meeting received plant metabolism studies for fluazifop-butyl after soil directed or foliar applications on fruits and fruiting vegetables (grapes and cucumbers), stem and leafy vegetables (lettuce, celery, and endive), cereals (maize), pulses and oilseeds (alfalfa, cotton, oilseed rape, and soya bean) and root and tuber vegetables (carrot, potato tubers, and sugar beet roots). All radioactive residue levels in the metabolism studies are expressed as fluazifop-butyl equivalents, and all percentages are expressed as %TRR (total radioactive residues) in the specified commodity. As a large number of metabolism studies were received, they were summarized together.

In most crop commodities, residues could be extracted sequentially by acetonitrile and acetonitrile/water at levels > 80%, except cotton forage 78–95%, carrot roots 61–88%, and carrot foliage 40–74%. Oilseed commodities were sequentially extracted by hexane, diethyl ether or dichloromethane, acetonitrile/water and methanol or water at levels > 80%, except cotton seeds 64–65% TRR.

Organo-soluble and polar conjugates present in the extracts were cleaved by alkaline or acid hydrolysis to investigate to which exocon they were attached. In some commodities the remaining solids were hydrolysed as well. The Meeting noted that harsh hydrolysis conditions can lead to degradation of fluazifop-butyl and its metabolites, and interpretation of the metabolism studies needs to take this into account. Studies showed that fluazifop acid remained intact (92–96% recovery) with 0.1 M NaOH for 1–3 hrs reflux or 6 M HCl for 6 hrs 60 ºC (90% recovery). Higher alkaline concentrations (1 M NaOH) or higher temperatures under acid conditions (reflux in 1–6 M HCl) resulted in degradation of fluazifop acid into CF3-pyridone (X) and despyridinyl acid (III). CF3-pyridone degraded under alkaline hydrolysis conditions, but remained intact with 6 M HCl for 1 hr reflux (93% recovery). Stability of despyridinyl acid (III), Pyr-Ph ether (IV) and hydroxyfluazifop acid (XL) under these conditions has not been investigated, but is desirable.

Since fluazifop-P-butyl could possibly convert to S-enantiomeric forms during hydrolysis or metabolism, the Meeting considered epimerisation studies in plants. Epimerisation of [^{14}C]phenyl-fluazifop-butyl R- or S-enantiomers was studied in lettuce and cotton plants treated with a topical leaf and stem spot application. Plants were harvested 27 days later and then extracted and hydrolysed. The R/S ratio remained unchanged for fluazifop acid, indicating that no epimerisation occurred in the plant or during sample extraction and acid or alkaline hydrolysis. Contrary, analysis of samples from supervised trials treated with fluazifop-butyl (RS) showed an increase in the proportion of the fluazifop acid R-enantiomer with a crop to crop variation in the rate and content of conversion. The R-enantiomer proportion of the total fluazifop remained approximately the same in carrot roots at 21 days after treatment (46–54%), but increased to 74–82% in apple at 35–49 days after treatment, 78% in head cabbage at 49 days after treatment, 62% in kale at 27–41 days after treatment, 69–77% in dry peas at 54 days after treatment and 76–84% in oilseed rape seeds. Since fluazifop-P-butyl (96–99% R-enantiomer) is currently the only compound that is available in trade, it is unlikely that S-enantiomeric levels will be higher than specified for fluazifop-P-butyl in the FAO JMPS specifications.

Translocation studies showed that fluazifop-butyl derived residues translocated rapidly throughout the plants. In a study on <u>cucumbers</u> following a single foliar application, a high proportion of the residues (88%) was present on the peel of the fruit after 1 day, while residues had distributed evenly between the peel and flesh after 14 days. Whole plant autoradiograms of <u>soyaplants</u> following a topical leaf application or a topical stem injection showed very little translocation after 1 day, but the radiocarbon had spread throughout the soyaplants including the roots and the new growth after 7–14 days.

Fluazifop-P-butyl may be applied:

- to grass-like crops as a desiccant (grass seed production) or as a ripener to increase the sucrose concentration (sugar cane)
- as a weed directed spray application at the base of trees, shrubs or vines or a banded inter-row soil application to field crops
- as a broadcast or banded (over-the-top) foliar application to various crops.

Treatment of grass-like crops was studied in <u>maize</u> plants. Fluazifop-P-butyl is an herbicide effective against graminaceous weeds and is therefore phytotoxic to cereals and grasses. This was confirmed in a metabolism study on maize plants where maize plants died after 13–28 days after a topical leaf or stem application. In a study, where maize plants were stem injected with [^{14}C]phenyl-fluazifop-butyl (RS) at an unknown dose rate, only parent and fluazifop acid were identified in the extracts. Parent compound decreased from 15–40% AR at 1–7 days to 5% AR at 14–28 days. Free fluazifop acid decreased from 65% at Day 1 to 5% AR at Day 28. The presence of other compounds was not investigated and hydrolysis was not conducted. Fluazifop-butyl and fluazifop acid were the only compounds found in cereal forage.

Application around the base of trees or shrubs was studied on <u>grape vines</u>. Field grown grapes were sprayed at the base of the vine with a mixture of [^{14}C]phenyl- and [^{14}C]pyridyl-fluazifop-P-butyl (R-enantiomer). The vine was treated with 1–2 applications at 0.84 kg ai/ha with an interval of 71 days, whereby the first application was at early bunch formation. Total radioactive residues (TRR) in immature grape berries at DAT 21, 30, 45, 60 after a single treatment and mature grape berries at DAT 14, 30 after a double treatment were 0.004–0.009 mg/kg eq. Composition of the residue was not further investigated. This study indicates that application of fluazifop-P-butyl around the base of trees, shrubs or vines is not expected to result in significant residues in the fruits (or nuts) as long as the spray does not reach the fruits (or nuts).

Foliar applications to various crops were investigated in 21 different metabolism studies. These are summarized in the table below. Studies, where severe hydrolysis conditions are used are not taken into account for residue characterisation.

In addition, individual compounds were analysed in samples treated with fluazifop-butyl (RS) in supervised residue trials. Fluazifop-butyl (parent compound) is found at significant quantities at the day of application, but is found at low levels (up to 0.1 mg/kg) up to 8 days in fruits, up to 12 days in roots, up to 16 days in oilseed forage and up to 98 days in root forage. In trials on celery, where extraction conditions did not degrade fluazifop acid, low levels (0.06–0.08 mg/kg) of total CF3-pyridone (free and conjugates) were found up to 30 days after application. Total fluazifop (i.e. sum of fluazifop-butyl, fluazifop acid and its conjugates, expressed as fluazifop acid) levels ranged from 1.2–2.7 mg/kg for these samples. When corrected for molecular weight (× 327.3/163.10 = 2.01), levels of CF3-pyridone were equivalent to 5.2–13% of total fluazifop in celery stems. This is similar to levels found in the celery metabolism study.

							Parent (I) and metabolites as %TRR								
No	Crop	Treatment	Label		PHI	TRR Mg/kg	I	II	I + II	IV	III	X	34	XL	NH
2	Cucumber	1 × 0.50 kg ai/ha foliar spray	Ph	RS	1	1.3	7.3	69	76	-	–	Nr	Na	Na	24
2	Cucumber	1 × 0.50 kg ai/ha foliar spray	Ph	RS	14	4.9	–	72	72	–	3.3	Nr	Na	Na	17
2	Cucumber	1 × 0.52 kg ai/ha foliar spray	Py	RS	14	2.4	–	69	69	–	Nr	–	Na	Na	11
9	Rape seeds	1 × 0.84 kg ai/ha; topical leaf and stem and soil	Py	RS	70–91	0.65	–	69	69	–	Nr	D (–)	Na	Na	6
15	Soyaseeds	1 × 1.0 kg ai/ha; Broadcast pods present	Ph	RS	63	11	–	77	77	Na	3.7	Nr	Na	Na	10
15	Soyaseeds	1 × 1.0 kg ai/ha; Broadcast pods present	Ph	RS	43	6.0	–	81	81	Na	Na	Nr	Na	Na	13
16	Soyaseeds	1 × 0.56 kg ai/ha; Broadcast BBCH 15	Ph	R	104	0.04	–	50	50	–	2.3	Nr	Na	Na	19
16	Soyaseeds	1 × 0.56 kg ai/ha; Broadcast BBCH 15	Py	R	104	0.09	–	40	40	–	Nr	D (–)	Na	Na	24
16	Soyaseeds	0.56 + 0.21 kg ai/ha; Broadcast BBCH 69	Ph	R	82	0.57	–	57	57	–	3.9	Nr	Na	Na	13
16	Soyaseeds	0.56 + 0.21 kg ai/ha; Broadcast BBCH 69	Py	R	82	1.0	0.2	59	60	–	Nr	D 0.9	Na	Na	16
17	Carrot roots	1 × 0.25 kg ai/ha; broadcast	Ph	R	45	0.15	–	63	63	–	6.4	Nr	–	Na	12
17	Carrot roots	1 × 0.53 kg ai/ha; broadcast	Ph	RS	45	0.18	–	46	46	–	4.8	Nr	13	Na	23
17	Carrot roots	1 × 0.51 kg ai/ha; broadcast	Py	RS	45	0.33	–	44	44	–	Nr	1.0	11	Na	25
18	Carrot roots	1 × 0.42 kg ai/ha; broadcast	Ph	R	20	0.38	0.5	62	62	–	13	Nr	Na	Na	25
18	Carrot roots	1 × 0.43 kg ai/ha broadcast	Py	R	20	0.54	–	49	49	–	Nr	37	Na	Na	14
18	Carrot roots	0.42 + 0.42 kg ai/ha; broadcast	Ph	R	45	0.091	–	64	64	–	18	Nr	Na	Na	19
18	Carrot roots	0.42 + 0.42 kg ai/ha; broadcast	Py	R	45	0.13	–	59	59	–	Nr	29	Na	Na	12
19	Potato	1 × 0.86 kg ai/ha;	Ph	RS	56	0.37	–	42	42	–	18	Nr	Na	13	15

							Parent (I) and metabolites as %TRR								
No	Crop	Treatment	Label		PHI	TRR Mg/kg	I	II	I + II	IV	III	X	34	XL	NH
	tubers	topical leaf and soil													
19	Potato tubers	1 × 0.84 kg ai/ha; topical leaf and soil	Py	RS	56	0.29	–	25	25	–	Nr	–	Na	15	30
20	Sugar beet roots	1 × 2.8 kg ai/ha; topical leaf and soil	Ph	RS	87	0.049	–	25	25	–	18	Nr	Na	Na	4
21	Sugar beet roots	1 × 0.25 kg ai/ha; broadcast	Ph	R	90	0.09	–	52	52	–	17	Nr	–	Na	18
21	Sugar beet roots	1 × 0.52 kg ai/ha; broadcast	Ph	RS	90	0.08	–	40	40	–	15	Nr	–	Na	17
21	Sugar beet roots	1 × 0.51 kg ai/ha; broadcast	Py	RS	90	0.20	–	34	34	–	NR	IC 3.4	–	Na	18
4	Celery stems	0.45 + 0.18 kg ai/ha; broadcast	Ph	R	30	0.05	–	43	43	Na	18	Nr	1.0	4.4	1
4	Celery stems	0.42 + 0.36 kg ai/ha; broadcast	Py	R	30	0.08	–	39	39	Na	Nr	2.7	–	1.2	8
3	Lettuce	1 × 0.45 kg ai/ha; topical leaf and stem	Ph	R	27	NA	52	19	71	0.4	8.7	Nr	–	Na	5
3	Lettuce	1 × 0.45 kg ai/ha; Topical leaf and stem	Ph	S	27	NA	49	19	68	1.7	4.1	Nr	5.3	Na	7
5	Endive	1 × 0.42 kg ai/ha; broadcast	Ph	R	20	0.65	–	48	48	11	25	Nr	Na	Na	3
5	Endive	1 × 0.42 kg ai/ha; broadcast	Py	R	20	0.88	–	37	37	25	Nr	14	Na	Na	12
5	Endive	0.42 + 0.42 kg ai/ha; broadcast	Ph	R	28	1.4	–	49	49	0.5	40	Nr	Na	Na	1
5	Endive	0.42 + 0.42 kg ai/ha; broadcast	Py	R	28	1.8	–	43	43	–	Nr	11	Na	Na	2
4	Celery leaves	0.45 + 0.18 kg ai/ha; broadcast	Ph	R	30	0.31	2.4	52	54	Na	7.1	Nr	0.3	1.6	–
4	Celery leaves	0.42 + 0.36 kg ai/ha; broadcast	Py	R	30	0.64	–	63	63	Na	Nr	14	–	0.7	6
11	Maize forage	Dose rate ns; topical stem injection	Ph	RS	1	NA	15	65 fr	80	Na	Na	Nr	Na	Na	20
11	Maize forage	Dose rate ns; topical stem injection	Ph	RS	7	NA	40	25 fr	65	Na	Na	Nr	Na	Na	35
6	Alfalfa forage	1 × 0.49 kg ai/ha; foliar spray	Ph	RS	20	3.2	–	70	70	–	–	Nr	Na	Na	6
6	Alfalfa forage	1 × 0.49 kg ai/ha; foliar spray	Py	RS	20	2.5	–	70	70	–	Nr	Na	Na	Na	6
6	Alfalfa forage	1 × 0.49 kg ai/ha; foliar spray	Ph	RS	87	0.13	–	37	37	–	–	Nr	Na	Na	13
7	Cotton forage	1 × 0.45 kg ai/ha; topical leaf and stem	Ph	R	27	NA	24	38	61	2.7	7.3	Nr	–	Na	11
7	Cotton forage	1 × 0.45 kg ai/ha; topical leaf and stem	Ph	S	27	NA	23	56	79	2.5	1.5	Nr	–	Na	6
10	Soyaforage	1 × 0.75 kg ai/ha; topical leaf and stem	Ph	RS	1	NA	15	40 fr	55	Na	Na	Nr	Na	Na	45
10	Soyaforage	1 × 0.75 kg ai/ha; topical leaf and stem	Ph	RS	2	NA	1.0	50 fr	51	Na	Na	Nr	Na	Na	49
10	Soyaforage in nutrient	1 × 0.75 kg ai/ha; topical leaf and stem	Ph	RS	6	NA	–	76	76	Na	Na	Nr	Na	Na	12
10	Soyaforage in nutrient	1 × 0.75 kg ai/ha; topical leaf and stem	Ph	RS	29	NA	–	15	15	Na	Na	Nr	Na	Na	85
11	Soyaforage	Dose rate ns; topical stem injection	Ph	RS	1	NA	65	15 fr	80	Na	Na	Nr	Na	Na	20
16	Soyaforage	1 × 0.56 kg ai/ha; Broadcast BBCH 15	Ph	R	22	5.2	0.2	71	72	0.3	–	Nr	Na	Na	2

							Parent (I) and metabolites as %TRR								
No	Crop	Treatment	Label		PHI	TRR Mg/kg	I	II	I + II	IV	III	X	34	XL	NH
16	Soyaforage	1 × 0.56 kg ai/ha; Broadcast BBCH 15	Py	R	22	4.3	–	70	70	0.2	Nr	D 0.2	Na	Na	3
18	Carrot foliage	1 × 0.42 kg ai/ha; broadcast	Ph	R	20	0.86	–	82	82	–	1.7	Nr	Na	Na	16
18	Carrot foliage	1 × 0.42 kg ai/ha; broadcast	Py	R	20	1.3	–	42	42	–	Nr	48	Na	Na	10
18	Carrot foliage	0.42 + 0.42 kg ai/ha; broadcast	Ph	R	45	1.0	–	82	82	–	5.9	Nr	Na	Na	13
18	Carrot foliage	0.42 + 0.42 kg ai/ha;Broadcast	Py	R	45	1.5	–	47	47	–	Nr	31	Na	Na	22

No = number of the study, referring to the study number in the evaluation

I = parent, II = fluazifop acid, IV = Pyr-Ph ether; III = despyridinyl acid, X = CF3-pyridone, 34 = fluazifop alcohol, XL = hydroxyfluazifop acid

NH = extracted or solid fractions not subjected to hydrolysis, may contain some additional II, IV, III, X conjugates

IC = incomplete hydrolysis

fr = free fluazifop acid only—no hydrolysis conducted

D = degraded

nr = not relevant (compound doesn't contain the label)

na = not analysed (presence not verified)

– = not detected

Py = pyridinyl label

Ph = phenyl label

R = R-enantiomer

S = S-enantiomer

RS = racemate

bold indicates > 0% TRR

These studies show that metabolism is similar in all five crop categories, but the quantity of the different metabolites is different between fruits, seeds, roots, stems or leaves of the crops.

Significant residues appear in fruits after foliar application (cucumbers). Fluazifop acid and its conjugates comprise the major residue (69–72%). Fluazifop-butyl (I) and despyridinyl acid (III) are found at low levels (7.3% and 3.3%, respectively). Residues are distributed evenly throughout the peel and the pulp within 14 days of treatment. Samples from supervised residue trials show that fluazifop-butyl may be present up to 8 days after treatment in strawberries.

Significant residues appear in the seeds of pulses and oilseeds (oilseed rape seeds and soyaseeds), when the application is performed at pod formation stage. Residues are lower when application is performed at 3–6 trifoliate stage. The principal component of the residue is fluazifop acid in free or conjugated form (40–81%). Fluazifop-butyl (I) and despyridinyl acid (III) are found at low levels (0.2% and < 4%, respectively) up to 82 days after treatment. Fluazifop conjugates were identified as glyceride esters (glycerol dioleate, glycerol dilinoleate and a hybrid oleate-palmitate ester of glycerol) in soya bean seeds.

Significant residues appear in root and tuber vegetables (carrots, potatoes, and sugar beet roots). The principal component of the residue is fluazifop acid in free or conjugated form (25–64%). Despyridinyl acid (conjugates) and CF3-pyridone (free and conjugates) were found at significant levels (4.8–18% and 1–37%, respectively). CF3-pyridone was found at higher levels than its despyridinyl counterpart in some root crops and could indicate additional uptake from soil. Fluazifop alcohol (free and conjugates) was only found in carrot roots (11–13%) treated with fluazifop-butyl (RS) and is thought to be derived from the S-enantiomer. Hydroxyfluazifop acid (XL, free) was found in potatoes at significant levels (13–15%). The fluazifop acid, despiridinyl acid and CF3-pyridone conjugates were identified as hexosides and/or malonylhexosides. Fluazifop-butyl was found at low levels (0.5%) up to 20 days after treatment.

Low residues appear in stem vegetables (celery). The principal component of the residue is fluazifop acid in free or conjugated form (39–43%). Despyridinyl acid (free and conjugates) is found at significant levels (18%). CF3-pyridone (free and conjugated) is found at low levels (2.7% TRR). Supervised residue trials show that CF3-pyridone is present up to 30 days after application at levels equivalent to 13% total fluazifop in celery stems. Hydroxyfluazifop acid (XL) was found at low levels (< 5%). Parent compound was not detected.

Significant residues appear in leafy vegetables (lettuce, endive, and celery leaves) with fluazifop-butyl or fluazifop acid (free and conjugated) as the main compound (up to 52% and 19–63%, respectively). Parent compound was found at significant levels (49–52%) in lettuce leaves at 27 days after treatment, and at low levels (2.4%) in celery leaves at 30 days after treatment. Pyr-Ph ether (IV) (free and conjugated) was found at significant levels (11–25%) in immature endive (DAT 20) and at lower levels in lettuce and mature endive (< 2%). Despyridinyl acid (III) conjugates and CF3-pyridone (free and conjugated) were found at significant levels in endive, lettuce and celery leaves (7.1–41% and 11–14%, respectively). The fluazifop acid, despiridinyl acid and CF3-pyridone conjugates were identified as hexosides, malonylhexosides or pyridinyl N-sugars.

Significant residues appear in forage of pulses and oilseeds. The principal components of the residue are parent (up to 25%) and fluazifop acid in free or conjugated form (37–76%). Pyr-Ph ether (IV) (free and conjugated) and despyridinyl acid (III) conjugates were found at low levels (< 3% and < 8% TRR, respectively). Supervised residue trials show that fluazifop-butyl may be present up to 16 days after treatment in oilseed rape forage.

Significant residues appear in forage of roots and tubers. The principal component of the residue was fluazifop acid in free or conjugated form (42–82%). Despyridinyl acid (conjugates) were found at low levels (< 6% TRR). CF3-pyridone (conjugates) was found at higher levels (31–48% TRR) than its despyridinyl counterpart (< 6% TRR) and could indicate additional uptake from soil. Pyr-Ph ether (IV) was not detected. The fluazifop acid, despiridinyl acid and CF3-pyridone conjugates were identified as hexosides and/or malonylhexosides. Supervised residue trials show that fluazifop-butyl may be present up to 98 days after treatment in sugar beet forage.

Fate in rotational crops

Metabolism of fluazifop-butyl was investigated in two confined rotational crops following a single bare soil treatment.

In the first confined rotational crop study, [^{14}C]phenyl- or [^{14}C]pyridyl-fluazifop-butyl (RS) was applied to a bare sandy loam soil at 1 × 0.25 kg ai/ha under greenhouse conditions. Rotational crops (lettuce, wheat and sugar beet) were sown at 30, 120 and 327 Day plant back intervals for the phenyl label and 60, 120 and 365 day PBI for the pyridyl label. Total radioactive residues were < 0.01 mg/kg eq in the phenyl-labelled crop samples at all plant back intervals. Total radioactive residues were < 0.01 mg/kg eq in the pyridyl-labelled sugar beet roots and lettuce leaves at all plant back intervals. Total radioactive residues were 0.011–< 0.01–< 0.01 mg/kg in wheat grain, 0.10–0.080–0.031 mg/kg eq in wheat straw and 0.027–0.018–< 0.01 mg/kg eq in sugar beet tops, respectively for the three PBIs. The radioactive residues were not further characterised.

In the second confined rotational crop study, [^{14}C]phenyl- or [^{14}C]pyridyl-fluazifop-P-butyl (R-enantiomer) was applied to a bare sandy loam soil at 0.44–0.50 kg ai/ha under indoor conditions. Rotational crops (lettuce, wheat and carrot) were sown at 30, 60 and 270 Day plant back intervals (PBI).

Analysis of the soil samples showed that only 1.2%AR remained as parent compound after 30 days. In soil treated with [^{14}C]phenyl-labelled fluazifop-P-butyl, free fluazifop-P-acid were the main compounds. In soil treated with [^{14}C]pyridyl labelled fluazifop-P-butyl, free CF3-pyridone was the main compound.

Crops grown in soil treated with [^{14}C]phenyl-labelled fluazifop-P-butyl had very low residues. Total radioactive residues in lettuce leaves and carrot roots were below 0.01 mg eq/kg at all plant back intervals. Residues in wheat grains and feed crops were below 0.04 mg/kg eq except wheat straw at the 60 Day plant back interval (PBI) where the residue was 0.1 mg/kg eq. In wheat straw of the 60 Day PBI 60% TRR was organo- and/or acid soluble. Individual extracted components of wheat straw did not exceed 0.014 mg/kg eq, post extraction solids represented a residue of 0.03 mg/kg eq. No known metabolites were found.

Crops grown in soil treated with [^{14}C]pyridyl-fluazifop-P-butyl had radioactive residues > 0.01 mg/kg eq at all plant back intervals. Total radioactivity in edible crop commodities ranged from 0.01–0.25 mg/kg eq at 30 Day PBI, 0.03–0.46 mg/kg eq at 60 Day PBI and 0.02–0.34 mg/kg eq at 270 Day PBI, while residues up to 1.5 mg/kg were found in forage (PBI 60) and up to 6.7 mg/kg eq were found in wheat straw (PBI 270). Characterisation and identification was carried out on all crops grown after a 60-day rotation period. Fluazifop-P-butyl, fluazifop acid and Pyr-Ph ether (IV) were not detected. CF3-pyridone (X) including its conjugates represented > 60% TRR in most crop commodities.

The Meeting noted that analyses in soil and rotational crops indicate that fluazifop-P-butyl and fluazifop acid are not taken up from the soil and concluded that total fluazifop residues are therefore not expected in rotational crops. CF3-pyridone is the only residue that is taken up from the soil under confined conditions at all plant back intervals (30, 60, and 270 Days).

Animal metabolism

The Meeting received results of metabolism studies in laboratory animals, humans, lactating goats and laying hens. Metabolism in laboratory animals and humans was summarized and evaluated by the WHO panel of the 2016 JMPR.

One lactating cow was dosed orally twice daily for 7 consecutive days with a gelatin capsule containing a 50:50 mixture of [^{14}C]phenyl and [^{14}C]pyridyl-fluazifop-butyl (racemate). The equivalent actual mean daily dose in the dry feed was 2.5 ppm (or 0.075 mg/kg bw). The cow was sacrificed 4 hours after the last dose. Total recovered radioactivity amounted to 82% of the administered dose. The majority of the radioactivity was recovered in urine (80%) with small amounts recovered in faeces (1.7%) and milk (1.1%).

The highest radioactivity concentrations were found in kidney (0.039 mg/kg eq) and liver (0.024 mg/kg eq), followed by fat (0.002–0.005 mg/kg eq) and muscle (0.001 mg/kg eq). Total radioactive residues in milk reached a plateau concentration of approximately 0.034 mg/kg eq following 2 days of dosing.

Following solvent extraction, residue extractabilities were > 89% TRR for milk and all tissues of cow. In milk, the majority of the residues (94% TRR) were extracted with hexane, representing the residues in the milkfat fraction. Extracts from milk and liver were hydrolysed to cleave possible conjugates.

Parent was not detected in milk or tissues of cow. The most significant metabolite (including conjugates) identified in all tissues and milk was fluazifop acid (32–68% TRR). Pyr-Ph ether (IV) (including conjugates) was identified in liver and kidney (10–12% TRR, < 0.01 mg/kg eq). These levels must be seen as minimum levels, since several extracted or solid fractions of these commodities were not subjected to hydrolysis and may contain additional amounts of metabolites. These unhydrolysed fractions accounted for 16%, 19%, 26%, 63% and 68% TRR in milk, liver, kidney, muscle and fat, respectively. Muscle and fat residue characterisation was not pursued further because of the low total radioactive residue levels (< 0.01 mg/kg eq).

Two lactating goats (one per label) were dosed orally twice daily for 7 consecutive days with a gelatin capsule containing [^{14}C]phenyl or [^{14}C]pyridyl-fluazifop-P-butyl (R-enantiomer). The equivalent actual mean daily doses in the dry feed were 9.6 or 9.7 ppm (or 0.28 or 0.23 mg/kg bw) for the phenyl or pyridyl label, respectively. Goats were sacrificed 16 hours after the last dose. Total recovered radioactivity amounted to 87% and 99% of the administered dose for the phenyl and pyridyl radiolabelled forms, respectively. The majority of the radioactivity was recovered in urine (70–82% AR) with lower amounts recovered in recovered in faeces (10–11% AR), milk (0.8–0.9% AR) and tissues (< 0.2% in total).

The highest radioactivity concentrations were found in kidney (0.62/0.46 mg/kg eq) and liver (0.060/0.045 mg/kg eq), followed by fat (0.006–0.015/0.005–0.011 mg/kg eq) and muscle (0.004/0.002–0.003 mg/kg eq). Total radioactive residues in milk reached a plateau concentration of approximately 0.15–0.16 mg/kg eq following 96–104 hours dosing.

Following solvent extraction, residue extractabilities were 54–55% TRR for kidney and 62–66% TRR for liver. A further 9–11% TRR and 37–43% TRR could be extracted from kidney and liver, respectively, with mild alkaline and/or acid solutions at room temperature. Milk was separated into skimmed milk (30%/1% TRR, phenyl/pyridyl label) and milk fat (70%/92% TRR, phenyl/pyridyl label). Muscle and fat were not analysed further. Extracted residues from kidney and milk were subjected to more severe hydrolysis conditions to release the exocons from the conjugates, but these conditions were too harsh for an acceptable residue characterisation.

Parent was not detected in milk or tissues of goat. The most significant metabolite identified in liver was free fluazifop acid (21–25% TRR). Pyr-Ph ether (IV) (including conjugates) was not detected in liver.

Two laying hens (one per radiolabel) were dosed orally once daily for 14 consecutive days with a gelatin capsule containing [^{14}C]phenyl or [^{14}C]pyridyl-fluazifop-butyl (racemate). The equivalent actual mean daily doses in the dry feed were 3.1 or 2.6 ppm dry feed (0.22 or 0.18 mg/kg bw) for the phenyl or pyridyl label, respectively. Hens were sacrificed 4 hours after the last dose. The majority of the radioactivity was recovered in excreta (97–98% AR).

The highest radioactivity concentrations were found in kidney (0.056/0.44 mg/kg eq, phenyl/pyridyl) and liver (0.027/0.077 mg/kg eq), followed by fat (0.040–0.045/0.029–0.039 mg/kg eq) and muscle (0.004–0.005/0.008–0.011 mg/kg eq). Total radioactive residues in egg yolks achieved a plateau concentration of 0.02 mg/kg eq after 6–7 days of dosing. Total radioactive residues in egg whites achieved a plateau concentration of 0.002–0.003 mg/kg eq after 3 days of dosing. Following solvent extraction, residue extractabilities were ≥ 82% TRR for eggs and tissues.

Parent was not detected in eggs and tissues of hens. The most significant metabolite (including conjugates) identified in eggs and all tissues was fluazifop acid (51–71% TRR). Despyridinyl acid (III), Pyr-Ph ether (IV) and CF3-pyridone (X) were not detected. These levels must be seen as minimum levels, since several extracted or solid fractions of these commodities were not subjected to hydrolysis and may contain additional amounts of metabolites. These unhydrolysed fractions accounted for 38.9% TRR (eggs), 25–27% (liver), 22–40% (kidney), 33–49% (muscle), 8.9–25% (fat) TRR.

In a second metabolism study on hens, ten laying hens (five per radiolabel) were dosed orally twice daily for 10 consecutive days with a gelatin capsule containing [^{14}C]phenyl or [^{14}C]pyridyl-fluazifop-P-butyl (R-enantiomer). The equivalent actual mean daily dose in the dry feed was 9 ppm (or 0.84 mg/kg bw). Hens were sacrificed 24 hours after the last dose. Total recovered radioactivity amounted to 93% and 95% of the administered dose for the phenyl and pyridyl radiolabelled forms, respectively. The majority of the radioactivity was recovered in excreta (90%/93%, phenyl/pyridyl).

The highest radioactivity concentrations were found in abdominal fat (0.14/0.24 mg/kg eq, phenyl/pyridyl), followed by skin with fat (0.041/0.064 mg/kg eq), liver (0.007/0.028 mg/kg eq) and muscle (0.002–0.009/0.005–0.012 mg/kg eq). Total radioactive residues in egg yolks achieved a plateau concentration of 0.072 mg/kg eq after 144 hrs of dosing. Total radioactive residues in egg whites achieved a plateau concentration of 0.033 mg/kg eq after 120–168 hrs of dosing.

Following solvent extraction, residue extractabilities were ≥ 88% TRR for egg yolk and egg white, fat or skin with fat, 48% TRR for liver and 23% TRR for muscle. Selected extracts were treated under hydrolytic conditions to cleave the conjugates. Hydrolysis conditions in liver were too soft for an acceptable residue characterisation.

Parent was only detected as a minor component in liver (0.7% TRR). The most significant metabolite (including conjugates) identified in fat and eggs was fluazifop acid (56–86% TRR). Pyr-Ph ether (IV) was only detected in pyridyl-labelled egg white (1.1% TRR). These levels must be seen as minimum levels, since several extracted or solid fractions of these commodities were not subjected to hydrolysis and may contain additional amounts of metabolites. These unhydrolysed fractions accounted for 7.4–20.1% TRR (eggs), 1.0–2.7% (abdominal fat), 11–22% (fat with skin).

In summary, metabolism between cows, goats, hens, laboratory animals and humans is similar. Fluazifop-butyl is metabolised via hydrolysis to form fluazifop acid (all tissues, milk, and eggs) and further conjugation of fluazifop- acid possibly to lipids. Pyr-Ph ether was detected at significant levels in cow liver and kidney (10–12%). Since extracts of milk, eggs and tissues contained significant amounts of compounds that were not subjected to hydrolysis, the absence or presence of other significant metabolites could not be confirmed.

In general, metabolism between plants and animals is similar. Despyridinyl acid (III) was detected in minor quantities in rats and mice, and CF3-pyridone was detected in minor quantities in rats. Pyr-Ph ether (IV) was not detected in laboratory animals, but it was detected in livestock. Hydroxyfluazifop acid (XL) was not detected in animals.

Although fluazifop acid or its conjugates are the main residues in plants, no livestock metabolism and/or feeding studies were conducted with fluazifop acid. However, since fluazifop-butyl is rapidly absorbed and de-esterified into fluazifop acid, studies with fluazifop-butyl are satisfactory.

Environmental fate in soil

The Meeting received information on soil photolysis, aerobic degradation and field dissipation.

Soil photolysis of [^{14}C]phenyl or [^{14}C]-pyridyl-fluazifop-P-butyl (i.e. R-enantiomer) indicated that photo-degradation is not a major route of degradation for fluazifop-P-butyl. The average DT_{50} for fluazifop-P-butyl in the irradiated soils was 116 days, whereas it was 272 days for the dark controls.

Soil studies with fluazifop-butyl (RS) showed that the metabolite fluazifop acid largely comprised of the R-enantiomer and that the proportion of the R-enantiomer increased with time. This was confirmed in a supplemental study with the separate R- and S-enantiomers of [^{14}C]phenyl-fluazifop-butyl. These studies indicate that fluazifop-P-butyl degradation products will remain as R-enantiomer when applied to soil.

Aerobic degradation of [^{14}C]-phenyl and/or [^{14}C]pyridyl-fluazifop-butyl (racemate) under laboratory conditions indicated that fluazifop-butyl (RS) degraded rapidly to 1.2–3.7% AR after 3 weeks. The major metabolites identified were fluazifop acid and CF3-pyridone. Fluazifop acid reached a maximum of 45–83% AR (phenyl label) after 2 days of incubation in most soils, except 72% AR after 21 weeks in the sandy soil. CF3-pyridone (X) reached a maximum of 22–25% AR after 12 weeks of incubation (pyridyl label only). Pyr-Ph ether (IV) was found as a minor metabolite (< 4% AR at all time points, except in the sandy soil with 8.9% AR at 21 weeks). Carbon dioxide was formed from Day 1 onwards and these levels increased with time (up to 25–36% AR after 45 weeks of incubation). An additional study confirmed that fluazifop-P-butyl degrades similar to fluazifop-butyl (racemate). Half-lives for fluazifop-butyl, fluazifop acid, Pyr-Ph ether (IV) and CF3-pyridone (X) are listed in the table below.

Compound	Geometric DT_{50} (days) Aerobic laboratory conditions	Geometric DT_{90} (days) Aerobic laboratory conditions
Fluazifop-butyl (RS)	1.0	3.4
Fluazifop-P-acid	6.5–8.3 From different kinetic endpoint studies	32–35 From different kinetic endpoint studies
CF3-pyridone (X)	12	134
Pyr-Ph ether (IV)	31	42–348 (individual, mean not calculated)

Aerobic degradation under less favourable laboratory conditions indicates that the degradation of fluazifop acid is mediated by microbial activity. This is evidenced by the virtual absence of degradation in sterilised soils.

Field dissipation studies on bare soil or cotton and soyaplots indicated that the CF3-pyridone levels in soil were very low (< 0.01–0.05 mg/kg) and were < 0.01 mg/kg at 75–270 days after the last application. When more sensitive analytical methods were used, CF3-pyridone could be detected at levels of < 0.001–0.01 mg/kg for a longer period (359–373 days after the last application). CF3-pyridone levels resulting from sequential application of fluazifop-butyl do not differ from single fluazifop-butyl applications. Half-lives for CF3-pyridone in the field dissipation studies were estimated between 100–241 days; these are longer than those estimated in the aerobic field studies (12–134 days).

In conclusion, aerobic soil degradation studies demonstrate that fluazifop-butyl and fluazifop acid degrade in soil, but that CF3-pyridone and Pyr-Ph ether are semi-persistent. Under standardized aerobic soil conditions, CF3-pyridone reaches a maximum after 4–12 weeks of fluazifop-butyl treatment, while Pyr-Ph ether is present at constant low levels. Considering a worst case DT_{90} of 255 days (36 weeks) for CF3-pyridone obtained in the aerobic soil studies, and peak appearance after 12 weeks of fluazifop-butyl treatment, most of the CF3-pyridone compound has disappeared by 48 weeks. CF3-pyridone levels in soil resulting from sequential application of fluazifop-butyl do not differ from single fluazifop-butyl applications. CF3-pyridone is expected to degrade in soils within a year after application and field dissipation studies confirm this. CF3-pyridone is not expected to accumulate to a soil plateau level equivalent to 125% (or higher) of the residue level following the maximal seasonal application rate for fluazifop-butyl. Thus, no adjustment is needed for crop residues obtained in the rotational crop studies.

Methods of analysis

The Meeting received description and validation data for analytical methods for the determination of total fluazifop (i.e. sum of fluazifop-butyl, fluazifop acid and its conjugates, expressed as fluazifop acid) in plant and animal commodities. Total fluazifop is not determined by the existing multi-residue method, since hydrolysis is needed to release fluazifop acid from its conjugates.

Fluazifop-butyl and fluazifop acid occur in two isomeric forms–the R- and S-enantiomer. The R- and S-enantiomers are not separated by the chromatographic techniques applied in the analytical methods.

HPLC-MS/MS method GRM44.02A was submitted as the enforcement/monitoring method for the determination of total fluazifop in plant commodities. Plant commodities were extracted with acetonitrile/concentrated HCl (plants with > 60% water content) or acetonitrile/1 M HCl (grains, pulses, oilseeds, and dry crops) after soaking for at least 2 hrs in 1 M HCl or overnight in water. Residues in the extracts were then hydrolysed in 6 M HCl (1 hr, 60 ºC) to convert fluazifop-P-butyl and fluazifop conjugates to fluazifop acid. Samples were cleaned-up by SPE prior to quantification by HPLC-MS/MS. Radio-validation confirmed that total fluazifop is adequately extracted from endive (69%) and carrots (99%) under these conditions. The Meeting considers validation sufficient for all plant commodities. The LOQ was 0.01 mg/kg, expressed as fluazifop acid, in each matrix.

GC-MS method RAM 331/01 was submitted as the enforcement/monitoring method for the determination of total fluazifop in animal commodities. Animal commodities were extracted with dichloromethane/methanol and the residues in the extract were then hydrolysed with 0.2 M NaOH in methanol (1 hr at 60 ºC) to convert fluazifop-P-butyl and fluazifop conjugates to fluazifop acid. The hydrolysate is cleaned-up by liquid-liquid partition and solid phase extraction (SPE). The fluazifop acid residues are then derivatised to the methyl ester, followed by clean-up on SPE and determination by GC-MS. Radio-validation confirmed that total fluazifop is quantitatively extracted from milk (102%), liver (87%), and eggs (89%) under these conditions. The Meeting considers validation sufficient for all animal commodities (meat, liver, kidney, fat, milk and eggs). The LOQ was 0.01 mg/kg, expressed as fluazifop acid, in each matrix.

Several other analytical methods were submitted for the determination of total fluazifop in plant and animal material. The extraction and hydrolysis conditions for most of the methods were the same as described above for plant or animal commodities. Radio-validation was available for alternative hydrolysis conditions. Further, the methods differed in their clean-up procedures and detection techniques. Various detection techniques were used: HPLC-UV, 19F-NMR, HPLC-MS/MS, GC-NPD or GC-MS. The LOQs were 0.01–0.05 mg/kg. Methods were not fully validated according to current guidelines and in some cases the valid LOQ is higher than reported. The Meeting considered these methods adequate for the residue trials, unless specified otherwise in the supervised trials section.

A few analytical methods were submitted for the determination of despyridinyl acid or CF3-pyridone and its conjugates in plant material. Extracts were hydrolysed with 1 M HCl (1 hr reflux) to convert CF3-pyridone conjugates into CF3-pyridone or 6 M HCl (1 hr reflux) to convert despyridinyl acid to its conjugates. Since fluazifop acid partly degrades under these conditions, the levels of despyridinyl acid and CF3-pyridone are overestimated. The Meeting considers these analytical methods not acceptable.

Stability of pesticide residues in stored analytical samples

The Meeting received information on storage stability in plant, animal or soil commodities fortified with fluazifop-P-butyl, fluazifop acid or CF3-pyridone (X) and on storage stability of total fluazifop in plant and animal commodities with incurred residues.

Parent fluazifop-P-butyl is stable for at least 28 months at -18 ºC in onions.

Fluazifop acid is stable for at least 27 months at -1 °C, 8 months at -15 ºC and for 31 months at -20 °C in raspberries, blueberries, strawberries, sweet potatoes, rhubarb, macadamia nuts, and green coffee beans. Studies with incurred residues to assess the stability of total fluazifop residues (including conjugates) were inconclusive, since the samples were not analysed immediately after harvest. Since fluazifop conjugates are converted to fluazifop acid by hydrolysis in the analytical method and fluazifop acid is resistant to a whole range of hydrolysis conditions (acid, alkaline, and enzymatic), it is likely that any degradation of the fluazifop conjugates proceeds through formation of fluazifop acid upon frozen storage.

CF3-pyridone is stable for at least 24–28 months at -18 ºC in apples, onions, lettuce, and peanut kernels.

Fluazifop acid is stable for at least 12–18 months at -16 ºC in various processed commodities: soya bean meal, soya bean hulls, soya bean oil, soya bean milk, potato flakes, potato wet peel, potato chips, wheat flour, wheat middlings, wheat shorts, tomato paste and tomato puree.

Fluazifop acid is stable for at least 12 months at -20 ºC in milk, eggs and tissues.

The Meeting concluded that total fluazifop and CF3-pyridone (X) is stable during frozen storage in all plant and animal commodities as long as the samples stay frozen.

Definition of the residue

In primary crops, parent compound was detected at significant levels in fruits and edible leaves and represented 7.3% (0.092 mg/kg) in cucumbers and 49–52% TRR in lettuce.

Fluazifop acid and its sugar or glyceride conjugates represented the principal part of the residue in most edible crop commodities (25–77% TRR).

Despyridinyl acid (III) and its conjugates were detected in all crop categories investigated, but were only found at levels above 10% TRR or above 0.01 mg/kg eq in cucumbers, celery leaves, endive, soya bean seeds, carrot roots, and potato tubers).

CF3-pyridone (X) and its conjugates are expected in all crop categories, but were often not identified because only the phenyl label was investigated or alkaline hydrolysis conditions were used to release conjugates. CF3-pyridone and its conjugates were found at levels above 10% TRR or above 0.01 mg/kg eq in celery leaves, endive and carrot roots.

Pyr-Ph ether (IV) and its conjugates were detected in various leafy commodities at low levels, but were found at levels above 10% TRR in immature endive.

Hydroxyfluazifop acid (XL) was found at levels above 10% TRR in potato tubers.

Fluazifop alcohol (XXXIV) was only found at levels above 10% TRR or 0.01 mg/kg eq in crops treated with fluazifop-butyl (RS) and is considered to be derived from the S-enantiomer of fluazifop-butyl. Since fluazifop-butyl (RS) is replaced by fluazifop-P-butyl since 1984, this compound is not expected to appear in crops.

In rotational crops CF3-pyridone and its conjugates were the principal components in all crop categories. No residues above the LOQ (0.02 or 0.05 mg/kg) of CF3-pyridone were found in edible crops in the field rotational crop studies submitted.

Fluazifop-P-butyl belongs to the aryloxyphenoxypropionate herbicides, and despyridinyl acid (III) may be a common metabolite to all compounds belonging to this group: chlorazifop, clodinafop, clofop, clofop-iso-butyl, cyhalofop, cyhalofop-butyl, diclofop, fenoxaprop-, fenoxaprop-ethyl, fenthiaprop, fenthiaprop-ethyl, fluazifop-methyl, haloxyfop-, haloxyfop-methyl, haloxyfop-etotyl, kuicaoxi, propaquizafop, quizalofop, trifop and trifop-methyl. CF3-pyridone (X) may be a common metabolite to fluazifop-methyl, trifop and trifop-methyl. Despyridinyl acid (III) and CF3-pyridone (X) are therefore not suitable for markers of fluazifop-butyl in primary crop commodities.

Analytical methods for enforcement have been validated for the common moiety fluazifop acid, which is released from fluazifop-butyl and fluazifop conjugates. Since a hydrolysis procedure is required to be able to release fluazifop acid from its conjugates, the residue is unlikely to be measured by a multi-residue method.

The Meeting concluded that fluazifop-butyl, fluazifop acid and its conjugates represent the major residue and these compounds are suitable for markers for MRL compliance in primary crops.

Regarding the inclusion of metabolites for dietary risk assessment, the Meeting decided to estimate the overall toxicological burden of relevant metabolites. Apart from fluazifop acid, metabolites found at levels > 10% TRR or > 0.01 mg/kg eq in plant commodities were: despyridinyl acid (III), Pyr-Ph ether (IV), CF3-pyridone (X), hydroxyfluazifop acid (XL) and their conjugates. The Meeting made some conservative dietary exposure estimates to decide whether these metabolites need to be selected for inclusion in the residue definition for dietary risk assessment. Since the supervised residue trials only analysed total fluazifop, residue levels for these metabolites are estimated based on the ratio of this metabolite relative to total fluazifop residues obtained from the metabolism studies. The median and maximum ratios are listed in Table 1 below.

Potential dietary exposure to total fluazifop was calculated assuming 0.01 mg/kg total fluazifop in fruits and tree nuts, 0.02 mg/kg in sugar cane, 0.03 mg/kg in cucurbits and seeds for beverages, 0.05 mg/kg in leafy vegetables, 0.2 mg/kg in berries and fruiting vegetables other than cucurbits, 0.3 mg/kg in bulb, stalk and stem vegetables, 0.8 mg/kg in Brassicas, 1.5 mg/kg in legumes, roots and tubers, 5 mg/kg in pulses and 9 mg/kg in oilseeds and using the average consumption in the GEMS/Food 17 cluster diets.

Potential long-term dietary exposure to each metabolite is calculated by multiplication of the total fluazifop residues by the median ratio metabolite/total fluazifop listed in the table below for each individual metabolite and using the GEMS/Food 17 Cluster diet. Results are presented in Table 2 below. For the potential short-term dietary exposure, the ratios between total fluazifop residues and the respective metabolites is taken into account.

Despyridinyl acid (III) and CF3-pyridone (X) individually contribute significantly to the total long-term dietary exposure (7.5–17% and 7.6–19%, expressed as fluazifop acid equivalents, respectively). Percentages of despyridinyl acid (III) or CF3-pyridone (X) to total fluazifop were up to 76% in roots crops and up to 110% in leafy crops, suggesting significant contribution to the short-term dietary exposure. Additional uptake from soil is expected for CF3-pyridone (X), but not for despyridinyl acid (III).

Despyridinyl acid (III) is found in rats and mice, where it is excreted in small amounts (approximately 0.7% and 2% of the applied dose in rats and mice, respectively) in the urine. Based on toxicity studies, the Meeting concluded that despyridinyl acid (III) is not genotoxic in vitro. On the basis of structural considerations, the Meeting concluded that despyridinyl acid (III) is unlikely to be of greater toxicity than the parent.

CF3-pyridone (X) is not found in rats or dogs but is present in mice to a limited extent, where it is excreted in small amounts (approximately 1.1% of the applied dose) in the urine. Based on toxicity studies conducted with CF3-pyridone, the Meeting concluded that CF3-pyridone (X) is covered by the ADI and ARfD for fluazifop-P-butyl.

The Meeting noted that despyridinyl acid (III) and CF3-pyridone (X) are counter pieces, resulting from cleavage of fluazifop acid. Therefore, adjustment of molecular weights to fluazifop acid equivalents for the sum of both cleavage products would result in an overestimation of the total toxicological burden. Both compounds were present in comparable relative amounts in primary treated crops. For CF3-pyridone (X), additional uptake from soil into plant commodities is expected, making it a conservative indicator for the combined residue of both counter pieces, when expressed as fluazifop acid equivalents.

The Meeting considered that if CF3-pyridone (X) is included into the residue definition for dietary intake purposes, this would also accommodate for residues of despyridinyl acid (III), when expressed as fluazifop acid equivalents.

Pyr-Ph ether (IV) was estimated to contribute insignificantly (0–0.03%, expressed as fluazifop acid equivalents) to the total long-term dietary exposure. Percentages of Pyr-Ph ether (IV)/total fluazifop found in specific crop commodities were generally below 5%, except for immature endive with percentage of 68% while the mature plant was present at 4.4%. Pyr-Ph ether (IV) was not found in laboratory animals and no toxicity studies are available. Its estimated exposure based on uses considered by the present Meeting is below the threshold of toxicological concern for Cramer Class III (1.5 µg/kg bw/day). Therefore, Pyr-Ph ether (IV) does not need to be considered further.

Hydroxyfluazifop acid (XL) gives significant contribution to the total long term-intake (6–31% compared to total fluazifop and expressed as fluazifop acid equivalents), primarily based on root crops, for which only one plant metabolism study included analysis of this metabolite. Percentages of hydroxyfluazifop acid (XL)/total fluazifop found in specific crop commodities (in metabolism studies) were low in leafy crops (3%) but significant in root crops (62%), suggesting potential contribution to the short-term dietary exposure. Hydroxyfluazifop acid (XL) was not found in laboratory animals. No toxicological information is available. However, owing to its structural similarity with the parent, the Meeting concluded that hydroxyfluazifop acid XL is unlikely to be of greater toxicity than the parent. The Meeting decided to include hydroxyfluazifop acid (XL) into the residue definition for dietary intake purposes.

The Meeting decided to include fluazifop-butyl, fluazifop acid, CF3-pyridone (X) and hydroxyfluazifop acid (XL) and their conjugates in the residue definition for dietary risk assessment for plant commodities.

The major compounds identified in cow or hen tissues, milk or eggs is fluazifop acid in free or conjugated form. Parent compound was only detected at trace levels in hen liver. Fluazifop acid and its lipophilic conjugates were identified at levels of 32–37% TRR (< 0.01 mg/kg eq) in cow muscle and fat, 61–68% (0.015–0.032 mg/kg eq) in cow milk, liver and kidney, 51–85% (< 0.01–0.012 mg/kg eq) in hen muscle, egg yolks, egg whites and whole eggs and 51–74% (0.019–0.24 mg/kg eq) in hen kidney, liver and fat.

Since animal feeds contain fluazifop acid conjugates as well as despyridinyl acid (III), Pyr-Ph ether (IV), CF3-pyridone (X), and hydroxyfluazifop acid (XL), animal feeding studies with these compounds are considered desirable to investigate whether any of these metabolites accumulate in tissues.

Analytical methods for enforcement of animal commodities have been validated for the common moiety fluazifop acid, which is released from fluazifop-butyl and fluazifop conjugates. Since a hydrolysis procedure is required to be able to release fluazifop acid from its conjugates, the residue is unlikely to be measured by a multi-residue method.

Since fluazifop-butyl, fluazifop acid and fluazifop conjugates represent the major part of the residue in all livestock commodities and no other metabolites have been identified in significant quantities, the Meeting decided to define the residue for enforcement and for dietary risk assessment in animal commodities as total fluazifop (i.e. the sum of fluazifop-butyl, fluazifop acid and its conjugates).

The cow and hen metabolism studies indicated that total fluazifop residues are a Factor 5 higher in fat than in muscle and a Factor 5 higher in egg yolk than in egg white. Fluazifop acid is found as lipophilic conjugates in the fat fraction of the milk and in hen fat and egg yolk. The Meeting considers total fluazifop fat soluble.

The Meeting recommended the following residue definition for fluazifop-P-butyl:

Definition of the residue for compliance with the MRL in plant commodities: *total fluazifop, defined as the sum of fluazifop-P-butyl, fluazifop-P-acid (II) and their conjugates, expressed as fluazifop-P-acid.*

Definition of the residue for dietary risk assessment in plant commodities: *the sum of fluazifop-P-butyl, fluazifop-P-acid (II), 2-[4-(3-hydroxy-5-trifluoromethyl-2-phenoxy)pyridyloxy] propionic acid (XL), 5-trifluoromethyl-2-pyridone (X) and their conjugates, expressed as fluazifop-P-acid.*

Definition of the residue for compliance with the MRL and for dietary risk assessment in animal commodities: *total fluazifop, defined as the sum of fluazifop-P-butyl, fluazifop-P-acid (II) and their conjugates, expressed as fluazifop-P-acid*.

The Meeting considers the residue fat soluble.

Since CF3-pyridone (X) and hydroxyfluazifop acid (XL) have not been analysed in the supervised residue trials it is proposed to use an adjustment factor to correct for the additional contribution of these metabolites to the total residue by multiplying the median and highest residues of total fluazifop residues with the factors for the various plant groups as indicated in Table 1 below.

Table 1 Median and maximum ratios between metabolite and total fluazifop

	Median ratios metabolite/total fluazifop from metabolism				Median residue
Crop group	Pyr-Ph ether	Despyridinyl acid	CF3-pyridone	Hydroxyfluazifop acid	multiplication factor
	IV	III	X	XL	1.00 + (III or X) + XL [a]
Fruits and fruiting vegetables; cereals, tree nuts; seeds for beverages; sugar cane, oil fruits, fruit and bud and tree spices, hops, tea from shrubs	0	0.046	0	0	1.05
Leafy vegetables, Brassicas, fresh herbs, saffron, herb tea	0.01	0.12	0.235	0.03	1.27
Bulb, stalk and stem vegetables	0	0.43	0.07	0.10	1.53
Legume vegetables, oilseeds and pulses, seed spices	0	0.05	0.05	0	1.05
Roots and tubers, root spices, herbal root tea	0	0.28	0.33	0.62	1.95
	Maximum ratios metabolite/total fluazifop from metabolism				Highest residue
Crop group	Pyr-Ph ether	Despyridinyl acid	CF3-pyridone	Hydroxyfluazifop acid	multiplication factor
	IV	III	X	XL	1.00 + (III or X) + XL [a]
Fruits and fruiting vegetables; cereals, tree nuts; seeds for beverages; sugar cane, oil fruits, fruit and bud and tree spices, hops, tea from shrubs	0	0.046	0	0	1.05
Leafy vegetables, Brassicas, fresh herbs, saffron, herb tea	0.044	0.82	1.13	0.03	2.16
Bulb, stalk and stem vegetables	0	0.43	0.07	0.10	1.53
Legume vegetables, oilseeds and pulses, seed spices	0	0.07	0.07	0	1.07
Roots and tubers, root spices, herbal root tea	0	0.44	0.76	0.62	2.38

[a] Contribution for CF3-pyridone (X) is also estimated from despyridinyl acid (III). Both compounds were present in comparable relative amounts in primary treated crops and therefore CF3-pyridone levels were taken from despyridinyl acid (III) levels for crop commodities, where the presence of CF3-pyridone (III) was not investigated or where CF3-pyridone levels were lower.

Table 2 TMDI using median multiplication factors and assumed residue levels in crop commodities [a]

Compound	GEMS/food Cluster with maximum intake	Residue intake (ug/person/day) as fluazifop acid	Residue intake (ug/kg bw/day) as fluazifop acid	Percentage of total fluazifop G01–G17
Total fluazifop	G11 (bw 60 kg)	2364.9	39.4	100%
Pyr-Ph ether (IV)	G15 (bw 60 kg)	0.5	0.0083	0.00–0.03%
Despyridinyl acid (III)	G03 (bw 60 kg)	335.0	5.58	7.5–17%
CF3-pyridone (X)	G03 (bw 60 kg)	383.7	6.39	7.6–19%
Hydroxyfluazifop acid (XL)	G03 (bw 60 kg)	622.4	10.4	6.0–31%

[a] Assumed residue levels of 0.01 mg/kg total fluazifop in fruits and tree nuts, 0.02 mg/kg in sugar cane, 0.03 mg/kg in cucurbits and seeds for beverages, 0.05 mg/kg in leafy vegetables, 0.2 mg/kg in berries and fruiting vegetables other than cucurbits, 0.3 mg/kg in bulb, stalk and stem vegetables, 0.8 mg/kg in Brassicas, 1.5 mg/kg in legumes, roots and tubers, 5 mg/kg pulses, 9 mg/kg in oilseeds.

Results of supervised residue trials on crops

Trials submitted to the Meeting were conducted from 1979 to 2014 and the quality of these trials differed considerably. The older trials were conducted when no guidelines existed. Only trials that were conducted according to current standards were taken into account for maximum residue level estimation.

Fluazifop-P-butyl is phytotoxic to grass-like crops (cereals, grasses, and sugar cane), but other crops do not show phytotoxicity at any growth stage. Proportionality from high to low dose rates is therefore used in the selection of data for estimation of maximum residue levels in crops other than grasses.

Weed directed spray applications at the base of trees or vines

Since metabolism studies indicated that no residues are expected above 0.01 mg/kg for weed directed spray applications at the base of trees, shrubs or vines, the Meeting decided to evaluate all supervised residue trials with weed directed spray applications at the base of trees together.

Field trials involving citrus fruit were performed in the USA (grapefruits, lemons, and oranges), Southern France and Martinique (lemon and lime) and Italy (oranges).

Critical GAP for citrus fruit is the US GAP with three applications at the base of the tree at 0.42 kg ai/ha with a PHI of 14 days.

One grapefruit trial from the USA (3 ×0.42–0.43 kg ai/ha, PHI 12 days) matched the US cGAP within 25%. Five additional grapefruit trials from the USA at a higher dose (3 ×0.56 kg ai/ha, PHI 14 days) confirmed the non-residue situation. Total fluazifop residues were: < 0.01 and < 0.05 (5) mg/kg (n = 6).

Four lemon trials from the USA at a higher dose (3 × 0.56 kg ai/ha, PHI 14 days) indicated a non-residue situation. Total fluazifop residues were: < 0.05 (4) mg/kg (n = 4).

Six orange trials from the USA (3 × 0.41–0.43 kg ai/ha, PHI 12–14 days) matched the US cGAP within 25%. Five additional orange trials from the USA at higher dose (3 × 0.56 kg ai/ha, PHI 14 days) confirmed the non-residue situation. Total fluazifop residues were:< 0.01 (6) and < 0.05 (5) mg/kg (n = 11).

Additional grapefruit (5), lemon (4) and orange (5) trials from the USA (3 × 0.84 kg ai/ha, PHI 14 days), confirmed residues were below LOQ (< 0.05 mg/kg for each). One trial on oranges from the USA with a 5 × higher dose rate (3 × 2.1 kg ai/ha, PHI 14 days), indicated residues at 0.015 mg/kg. One trial on oranges from Brazil (2 × 2.0 kg ai/ha, PHI 7 days), where the sample size was insufficient to generate a representative sample, indicated residues at 0.068 mg/kg.

Field trials involving pome fruit were performed in Germany (apples and pears), France (apples), Italy (apples) and the USA (apples).

Critical GAP for apples and pears in the Netherlands or Belgium is one application at the base of the tree at 0.38 kg ai/ha and a PHI of 28 days.

Two apple trials from Southern France and Italy (1 × 0.38–0.39 kg ai/ha, PHI 28 days) matched the Dutch or Belgian cGAP within 25%. Total fluazifop residues were: < 0.01 and < 0.01 mg/kg (n = 2).

Three apple trials from the USA (2 × 0.42 kg ai/ha, PHI 14 days) confirmed residues below LOQ: < 0.05 (3) mg/kg. Two apple trials from Northern France (1 × 0.75–0.96 kg ai/ha, PHI 7 days) confirmed residues below LOQ: < 0.01 and < 0.03 mg/kg (n = 2). However, one apple trial and three pear trials in Germany did not confirm the non-residue situation. One apple trial from Germany (1 × 1.0 kg ai/ha, PHI 0 days), which was inadequately described, indicated total fluazifop residues at 0.07 mg/kg. Three pear trials from Germany (1 × 1.0 kg ai/ha, PHI 7, 7, 13 days), which were inadequately described, indicated total fluazifop residues at 0.05, 0.05 and 0.07 mg/kg, respectively.

Field trials involving stone fruits were performed in Germany (cherries, plums, and peaches), Italy (peaches) and the USA (cherries, plums, and peaches).

The cGAP for cherries, plums, apricots, peaches and nectarines is the US cGAP with weed directed applications at the base of the tree at 3 × 0.42 kg ai/ha with a PHI of 14 days.

Four cherry trials from the USA (3 × 0.42 kg ai/ha, PHI 14–15 days) matched the US cGAP within 25%. Total fluazifop residues were: < 0.05 (4) mg/kg.

Four plum trials from the USA (3 × 0.42 kg ai/ha, PHI 14–15 days) matched the US cGAP within 25%. Total fluazifop residues were: < 0.05 (4) mg/kg (n = 4)

Three peach trials from the USA (3 × 0.42 kg ai/ha, PHI 14 days) matched the US cGAP within 25%. Total fluazifop residues were: < 0.05 (3) mg/kg.

One plum trial from the USA (3 × 2.1 kg ai/ha, PHI 14 days) confirmed residues were below LOQ (< 0.05 mg/kg). One peach trial from the USA (3 × 0.42 kg ai/ha, PHI 9 days) also confirmed residues were below LOQ (< 0.05 mg/kg).

Field trials involving grapes were performed in Germany, Spain, Greece and the USA.

The cGAP for grapes in Belgium is one application at 0.38 kg ai/ha and PHI of 28 days. Three grape trials from Spain and Greece (1 × 0.75 kg ai/ha with PHI 27–28 days) indicated a non-residue situation. Total fluazifop residues were: < 0.01, < 0.01 and < 0.01 mg/kg (n = 3).

The cGAP for grapes in the USA is 3 × 0.42 kg ai/ha and PHI of 50 days. Grape trials from the USA (3 × 0.42 kg ai/ha with PHI 50 days) could be matched to this GAP within 25%. Total fluazifop residues were: < 0.01, < 0.01, < 0.01, < 0.01, < 0.01, and < 0.01 mg/kg (n = 6).

Furthermore, one grape trial from the USA (3 × 2.1 kg ai/ha, PHI 50 days) confirmed residues were below LOQ (< 0.01 mg/kg). Three trials from Germany (1 × 1.0 kg ai/ha, PHI 0, 7, 22), which were poorly described, could not confirm the non-residue situation for grapes, as residues of fluazifop found were: 0.05, 0.06 and 0.14 mg/kg.

Field trials involving olives were performed in Italy.

The cGAP for olives is the French cGAP with one application at 0.25 kg ai/ha with PHI of 21 days. None of the trials could be matched to this GAP. One olive trial in Italy (1 × 0.75 kg ai/ha, PHI 28 days) at a higher dose confirmed the non-residue situation: < 0.01 mg/kg.

Field trials involving bananas were performed in the USA, Australia, Honduras and Martinique (i.e. French overseas territory).

Critical GAP for bananas is the US GAP with 3 × 0.42 kg ai/ha with a PHI of 0 days. Trials from the USA (3 × 0.42 kg ai/ha, PHI 0 days) matched this cGAP within 25%. Residues from bagged and unbagged bananas were equal. Total fluazifop residues were: < 0.01, < 0.01, < 0.01 and < 0.01 mg/kg (n = 4).

Field trials involving tree nuts were performed in the USA (almonds, macadamia nuts, pecans, and walnuts), UK (hazelnuts) and Italy (hazelnuts).

Critical GAP for macadamia nuts and pecans in the USA is three applications at the base of the trees at 3 × 0.42 kg ai/ha and PHI of 1 day. None of the trials could be matched to the USA cGAP.

Critical GAP for almonds, chestnuts, hazelnuts, macadamia nuts and walnuts in France is one application at the base of the trees with 1 × 0.25 kg ai/ha and PHI of 21 days. None of the trials could be matched to the cGAP from France.

Four almond trials from the USA at higher dose rate and shorter PHI (1 × 0.84 kg ai/ha, PHI 14 days) indicated residues below the LOQ for the French cGAP. Total fluazifop residues were: < 0.01, < 0.01, < 0.01 and < 0.01 mg/kg (n = 4).

Three walnut trials from the USA at higher dose rate and shorter PHI (1 × 0.84 kg ai/ha, PHI 14 days) indicated residues below the LOQ for the French cGAP. Total fluazifop residues were < 0.01, < 0.01 and < 0.01 mg/kg (n = 3).

One hazelnut trial from the UK at a higher dose rate but longer PHI (1 × 0.75 kg ai/ha, PHI 28 days) did not confirm the non-residue situation. Total fluazifop residues were: 0.01 mg/kg (n = 1) for nuts sampled by hand. Furthermore, one hazelnut trial from Italy (1 × 2.5 kg ai/ha, PHI 49, 73 days) did not confirm the non-residue situation. Total fluazifop residues were: 0.07 and 0.08 mg/kg (n = 2). Since the non-residue situation could not be confirmed for hazelnuts, the Meeting did not estimate a maximum residue level for hazelnuts.

Field trials involving coffee beans were performed in Brazil and the USA (Hawaii).

Critical GAP for coffee beans is the GAP from the USA with a weed directed application at 2 × 0.42 kg ai/ha with a PHI of 1 day. None of the trials could be matched to the USA GAP.

One trial from the USA (3 × 1.4 kg ai/ha, PHI 1 day) confirmed that no residues are to be expected in green coffee beans. Total fluazifop residues were < 0.05 mg/kg (n = 1).

The Meeting concluded that incidental residues that were found on citrus fruit, pome fruit and grapes are likely to result from unintentional sprays onto fruit due to spray drift, and these do not represent good agricultural practice. Furthermore, the Meeting concluded that the trials on citrus fruit, pome fruit, stone fruit, tree nuts, grapes, olives, bananas, and coffee beans mutually supported each other. Taking into account the LOQ of 0.01 mg/kg for the enforcement method, the Meeting estimated a maximum residue level of 0.01* mg/kg for citrus fruit, pome fruit, stone fruit, grapes, table olives and olives for oil production, bananas, macadamia nuts, pecans, almonds, walnuts and coffee beans. The Meeting estimated a median and highest residue of 0.01 mg/kg.

Using multiplication factors of 1.05 and 1.05 for the median and highest residues, the Meeting estimated an STMR and HR of 0.011and 0.011 mg/kg eq.

Cane berries

Field trials on cane berries were performed in Germany (blackberries and raspberries), the UK (raspberries), Southern France (raspberries) and the USA (blackberries and raspberries).

The cGAP for raspberries and blackberries in the Netherlands is 1 × 0.38 kg ai/ha and PHI of 45 days for a weed directed spray between bushes.

Blackberry trials did not match the Dutch GAP. Raspberry trials from the UK (1 × 0.38 kg ai/ha, PHI 56 days, base application) matched the Dutch cGAP within 25%. Total fluazifop residues were: < 0.05 and < 0.05 mg/kg (n = 2).

The Meeting estimated a maximum residue level of 0.01* mg/kg for cane berries based on the non-residue situation for weed directed sprays and the LOQ of 0.01 mg/kg for the enforcement method. The Meeting estimated a median and highest residue of 0.01 mg/kg.

Using multiplication factors of 1.05 and 1.05 median and highest residues, the Meeting estimated an STMR and HR of 0.011 and 0.011 mg/kg eq.

Bush berries

Field trials were performed in Germany (bilberries), USA (blueberries) and the UK (gooseberries and currants).

The only cGAP for bilberries and blueberries is the French GAP with one application at 0.25 kg ai/ha and PHI of 42 days. None of the trials could be matched to this GAP. The Meeting decided not to derive maximum residue levels for bilberries and blueberries.

The cGAP for currants and gooseberries is the cGAP from the UK at 1 × 0.38 kg ai/ha for a weed directed spray (where possible) before bloom or after harvest.

Currant trials from the UK (1 × 0.38 kg ai/ha, leaves unfolding to bud burst, over the top spray) matched the UK cGAP within 25%. Total fluazifop residues were: < 0.05 and < 0.05 mg/kg (n = 2).

Gooseberry trials from the UK (1 × 0.38 kg ai/ha, leaves unfolding to bud burst, over the top spray) matched the UK cGAP within 25%. Total fluazifop residues were: < 0.05 mg/kg (n = 1).

Since the cGAP applications are applied early in the growing season or after harvest, no residues are expected. The Meeting estimated a maximum residue level of 0.01* mg/kg for currants and gooseberries. The Meeting estimated a median and highest residue of 0.01 mg/kg.

Using multiplication factors of 1.05 and 1.05 for median and highest residues, the Meeting estimated an STMR and HR of 0.011and 0.011 mg/kg eq.

Strawberries

Field trials involving <u>strawberries</u> were performed in Germany, Sweden, the UK, Southern France, Italy and Spain.

The cGAP for strawberries in the Netherlands and France is 1 × 0.38 kg ai/ha with a PHI of 42 days.

Strawberry trials from Sweden, the UK, Southern France, Spain and Italy (1 × 0.36–0.39 kg ai/ha, PHI 39–43 days) matched the French and Dutch cGAP within 25%. Additional trials from Southern France (1 × 0.18–0.19 kg ai/ha, PHI 42 days) could be matched to this cGAP using proportionality. Two additional trials from the UK (1 × 0.38 kg ai/ha, PHI 55–57 days) were taken into account, since significant residues were found at these longer PHIs. Total fluazifop residues were: 0.02, 0.02, 0.02, 0.01 × 0.38/0.18, 0.01 × 0.38/0.18, < 0.05, 0.06, 0.06, 0.03 × 0.38/0.19, 0.07, 0.08, 0.11, 0.11, 0.12, 0.12 mg/kg, which becomes 0.02, 0.02, 0.02, 0.021, 0.021, < 0.05, <u>0.06</u>, 0.06, 0.06, 0.07, 0.08, 0.11, 0.11, 0.12 and 0.12 mg/kg (n = 15).

The Meeting estimated a maximum residue level of 0.3 mg/kg for strawberries, based on the cGAP for the Netherlands and France. The Meeting estimated a median residue of 0.06 mg/kg and a highest residue of 0.12 mg/kg.

Using multiplication factors of 1.05 and 1.05 for median and highest residues, the Meeting estimated an STMR and HR of 0.063 and 0.13 mg/kg eq.

Onion, bulb (dry harvested)

Field trials involving <u>bulb onions</u> were performed in the United Kingdom, the Netherlands, Spain, Italy, Southern France, USA and Brazil.

Critical GAP for onions in the USA is for 2 × 0.42 kg ai/ha with a PHI of 45 days. Trials from the USA (2 × 0.42 kg ai/ha, PHI 39–46 days) matched this GAP within 25%. Additional trials from the USA (2 × 1.1 kg ai/ha, PHI 45–46 days) could be matched to this GAP through proportionality. Total fluazifop residues were: < 0.05, < 0.05, < 0.05, < 0.06, 0.06, 0.26 × 0.42/1.1, 0.11, 0.34 × 0.42/1.1, 0.18, 0.48 × 0.42/1.1 mg/kg (n = 10), which becomes < 0.05 (3), < 0.06, <u>0.06, 0.099</u>, 0.11, 0.13, 0.18 and 0.18 mg/kg (n = 10).

The Meeting estimated a maximum residue level of 0.3 mg/kg on bulb onion (dry harvested) on the basis of the cGAP for the USA. The Meeting estimated a median residue of 0.080 and a highest residue of 0.18 mg/kg.

Using multiplication factors of 1.53 and 1.53 for median and highest residues, the Meeting estimated an STMR and HR of 0.12and 0.28 mg/kg eq.

The Meeting decided to extrapolate the maximum residue level, STMR and HR to shallots (dry harvested) and garlic.

Leeks

Field trials involving leeks were performed in the Netherlands, UK and Northern France.

cGAP for leeks is the GAP from France with one application at 0.38 kg ai/ha with a PHI of 42 days. Trials from the Netherlands (1 × 0.38 kg ai/ha, PHI 43 days) matched this GAP within 25%. Total fluazifop residues were: < 0.05 and < 0.05 mg/kg (n = 2). The non-residue situation could not be confirmed, since trials in the UK at 1 × 0.38 kg ai/ha at longer PHIs of 76–108 days showed residues of 0.02–0.06 mg/kg. The Meeting considered two trials insufficient.

Cabbages, Head

Field trials involving head cabbages were performed in Northern France, Germany, Greece, Spain and Brazil.

Critical GAP for head cabbages is the GAP from Brazil with one foliar application at 0.25 kg ai/ha with a PHI of 28 days. Trials from Brazil (1 × 0.19 kg ai/ha, PHI 28 days) matched this GAP within 25%. Total fluazifop residues were: 0.27, 0.29, 0.29 and 0.51 mg/kg (n = 4). The Meeting considered four trials insufficient.

Critical GAP for head cabbages in France is for one foliar application at 0.19 kg ai/ha with a PHI of 42 days. Trials from Northern France and Germany (1 × 0.19 kg ai/ha, PHI 42–49 days) matched this GAP within 25%. Total fluazifop residues were: 0.06, 0.12, 0.15, 0.16, 0.56 and 1.7 mg/kg (n = 6).

The Meeting estimated a maximum residue level of 3 mg/kg on head cabbages, based on the French GAP. The Meeting estimated a median residue of 0.155 mg/kg and a highest residue of 1.7 mg/kg.

Using multiplication factors of 1.27 and 2.16 for median and highest residues, the Meeting estimated an STMR and HR of 0.20 and 3.7 mg/kg eq.

Cucumbers and summer squash

Field trials involving cucumbers were performed under outdoor and indoor conditions in Italy and Spain. Field trials involving summer squash were performed under outdoor conditions in Italy and South Africa.

Critical GAP for cucumber, summer squash and gherkins is the GAP from France with one foliar application of 0.19 kg ai/ha with a PHI of 28 days.

One indoor trial on cucumber from Spain (1 × 0.31 kg ai/ha, PHI 28 days, broadcast foliar application) could be matched to this GAP through proportionality. Total fluazifop residues were: 0.02 × 0.19/0.31 mg/kg (n = 1) which following the application of proportionality becomes 0.012 mg/kg (n = 1).

Outdoor trials on cucumber from Spain and Italy (1 × 0.31 kg ai/ha, PHI 27 days) could be matched to this GAP through proportionality. Total fluazifop residues were: < 0.01 mg/kg (n = 1).

One outdoor trial on summer squash from Italy (1 × 0.31 kg ai/ha, PHI 29) could be matched to this GAP through proportionality. Total fluazifop residues were: < 0.01 mg/kg (n = 1).

The Meeting considered three trials insufficient.

Tomato

Field trials involving tomatoes were performed under outdoor conditions in Spain, Italy and France.

Critical GAP for tomatoes is the French GAP for tomatoes, aubergines and peppers with one foliar application at 0.38 kg ai/ha with a PHI of 35 days. Trials from Spain, Italy and Southern France (1 × 0.31 kg ai/ha, PHI 35–42 days) matched this GAP within 25%. Total fluazifop residues were: < 0.01, < 0.01, < 0.01, < 0.05, < 0.05, 0.06, 0.12 and 0.25 mg/kg (= 8).

The Meeting estimated a maximum residue level of 0.4 mg/kg on tomatoes based on the cGAP from France. The Meeting estimated a median residue of 0.05 mg/kg and a highest residue of 0.25 mg/kg.

Using multiplication factors of 1.05 and 1.05 for median and highest residues, the Meeting estimated an STMR and HR of 0.053and 0.26 mg/kg eq.

The Meeting decided to extrapolate the maximum residue level, STMR and HR to eggplants.

Kale

Field trials involving kale were performed under outdoor conditions in the UK.

Critical GAP for kale for human consumption in France is 1 × 0.19 kg ai/ha with a PHI of 42 days. One trial from Germany (1 × 0.19 kg ai/ha, PHI 42 days) matched this GAP within 25%. Total fluazifop residues were 0.95 mg/kg (n = 1). The Meeting considered one trial insufficient.

Lettuce

Field trials involving head lettuce, leaf lettuce and Cos lettuce were performed under outdoor conditions in Greece, Spain, Italy, Southern and Northern France, Brazil, and the USA.

The cGAP for lettuces is the GAP from Brazil with one foliar application at 0.25 kg ai/ha with a PHI of 28 days. Trials from Northern France, Italy, Spain and Brazil (1 × 0.25–0.31 kg ai/ha, PHI 28–31 days) matched this GAP within 25%. Total fluazifop residues in head lettuce were < 0.01 and 0.66 mg/kg (n = 2). None of the Cos lettuce trials matched the GAP. Total fluazifop residues in leaf lettuce were: < 0.01 (7) mg/kg (n = 7).

Since head lettuce contained one high residue, the Meeting decided to estimate maximum residue levels for leaf lettuce only. The Meeting estimated a maximum residue level of 0.01* mg/kg for leaf lettuce. The Meeting estimated a median and highest residue of 0.01 mg/kg.

Using multiplication factors of 1.27 and 2.16 for long- and short-term dietary exposure, the Meeting estimated an STMR and HR of 0.013 and 0.022 mg/kg eq.

Turnip greens

Field trials involving turnips were performed in the United Kingdom.

Critical GAP for turnips in Belgium is 1 × 0.38 kg ai/ha and a PHI of 56 days. Trials from the UK (1 × 0.38 kg ai/ha, PHI 62–68 days) on turnip tops matched this cGAP within 25%. Total fluazifop residues were 1.3 and 1.6 mg/kg (n = 2). The Meeting considered two trials insufficient.

Common bean (pods and/or immature seeds) (Phaseolus spp)

Field trials involving green beans with pods were performed in Canada, Germany, the Netherlands, UK, France, Italy, and Spain.

Critical GAP for green beans with pods is the Belgium GAP with one foliar application at 0.38 kg ai/ha with a PHI of 28 days. Trials from Germany, the Netherlands, UK, France and Spain (1 × 0.30–0.38 kg ai/ha, PHI 27–35 days) matched this cGAP within 25%. Total fluazifop residues in green beans with pods were: 0.06, 0.08, 0.17, 0.23, 0.25, 0.27, <u>0.29, 0.32,</u> 0.35, 0.38, 0.48, 0.84, 1.6 and 4.6 mg/kg (n = 14).

The Meeting estimated a maximum residue level of 6 mg/kg on beans (green pods and immature seeds, *Phaseolus* spp) based on the cGAP from Belgium. The Meeting estimated a median residue of 0.305 mg/kg and a highest residue of 4.6 mg/kg.

Using multiplication factors of 1.05 and 1.07 for median and highest residues, the Meeting estimated an STMR and HR of 0.32 and 4.9 mg/kg eq.

Peas (pods and succulent = immature seeds) (Pisum spp, Vigna spp)

Field trials involving <u>green peas with pods</u> were performed in the Netherlands, Germany, Denmark, UK, Northern France, Spain and Canada.

Critical GAP for green peas with pods is the Belgium GAP with one foliar application at 0.38 kg ai/ha with a PHI of 28 days. Trials from the UK and Northern France (1 × 0.37–0.38 kg ai/ha, PHI 34–35 days) matched this cGAP within 25%. Total fluazifop residues in green peas with pods were: 0.08, 0.23, <u>0.42</u>, 0.85 and 0.90 mg/kg (n = 5).

The Meeting estimated a maximum residue level of 2 mg/kg on peas, pods and succulent immature peas (*Pisum spp, Vigna spp*) based on the cGAP from Belgium. The Meeting estimated a median residue of 0.42 mg/kg and a highest residue of 0.90 mg/kg.

Using multiplication factors of 1.05 and 1.07 for median and highest residues, the Meeting estimated an STMR and HR of 0.44 and 1.0 mg/kg eq.

Peas, shelled (succulent seeds) (Pisum spp, Vigna spp)

Field trials involving <u>green pea seeds</u> were performed in the Netherlands, Germany, UK, France, Italy, Spain and Canada.

Critical GAP for green peas without pods in Belgium is one foliar application at 0.38 kg ai/ha with a PHI of 28 days. However, since higher residues were observed at longer pre-harvest intervals, this cGAP was not explored further.

Critical GAP for green peas without pods in the Netherlands is one foliar application at 0.38 kg ai/ha with a PHI of 56 days. Trials from Canada, Germany, the UK (1 × 0.38–0.40 kg ai/ha, PHI 42–66 days) matched this GAP within 25%. Total fluazifop residues in green pea seeds were: < 0.05, 0.16, <u>0.27, 0.53</u>, 3.8 and 7.6 mg/kg (n = 6)

The Meeting noted that despite the longer pre-harvest interval, residues according to the Dutch cGAP were higher than those for the Belgian cGAP. The Meeting estimated a maximum residue level of 15 mg/kg on peas, shelled (succulent seeds) (*Pisum spp, Vigna spp*) based on the cGAP from the Netherlands. The Meeting estimated a median residue of 0.40 mg/kg and a highest residue of 7.6 mg/kg.

Using multiplication factors of 1.05 and 1.07 for median and highest residues, the Meeting estimated an STMR and HR of 0.42and 8.1 mg/kg eq.

Pulses

Since the processing study on <u>dry peas</u> has shown that soaking is essential for quantitative analysis of total fluazifop, trials were not taken into account when the soaking step was omitted or when it is not clear whether soaking was performed.

Beans (dry) (Phaseolus spp)

Field trials involving <u>dry beans</u> were performed in the USA, Canada, Brazil and Spain.

Critical GAP for dry beans is the USA GAP for dry beans with two foliar applications at 0.42 kg ai/ha with a PHI of 60 days. Trials from the USA with dry beans (2 × 0.42 kg ai/ha, PHI 59–75 days) matched this cGAP within 25%. Total fluazifop residues in dry beans, where a pre-extraction soaking step was included in the analytical method, were: 0.32, 0.46, 0.76, 0.82, 1.1, 1.2, 3.4, 3.6, 5.0, 9.4, 16 and 20 mg/kg (n = 12).

The Meeting estimated a maximum residue level of 40 mg/kg on beans (dry, *Phaseolus* spp). The Meeting estimated a median residue of 2.3 mg/kg.

Using multiplication factors of 1.05 for median residues, the Meeting estimated an STMR of 2.4 mg/kg eq.

Broad bean (dry) (Vicia spp)

Field trials involving dry broad beans were performed in UK, Germany, Southern France, Spain and Italy.

Critical GAP for dry broad beans is the French GAP with one foliar application at 0.38 kg ai/ha with a PHI of 56 days. Only one trial, which was not conducted to current standards, could be matched to this cGAP.

Critical GAP for pulses in the Netherlands is one foliar application at 0.38 kg ai/ha with PHI 90 days. Trials from UK with dry broad beans (1 × 0.38 kg ai/ha, PHI 97–98 days) matched the cGAP from the Netherlands within 25%. Total fluazifop residues in dry broad beans, where a pre-extraction soaking step was included in the analytical method, were: 0.08 and 0.09, mg/kg (n = 2). The Meeting considered two trials insufficient upon which to base a maximum residue level estimation.

Field pea (dry) (Pisum spp)

Field trials involving dry peas and dry field peas were performed in Netherlands, UK, Germany, and France.

Critical GAP for dry peas in France is one foliar application at 0.38 kg ai/ha with PHI 56 days. Trials from the UK, Northern France with dry peas, dry field peas or dry fodder peas (1 × 0.38 kg ai/ha, PHI 46–68 days) matched the cGAP from France within 25%. Total fluazifop residues in dry field peas were: 0.26 (no soaking step included), 0.59, 0.91 × 0.38/0.31, 2.0, mg/kg (n = 4), which becomes 0.59, 1.1 and 2.0 mg/kg (n = 3). The Meeting considered three trials insufficient upon which to base a maximum residue level estimation.

Critical GAP for dry peas in Belgium is 1 × 0.38 kg ai/ha with an application just before bloom. Trials from Germany, the UK, Northern France (1 × 0.31–0.38 kg ai/ha, BBCH 35–39) matched the cGAP from Belgium within 25%. Total fluazifop residues in dry field peas, where a pre-extraction soaking step was included in the analytical method, were: 0.02, 0.10, 0.10, 0.17, 0.18, 0.24, 0.27, 0.49, 0.54, 0.59, 0.91, 1.0, 1.1 and 2.0 mg/kg (n = 14).

The Meeting estimated a maximum residue level of 3 mg/kg on peas (dry, Pisum spp). The Meeting estimated a median residue of 0.38 mg/kg.

Using multiplication factors of 1.05 for median residues, the Meeting estimated an STMR of 0.40 mg/kg eq.

Soya bean (dry)

Field trials involving soya beans (dry) were performed in the USA, Canada, Brazil, Switzerland, Italy and France.

Critical GAP for dry soya beans in Brazil consists of one broadcast application of 0.25 kg ai/ha with a PHI of 60 days. Trials from Brazil, Italy and Northern France (0.24–0.31 kg ai/ha with PHI 56–68 days) matched the cGAP from Brazil within 25%. Additional trials from Italy and

Southern France (0.38 kg ai/ha with PHI 57–60 days) could be matched to the Brazilian GAP using the proportionality principle. The Meeting decided to apply the proportionality principle on all residues where the dose rate deviated from 0.25 kg ai/ha. Total fluazifop residues in dry soya beans, where a pre-soaking step was included in the analytical method, were: 0.49, 0.93, 1.2, 1.7, 2.1, 2.4 × 0.25/0.26, 3.2 × 0.25/0.24, 4.7 × 0.25/0.31, 6.3 × 0.25/0.38^{BF}, 5.4 × 0.25/0.31, 9.8 × 0.25/0.38 and 11 × 0.25/0.31 mg/kg (n = 12), which resulted in the following dataset: 0.49, 0.93, 1.2, 1.7, 2.1, 2.3, 3.3, 3.8, 4.1^{BF}, 4.4, 6.4 and 8.9 mg/kg (n = 12), where BF indicates a banded foliar application.

The Meeting estimated a maximum residue level of 15 mg/kg on soya beans (dry, Glycine spp). The Meeting estimated a median residue of 2.8 mg/kg.

Using multiplication factors of 1.05 for median residues, the Meeting estimated an STMR of 2.9 mg/kg eq.

Carrots

Field trials involving carrots were performed in the UK, Spain, Italy, France, Brazil and the USA in different growing seasons. As it is not clear which GAP leads to the highest residues, the Meeting evaluated the residues matching the different cGAPs.

Critical GAP for carrots in the USA is 2 × 0.42 kg ai/ha with a PHI of 45 days. Trials from the USA (2 × 0.42 kg ai/ha, PHI 44–48 days) matched this GAP within 25%. Additional trials from the USA (2 × 0.56 kg ai/ha, PHI 45 days) could be matched to the US GAP using the proportionality principle. Total fluazifop residues were 0.019, 0.027, < 0.05, < 0.05, < 0.05, < 0.05, < 0.05, < 0.05 and 0.072 mg/kg (n = 9).

Critical GAP for carrots in Brazil is 1 × 0.25 kg ai/ha with a PHI of 30 days. Trials from Brazil (1 × 0.25 kg ai/ha, PHI 30 days) matched this GAP within 25%. Additional trials from Southern France, Italy and Spain with carrots (1 × 0.31–0.32 kg ai/ha with PHI 28–29 days) could be matched to the Brazilian GAP using the proportionality principle. The Meeting decided to apply the proportionality principle on all residues where the dose rate deviated from 0.25 kg ai/ha. Total fluazifop residues were: 0.02 × 0.25/0.33^{BF}, 0.03 × 0.25/0.32^{BF}, 0.04, 0.04, 0.05 × 0.25/0.31, 0.05, 0.07 × 0.25/0.31, 0.07 × 0.25/0.31, 0.19 × 0.25/0.31, 0.17, mg/kg, which becomes 0.015, 0.023, 0.04, 0.04, 0.040, 0.05, 0.056, 0.056, 0.15 and 0.17 mg/kg (n = 10), where BF indicates a banded foliar application.

Critical GAP for carrots in France is 1 × 0.38 kg ai/ha with a PHI of 42 days. Two trials from the UK and Southern France (1 × 0.38 kg ai/ha, PHI 34–42 days) matched this GAP within 25%. Total fluazifop residue levels were < 0.05 and 0.29 mg/kg. The Meeting considered two trials insufficient.

Critical GAP for the Netherlands, UK and Belgium is 1 × 0.38 kg ai/ha with a PHI of 56 days. Trials from the UK, Southern France (1 × 0.38 kg ai/ha, PHI 42–64 days) matched this GAP within 25%. Total fluazifop residues in trials using an adjuvant were < 0.05, < 0.05, 0.09, 0.09, 0.21, 0.23 and 0.29 mg/kg (n = 7).

These data show that the residue levels based on the Dutch, UK and Belgian GAP are higher than those from the US and Brazilian GAPs. The Meeting estimated a maximum residue level of 0.6 mg/kg on carrots based on the GAP applied in the Netherlands, the United Kingdom and Belgium. The Meeting estimated a median residue of 0.09 mg/kg and a highest of 0.29 mg/kg.

Using multiplication factors of 1.95 and 2.38 for median and highest residues, the Meeting estimated an STMR and HR of 0.18, 0.69 mg/kg eq.

Celeriac

Field trials involving celeriac were performed in Northern France in two growing seasons.

Critical GAP for celeriac is the GAP from Belgium and the Netherlands with 1 × 0.38 kg ai/ha with a PHI of 56 days. Four trials from Northern France (1 × 0.38 kg ai/ha, PHI 50-56 days) matched this GAP within 25%. Total fluazifop residues were < 0.01[BF], < 0.01[BF], 0.11, and 0.17 mg/kg, where BF indicates a banded foliar application.

The Meeting estimated a maximum residue level of 0.4 mg/kg on celeriac based on the Belgian and Dutch GAP. The Meeting estimated a median residue of 0.060 mg/kg and a highest residue of 0.17 mg/kg.

Using multiplication factors of 1.95 and 2.38 for median and highest residues, the Meeting estimated an STMR and HR of 0.12 and 0.40 mg/kg eq.

Potato

Field trials involving potatoes were performed in Brazil, Canada and Europe in various growing seasons.

Critical GAP for potatoes in Brazil is 1 × 0.25 kg ai/ha with a PHI of 28 days. Trials from Brazil and Southern France (1 × 0.25 kg ai/ha, PHI 27–29 days) matched this GAP within 25%. Additional trials from Germany (1 × 0.38 kg ai/ha with PHI 27–29 days) could be matched to the Brazilian GAP using the proportionality principle. The Meeting decided to apply the proportionality principle on all residues where the dose rate deviated from 0.25 kg ai/ha. Total fluazifop residues were: < 0.01 (3), 0.06 × 0.25/0.38, < 0.05 (3), 0.07, 0.11 and 0.44 mg/kg (n = 10), which becomes < 0.01, < 0.01, < 0.01, 0.039, < 0.05, < 0.05, < 0.05, 0.07, 0.11 and 0.44 mg/kg (n = 10).

The Meeting estimated a maximum residue level of 0.6 mg/kg on potato based on the Brazilian GAP. The Meeting estimated a median residue of 0.05 mg/kg and a highest residue of 0.44 mg/kg.

Using multiplication factors of 1.95 and 2.38 for median and highest residues, the Meeting estimated an STMR and HR of 0.10, 1.0 mg/kg eq.

Radish

Field trials involving radish were performed in the UK.

Critical GAP for radishes for France is 1 × 0.38 kg ai/ha with a PHI of 42 days. None of the trials could be matched to this GAP.

Critical GAP for radishes from Belgium is 1 × 0.38 kg ai/ha with a PHI of 56 days. One trial of poor quality from the UK (1 × 1.0 kg ai/ha, PHI 55 days) could be matched to this GAP using proportionality. The Meeting considered the data insufficient.

Sugar beet

Field trials involving sugar beets were performed in the United Kingdom, Germany, Spain, Italy, France, Greece, Canada and the USA. Trials from fodder beets can be used to derive maximum residue levels for sugar beets and vice versa.

Critical GAP for sugar beets in the USA is 2 × 0.42 kg ai/ha and a PHI of 90 days. Trials from the USA (2 × 0.42 kg ai/ha, PHI 89–90 days) on sugar beets matched this GAP within 25%. Total fluazifop residues were: < 0.01, 0.02, 0.06, 0.06, 0.06, 0.06, 0.08, 0.08, 0.10, 0.10, 0.11, 0.22 mg/kg (n = 12).

Critical GAP for sugar beets and fodder beets in the UK is 1 × 0.38 kg ai/ha and a PHI of 56 days. Trials on sugar beets from Germany, Greece, Italy, Spain (1 × 0.37–0.43 kg ai/ha, PHI 47–60 days) matched this GAP within 25%. Total fluazifop residues were: 0.08, 0.08[BF], 0.09, 0.09, 0.09, 0.10, 0.12[BF], 0.14[BF], 0.26 and 0.32 mg/kg (n = 10), where BF indicates a banded foliar spray.

The Meeting estimated a maximum residue level of 0.5 mg/kg on sugar beets based on the GAP in the United Kingdom. The Meeting estimated a median residue of 0.095 mg/kg and a highest residue of 0.32 mg/kg in roots of sugar beets and fodder beets.

Using multiplication factors of 1.95 and 2.38 for median and highest residues, the Meeting estimated an STMR and HR of 0.19 and 0.76 mg/kg eq.

Swede and Turnip

Field trials involving swedes were performed in the UK. Field trials involving turnips were performed in the United Kingdom and Canada.

Critical GAP for swedes and turnips in France is 1 × 0.38 kg ai/ha with PHI of 42 days. None of the swede trials and only one turnip trial, which was inadequately reported, could be matched to this GAP using proportionality.

Critical GAP for swedes and turnips in Belgium is 1 × 0.38 kg ai/ha with a PHI of 56 days. Two swede trials from the UK (1 × 0.38 kg ai/ha, PHI 56–70 days) matched this GAP within 25%. Total fluazifop residues were: 0.43 and 0.55 mg/kg (n = 2).

Two turnip trials from the UK (1 × 0.38 kg ai/ha, PHI 62–68 days) could be matched to this cGAP within 25%. Total fluazifop residues were: 0.74 and 2.0 mg/kg (n = 2).

The Meeting considered the trials on swedes and turnips mutually supportive and decided to combine the trials. Total fluazifop residues were: 0.43, 0.55, 0.74 and 2.0 mg/kg (n = 4).

The Meeting estimated a maximum residue level of 4 mg/kg on turnips and swedes based on the GAP in Belgium. The Meeting estimated a median residue of 0.645 mg/kg and a highest residue of 2.0 mg/kg.

Using multiplication factors of 1.95 and 2.38 for median and highest residues, the Meeting estimated an STMR and HR of 1.3 and 4.8 mg/kg eq.

Sweet potato

Field trials involving sweet potatoes were performed in the USA in the 2008 growing season.

Critical GAP for sweet potato and yam is from the USA with 4 × 0.21 kg ai/ha and a PHI of 14 days. Trials from the USA (4 × 0.21 kg ai/ha, PHI 12–16 days) matched this GAP within 25%. Total fluazifop residues were: 0.11, 0.12, 0.51, 0.52, 0.57 and 0.85 mg/kg (n = 6).

The Meeting estimated a maximum residue level of 2 mg/kg on sweet potato based on the GAP in the USA. The Meeting estimated a median residue of 0.515 mg/kg and a highest residue of 0.85 mg/kg.

Using multiplication factors of 1.95 and 2.38 for median and highest residues, the Meeting estimated an STMR and HR of 1.0, and 2.0 mg/kg eq.

The Meeting decided to extrapolate the maximum residue level, STMR and HR to yams.

Asparagus

Field trials involving asparagus were performed in the USA, Northern France and Spain.

Critical GAP for asparagus in the USA is 2 × 0.42 kg ai/ha and a PHI of 1 day. Trials from the USA (2 × 0.42 kg ai/ha, PHI 1 days) on asparagus matched this GAP within 25%. Total fluazifop residues were 1.7, 1.8 and 3.9 mg/kg (n = 3). The Meeting considered three trials insufficient.

Rhubarb

Field trials involving rhubarb were performed in the USA.

Critical GAP for rhubarb is the GAP from France with 1 × 0.19 kg ai/ha with a PHI of 42 days. None of the trials could be matched to this GAP. The Meeting considered the data insufficient.

Witlof chicory (sprouts)

Field trials involving witlof roots and sprouts were performed in Northern France and the Netherlands.

Critical GAP for witlof roots for sprout production is the GAP from Belgium, France or the Netherlands with 1 × 0.38 kg ai/ha with a PHI of 56 days for the roots. Trials from the Netherlands and Northern France (1 × 0.38 kg ai/ha, PHI 55–57 days for the roots) matched this GAP within 25%. Total fluazifop residues in the sprouts (endives) grown from these roots on hydroponic solutions were: < 0.01 and < 0.01 mg/kg (n = 2).

Trials from the Netherlands (1 × 0.38 or 0.75 kg ai/ha, PHI 101 days for the roots) with a much longer PHI, could not confirm the non-residue situation in the sprouts, since total fluazifop residues of 0.02 and 0.03 mg/kg were found in the sprouts grown from these roots. Since the non-residue situation in sprouts could not be confirmed, the Meeting considered two trials insufficient.

Sugar cane

Field trials involving sugar cane were performed in Brazil and the USA.

Critical GAP for sugar cane is the Brazilian GAP with one foliar spray with 1 × 0.075 kg ai/ha and a PHI of 42 days. This spray application is used as a desiccant to increase the sucrose content of the sugar cane.

Sugar cane trials from Brazil (1 × 0.075 kg ai/ha, PHI 35 days) could be matched to the Brazilian GAP within 25%. Total fluazifop residues were: < 0.01, < 0.01, < 0.01 and < 0.01 mg/kg (n = 4).

Since all trials were below the LOQ, the Meeting considered four trials sufficient. The Meeting estimated a maximum residue level of 0.01* mg/kg for sugar cane based on the Brazilian cGAP. The Meeting estimated a median and highest residue of 0.01 mg/kg.

Using multiplication factors of 1.05 and 1.05 for median and highest residues, the Meeting estimated an STMR and HR of 0.011 and 0.011 mg/kg eq.

Oilseed

Cotton seed

Field trials involving cotton were performed in the USA, Brazil and Spain.

Critical GAP for cotton in Brazil is 1 × 0.25 kg ai/ha with a PHI of 60 days. Trials from Brazil (1 × 0.25 kg ai/ha with PHI 60 days) matched this GAP within 25%. Total fluazifop residues were: < 0.01 (4 ×) mg/kg (n = 4). The Meeting considered four trials insufficient.

Critical GAP for cotton in the USA is 2 × 0.42 kg ai/ha and a PHI of 90 days. Trials from the USA (2 × 0.41–0.43 kg ai/ha with PHI 88–97 days) matched this GAP within 25%. Total fluazifop residues were: < 0.01 (6), 0.016, 0.044, 0.046, < 0.05 (8), 0.08, 0.089 and 0.71 mg/kg mg/kg (n = 20).

The Meeting estimated a maximum residue level of 0.7 mg/kg on cotton seed, based on the USA GAP. The Meeting estimated a median residue of 0.05 mg/kg.

Using multiplication factors of 1.05 for median residues, the Meeting estimated an STMR of 0.053 mg/kg eq.

Rape seed

Field trials involving rape seed were performed in the UK, Germany, Spain, Southern France and Italy.

Critical GAP for oilseed rape in Brazil and the UK is 1 × 0.19 kg ai/ha with a PHI of 14 days. None of the trials could be matched to this GAP.

Critical GAP for oilseed rape in France is 1 × 0.38 kg ai/ha with a PHI of 90 days. Trials from Germany, Spain, Southern France (1 × 0.37–0.39 kg ai/ha, PHI 81–112 days) matched this GAP within 25%. Total fluazifop residues in the seeds were: 1.5, 2.0, 2.2, 2.2 and 2.3 mg/kg (n = 5). The Meeting considered five trials insufficient.

Sunflower seeds

Field trials involving sunflower seed were performed in Brazil, Germany, France, Italy, Spain, Hungary, and the USA.

Critical GAP for sunflower seed in France is 1 × 0.38 kg ai/ha with a PHI of 90 days. Trials from Germany and France (1 × 0.37–0.38 kg ai/ha, PHI 83–109 days) matched this GAP within 25%. One additional trial from Northern France (1 × 0.38 kg ai/ha, PHI 113 days) was taken into account, since significant residues were found at this longer PHI. Total fluazifop residues were: < 0.01, < 0.01, < 0.01^{BF}, 0.02, 0.04, < 0.05, < 0.05, < 0.05, < 0.05 and 0.06 mg/kg (n = 9), where BF indicates a banded foliar spray.

Critical GAP for sunflower seed in Brazil is 1 × 0.25 kg ai/ha and a PHI of 59 days. Trials from Brazil (1 × 0.25 kg ai/ha, PHI 59–67 days) matched this GAP within 25%. Additional trials from Italy and Spain (1 × 0.34–0.40 kg ai/ha, PHI 60 days) could be matched to this GAP using proportionality. Total fluazifop residues were: < 0.02, < 0.02, < 0.02, < 0.02, 0.90 × 0.25/0.40, 2.2 × 0.25/0.38, 4.0 × 0.25/0.34, 5.6 × 0.25/0.38 mg/kg, which becomes < 0.02, < 0.02, < 0.02, < 0.02, 0.56, 1.4, 2.9 and 3.7 mg/kg (n = 8).

The Meeting estimated a maximum residue level of 7 mg/kg on sunflower seed, based on the Brazilian GAP. The Meeting estimated a median residue of 0.29 mg/kg.

Using multiplication factors of 1.05 for median residues, the Meeting estimated an STMR of 0.30 mg/kg eq.

Bean forage (green)

Field trials involving green Phaseolus bean forage (haulms) were performed in southern France and Spain. The bean haulms in these trials were harvested at BBCH 49–79 and can be considered as forage.

Critical GAP for green *Phaseolus* beans in Belgium is 1 × 0.38 kg ai/ha and PHI of 28 days. Phaseolus bean forage is not grazed and is harvested at the same time as the green beans with or without pods as a by-product. Trials from Southern France and Spain (1 × 0.30–0.32 kg ai/ha, PHI 27–28 days) matched this GAP within 25%. Total fluazifop residues in green bean forage were: 0.19, 1.0, 2.1 and 2.3 mg/kg (n = 4) on an as received basis.

The Meeting estimated a median and highest residue level on the cGAP in Belgium of 1.55 mg/kg and 2.3 mg/kg, on an as received basis, respectively, for green *Phaseolus* bean forage.

Bean fodder

Three field trials involving Phaseolus bean straw were performed in Southern France and Spain. Bean straws were harvested at BBCH 89 and should be considered as fodder.

Critical GAP for dry Phaseolus beans in the USA or Brazil is 2 × 0.42 kg ai/ha with a PHI of 60 days or 1 × 0.25 kg ai/ha with a PHI of 60 days, respectively. Bean fodder is harvested at the same time as the dry Phaseolus beans. No trials matched these GAPs.

Five field trials involving Vicia bean straw were performed in Southern France, Spain and Italy in 2006. Fava bean straw was harvested at BBCH 89 and should be considered as fodder.

Critical GAP for dry Vicia beans in the Netherlands is 1 × 0.38 kg ai/ha and PHI of 90 days. Bean fodder is harvested at the same time as the dry Vicia beans. Trials from Southern France, Spain and Italy (1 × 0.31–0.32 kg ai/ha, PHI 90–93 days) matched this GAP within 25%. Total fluazifop residue levels in bean straw (PHI 90–93 days) were: 0.05, 0.37, 0.38, 1.6 and 3.1 mg/kg (n = 5) on an as received basis. On a dry-weight basis (DM = 88%), total fluazifop residue levels in bean straw were: 0.057, 0.42, 0.43, 1.8 and 3.5 mg/kg (n = 5).

The Meeting estimated a maximum residue level of 7 mg/kg (dry weight). The Meeting estimated a median and highest residue based on the cGAP in the Netherlands of 0.43 mg/kg and 3.5 mg/kg (dry weight), respectively.

Pea forage

Field trials involving green pea forage were performed in the United Kingdom, Denmark, France, Spain, and Canada. Since the GAPs do not have grazing restrictions, pea forage can be harvested at any time after treatment of either peas intended for green pea pods, green pea seeds or dry peas. According to the FAO manual green pea vines are ready for harvest from any time after pods begin to form (BBCH 70–79).

Critical GAP for dry peas in France is 1 × 0.38 kg ai/ha and critical GAP for green peas in Belgium is 1 × 0.38 kg ai/ha. Trials from the UK and Northern France matched this GAP (1 × 0.31–0.39 kg ai/ha) within 25% of the dose rate. Total fluazifop residue levels in pea forage (BBCH 77–79) were: 0.06, 0.18^{BF}, 0.31, 0.49, 0.65, 0.68, 0.92, 1.0^{BF}, 1.3, 1.8, 1.8, 2.2 and 2.3 mg/kg (n = 13) on an as received basis, where BF indicates banded foliar spray.

The Meeting estimated a median and highest residue of 0.92 and 2.3 mg/kg on pea forage an as received basis, respectively, based on the cGAP of green peas from Belgium and dry peas from France.

Pea fodder (dry)

Field trials involving dry straw or haulms from dry peas were performed in the Netherlands, Denmark, Germany, UK, Southern France, Italy, and Spain. Pea fodder is harvested at the same time as the dry pea seeds.

Critical GAP for dry peas from France is 1 × 0.38 kg ai/ha and PHI 56 of days. Field trials performed in the UK, the Netherlands, Southern France (1 × 0.31–0.38 kg ai/ha, PHI 54–65 days) matched this GAP within 25%. Total fluazifop residue levels in pea straw were: 1.1, 1.2 and 6.1 mg/kg (n = 3) on an as received basis. On a dry-weight basis (DM = 88%), total fluazifop residue levels in pea straw/haulms were: 1.3, 1.4 and 6.9 mg/kg (n = 3). The Meeting considered three trials insufficient.

Soya bean forage (green)

Field trials involving soya bean forage were performed in Canada and in South Africa. Since the GAPs do not have grazing restrictions, soya bean forage can be harvested at any time after treatment.

Soya bean forage can be grazed. According to the FAO manual soya bean forage can be harvested when plants are 15–20 cm tall (sixth node) to beginning of pod formation (i.e., BBCH 16–69 or V6–R2).

Critical GAP for dry soya beans in Brazil is 1 × 0.25 kg ai/ha. Trials from Canada and South Africa (1 × 0.24–0.27 kg ai/ha) matched the GAP for Brazil within 25% of the dose rate. Total fluazifop residue levels in soya bean forage (BBCH 59–69 or V6–R2) were: 0.21, 0.53, 1.4, 1.6[CDM], 1.9 and 4.0 mg/kg (n = 6) on an as received basis The dry matter content of the sample with superscript CDM was 35%, confirming the default value for DM content in forage.

The Meeting estimated a median and highest residue of 1.5 mg/kg and 4.0 mg/kg, respectively, for green soya bean forage on as received basis.

Soya bean hay and straw

Field trials involving soya bean hay (as dried forage) were performed in Canada. Since the GAP does not have grazing restrictions, soya bean forage for hay can be harvested at any time after treatment. According to the FAO manual soya bean forage for hay is harvested from mid-to-full bloom and before bottom leaves begin to fall or when pods are approximately 50% developed (BBCH 65–75 or R2–R3)

Critical GAP for dry soya bean in Brazil is 1 × 0.25 kg ai/ha. Trials from Canada and South Africa (1 × 0.25–0.26 kg ai/ha) matched the GAP for Brazil within 25% of the dose rate. Total fluazifop residue levels in soya bean hay (BBCH 67–75) were: 0.072[CDM], 0.27, 0.28, 0.58 and 1.7[CDM] mg/kg (n = 5) on an as received basis. Drying forage to hay is expected to lead to a content of about 88% DM (default for fodder). This is confirmed in some soya bean hay samples indicated with superscript [CDM]. Forage was left to dry to hay to a moisture content between 10–20%. On a dry-weight basis (DM = 88% or study specific value), fluazifop residue levels in soya bean hay 0.085, 0.31, 0.32, 0.66 and 2.1 mg/kg (n = 5).

The Meeting estimated a maximum residue level of 4 mg/kg (dry weight) for soya bean fodder based on the cGAP in Belgium. The Meeting estimated a median and highest residue of 0.32 kg and 2.1 mg/kg, (dry weight), respectively,

One field trial involving soya bean fodder was performed in South Africa (1991). Soya bean fodder is harvested at the same time as the dry soya bean seeds.

Critical GAP for dry soya beans in Brazil is 1 × 0.25 kg ai/ha and a PHI of 60 days. One trial from South Africa matched the cGAP for Brazil. Total fluazifop residues were: 0.23 mg/kg (n = 1). The Meeting considered one trial insufficient.

Alfalfa forage (green)

Field trials involving medic pasture were performed in South Africa. Medic pastures are the *Medicago* species, commonly known as medick of burclover. This family covers over 87 species. *Medicago sativa* (alfalfa) is the best known member, which grows to 1 metre in height. Most members are low, creeping herbs, resembling clover, but with burs (seed or dry fruit). The creeping members are often used as forage crops (e.g. *M. lupulina* and *M. trunculata*). Only alfalfa (M. sativa) is in the Codex Classification.

Critical GAP from Belgium for clover and lucerne (also known as alfalfa) is 1 × 0.38 kg ai/ha with a PHI of 28 days. Trials from Saudi Arabia (1 × 0.25 kg ai/ha, PHI 28 days) could be matched to the Belgium GAP through proportionality. Total fluazifop residues were: 3.7 × 0.38/0.25, 5.1 × 0.38/0.25 and 5.3 × 0.38/0.25 mg/kg (n = 3), which becomes 5.6, 7.7 and 8.0 mg/kg (n = 3). The Meeting considered three trials insufficient.

Fodder beet

Trials from sugar beets can be used to derive maximum residue levels for fodder beet. As the Meeting estimated an STMR of 0.095 mg/kg and an HR of 0.32 mg/kg on an as received basis in roots of sugar beets, these STMR and HR values it was agreed to also apply these values to fodder beet.

Sugar beet/Fodder beet leaves or tops

Field trials involving sugar beet and fodder beet tops were performed in the United Kingdom, Denmark, Germany, Spain, Italy, France, Greece, Canada and the USA. Trials from fodder beets tops can be used to derive maximum residue levels for sugar beet tops and vice versa.

Critical GAP for sugar beets and fodder beets is the GAP from the UK with 1 × 0.38 kg ai/ha and a PHI of 56 days. Trials from Germany (1 × 0.37–0.43 kg ai/ha, PHI 47–56 days) matched this GAP within 25%. Total fluazifop residues in sugar beet tops were: 0.36, 0.37, 0.47, 0.83, 0.89[BF], 1.1 and 1.7 mg/kg (n = 7) on an as received basis, where BF indicates a banded foliar application.

The Meeting estimated a median and highest residue of 0.83 mg/kg and 1.7 mg/kg, respectively, on an as received basis.

Swede/Turnip leaves or tops

Field trials involving swede tops were performed in the UK. Field trials involving turnip tops were performed in the United Kingdom.

Critical GAP for swedes and turnips Belgium is 1 × 0.38 kg ai/ha and a PHI of 56 days.

Residue trials from the UK (1 × 0.38–0.42 kg ai/ha, PHI 56–70 days) on swede tops matched this cGAP within 25%. Total fluazifop residues in swede tops were: 0.75 and 0.98 mg/kg (n = 2) on an as received basis.

Trials from the UK (1 × 0.38 kg ai/ha, PHI 62–68 days) on turnip tops matched this cGAP within 25%. Total fluazifop residues in turnip tops were 1.3 and 1.6 mg/kg (n = 2) on an as received basis.

The Meeting considered the trials on swede tops and turnip tops mutually supportive and decided to combine the data. Total fluazifop residues were 0.75, 0.98, 1.3 and 1.6 mg/kg (n = 4).

The Meeting estimated a median and highest residue of 1.1 and 1.6 mg/kg, respectively, on an as received basis for swede and turnip tops for animal fodder only.

Kale forage

Field trials involving kale were performed under outdoor conditions in the UK.

Critical GAP for kale for animal fodder in the UK is one foliar application at 0.38 kg ai/ha with a PHI of 56 days. Trials from the UK (1 × 0.38 kg ai/ha, PHI 49–56 days) matched this GAP within 25%. Total fluazifop residues were: 0.10, 0.16, 0.22, 0.33, 0.97 and 0.97 mg/kg (n = 6) on an as received basis.

The authorised use in the UK for kale is for animal fodder. As animal forages are not traded, the Meeting decided not to propose a maximum residue level. The Meeting estimated a median residue of 0.275 mg/kg and a highest residue of 0.97 mg/kg on an as received basis for kale for animal fodder only.

Forage of oilseed rape

Field trials involving rape forage were performed in Germany. Canola (oilseed rape) can be grazed when the canopy height is 15–20 cm tall.

On the Dutch label it is stated that the growth of the weeds stops within 1–2 days, the weeds start dying within 1 week, and will be completed in 3–5 weeks. Immature crops used for forage will not be treated with pesticides unless they are expected to survive. After two weeks the success of application of the pesticide on crop survival will be evident. Therefore, the residue levels observed at a PHI of 14 days are used for estimation of maximum residue levels. Note that the Australian label (not submitted) includes a grazing restriction of 21 days.

Critical GAP for rape forage is from France with 1 × 0.38 kg ai/ha (leaving about 14 days for the pesticide to kill the weeds). Trials from Germany (1 × 0.38 kg ai/ha, PHI 12–18 days) matched this GAP within 25%. Total fluazifop residues were: 3.8, 4.6 and 10 mg/kg (n = 3) on an as received basis. The Meeting considered three trials insufficient.

Forage and fodder of grasses

Field trials involving grasses were performed in the Netherlands, Germany (red fescue) and the USA (fine fescue).

Critical GAP for grasses is the GAP from the Netherlands with 1 × 0.25 kg ai/ha and a PHI of 49 days. Only one trial from the Netherlands on grass forage (1 × 0.19 kg ai/ha, PHI 47 days, BBCH 47 at harvest) matched the GAP within 25%. Total fluazifop residues were: 0.09 mg/kg (n = 1) on as received basis. The Meeting considered one trial insufficient.

Two trials from Germany on grass hay (1 × 0.19 kg ai/ha, PHI 47–51, BBCH 89 at harvest) matched the GAP within 25%. Total fluazifop residues were: 0.50 and 0.94 mg/kg (n = 2) on as received basis. The Meeting considered two trials insufficient.

The Meeting did not estimate a maximum residue level, or a median and highest residue level for grasses (forage or hay).

Almond hulls

Field trials involving almond hulls were performed in the USA.

Critical GAP from France for almonds is one application at the base of the trees with 1 × 0.25 kg ai/ha and PHI of 21 days. None of the trials could be matched to the cGAP from France.

Cotton gin trash

Field trials involving cotton gin trash were performed in the USA. Cotton gin trash is harvested as a by-product at the same time as the harvest of the cotton seeds.

Critical GAP for cotton is the GAP from the USA with 2 × 0.42 kg ai/ha and a PHI of 90 days. Trials from the USA (2 × 0.41–0.43 kg ai/ha with PHI 88–97 days) matched this GAP within 25%. Total fluazifop residues in cotton gin trash were: 0.018, 0.043, 0.080, 0.16, 0.57 and 0.63 mg/kg (n = 6) on as received basis.

The Meeting estimated a median and highest residue level of 0.12 mg/kg and 0.63 mg/kg, respectively for dry cotton fodder (gin trash), based on the USA GAP.

Rotational crops

The meeting received two field rotational crop studies to investigate the actual uptake of residues from soil.

In the first field rotational crop study at four different locations in the USA fluazifop-butyl (RS) was applied onto a fallow plot at a single application of 1.1 kg ai/ha. Various rotational crops were planted at 15, 30, 60, 90 and120 days after soil treatment. Soil samples were not analysed.

No residues above the LOQ (0.02 or 0.05 mg/kg) of total fluazifop were found in any of the crop commodities at any of the plant back intervals. CF3-pyridone was not analysed.

In the second field rotational crop study at two different locations in the UK, fluazifop-P-butyl was applied onto bare soil or to oilseed rape plants at a single application of 0.38 or 0.48 kg ai/ha. Rotational crops (lettuce, wheat and carrots) were sown 1, 2, 4 or 6 months after application.

No residues above the LOQ (0.01 or 0.05 mg/kg) of total fluazifop were found in any of the crop commodities at any of the plant back intervals. CF3-pyridone was only found in carrot tops at levels < 0.01–0.13 mg/kg (at all plant back intervals) and in wheat forage at < 0.01–0.02 mg/kg wheat forage at the 4-month plant back interval.

The Meeting concluded that CF3-pyridone is the only residue that is taken up from the soil under field conditions. The Meeting concluded that it was not necessary to estimate maximum residue levels for total fluazifop in rotational crops.

CF3-pyridone is a relevant metabolite for dietary risk assessment. The dose rates as used in the field rotational crop studies (1 × 0.38 kg ai/ha or 1 × 0.48 kg ai/ha) are equal to or higher than the maximum seasonal rate listed in the GAP information for field crops (0.19–0.38 kg ai/ha) in the EU and Brazil, but they are lower than the maximum seasonal rate listed in the GAP information for field crops (0.42–0.84 kg ai/ha) or fruiting vegetables (0.84 kg ai/ha) in the USA. Therefore, dose rates as used in the available field rotational crop studies are too low to estimate CF3-pyridone levels in rotational crops. In addition, proportionality cannot be used to correct the CF3-pyridone levels found in the crop commodities, since many of the residue levels are below the LOQ. A field rotational crop study at the maximum seasonal rate for the USA, where CF3-pyridone is quantified in rotational crops is desirable.

Fate of residues during processing

Studies on the fate of residues under conditions simulation boiling, pasteurisation or sterilisation were not conducted.

Hydrolysis studies at ambient temperatures indicated that fluazifop-P-butyl was stable at pH 5 but degraded at pH 7 (DT_{50} = 78 days) and pH 9 (DT_{50} = 29 hrs). The only degradation product was fluazifop acid. Hydrolysis studies at ambient temperature indicated that the fluazifop acid is stable at pH 5, 7 and 9.

Stability of fluazifop acid was investigated under various hydrolysis conditions. Fluazifop acid is stable after 1–3 hr reflux in 0.1 M HCl or 0.1 M NaOH, which reflect more stringent conditions than normally met during cooking, pasteurisation or sterilisation.

Processing studies were undertaken for oranges, apples, cherries, plums, grapes, cauliflower, Brussels sprouts, Savoy head cabbage, kale, green pea seeds, dry harvested peas, dry harvested soya beans, potatoes, sugar beets, asparagus, cotton seed, oilseed rape seed, sunflower seed and coffee beans. Acceptable processing factors based on total fluazifop are listed in the table below. Using the $STMR_{RAC}$ values obtained from fluazifop-butyl use, the Meeting estimated STMR-Ps for processed commodities for use in the livestock dietary burden calculations and/or dietary intake calculations.

The Meeting decided to extrapolate processing factors derived from oranges to the whole group of citrus fruits,

No processing factors could be derived for commodities where the residue in the RAC was below the LOQ (apples, cherries, plums, grapes, cauliflower, Savoy head cabbage and coffee beans). Dried plums (prunes), dried grapes (raisins), roasted coffee beans and freeze-dried coffee powder had residues below the LOQ.

No processing factors could be derived for dry harvested peas, because total fluazifop residues increased after steeping and cooking, which indicates that the original RAC sample was not soaked sufficiently long before extraction and hydrolysis to release all fluazifop conjugates. Soaking is therefore a critical parameter for the analysis of pulses.

No processing factors could be derived for several soya bean oils, cottonseed oil and rape seed oil, because the hydrolysis step used in the analytical method was not radio-validated.

Commodity	Processing factors (PF) Residue: total fluazifop	PF	STMR-P (mg/kg)	HR-P (mg/kg)	Median-P residue (mg/kg)	Highest-P residue (mg/kg)
Oranges			Citrus fruit			
–orange juice	< 0.7	< 0.7 (n = 1)	= 0.011*0.7 = 0.0077	–	–	–
–orange oil	5.0	5.0 (n = 1)	= 0.011*5.0 = 0.055	–	= 0.01*5.0 = 0.05	–
–dried pulp	6.0	6.0 (n = 1)	–	–	= 0.01*6.0 = 0.06	–
Green pea seeds						
–cooked green peas	0.83, 0.86, 0.94	0.86 (median, n = 3)	0.42 × 0.86 = 0.36	8.1 × 0.86 = 7.0	–	–
–canned green peas	0.58, 0.71, 0.81	0.71 (median, n = 3)	0.42 × 0.71 = 0.30	8.1 × 0.71 = 5.8	–	–
Dry harvested soya bean seeds	–					
–soya bean hulls	0.22, 0.37, 0.38, 0.51, 0.52, 0.65, 0.70	0.51 (median, n = 7)	–	–	2.8 × 0.51 = 1.4	–
–soya bean oil, crude	0.83	0.83 (n = 1)	2.9 × 0.83 = 2.4			–
–soya bean oil extracted meal	0.94, 0.98, 1.1, 1.2, 1.2, 1.3. 1.4	1.2 (median, n = 7)	–	–	2.8 ×1.2 = 3.4	–
–soya bean flour	0.80, 1.1, 1.1, 1.1, 1.1, 1.2	1.1 (median, n = 6)	2.9 × 1.1 = 3.2			–
–soya bean milk	0.090, 0.14, 0.18, 0.21	0.16 (median, n = 4)	2.9 × 0.16 = 0.46			–
Potatoes						
–raw potato peels	0.28, 0.34, 0.53, 0.64, 0.92	0.53 (median, n = 5)	–	–	0.05 × 0.53 = 0.026	0.44 × 0.53 = 0.23
–raw potato flesh	1.0, 1.1, 1.1, 1.1, 1.1	1.1 (median, n = 5)	0.10 × 1.1 = 0.11	1.0 × 1.1 = 1.1		
–cooked potato without peel	0.79, 0.80	0.80 (mean, n = 2)	0.10 × 0.80 = 0.080	1.0 × 0.80 = 0.80		
Sugar beet roots						
–sugar beet sugar (refined)	0.043, 0.36	0.36 (best estimate)	0.19 × 0.36 = 0.068			–
–sugar beet molasses	14	14 (n = 1)			0.095 × 14 = 1.33	–
–sugar beet dry pulp	40	40 (n = 1)			0.095 × 40 = 3.8	–
–sugar beet wet pulp (pressed pulp)	0.087	0.087 (n = 1)			0.095 × 0.087 = 0.0083	–
Sunflower seed						
–oil extracted	3.1	3.1 (n = 1)			0.29 × 3.1 = 0.90	–

Commodity	Processing factors (PF) Residue: total fluazifop	PF	STMR-P (mg/kg)	HR-P (mg/kg)	Median-P residue (mg/kg)	Highest-P residue (mg/kg)
meal (cold press)						
–hulls	0.14	0.14 (n = 1)			0.29 × 0.14 = 0.041	–
–sunflower refined oil	< 0.03	< 0.03 (n = 1)	0.30 × 0.03 = 0.0090			–

NR = no recommendation

PF based on total fluazifop only

Median-P and highest-P residues based on total fluazifop only, are used for dietary burden calculations and maximum residue level estimation)

STMR-P and HR-P are used for the long-term and short-term dietary exposure estimates and are based on the residue definition for dietary risk assessment.

Total fluazifop was shown to concentrate in orange oil (PF = 5.0, n = 1), orange dried pulp (PF = 6.0, n = 1), sugar beet molasses (PF = 14, n = 1), sugar beet dry pulp (PF = 40, n = 1) and oil extracted meal from sunflower seed (PF = 3.1, n = 1). Oil extracted meal from sunflower seed is not a commodity in trade.

The Meeting estimated a maximum residue level of 0.01 × 5 = 0.05* mg/kg for orange oil, 0.01 × 6 = 0.06* mg/kg for orange dried pulp, 0.5 × 14 = 7 mg/kg for sugar beet molasses, 0.5 × 40 = 20 mg/kg for sugar beet dry pulp. A dry matter conversion was not considered necessary.

Livestock dietary burden

The Meeting estimated the dietary burden of fluazifop-P-butyl in livestock on the basis of diets listed in the OECD Feed table 2009. Calculation from highest residue, and median-P values (some bulk commodities) provide the levels in feed suitable for estimating maximum and highest residue levels, while calculation from median and median-P values for feed is suitable for estimating STMR values for animal commodities.

The dietary burden calculation of fluazifop for beef cattle, dairy cattle, broilers and laying poultry are provided in Annex 6. The calculations were made according to the livestock diets from US/CAN, EU, Australia and Japan in the OECD Feed Table 2009.

Some processed and forage commodities do not appear in the Recommendations Table (because no maximum residue level is needed) but they are used in estimating livestock dietary burdens. Those commodities are listed below.

Codex classification	Commodity	Median residue (-P) (mg/kg)	Highest residue (-P) (mg/kg)
AB 0660	Almond hulls	NR	
AB 0226	Apple pomace, dry (no suitable PF available; 0.05 (highest loqs) used)	0.05	–
VD 0071	Beans (pulses)	2.3	–
AL 1030	Bean forage (green)	1.55	2.3
AL 0061	Bean fodder	0.43 (dw)	3.5 (dw)
VB 0041	Cabbages, head	0.155	1.7
no code	Carrot, culls (root values are used)	0.09	0.29
AB 0001	Citrus pulp (0.01* × PF 6)	0.06	–
AB1203	Cotton meal (no reliable PF, 0.05 used)	0.05	–
SO 0691	Cotton undelinted seed (no reliable PF, 0.05 used)	0.05	–
AB 0691	Cotton hulls (no reliable PF, 0.05 used)	0.05	–

Codex classification	Commodity	Median residue (-P) (mg/kg)	Highest residue (-P) (mg/kg)
AM 0691	Cotton gin by products (cotton gin trash) = fodder	0.12	0.63
VD 0561	Field pea (dry)	0.38	
AB 0269	Grape pomace, dry (no reliable PF, 0.01* used)	0.01	0.01
AV 0480	Kale, as animal fodder	0.275	0.97
AL 0528	Pea, vines (green) = forage	0.92	2.3
AL 0072	Pea, hay or fodder	NR	NR
VR 0589	Potato, culls (tuber values are used)	0.05	0.44
no code	Potato dried pulp (STMR 0.05 × PF 4.4 = 0.22, PF assumed based on dry matter in dried pulp and whole potato (88/20 = 4.4)	0.22	
no code	Potato process waste (0.05 × PF 0.53 = 0.277; wet peel values are used)	0.0277	
AV 0495	Rape greens (rape forage is considered here)	NR	NR
no code	Rape seed meal	NR	
AL 1265	Soya bean, forage (green)	1.5	4.0
AL 0541	Soya bean hay	0.32 (dw)	2.1 (dw)
VD0541	Soya bean (dry)	2.8	–
no code	Soya bean, aspirated grain fractions (soya bean values used)	2.8	–
AB 1265	Soya bean, meal (2.8 × PF 1.2 = 4.7, values for oil extracted meal used)	3.4	–
AB 0541	Soya bean, hulls (2.8 × PF 0.51 = 1.4)	1.4	–
no code	Soya bean okara (pulp or tofu, fibrous part of the bean, data for oil extracted meal used)	3.4	–
DM 0659	Sugar cane, molasses (no PF 0.01* used)	0.01	–
no code	Sugar cane, bagasse (no PF 0.01* used)	0.01	–
no code	Sugar cane tops (sugar cane values used)	0.01	
no code	Sugar beet, mangel* (values of tops used)	0.83	1.7
AV 0596	Sugar beet tops	0.83	1.7
AB 0596 (dry)	Sugar beet, pulp, dry (0.095 × 40)	3.8	
AB 1201 (wet)	Sugar beet, ensilaged pulp (v residue for sugar beet root is used)	0.095	–
DM 0596	Sugar beet, molasses (0.095 × PF 14 = 1.33)	1.33	
no code	Sunflower meal (0.29 × PF 3.1 = 0.90)	0.90	
VR0497	Swede, roots	0.645	2.0
VW 0448 (paste)	Tomato, pomace, wet (no processing data, residue for tomato used)	0.05	–
VR 0506	Turnip, roots	0.645	2.0
AV 0506	Turnip, leaves or tops	1.1	1.6

		Livestock dietary burden for fluazifop-P-butyl (based on total fluazifop, expressed as fluazifop acid), ppm of dry matter diet			
		US/CAN	EU	Australia	Japan
Max	beef cattle	1.92	13.8 [A]	9.66	8.94
	dairy cattle	5.90	10.3 [C]	8.97	6.55
	poultry—broiler	1.00	4.03	2.79	1.28
	poultry—layer	1.00	4.76 [E]	2.79	1.10
Mean	beef cattle	1.28	6.63	4.40	8.94 [B]
	dairy cattle	3.41	6.13	4.42	6.55 [D]
	poultry—broiler	1.00	2.68	2.79	1.28
	poultry—layer	1.00	3.05 [F]	2.79	1.10

[A] Highest maximum beef or dairy cattle dietary burden suitable for maximum residue level estimates for mammalian meat.

[B] Highest mean beef or dairy cattle dietary burden suitable for STMR estimates for mammalian meat.

[C] Highest maximum dairy cattle dietary burden suitable for maximum residue level estimates for milk.

[D] Highest mean dairy cattle dietary burden suitable for STMR estimates for milk.

[E] Highest maximum poultry dietary burden suitable for maximum residue level estimates for poultry meat and eggs.

[F] Highest mean poultry dietary burden suitable for STMR estimates for poultry meat and eggs.

Residues in animal commodities

The Meeting received a lactating dairy cow feeding study, which provided information on likely residue resulting in animal tissues and milk from fluazifop-butyl residues in animal diets.

Fifteen lactating Friesian cows were fed a basal diet or a diet containing fluazifop-butyl (RS) at nominal levels of 0.2, 0.8, 3.0 and 12.0 ppm dry feed, twice daily, for 29 consecutive days, corresponding to 0.17, 0.68, 2.55 and 10.2 ppm fluazifop acid.

Parent fluazifop-butyl was not found (< 0.01 mg/L fluazifop acid eq) in individual and bulk samples of milk at any of the feeding levels. Free fluazifop acid was found at levels of 0.01 mg/L in 4 out of 14 bulk milk samples at the 12 ppm feeding level, while the individual milk samples showed no residues (< 0.01 mg/L). Lipophilic fluazifop conjugates reached mean plateau levels of 0.042 and 0.15 mg/L fluazifop acid eq within three days at the 3 and 12 ppm fluazifop-butyl feeding levels, respectively, corresponding to 2.55 and 10.2 ppm fluazifop acid in dry feed, respectively.

Lipophilic fluazifop conjugates were not found (< 0.02 mg/kg fluazifop acid eq) in the tissue samples at any of the feeding levels. Polar fluazifop related residues (fluazifop-butyl, fluazifop acid and polar fluazifop conjugates) were only found in the highest dose group with maxima of 0.13, 0.03, 0.03 and 0.06 mg/kg total fluazifop in kidney, liver, cardiac muscle or peritoneal fat, respectively. Residues in fat represent total fluazifop residues with unknown composition. The results further indicate that the total fluazifop residues do not accumulate and rapidly decline after the application of the fluazifop-butyl containing diet has stopped.

Laying hens were fed with a basal diet or with a diet containing fluazifop-butyl (RS), once daily, for 28 days. The actual amounts of fluazifop-butyl in the feed of the four groups were 0, 0.4, 2.5 and 10.3 ppm dry feed, corresponding to 0, 0.32, 2.1 and 8.8 ppm fluazifop acid in dry feed, respectively.

Residue levels in eggs were only measurable in eggs from hens treated with the highest dose at 10.3 ppm fluazifop-butyl and the plateau level reached was 0.04 mg/kg total fluazifop at Day 7. After separation of yolk and albumen, residues were detected only in the yolk (maximum of 0.11 mg/kg total fluazifop). The mixed tissues (muscle, fat and skin) and the liver samples of hens treated with the highest dose of 10.3 ppm contained total fluazifop residues in the range of 0.01–0.04 mg/kg and 0.03–0.13 mg/kg, respectively. Total fluazifop residues declined rapidly when the birds returned to an untreated diet.

Animal commodities maximum residue levels

The animal feeding studies were performed using fluazifop-butyl, but for the estimation of the maximum residue levels in animal commodities, the feeding levels are expressed in ppm fluazifop acid dry feed.

Mammals

For maximum residue level estimation, the high residues in the tissues were calculated by extrapolating the maximum dietary burden (13.8 ppm) from the relevant feeding level (10.2 ppm fluazifop acid eq) from the dairy cow feeding study and using the highest tissue concentration from the individual animal within this feeding group.

The STMR values for the tissues would usually be calculated by interpolating the mean dietary burden (8.95 ppm) between the relevant feeding levels (2.55 and 10.2 ppm fluazifop acid eq) from the dairy cow feeding study and using the mean tissue concentrations from those feeding groups. Because residue levels at 2.55 ppm fluazifop acid eq are below LOQ, the dietary level of 0 ppm was used to establish the linear relationship, rather than the 2.55 ppm level.

For whole milk maximum residue level estimation, the high residues in the milk were calculated by extrapolating the maximum dietary burden (10.3 ppm) from the relevant feeding level (10.2 ppm fluazifop acid eq) from the dairy cow feeding study and using the highest mean milk concentration from this feeding group.

The STMR value for whole milk was calculated by interpolating the calculated mean dietary burden (6.55 ppm) between the relevant feeding levels (2.55 and 10.2 ppm fluazifop acid eq) from the dairy cow feeding study and using the mean milk concentration from those feeding groups (0.042 mg/L and 0.16 mg/L).

Dietary burden (ppm total fluazifop)	Total fluazifop (mg/kg)				
Feeding level [ppm, fluazifop acid eq]	Milk	Muscle	Liver	Kidney	Fat
Maximum residue level					
	Mean	Highest	Highest	Highest	Highest
Beef cattle (13.8) [0, 10.2]	–	0.027 [0, 0.02]	0.041 [0, 0.03]	0.18 [0, 0.13]	0.081 [0, 0.06]
Dairy cattle (10.3) [2.55, 10.2]	0.19 [0.07, 0.19 mg/L]	–	–	–	–
STMR					
	Mean	Mean	Mean	Mean	Mean
Beef cattle (8.94) [0, 10.2]	–	0.018 [0, 0.02]	0.026 [0, 0.03]	0.088 [0, 0.10]	0.048 [0, 0.055]
Dairy cattle (6.55) [2.55, 10.2]	0.10 [0.042, 0.16 mg/L]	–	–	–	–

The data from the cattle feeding studies were used to support the estimation of maximum residue levels for mammalian meat and whole milk.

Residues in whole milk were estimated as 0.19 and 0.10 mg/kg, resulting from the maximum (10.3 ppm) and mean (6.55 ppm) dietary burdens, respectively.

The Meeting estimated a maximum residue level for total fluazifop in whole milk of 0.2 mg/kg. The Meeting also estimated an STMR for whole milk of 0.10 mg/kg.

Based on the mean (8.95 ppm) dietary burden, median residues were estimated as 0.018, 0.026, 0.088 and 0.048 mg/kg, respectively for mammalian muscle, liver, kidney and fat. Resulting from the maximum (13.8 ppm) dietary burden, highest residues in tissues were estimated as 0.027, 0.041, 0.18 and 0.081 mg/kg for mammalian muscle, liver, kidney and fat, respectively.

Since the residue is fat soluble, the maximum residue level for meat is based on residues in fat tissues. The Meeting estimated a maximum residue level for total fluazifop in mammalian meat, edible offal and fat of 0.09, 0.2 and 0.09 mg/kg, respectively. The Meeting estimated an STMR of 0.024 (= 0.8 × 0.018 + 0.2 × 0.048), 0.088 and 0.048 mg/kg and an HR of 0.038 (= 0.8 × 0.027 + 0.2 × 0.081), 0.18 and 0.081 mg/kg in mammalian meat, edible offal and fat, respectively.

Poultry

The fluazifop-P-butyl maximum dietary burden for poultry is 4.76 mg/kg and the mean dietary burden is 3.05 ppm.

For maximum residue level estimation in eggs, the high residues in eggs were calculated by interpolating the maximum dietary burden (4.76 ppm) between the relevant feeding levels (2.1 and 8.8 ppm) from the poultry study and using the highest residue concentrations in eggs from those feeding groups. Because residue levels at 2.1 ppm and 8.8 ppm feeding levels are below LOQ or near the LOQ of the method, the dietary level of 0 ppm was used to establish the linear relationship, rather than the 2.1 ppm level.

The STMR value for eggs was calculated by interpolating the STMR dietary burden (3.05 ppm) between the relevant feeding levels (2.1 and 8.8 ppm) from the poultry study and using the mean egg concentrations from those feeding groups. Because residue levels at 2.1 ppm and 8.8 ppm feeding levels are below LOQ or near the LOQ of the method, the dietary level of 0 ppm was used to establish the linear relationship, rather than the 2.1 ppm level.

For maximum residue level estimation in tissues, the high residues in mixed and liver poultry tissues were calculated by interpolating the maximum dietary burden (4.76 ppm) between the relevant feeding levels (2.1 and 8.8 ppm) from the poultry study and using the highest residue concentrations in tissues from those feeding groups.

The STMR value for poultry tissues was calculated by interpolating the STMR dietary burden (3.05 ppm) between the relevant feeding levels (2.1 and 8.8 ppm) from the poultry study and using the mean tissue concentrations from those feeding groups.

Dietary burden (ppm total fluazifop)	Total fluazifop residues		
Feeding level [ppm, fluazifop acid eq]	Eggs	Mixed tissues Of fat and muscle	Liver
Maximum residue level	Highest	Highest	Highest
Poultry (4.76) [0, 8.8] [2.1, 8.8]	 0.027 [0, 0.05] 	 0.025 [0.015, 0.04]	 0.082 [0.05, 0.13]
STMR	Mean	Mean	Mean
Poultry (3.05) [0, 8.8] [2.1, 8.8]	 0.014 [0, 0.04] 	 0.016 [0.015, 0.020]	 0.054 [0.05, 0.075]

The data from the poultry study were used to support the estimation of maximum residue levels for poultry meat and eggs.

Residues in whole eggs were estimated as 0.027 and 0.014 mg/kg, resulting from the maximum (4.76 ppm) and mean (3.05 ppm) dietary burden respectively.

The Meeting estimated a maximum residue level in eggs of 0.03 mg/kg total fluazifop. The Meeting also estimated an STMR and HR of 0.014 and 0.027 mg/kg, respectively for poultry eggs.

Total fluazifop residues estimated from the mean dietary burden (3.05 ppm) were 0.016 and 0.054 mg/kg, respectively for mixed tissues (of fat and muscle) and liver. Total fluazifop residues in mixed tissues and liver were estimated as 0.025 and 0.082 mg/kg, respectively resulting from the maximum (4.76 ppm) dietary burden.

Since the residue is fat soluble, the maximum residue level for meat is based on residues in fat tissues. The Meeting estimated a maximum residue level for poultry meat, edible offal, and fat of 0.03, 0.09, and 0.03 mg/kg, respectively. The meeting estimated an STMR of 0.016, 0.054 and 0.016 mg/kg and an HR of 0.025, 0.082 and 0.025 mg/kg, respectively, for poultry meat, edible offal and fat tissue.

RECOMMENDATIONS

On the basis of the data obtained from supervised residue trials the Meeting concluded that the residue levels listed in Annex 1 are suitable for establishing maximum residue limits and for IEDI and IESTI assessment.

The Meeting recommended the following residue definition for fluazifop-P-butyl:

Definition of the residue for compliance with the MRL in plant commodities: *total fluazifop, defined as the sum of fluazifop-P-butyl, fluazifop-P-acid (II) and their conjugates, expressed as fluazifop-P-acid.*

Definition of the residue for dietary risk assessment in plant commodities: *the sum of fluazifop-P-butyl, fluazifop-P-acid (II), 2-[4-(3-hydroxy-5-trifluoromethyl-2-phenoxy)pyridyloxy] propionic acid (XL), 5-trifluoromethyl-2-pyridone (X) and their conjugates, expressed as fluazifop-P-acid.*

Definition of the residue for compliance with the MRL and for dietary risk assessment in animal commodities: *total fluazifop, defined as the sum of fluazifop-P-butyl, fluazifop-P-acid (II) and their conjugates, expressed as fluazifop-P-acid*.

The residue is fat soluble.

FURTHER WORK OR INFORMATION

Desirable:

- A field rotational crop study at the maximum seasonal rate according to cGAP in the USA, where CF3-pyridone is quantified in rotational crops
- Supervised residue trials where hydroxyfluazifop acid (XL) is quantified using validated analytical methods.

DIETARY RISK ASSESSMENT

Long-term dietary exposure

The International Estimated Daily Intakes (IEDI) for fluazifop-P-butyl were calculated from recommendations for STMRs for raw and processed commodities in combination with consumption data for corresponding food commodities. The results are shown in Annex 3.

The IEDIs of the 17 GEMS/Food cluster diets, based on the estimated STMRs represented 40–160% of the maximum ADI of 0.004 mg/kg bw, expressed as fluazifop acid. The estimate of acceptable daily intake applies to fluazifop-P-butyl and its metabolites fluazifop acid (II), despyridinyl acid (III), CF3-pyridone (X) and hydroxyfluazifop acid (XL). An exceedance was found for GEMS/Food cluster diet G16 (160%).

The Meeting concluded that the long-term dietary exposure to residues of fluazifop-P-butyl from uses considered by the Meeting may present a public health concern.

Short-term dietary exposure

The International Estimated Short Term Intake (IESTI) for fluazifop-p-butyl was calculated from recommendations for STMRs/HRs for raw and processed commodities in combination with consumption data for corresponding food commodities. The results are shown in Annex 4.

For fluazifop-P-butyl the IESTI represented 40% of the ARfD (0.4 mg/kg bw, expressed as fluazifop acid). The ARfD applies to fluazifop-P-butyl and its metabolites fluazifop acid (II), despyridinyl acid (III), CF3-pyridone (X) and hydroxyfluazifop acid (XL).

On the basis of the information provided, the Meeting concluded that the short-term dietary exposure to residues of fluazifop-P-butyl, from uses considered by the Meeting, is unlikely to present a public health concern.

5.11 FLUENSULFONE (265)

TOXICOLOGY

Fluensulfone is the ISO-approved common name for 5-chloro-2-(3,4,4-trifluorobut-3-en-1-ylsulfonyl)-1,3-thiazole (IUPAC), with the CAS number 318290-98-1. Fluensulfone is a nematicide, and its mode of pesticidal activity has not been determined.

Fluensulfone was evaluated by JMPR in 2013, when an ADI of 0–0.01 mg/kg bw and an ARfD of 0.3 mg/kg bw were established. The 2013 Meeting also evaluated limited toxicological data on three metabolites found in plants and/or animals, characterized as thiazole sulfonic acid (TSA, M-3625), methyl sulfone metabolite (MeS, M-3626) and butene sulfonic acid metabolite (BSA, M-3627). At the 2014 JMPR, additional data on these metabolites were submitted, and a dietary risk assessment of fluensulfone and its metabolites was performed, but an addendum to the toxicological monograph was not prepared.

Fluensulfone was reviewed by the present Meeting at the request of CCPR, as an additional study on one metabolite and information on the mode of action for lung tumours induced by fluensulfone had been made available. Information submitted previously on all other aspects of the toxicity of fluensulfone was not reviewed by the present Meeting.

Toxicological data

In the 18-month carcinogenicity study in mice, a statistically significant increase in lung adenomas was observed in females. Although it was not statistically significantly increased in male mice, it was noted by the current Meeting that the incidence in male controls was high and that the incidence in the high-dose group was clearly above the historical control range. Hence, the current Meeting concluded that there is no convincing evidence of a sex difference in the tumorigenic effects of fluensulfone in the lungs of mice.

Mechanistic studies were carried out to determine the mode of action for the induction of lung tumours in mice by fluensulfone and its relevance to humans. A number of chemicals cause species-specific lung tumours in mice. The underlying cause has been attributed to the high metabolic activity of mouse lung resulting from a relatively high abundance of club cells in mouse lung and high levels of expression of mouse-specific Cyp2f2 in these cells. Rats have appreciably lower metabolic activity in the lungs compared with mice, and metabolic activity in the lungs of humans is reported to be even lower than that in rats.

Fluensulfone is extensively metabolized by male and female mouse lung microsomes, whereas essentially no metabolic activity was seen in human lung microsomes. Treatment with fluensulfone caused increased cell proliferation in the lungs of both male and female mice, evident after 3 days but not after 7 days of exposure. There was evidence using anti-CC10 antibodies, which recognize a major club cell secretory protein, that the proliferating cells were club cells. Studies in Cyp2f2 knockout mice established that fluensulfone-induced cell proliferation depends upon the presence of this P450 enzyme. In wild-type mice treated with fluensulfone at 200 ppm (equal to 56 mg/kg bw per day), cell proliferation increased 5- to 10-fold, whereas in Cyp2f2 knockout mice, there was no observable difference in proliferation rate when compared with the controls.

Alternative modes of action, including genotoxicity, cytotoxicity, inflammation, immunosuppression and receptor-mediated mitogenesis, were investigated and excluded.

The evidence presented supports a mode of action for the induction of lung tumours in mice by fluensulfone that involves initial metabolism by Cyp2f2, leading to proliferation of club cells. The increased proliferation of these cells leads to alveolar/bronchiolar hyperplasia (bronchiolization), resulting in the emergence of neoplasia. Not all of the key events in this mode of action have been established robustly. However, the dependence of the mode of action on Cyp2f2 and the absence of such metabolism in human lung, together with differences in the number (much lower) and distribution of club cells in human lung, indicate that this mode of action is not relevant to humans.

Based on the previous Meeting's conclusions that fluensulfone is unlikely to be genotoxic in vivo and that the mode of action for lung tumours in mice will exhibit a threshold and is unlikely to be relevant to humans, the present Meeting concluded that fluensulfone is unlikely to pose a carcinogenic risk to humans from the diet.

Toxicological data on metabolites and/or degradates

For three plant metabolites, studies on acute oral toxicity and genotoxicity were included in the 2013 JMPR toxicological monograph. Additional repeated-dose toxicity studies were evaluated by JMPR in 2014, but no addendum to the toxicological monograph was prepared. For a complete overview, and as a new 90-day study with 3,4,4-trifluorobut-3-ene-1-sulfonic acid (BSA) was submitted, all available toxicological data on these metabolites are presented below.

5-Chloro-thiazole-2-sulfonic acid (thiazole sulfonic acid, TSA, M-3625) was of low acute oral toxicity (LD_{50} > 2000 mg/kg bw) in the rat and was not genotoxic in vitro or in vivo. In a 28-day toxicity study that was not GLP compliant or fully compliant with Organisation for Economic Co-operation and Development (OECD) guidelines (e.g. group size of three animals of each sex per dose), rats received TSA in the diet at 0, 120, 500, 1200 or 12 000 ppm (equal to 0, 10, 41, 113 and 1194 mg/kg bw per day for males and 0, 12, 43, 123 and 1369 mg/kg bw per day for females, respectively). The NOAEL was 1200 ppm (equal to 113 mg/kg bw per day), based on kidney tubule basophilia in males at 12 000 ppm (equal to 1194 mg/kg bw per day).

In a 90-day toxicity study, rats received TSA in the diet at 0, 500, 2500 or 12 000 ppm (equal to 0, 38, 183 and 975 mg/kg bw per day for males and 0, 52, 290 and 1369 mg/kg bw per day for females, respectively). The NOAEL was 12 000 ppm (equal to 975 mg/kg bw per day), the highest dose tested.

2-Methylsulfonylthiazole (MeS, M-3626) had an acute oral LD_{50} of ≥ 300 mg/kg bw in the rat. It was weakly positive in the Ames test for test strain *Salmonella typhimurium* TA100 at the highest concentration tested (5000 µg/plate) in the absence of metabolic activation and equivocal in a forward mutation assay in Chinese hamster V79 cells. Two in vivo genotoxicity studies, for bone marrow micronuclei and unscheduled DNA synthesis in the liver, were negative.

3,4,4-Trifluorobut-3-ene-1-sulfonic acid (butane sulfonic acid, BSA, M-3627) was of low acute oral toxicity (LD_{50} > 2000 mg/kg bw) in the rat and was not genotoxic in vitro or in vivo.

In a 28-day toxicity study that was not GLP compliant or fully compliant with OECD guidelines (e.g. group size of three animals of each sex per dose), rats received BSA in the diet at 0, 100, 500, 1000 or 10 000 ppm (equal to 0, 6.4, 30, 82 and 732 mg/kg bw per day for males and 0, 8.6, 39, 120 and 1024 mg/kg bw per day for females, respectively). Dilated renal pelvis was observed in females at 500 ppm (equal to 39 mg/kg bw per day), but there was no dose–response relationship.

In the newly submitted 90-day toxicity study, rats received BSA in the diet at 0, 440, 2200 or 11 000 ppm (equal to 0, 34, 174 and 851 mg/kg bw per day for males and 0, 39, 192 and 974 mg/kg bw per day for females, respectively). The NOAEL was 11 000 ppm (equal to 851 mg/kg bw per day), the highest dose tested.

Toxicological evaluation

The 2014 Meeting concluded that TSA is significantly less toxic than fluensulfone over 90 days of dietary exposure in rats; on this basis, it was concluded that residues of TSA in plants or animals were unlikely to be of any toxicological relevance.

The 2014 Meeting concluded that for MeS, in the absence of any repeated-dose toxicity data, the lack of genotoxicity in vivo supported the comparison of chronic intake estimates with the threshold of toxicological concern (TTC) value of 1.5 µg/kg bw per day for a Cramer class III compound. The international estimated daily intake (IEDI) is below this threshold value. A single-exposure TTC for Cramer class III compounds of 5 µg/kg bw was concluded to be conservative. The international estimate of short-term dietary intake (IESTI) is below this value. On this basis, the current Meeting concluded that MeS is not a relevant plant or animal metabolite of fluensulfone.

The 2014 Meeting concluded that BSA appears to be of similar toxicity to fluensulfone, based on the limited 28-day toxicity study. Based on the more extensive, newly submitted 90-day toxicity study with BSA, the current Meeting concluded that BSA is significantly less toxic than fluensulfone over 90 days of dietary exposure in rats; on this basis, it was concluded that residues of BSA in plants or animals were unlikely to be of toxicological relevance.

An addendum to the toxicological monograph was prepared.

RESIDUE AND ANALYTICAL ASPECTS

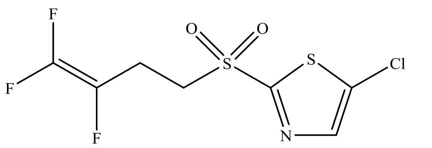
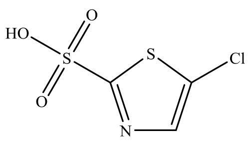
Fluensulfone was evaluated by JMPR for the first time for toxicology in 2013, when an ADI of 0–0.01 mg/kg bw/day and an ARfD of 0.3 mg/kg bw were established. At the 2014 JMPR, the residue aspects were evaluated, and a residue definition of *3,4,4-trifluorobut-3-ene-1-sulfonic acid (BSA)* was recommended for plant commodities, for enforcement and for dietary risk assessment. A residue definition for animal commodities was not considered necessary. Maximum residue levels were estimated for fruiting vegetables, cucurbits, and fruiting vegetables, other than cucurbits, except sweet corn and mushrooms.

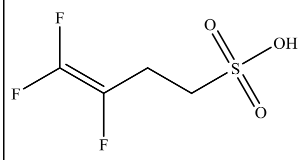
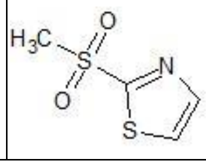
At the 47th Session of CCPR in 2015, fluensulfone was scheduled for evaluation by the 2016 JMPR for consideration of residue data for additional crops.

The Meeting received GAP information, supervised residue trials, processing studies, storage stability data and field rotational cropping trials.

The 2014 JMPR noted that based on the available residue data there was no reasonable expectation of finite residues of parent compound, and established a residue definition excluding parent compound. The current Meeting noted that residues of parent compound may occur in some of the additional crops for which supervised trial data was provided and that it was appropriate to revisit the decision on residue definition.

The following residue components are discussed. Structures and chemical names are tabulated below.

Common name/abbreviation	Chemical name	Structure	Molecular weight
Fluensulfone, MCW-2	5-Chloro-2-[(3,4,4-trifluorobut-3-en-1-yl)sulfonyl]thiazole		291.7
Thiazole sulfonic acid, TSA, M-3625	5-Chloro-thiazole-2-sulfonic acid		199.6

Common name/abbreviation	Chemical name	Structure	Molecular weight
Butene sulfonic acid, BSA, M-3627	3,4,4-Trifluorobut-3-ene-1-sulfonic acid		190.1
MeS, M-3626	2-Methylsulfonylthiazole		131.2

Methods of analysis

Analytical methods for plant and animal commodities were evaluated by the 2014 JMPR. In the residue and storage stability studies provided to the current Meeting, residues of fluensulfone parent compound and its metabolites TSA and BSA were determined using an LC-MS/MS method (method number 1977W). This method was evaluated by the 2014 JMPR and considered to be acceptable. Suitable validation data was generated concurrently with each residue study.

Stability of pesticide residues in stored analytical samples

The stability of fluensulfone residues in tomato, capsicum, cucumber, melon, and tomato puree/paste was considered by the 2014 JMPR. Stability was demonstrated in raw tomatoes for 15 months, processed tomato commodities for 6 months, and in capsicum, cucumber and melon for 16 months.

The Meeting received stability data for residues of fluensulfone, including the metabolites BSA and TSA, in oranges, potatoes (including processed commodities) and carrots. Stability was demonstrated over 18 months of frozen storage for oranges, over 17.5 months in carrots, over 23 months in potato tubers, and over 25 months in dried potatoes and wet peel.

Residues of TSA and BSA were stable in potato chips over 25 months, while residues of fluensulfone parent declined below 70% of the fortified level after storage. However, residues of fluensulfone parent were stable in raw potatoes and are not expected above the LOQ in raw potatoes, or in processed potato products.

Analyses were completed within timeframes verified by the stability studies for all residue studies considered by the Meeting, with the exception of some of the wheat grain, straw and hay samples from the 30-, 60- and 120-day plant back experiments in the rotational cropping study, which were analysed 32–34 months after collection. Results from these plant back intervals are not relied on in consideration of rotational crop residues.

Definition of the residue

In establishing residue definitions for fluensulfone the 2014 JMPR noted:

- Fluensulfone parent compound was not detected in commodities at harvest in the metabolism studies (potato, lettuce and tomato) or in supervised residue trials (in cucurbit and non-cucurbit fruiting vegetables), with the exception of a single low level in one sample. The 2014 JMPR concluded there was no reasonable expectation of residues of fluensulfone parent compound in plant commodities at harvest.
- BSA and TSA form the major components of the residue in plant metabolism studies and were the only significant residues at harvest in the fruiting vegetable supervised residue trials.

- With the exception of poultry fat, for which finite residues of parent were observed (0.009–0.041 mg eq/kg), and poultry liver in which TSA was found at 0.016 mg eq/kg, no residues of fluensulfone, BSA or TSA were detected in livestock products in metabolism studies. Radioactive residues were predominantly associated with natural products.
- TSA is not toxicologically significant.
- BSA and TSA are quantified in one analytical method with a separate analytical method required to quantify fluensulfone.

Based on the above, the 2014 JMPR established a residue definition of BSA for compliance and risk assessment purposes for plant commodities and a residue definition was not required for animal commodities. It was agreed that the ADI and ARfD for fluensulfone could be used for screening exposure to BSA.

Whilst it is not common practice for a residue definition to be changed except at a periodic review, the Meeting noted that new residue data provided indicates parent fluensulfone is a significant residue in a number of crops not previously evaluated. Furthermore, additional toxicological data are available for the key metabolite BSA. The Meeting therefore considered that the residue definitions for fluensulfone should be revisited.

In supervised trials provided to the Meeting, residues of fluensulfone parent were routinely observed in head lettuce, leaf lettuce, carrots, and celery, at levels of up to 0.017, 0.059, 0.49, and 0.52 mg/kg respectively. Correspondingly, residues of BSA in head lettuce, leaf lettuce, carrots and celery ranged up to 0.27, 0.88, 1.1, and 0.33 mg/kg. No residues of fluensulfone parent were observed in supervised trials provided to the Meeting for strawberries, Brassica vegetables, spinach, komatsuna, mizuna, mustard greens, potatoes, radish, Japanese radish or turnips.

The Meeting noted that the residue profile in the additional crops considered differs from those considered at the 2014 JMPR, with observations of fluensulfone at quantifiable levels. The Meeting considered that parent compounds of pesticides are routinely analysed for, in monitoring programmes. Suitable validated methods for determination of fluensulfone and BSA are available, although multi-residue methods for fluensulfone and its metabolites have not been provided to the JMPR. The Meeting concluded that both parent compound and BSA should be included in the residue definition for enforcement in plant commodities.

Additional repeat dose toxicological data for BSA was received by the Meeting. Based on the more extensive, newly submitted 90-day toxicity study with BSA (M3627), the current Meeting concluded that BSA is significantly less toxic than fluensulfone over 90 days of dietary exposure in rats; on this basis, it was concluded that residues of BSA in plants or animals were unlikely to be of toxicological relevance.

Noting the advice from the WHO panel at the 2014 JMPR regarding TSA and at the current Meeting regarding BSA, only parent compound is of toxicological relevance. Therefore, the Meeting concluded that the residue definition for dietary risk assessment in plant commodities should be parent compound alone.

The Meeting noted that fluensulfone parent compound was observed in poultry fat in the laying hen metabolism study, at levels up to 0.041 mg eq/kg. BSA was not detected in any poultry matrices, while TSA was found only in liver at 0.016 mg eq/kg. No compounds specific to fluensulfone were identified in the lactating goat metabolism study.

The Meeting noted that finite residues of parent compound were observed in carrots, which are a minor feed commodity for mammalian and poultry livestock, resulting in a non-zero livestock dietary burden for fluensulfone. A validated method for determination of fluensulfone parent compound in animal commodities, with an LOQ of 0.01 mg/kg, was evaluated by the 2014 JMPR. Given that fluensulfone was found at higher levels than TSA in animal matrices, while BSA was not detected, parent compound is the most suitable marker residue for animal commodities. The Meeting concluded that the residue definition for enforcement in animal commodities should be fluensulfone.

Finite residues of fluensulfone parent compound were found in poultry fat (0.009–0.041 mg/kg), while fluensulfone parent residues in muscle were ≤ 0.001 mg/kg. As residues of parent in fat were at least 9 × those in muscle, the Meeting concluded that fluensulfone residues are fat soluble.

Noting that only parent compound is of toxicological relevance, the Meeting concluded that the residue definition for dietary risk assessment in animal commodities should be fluensulfone.

The 2014 JMPR determined that the metabolite MeS was not covered by the toxicological endpoints for parent compound and should be assessed using the Threshold of Toxicological Concern (TTC) approach. The 2014 JMPR determined that the IEDI and the IESTIs for the metabolite MeS should be compared to the Cramer class III TTC value of 1.5 µg/kg bw/day and the single-exposure TTC value for Cramer class III compounds of 5 µg/kg bw respectively.

The Meeting considered that this approach should be re-evaluated based on available data and all proposed GAPs. The WHO panel at the current Meeting noted that no new information was available regarding MeS and that the TTC approach for this metabolite remained appropriate. The Meeting noted that no additional residue data for MeS were available and further noted that the metabolism studies in potatoes, tomatoes and lettuce did not identify MeS. The MeS residue data for cucumber, summer squash, melons, tomatoes, and sweet and chilli peppers first provided to the 2014 JMPR was considered against the new GAPs for fruiting vegetables, cucurbits, and fruiting vegetables other than cucurbits. The calculated IEDI was 4% of the Cramer class III TTC value. The maximum IESTI was 60% of the single-exposure Cramer class III TTC value. The Meeting concluded that MeS was not a relevant metabolite for the crops considered.

Definition of the residue (for compliance with MRLs) for plant commodities: *sum of fluensulfone and 3,4,4-trifluorobut-3-ene-1-sulfonic acid (BSA), expressed as fluensulfone equivalents.*

Definition of the residue (for dietary risk assessment) for plant commodities: *fluensulfone*

Definition of the residue (for compliance with MRLs and for dietary risk assessment) for animal commodities: *fluensulfone*

The residue is fat soluble.

Results of supervised residue trials on crops

The Meeting received supervised trial data for pre-planting soil application of fluensulfone to strawberries, cabbage, cauliflower, head lettuce, leafy lettuce, spinach, mustard greens, komatsuna (Japanese mustard spinach), mizuna (hot herb mustard), carrots, potatoes, radish (including radish leaves), daikon (Japanese radish), and turnips (including turnip leaves). US GAP information was provided for all crops for which residue data was submitted.

Residue trial data in cucumber, summer squash, melons, chilli peppers, sweet peppers (capsicum), and tomatoes previously considered by the 2014 JMPR were resubmitted, with an amended US GAP.

For the residue trials, residues of parent and the metabolites TSA, BSA, and (where reported), MeS are tabulated as residues of the individual compound.

For enforcement, the residue definition is the sum of fluensulfone and BSA, expressed as fluensulfone.

Residues of fluensulfone according to the enforcement definition are calculated by summing the fluensulfone residues plus the BSA residues multiplied by a factor of 1.53 based on the molecular weights of fluensulfone (291.7) and BSA (190.1).

The method LOQ was 0.01 mg/kg for each analyte, or 0.01, 0.015, and 0.015 mg/kg as parent equivalents for parent compound, TSA and BSA respectively.

Where a residue below the LOQ was detected, the value is reported in parentheses after the < LOQ. Where residues were undetected, a value of zero was used for the summation to give total residues. Where a detectable residue < LOQ was reported, a value of the LOQ (0.01 mg/kg) was used for the summation.

For dietary risk assessment, only fluensulfone parent compound is included in the definition.

In the sections below for each individual crop, residues of parent plus BSA as parent equivalents are reported as ‘residues addressing the definition for enforcement’. Residues of fluensulfone only for dietary risk assessment are reported as ‘residues addressing the definition for dietary risk assessment’.

Berries and other small fruits

The GAP in the USA for the low-growing berry subgroup (US Crop Group 13-07G, including bearberry, bilberry, lowbush blueberry, cloudberry, cranberry, lingonberry, muntries, partridgeberry, strawberry cultivars, and varieties or hybrids of the above) is a single 3.9 kg ai/ha soil application of an EC formulation made by broadcast, banded or drip irrigation application 7 days before transplanting.

Strawberry

Residue trials in strawberry in accordance with the US GAP were conducted in the USA.

Residues addressing the definition for enforcement at harvest were < 0.015 (3), 0.023, 0.025, 0.077, 0.14, and 0.26 mg/kg.

Residues addressing the definition for dietary risk assessment at harvest were < 0.01 (8) mg/kg.

The Meeting noted that the berries covered by the US GAP included all members of the Codex low growing berries subgroup and that strawberries are a representative crop for the subgroup. The Meeting agreed to extrapolate the recommendations for strawberry to low-growing berries.

The Meeting estimated a maximum residue level of 0.5 mg/kg for fluensulfone in low-growing berries, together with an STMR of 0.01 mg/kg, and an HR of 0.01 mg/kg.

Brassica (cole or cabbage) vegetables, Head cabbages, Flowerhead brassicas

The US GAP for Brassica (cole) leafy vegetables (US Crop Group 5, which covers the Codex Brassica vegetable group) is a single 3.9 kg ai/ha soil broadcast, band or drip irrigation application of an EC formulation made 30 days before sowing or transplanting.

Residue trials in accordance with the US GAP were conducted in the USA for cabbage, head and cauliflower.

Residues addressing the definition for enforcement in head cabbage at harvest were 0.040, 0.055, 0.12, 0.18, 0.23, and 1.1 mg/kg.

Residues addressing the definition for dietary risk assessment in head cabbage at harvest were < 0.01 (6) mg/kg.

Residues addressing the definition for enforcement in cauliflower at harvest were < 0.015, 0.060, 0.091, 0.12, and 0.26 mg/kg.

Residues addressing the definition for dietary risk assessment in cauliflower at harvest were < 0.01 (5) mg/kg.

The Meeting noted that the US GAP applied to the Brassica vegetable group, and that the GAP was for pre-plant soil application rather than foliar application so plant form was less likely to have an impact on residues. The Meeting considered a group maximum residue level for Brassica vegetables. Noting that the median residues for cabbage and cauliflower differed by a factor of < 5 (1.2 ×), and considering that the datasets were similar (Mann-Whitney test), the Meeting agreed to combine the residue datasets for cabbage and cauliflower for estimation of a group maximum residue level.

Combined dataset addressing the definition for enforcement: < 0.015, 0.040, 0.055, 0.060, 0.091, 0.12 (2), 0.18, 0.23, 0.26, and 1.1 mg/kg.

Combined dataset addressing the definition for dietary risk assessment: < 0.01 (11) mg/kg.

The Meeting estimated a maximum residue level of 1.5 mg/kg for fluensulfone in Brassica (cole or cabbage) vegetables, Head cabbages, Flowerhead brassicas, together with an STMR of 0.01 mg/kg and an HR of 0.01 mg/kg.

Fruiting vegetables, Cucurbits

Residue data in cucurbit fruiting vegetables (cucumber, summer squash and melons) was considered by the 2014 JMPR. and maximum residue levels were estimated based on a US GAP of a single broadcast, band or drip irrigation application at 2.8 kg ai/ha 7 days before transplanting or 14 days before direct seeding, using data proportionally adjusted for application rate.

The new US GAP for cucurbit vegetables Crop Group 9, corresponding to the Codex classification fruiting vegetables, cucurbits, is a single soil application by broadcast, band or drip irrigation application of an EC formulation at 3.9 kg ai/ha 7 days before transplanting or 14 days before direct seeding.

Residue data from trials conducted in the USA and Canada in cucumber, summer squash, and melons considered by the 2014 JMPR were considered against the new GAP.

A number of trials were conducted with a shorter interval between application and planting than specified on the label (3 days rather than 7 days). However, the Meeting considered that this difference of 4 days was insignificant when compared to the total expected time between application/planting and harvest and would not have a significant effect on residues.

In trials matching GAP, residues addressing the definition for enforcement in cucumber at harvest were < 0.015 (2), 0.015 (2), 0.025, 0.092, 0.097, 0.11, 0.25, and 0.34 mg/kg (highest individual result 0.54 mg/kg).

Residues addressing the definition for dietary risk assessment in cucumber at harvest were < 0.01 (10) mg/kg.

After treatment in accordance with GAP, residues addressing the definition for enforcement in summer squash at harvest were < 0.025, 0.091, 0.10, 0.14, 0.30, 0.32, 0.33, and 0.39 mg/kg.

Residues addressing the definition for dietary risk assessment in summer squash at harvest were < 0.01 (7), and 0.014 mg/kg (highest individual result 0.017 mg/kg).

After treatment in accordance with GAP, residues addressing the definition for enforcement in melons at harvest were < 0.015 (3), 0.015, 0.038, 0.049, 0.075, 0.098, and 0.17 mg/kg (highest individual result 0.18 mg/kg).

Residues addressing the definition for risk assessment in melons were: < 0.01 (9) mg/kg.

The Meeting noted that the US GAP is for the cucurbit fruiting vegetables group and considered a group maximum residue level. However, the median residues for summer squash differed from that for melons by more than a factor of 5 × (5.8 ×). Therefore, a maximum residue level for the whole group is not appropriate.

The Meeting estimated a maximum residue level of 0.3 mg/kg for melons (except watermelons), together with an STMR of 0.01 mg/kg and an HR of 0.01 mg/kg. The Meeting agreed to extrapolate these estimations to watermelons.

The Meeting noted that the median residues for summer squash and for cucumbers differed by less than a factor of 5 × (3.8 ×), and further that the data sets were similar (Mann-Whitney). The Meeting agreed to combine the cucumber and summer squash data sets for mutual support for determination of appropriate maximum residue levels.

Residues addressing the definition for enforcement at harvest: < 0.015, < 0.015, 0.015 (2), < 0.025, 0.025, 0.091, 0.092, 0.097, 0.10, 0.11, 0.14, 0.25, 0.30, 0.32, 0.33, 0.34, and 0.39 mg/kg (highest individual result 0.54 mg/kg).

Residues addressing the definition for dietary risk assessment at harvest: < 0.01 (17), and 0.014 mg/kg (highest individual result 0.017 mg/kg).

The Meeting estimated maximum residue levels of 0.7 mg/kg for cucumber and summer squash, together with STMRs of 0.01 mg/kg, and HRs of 0.017 mg/kg (highest individual analytical result).

The Meeting withdrew the previous maximum residue level recommendation of 0.3 mg/kg for fruiting vegetables, cucurbits.

Fruiting vegetables, other than Cucurbits

Residue data in fruiting vegetables other than cucurbits (tomato, sweet pepper (capsicum), and chilli pepper) was considered by the 2014 JMPR. Maximum residue levels were estimated based on a US GAP of a single broadcast, band or drip irrigation application at 2.8 kg ai/ha, 7 days before transplanting or 14 days before direct seeding, using data proportionally adjusted for application rate.

The new US GAP for fruiting vegetables crop group 8–10, corresponding to the Codex group of fruiting vegetables, other than cucurbits, except sweet corn and mushroom, is a single soil application by broadcast, band or drip irrigation application of an EC formulation at 3.9 kg ai/ha, 7 days before transplanting or 14 days before direct seeding.

Residue data in tomato, sweet peppers (capsicum), and chili peppers considered by the 2014 JMPR were considered against the new GAP.

A number of trials were conducted with a shorter interval between application and planting than specified on the label (3 days rather than 7 days). However, the Meeting considered that this difference of 4 days was insignificant when compared to the total expected time between application/planting and harvest and would not have a significant effect on residues.

In trials matching GAP, residues addressing the definition for enforcement in tomatoes at harvest were < 0.015 (4), 0.019, 0.026, 0.035, 0.039, 0.052, 0.068, 0.11, 0.13, 0.14, 0.26, 0.30, 0.35, and 0.41 (2) mg/kg.

Residues addressing the definition for dietary risk assessment in tomatoes at harvest were < 0.01 (18) mg/kg.

After treatment in accordance with GAP, residues addressing the definition for enforcement in peppers at harvest were < 0.015 (2), 0.032, 0.061, 0.063, 0.074, 0.084, 0.096, 0.11 (2), 0.13, 0.21, 0.28, and 0.36 mg/kg.

Residues addressing the definition for dietary risk assessment in peppers at harvest were < 0.01 (14) mg/kg.

The Meeting noted that the GAP applied to fruiting vegetables other than cucurbits, except sweetcorn and mushrooms, and considered a group maximum residue level. The Meeting further noted that the median residues differed by less than a factor of 5 × (2.0×), that the data sets were similar (Mann-Whitney), and agreed to combine the datasets:

Residues addressing the definition for enforcement at harvest: < 0.015 (6), 0.019, 0.026, 0.032, 0.035, 0.039, 0.052, 0.061, 0.063, 0.068, 0.074, 0.084, 0.096, 0.11 (3), 0.13 (2), 0.14, 0.21, 0.26, 0.28, 0.31, 0.35, 0.36, and 0.41 (2) mg/kg (highest individual result 0.42 mg/kg).

Residues addressing the definition for risk assessment at harvest: < 0.01 (32) mg/kg.

The Meeting estimated a maximum residue level of 0.7 mg/kg for fruiting vegetables, other than cucurbits (except sweet corn and mushrooms), together with an STMR of 0.01 mg/kg and an HR of 0.01 mg/kg.

The Meeting withdrew the previous maximum residue level recommendation of 0.3 mg/kg for fruiting vegetables other than cucurbits (except sweetcorn and mushrooms).

Based on the estimated group maximum residue level and applying a processing factor of 10×, the Meeting estimated a maximum residue level of 7 mg/kg for Peppers, Chili, dried, together with an STMR of 0.10 and an HR of 0.10 mg/kg.

The Meeting withdrew the previous maximum residue level recommendation of 2 mg/kg for peppers, chilli, dried.

Leafy vegetables (except Brassica leafy vegetables)

The US GAP for leafy vegetables (Crop Group 4) is a single soil broadcast, band or drip irrigation application of an EC formulation at 3.9 kg ai/ha a minimum of 7 days before transplanting or a minimum of 14 days before direct seeding.

Residue trials matching the US GAP were conducted in the USA for lettuce, head, lettuce, leaf, and spinach.

Residues addressing the definition for enforcement in head lettuce at harvest were < 0.015 (3), 0.025, 0.066, and 0.41 mg/kg (highest individual result 0.43 mg/kg).

Residues addressing the definition for dietary risk assessment in head lettuce were: < 0.01 (5), and 0.017 mg/kg (highest individual result 0.018 mg/kg).

Residues addressing the definition for enforcement in leaf lettuce at harvest were 0.018, 0.044, 0.13, and 1.4 mg/kg (highest individual result 1.5 mg/kg).

Residues addressing the definition for dietary risk assessment in leaf lettuce were < 0.01 (2), 0.013, and 0.030 mg/kg (highest individual result 0.035 mg/kg).

Residues addressing the definition for enforcement in Cos lettuce at harvest were 0.048 and 0.36 mg/kg (highest individual result 0.36 mg/kg).

Residues addressing the definition for dietary risk assessment in Cos lettuce were 0.017 and 0.059 mg/kg (highest individual result 0.060 mg/kg).

Residues addressing the definition for enforcement in spinach at harvest were < 0.015, 0.21, 0.49, 0.58, 0.78, and 1.8 mg/kg (highest individual result 1.8 mg/kg).

Residues addressing the definition for dietary risk assessment in spinach were < 0.01 (6) mg/kg.

The Meeting estimated a maximum residue level of 0.8 mg/kg for lettuce, head, together with an STMR of 0.01 mg/kg, and an HR of 0.018 mg/kg (highest individual result).

The Meeting considered that there were insufficient trials to estimate maximum residue levels for leaf lettuce or Cos lettuce.

The Meeting estimated a maximum residue level of 4 mg/kg for spinach, together with an STMR of 0.01 mg/kg, and an HR of 0.01 mg/kg.

Radish leaves (including Radish tops)

The US GAP for the root vegetables subgroup 1B (including radish) is a single soil application of a granular formulation at 4.0 kg ai/ha 10 days before sowing.

Residue data for radish leaves from trials conducted in the USA in accordance with GAP are available.

Residues of for enforcement in radish leaves at harvest were 1.5, 1.7, 6.9, and 21 mg/kg (highest individual result 23 mg/kg).

Residues addressing the definition for dietary risk assessment in radish leaves were < 0.01 (4) mg/kg.

The Meeting estimated a maximum residue level of 50 mg/kg for Radish leaves (including Radish tops), together with an STMR of 0.01 mg/kg, and an HR of 0.01 mg/kg.

Brassica leafy vegetables

The US GAP for Brassica (cole) leafy vegetables (Crop Group 5), covering the Codex Brassica leafy vegetables subgroup is a single broadcast, band or drip irrigation soil application of an EC formulation at 3.9 kg ai/ha a minimum of 30 days before transplanting.

Residue trials in accordance with the US Brassica leafy vegetables GAP were conducted in the USA for mustard greens, komatsuna, and mizuna. Residue trials were conducted in turnips, using a GAP that matches the Brassica leafy vegetables GAP, and data for turnip leaves are available.

Residues addressing the definition for enforcement in komatsuna at harvest were 0.54, 0.59, 0.61, and 4.0 mg/kg (highest individual result 5.5 mg/kg).

Residues addressing the definition for dietary risk assessment in komatsuna were < 0.01 (4) mg/kg.

Residues addressing the definition for enforcement in mizuna at harvest were 0.77, 0.83, 1.3, and 8.0 mg/kg (highest individual result 9.1 mg/kg).

Residues addressing the definition for dietary risk assessment in mizuna were < 0.01 (4) mg/kg.

Residues addressing the definition for enforcement in mustard greens at harvest were 0.11, 0.16, 4.6, 6.1, and 6.5 mg/kg (highest individual result 7.5 mg/kg).

Residues addressing the definition for risk assessment in mustard greens were < 0.01 (5) mg/kg.

Residues addressing the definition for enforcement in turnip greens at harvest were 0.036, 0.53, 1.4, and 4.8 mg/kg (highest individual result 5.1 mg/kg).

Residues addressing the definition for risk assessment in turnip greens were < 0.01 (4) mg/kg.

The Meeting noted that the GAP was for Brassica leafy vegetables and considered a maximum residue level for the subgroup. However, the median residue for mustard greens differs from that for komatsuna by more than a factor of 5 × (7.7 ×). Therefore, the Meeting considered that a group maximum residue level was not appropriate and individual commodity limits were estimated.

The Meeting estimated a maximum residue level of 9 mg/kg for komatsuna, together with an STMR of 0.01 mg/kg, and an HR of 0.01 mg/kg.

The Meeting estimated a maximum residue level of 20 mg/kg for mustard greens, together with an STMR of 0.01 mg/kg, and an HR of 0.01 mg/kg.

The Meeting estimated a maximum residue level of 10 mg/kg for turnip greens, together with an STMR of 0.01 mg/kg, and an HR of 0.01 mg/kg.

The Meeting noted that no Codex classification was available for mizuna, and therefore a maximum residue level could not be estimated.

Root and tuber vegetables

The US GAP for the root vegetables subgroup 1B (except sugar beet), including carrot, radish, turnip, garden beet, edible burdock, celeriac, turnip-rooted chervil, chicory, ginseng, horseradish, turnip-rooted parsley, parsnip, oriental radish, rutabaga (swede), salsify, black salsify, Spanish salsify, and skirret is a single broadcast or banded soil incorporation application of a granular formulation at 4.0 kg ai/ha applied 10 days before planting.

The US GAP for the tuberous and corm vegetables subgroup 1C, including potato, sweet potato, yam, arracacia, arrowroot, Chinese artichoke, Jerusalem artichoke, edible canna, cassava (bitter and sweet varieties), chayote root, chufa, taro (dasheen), ginger, lerén, tanier, turmeric, yam bean and true yams is a single broadcast or banded soil incorporation application of a granular formulation at 4.0 kg ai/ha, with application permissible pre-planting or at planting.

Carrot and radish

Residue trials in accordance with the US GAP were conducted for carrots and radish in the USA and Canada.

Residues addressing the definition for enforcement in carrot at harvest were < 0.015, 0.091, 0.29, 0.33, 0.56, 0.58, 0.68, 0.79, 0.80, 1.5, and 2.2 mg/kg (highest individual result 2.3 mg/kg).

Residues addressing the definition for dietary risk assessment in carrot were < 0.01 (2), 0.050, 0.058, 0.10, 0.12, 0.17, 0.20, 0.26, 0.47, and 0.49 mg/kg (highest individual result 0.50 mg/kg).

Residues addressing the definition for enforcement in radish at harvest were 0.12, 0.28, 0.35, and 2.8 mg/kg (highest individual result 3.4 mg/kg).

Residues addressing the definition for dietary risk assessment in radish were < 0.01 (4) mg/kg.

The Meeting noted that the median residues for carrots and radish differed by less than a factor of 5 × (1.8 ×), and that the data sets were statistically similar (Mann-Whitney), and agreed to combine the results for mutual support:

Residues in carrots and radish in accordance with the definition for enforcement: < 0.015, 0.091, 0.12, 0.28, 0.29, 0.33, 0.35, 0.56, 0.58, 0.68, 0.79, 0.80, 1.5, 2.2, and 2.8 mg/kg (highest individual result 3.4 mg/kg).

The Meeting estimated maximum residue levels of 4 mg/kg for fluensulfone in carrot and radish. The Meeting estimated an STMR of 0.12 mg/kg and an HR of 0.50 mg/kg (highest individual result) for carrot and radish, based on the carrot dataset.

The Meeting noted that the GAP for the root vegetables subgroup 1B represented the critical GAP for a number of other root vegetables, and agreed to extrapolate the estimations for carrots and radish to beetroot, celeriac, horseradish, Japanese radish, parsnips, swede (rutabaga), turnip rooted chervil, and turnip.

The Meeting estimated maximum residue levels of 4 mg/kg for fluensulfone in beetroot, celeriac, horseradish, Japanese radish, parsnip, swede, turnip-rooted chervil, and turnip, together with STMRs of 0.12 mg/kg and HRs of 0.50 mg/kg.

Potato

Residue trials in accordance with the US GAP for tuberous and corm vegetables (subgroup 1C) were conducted for potatoes in the USA and Canada.

Residues addressing the definition for enforcement in potatoes at harvest were 0.084, 0.087, 0.10, 0.11, 0.12, 0.13, 0.15 (3), 0.17 (2), 0.19, 0.20, 0.28, 0.30, 0.41, 0.48, and 0.51 mg/kg (highest individual result 0.64 mg/kg).

Residues addressing the definition for dietary risk assessment in potatoes were < 0.01 (18) mg/kg.

The Meeting estimated a maximum residue level of 0.8 mg/kg for fluensulfone in potato, together with an STMR of 0.01 mg/kg, and an HR of 0.01 mg/kg.

Noting that the US GAP covered the US crop group tuberous and corm vegetables, the Meeting agreed that the maximum residue level, STMR and HR estimations above could be extrapolated to sweet potato.

Celery

The US GAP for celery and rhubarb is a single soil application (broadcast, band or drip irrigation) of an EC formulation at 3.9 kg ai/ha applied 7 days before transplanting.

Residue trials were conducted in the USA for celery in accordance with GAP.

Residues addressing the definition for enforcement in celery at harvest were < 0.015, 0.12, 0.36, 0.63, 0.78, and 1.0 mg/kg (highest individual result).

Residues addressing the definition for dietary risk assessment in celery were < 0.01, 0.028, 0.087, 0.13, 0.36, and 0.52 mg/kg (highest individual result 0.55 mg/kg).

The Meeting estimated a maximum residue level of 2 mg/kg for fluensulfone in celery, together with an STMR of 0.1085 mg/kg, and an HR of 0.55 mg/kg (highest individual residue result).

The Meeting noted that the US GAP for rhubarb was the same as that for celery but considered that extrapolation of the estimations from a temporary crop (celery) to a semi-permanent perennial crop (rhubarb) was not appropriate for a pre-planting soil application.

Rotational crops

A field rotational cropping study conducted in the USA was presented to the Meeting. A single application of fluensulfone was made to bare soil at 4.0 kg ai/ha, with following crops (wheat, radish, lettuce and beans) planted at intervals of 28, 60, 120, 180, 270 and 365 days after application.

Instructions on US fluensulfone labels provided to the Meeting regarding following crops are that no more than 4.0 kg ai/ha is to be applied to a plot in one year. Immediate plant-back of crops for which a registered GAP exists (i.e. strawberries, Brassica vegetables, cucurbits, fruiting vegetables other than cucurbits (except sweetcorn and mushrooms), leafy vegetables, root and tuber vegetables, celery and rhubarb) is permitted. A plant back interval of one year is mandated for crops for which there is no registered use, with no planting of cereals permitted after a fluensulfone application.

Radish and lettuce have GAPs for direct application. At the shortest planting interval, 28 days (or a later interval if a higher residue was observed at the site), the following residues of fluensulfone at harvest were observed: radish roots (in accordance with the definition for enforcement), 0.08 and 1.4 mg/kg; radish roots (in accordance with the definition for dietary risk assessment), < 0.01 (2) mg/kg; radish leaves (in accordance with the definition for enforcement), 0.63 and 6.1 mg/kg; radish leaves (in accordance with the definition for dietary risk assessment), < 0.01 (2) mg/kg; lettuce (in accordance with the definition for enforcement), < 0.015 and

0.52 mg/kg; and lettuce (in accordance with the definition for dietary risk assessment), < 0.01 (2) mg/kg.

The Meeting noted the label instruction that no more than 4.0 kg ai/ha of fluensulfone are to be applied to a plot in one year, which precludes a second application to a crop planted back within one year of a failed treated crop. The Meeting considered that rotational residues of fluensulfone in radish roots, radish leaves, and lettuce would be covered by the maximum residue levels estimated by the Meeting (5, 50, and 0.8 mg/kg respectively). The Meeting further considered that this reasoning could be extrapolated to other root and leafy crops.

Based on the radish root data, the Meeting estimated a maximum residue level of 3 mg/kg for root and tuber vegetables (not specified elsewhere), together with an STMR and an HR of 0.01 mg/kg.

Based on the lettuce data, the Meeting estimated a maximum residue level of 1 mg/kg for leafy vegetables (not specified elsewhere), together with an STMR and an HR of 0.01 mg/kg.

Noting that a further application could be made for a following crop one year after an application to a previous crop, the following residues addressing the enforcement definition were observed in radish and lettuce after a 365-day plant back interval: radish roots, < 0.015 (2) mg/kg; radish leaves, < 0.015 and < 0.025 mg/kg; and lettuce, < 0.015 (2) mg/kg.

Finite residues of fluensulfone were not observed in radish roots or leaves, or in lettuce when these crops were planted one year after a fluensulfone at GAP. The Meeting therefore considered that no carry-over of residues into following crops of root or leafy vegetables planted one year later would occur, and no adjustment of maximum residue level estimations to account for residues from previous applications was required.

At the 365-day planting interval, the following residues of fluensulfone were observed for wheat and bean crops: wheat grain (in accordance with the definition for enforcement), < 0.015 (2) mg/kg; wheat grain (in accordance with the definition for dietary risk assessment), < 0.01 (2) mg/kg; beans with pods (in accordance with the definition for enforcement), < 0.015 and 0.054 (270-day PBI, 365-day PBI crop failed) mg/kg; and beans with pods (in accordance with the definition for dietary risk assessment): < 0.01 (2) mg/kg.

As residues were not detected in wheat grain, and further, the label carries an instruction not to plant cereals following a fluensulfone application, the Meeting considered that it is not necessary to estimate maximum residue levels for cereal grains or feed items planted in rotation with crops treated with fluensulfone.

Based on the beans with pods data, the Meeting estimated a maximum residue level of 0.1 mg/kg for legume vegetables, together with an STMR of 0.01 mg/kg, and an HR of 0.01 mg/kg, to cover residues arising in following crops.

Fate of residues during processing

Tomato

A processing study in tomatoes was considered by the 2014 JMPR. The processing factors determined for the metabolite BSA from that study are tabulated below. Residues of parent compound were < 0.01 mg/kg in all samples, and processing factors could not therefore be determined.

Processing factors for the BSA metabolite of fluensulfone in tomatoes

Tomato commodity	Average (best estimate) BSA processing factor	STMR-P mg/kg [a]	HR-P mg/kg [a]
Canned	0.33	0.01	0.01
Dry pomace	11	0.01	–

Tomato commodity	Average (best estimate) BSA processing factor	STMR-P mg/kg [a]	HR-P mg/kg [a]
Peeled	0.33	0.01	0.01
Dried	1.8	0.01	0.01
Juice	0.75	0.01	–
Paste	1.8	0.01	–
Puree	1.0	0.01	–
Wet pomace	2.6	0.01	–

[a] Fluensulfone only, in accordance with the dietary risk assessment definition. Residues of parent compound were < 0.01 mg/kg in all raw commodity and processed tomato samples.

Based on the maximum residue level of 0.7 mg/kg estimated for fruiting vegetables, other than cucurbits, except sweet corn and mushrooms, and the processing factors of 1.8 for both dried tomatoes and tomato paste, the Meeting estimated maximum residue levels of 1.5 mg/kg for both dried tomatoes and tomato paste, together with STMR-Ps of 0.01 mg/kg and HR-Ps of 0.01 mg/kg.

The Meeting withdrew the recommendations of the 2014 JMPR for maximum residue levels of 0.5 mg/kg in dried tomatoes and tomato paste.

Potato

A processing study for potato was provided to the Meeting. The Meeting received data illustrating the concentration or diminution of residues during processing of potatoes into potato chips, and dried potato flakes, including wet peel as a by-product.

Processing factors for BSA in potatoes

Potato commodity	BSA processing factors	STMR-P mg/kg [a]
Dried potato flakes	2.4	0.01
Wet peel	0.3	0.01
Potato chips (crisps)	1.6	0.01

[a] Fluensulfone only, in accordance with the dietary risk assessment definition. Residues of parent compound were < 0.01 mg/kg in all raw commodity and processed potato samples.

The Meeting estimated a maximum residue level of 2 mg/kg for potato, dried based on the raw commodity maximum residue level estimate of 0.8 mg/kg for potato, and the processing factor (2.4), together with an STMR-P of 0.01 mg/kg, and an HR-P of 0.01 mg/kg.

Residues in animal commodities

Farm animal feeding studies

Farm animal feeding studies were not available.

Livestock dietary burden

Dietary burden calculations for cattle and poultry are provided below. The dietary burdens were estimated using the OECD diets listed in Appendix IX of the 2016 edition of the FAO Manual.

Summary of livestock dietary burden (ppm in diet on a dry weight basis)

	USA-Canada		EU		Australia		Japan	
	Max	Mean	Max	Mean	Max	Mean	Max	Mean
Beef cattle	0.04	0.04	2.05 [A]	0.53 [B]	0.53	0.15	0	0

	USA-Canada		EU		Australia		Japan	
	Max	Mean	Max	Mean	Max	Mean	Max	Mean
Dairy cattle	0.44	0.12	1.04 [C]	0.28 [D]	0.50	0.12	0	0
Broiler hens	0	0	0.51	0.13	0	0	0	0
Laying hens	0	0	0.51 [E]	0.13 [F]	0	0	0	0

[A] Highest maximum dietary burden for beef cattle suitable for estimation of MRLs for mammalian meat and offal

[B] Highest mean dietary burden for beef cattle suitable for estimation of STMRs for mammalian meat and offal.

[C] Highest maximum dietary burden for dairy cattle suitable for estimation of MRLs for milk.

[D] Highest mean dietary burden for dairy cattle suitable for estimation of STMRs for milk.

[E] Highest maximum dietary burden for broiler and layer poultry suitable for estimation of MRLs for poultry meat, offal and eggs.

[F] Highest mean dietary burden for broiler and layer poultry suitable for estimation of STMRs for poultry meat, offal and eggs.

Animal commodity maximum residue levels

Cattle feeding studies are not available. In a lactating goat metabolism study considered by the 2014 JMPR, animals were dosed at 10 ppm. No residues of any compounds specific to fluensulfone were detected in goat milk or tissues. The highest maximum dietary burdens in beef cattle and dairy cattle are 2.1 and 1.0 ppm respectively. The metabolism study dose exceeds the maximum dietary burden by a factor of approximately 5×. The Meeting concluded that maximum residue levels for mammalian commodities should be estimated at the LOQ, with dietary parameters at 0. An analytical method for fluensulfone parent compound in animal commodities is available, with a validated LOQ of 0.01 mg/kg.

The Meeting estimated maximum residue levels of 0.01* mg/kg for edible offal (mammalian), mammalian fats, milks, and meat (from mammals other than marine mammals).

The Meeting estimated STMR and HR values of 0 mg/kg for edible offal (mammalian), mammalian fats, and meat (from mammals other than marine mammals).

A poultry feeding study is not available. In a laying hen metabolism study considered by the 2014 JMPR, birds were dosed at 9.8 ppm in feed. Residues of fluensulfone parent compound were observed at up to 0.041 mg/kg were observed in poultry fat. Residues of parent fluensulfone were not quantified in any other poultry matrices (eggs, offal or muscle). The highest maximum dietary burden for broiler and layer poultry is 0.51 ppm. The metabolism study dose exceeds the maximum dietary burden by a factor of 19. The Meeting concluded that maximum residue levels for eggs, poultry meat and poultry offal should be estimated at the LOQ, with dietary parameters at 0.

The Meeting estimated maximum residue levels of 0.01* mg/kg for eggs, poultry meat, and poultry, edible offal of.

The Meeting estimated STMR and HR values of 0 mg/kg for eggs, poultry meat, and poultry, edible offal of.

Scaling poultry fat residues from the metabolism study for the maximum feeding level, the expected highest residue in poultry fat is 0.0021 mg/kg (= 0.041 × 0.51/9.8). Scaling poultry fat residues from the metabolism study for the mean feeding level, the expected median residue in poultry fat is 0.0005 mg/kg (= 0.041 × 0.13/9.8).

The Meeting estimated maximum residue levels of 0.01 mg/kg for poultry fats.

The Meeting estimated STMR and HR values of 0.0005 and 0.0021 mg/kg for poultry fats.

RECOMMENDATIONS

On the basis of the data obtained from supervised residue trials the Meeting concluded that the residue levels listed in Annex 1 are suitable for establishing maximum residue limits and for IEDI and IESTI assessments.

The Meeting withdrew the previous recommendation for the residue definition for enforcement and dietary risk assessment in plant commodities: *3,4,4-trifluorobut-3-ene-1-sulfonic acid (BSA).*

Definition of the residue (for compliance with MRLs) for plant commodities: *sum of fluensulfone and 3,4,4-trifluorobut-3-ene-1-sulfonic acid (BSA), expressed as fluensulfone equivalents.*

Definition of the residue (for dietary risk assessment) for plant commodities: *fluensulfone*

Definition of the residue (for compliance with MRLs and for dietary risk assessment) for animal commodities: *fluensulfone*

The residue is fat soluble.

DIETARY INTAKE ASSESSMENT

Long-term dietary exposure

The International Estimated Daily Intakes (IEDIs) of fluensulfone were calculated for the 17 GEMS/Food cluster diets using STMRs/STMR-Ps estimated by the current Meeting. The results are shown in Annex 3 of the 2016 Report.

The ADI for fluensulfone is 0–0.01 mg/kg bw. The calculated IEDIs for fluensulfone were 1–3% of the maximum fluensulfone ADI. The Meeting concluded, on the basis of the information provided to the Meeting, that the long-term exposure to residues of fluensulfone are unlikely to present a public health concern.

Short-term dietary exposure

The International Estimated Short Term Intakes (IESTIs) of fluensulfone were calculated for food commodities using HRs/HR-Ps or STMRs/STMR-Ps estimated by the current Meeting. The results are shown in Annex 4 to the 2016 Report.

The ARfD for fluensulfone is 0.3 mg/kg bw.

The calculated maximum IESTI for fluensulfone was 9% of the ARfD for children and 5% for the general population. The Meeting concluded that the short-term dietary exposure to residues of fluensulfone, when used in accordance with GAPs that have been considered by JMPR, are unlikely to present a public health concern.

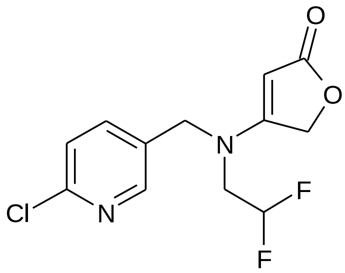
5.12 FLUPYRADIFURONE (285)

RESIDUE AND ANALYTICAL ASPECTS

Flupyradifurone (fpd) is an insecticide belonging to the chemical class of butenolides. It acts as an agonist of the nicotinic acetylcholine receptor. It was scheduled for evaluation as a new compound by the 2015 JMPR at the 46th Session of the CCPR (2014). It was evaluated for toxicology in 2015. An ADI of 0–0.08 mg/kg bw and an ARfD of 0.2 mg/kg bw were established.

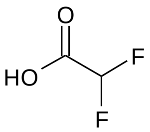
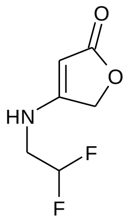
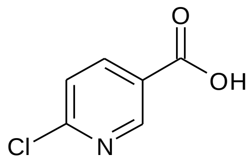
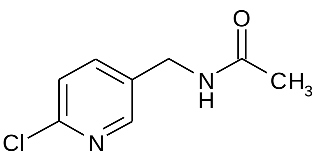
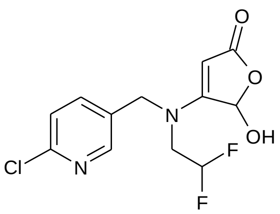
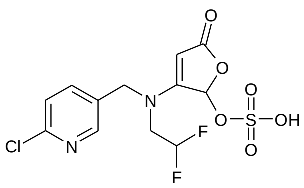
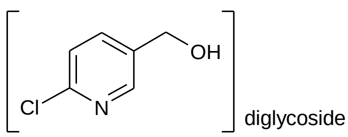
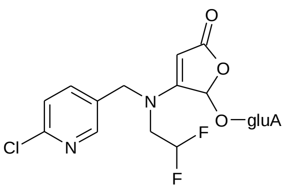
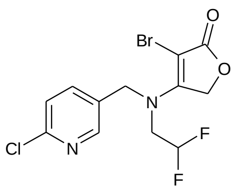
The manufacturer supplied information on identity, metabolism and environmental fate, methods of residue analysis, freezer storage stability, registered use patterns, supervised residue trials, fate of residues in processing and farm animal feeding studies.

The IUPAC name is 4-[(6-chloro-3-pyridylmethyl)(2,2-difluoroethyl)amino]furan-2(5H)-one.



Flupyradifurone

The structure of the key metabolites discussed, are shown below:

 Difluoroacetic acid (DFA)	 fpd-difluoroethyl-amino-furanone (DFEAF)	 6- chloronicotinic acid (6-CNA)
 fpd-acetyl-AMCP	 fpd-OH	 fpd-OH-SA
 fpd-CHMP-di-glyc	 fpd-OH-glu	 fpd-bromo

Plant metabolism

Flupyradifurone (fpd) metabolism in primary crops was investigated following either foliar applications (apple, cotton, and rice), soil granule/drench applications (tomato, potato, and rice) or by seed dressing (potato). Studies were conducted using [^{14}C]flupyradifurone labelled on the furanone or pyridinylmethyl moiety and using application rates representative of the supported uses. One study on tomato using soil drench applications and with ^{14}C-labelling on the difluoroethyl amino group was also submitted.

Acetonitrile and water extraction of tomato, potatoes, apples, cotton and paddy rice resulted in extraction efficiencies of 85–99.5% (tomato fruit), 94–98% (tomato flowers), 67–93% (potatoes), 50–99% (apple fruits), 94–98% (apple leaves), 67–90% (gin trash), 97–99% (cotton lint), 22–39% (cotton seed), 19–88% (rice kernel), 76–90% (rice husks) and 79–84% (rice straw).

[Furanone-4-^{14}C]-fpd or [pyridinylmethyl-^{14}C]-fpd was applied twice by soil drench applications to four <u>tomato</u> plants at rates of 300 g ai/ha at BBCH 15 (= 5th leaf on main shoot unfolded) and BBCH 51 (= first inflorescence visible and first bud erect). Parent was the main residue in both fruit and flowers (24–36% and 66–78% of the TRR respectively). The compound fpd-CHMP-di-glyc was observed in tomato fruit at 37% TRR. In a similar study, three tomato plants were treated twice at 300 g ai/ha by soil drench application with [ethyl-1-^{14}C]-fpd. The label specific metabolite difluoroacetic acid (DFA) was the main residue in both extracts (87% TRR in fruit and 60% TRR in flowers). Parent was present at 10% TRR in fruit and 33% TRR in flowers.

Two different methods of application to <u>potatoes</u> were described. In one experiment potato seed pieces were treated with either [furanone-4-^{14}C]-fpd or [pyridinylmethyl-^{14}C]-fpd at 254 or 274 g ai/ha. In the other experiment either [furanone-4-^{14}C]-fpd or [pyridinylmethyl-^{14}C]-fpd was sprayed in-furrow onto soil at 626 g ai/ha prior to planting of potato seed pieces. Parent was the main residue in extracts of both seed piece and in-furrow treatment for both labels (40–51% of the TRR). For the furanone label two metabolites, difluoroethyl-amino-furanone (DFEAF) and fpd-OH-glyc, were present at < 10% TRR (< 0.01 mg eq/kg). For the pyridinylmethyl label a number of metabolites were identified, the major being 6-chloropyridine-3-carboxylic acid (6-chloronicotinic acid or 6-CNA) at 18 and 22% TRR.

<u>Apple</u> trees were subjected to two different methods of application. In one experiment two apple trees were treated once with either [furanone-4-^{14}C]-fpd or [pyridinylmethyl-^{14}C]-fpd at 86 or 87 g ai/ha/ per metre canopy height at the end of flowering (BBCH 69). In another experiment, one apple tree was treated twice with both labelled parent at 86 or 87 g ai/ha/ per metre canopy height at the end of flowering (BBCH 69) and at 14 days before harvest. The main compound in apple fruits from the single application furanone experiment was glucose (or a corresponding isomeric carbohydrate) at 50% TRR while parent was detected at 7.4% TRR. In apple leaves, parent was detected at 26% TRR. Glucose was also a major component found in the apple fruits from the double application experiment (14% TRR. Parent was the main component in the extracts of apple fruits (71–74% TRR and leaves (58% TRR) of the double application furanone experiment. Parent was the main compound in apple fruits and leaves of the single (43% and 25% TRR respectively) and the double application (86–88% and 48% TRR respectively) experiments using the pyridinylmethyl label.

Two different methods of application to <u>cotton</u> were described. In one experiment cotton plants were treated once with either [furanone-4-^{14}C]-fpd or [pyridinylmethyl-^{14}C]-fpd at 209 or 206 g ai/ha at BBCH 16. In another type of experiment, one cotton plant was treated twice at 209 g ai/ha (furanone label) or 206 g ai/ha (pyridinylmethyl label) at BBCH 15–16 (unfolding of the 5th to 8th true leaf) and a second time at 176–177 g ai/ha at 14 or 15 days before harvest of the cotton bolls (BBCH 95–97). In both experiments cotton seeds with lint, lint and gin trash were harvested at maturity of seed (BBCH 99). The main compound in all cotton matrices for experiments with both labels, except for seeds of the single application experiment, was parent (23–73% TRRs), even after only one treatment with a long PHI (169 days). The fraction comprising the metabolites fpd-OH-glyc and fpd-acetic acid represented a major portion of the TRR in all sample matrices, except for seeds, while another major compound in gin trash of the first application experiment was identified as fpd-OH. In seeds of the single application pyridinylmethyl label experiment, 6-CNA was the only component identified (16% TRR). It was also observed in gin trash of the single application pyridinylmethyl label experiment (18.5% TRR).

Two different methods of application to paddy rice were described. One consisted of a single granular treatment with either 409 g ai/ha [furanone-4-^{14}C]-fpd or 434 g ai/ha [pyridinylmethyl-^{14}C]-fpd applied during the transplanting of the rice seedlings. In the second experiment, [furanone-4-^{14}C]-fpd or [pyridinylmethyl-^{14}C]-fpd was applied twice as a spray treatment onto plants as well as the water surface. The first spray application took place directly after transplanting of the rice seedlings at a rate of 175–178 g ai/ha and the second approximately one month before harvest at a rate of 236–240 g ai/ha. In both experiments, the rice (kernels, husks and straw) was harvested at maturity (BBCH 89–92) at 127 DAT (granular) or 29 DAT (foliar). The main compound was parent in all rice matrices (57–78% of the TRR), except for rice kernels after granular application for the furanone label (23% TRR), where the main metabolite was the natural compound glucose/carbohydrates (27% TRR). In rice straw for both labels, fpd-bromo which was identified as the only major metabolite present (8–12% TRR) co-eluted with fpd-chloro.

A study was conducted to determine the fate of the difluoroethane moiety of parent flupyradifurone by determination of the non-radiolabelled difluoroacetic acid (DFA) content of extracts from the plant metabolism studies (apples, potatoes, cotton and rice) conducted with either [furanone-4-^{14}C]- or [pyridinylmethyl-^{14}C]-fpd. The application technique did not significantly influence the level, with residues of a similar order of magnitude after soil or foliar application. Residues in apple fruits were 0.04–0.23 mg/kg, in apple leaves 0.45–0.62 mg/kg, in potato tubers 0.13–0.18 mg/kg, in cotton seeds 0.02–0.03 mg/kg, in cotton gin trash 0.02–0.04 mg/kg, in rice straw 0.12–0.39 mg/kg, in rice husk 0.20–0.46 mg/kg and in rice grains 0.02–0.08 mg/kg.

High difluoroacetic acid concentrations after foliar spray application indicate that this metabolite is also formed in plants and not only in soil. Difluoroacetic acid represents a significant proportion of the residue in all edible matrices of primary crops when considering the results of the studies conducted with [^{14}C]flupyradifurone.

Summary of plant metabolism

Metabolism in primary crops was similar in all plant groups investigated. In the studies using [furanone-4-^{14}C]-fpd and [pyridinylmethyl-^{14}C]-fpd, parent flupyradifurone was consistently observed to be the major component of the radioactive residues, accounting for approximately 23 to 88% of the TRR in all plant parts analysed. As well as flupyradifurone, the following metabolites were identified in different plant matrices, the conjugate fpd-CHMP-diglycoside, up to 37% TRR (0.05 mg eq/kg) in tomato fruit and the metabolite 6-CNA in the range of 13–22% TRR (0.02 mg eq/kg) in tomato fruit, potato tuber and cotton seed, both resulting from the cleavage of the molecule at the ethylamine bond and containing the pyridinyl moiety. In contrast, metabolites containing the furanone moiety were close to non-detect and the radioactivity in the [^{14}C]furanone studies was mostly recovered as incorporated in natural glucoside and carbohydrate components, indicating an extensive degradation of the furanone counterpart.

The study conducted on tomato with the ^{14}C labelling on the difluoroethyl amino group showed that following soil drench application, significant proportions (87% TRR) and levels (0.17 mg/kg) of difluoroacetic acid (DFA) were present in tomato fruits. Samples from the radiolabelled studies were therefore re-analysed for non-radiolabelled DFA and residues, expressed as DFA equivalents, were measured in the range of 0.02–0.23 mg/kg in apple fruits, potato tuber, cotton seed and rice grain, irrespective of mode of application.

Rotational crops

Confined rotational crops

Studies were undertaken to investigate the metabolism of flupyradifurone in the representative crops wheat, Swiss chard and turnips from three consecutive rotations using either [furanone-4-^{14}C]-fpd or [pyridinylmethyl-^{14}C]-fpd sprayed onto the soil of a planting container at 436 and 433 g ai/ha respectively. The crops were each sown at 29, 135 and 296 days after the soil application, representing the first, second and third rotation. Raw agricultural commodities sampled included the immature samples forage and hay from wheat, and the immature samples from Swiss chard. All other samples (wheat straw and wheat grain, Swiss chard, turnip leaves and turnip roots) were harvested in each rotation at maturity. No studies were undertaken with labelling on the difluoroethyl amino group. A similar metabolic profile as observed for primary crops was observed in the confined rotational studies.

Parent compound and about 30 (furanone label) or 50 (pyridinylmethyl label) metabolites were detected in the conventional and exhaustive extracts of the various samples of the three rotations. Parent compound was the main component detected in all matrices of all rotations, except for wheat grain. Parent accounted for 34–64% (furanone label) or 28–62% (pyridinylmethyl label) of the TRR in the commodities at a 29 day PBI, 28–68% (furanone label) or 25–67% (pyridinylmethyl label) TRR at a 135 day PBI, and 18–72% (furanone label) or 20–69% (pyridinylmethyl label) TRR at a 296 day PBI, not considering grains. In wheat grains, only trace amounts of parent compound were detected (< 1% and 2% of the TRR) in the furanone label experiments and 1–14% of the TRR in the pyridinylmethyl label experiments. The highest proportion of parent compound was always detected in turnip leaves.

Samples from the confined rotational studies were also analysed for the presence of non-radiolabelled difluoroacetic acid (DFA). Significant levels of DFA were detected in all plant matrices of the first and second rotation except turnip roots. DFA represented a major proportion of the residues in the edible crops wheat grain, Swiss chard and turnip roots, as well as in wheat hay.

Field rotational crops

In the USA the total maximum seasonal application rate for a large range of crops is 409 g ai/ha. In Central America the total maximum seasonal application rate for potatoes, tomatoes and chilli peppers and melon, cucumbers and watermelons is 600 g ai/ha. Field crop rotational trials conducted in Europe have been made available to the Meeting.

In a European study, applications were either made to bare soil or to lettuce (primary crop or target crop) at 200 g ai/ha. In each rotation (25–33 days, 60–200 days and 260–330 days), three different crops were planted: a root crop (carrots or turnips), a leafy crop (lettuce), or a cereal (barley). Samples of the rotational crops were taken at their harvest times, as well as at one earlier interval and were analysed for residues of parent, DFA, DFEAF and 6-CNA.

In general parent compound was either absent or present at low levels (< 0.1 mg/kg). DFEAF was not detected in all commodities at all PHIs, while DFA was observed in most commodities at all PHIs (up to 0.63 mg/kg in cereal grain and up to 0.12 mg/kg in lettuce and root crops). Low residues of 6-CNA were detected in barley straw only.

Additional European studies involved two applications to bare soil at 125 g ai/ha with the rotational crops potatoes, cucumber, leek, French bean, onion, pea and winter rape planted approximately 30 days after the last application. Samples were taken at typical harvest maturity. No residues of parent or DFEAF were detected. Residues of 6-CNA were < 0.005 mg/kg (as 6-CNA) except in bean pods (up to 0.016 mg/kg) and pea dry (up to 0.017 mg/kg). DFA residues were detected in most samples: up to 0.25 mg/kg in potato; up to 0.23 mg/kg in leek; up to 0.41 mg/kg in cucumber; up to 0.16 mg/kg in onion, up to 1.1 mg/kg in French bean; up to 2.3 mg/kg in field pea and up to 0.15 mg/kg in winter rape.

The field rotational crop studies indicate that while parent and 6-CNA may be observed at low levels, DFA is the major component of the residues.

Environmental fate

The Meeting received information on soil photolysis, aerobic and anaerobic soil metabolism, field dissipation and adsorption/desorption behaviour in different soils. Only those studies relevant to the current evaluation were considered.

A soil photolysis study showed that light was found to have little influence on the behaviour and degradation of flupyradifurone in soils. Flupyradifurone was found to be hydrolytically stable in aqueous solution at pH 4 to pH 9 (50 °C) for five days.

Aerobic laboratory studies were conducted in numerous soils from the USA, Europe and Brazil at 20 ± 2 °C and for periods of 117–120 days, using four different labelling positions. The studies showed that flupyradifurone is degraded in soil under aerobic conditions. The major routes of degradation are cleavage of the difluoroethyl group producing difluoroacetic acid, cleavage of the molecule at the pyridinylmethyl bridge, with subsequent oxidation to 6-chloronicotinic acid and mineralisation to CO_2 and formation of non-extractable residues. DT_{50} values ranged from 33 to 374 days, while DT_{90} values ranged from 209 to > 1000 days. Degradation of the flupyradifurone metabolite, 6-chloronicotinic acid (6-CNA), was studied under aerobic conditions in three English soils over 119 days. It was seen to degrade to CO_2 (84–92% of the applied dose at the end of the study). The rapid breakdown of 6-CNA (DT_{50} values 2.9 to 5.3 days) demonstrated that it will not persist in aerobic soils. DT_{50} values for difluoroacetic acid ranged from 32–74 days while DT_{90} values ranged from 149–245 days.

Field dissipation studies were carried out at six sites in Europe and three sites in both Canada and the USA. In general, the field behaviour of flupyradifurone was consistent with the model developed from the laboratory studies. The studies showed that the major routes of dissipation for flupyradifurone are biodegradation to 6-chloronicotinic acid and difluoroacetic acid and non-extractable residues followed by mineralisation to carbon dioxide. When DFA and 6-CNA were detected, the amounts always decreased over the period of the study. Flupyradifurone dissipated with DT_{50} values of 8 to 251 days in the field studies indicating that flupyradifurone has a potential for residue carry over to the following cropping season if application is performed annually.

Animal metabolism

The Meeting received animal metabolism studies with flupyradifurone in rats, hens and goats.

Rats

Evaluation of the metabolism studies in rats was carried out by JMPR 2015 and is not fully considered here.

In studies conducted in rats using [^{14}C]flupyradifurone, the majority (up to 90%) of radioactivity was excreted in urine within 24 hours. There was no evidence of tissue accumulation. While parent was the main compound detected in excreta (up to 50% of radioactivity in males and 70% in females) flupyradifurone was metabolised to eight identified metabolites and up to 19 unidentified metabolites involving hydroxylation, conjugation and cleavage reactions. The extent of metabolism was greater in male than female rats. Significant plant metabolites, including DFA, DFEAF, 6-CNA and fpd-OH were also observed in the rat metabolism studies.

Goats

Two studies on the metabolism of flupyradifurone were conducted with the test compound labelled in either the [furanone-4-^{14}C] or the [pyridinylmethyl-^{14}C]-position. In each study a lactating goat was dosed orally once daily for five consecutive days, at 28.8 or 24.4 ppm respectively. Milk was sampled twice daily, in the morning and afternoon. Animals were sacrificed approximately 6 hours after the last dose.

A total of 72 and 85% of the total administered dose was eliminated in the faeces and urine (0–102 hours) while TRRs in tissues were 1.7 and 1.2 mg eq/kg in liver, 1.5 and 1.9 mg eq/kg in kidney, 0.54 and 0.36 mg eq/kg in muscle and 0.27 and 0.11 mg eq/kg in total fat for the furanone and pyridinylmethyl labels respectively.

Acetonitrile and water extraction of liver, kidney, muscle, fat and milk resulted in extraction efficiencies of 73–93% (liver), 89–99% (kidney), 88–99% (fat), 95–99% (muscle) and 91–99% (milk).

Metabolism in ruminants was very limited. Parent was the only significant residue in muscle, fat and liver (60–88% TRR for the furanone label and 85–99% TRR for the pyridinylmethyl label). It was also the major component in milk with the pyridinyl label (89% TRR), but lactose was the major component in milk for the furanone label (67% TRR), while parent was found at 24% of the TRR.

Significant metabolism was demonstrated only in kidney, in which parent was present at 35–50.5% TRR for the pyridinylmethyl and furanone labels respectively, while the metabolite fpd-OH (hydroxylation in the 5 position of the furanone ring) was present at 15–16% TRR. Fpd-glucuronides, from hydroxylation followed by conjugation with glucuronic acid, were observed at 13–31% of the TRR in total, with four isomers up to 9% TRR each.

Hens

Two studies on the metabolism of flupyradifurone were conducted with the test compound labelled in either the [furanone-4-^{14}C] or the [pyridinylmethyl-^{14}C]-position. In each study six laying hens were dosed orally once daily for 14 consecutive days, at 17.1 or 16.2 ppm for the furanone and pyridinylmethyl labels respectively. Animals were sacrificed approximately 6 hours after the last dose.

A total of 78 and 96% of the total administered dose was eliminated in the excreta for the furanone and pyridinylmethyl labels respectively (cumulative after 14 days). In eggs 2.4 and 0.24% of the administered dose was recovered (cumulative after 14 days). A plateau level of approximately 1.0 mg eq/kg was reached at 9 days after the first administration for the furanone label and 0.08 mg eq/kg at six days after the first administration for the pyridinylmethyl label. TRRs in tissues were 2.2 and 0.44 mg eq/kg in liver, 1.1 and 1.1 mg eq/kg in kidney, 0.18 and 0.070 mg eq/kg in total skeletal muscle and 0.43 and 0.021 mg eq/kg in total fat for the furanone and pyridinylmethyl labels respectively.

Acetonitrile and water extraction of egg, muscle, fat and liver resulted in extraction efficiencies of 65–96% (eggs), 39–93% (muscle), 80–98% (fat) and 72–75% (liver).

Parent was generally a minor component in hen matrices, with the exception of muscle for the furanone label (14% TRR) and fat (15% TRR) and eggs (20% TRR) for the pyridinylmethyl label only. Fatty acids were the major metabolic product with the furanone label for eggs, fat, and liver (52–96% TRR). With the pyridinylmethyl label, fpd-acetyl-AMCP, from cleavage of both the furanone and difluoroethyl groups, was the major residue in eggs (23% TRR), muscle (40% TRR) and fat (29% TRR), while the major residue in liver was fpd-OH-SA from hydroxylation of the furanone (23% TRR).

Summary of animal metabolism

Whilst parent was the main compound detected in excreta of rats, flupyradifurone was metabolised to eight identified metabolites and up to 19 unidentified metabolites involving hydroxylation, conjugation and cleavage reactions.

Metabolism in ruminants was very limited. Parent flupyradifurone was the major portion of the residue in fat, muscle, and liver (60–99% TRR). The parent was also the major component in milk with the pyridinylmethyl label (89% TRR). Significant metabolism was demonstrated only in the kidney.

Metabolism in poultry was far more extensive than in ruminants. Parent was generally a minor component in hen matrices, with the exception of muscle for the furanone label (14% of the TRR) and fat (15% of the TRR) and eggs (20% of the TRR) for the pyridinylmethyl label only. Fatty acids were the major metabolic product with the furanone label for eggs, fat, and liver. With the pyridinylmethyl label, fpd-acetyl-AMCP, was the major residue in eggs, muscle and fat and the major residue in liver was fpd-OH-SA (23% TRR).

Difluoroacetic acid would not have been detected in the hen and goat metabolism studies as a labelled residue due to the positions of the radiolabels.

Methods of analysis

The Meeting received information on analytical methods suitable for the determination of residues of the active substance flupyradifurone and the metabolites DFA, DFEAF and 6-CNA in plant matrices and flupyradifurone and the metabolites DFA, fpd-acetyl-AMCP and fpd-OH in animal matrices.

The methods used for data collection and proposed for enforcement for plant and animal commodities are based on LC-MS/MS for plant and animal matrices. All methods involve extraction with acetonitrile/water. LOQs were generally 0.01 mg/kg for parent, DFEAF and 6-CNA and 0.02 mg/kg for DFA in plant commodities. In animal commodities, LOQs were generally 0.01 mg/kg for parent, fpd-acetyl-AMCP and fpd-OH and 0.01 or 0.02 mg/kg for DFA. Radio-validation experiments were carried out on the analytical methods for plant and animal commodities confirming the acceptability of the methods.

Stability of pesticide residues in stored analytical samples

The Meeting received information on the freezer storage stability of flupyradifurone in plant commodities.

Residues trial data are supported by the supplied storage studies which showed that flupyradifurone, DFEAF and DFA residues are stable for at least 18 months in high water, high acid, high oil, high protein and high starch content matrices, when stored frozen at approximately –18 °C. The storage periods in the storage stability studies cover the sample storage intervals in the residue trials.

All samples in the laying hen feeding study were analysed within thirty days of collection. Therefore, there was no necessity for freezer storage stability data. In the dairy cattle feeding study, tissues and milk samples were analysed within 25 days of collection for residues of parent, fpd-OH and fpd-AMCP and therefore freezer storage stability data was not required for these analytes. DFA residues were shown to be stable in animal commodities for up to 43 days in frozen storage.

Definition of the residue

Plants

In the metabolism studies on primary crops using [furanone-4-^{14}C]-fpd and [pyridinylmethyl-^{14}C]-fpd, flupyradifurone was consistently observed to be the major component of the radioactive residues, accounting for approximately 23–88% of the TRR in all plant parts analysed. Parent compound was the main component detected in almost all matrices of all rotations in the confined rotational crop trials accounting for 18–72% of the TRR.

The Meeting therefore considered that a residue definition of *Flupyradifurone* is appropriate for plant commodities for compliance with MRLs (enforcement).

Due to the fact that parent flupyradifurone was consistently the predominant residue in plants in the metabolism studies and was one of the two predominant components in the supervised field trials over a wide range of crops, parent should also be in the definition for risk assessment.

There are a number of other possible candidates for inclusion in the risk assessment definition.

DFA was detected at significant levels in apple fruit, potato tuber, cotton seed and rice grain, irrespective of method of application in the metabolism studies. Significant levels of DFA were also detected in all plant matrices of the first and second rotation, except turnip roots, in the confined rotational study. DFA was found in most crops included in the field rotation studies and was the only significant residue. DFA is considered to be 3 × more toxic than flupyradifurone (Toxicology report–JMPR 2015). DFA was also included in the data generation method and should be in the definition for risk assessment.

The metabolite fpd-difluoroethyl-amino-furanone (DFEAF), was a metabolite found in Swiss chard in all rotations of the confined rotational crop study at up to 17% TRR and at much lower levels in other crops. However, it was not detected in any of the field rotation studies. It was analysed in all residue trials conducted in primary and succeeding crops. DFEAF was usually not detected or residues were generally very low (< 5%) in most crops in comparison to the total observed residues. DFEAF was observed in the rat metabolism studies and was observed to be no more toxic than parent flupyradifurone. The Meeting therefore considered that DFEAF need not be included in the risk assessment residue definition for plants.

The metabolite 6-CNA was present at > 10% TRR in a number of plant metabolism studies, (13–22% TRR in tomato fruit, potato tuber and cotton seed) but was generally present at low residue levels (approximately 0.02 mg eq/kg). It was included in the residue trial analyses making a significant contribution to flupyradifurone residues in a number of crops such as beans, soya beans and cotton seed. 6-CNA is found to be no more toxic than parent flupyradifurone and will be included in the flupyradifurone residue definition for dietary assessment.

Given that DFA is considered to be 3 × more toxic than flupyradifurone (Toxicology report—JMPR 2015), the sum of parent, 6-CNA and 3 × DFA is the recommended residue definition for commodities of plant origin for risk assessment (dietary exposure assessment). Adjusting residues of DFA to parent equivalents, means there is no necessity for applying the toxicity factor of 3, as the molecular weight of parent flupyradifurone (288.68) is 3.0× the molecular weight of DFA (96.03). Residues of DFA have been expressed as parent equivalents in the submitted field trials.

The proposed residue definition for plant commodities for dietary risk assessment is the *Sum of flupyradifurone, difluoroacetic acid and 6-chloronicotinic acid, expressed as parent equivalents*.

Animals

Metabolism in ruminants was very limited. Parent flupyradifurone was the major portion of the residue in fat, muscle, and liver (60–88% TRR for the furanone label and 85–99% TRR for the pyridinylmethyl label) and was also the major component in milk for the pyridinylmethyl label (89% TRR). Parent was present in the kidney at 35–50% TRR.

Metabolism in poultry was far more extensive than in ruminants. Parent was generally a minor component in hen matrices, with the exception of muscle for the furanone label (14% TRR) and fat (15% TRR) and eggs (20% TRR) for the pyridinylmethyl label only. Fatty acids were the major metabolic product for the furanone label in eggs, fat, and liver. With the pyridinylmethyl label, fpd-acetyl-AMCP, was the major residue in eggs (23% TRR) and the major residue in liver was fpd-OH-SA (23% TRR).

In terms of the estimated livestock animal dietary burden, fpd-OH-SA is expected to be present in poultry liver at up to 0.1 mg parent equiv./kg, compared to the HR for total flupyradifurone of 0.89 mg parent equiv./kg. This contribution to the total toxicological burden is considered to be minor since it is unlikely to be of greater toxicity than the unconjugated alcohol, which is covered by the parent. Therefore, fpd-OH-SA does not have to be included in the definition for dietary intake for animal commodities.

Difluoroacetic acid was not analysed for in the hen and goat metabolism studies. Residues of parent, DFA, fpd-OH and fpd-AMCP were determined in the lactating dairy cattle and laying hen feeding studies. No quantifiable residues of fpd-OH or fpd-AMCP were observed in any milk sample. The residue in milk was primarily (60–90%) parent. No quantifiable residues of fpd-AMCP were observed in any cow tissues and residues of fpd-OH (when present in cow tissues), were always much lower than residues of parent (the dominant residue at approximately 70–90%) and DFA. In the hen feeding study residues of parent, fpd-OH and fpd-AMCP were much lower than residues of DFA (usually greater than 90%) in eggs and tissues. After feeding at 19.4 ppm for 29 days, for example, mean residues in fat, liver and muscle were 0.275, 1.02 and 0.723 mg/kg of which 0.272, 1.01 and 0.719 mg/kg were DFA.

The proposed residue definition for animal commodities for compliance with MRLs (enforcement) is *Sum of flupyradifurone and difluoroacetic acid, expressed as parent equivalents*.

A residue definition of *Sum of flupyradifurone and 3 × difluoroacetic acid* is appropriate for commodities of animal origin for dietary risk assessment. As the molecular weight of flupyradifurone is 3.0× the molecular weight of DFA, it is not necessary to apply a toxicity factor for DFA, if the residues of DFA are expressed as parent equivalents.

The proposed residue definition for animal commodities for dietary risk assessment is *Sum of flupyradifurone and difluoroacetic acid, expressed as parent equivalents*.

The ratio of total residues (flupyradifurone + DFA) in muscle and fat in the livestock feeding studies support the conclusion that the total residue is not fat soluble (mean residues of fat/ muscle in the dairy cattle study at four feeding levels 0.48–0.72 and 0.37–0.52 in the laying hen study at four feeding levels). There is no evidence to suggest that there is significant potential for bioaccumulation in fat tissues.

Definition of the residue (for compliance with the MRL for plant commodities): *Flupyradifurone.*

Definition of the residue (for estimation of dietary intake for plant commodities): *Sum of flupyradifurone, difluoroacetic acid and 6-chloronicotinic acid, expressed as parent equivalents.*

Definition of the residue (for compliance with the MRL and for estimation of dietary intake for animal commodities): *Sum of flupyradifurone and difluoroacetic acid, expressed as parent equivalents.*

The Meeting agreed that the residue be designated as not fat soluble.

Results of supervised residue trials on crops

Supervised trials were available for the use of flupyradifurone on citrus fruits (grapefruit, lemons, mandarins and oranges), pome fruits (apples and pears), berries and other small fruits (blueberries, grapes and strawberries), assorted tropical and sub-tropical fruit—inedible peel (prickly pear), bulb vegetables (bulb onion and green onions), Brassica vegetables (broccoli, cabbage, and cauliflower), cucurbits (cucumber, melons and summer squash), fruiting vegetables other than cucurbits (tomatoes, chilli and sweet peppers and sweet corn), leafy vegetables (mustard greens, head and leafy lettuce and spinach), legume vegetables (common bean, snow peas, lima beans and garden peas), pulses (peas, beans and soya beans), root and tuber vegetables (carrots, radishes and potatoes), stalk and stem vegetables (celery), cereals (barley, wheat, sorghum and maize), tree nuts (almonds and pecans), oilseeds (cotton and peanuts), coffee and hops.

For maximum residue level estimation (compliance), residues of flupyradifurone parent have been considered. For dietary intake assessment (risk assessment), residues of flupyradifurone, DFA and 6-chloronicotinic acid expressed as parent equivalents (referred to as total residues of flupyradifurone), have been considered.

Product labels were available from the USA and Central America.

The Central American GAPs were the critical GAPs for citrus fruit, melon, cucumber and watermelon, tomatoes and chilli peppers and potatoes. None of the submitted trial data matched the Central American GAPs for any of these crops, so these will not be referred to further. The USA label has foliar and soil application GAPs for some crop groups. Only one of these methods of application is allowed per crop.

The following crops are listed on the USA label under rotational crops for immediate plant-back: Cereal grains (except rice), cotton, non-grass animal feeds (alfalfa and clover only), peanut, root vegetables (except sugar beet), tuberous and corm vegetables, leafy vegetables, Brassica (cole) leafy vegetables, legume vegetables (succulent or dried), fruiting vegetables, cucurbit vegetables, hops, citrus fruit, pome fruit, bush berry (except cranberry), low growing berry (except cranberry), small fruit vine climbing (except fuzzy kiwifruit), tree nut (except almond), prickly pear/ cactus pear.

Bulb vegetables (US crop Group 3-07, *Allium* Spp.) are on the current USA Sivanto 200SL label as a rotational crop only, with immediate plant-back interval.

The label states that for crops not listed in the immediate plant-back section of this label, or for crops for which no tolerances for the active ingredient have been established, a 12-month plant-back interval must be observed.

Residue trial data were submitted for bulb onions, green onions, almonds, almond hulls and coffee. As there is no submitted GAP for these crops, the trial data for these crops will not be discussed further.

Where mean values have been considered, if an individual observation is higher than the highest mean, this is also listed (as the HR). Where parent or DFA residues were not detected or were less than the LOQ (i.e., < 0.01 mg/kg for parent or 0.05 mg/kg for DFA) the LOQ value was utilised for maximum residue estimation and dietary intake assessment. For 6-CNA, values less than the LOQ were not added for calculation of total residues of flupyradifurone.

The following table shows how residues in the trials were added to give total residues of flupyradifurone.

Parent	DFA	6-CNA	Total
< 0.01	0.05	0.01	0.07
0.01	< 0.05	0.01	0.07
< 0.01	< 0.05	< 0.01	< 0.06
0.01	0.05	< 0.01	0.06
0.01	0.05	0.01	0.07

Citrus fruits, pome fruits, bush berries, grapes and tree nuts are normally cultivated as permanent crops and are not expected to be subject to a potential uptake of flupyradifurone residues from the soil.

The Meeting noted that the submitted plant metabolism studies show that parent flupyradifurone metabolises to a number of other compounds which, like parent, would be converted to 6-CNA by a common moiety imidacloprid analytical method. It is noted that the submitted residues trials indicate that the use of flupyradifurone results in residues of 6-CNA in a number of crops which would require changes to established imidacloprid MRLs or the establishment of new imidacloprid MRLs. As the submitted trials did not quantify total residues containing the 6-chloropyridyl moiety, the Meeting agreed that any attempt to estimate maximum residue levels for imidacloprid, resulting from the use of flupyradifurone, would not be robust. The Meeting recommends that the residue definition for imidacloprid be changed from that requiring a common moiety analytical method. Alternatively, some future trials of flupyradifurone could measure total residues containing 6-chloropyridyl, using a common moiety method.

Citrus Fruit

The USA foliar GAP for citrus fruit is two applications at 205 g ai/ha, 10 day retreatment interval (RTI), 1-day PHI). The USA soil application GAP for citrus fruit is one application at 409 g ai/ha, 30-day PHI).

Residue data for mandarins, grapefruit, lemons and oranges have been submitted according to the USA GAPs for foliar and soil application. Foliar applications were made using either concentrated or dilute sprays. The highest residue observations after foliar application have been selected from each trial for estimation of maximum residue levels and for dietary intake purposes, as these were always greater than the soil application residue observations.

The Meeting noted that the use in the USA is for the citrus fruit group. Although the median residues for each fruit differed by a factor of less than five, the Meeting decided to recommend maximum residue levels for the individual sub-groups of citrus fruit, as there are sufficient trials for each sub-group.

Mandarins

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in mandarins from supervised trials (foliar use pattern) according to the GAP in the USA was 0.12, 0.16, 0.35, 0.39, 0.51, 0.61 and 0.90 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in <u>mandarins</u> from supervised trials (foliar use pattern) according to the GAP in the USA was 0.14, 0.21, 0.40, <u>0.44</u>, 0.56, 0.66 and 0.99 mg/kg.

The Meeting estimated a maximum residue level, an STMR and an HR for the subgroup mandarins of 1.5, 0.44 and 0.99 mg/kg respectively.

Pummelo and Grapefruits

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in grapefruit from supervised trials (foliar use pattern) according to the GAP in the USA was 0.16, 0.19, 0.19, 0.19, 0.27 and 0.29 mg/kg.

The ranked order of total residues of flupyradifurone in <u>grapefruit</u> from supervised trials (foliar use pattern) according to the GAP in the USA was 0.18, 0.21, <u>0.21</u>, <u>0.21</u>, 0.31 and 0.32 mg/kg.

The Meeting estimated a maximum residue level, an STMR and an HR for the subgroup pummelo and grapefruit of 0.7, 0.21 and 0.32 mg/kg respectively.

Lemons and Limes

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in lemons from supervised trials (foliar use pattern) according to the GAP in the USA was 0.12, 0.18, 0.23, 0.30, 0.35, 0.44 and 0.71 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in lemons from supervised trials (foliar use pattern) according to the GAP in the USA was 0.14, 0.20, 0.25, 0.32, 0.37, 0.55 and 0.73 mg/kg.

The Meeting estimated a maximum residue level, an STMR and an HR for the subgroup lemons and limes of 1.5, 0.32 and 0.73 mg/kg respectively.

Oranges, Sweet, Sour

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in oranges from supervised trials (foliar use pattern) according to the GAP in the USA was 0.067, 0.19, 0.25, 0.29, 0.34, 0.63, 0.70, 0.88, 1.2 and 2.1 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in oranges from supervised trials (foliar use pattern) according to the GAP in the USA was 0.087, 0.21, 0.27, 0.31, 0.36, 0.65, 0.72, 0.91, 1.2 and 2.2 mg/kg.

The Meeting estimated a maximum residue level, an STMR and an HR for the subgroup oranges, sweet, sour of 4, 0.505 and 2.2 mg/kg respectively.

Pome fruits

Residue trials were conducted in apples in the USA according to the critical GAP in the USA for pome fruit (two foliar applications at 205 g ai/ha, 10-day RTI, 14-day PHI). Applications were made using either concentrated or dilute sprays. The highest observations for estimation of maximum residue levels and for dietary intake purposes have been selected from each trial.

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in apples from supervised trials according to the GAP in the USA were: 0.060, 0.084, 0.097, 0.12, 0.13, 0.14, 0.15, 0.18, 0.21, 0.22, 0.22, 0.25 and 0.30 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in apples from supervised trials according to the GAP in the USA were: 0.11, 0.13, 0.15, 0.17, 0.18, 0.19, 0.23, 0.25, 0.27, 0.28, 0.28, 0.30 and 0.62 mg/kg.

Residue trials were conducted in pears in the USA and Canada according to the critical GAP in the USA for pome fruit (two foliar applications at 205 g ai/ha, 10-day RTI, 14-day PHI).

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in pears from supervised trials according to the GAP in the USA was 0.18, 0.19, 0.20, 0.21, 0.22, 0.26, 0.32, 0.39 and 0.47 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in pears from supervised trials according to the GAP in the USA was 0.23, 0.29, 0.32, 0.44, 0.45, 0.49, 0.59, 0.63 and 0.69 mg/kg.

The use pattern in the USA is for Crop Group 11-10 (Pome Fruit). To consider a maximum residue level for a group, residues in individual crops should be similar (e.g. medians should not differ by more than 5 ×). In deciding whether to combine the datasets for apples and pears or to only utilise the data from the commodity with the highest residues, the Meeting noted that the populations of residues in apples and pears are sufficiently different (Mann-Whitney U-Test) and decided to use the data from pears to estimate a maximum residue level for the group Pome fruit.

Based on pear data only, the Meeting estimated a maximum residue level, an STMR and an HR of 0.9, 0.45 and 0.69 mg/kg for pome fruits.

Berries and other small fruits

Bush berries

Residue trials were conducted in blueberries (four low bush, 21 highbush and one rabbit eye) in the USA (nine trials), Canada (four), Australia (three), Chile (three), New Zealand (two), United Kingdom (two) and one each in Italy, Spain and Denmark, most according to the GAP in the USA for Crop Subgroup 13-07B (except cranberry) (two foliar applications at 205 g ai/ha, 7-day RTI, 3-day PHI).

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in blueberries from supervised trials carried out in the USA and Canada according to the GAP in the USA was 0.35, 0.42, 0.45, 0.57, 0.78, 1.2, 1.6 and 2.5 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in blueberries from supervised trials carried out in the USA and Canada according to the GAP in the USA was 0.40, 0.47, 0.50, 0.62, 0.83, 1.2, 1.6 and 2.6 mg/kg.

The Meeting noted that blueberries can be used as a representative crop for bush berries and estimated an STMR of 0.725 mg/kg, an HR of 2.6 mg/kg and a sub-group maximum residue level of 4 mg/kg for flupyradifurone on bush berries.

Grapes

Residue trials were conducted in grapes in the USA and Canada according to the critical GAP in the USA for foliar application for US crop subgroup 13-07F (two applications at 205 g ai/ha, 10-day RTI, 0-day PHI). In addition, soil drench trials were carried out according the USA GAP for soil application for subgroup 13-07F (one application at 409 g ai/ha, 30-day PHI). Residue observations in grapes arising from the foliar use pattern were higher than those arising from the soil use pattern in every trial, so these have been considered for estimation of the maximum residue level.

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in grapes from supervised trials (foliar use pattern) according to the GAP in the USA was 0.31, 0.39, 0.46, 0.52, 0.57, 0.58, 0.69, 0.80, 1.0, 1.1 and 1.9 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in grapes from supervised trials (foliar use pattern) according to the GAP in the USA was 0.36, 0.44, 0.51, 0.57, 0.63, 0.63, 0.74, 0.85, 1.2, 1.2 and 2.0 mg/kg (HR 2.3 mg/kg).

Based on the dataset, the Meeting estimated a maximum residue level, an STMR and an HR for grapes of 3, 0.63 and 2.3 mg/kg respectively for grapes.

Strawberry

Residue trials were conducted in strawberries in the USA and Canada according to the critical GAP in the USA for application for US crop sub-group 13-07G (two foliar applications at 205 g ai/ha, 10-day RTI, 0-day PHI).

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in strawberries from supervised trials according to the GAP in the USA was 0.23, 0.33, 0.38, 0.38, 0.43, 0.51, 0.54, 0.54, 0.58 and 0.62 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in strawberries from supervised trials according to the GAP in the USA was 0.33, 0.38, 0.43, 0.43, 0.48, 0.57, 0.59, 0.59, 0.63 and 0.90 mg/kg (HR 0.94 mg/kg).

Based on the dataset, the Meeting estimated a maximum residue level, a median and a highest residue for strawberries of 1.5, 0.525 and 0.94 mg/kg respectively.

For strawberries no data from studies on relevant follow crops are available.

In field studies on succeeding crops, the mean, median and highest total residues in French beans were 0.98, 0.80 and 1.80 mg/kg respectively. In the absence of data for relevant follow crops the Meeting decided to add the mean residue found in French beans in field studies on succeeding crops of 0.98 mg/kg to the median residue obtained from strawberry residue trials of 0.525 mg/kg for an overall STMR for flupyradifurone in strawberries of 1.505 mg/kg. The Meeting also decided to add the highest residue of 1.80 mg/kg for French beans in the succeeding crop trials to 0.94 mg/kg (the highest residue found in strawberry field trials) for an overall HR of 2.74 mg/kg.

The Meeting estimated a maximum residue level, an STMR and an HR for strawberries of 1.5, 1.505 and 2.74 mg/kg respectively.

Assorted tropical and sub-tropical fruit—Prickly pear

Residue trials were conducted in prickly pear cactus in the USA according to the critical GAP in the USA (two applications at 205 g ai/ha, 7-day RTI, 21-day PHI). Residues were determined in fruit and pads. Four trials were carried out for each but only two trials for fruit (observed parent residues 0.10 and 0.12 mg/kg and total residues 0.15 and 0.17 mg/kg) and two for pads (observed parent residues 0.20 and 0.25 mg/kg and total residues 0.25 and 0.30 mg/kg) can be considered independent.

No maximum residue level was recommended due to the limited data (n = 2 independent trials).

Bulb vegetables

There is no registered use for bulb onions or green onions as a primary crop. Bulb vegetables (Group 3-07, *Allium* Spp.) are on the USA Sivanto 200SL label as a rotational crop only, with immediate plant-back interval.

Data from studies on onions and leeks as follow crops are available. In field studies on succeeding crops, mean, median and highest total residues in onions were 0.14, 0.12 and 0.28 mg/kg respectively. Mean, median and highest residues in leeks were 0.18, 0.13 and 0.39 mg/kg respectively. No residues of parent flupyradifurone were observed.

Based on the leek data (mean and highest residues), the Meeting estimated a maximum residue level, an STMR and an HR for bulb vegetables except fennel bulb of *0.01, 0.18 and 0.39 mg/kg respectively.

Brassica (cole or cabbage) vegetables, Head cabbages, Flowerhead brassicas

Residue trials were conducted in broccoli (four trials), cabbage (10 trials) and cauliflower (six trials) in the USA and Canada according to the GAP in the USA for Crop Group 5 (two foliar applications at 205 g ai/ha, 7-day RTI, 1-day PHI).

The Meeting noted that the GAP was for the Brassica vegetables group, and considered a group maximum residue level, however the medians for the broccoli and cauliflower data sets differed by greater than 5 ×.

Broccoli

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in broccoli heads and stalks from supervised trials according to the GAP in the USA was 0.37, 0.40, 0.95 and 1.9 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in broccoli from supervised trials according to the GAP in the USA was 0.46, 1.2, 2.5 and 3.3 mg/kg (HR 3.5 mg/kg).

The Meeting considered the data insufficient for estimating a maximum residue level for broccoli.

Cauliflower

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in cauliflower heads and stalks from supervised trials according to the GAP in the USA was 0.022, 0.032, 0.087, 0.11, 2.1 and 2.4 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in cauliflower heads and stalks from supervised trials according to the GAP in the USA was 0.11, 0.20, 0.26, 0.46, 2.2 and 2.5 mg/kg (HR 2.6 mg/kg).

The Meeting estimated a maximum residue level, a median and a highest residue for cauliflower of 6, 0.36 and 2.6 mg/kg respectively.

For Brassica vegetables, no data from studies on follow crops are available. In field studies on succeeding crops, the overall highest mean, median and highest total residues in lettuce were 0.12, < 0.06 and 0.41 mg/kg respectively.

The Meeting decided to add the mean residue for lettuce in field studies on succeeding crops of 0.12 mg/kg to the median residue obtained from supervised cauliflower residue trials of 0.36 mg/kg for an overall STMR for flupyradifurone in cauliflower of 0.48 mg/kg.

It was also decided to add 2.6 mg/kg (the highest residue found in supervised field trials for cauliflower) and the highest residue of 0.41 mg/kg for lettuce in the succeeding crop trials.

The Meeting estimated a maximum residue level, an STMR and an HR for cauliflower of 6, 0.48 and 3.01 mg/kg respectively for cauliflower.

Cabbages, Head

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in cabbage head from supervised trials (foliar use pattern) according to the GAP in the USA was 0.11, 0.12, 0.32, 0.33, 0.38, 0.45, 0.69, 0.82 and 0.83 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in cabbage head from supervised trials according to the GAP in the USA was 0.20, 0.24, 0.44, 0.60, 0.67, 0.79, 0.93, 1.0 and 1.1 mg/kg (HR 1.3 mg/kg).

The Meeting estimated a maximum residue level, a median and a highest residue for cabbage, head of 1.5 mg/kg, 0.67 and 1.3 mg/kg respectively.

It was decided to add the mean residue for lettuce in field studies on succeeding crops of 0.12 mg/kg to the median residue obtained from supervised cabbage residue trials of 0.67 mg/kg for an overall STMR for flupyradifurone in cabbage of 0.79 mg/kg.

It was also decided to add 1.3 mg/kg (the highest residue found in supervised field trials for cabbage) and the highest residue of 0.41 mg/kg for lettuce in the succeeding crop trials.

The Meeting estimated a maximum residue level, an STMR and an HR for cabbage of 1.5, 0.79 and 1.71 mg/kg respectively for cabbage.

Fruiting vegetables, Cucurbits

Residue trials were conducted in cucumbers (nine trials), summer squash (eight trials) and muskmelons (five trials) in the USA and Canada according to the foliar GAP in the USA for Crop Group 9 (two foliar applications at 205 g ai/ha, 7-day RTI, 1-day PHI) and also according to the soil application GAP in the USA (one application at 409 g ai/ha, 21-day PHI). The highest observations for estimation of maximum residue levels and for dietary intake purposes have been selected from each trial for both the foliar application and the soil application.

Cucumber

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in cucumber from supervised trials (foliar use pattern) according to the GAP in the USA was 0.039, 0.081, 0.083, 0.092, 0.10, 0.11, 0.13, 0.19 and 0.23 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in cucumber from supervised trials (foliar use pattern) according to the GAP in the USA was 0.16, 0.18, 0.28, 0.28, 0.34, 0.45, 0.62, 0.85 and 1.0 mg/kg (HR 1.1 mg/kg).

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in cucumber from supervised trials (soil use pattern) according to the GAP in the USA was < 0.010, < 0.010, < 0.010, < 0.010, 0.011, 0.012, 0.015, 0.022 and 0.027 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in cucumber from supervised trials (soil use pattern) according to the GAP in the USA was < 0.060, 0.061, 0.066, 0.13, 0.18, 0.24, 0.42, 0.47 and 1.0 mg/kg (HR 1.5 mg/kg).

The Meeting estimated a maximum residue level for cucumbers of 0.4 mg/kg (based on the foliar use pattern).

The Meeting noted that in some decline trials conducted with flupyradifurone on cucumbers, there was no indication that the total residues (flupyradifurone + DFA + 6-CNA) had reached a maximum. Therefore, it was not possible to estimate an STMR and HR for cucumbers.

Summer squash

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in summer squash from supervised trials (foliar use pattern) according to the GAP in the USA was 0.032, 0.033, 0.048, 0.054, 0.055, 0.075, 0.081 and 0.10 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in summer squash from supervised trials (foliar use pattern) according to the GAP in the USA was 0.10, 0.14, 0.16, 0.21, 0.22, 0.61, 0.95 and 1.1 mg/kg (HR 1.4 mg/kg).

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in summer squash from supervised trials (soil use pattern) according to the GAP in the USA was < 0.010, < 0.010, < 0.010, < 0.010, 0.020, 0.024, 0.031 and 0.057 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in summer squash from supervised trials (soil use pattern) according to the GAP in the USA was < 0.060 (4), 0.16, 1.1, 1.1 and 1.4 mg/kg (HR 1.5 mg/kg).

The Meeting estimated a maximum residue level, a median and a highest residue for summer squash of 0.2 mg/kg, 0.215 and 1.5 mg/kg respectively.

In field studies on succeeding crops, mean, median and highest total residues in cucumbers were 0.44, 0.51 and 0.69 mg/kg respectively. The Meeting decided to add the mean residue found in field studies on succeeding crops of 0.44 mg/kg to the median residue obtained from supervised cucurbit fruiting vegetables residue trials of 0.215 mg/kg for an overall STMR for flupyradifurone in summer squash of 0.655 mg/kg.

It was also decided to add 1.5 mg/kg (the highest residue found in supervised field trials) and the highest residue of 0.69 mg/kg for cucumbers in the succeeding crop trials.

The Meeting estimated a maximum residue level, an STMR and an HR of 0.2, 0.655 and 2.19 mg/kg respectively for summer squash.

Melons

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in melon fruit from supervised trials (foliar use pattern) according to the GAP in the USA was 0.061, 0.088, 0.11, 0.15 and 0.19 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in melon fruit from supervised trials (foliar use pattern) according to the GAP in the USA was 0.20, 0.22, 0.38, 0.52 and 0.68 mg/kg (HR 0.71 mg/kg).

For dietary intake purposes the ranked order of total residues of flupyradifurone in melon pulp from supervised trials (foliar use pattern) according to the GAP in the USA was < 0.060 (2), 0.062, 0.075 and 0.095 mg/kg.

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in melon fruit from supervised trials (soil use pattern) according to the GAP in the USA was < 0.010, 0.012, 0.012, 0.017 and 0.028 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in melons from supervised trials (soil use pattern) according to the GAP in the USA was 0.082, 0.088, 0.23, 0.43 and 0.87 mg/kg (HR 1.2 mg/kg).

For dietary intake purposes the ranked order of total residues of flupyradifurone in melon pulp from supervised trials (soil use pattern) according to the GAP in the USA was < 0.060 (2), 0.13, 0.22 and 0.38 mg/kg (HR 0.38 mg/kg).

The Meeting estimated a maximum residue level for melons of 0.4 mg/kg (based on the foliar use pattern). The Meeting estimated a median and highest residue for melon of 0.13 and 0.38 mg/kg respectively (based on the soil use pattern melon pulp data).

In field studies on succeeding crops, mean, median and highest total residues in cucumbers were 0.44, 0.51 and 0.69 mg/kg respectively.

The Meeting decided to add the mean residue found in field studies on succeeding crops of 0.44 mg/kg to the median residue obtained from supervised melon residue trials of 0.13 mg/kg for an overall STMR for flupyradifurone in melons of 0.57 mg/kg.

It was also decided to add 0.38 mg/kg (the highest residue found in supervised field trials) and the highest residue of 0.69 mg/kg for cucumbers in the succeeding crop trials.

The Meeting estimated a maximum residue level, an STMR and an HR of 0.4, 0.57 and 1.07 mg/kg respectively for melons, except watermelons.

Fruiting vegetables, other than Cucurbits

Residue trials were conducted in tomatoes (19 trials), sweet peppers (10 trials) and chilli peppers (four trials) in the USA and Canada, according to the GAP in the USA for Crop Group 8-10 (two foliar applications at 205 g ai/ha, 7-day RTI, 1-day PHI) and also according to the soil application GAP for Crop Group 8-10 (1 application at 409 g ai/ha, 45-day PHI). The highest observations for estimation of maximum residue levels and for dietary intake purposes have been selected from each trial for both the foliar application and the soil application.

The Meeting noted that in some decline trials conducted with flupyradifurone on fruiting vegetables other than cucurbits, there was no indication that the total residues (flupyradifurone +

DFA + 6-CNA) had reached a maximum. The Meeting therefore decided that although the GAP was for the fruiting vegetables other than cucurbits group, no Crop Group MRL will be considered.

Tomato

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in tomatoes from supervised trials (foliar use pattern) according to the GAP in the USA was 0.055, 0.057, 0.059, 0.068, 0.086, 0.088, 0.11, 0.13, 0.14, 0.14, 0.14, 0.15, 0.23, 0.27, 0.28, 0.31, 0.45, 0.57 and 0.73 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in tomatoes from supervised trials (foliar use pattern) according to the GAP in the USA was 0.11, 0.11, 0.11, 0.15, 0.15, 0.18, 0.19, 0.19, 0.22, 0.27, 0.29, 0.30, 0.32, 0.33, 0.40, 0.46, 0.53, 0.62 and 0.91 mg/kg (HR 1.1 mg/kg).

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in tomatoes from supervised trials (soil use pattern) according to the GAP in the USA was < 0.010 (7), 0.010, 0.011, 0.012, 0.013, 0.014, 0.015, 0.015, 0.029, 0.031, 0.034, 0.069 and 0.24 mg/kg

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in tomatoes from supervised trials (soil use pattern) according to the GAP in the USA was < 0.060, < 0.060, 0.064, 0.070, 0.079, 0.10, 0.13, 0.15, 0.15, 0.19, 0.20, 0.24, 0.34, 0.68, 0.81, 0.81, 0.90, 1.1 and 1.9 mg/kg (HR 2.1 mg/kg).

The Meeting estimated a maximum residue level of 1 mg/kg based on the foliar use pattern. The Meeting estimated a median and highest residue for tomato of 0.27 and 2.1 mg/kg.

For tomatoes, no data from studies on follow crops are available. In field studies on succeeding crops, mean, median and highest total residues in cucumbers (fruiting vegetables, cucurbits) were 0.44, 0.51 and 0.69 mg/kg respectively. The Meeting decided to add the mean residue found in cucumber field studies on succeeding crops of 0.44 mg/kg to the median residue obtained from supervised tomato residue trials of 0.27 mg/kg for an overall STMR for flupyradifurone in tomatoes of 0.71 mg/kg. It was also decided to add 2.1 mg/kg (the highest residue found in supervised tomato field trials) to the highest residue of 0.69 mg/kg for cucumbers in the succeeding crop trials.

The Meeting estimated a maximum residue level, an STMR and an HR for tomatoes of 1, 0.71 and 2.79 mg/kg respectively.

Peppers

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in peppers from supervised trials (foliar use pattern) according to the GAP in the USA was 0.030, 0.051, 0.070, 0.073, 0.083, 0.087, 0.12, 0.12, 0.12, 0.29, 0.30, 0.37, 0.47 and 0.53 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in peppers from supervised trials (foliar use pattern) according to the GAP in the USA was 0.11, 0.12, 0.14, 0.17, 0.17, 0.20, 0.22, 0.26, 0.35, 0.39, 0.42, 0.44, 0.52 and 0.68 mg/kg (HR 0.81 mg/kg).

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in peppers from supervised trials (soil use pattern) according to the GAP in the USA was < 0.010, < 0.010, < 0.010, < 0.010, < 0.010, 0.011, 0.011, 0.011, 0.013, 0.024, 0.027, 0.035, 0.047 and 0.18 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in peppers from supervised trials (soil use pattern) according to the GAP in the USA was 0.071, 0.098, 0.10, 0.13, 0.13, 0.13, 0.14, 0.16, 0.17, 0.36, 0.52, 0.72, 0.92 and 1.6 mg/kg (HR 1.7 mg/kg).

The Meeting estimated a maximum residue level of 0.9 mg/kg for peppers based on the foliar use pattern. The Meeting estimated a median and highest residue of 0.24 and 1.7 mg/kg.

For peppers, no data from studies on follow crops are available. In field studies on succeeding crops, mean, median and highest total residues in cucumbers (fruiting vegetables, and cucurbits) were 0.44, 0.51 and 0.69 mg/kg respectively. The Meeting decided to add the mean residue found in cucumber field studies on succeeding crops of 0.44 mg/kg to the median residue obtained from supervised pepper residue trials of 0.24 mg/kg for an overall STMR for flupyradifurone in peppers of 0.68 mg/kg. It was also decided to add 1.7 mg/kg (the highest residue found in supervised field trials) to the highest residue of 0.69 mg/kg for cucumbers in the succeeding crop trials.

The Meeting estimated a maximum residue level, an STMR and an HR for peppers of 0.9, 0.68 and 2.39 mg/kg respectively.

The Meeting used the pepper data and a default processing factor of 10 to estimate a maximum residue level, STMR and HR for flupyradifurone in chilli pepper (dried) of 9, 6.8 and 23.9 mg/kg.

Sweet Corn

Residue trials were conducted in sweet corn (13 trials) in the USA and Canada, according to the GAP in the USA for Crop Group 15 (two foliar applications at 205 g ai/ha, 7-day RTI, 7-day PHI). Three trials also included plots to measure residues following the planting of seed treated with flupyradifurone.

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in sweet corn kernels and cob husked from supervised trials (foliar use pattern) according to the GAP in the USA was < 0.01 (9), 0.016, 0.018, 0.026 and 0.038 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in sweet corn kernels and cob husked from supervised trials (foliar use pattern) according to the GAP in the USA was < 0.060 (3), 0.068, 0.099, 0.12, 0.13, 0.13, 0.15, 0.19, 0.21, 0.25 and 0.28 mg/kg (HR 0.29 mg/kg).

The Meeting estimated a maximum residue level, a median and a highest residue for sweet corn (corn-on-the-cob) of 0.05, 0.13 and 0.29 mg/kg respectively.

For sweet corn, no data on follow crops is available. In field studies on succeeding crops, the overall mean, median and highest total residues in barley grain were 0.43, 0.22 and 1.30 mg/kg respectively. In the absence of follow crop data for sweet corn the Meeting decided to add the mean residue found in barley grain in field studies on succeeding crops of 0.43 mg/kg to the median residue obtained from the sweet corn residue trials of 0.13 mg/kg for an overall STMR for flupyradifurone in sweet corn (corn-on-the-cob) of 0.56 mg/kg.

It was also decided to add 0.29 mg/kg (the highest residue found in supervised field trials) and the highest residue of 1.30 mg/kg for barley grain in the succeeding crop trials.

The Meeting estimated a maximum residue level, an STMR and an HR for sweet corn (corn-on-the-cob) of 0.05, 0.56 and 1.59 mg/kg respectively.

Brassica leafy vegetables

Residue trials were conducted in mustard greens (eight trials) in the USA according to the GAP in the USA for Crop Group 5 (two foliar applications at 205 g ai/ha, 7-day RTI, 1-day PHI).

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in mustard greens from supervised trials according to the GAP in the USA was 6.1, 7.3, 10, 11, 12, 15, 18 and 24 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in mustard greens from supervised trials according to the GAP in the USA was 6.2, 7.7, 11, 12, 12, 15, 18 and 25 mg/kg (HR 25 mg/kg).

The Meeting estimated a maximum residue level of 40 mg/kg for flupyradifurone in mustard greens, together with an STMR and an HR of 12 and 25 mg/kg respectively.

Short term dietary exposure assessment showed that residues in mustard greens exceed the acute reference dose (ARfD) of 0.2 mg/kg bw, at 250% of the ARfD for the general population and 610% for children. No alternative GAP for mustard greens was available.

Leafy vegetables

Residue trials were conducted in spinach (nine trials), leaf lettuce (nine trials) and head lettuce (eight trials) in the USA and Canada, according to the foliar GAP in the USA for Crop Group 4 (two foliar applications at 205 g ai/ha, 7-day RTI, 1-day PHI).

In field studies on succeeding crops, the highest mean, median and highest total residues in lettuce were 0.12, < 0.06 and 0.41 mg/kg, respectively. The Meeting concluded that residues in leafy vegetables due to an additional uptake via the roots are insignificant in comparison to residue levels following direct treatment.

Spinach

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in spinach from supervised trials according to the GAP in the USA was 2.0, 3.8, 6.4, 6.7, 7.9, 8.8, 9.8, 17 and 17 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in spinach from supervised trials according to the GAP in the USA was 2.1, 3.8, 6.5, 7.0, 8.5, 8.9, 9.9, 17 and 18 mg/kg (HR 19 mg/kg).

The Meeting estimated a maximum residue level of 30 mg/kg for flupyradifurone in spinach, together with an STMR and an HR of 8.5 and 19 mg/kg respectively.

Short term dietary exposure assessment showed that residues in spinach exceed the acute reference dose (ARfD) of 0.2 mg/kg bw, at 130% of the ARfD for the general population and 420% for children. No alternative GAP for spinach was available.

Leaf lettuce

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in leaf lettuce from supervised trials according to the GAP in the USA was 1.1, 1.8, 2.1, 2.3, 2.7, 3.8, 6.3 and 7.3 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in leaf lettuce from supervised trials according to the GAP in the USA was 1.2, 2.1, 2.2, 2.4, 2.8, 3.9, 6.5 and 7.5 mg/kg (HR 8.0 mg/kg).

The Meeting estimated a maximum residue level of 15 mg/kg for flupyradifurone in lettuce, leaf, together with an STMR and an HR of 2.6 and 8.0 mg/kg respectively.

Short term dietary exposure assessment showed that residues in leaf lettuce exceed the acute reference dose (ARfD) of 0.2 mg/kg bw, at 250% for children. No alternative GAP for leaf lettuce was available.

Head lettuce

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in head lettuce from supervised trials according to the GAP in the USA was 0.31, 0.69, 0.76, 1.2, 1.3, 1.6, 2.0 and 2.3 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in head lettuce from supervised trials according to the GAP in the USA was 0.38, 0.77, 0.83, 1.2, 1.4, 1.7, 2.1 and 2.4 mg/kg (HR 2.4 mg/kg).

The Meeting estimated a maximum residue level of 4 mg/kg for flupyradifurone in lettuce, head, together with an STMR and an HR of 1.3 and 2.4 mg/kg respectively.

Legume vegetables without pods

Residue trials were conducted in peas (six trials) and lima beans (nine trials) in the USA and Canada (beans only), according to the foliar GAP in the USA for Crop Group 6 (two foliar applications at 205 g ai/ha, 10-day RTI, 7-day PHI).

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in peas from supervised trials according to the GAP in the USA was 0.12, 0.25, 0.51, 0.62, 0.77 and 1.5 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in peas from supervised trials according to the GAP in the USA was 0.86, 1.0, 1.7, 1.9, 1.9 and 3.9 mg/kg (HR 3.9 mg/kg).

The Meeting estimated a maximum residue level of 3 mg/kg for flupyradifurone in peas, shelled (succulent seeds), together with a median and a highest residue of 1.8 and 3.9 mg/kg respectively.

In field studies on succeeding crops, the mean, median and highest total residues in French beans were 0.98, 0.80 and 1.80 mg/kg respectively. The Meeting decided to add the mean residue found in field studies on succeeding crops of 0.98 mg/kg to the median residue obtained from garden peas residue trials of 1.8 mg/kg for an overall STMR for flupyradifurone in peas, shelled (succulent seeds) of 2.78 mg/kg.

The Meeting decided to add the highest residue of 1.80 mg/kg for French beans in the succeeding crop trials to 3.9 mg/kg (the highest residue found in supervised field trials) for an overall HR of 5.7 mg/kg.

The Meeting estimated a maximum residue level, an STMR and an HR for peas, shelled (succulent seeds) of 3, 2.78 and 5.7 mg/kg respectively.

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in lima beans from supervised trials according to the GAP in the USA was < 0.010, < 0.010, 0.011, 0.012, 0.025, 0.027, 0.062, 0.10 and 0.11 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in lima beans from supervised trials according to the GAP in the USA was < 0.06, 0.10, 0.13, 0.14, 0.19, 0.20, 0.41, 0.56 and 0.95 mg/kg (HR 0.97 mg/kg).

The Meeting estimated a maximum residue level of 0.2 mg/kg for flupyradifurone in beans, shelled (succulent = immature seeds), together with a median and highest residue of 0.19 and 0.97 mg/kg respectively.

In field studies on succeeding crops, the mean, median and highest total residues in French beans were 0.98, 0.80 and 1.80 mg/kg respectively. It was decided to add the mean residue found in field studies on succeeding crops of 0.98 mg/kg to the median residue obtained from supervised lima beans residue trials of 0.19 mg/kg for an overall STMR for flupyradifurone in beans, shelled (succulent = immature seeds) of 1.17 mg/kg.

The Meeting decided to add the highest residue of 1.80 mg/kg for French beans in the succeeding crop trials to 0.97 mg/kg (the highest residue found in supervised field trials) for an overall HR of 2.77 mg/kg.

The Meeting estimated a maximum residue level, an STMR and an HR for beans, shelled (succulent = immature seeds) of 0.2, 1.17 and 2.77 mg/kg respectively.

Legume vegetables with pods

Residue trials were conducted in common beans (eight trials), and snow peas (six trials) in the USA and Canada according to the foliar GAP in the USA for Crop Group 6 (two foliar applications at 205 g ai/ha, 10-day RTI, 7-day PHI).

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in common beans from supervised trials according to the GAP in the USA was 0.012, 0.063, 0.13, 0.16, 0.18, 0.21, 0.24 and 0.81 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in common beans from supervised trials according to the GAP in the USA was 1.3, 1.5, 1.5, 1.6, 1.7, 1.7, 2.4 and 3.0 mg/kg (HR 3.3 mg/kg).

The Meeting estimated a maximum residue level of 1.5 mg/kg for flupyradifurone in beans, except broad bean and soya bean (green pods and immature seeds) together with a median and highest residue of 1.65 and 3.3 mg/kg respectively.

In field studies on succeeding crops, the mean, median and highest total residues in French beans were 0.98, 0.80 and 1.80 mg/kg respectively. It was decided to add the mean residue found in field studies on succeeding crops of 0.98 mg/kg to the median residue obtained from supervised snow peas residue trials of 1.65 mg/kg for an overall STMR for flupyradifurone in peas (pods and succulent = immature seeds) of 2.63 mg/kg.

The Meeting decided to add the highest residue of 1.80 mg/kg for French beans in the succeeding crop trials to 3.3 mg/kg (the highest residue found in supervised field trials) for an overall HR of 5.1 mg/kg.

The Meeting estimated a maximum residue level, an STMR and an HR for beans, except broad bean and soya bean (green pods and immature seeds) of 1.5, 2.63 and 5.1 mg/kg respectively.

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in snow peas from supervised trials according to the GAP in the USA was 0.57, 0.58, 0.95, 0.98, 1.2, and 1.2 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in snow peas from supervised trials according to the GAP in the USA was 1.5, 1.6, 1.6, 1.8, 2.2 and 3.3 mg/kg (HR 3.7 mg/kg).

The Meeting estimated a maximum residue level of 3 mg/kg for flupyradifurone in peas (pods and succulent = immature seeds), together with a median and highest residue of 1.7 and 3.7 mg/kg respectively.

In field studies on succeeding crops, the mean, median and highest total residues in French beans were 0.98, 0.80 and 1.80 mg/kg respectively. It was decided to add the mean residue found in field studies on succeeding crops of 0.98 mg/kg to the median residue obtained from supervised snow peas residue trials of 1.7 mg/kg for an overall STMR for flupyradifurone in peas (pods and succulent = immature seeds) of 2.68 mg/kg.

The Meeting decided to add the highest residue of 1.80 mg/kg for French beans in the succeeding crop trials to 3.7 mg/kg (the highest residue found in supervised field trials) for an overall HR of 5.5 mg/kg.

The Meeting estimated a maximum residue level, an STMR and an HR for peas (pods and succulent = immature seeds) of 3, 2.68 and 5.5 mg/kg respectively.

Pulses

Residue trials were conducted in beans (10 trials, one in which only forage was collected), and peas (10 trials) in the USA and Canada, according to the foliar GAP in the USA for Crop Group 6 (two foliar applications at 205 g ai/ha, 10-day RTI, 7-day PHI).

The Meeting noted that the GAP was for USA Crop Group 6 which includes the Codex pulses group and considered a group maximum residue level for the pulses group, however the median residues for peas (dry) and beans (dry) differed by > 5-fold.

Beans (dry)

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in shelled dried beans from supervised trials according to the GAP in the USA was < 0.010, 0.011, 0.019, 0.036, 0.036, 0.043, 0.070, 0.12 and 0.24 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in shelled dried beans from supervised trials according to the GAP in the USA was 0.12, 0.49, 0.64, 0.73, 0.73, 0.87, 1.2, 1.5 and 7.4 mg/kg (HR 7.4 mg/kg).

The Meeting estimated a maximum residue level of 0.4 mg/kg for beans (dry), together with a median residue of 0.73 mg/kg.

In field studies on succeeding crops, the mean, median and highest total residues in dry field peas were 2.49, 2.56 and 3.77 mg/kg respectively. The Meeting decided to add the mean residue found in field studies on succeeding crops of 2.49 mg/kg to the median residue obtained from dried beans residue trials of 0.73 mg/kg for an overall STMR for flupyradifurone in beans (dry) of 3.22 mg/kg.

The Meeting estimated a maximum residue level and an STMR for beans (dry) of 0.4 and 3.22 mg/kg respectively.

Peas (dry)

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in shelled dried peas from supervised trials according to the GAP in the USA was 0.017, 0.13, 0.38, 0.45, 0.47, 0.67, 0.81, 1.0, 1.2 and 1.3 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in shelled dried peas from supervised trials according to the GAP in the USA was 0.067, 0.42, 0.69, 0.82, 0.83, 1.4, 1.7, 2.0, 2.1 and 6.2 mg/kg (HR 6.6 mg/kg).

The Meeting estimated a maximum residue level of 3 mg/kg for peas (dry), together with a median residue of 1.115 mg/kg.

The Meeting decided to add the mean residue found in field studies on succeeding crops of 2.49 mg/kg to the median residue obtained from dried peas residue trials of 1.115 mg/kg for an overall STMR for flupyradifurone in peas (dry) of 3.605 mg/kg.

The Meeting estimated a maximum residue level and an STMR for peas (dry) of 3 and 3.605 mg/kg respectively.

Noting that the use pattern is for the USA Subgroup 6C, the Meeting agreed that an STMR of 2.49 mg/kg (mean residue found in dried peas in field studies on succeeding crops) should apply to pulse crops on the USA label, which are not covered by the recommended Beans (dry) and Peas (dry) MRLs.

Soya bean (dry)

Residue trials were conducted in soya beans (20 trials) in the USA and Canada, according to the GAP in the USA for dry soya bean seed (two foliar applications at 205 g ai/ha, 10-day RTI, 21-day PHI).

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in soya beans from supervised trials according to the GAP in the USA was < 0.010 (4), 0.012, 0.015 (2), 0.019, 0.034, 0.053, 0.068, 0.069, 0.082, 0.15, 0.22, 0.25, 0.28, 0.36, 0.61 and 1.0 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in soya beans from supervised trials according to the GAP in the USA was < 0.060, 0.082, 0.085, 0.090, 0.11, 0.13, 0.25, 0.26, 0.66, 0.70, 1.2, 1.5, 1.7, 1.8, 1.8, 2.0, 3.7, 3.9, 4.1 and 11 (HR 11) mg/kg.

The Meeting estimated a maximum residue level and a median residue of 1.5 and 0.95 mg/kg respectively.

In field studies on succeeding crops, the mean, median and highest total residues in dry field peas were 2.49, 2.56 and 3.77 mg/kg respectively. The Meeting decided to add the mean residue found in field studies on succeeding crops of 2.49 mg/kg to the median residue obtained from soya beans residue trials of 0.95 mg/kg for an overall STMR for flupyradifurone in soya beans of 3.44 mg/kg.

The Meeting estimated a maximum residue level and an STMR for soya beans (dry) of 1.5 and 3.44 mg/kg respectively.

Root and tuber vegetables

Carrots

Residue trials were conducted in carrots in the USA and Canada according to the critical foliar GAP in the USA for Crop Subgroup 1B (two foliar applications at 205 g ai/ha, 10-day RTI, 7-day PHI).

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in carrots from supervised trials according to the GAP in the USA was < 0.010 (2), 0.014, 0.017, 0.020, 0.021, 0.027, 0.037, 0.059 and 0.60 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in carrots from supervised trials according to the GAP in the USA was 0.076, 0.11, 0.11, 0.13, 0.21, 0.23, 0.24, 0.46, 0.60 and 0.68 mg/kg (HR 1.1 mg/kg).

Radish

Residue trials were conducted in radishes in the USA and Canada according to the critical foliar GAP in the USA for Crop Subgroup 1B (two foliar applications at 205 g ai/ha, 10-day RTI, 7-day PHI).

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in radishes from supervised trials according to the GAP in the USA was 0.024, 0.029, 0.031, 0.037, 0.040, 0.043 and 0.046 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in radishes from supervised trials according to the GAP in the USA was 0.10, 0.11, 0.11, 0.12, 0.19, 0.28 and 0.31 mg/kg (HR 0.32 mg/kg).

The Meeting noted that the GAP was for the subgroup (root and tuber vegetables except potatoes), and considered a group maximum residue level. The median values for the carrot and radish data sets differed by less than 5-fold, and the data sets were statistically similar (Mann-Whitney test), therefore the Meeting agreed to combine the data sets:

For maximum residue level estimation: < 0.010 (2), 0.014, 0.017, 0.020, 0.021, 0.024, 0.027, 0.029, 0.031, 0.037 (2), 0.040, 0.043, 0.046, 0.059 and 0.60 mg/kg.

For dietary intake assessment: 0.076, 0.10, 0.11, 0.11, 0.11, 0.11, 0.12, 0.13, 0.19, 0.21, 0.23, 0.24, 0.28, 0.31, 0.46, 0.60 and 0.68 mg/kg (HR 1.1 mg/kg).

The Meeting estimated a maximum residue level of 0.7 mg/kg for flupyradifurone in root and tuber vegetables (except potato), together with a median and highest residue of 0.19 and 1.1 mg/kg.

In field studies on succeeding crops, the overall mean, median and highest total residues in carrot and turnip roots were 0.10, 0.08 and 0.27 mg/kg respectively. The Meeting decided to add the mean residue found in field studies on succeeding crops of 0.10 mg/kg to the median residue obtained from carrot and radish residue trials of 0.19 mg/kg for an overall STMR for flupyradifurone in root and tuber vegetables (except potato) of 0.29 mg/kg.

The Meeting decided to add the highest residue of 0.27 mg/kg for carrot and turnip roots in the succeeding crop trials to 1.1 mg/kg (the highest residue found in supervised field trials) for an overall HR of 1.37 mg/kg.

The Meeting estimated a maximum residue level, an STMR and an HR for root and tuber vegetables (except potato) of 0.7, 0.29 and 1.37 mg/kg respectively.

Potato

Residue trials were conducted in potatoes in the USA and Canada, according to the foliar GAP in the USA for Crop Subgroup 1C (two foliar applications at 205 g ai/ha, 7-day RTI, 7-day PHI).

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in potatoes from supervised trials according to the GAP in the USA was < 0.010 (12), 0.010 (2), 0.012, 0.020 (2), 0.022 and 0.037 (2) mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in potatoes from supervised trials according to the GAP in the USA was < 0.060 (9), 0.060, 0.062, 0.070, 0.070, 0.071, 0.072, 0.080, 0.088, 0.096, 0.12 and 0.12 mg/kg (HR 0.14 mg/kg).

The Meeting estimated a maximum residue level of 0.05 mg/kg for flupyradifurone in potatoes, together with a median and highest residue of 0.061 and 0.14 mg/kg respectively.

In field studies on succeeding crops, the mean, median and highest total residues in potatoes were 0.23, 0.20 and 0.43 mg/kg respectively. The Meeting decided to add the mean residue found in field studies on succeeding crops of 0.23 mg/kg to the median residue obtained from potato residue trials of 0.061 mg/kg for an overall STMR for flupyradifurone in potatoes of 0.291 mg/kg.

The Meeting decided to add the highest residue of 0.43 mg/kg for potatoes in the succeeding crop trials to 0.14 mg/kg (the highest residue found in supervised field trials) for an overall HR of 0.57 mg/kg.

The Meeting estimated a maximum residue level, an STMR and an HR for potatoes of 0.05, 0.29 and 0.57 mg/kg respectively.

The Meeting noted that the GAP in the USA for Crop Subgroup 1C also includes sweet potato and agreed that the results of the USA and Canada potato trials matching this GAP could be used to estimate a maximum residue level for sweet potato. The Meeting estimated a maximum residue level, an STMR and an HR for sweet potatoes of 0.05, 0.29 and 0.57 mg/kg respectively.

Stalk and stem vegetables—Celery

Residue trials were conducted in celery (10 trials) in the USA and Canada, according to the GAP in the USA for Crop Group 4 (two foliar applications at 205 g ai/ha, 7-day RTI, 1-day PHI).

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in celery stalk from supervised trials according to the GAP in the USA was 0.22, 1.1, 2.0, 2.1, 2.2, 2.4, 3.2, 3.5 and 6.0 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in celery stalk from supervised trials according to the GAP in the USA was 0.27, 1.1, 2.0, 2.2, 2.2, 2.4, 3.2, 3.6 and 6.1 mg/kg (HR 6.8 mg/kg).

The Meeting estimated a maximum residue level of 9 mg/kg for flupyradifurone in celery, together with a median and highest residue and of 2.2 and 6.8 mg/kg (based on the total residue data for untrimmed stalks).

No data from studies on follow crops are available for celery and other stalk and stem vegetables.

In field studies on succeeding crops, the mean, median and highest total residues in leeks were 0.18, 0.13 and 0.39 mg/kg respectively. The Meeting decided to add the mean residue found in field studies on succeeding crops of 0.18 mg/kg to the median residue obtained from celery residue trials of 2.2 mg/kg for an overall STMR for flupyradifurone in celery of 2.38 mg/kg.

The Meeting decided to add the highest residue of 0.39 mg/kg for leeks in the succeeding crop trials to 6.8 mg/kg (the highest residue found in supervised field trials) for an overall HR of 7.19 mg/kg.

The Meeting estimated a maximum residue level, an STMR and an HR for celery of 9, 2.38 and 7.19 mg/kg respectively.

Short term dietary exposure assessment showed that residues in celery exceed the acute reference dose (ARfD) of 0.2 mg/kg bw, at 120% for children. No alternative GAP for celery was available.

Cereal Grains

Barley

Twenty residue trials were conducted in barley in the USA and Canada according to the GAP in the USA for Crop Group 15 (except rice) (two foliar applications at 205 g ai/ha, 7-day RTI, 21-day PHI). Three trials which showed residues after planting seed treated with flupyradifurone are not considered as there is no registered use pattern.

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in barley grain from supervised trials according to the GAP in the USA was 0.038, 0.065, 0.096, 0.21, 0.24, 0.25, 0.27, 0.30, 0.31, 0.44, 0.46, 0.48, 0.68 (2), 0.71, 0.81, 0.84, 1.2, 1.7 and 2.3 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in barley grain from supervised trials according to the GAP in the USA was 0.53, 0.55, 0.67, 0.69, 0.74, 0.78, 0.79, 0.82, 0.83, 0.88, 0.89, 0.91, 1.1, 1.3, 1.3, 1.3, 1.4, 1.5, 1.8 and 2.4 mg/kg (HR 2.5 mg/kg).

Wheat

Twenty-nine residue trials were conducted in wheat in the USA and Canada, twenty-eight according to the GAP in the USA for Crop Group 15 (except rice) (two foliar applications at 205 g ai/ha, 7-day

RTI, 21-day PHI). Three trials which showed residues after planting seed treated with flupyradifurone are not considered as there is no registered use pattern.

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in wheat grain from supervised trials according to the GAP in the USA was 0.016, 0.024, 0.031, 0.033, 0.034, 0.040, 0.050, 0.059, 0.074, 0.090 (2), 0.10 (2), 0.15 (2), 0.16 (2), 0.17, 0.18, 0.21, 0.22, 0.23, 0.26, 0.34, 0.37, 0.58, 0.61 and 0.73 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in wheat grain from supervised trials according to the GAP in the USA was 0.083, 0.090, 0.10, 0.21, 0.24, 0.27, 0.30, 0.30, 0.38, 0.57, 0.60, 0.66, 0.67, 0.70, 0.74, 0.77, 0.78, 0.79, 0.80, 0.83, 0.90, 0.93, 1.1, 1.2, 1.6, 1.9, 2.6 and 2.7 mg/kg (HR 2.8 mg/kg).

Sorghum

Nine residue trials were conducted in sorghum in the USA, according to the GAP in the USA for Crop Group 15 (except rice) (two foliar applications at 205 g ai/ha, 7-day RTI, 21-day PHI). Three trials which showed residues after planting seed treated with BYI 02960 480FS are not considered as there is no registered use pattern.

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in sorghum grain from supervised trials according to the GAP in the USA was 0.34, 0.46 (2), 0.50, 0.51, 0.79, 0.86, 1.4 and 1.5 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in sorghum grain from supervised trials according to the GAP in the USA was 0.41, 0.54, 0.58, 0.67, 0.70, 0.89, 0.94, 1.5 and 1.6 mg/kg (HR 1.9 mg/kg).

Maize

Twenty residue trials were conducted in field corn in the USA, according to or approximating the GAP in the USA for Crop Group 15 (except rice) (two foliar applications at 205 g ai/ha, 7-day RTI, 21-day PHI).

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in field corn grain from supervised trials according to the GAP in the USA was < 0.01 (15) and 0.011 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in field corn grain from supervised trials according to the GAP in the USA was < 0.060 (14), 0.061 and 0.13 mg/kg (HR 0.21 mg/kg).

The Meeting noted that the GAP was for the cereal grains group, other than rice and considered a group maximum residue level. The median residues for barley, wheat and sorghum differed by less than 5-fold, although the data sets were not statistically similar (Kruskal-Wallis test).

The Meeting estimated a maximum residue level of 3 mg/kg for flupyradifurone in cereal grains (except maize and rice) based on the data set for barley, together with a median residue of 0.885 mg/kg.

In field studies on succeeding crops, the overall mean, median and highest total residues in barley grain were 0.43, 0.22 and 1.3 mg/kg respectively. The Meeting decided to add the mean residue found in field studies on succeeding crops of 0.43 mg/kg to the median residue obtained from the barley residue trials of 0.885 mg/kg for an overall STMR for flupyradifurone in cereal grains (except maize and rice) of 1.32 mg/kg.

The Meeting estimated a maximum residue level and an STMR for cereal grains (except maize and rice) of 3 and 1.32 mg/kg respectively.

The Meeting estimated a maximum residue level of 0.015 mg/kg for flupyradifurone in maize, together with a median residue of 0.06 mg/kg.

In field studies on succeeding crops, the overall mean, median and highest total residues in barley grain were 0.43, 0.22 and 1.3 mg/kg respectively. The Meeting decided to add the mean residue found in field studies on succeeding crops of 0.43 mg/kg to the median residue obtained from the maize residue trials of 0.06 mg/kg for an overall STMR for flupyradifurone in maize of 0.49 mg/kg.

The Meeting estimated a maximum residue level and an STMR for maize of 0.015 and 0.49 mg/kg respectively.

Tree nuts

Pecans

Five residue trials were conducted in pecans in the USA according to the critical foliar GAP in the USA for Crop Group 14 except almonds (two foliar applications at 205 g ai/ha, 14-day RTI, 7-day PHI). Both concentrated and dilute applications were made. The highest observations for estimation of maximum residue levels and for dietary intake purposes have been selected from each trial.

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in pecans nutmeat without shell from supervised trials according to the GAP in the USA was < 0.010 (4) and 0.012 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in pecans nutmeat without shell from supervised trials according to the GAP in the USA was < 0.060 (4) and 0.062 mg/kg (HR 0.063 mg/kg).

Based on the dataset, the Meeting estimated a maximum residue level, an STMR and an HR of 0.015, 0.060 and 0.063 mg/kg respectively, for flupyradifurone in pecans.

Oilseeds

Cotton

Twelve residue trials were conducted in cotton in the USA, eleven according to or approximating the GAP in the USA for cotton (two foliar applications at 205 g ai/ha, 10-day RTI, 14-day PHI). Three of these trials also included plots to measure residues following planting of seed treated with BYI 02960 480 FS. The latter method of application is not registered and is not discussed further.

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in cotton seed from supervised trials (foliar use pattern) according to the GAP in the USA was 0.014, 0.018, 0.074, 0.081, 0.12, 0.13, 0.18, 0.20, 0.40 and 0.49 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in cotton seed from supervised trials (foliar use pattern) according to the GAP in the USA was 0.072, 0.12, 0.13, 0.21, 0.23, 0.24, 0.27, 0.47, 0.63 and 0.74 mg/kg (HR 0.86 mg/kg).

Based on the dataset, the Meeting estimated a maximum residue level and a median residue of 0.8 and 0.235 mg/kg respectively.

In field studies on succeeding crops, the overall mean, median and highest total residues in an oilseed crop (rape seed) were 0.16, 0.15 and 0.26 mg/kg respectively. The Meeting decided to add the mean residue found in rape seed field studies on succeeding crops of 0.16 mg/kg to the median residue obtained from the cotton residue trials of 0.235 mg/kg for an overall STMR for flupyradifurone in cotton seed of 0.40 mg/kg.

The Meeting estimated a maximum residue level and an STMR for cotton seed of 0.8 and 0.40 mg/kg respectively.

Peanuts

Twelve residue trials were conducted in peanuts in the USA, eleven according to or approximating the GAP in the USA for peanuts (two foliar applications at 205 g ai/ha, 10-day RTI, 7-day PHI).

For the estimation of the maximum residue level the ranked order of residues of flupyradifurone in peanuts from supervised trials according to the GAP in the USA was < 0.01 (5), 0.011, 0.014, 0.017 and 0.027 mg/kg.

For the estimation of dietary intake, the ranked order of total residues of flupyradifurone in peanuts from supervised trials according to the GAP in the USA was < 0.060 (4), 0.065, 0.067, 0.069, 0.082 and 0.087 mg/kg (HR 0.090 mg/kg

Based on the dataset, the Meeting estimated a maximum residue level, a median and highest residue of 0.04, 0.065 and 0.090 mg/kg respectively.

In field studies on succeeding crops, the overall mean, median and highest total residues in rape seed were 0.16, 0.15 and 0.26 mg/kg respectively. The Meeting decided to add the mean residue found in field studies on succeeding crops of 0.16 mg/kg to the median residue obtained from the peanut residue trials of 0.065 mg/kg for an overall STMR for flupyradifurone in peanuts of 0.225 mg/kg.

The Meeting decided to add the highest residue of 0.26 mg/kg for rape seed in the succeeding crop trials to 0.090 mg/kg (the highest residue found in supervised field trials) for an overall HR of 0.35 mg/kg.

The Meeting estimated a maximum residue level, an STMR and an HR for peanuts of 0.04, 0.225 and 0.35 mg/kg respectively.

Hops

Residue trials were conducted in hops in the USA according to the critical GAP in the USA for hops (one foliar application at 153 g ai/ha, 21-day PHI). Both concentrated and dilute applications were made. The highest observations for estimation of maximum residue levels and for dietary intake purposes have been selected from each trial.

The ranked order of residues of flupyradifurone in dried hops from supervised trials according to the GAP in the USA were in rank order 2.4, 2.7 and 4.7 mg/kg.

For the estimation of dietary exposure, the ranked order of total residues of flupyradifurone in dried hops from supervised trials according to the GAP in the USA were in rank order 3.4, 3.4 and 8.1 mg/kg.

No maximum residue level was recommended due to the insufficient number of trials (n = 3).

Animal feeds

The Meeting received supervised trials data for alfalfa forage and hay, clover forage and hay, pea, bean and soya bean forage and hay, peanut hay, barley hay and straw, maize and sweet corn forage and stover, sorghum forage and stover, wheat forage, hay and straw, almond hull and cotton gin by-products.

Where available, supplied moisture content values have been used to calculate residues on a dry weight basis. Where no moisture content for samples was provided, the default OECD values for moisture content were used.

Legume forages

No data from studies on legume forages as follow crops are available. In field studies on succeeding crops, the overall mean, median and highest total residues in barley forage were 0.19, 0.08 and 0.80 mg/kg respectively. Assuming a dry matter content of 30%, dry weight mean, median and highest residues in barley forage are 0.63, 0.27 and 2.7 mg/kg. The Meeting concluded that residues in legume forages due to an additional uptake *via* the roots, are insignificant in comparison to residue levels following direct treatment.

Bean forage (green)

Residue trials were conducted in beans (10 trials) in the USA and Canada according to the GAP in the USA for Crop Group 6 (two foliar applications at 205 g ai/ha, 10-day RTI and a 7-day PHI for bean forage).

For the calculation of the livestock animal dietary burden, the ranked order of total residues (fresh weight) of flupyradifurone in bean forage from supervised trials according to the GAP in the USA was 0.27, 1.0, 1.2, 1.4, 1.7, 1.7, 1.8, 2.8, 3.2 and 4.1 mg/kg.

For the calculation of the livestock animal dietary burden, the ranked order of total residues in bean forage samples converted to a dry weight basis from supervised trials according to the GAP in the USA was 1.1, 7.9, 9.2, 9.5, 12, 13, 14, 17, 18 and 21 mg/kg (HR 21 mg/kg).

The Meeting estimated median and highest residues values for flupyradifurone in bean forage of 12.5 and 21 mg/kg respectively (dry weight).

Pea vines (green)

Residue trials were conducted in peas (10 trials) in the USA according to or approximating the US GAP for USA Crop Group 6 (two foliar applications at 205 g ai/ha, 10-day RTI, and a 7-day PHI for pea forage).

For the calculation of the livestock animal dietary burden, the ranked order of total residues (fresh weight) of flupyradifurone in pea vines from supervised trials according to the GAP in the USA was 2.2, 3.3, 3.8, 3.9, 4.1, 4.4, 5.0, 5.1, 5.3 and 5.3 mg/kg.

For the calculation of the livestock animal dietary burden, the ranked order of total residues in pea vines samples converted to a dry weight basis from supervised trials according to the GAP in the USA was 14, 16, 17, 20, 22, 23, 25, 27, 28 and 43 mg/kg (HR 44 mg/kg).

The Meeting estimated median and highest residues values for flupyradifurone in pea forage of 22.5 and 44 mg/kg respectively (dry weight).

Soya bean forage (green)

Residue trials were conducted in soya beans (20 trials) in the USA and Canada according to the US GAP for USA Crop Group 6 (two foliar applications at 205 g ai/ha, 10-day RTI and a 7-day PHI for soya bean forage).

For the calculation of the livestock animal dietary burden, the ranked order of total residues (fresh weight) of flupyradifurone in soya bean forage from supervised trials according to the GAP in the USA was 1.7, 2.1, 2.5, 3.3, 3.6, 3.8, 4.1, 4.4 (2), 4.5, 4.9, 5.0, 5.1, 5.3, 5.3, 5.4, 5.6, 5.6, 5.9 and 8.2 mg/kg.

For the calculation of the livestock animal dietary burden, the ranked order of total residues in soya bean forage samples converted to a dry weight basis from supervised trials according to the GAP in the USA was 8.8, 11, 14, 15, 16, 19, 21, 21, 22, 23, 23, 23, 24, 24, 24, 29, 31, 35, 36 and 41 mg/kg (HR 46 mg/kg).

The Meeting estimated median and highest residues values for flupyradifurone in soya bean forage of 23 and 46 mg/kg respectively (dry weight).

Alfalfa forage (green)

Residue trials were conducted in alfalfa (13 trials) in the USA according to the GAP in the USA for alfalfa (two foliar applications at 205 g ai/ha, 10-day RTI, and a 7-day PHI for alfalfa forage).

For the calculation of the livestock animal dietary burden, the ranked order of total residues (fresh weight) of flupyradifurone in alfalfa forage from supervised trials according to the GAP in the USA was 1.4, 1.6, 2.9, 3.8, 4.0, 4.4, 4.4, 5.0, 5.0, 5.3, 5.6, 6.9 and 8.8 mg/kg.

For the calculation of the livestock animal dietary burden, the ranked order of total residues in alfalfa forage samples converted to a dry weight basis from supervised trials according to the GAP in the USA was 4.9, 7.9, 12, 16, 18, 19, 20, 22, 25, 26, 27, 34 and 46 mg/kg (HR 51 mg/kg).

The Meeting estimated median and highest residues values for flupyradifurone in alfalfa forage of 20 and 51 mg/kg respectively (dry weight).

Clover forage

Residue trials were conducted in clover (four trials) in the USA according to the GAP in the USA for clover (two foliar applications at 205 g ai/ha, 10-day RTI and a 7-day PHI for clover forage).

For the calculation of the livestock animal dietary burden, the ranked order of total residues (fresh weight) of flupyradifurone in clover forage from supervised trials according to the GAP in the USA at three locations was 4.7, 5.9 and 6.2 mg/kg.

For the calculation of the livestock animal dietary burden, the ranked order of total residues (dry weight) of flupyradifurone in clover forage from supervised trials according to the GAP in the USA at three locations was 16, 20 and 21 mg/kg.

The Meeting considered that there were insufficient data on which to base estimates of the median and highest residues.

Legume fodders

No data from studies on legume fodders as follow crops are available. In field studies on succeeding crops, the overall mean, median and highest total residues in barley fodder (straw) were 0.22, < 0.12 and 0.78 mg/kg respectively. Assuming a dry matter content of 89%, dry weight mean, median and highest residues in barley straw are 0.25, 0.13 and 0.88 mg/kg. The Meeting concluded that residues in legume fodders due to an additional uptake *via* the roots, are insignificant in comparison to residue levels following direct treatment.

Bean hay

Residue trials were conducted in beans (nine trials) in the USA and Canada according to the US GAP for USA Crop Group 6 (two foliar applications at 205 g ai/ha, 10-day RTI and a 7-day PHI for bean hay).

For the calculation of the maximum residue level, the ranked order of residues (fresh weight) of flupyradifurone in bean hay from supervised trials according to the GAP in the USA was < 0.040, 0.71, 2.2, 2.7, 3.0, 4.7, 7.6, 7.9 and 9.8 mg/kg.

For the calculation of the maximum residue level the ranked order of residues in bean hay samples converted to a dry weight basis from supervised trials according to the GAP in the USA was < 0.049, 0.80, 2.8, 3.2, 4.2, 5.9, 8.6, 12 and 15 mg/kg.

For the calculation of the livestock animal dietary burden, the ranked order of total residues (fresh weight) of flupyradifurone in bean hay from supervised trials according to the GAP in the USA was < 0.24, 2.0, 2.4, 3.7, 4.1, 5.9, 8.7, 10 and 11 mg/kg.

For the calculation of the livestock animal dietary burden, the ranked order of total residues in bean hay samples converted to a dry weight basis from supervised trials according to the GAP in the USA was < 0.30, 2.3, 3.1, 4.4, 5.7, 7.4, 9.9, 15 and 16 mg/kg (HR 17 mg/kg).

The Meeting estimated maximum residue level, median and highest residues values for flupyradifurone in bean hay of 30, 5.7 and 17 mg/kg (dry weight) respectively.

Pea hay

Residue trials were conducted in peas (10 trials) in the USA and Canada according to the US GAP for USA Crop Group 6 (two foliar applications at 205 g ai/ha, 10-day RTI and a 7-day PHI for pea hay).

For the calculation of the maximum residue level, the ranked order of residues (fresh weight) of flupyradifurone in pea hay from supervised trials according to the GAP in the USA was 4.7, 5.0, 6.4, 6.8, 8.0, 8.2, 9.1, 9.9, 10 and 15 mg/kg.

For the calculation of the maximum residue level, the ranked order of residues in pea hay samples converted to a dry weight basis from supervised trials according to the GAP in the USA was 7.8, 8.9, 9.8, 11, 12, 16, 19, 24, 26 and 33 mg/kg.

For the calculation of the livestock animal dietary burden, the ranked order of total residues (fresh weight) of flupyradifurone in pea hay from supervised trials according to the GAP in the USA was 5.9, 6.8, 8.8, 9.8, 11, 11, 11, 12, 13 and 19 mg/kg.

For the calculation of the livestock animal dietary burden, the ranked order of total residues in pea hay samples converted to a dry weight basis from supervised trials according to the GAP in the USA was 11, 12, 14, 14, 17, 22, 22, 30, 33 and 36 mg/kg (HR 36 mg/kg).

The Meeting estimated maximum residue level, median and highest residues values for flupyradifurone in pea hay of 50, 19.5 and 36 mg/kg (dry weight) respectively.

Soya bean hay

Residue trials were conducted in soya beans (20 trials) in the USA and Canada according to the GAP in the USA for Crop Group 6 (two foliar applications at 205 g ai/ha, 10-day RTI and a 7-day PHI for soya bean hay).

For the calculation of the maximum residue level, the ranked order of residues (fresh weight) of flupyradifurone in soya bean hay from supervised trials according to the GAP in the USA was 1.5, 2.6, 3.9, 4.2, 6.2, 6.4, 6.6, 6.6, 6.7, 6.9, 8.1, 8.3, 8.5, 8.5, 9.3, 11, 12, 13, 15 and 17 mg/kg.

For the calculation of the maximum residue level the ranked order of residues in soya bean hay samples converted to a dry weight basis from supervised trials according to the GAP in the USA was 2.1, 4.4, 4.6, 6.2, 7.2, 8.2, 8.6, 8.8, 9.3, 10, 12, 15, 15, 15, 15, 16, 18, 19, 20 and 29 mg/kg.

For the calculation of the livestock animal dietary burden, the ranked order of total residues (fresh weight) of flupyradifurone in soya bean hay from supervised trials according to the GAP in the USA was 3.4, 6.7, 8.4, 9.4, 9.5, 9.8, 10, 10, 10, 11, 11, 11, 11, 13, 13, 15, 16, 18, 20 and 21 mg/kg.

For the calculation of the livestock animal dietary burden, the ranked order of total residues in soya bean hay samples converted to a dry weight basis from supervised trials according to the GAP in the USA was 4.8, 11, 13, 13, 13, 13, 13, 13, 14, 15, 16, 18, 21, 22, 22, 23, 23, 24, 26 and 36 mg/kg (HR 41 mg/kg).

The Meeting estimated maximum residue level, median and highest residues values for flupyradifurone in soya bean hay of 40, 15.5 and 41 mg/kg (dry weight) respectively.

Alfalfa hay

Residue trials were conducted in alfalfa (13 trials) in the USA according to the GAP in the USA for alfalfa (two foliar applications at 205 g ai/ha, 10-day RTI and a 7-day PHI for alfalfa hay).

For the calculation of the maximum residue level, the ranked order of residues (fresh weight) of flupyradifurone in alfalfa hay from supervised trials according to the GAP in the USA was 2.5, 2.7, 4.2, 4.8, 5.5, 5.9, 6.1, 6.2, 7.4, 8.4, 9.3, 9.4 and 9.5 mg/kg.

For the calculation of the maximum residue level, the ranked order of residues in alfalfa hay samples converted to a dry weight basis from supervised trials according to the GAP in the USA was 3.0, 3.2, 5.1, 7.3, 7.9, 9.0, 9.2, 9.3, 10, 11, 13, 13 and 15 mg/kg.

For the calculation of the livestock animal dietary burden, the ranked order of total residues (fresh weight) of flupyradifurone in alfalfa hay from supervised trials according to the GAP in the USA was 7.1, 7.4, 7.4, 7.7, 8.2, 8.3, 10, 10, 11, 13, 14, 15 and 25 mg/kg.

For the calculation of the livestock animal dietary burden the ranked order of total residues in alfalfa hay samples converted to a dry weight basis from supervised trials according to the GAP in the USA was 7.6, 9.1, 9.4, 12, 13, 13, 14, 16, 18, 18, 19, 19 and 36 mg/kg (HR 42 mg/kg).

The Meeting estimated maximum residue level, median and highest residues values for flupyradifurone in alfalfa hay of 30, 14 and 42 mg/kg (dry weight) respectively.

Clover hay or fodder

Residue trials were conducted in clover (four trials) in the USA according to the GAP in the USA for clover (two foliar applications at 205 g ai/ha, 10-day RTI and a 14-day PHI for clover hay) and also at approximately 0.5 × the registered rate.

Sampling of four clover hay samples at the registered rate was conducted at 11, 12, 14 and 17-PHI. As the 12 and 14 day samples are from the same location, the Meeting considered that insufficient data was available at GAP to recommend an MRL or dietary parameters.

Peanut hay

Residue trials were conducted in peanuts (12 trials), in the USA according to the GAP in the USA for peanuts (two foliar applications at 205 g ai/ha, 10-day RTI, and a 7-day PHI for peanut hay).

For the calculation of the maximum residue level, the ranked order of residues (fresh weight) of flupyradifurone in peanut hay from supervised trials according to the GAP in the USA was 1.7, 2.0, 2.7, 3.7, 4.5, 5.0, 9.1, 10, 11 and 11 mg/kg.

For the calculation of the maximum residue level, the ranked order of residues in peanut hay samples converted to a dry weight basis from supervised trials according to the GAP in the USA was 2.0, 4.1, 5.4, 5.4, 5.7, 6.4, 10, 12, 13 and 16 mg/kg.

For the calculation of the livestock animal dietary burden, the ranked total order of total residues (fresh weight) of flupyradifurone in peanut hay from supervised trials according to the GAP in the USA was 3.8, 5.4 (2), 5.5, 6.0 (2), 12 and 13 (3) mg/kg.

For the calculation of the livestock animal dietary burden the ranked order of total residues in peanut hay samples converted to a dry weight basis from supervised trials according to the GAP in the USA was 6.0, 6.4, 7.2, 7.7, 10, 12, 14, 15 (2) and 19 mg/kg (HR 20 mg/kg).

The Meeting estimated maximum residue level, median and highest residues values for flupyradifurone in peanut hay of 30, 11 and 20 mg/kg (dry weight) respectively.

Wheat, sorghum, maize and sweet corn forages

In field studies on succeeding crops, the overall mean, median and highest total residues in barley forage were 0.19, 0.08 and 0.80 mg/kg respectively. Assuming a dry matter content of 30%, dry weight mean, median and highest residues in barley forage are 0.63, 0.27 and 2.7 mg/kg. The Meeting concluded that residues in cereal forages due to an additional uptake *via* the roots, are insignificant in comparison to residue levels following direct treatment.

Wheat forage

Residue trials were conducted in wheat (29 trials) in the USA and Canada according to the GAP in the USA for Crop Group 15 (except rice) (two foliar applications at 205 g ai/ha, 7-day RTI, and a 7-day PHI for wheat forage).

For the calculation of the livestock animal dietary burden, the ranked order of total residues (fresh weight) of flupyradifurone in wheat forage from supervised trials according to the GAP in the USA was 0.095, 0.11, 0.12, 0.12, 0.15, 0.15, 0.17, 0.22, 0.22, 0.27, 0.29, 0.41, 0.54, 0.55, 0.59, 0.62, 0.72, 1.1, 2.2, 2.3, 2.5, 2.8, 5.7, 5.9, 6.4, 9.5, 13 and 15 mg/kg.

For the calculation of the livestock animal dietary burden, the ranked order of total residues in wheat forage samples converted to a dry weight basis from supervised trials according to the GAP in the USA was 0.68, 0.69, 0.85, 0.85, 0.89, 1.0, 1.1, 1.3, 1.7, 1.8, 2.1, 2.4, 2.6, 2.9, 3.4, 3.8, 4.9, 5.4, 12, 13, 14, 15, 21, 24, 25, 41, 51 and 68 mg/kg (HR 77 mg/kg).

Sorghum forage (green)

Residue trials were conducted in sorghum (nine trials) in the USA according to the GAP in the USA for cereal grains (except rice) (two foliar applications at 205 g ai/ha, 7-day RTI, 7-day PHI for sorghum forage).

For the calculation of the livestock animal dietary burden, the ranked order of total residues (fresh weight) of flupyradifurone in sorghum forage from supervised trials according to the GAP in the USA was 2.3 (2), 2.5, 2.8 (2), 3.2, 3.4, 4.2 and 4.3 mg/kg.

For the calculation of the livestock animal dietary burden, the ranked order of total residues in sorghum forage samples converted to a dry weight basis from supervised trials according to the GAP in the USA was 6.5 (2), 6.6, 6.8, 9.7, 10, 11 and 12 (2) mg/kg (HR 14 mg/kg).

Maize and sweet corn forage

Residue trials were conducted in maize (20 trials) and sweet corn (13 trials) in the USA according to the GAP in the USA for cereal grains (except rice) (two foliar applications at 205 g ai/ha, 7-day RTI, 7-day PHI for maize and sweet corn forage).

For the calculation of the livestock animal dietary burden, the ranked order of total residues (fresh weight) of flupyradifurone in maize and sweet corn forage from supervised trials according to the GAP in the USA was 0.79, 0.87, 1.0, 1.4, 1.5, 1.5, 1.6, 1.7, 1.7, 1.8, 1.8, 1.9, 1.9, 1.9, 2.0, 2.0, 2.3, 2.5, 2.5, 2.6, 2.6, 2.8, 2.9, 2.9, 3.1, 3.3, 3.3, 3.8, 4.0 and 9.4 mg/kg.

For the calculation of the livestock animal dietary burden, the ranked order of total residues in maize and sweet corn forage samples converted to a dry weight basis from supervised trials according to the GAP in the USA was 3.7, 4.4, 4.5, 4.8, 4.8, 5.0, 5.5, 5.6, 5.8, 5.9, 6.0, 6.9, 6.9, 7.0, 7.6, 7.8, 8.0, 8.4, 8.5, 9.2, 10, 10, 11, 11, 12, 12, 14, 15, 25 and 58 (HR 65 mg/kg).

The Meeting noted that the GAPs for wheat, sorghum and maize and sweet corn forage were the same (2 × 205 g ai/ha foliar applications, 7-day RTI and a 7-day PHI). The medians for the data sets differed by less than 5-fold and the data sets are statistically similar (Kruskal-Wallis). The

Meeting agreed to combine the data sets for wheat, sorghum and maize and sweet corn forage for the purpose of estimating median and highest residue values.

Combined total residues data set for cereal forages (dry weight): 0.68, 0.69, 0.85, 0.85, 0.89, 1.0, 1.1, 1.3, 1.7, 1.8, 2.1, 2.4, 2.6, 2.9, 3.4, 3.7, 3.8, 4.4, 4.5, 4.8, 4.8, 4.9, 5.0, 5.4, 5.5, 5.6, 5.8, 5.9, 6.0, 6.5, 6.5, 6.6, 6.8, 6.9, 6.9, 7.0, 7.6, 7.8, 8.0, 8.4, 8.5, 9.2, 9.7, 10, 10, 10, 11, 11, 11, 12, 12, 12, 12, 12, 13, 14, 14, 15, 15, 21, 24, 25, 25, 41, 51, 58 and 68 mg/kg (HR 77 mg/kg).

The Meeting estimated a median residue and a highest residue of 6.9 and 77 mg/kg (dry weight) respectively for flupyradifurone in wheat, sorghum and maize forage, and agreed that these values could be extrapolated to all forages of cereal grains except rice.

Barley and wheat hay and straw, and sorghum and maize and sweet corn stovers

In field studies on succeeding crops, the overall mean, median and highest total residues in barley fodder (straw) were 0.22, < 0.12 and 0.78 mg/kg respectively. Assuming a dry matter content of 89%, dry weight mean, median and highest residues in barley straw are 0.25, 0.13 and 0.88 mg/kg. The Meeting concluded that residues in cereal fodders due to an additional uptake *via* the roots, are insignificant in comparison to residue levels following direct treatment.

Barley hay

Residue trials were conducted in barley (20 trials) in the USA and Canada according to the GAP in the USA for Crop Group 15 (except rice) (two foliar applications at 205 g ai/ha, 7-day RTI, and a 7-day PHI for barley hay).

For the calculation of the maximum residue level, the ranked order of residues (fresh weight) of flupyradifurone in barley hay from supervised trials according to the GAP in the USA was 0.33, 0.42, 0.73, 1.5, 1.6, 1.8, 2.0, 2.7, 3.3, 3.8, 5.2, 5.4, 5.8, 7.2, 8.8, 12, 17 and 24 mg/kg.

For the calculation of the maximum residue level, the ranked order of residues in barley hay samples converted to a dry weight basis from supervised trials according to the GAP in the USA was 0.51, 1.1, 1.6, 2.1, 2.4, 2.9, 3.2, 4.4, 4.6, 4.8, 5.6, 6.4, 9.9, 11, 12, 19, 22 and 28 mg/kg.

For the calculation of the livestock animal dietary burden, the ranked order of residues (fresh weight) of flupyradifurone in barley hay from supervised trials according to the GAP in the USA was 0.66, 0.89, 1.0, 1.9, 2.0, 2.2, 2.3, 2.4, 3.7, 4.4, 5.5, 6.1, 6.4, 7.5, 9.6, 14, 18 and 25 mg/kg.

For the calculation of the livestock animal dietary burden, the ranked order of residues in barley hay samples converted to a dry weight basis from supervised trials according to the GAP in the USA was 1.0, 2.2, 2.4, 2.9, 3.0, 3.2, 3.7, 3.8, 5.2, 5.4, 5.9, 7.2, 11, 11, 13, 22, 23 and 29 mg/kg (HR 31 mg/kg).

Barley straw

Residue trials were conducted in barley (20 trials) in the USA and Canada according to the GAP in the USA for Crop Group 15 (except rice) (two foliar applications at 205 g ai/ha, 7-day RTI, and a 21-day PHI for barley straw).

For the calculation of the maximum residue level, the ranked order of residues (fresh weight) of flupyradifurone in barley straw from supervised trials according to the GAP in the USA was 0.31, 0.33, 0.42, 0.42, 0.52, 0.61, 0.77, 0.92, 1.0, 1.3, 1.3, 1.4, 2.2, 2.5, 3.1, 3.8, 3.8, 4.0, 5.1 and 5.6 mg/kg.

For the calculation of the maximum residue level, the ranked order of residues in barley straw samples converted to a dry weight basis from supervised trials according to the GAP in the USA was 0.77, 0.82, 0.94, 1.0, 1.1, 1.1, 1.2, 1.5, 1.7, 1.7, 2.8, 2.9, 3.5, 4.9, 5.7, 5.7, 6.6, 6.9, 7.3 and 12 mg/kg.

For the calculation of the livestock animal dietary burden, the ranked order of residues (fresh weight) of flupyradifurone in barley straw from supervised trials according to the GAP in the USA was 0.41, 0.49, 0.58, 0.82, 0.83, 1.0, 1.1, 1.2, 1.3, 1.4, 1.4, 1.5, 2.5, 2.5, 3.5, 3.9, 4.1, 4.2, 5.2 and 5.6 mg/kg.

For the calculation of the livestock animal dietary burden, the ranked order of residues in barley straw samples converted to a dry weight basis from supervised trials according to the GAP in the USA was 1.2, 1.4, 1.4, 1.4, 1.5, 1.8, 1.8, 1.9, 1.9, 1.9, 3.2, 3.5, 4.0, 5.0, 5.9, 6.0, 6.7, 7.7, 7.8 and 12 mg/kg (HR 12 mg/kg).

Wheat hay

Residue trials were conducted in wheat (29 trials) in the USA and Canada according to the GAP in the USA for Crop Group 15 (except rice) (two foliar applications at 205 g ai/ha, 7-day RTI, and a 7-day PHI for wheat hay).

For the calculation of the maximum residue level, the ranked order of residues (fresh weight) of flupyradifurone in wheat hay from supervised trials according to the GAP in the USA was 2.5, 2.6, 3.5, 3.6, 4.3, 5.5, 5.7, 5.7, 5.9, 6.4, 6.6, 6.7, 7.2, 7.5, 7.8, 8.0, 8.1, 8.3, 8.4, 9.2, 9.9, 11, 11, 12, 13, 16, 16, 17 and 22 mg/kg.

For the calculation of the maximum residue level the ranked order of residues in wheat hay samples converted to a dry weight basis from supervised trials according to the GAP in the USA was 3.2, 3.3, 4.2, 4.9, 5.3, 6.6, 6.6, 6.6, 6.7, 7.5, 8.0, 8.5, 8.7, 9.0, 9.0, 9.3, 9.3, 9.7, 10, 11, 11, 12, 13, 14, 16, 19, 19, 20 and 26 mg/kg.

For the calculation of the livestock animal dietary burden, the ranked order of residues (fresh weight) of flupyradifurone in wheat hay from supervised trials according to the GAP in the USA was 3.5, 3.6, 3.9, 4.1, 5.6, 5.8, 5.9, 6.2, 6.4, 7.0, 7.3, 7.4, 7.7, 7.8, 8.2, 8.5, 8.9, 9.4, 9.9, 9.9, 10, 11, 12, 13, 13, 17, 18, 18 and 23 mg/kg.

For the calculation of the livestock animal dietary burden, the ranked order of residues in wheat hay samples converted to a dry weight basis from supervised trials according to the GAP in the USA was 4.4, 4.7, 4.7, 6.0, 6.4, 6.9, 7.0, 7.1, 7.2, 8.1, 8.3, 9.0, 9.1, 9.4, 9.6, 10, 10, 12, 12, 12, 12, 12, 15, 15, 17, 19, 20, 21 and 26 mg/kg (HR 28 mg/kg).

Wheat straw and fodder, dry

Residue trials were conducted in wheat (29 trials) in the USA and Canada according to the GAP in the USA for Crop Group 15 (except rice) (two foliar applications at 205 g ai/ha, 7-day RTI, and a 21-day PHI for wheat straw).

For the calculation of the maximum residue level, the ranked order of residues (fresh weight) of flupyradifurone in wheat straw from supervised trials according to the GAP in the USA was 0.24, 0.44, 0.58, 0.66, 0.93, 1.0, 1.1, 2.0, 2.0, 2.1, 2.5, 3.5, 3.7, 3.8, 4.0, 4.6, 4.6, 5.0, 5.7, 6.1, 6.9, 7.0, 7.0, 7.7, 8.1, 11, 13 and 19 mg/kg.

For the calculation of the maximum residue level, the ranked order of residues in wheat straw samples converted to a dry weight basis from supervised trials according to the GAP in the USA was 0.66, 1.0, 1.3, 1.5, 1.6, 1.7, 2.4, 2.5, 2.9, 3.9, 4.2, 4.4, 4.4, 5.8, 5.8, 6.2, 6.5, 6.9, 7.9, 8.5, 8.5, 8.9, 9.2, 9.3, 11, 13, 15 and 23 mg/kg.

For the calculation of the livestock animal dietary burden, the ranked order of residues (fresh weight) of flupyradifurone in wheat straw from supervised trials according to the GAP in the USA was 0.60, 0.95, 1.4, 1.5, 1.5, 1.6, 2.0, 2.3, 2.7, 3.0, 3.6, 3.8, 3.9, 4.1, 4.6, 4.7, 5.2, 5.3, 6.1, 6.7, 6.9, 7.0, 7.1, 7.9, 8.1, 11, 13 and 19 mg/kg.

For the calculation of the livestock animal dietary burden, the ranked order of residues in wheat straw samples converted to a dry weight basis from supervised trials according to the GAP in the USA was 1.7, 2.2, 2.5, 2.8, 2.9, 3.0, 3.6, 3.8, 3.9, 4.6, 4.6, 5.2, 6.0, 6.3, 6.3, 6.5, 7.8, 8.0, 8.2, 8.6, 8.9, 9.2, 9.4, 9.4, 12, 13, 15 and 23 mg/kg (HR 23 mg/kg).

Sorghum stover

Residue trials were conducted in sorghum (nine trials) in the USA according to the GAP in the USA for Crop Group 15 (except rice) (two foliar applications at 205 g ai/ha, 7-day RTI, 21-day PHI for sorghum stover).

For the calculation of the maximum residue level, the ranked order of residues (fresh weight) of flupyradifurone in sorghum stover from supervised trials according to the GAP in the USA was 0.97, 1.2, 1.3, 1.7, 2.3, 2.4 (2), 2.7 and 5.0 mg/kg.

For the calculation of the maximum residue level, the ranked order of residues in sorghum stover samples converted to a dry weight basis from supervised trials according to the GAP in the USA was 1.1, 1.4, 1.5, 1.9, 2.6, 2.7 (2), 3.1 and 5.7 mg/kg.

For the calculation of the livestock animal dietary burden, the ranked order of total residues (fresh weight) of flupyradifurone in sorghum stover from supervised trials according to the GAP in the USA was 1.1, 1.3, 1.4, 1.8, 2.4, 2.6, 2.7, 2.9 and 5.3 mg/kg.

For the calculation of the livestock animal dietary burden the ranked order of total residues in sorghum stover samples converted to a dry weight basis from supervised trials according to the GAP in the USA was 1.3, 1.5, 1.6, 2.0, 2.7, 3.0, 3.1, 3.3 and 6.0 mg/kg (HR 6.9 mg/kg).

Maize and sweet corn stover

Residue trials were conducted in maize (20 trials) and sweet corn (13 trials) in the USA according to the GAP in the USA for Crop Group 15 (except rice) (two foliar applications at 205 g ai/ha, 7-day RTI, 21-day PHI for maize and sweet corn stover).

For the calculation of the maximum residue level, the ranked order of residues (fresh weight) of flupyradifurone in maize and sweet corn stover from supervised trials according to the GAP in the USA was 0.53, 0.90, 1.1, 1.1, 1.2, 1.2, 1.4, 1.4, 1.4, 1.5, 1.5, 1.6, 1.7, 1.7, 1.8, 1.9, 2.1, 2.2, 3.0, 3.1, 3.2, 3.2, 3.4, 3.5, 3.6, 3.6, 4.6, 5.1, 5.9 and 8.2 mg/kg.

For the calculation of the maximum residue level, the ranked order of residues in maize and sweet corn stover samples converted to a dry weight basis from supervised trials according to the GAP in the USA was 1.6, 1.8, 2.2, 2.3, 2.3, 2.6, 2.9, 3.0, 3.2, 3.2, 3.2, 3.9, 4.2, 4.7, 5.0, 5.2, 5.3, 5.7, 5.9, 6.1, 6.2, 6.2, 6.6, 9.3, 9.9, 10, 11, 12, 12 and 27 mg/kg.

For the calculation of the livestock animal dietary burden, the ranked order of residues (fresh weight) of flupyradifurone in maize and sweet corn stover from supervised trials according to the GAP in the USA was 0.67, 0.95, 1.1, 1.2, 1.3, 1.3, 1.5, 1.5, 1.5, 1.5, 1.7, 1.7, 1.8, 1.8, 1.9, 2.1, 2.2, 2.2, 3.0, 3.3, 3.3, 3.4, 3.6, 3.6, 3.8, 3.8, 4.7, 5.2, 5.9 and 8.5 mg/kg.

For the calculation of the livestock animal dietary burden, the ranked order of residues in maize and sweet corn stover samples converted to a dry weight basis from supervised trials according to the GAP in the USA was 1.8, 1.9, 2.1, 2.4, 2.8, 2.9, 3.0, 3.3, 3.3, 3.7, 4.1, 4.3, 4.7, 5.3, 5.5, 5.6, 6.0, 6.0, 6.3, 6.6, 6.6, 6.7, 6.8, 9.7, 11, 11, 11, 12, 12 and 28 mg/kg (HR 32 mg/kg).

The Meeting noted that the GAPs for wheat and barley hay were the same (2 × 205 g ai/ha foliar applications, with a 7-day RTI and a 7-day PHI) and the GAPs for wheat and barley straw and sorghum and maize stover were the same (2 × 205 g ai/ha foliar applications, with a 7-day RTI and a 21-day PHI). The Meeting considered a group maximum residue level for straw and fodder of cereal grains. The Meeting noted that the median residues (for estimation of maximum residue levels) for the cereal straws and stovers differed by less than 5-fold, however the data sets were not statistically similar (Kruskal-Wallis). The Meeting similarly noted that the median residues for wheat and barley hay differed by less than 5-fold, although the data sets were not statistically similar (Mann-Whitney).

Based on the data for barley hay, the Meeting estimated a maximum residue level of 40 mg/kg for flupyradifurone in straw and fodder (dry) of cereal grains. The Meeting concluded that this maximum residue level was adequate to cover residues in hays and straws/stovers of cereals.

Based on the barley hay data, the Meeting estimated a highest residue value of 31 mg/kg (dry weight) for flupyradifurone in wheat and barley hay, and based on the wheat hay data, a median residue of 9.6 mg/kg (dry weight) was estimated. The Meeting agreed that these values could be extrapolated to oat, rye, millet and triticale hays.

Based on the wheat straw data, the Meeting estimated median and highest residues of 6.3 and 23 mg/kg (dry weight) for flupyradifurone in wheat and barley straw, and maize and sorghum stover. The Meeting agreed that these values could be extrapolated to oat, rye, millet and triticale straws.

Cotton gin by-products

Residue trials were conducted in cotton in the USA according to the critical foliar GAP in the USA for cotton (two foliar applications at 205 g ai/ha, 10-day RTI, 14-day PHI).

For the calculation of the livestock animal dietary burden, the ranked order of total residues of flupyradifurone in cotton gin by-products on a fresh weight basis from supervised trials according to GAP in the USA was 7.1, 8.3, 14, 19 and 21 mg/kg.

For the calculation of the livestock animal dietary burden, the ranked order of total residues of flupyradifurone in cotton gin by-products on a dry weight basis from supervised trials according to GAP in the USA was 9.6, 10, 15, 21 and 28 mg/kg (HR 29 mg/kg).

The Meeting estimated a median and highest residue of 15 and 29 mg/kg (dry weight) respectively for flupyradifurone in cotton gin by-products.

Fate of residues during processing

Data showed that flupyradifurone was not degraded during the simulation of pasteurisation (pH 4, 90 °C, 20 minutes), baking, boiling and brewing (pH 5, 100 °C, 60 minutes) and during sterilisation (pH 6, 120 °C, 20 minutes).

The Meeting also received processing studies for oranges, apples, grapes, cucumbers, tomatoes, soya beans, potatoes, barley, wheat, corn, cotton, peanuts, coffee and hops. The table below summarises STMR-P values calculated on the determined processing factors (total residues). In addition, the following maximum residue levels were estimated.

Apples

Based on the flupyradifurone (parent only) processing factor of 2.0 for dried apples and the pome fruit MRL of 0.9 mg/kg, the calculated expected highest residues in dried apples are 1.8 mg/kg. The Meeting estimated an MRL for flupyradifurone in apples, dried of 2 mg/kg.

Grapes

Based on the flupyradifurone (parent only) processing factor of 2.5 for raisin (mean of 2.1 and 2.9) and the grape MRL of 3 mg/kg, the calculated expected highest residues in raisins are 7.5 mg/kg. The Meeting estimated an MRL for flupyradifurone in dried grapes of 8 mg/kg.

Maize

Based on the flupyradifurone (parent only) processing factor of 2.8 for maize bran (mean of 1.8 and 3.8) and the maize MRL of 0.015 mg/kg, the calculated expected highest residues in maize bran are 0.042 mg/kg. The Meeting estimated an MRL for flupyradifurone in maize bran of 0.05 mg/kg.

Wheat

Based on the flupyradifurone (parent only) processing factor of 2.35 for wheat bran (mean of 2.3 and 2.4) and the cereal grain MRL of 3 mg/kg, the calculated expected highest residues in wheat bran are 7.05 mg/kg. The Meeting estimated an MRL for flupyradifurone in wheat bran of 8 mg/kg.

Based on the flupyradifurone (parent only) processing factor of 1.45 for wheat germ (median of 0.79, 1.3, 1.6 and 1.7) and the cereal grain MRL of 3 mg/kg, the calculated expected highest residues in wheat germ are 4.35 mg/kg. The Meeting estimated an MRL for flupyradifurone in wheat germ of 5 mg/kg.

Based on the flupyradifurone (parent only) processing factor of 1.4 for wheat whole meal (median of 1.1, 1.3, 1.5 and 1.6) and the cereal grain MRL of 3 mg/kg, the calculated expected highest residues in wheat whole meal are 4.2 mg/kg. The Meeting estimated an MRL for flupyradifurone in wheat whole meal of 5 mg/kg.

The processing (or transfer) factors derived from the processing studies and the resulting recommendations for STMR-Ps are summarised in the table below.

Processing factors from the processing of raw agricultural commodities (RACs) with field-incurred residues from foliar treatment with flupyradifurone

RAC	Processed commodity	Best estimate processing factor (total residues)	RAC STMR	Processed commodity STMR-P	RAC HR	Processed commodity HR-P
Oranges	Peel, ripe unwashed	1.85	0.505	0.93	2.2	4.1
	Juice	0.135		0.068		0.30
	Oil	0.135		0.068		0.30
	Pulp	0.21		0.11		0.46
	Pomace, wet	1.3		0.66		2.9
	Pomace, dried	4.5		2.3		9.9
	Marmalade	0.155		0.078		0.34
Apple	Whole fruit, washed	1.1	0.23	0.25	0.62	0.68
	Sauce	0.80		0.18		0.50
	Pomace, dried	3.95		0.91		2.4
	Juice	0.60		0.14		0.37
	Fruit, dried	1.9		0.44		1.2
Grape	Berry	0.865	0.63	0.54	2.3	2.0
	Pomace, grape	1.75		1.1		4.0
	Must	0.70		0.44		1.6
	Juice, pasteurised	0.69		0.43		1.6
	Wine at first taste test	0.415		0.26		0.95
	Jelly	0.295		0.19		0.68
	Raisin	2.5		1.6		5.8
Tomatoes	Juice	0.67	0.71	0.48	2.79	1.9
	Puree	1.5		1.1		4.2
	Paste	1.9		1.3		5.3
	Peel	2.1		1.5		5.9
	Preserve	0.71		0.50		2.0
	Fruit, dried	2.45		1.7		6.8
Soya bean	Aspirated grain fractions	7.1	3.44	24.4		

RAC	Processed commodity	Best estimate processing factor (total residues)	RAC STMR	Processed commodity STMR-P	RAC HR	Processed commodity HR-P
seed	Meal	1.35		4.6		
	Hull	0.76		2.6		
	Oil, refined	0.038		0.13		
	Milk	0.21		0.72		
	Defatted flour	1.55		5.3		
Potato	Crisps	1.25	0.291	0.36	0.57	0.71
	Flakes	1.55		0.45		0.88
	Peel, wet	0.596		0.17		0.34
	Starch	0.546		0.16		0.31
	Tuber with peel, cooked	1.05		0.31		0.60
	Tuber, steamed, cooked	0.546		0.16		0.31
Barley	Malt sprouts	0.79	1.315	1.04		
	Brewer's malt	0.49		0.64		
	Brewer's grain	0.069		0.091		
	Hops draff	0.44		0.58		
	Brewer's yeast	0.13		0.17		
	Beer	0.075		0.099		
	Pearl barley	0.12		0.16		
	Pearl barley rub-off	2.93		3.85		
Wheat	White flour	0.445	1.315	0.59		
	White bread	0.32		0.42		
	Whole meal	1.25		1.64		
	Whole meal bread	0.795		1.05		
	Wheat germ	1.25		1.64		
	Aspirated grain fractions	10.5		13.8		
	Bran	1.55		2.0		
	Gluten	0.40		0.53		
	Pasta, cooked	0.135		0.18		
	Pasta, dried and cooked	0.175		0.23		
	Pasta, dry	0.645		0.85		
	Pasta, fresh	0.51		0.67		
	Shorts	0.945		1.2		
	Starch	0.026		0.034		
Corn	Aspirated grain fractions	6.6	0.49	3.2		
	Bran	1.55		0.76		
	Flour	0.89		0.44		1
	Germ, dry milling	1.035		0.51		
	Meal, dry milled	0.895		0.44		
	Oil, dry milled	0.89		0.44		
	Starch	0.89		0.44		
Cotton	Oil, refined	0.20	0.395	0.079		
	Meal	0.83		0.33		
	Hull	0.99		0.39		
Peanuts	Meal	1.2	0.225	0.27	0.35	0.42
	Oil, refined	0.56		0.13		0.20
	Peanut butter	0.75		0.17		0.26
	Peanut, roasted	0.75		0.17		0.26

Residues in animal commodities

Estimated maximum and mean dietary burdens of farm animals

Dietary burden calculations for beef cattle and dairy cattle and poultry are provided below. The dietary burdens were estimated using the OECD diets listed in Appendix IX of the 2016 edition of the FAO Manual.

Potential cattle feed items include: alfalfa forage and hay, clover forage and hay, apple pomace, grape pomace, citrus dried pulp, barley grain, forage, hay and straw, brewer's grain, barley grain, wheat grain, maize grain, millet grain, rye grain, sorghum grain, triticale grain, forage, hay and straw, wheat milled by-products, maize aspirated grain fractions, maize meal, maize grain fodder and forage, maize milled by-products, millet forage and hay, oat forage and hay, rye forage and straw, carrot culls, potato culls, potato process waste, barley bran, cabbage heads, cotton seed, cotton seed meal and hulls, cotton gin by-products, soya bean forage and fodder (hay), soya beans, soya bean meal and hulls, soya bean aspirated grain fractions, sorghum forage and stover, bean and pea seed, bean vines and pea vines and hay/ fodder, peanut hay and peanut meal.

Summary of livestock dietary burden for flupyradifurone (ppm of dry matter diet)

	US-Canada		EU		Australia		Japan	
	max	mean	max	mean	Max	Mean	max	mean
Beef cattle	22.7	7.63	71.8 [A]	16.6	71.8 [A]	23 [C]	8.18	5.38
Dairy cattle	46.0	9.36	66.6	12.1	71.8 [B]	18.0 [D]	50.25	8.2

[A] Highest maximum beef or dairy cattle dietary burden suitable for HR and MRL estimates for mammalian meat

[B] Highest maximum dairy cattle dietary burden suitable for HR and MRL estimates for mammalian milk

[C] Highest mean beef or dairy cattle dietary burden suitable for STMR estimates for mammalian meat

[D] Highest mean dairy cattle dietary burden suitable for STMR estimates for mammalian milk

Potential poultry feed items include: apple pomace, carrot culls, cabbage heads, barley grain, forage, hay and straw, brewer's grain, wheat grain, forage, hay and straw, wheat milled by-products, maize grain fodder and forage, maize meal, maize milled by-products, potato culls and dried pulp (potato process waste), barley bran, cotton seed, cotton seed meal and hulls, cotton gin by-products, soya bean forage and fodder (hay), soya beans, soya bean meal and hulls, soya bean aspirated grain fractions, bean and pea seed, bean vines and pea vines and hay/ fodder.

Summary of poultry dietary burden for flupyradifurone (ppm of dry matter diet)

	US-Canada		EU		Australia		Japan	
	max	Mean	max	mean	Max	Mean	max	mean
Poultry Broiler	2.89	2.89	3.43	3.41	3.905	3.905	5.21	3.67
Poultry Layer	2.89	2.89	15.4 [A]	6.03 [B]	3.905	3.905	2.42	2.42

[A] Highest maximum poultry dietary burden suitable for HR and MRL estimates for poultry meat and eggs

[B] Highest maximum poultry dietary burden suitable for STMR estimates for poultry meat and eggs

Farm animal dietary burden

The Meeting received a lactating dairy cow feeding study which provided information on residues of flupyradifurone arising in tissues and milk when dairy cows were dosed for 29 days, at feeding levels equivalent to 0, 4.8, 23, 50 and 135 ppm flupyradifurone in the diet. Residues of parent, DFA, fpd-OH and fpd-AMCP were determined.

Total (parent + DFA) flupyradifurone residues in milk from the 135 ppm feed group reached plateau levels within two or four days of consecutive dosing. The residue in milk was primarily (60–90%) parent compound. Residues of parent + DFA did not concentrate in cream.

Residues of parent were observed in tissues (fat, kidney, liver and muscle) at every feeding level and it was the dominant residue. Total (parent + DFA) flupyradifurone residues at the 135 ppm feeding level, for example, were 1.4 mg/kg in fat, 5.3 mg/kg in kidney, 3.8 mg/kg in liver and 1.9 mg/kg in muscle with 71, 89, 89 and 80% of these residues respectively being parent.

The Meeting also received information on residues arising in tissues and eggs when laying hens were dosed with flupyradifurone for 28 days, at feeding levels equivalent to 0, 1.5, 6.5, 19.4 and 65.1 ppm in the diet. Residues of parent, DFA, fpd-OH and fpd-AMCP were determined.

Residues of all four analytes were present at the highest feeding level in eggs. DFA was the dominant residue. No quantifiable residues of parent were observed at the lower feeding levels (1.5 and 6.5 ppm). At the next highest feeding level residues of parent ranged from 0.01–0.026 mg/kg, while residues of DFA were approximately 0.45–0.56 mg/kg.

DFA was also the dominant residue in tissues (fat, liver and muscle). Total (parent + DFA) flupyradifurone residues at the 65.1 ppm feeding level, for example, were 1.2 mg/kg in fat, 3.4 mg/kg in liver and 2.3 mg/kg in muscle with 84, 99 and 98% of these residues respectively being DFA.

Animal commodity maximum residue levels

Cattle-STMR, HR and MRLs

For highest residue level estimation, the high residues in the cattle tissues were calculated by interpolating the maximum dietary burden for beef cattle (71.8 ppm) between the relevant feeding levels (49.6 and 135 ppm) in the dairy cow feeding study and using the highest tissue concentrations from individual animals within those feeding groups. For highest residue level estimation, the high residues in the cattle milk were calculated by interpolating the maximum dietary burden for dairy cattle (71.8 ppm) between the relevant feeding levels (49.6 and 135 ppm) in the dairy cow feeding study and using the highest mean milk concentrations from those feeding groups.

The STMR values for the tissues were taken from the 23.1 ppm feeding level from the dairy cow feeding study and using the mean tissue concentrations from that feeding group as the mean dietary burden for beef cattle was almost the same (23 ppm). The STMR values for the milk were calculated by interpolating the mean dietary burden for dairy cattle (18.0 ppm) with the 4.8 and 23.1 ppm feeding levels from the dairy cow feeding study and using the mean milk concentrations from those feeding groups.

Flupyradifurone Feeding Study	Feed Level (ppm) for milk residues	Residues (mg/kg) in milk	Feed Level (ppm) for tissue residues	Residues (mg/kg)			
				Muscle	Liver	Kidney	Fat
HR Determination (beef or dairy cattle)							
Feeding Study	49.6	0.308	49.6	0.910	2.17	2.37	0.489
	135	0.974	135	2.28	4.40	6.35	1.93
Dietary burden and estimate of highest residue	71.8	0.481	71.8	1.27	2.75	3.40	0.864
STMR Determination (beef or dairy cattle)							
Feeding Study	4.81	0.043	23.1	0.304	0.812	0.867	0.147
	23.1	0.129					
Dietary burden and estimate of highest residue	18.0	0.105	23	0.304	0.812	0.867	0.147

The Meeting estimated the following STMR values: milk 0.11 mg/kg; muscle 0.30 mg/kg; edible offal (based on kidney) 0.87 mg/kg and fat 0.15 mg/kg.

The Meeting estimated the following HR values: milk 0.48 mg/kg; muscle 1.27 mg/kg; edible offal (based on kidney) 3.40 mg/kg and fat 0.86 mg/kg.

The Meeting estimated the following maximum residue levels: milk 0.7 mg/kg; meat (mammalian except marine mammals) 1.5 mg/kg, edible offal (based on kidney) 4 mg/kg and mammalian fats (except milk fats) 1 mg/kg.

Poultry-STMR, HR and MRLs

For highest residue level estimation, the high residues in the hen tissues and eggs were calculated by interpolating the maximum dietary burden (15.4 ppm) with the 6.5 and 19.4 ppm feeding levels in the laying hen feeding study and using the highest tissue concentrations from individual animals within that feeding group and using the highest mean egg concentration from those feeding groups.

The STMR values for the tissues and eggs were calculated by extrapolating the mean dietary burden (6.03 ppm) with the 1.5 and 6.5 ppm feeding levels from the poultry feeding study and using the mean tissue and egg concentrations from those feeding groups.

Flupyradifurone Feeding Study	Feed Level (ppm) for egg residues	Residues (mg/kg) in egg	Feed Level (ppm) for tissue residues	Residues (mg/kg)		
				Muscle	Liver	Fat
HR Determination (poultry broiler or layer)						
Feeding Study	6.5 19.4	0.169 0.532	6.5 19.4	0.307 0.783	0.427 1.08	0.127 0.290
Dietary burden and estimate of highest residue	15.4	0.42	15.4	0.64	0.88	0.24
STMR Determination (poultry broiler or layer)						
Feeding Study	1.5 6.5	0.053 0.164	1.5 6.5	0.0868 0.294	0.107 0.419	0.0319 0.120
Dietary burden and estimate of highest residue	6.03	0.15	6.03	0.27	0.39	0.11

The Meeting estimated the following STMR values: egg 0.15 mg/kg; muscle 0.27 mg/kg; edible offal (based on liver) 0.39 mg/kg and fat 0.11 mg/kg.

The Meeting estimated the following HR values: egg 0.42 mg/kg; muscle 0.64 mg/kg; edible offal (based on liver) 0.88 mg/kg and fat 0.24 mg/kg.

The Meeting estimated the following maximum residue levels: eggs 0.7 mg/kg; poultry meat 0.8 mg/kg, poultry edible offal (based on liver) 1 mg/kg and poultry fats 0.3 mg/kg.

RECOMMENDATIONS

On the basis of the data obtained from supervised residue trials the Meeting concluded that the residue levels listed in Annex 1 are suitable for establishing maximum residue limits and for IEDI and IESTI assessment.

Definition of the residue (for compliance with the MRL for plant commodities): *Flupyradifurone.*

Definition of the residue (for estimation of dietary intake for plant commodities): *Sum of flupyradifurone, difluoroacetic acid (DFA) and 6-chloropyridine-3-carboxylic acid (6-CNA), expressed as parent equivalents.*

Definition of the residue (for compliance with the MRL and for estimation of dietary intake for animal commodities): *Sum of flupyradifurone and difluoroacetic acid (DFA), expressed as parent equivalents.*

The residue is not fat soluble.

DIETARY RISK ASSESSMENT

Long-term dietary exposure

The International Estimated Daily Intakes (IEDIs) for flupyradifurone were calculated for the 17 GEMS/ Food cluster diets, based on STMRs and STMRPs estimated by the current Meeting. The results are shown in Annex 3 to the 2016 Report.

The ADI is 0–0.08 mg/kg bw and the estimated IEDIs were 6–20% of the maximum ADI of 0.08 mg/kg bw. The Meeting concluded that the long-term dietary exposure to residues of flupyradifurone, from the uses that have been considered by the JMPR, is unlikely to present a public health concern.

Short-term dietary exposure

The 2015 JMPR established an ARfD of 0.2 mg/kg bw. The International Estimated Short-Term Intakes (IESTIs) for flupyradifurone were calculated for the food commodities for which STMRs and HRs were estimated and for which consumption data were available. The results are shown in Annex 4 to the 2016 Report.

For celery the IESTI represented 120% of the ARfD for children. For leaf lettuce the IESTI represented 250% of the ARfD for children. For mustard greens the IESTI represented 250% of the ARfD for the general population and 610% for children. For spinach the IESTI represented 130% of the ARfD for the general population and 420% for children. No alternative GAP for celery, leaf lettuce, mustard greens and spinach was available. On the basis of the information provided to the JMPR, the Meeting concluded that the short-term dietary exposure to flupyradifurone from the consumption of celery, leaf lettuce, mustard greens and spinach may present a public health concern.

Estimates of intakes for the other commodities considered by the 2016 JMPR varied from 0–90% of the ARfD (0.2 mg/kg bw). The Meeting concluded that apart from celery, leaf lettuce, mustard greens and spinach, the short-term dietary exposure to residues of flupyradifurone, from uses considered by the current Meeting, is unlikely to present a public health concern.

5.13 IMAZETHAPYR (289)

TOXICOLOGY

Imazethapyr is the ISO-approved common name for 5-ethyl-2-[(*RS*)-4-isopropyl-4-methyl-5-oxo-2-imidazolin-2-yl]nicotinic acid (IUPAC), with the CAS number 81335-77-5. It acts as a herbicide by inhibition of the plant enzyme acetolactate synthase.

Imazethapyr has not been evaluated previously by JMPR and was reviewed by the present Meeting at the request of CCPR.

This evaluation is based mainly on the study reports submitted by the sponsor. All critical studies contained statements of compliance with GLP, unless otherwise specified. Most toxicological studies were conducted according to internationally recognized guidelines, except where indicated otherwise.

A literature search was conducted, and the articles relevant to a toxicological or human health evaluation were included in the evaluation and are described in the appropriate sections.

Biochemical aspects

The absorption, excretion, tissue residues and metabolism of ^{14}C-labelled imazethapyr were investigated in rats. The administered ^{14}C-labelled imazethapyr in oral doses of 10 and 1000 mg/kg bw was readily excreted; greater than 94% of the dose was eliminated in the urine and faeces within 48 hours. Urinary elimination of administered radiocarbon after 7 days was essentially complete in both sexes. The elimination of administered radiocarbon in faeces after 7 days ranged from 2.5% to 4.2% in males and from 1.2% to 4.1% in females. Radiocarbon eliminated as $^{14}CO_2$ accounted for less than 1% of the dose for all treatments. When comparing the effects seen in groups receiving a single dose of radiolabelled test material (low-dose group) with groups receiving consecutive doses of non-radiolabelled test material (at the same daily dosage rate) followed by a single dose of radiolabelled test material, virtually no differences in elimination were evident. Total ^{14}C residues in major organs and tissues at 7 days after treatment were generally low. There were no indications for accumulation in tissues or organs.

Imazethapyr was metabolized to only a limited extent. The metabolite OH-imazethapyr (CL 288511, the 1-hydroxyethyl derivative of imazethapyr) was detected in faeces and urine, amounting to 0.8–2.2% of the administered dose.

Toxicological data

Imazethapyr was of low acute toxicity after oral, dermal and inhalation exposure. The oral LD_{50} in mice was greater than 5000 mg/kg bw, and the oral LD_{50} in rats and rabbits was greater than 2000 mg/kg bw. The dermal LD_{50} in rats and rabbits was greater than 2000 mg/kg bw, and the inhalation LC_{50} in rats was greater than 3.27 mg/L. In rabbits, imazethapyr was not irritating to the skin but induced slight transient eye irritation. In a guinea-pig Buehler test, no skin sensitization occurred.

Short-term toxicity studies with oral administration were conducted in the rat and dog. Imazethapyr was generally of low toxicity, and no common effect could be identified among species.

In a 13-week toxicity study, groups of rats received diets containing imazethapyr at a concentration of 0, 1000, 5000 or 10 000 ppm (equal to 0, 78, 393 and 779 mg/kg bw per day for males and 0, 86, 427 and 856 mg/kg bw per day for females, respectively). The NOAEL was 5000 ppm (equal to 393 mg/kg bw per day), based on hepatocellular necrosis at 10 000 ppm (equal to 779 mg/kg bw per day).

In a second 13-week toxicity study, groups of rats received diets containing imazethapyr at concentrations adjusted to maintain target dose levels of 0, 150, 400 and 1000 mg/kg bw per day (achieved dose levels were 0, 151, 408 and 1009 mg/kg bw per day for males and 0, 145, 405 and 997 mg/kg bw per day for females, respectively). The NOAEL was 997 mg/kg bw per day, based on the absence of adverse effects up to the highest dose tested.

In a 90-day toxicity study, groups of dogs received diets containing imazethapyr at a concentration of 0, 1000, 5000 or 10 000 ppm (equivalent to 0, 25, 125 and 250 mg/kg bw per day, respectively). The NOAEL was 10 000 ppm (equivalent to 250 mg/kg bw per day), based on the absence of adverse effects up to the highest dose tested.

In a 12-month toxicity study, groups of dogs received diets containing imazethapyr at a concentration of 0, 1000, 5000 or 10 000 ppm (equal to 0, 36.1, 177 and 358 mg/kg bw per day for males and 0, 37.7, 198 and 382 mg/kg bw per day for females, respectively). The NOAEL was 10 000 ppm (equal to 358 mg/kg bw per day), based on the absence of adverse effects up to the highest dose tested.

In an 18-month toxicity and carcinogenicity study, groups of mice received diets containing imazethapyr at a concentration of 0, 1000, 5000 or 10 000 ppm (equivalent to 0, 150, 750 and 1500 mg/kg bw per day, respectively). The NOAEL was 5000 ppm (equivalent to 750 mg/kg bw per day), based on lower body weights at 10 000 ppm (equivalent to 1500 mg/kg bw per day). The Meeting concluded that no treatment-related increases in tumour incidence were observed in this study.

In a 2-year toxicity and carcinogenicity study, groups of rats received diets containing imazethapyr at a concentration of 0, 1000, 5000 or 10 000 ppm (equal to 0, 44, 222 and 447 mg/kg bw per day for males and 0, 55, 276 and 562 mg/kg bw per day for females, respectively). The NOAEL was 1000 ppm (equal to 55 mg/kg bw per day), based on a significant decrease in body weight gain in females at 5000 ppm (equal to 276 mg/kg bw per day). The Meeting concluded that no treatment-related increases in tumour incidence were observed in this study.

The Meeting concluded that imazethapyr is not carcinogenic in mice or rats.

Imazethapyr was tested for genotoxicity in a range of assays, both in vitro and in vivo. Imazethapyr was negative in Ames tests, an in vitro HPRT study with metabolic activation and an in vitro unscheduled DNA synthesis test in rat hepatocytes, but it resulted in increases in chromosomal aberrations in vitro and HPRT gene mutant frequency without metabolic activation. However, there was no genotoxic activity in follow-up in vivo studies on clastogenicity/aneugenicity. Although no follow-up in vivo study on the induction of gene mutations was submitted, the Meeting considered it likely that imazethapyr acted via a mechanism or mechanisms exhibiting a threshold rather than via DNA reactivity.

Overall, the Meeting considered that the available studies provided no evidence of genotoxic effects in vivo and concluded that imazethapyr was unlikely to be genotoxic to humans from exposure through the diet.

A two-generation reproductive toxicity study in rats was conducted with imazethapyr using dietary concentrations of 0, 1000, 5000 and 10 000 ppm (equivalent to 0, 67, 333 and 667 mg/kg bw per day, respectively). The NOAELs for adverse effects on parental animals and reproduction were 10 000 ppm (equivalent to 667 mg/kg bw per day), based on the absence of adverse effects up to the highest dose tested. The NOAEL for adverse effects on offspring was 5000 ppm (equivalent to 333 mg/kg bw per day), based on reduced offspring body weights at 10 000 ppm (equivalent to 667 mg/kg bw per day).

In a rat developmental toxicity study that tested imazethapyr at gavage doses of 0, 125, 375 and 1125 mg/kg bw per day, the NOAEL for maternal toxicity was 375 mg/kg bw per day, based on clinical signs of toxicity occurring after several doses at 1125 mg/kg bw per day. The NOAEL for embryo and fetal effects was 375 mg/kg bw per day, based on increased resorptions and delayed development at 1125 mg/kg bw per day.

In a rabbit developmental toxicity study that tested imazethapyr at gavage doses of 0, 100, 300 and 1000 mg/kg bw per day, the NOAEL for maternal toxicity was 300 mg/kg bw per day, based on mortality observed between gestation days 17 and 22 at 1000 mg/kg bw per day. The NOAEL for embryo and fetal effects was 300 mg/kg bw per day, based on abortions observed between gestation days 16 and 20 and slight decreases in fetal weight of equivocal toxicological relevance at 1000 mg/kg bw per day.

The Meeting concluded that imazethapyr is not teratogenic.

Toxicological data on metabolites and/or degradates

Data were submitted on a soil metabolite of imazethapyr, an intermediate in the synthesis of imazethapyr, two phototransformation products of imazethapyr and a plant metabolite of imazethapyr.

The acute oral LD_{50} for CL 266858 (5-hydroxy-2-[4-methyl-5-oxo-4-(propan-2-yl)-4,5-dihydro-1*H*-imidazol-2-yl]pyridine-3-carboxylic acid, a soil metabolite of imazethapyr) in rats was greater than 5000 mg/kg bw.

The acute oral LD_{50} for CL 180032 (5-ethyl-2,3-pyridinedicarboxylic acid anhydride, an intermediate in the synthesis of imazethapyr) in male rats was 3299 mg/kg bw. The acute dermal LD_{50} for CL 180032 in male rabbits was greater than 2000 mg/kg bw. Regarding skin irritation, one rabbit exhibited well-defined erythema and eschar formation; both findings returned to normal by day 14 after administration, and no cutaneous irritation was observed in any of the other animals during the study. The test material was corrosive to the eyes of rabbits.

The acute oral LD_{50} values for the phototransformation products CL 290084 (5-ethyl-pyridine-3-carboxylic acid) and CL 271197 (5-ethylpyridine-2,3-dicarboxylic acid) in rats were greater than 5000 mg/kg bw.

The acute oral LD_{50} for OH-imazethapyr (CL 288511, 5-(1-hydroxyethyl)-2-[4-methyl-5-oxo-4-(propan-2-yl)-4,5-dihydro-1*H*-imidazol-2-yl]pyridine-3-carboxylic acid, a plant metabolite of imazethapyr) in rats was greater than 5000 mg/kg bw.

The Meeting anticipated that humans would hydrolyse Glu-OH-imazethapyr (glucoside of OH-imazethapyr, CL 182704) to OH-imazethapyr after dietary exposure. In considering their structures, based on expert judgement, the Meeting concluded that it would be unlikely that the metabolites Glu-OH-imazethapyr and OH-imazethapyr would be of greater toxicity than imazethapyr.

Human data

No adverse effects on the health of workers involved in the manufacture of imazethapyr were observed. No information on accidental or intentional poisoning in humans is available.

Imazethapyr was included in the epidemiological studies based on the cohort of the Agricultural Health Study (AHS). No associations between imazethapyr exposure and an increased likelihood of developing a wide variety of adverse non-cancer health effects were reported.

In other epidemiological studies based on the cohort of the AHS, there are reports of an association of imazethapyr exposure with increased risk of developing cancer of the proximal colon and of the bladder. Regarding the risk of developing prostate cancer, a negative association was observed. These associations need to be balanced against the fact that these were seen from evaluations of a single cohort. Although data were stratified for confounders, it needs to be kept in mind that participants were also exposed to additional compounds.

Based on the conclusion that imazethapyr was unlikely to be genotoxic to humans from exposure through the diet, the lack of carcinogenicity in mice and rats and considerations of epidemiological data from occupational exposures, the Meeting concluded that imazethapyr is unlikely to pose a carcinogenic risk to humans from exposure through the diet.

The Meeting concluded that the existing database on imazethapyr was adequate to characterize the potential hazards to the general population, including fetuses, infants and children.

Toxicological evaluation

The Meeting established an ADI of 0–0.6 mg/kg bw on the basis of a NOAEL of 55 mg/kg bw per day for decreased body weight gain in females in a long-term study in rats, with application of a safety factor of 100.

Taking into account the close structural similarity of OH-imazethapyr and Glu-OH-imazethapyr with imazethapyr, the Meeting concluded that it would be unlikely that OH-imazethapyr and Glu-OH-imazethapyr would be of greater toxicity than imazethapyr and that these metabolites would be covered by the ADI for imazethapyr.

The Meeting concluded that it was not necessary to establish an ARfD for imazethapyr in view of its low acute oral toxicity and the absence of any toxicological effects, including developmental toxicity, that would likely be elicited by a single dose.

A toxicological monograph was prepared.

Levels relevant to risk assessment of imazethapyr

Species	Study	Effect	NOAEL	LOAEL
Mouse	Eighteen-month study of toxicity and carcinogenicity[a]	Toxicity	5 000 ppm, equivalent to 750 mg/kg bw per day	10 000 ppm, equivalent to 1 500 mg/kg bw per day
		Carcinogenicity	10 000 ppm, equivalent to 1 500 mg/kg bw per day[b]	–
Rat	Ninety-day toxicity study[a]	Toxicity	5 000 ppm, equal to 393 mg/kg bw per day	10 000 ppm, equal to 779 mg/kg bw per day
	Two-year study of toxicity and carcinogenicity[a]	Toxicity	1 000 ppm, equal to 55 mg/kg bw per day	5 000 ppm, equal to 276 mg/kg bw per day
		Carcinogenicity	10 000 ppm, equal to 447 mg/kg bw per day[b]	–
	Two-generation study of reproductive toxicity[a]	Reproductive toxicity	10 000 ppm, equivalent to 667 mg/kg bw per day[b]	–
		Parental toxicity	10 000 ppm, equivalent to 667 mg/kg bw per day[b]	–
		Offspring toxicity	5 000 ppm, equivalent to 333 mg/kg bw per day	10 000 ppm, equivalent to 667 mg/kg bw per day
	Developmental toxicity study[c]	Maternal toxicity	375 mg/kg bw per day	1 125 mg/kg bw per day

Species	Study	Effect	NOAEL	LOAEL
		Embryo and fetal toxicity	375 mg/kg bw per day	1 125 mg/kg bw per day
Rabbit	Developmental toxicity study[c]	Maternal toxicity	300 mg/kg bw per day	1 000 mg/kg bw per day
		Embryo and fetal toxicity	300 mg/kg bw per day	1 000 mg/kg bw per day
Dog	One-year study of toxicity[a]	Toxicity	10 000 ppm, equal to 358 mg/kg bw per day[b]	–

[a] Dietary administration.

[b] Highest dose tested.

[c] Gavage administration.

Acceptable daily intake (ADI; applies to imazethapyr, OH-imazethapyr and Glu-OH-imazethapyr, expressed as imazethapyr)

0–0.6 mg/kg bw

Acute reference dose (ARfD)

Unnecessary

Information that would be useful for the continued evaluation of the compound

Results from epidemiological, occupational health and other such observational studies of human exposure

Critical end-points for setting guidance values for exposure to imazethapyr

Absorption, distribution, excretion and metabolism in mammals	
Rate and extent of oral absorption	Rapid, > 90% in the rat
Dermal absorption	No data
Distribution	Widely distributed
Potential for accumulation	No potential for accumulation
Rate and extent of excretion	Rapidly excreted, mainly via urine and approximately 5% via faeces within 2 days
Metabolism in animals	Limited metabolism
Toxicologically significant compounds in animals and plants	Parent compound, OH-imazethapyr and Glu-OH-imazethapyr
Acute toxicity	
Rat, LD_{50}, oral	> 2 000 mg/kg bw
Rat, LD_{50}, dermal	> 2 000 mg/kg bw
Rat, LC_{50}, inhalation	> 3.27 mg/L
Rabbit, dermal irritation	Non-irritating
Rabbit, ocular irritation	Slightly irritating (reversible)

Guinea-pig, dermal sensitization	Non-sensitizing (Buehler)
Short-term studies of toxicity	
Target/critical effect	Hepatocellular necrosis (rat)
Lowest relevant oral NOAEL	393 mg/kg bw per day (rat)
	358 mg/kg bw per day (dog), highest dose tested
Lowest relevant dermal NOAEL	1 000 mg/kg bw per day, highest dose tested (rat, rabbit)
Lowest relevant inhalation NOAEC	No data
Long-term studies of toxicity and carcinogenicity	
Target/critical effect	Body weight
Lowest relevant NOAEL	55 mg/kg bw per day (rat)
Carcinogenicity	Not carcinogenic in mice or rats[a]
Genotoxicity[a]	
	Weight of evidence indicates unlikely to be genotoxic from exposure through the diet
Reproductive toxicity	
Target/critical effect	No reproductive toxicity; reduced pup weight (rat)
Lowest relevant parental NOAEL	667 mg/kg bw per day, highest dose tested (rat)
Lowest relevant offspring NOAEL	333 mg/kg bw per day (rat)
Lowest relevant reproductive NOAEL	667 mg/kg bw per day, highest dose tested (rat)
Developmental toxicity	
Target/critical effect	Resorptions and delayed development (rat); abortions, body weight (rabbit)
Lowest relevant maternal NOAEL	375 mg/kg bw per day (rat)
	300 mg/kg bw per day (rabbit)
Lowest relevant embryo/fetal NOAEL	375 mg/kg bw per day (rat)
	300 mg/kg bw per day (rabbit)
Neurotoxicity	
Acute neurotoxicity NOAEL	No data
Subchronic neurotoxicity NOAEL	No data; no indication of neurotoxic effects in 90-day rat study
Developmental neurotoxicity NOAEL	No data
Other toxicological studies	
Immunotoxicity	No data
Studies on toxicologically relevant metabolites	
OH-Imazethapyr	Rat oral LD_{50}: > 5 000 mg/kg bw
Human data	
Occupational	No effects reported in manufacturing workers
Cancer	Association of imazethapyr exposure and risk of developing colon or bladder tumours observed in one cohort study[a]

Non-cancer health effects	No associations between imazethapyr exposure and increased likelihood of developing a wide variety of adverse non-cancer health effects reported

[a] Unlikely to pose a carcinogenic risk to humans via exposure from the diet.

Summary

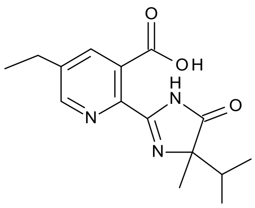
	Value	Study	Safety factor
ADI[a]	0–0.6 mg/kg bw	Long-term toxicity and carcinogenicity study (rat)	100
ARfD	Unnecessary	–	–

[a] Applies to imazethapyr, OH-imazethapyr and Glu-OH-imazethapyr, expressed as imazethapyr.

RESIDUE AND ANALYTICAL ASPECTS

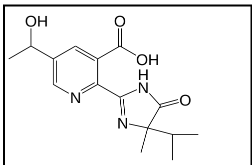
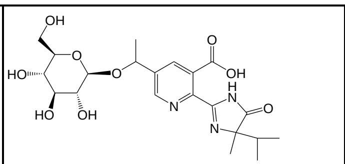
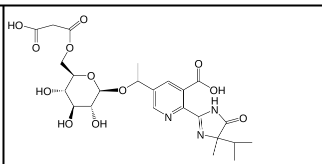
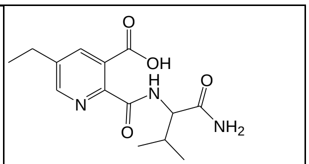
Imazethapyr is an imidazolinone herbicide developed for the control of grasses and broadleaf weeds in a variety of crops and is registered in many countries. The mode of action of imazethapyr, like other imidazolinone herbicides, is the inhibition of acetohydroxy acid synthase (AHAS) which catalyses the production of branched-chain amino acids.

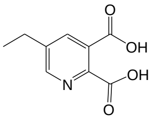
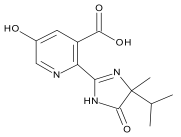
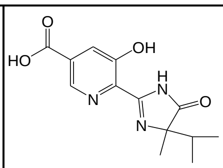
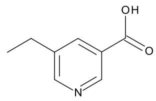
Imazethapyr was included in the Codex Priority List at the 46th Session of the CCPR in 2014 and is reviewed by JMPR for the first time.



The Meeting received information on physical and chemical properties, plant (including rotational crops) and animal metabolism, environmental fate in soil, analytical methods, storage stability, use patterns, supervised trials, processing, and farm animal feeding studies.

The following abbreviated names were used for the metabolites referred to in this Appraisal.

			
OH-Imazethapyr (CL 288511)	Glu-OH-Imazethapyr (CL 182704)	Malonyl-Glu-OH-Imazethapyr (MAE-CL 192705)	CL 290395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Plant metabolism

The Meeting received information on the fate of imazethapyr in pea, soya bean, maize, rape seed and alfalfa. For the studies, imazethapyr labelled with ^{14}C at position 6 of the pyridine ring ([pyridine-6-^{14}C]-imazethapyr; hereafter described as ^{14}C-imazethapyr) was used. In metabolism studies, total radioactive residues (TRR) are expressed in mg/kg imazethapyr equivalents unless otherwise stated.

Imidazolinone-tolerant varieties are commercially available for certain crops, such as maize and rape seed among others, and some were used in the metabolism studies. They have several variant AHAS genes which give imidazolinone tolerance and this would not affect the metabolism of imidazolinone in these plants.

When ^{14}C-imazethapyr was applied to the soil surface as a pre-plant incorporation treatment at a rate of 0.105 kg ai/ha (2 times the maximum US GAP rate) in a small outdoor plot, the TRR in the mature pea hay, pod and seed collected 110 days after treatment (DAT) were 0.19, 0.17 and 0.07 mg eq/kg, respectively.

When ^{14}C-imazethapyr was applied to pea plant at its 2–3 leaf stage (30 days after seeding) as post-emergence treatment at a rate 0.105 kg ai/ha in a small outdoor plot, the TRR in the mature pea hay, pod and seed collected 77 DAT were 0.19, 0.15 and 0.06 mg eq/kg, respectively. After either of the two treatments, the TRR in seeds were low (0.06 and 0.07 mg eq/kg).

Very high percentage (97–99% TRR) of the radioactive residues in the pea green vine samples collected at various timings and dry seed samples were extracted by aqueous acetone (50:50). In the aqueous acetone extracts, imazethapyr was the major residue on day 0 but decreased sharply to less than 3.3% of TRR (< 0.01 mg eq/kg) in the dry seed samples collected 53 days after post emergence treatment, and 110 days after pre-plant incorporation treatment. Imazethapyr was not detected in the green vine sample taken 75 days after pre-plant incorporation treatment.

In the green vine (75 DAT, pre-plant incorporation) and dry seed (110 DAT, pre-plant incorporation; and 53 DAT, post-emergence) samples, hydroxylated imazethapyr at position 1 of the ethyl side chain attached to position 5 of the pyridine ring (OH-Imazethapyr) and its glucoside (Glu-OH-Imazethapyr) were found at significant levels. The most abundant radioactive metabolite was Glu-OH-Imazethapyr ranging from 35 to 45% of TRR. However, the concentrations were quite low ranging between 0.01 and 0.03 mg eq/kg. The second most abundant metabolite was OH-Imazethapyr ranging from 16 to 34% of TRR (0.01–0.03 mg eq/kg). No other metabolites exceeded 10% TRR or 0.01 mg eq/kg.

When ^{14}C-imazethapyr was applied to the soil surface as a pre-plant incorporation treatment at a rate of 0.28 kg ai/ha (4 × US GAP rate) in a small outdoor plot, the TRR in the mature soya bean seed, hull and straw collected at maturity (4.5 months after treatment) were 0.02, 0.04 and 0.31 mg eq/kg, respectively.

When ^{14}C-imazethapyr was applied to soya bean plant at its 4 leaf stage as post-emergence treatment at a rate of 0.28 kg ai/ha in a small outdoor plot, the TRR in the mature soya bean seed, hull and straw collected at maturity (4 months after treatment) were 0.02, 0.04 and 0.34 mg eq/kg, respectively. TRR in green plant sharply declined after the post-emergence treatment, from 27 mg eq/kg at day 0 to 0.31 mg eq/kg 2 months after the treatment. After either of the two treatments, the TRR in seeds were low (0.02 mg eq/kg).

A mixture of methanol and water (80:20) extracted 88–96% of TRR from green plant samples taken 2 weeks and 1 month after both treatments and 66–71% of TRR from straw harvested at maturity. A mixture of methanol and water (50:50) further extracted 12% TRR from the straw sample from post-emergence treatment. The solution of methanol and water (80:20) extracted only around 30% TRR from the seed samples harvested at maturity with about 70% TRR unextracted.

In the aqueous methanol extracts of green plant samples, imazethapyr was found at very low proportion and concentrations, showing the tendency to decrease over time (e.g., 2 weeks after the post-emergence, 15% TRR at 0.78 mg eq/kg; and one month after 1.4% TRR at 0.009 eq mg/kg) and was not detected in straw samples harvested at maturity after both treatments.

The most abundant metabolite in green plants was Glu-OH-Imazethapyr showing the increasing tendency in proportion over time: in green plant samples taken one month after the treatments, 52% TRR (0.17 mg eq/kg) from pre-plant incorporation and 36% TRR (0.22 mg eq/kg) from post-emergence. However, this compound was not detected in straw.

OH-Imazethapyr was the second most abundant residue in green plant taken 2 weeks and 1 month after the treatment (22 and 13% of TRR corresponding to 0.06 and 0.04 mg eq/kg after pre-plant incorporation; and 4.6 and 8.0% TRR corresponding to 0.24 and 0.05 mg eq/kg) and the most abundant in straw at 37–42% TRR (0.075 and 0.10 mg eq/kg).

TRR in the seed samples were too low to characterize or identify metabolites.

^{14}C-imazethapyr was applied as pre-plant incorporation treatment to soil or post-emergence treatment to maize plants of two different imidazolinone-tolerant hybrids (Hybrid A and K) at their 4–5 leaf stage in a small outdoor plot, at a rate of 0.106 kg ai/ha (1.5 times the maximum US GAP rate). After post-emergence treatment, TRR in foliage declined sharply from 6.5–7.3 mg eq/kg at 0 DAT to less than 0.03 mg eq/kg 32 DAT (Hybrid K) or 90 DAT (Hybrid A). After pre-plant incorporation, TRR in foliage were below 0.03 mg eq/kg 32 DAT. TRR in cob or grain taken 90 DAT or later contained very low radioactivity (maximum at 0.014 mg eq/kg).

Aqueous acetone (50:50) extracted more than 90% of radioactivity in maize foliage taken up to 32 DAT for both treatments and decreased to 54–65% at maturity (109 or 117 DAT). From the grain samples collected at maturity, 65% or 75% or radioactivity was extracted with aqueous acetone.

Imazethapyr declined over time in foliage from post-emergence treatment: at 7 DAT the maximum of 25% of TRR (0.49 mg eq/kg); 15 DAT and later, less than 8.2% TRR and 109 DAT or 117 DAT, less than 1% TRR (< 0.003 mg eq/kg). In the grain samples collected 109 DAT (post-emergence) or 117 DAT (pre-plant) at maturity, imazethapyr accounted for 2.9% (< 0.003 mg eq/kg) (Hybrid K) or 15% (0.003 mg eq/kg) (Hybrid A) of TRR, respectively.

The predominant radioactive residue was OH-Imazethapyr in all maize samples analysed. It accounted for 24–48% TRR in the foliage samples of Hybrid K and 9.6–26% TRR in the foliage samples of Hybrid A. In grain samples harvested 109 DAT or 117 DAT, OH-Imazethapyr accounted for 32% TRR (0.004 mg eq/kg) (Hybrid K) or 27% TRR (0.005 mg eq/kg) (Hybrid A) respectively. Unlike pea or soya bean, Glu-OH-Imazethapyr was present in much less proportion and was never higher than 10% TRR.

In another study on maize grown in an outdoor small plot, ^{14}C-imazethapyr was applied to seedling of maize at the 4–5 leaf stage at a rate of 0.28 kg ai/ha (4 times the maximum US GAP rate). TRR in whole plant decreased from 15.4 mg eq/kg on the day of application to 0.28 mg eq/kg at 15 DAT and to 0.07 mg eq/kg at 60 DAT. TRR in grain harvested at maturity (97 DAT) was 0.02 mg eq/kg even at 4 times higher application rate.

Aqueous acetone extracted 78–106% TRR in whole plant samples taken at various times up to the harvest time and grain samples harvested at maturity. The proportion of unextracted radioactivity gradually increased over time to reach 28% TRR (0.02 mg eq/kg) in whole plant (excluding grain) 94 DAT. From the radioactivity remaining in the post-extraction solid of whole plant taken 94 DAT, 3.3% of TRR was extracted using 2% HCl in methanol and 14% TRR using 6N NaOH, with 6.0% (0.005 mg eq/kg) still unextracted.

Imazethapyr accounted for 94% TRR in whole plant immediately after the treatment but decreased significantly over time, and at 30 DAT and later around 3% TRR or less and < 0.005 eq mg/kg. In grain sample, it was less than 1% TRR and < 0.005 mg eq/kg. OH-Imazethapyr increased in proportion over time and accounted for 51% TRR (0.14 mg eq/kg) 15 DAT, reached 62% TRR (0.04 mg eq/kg) 60 DAT and declined to 45% (0.03 mg eq/kg) 94 DAT. In the grain sample, OH-Imazethapyr accounted for 71% TRR at 0.014 mg eq/kg. Glu-OH-Imazethapyr was present at significantly lower proportion and concentrations but gradually increased to reach 8.3% of TRR at 94 DAT in whole plant (excluding grain). In the grain, Glu-OH-Imazethapyr accounted for 8.4% of TRR but less than 0.005 mg eq/kg. In the 6N NaOH extract, only one discernible peak was observed that was identified as Glu-OH-Imazethapyr and it accounted for 3.5% TRR.

A single foliar spray of ^{14}C-imazethapyr was applied to imidazolinone-tolerant rape seed grown in a small outdoor plot at a rate of 0.054 kg ai/ha (3.6 times the maximum GAP rate in Canada) when seedlings were at the 3–4 leaf stage.

TRR in plants immediately after the treatment were 1.6–2.6 mg eq/kg but TRR in rape seed harvested at the maturity was less than 0.01 mg eq/kg. Characterization and identification of metabolite was not conducted due to the low TRR.

Alfalfa (grown from the seeds and established) grown in a small outdoor plots were treated with ^{14}C-imazethapyr at a rate of 0.15 kg ai/ha (ca 1.4 times the maximum US GAP) (seedlings at the first trifoliate stage, dormant established alfalfa and late treatment of established alfalfa).

TRR in the alfalfa forage declined sharply after the treatment of seedlings of or established alfalfa (29 or 64 mg eq/kg at 0 DAT for treatment of seedlings, 19 mg eq/kg at 0 DAT for treatment of dormant established alfalfa, and 6.9 mg eq/kg at 0 DAT for late treatment of established alfalfa; declined to less than 0.7 mg eq/kg at 28 DAT in all samples). At mature harvest, TRR in hay was at the maximum 0.54 mg eq/kg.

Aqueous acetone extracted significant proportions of radioactive residue ranging between 70 and 88% of TRR. Acidic methanol extracted additional radioactivity.

In alfalfa forage and hay, the predominant metabolite in the aqueous acetone extracts was Glu-OH-Imazethapyr (14–45% TRR, up to 0.21 mg eq/kg) and the second most abundant metabolite was OH-Imazethapyr (7.7–21% TRR, up to 0.14 mg eq/kg).

Unlike other plants tested, from alfalfa forage and hay, an additional metabolite, malonic acid ester of Glu-OH-Imazethapyr (malonyl-Glu-OH-Imazethapyr), was detected in the aqueous acetone extracts up to 18% TRR but, in general, did not exceed the proportions of Glu-OH-Imazethapyr or OH-Imazethapyr. The sum of the two conjugates (Glu-OH-Imazethapyr and malonyl ester of Glu-OH-Imazethapyr) was in a range of 16–56% TRR.

In the acidic methanol extracts of post extraction solid, Glu-OH-Imazethapyr was the predominant metabolite (2.2–27% TRR) followed by OH-Imazethapyr (1.3–7.9% TRR). Imazethapyr was either not detected or 0.2–2.1% of TRR. These compounds were all < 0.01 mg eq/kg.

The metabolic profiles of pea, soya bean, alfalfa and maize were similar. Imazethapyr undergoes hydroxylation of the α-carbon of the ethyl side chain on the position 5 of the pyridine ring to produce α-hydroxyethyl metabolite OH-Imazethapyr. This compound combines with glucose to produce the glucose conjugate, Glu-OH-Imazethapyr, for further conjugation or other metabolism.

At the time of mature harvest of edible parts of food crops, no or little imazethapyr would be found. In feed crops such as alfalfa, imazethapyr may be found above the LOQ at short intervals after treatment. OH-Imazethapyr and Glu-OH-Imazethapyr may be found at levels above to the LOQ in food crops and feed crops.

Animal metabolism

The Meeting received information on the results of studies on lactating goats, lactating cows and laying hens which were fed ^{14}C-labelled imazethapyr or ^{14}C-labelled OH-Imazethapyr.

Metabolism of imazethapyr in the rat

Metabolism studies on laboratory animals including rats were reviewed in the framework of toxicological evaluation by the current JMPR.

Metabolism of imazethapyr in the lactating goat

Imazethapyr

^{14}C-Imazethapyr was orally dosed once daily in capsules to lactating goats at the mean daily dose of 0.25 ppm or 1.25 ppm in the diet, equivalent to 0.019 mg eq/kg body weight or 0.085 mg eq/kg body weight respectively, for 7 consecutive days. TRR of daily collected milk samples were all below the LOQ of 0.01 mg/kg for both dose levels. No radioactive residues above the LOQ (0.05 mg/kg) were found in muscle, liver, kidney or fat taken 18 hours after the final dose.

OH-Imazethapyr

The plant metabolism studies indicate that livestock would be exposed to OH-Imazethapyr and its conjugates in feed crops or by-products of food crops while it was unlikely that livestock would be exposed to the parent compound. Studies were conducted on metabolism of OH-Imazethapyr in lactating goat and cow as well as laying hens.

In a study on lactating goat with oral administration of ^{14}C- OH-Imazethapyr in capsule once daily at a dose equivalent to 42 ppm in feed (1.12 mg eq/kg body weight) for 7 consecutive days, radioactivity was eliminated mostly via faeces (70% AR) and in a lesser amount from urine (17% AR) at the end of the study.

The TRR of daily milk samples and muscle and fat samples obtained 20 hours after the last dose were below the LOQ of 0.01 mg/kg but one milk sample contained 0.01 mg eq/kg and kidney and liver contained 0.09 mg eq/kg and 0.02 mg eq/kg respectively.

About 77 and 72% of TRR in the kidney and liver was extracted with acetone with additional 21% TRR from kidney with aqueous methanol. Unchanged OH-Imazethapyr accounted for 98 and 92% of the extracted radioactivity from kidney or liver, respectively. OH-Imazethapyr was rapidly excreted in faeces and urine and was not metabolized in the lactating goat.

Metabolism of OH-Imazethapyr in the lactating cow

^{14}C-OH-Imazethapyr was administered orally in capsules twice daily to lactating cows for 7 consecutive days at a mean daily dose of 27 ppm in the diet (equivalent to 0.70 mg eq/kg body weight).

TRR in all milk samples collected twice daily was below the LOQ of 0.01 mg eq/kg. No radioactive residues above the LOQ of 0.05 mg/kg were found in muscle, liver, kidney or fat collected 15 hours after the final dose. The results confirm those obtained from the goat study.

Metabolism of imazethapyr in laying hens

Imazethapyr

^{14}C-imazethapyr was orally administered in capsule to laying hens twice daily at a dose of 0.5 (0.030 mg eq/kg bw) or 2.5 ppm (0.17 mg eq/kg bw) in feed for 7 consecutive days. The TRR in all egg yolk and white samples collected throughout the study and tissue samples (muscle, liver, kidney and skin with adhering fat)(no report on timing) were less than the LOQ of 0.05 mg/kg.

OH-Imazethapyr

^{14}C-OH-Imazethapyr was orally dosed to laying hens in capsules twice daily for 7 consecutive days at a rate of 10 ppm in the diet (0.83 mg eq/kg body weight). Over the 7 day dosing period, 93–94% of cumulative applied dose was excreted in the excreta and pan paper wash.

The TRR in eggs throughout the administration period were all below the LOQ of 0.01 eq mg/kg. The TRR in muscle, liver, kidney and skin with adhering fat taken 16 hours after the final dose were all below the LOQ of 0.01 mg eq/kg.

The animal metabolism studies indicate that when livestock was exposed to OH-Imazethapyr in feed, it is rapidly excreted without significant metabolism and it is unlikely to result in significant residues of OH-Imazethapyr in animal tissues, milk or eggs.

Rotational crops

A confined rotational crop study was conducted using winter wheat (Massey), maize (Pioneer 3704) and soya bean (William I) in which ^{14}C-imazethapyr was applied to bare soil in small isolated plots at an actual rate of 0.14 kg ai/ha and mixed in the upper soil layer (5–8 cm from the surface) 30 minutes later by hand rake before seeding of soya beans, or to soya bean seedlings at the 4 leaf stage at an actual rate of 0.14 kg ai/ha, equivalent to ca. 2 times the maximum US GAP rate for soya beans or maize. Four months after treatment, soya bean crops were harvested. The straw was chopped into small pieces, evenly spread on each plot surface and dug into the top 5–8 cm of soil and then wheat was sown in one subplot. Maize was sown 9.8 months after the treatment in the other subplot.

No residues above 0.01 mg eq/kg was found in follow-up maize planted 9.8 months after the treatment.

In a separate study, ^{14}C-imazethapyr was applied to bare soil in small isolated plots at an actual rate of 0.14 kg ai/ha and mixed in the upper soil layer (5–8 cm from the surface) 30 minutes later by hand rake before seeding of soya beans or to soya bean seedlings at the 4 leaf stage at an actual rate of 0.14 kg ai/ha. Four months after treatment, soya bean crops were harvested and the straw was chopped into small pieces, evenly spread on each plot surface and dug into the top 5–8 cm of soil. Maize was sown 9.6 months after the treatment.

TRR in the follow-up maize were 0.02–0.06 mg eq/kg, 0.01–0.02 mg eq/kg and 0.02–0.04 mg eq/kg in harvested grain, cob and stalk, respectively. In forage collected 1.6 months after planting (11.2 months after treatment), TRR was 0.01–0.02 mg eq/kg.

Although imazethapyr was quite persistent in soil under aerobic conditions, maize used in metabolism studies did not seem to incorporate imazethapyr from soil significantly. The results of confined rotational crop studies with maize and plant metabolism studies using pre-plant incorporation treatment indicate that low residue may be found in follow-up crops. No information was available on leafy crops or root crops which may be used for crop rotation.

Environmental fate

The Meeting received information on aerobic soil metabolism, fate in succeeding crop, hydrolysis and photolysis of imazethapyr on soil surface.

Aerobic soil metabolism

A number of studies were conducted on aerobic soil metabolism with diverse results. Some minor degradates were found, such as OH-Imazethapyr, common metabolite in plants and animals, CL 354825, CL 290395 were detected but each accounted for less than 5% AR. CL 266858 (ethyl side chain was replaced with hydroxyl group) was found up to 12% AR. Imazethapyr was eventually mineralized to become CO_2.

Imazethapyr was found to be quite persistent in sandy loam soils under aerobic conditions with a half-life in a range of 158–210 days in sandy loam soils.

Hydrolysis

Imazethapyr was stable in pond water or in buffers at pH 5, 7 and 9 at 25 °C for at least 30 days. After incubating at pH 9 for 6 months, an average of 63% of imazethapyr remained with CL 290395 (with imidazole ring cleaved) detected at an amount equivalent to 36% of the applied imazethapyr. The calculated half-life at pH 9 was 257 days.

Imazethapyr was slowly hydrolysed but hydrolysis was not a major degradation route of imazethapyr at the environmental conditions.

Photodegradation

Imazethapyr is slowly degraded at 25 °C on soil surface under photolytic conditions with the formation of CL 263601 (less than 7% of the applied dose). The half-life of imazethapyr was calculated to be 126 days. Photolysis is unlikely to contribute to the degradation of imazethapyr.

Methods of analysis

Analytical methods for determination of residues of imazethapyr, OH-Imazethapyr and Glu-OH-Imazethapyr were developed for a wide range of matrices of plant and animal origin. Descriptions and validation results of the analytical methods were provided to the Meeting to cover plants on which supervised trials were conducted and animal commodities.

In general, the methods employ extraction by homogenization with a mixture of methanol/water/1M HCl (60:39:1, v/v), clean-up with solvent partitioning and/or solid phase extraction, and determination of analytes using LC-MS/MS, LC-MS, GC-NPD or capillary electrophoresis-UV (240 nm). The analytical methods do not involve acid hydrolysis except in specific methods for the determination of Glu-OH-Imazethapyr which employ hydrolysis by boiling in 2N HCl for 30 minutes.

A number of methods for plant matrices were found suitable for analysis of imazethapyr, OH-Imazethapyr and Glu-OH-Imazethapyr with LOQ ranging 0.01–0.1 mg/kg for these analytes.

One method for animal matrices was found suitable for analysis of imazethapyr and OH-Imazethapyr with LOQ of 0.01 mg/kg for bovine muscle, fat, kidney, liver and milk and poultry egg.

Stability of pesticide residues in stored analytical samples

The stability of imazethapyr residues during frozen storage at -29 to -10 ºC was investigated in a range of plant and animal matrices for which supervised residue trials were submitted.

Compounds tested were imazethapyr, OH-Imazethapyr and Glu-OH-Imazethapyr. Each compound was spiked to matrices at 0.1, 0.2 or 1.0 mg/kg. In one study, samples with incurred residues were used.

All of the three compounds tested were found to be stable (>70% remaining) during the storage periods tested: 2 years in soya beans (only imazethapyr was tested), maize, rice (imazethapyr and OH-Imazethapyr), peanut and alfalfa.

For animal matrices, no storage stability study was conducted as all samples were analysed within 30 days of collection of samples in the feeding study except milk. Milk samples were tested for OH-Imazethapyr. OH-Imazethapyr was stable for at least 91 days.

These storage periods are longer than the longest storage conditions in trials on respective crops and animal commodities.

Definition of the residue

The plant metabolism studies indicate that no or little residues of imazethapyr or its metabolites are expected to be found in edible parts of food crops harvested at maturity because low TRR were observed even at exaggerated application rates. In most of supervised trials on various crops, parent imazethapyr was not detected at the time of mature harvest. In metabolism studies, where TRR was sufficiently high to allow identification of metabolites, the predominant metabolite at maturity was Glu-OH-Imazethapyr in pea, soya bean (except straw) and alfalfa while it was OH-Imazethapyr in maize (plant and seed). In soya bean straw samples, Glu-OH-Imazethapyr was not detected.

The metabolism studies and residue trials, in which all of these three compounds were analysed, indicate that even when imazethapyr was not found above LOQ in a sample, quantifiable Glu-OH-Imazethapyr and/or OH-Imazethapyr may be found.

In feed crops such as alfalfa and clover and by-products of food crops, imazethapyr, OH-Imazethapyr and Glu-OH-Imazethapyr may be found above the LOQ (in the residue trials) at short intervals after treatment.

According to the confined rotational crop studies with maize and the plant metabolism studies using pre-plant incorporation treatment, it was unlikely to find imazethapyr or its degradates in follow-up crops which falls in the same classification as those crops for which residue trials were conducted.

Suitable analytical methods are available to analyse these three compounds. However, the Meeting noted that analytical standards of conjugated compounds are generally not readily available for analytical laboratories.

The Meeting considered that imazethapyr and OH-Imazethapyr were suitable markers for enforcement of MRLs for plant commodities.

In animal metabolism, orally administered parent imazethapyr or OH-Imazethapyr was excreted efficiently and rapidly. OH-Imazethapyr was also detected in a small amount in rat. Virtually no or little residue of imazethapyr or OH-Imazethapyr was expected to occur in milk, egg, or edible tissues of goats, cows and hens.

The Meeting considered that imazethapyr and OH-Imazethapyr were suitable markers for enforcement of MRLs and for dietary risk assessment for animal commodities.

With the logPow lower than 2 and absence of significant residues in animal tissues in the animal metabolism studies and animal feeding study, the Meeting considered imazethapyr residue not fat soluble.

Imazethapyr was evaluated toxicologically by the present Meeting. The ADI covers OH-Imazethapyr and Glu-OH-Imazethapyr in addition to imazethapyr, and these metabolites were evaluated to be of no greater toxicity than the parent. As Glu-OH-Imazethapyr was the major metabolite in crops used in the plant metabolism studies and residue trials when analysed, the Meeting agreed to include Glu-OH-Imazethapyr in the residue definition for dietary risk assessment for plant commodities, in addition to the parent and OH-Imazethapyr.

Based on the above, the Meeting recommended the following residue definitions.

Definition of the residue for plant commodities (for enforcement of MRLs) and for animal commodities (for enforcement of MRLs and for dietary risk assessment): *Sum of imazethapyr, 5-hydroxyethyl-2-(4-isopropyl-4-methyl-5-oxo-2-imidazolin-2-yl)nicotinic acid (OH-Imazethapyr), expressed as imazethapyr.*

Definition of the residue for plant commodities (for dietary risk assessment): *Sum of imazethapyr, and 5-hydroxyethyl-2-(4-isopropyl-4-methyl-5-oxo-2-imidazolin-2-yl)nicotinic acid (OH-Imazethapyr), and 5-[1-(beta-D-glucopyranozyloxyethyl)-2-(4-isopropyl-4-methyl-5-oxo-2-imidazolin-2-yl)nicotinic acid (Glu-OH-Imazethapyr), expressed as imazethapyr.*

The residue is not fat soluble.

Results of supervised residue trials on crops

The Meeting received supervised trial data for imazethapyr on various beans and peas, soya beans, maize, rice, peanut, rape seed, sunflower, alfalfa and clover.

For summing up residues of imazethapyr and OH-Imazethapyr, or imazethapyr, OH-Imazethapyr and Glu-OH-Imazethapyr, the Meeting used the following calculation methods. For calculating total residues for dietary risk assessment, the Meeting took into consideration the far less contribution of the parent in the resulting residues. Concentrations of the compounds in the residue definitions from residue trials are expressed as imazethapyr equivalents hereafter.

For summing up residues of imazethapyr and OH-Imazethapyr for the estimation of maximum residue levels:

Imazethapyr	OH-Imazethapyr	Total
Value a	Value b	Value a + Value b
< LOQ (a)	Value b	LOQ value (a) + Value b
< LOQ (a)	< LOQ (b)	LOQ value (a) + LOQ value (b)

For summing up residue of imazethapyr, OH-imazethapyr and Glu-OH-Imazethapyr for dietary risk assessment for plant commodities and for calculating animal dietary burden

Imazethapyr	OH-Imazethapyr	Glu-OH-Imazethapyr	Total
Value a	Value b	Value c	Value a + Value b + Value c
< LOQ (a)	Value b	Value c	Value b + Value c
< LOQ (a)	< LOQ (b)	Value c	LOQ value (b) + Value c
<LOQ (a)	<LOQ (b)	< LOQ (c)	LOQ value (b) + LOQ value (c)

Common bean (Phaseolus sp) ((pods and/or immature seeds) and (dry))

Six supervised trials were conducted on beans belonging to the genus Phaseolus: four trials on snap bean in the USA, one trial on French bean in France and one trial on white bean in Canada.

As only imazethapyr was analysed in these trials, the Meeting concluded that the data were insufficient to estimate maximum residue levels STMR or HR for beans.

Vicia beans (dry)

Two supervised trials were conducted on beans belonging to the genus Vicia: one trial on spring horse bean in France and one trial on winter bean in the UK.

As only imazethapyr was analysed in these trials, the Meeting concluded that the data were insufficient to estimate maximum residue levels STMR or HR for Vicia beans.

Lentil (dry)

Six supervised trials were conducted in Canada on imidazolinone-tolerant lentil with application rate of 0.015 kg ai/ha at the 3–6 node stage. In these trials, imazethapyr, OH-Imazethapyr and Glu-OH-Imazethapyr were analysed and reported.

GAP in the USA for Navy, great northern, red kidney, black turtle, cranberry, pinto, lima, and small white type dry beans, adzuki, lentils, white lupines, chickpeas and dry edible peas, English and southern peas allows one application of imazethapyr at 0.053 kg ai/ha (pre-plant, pre-emergence and post-emergence) with a PHI of 60 days. However, no trials matched this GAP. As residues were all below the respective LOQ, it was not appropriate to scale up the residues using the proportionality principle.

GAP in Canada for lentil allows one application at 1-9 node stage at 0.015 kg ai/ha with a PHI of 60 days.

The sum of imazethapyr and OH-Imazethapyr in lentil seed from trials matching the GAP in Canada was (n = 4): < 0.097 (4) mg/kg including the trials in which samples were taken at shorter interval than the PHI (48 and 55 DALA). In two other trials using the application rate of 0.020 kg ai/kg, the sum of these two compounds was < 0.097 mg/kg (2).

The sum of imazethapyr, OH-Imazethapyr and Glu-OH-Imazethapyr in trials matching the GAP in Canada were: < 0.078 mg eq/kg (4) including the trials in which samples were taken at shorter interval than the PHI (48 and 55 DALA). In two other trials at the application rate of 0.020 kg ai/ha, total residues was < 0.078 mg/kg (2).

The Meeting estimated a maximum residue level of 0.1 * mg/kg and STMR of 0.078 mg/kg for lentils.

Peas ((pods and succulent = immature seeds) and (dry))

Nineteen supervised trials were conducted on peas: six trials in the United Kingdom, six trials in Argentina, five trials in the USA and two trials in Canada. In the two Canadaian trials, imazethapyr, OH-Imazethapyr and Glu-OH-Imazethapyr were analysed. In all other trials, only imazethapyr was analysed.

The Meeting concluded that two trials were insufficient for estimating maximum residue levels, STMRs or HRs for peas.

Soya bean (dry)

A total of 12 independent supervised trials were conducted on soya beans: four in Brazil (conventional soya bean) and eight in the USA (glyphosate-tolerant soya bean).

In the trials in Brazil, only imazethapyr was analysed and these trials were not considered.

In the trials in the USA, imazethapyr was applied at a rate of 0.10 or 0.30 kg ai/ha and mature seeds were collected 64–72 DALA. In these trials, imazethapyr, OH-Imazethapyr and Glu-OH-Imazethapyr were analysed. These trials did not match GAP in the USA. Seed samples were collected before the PHI prescribed in the GAP.

Critical GAP in Brazil for soya bean allows one application of early post emergence application at the maximum rate of 0.10 kg ai/ha with a PHI of 66 days.

The Meeting evaluated the trials in the USA against the GAP in Brazil.

The sum of imazethapyr and OH-Imazethapyr in trials matching the GAP in Brazil was (n = 8): < 0.0195 (7) and 0.022 mg/kg.

The Meeting estimated a maximum residue level of 0.03 mg/kg.

The sum of imazethapyr, OH-Imazethapyr and Glu-OH-Imazethapyr from trials matching GAP in Brazil was (n = 8): 0.019, 0.026, 0.033, 0.047, 0.048, 0.077, 0.23, and 0.46 mg/kg.

The Meeting estimated an STMR of 0.0475 mg/kg for soya bean (dry).

Maize

A total of 17 trials were conducted on imidazolinone-tolerant maize in the USA and one in Canada. In the US trials, imazethapyr was applied once as post-emergence treatment at a rate of 0.070 or 0.14 kg ai/ha (except one trial in which the rate of 0.28 or 0.56 kg ai/ha was used) and maize grain samples were collected 95–138 DALA. In the trial in Canada, imazethapyr was applied once at 0.075 or 0.15 mg/kg and maize grain samples were collected 127 DALA.

Imazethapyr is approved for use only on imidazolinone-tolerant maize. GAP in the USA allows one application up to post-emergence at a rate of 0.071 kg ai/ha with a PHI of 45 days. However, no grain samples were harvested before 100 days after the treatment. GAP for maize in Argentina allows one application at a rate of 0.1 kg ai/ha before the 2 true leaf stage without specific PHI. However, in many trials the application rates were higher than the maximum rate approved in Argentina and application was made at later growth stages.

Despite that no trials matched the critical GAP in Argentina, residues from 18 trials (USA and Canada) at higher application rates (0.14, 0.15, 0.28 and 0.56 kg ai/ha) and later application timing than the GAP were all below the LOQ of respective components: the sum of imazethapyr and OH-Imazethapyr in all the trials was < 0.097 mg/kg.

Sum of imazethapyr, OH-Imazethapyr and Glu-OH-imazethapyr in corresponding trials was < 0.078 mg/kg.

The Meeting estimated a maximum residue level of 0.1 * mg/kg and STMR of 0 mg/kg for maize.

Rice

A total of 19 trials were conducted on imidazolinone-tolerant rice in the USA. In these trials, imazethapyr was applied twice, each at a rate of 0.105 kg ai/ha or 0.14 kg ai/ha; once at 0.14 kg ai/ha; or twice at exaggerated rates. The last application was made at the 2–6 leaf stage. In these trials, imazethapyr, OH-Imazethapyr and Glu-OH-Imazethapyr were analysed and reported.

GAP in the USA for imidazolinone-tolerant rice allows a total of two applications with the second application before flooding at a maximum rate of 0.14 kg ai/ha and the maximum annual rate of 0.21 kg ai/ha with a PHI of 85 days for the annual rate above 0.14 kg ai/ha.

The sum of imazethapyr and OH-Imazethapyr from US trials matching GAP in the USA was (n = 8): < 0.097 (8) mg/kg.

The sum of imazethapyr, OH-Imazethapyr and Glu-OH-Imazethapyr from trials matching the GAP in the USA were: < 0.078 (7) and 0.090 mg/kg. In one trial where only one application was made at the 6 leaf stage at a rate of 0.14 kg ai/ha, the total residues of the three components were 0.085 mg/kg while in other trials using two applications at a rate of 0.14 kg ai/ha, no residues above the LOQ.

The Meeting estimated a maximum residue level of 0.1 * mg/kg and an STMR of 0.078 mg/kg for rice.

Peanut

A total of five trials were conducted on peanut: one in Argentina and four in the USA. In the trial in Argentina, imazethapyr was applied at 0.10 or 0.20 kg ai/ha 14 days after planting and peanut samples were collected 138 DALA. Only imazethapyr was analysed.

In the trials in the USA, imazethapyr was applied at a rate of 0.14 kg ai/ha at the pegging stage and peanut samples were collected 78–107 DALA. Three components included in the residue definition for dietary risk assessment from plant commodities were analysed.

The critical GAP for peanut in Argentina allows one application at a maximum rate of 0.10 kg ai/ha with a PHI of 90 days.

The sum of imazethapyr and OH-imazethapyr in trials in the USA using 1.4 times the maximum application rate of the GAP of Argentina was < 0.097 mg/kg in all trials including one trial in which seed samples were taken earlier (78 DALA) than the prescribed PHI of 90 days.

The sum of imazethapyr, OH-Imazethapyr and Glu-OH-Imazethapyr in trials in the USA using 1.4 times the maximum application rate of the GAP in Argentina was: < 0.078 (3) and 0.078 mg/kg. Scaling to the GAP rate, residues are < 0.056 (3) and 0.056 mg/kg.

The Meeting estimated a maximum residue level of 0.1* mg/kg and an STMR of 0.056 mg/kg for peanut.

Rape seed

A total of 13 trials were conducted on imidazolinone-tolerant rape seed in Canada. In ten trials, imazethapyr and OH-Imazethapyr were analysed and in three others, only imazethapyr was analysed.

The registered use on imidazolinone-tolerant rape seed in Canada allows one application at a maximum application rate of 0.015 kg ai/ha at 2–6 true leaf stage with a PHI of 60 days.

No information was available on the level of Glu-OH-Imazethapyr in rape seed in residue trials or in the metabolism study. However, its level could be regarded as below the LOQ since the TRR in the mature seeds (103 DAT) in the metabolism study was less than 0.01 mg/kg after post-emergence treatment at the 3–4 leaf stage at the application rate which is 3.6 times the maximum rate in GAP in Canada.

No trials matched the GAP in Canada. However, in all the trials using exaggerated application rates, up to 0.20 kg ai/ha (13 times the maximum rate in GAP in Canada), imazethapyr and OH imazethapyr in seeds harvested at maturity were below the LOQ of 0.05 mg/kg.

Sum of imazethapyr and OH-Imazethapyr was in these four trials was < 0.097 mg/kg.

Sum of imazethapyr, OH-Imazethapyr and Glu-OH-Imazethapyr these trials was < 0.078 mg/kg.

The Meeting estimated a maximum residue level of 0.1* mg/kg and an STMR of 0 mg/kg for rape seed.

Sunflower seed

A total of five trials were conducted on imidazolinone-tolerant sunflower in Canada and the USA: two in Canada and three in the USA. In each of these trials one application was made at BBCH 55–69 at a rate of 0.015 kg ai/ha. In these trials only imazethapyr was analysed.

GAP in Argentina for imidazolinone-tolerant sunflower allows one application at 0.075 kg ai/ha at the growth stage before 6th leaf was fully unfolded without specific PHI. No trials matched the GAP in Argentina.

GAP in Canada for imidazolinone-tolerant sunflower allows one application at 0.015 kg ai/ha at the 2–8 leaf stage with a PHI of 60 days.

While the application was made later than specified in GAP in Canada, in most of trials imazethapyr was < 0.05 mg/kg. However, in one trial, imazethapyr was found at 0.07 mg/kg. It was not possible to calculate total residues as no information was available on the ratio between the parent and OH-Imazethapyr or Glu-OH-Imazethapyr.

The Meeting concluded that it was not possible to estimate a maximum residue level for sunflower seed.

Animal feeds

Alfalfa fodder and forage (green)

According to an approved label in the USA for alfalfa and clover, they are tolerant to post-emergence applications after the second trifoliate leaf has expanded.

A total of 23 trials were conducted in the USA and Australia: 21 in the USA and two in Australia. In these trials, imazethapyr was applied once as a post-emergence treatment at a rate of 0.14 kg ai/ha in the trials in the USA, or 0.075 or 0.144 kg ai/ha in the trials in Australia.

GAP in the USA allows one application of post-emergence treatment at a rate of 0.105 kg ai/ha: to seedlings at the 2 trifoliate leaf stage or larger but before reaching 7.6 cm; to dormant established alfalfa when the height was less than 7.6 cm of re-growth, or to actively growing alfalfa after cutting. For 30 days following the treatment, alfalfa must not be fed, grazed or harvested. No trials matched this GAP and it was not possible to apply the proportionality principle (difference in application rate and sampling interval).

GAP in Australia allows one application of imazethapyr at an application rate of 0.098 kg ai/ha with a PHI of 14 days for alfalfa grown from seeds (not to graze or cut for stock food). For established alfalfa, application can be made after cutting or grazing. No trials matched GAP in Australia. The Meeting decided to use the proportionality principle to estimate a maximum residue level, median residues and highest residues for alfalfa on a basis of residues in alfalfa samples collected at 14 DALA in the trials in the USA and Australia.

In forage collected at 14 DALA from the trials in the USA with 0.14 kg ai/ha of imazethapyr applied to seedlings, the sum of imazethapyr, OH-Imazethapyr and Glu-OH-Imazethapyr was (n = 10): 0.38, 0.63, 0.65, 0.67, 0.76, 0.77, 0.98,1.30, 1.56, and 1.78 mg/kg. From the trials in Australia with 0.072 kg ai/ha, the sum of imazethapyr, OH-Imazethapyr and Glu-OH-Imazethapyr was (n = 2): 0.40 and 0.43 mg/kg.

Scaling to the GAP rate of 0.098 kg ai/ha, the residues were (n = 12): 0.27, 0.44, 0.46, 0.47, 0.53, <u>0.54</u>, <u>0.54</u>, 0.58, 0.69, 0.91, 1.09, 1.25 mg/kg

The Meeting estimated a median residue of 0.54 mg/kg and highest residue of 1.25 mg/kg (on an as received basis).

As for hay, no trials matched the GAP in Australia. The Meeting concluded that it was not possible to estimate a maximum residue level, median residue or highest residue for alfalfa hay.

Clover hay or fodder

Twelve trials were conducted in the USA. GAP in the USA allows one application of post-emergence treatment at a rate of 0.105 kg ai/ha: to seedlings at the 2 trifoliate leaf stage or larger but before reaching 7.6 cm; to dormant established clover when the height was less than 7.6 cm of re-growth, or to actively growing clover after cutting. For 30 days following the treatment, clover must not be fed, grazed or harvested.

Sum of imazethapyr, OH-Imazethapyr and Glu-OH-Imazethapyr in the trials matching GAP in the USA was (n = 12): < 0.78 (9), 0.84, 0.84 and 1.15 mg/kg.

The Meeting estimated a median residue of 0.78 mg/kg (as received) and highest residue of 1.15 mg/kg (as received).

A part of forage sample taken at each interval was left in the field to day and collected days after. Sum of imazethapyr and OH-Imazethapyr in clover hay from trials matching the GAP in the USA was (n = 12): < 0.97 (11) and 0.97 mg/kg.

Sum of imazethapyr, OH-imazethapyr and Glu-OH-Imazethapyr in clover hay from the trials matching GAP in the USA were (n = 12): < 0.78(5), 0.79, 0.81, 0.96, 1.00, 1.17, 1.19 and 2.81 mg/kg.

The Meeting estimated a maximum residue level of 1.5 mg/kg (dry weight basis) for clover hay or fodder. The Meeting also estimated a median residue of 0.80 mg/kg and highest residue of 2.81 mg/kg for clover hay or fodder (as received).

Pea vine, hay and straw

There were two trials in which vine, hay or straw were analysed. The Meeting concluded that the data were insufficient to estimate a maximum residue level, mean residue or highest residue for these commodities.

Maize fodder and forage

Five trials were conducted in the USA on imidazolinone-tolerant maize.

According to GAP in the USA, grazing and feeding forage and silage, fodder or grain is allowed 45 days after treatment (GAP rate, 0.071 kg ai/ha).

Total residues in maize forage from trials with 0.14 kg ai/ha and DALA of 45 days were: < 0.078 (4) and 0.35 mg/kg. Scaling to GAP rate, total residues were:< 0.040 (4) and 0.176 mg/kg. In one trial in Canada using the application rate of 0.075 kg ai/ha, residue was < 0.078 mg/kg.

The Meeting estimated a median residue of 0.040 mg/kg and highest residue of 0.176 mg/kg for maize forage (as received).

In fodder, the sum of imazethapyr and OH-Imazethapyr from trials with 0.14 kg ai/ha and DALA of 45 days were: < 0.097 (5) mg/kg. In one trial in Canada using either 0.075 or 0.15 kg ai/ha, the residues were all below the respective LOQ of 0.05 mg/kg. At the GAP rate, the sum of imazethapyr and OH-Imazethapyr would be well below the LOQ (the sum of LOQ = 0.097 mg/kg).

Sum of imazethapyr, OH-imazethapyr and Glu-OH-Imazethapyr in maize fodder from trials with 0.14 kg ai/ha were: < 0.078(5) mg/kg.

The Meeting estimated a maximum residue level of 0.1 *mg/kg (dry weight basis). It also estimated a median residue/highest residue of 0.04 mg/kg (as received).

Rice straw

Sum of imazethapyr and OH-Imazethapyr in rice straw from trials matching GAP in the USA was: < 0.097 (8) mg/kg.

Sum of imazethapyr, OH-Imazethapyr and Glu-OH-Imazethapyr in rice straw in from the trials matching GAP in the USA were: < 0.078 (7) and 0.084 mg/kg.

The Meeting estimated a maximum residue level of 0.15 *mg/kg (dry weight basis) for rice straw. A median residue of 0.078 mg/kg and highest residue of 0.084 mg/kg were estimated for rice straw (as received).

Fate of residues during processing

High temperature hydrolysis

The hydrolysis studies on three imidazolinone pesticides were previously evaluated by the JMPR. All of them were stable under conditions simulating commercial processing practices: pasteurization; brewing, baking and boiling; and sterilization. However, as no or little imazethapyr was found in commodities, this information is not relevant to the residues derived from use of imazethapyr. No information was available on hydrolysis of OH-Imazethapyr or Glu-OH-Imazethapyr.

Processing

The Meeting received information on processing of oil seeds. The processing factor could not be calculated for imazethapyr because no imazethapyr was detected above the LOQ in raw agricultural commodities. In the maize processing study, only imazethapyr and OH-

Imazethapyr were analysed. However, as the maize metabolism studies indicate, OH-Imazethapyr was the predominant residue, the Meeting agreed to use the results of the processing study.

RAC	Processed commodity	Processing factor (best estimate)	STMR-P
Soya bean			0.0475
	Oil	0.26 [a]	0.012
	Meal	0.69 [a]	0.033
Maize grain			0
	Oil	< 0.85 [b]	0
	Meal	0.93 [b]	0
Alfalfa			0. 54
	Meal	2.6	1.4

[a] For the sum of imazethapyr, OH-Imazethapyr and Glu-OH-Imazethapyr, expressed as imazethapyr equivalents

[b] For the sum of imazethapyr and OH-imazethapyr

Using the best estimates of processing factor, the STMR-P were calculated to be: 0.012 mg/kg and 0.033 mg/kg, respectively for soya bean oil and meal; 0 mg/kg for maize oil and meal, and 1.4 mg/kg for alfalfa meal.

Residues in animal commodities

Estimation of dietary burdens

The maximum and mean dietary burdens were calculated using the highest residues or median residues/STMRs (imazethapyr, OH-Imazethapyr and Glu-OH-Imazethapyr, expressed as imazethapyr) estimated at the current Meeting on a basis of the OECD Animal Feeding Table.

Summary of livestock dietary burdens (ppm of dry matter diet)

	US-Canada		EU		Australia		Japan	
	Max	mean	max	Mean	max	Mean	Max	mean
Beef cattle	0.56	0.17	2.71	1.43	3.83 [A]	2.60 [B]	0.22	0.22
Dairy cattle	1.14	0.74	2.25	1.69	2.93 [C]	2.18 [D]	0.62	0.45
Broilers	0.11	0.11	0.10	0.10	0.22	0.22	0.19	0.09
Layers	0.11	0.11	0.60 [E]	0.44 [F]	0.22	0.22	0.16	0.16

[A] Suitable for estimating maximum residue levels for meat, fat and edible offal of cattle.

[B] Suitable for estimating STMRs for meat, fat and edible offal of cattle

[C] Suitable for estimating maximum residue level for milk.

[D] Suitable for estimating STMR for milk

[E] Suitable for estimating maximum residue levels for meat, fat and edible offal of poultry and eggs.

[F] Suitable for estimating STMRs for meat, fat and edible offal of poultry and eggs.

Residues in milk and cattle tissues

Four groups of lactating Holstein cows were orally dosed daily with OH-Imazethapyr for 28 days at levels equivalent to 0, 11, 32, and 116 ppm in feed. Milk samples were collected twice daily. Within 24 hours after the last dose, cows were sacrificed. After sacrifice, loin, flank or hind leg and diaphragm muscle, subcutaneous, mesenteric and renal fat, liver and kidney were collected and analysed. Metabolism study on goat and rat showed that imazethapyr was not expected to occur in milk and tissues.

In all the milk samples, and skim milk and cream separated from day 24 milk, residues above the LOQ of 0.01 were not detected in the treatment groups except for in 32 ppm group at day 14 (0.016 mg/kg) and in 116 ppm group at day 10 (0.014 mg/kg) and day 14 (0.056 mg/kg). No plateau can be determined due to very low concentrations in milk.

At the maximum dietary burden of 2.93 ppm and mean of 2.18 ppm, OH-Imazethapyr in milk was expected to be well below the LOQ of 0.01 mg/kg.

No residues above the LOQ were found in muscle and liver in any of dose groups. In fat, only one single value of 0.016 mg/kg was observed in the 116 ppm group. In kidney, one single value at the LOQ (0.0095 mg/kg parent equivalent) was observed in the 11 ppm group. In higher dose groups, finite residues were observed in kidney.

At the maximum and mean dietary burden of 3.83 and 2.60 ppm, residues of OH-Imazethapyr in tissues were estimated to be below the LOQ.

The Meeting estimated a maximum residue level of 0.01* mg/kg for milk, muscle, edible offal and fat of mammals other than marine mammals; STMR of 0 mg/kg for milk and muscle and liver, 0.001 mg/kg (0.014 mg/kg × 2.60/32) for kidney.

Residues in egg and poultry tissues

No feeding study was conducted on laying hens. However, the metabolism study on laying hens at the dose of 10 ppm of OH-Imazethapyr or 2.5 ppm of imazethapyr in the diet resulted in no residues in eggs or tissues above the LOQ. At the maximum and mean dietary burden of 0.60 and 0.44 ppm, no residue above the LOQ was expected in eggs or tissues.

The Meeting estimated a maximum residue levels of 0.01* mg/kg for eggs and muscle, fat and edible offal of poultry; STMR of 0 mg/kg for these commodities.

RECOMMENDATIONS

On the basis of the data from supervised trials the Meeting concluded that the residue levels listed in Annex 1 are suitable for establishing maximum residue limits and for IEDI assessment.

Definition of the residue (for compliance) for plant commodities and (for compliance and and for dietary risk assessment) for animal commodities: *Sum of imazethapyr, 5-hydroxyethyl-2-(4-isopropyl-4-methyl-5-oxo-2-imidazolin-2-yl)nicotinic acid, expressed as imazethapyr.*

Definition of the residue (for dietary risk assessment) for plant commodities: *Sum of imazethapyr, and 5-hydroxyethyl-2-(4-isopropyl-4-methyl-5-oxo-2-imidazolin-2-yl)nicotinic acid and*

5-[1-(beta-D-glucopyranozyloxyethyl)-2-(4-isopropyl-4-methyl-5-oxo-2-imidazolin-2-yl)nicotinic acid, expressed as imazethapyr.

The residue is not fat soluble.

DIETARY RISK ASSESSMENT

Long-term dietary exposure

The current Meeting established an ADI of 0–0.6 mg/kg bw.

The International Estimated Dietary Intakes (IEDIs) of imazethapyr were calculated for the 17 GEMS/Food cluster diets using STMRs estimated by the current Meeting (Annex 3). The calculated IEDIs were 0.0–0.1% of the maximum ADI (0.6 mg/kg bw). The Meeting concluded that the long-term dietary exposure to residues of imazethapyr, from the uses considered by the current JMPR, is unlikely to present a public health concern.

Short-term dietary exposure

The 2016 JMPR decided that an ARfD is unnecessary. The Meeting therefore concluded that the short-term dietary exposure of residues of imazethapyr is unlikely to present a public health concern.

5.14 ISOFETAMID (290)

TOXICOLOGY

Isofetamid is the ISO-approved common name for *N*-[1,1-dimethyl-2-(4-isopropoxy-*o*-tolyl)-2-oxoethyl]-3-methylthiophene-2-carboxamide (IUPAC), with the CAS number 875915-78-9. Isofetamid is a systemic, broad-spectrum thiophene fungicide. It acts as a succinate dehydrogenase inhibitor, adversely affecting respiration in plants and fungi.

Isofetamid has not previously been evaluated by JMPR and was reviewed by the present Meeting at the request of CCPR.

All critical studies were performed by laboratories that were certified for GLP and complied with relevant national or international test guidelines, unless otherwise indicated. A search of the open literature did not reveal any relevant publications.

Biochemical aspects

Following gavage dosing of rats, isofetamid was rapidly and almost completely absorbed. At the low dose (5 mg/kg bw), absorption calculated from the radioactivity recovered in bile, urine and carcass was greater than 93% of the administered dose. Absorption was incomplete at the high dose (200 mg/kg bw); a 40-fold increase in dose resulted in an approximately 25-fold increase in the maximum concentration in plasma (C_{max}) and the area under the plasma concentration–time curve (AUC). At the low dose, biliary excretion was a major route of elimination (83–88%), with evidence of reabsorption of biliary excreted metabolites and subsequent excretion in urine. Excretion of radioactivity was rapid, with the majority eliminated within 48 hours. Urinary excretion of radioactivity (phenyl label) was approximately 11% in males and 47% in females at the low dose (5 mg/kg bw) and approximately 8% in males and 23% in females at the high dose (200 mg/kg bw). Maximum plasma concentrations were achieved between 2 and 6 hours at the low dose and at about 8 hours at the high dose. The plasma elimination half-life of radiolabelled material was approximately 38 hours, regardless of sex, dose or radiolabel position.

Overall, isofetamid was metabolized in rats by two main routes, *O*-dealkylation and hydroxylation, which was followed by glucuronidation. Minor metabolic routes included methylation, sulfation and cleavage between the benzene and thiophene ring structures. There were no qualitative differences in the metabolites between sexes.

Toxicological data

In rats, the acute oral LD_{50} was greater than 2000 mg/kg bw, the acute dermal LD_{50} was greater than 2000 mg/kg bw and the acute inhalation LC_{50} was greater than 4.82 mg/L. Isofetamid was non-irritating to the skin of rabbits and mildly irritating to the eyes of rabbits. It was not a skin sensitizer in mice, as determined by the local lymph node assay.

In repeated-dose toxicity studies, liver was the common target organ in rats and dogs. Thyroid was also a target organ in rats.

In a 13-week toxicity study in mice using dietary concentrations of isofetamid of 0, 100, 1000 and 8000 ppm (equal to 0, 13, 129 and 1067 mg/kg bw per day for males and 0, 16, 161 and 1306 mg/kg bw per day for females, respectively), the NOAEL was 1000 ppm (equal to 161 mg/kg bw per day), based on decreased weight gain in female mice at 8000 ppm (equal to 1306 mg/kg bw per day).

In a 28-day range-finding toxicity study in rats using dietary concentrations of isofetamid of 0, 100, 500, 2500 and 15 000 ppm (equal to 0, 8.4, 42, 210 and 1271 mg/kg bw per day for males and 0, 9.3, 45, 215 and 1322 mg/kg bw per day for females, respectively), the NOAEL was 500 ppm (equal to 42 mg/kg bw per day), based on elevated relative liver weight and changes in clinical chemistry at 2500 ppm (equal to 210 mg/kg bw per day).

In a 90-day toxicity study in rats using dietary concentrations of isofetamid of 0, 100, 1000 and 10 000 ppm (equal to 0, 6.65, 68.9 and 637 mg/kg bw per day for males and 0, 7.83, 78.0 and 741 mg/kg bw per day for females, respectively), the NOAEL was 100 ppm (equal to 6.65 mg/kg bw per day), based on increased absolute and relative (to body weight) liver weights in both sexes, diffuse hepatocellular hypertrophy in both sexes, thyroid follicular cell hypertrophy in males, increased absolute and relative (to body weight) adrenal weights in females, increased gamma-glutamyltransferase (GGT) activity in males and prolongation of activated partial thromboplastin time in females at 1000 ppm (equal to 68.9 mg/kg bw per day).

In a 28-day range-finding toxicity study in dogs using dietary concentrations of isofetamid of 0, 1000, 3000, 10 000 and 30 000 ppm (equal to 0, 30.3, 89.8, 299 and 987 mg/kg bw per day for males and 0, 34.8, 90.9, 315 and 933 mg/kg bw per day for females, respectively), changes in alkaline phosphatase activity, triglyceride level and body weight, increased absolute and relative liver weights, enlarged livers and centrilobular hepatocellular hypertrophy were observed at and above 3000 ppm (equal to 89.8 mg/kg bw per day).

In a 90-day oral toxicity study in dogs using dietary isofetamid concentrations of 0, 100, 1000 and 10 000 ppm (equal to 0, 2.95, 29.3 and 301 mg/kg bw per day for males and 0, 3.07, 32.7 and 314 mg/kg bw per day for females, respectively), the NOAEL was 100 ppm (equal to 2.95 mg/kg bw per day), based on liver toxicity (increased liver weight, changes in clinical chemistry, hepatic centrilobular hypertrophy) at 1000 ppm (equal to 29.3 mg/kg bw per day).

In a 1-year oral toxicity study in dogs using dietary concentrations of isofetamid of 0, 60, 200 and 6000 ppm (equal to 0, 1.61, 5.34 and 166 mg/kg bw per day for males and 0, 1.57, 5.58 and 178 mg/kg bw per day for females, respectively), the NOAEL was 200 ppm (equal to 5.34 mg/kg bw per day), based on liver toxicity (increased liver weight, centrilobular hepatocellular hypertrophy), changes in blood chemistry (increased alkaline phosphatase and GGT activities, increased triglyceride levels and decreased albumin levels) and slight decreases in body weight gains at 6000 ppm (equal to 166 mg/kg bw per day).

The overall NOAEL in the 90-day and 1-year dog studies was 200 ppm (equal to 5.34 mg/kg bw per day), with an overall LOAEL of 1000 ppm (equal to 29.3 mg/kg bw per day).

In a 78-week carcinogenicity study in mice using dietary concentrations of isofetamid of 0, 100, 800, 3000 (females only) and 4000 (males only) ppm (equal to 0, 12, 92 and 502 mg/kg bw per day for males and 0, 14, 118 and 431 mg/kg bw per day for females, respectively), the NOAEL was 800 ppm (equal to 92 mg/kg bw per day), based on reduced body weight gains starting from week 9 at 3000 ppm (equal to 431 mg/kg bw per day). There were no neoplastic findings that were related to treatment.

In a 1-year toxicity study in rats using dietary concentrations of isofetamid of 0, 30, 100, 500 and 5000 ppm (equal to 0, 1.39, 4.68, 22.7 and 237 mg/kg bw per day for males and 0, 1.82, 5.92, 30.0 and 311 mg/kg bw per day for females, respectively), the NOAEL was 500 ppm (equal to 22.7 mg/kg bw per day), based on changes in clinical chemistry (increased GGT activity and decreased bilirubin level in both sexes, increased cholesterol level in males), blood coagulation changes in females, haematological changes in both sexes and histopathological findings in the liver (cytoplasmic hepatocyte eosinophilic inclusion body and fatty change in males) and thyroid (follicular cell hypertrophy in both sexes) at 5000 ppm (equal to 237 mg/kg bw per day).

In a 2-year carcinogenicity study in rats using dietary concentrations of isofetamid of 0, 30, 100, 500 and 5000 ppm (equal to 0, 1.21, 4.07, 20.3 and 210 mg/kg bw per day for males and 0, 1.55, 5.02, 26.1 and 263 mg/kg bw per day for females, respectively), the NOAEL was 500 ppm (equal to 20.3 mg/kg bw per day), based on microscopic changes in the liver (diffuse hepatocyte hypertrophy and hepatocellular cytoplasmic eosinophilic inclusion bodies in males and hepatocyte brown pigment [lipofuscin] in females) and in the thyroid (follicular cell hypertrophy in both sexes and follicular cysts in males) at 5000 ppm (equal to 210 mg/kg bw per day). There were no neoplastic findings that were related to treatment.

In order to evaluate the mechanism of the effects of isofetamid in rats on the liver and thyroid, isofetamid was administered in feed to male rats at a concentration of 0, 5000 or 15 000 ppm (equal to 0, 432 and 1303 mg/kg bw per day, respectively) for a period of 28 days. Effects observed at both doses included a decrease in the plasma thyroxine (T_4) level and an increasing trend in thyroid stimulating hormone (TSH) level, as well as statistically significant increases in hepatic microsomal protein content of the liver, cytochrome P450 content and uridine diphosphate-glucuronosyl-transferase activities towards 4-nitrophenol and 4-hydroxybiphenyl. These data suggest that the effects observed in the liver and thyroid are secondary to hepatic enzyme induction, with adaptive hypertrophy and increased clearance of thyroid hormones, respectively.

The Meeting concluded that isofetamid is not carcinogenic in mice or rats.

Isofetamid was tested for genotoxicity in an adequate range of assays, both in vitro and in vivo. No evidence of genotoxicity was found.

The Meeting concluded that isofetamid is unlikely to be genotoxic.

In view of the lack of genotoxicity and the absence of carcinogenicity in mice and rats, the Meeting concluded that isofetamid is unlikely to pose a carcinogenic risk to humans.

In a two-generation reproductive toxicity study in rats using dietary concentrations of isofetamid of 0, 100, 1000 and 10 000 ppm (equal to 0, 6.58, 65.8 and 679 mg/kg bw per day for males and 0, 7.49, 76.6 and 775 mg/kg bw per day for females, respectively), the NOAEL for parental toxicity was 1000 ppm (equal to 65.8 mg/kg bw per day), based on decreased body weights, hepatocellular hypertrophy and follicular cell hypertrophy in the thyroid in both sexes and generations and decreased spleen weights and cytoplasmic eosinophilic inclusion bodies in the liver of F_1 males observed at 10 000 ppm (equal to 679 mg/kg bw per day). The NOAEL for offspring toxicity was 1000 ppm (equal to 76.6 mg/kg bw per day), based on decreased pup body weight in both sexes and generations observed at 10 000 ppm (equal to 775 mg/kg bw per day). The NOAEL for reproductive toxicity was 10 000 ppm (equal to 679 mg/kg bw per day), the highest dose tested.

In a developmental toxicity study in rats using oral gavage doses of isofetamid of 0, 100, 300 and 1000 mg/kg bw per day, the NOAEL for maternal toxicity was 300 mg/kg bw per day, based on increases in liver weights at 1000 mg/kg bw per day in the absence of clinical chemistry and histopathological assessments for effects that have been observed in other studies. The NOAEL for embryo and fetal toxicity was 300 mg/kg bw per day, based on more progressive ossification of equivocal toxicological significance seen at 1000 mg/kg bw per day.

In a developmental toxicity study in rabbits using oral gavage doses of isofetamid of 0, 100, 300 and 1000 mg/kg bw per day, the NOAEL for maternal toxicity was 300 mg/kg bw per day, based on decreased body weights and feed consumption during gestation days 6–9 seen at 1000 mg/kg bw per day. The embryo and fetal toxicity NOAEL was 300 mg/kg bw per day, based on skeletal anomalies observed at the maternally toxic dose of 1000 mg/kg bw per day.

The Meeting concluded that isofetamid is not teratogenic.

In an acute neurotoxicity study in rats administered a single oral gavage dose of isofetamid of 0, 500, 1000 or 2000 mg/kg bw, the NOAEL for systemic toxicity and neurotoxicity was 2000 mg/kg bw, the highest dose tested.

In a 90-day study of neurotoxicity in rats given diets containing isofetamid at a concentration of 0, 500, 3000 or 15 000 ppm (equal to 0, 34, 207 and 1049 mg/kg bw per day for males and 0, 40, 245 and 1213 mg/kg bw per day for females, respectively), the NOAEL for neurotoxicity and systemic toxicity was 15 000 ppm (equal to 1049 mg/kg bw per day), the highest dose tested.

The Meeting concluded that isofetamid is not neurotoxic.

No evidence of immunotoxicity was observed in an immunotoxicity study in female mice administered isofetamid in the diet at a dose level of 0, 1000, 3000 or 7000 ppm (equal to 0, 197, 644 and 1380 mg/kg bw per day, respectively) for 28 days.

The Meeting concluded that isofetamid is not immunotoxic.

Toxicological data on metabolites and/or degradates

The acute oral LD_{50} value for *N*-(1,1-dimethyl-2-[4-(β-D-glucopyranosyl)oxy-2-methylphenyl]-2-oxoethyl)-3-methylthiophene-2-carboxamide (GPTC; a plant metabolite of isofetamid) in female rats was greater than 2000 mg/kg bw. GPTC was negative for mutagenicity in a bacterial reverse mutation assay.

The Meeting concluded that GPTC is of no greater toxicity than the parent compound.

The metabolites 2-[3-methyl-4-[2-methyl-2-(3-methylthiophene-2-carboxamido)propanoyl]-phenoxy]propanoic acid (PPA) and *N*-[1,1-dimethyl-2-(4-hydroxy-2-methylphenyl)-2-oxoethyl]-3-methylthiophene-3-carboxamide (4HP) are major rat metabolites, and the Meeting considered that they would be covered by the ADI and ARfD established for isofetamid.

Human data

No adverse health effects in manufacturing plant personnel were reported. Also, there were no reports of poisonings with isofetamid.

The Meeting concluded that the existing database for isofetamid was adequate to characterize the potential hazards to the general population, including fetuses, infants and children.

Toxicological evaluation

The Meeting established an ADI of 0–0.05 mg/kg bw on the basis of an overall NOAEL of 5.34 mg/kg bw per day in 90-day and 1-year dog studies, based on liver toxicity observed at 29.3 mg/kg bw per day. A safety factor of 100 was applied.

The Meeting established an ARfD of 3 mg/kg bw, based on the maternal and embryo and fetal toxicity NOAELs of 300 mg/kg bw per day for decreased body weights and feed consumption in dams during gestation days 6–9 and skeletal anomalies seen at 1000 mg/kg bw per day in the developmental toxicity study in rabbits, using a safety factor of 100.

The ADI and the ARfD are applicable to the metabolites GPTC, PPA and 4HP.

A toxicological monograph was prepared.

Levels relevant to risk assessment of isofetamid

Species	Study	Effect	NOAEL	LOAEL
Mouse	Seventy-eight-week study of toxicity and carcinogenicity[a]	Toxicity	800 ppm, equal to 92 mg/kg bw per day	3 000 ppm, equal to 431 mg/kg bw per day
		Carcinogenicity	3 000 ppm, equal to 431 mg/kg bw per day[b]	–
Rat	Two-year study of toxicity and carcinogenicity[a]	Toxicity	500 ppm, equal to 20.3 mg/kg bw per day	5 000 ppm, equal to 210 mg/kg bw per day
		Carcinogenicity	5 000 ppm, equal to 210 mg/kg bw per day[b]	–
	Two-generation study of reproductive	Reproductive toxicity	10 000 ppm, equal to 679 mg/kg bw per day[b]	–

Species	Study	Effect	NOAEL	LOAEL
	toxicity[a]	Parental toxicity	1 000 ppm, equal to 65.8 mg/kg bw per day	10 000 ppm, equal to 679 mg/kg bw per day
		Offspring toxicity	1 000 ppm, equal to 76.6 mg/kg bw per day	10 000 ppm, equal to 775 mg/kg bw per day
	Developmental toxicity study[c]	Maternal toxicity	300 mg/kg bw per day	1 000 mg/kg bw per day
		Embryo and fetal toxicity	300 mg/kg bw per day	1 000 mg/kg bw per day
	Acute neurotoxicity study[c]	Neurotoxicity	2 000 mg/kg bw[b]	–
	Ninety-day neurotoxicity study[a]	Neurotoxicity	15 000 ppm, equal to 1 049 mg/kg bw per day[b]	–
Rabbit	Developmental toxicity study[c]	Maternal toxicity	300 mg/kg bw per day	1 000 mg/kg bw per day
		Embryo and fetal toxicity	300 mg/kg bw per day	1 000 mg/kg bw per day
Dog	Ninety-day and 1-year studies of toxicity[a,d]	Toxicity	200 ppm, equal to 5.34 mg/kg bw per day	1 000 ppm, equal to 29.3 mg/kg bw per day

[a] Dietary administration.

[b] Highest dose tested.

[c] Gavage administration.

[d] Two or more studies combined.

Acceptable daily intake (ADI; applies to isofetamid and the metabolites GPTC, PPA and 4HP, expressed as isofetamid)

0–0.05 mg/kg bw

Acute reference dose (ARfD; applies to isofetamid and the metabolites GPTC, PPA and 4HP, expressed as isofetamid)

3 mg/kg bw

Information that would be useful for the continued evaluation of the compound

Results from epidemiological, occupational health and other such observational studies of human exposure

Critical end-points for setting guidance values for exposure to isofetamid

Absorption, distribution, excretion and metabolism in mammals	
Rate and extent of oral absorption	Rapidly and extensively absorbed from gastrointestinal tract (≥ 93% in 48 h at the low dose)
Dermal absorption	About 10% in vivo (rat)

Distribution	Widely distributed; highest concentrations in gastrointestinal tract/contents and liver
Potential for accumulation	No evidence of accumulation
Rate and extent of excretion	Rapid and complete within 48 h, mainly in bile
Metabolism in animals	Extensive; O-dealkylation, oxidation, phenyl and thiophene ring hydroxylation, glucuronidation, sulfation
Toxicologically significant compounds in animals and plants	Isofetamid, GPTC, 4HP and PPA
Acute toxicity	
Rat, LD_{50}, oral	> 2 000 mg/kg bw
Rat, LD_{50}, dermal	> 2 000 mg/kg bw
Rat, LC_{50}, inhalation	> 4.82 mg/L (4 h; nose only)
Rabbit, dermal irritation	Non-irritating
Rabbit, ocular irritation	Mildly irritating
Mouse, dermal sensitization	Non-sensitizing (local lymph node assay)
Short-term studies of toxicity	
Target/critical effect	Liver (dog and rat) and thyroid (rat)
Lowest relevant oral NOAEL	5.34 mg/kg bw per day (overall NOAEL; dog)
Lowest relevant dermal NOAEL	1 000 mg/kg bw per day, highest dose tested (rat)
Lowest relevant inhalation NOAEC	No data
Long-term studies of toxicity and carcinogenicity	
Target/critical effect	Liver and thyroid (rat), decreased body weight gain (mouse)
Lowest relevant NOAEL	20.3 mg/kg bw per day (rat)
Carcinogenicity	Not carcinogenic in mice or rats[a]
Genotoxicity	
	No evidence of genotoxicity[a]
Reproductive toxicity	
Target/critical effect	Liver and thyroid, decreased body weights in adults and pups
Lowest relevant parental NOAEL	65.8 mg/kg bw per day (rat)
Lowest relevant offspring NOAEL	76.6 mg/kg bw per day (rat)
Lowest relevant reproductive NOAEL	679 mg/kg bw per day (rat), highest dose tested
Developmental toxicity	
Target/critical effect	Skeletal anomalies (rabbit) and progressed ossification (rat)
Lowest relevant maternal NOAEL	300 mg/kg bw per day (rat, rabbit)
Lowest relevant embryo/fetal NOAEL	300 mg/kg bw per day (rat, rabbit)
Neurotoxicity	
Acute neurotoxicity NOAEL	2 000 mg/kg bw, highest dose tested (rat)
Subchronic neurotoxicity NOAEL	1 049 mg/kg bw per day, highest dose tested (rat)
Developmental neurotoxicity NOAEL	No data

Other toxicological studies	
Immunotoxicity	1 380 mg/kg bw per day, highest dose tested (mouse)
Mechanistic study	28-day study establishing thyroid effects secondary to induction in liver
Studies on toxicologically relevant metabolites	
GPTC	Oral LD_{50}: > 2 000 mg/kg in rats
	Ames test: negative
Human data	
	No adverse effects reported in workers at manufacturing plants and agricultural workers

[a] Unlikely to pose a carcinogenic risk to humans via exposure from the diet.

Summary

	Value	Study	Safety factor
ADI[a]	0–0.05 mg/kg bw	Ninety-day and 1-year toxicity studies (dog)	100
ARfD[a]	3 mg/kg bw	Developmental toxicity study (rabbit)	100

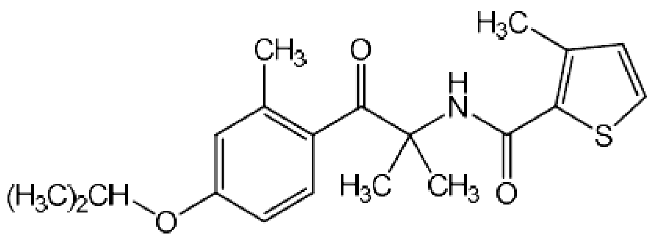
[a] Applies to isofetamid and the metabolites GPTC, PPA and 4HP, expressed as isofetamid.

RESIDUE AND ANALYTICAL ASPECTS

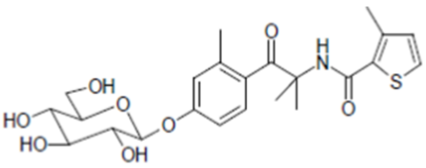
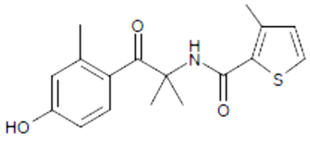
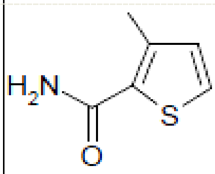
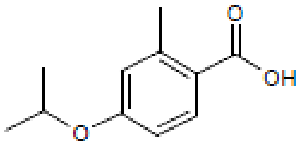
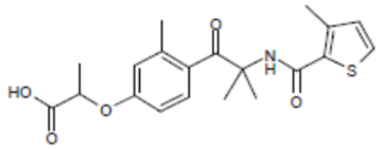
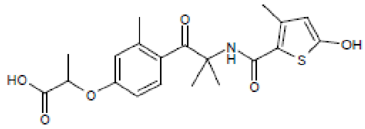
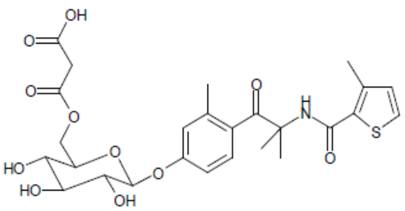
Isofetamid is a broad-spectrum fungicide belonging to the SDHI (Succinate Dehydrogenase Inhibitors) group. It inhibits succinate dehydrogenase in complex II of fungal mitochondrial respiration. Isofetamid is a locally systemic fungicide, which can control fungal pathogens belonging to *Ascomycetes* and *Deuteromycetes* groups. At the 47[th] Session of the CCPR (2015), the compound was scheduled for evaluation as a new compound by the 2016 JMPR.

The Meeting received information on identity, animal and plant metabolism, environment fate in water, rotational crops, analytical methods, storage stability, use pattern, supervised trials, and fate of residues in processing.

N-[1,1-dimethyl-2-(4-isopropoxy-*o*-tolyl)-2-oxoethyl]-3-methylthiophene-2-carboxamide



In this appraisal, the following abbreviated names were used for metabolites.

Glucoside of 4HP	4HP	3-MTCAM
 Synonym: GPTC *N*-(1,1-dimethyl-2-[4-(β-D-glucopyranosyl)oxy-2-methylphenyl]-2-oxoethyl)- 3-methylthiophene-2-carboxamide	 *N*-[1,1-dimethyl-2-(4-hydroxy-2-methylphenyl)-2-oxoethyl]-3-methylthiophene-2-carboxamide	 3-methyl-2-thiophene carboxamide
IBA	PPA	5-HPPA
 2-methyl-4-(2-propyloxy) benzoic acid	 2-[3-methyl-4-[2-methyl-2-(3-methylthiophene-2-carboxamido) propanoyl]phenoxy]propanoic acid	 2-[3-methyl-4-[2-methyl-2-(5-hydroxy-3-methylthiophene- 2-carboxamido)propanoyl] phenoxy] propanoic acid
Malonyl glucoside of 4HP  Synonym: Malonyl-GPTC		
Malonyl conjugate of *N*-(1,1-dimethyl-2-[4-(β-D- glucopyranosyl)oxy- 2-methylphenyl]-2-oxoethyl)-3-methylthiophene-2- carboxamide		

Plant metabolism

The Meeting received plant metabolism studies on grape, lettuce and French bean with isofetamid labeled with ^{14}C in two different rings ([phenyl-^{14}C] and [thiophene-^{14}C]).

In a grape metabolism study, [^{14}C]-isofetamid was applied to grapevines at a rate of 0.75 kg ai/ha. The TRR in foliage (16–17 mg equiv/kg) was higher than in grape berries (0.64–0.72 mg equiv/kg) at 43 DALA (mature harvest sample). Radioactive residues extracted with acetonitrile and acetonitrile:water were 88–93% of the TRR for grape berries and 83–86% TRR for grape foliage at 43 DALA.

Isofetamid was the main component in both grapes (46–60% TRR, 0.33–0.39 mg/kg) and foliage (38–61% TRR, 6.5–9.8 mg/kg). Two metabolites, the glucoside of 4HP (max 10% TRR) and 3-MTCAM (max 4% TRR) were also identified. Several unidentified conjugated metabolites were present in grapes and foliage and maximum levels of individual compounds were 8.0% and 5.5% TRR respectively. A polar fraction produced during work-up contained mixtures of metabolites and the maximum level of any single compound in this fraction of foliage was less than 4% TRR.

In a lettuce metabolism study, [^{14}C]-isofetamid were applied to lettuce at a rate of 0.75 kg ai/ha. TRRs in lettuce leaves were in the range of 1.7–2.6 mg equiv/kg (wrapper leaves) and 0.07–

0.09 mg equiv/kg (lettuce heads) at mature harvest (18 DALA). Radioactive residues extracted with acetonitrile and acetonitrile:water were 91–96% of the TRR for wrapper leaves and 93–95% TRR for lettuce heads at 18 DALA.

Isofetamid was the main component in lettuce heads (57–66% TRR, 0.04–0.05 mg/kg) and wrapper leaves (62–73% TRR, 1.0–1.9 mg/kg). Three metabolites, 4HP (max 3% TRR), the glucoside of 4HP (max 10% TRR) and 3-MTCAM (max 2% TRR), were also identified. There were no individual unidentified metabolites over 10% TRR.

In a French bean metabolism study, [^{14}C]-isofetamid was applied to French bean plants at a rate of 0.75 kg ai/ha. TRR in forage at 14 DALA (11–12 mg equiv/kg) and straw at 68 DALA (3.3–4.9 mg equiv/kg) were higher than those in immature (14 DALA) and mature (68 DALA) pods (0.21–0.41 mg equiv/kg) or immature and mature seeds (0.03–0.40 mg equiv/kg). Radioactive residues extracted with acetonitrile and acetonitrile:water were 96–98% TRR from forage, 97–99% TRR from immature pods and 96–99% TRR from immature seeds, and 93–94% TRR from straw, 93–95% TRR from mature pods and 32–57% TRR from mature seeds.

Isofetamid was the main individual component in forage (77% TRR, 8.1–8.9 mg/kg), straw (53–62% TRR, 1.7–3.1 mg/kg), immature pods (69–81% TRR, 0.21–0.28 mg/kg), and immature seeds (28–50% TRR, 0.07–0.11 mg/kg). Isofetamid was observed as the major single component in mature pods (18–36% TRR, 0.07–0.08 mg/kg) and mature seeds (0.5–1.1% TRR, < 0.01 mg/kg). Four metabolites, 4HP (max 1% TRR), the glucoside of 4HP (max 7% TRR), 3-MTCAM (max 7% TRR) and IBA (max 0.5% TRR), were also identified in forage, straw and pods. With the exception of the group of metabolites referred to as polar metabolites, no individual metabolites were present at levels >10% TRR. Polar metabolites were further characterised in pods and the maximum single component accounted for 11–12% TRR.

In summary, isofetamid was the major component of the residues found in grape, lettuce and French beans. The glucoside of 4HP was formed by O-dealkylation and glucose conjugation but it was not present as a significant residue in plants.

Animal metabolism

The Meeting received animal metabolism studies with isofetamid on lactating goat and laying hens. The metabolism and distribution of isofetamid in animals were investigated using the [^{14}C-phenyl] and [^{14}C-thiophene]-isofetamid.

Lactating goats were orally dosed with either of two radiolabeled isofetamids daily for 7 consecutive days at a dose level of 10 ppm in the diet. The majority of the administered dose, 51–53%, was eliminated in faeces. Urinary excretion accounted for 33–35% of the dose.

Following the administration of [^{14}C]-isofetamid, TRRs were 0.36–0.44 mg eq/kg in liver, 0.072–0.11 mg equiv/kg in kidney, 0.004–0.007 mg equiv/kg in muscle and 0.012–0.054 mg equiv/kg in fat. TRRs in the aqueous fraction of milk reached a maximum of 0.007–0.011 mg equiv/L and in the fat fraction of milk, reached a maximum of 0.048–0.16 mg eq/kg. Radioactive residues extracted with organic and aqueous solvent were 36–53% TRR from liver, 61–72% TRR from kidney, 71–88% TRR from fat, 91–99% TRR from the fat fraction of milk and 63% TRR from the aqueous fraction of milk. The remaining residues were released following protease digestion and acidic and basic hydrolysis (47–57% TRR from liver and 19–26% TRR from kidney).

Isofetamid accounted for 0.012–0.099 mg/kg (26–76% TRR) in milk fat fraction, 0.006–0.033 mg/kg (44–62% TRR) in fat and 0.0004–0.010 mg/kg (0.6–2% TRR) in liver and kidney. The metabolite PPA accounted for 0.029–0.062 mg equiv/kg (7–17% TRR) in liver, 0.005–0.021 mg equiv/kg (6–20% TRR) in kidney and 0.0002–0.003 mg equiv/kg (1–6% TRR) in aqueous and fat fraction of milk and fat. No other known residues were present in any matrix at a level greater than 0.033 mg equiv/kg.

Laying hens were orally dosed with either of the two radiolabeled isofetamid daily for 14 days at a dose level of 10 ppm in the diet. The majority of the dose was rapidly eliminated in the excreta.

In animals dosed with [^{14}C]-isofetamid, TRRs were 0.18–0.21 mg equiv/kg in liver, 0.023–0.025 mg equiv/kg in muscle, 0.030–0.035 mg equiv/kg in skin and 0.036–0.070 mg equiv/kg in fat. Maximum radioactivity in daily egg yolk samples was 0.18–0.22 mg equiv/kg and in egg white were 0.006–0.007 mg equiv/kg. Radioactive residues extracted with organic and aqueous solvent were 44–46% TRR from liver, 27–33% TRR from muscle, 69–79% TRR from fat, 59–62% TRR from skin and 47–52% TRR from egg yolk. The remaining residues were released following protease digestion and acidic and basic hydrolysis (39–41% TRR from liver, 33–35% TRR from skin and 46% TRR from egg yolk). The unextracted residues in muscle and fat were not further treated due to low TRRs.

3-MTCAM was only detected at low levels in egg yolk following acid reflux. None of the metabolites in individual matrices accounted for greater than 0.013 mg equiv/kg.

In summary, isofetamid was the major component in milk fat fraction and fat. PPA was the major component in liver and kidney of lactating goat. However, in tissues and eggs of laying hens no significant component was identified.

Rotational crop studies

The Meeting received confined rotational crop studies with ^{14}C-labeled isofetamid ([phenyl-^{14}C] and [thiophene-^{14}C]) and field rotational crop studies.

In a confined rotational crop study, rotational crops (lettuce, carrot and wheat) were sown at 30, 120 and 365 days after treatment (DAT). The SC formulated test substance ([phenyl-^{14}C] or [thiophene-^{14}C]-isofetamid) was applied to bare soil at a rate of 2.3 kg ai/ha (3 ×seasonal rate of the US GAP).

Isofetamid was present in the immature and mature lettuce extracts at < 0.1–6% TRR (< 0.001–0.005 mg/kg). The glucoside of 4HP accounted for >10% TRR in the immature and mature lettuce extracts at 19–55% TRR (0.002–0.14 mg equiv/kg). The malonyl glucoside of 4HP accounted for up to 20% TRR and 0.018 mg equiv/kg.

Carrot root extracts contained isofetamid (3–40% TRR, 0.001–0.036 mg/kg), malonyl glucoside of 4HP (11–31% TRR, 0.006–0.018 mg equiv/kg) and the glucoside of 4HP (1–18% TRR, 0.001–0.023 mg equiv/kg).

The main component in wheat forage, hay and the straw was generally the malonyl glucoside of 4HP (4–39% TRR, 0.025–0.51 mg equiv/kg). Isofetamid, glucoside of 4HP, PPA, IBA and 4HP were generally detected up to 12% TRR and 0.081 mg equiv/kg, with the exception of the glucoside of 4HP in wheat hay at 120 DAT (10% TRR and 0.24 mg equiv/kg), 4HP in wheat hay at 120 DAT (6% TRR and 0.13 mg equiv/kg) and PPA in wheat straw at 30 DAT (9–15% TRR and 0.13 mg equiv/kg). Wheat grain generally contained isofetamid, the malonyl glucoside of 4HP and PPA but each at less than 6% TRR and 0.004 mg equiv/kg. No other known metabolites were present.

The residue in succeeding crops is likely to be comprised of several compounds including isofetamid, the glucoside of 4HP, the malonyl glucoside of 4HP, 4HP, IBA and PPA depending on the crop type. The concentration of these compounds is likely to be lower at longer plantback intervals.

In a field rotational crop study in Europe, two foliar applications of isofetamid SC formulation were made to lettuce at a rate of 0.40 kg ai/ha and with a spray interval of 8–13 days (US GAP rate).

Residues of isofetamid and glucoside of 4HP in succeeding crops (spinach, radish and winter barley) at all PBIs (30, 120 and 365-day) were all below the LOQ, with the exception of radish tops at the 30-day PBI. In the sample of radish tops, isofetamid was found at 0.023–0.029 mg/kg and the malonyl glucoside of 4HP 0.011–0.013 mg/kg.

In another field rotational crop study in the USA, three applications of isofetamid SC formulation were made at approximately 14-day intervals to the vegetation on the treated plot with a target application of 0.75 kg ai/ha each time (3 ×seasonal rate of the US GAP). Thirty, 120 and 365-day PBIs were tested with representative root crops, leafy crops and small grain crops.

For all PBIs no residues of isofetamid, the glucoside of 4HP or malonyl glucoside of 4HP were found in rotational crops (turnip, wheat, soya bean lettuce and kale), with the exception of turnip root (0.01 mg/kg) at the 30-day PBI.

In rotational crops, the Meeting concluded that no significant residues are expected.

Environmental fate in water

The Meeting received information on hydrolysis.

In the hydrolytic degradation study, isofetamid was hydrolytically stable at pH 4, 7 and 9 after incubation at 50 °C for 5 days (> 94% of applied radioactivity was recovered as unchanged isofetamid). Hydrolysis is not considered a significant degradation route of isofetamid.

In the photolysis study, the DT_{50} of isofetamid was 1–3 days in water. Photolysis may be a potential route of degradation of isofetamid.

Methods of analysis

The Meeting received descriptive and validation data of analytical methods for residues of isofetamid and the glucoside of 4HP in plant commodities and for residues of isofetamid, 4HP, PPA and 5-HPPA in animal commodities.

In the methods for determination of isofetamid and the glucoside of 4HP in plant, homogenized samples were extracted with acetonitrile:water (80:20 v/v), with or without clean up with a solid phase extraction, residues were determined by HPLC with MS/MS detection. The methods of analysis were validated at various fortification levels with an LOQ of 0.01 mg/kg for isofetamid and 0.01 mg/kg for the glucoside of 4HP.

In the methods for determination of isofetamid, 4HP, PPA and 5-HPPA in animal commodities, samples were homogenized with acetonitrile:water (15:2 v/v), and DisQuE extraction mixture (used developed QuEChERS method) was added and mixed. An aliquot was diluted in formate buffer. Residues were determined by HPLC with MS/MS detection. The method of analysis was validated with LOQs of the 0.01 mg/kg for isofetamid, 4HP, PPA and 5-HPPA.

Stability of pesticide residues in stored analytical samples

The Meeting received information on the freezer storage stability of isofetamid and the glucoside of 4HP in plant (almonds, rape seeds, grapes, lettuce, potatoes and dry beans).

Storage stability results indicate that isofetamid residue was stable at -20 °C for at least 12 months in almonds, rape seeds, grapes, lettuce, potatoes and dry beans. The glucoside of 4HP residue was stable at -20 °C for at least 12 months in almonds, grapes, lettuce, potatoes and dry beans and at least 1 month in rape seeds.

The periods of storage stability studies generally cover the sample storage intervals of residue trials, except oilseed rape.

Definition of the residue

In plant metabolism studies, parent isofetamid was the major component (28–81% TRR) in grape, lettuce and French bean. The glucoside of 4HP was found at 0.01–0.07 mg equiv/kg (10% TRR) in grapes and lettuce heads. No other individual metabolite was present in the edible plant parts at a level greater than 10% TRR.

No significant residues are likely to be found in rotational crops.

The Meeting decided that the suitable analyte for enforcement purposes and for dietary risk assessment is isofetamid in plant commodities.

In the lactating goat study, PPA is the major component of the residue in liver (7–17% TRR, 0.029–0.062 mg equiv/kg) and kidney (6–20% TRR, 0.005–0.021 mg equiv/kg). On the other hand, isofetamid was the major component in milk fat (26–76% TRR, 0.012–0.099 mg equiv/kg) and fat (44–62% TRR, 0.006–0.033 mg equiv/kg). In the laying hen study, the concentration of each of identified components in the tissues and egg yolk were below 0.01 mg equiv/kg.

An analytical method to determine residues of isofetamid and PPA in animal commodities is available.

The Meeting decided that isofetamid and PPA are suitable analytes for enforcement purposes and dietary risk assessment in animal commodities.

The octanol/water coefficient (log P_{ow}) of isofetamid is 2.5. However, the sum of isofetamid and PPA in fat is 5 times higher than in muscle, and, in milk fat, 45 times higher than in the aqueous fraction of milk. The Meeting considered the residue of isofetamid is fat soluble.

Definition of the residue (for compliance with MRLs and for dietary risk assessment) for plant commodities: *Isofetamid*

Definition of the residue (for compliance with MRLs and for dietary risk assessment) for animal commodities: *Sum of isofetamid and 2-[3-methyl-4-[2-methyl-2-(3-methylthiophene-2-carboxamido) propanoyl]phenoxy]propanoic acid (PPA), expressed as isofetamid*

The residue is fat soluble.

Results of supervised residue trials on crops

The Meeting received supervised trial data for foliar application of isofetamid on cherries, plum, apricot, peach, grapes, strawberry, lettuce, almonds and oilseed rape. Residue trials were conducted in Belgium, Germany, Hungary, the Netherlands, the UK, France, Greece, Italy, Spain, Canada and the USA.

Labels from Canada and the USA were available.

Stone fruits

Data were available from supervised trials on cherries, plums, apricots and peaches in Europe. However, no GAP information was provided.

As there was no GAP information available to support the trials, the Meeting could not estimate a maximum residue level for stone fruits.

Small fruit vine climbing

Grapes

Data were available from supervised trials on grapes in Canada, the USA and European countries.

The GAP for grapes of Canada allows three foliar applications at a maximum rate of 0.64 kg ai/ha with a PHI of 14 days. The GAP of the USA for small fruits vine climbing (US Crop Subgroup 13-07D), except fuzzy kiwifruit allows foliar applications of 0.58–0.64 kg ai/ha at a maximum annual rate of 1.9 kg ai/ha with a PHI of 14 days.

Isofetamid residues in grapes from independent trials in Canada and the USA matching GAP were (n = 15): 0.12, 0.17 (2), 0.49, 0.51, 0.54, 0.67, 0.73, 0.82, 0.83, 0.84, 0.87, 1.1, 1.5 and 1.9 mg/kg.

Based on the trials on grapes in Canada and the USA, the Meeting estimated a maximum residue level of 3 mg/kg, an STMR value of 0.73 mg/kg and an HR value of 2.6 mg/kg (based on the highest residue of replicate samples) for isofetamid in small fruit vine climbing.

Low growing berries

Strawberry

Data were available from supervised trials on strawberry in Canada, the USA and European countries.

The GAP for low growing berry of Canada is five foliar applications at a maximum rate of 0.50 kg ai/ha with a PHI of 0 day; and the GAP for the low growing berry subgroup of the USA is for foliar applications of 0.39–0.45 kg ai/ha at a maximum annual rate of 1.6 kg ai/ha with a PHI of 0 day.

Isofetamid residues in strawberries from independent trials in Canada and the USA, matching the Canadian GAP, were (n = 10): 0.16, 0.31, 0.32, 0.47, 0.48, 0.50, 0.54, 1.0, 1.2 and 2.7 mg/kg.

Based on the trials on strawberries in Canada and the USA, the Meeting estimated a maximum residue level of 4 mg/kg, an STMR value of 0.49 mg/kg and an HR value of 3.1 mg/kg (based on a highest residue of replicate samples) for isofetamid in low growing berries.

Lettuce

Data were available from supervised trials on head and leaf lettuce in Canada, the USA and a number of European countries.

The GAP in Canada for lettuce (head and leaf) is two foliar applications at a rate of 0.36 kg ai/ha with a PHI of 14 days; the GAP in the USA for lettuce (head and leaf) is for foliar applications at 0.36 kg ai/ha at a maximum annual rate of 0.72 kg ai/ha with a PHI of 14 days. No GAP was received for Europe.

Isofetamid residues in head lettuce with wrapper leaves from independent trials in Canada and the USA matching GAP were (n = 11): < 0.01 (2), 0.01, 0.17, 0.21, 0.29, 0.34 (2), 0.35, 1.4 and 3.4 mg/kg.

Based on the trials on head lettuce in Canada and the USA, the Meeting estimated a maximum residue level of 5 mg/kg, an STMR value of 0.29 mg/kg and an HR value of 4.7 mg/kg (based on a highest residue of replicate samples) for isofetamid in head lettuce.

Isofetamid residues in leaf lettuce from independent trials in Canada and the USA matching GAP were (n = 12): < 0.01, 0.01 (3), 0.05, 0.08, 0.15, 0.39, 0.76, 0.88, 1.4 and 4.9 mg/kg.

Based on the trials on leaf lettuce in Canada and the USA, the Meeting estimated a maximum residue level of 7 mg/kg, an STMR value of 0.115 mg/kg and an HR value of 5.2 mg/kg (based on a highest residue of replicate samples) for isofetamid in leaf lettuce.

Almonds

Data were available from supervised trials on almonds in the USA.

The GAP of the USA for almond is foliar applications of 0.39–0.50 kg ai/ha at a maximum annual rate of 2.0 kg ai/ha with the application timing from pink bud to petal fall.

Isofetamid residues in almond nutmeats from independent trials in the USA matching GAP were (n = 5): < 0.01 (5) mg/kg.

Based on the trials on almonds in the USA, the Meeting estimated a maximum residue level of 0.01 * mg/kg, an STMR value of 0.01 mg/kg and an HR value of 0.01 mg/kg for isofetamid in almonds.

Rape seed

Data were available from supervised trials on rape seed in Canada, the USA and European countries.

The GAP of Canada for the rapeseed subgroup is two foliar applications at a maximum rate of 0.35 kg ai/ha with the application timing at 20–40% flowering (BBCH 62–64) and near the end of flowering (BBCH 67–69); the GAP on the rapeseed subgroup of the USA is for foliar applications of 0.30–0.35 kg ai/ha at a maximum annual rate of 0.71 kg ai/ha with the application timing of 20–40% flowering (BBCH 62–64) and near the end of flowering (BBCH 67–69).

Isofetamid residues in rape seed from independent trials in Canada and the USA matching GAP were (n = 17): < 0.01 (14) and 0.01 (3) mg/kg.

Based on the trials on oilseed rape in Canada and the USA, the Meeting estimated a maximum residue level of 0.015 mg/kg and an STMR value of 0.01 mg/kg for isofetamid in rape seed.

Animal feedstuffs

Almond hulls

Data were available from supervised trials on almonds in the USA.

The GAP of the USA for almond is foliar applications of 0.39–0.50 kg ai/ha at a maximum annual rate of 2.0 kg ai/ha with the application timing from pink bud to petal fall.

Isofetamid residues in almond hulls (dry weight basis) from independent trials in the USA matching GAP were (n = 5): < 0.01 (4) and 0.41 mg/kg.

Based on the trials for almonds in the USA, the Meeting estimated a maximum residue level of 0.8 mg/kg and a median residue value of 0.01 mg/kg for isofetamid in almond hulls on a dry weight basis.

Fate of residues during processing

High temperature hydrolysis

The hydrolytic stability of [^{14}C]-isofetamid was studied under conditions at high temperature in sterile aqueous buffers at pH 4, 5 and 6 for periods of up to 60 minutes so as to simulate common processing practices (pasteurization, baking/brewing/boiling, and sterilization). No degradates were detected at any of the investigated pH and temperature ranges. Isofetamid is considered stable under hydrolytic conditions at high temperatures.

Residues in processed commodities

The fate of isofetamid residues has been examined in grape and rape seed processing studies. Estimated processing factors and the derived STMR-Ps are summarized in the Table below.

Processing factors, STMR-P and HR-P for food and feed

Raw agricultural commodity (RAC)	Processed commodity	Calculated processing factors*	PF (Mean or best estimate)	RAC STMR (mg/kg)	STMR-P (mg/kg)
		Isofetamid	Isofetamid		
Grape	Must	1.0, 1.1	1.05	0.73	0.77
	Juice	0.11, 0.11, 0.12, 0.13, 0.17, 0.45, 0.75	0.13		0.095
	Wet pomace	2.1, 2.9, 3.7, 4.4, 4.5	3.7		2.7
	Red wine	0.20, 0.20, 0.22, 0.26	0.21		0.15
	White wine	0.26, 0.39, 0.48	0.39		0.28
	Dried grapes	1.1, 1.5, 2.2, 2.3, 2.4, 2.7	2.3		1.7
Rape seed	Meal	0.17	0.17	0.01	0.0017
	Refined oil	2.0	2.0		0.02

* Each value represents a separate study. The factor is the ratio of the residue in processed commodity divided by the residue in the RAC.

The Meeting estimated maximum residue levels of 7 mg/kg (3 × 2.3 = 6.9 mg/kg) and an HR value of 5.98 (2.6 × 2.3 = 5.98 mg/kg) for dried grapes and 0.03 mg/kg (0.015 × 2.0 = 0.03 mg/kg) for rape seed oil.

Residues in animal commodities

Farm animal dietary burden

The Meeting estimated the dietary burden of isofetamid in farm animals on the basis of the diets listed in Appendix IX of the FAO Manual third edition, 2016. Calculations from the highest residue, STMR (some bulk commodities) and STMR-P values provide levels in feed suitable for estimating MRLs, while calculations using STMR and STMR-P values for feed are suitable for estimating STMR values for animal commodities. The percentage dry matter is taken as 100% when the highest residue levels and STMRs are already expressed on a dry weight basis.

Estimated maximum and mean dietary burdens of farm animals

The calculations were made according to the animal rations from US-Canada, EU, Australia and Japan in the Table (Appendix IX of the FAO manual).

Potential feed items include: almond hulls, grape wet pomace and rape seed meal.

Livestock dietary burden, isofetamid, ppm of dry matter diet								
	US-Canada		EU		Australia		Japan	
	Max	Mean	Max	Mean	Max	Mean	Max	Mean
Beef cattle	0	0	0.00039	0.00039	**3.60**[A]	**3.60**[B]	0.00029	0.00029
Dairy cattle	0.001	0.001	0.00019	0.00019	**3.60**[C]	**3.60**[D]	0.00048	0.00048
Poultry – broiler	0	0	0	0	0.00010	0.00010	0.00010	0.00010
Poultry – layer	0	0	0.00019	0.00019	0.00010	0.00010	**0.00029**[E]	**0.00029**[F]

[A] Highest maximum beef cattle dietary burden suitable for MRL estimates for mammalian meat, fat and edible offal

[B] Highest mean beef cattle dietary burden suitable for STMR estimates for mammalian meat, fat and edible offal

[C] Highest maximum dairy cattle dietary burden suitable for MRL estimates for milk

[D] Highest mean dairy cattle dietary burden suitable for STMR estimates for milk

[E] Highest maximum layer poultry dietary burden suitable for MRL estimates for poultry meat, fat, edible offal and eggs

[F] Highest mean layer poultry dietary burden suitable for STMR estimates for poultry meat, fat, edible offal and eggs

Farm animal feeding studies

Farm animal feeding studies were not submitted.

Animal commodities maximum residue levels

For MRL estimation, the residue definition in the animal commodities is isofetamid and PPA, expressed as isofetamid.

The maximum dietary burden for beef and dairy cattle is 3.6 ppm which is lower than the dose level in the lactating goat metabolism study (10 ppm). In the study, in which isofetamid equivalent to 10 ppm in the diet was dosed to lactating goats for 7 consecutive days, maximum residues of isofetamid were detected at 0.10 mg/kg in liver, 0.033 mg/kg in fat and < 0.01 mg/kg in kidney, muscle and aqueous fraction of milk. For milk fat isofetamid residues were 0.12 mg/kg (TRR reached a maximum of 0.16 mg equiv/kg and isofetamid residues were 76.1% TRR in [^{14}C-phenyl] study). PPA residues were detected at 0.062 mg equiv/kg in liver, 0.021 mg equiv/kg in kidney and < 0.01 mg equiv/kg in milk (aqueous and fat), muscle and fat. The maximum dietary burden for beef and dairy cattle is 36% of the dose rate in the metabolism study.

The highest estimated total residues (isofetamid and PPA) were 0.043 mg/kg ((0.12+< 0.01)×0.36) in milk fat, 0.058 mg/kg ((0.10 + 0.062) × 0.36) in liver, 0.0076 mg/kg ((< 0.01+0.021) × 0.36) in kidney, 0.012 mg/kg ((0.033+< 0.01) × 0.36) in fat and < 0.01 mg/kg in muscle.

The ratio of milk fat in whole milk was average 6% in the lactating goat metabolism study. The highest estimated total residue in whole milk was 0.003 mg/kg.

The Meeting estimated a maximum residue level of 0.01* mg/kg and an STMR value of 0.003 mg/kg in milk.

The Meeting estimated a maximum residue level of 0.02 mg/kg in mammalian fat and meat (fat).

The Meeting estimated an STMR value of 0.012 mg/kg and an HR value of 0.012 mg/kg in mammalian fat.

The Meeting estimated an STMR value of 0.01 mg/kg and an HR value of 0.01 mg/kg in mammalian muscle.

The Meeting estimated a maximum residue level of 0.07 mg/kg, an STMR value of 0.058 mg/kg and an HR value of 0.058 mg/kg in mammalian edible offal.

The maximum dietary burden for broiler and layer poultry is 0.0003 ppm and is considerably lower than the dose level in the laying hen metabolism study of 12.7–13.5 ppm. In the metabolism study, in which isofetamid equivalent to 13.5 ppm in the diet was dosed to laying hens for 7 consecutive days, the maximum TRR was 0.21 mg/kg in liver. There would be no significant residues in poultry meat, fat, edible offal and eggs at the maximum dietary burden for broiler and layer poultry.

The Meeting estimated a maximum residue level of 0.01 * mg/kg, an STMR value of 0 mg/kg and an HR value of 0 mg/kg in poultry meat, fat, edible offal and eggs.

RECOMMENDATIONS

On the basis of the data from supervised trials, the Meeting concluded that the residue levels listed in Annex 1 are suitable for estimating maximum residue limits and for IEDI and IESTI assessment.

Definition of the residue (for compliance with MRLs and for dietary risk assessment) for plant commodities: *Isofetamid*

Definition of the residue (for compliance with MRLs and for dietary risk assessment) for animal commodities: *Sum of isofetamid and 2-[3-methyl-4-[2-methyl-2-(3-methylthiophene-2-carboxamido) propanoyl]phenoxy]propanoic acid (PPA), expressed as isofetamid*

The residue is fat soluble

DIETARY RISK ASSESSMENT

Long-term dietary exposure

The International Estimated Daily Intakes (IEDIs) of isofetamid were calculated for the 17 GEMS/Food cluster diets using STMRs/STMR-Ps estimated by the current Meeting (Annex 3). The ADI is 0–0.05 mg/kg bw and the calculated IEDIs were 0–1% of the maximum ADI (0.05 mg/kg bw). The Meeting concluded that the long-term exposure to residues of isofetamid, resulting from the uses considered by current JMPR, is unlikely to present a public health concern.

Short-term dietary exposure

The International Estimated Short-Term Intakes (IESTI) of isofetamid were calculated for food commodities and their processed commodities using HRs/HR-Ps or STMRs/STMR-Ps estimated by the current Meeting (Annex 4). The ARfD is 3 mg/kg bw and the calculated IESTIs were a maximum of 3% of the ARfD for the general population and 10% of the ARfD for children. The Meeting concluded that the short-term dietary exposure to residues of isofetamid, when used in ways that have been considered by the JMPR, is unlikely to present a public health concern.

5.15 METHOPRENE (147)

RESIDUE AND ANALYTICAL ASPECTS

Methoprene is an insect growth regulator with activity against a variety of insect species. It was first evaluated by JMPR in 1984 and has been re-evaluated for residues several times. The ADI was established as 0–0.09 mg/kg bw for racemic methoprene, 0–0.05 mg/kg bw for S-methoprene; and an ARfD was considered unnecessary in 2001. Methoprene was scheduled at the 47th Session of the CCPR (2015) for the evaluation of additional MRLs in 2016 JMPR.

The residue studies on sunflower seeds and analytical method were submitted by the manufacturer for additional MRLs for oilseeds.

Methods of analysis

The Meeting received information on the analytical method used for the determination of S-methoprene residues on sunflower seeds. Samples with 50 mL HPLC-grade methanol were shaken for a minimum of 5 hours on a shaker at a minimum of 250 rpm. Then the samples were allowed to sit or shake for 19 additional hours. After 5 mL of dibutyl phthalate (DBP) was added as internal standard, the samples were shaken by hand and filtered into an autosampler vial. S-methoprene residues were analyzed by reverse-phase HPLC-UV (264 nm). The LOD was 0.003–0.007 mg/kg. The concurrent recoveries in supervised residue trials on suflower seeds were 82–110%.

Results of supervised residue trials on crops

The Meeting received supervised trial data for post harvest application of S-methoprene on sunflower seeds. The residue trials were conducted in the USA. Labels in the USA were available describing the registered uses of S-methoprene.

Sunflower seed

Data were available from supervised trials on sunflower seeds in the USA.

The GAP of the USA is post-harvest treatment for seeds of maximum 34.6 g ai/1000 bushels (2.4–3.2 g ai/t).

S-methoprene residues in sunflower seeds from independent trials in the USA matching GAP were (n = 4): 1.8, 1.9, 2.0 and 2.6 mg/kg.

The Meeting noted that use pattern for ‘Any’ (all grains, spices, feeds and seeds) also covers all commodities of oilseeds. Therefore, the application rates of oilseed were calculated as shown in the Table below. The Meeting recognized that there was more than 25% deviation between the application rate of trials on sunflower seed and GAP rate for peanuts.

Commodities of oilseed	Weight/volume, kg/bushel (t/1000 bushels)	Maximum application rate	
		g ai/1000 bushels	g ai/t
Peanuts, unshelled			
Virginia type	7.7	34.6	4.5
Runners, southeastern	9.5	34.6	3.6
Sunflower seed			
Oil type	10.9-14.5	34.6	2.4-3.2
Confectionary type	11.3	34.6	3.1
Other	-	-	2.2

Ref.: Weight, Measures, and Conversion Factors for Agricultural Commodities and their Products; USDA Agricultural Handbook, No. 697, 1992

Since GAP in the USA is post-harvest application, the Meeting agreed to extrapolate the residues in suflower seeds to those in oilseed except peanut.

The Meeting estimated a maximum residue level of 4 mg/kg, an STMR value of 2.0 mg/kg and a highest reside value of 2.6 mg/kg for S-methoprene in oilseed except peanut.

Residues in animal commodities

The 2016 JMPR evaluated residues of S-methoprene in oilseed, which is listed in the OECD feeding table. The Meeting noted that the estimation did not result in a significant change of the dietary burdens of farm animals. The previous recommendations of maximum residue levels for animal commodities were maintained.

RECOMMENDATIONS

On the basis of the data from supervised trials, the Meeting concluded that the residue levels listed below are suitable for estimating maximum residue limits and for IEDI and IESTI assessment.

Plant and animal commodities:

Definition of the residue for plant and animal commodities (for compliance with the MRL and for estimation of dietary intake): *methoprene*

DIETARY RISK ASSESSMENT

Long-term dietary exposure

The International Estimated Daily Intakes (IEDIs) of methoprene were calculated for the 17 GEMS/Food cluster diets using STMRs/STMR-Ps estimated by the 2005 and current Meeting (Annex 3). The ADI for S-methoprene is 0–0.05 mg/kg bw and the calculated IEDIs were 10–60% of the maximum ADI (0.05 mg/kg bw). The Meeting concluded that long-term dietary exposure to residues of methoprene, resulting from the uses considered by the current JMPR, are unlikely to present a public health concern.

Short-term dietary exposure

The 2001 JMPR decided that an ARfD is unnecessary. The Meeting therefore concluded that the short-term dietary exposure of methoprene residues is unlikely to present a public health concern.

5.16 METRAFENONE (278)

RESIDUE AND ANALYTICAL ASPECTS

Metrafenone, a benzophenone fungicide, was evaluated for the first time by the 2014 JMPR, where an ADI of 0–0.3 mg/kg bw was established, an ARfD was not considered necessary and a residue definition of *metrafenone* (parent only) was established for plant and animal commodities, for both compliance with MRLs and for dietary intake assessment.

It was scheduled by the 47th Session of the CCPR for the evaluation of additional uses by the 2016 JMPR and the Meeting received new GAP and residue information on pome fruit, stone fruit and hops from the manufacturer.

New GAP information on grapes and fruiting vegetables was also provided by the manufacturer, together with an ambient temperature metrafenone residue stability study in homogenised melons.

Methods of analysis

The 2014 JMPR reviewed and summarised analytical method descriptions and validation data for metrafenone in crop and animal matrices. These included The QuEChERS 1 method and Method 535/3 used to measure metrafenone in the new supervised residue trials. Method validation data for pome fruit, stone fruit and hops were provided to the Meeting. LOQs for all matrices were 0.01 mg/kg.

Stability of pesticide residues in stored analytical samples

Plant matrices–fresh analytical sub-samples

The Meeting received an ambient storage residue stability study on melons where homogenised samples were spiked with 0.1 mg/kg metrafenone and stored at 19 °C±1 °C for up to 16 hours before analysis for metrafenone. Residues were stable (more than 79% residues remaining) for up to 16 hours at room temperature.

The Meeting concluded that if samples from supervised residue field trials were sub-sampled (quartered or sliced) in the field, and frozen within 16 hours of sampling, the results from those trials were suitable for estimating maximum residue levels.

Plant matrices–stored analytical samples

The 2014 JMPR concluded that metrafenone residues were stable for up to 24 months in analytical frozen samples of a range of representative substrates (at least 31 months in high starch and high water content matrices). In general, residues in the stored samples were greater than 80% of the spiked levels. Frozen sample storage times in the new trials were within the storage intervals considered acceptable by the 2014 JMPR

Results of supervised residue trials on crops

The Meeting received new supervised trial data for foliar applications of metrafenone on pome fruit, stone fruit and hops. Trials on grapes and fruiting vegetables evaluated by the 2014 JMPR were re-assessed in light of new GAP information provided to the Meeting.

The results from these new trials and those previously reported by the 2014 JMPR and matching critical GAP were used to estimate maximum residue levels, STMRs and HRs for a number of commodities for which GAP information was available.

Pome fruit

Results from supervised trials on apples and pears conducted in USA were provided to the Meeting.

The critical GAP for metrafenone on pome fruit in Canada and USA is for up to 3 foliar applications of 0.336 kg ai/ha applied at least 7–14 days apart with a PHI of 7 days, applying a total of 1.01 kg ai/ha/season.

In 11 independent trials on apples in USA matching this GAP, residues were: 0.08, 0.2, 0.22, 0.22, 0.22, 0.23, 0.31, 0.45, 0.49, 0.54 and 0.76 mg/kg.

In six independent trials on pears in USA matching this GAP, residues were: 0.14, 0.16, 0.19, 0.39, 0.41 and 0.48 mg/kg.

The Meeting noted that the data sets for apples and pears were not statistically diffferent (Mann-Whitney) and agreed to combine the data sets for apples and pears to estimate a pome fruit group maximum residue level.

The combined data set for metrafenone residues in apples and pears from trials matching the GAP for pome fruit in Canada and USA is: 0.08, 0.14, 0.16, 0.19, 0.2, 0.22, 0.22, 0.22, 0.23, 0.31, 0.39, 0.41, 0.45, 0.48, 0.49, 0.54 and 0.76 mg/kg.

The Meeting estimated an STMR of 0.23 mg/kg and a group maximum residue level of 1 mg/kg for metrafenone on pome fruit.

Stone fruit

Results from supervised trials on cherries and peaches conducted in USA were provided to the Meeting.

Cherries

The critical GAP for metrafenone on cherries in Canada and USA is for up to 2 foliar applications of 0.336 kg ai/ha applied at least 7–14 days apart with a PHI of 7 days, applying a total of 0.67 kg ai/ha/season.

In 12 independent trials in USA matching this GAP, residues in cherries (without stones) were: 0.32, 0.37, 0.39, 0.43, 0.44, 0.49, 0.55, 0.6, 0.65, 0.7, 0.97 and 1.2 mg/kg.

The Meeting noted that the GAP in USA and Canada covered the Codex Cherries sub-group and based on the data for cherries (without stones), estimated an STMR for metrafenone of 0.52 mg/kg for cherries (sub-group).

The Meeting also noted that cherry stones do not contribute significantly to the total fruit weight and agreed to use the above data set to estimate a maximum residue level of 2 mg/kg for metrafenone for cherries (sub-group).

Peaches (including Nectarine and Apricots)

The critical GAP for metrafenone on peaches (including nectarines) in Canada and USA is for up to 2 foliar applications of 0.336 kg ai/ha applied at least 7–14 days apart with a PHI of 7 days, applying a total of 0.67 kg ai/ha/season.

In 14 independent trials on peaches in USA matching this GAP, residues in peaches (without stones) were: 0.05, 0.14, 0.17, 0.19, 0.2, 0.21, 0.21, 0.21, 0.22, 0.23, 0.25, 0.28, 0.29 and 0.49 mg/kg.

The Meeting noted that the GAP in USA for apricots was the same as for peaches, and thus covered the Codex Peaches sub-group (i.e. including apricots) and estimated an STMR for metrafenone of 0.21 mg/kg for peaches sub-group.

The Meeting also noted that peach (and nectarine) stones do not contribute significantly to the total fruit weight and agreed to use the above data set to estimate a maximum residue level of 0.7 mg/kg for metrafenone for peaches (sub-group).

Small fruit vine climbing

Grapes

The Meeting received new GAP information for grapes in USA, up to 3 foliar applications of 0.336 kg ai/ha, 14–21 day retreatment interval and a PHI of 14 days.

In eight independent trials from the USA, evaluated by the 2014 JMPR and matching the new USA GAP, residues in grapes were: 0.22, 0.34, 0.35, 0.45, 0.46, 0.47, 0.48 and 1.0 mg/kg.

Noting that the 2014 JMPR had estimated an STMR of 0.76 mg/kg and a maximum residue level of 5 mg/kg for metrafenone on grapes based on data matching the Canadian GAP (up to 6 foliar applications of 0.225 kg ai/ha, PHI 14 days), the Meeting agreed that the new GAP in USA would be accommodated by the existing STMR and maximum residue level.

Fruiting vegetables, Cucurbits

The Meeting received new GAP information for cucurbits in Canada and USA, up to 3 foliar applications of 0.336 kg ai/ha, 7–14 day retreatment interval and a PHI of 0 days.

Cucumber

The Meeting agreed to review the data on cucumbers provided to the 2014 JMPR in light of the new GAP for fruiting vegetables, cucurbits in Canada and USA.

In six independent trials from USA on cucumbers matching the new GAP in Canada and USA, residues were: 0.05, 0.08, 0.1, 0.1, 0.14 and 0.16 mg/kg.

Squash, Summer

The Meeting agreed to review the data on summer squash provided to the 2014 JMPR in light of the new GAP for fruiting vegetables, cucurbits in Canada and USA.

In 14 independent trials from North America on summer squash matching this new GAP, residues in summer squash were: 0.07, 0.1, 0.1, 0.11, 0.11, 0.12, 0.13, 0.13, 0.14, 0.17, 0.22, 0.28, 0.29 and 0.31 mg/kg.

Melons (except watermelon)

The Meeting noted that the 2014 JMPR had reviewed the data from melon trials but was unable to estimate a maximum residue level because the melon samples had been quartered in the field and no information was available on residue stability in chopped or sliced samples.

Based on new information showing that metrafenone residues were stable for up to 16 hours in homogenised samples at room temperatures, the Meeting reviewed the data on melons provided to the 2014 JMPR in light of the new critical GAP in Canada and USA.

In 12 independent trials on melons (cantaloupes) in North America matching the new GAP in Canada and USA, residues were: 0.04, 0.08, 0.09, 0.13, 0.13, 0.13, 0.15, 0.18, 0.18, 0.21, 0.23 and 0.28 mg/kg.

The Meeting noted that the GAP in Canada and USA was for the cucurbit group, that median residues in cucumber, summer squash and melons were within a 5-fold range (0.1 – 0.14 mg/kg) and that the data sets were not from different populations (Kruskal-Wallis). The Meeting therefore agreed to combine these data sets to recommend a group maximum residue level for fruiting vegetables, cucurbits.

Residues in cucumber, summer squash and melons from trials matching the GAP in Canada and USA for fruiting vegetables, cucurbits were: 0.04, 0.05, 0.07, 0.08, 0.08, 0.09, 0.1 (4), 0.11, 0.12, 0.13 (5), 0.14, 0.14, 0.15, 0.16, 0.17, 0.18, 0.18, 0.21, 0.22, 0.23, 0.28, 0.28, 0.29 and 0.31 mg/kg.

The Meeting estimated an STMR of 0.13 mg/kg and a group maximum residue level of 0.5 mg/kg for metrafenone on fruiting vegetables, cucurbits and to withdraw the previous recommendations for cucumber, summer squash and gherkin.

Fruiting vegetables, other than Cucurbits

The Meeting received new GAP information for fruiting vegetables (other than cucurbits) in Canada and USA, up to 3 foliar applications of 0.336 kg ai/ha, 7–14 day retreatment interval and a PHI of 0 days.

Peppers

In nine independent trials from USA on peppers matching this new GAP, residues were: 0.08, 0.15, 0.25, 0.27, 0.35, 0.4, 0.41, 0.43 and 0.5 mg/kg.

The Meeting noted that the 2014 JMPR had estimated STMRs of 0.115 mg/kg and maximum residue levels of 2.0 mg/kg for metrafenone on sweet pepper and on Chili pepper based on glasshouse sweet pepper trials conducted in Europe matching the GAP in France (up to 2 foliar applications of 0.15 kg ai/ha, PHI 3 days).

The Meeting agreed that the new GAP in Canada and USA would be accommodated by the existing maximum residue level but that since the STMR from the USA trials was higher than that estimated by the 2014 JMPR, the Meeting agreed to use the 0.35 mg/kg STMR from the trials matching the USA GAP for dietary intake estimation for peppers, sweet and peppers, Chili.

Tomato

The Meeting agreed to review the data on tomatoes provided to the 2014 JMPR in light of the new GAP in Canada and USA.

In 19 independent trials from North America on tomatoes matching this new GAP, residues were: 0.08, 0.09, 0.09, 0.1 (3), 0.11 (3), 0.17, 0.18, 0.2, 0.22, 0.23, 0.25, 0.26, 0.29, and 0.43 mg/kg.

The Meeting estimated an STMR of 0.11 mg/kg and a maximum residue level of 0.6 mg/kg for metrafenone on tomato to replace the previous recommendation and noting that the GAP in Canada and USA included use on eggplants, agreed to extrapolate the above estimations to eggplants.

Dried herbs

Results from supervised trials on hops conducted in Europe and North America were provided to the Meeting.

Hops

The GAP for metrafenone on hops in USA is for up to 2 foliar applications of 0.336 kg ai/ha with a PHI of 3 days. In trials in North America matching this GAP, metrafenone residues in dried hop cones were: 13, 17, 21 and 24 mg/kg. In trials conducted in Europe and matching the GAP in USA, residues were 13, 20, 21, 23, 33 and 34 mg/kg.

Since the European and North American data sets were not from different populations (Mann-Whitney), the Meeting agreed to use the global data set approach and combined these data sets to recommend a maximum residue level for hops, dry.

Residues from trials in North America and Europe matching the USA GAP for hops were: 13, 13, 17, 20, 21, 21, 23, 24, 33 and 34 mg/kg

The Meeting estimated an STMR of 21 mg/kg and a maximum residue level of 70 mg/kg for metrafenone on hops, dry.

Fate of residues during processing

Processing studies on apples, tomatoes and hops were among those reviewed by the 2014 JMPR and the processing factors estimated by that Meeting for the commodities considered at this Meeting are summarised below.

Summary of selected processing factors and STMR-P values for metrafenone

RAC	Matrix	Processing Factors [a]	STMR (mg/kg)	STMR-P (mg/kg)
Apple	fruit		0.23	
	canned	0.12		0.028
	juice	0.21		0.048
	wet pomace	1.2		0.28
	dried slices	0.56		0.13
	sauce	4.45		1.0
Tomato	fresh		0.11	
	preserved	< 0.02		< 0.002
	juice (raw)	0.34		0.037
	wet pomace	5.5		0.61
	paste	0.385		0.042
	puree	0.81		0.089
Hops	dried cones		21	
	extracted hops	1.8		38
	brewers yeast	0.01		0.21
	beer	< 0.0005		< 0.01

[a] Each PF value is the median of 2–4 separate studies where residues were above the LOQ in the RAC. The PF in each study was the ratio of the metrafenone residues in the processed item divided by the residues in the RAC.

The Meeting noted that in the above studies, metrafenone residues did not concentrate in food commodities during processing except in tomato sauce and wet tomato pomace and apple pomace.

For dried chili peppers, applying the default processing factor of 10 to the STMR and the maximum residue level estimated for peppers, the Meeting estimated an STMR of 3.1 mg/kg and a maximum residue level of 20 mg/kg for metrafenone on peppers Chili, dried.

Residues in animal commodities

Farm animal dietary burden

The Meeting noted that the 2014 JMPR had calculated beef and dairy cattle maximum dietary burdens of 9.3 ppm (dw) and mean dietary burdens of 4.9 ppm (dw) for beef and dairy cattle based on the Australian livestock diet listed in Appendix IX of the FAO Manual.

Noting that the addition of wet apple pomace would not significantly change the estimated livestock dietary burdens (wet apple pomace not being a component of the Australian beef and dairy cattle livestock diet), the Meeting agreed that the maximum and mean livestock dietary burdens for beef and dairy cattle calculated by the 2014 JMPR did not need to be recalculated.

The Meeting also agreed that the maximum dietary burdens (2.0 ppm dw) and the mean dietary burdens (1.3 ppm dw) for poultry, calculated by the 2014 JMPR did not need to be recalculated as none of the feed items from the commodities considered by the Meeting contributed to any of the poultry diets.

RECOMMENDATIONS

On the basis of the data from supervised trials the Meeting concluded that the residue levels listed in Annex 1 are suitable for establishing maximum residue limits and for IEDI assessment.

Definition of the residue (for compliance with the MRL and for dietary risk assessment) for plant and animal commodities: *metrafenone*

The residue is fat soluble.

DIETARY RISK ASSESSMENT

Long-term dietary exposure

The International Estimated Daily Intake (IEDI) for metrafenone was calculated for the food commodities for which STMRs or HRs were estimated and for which consumption data were available. The results are shown in Annex 3.

The International Estimated Daily Intakes of metrafenone for the 17 GEMS/Food cluster diets, based on estimated STMRs were 0–1% of the maximum ADI of 0.3 mg/kg bw (Annex 3). The Meeting concluded that the long-term dietary exposure to residues of metrafenone, from uses that have been considered by the JMPR, is unlikely to present a public health concern.

Short-term dietary exposure

The 2014 JMPR decided that an ARfD was unnecessary. The Meeting therefore concluded that the short-term exposure to metrafenone residues is unlikely to present a public health concern.

5.17 OXATHIAPIPROLIN (291)

TOXICOLOGY

Oxathiapiprolin is the ISO-approved common name for 1-[4-[4-[5-(2,6-difluorophenyl)-4,5-dihydro-1,2-oxazol-3-yl]-1,3-thiazol-2-yl]piperidin-1-yl]-2-[5-methyl-3-(trifluoromethyl)pyrazol-1-yl]ethan-one (IUPAC), with the CAS number 1003318-67-9. It is a novel fungicide from the piperidinyl thiazole isoxazoline class, targeting the oxysterol binding protein with a new biochemical mode of action; the fungicide prevents zoospore germination, sporangia germination and mycelial growth, as well as inhibiting zoospore release. Oxathiapiprolin protects growing plant (stem) leaves and fruit.

Oxathiapiprolin has not previously been evaluated by JMPR and was reviewed by the present Meeting at the request of CCPR.

All critical studies contained statements of compliance with GLP and were conducted in accordance with relevant national or international test guidelines, unless otherwise indicated.

Biochemical aspects

In metabolism studies conducted in rats using oxathiapiprolin labelled with ^{14}C at the 5- isoxazoline or 5-pyrazole position, oxathiapiprolin was moderately absorbed (< 50%, based on urine, bile and carcass) at the low dose (10 mg/kg bw) and showed evidence of saturation at the high dose (200 mg/kg bw), with low absorption (< 10%, based on urine, bile and carcass). There were few differences between the sexes and labels. At the low dose, the time to reach the maximum concentration in plasma (T_{max}) was between 1.75 and 3.0 hours for both labels; at the high dose, T_{max} values were 0.25 hour for the isoxazoline label and between 2.75 and 9.5 hours for the pyrazole label. In the low-dose studies, mean terminal elimination half-lives ranged from 40 to 51 hours; at the high dose, mean terminal elimination half-lives ranged from 5 to 14 hours. C_{max} and AUC values were slightly lower for the pyrazole label than for the isoxazoline label, and there was a significant comparative reduction in C_{max} and AUC values at the high dose. There was no evidence of accumulation. The main route of excretion was in the faeces within the first 48 hours of administration. Tissue distribution was extensive, but tissue concentrations were low, with slightly higher concentrations of radioactivity in the liver, kidneys, lungs and red blood cells.

The predominant component was unchanged parent and accounted for 17–87% of the administered low or high dose of either label. Metabolism of the absorbed oxathiapiprolin involved multiple reaction sites, including hydroxylation in various positions, leading to many low-level identified and tentatively identified metabolites in the faeces, bile and urine. Metabolism investigations in the repeated-dose studies showed that IN-Q7N24 ((*R*)-oxathiapiprolin), an enantiomer of oxathiapiprolin, was 3- to 4-fold more rapidly metabolized than the enantiomer IN-Q7N25 ((*S*)-oxathiapiprolin) in the liver, or there were differences in absorption.

Toxicological data

In rats, oxathiapiprolin is of low acute toxicity via the oral (LD_{50} > 5000 mg/kg bw), dermal (LD_{50} > 5000 mg/kg bw) and inhalation routes (LC_{50} > 5.1 mg/L). Oxathiapiprolin is non-irritating to the skin and slightly irritating to the eyes of rabbits. It was not a dermal sensitizer in guinea-pigs.

Overall, oxathiapiprolin showed low mammalian toxicity on repeated administration.

In short-term toxicity studies in the mouse with dietary administration over 28 and 90 days, no adverse effects were reported up to the top dose levels, which were at least 1058 mg/kg bw per day. In similar studies in the rat, no adverse effects were reported up to the top dose levels, which were 1096 mg/kg bw per day. In the dog, short-term dietary studies ranged from 28 days to 1 year, with no adverse findings up to the top dose levels, which were at least 1242 mg/kg bw per day.

In long-term toxicity and carcinogenicity studies in mice and rats, no signs of systemic toxicity or treatment-related increases in neoplastic lesions were reported up to the highest dose levels tested, which were 948 mg/kg bw per day and 735 mg/kg bw per day in mice and rats, respectively.

The Meeting concluded that oxathiapiprolin is not carcinogenic in mice or rats.

Oxathiapiprolin has been tested in an adequate range of genotoxicity studies, both in vitro and in vivo. No evidence of genotoxicity was found.

The Meeting concluded that oxathiapiprolin is unlikely to be genotoxic.

In view of the lack of genotoxicity and the absence of carcinogenicity in mice and rats, the Meeting concluded that oxathiapiprolin is unlikely to pose a carcinogenic risk to humans.

In a one-generation range-finding reproductive toxicity study in rats, which tested dietary concentrations of 0, 2000, 10 000 and 20 000 ppm (equal to 0, 129, 653 and 1321 mg/kg bw per day for males and 0, 150, 715 and 1507 mg/kg bw per day for females, respectively), there were no adverse findings in the parental generation. In the offspring, body weights were decreased in males and females and balanopreputial separation was delayed in males at 20 000 ppm (equal to 1321 mg/kg bw per day).

In a two-generation reproductive toxicity study in rats, which tested dietary concentrations of 0, 500, 1500, 6000 and 17 000 ppm (reduced to 0, 300, 900, 3500 and 10 000 ppm in the gestation and lactation periods in females to equalize compound intake; equal to 0, 29.2, 86.4, 346 and 1013 mg/kg bw per day for males and 0, 34.3, 106, 430 and 1210 mg/kg bw per day for females, respectively), the parental toxicity NOAEL was 17 000/10 000 ppm (equal to 1013 mg/kg bw per day), the highest dose tested. The offspring toxicity NOAEL was 6000/3500 ppm (equal to 430 mg/kg bw per day, maternal intake), based on delayed balanopreputial separation in offspring at 17 000/10 000 ppm (equal to 1210 mg/kg bw per day). The reproductive toxicity NOAEL was 17 000/10 000 ppm (equal to 1013 mg/kg bw per day), the highest dose tested.

In developmental toxicity studies in rats and rabbits, there were no adverse effects on either maternal or embryo/fetal parameters up to the limit dose of 1000 mg/kg bw per day.

Three assays were performed to assess the ability of oxathiapiprolin to affect endocrine function in vitro and in vivo. In an in vitro H295R steroidogenesis assay, there was no evidence of an effect on testosterone or estradiol levels up to the highest dose tested, 7.9×10^{-6} mol/L. In a uterotrophic assay in ovariectomized adult female rats and a 15-day endocrine assay in male rats, there were no effects up to the limit dose of 1000 mg/kg bw per day.

In an acute neurotoxicity study in rats, animals were tested at a dose of 0, 200, 1000 or 2000 mg/kg bw per day administered by gavage. The NOAEL was 2000 mg/kg bw, the highest dose tested.

The Meeting concluded that oxathiapiprolin is not neurotoxic.

In a 28-day immunotoxicity study in female mice, animals were tested at a dose of 0, 200, 800, 3500 or 7000 ppm (equal to 0, 38, 151, 645 and 1432 mg/kg bw per day, respectively) administered in the diet. The NOAEL was 7000 ppm (equal to 1432 mg/kg bw per day), the highest dose tested.

The Meeting concluded that oxathiapiprolin is not immunotoxic.

Toxicological data on metabolites and/or degradates

Genotoxicity studies were performed on five metabolites: IN-E8S72 (5-(trifluoromethyl)-1*H*-pyrazole-3-carboxylic acid; plant, goat and rat metabolite), IN-RAB06 (1-[2-[4-[4-[5-(2,6-difluorophenyl)-4,5-dihydro-3-isoxazolyl]-2-thiazolyl]-1-piperidinyl]-2-oxoethyl]-3-(trifluoromethyl)-1*H*-pyrazole-5-carboxylic acid; rat, goat and soil metabolite), IN-RDT31 (1-[4-[4-[5-(2,6-

difluorophenyl)-4,5-dihydro-3-isoxazolyl]-2-thiazolyl]-4-hydroxy-1-piperidinyl]-2-[5-methyl-3-(trifluoromethyl)-1*H*-pyrazol-1-yl]ethanone; rat and soil metabolite), IN-SXS67 (1-β-D-glucopyranosyl-3-(trifluoromethyl)-1*H*-pyrazole-5-carboxylic acid; goat and plant metabolite) and IN-WR791 (5-methyl-3-(trifluoromethyl)-1*H*-pyrazole-1-acetic acid; rat and plant metabolite). Additionally, a short-term toxicity study was conducted with IN-E8S72 (5-(trifluoromethyl)-1*H*-pyrazole-3-carboxylic acid; rat and plant metabolite).

IN-E8S72 was negative in Ames, chromosomal aberration and mammalian gene mutation studies in vitro and a bone marrow micronucleus assay in vivo.

IN-SXS67 was negative in Ames and chromosomal aberration assays. IN-SXS67 is the glucose conjugate of IN-E8S72.

IN-RAB06 was negative in Ames, chromosomal aberration and mammalian gene mutation assays.

IN-RDT31 was negative in Ames, chromosomal aberration and mammalian gene mutation assays.

IN-WR791 was negative in Ames and chromosomal aberration assays.

In a 28-day dietary toxicity study in the rat with IN-E8S72, the NOAEL was 15 000 ppm (equal to 1157 mg/kg bw per day), the highest dose tested.

The Meeting concluded that these metabolites are all covered by studies in the rat, including IN-SXS67, which is a glucose conjugate of IN-E8S72.

Human data

No information was submitted.

The Meeting concluded that the existing database on oxathiapiprolin was adequate to characterize the potential hazards to the general population, including fetuses, infants and children.

Toxicological evaluation

The Meeting established an ADI of 0–4 mg/kg bw on the basis of the NOAEL of 430 mg/kg bw per day in a two-generation study in rats for delayed balanopreputial separation in offspring at 1210 mg/kg bw per day. A safety factor of 100 was applied.

The Meeting concluded that it was not necessary to establish an ARfD for oxathiapiprolin in view of its low acute oral toxicity and the absence of any other toxicological effects, including developmental toxicity, that would likely be elicited by a single dose.

Levels relevant to risk assessment of oxathiapiprolin

Species	Study	Effect	NOAEL	LOAEL
Mouse	Eighteen-month study of toxicity and carcinogenicity[a]	Toxicity	7 000 ppm, equal to 948 mg/kg bw per day[b]	–
		Carcinogenicity	7 000 ppm, equal to 948 mg/kg bw per day[b]	–
Rat	Two-year study of toxicity and carcinogenicity[a]	Toxicity	18 000 ppm, equal to 735 mg/kg bw per day[b]	–
		Carcinogenicity	18 000 ppm, equal to	–

Species	Study	Effect	NOAEL	LOAEL
			735 mg/kg bw per day[b]	
	Two-generation study of reproductive toxicity[a]	Reproductive toxicity	17 000/10 000 ppm, equal to 1 013 mg/kg bw per day[b]	–
		Parental toxicity	17 000/10 000 ppm, equal to 1 013 mg/kg bw per day[b]	–
		Offspring toxicity	6 000/3 500 ppm, equal to 430 mg/kg bw per day	17 000/10 000 ppm, equal to 1 210 mg/kg bw per day
	Developmental toxicity study[c]	Maternal toxicity	1 000 mg/kg bw per day[b]	–
		Embryo and fetal toxicity	1 000 mg/kg bw per day[b]	–
	Acute neurotoxicity study[a]	Neurotoxicity	2 000 mg/kg bw per day[b]	–
Rabbit	Developmental toxicity study[c]	Maternal toxicity	1 000 mg/kg bw per day[b]	–
		Embryo and fetal toxicity	1 000 mg/kg bw per day[b]	–
Dog	Thirteen-week and 1-year studies of toxicity[c,d]	Toxicity	36 000 ppm, equal to 1 415 mg/kg bw per day[b]	–

[a] Dietary administration.

[b] Highest dose tested.

[c] Gavage administration.

[d] Two or more studies combined.

Acceptable daily intake (ADI)

0–4 mg/kg bw

Acute reference dose (ARfD)

Unnecessary

Information that would be useful for the continued evaluation of the compound

Results from epidemiological, occupational health and other such observational studies of human exposure

Critical end-points for setting guidance values for exposure to oxathiapiprolin

Absorption, distribution, excretion and metabolism in mammals	
Rate and extent of oral absorption	Rapid, < 50% at low dose and < 10% at high dose

Dermal absorption	No data
Distribution	Widely distributed, highest concentrations in liver, kidneys, lungs and red blood cells
Potential for accumulation	No evidence of accumulation
Rate and extent of excretion	Rapid and essentially complete within 7 days
Metabolism in animals	17–87% excreted unchanged at low and high doses; multiple identified or tentatively identified metabolites; hydroxylation in various positions
Toxicologically significant compounds in animals and plants	Oxathiapiprolin
Acute toxicity	
Rat, LD_{50}, oral	> 5 000 mg/kg bw
Rat, LD_{50}, dermal	> 5 000 mg/kg bw
Rat, LC_{50}, inhalation	> 5.1 mg/L
Rabbit, dermal irritation	Not irritating
Rabbit, ocular irritation	Slightly irritating
Guinea-pig, dermal sensitization	Not sensitizing (maximization test)
Short-term studies of toxicity	
Target/critical effect	None
Lowest relevant oral NOAEL	1 058 mg/kg bw per day, highest dose tested (mouse)
Lowest relevant dermal NOAEL	1 000 mg/kg bw per day, highest dose tested (rat)
Lowest relevant inhalation NOAEC	No data
Long-term studies of toxicity and carcinogenicity	
Target/critical effect	None
Lowest relevant NOAEL	735 mg/kg bw per day, highest dose tested (rat)
Carcinogenicity	Not carcinogenic in mice or rats[a]
Genotoxicity	
	No evidence of genotoxicity[a]
Reproductive toxicity	
Target/critical effect	Delayed balanopreputial separation
Lowest relevant parental NOAEL	1 013 mg/kg bw per day, highest dose tested (rat)
Lowest relevant offspring NOAEL	430 mg/kg bw per day (rat)
Lowest relevant reproductive NOAEL	1 013 mg/kg bw per day, highest dose tested (rat)
Developmental toxicity	
Target/critical effect	None
Lowest relevant maternal NOAEL	1 000 mg/kg bw per day, highest dose tested (rat, rabbit)
Lowest relevant embryo/fetal NOAEL	1 000 mg/kg bw per day, highest dose tested (rat, rabbit)
Neurotoxicity	
Acute neurotoxicity NOAEL	2 000 mg/kg bw, highest dose tested (rat)
Subchronic neurotoxicity NOAEL	No data

Developmental neurotoxicity NOAEL	No data
Other toxicological studies	
Immunotoxicity	1 432 mg/kg bw per day, highest dose tested (mouse)
Mechanistic/mode of action studies	No effects on endocrine function in vitro or in vivo
Studies on metabolites	
IN-E8S72	No evidence of genotoxicity
	NOAEL: 1 157 mg/kg bw per day (28-day rat)
IN-RAB06	No evidence of genotoxicity
IN-RDT31	No evidence of genotoxicity
IN-SXS67	No evidence of genotoxicity
IN-WR791	No evidence of genotoxicity
Human data	
	No studies submitted

[a] Unlikely to pose a carcinogenic risk to humans via exposure from the diet.

Summary

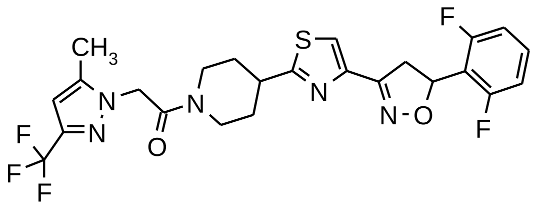
	Value	Study	Safety factor
ADI	0–4 mg/kg bw	Reproductive toxicity study (rat)	100
ARfD	Unnecessary	–	–

RESIDUE AND ANALYTICAL ASPECTS

Oxathiapiprolin is a systemic piperidinyl thiazole isoxazoline fungicide effective against oomycete pathogens, acting by inhibiting mycelial growth and zoospore release, encystment and mobility. It exhibits translaminar efficacy and gives systemic disease control following soil applications.

It was scheduled by the 47th Session of the CCPR as a new compound for consideration by the 2016 JMPR. The manufacturer submitted studies on metabolism, analytical methods, supervised field trials, processing, freezer storage stability and environmental fate in soil.

Authorisations exist for the use of oxathiapiprolin as foliar treatments or as soil treatments at planting (band/in-furrow or in transplant water) or via drip irrigation in a number of countries in Asia, the Pacific, Central and South America, and are pending in Europe and other countries. GAP information was available from Australia, China, New Zealand and North America.

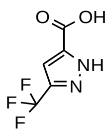
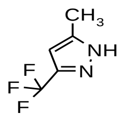
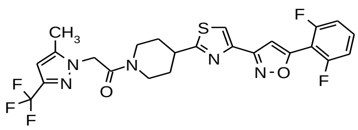
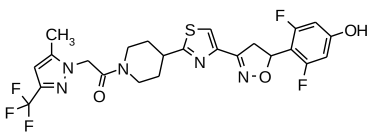
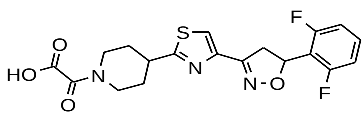
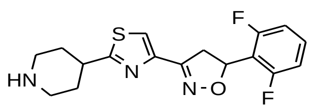


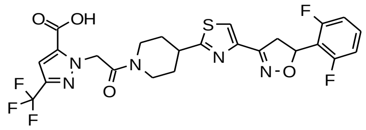
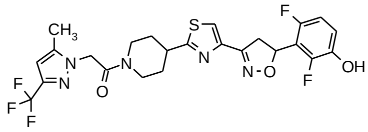
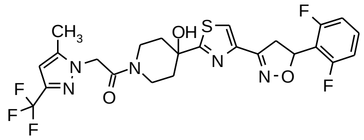
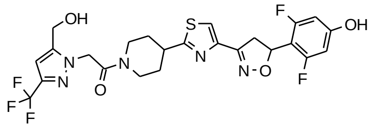
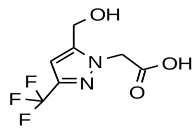
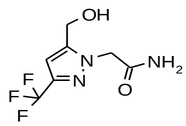
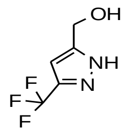
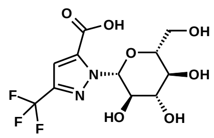
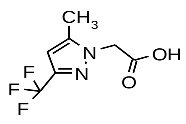
Oxathiapiprolin

(MW 539.53)

Oxathiapiprolin is a racemic mixture of (R)-oxathiapiprolin and (S)-oxathiapiprolin enantiomers with a low vapour pressure and water solubility (≈0.18 mg/L) that is not pH dependent. It is soluble in medium polarity organic solvents (e.g. dichloromethane, acetone or acetonitrile), but only slightly soluble in hexane. The octanol/water partition co-efficient (Log P_{OW} 3.6) is not pH dependent.

The following abbreviations are used for the major metabolites discussed below:

Code	Name and Matrix	Structure
IN-E8S72	5-(Trifluoromethyl)-1H-pyrazole-3-carboxylic acid Rat, plants, goat, soil	
IN-KJ552	3-Methyl-5-(trifluoromethyl)-1H-pyrazole Rat, plants	
IN-Q7D41	1-[4-[4-[5-(2,6-Difluorophenyl)-3-isoxazolyl]-2-thiazolyl]-1-piperidinyl]-2-[5-methyl-3-(trifluoromethyl)-1H-pyrazol-1-yl]ethanone Rat (transitory), goat, hen, soil, plants	
IN-Q7H09	1-[4-[4-[5-(2,6-Difluoro-4-hydroxyphenyl)-4,5-dihydro-3-isoxazolyl]-2-thiazolyl]-1-piperidinyl]-2-[5-methyl-3-(trifluoromethyl)-1H-pyrazol-1-yl]ethanone Rat, plants, hen, goat	
IN-Q9L80	4-[4-[5-(2,6-Difluorophenyl)-4,5-dihydro-3-isoxazolyl)-2-thiazolyl]-α-oxo-1-piperidineactetic acid Rat, plants	
IN-QPS10	4-[4-[5-(2,6-Difluorophenyl)-4,5-dihydro-3-isoxazolyl)-2-thiazolyl]piperidine Plants, soil	

Code	Name and Matrix	Structure
IN-RAB06	1-[2-[4-[4-[5-(2,6-Difluorophenyl)-4,5-dihydro-3-isoxazolyl]-2-thiazolyl]-1-piperidinyl]-2-oxoethyl]-3-(trifluoromethyl)-1H-pyrazole-5-carboxylic acid Rat, goat, hen, soil	
IN-RDG40	1-[4-[4-[5-(2,6-Difluoro-3-hydroxyphenyl)-4,5-dihydro-3-isoxazolyl]-2-thiazolyl]-1-piperidinyl]-2-[5-methyl-3-(trifluoromethyl)-1H-pyrazol-1-yl]ethanone Rat, plants, hen, goat	
IN-RDT31	1-[4-[4-[5-(2,6-Difluorophenyl)-4,5-dihydro-3-isoxazolyl]-2-thiazolyl]-4-hydroxy-1-piperidinyl]-2-[5-methyl-3-(trifluoromethyl)-1H-pyrazol-1-yl]ethanone Rat, soil	
IN-RLB67	1-[4-[4-[5-(2,6-Difluoro-4-hydrophenyl)-4,5-dihydro-3-isoxazolyl]-2-thiazolyl]-1-piperidinyl]-2-[5-(hydroxymethyl)-3-(trifluoromethyl)-1H-pyrazol-1-yl]ethanone Rat, goat	
IN-RZB20	5-(Hydroxymethyl)-3-(trifluoromethyl)-1H-pyrazole-1-acetic acid Rat, plants	
IN-RZB21	5-(Hydroxymethyl)-3-(trifluoromethyl)-1H-pyrazole-1-acetamide Plants	
IN-RZD74	3-(Trifluoromethyl)-1H-Pyrazole-5-methanol Plants, transient in goat, hen, rat	
IN-SXS67	1-ß-D-Glucopyranosyl-3-(-(trifluoromethyl)-1H-pyrazole-5-carboxylic acid Plants	
IN-WR791	5-Methyl-3-(trifluoromethyl)-1H-pyrazole-1-acetic acid Plants, goat, rat, soil	

Plant metabolism

The Meeting received plant metabolism studies on potato, grape and lettuce following foliar applications of [^{14}C]oxathiapiprolin and on courgette, lettuce, wheat, turnips and potato grown in [^{14}C]oxathiapiprolin-treated soil.

Grapes-foliar applications

In a study on outdoor grapes, [^{14}C]oxathiapiprolin was applied to vines as three foliar treatments of 0.07 kg ai/ha, at flowering (BBCH 63–65), at BBCH 73 (cereal grain sized berries) and at BBCH 79 (pre-bunch-closure, adjacent berries on bunch beginning to touch). Foliage samples were taken at immediately after each treatment, 14 days after Treatments 2 and 3, and at grape maturity (76 DAT 3). Berry (grape) samples were taken 14 days after the second treatment, immediately after the third treatment, 14 days later and at grape maturity.

The majority of the radioactive residue in the berries and foliage was removed by surface washing and/or initial extraction (69–99% TRR). At maturity, 76 days after the third application, total radioactive residues were 0.30–0.32 mg eq/kg in berries and 1.1–1.38 mg eq/kg in foliage. Unextracted residues were about 10–16% TRR in foliage, 6.4–7.5% TRR in immature berries and about 15% TRR in mature berries.

Oxathiapiprolin was the major component identified in immature berries (36–74% TRR, 0.17–0.41 mg/kg) and accounted for 41% TRR (0.13 mg/kg) at maturity in [thiazole-^{14}C]-treated berries but was not the major residue in the [pyrazole-^{14}C]-treated berries, making up about 10% TRR (0.03 mg/kg). Chiral HPLC analysis showed no change in the isomer ratio over the study period.

In the [pyrazole-^{14}C]-treated mature berries, the polar pyrazole-specific metabolites IN-WR791 (19% TRR, 0.06 mg eq/kg) and IN-E8S72 (14% TRR, 0.04 mg eq/kg) were the predominant residues. Numerous minor metabolites were also identified or detected in berries, none of which were present at more than 6.2% TRR (0.02 mg eq/kg).

Oxathiapiprolin was also the predominant component identified in foliage, declining to 32–60% TRR (0.44–0.67 mg/kg) at grape maturity. Eleven minor identified metabolites and numerous unidentified metabolites were detected in foliage, the highest of which was IN-Q7H09, found at up to 5% TRR (0.36 mg eq/kg).

Lettuce-foliar applications

In a confined study on lettuce, three applications of 0.07 kg ai/ha [^{14}C]oxathiapiprolin were applied at 10 day intervals from BBCH 15 (5-leaf stage) to BBCH 19 (9-leaf stage) and leaves were sampled immediately after each application, 10 days after the first and second applications and 3, 7, 14 days after the last application.

The majority of the radioactive residue in the foliage was removed by surface washing and/or initial extraction (83–99.7% TRR). Unextracted residues in samples taken 7–14 days after treatment ranged from 7–14% TRR in the [pyrazole-^{14}C]-treated plants and from 14–17% TRR in the [thiazole-^{14}C]-treated plants.

Oxathiapiprolin was the major residue in all samples, making up 65% TRR (0.34 mg/kg) in the mature leaves (14 DAT 3) from the [pyrazole-^{14}C]-treated plants and 57% TRR (0.27 mg/kg) in the leaves from the [thiazole-^{14}C]-treated plants. Chiral chromatographic analysis confirmed that the enantiomeric ratio remained unchanged over the study period.

The predominant metabolite in lettuce foliage was IN-Q7H09 (5.1% TRR–0.032 mg eq/kg). Other metabolites including multiple hydroxylated oxathiapiprolin compounds made up not more than 6% TRR (< 0.05 mg eq/kg).

Potato-foliar applications

In a confined study on potatoes, three applications of 0.07 kg ai/ha [^{14}C]oxathiapiprolin were applied just before flowering (BBCH 53), at first flowering (BBCH 59) and 14 days later (end of flowering, BBCH 69). Foliage samples (whole plants) were taken immediately after the first application, before and after the second and third (final) applications, and fourteen days after the final application. The final (maturity) harvest was taken 28 days after the final application. Potato tuber samples were taken before the third (final) treatment, 14 days after the final treatment (14 DAT 3) and at final harvest (28 DAT 3).

Radioactive residues in mature tubers were low (0.012 mg eq/kg [pyrazole-^{14}C] and 0.005 mg eq/kg [thiazole-^{14}C]) and were not investigated further. Unextracted tuber residues were < 0.01 mg eq/kg for both radiolabels. In foliage, the majority (75–96% TRR) of the radioactive residue was removed by surface washing and initial extraction (0.13–0.19 mg eq/kg extracted from mature foliage).

In foliage, oxathiapiprolin was the major residue component, accounting for 25–59% TRR, found in mature foliage samples at 0.04 mg/kg (pyrazole-label) and 0.11 mg/kg (thiazole-label). A range of minor metabolites were individually present at no greater than 8% TRR.

Potato-soil application

Seed potatoes were sown into a loam soil (3.1% organic matter, pH 5.3) immediately after a single soil application of [^{14}C]oxathiapiprolin at a rate equivalent to 0.6 kg ai/ha. Foliage and tubers were sampled 37 days after treatment (BBCH 65) and at maturity (BBCH 91), 72 days after treatment.

The total radioactive residues increased from 0.02–0.03 mg eq/kg (37DAT) to 0.05–0.11 mg eq/kg (72 DAT) in foliage and decreased from 0.01–0.02 mg eq/kg (37 DAT) to < 0.01 mg eq/kg (72 DAT) in tubers. More than 80% of the radioactive residue in tubers and foliage was extracted with acetonitrile, with unextracted residues being 0.003 mg eq/kg in tubers and up to 0.01 mg eq/kg in foliage. Extracts from tubers from the [isoxazoline ^{14}C]-oxathiapiprolin plots were low (up to 0.01 mg eq/kg) and were not investigated further.

Oxathiapiprolin was not a major residue, present at < 10% TRR and < 0.005 mg/kg in tubers and foliage. IN-WR791 was the major component identified in mature tubers (25% TRR and 0.003 mg eq/kg) with IN-E8S72 (14% TRR) and IN-RZB20 (12% TRR) also present at levels of 0.001–0.002 mg eq/kg. Unresolved IN-RZB21/IN-RZD74 and IN-RZB20 were the principal components identified in foliage (11–13% TRR, up to 0.015 mg eq/kg).

Lettuce-soil application

Lettuce seeds were sown into a loam soil (3.1% organic matter, pH 5.3) immediately after a single soil application [^{14}C]oxathiapiprolin at a rate equivalent to 0.6 kg ai/ha and leaves were sampled 44 days after treatment (BBCH 45) and at maturity, 57 days after treatment.

The total radioactive residues in lettuce samples grown in [isoxazoline-^{14}C]-oxathiapiprolin treated soil were less than the limit of quantification (0.01 mg eq/kg) and were not investigated further. TRR in lettuce samples grown in [pyrazole-^{14}C]-treated soil were < 0.02 mg eq/kg, with 88–91% TRR being removed in the initial acetonitrile extract and unextracted residues accounted for 9.5–12% TRR (0.002 mg eq/kg).

Oxathiapiprolin was not detected in any of the samples. Metabolites making up more than 10% TRR in immature and mature foliage samples were IN-WR791 (23% TRR and 30% TRR respectively), IN-E8S72 (19–21%TRR) and IN RZB21/IN-RZD74 (19–21% TRR) but all individually found at 0.004 mg eq/kg or less.

Courgette-soil application

Courgette seeds were sown into a loam soil (3.1% organic matter, pH 5.3) immediately after a single soil application of either [^{14}C]oxathiapiprolin at a rate equivalent to 0.6 kg ai/ha with leaf and fruit samples being taken 44 days after treatment (BBCH 71) and at maturity, 79 days after treatment.

In samples taken from the plants grown in [pyrazole ^{14}C]-treated soil, total radioactive residues increased over time from 0.045 mg eq/kg (44DAT) to 0.17 mg eq/kg (79 DAT) in foliage and from 0.013 to 0.023 mg eq/kg in the corresponding fruit samples.

Conversely, the TRR in the foliage from [isoxazoline-^{14}C]-treated soil decreased over time from 0.028 mg eq/kg (44 DAT) to 0.008 mg eq/kg (79 DAT) and TRRs in fruit were below the limit of detection throughout the study (< 0.006 mg eq/kg). Residues in the mature fruit and leaf samples were < 0.01 mg eq/kg and not investigated further.

The majority (77–97%) of the radioactive residue in the foliage and fruit was extracted in the initial acetonitrile extracts. Unextracted residues were up to 23% TRR (0.006 mg eq/kg) in foliage (isoxazoline-label) and less than 10% TRR in fruit and in foliage from the pyrazole-labelled plants.

In fruit from plants grown in the [pyrazole-^{14}C]-treated soil, oxathiapiprolin was found at trace levels (0.5% TRR, < 0.001 mg/kg) in immature fruit but not in mature fruit.

IN-WR791 was the major component identified in fruit, found at 0.008 mg eq/kg (57% TRR) in immature fruit and 0.016 mg eq/kg (74% TRR) in mature fruit. Six other metabolites were identified at low levels (each < 5% TRR and up to 0.001 mg eq/kg).

In foliage, oxathiapiprolin was the predominant residue (24% TRR, 0.007 mg/kg) identified in the immature foliage grown in [isoxazoline-^{14}C]-treated soil and found in mature foliage from the [pyrazole-^{14}C]-treated soil at low levels (4.6% TRR, 0.008 mg/kg).

Major metabolites in immature foliage (44 DAT) were IN-WR791 (24% TRR, 0.011 mg eq/kg) and IN-E8S72 (24% TRR, 0.011 mg eq/kg). Other metabolites making up more than 10% TRR were IN Q7H09 (18.5% TRR), IN-RZB20 (17% TRR) and IN-RZB21/IN-RZD74 (13% TRR). None of these other metabolites exceeded 0.008 mg eq/kg. Unidentified components each did not exceed 2–3% TRR.

Major metabolites in mature foliage (79 DAT) were IN-WR791 (27.5% TRR, 0.047 mg eq/kg) and IN-E8S72 (21% TRR, 0.036 mg eq/kg). IN-RZB20 and IN-RZB21/IN-RZD74 were also present, each at about 0.02 mg eq/kg (11–12% TRR). Unidentified components each did not exceed 3% TRR.

In summary, when oxathiapiprolin was applied as a foliar treatment, parent compound was the major residue in lettuce, potato foliage, grape leaves and berries, making up 10–85% TRR. Chiral chromatographic analysis indicates that the enantiomeric ratio did not change over the study periods.

In grape berries, the significant metabolites were the cleavage products IN-WR791 (19% TRR, 0.6 mg eq/kg) and IN-E8S72 (14% TRR, 0.04 mg eq/kg). In grape leaves, lettuce and potato foliage, metabolites including IN Q7H09 (up to 0.36 mg eq/kg in grape leaves) were present in most samples, all individually present at less than 10% TRR.

Following soil applications, oxathiapiprolin is a minor component of the total residue in potato tubers, courgettes and foliage (lettuce, potato, grape, and courgette). Metabolites found above 10% TRR were pyrazole cleavage products (IN-WR791, IN-E8S72, IN-RZB21/IN-RZD74 and RZB20), each present at less than 0.05 mg eq/kg.

Animal metabolism

The Meeting received animal metabolism studies on rats, lactating goats and laying hens where animals were dosed with oxathiapiprolin radiolabelled in the pyrazole ring, the thiazole ring or the isoxazoline ring (rat) and in lactating goats dosed with pyrazole-labelled IN-E8S72, a glucoside plant metabolite of oxathiapiprolin.

In rats, the metabolism of oxathiapiprolin was reviewed in the framework of the toxicological evaluation by the current Meeting.

Lactating goats were orally dosed with [^{14}C]oxathiapiprolin at rates equivalent to 14.2–14.3 ppm in the feed for 7 consecutive days and sacrificed 12 hours after the last dose.

The total recovery was 94–99.6% of the administered radioactivity (AR), with 84–86% being recovered from the urine, faeces, and cage wash, 8–12% found in the gastrointestinal tract, 0.1–0.2% in milk and 0.7–1% in edible tissues. Radioactivity plateaued in milk within 5 days.

Total radioactive residue levels were 0.01–0.02 mg eq/kg in milk, 0.75–0.97 mg eq/kg in liver, 0.07–0.08 mg eq/kg in kidney, 0.009–0.013 mg eq/kg in muscle and 0.025–0.03 mg eq/kg in fats.

Solvent extractions released 52–100% TRR from tissues and milk and subsequent enzymatic hydrolysis released another 26–29% TRR from liver.

Oxathiapiprolin accounted for 8.7–11% TRR (0.002 mg/kg) in milk, 6.4–12% TRR (0.05–0.11 mg/kg) in liver, 13–14% TRR (0.01 mg/kg) in kidney, 27–43% TRR (0.004 mg/kg) in muscle, and 36–58% TRR (< 0.016 mg/kg) in the fat fractions. Chiral chromatographic analysis confirmed that the oxathiapiprolin enantiomeric ratio remained unchanged over the study period.

The major metabolites in goat matrices were IN-E8S72 (maximum 24% TRR, 0.02 mg eq/kg in kidney) and the mono-hydroxy metabolites (including IN-RDG40 and IN-Q7H09) in liver (up to 0.13 mg/kg, 13% TRR) and in kidney (0.013 mg eq/kg, up to 21% TRR).

In a lactating goat study examining the fate of IN-SXS67 (the glucoside conjugate of IN-E8S72, not found in animals), one animal was dosed orally with 18.95 ppm [pyrazole-^{14}C]- IN-SXS67 in the diet for 7 days and the animal was sacrificed 6 hours after administration of the last dose.

Residues were rapidly excreted in urine and faeces (95–100% AR) and the total recovery of administered radiocarbon was 97.7%.

Unchanged IN-SXS67 made up 77% TRR (0.03 mg/kg) in liver and 58% TRR in kidney (0.28 mg/kg) while its aglycone metabolite, IN-E8S72 accounted for 16% TRR (0.006 mg eq/kg) in liver and 39% TRR (0.19 mg eq/kg) in kidney.

Laying hens were orally dosed with [^{14}C]oxathiapiprolin (pyrazole-label or thiazole-label) at doses equivalent to 17.4–17.8 ppm in the feed for 14 consecutive days and sacrificed 6 hours after the last dose.

More than 95% of the total administered dose was recovered from the excreta and cage wash. About 0.02% AR was recovered in edible tissues and another 0.01–0.02% AR found in the eggs. Radioactivity plateaued in whole eggs within 6 days.

TRRs in edible tissues and eggs from both the radiolabels were low (< 0.03 mg eq/kg) except for the liver which had higher residues (0.1 mg eq/kg).

Solvent extractions released 46–54% TRR in liver, 56–79% TRR in eggs and 87–94% TRR from fat and skin + fat. Subsequent protease treatments released another 21–54% TRR from liver and eggs.

While oxathiapiprolin was found in all tissues and eggs, levels were not more than 0.01 mg/kg. Oxathiapiprolin made up 10–22% TRR (0.002–0.003 mg/kg) in eggs, 4.0–8.0% TRR (0.004–0.008 mg/kg) in liver, 28–66% TRR (0.01 mg/kg) in abdominal fat, and 22–37% TRR (0.003–0.004) mg/kg in skin with fat.

IN-RAB06 was the only identified component present at more than 0.01 mg eq/kg, detected only in liver at up to 0.014 mg eq/kg (7.7–13.5% TRR).

IN-RDG40/IN-Q7H09 accounted for 15–33% TRR (0.003–0.005 mg eq/kg) in skin and fat, IN-Q7D41 was detected in eggs and fats (5–10% TRR, 0.001–0.002 mg eq/kg) but was not observed in liver.

Environmental fate

The Meeting received information on the environmental fate and behaviour of oxathiapiprolin, including hydrolytic stability, photochemical degradation in soils and aerobic metabolism studies.

Hydrolysis

Radiolabelled oxathiapiprolin incubated in the dark in sterile aqueous buffered solutions at pH 5, 7, and 9 for 5 days at 50 °C was stable with no major transformation products being observed.

Photochemical degradation in soil

In a 15-day photochemical degradation study in a sandy loam soil, 88% AR (moist soil) and 84–97% AR (dry soil) was able to be extracted, with no quantifiable levels of evolved $^{14}CO_2$ or non-specific volatile organic components.

Oxathiapiprolin accounted for 70% AR in moist soil and 80% AR in the dry soil after 15 days of continuous irradiation. Degradates IN-RDT31, IN-E8S72, IN-RAB06 and at least 15 minor transformation products were also found, all below 6% AR at two consecutive sampling intervals or 10% AR at a single sampling interval.

Calculated photodegradation DT_{50} values for oxathiapiprolin were 28.2 days (moist soil) and 36.3 days (dry soil) and the DT_{90} values were 93.5 days and 120.7 days respectively.

Aerobic soil metabolism

Aerobic degradation of radiolabelled oxathiapiprolin (0.2 mg/kg) was investigated in five different soils (120–134 days in the dark at 20 °C). Volatile organics were not produced in significant amounts and about 12% AR was evolved as $^{14}CO_2$. Chiral HPLC analysis in one study showed no change in the isomer ratio over the study period.

DT_{50} values for oxathiapiprolin ranged from 18 to 134 days at 20 ºC (geometric mean of 76 days). The predominant degradation products were IN-RAB06 (up to 13% AR), IN-RDT31, IN-QPS10 and IN-E8S72, each making up 7–9% AR.

The proposed degradation pathways include cleavage of the pyrazole ring to form IN-QPS10 and IN-E8S72; hydroxylation of the methyl group on the pyrazole ring followed by oxidation to form IN-RAB06 and hydroxylation at the 4-position of the piperidine ring to form IN-RDT31 (with subsequent cleavage to IN-WR791 and further degradation to IN-E8S72.

In ten field dissipation studies conducted in Europe and North America and involving bare soil treatments of 0.2–0.77 kg ai/ha oxathiapiprolin, DT_{50} values ranged from 5–205 days (geometric mean of 26 days). Residues of parent and degradates were found mostly in the upper soil segment (0–15 cm) with the highest concentration in the 0–5 cm layer and rarely found below 15 cm depth.

Laboratory degradation and field dissipation studies were also conducted with the four degradates where residues exceeded 5% AR at two or more consecutive sampling points. Geometric mean half-lives were 37 days (IN-RAB06), 48 days (IN-QPS10), 141 days (IN-RDT31) and 323 days (IN-E8S72).

Rotational crops

Two confined rotational crop studies using wheat, lettuce and turnip as rotational crops planted in bare sandy loam soil treated at rates equivalent to 0.21 kg ai/ha or 0.6 kg ai/ha. Plant-back intervals ranged from 30 to 365 days.

In samples from the rotational crops from soils treated with 0.21 kg ai/ha [isoxazoline^{14}C]- and [thiazole^{14}C]-oxathiapiprolin, TRRs were low (up to 0.013 mg eq/kg), and were higher in the samples from the soils treated with [pyrazole^{14}C]-oxathiapiprolin, attributed to the higher root uptake of polar metabolites derived from the pyrazole moiety.

Highest TRRs in food crops were 0.26 mg eq/kg (wheat grain), 0.02 mg eq/kg (mature lettuce, and turnip roots). In animal feed items, highest TRRs were 0.76 mg eq/kg (wheat straw), 0.27–0.3 mg eq/kg (wheat forage and hay) and 0.09–0.12 mg eq/kg (turnip tops).

In crop samples from soils treated with 0.6 kg ai/ha [isoxazoline^{14}C]-oxathiapiprolin, TRRs in food items ranged were also low, up to 0.09 mg eq/kg (wheat straw). In the pyrazole-label samples, highest TRRs in food crops were 0.19 mg eq/kg (wheat grain) and 0.02–0.04 mg eq/kg in lettuce and turnip roots). In animal feed items, highest TRRs were 0.7 mg eq/kg (wheat straw), 0.23–0.26 mg eq/kg (wheat forage and hay) and 0.09 mg eq/kg (turnip tops).

Oxathiapiprolin residues were not detectable in most rotational crops in both studies, and where present, residues were < 0.01 mg/kg and less than 15% TRR). Metabolites present at more than 0.01 mg eq/kg and above 10% TRR were IN-WR791, IN-E8S72, IN-SXS67, IN-RZB20 and IN-RZB21/IN-RZD74.

In the study approximating the maximum seasonal application rate (0.6 kg ai/ha), metabolites present in food commodities were IN-WR791 (23–37% TRR, 0.03–0.05 mg eq/kg), IN-RZB20 (up to 13% TRR, 0.015 mg eq/kg) and IN-E8S72 (up to 14% TRR, 0.02 mg eq/kg in wheat grain and up to 35% TRR, 0.01 mg eq/kg in immature lettuce.

In animal feed commodities, metabolites present above 10% TRR and 0.1 mg eq/kg were in wheat straw, IN-SXS67 at 26–39% TRR and up to 0.27 mg eq/kg, IN-RZB20 at 17–26% TRR and up to 0.15 mg eq/kg and IN-RZB21/IN-RZD74 at 12–15% TRR and up to 0.1 mg eq/kg.

Field rotational crop studies

In a series of rotational crop field trials involving total application rates of 0.12–0.56 kg ai/ha, residues of oxathiapiprolin and metabolites were measured in a number of representative root and tuber vegetables, leafy vegetables, stem vegetables, Brassica vegetables, bulb vegetables, legumes/pulses, cereals, oilseeds, and small berries at plant-back intervals ranging from 8 days to 365 days.

When scaled to a seasonal application rate of 0.56 kg ai/ha, residues of oxathiapiprolin in rotational crops at all plant-back intervals were ≤ 0.01 mg/kg in all commodities except legume feed commodities (≤ 0.04 mg/kg).

Residues of IN-WR791 were 0.01 mg/kg or less in all rotational food crops except leafy vegetables (< 0.02 mg/kg) and cereal forage and hay (< 0.03 mg/kg) when scaled to the maximum seasonal rate.

Scaled maximum residues of the metabolite IN-E8S72 in food commodities were < 0.01 mg/kg except in strawberries, green onions and oilseeds (<0.02 mg/kg), legume vegetables and pulses (<0.05 mg/kg) and were up to 0.35 mg/kg in leafy vegetables. In animal feed commodities, maximum IN-E8S72 residues above 0.1 mg/kg occurred in legume and cereal hays (up to 0.15 mg/kg).

Scaled maximum residues of IN-SXS67 (the glucose conjugate of IN-E8S72) in food commodities were ≤ 0.01 mg/kg except in strawberries (0.02 mg/kg), cereal grains and leafy vegetables (0.02 mg/kg), legume vegetables (0.04 mg/kg), pulses and root crops (0.07-0.08 mg/kg4 mg/kg) . In animal feed commodities, maximum residues above 0.1 mg/kg were in legume forage and hay (0.13–0.16 mg/kg) and cereal straw, forage and hay (0.26–0.9 mg/kg).

The Meeting concluded that since the application rates in the confined rotational crop studies and the field trials generally covered the range of GAP treatment rates for foliar or soil applications to annual crops, residues of parent are not expected in food commodities from rotational crops following treatments according to the GAPs under consideration. In livestock feed commodities, parent residues could occur at low levels (up to 0.04 mg/kg in legume feed commodities).

Residues of metabolite IN-WR791 can be expected at low levels (up to 0.02–0.04 mg/kg) in leafy vegetables and cereal forage and hay.

Residues of < 0.05 mg/kg of IN-E8S72 can be expected in legume vegetables and, pulses, with expected levels of 0.15 mg/kg in legume and cereal hays and up to 0.35 mg/kg in leafy vegetables. Residues of the glucose conjugate (IN-SXS67) can be expected at levels of 0.02–0.08 mg/kg in food commodities and up to 0.9 mg/kg in legume and cereal feed commodities.

Methods of analysis

Analytical methods have been reported and validated for the analysis of oxathiapiprolin and metabolites in plant and animal commodities.

Data generation methods involved extraction with either formic acid:water:acetonitrile or formic acid:methanol, dilution with acetonitrile and water and separation of oxathiapiprolin and metabolites by reverse-phase LC-MS/MS. An additional SPE clean-up step was included for some matrices. Animal matrices were extracted with hexane:acetonitrile and acetonitrile:water. Quantitation was performed using mass transitions 540→500 and 540→163 for oxathiapiprolin. The LOQ for each analyte was 0.01 mg/kg.

For MRL-compliance, several multi-residue methods are available. Method DFG S 19 (LC-MS/MS module) is suitable for the analysis of oxathiapiprolin and metabolites IN-SXS67, IN-RZB20, IN-RZD74, IN-E8S72, IN-WR791, IN-RDG40, and IN-Q7H09 in representative samples with a high water content, high acid/water content, high acid content and high starch content with LOQs of 0.01 mg/kg for each analyte. However, in rape seed (high oil content), average recoveries were less than 70% in samples spiked with 0.01 mg/kg and 0.1 mg/kg.

Method DFG S 19 (LC-MS/MS module) is also suitable for the analysis of oxathiapiprolin and IN-Q7H09, IN-RDG40, IN-RLB67, and IN RAB06 in muscle, fat, liver, milk and eggs, with LOQs of 0.01 mg/kg for each analyte. However, for IN-Q7H09 in fat, the average recovery was 67% in the 0.01 mg/kg spiked samples, resulting in a higher LOQ of 0.1 mg/kg.

The QuEChERS multi-residue method was evaluated for measuring residues of oxathiapiprolin in commodities of plant origin (lettuce, wheat grain, orange, and maize grain) with LOQs of 0.01 mg/kg. However, the method did not adequately extract incurred oxathiapiprolin residues from dry crops such as wheat straw.

The Meeting concluded that suitable data generation methods are available to measure oxathiapiprolin and metabolites in plant and animal commodities and the multi-residue method DFG S 19 is suitable for monitoring residues of oxathiapiprolin and some metabolites in plant commodities with high water content, high acid content, dry crop commodities and also in animal commodities.

Stability of pesticide residues in stored analytical samples

Residues of oxathiapiprolin and metabolites IN-Q7H09, IN RDG40, IN E8S72, IN-RZB20, IN RZD74, IN SXS67, and IN WR791were stable in analytical samples stored frozen (-18 to -20 °C) for at least the storage intervals used in the supervised residue trials, with residues in the stored samples usually more than 80% of the spiked sample levels. In general, residue stability was shown for at least 18 months in representative commodities with high water content (wheat forage, and tomato), high starch content (potato, and wheat grain), high protein content (dry bean seed), high oil content (soya bean seed), high acid content (grape) and low moisture content (wheat straw, and dry grape pomace). The exception was for the metabolite IN-RDG40 in soya bean seed (high oil content), where residues were stable for up to 3 months.

Definition of the residue

Plant commodities

In the plant metabolism studies involving foliar applications, oxathiapiprolin was the predominant residue, accounting for 25–85% TRR in lettuce, potato and grape leaves and in most grape samples (10%, 0.03 mg/kg mature grapes from the pyrazole-label treatment).

When applied as soil treatments in the plant and rotational crop metabolism studies and in the rotational crop field trials, oxathiapiprolin, if detected, was a minor component of the total residue. However, in the supervised field trials involving soil treatments, oxathiapiprolin was the predominant residue but present at levels lower than those following foliar applications.

The Meeting considered that a suitable MRL-compliance residue definition for plant commodities would be oxathiapiprolin (parent only).

When considering a residue definition for dietary intake estimation, the Meeting noted that in food commodities, metabolites making up more than 10% TRR and > 0.01 mg eq/kg in the metabolism studies, detected in field trials or present in rotational crops above 0.01 mg/kg (after scaling to seasonal application rate of 0.56 kg ai/ha) were IN-WR791, IN-E8S72 and its glucose conjugate IN-SXS67.

IN-WR791 was detected occasionally in the supervised field trials, at concentrations of 0.01–0.02 mg/kg following foliar applications (up to 0.1 mg/kg in grape leaves). In the food commodities from the rotational crop field trials, after scaling to a seasonal application rate of 0.56 kg ai/ha, IN-WR791 residues were only found in legume vegetables (up to 0.015 mg/kg) and in leafy vegetables (0.02 mg/kg).

The toxicity of IN-WR791 is no greater than the parent, and as the residue contribution to the maximum long-term toxicological burden is minor (< 5%), the Meeting agreed that IN-WR791 need not be included in the residue definition for dietary intake risk assessment.

IN-E8S72 and its glucose conjugate (IN-SXS67) were found in crops following soil applications and in rotational crops, at levels of 0.02–0.03 mg/kg but higher(0.04–0.8 mg/kg) in legume vegetables, pulses and root crops and up to 0.35 mg/kg in leafy vegetables. To estimate the long-term toxicological burden of these metabolites, the Meeting used the data from the crop rotation field studies (after scaling to the maximum seasonal rate of 0.56 kg ai/season) to calculate mean residues (expressed as oxathiapiprolin equivalents) for the relevant crop groups where significant levels of these metabolites could be expected. These mean values are summarised below.

Crop group [A]	Mean in rotational crops after residues scaled to 560 g ai/ha (mg parent eq/kg)[B]			
	Oxathiapiprolin	IN-E8S72	IN-SXS67	Total
Leafy vegetables [C]	< 0.01	0.30	< 0.016	0.33
Legume vegetables	< 0.01	0.047	0.026	0.083
	< 0.01	0.065	0.043	0.12
Pulses	0.004 (liver)[E]	0.006 (kidney [D]	0.009 (kidney)[D]	0.015 (kidney) 0.004 (liver)
Edible offal	93.8F	22.5	11.1	

Crop group [A]	Mean in rotational crops after residues scaled to 560 g ai/ha (mg parent eq/kg)[B]			
	Oxathiapiprolin	IN-E8S72	IN-SXS67	Total
IEDI (ųg/person /day)	< 0.01	0.30	< 0.016	0.33

[A] Median residues of IN-E8S72 and IN-SXS67 were < LOD in representative root and tuber vegetables, stem vegetables, head and flowerhead Brassica vegetables, bulb vegetables, cereals, oilseeds, and small berries

[B] Based on metabolite:oxathiapiprolin conversion factors of 2.99 (IN-E8S72) and 1.58 (IN-SXS67)

[C] Mature leaves, including leafy Brassicas

[D] From consumption of rotational crop feed commodities

[E] For total dietary exposure

IN-E8S72 was identified in the rat metabolism studies and its toxicity is no greater than the parent. Its IN-SXS67 conjugate is a plant metabolite and following consideration of its structural characteristics, the WHO experts' panel were of the opinion that it would be of no greater toxicity than the parent.

As the combined residue contribution of these metabolites to the long-term toxicological burden for oxathiapiprolin is significant (about 36% that of parent), the Meeting considered that IN-E8S72 and IN-SXS67 should be included in the residue definition for estimation of dietary intake for plant commodities.

Animal commodities

In the goat and hen metabolism studies, only about 1–2% of the applied doses remained in goat tissues and about 0.02% remained in hen tissues, with 0.1–0.2% of the dose being eliminated in eggs and milk respectively.

Oxathiapiprolin was found in most matrices, mostly present at more than 10% TRR and above 0.01 mg/kg in goat liver (up to 0.11 mg/kg), fats (0.01–0.016 mg/kg) and kidney (0.01 mg/kg).

Since oxathiapiprolin was the predominant residue in eggs, muscle and fat and a major component of the residue in liver and kidney, the Meeting considered that a suitable MRL-compliance residue definition for animal commodities would be oxathiapiprolin (parent only).

For dietary intake estimation, metabolites exceeding 10% TRR and more than 0.01 mg/kg in animal commodities were IN-RAB06 in poultry liver (8–14%TRR), IN-E8S72 in goat kidney (24% TRR) and the combined hydroxy metabolites including IN-RDG40 and IN-Q7H09 in goat liver (11–13% TRR) and kidney (16–20% TRR).

Noting that the toxicity of IN-RAB06, IN-RDG40 and IN-Q7H09 are each no greater than the parent and since their concentrations in animal commodities are low, the Meeting concluded that their contribution to the long-term toxicological burden would be insignificant and that they need not be included in the residue definition for dietary intake risk assessment for animal commodities.

Since the overall intake of IN-E8S72 contributes significantly to the toxicological burden, the Meeting agreed that IN-E8S72, together with its glucose conjugate (IN-SXS67) should be included in the residue definition for dietary intake risk assessment for animal commodities.

The Meeting therefore considered that a suitable residue definition for estimation of dietary intake for animal commodities would be the sum of oxathiapiprolin, IN-E8S72 and IN-SXS67, expressed as parent.

The Meeting noted that multi-residue methods exists to measure oxathiapiprolin residues in plant and animal commodities and agreed that for MRL-compliance and dietary intake estimation for plant and animal commodities the residue definitions should be oxathiapiprolin.

The Meeting noted that the octanol/water partition coefficient (Log P_{ow}) for oxathiapiprolin was 3.6, suggesting a potential for the residue to be fat soluble. Information on relative concentrations in muscle and fat were in the animal metabolism studies inconclusive on the relative distribution of residues in muscle and fat and the Meeting concluded that the residue is not fat soluble.

Proposed definition of the residue for compliance with the MRL: *oxathiapiprolin.*

Proposed definition of the residue for estimation of dietary intake for plant and animal commodities): *Sum of: oxathiapiprolin, 5-(Trifluoromethyl)-1H-pyrazole-3-carboxylic acid and 1-ß-D-Glucopyranosyl-3-(-(trifluoromethyl)-1H-pyrazole-5-carboxylic acid*, expressed as parent.

The residue is not fat soluble.

Results of supervised residue trials on crops

The Meeting received supervised trial data for oxathiapiprolin applied as foliar or soil treatments on grapes, indoor tomatoes and cucumbers and on a range of vegetable field crops. These trials were conducted in China, Europe and North America. GAP information was available from Australia, Canada, China, New Zealand and the USA.

Where residues have been reported in the studies as being not detected or not quantifiable, the values have been considered as < LOQ for the purposes of MRL setting.

Residues in rotational crops

The Meeting noted that in rotational crops, significant residues of IN-E8S72 and/or its glucose conjugate (IN-SXS67) can be expected in legumes, pulses, leafy vegetables and cereal crops.

For the purposes of dietary exposure estimation, the Meeting agreed to include the residues of IN-E8S72 and IN-SXS67 (expressed as parent equivalents) in the long-term dietary intake estimate for oxathiapiprolin, and to estimate mean residue values of 0.33 mg/kg for leafy vegetables; 0.083 mg/kg for legume vegetables; and 0.12 mg/kg for pulses to account for the presence of these metabolites in rotational food crops. Their presence in non-rotational crops was below LOQ.

Grapes

Results from supervised field trials on grapes conducted in China and Europe were provided to the Meeting. The GAP in China is for a maximum of two foliar applications of 4–5 g ai/hL, with a 14-day PHI.

In four independent trials on grapes conducted in China and matching the Chinese GAP, oxathiapiprolin residues were 0.17, 0.37, 0.38 and 0.5 mg/kg.

Residues in five trials from Europe matching the GAP in China were 0.02, 0.2, 0.2, 0.21 and 0.23 mg/kg.

Since the Mann-Whitney test indicated that the populations from the trials in China and Europe were not statistically different, the Meeting agreed to use the global data set approach to estimate a maximum residue level based on the combined data set of: 0.02, 0.17, 0.2, 0.2, 0.21, 0.23, 0.37, 0.38 and 0.5 mg/kg.

The Meeting estimated an STMR of 0.21 mg/kg and a maximum residue level of 0.9 mg/kg for oxathiapiprolin on grapes.

Bulb vegetables

Results from supervised trials on dry bulb onions and spring onions conducted in North America were provided to the Meeting.

The critical GAP for bulb vegetables in the USA is for a maximum of four foliar applications of 35 g ai/ha, with a maximum seasonal rate of 140 g ai/ha and with a PHI of 0 days.

Onion, Bulb

In ten independent trials on bulb onions conducted in North America and matching the USA GAP, oxathiapiprolin residues were < 0.01, < 0.01, < 0.01, 0.01, 0.01, 0.01, 0.01, 0.02, 0.02 and 0.03 mg/kg.

The Meeting estimated an STMR of 0.01 mg/kg and a maximum residue level of 0.04 mg/kg for oxathiapiprolin on onion, bulb.

Noting that the GAP in the USA included other crops in their onion bulb subgroup, the Meeting agreed to extrapolate these recommendations to garlic, shallots and great-headed garlic.

Spring onion

In four independent trials on spring onions conducted in North America and matching the USA GAP, oxathiapiprolin residues were 0.45, 0.57, 0.63 and 0.85 mg/kg.

The Meeting estimated an STMR of 0.6 mg/kg and a maximum residue level of 2.0 mg/kg for oxathiapiprolin on spring onion.

Noting that the GAP in the USA was for bulb vegetables, the Meeting agreed to extrapolate these recommendations to leek and Welsh onion.

Brassica (cole or cabbage) vegetables, Head cabbages, Flowerhead brassicas

Results from supervised trials on broccoli, cauliflower and head cabbages conducted in North America were provided to the Meeting.

The critical GAP for Head and Stem Brassica vegetables in the USA is for a maximum of four foliar applications of 35 g ai/ha, with a maximum seasonal rate of 140 g ai/ha and with a PHI of 0 days

Broccoli

In five independent trials on broccoli conducted in North America and matching the USA GAP, oxathiapiprolin residues were 0.08, 0.17, 0.22, 0.23 and 0.81 mg/kg.

The Meeting estimated an STMR of 0.22 mg/kg and a maximum residue level of 1.5 mg/kg for oxathiapiprolin on broccoli.

Cabbages, head

In ten independent trials on head cabbage conducted in North America and matching the USA GAP, oxathiapiprolin residues were 0.04, 0.06, 0.06, 0.12, 0.12, 0.16, 0.22, 0.29, 0.32 and 0.42 mg/kg.

The Meeting estimated an STMR of 0.14 mg/kg, a highest residue of 0.46 mg/kg (for livestock dietary burden estimation) and a maximum residue level of 0.7 mg/kg for oxathiapiprolin on cabbages, head.

Cauliflower

In five independent trials on cauliflower conducted in North America and matching the USA GAP, oxathiapiprolin residues were 0.08, 0.08, 0.08, 0.09 and 0.14 mg/kg.

The Meeting estimated an STMR of 0.08 mg/kg and a maximum residue level of 0.3 mg/kg for oxathiapiprolin on cauliflower.

Fruiting vegetables, Cucurbits

Results from supervised trials on protected and field cucumbers, summer squash (courgettes, squash) and melons (cantaloupes) conducted in Europe and North America were provided to the Meeting.

The critical GAP for cucurbit vegetables in the USA is for either a maximum of four foliar applications of 35 g ai/ha, with a maximum seasonal rate of 140 g ai/ha and with a PHI of 0 days or 2–4 soil drench or drip irrigation treatments of up to 280 g ai/ha up to 0 days before harvest and with a maximum seasonal rate of 560 g ai/ha. The label also specifies the use of either foliar or soil treatments, but not both.

Cucumber

In four independent trials on protected cucumbers conducted in North America and matching the USA GAP for foliar applications (max 4 × 35 g ai/ha, 0-day PHI), oxathiapiprolin residues were 0.02, 0.04, 0.04, and 0.04 mg/kg.

In 11 independent trials on field cucumbers conducted in North America and matching the USA GAP for foliar applications, oxathiapiprolin residues were < 0.01, < 0.01, 0.01, 0.01, 0.02, 0.03, 0.03, 0.03, 0.04, 0.07 and 0.09 mg/kg.

In 10 independent trials matching the soil treatment GAP in the USA, residues of oxathiapiprolin were < 0.01 (9) and 0.01 mg/kg.

Summer squash

In 10 independent trials on field squash conducted in North America and matching the USA GAP for foliar applications, oxathiapiprolin residues were 0.01, 0.02, 0.02, 0.03, 0.03, 0.03, 0.04, 0.04, 0.08 and 0.12 mg/kg.

In 14 independent trials matching the soil treatment GAP in the USA, residues of oxathiapiprolin were < 0.01 (10), 0.01, 0.02, 0.03 and 0.08 mg/kg following pre-harvest treatments (0-day PHI).

Melons

In 11 independent trials on field melons (conducted in North America and matching the USA GAP for foliar applications, oxathiapiprolin residues were 0.01, 0.02, 0.03, 0.03, 0.04, 0.04, 0.05, 0.06, 0.07, 0.09 and 0.12 mg/kg.

In 11 independent trials matching the soil treatment GAP in the USA, residues of oxathiapiprolin were < 0.01 (7), 0.02, 0.02, 0.02 and 0.03 mg/kg.

The Meeting noted that the median residues in cucumbers, summer squash and melons from the foliar treatment field trials were within a 5-fold range (0.03–0.045 mg/kg) and that the Kruskall-Wallis test indicated that the populations were not statistically different. The Meeting therefore agreed to combine the data sets to estimate a group MRL for cucurbits. The combined data set is < 0.01, < 0.01, 0.01 (4), 0.02 (4), 0.03 (8), 0.04 (5), 0.05, 0.06, 0.07, 0.07, 0.08, 0.09, 0.09, 0.12 and 0.12 mg/kg.

The Meeting estimated an STMR of 0.03 mg/kg and a maximum residue level of 0.2 mg/kg for oxathiapiprolin on fruiting vegetables, cucurbits.

The Meeting also noted that oxathiapiprolin residues following soil applications were lower than the associated foliar treatments, and would be accommodated by the proposed group maximum residue level.

Fruiting vegetables, other than Cucurbits

Results from supervised trials on protected and field peppers and tomatoes conducted in Europe and North America were provided to the Meeting.

The critical GAP for fruiting vegetables (other than cucurbits) in the USA is for either a maximum of four foliar applications of 35 g ai/ha, with a maximum seasonal rate of 140 g ai/ha and with a PHI of 0 days or 2–4 soil drench or drip irrigation treatments of up to 280 g ai/ha up to 0 days before harvest and with a maximum seasonal rate of 560 g ai/ha. The label also specifies the use of either foliar or soil treatments, but not both.

Peppers

In two independent trials on protected bell peppers conducted in North America and matching the USA GAP for foliar applications (max 4 × 35 g ai/ha, 0-day PHI), oxathiapiprolin residues were 0.06 and 0.12 mg/kg.

In 10 independent trials on field bell peppers conducted in North America and matching the USA GAP for foliar applications, oxathiapiprolin residues were 0.02, 0.02, 0.02, 0.03, 0.03, 0.04, 0.04, 0.05, 0.05 and 0.12 mg/kg.

In five independent trials on field non-bell peppers conducted in North America and matching the USA GAP for foliar applications, oxathiapiprolin residues were 0.03, 0.06, 0.06, 0.08 and 0.12 mg/kg.

In 11 independent trials on bell and non-bell peppers matching the soil treatment GAP in the USA, residues of oxathiapiprolin were < 0.01 (14) and 0.02 mg/kg.

For dried chilli peppers, applying the default processing factor of 10 to the STMR and the maximum residue level estimated for fruiting vegetables, other than cucurbits, the Meeting estimated an STMR of 0.4 mg/kg and a maximum residue level of 4 mg/kg for oxathiapiprolin on chilli peppers, dried.

Tomatoes

In four independent trials on protected tomatoes conducted in North America and matching the USA GAP for foliar applications (max 4 × 35 g ai/ha, 0-day PHI), oxathiapiprolin residues were < 0.01, < 0.01, 0.03 and 0.08 mg/kg in tomatoes.

In 19 independent trials on field tomatoes, conducted in North America and matching the USA GAP for foliar applications, oxathiapiprolin residues were < 0.01, 0.02 (3), 0.03 (4), 0.04 (3), 0.05, 0.05, 0.08, 0.08, 0.1, 0.12, 0.14 and 0.31 mg/kg in tomatoes.

In 21 independent trials on field tomatoes matching the soil treatment GAP in the USA, residues of oxathiapiprolin were < 0.01 (18), 0.03, 0.05 and 0.24 mg/kg.

The Meeting noted that the median residues in bell peppers, non-bell peppers and tomatoes from the foliar treatment trials were within a 5-fold range and that the Kruskall-Wallis test indicated that the populations were not statistically different. The Meeting therefore agreed to combine the data sets to estimate a group MRL for fruiting vegetables other than cucurbits. The combined data set is < 0.01, 0.02 (6), 0.03 (7), 0.04 (5), 0.05 (4), 0.06, 0.06, 0.08 (3), 0.1, 0.12 (3), 0.14 and 0.31 mg/kg.

The Meeting estimated an STMR of 0.04 mg/kg and a maximum residue level of 0.4 mg/kg for oxathiapiprolin on fruiting vegetables, other than cucurbits (except mushrooms and sweetcorn).

The Meeting also noted that oxathiapiprolin residues in peppers and tomatoes following soil applications were lower than the associated foliar treatments, and would be accommodated by the estimated group maximum residue level.

Leafy vegetables

Results from supervised trials on field lettuce and spinach conducted in Europe and North America were provided to the Meeting.

The critical GAP for leafy greens (including lettuce and spinach) in the USA is for either a maximum of four foliar applications of 35 g ai/ha, with a maximum seasonal rate of 140 g ai/ha and with a PHI of 0 days or a maximum of four soil drench or drip irrigation treatments of up to 280 g ai/ha up to 0 days before harvest and with a maximum seasonal rate of 560 g ai/ha. The label also specifies the use of either foliar or soil treatments, but not both.

Lettuce

In 10 independent trials on field head lettuce conducted in North America and matching the USA GAP for foliar applications, oxathiapiprolin residues were 0.23, 0.28, 0.3, 0.5, 0.57, 0.7, 0.82, 0.83, 1.3 and 1.4 mg/kg.

In these trials, residues of oxathiapiprolin in head lettuce from plots treated according to the soil treatment GAP in the USA, were < 0.01 (8), 0.37 and 0.43 mg/kg.

The Meeting estimated a median residue of 0.64 mg/kg and a maximum residue level of 3.0 mg/kg for oxathiapiprolin on lettuce, head.

In field studies on rotational crops, mean residues of IN-E8S72 and IN-SXS67 (expressed as parent equivalents were 0.33 mg eq/kg in leafy vegetables. The Meeting decided to add the mean residue found in the leafy vegetable rotational crop studies to the median residue from the lettuce (foliar application) field trials to estimate an overall STMR of 0.97 mg eq/kg for lettuce, head.

In 10 independent trials on field open-head lettuce conducted in North America and matching the USA GAP for foliar applications, oxathiapiprolin residues were 0.54, 0.8, 0.81, 1.2, 1.8, 1.9, 1.9, 1.9, 2.0 and 3.0 mg/kg.

In these trials, residues of oxathiapiprolin in open-head lettuce from plots treated according to the soil treatment GAP in the USA, were < 0.01 (4), 0.01, 0.02, 0.07, 0.09 and 0.37 mg/kg.

The Meeting estimated a median residue of 1.85 mg/kg and a maximum residue level of 5.0 mg/kg for oxathiapiprolin on lettuce, leaf.

In field studies on rotational crops, mean residues of IN-E8S72 and IN-SXS67 (expressed as parent equivalents were 0.33 mg eq/kg in leafy vegetables. The Meeting decided to add the mean residue found in the leafy vegetable rotational crop studies to the median residue from the lettuce (foliar application) field trials to estimate an overall STMR of 2.2 mg eq/kg for lettuce, leaf.

Spinach

In 10 independent trials on field spinach conducted in North America and matching the USA GAP for foliar applications, oxathiapiprolin residues were 1.4, 1.6, 2.2, 2.4, 3.2, 3.5, 4.0, 5.7, 6.4 and 6.5 mg/kg.

In these trials, residues of oxathiapiprolin in spinach from plots treated according to the soil treatment GAP in the USA, were < 0.01 (3), 0.01, 0.11, 0.12, 1.6, 1.8, 2.0 and 2.1 mg/kg.

The Meeting estimated a median residue of 3.35 mg/kg and a maximum residue level of 15 mg/kg for oxathiapiprolin on spinach.

In field studies on rotational crops, mean residues of IN-E8S72 and IN-SXS67 (expressed as parent equivalents were 0.33 mg eq/kg in leafy vegetables. The Meeting decided to add the mean residue found in the leafy vegetable rotational crop studies to the median residue from the spinach (foliar application) field trials to estimate an overall STMR of 3.7 mg eq/kg for spinach.

The Meeting also noted that oxathiapiprolin residues in lettuce and spinach following soil applications would be accommodated by the estimated maximum residue levels.

Legume vegetables

Results from supervised trials on peas conducted in North America were provided to the Meeting.

The critical GAP for succulent shelled and edible-podded peas in the USA is for up to four foliar applications of 35 g ai/ha, with a maximum seasonal rate of 140 g ai/ha and with a PHI of 0 days.

Peas, shelled (succulent seeds)

In five independent trials matching the GAP in the USA, residues of oxathiapiprolin in succulent peas (without pods) were < 0.01, < 0.01, 0.01, 0.03 and 0.03 mg/kg.

The Meeting estimated a median residue of 0.01 mg/kg and a maximum residue level of 0.05 mg/kg for oxathiapiprolin on peas, shelled.

In field studies on rotational crops, mean residues of IN-E8S72 and IN-SXS67 (expressed as parent equivalents were 0.083 mg eq/kg in legume vegetables. The Meeting decided to add the mean residue found in the legume vegetable rotational crop studies to the median residue from the pea (foliar application) field trials to estimate an overall STMR of 0.09 mg eq/kg for peas, shelled.

Peas (pods and succulent = immature seeds)

In five independent trials matching the GAP in the USA, residues of oxathiapiprolin in succulent peas (with pods) were 0.2, 0.3, 0.3, 0.28 and 0.55 mg/kg.

The Meeting estimated a median residue of 0.3 mg/kg and a maximum residue level of 1.0 mg/kg for oxathiapiprolin on peas (pods and succulent seeds).

In field studies on rotational crops, mean residues of IN-E8S72 and IN-SXS67 (expressed as parent equivalents were 0.083 mg eq/kg in legume vegetables. The Meeting decided to add the mean residue found in the legume vegetable rotational crop studies to the median residue from the pea (foliar application) field trials to estimate an overall STMR of 0.38 mg eq/kg for peas (pods and succulent seeds).

Root and tuber vegetables

Results from supervised trials on potatoes and ginseng conducted in North America were provided to the Meeting.

Potato

The critical GAP for tuberous and corm vegetables (including potato) in the USA is for a maximum of four foliar applications of 35 g ai/ha, with a PHI of 5 days. In addition, there is an option for two foliar sprays of 50 g ai/ha over flowering, and a maximum seasonal rate of 200 g ai/ha.

In 18 independent trials matching the close-to-harvest GAP in the USA but using a higher application rate of 50 g ai/ha, oxathiapiprolin residues in tubers were all < 0.01 mg/kg.

The Meeting estimated an STMR of 0 mg/kg and a maximum residue level of 0.01* mg/kg for oxathiapiprolin on potato and agreed to extrapolate these estimates to sweet potato.

Ginseng

The critical GAP for ginseng in the USA is for a maximum of four foliar applications per year of 35–280 g ai/ha, with a PHI of 14 days and a maximum total rate of 560 g ai/ha/year.

In four independent trials conducted in the USA and involving two close-to-harvest foliar applications of 280 g ai/ha, oxathiapiprolin residues in dried ginseng roots (10–30% moisture content) were 0.04, 0.04, 0.04 and 0.05 mg/kg.

The Meeting estimated an STMR of 0.04 mg/kg and a maximum residue level of 0.15 mg/kg for oxathiapiprolin on ginseng dried (including red ginseng).

Fate of residues during processing

Oxathiapiprolin is stable to hydrolysis in aqueous media within a pH range of 4 to 9 (< 10% degradation after 5 days at 50 ºC), and is also stable under conditions simulating pasteurisation, baking, brewing, boiling and sterilisation, with recovery rates of 95–97%.

The fate of oxathiapiprolin residues has been examined in a number of studies simulating household processing of melons (peeling), lettuce and Brassica vegetables (washing), and commercial processing of grapes, potatoes and tomatoes.

Residues of oxathiapiprolin increased in commodities such as raisins, dried tomatoes and in the grape and tomato pomaces and potato peel waste, where processing involves a reduction in moisture content, with no residue concentration in the other processed commodities.

For the commodities considered (grapes, potatoes and tomatoes) the Meeting estimated processing factors and STMR-Ps for their processed food or feed commodities are summarised below.

Summary of selected processing factors and STMR-P values for oxathiapiprolin

RAC (STMR)	Matrix	Oxathiapiprolin [a]		STMR-P (mg/kg)
		Calculated processing factors	PF median	
Grape (0.21 mg/kg)	Raw juice	0.26, 0.27, 0.28, 0.46	0.28	0.059
	Wet pomace	1.0, 1.4, 1.5, 1.9, 2.0, 3.1, 4.0, 5.4	2.0	0.42
	Juice	0.13, 0.14, 0.18, 0.22	0.16	0.034
	Raisins	0.93, 1.3, 1.6, 4.1	1.4	0.29
	Wine	00.08, 0.1, 0.17, 0.18	0.14	0.029
	Must	0.58, 62, 1.9	0.62	0.13
Potato (0 mg/kg)	Tubers			
	Culls	0.1, 0.13, 0.7	0.13	0
Tomato (0.04 mg/kg)	Tomatoes			
	Sun-dried	2.9, 6.9, 7.4	6.9	0.28
	Canned (peeled)	< 0.02, < 0.04, < 0.04	< 0.04	0.0016
	Juice	0.16, 0.16, 0.29	0.16	0.006
	Wet pomace	11, 13, 13	13	0.52
	Paste	0.69, 1.1, 1.1	1.1	0.044

[a] Each value represents a separate study where residues were above the LOQ in the RAC. The factor is the ratio of oxathiapiprolin residues in the processed item divided by the residue of oxathiapiprolin in the RAC.

For oxathiapiprolin in processed tomato commodities, based on a processing factor of 6.9 for sun-dried tomatoes and the estimated maximum residue level of 0.4 mg/kg for fruiting vegetables, other than cucurbits, the Meeting estimated an STMR-P of 0.28 mg/kg and a maximum residue level of 3 mg/kg for oxathiapiprolin on for tomato, dried.

For dried grapes, based on a processing factor of 1.4 and the estimated maximum residue level of 0.9 mg/kg for grapes, the Meeting estimated an STMR-P of 0.29 mg/kg and a maximum residue level of 1.3 mg/kg for oxathiapiprolin on for dried grapes.

Residues in animal commodities

Farm animal feeding studies

No lactating cow feeding studies were provided. In the lactating goat metabolism studies, goats were dosed with approximately 14 ppm oxathiapiprolin in the feed for 7 days. The highest residue of oxathiapiprolin or a metabolite in tissues or milk was 0.11 mg/kg for oxathiapiprolin in liver.

No poultry feeding studies were provided. In the poultry metabolism study, laying hens were dosed with approximately 17.6 mg oxathiapiprolin/kg feed for 14 days. Residues of oxathiapiprolin were all not more than 0.01 mg/kg in tissues and eggs.

In a supplementary lactating goat metabolism study, goats were dosed with approximately 19 ppm IN-SXS67 in the feed for 7 days. The highest residues in tissues or milk were in kidney, 0.28 mg/kg for IN-SXS67 and 0.19 mg eq/kg for IN-E8S72 and residues in liver were 0.03 mg/kg and 0.006 mg eq/kg respectively. TRRs in milk, muscle and fat were lower and not investigated further.

Farm animal dietary burden

The Meeting estimated the dietary burden of oxathiapiprolin in farm animals on the basis of the diets listed in Appendix IX of the 2009 edition of the JMPR Manual. Dietary burden calculations for beef cattle, dairy cattle, broilers and laying poultry are presented in Annex X. Livestock feed commodities considered by the Meeting were grape pomace, tomato pomace, potato culls and waste and cabbage heads/leaves.

Estimated maximum and mean dietary burdens of farm animals

	Animal dietary burden, oxathiapiprolin, ppm of dry matter diet							
	US-Canada		EU		Australia		Japan	
	max	mean	max	mean	max	mean	max	mean
Beef cattle	0	0	0.19	0.19	0.56 [A]	0.56 [C]	0	0
Dairy cattle	0	0	0.19	0.19	0.56 [B]	0.56 [D]	0	0

[A] Highest maximum beef or dairy cattle dietary burden suitable for MRL estimates for mammalian tissues

[B] Highest maximum dairy cattle dietary burden suitable for MRL estimates for mammalian milk

[C] Highest mean beef or dairy cattle dietary burden suitable for STMR estimates for mammalian tissues.

[D] Highest mean dairy cattle dietary burden suitable for STMR estimates for milk.

The Meeting also estimated a mean dietary burden of 0.4 ppm for IN-SXS67 in farm animals exposed to residues of this metabolite in rotational crop feed and forage items.

Animal commodity maximum residue levels

In the ruminant metabolism study, lactating goats were dosed with approximately 14 mg oxathiapiprolin/kg feed for 7 days. The highest residues of oxathiapiprolin in tissues or milk were seen in liver at 0.11 mg/kg.

The 14 ppm dose rate used in the goat metabolism studies is about 25 × the highest estimated cattle dietary burden of 0.56 ppm/day and the Meeting estimated that oxathiapiprolin residues in tissues and milk from cattle exposed to the maximum dietary burden would be not more than 0.004 mg/kg (in liver).

The Meeting estimated maximum residue levels of 0.01* mg/kg for oxathiapiprolin in meat (from mammals other than marine mammals), edible offal (mammalian), mammalian fat and for milks.

Estimated STMRs for dietary intake estimation are 0 mg/kg for meat, 0 mg/kg for fat and 0 mg/kg for milk.

For edible offal, the Meeting estimated a mean residue of 0.004 mg/kg (liver) to accommodate exposure from parent residues in feed items.

Based on the mean dietary burden of 0.4 ppm for IN-SXS67 from rotational crop feed items the Meeting estimated mean residues of 0.006 mg (IN-SXS67) and 0.004 mg eq/kg (IN-E8S72) for kidney to accommodate exposure to residues of IN-E8S72 in rotational crops.

When expressed as oxathiapiprolin equivalents, the mean residues in kidney are 0.009 mg eq/kg for IN-SXS67 and 0.006 mg eq/kg for IN-E8S72 and the Meeting estimated an overall STMR of 0.015 mg/kg for edible offal (mammalian).

As no poultry feed items were identified, the Meeting estimated maximum residue levels of 0.01* mg/kg for oxathiapiprolin in poultry meat, poultry offal, poultry fat and eggs. Estimated STMRs for dietary intake estimation are 0 mg/kg for meat, 0 mg/kg for edible offal, 0 mg/kg for fat and 0 mg/kg for milk.

RECOMMENDATIONS

On the basis of the data from supervised trials the Meeting concluded that the residue levels listed in Annex 1 are suitable for establishing maximum residue limits and for IEDI assessment.

Definition of the residue for compliance with the MRL: *oxathiapiprolin.*

Definition of the residue for estimation of dietary intake: *Sum of: oxathiapiprolin, 5-(Trifluoromethyl)-1H-pyrazole-3-carboxylic acid and 1-ß-D-Glucopyranosyl-3-(-(trifluoromethyl)-1H-pyrazole-5-carboxylic acid, expressed as parent*.

The residue is not fat soluble.

DIETARY RISK ASSESSMENT

Long-term dietary exposure

The International Estimated Daily Intake (IEDI) for oxathiapiprolin was calculated for the food commodities for which STMRs were estimated and for which consumption data were available. The results are shown in Annex 3.

The International Estimated Daily Intakes of oxathiapiprolin for the 17 GEMS/Food cluster diets, based on estimated STMRs were 0–0% of the maximum ADI of 4 mg/kg bw (Annex 3). The Meeting concluded that the long-term dietary exposure of residues of oxathiapiprolin from uses that have been considered by the JMPR is unlikely to present a public health concern.

Short-term dietary exposure

The Meeting decided that an ARfD is unnecessary and concluded that the short-term dietary exposure to residues of oxathiapiprolin, from uses considered by the current Meeting, are unlikely to present a public health concern.

5.18 PENCONAZOLE (182)

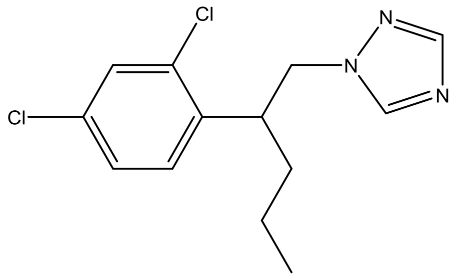
RESIDUE AND ANALYTICAL ASPECTS

Penconazole is a systemic triazole fungicide used for the control of powdery mildew, pome fruit scab and other fungal pathogens on fruit and vegetables. It belongs to the class of sterol demethylation inhibitors (DMI inhibitors), inhibiting the biosynthesis of cell membrane ergosterol.

Penconazole was first evaluated by JMPR in 1992 for toxicology and residues. In 1995, residue data for pome fruits and grapes were reviewed. In 2015, penconazole and the metabolites, 1,2,4-triazole, triazole alanine and triazole acetic acid were re-evaluated for toxicology by JMPR within the periodic review programme of CCPR. The Meeting reaffirmed the ADI of 0–0.03 mg/kg bw and established an ARfD of 0.8 mg/kg bw for penconazole. For 1,2,4-triazole, the Meeting reaffirmed the previous ADI of 0–0.2 mg/kg bw and ARfD of 0.3 mg/kg bw. For triazole alanine and triazole acetic acid, the Meeting reaffirmed the group ADI (alone or in combination) of 0–1 mg/kg bw as expressed as triazole alanine and established an ARfD of 3 mg/kg bw for triazole alanine and triazole acetic acid.

Penconazole was scheduled at the 47th Session of the CCPR (2015) for periodic re-evaluation of residues by the 2016 JMPR. The Meeting received information on physical and chemical properties, metabolism and environmental fate, residue analysis, use patterns, supervised trials, processing and animal feeding studies.

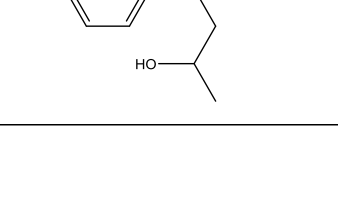
The structural formula and IUPAC name of penconazole are:

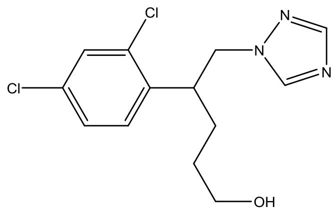
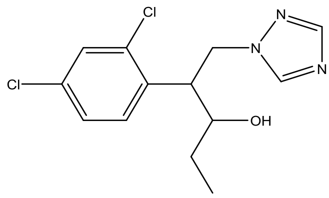
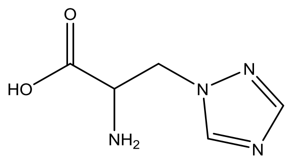
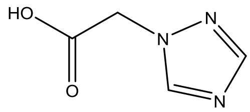
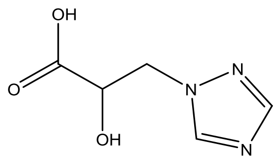
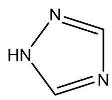
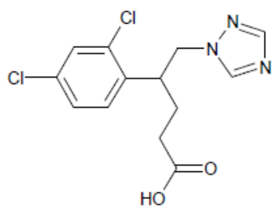


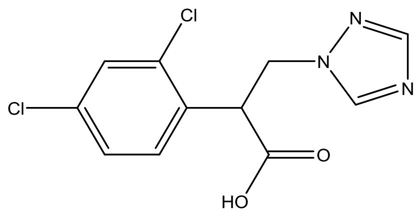
(*RS*)-1-[2-(2,4-dicholorophenyl)pentyl]-1*H*-1,2,4-triazole

Penconazole consists of a pair of enantiomers (racemic mixture). For metabolism and environmental fate studies, penconazole radio-labelled either in the phenyl or triazole-moiety was used.

The following abbreviations, along with chemical names and structures, are used for the metabolites discussed below:

Compound code	Abbreviation	Chemical name	Structure
CGA132465 (a mixture of 2 diastereoisomers CGA132465a, CGA132465b)	β-monohydroxy metabolite	4-(2,4-dichloro-phenyl)-5-[1,2,4]triazol-1-yl-pentan-2-ol	

Compound code	Abbreviation	Chemical name	Structure
CGA127841	γ-monohydroxy metabolite	4-(2,4-dichloro-phenyl)-5-[1,2,4]triazol-1-yl-pentan-1-ol	
CGA190503	α-monohydroxy metabolite	4-(2,4-dichloro-phenyl)-5-[1,2,4]triazol-1-yl-pentan-3-ol	
CGA131013	TA	2-amino-3-(1H-1,2,4 triazol-1-yl)propanoic acid; 3-(1H-1,2,4-triazol-1-yl)-D,L-alanine; Triazole alanine	
CGA142856	TAA	1H-1,2,4-triazol-1-yl-acetic acid; Triazole acetic acid	
CGA205369	TLA	2-hydroxy-3-[1,2,4]triazol-1-yl-propionic acid; Triazole lactic acid	
CGA71019	1,2,4-triazole	1*H*-1,2,4-triazole	
CGA177279		4-(2,4-dichloro-phenyl)-5-[1,2,4]triazol-1-yl-pentanoic acid	

Compound code	Abbreviation	Chemical name	Structure
CGA179944		2-(2,4-dichloro-phenyl)-3-[1,2,4]triazol-1-yl-propionic acid	

Plant metabolism

The metabolism of penconazole was studied in grapes, tomatoes and apples.

Grapes

A plot of four plants was treated four times with [14C-triazole] penconazole, with a 14–18 day interval, at rates of 5 g ai/hL by foliar spraying. Mature grapes and leaves were harvested 68 days after treatment. Total radioactive residues (TRRs) in grapes and the leaves were 0.10 mg eq/kg and 5.3 mg eq/kg, respectively. The grape TRRs were partitioned into the juice fraction (36%) and the press cake fraction (64%). Juice was partitioned with dichloromethane and the aqueous phase was hydrolysed. Press cake was extracted with 80% methanol and the extract was partitioned with dichloromethane. Then the aqueous phase was hydrolysed. Extraction with methanol recovered 84% of the TRR in juice and press cake and 95% TRR in the leaves.

The parent compound was found at up to 16% (0.016 mg/kg) of the TRR in grapes and 8% TRR (0.45 mg/kg) in the leaves. Hydroxylated metabolites including CGA190503, CGA132465 and CGA127841 (α-, β- and γ-monohydroxylated of the alkyl chain of parent, respectively) were the predominant residues in both grapes and leaves. In total, the monohydroxy metabolites (free or conjugated) accounted for 61% TRR (3.3 mg eq/kg) in the leaves. CGA132465, a mixture of diastereomers of CGA132465 and CGA132465 b, was the predominant residue (39% TRR, 2.1 mg eq/kg) and CGA190503 and CGA127841 were at a lesser extent (16% and 6% TRR, respectively). Polar fractions likely containing triazole-specific metabolites were not further characterized in leaves. In grapes, the monohydroxy metabolites, not characterised individually, accounted for 35% TRR (0.035 mg eq/kg). Polar fractions analysed contained TA, TAA and TLA, totalling 25% TRR (0.025 mg eq/kg), representing 10% TRR (0.01 mg eq/kg), 2.3% TRR (0.0023 mg eq/kg) and 12% TRR (0.012 mg eq/kg), respectively, in grapes.

Penconazole, radiolabelled with [^{14}C-triazole] or [^{14}C-phenyl], was applied to grape vines planted at two sites. Grape vines were treated by foliar spraying with different doses by site (3 ×0.038 kg ai/ha at 1st application, -47-day PHI, at Site 1 and 5 ×0.10 kg ai/ha, 1st application, -90-day PHI, at Site 2). At Site 1, grapes were harvested 64 (immature) and 78 (mature) days after the last application (DALA) and at Site 2, harvested 0, 14 and 22 DALA.

Overall total radioactive residues were different depending on the dose and harvest times but not related to difference with radiolabelling. In grapes (78 DALA), total radioactivity from triazole-label application was 0.08 or 0.049 mg eq/kg and was 0.05 mg eq/kg from phenyl-label application. Overall total residues in the leaves decreased over time, e.g. for Site 1 from the triazole-label, 8.1 mg eq/kg (0 DALA) to 2.5 mg eq/kg (64 DALA) and 1.9 mg eq/kg (78 DALA). Extraction of radioactive residues with methanol recovered 69–88% of the TRR in grapes. Overall metabolic fractions and distribution pattern of radioactivity were similar among the treatments.

In the mature grapes from a triazole label study (78 days, 0.049 mg eq/kg), the parent compound was found at a level of 11% TRR (0.005 mg/kg). CGA132465 (mainly), CGA127841 and

CGA190503 were the predominant residues, accounting for totalling 22% TRR mainly found after acid hydrolysis. Polar fraction (likely containing triazole-specific metabolites) making up 24% TRR (0.012 mg eq/kg) was not further characterised.

Tomatoes

[^{14}C-phenyl] penconazole was applied four times to field grown tomato plants (BBCH 71, first fruit clusters) at a 7-day interval and rates of 0.040 kg ai/ha by foliar spraying. Fruit and leaf samples were collected 7 and 40 days after treatment. Total radioactive residues decreased over time (7 to 40 DALA), 0.034 mg eq/kg to 0.014 mg eq/kg in fruit and 2.7 mg eq/kg to 0.42 mg eq/kg in the leaves. The majority (> 84%) of radioactive residues in fruit and leaves were able to be recovered by methanol extraction. Surface methanol wash of mature fruits removed only 2.4% TRR, indicating that the majority of the residue was internal to the fruits.TRR levels of the parent compound decreased over time (7 to 40 DALA), 15% TRR (0.005 mg/kg) to 7% TRR (0.001 mg/kg). In tomatoes both at 7 and 40 DALA, CGA132465 (including trace amount of CGA127841) was the predominant residues, accounting for 63–65% TRR found after acid hydrolysis (CGA132465, 62% TRR). CGA190503 was also found but at a trace level, 3–4% TRR. The metabolic patterns in the leaves were qualitatively very similar to those in fruits.

Using penconazole radiolabelled with [^{14}C-triazole], metabolism in tomatoes was investigated in the same way as the study described above, running in parallel with it.

TRRs in fruits were 0.071 mg eq/kg (7 DALA) and 0.029 mg eq/kg (40 DALA), which was two-fold higher than in fruits treated with the phenyl label. Surface wash with methanol removed 16% (7 DALA) and 3% TRR (40 DALA). The majority (> 87%) of radioactivity was able to be recovered by methanol extraction.

The results were nearly the same with those from the phenyl-label study, except for triazole specific metabolites. In mature tomatoes, the parent compound was found at 0.003 mg/kg (12% TRR). The monohydroxy metabolites, CGA132465 (55% TRR), CGA127841 (2% TRR, < 0.001) and CGA190503 (3% TRR, < 0.001) were found in total, 60% TRR level (0.017 mg eq/kg) after acid hydrolysis.

The sum of 1,2,4-triazole, TA, TAA and TLA amounted to 20% TRR (0.006 mg eq/kg). TA was most predominant, accounting for 15% TRR (0.004 mg eq/kg).

Apples

Penconazole, radio-labelled with [^{14}C-triazole], was applied ten times to two apple trees at a 8–17 day interval and rates of 2.5 g ai/hL by foliar spraying. A sample of leaves was taken at 0, 2, 5, 7 and 14 DALA. At harvest (34 DALA), all fruits, leaves, branches and roots were collected. Total radioactive residues in apple fruit were 0.10 mg eq/kg, which comprised 39% TRR in peel and 61% TRR in pulp. In leaves, branches and roots, TRR levels were 3.8, 0.61 and 0.17 mg eq/kg, respectively.

Radioactivity in the leaves decreased over time from 5.5 mg eq/kg (0 DALA) to 3.8 mg eq/kg at harvest (34 DALA). The surface radioactivity in leaves (0 DALA) accounted for 57% TRR, but was not detected at harvest (34 DALA). Methanol extraction was able to recover > 70% of the TRRs in various matrices. Soxhlet extraction in methanol recovered an additional 3% TRR in whole fruit.

In apple fruit, the parent compound was found at 12% of the TRR (0.012 mg/kg). CGA132465 and TA were the predominant residues, accounting for 14% TRR (0.014 mg eq/kg, 5.5% TRR released after acid hydrolysis) and 23% TRR (0.023 mg eq/kg, 22% TRR from pulp), respectively. CGA127841 was present but only at 0.5% TRR (< 0.001). Other minor residues (CGA190503, CGA189659, dihydroxy metabolites, CGA179944, TAA, TLA, 1,2,4-triazole glycolic acid) were present at < 5% TRR.

In leaves, branches and roots, TRR levels of the parent compound were 7% (0.26 mg/kg), 43% (0.26 mg/kg) and 13% (0.022 mg/kg), respectively. In leaves, CGA132465 and CGA189659 were found at 38% and 14% of the TRR, while TA was not found. CGA91304 and the acetyl derivative CGA90305 were found only in the leaves at trace levels (0.03% and 0.04% TRR, respectively). For branches and roots, identification of components was not made except for parent compound.

Fractions from apple trees were collected at one and two years after last treatment. In fruits, TRR levels compared to the initial level was 92% after one year (134% in pulp and 32% in peel) and 49% after two years (68% in pulp). In both leaves and branches, TRR levels dropped to 30% and 22% after one and two years, respectively.

In one year post treatment samples, the majority of the radioactivity (82–98% TRR) was water soluble. Parent compound was not found in any part of the plants. The main metabolites found in this stage were TA, TAA and TLA, accounting for 4–65% TRR in apple, leaves and branches.

In summary, the nature of the residues was essentially the same in grape, tomato and apple. The biotransformation of penconazole results from the oxidation of penconazole at the 1, 2 and 3 positions of the alkyl chain and subsequent conjugation with sugar. Thus the monohydroxy metabolites (α-, β-, γ-monohydrxoy metabolite) were abundant in plant and acid hydrolysis or enzyme treatment was needed to release the aglycones. Among the metabolites, β-monohydroxy metabolite (CGA132465) was most predominant, accounting for 14–62% TRR (0.009–0.016 mg eq/kg). Metabolites in plants were also observed in rats.

Label-specific metabolism from the ^{14}C-triazole treatments resulted from the cleavage of the triazole moiety (1,2,4-triazole) and subsequent conjugation with serine to form TA and by catabolism to form TAA and TLA. Total triazole-specific residues amounted to 20–29% TRR in the crops (0.006–0.029 mg eq/kg), comprising TA 10–23% TRR, TAA 0.8–2.3% TRR and TLA 2.3–12% TRR. After one year following direct application on apple tree, cleavage of the triazole moiety resulted in non-detection of parent compound and abundance of triazole-specific metabolites.

Based on data from tomato and apple, penconazole remains mainly as a surface residue on fruits. However, most of radioactivity in fruits was found as conjugated monohydroxy metabolites within the fruit.

Rotational crop studies

In the two confined rotational crop studies (triazole-label and phenyl-label study), a single application was made on bare soil at a rate of 0.24 kg ai/ha. Lettuce, radish, spring wheat and winter wheat were put into the treated soil at plant-back intervals (PBIs) of 32, 126 and 358 days (only 179-day PBI for winter wheat).

TRR levels were variable with respect to increases or decreases with longer PBIs in the triazole-label study, while TRR levels consistently declined in the phenyl-label study, except in wheat fodder and grain. TRR levels demonstrated significant amounts of radioactivity transferred into the succeeding crops. The highest TRR level from the triazole-label study was 0.072 mg eq/kg in lettuce (126-day PBI), 0.084 mg eq/kg in radish tops (358-day PBI) and roots (32-day PBI), 0.24 mg eq/kg in spring wheat whole top (126-day PBI) and 3.3 mg eq/kg in wheat grain (126-day PBI) and 1.4 mg eq/kg in wheat fodder (126-day PBI). TRR levels from the phenyl-label study were lower overall.

For food commodities, TA was found at 23–87% TRR (0.013–0.057 mg eq/kg) in lettuce and radish (tops and roots). TLA was present in lettuce (76% TRR, 0.055 mg eq/kg) and wheat grain (0.6%, 0.006 mg eq/kg). 1,2,4-Triazole and TAA were present only in wheat grain (2.7% TRR, 0.029 mg eq/kg and 33% TRR, 0.87 mg eq/kg, respectively).

In wheat whole tops and wheat fodder, 1,2,4-triazole, TA, TLA and TAA were present at 4.4–6.1% TRR (0.006–0.057 mg eq/kg), 8.8–52% TRR (0.12–0.12 mg eq/kg), 26–52% TRR (0.059–0.54 mg eq/kg) and 21–30% TRR (0.057–0.30 mg eq/kg), respectively.

Two field rotational crop studies were conducted in European locations (Northern and Southern). A single application was made to bare soil with lightly sown grass at a rate of 0.20 kg ai/ha. Barley, carrots, and lettuce were planted at nominal PBIs of 30, 60 and 365 days.

The results followed the residue patterns shown in the confined studies. No parent compound was detected in the follow-on crops except carrots (< 0.01 to 0.01 mg/kg in roots and tops). The same metabolites were identified and residue levels detected were similar, except carrot tops and roots where TLA residues were found at higher levels.

For food commodities, 1,2,4-triazole was not detected in lettuce, carrot roots and barley grain. In lettuce and carrot roots, TA, TAA and TLA were detected at 0.03–0.09 mg/kg, < 0.01 mg/kg and 0.04–0.10 mg/kg, respectively. In barley grain, TA, TAA and TLA were present at 0.63 mg/kg, 0.82 mg/kg and 0.03 mg/kg, respectively.

In carrot tops and barley (whole plant and straw), 1,2,4-triazole was not detected and TA, TAA and TLA were present at 0.02–0.32 mg/kg, < 0.01–0.39 mg/kg and 0.32–0.80 mg/kg, respectively.

Based on the findings, the Meeting concluded that residues of the parent compound and monohydroxy metabolites found in plant metabolism study are not expected in rotational crops following treatments according to the GAPs under consideration. Conversely, the triazole-specific metabolites may be detected in rotational crops.

Animal metabolism

Laboratory animals

The toxicological evaluation for penconazole was performed by the 2015 JMPR. Absorption by rats was rapid and extensive, and maximum blood concentrations were reached in 4–6 hours. Over a 6-day period, the highest tissue concentrations of radioactivity were observed in liver, lungs and kidneys. Radioactivity administered was excreted mainly in urine (62–85% of the dose). 14–39% of the dose was excreted in faeces.

Primary metabolic reactions involved cleavage of the triazole ring (estimated 15% of the dose), oxidation of the ω-position of the alkane chain to form the respective carboxylic acid (CGA177279, 30% of the dose), oxidation of the 3- or 4-position of the alkane chain to form monohydroxy and dihydroxy derivatives (2.5% of the dose) and oxidation of the triazole ring in the 3- or 5-position (0.7% of the dose). Furthermore, secondary metabolic reactions produced various metabolites, CGA177281, CGA177280, CGA179944, 3- or 4-keto derivatives produced from oxidation of 3,4-dihydroxy derivatives and conjugates of all alkanol derivatives with glucuronic acid. A small amount of parent compound was identified in faeces, representing unabsorbed dose.

Lactating goats

Two lactating goats were administered [^{14}C-phenyl] penconazole at a rate of 5.1 mg/kg body weight corresponding to 112 ppm in the feed for 4 consecutive days by capsule dosing. Milk and excreta were collected daily at 0-78 hour intervals. Radioactive residues in milk reached plateau by 24 hr. The goats were sacrificed 6 hours after the last dose. The majority of the AR (64%) was excreted in urine. Excretion in faces accounted for 6.4% of the AR. Only 0.06% of the AR was eliminated in milk.

The mean residue concentration in milk was 0.11 mg eq/kg. The radioactive residues in edible tissues were 0.16 mg eq/kg in muscle, 0.74 mg eq/kg in fat, 5.3 mg eq/kg in kidney and 5.3 mg eq/kg in liver. Unchanged penconazole was found in milk and in all tissues, forming the most abundant component in liver (43% TRR, 2.3 mg/kg) and to a lesser extent in fat (16% TRR, 0.11 mg/kg), kidney (9.4% TRR, 0.50 mg/kg), muscle (4.6% TRR, 0.007 mg/kg) and milk (0.7% TRR, 0.0008 mg/kg).

In tissues and milk, CGA132465 (diastereomers, a and b), found in free or conjugated form (sulfate or glucuronide), was the predominant residue, and followed by the metabolite CGA177279. The N10 metabolite (glucuronic acid conjugate of penconazole) found only in kidney, liver and urine was minor, accounting for less than 8% TRR (0.42 mg eq/kg TRR) in kidney and liver each.

In muscle, fat, liver, kidney and milk, the metabolite found and the radioactivity level were as follows:

In muscle, CGA132465 (41%, 0.066 mg eq/kg), CGA132465 glucuronide (17% TRR, 0.027 mg eq/kg), CGA132465 sulfate (7% TRR, 0.01 mg eq/kg) and CGA177279 (24% TRR, 0.039 mg eq/kg).

In fat, CGA132465 (31% TRR, 0.23 mg eq/kg), CGA132465 glucuronide (13% TRR, 0.097 mg eq/kg), CGA132465 sulfate (ca. 4% TRR, 0.030 mg eq/kg) and CGA177279 (24% TRR, 0.18 mg eq/kg).

In liver, CGA132465 (25% TRR, 1.3 mg eq/kg), CGA132465 glucuronide (10% TRR, 0.53 mg eq/kg), CGA132465 sulfate (ca. 1.5% TRR, 0.082 mg eq/kg) and CGA177279 (4% TRR, 0.21 mg eq/kg).

In kidney, CGA132465 (11% TRR, 0.43 mg eq/kg), CGA132465 glucuronide (32% TRR, 1.7 mg eq/kg), CGA132465 sulfate (13% TRR, 0.67 mg eq/kg) and CGA177279 (23% TRR, 1.2 mg eq/kg).

In milk, CGA132465 (14% TRR, 0.015 mg eq/kg), CGA132465 glucuronide (not detectected), CGA132465 sulfate (69% TRR, 0.072 mg eq/kg) and CGA177279 (7.9% TRR, 0.008 mg eq/kg).

Laying hens

Two hens were fed [3, 5-^{14}C-triazole] penconazole, and two with [^{14}C-phenyl] penconazole for 16 consecutive days at 5 ppm in the feed. Twenty-four hours after the last dose, the hens were sacrificed and samples of the tissues were collected. 99% of administered radioactivity was excreted within 24 hours after the first dose in both labels. From the triazole and phenyl-label, radioactive residue levels were up to 0.025 mg eq/kg in tissues (liver, kidney, lean meat, skin/fat and peritoneal fat), 0.029 mg eq/kg in egg yolks and 0.010 mg eq/kg in egg whites, respectively. Regardless of label, radioactivity in eggs plateaued within 11 days (0.022 mg eq/kg). Identification of radioactive residues in edible tissues was not performed.

In summary, the principal residues in goat tissues and milk are the parent compound, CGA132465 (free and conjugated) and CGA177279. The main metabolic pathways of penconazole processed in goats are hydroxylation of penconazole to form CGA132465, conjugation of CGA132465 with glucuronic acid or sulfuric acid, and oxidation of penconazole to form the carboxylic acid CGA177279.

Environmental fate in soil

Soil photolysis

Penconazole was relatively stable with a half-life of 148 days. No photodegradation products greater than 5% of the AR were observed after 30 days.

Hydrolysis

Penconazole, CGA 179944 and 1,2,4-triazole were stable in aqueous solutions representative of environmental conditions (pH 4, 5, 7 and 9 during one week at 50 °C or 30 days at 25 °C).

Aerobic degradation in soil

Penconazole was stable in aerobic sterile soil, accounting for 86% of the AR at day 84. Penconazole in soil was degraded under aerobic and unsterile conditions with a half-life of 178 days (61–238 days).

Degradation of penconazole proceeds principally via oxidation of the alkyl chain of the parent compound yielding CGA179944. Bridge cleavage in CGA179944 leads either directly or via the intermediate TAA to 1, 2, 4-triazole. Finally, the last metabolic steps generate carbon dioxide and bound residues. CGA179944 and 1,2,4-triazole were degraded with a half-life of 17 days (7.3–25. days) and 9.2 days (6.3–12 days), respectively.

Penconazole was moderately persistent in soil. However, following subsequent annual application, accumulation of penconazole in soil is not expected.

Methods of analysis

The basic method for analysis of penconazole in plants and animal matrices employs extraction with methanol (plant) or acetonitrile (animal), partitioning with hexane or dichloromethane, a clean-up step and GC-ECD/NPD analysis. This method achieves LOQ levels of 0.01–0.02 mg/kg in fruit plant matrices, 0.01 mg/kg in milk and 0.05 mg/kg in animal tissues. In addition, LC-MS/MS may be used, omitting a clean-up step and achieving a LOQ level of 0.01 mg/kg in various plant matrices (m/z 284→159 for quantification, m/z 284→70 for confirmation).

An analysis method for residues convertible to 2,4-dichlorobenzoic acid (DCBA; total residues) in plants and animal commodities is available. In grape and apple samples, mean recovery of penconazole was 63% (42–91%, RSD, < 20%). In addition, recoveries for the metabolites from grape were 62%, 56%, 30% for CGA132465, CGA127841 and CGA177280, respectively. In animal commodities, 39–83% of penconazole was recovered. This method is not considered as suitable due to low recoveries for penconazole and its metabolites.

The application of multi-residue methods was tested with DFG S19 for analysis of penconazole in plant and animal matrices. The method was shown suitable with a LOQ of 0.01 mg/kg in plant matrices and animal matrices (milk, meat, eggs and fat). For liver and kidney, LOQ is 0.1 mg/kg due to matrix interference.

Stability of pesticide residues in stored analytical samples

Penconazole was stable for at least 24 months in cucumber and apple (high water) and grape (high acid) samples stored at -18 °C. Other matrices were not tested. No storage stability data were provided for animal matrices.

Definition of the residue

In plants (grape, tomato, apple), major residues were parent penconazole (7–16% TRR), free and conjugated CGA132465 (14–62% TRR), and triazole-specific metabolites (TA, TAA, TLA; in total, 20–25% TRR).

In determining residues suitable for monitoring compliance with MRLs in plant commodities, the Meeting noted that parent penconazole was found in all plants investigated and that suitable methods are available for its analysis. Analytical methods are not available for CGA132465 (free or conjugated), and the triazole-specific metabolites are not unique to penconazole; therefore neither of these compounds is suitable for compliance purposes. The Meeting concluded that the residue definition for compliance with MRLs for residues of penconazole in plant commodities is penconazole.

For evaluation of dietary risk assessment from residues in plants, the Meeting noted that all metabolites found in plants were also identified in rats. Dietary exposure to residues in plants is likely to be to penconazole, CGA132465 (free and conjugated), and the triazole-specific metabolites. The toxicity of CGA132465 is considered to be addressed by the toxicity of parent penconazole based on structural similarity. In the absence of data specific to CGA132465, it is assumed to be no more toxic than penconazole. The triazole-specific metabolites have toxicities known to be different from penconazole and are assessed separately. Therefore, the Meeting determined that the residue definition for assessing dietary intake from plants is the combined residues of penconazole and CGA132465 (free and conjugated), expressed as penconazole.

In goats, the principal residues were parent penconazole (0.7–43% TRR), CGA177279 (4–24% TRR), and free and conjugated CGA132465 (37–83% TRR). In laying hens, components of residues were not identified, as total radioactive residues were too low.

For monitoring compliance with MRLs in livestock commodities, residues of penconazole were observed in all commodities and there is a method available for analysis. Analytical methods are not available for either CGA177279 or CGA132465. Therefore, the Meeting concluded that the residue definition for compliance with MRLs for residues of penconazole in livestock commodities is penconazole.

In goat, penconazole concentrations in fat tissues were at least one order of magnitude higher than in muscle tissues. The log P_{ow} of penconazole is 3.1. The Meeting decided that residues of penconazole are fat soluble.

For evaluation of dietary risk assessment from residues in livestock commodities, exposures are likely to be to penconazole and the metabolites CGA177279 and CGA132465 (free and conjugated). In the absence of metabolite-specific data, these two metabolites are assumed to be no more toxic than penconazole. The Meeting determined that the residue definition for assessing dietary intake from livestock commodities is the combined residues of penconazole, CGA177279, and CGA132465 (free and conjugated), expressed as penconazole.

Definition of the residue for compliance with MRL for plant and animal commodities: *penconazole*

Definition of the residue for estimation of dietary intake for plant commodities: *sum of penconazole and 4-(2,4-dichloro-phenyl)-5-[1,2,4]triazol-1-yl-pentan-2-ol (free and conjugated), expressed as penconazole*

Definition of the residue for estimation of dietary intake for animal commodities: *sum of penconazole, 4-(2,4-dichloro-phenyl)-5-[1,2,4]triazol-1-yl-pentan-2-ol (free and conjugated) and 4-(2,4-dichloro-phenyl)-5-[1,2,4]triazol-1-yl-pentanoic acid, expressed as penconazole*

The residue is fat soluble.

Results of supervised residue trials on crops

The Meeting received supervised residue trial data for pome fruits (apple, pear), stone fruits (peach, cherry), berries and other small fruits (blackcurrant, grape, strawberry), fruiting vegetables (melon, cucumber, tomato, sweet pepper) and globe artichoke. All residue trials were conducted in European countries.

The Meeting withdraws its previous recommendations for hops, dry, as the residue trial data were not provided.

Data depicting residues of free and conjugated CGA132465 were not provided for residue trials conducted with penconazole. In order to estimate residues for dietary intake from plants, the Meeting examined metabolism data from grapes, tomato, and apple. Comparison of residues in analytical fractions, containing CGA132465 (following hydrolysis) with residues of parent penconazole, resulted in conversion factors [(penconazole + CGA132465) ÷ penconazole] of 2.8 for mature grapes, 4.5 and 5.4 for tomato 7 DALA (approximating the registered GAP for tomato), and 2.2 for apples sampled 34 days after the last application. As a conservative estimate of residues for dietary risk assessment, the Meeting used the mean conversion factor, 5, obtained from tomato for all crops.

Pome fruits

Apple, pear

Penconazole is registered in Italy for apple and pear at rates of 3 ×0.060-0.068 kg ai/ha on a 7-day interval and with a 14 day-PHI. Independent residue trials from France, Germany and Spain matching the Italian GAP were submitted.

The residues in apple were (n = 14): < 0.02 (4), 0.01, 0.01, 0.02 (3), 0.030, 0.038, 0.048, 0.05, and 0.079 mg/kg.

The residues in pear were (n = 4): < 0.01, 0.01, 0.01 and 0.04 mg/kg.

As residue values of apple and pear were comparable and not different significantly, the values were combined for mutual support.

The combined data set for apple and pear was (n = 18): < 0.01, < 0.02 (4), 0.01 (4), 0.02 (3), 0.030, 0.038, 0.04, 0.048, 0.05 and 0.079 mg/kg.

The Meeting estimated a maximum residue level of 0.1 mg/kg, an STMR of 0.10 (0.02 × 5) mg/kg and an HR of 0.40 (0.079 × 5) mg/kg for apple and pear, noting that the GAP in Italy is not for the pome fruit crop group. Furthermore, the Meeting withdrew its previous recommendations for pome fruits.

Stone fruits

Peach

Penconazole is registered in Italy for peach at rates of 3 × 0.075 kg ai/ha on a 7-day interval and with a 14-day PHI. Twelve independent trials from Germany, France, Italy and Spain were submitted. One trial matched the GAP, having a residue of 0.03 mg/kg in whole peach (no flesh data).

Eleven trials were conducted at rates of 0.1 kg ai/ha, which is higher than the GAP. The residues in whole peach were (n = 11): < 0.02, 0.02, 0.025, 0.029, 0.03 (3), 0.033, 0.04, 0.06 and 0.08 mg/kg. Using the factor of 0.75, the scaled residues in whole peach were (n = 11): < 0.02, 0.015, 0.019, 0.022, 0.023 (3), 0.025, 0.03 , 0.045 and 0.06 mg/kg.

Combined residues in whole peach were (n = 12): < 0.02, 0.015, 0.019, 0.022, 0.023 (3), 0.025, 0.03 (2), 0.045 and 0.06 mg/kg.

The residues in flesh of peach from the trials conducted at the higher rate were (n = 10): 0.021, 0.027, 0.03, 0.036 (2), 0.04 (3), 0.08 and 0.09 mg/kg. Using the scaling factor of 0.75, the scaled residue values in peach flesh were (n = 10): 0.016, 0.020, 0.023, 0.027 (2), 0.03 (3), 0.06 and 0.068 mg/kg.

The Meeting estimated a maximum residue level of 0.08 mg/kg for peach subgroup and an STMR of 0.14 (0.028 ×5) mg/kg and an HR of 0.34 (0.068 ×5) mg/kg. The Meeting, therefore, withdraws its previous recommendations for peach.

Cherry

Penconazole is registered in Lithuania for use in cherries at rates of 2 × 0.050 kg ai/ha on a 10 or 14-day interval and with a 20-day PHI. Eight residue trials from France and Germany were conducted at 5 or 9-day intervals and at 14-day PHI. The Meeting noted that as the trials did not match GAP no maximum residue level, STMR or HR values could be estimated.

Berries and other small fruits

Blackcurrants

Penconazole is registered in the UK for blackcurrants at rates of 4 × 0.05 kg ai/ha on a 10 or 14-day interval with a 28-day PHI. Five independent trials from the UK matching GAP were submitted.

The residues in blackcurrants were (n = 5): 0.11, 0.13, 0.30, 0.76 and 0.88 mg/kg.

The Meeting estimated a maximum residue level of 2 mg/kg, an STMR of 1.5 (0.30 × 5) mg/kg and an HR of 4.4 (0.88 × 5) mg/kg for blackcurrants.

Grapes

Penconazole is registered in Spain for grape vines, trellised vines at rates of 3 × 0.040 kg ai/ha on a 7 or 14-day interval with a 14-day PHI. Fourteen independent trials from Italy, France, Hungary, the UK, Poland and Germany matching the Spanish GAP were submitted.

The residues in grapes were (n = 14): < 0.01, 0.01, 0.02 (3) 0.03 (4), 0.04, 0.05, 0.08, 0.17 and 0.32 mg/kg.

The Meeting estimated a maximum residue level of 0.4 mg/kg, an STMR of 0.15 (0.03 × 5) mg/kg and an HR of 1.6 (0.32 × 5) mg/kg for grapes. Furthermore, the Meeting withdrew its previous recommendation for grapes.

Strawberry

Penconazole is registered in Belgium for strawberry, protected and unprotected, at rates of 4 × 0.050 kg ai/ha on a 10-day interval with a 3-day PHI. Residue trials (protected and outdoor) from France, Germany, Italy, Spain and Greece matching Belgian GAP were submitted.

The residues in strawberry (outdoor) were (n = 17): 0.03, 0.03, 0.04, 0.043, 0.045, 0.06, 0.06, 0.1 (3), 0.11, 0.12, 0.14, 0.14, 0.17, 0.38 and 0.43 mg/kg

The residues in strawberry (protected) were (n = 8): 0.03, 0.04, 0.07, 0.07, 0.08, 0.087, 0.15 and 0.19 mg/kg.

As the median residues from outdoor and protected strawberry are within a 5-fold range and the residues are not significantly different by the Kruskal-Wallis test, the residues were combined for more robust estimation.

The combined data set for strawberry (outdoor and protected) were (n = 25): 0.03 (3) 0.04 (2), 0.043, 0.045, 0.06 (2), 0.07 (2), 0.08, 0.087, 0.1 (3) 0.11, 0.12, 0.14 (2), 0.15, 0.17, 0.19, 0.38 and 0.43 mg/kg.

The Meeting estimated a maximum residue level of 0.5 mg/kg, an STMR of 0.44 (0.087 × 5) mg/kg and an HR of 2.2 (0.43 × 5) mg/kg for strawberries. The Meeting withdrew its previous recommendations for strawberry.

Fruiting vegetables, Cucurbits

Melons, except Watermelon

Penconazole is registered in Germany for greenhouse melon at rates of 4 × 0.050 kg ai/ha on a 7-day interval and with a 3-day PHI. Nine residue trials from Germany, Italy and Spain according to this GAP were submitted. Two trials, in which melon seeds were removed and discarded, could not be used for estimation of a maximum residue level.

The residues in melons (greenhouse) were (n = 7): 0.01, 0.01, 0.02, 0.04, 0.04, 0.05 and 0.06 mg/kg.

The Meeting estimated a maximum residue level of 0.15 mg/kg, an STMR of 0.20 (0.04 × 5) mg/kg and an HR of 0.30 (0.06 × 5) mg/kg for melons, except watermelon. The Meeting withdraws its previous recommendations for melons.

Cucumber

Penconazole is registered in Germany for cucumber, protected and pâtisson squash, protected and outdoor, at rates of 4 × 0.050 kg ai/ha on a 7-day interval and with a 3-day PHI. Residue trials from France, Greece, Italy and Spain according to this GAP were submitted.

The residues in cucumber, protected, were (n = 8): < 0.01, < 0.02, < 0.02, 0.01, 0.01, 0.02, 0.03 and 0.03 mg/kg.

The Meeting estimated a maximum residue level of 0.06 mg/kg, an STMR of 0.05 (0.01 × 5) mg/kg and an HR of 0.15 (0.03 × 5) mg/kg for cucumber, withdrawing its previous recommendations. Further the Meeting extrapolated the residue values for cucumber to summer squash and gherkin based on the same German GAP, and estimated maximum residue levels of 0.06 mg/kg, STMRs of 0.05 mg/kg and an HRs of 0.15 mg/kg for summer squash and gherkin.

Fruiting vegetables, other than Cucurbits

Tomato

Penconazole is registered in Germany for tomato and eggplant, greenhouse, at rates of 4 × 0.050 kg ai/ha on a 7-day interval and with a 3-day PHI. Residue trials from Germany, France, Netherlands, Spain and Greece according to this GAP were submitted.

The residues in tomato and cherry tomato, greenhouse, were (n = 14): < 0.01 (3), < 0.02 (3), 0.02 (4), 0.03, 0.03, 0.04 and 0.07 mg/kg.

The Meeting estimated a maximum residue level of 0.09 mg/kg, an STMR of 0.10 (0.02 × 5) mg/kg and an HR of 0.35 (0.07 ×5) mg/kg for tomato, withdrawing its previous recommendations. The Meeting also estimated a maximum residue level of 0.09 mg/kg, an STMR of 0.10 mg/kg and an HR of 0.35 mg/kg for egg plant, extrapolating tomato residues to egg plant under the same German GAP.

Pepper, Sweet

Penconazole is registered in Germany for sweet pepper, greenhouse, at rates of 4 × 0.050 kg ai/ha, on a 7-day interval with a 3-day PHI. Residue trials from France, Netherlands, Spain and Italy according to this GAP were submitted.

The residues in sweet pepper, greenhouse, were (n = 8): < 0.02, < 0.02, 0.02, 0.02, 0.036, 0.04, 0.041 and 0.12 mg/kg.

The Meeting estimated a maximum residue level of 0.2 mg/kg, an STMR of 0.14 (0.028 × 5) mg/kg and an HR of 0.60 (0.12 × 5) mg/kg for sweet pepper.

Stalk and stem vegetables

Artichoke, globe

Penconazole is registered in Italy for globe artichoke, at rates of 4 × 0.050 kg ai/ha, on a 14- or 16-day interval with a 14-day PHI. Residue trials from Italy, Germany, France and Spain according to this GAP were submitted.

The residues in globe artichoke were (n = 7): < 0.01, < 0.02 (4), 0.02 and 0.04 mg/kg.

The Meeting estimated a maximum residue level of 0.06 mg/kg, an STMR of 0.10 (0.02 × 5) mg/kg and an HR of 0.20 (0.04 × 5) mg/kg for globe artichoke.

Fate of residues during processing

High-temperature hydrolysis

Using [^{14}C-triazole] penconazole, typical processing conditions were simulated (pH 4, 5 and 6 with 90 °C, 100 °C and 120 °C for 20, 60 and 20 minutes). Penconazole was stable in all conditions of temperature, pH and reaction time that mimic pasteurisation, baking, brewing, boiling and sterilisation.

Residue after processing

The fate of penconazole residues has been examined simulating household and commercial processing of grape, apple, strawberry and blackcurrants. Estimated processing factors for the commodities considered at this Meeting are summarized below.

The meeting noted that residues of free and conjugated CGA132465 are likely to be considerably more water soluble than penconazole, *per se*. As such, it is not appropriate to use processing factors based solely on residues of penconazole when estimating residues in processed commodities such as juice and wine. The Meeting noted that the grape metabolism study included residue analysis for whole grapes as well as grape juice. The sum of residues in analytical fractions containing CGA132465 and penconazole in grape berries was 0.051 mg/kg. The sum of those residues in grape juice was 0.013 mg/kg, resulting in a processing factor of 0.25. This processing factor was also used for other juices and wine.

For raisin, a maximum residue level of 1.5 mg/kg was estimated based on a maximum residue level 0.4 mg/kg for grapes and a processing factor of 3.8.

Crop	STMR	HR	Commodity	Processing factor		STMR-P (mg/kg)	HR-P (mg/kg)
				Individual values	Best estimate		
Grapes	0.15	1.6	Raisin	2.2, 3.6, 4.0, 4.0	3.8	0.57	6.1
			Wet pomace	1.1, 2.5, 2.8, 2.8, 3.0, 3.2, 5.2, 7.5	2.9	0.44	
			Dry pomace	10, 13, 21, 26	17	2.6	
			Juice		0.25[a]	0.038	0.40
			Wine		0.25[a]	0.038	0.40
Apple	0.10	0.40	Wet pomace	2.0, 2.1, 2.2, 3.1	2.2	0.22	
			Dry pomace	7.3, 8.7, 9.3, 9.3	9.0	0.9	
			Juice		0.25[a]	0.025	0.10

Crop	STMR	HR	Commodity	Processing factor		STMR-P (mg/kg)	HR-P (mg/kg)
				Individual values	Best estimate		
Strawberry	0.44	2.2	Sauce	0.13, 0.13, 0.20, 0.20	0.17	0.017	0.068
			Jam, sterilized	0.73, 0.77, 0.90, 1.0	0.84	0.37	1.8
			Canned, pasteurized	0.50, 0.50, 0.60, 0.60	0.55	0.24	1.2
Blackcurrant	1.5	4.4	Juice		0.25[a]	0.38	1.1

[a] The processing factor for juices and wine were derived from the grape metabolism study.

Residues in animal commodities

Estimation of dietary burden

The maximum and mean dietary burdens were calculated using the highest residues or median residues of penconazole (combined residues of parent and CGA132465) estimated at the current Meeting on the basis of the OECD Animal Feeding Table. Apple and grape pomace data were used for estimation of dietary burdens. The calculated maximum and mean animal burdens are summarised below. For broiler poultry and laying poultry, no feed items were applicable in this evaluation.

Summary of livestock dietary burdens (ppm of dry matter diet)

	US-Canada		EU		Australia		Japan	
	max	mean	max	mean	max	mean	max	mean
Beef cattle			0.11	0.11	0.11	0.11	-	-
Dairy cattle	0.055	0.055	0.055	0.055	0.099	0.099	-	-

Farm animal feeding studies

Lactating cows were fed diets containing 10, 50 and 100 ppm penconazole, for up to 28 days. Parent penconazole was analysed for milk and tissue samples. Parent compound was found at only the highest does only in liver, 0.26 mg/kg (milk, < 0.01 mg/kg; other tissues, < 0.05 mg/kg). All samples were also analysed for residues convertible to DCBN (total residues; including metabolites CGA132465 and CGA177279), however, the analytical method was not considered sufficiently reliable.

Laying hens were fed diets containing 1.25, 6.25 and 12.5 ppm penconazole, for up to 29 days. Only total residues (as DCBN) were analysed. No total residues (< 0.05 mg/kg) were found in any samples at any of the feeding levels, except liver sample at the highest dose, determined at 0.09 mg/kg.

Animal commodity maximum residue levels

In the feeding studies, no residues of total residues were found in milk and tissues, except liver. For liver, when a dose level of 100 ppm (0.26 mg/kg at the dose) was compared with the dietary burden, 0.11 ppm, no significant residue is expected. The Meeting estimated a maximum residue level of 0.01* mg/kg for milk and 0.05* mg/kg for meat, fat, liver and kidney.

From a goat metabolism study (112 ppm), sum of the residues of parent, CGA132465 and CGA177279 were muscle 0.15 mg eq/kg (92% TRR), fat 0.65 mg eq/kg (88% TRR), liver 4.4 mg eq/kg (83% TRR), kidney 4.5 mg eq/kg (88% TRR) and milk 0.096 mg eq/kg (92% TRR). Comparing with 1018-times lower dietary burden, residue levels would be expected < 0.001 mg/kg in muscle, milk and fat, and 0.004 mg/kg in liver and kidney. The Meeting estimated 0 mg/kg for STMR and HR for muscle, fat and milk; 0.004 mg/kg for STMR and HR for liver and kidney.

For poultry, no relevant feed item was identified. The Meeting estimated a maximum residue level of 0.05* mg/kg, an STMR of 0 mg/kg and an HR of 0 mg/kg for poultry and eggs.

RECOMMENDATIONS

On the basis of the data from supervised trials the Meeting concluded that the residue levels listed in Annex I are appropriate for establishing maximum residue limits and for IEDI and IESTI assessment.

Definition of the residue for compliance with MRL for plant and animal commodities: *penconazole*

Definition of the residue for estimation of dietary intake for plant commodities: sum of penconazole and *4-(2,4-dichloro-phenyl)-5-[1,2,4]triazol-1-yl-pentan-2-ol (free and conjugated), expressed as penconazole*

Definition of the residue for estimation of dietary intake for animal commodities: sum of *penconazole, 4-(2,4-dichloro-phenyl)-5-[1,2,4]triazol-1-yl-pentan-2-ol (free and conjugated) and 4-(2,4-dichloro-phenyl)-5-[1,2,4]triazol-1-yl-pentanoic acid , expressed as penconazole.*

The residue is fat soluble.

DIETARY RISK ASSESSMENT

Long-term dietary exposure

The International Estimated Daily Intakes (IEDIs) of penconazole were calculated for the 17 GEMS/Food cluster diets using STMRs/STMR-Ps estimated by the current and previous Meetings. The results are shown in Annex 3 in the 2016 JMPR Report.

The ADI is 0–0.03 mg/kg bw and the calculated IEDIs were 0–3% of the maximum ADI. The Meeting concluded that the long-term exposure to residues of penconazole resulting from the uses considered by the JMPR is unlikely to present a public health concern.

Short-term dietary exposure

The International Estimated Short Term Intakes (IESTIs) of penconazole were calculated for the food commodities using HRs and STMR/STMR-Ps estimated by the current Meeting. The results are shown in Annex 4 to the 2016 JMPR Report.

The ARfD is 0.8 mg/kg bw and the calculated IESTIs were 0–6% of the ARfD for the general population and 0–10% of the ARfD for children. The Meeting concluded that the short-term dietary exposure to penconazole residues, resulting from uses that have been estimated by the 2016 JMPR, is unlikely to present a public health concern when penconazole is used in ways that were considered by the Meeting.

5.19 PENDIMETHALIN (292)

TOXICOLOGY

Pendimethalin is the ISO-approved common name for *N*-(1-ethylpropyl)-2,6-dinitro-3,4-xylidine (IUPAC), with the CAS number 040487-42-1. Pendimethalin is a selective herbicide belonging to the chemical class of dinitroanilines.

Pendimethalin has not previously been evaluated by JMPR. Pendimethalin was reviewed by the present Meeting at the request of CCPR.

All critical studies complied with GLP and were conducted in accordance with relevant national or international test guidelines, unless otherwise stated.

Biochemical aspects

In rats, orally administered radiolabelled pendimethalin was more than 57% absorbed from the gastrointestinal tract and rapidly excreted, independent of dose level. The excretion of radioactivity was similar for both sexes; 70% of the radioactivity was excreted in the faeces and about 20% in the urine within 24 hours post-treatment. After 96 hours, the residual radioactivity in the soft tissues accounted for 0.2% of the radioactive dose. After a single oral gavage dose, pendimethalin was not detectable in the plasma even at the earliest time point of 1 hour, although its metabolites were detected. Thus, a liver first-pass effect with a complete, or nearly complete, biotransformation during absorption and liver passage can be assumed. The T_{max} for metabolites was 8 hours.

The biotransformation pathway includes oxidation, reduction and cyclization of pendimethalin. The transformation steps are (a) oxidation of the alkyl side-chains (methyl and/or 1-ethylpropyl group), which results in hydroxyl and/or carboxyl groups, (b) reduction of one or two nitro groups to amine groups and (c) cyclization to a benzimidazole heterocycle. The metabolite patterns in faecal extracts were qualitatively similar, but quantitatively different, in males and females. About 88% of orally absorbed pendimethalin was excreted in bile. In total, 23 metabolites, predominantly glucuronide conjugates, were detected in bile; some of these metabolites were chemically characterized.

In an in vitro study, pendimethalin was extensively metabolized by liver microsomes of dogs, rabbits, mice, rats and humans; no unique human metabolite was detected.

Toxicological data

Pendimethalin has low acute toxicity when administered orally, dermally or by inhalation to rats. The acute oral LD_{50} was greater than 4665 mg/kg bw, the dermal LD_{50} was greater than 5000 mg/kg bw and the inhalation LC_{50} was greater than 6.73 mg/L (4-hour exposure; nose only). Pendimethalin was not irritating to the skin or the eyes of rabbits. Pendimethalin has skin sensitizing properties at comparatively high concentrations in the guinea-pig maximization test. Pendimethalin was phototoxic in vitro.

In short-term and long-term studies in mice, rats and dogs, the main target organs of pendimethalin were the liver (increased weight with histopathological changes and changes in serum alkaline phosphatase) in all species tested and the thyroid (increased weight, histopathological changes) in rats.

In a 30-day dietary study in which rats were administered pendimethalin in the diet at 0, 800, 1600 or 3200 ppm (equal to 0, 85.4, 163 and 338 mg/kg bw per day for males and 0, 86.2, 168 and 333 mg/kg bw per day for females, respectively), the NOAEL was 3200 ppm (equal to 333 mg/kg bw per day), the highest dose tested.

In a 90-day dietary study in rats given pendimethalin at 0, 100, 500 or 5000 ppm (equivalent to 0, 8.3, 41.3 and 413 mg/kg bw per day, respectively), the NOAEL was 500 ppm (equivalent to 41.3 mg/kg bw per day), based on a marginal increase in kidney weight (males) and a decrease in uterus/ovary weight at 5000 ppm (equivalent to 413 mg/kg bw per day).

In a 90-day toxicity study in dogs administered pendimethalin at a dose level of 0, 62.5 (diet), 250 or 1000 mg/kg bw per day (gavage), the NOAEL was 1000 mg/kg bw per day, the highest dose tested.

In a 2-year toxicity study in dogs given pendimethalin at a dose level of 0, 12.5, 50 or 200 mg/kg bw per day in gelatine capsules, the NOAEL was 12.5 mg/kg bw per day, based on elevated alkaline phosphatase levels and histopathological findings (bile stasis, chronic inflammation, biliary hyperplasia) in the liver at 50 mg/kg bw per day.

In an 18-month dietary toxicity and carcinogenicity study in mice administered pendimethalin at a dose level of 0, 100, 500 or 5000 ppm (equivalent to 0, 15, 75 and 750 mg/kg bw per day, respectively), the NOAEL was 5000 ppm (equivalent to 750 mg/kg bw per day), the highest dose tested. No treatment-related effects on tumour incidence were observed in this study.

In a 2-year toxicity and carcinogenicity study in rats administered pendimethalin in the diet at a dose level of 0, 100, 500 or 5000 ppm (equal to 0, 3.8, 19 and 195 mg/kg bw per day for males and 0, 4.7, 24 and 260 mg/kg bw per day for females, respectively), the NOAEL was 500 ppm (equal to 19 mg/kg bw per day), based on clinical signs, lower body weight gain and decreased feed consumption at 5000 ppm (equal to 195 mg/kg bw per day). Females also had increased terminal absolute and relative liver and thyroid/parathyroid weights at 5000 ppm. Treatment-related increases in follicular cell adenomas in the thyroid were observed at the high dose in both sexes.

In another 2-year dietary study conducted to investigate the effects of chronic dietary administration of pendimethalin on the function and structure of male rat thyroid at 0, 1250, 2500, 3750 and 5000 ppm (equivalent to 0, 62.5, 125, 187.5 and 250 mg/kg bw per day, respectively), the systemic toxicity NOAEL was 1250 ppm (equivalent to 62.5 mg/kg bw per day), based on eosinophilic and basophilic foci, hepatocellular hypertrophy, hepatocellular intracytoplasmic eosinophilic inclusions and increased relative liver weight at 2500 ppm (equivalent to 125 mg/kg bw per day). The NOAEL for tumorigenicity was 3750 ppm (equivalent to 187.5 mg/kg bw per day), based on an increased incidence of thyroid follicular cell adenomas at 5000 ppm (equivalent to 250 mg/kg bw per day).

A number of additional special studies were performed to determine the effect of pendimethalin on thyroid in rats.

In a 14-day study in male rats, pendimethalin was administered at dietary dose levels of 0, 100 and 5000 ppm (equivalent to 0, 5 and 250 mg/kg bw per day, respectively). The NOAEL for thyroidal effects was 100 ppm (equivalent to 5 mg/kg bw per day), based on hypothyroidism, as defined by a decrease in serum T_4 and triiodothyronine (T_3) levels, an increase in serum TSH level and a significant increase in the uptake of ^{131}I at 5000 ppm, but with no change in serum reverse T_3 level. However, there was no effect on the organification of ^{131}I or the percentage of ^{131}I incorporated into monoiodotyrosine, diiodotyrosine or T_4 in rats. This suggests that pendimethalin does not affect the synthesis of thyroid hormones and is therefore not a primary goitrogen.

When pendimethalin was administered to male rats for 14 days at a dietary concentration of 0, 100 or 5000 ppm (equivalent to 0, 5 and 250 mg/kg bw per day, respectively) to assess the influence of the test substance on biliary excretion and hepatic metabolism of T_4, decreased serum total T_3/T_4 and increased serum TSH concentration were observed at 5000 ppm. The 100 ppm level was without effect. Together with previous results indicating that pendimethalin had no direct effect on thyroid hormone synthesis, it can be judged that the effects in this study were induced via the classic secondary mechanism of TSH stimulation from catabolism of thyroid hormones.

In a 4-week thyroid function study in male rats, pendimethalin was administered at dietary dose levels of 0, 500 and 5000 ppm (equal to 0, 31 and 292 mg/kg bw per day, respectively) for a period of 28 days, followed by a recovery period for another 28 days. The changes observed in the study were decreased serum levels of T_3 and T_4 throughout the 4-week treatment period and a slight elevation of TSH after 4 weeks of dietary treatment of male rats with pendimethalin at the high dose of 5000 ppm. This level was also associated with a marked depression of body weight gain and elevated thyroid weights, but there was no effect on pituitary weights. Histomorphometric analysis demonstrated an increase in follicular cell height and a decrease in colloid area at 5000 ppm. Ultrastructural changes, including rough endoplasmic reticulum, large prominent Golgi apparatus with small granules, numerous colloid droplets and large mitochondria, consistent with mild to moderate TSH stimulation were observed at 5000 ppm. After a 4-week recovery period, reversal of the histomorphometric changes in the follicular cells occurred, as well as a return to control levels of T_3 and T_4 and thyroid weights.

In a 92-day investigative study of the effect of pendimethalin on thyroid function in rats, pendimethalin was administered at dietary dose levels of 0, 100 and 5000 ppm (equal to 0, 5 and 245 mg/kg bw per day, respectively). Treatment of rats at 5000 ppm resulted in decreased blood T_3 and T_4 levels and an increase in TSH level, as well as increased absolute and relative thyroid weights and hypertrophy of follicular cells of this gland.

All these findings support the hypothesis of a decrease in thyroid hormones due to enhanced liver metabolism induced by pendimethalin. The secondary increase in TSH levels is likely responsible for the slight increase in the incidence of thyroid follicular cell adenomas in rats following 2 years of dietary treatment with pendimethalin at a dose of 5000 ppm. This supports a well-established mode of action for follicular cell adenomas in rats, which is not relevant for humans.

The Meeting concluded that pendimethalin is not carcinogenic in rats and mice and that the thyroid adenomas observed in rats occur by a mode of action that is not relevant to humans.

Pendimethalin was tested for genotoxicity in an adequate range of in vitro and in vivo assays. No evidence of genotoxicity was found.

The Meeting concluded that pendimethalin is unlikely to be genotoxic.

In view of the lack of genotoxicity, the absence of carcinogenicity in rats and mice and the fact that the follicular cell adenomas of the thyroid observed in rats occur by a mode of action that is not relevant to humans, the Meeting concluded that pendimethalin is unlikely to pose a carcinogenic risk to humans from the diet.

In a two-generation reproductive toxicity study in rats, pendimethalin was administered in the diet at target dose levels of 0, 500, 2500 and 5000 ppm (equal to 0, 30, 150 and 296 mg/kg bw per day for males and 0, 39, 195 and 388 mg/kg bw per day for females, respectively). The NOAEL for parental toxicity was 500 ppm (equal to 39 mg/kg bw per day), based on reduced feed consumption and body weight/body weight gain in dams at 2500 ppm (equal to 195 mg/kg bw per day). The NOAEL for offspring toxicity was 500 ppm (equal to 39 mg/kg bw per day), based on significantly reduced body weight and body weight gain in offspring at 2500 ppm (equal to 195 mg/kg bw per day). The reproductive toxicity NOAEL was 5000 ppm (equal to 296 mg/kg bw per day), the highest dose tested.

In a developmental toxicity study in rats, pendimethalin was administered orally by gavage from day 6 through day 15 of gestation at a dose of 0, 125, 250 or 500 mg/kg bw per day. The NOAEL for both maternal toxicity and embryo/fetal toxicity was 500 mg/kg bw per day, the highest dose tested.

In a study of thyroid function during development in rats, pendimethalin was administered in the diet in concentrations that were adjusted to obtain dose levels of 0, 31, 62 and 186 mg/kg bw per day from gestation day 6 through postnatal day 21. Fetuses and pups were shown to be less sensitive than dams to thyroid hormone changes, as thyroid hormones in fetuses and postnatal day 4 pups of exposed dams remained generally unaltered, even when the dams showed significantly decreased T_4 levels. Serum T_4 levels of pups were affected only after exposure via the diet in addition to the milk, albeit substantially less than in dams.

In a developmental toxicity study in rabbits, pendimethalin was administered orally by gavage from day 6 through day 18 of gestation at a dose level of 0, 15, 30 or 60 mg/kg bw per day. The NOAEL for maternal toxicity was 30 mg/kg bw per day, based on the increased incidences of anorexia and adipsia observed during treatment at 60 mg/kg bw per day. The NOAEL for embryo/fetal toxicity was 30 mg/kg bw per day, based on skeletal variations observed at 60 mg/kg bw per day.

The Meeting concluded that pendimethalin is not teratogenic.

In an acute neurotoxicity study in rats, pendimethalin was administered orally by gavage at a dose level of 0, 100, 300 or 1000 mg/kg bw. This administration resulted in signs of neurotoxicity, which were considered to be secondary to systemic toxicity. The NOAEL was 100 mg/kg bw, based on a number of clinical signs observed in both sexes on study day 0 at 300 mg/kg bw.

In a 90-day neurotoxicity study in rats, pendimethalin was administered orally at a dietary dose level of 0, 600, 1800 or 5400 ppm (equal to 0, 42, 127 and 387 mg/kg bw per day for males and 0, 50, 152 and 423 mg/kg bw per day for females, respectively). The systemic toxicity NOAEL was 600 ppm (equal to 50 mg/kg bw per day), based on decreased body weight gain and feed consumption and changes in clinical chemistry and haematological parameters in females at 1800 ppm (equal to 152 mg/kg bw per day). The NOAEL for neurotoxicity was 5400 ppm (equal to 387 mg/kg bw per day), the highest dose tested.

The Meeting concluded that pendimethalin is not neurotoxic.

In a 4-week immunotoxicity study in female rats administered pendimethalin in the diet at a concentration of 0, 500, 1000 or 3000 ppm (equal to 0, 38, 72 and 276 mg/kg bw per day, respectively), the NOAEL for both general toxicity and immunotoxicity was 3000 ppm (equal to 276 mg/kg bw per day), the highest dose tested.

The Meeting concluded that pendimethalin is not immunotoxic.

Toxicological data on metabolites and/or degradates

Several metabolites, including plant metabolites and a rat and soil metabolite, were tested for genotoxicity.

M455H025 (Reg. No. 4110480; rat and plant metabolite)

M455H025 ({4-[(1-ethylpropyl)amino]-2-methyl-3,5-dinitrophenyl}methanol) was negative in the Ames test and equivocal in an in vitro micronucleus assay in V79 cells with and without metabolic activation. An in vivo micronucleus test up to the limit dose did not result in an increase in micronucleus formation. The Meeting concluded that M455H025 is unlikely to be genotoxic in vivo.

The dietary exposure level of M455H025 from current uses (1.3 µg/kg bw per day) does not exceed the TTC (1.5 µg/kg bw per day) for a Cramer class III compound.

M455H066 (Reg. No. 4118469; plant metabolite)

M455H066 (*N*-(1-ethyl-2-hydroxy-propyl)-2,6-dinitro-3,4-xylidine) was negative in the Ames test, but resulted in an increase in micronuclei in an in vitro micronucleus assay in V79 cells with and without metabolic activation. An in vivo micronucleus test up to the limit dose did not result in an increase in micronucleus formation. The Meeting concluded that M455H066 is unlikely to be genotoxic in vivo.

M455H058 (Reg. No. 4309702; plant metabolite)

M455H058 was negative in the Ames test, but resulted in an increase in micronuclei in an in vitro micronucleus assay in V79 cells without metabolic activation. An in vivo micronucleus test up to 500 mg/kg bw did not result in an increase in micronucleus formation. The Meeting concluded that M455H058 is unlikely to be genotoxic in vivo.

Reg. No. 5916419 (rotational crop metabolite)

Reg. No. 5916419 was negative in the Ames test and in an in vitro micronucleus assay in V79 cells with and without metabolic activation. The Meeting concluded that Reg. No. 5916419 is unlikely to be genotoxic.

M455H001 (Reg. No. 4108474; rat and soil metabolite)

M455H001 (2-methyl-3,5-dinitro-4-(pentan-3-ylamino)benzoic acid) was negative in the Ames test and in an in vitro mouse lymphoma test, but resulted in an increase in chromosomal aberrations in an in vitro chromosomal aberration assay with metabolic activation. An in vivo micronucleus test up to the limit dose did not result in an increase in micronucleus formation. The Meeting concluded that M455H001 is unlikely to be genotoxic in vivo.

M455H029 (major residue in ruminant liver and kidney)

M455H029 (1-(1-ethylpropyl)-5,6-dimethyl-7-nitro-1*H*-benzimidazole) was not tested for genotoxicity. Quantitative structure–activity relationship (QSAR) analysis suggested a plausible alert for mutation in an Ames test. The moiety responsible was an aromatic nitro grouping. Pendimethalin exhibited the same alert. As pendimethalin was negative when tested in the Ames test, the Meeting concluded that M455H029 is unlikely to be mutagenic.

The dietary exposure level of M455H029 from current uses (0.3 µg/kg bw per day) does not exceed the TTC (1.5 µg/kg bw per day) for a Cramer class III compound.

M455H030 (found in radish roots after crop rotation)

M455H030 was not tested for genotoxicity. It is the glucuronide of metabolite Reg. No. 5916419, which tested negative for gene mutation (Ames) and in vitro chromosomal aberration (in vitro micronucleus test). Consequently, this metabolite is negative for genotoxicity and thus adequately tested. Sugar conjugates (especially *O*-glycosyls) are likely to be cleaved in the intestinal tract. As a consequence, the respective parent metabolite should be considered relevant.

The dietary exposure level of M455H030 from current uses (0.1 µg/kg bw per day) does not exceed the TTC (1.5 µg/kg bw per day) for a Cramer class III compound.

Human data

From reports on health records of manufacturing plant personnel, no adverse health effects were noted during pendimethalin production, transportation, formulation or packaging.

A number of reports on intentional poisoning in humans available in the literature showed dose-related gastrointestinal signs and symptoms.

Epidemiological studies

Several epidemiological studies that reviewed pesticide use and associations with overall health impact are available based on the AHS cohort. Out of six evaluations of one cohort study, various associations with increased risk of different types of cancer with varying degrees of confidence were noted for pendimethalin. These associations need to be balanced against the fact that they were seen from evaluations of a single cohort. Although data were stratified for confounders, it needs to be kept in mind that participants were also exposed to additional compounds.

Other studies

Several publications were found in the published literature that reported in vitro investigations of pendimethalin's endocrine activity. However, the data are not in line with the available higher-tier studies of pendimethalin in rats and rabbits, which did not provide evidence for a human-relevant endocrine-related risk.

The Meeting concluded that the existing database on pendimethalin was adequate to characterize the potential hazards to the general population, including fetuses, infants and children.

Toxicological evaluation

The Meeting established an ADI of 0–0.1 mg/kg bw, derived from a NOAEL of 12.5 mg/kg bw per day from the 2-year study of toxicity in dogs, on the basis of elevated alkaline phosphatase levels and histopathological findings in the liver at 50 mg/kg bw per day. A safety factor of 100 was applied.

The Meeting established an ARfD of 1 mg/kg bw, derived from a NOAEL of 100 mg/kg bw from an acute neurotoxicity study in rats for a number of clinical signs observed in both sexes at 300 mg/kg bw. A safety factor of 100 was applied.

A toxicological monograph was prepared.

Levels relevant to risk assessment of pendimethalin

Species	Study	Effect	NOAEL	LOAEL
Mouse	Eighteen-month study of toxicity and carcinogenicity[a]	Toxicity	5 000 ppm, equivalent to 750 mg/kg bw per day[b]	–
		Carcinogenicity	5 000 ppm, equivalent to 750 mg/kg bw per day[b]	–
Rat	Two-year study of toxicity and carcinogenicity[a]	Toxicity	500 ppm, equal to 19 mg/kg bw per day	5 000 ppm, equal to 195 mg/kg bw per day
		Tumorigenicity	500 ppm, equal to 19 mg/kg bw per day	5 000 ppm, equal to 195 mg/kg bw per day
	Two-generation study of reproductive toxicity[a]	Reproductive toxicity	5 000 ppm, equal to 296 mg/kg bw per day[b]	–
		Parental toxicity	500 ppm, equal to 39 mg/kg bw per day	2 500 ppm, equal to 195 mg/kg bw per day
		Offspring toxicity	500 ppm, equal to 39 mg/kg bw per day	2 500 ppm, equal to 195 mg/kg bw per day
	Developmental toxicity study[c]	Maternal toxicity	500 mg/kg bw per day[b]	–
		Embryo and fetal	500 mg/kg bw per day[b]	–

Species	Study	Effect	NOAEL	LOAEL
		toxicity		
	Acute neurotoxicity study[c]	Neurotoxicity	1 000 mg/kg bw[b]	–
		Toxicity	100 mg/kg bw	300 mg/kg bw
	Ninety-day neurotoxicity study[a]	Neurotoxicity	5 400 ppm, equal to 387 mg/kg bw[b]	–
Rabbit	Developmental toxicity study[c]	Maternal toxicity	30 mg/kg bw per day	60 mg/kg bw per day
		Embryo and fetal toxicity	30 mg/kg bw per day	60 mg/kg bw per day
Dog	Two-year study of toxicity[d]	Toxicity	12.5 mg/kg bw per day	50 mg/kg bw per day

[a] Dietary administration.

[b] Highest dose tested.

[c] Gavage administration.

[d] Capsule administration.

Acceptable daily intake (ADI)

0–0.1 mg/kg bw

Acute reference dose (ARfD)

1 mg/kg bw

Information that would be useful for the continued evaluation of the compound

Results from epidemiological, occupational health and other such observational studies of human exposure

Critical end-points for setting guidance values for exposure to pendimethalin

Absorption, distribution, excretion and metabolism in mammals	
Rate and extent of oral absorption	Rapidly and > 57% absorbed; T_{max} 8 h for metabolites
Dermal absorption	Poorly absorbed
Distribution	Widely distributed
Potential for accumulation	None
Rate and extent of excretion	70% excreted in the faeces and about 20% in the urine within 24 h
Metabolism in animals	Extensively and rapidly metabolized via oxidation, reduction and cyclization
Toxicologically significant compounds in animals and plants	Pendimethalin
Acute toxicity	
Rat, LD_{50}, oral	> 4 665 mg/kg bw

Rat, LD_{50}, dermal	> 5 000 mg/kg bw
Rat, LC_{50}, inhalation	> 6.73 mg/L
Rabbit, dermal irritation	Non-irritating
Rabbit, ocular irritation	Non-irritating
Guinea-pig, dermal sensitization	Weakly sensitizing (maximization test)
Short-term studies of toxicity	
Target/critical effect	Liver, thyroid (rat and dog)
Lowest relevant oral NOAEL	12.5 mg/kg bw per day (dog)
Lowest relevant dermal NOAEL	No data
Lowest relevant inhalation NOAEC	No data
Long-term studies of toxicity and carcinogenicity	
Target/critical effect	Liver; thyroid
Lowest relevant NOAEL	19 mg/kg bw per day (rat)
Carcinogenicity	Not carcinogenic in mice or rats; thyroid adenomas in rats not relevant to humans[a]
Genotoxicity	
	No evidence of genotoxicity[a]
Reproductive toxicity	
Target/critical effect	No reproductive effects; reduced body weight/body weight gain in offspring; reduced feed consumption and body weight/body weight gain in dams
Lowest relevant parental NOAEL	30 mg/kg bw per day (rat)
Lowest relevant offspring NOAEL	30 mg/kg bw per day (rat)
Lowest relevant reproductive NOAEL	296 mg/kg bw per day, highest dose tested (rat)
Developmental toxicity	
Target/critical effect	Skeletal variations; anorexia and adipsia in dams
Lowest relevant maternal NOAEL	30 mg/kg bw per day (rabbit)
Lowest relevant embryo/fetal NOAEL	30 mg/kg bw per day (rabbit)
Neurotoxicity	
Acute neurotoxicity NOAEL	1 000 mg/kg bw, highest dose tested (rat)
	Systemic toxicity NOAEL: 100 mg/kg bw
Subchronic neurotoxicity NOAEL	387 mg/kg bw per day, highest dose tested (rat)
Developmental neurotoxicity NOAEL	No data
Other toxicological studies	
Immunotoxicity NOAEL	276 mg/kg bw per day, highest dose tested (rat)
Human data	
Occupational	No effects reported in manufacturing workers
Cancer	Various associations of pendimethalin exposure with increased risk of different types of cancer with varying degrees of confidence were found in a single cohort study

Non-cancer health effects	No associations of pendimethalin exposure with increased likelihood of developing a wide variety of adverse non-cancer health effects have been reported

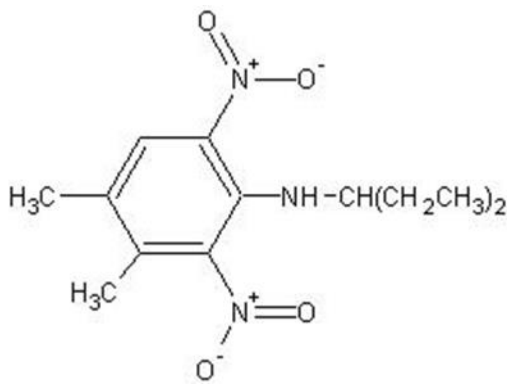
[a] Unlikely to pose a carcinogenic risk to humans via exposure from the diet.

Summary

	Value	Study	Safety factor
ADI	0–0.1 mg/kg bw	Two-year toxicity study (dog)	100
ARfD	1 mg/kg bw	Acute neurotoxicity study (rat)	100

RESIDUE AND ANALYTICAL ASPECTS

Pendimethalin is a selective herbicide used to control most annual grasses and certain broadleaf weeds in several arable perennial crops, such as fruits and vegetables, cereals, pulses and oilseeds, root crops and ornamentals. Its primary mode of action is to prevent plant cell division and elongation in susceptible species by inhibition of microtubule formation. At the 47th Session of the CCPR (2015) the compound was scheduled for the evaluation as a new compound for toxicology and residues by the 2016 JMPR.



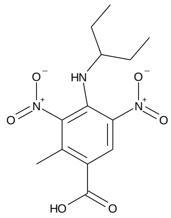
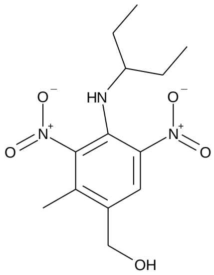
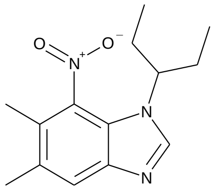
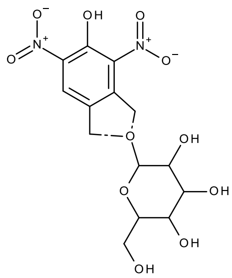
The IUPAC and CA name of pendimethalin is N-(1-ethylpropyl)-2,6-dinitro-3,4-xylidine.

The physical-chemical properties of pendimethalin indicate that the substance is semi-volatile, which was confirmed in specific studies. After application, a short- to medium-range transport to nearby fields was demonstrated evaporation and resorption.

In aqueous solution photolysis was observed with half-life of less than a week. The octanol-water partition coefficient was measured at log P_{ow} = 5.4.

Pendimethalin radioactive labelled either in the phenyl- or 4-methyl-moiety were used in the metabolism and environmental fate studies.

The following abbreviations are used for the metabolites discussed below:

M455H001	2-methyl-3,5-dinitro-4-(pentan-3-ylamino)benzoic acid	
M455H025	{4-[(1-ethylpropyl)amino]-2-methyl-3,5-dinitrophenyl}methanol	
M455H029	1-(1-ethylpropyl)-5,6-dimethyl-7-nitro-1*H*-benzimidazole	
M455H030	na	

na: It was not possible to assign a IUPAC name because the displayed generic structure represents more than one possible structure

Plant metabolism

The Meeting received plant metabolism studies for pendimethalin following foliar application of ^{14}C-phenyl or ^{14}C-4-methyl-radiolabelled active substance to onions, sweet corn, lettuce, carrots, potatoes and wheat.

For onions the metabolism of pendimethalin was investigated in the field with the ^{14}C-phenyl-label. Onions received a post-emergence treatment at the two-leaf-stage (BBCH 12) equivalent to 3.0 kg ai/ha. Samples of bulbs were collected 77 days after treatment.

In the samples the TRR level was 0.03 mg eq/kg. Approximately 78% of the TRR was extracted using methanol:water. The only compound identified was parent pendimethalin, representing 8% of the TRR (0.002 mg eq/kg). The remaining radioactivity was distributed into multiple analytical peaks each too low for identification.

For sweet corn, ^{14}C-phenyl-pendimethalin was applied at rates of 2.24 kg ai/ha either pre-emergence or at the 4-leaf stage 14 days later. In both plots, samples of plants (pre-emergence: 30 and 60 DAT, post-emergence: 14, 30 and 60 DAT)) as well as stalks, husks and cobs with grain (pre-emergence: 91 DAT, post-emergence: 81 DAT) were collected.

Highest TRR levels found were 2.75 mg eq/kg in whole plant samples collected 14 days after the post-emergence application. For samples of whole plants, stalks+husks and cobs+grain collected later, TRR levels following pre- and post-emergence application were in the same concentration range amounting 0.18–0.42 mg eq/kg, 0.22–0.26 mg eq/kg and 0.017–0.02 mg eq/kg, respectively.

The extraction rates of radioactivity were 71–72% for whole plants, 63% for stalks+husks and 50% for cobs+grain, using chloroform, methanol:water, enzyme treatment and 6N HCl hydrolysis. Further investigation on the composition of residues was performed for whole plant and stalks+husks samples. The only compound identified was parent pendimethalin present at 0.6–2.4% of the TRR. The remaining radioactivity remained unidentified and was characterised as more polar than the parent.

In a second study on sweet corn ^{14}C-4-methyl-pendimethalin was applied to plants of approximately 20–25cm height with a single treatment equivalent to 1.7 kg ai/ha. After treatment, samples of immature plants (14 and 42 DAT) as well as fodder, cobs with grain and grain samples (84 DAT) were collected.

TRR levels in whole plants collected two weeks after treatment were 3.2 mg eq/kg, but quickly declined to 0.02 mg eq/kg (42 DAT) and 0.04 mg eq/kg in fodder (84 DAT). In cobs without grain and in grain no radioactivity above the LOQ of 0.01 mg eq/kg was found.

Identification of radioactivity was performed for the 14 DAT whole plant samples in the methanol extract, indicating pendimethalin as the main residue (~6% TRR, 0.12 mg eq/kg). In addition, the minor metabolites CL217146 (~2% TRR, 0.04 mg eq/kg) and M445H025 (~3% TRR, 0.06 mg eq/kg) were found.

For lettuce ^{14}C-phenyl-pendimethalin was applied at a rate equivalent to 1.6 kg ai/ha to bare soil directly before transplanting. Young (27 DAT) and mature (48 DAT) lettuce plant were collected for analysis of their residues.

TRR levels found in lettuce were 0.3 mg eq/kg for the young and 0.15 mg eq/kg for the mature plants. In both samples pendimethalin was the only identified compound amounting 40% of the TRR (0.12 mg eq/kg) after 27 days and declined to 14% TRR (0.02 mg eq/kg) at maturity (48 DAT). Subsequent enzymatic treatment was performed, showing that the incorporation of radioactivity into carbohydrates increased from 8.6% TRR (0.025 mg eq/kg) to 34% TRR (0.05 mg eq/kg). From the remaining radioactivity 26–39% of the TRR were characterized as polar, while 7.4–14% remained unextracted.

Carrots were treated with ^{14}C-phenyl-pendimethalin at the 3-leaf stage (BBCH 13) with a single broadcast spraying equivalent to 2.0 kg ai/ha. Mature plants were harvested at 57 DAT and separated into leaves and roots.

TRR levels found were 3.1 mg eq/kg in carrot leaves and 0.23 mg eq/kg in the roots. 71–75% of the radioactivity could be extracted by methanol and water.

Identification of the radioactivity showed parent pendimethalin as the major residue, representing 29% of the TRR in leaves (0.88 mg eq/kg) and 16% TRR in roots (0.038 mg eq/kg). In leaves, minor amounts of M455H025 were detected (4.6% TRR, 0.14 mg eq/kg), but not in roots. Following subsequent enzymatic treatment, most of the radioactivity in roots was characterized as incorporated into carbohydrates (63% TRR, 0.15 mg eq/kg), which was also observed in the leaves but at a lower amount (3.7% TRR, 0.12 mg eq/kg).

The metabolism of pendimethalin in potatoes was investigated using ^{14}C-phenyl-labelled active substance. Plants of approximately 15 cm height were treated once with an application rate equivalent to 1.7 kg ai/ha. Foliage was collected directly after treatment (0 DAT) while mature tubers were collected after 109 days.

TRR levels in foliage were 60 mg eq/kg, while in mature potato tubers only 0.062 mg eq/kg was found. Solvent extraction using water/methanol/chloroform released 99% of the TRR from the foliage and 42% from the tubers. Enzyme treatment and 1N HCl reflux released additional 49% TRR. The identification showed nearly the entire radioactivity being present as pendimethalin in the foliage directly after treatment. In the tubers parent pendimethalin was the only residue identified at 2.8% TRR (0.002 mg eq/kg). The major part of the remaining radioactivity resolved into multiple minor chromatographic peaks each too low for identification.

Wheat plants were treated with ^{14}C-phenyl-pendimethalin at growth stage BBCH 16 with a single foliar application equivalent to 2.0 kg ai/ha. Samples of wheat forage were taken 27 days after treatment at BBCH 39 and parts of the samples were dried to hay. Mature wheat plants were harvested 73 DAT and separated into straw, chaff and grain.

TRR levels found in the various matrices were 17 mg eq/kg for forage and 689 mg eq/kg for hay (both 27 DAT), 60 mg eq/kg in straw, 2.3 mg eq/kg in chaff and 0.47 mg eq/kg in grain (all 73 DAT). Solvent extraction using methanol and water released 70–74% of the TRR from forage/hay, 65% TRR from straw, 56% TRR from chaff and only 24% TRR from the grain. Following additional enzymatic and acid/base hydrolysis, unextracted residues were reduced to < 7.4% TRR.

Overall, parent pendimethalin was detected in all matrices but it was highly metabolised, amounting 1.3–5.2% of the TRR in forage, hay, straw and chaff. In the grain only 0.8% of the TRR (0.004 mg eq/kg) were recovered as pendimethalin, which was the only identified compound in this matrix.

In addition to the parent, the isomeric mixtures M455H002 to M455H003 and M455H005 to M455H008 were only found in straw and chaff (0.7–1.5% TRR, 0.023–0.47 mg eq/kg) while M455H009/M455H010 were present in forage and hay (1.1–3.4% TRR, 0.025–2.0 mg eq/kg).

In the grain the major part of the radioactivity was incorporated into carbohydrates, amounting 59% of the TRR (0.28 mg eq/kg), which was also observed in chaff (4.9% TRR, 0.11 mg eq/kg). The unidentified radioactivity was primarily characterized to be highly (5.0–19% TRR) or medium polar (26–59% TRR).

Three confined rotational crop studies for pendimethalin were submitted.

In the first study ^{14}C-phenyl-pendimethalin was applied under field conditions to bare soil at a rate equivalent to 2.0 kg ai/ha. Lettuce, radish and wheat were planted in the treated soil 30, 120 and 365 days after test substance application. TRR levels were highest in the shortest plant-back interval. From 30 to 365 days PBI TRR levels declined from 0.18 to 0.017 mg eq/kg for lettuce, 0.082 to 0.006 mg eq/kg for radish tops, 0.13 to 0.033 mg eq/kg for radish roots, 0.33 to 0.039 mg eq/kg for wheat forage, 2.3 to 0.21 mg eq/kg for wheat hay, 1.8 to 0.42 mg eq/kg for wheat straw and 0.23 to 0.087 mg eq/kg for wheat grain (only PBI 120 and 365 d).

Parent pendimethalin was identified in most matrices, however mainly as a minor compound: 1.2–19% TRR in lettuce (0.001–0.02 mg eq/kg), 1.0–2.3% TRR in radish roots and tops (0.001 mg eq/kg), 0.7% TRR in wheat forage (0.002 mg eq/kg), 1.1–4.7% TRR in wheat hay (0.006–0.11 mg eq/kg) and 0.4% TRR (0.001 mg eq/kg) in wheat grain. The only metabolite identified was M455H030, exclusively found in radish roots from the 30 day PBI, amounting 0.011 mg eq/kg (13% TRR).

Most of the extracted radioactivity was characterised as polar, while hydrolysis of the residual radioactivity indicated incorporation into starch (grain) and cellulose (all other matrices).

In the second study ^{14}C-4-methyl-pendimethalin was applied to bare soil with an application rate equivalent to 2.2 kg ai/ha. Plant-back intervals of 30, 90, 110, 270 or 365 days were used, depending on the crop. Rotational crops investigated were lettuce, snap beans, carrots and wheat.

In lettuce, TRR levels were 0.24 mg eq/kg for the 30 d PBI, 0.06–0.37 mg eq/kg for the 90 day PBI and 0.03–0.12 mg eq/kg for the 365 day PBI. Parent pendimethalin (0.021 mg eq/kg, 9.1% TRR) and traces of M455H025 (0.003 mg eq/kg, 1.3% TRR) were only identified in samples from the shortest PBI.

For snap beans the results were comparable to lettuce. In plants TRR levels were 0.07–0.52 mg eq/kg for the 30 d PBI, 0.16 mg eq/kg for the 90 d PBI and 0.07–0.14 mg eq/kg for the 365 day PBI. In the beans TRR levels were lower, amounting 0.07 mg eq/kg, 0.02 mg eq/kg and 0.06 mg eq/kg, respectively. Again, pendimethalin (0.012 mg eq/kg, 2.3% TRR) and traces of M455H025

(0.006 mg eq/kg, 1.2% TRR) were found in whole plant samples from the shortest PBI, but not in samples collected later. Bean samples were not subject to identification.

In root crops residues in roots were significantly higher than in greens. For the greens, TRR levels declined from 0.2 mg eq/kg (30 d PBI), over 0.09–0.15 mg eq/kg (90 d PBI) to 0.02–0.08 mg eq/kg (365 day PBI). In roots, corresponding residues for the PBIs were 0.29 mg eq/kg, 0.15–0.59 mg eq/kg and 0.04–0.19 mg eq/kg, respectively. In roots, substantial residues of pendimethalin were found, amounting to 0.13 mg eq/kg (46% TRR) for the 30 day PBI and 0.07 mg eq/kg (51% TRR) for the 90 day PBI. In addition traces of M455H025 were found, but its levels did not exceed 0.01 mg eq/kg.

In wheat matrices TRR levels were comparably low, with straw showing highest residues of 0.15–0.19 mg eq/kg in all PBIs investigated. Grain showed much lower total radioactive residues amounting 0.01–0.03 mg eq/kg. Only straw was analysed for the composition of the radioactivity, however neither pendimethalin nor any metabolites could be identified.

In the third study on confined rotational crops bare soil in the field was treated with 2.1 kg ai/ha of ^{14}C-phenyl-pendimethalin. Directly after treatment soya beans were planted on all plots. After harvest of the soya beans (89 DAT), the plots were divided into sub-plots and wheat, lettuce and radish (at 90 DAT) and lettuce and radish (at 270 DAT) were planted as rotational crops.

The TRR levels of crops planted after 90 or 270 days were relatively similar, ranging from 0.007 to 0.095 mg eq/kg. The majority of the radioactivity could be extracted (51–95% TRR), except for wheat grain (33% TRR).

Identification of the radioactivity indicated pendimethalin in all samples. In lettuce and radish roots+tops pendimethalin was present at major amounts, representing < 5% up to 33% of the TRR (< 0.003 to 0.025 mg eq/kg). In wheat matrices pendimethalin was identified, however below the LOQ (< 0.003 mg eq/kg, < 5% TRR). Besides pendimethalin, M455H025 was indentified in nearly all matrices. However, it did not exceed 7% TRR (0.004 mg eq/kg).

In summary residues of pendimethalin are taken up via roots and treated plant parts and transported into aerial parts. Within the plants, the active substance is quickly and almost completely metabolized into numerous minor metabolites before the radioactivity is finally incorporated into natural products.

In primary treated plants following pre-emergence or early post-emergence treatment significant metabolites were abundant. In rotational crops, especially root crops, parent pendimethalin was the major residue often being present in amounts exceeding 10% TRR and 0.01 mg eq/kg. M455H025 was also identified in most matrices obtained from confined rotational crop studies, however its concentrations did not exceed 10% TRR and 0.01 mg eq/kg. In one confined rotational crop study, M455H030 was found as a major metabolite exclusively in radish roots (0.011 mg eq/kg, 13% TRR).

Animal metabolism

Information was available on the metabolism of pendimethalin in laboratory animals, lactating goats and laying hens.

For lactating goats four studies were conducted involving daily administration of either ^{14}C-phenyl- or ^{14}C-4-methyl-pendimethalin.

In the first study ^{14}C-4-methyl-pendimethalin was administered to four lactating goats at 0.5, 1.5 or 20 ppm in the diet for ten consecutive days. Most of the administered radioactivity was recovered from faeces (54–67% AR) and urine (9.7–15% AR). In the lowest dose group only liver and kidney contained quantifiable radioactive residues of 0.03 and 0.01 mg eq/kg, respectively. In the second dose group, again liver and kidney gave the highest TRR levels of 0.04 mg eq/kg each. In fat TRR at the LOQ of 0.01 mg eq/kg was detected. In the highest dose group, liver gave the highest

TRR with 0.25 mg eq/kg, followed by kidney (0.09 mg eq/kg), fat (0.03 mg eq/kg) and milk (0.01 mg eq/kg). In muscle no residue above the LOQ were found for any of the dose-groups. Identification of specific compounds in the TRR was not achieved, due to the virtual complete metabolism of the parent compound.

In a second study two lactating goats were administered ^{14}C-phenyl-pendimethalin at rates of 2.1 or 6.3 ppm in the diet for seven consecutive days. TRR levels found did not exceed the LOQs (edible tissues: < 0.05 mg eq/kg and milk: < 0.01 mg eq/kg) except for liver, which contained 0.05 mg eq/kg after administration of 2.1 ppm and 0.17 mg eq/kg after administration of 6.3 ppm. No identification of the radioactivity was performed.

The third study involved administration of ^{14}C-phenyl-pendimethalin to two goats at rates of 6.5 ppm in the diet for seven consecutive days. The excretion of the radioactivity was primarily via faeces (65–68% AR), followed by urine (11–15% AR). Liver was the only tissue analysed for residues, containing TRR levels of 0.077 to 0.096 mg eq/kg. The identification of the liver extracts showed a broad distribution of the radioactivity over the whole retention time of the chromatogram with no analytical peak exceeding 7% of the TRR (0.005 mg eq/kg). No metabolite structures could be attributed to the findings.

In the fourth study one lactating goat received ^{14}C-phenyl-pendimethalin at a dose equivalent to 15.4 ppm in the diet (0.75 mg/kg bw) for five consecutive days. The administered dose was mainly recovered in the faeces (67%), followed by urine (15%) and the GI tract (12%). In edible matrices highest TRR levels were found in liver (0.32 mg eq/kg), while other matrices contained 0.042 mg eq/kg in kidney, 0.0082 mg eq/kg in fat, up to 0.0076 mg eq/kg in milk and 0.0022 mg eq/kg in muscle. Solvent extraction using methanol:water released 64% TRR from liver and 81% from kidneys. Identification of the radioactivity was performed for kidney and liver including pepsin treatment of the extracts. In kidney, numerous minor metabolites were present at individual concentrations insufficient for identification (< 0.005 mg eq/kg). In liver, also many metabolites were observed. Pendimethalin was detected in traces below the LOQ. The only major metabolite in goat liver exceeding either 10% TRR or 0.05 mg eq/kg was M455H029 (14% TRR, 0.043 mg eq/kg).

For laying hens the metabolism of pendimethalin was investigated by administration of ^{14}C-phenyl-labelled pendimethalin for 5 consecutive days at doses of 0.5 or 10 ppm in the diet (5 or 10 animals per dose group). Animals were sacrificed approximately 22 hours after the last dosing. Analysis of daily composites of excreta showed average recoveries of 85% and 88% AR in the low and high treatment, respectively.

TRR levels for tissue and eggs were below 0.01 mg eq/kg for the 0.5 ppm group. In the high dose group (10 ppm) TRR levels in eggs ranged from < 0.01 to 0.035 mg eq/kg. A plateau of radioactivity in eggs was not reached within the seven day dosing period. Muscle residues following administration of 10 ppm were also below 0.01 mg eq/kg. TRR levels found in tissues were < 0.01 mg eq/kg in muscle, 0.2 mg eq/kg in liver and 0.035 mg eq/kg in skin with adhering fat.

In the attempt to identify the radioactive residues present in tissues and eggs, no substances present at or above the LOQ (0.01 mg eq/kg) were found. In eggs and liver traces of parent pendimethalin were found, however at levels too low for quantification.

In summary the metabolic degradation of pendimethalin in livestock animals was significant and often complete. In laying hens tissues and eggs as well as in goats milk and all tissues except liver no metabolites were identified since individual concentration were below detection limits. In goat liver M455H029 was the only metabolite exceeding 10% TRR or 0.05 mg eq/kg. Radioactive residues were highest in liver, followed by kidney, fat, milk/eggs and muscle.

Environmental fate in soil and air

The Meeting received information for pendimethalin on soil and aqueous photolysis, aqueous hydrolysis and aerobic soil metabolism.

Soil photolysis using ^{14}C-phenyl-pendimethalin indicated low degradation within 15 days continuous irradiation (76% AR remaining). Following the assumption of 1st order kinetics, a half-life of approximately 46 days was estimated.

Aqueous photolysis was investigated in sterile buffer solutions adjusted to a pH of 7. ^{14}C-phenyl-pendimethalin in irradiated samples was degraded, leaving only 4.8% of the parent substance at the end of the experiment after 15 days of continuous irradiation. The half-life was estimated between 3–7 days. In control samples kept in the dark no degradation of pendimethalin was observed.

Hydrolysis in aqueous solutions representative to extreme environmental conditions (50 °C) showed no degradation at pH 5, 7 and 9 within 5 days. It can be assumed that pendimethalin is hydrolytical stable under environmental conditions.

In the aerobic soil metabolism studies ^{14}C-phenyl-pendimethalin was moderately persistent with half-life of 64–225 days in microbial active soil (geom. mean: 102 days). The only metabolite identified was M455H001, present at a maximum of 7.0% of the TRR at the end of the study. Unextracted residues in soil at the end of the studies were 36% of the AR. Mineralisation into CO_2 was low with < 10% AR.

Due to the relatively high vapor pressure of 1.39×10^{-3} Pa, pendimethalin is susceptible to volatilisation and evaporation from treated crops (up to 13% within the first 5 days after treatment). EC or SC formulations showed significantly higher volatilization than CS formulations.

In field rotational crop studies bare soil was treated with rates equivalent to 4.5–4.6 kg ai/ha. Wheat was grown as primary crop after different intervals and removed from the field 4, 9 or 12 months after the soil treatment. In wheat, radish or lettuce matrices grown as succeeding crops, no residues of pendimethalin above the LOQ of 0.05 mg/kg were found.

The highest annual application rates for rotated crops are reported from the USA with 6.7 kg ai/ha and season, however a general label restriction was implemented to avoid crop rotation with crops not covered by US registrations within 24 months (or 12 months when < 1.9 kg ai/ha were applied). The Meeting concluded that this interval is sufficient to avoid residues above the LOQ in rotational crops.

In summary the Meeting concluded that pendimethalin is moderately persistent in soil under laboratory conditions. The geometric mean of DT_{50} values was 102 days, suggesting a low potential for accumulation in soil.

Soil photolysis is a minor pathway of degradation in the environment whereas photolytical degradation in water is relatively fast. However, pendimethalin was stable under hydrolytic conditions.

The transfer of pendimethalin into rotated crops is limited and application of established label restrictions and the results of the field rotational crop study, no significant residues (≥ 0.01 mg/kg) are to be expected in plant commodities obtained from rotational crops.

Methods of analysis

The Meeting received analytical methods for pendimethalin, M455H025 and M455H029 in plant and animal matrices. The basic principle employs liquid extraction by homogenisation with methanol/water, matrix depended with addition of methylene chloride, acetone or ethyl acetate/cyclohexane. Clean-up is normally achieved by C18 solid-phase extraction or gel permeation chromatography. Residues are determined by LC-MS/MS, GC-NPD or GC-MS.

The methods submitted are suitable for measuring pendimethalin and M455H025 with a LOQ of 0.01 mg/kg in all plant matrices,

In animal matrices, pendimethalin can be measured in tissues, milk and eggs with a LOQ of 0.01 mg/kg by GC-MS. LC-MS/MS methods were validated for pendimethalin, M455H025 and

M455H029 with LOQs of 0.01 mg/kg in milk and of 0.05 mg/kg and animal tissues. For M455H025 and M455H029 no analytical methods for their determination in eggs were provided.

The application of multi-residue methods was tested with QuEChERS and DFG S19 for plant and animal matrices. The methods weresuitable with a general LOQ of 0.01 mg/kg for parent pendimethalin.

Stability of pesticide residues in stored analytical samples

The Meeting received information on the storage stability of pendimethalin and M455H025 in plant matrices stored at -18 °C.

In plant matrices with high water, high starch and high acid content pendimethalin and M455H025 were stable for at least 24 months. Soya bean and almond nutmeat, which are representative commodities for high oil content matrices, were stable for up to 18 and 12 months, respectively.

Residues were stable in milk, cream and fat for up to 2 months for pendimethalin and for at least 3 months for M455H025 and M455H029.

Definition of the residue

The fate of pendimethalin in plants was investigated after pre-emergence or early post-emergence treatment to onions, sweet corn, lettuce, carrots, potatoes and wheat. In all crop samples investigated pendimethalin was significantly degraded into numerous minor metabolites. In addition incorporation of radioactivity into cellulose and soluble carbohydrates was observed. Although mainly present at minor amounts in all matrices, parent pendimethalin was the dominant residue and often the only compound identified (0.8% TRR in wheat grain up to 16% TRR in carrot roots). In whole plants of sweet corn and in carrots leaves the metabolites CL217146 and M455H025 were found at low proportions (up to 4.6% TRR), but not in grain or the roots. In wheat feed matrices (hay, straw and chaff) the isomeric mixtures M455H002-M455H003, M455H005- M455H008 and M455H009-M455H010 were identified, but also in minor amounts not exceeding 3.4% TRR. Other matrices did not contain identified metabolites.

In confined rotational crop studies uptake of radioactivity into plants was observed. Pendimethalin was the dominant residue often being present in major amounts exceeding 10% TRR, especially in root crops. M455H025 was also identified in most matrices, however at lower proportions than parent pendimethalin, not exceeding 7% TRR (0.004 mg eq/kg). In one confined rotational crop study, M455H030 was found as a major metabolite exclusively in radish roots (0.011 mg eq/kg, 13% TRR). Again, in all crops a large part of the radioactivity was incorporated into natural products like cellulose and carbohydrates.

In supervised field trials, when M455H025 was found in concentrations above the LOQ, residues of pendimethalin were normally at least one order of magnitude higher.

The Meeting concluded that pendimethalin is the major residue in primary treated plants and in rotational crops and is suitable for compliance with MRLs. Analytical multi-residue methods are capable of measuring pendimethalin in all plant matrices.

For dietary risk assessment, pendimethalin was the predominant residue found in plant metabolism studies and in supervised field trials and has to be considered for intake purposes for plant commodities. M455H025 and M455H030 were identified as possibly significant plant metabolites. Both compounds are unlikely to be genotoxic, but are not covered by the toxicological reference values for pendimethalin.

M455H025 was identified in plant and rotational crop metabolism studies, but was not found in quantifiable levels in harvested food commodities under field conditions. Its estimated exposure is up to 1.3 µg/kg bw, assuming M455H025 to be present at concentrations of 0.05 mg/kg (LOQ used in field rotational crop studies) in all food commodities obtained from annual crops.

M455H030 was found as a major metabolite exclusively in rotated radish roots, but not in any other crop. The expected exposure of M455H030 is up to 0.1 µg/kg bw.

The Meeting concluded, that the exposure of both M455H025 and M455H030 is below the TTC for a Cramer Class III compound (1.5 µg/kg bw) and is therefore unlikely to present a public health concern based on the uses considered by the Meeting.

In summary, the Meeting concluded that parent pendimethalin is the relevant residue in all plant matrices for dietary intake purposes.

Livestock animal metabolism studies were conducted on lactating goats (0.5–20 ppm in the diet) and laying hens (0.5–10 ppm).

Parent pendimethalin was not found in milk and tissues of lactating goats. In a feeding studies on dairy cattle at 760 ppm, fat, whole milk and cream contained residues of the parent up to 0.1 mg/kg. Metabolism studies showed that M455H029 was the only major metabolite found in ruminants, being present at 14% TRR (0.043 mg eq/kg) in liver exclusively. The feeding study indicated residues if this metabolite at concentrations up to 1.0 mg/kg in liver and 0.49 mg/kg in kidney. M455H025 was not detected in tissues and milk in goat metabolism studies. However, in the feeding study one positive finding in milk was reported containing 0.012 mg/kg.

Tissues and eggs from laying hens did not contain radioactive residues at individual concentrations sufficient for identification. In eggs, traces of pendimethalin were detected, but also at levels below the LOQ. A feeding study on poultry was not submitted.

The Meeting concluded that pendimethalin is almost completely metabolized in lactating goats and laying hens, primarily in the liver. In bovine fat, milk and cream as well as in eggs the parent substance was present. M455H029 was exclusively present in bovine liver and kidney only, while M455H025 was found at low amount in cream only. For compliance with MRLs the Meeting concluded that pendimethalin is a suitable marker in animal commodities. Analytical multi-residue methods are capable of measuring pendimethalin in all animal matrices.

In all species TRR levels in fatty tissues or egg yolk were higher than in muscle tissues or egg white. In a feeding study on lactating cows using pendimethalin, residues above the LOQ were found in cream and fat but not in skim milk or muscle. However, residue ratios between fatty and non-fatty matrices were not significant. The log P_{ow} of pendimethalin is 5.4. The Meeting concluded that the information available from animal studies is inconclusive concerning the fat-solubility, but decided that residues of pendimethalin are fat soluble taking into account the high log P_{ow} for the compound.

For dietary intake purposes pendimethalin is the primary residue identified in fat, milk, cream and eggs and has to be considered for intake purposes for animal commodities. M455H025 and M455H029 were identified as possibly significant metabolites in animal commodities. The TTC approach presented for M455H025 as a plant metabolite also covers its occurrence in animal matrices, since it is found in minor amounts in cream only contributing insignificantly to the total exposure.

M455H029 is unlikely to be genotoxic, but is not covered by the toxicological reference values for pendimethalin. It was exclusively found in ruminant liver and kidney, resulting in an overall exposure of up to 0.3 µg/kg bw. Since the estimated exposure of M455H029 is below the respective trigger value of the TTC approach for a Cramer Class III compound (1.5 µg/kg bw), it is unlikely to present a public health concern based on the uses considered by the Meeting.

In summary, the Meeting concluded that parent pendimethalin is the relevant residue in all animal matrices for dietary risk assessment.

Definition of the residue for compliance with MRL and for dietary intake for plant and animal commodities: *Pendimethalin*

The residue is fat soluble.

Results of supervised residue trials on crops

The Meeting received supervised trial data for applications of pendimethalin on citrus fruit, bulb vegetables, leaf lettuce, brassica leafy vegetables, legume vegetables, carrots, celeriac, asparagus, celery, tree nuts hops and animal feedstuffs conducted in Europe and the USA.

Citrus fruits

Pendimethalin is registered in the USA for weed control under citrus trees at maximum rates of 1 × 6.7 kg ai/ha with a PHI of 1 day. Supervised field trials from the USA according to this GAP were submitted.

In grapefruit (whole fruits) residues of pendimethalin following GAP treatment were (n = 6): < 0.005(5), 0.0075 mg/kg.

In lemons (whole fruits) residues of pendimethalin following GAP treatment were (n = 4): < 0.005, 0.0055, 0.009, 0.019 mg/kg.

In oranges (whole fruits) residues of pendimethalin following GAP treatment were (n = 9): < 0.005(9) mg/kg.

The Meeting noticed that pendimethalin is registered in the USA for the whole group of citrus fruits and decided to explore the possibility for a group recommendation. The median of the commodities investigated are within a 5-fold range. Statistical testing was not applied to the datasets due to the high number of censored data; however since pendimethalin is applied to the ground beneath trees for weed control, morphological differences between citrus sub-groups are expected to be of low influence on the magnitude of the residue. Therefore the Meeting decided to combine all residue data on citrus to provide a robust basis for the estimation of maximum residue levels.

The combined residues of pendimethalin in citrus fruits following GAP treatment were (n = 19): < 0.005 (15), 0.0055, 0.0075, 0.009 and 0.019 mg/kg.

The Meeting estimated a maximum residue level of 0.03 mg/kg, an STMR value of 0.005 mg/kg and an HR of 0.019 mg/kg in citrus fruits (whole fruits).

Bulb onion and fennel

Pendimethalin is registered in Austria for the use on bulb vegetables and fennel with one post-emergence treatment at 1.6 kg ai/ha. Supervised field trials from Europe on bulb onions and fennel according to this GAP were submitted.

In bulb onions residues of pendimethalin following GAP treatment were (n = 9): < 0.01(5), < 0.05(4) mg/kg.

In fennel bulbs residues of pendimethalin following GAP treatment were (n = 4): < 0.02(4) mg/kg.

In the USA pendimethalin is registered for the use on bulb onions with 2 × 1.1 kg ai/ha (2.1 kg ai/ha season max.) and a PHI of 30 days, on garlic with 2 × 1.7 kg ai/ha and a PHI of 45 days and on shallots with 3 × 2.1 kg ai/ha (6.7 kg ai/ha season max.) and a PHI of 45 days. Supervised field trials on bulb onions from the USA were submitted matching or exceeding (+50%) the maximum total seasonal rate within this group on shallots but with two treatments only instead of three.

In bulb onions residues of pendimethalin following treatment at exaggerated rates were (n = 6): < 0.05(6) mg/kg.

The Meeting noticed that supervised field trials matching the Austrian GAP or the US GAP did not result in residues of pendimethalin above the LOQ, even in trials involving treatment at exaggerated rates in the USA.

The Meeting estimated a maximum residue level of 0.05* mg/kg and an STMR and HR of 0 mg/kg for pendimethalin in the bulb onions and decided to extrapolate the estimate to bulb fennel, garlic and shallots also.

Spring onions and Welsh onions

Pendimethalin is registered in the USA for the use on the green onions group at BBCH 13 with 2 × 1.1 kg ai/ha (2.1 kg ai/ha season max.) and a PHI of 30 days. Three supervised field trials on green onions from the USA were submitted matching the GAP.

In green onions residues of pendimethalin following GAP treatment were (n = 3): 0.095, <u>0.095</u> and 0.12 mg/kg.

Pendimethalin is also registered in Germany for the use on leek with one post-emergence treatment at 1.6 kg ai/ha. Two supervised field trials from Europe according to this GAP were submitted.

In leek residues of pendimethalin following GAP treatment were (n = 2): < 0.01(2) mg/kg.

Based on the US GAP, the Meeting estimated a maximum residue level of 0.4 mg/kg, an STMR value of 0.095 mg/kg and an HR of 0.12 mg/kg in spring onions and Welsh onions.

Leaf lettuce

In the USA pendimethalin is registered for the use on the lettuce at BBCH 13 with 1 × 1.1 kg ai/ha and a PHI of 20 days. Supervised field trials on leaf lettuce from the USA were submitted matching the GAP.

In leaf lettuce residues of pendimethalin following GAP treatment were (n = 9): < 0.05, < 0.05, 0.058, 0.06, <u>0.062</u>, 0.094, 0.14, 0.3 and 2.2 mg/kg.

The Meeting estimated a maximum residue level of 4 mg/kg, an STMR of 0.062 mg/kg and an HR of 2.2 mg/kg for pendimethalin in leaf lettuce.

Brassica leafy vegetables

Pendimethalin is registered in the USA for the use on all commodities of the Codex group brassica leafy vegetables. In Germany, a singular GAP is registered on kale, resulting in a higher maximum residue estimate. Therefore the Meeting decided to consider a maximum residue level for the whole group of brassica leafy vegetables, except kale, based on the US GAP and to consider a separate, higher level for kale, based on the German GAP:

Brassica leafy vegetables, except kale

In the USA pendimethalin is registered for the use on the “leafy brassica greens including mustard greens” at BBCH 15 with 1 × 1.1 kg ai/ha and a PHI of 21 days. Supervised field trials on mustard greens from the USA were submitted matching the GAP.

In mustard greens residues of pendimethalin following GAP treatment were (n = 6): < 0.<u>05</u>(4), 0.1 and 0.11 mg/kg.

The Meeting estimated a maximum residue level of 0.3 mg/kg, an STMR of 0.05 mg/kg and an HR of 0.11 mg/kg for pendimethalin in brassica leafy vegetables, except kale.

Kale

In Germany pendimethalin is registered for the use on kale with 1 × 1.6 kg ai/ha at BBCH 16 and a PHI of 60 days. Supervised field trials on kale from Europe were submitted matching the GAP.

In kale residues of pendimethalin following GAP treatment were (n = 4): < 0.05(3) and 0.25 mg/kg.

The Meeting estimated a maximum residue level of 0.5 mg/kg, an STMR of 0.05 mg/kg and an HR of 0.25 mg/kg for pendimethalin in kale.

Beans, except broad bean and soya bean (green pods and immature seeds)

In Germany pendimethalin is registered for the use on fresh beans with 1 × 2.0 kg ai/ha before emergence of the crops. Supervised field trials on fresh beans from Europe were submitted matching the GAP.

In beans with pods residues of pendimethalin following GAP treatment were (n = 9): < 0.05(9) mg/kg.

The Meeting estimated a maximum residue level of 0.05* mg/kg and a STMR and HR of 0.05 mg/kg for pendimethalin in Beans, except broad bean and soya bean (green pods and immature seeds).

Peas (pods and succulent = immature seeds)

In Greece pendimethalin is registered for the use on fresh peas with 1 × 2.0 kg ai/ha. Supervised field trials on fresh peas from Europe were submitted matching the GAP.

In peas with pods residues of pendimethalin following GAP treatment were (n = 15): < 0.01(13), 0.012, 0.014 mg/kg.

The Meeting estimated a maximum residue level of 0.05 mg/kg, an STMR of 0.01 mg/kg and an HR of 0.014 mg/kg for pendimethalin in peas (pods and succulent = immature seeds).

Peas, shelled (succulent seeds)

In Greece pendimethalin is registered for the use on legume fresh peas with 1 × 2.0 kg ai/ha. Supervised field trials on legume fresh peas from Europe were submitted matching the GAP.

In peas without pods residues of pendimethalin following GAP treatment were (n = 15): < 0.01(13), 0.022, 0.036 mg/kg.

The Meeting estimated a maximum residue level of 0.05 mg/kg, an STMR of 0.01 mg/kg and an HR of 0.036 mg/kg for pendimethalin in peas, shelled (succulent seeds).

Beans and peas (dry seeds)

In Germany pendimethalin is registered for the use on beans and peas with 1 × 2.0 kg ai/ha pre-emergent to the crops. Supervised field trials on beans from Europe were submitted matching the GAP.

In beans (dry seeds) residues of pendimethalin following GAP treatment were (n = 9): < 0.05(9) mg/kg.

The Meeting estimated a maximum residue level of 0.05* mg/kg and an STMR of 0.05 mg/kg for pendimethalin in beans (dry) and agreed to extrapolate the result to peas (dry).

Carrots

In Czech Republic pendimethalin is registered for the use on carrots with 1 × 1.7 kg ai/ha. Supervised field trials on carrots from Europe were submitted matching the GAP.

In carrot roots residues of pendimethalin following GAP treatment were (n = 16): 0.019, 0.023, 0.031, 0.033, 0.038, 0.046, 0.051, 0.058, 0.067, 0.073, 0.073, 0.084, 0.13, 0.16, 0.27 and 0.38 mg/kg.

In the USA pendimethalin is registered for the use on carrots with 1 × 1.1 kg ai/ha and a PHI of 60 days. No trials matching the GAP were submitted.

Based on the GAP from Czech Republic, the Meeting estimated a maximum residue level of 0.5 mg/kg, an STMR of 0.0625 mg/kg and an HR of 0.38 mg/kg for pendimethalin in carrots.

Celeriac

In the Austria pendimethalin is registered for the use on celeriac with 1 × 1.6 kg ai/ha at BBCH 13 and a PHI of 60 days. Supervised field trials on celeriac from Europe were submitted matching the GAP.

In celeriac residues of pendimethalin following GAP treatment were (n = 3): < 0.02, < 0.02 and 0.061 mg/kg.

The Meeting concluded that the number of supervised field trials submitted for celeriac was insufficient for the estimation of maximum residue levels.

Asparagus

In Greece pendimethalin is registered for use on asparagus with 1 × 2.0 kg ai/ha before emergence of the crop. Supervised field trials on asparagus from Europe were submitted matching the GAP.

In asparagus spears residues of pendimethalin following treatment according to the Greek GAP were (n = 4): < 0.05, < 0.05, 0.05 and 0.06 mg/kg.

In the USA pendimethalin is registered for the use on asparagus with 1 × 4.4 kg ai/ha before emergence of the crop with a PHI of 14 days. Supervised field trials on asparagus from the USA were submitted matching the GAP.

In asparagus spears residues of pendimethalin following treatment according to the US GAP were (n = 4): < 0.05, < 0.05, 0.05 and 0.058 mg/kg. A single highest duplicate sample resulted a residue of 0.062 mg/kg.

Based on the US GAP the Meeting estimated a maximum residue level of 0.1 mg/kg, an STMR of 0.05 mg/kg and an HR of 0.062 mg/kg for pendimethalin in asparagus.

Celery

Pendimethalin is registered in Austria for the use on celery with one treatment of 1.6 kg ai/ha at BBCH 13 and a PHI of 60 days. Supervised field trials from Europe according to this GAP were submitted.

In celery residues of pendimethalin following GAP treatment were (n = 8): < 0.01(2), < 0.02(3), 0.02, 0.045 and < 0.05 mg/kg.

The Meeting estimated a maximum residue level of 0.09 mg/kg, an STMR of 0.02 mg/kg and an HR of 0.05 mg/kg for pendimethalin in celery.

Rhubarb

In the Germany pendimethalin is registered for the use on rhubarb with 1 × 1.6 kg ai/ha before emergence. Supervised field trials on rhubarb from Europe were submitted matching the GAP.

In rhubarb residues of pendimethalin following GAP treatment were (n = 2): < 0.02 and < 0.02 mg/kg.

The Meeting concluded that the number of supervised field trials submitted for rhubarb is insufficient for the estimation of maximum residue levels.

Tree nuts

In the USA pendimethalin is registered for the control of ground weeds on tree nuts with 1 × 6.7 kg ai/ha with a PHI of 60 days. Supervised field trials on almonds, pecan, pistachios and walnuts from the USA were submitted matching the GAP.

In almond nutmeat residues of pendimethalin following according to GAP were (n = 7): < 0.05(7) mg/kg.

In pecan nutmeat residues of pendimethalin following according to GAP were (n = 7): < 0.05(7) mg/kg.

In pistachio nutmeat residues of pendimethalin following according to GAP were (n = 2): < 0.05 and < 0.05 mg/kg.

In walnuts nutmeat residues of pendimethalin following according to GAP were (n = 1): < 0.05 mg/kg.

The Meeting estimated a maximum residue level of 0.05 mg/kg and an STMR and an HR of 0.05 mg/kg for pendimethalin in tree nuts.

Hops, dry

In the USA pendimethalin is registered for the control of ground weeds on hops with 1 × 4.5 kg ai/ha with a PHI of 90 days. Supervised field trials on hops from the USA were submitted matching the GAP.

In hops, dried cones, residues of pendimethalin following according to GAP were (n = 4): < 0.05(4) mg/kg.

The Meeting estimated a maximum residue level of 0.05 mg/kg and an STMR of 0.05 mg/kg for pendimethalin in hops, dry.

Alfalfa forage (green)

In the USA pendimethalin is registered for the use on alfalfa (until 15cm height) with up to 4.5 kg ai/ha. The PHI differs depending on the amount applied: if ≤ 1.9 kg ai/ha are applied the PHI is 28 days, if more is applied the PHI is 50 days. Supervised field trials on alfalfa forage from the USA were submitted matching the GAP.

After treatment of the maximum rate of 4.5 kg ai/ha and a PHI of 50 days, residues of pendimethalin in alfalfa forage were (n = 5): < 0.05, < 0.05, 0.24, 0.25, 1.2 mg/kg.

After treatment of up to 1.9 kg ai/ha and a PHI of 28 days, residues of pendimethalin in alfalfa forage were (n = 9): < 0.05, 0.08, 0.1, 0.12, 0.12, 0.13, 0.31, 0.57, 2.7 mg/kg.

Based on the critical GAP involving application of up to 1.9 kg ai/ha and a PHI of 28 days the Meeting estimated a median residue of 0.12 mg/kg and a highest residue of 2.7 mg/kg for pendimethalin in alfalfa forage.

Bean forage (green)

In Germany pendimethalin is registered for the use on fresh beans with 1 × 2.0 kg ai/ha before emergence of the crops. Supervised field trials on fresh beans from Europe were submitted matching the GAP.

In bean forage residues of pendimethalin following GAP treatment were (n = 9): < 0.05(5), 0.07, 0.17, 0.18 and 0.33 mg/kg.

The Meeting estimated a median residue of 0.05 mg/kg and a highest residue of 0.33 mg/kg for pendimethalin in bean vines, fresh.

Grass forage

In the USA pendimethalin is registered for the use on grassland with up to 4.5 kg ai/ha. No grazing or pre-harvest interval was established. Supervised field trials on grassland from the USA were submitted matching the GAP.

The Meeting noted that residues of pendimethalin in grass decline quickly, resulting in substantially lower residues within the first days after harvest. Forage grasses are continuously grazed/fed, therefore the singular high residue data in forage collected directly after treatment (day 0) is expected to result in an unrealistic estimate of the livestock animal dietary burden in relation to the 28 day feeding studies available. The Meeting decided to use residue data after 15 days in grass forage to provide a more realistic estimate.

In grass forage residues of pendimethalin after 15 days following GAP treatment were (n = 12): 2.8, 12, 16, 19, 30, 34, 38, 42, 43, 48, 64 and 199 mg/kg.

The Meeting estimated a median residue of 36 mg/kg and a highest residue of 199 mg/kg for pendimethalin in grass forage (as received).

Alfalfa fodder

In the USA pendimethalin is registered for the use on alfalfa (until 15cm height) with up to 4.5 kg ai/ha. The PHI differs depending on the amount applied: if ≤ 1.9 kg ai/ha are applied the PHI is 28 days, if more is applied 50 days. Supervised field trials on alfalfa forage from the USA were submitted matching the GAP.

After treatment of the maximum rate of 4.5 kg ai/ha and a PHI of 50 days, residues of pendimethalin in alfalfa forage were (n = 5): 0.13, 0.57, 0.97, 1.1, 2.1 mg/kg.

After treatment of up to 1.9 kg ai/ha and a PHI of 28 days, residues of pendimethalin in alfalfa forage were (n = 9): 0.07, 0.08, 0.21, 0.35, 0.54, 0.78, 0.83, 0.85, 1.6 mg/kg.

Based on the critical GAP involving application of up to 4.5 kg ai/ha and a PHI of 50 days the Meeting estimated a median residue of 0.97 mg/kg and a highest residue of 2.1 mg/kg for pendimethalin in alfalfa fodder (as received).

Based on an average dry-matter content of 89% the Meeting estimated a maximum residue level of 4 mg/kg for alfalfa fodder (dry weight basis).

Bean fodder

In Germany pendimethalin is registered for the use on beans with 1 × 2.0 kg ai/ha before emergence of the crops. Supervised field trials on bean straw and fodder from Europe were submitted matching the GAP.

In bean straw residues of pendimethalin following GAP treatment were (n = 9): < 0.05(8), 0.11 mg/kg.

The Meeting estimated a median residue of 0.05 mg/kg and a highest residue of 0.11 mg/kg for pendimethalin in bean fodder (as received).

Based on an average dry-matter content of 88% (http://www.feedipedia.org/node/12006) the Meeting estimated a maximum residue level of 0.3 mg/kg (dry weight basis).

Hay or fodder (dry) of grasses

In the USA pendimethalin is registered for the use on grassland with up to 4.5 kg ai/ha without grazing or pre-harvest interval. Supervised field trials on grassland from the USA were submitted matching the GAP.

In grass hay residues of pendimethalin following GAP treatment were (n = 12): 23, 100, 259, 286, 364, 404, 581, 590, 640, 794, 930, 1030 mg/kg.

The Meeting estimated a median residue of 492.5 mg/kg and a highest residue of 1030 mg/kg for pendimethalin in grass hay (as received).

Based on an average dry-matter content of 88%, the Meeting estimated a maximum residue level of 2500 mg/kg (dry weight basis) for hay or fodder (dry) of grasses.

Almond hulls

In the USA pendimethalin is registered for the control of ground weeds on almonds with 1 × 6.7 kg ai/ha with a PHI of 60 days. Supervised field trials on almond hulls from the USA were submitted matching the GAP.

In almond hulls residues of pendimethalin following according to GAP were (n = 6): 0.19, 0.22, 0.28, 0.56, 2.0, 2.6 mg/kg.

The Meeting estimated a median residue of 0.42 mg/kg for pendimethalin in almond hulls (as received).

Based on an average dry-matter content of 90% the Meeting estimated a maximum residue level of 7 mg/kg (dry weight basis).

Fate of residues during processing

The Meeting received information on the hydrolysis of ^{14}C-phenyl-pendimethalin as well as processing studies on grapefruit, oranges, carrots and alfalfa.

In a hydrolysis study using ^{14}C-phenyl-pendimethalin typical processing conditions were simulated (pH 4,5 and 6 with 90 °C, 100 °C and 120 °C for 20, 60 and 20 minutes). No degradation of the parent was observed.

The fate of pendimethalin residues has been examined simulating household and commercial processing of grapefruit, oranges, carrots and alfalfa.

For grapefruit and oranges processing factors could not be derived since residues in raw agricultural commodities were below the LOQ. Data on oranges were suitable for the estimation of a peel-pulp ratio.

Estimated processing factors for the commodities considered at this Meeting are summarised below.

Raw commodity	Processed commodity	Pendimethalin			
		Individual processing factors	Median	STMR-P in mg/kg	HR-P in mg/kg
Oranges (STMR: 0.005 mg/kg, HR: 0.019 mg/kg	Peel	1.4, 2.1, 2.7, 2.8, 2.9, 2.9, 3.6	2.8	0.014	0.053
	Pulp	0.07, 0.09, 0.1, 0.14, 0.16, 0.18, 0.32	0.14	0.0007	0.003
Carrots (STMR: 0.0625 mg/kg, HR: 0.38 mg/kg)	Cooked	< 0.03, < 0.05, < 0.06	< 0.05	< 0.0031	0.019
	Juice	0.38, 0.38, 0.45	0.38	0.024	-
	Pomace, wet	0.66, 0.74, 1.1	0.74	0.046	-
	Canned	< 0.03, < 0.05, < 0.06	< 0.05	< 0.0031	0.019

Residues in animal commodities

Farm animal feeding studies

The Meeting received two feeding studies involving pendimethalin on lactating cows. No poultry feeding study was submitted.

In the first study lactating cows received dosed daily at a level of 760 ppm in the diet for 29 consecutive days. Milk was collected throughout the whole study and tissues were collected after the last administration within 24 hrs after the last dose.

In milk residues of pendimethalin were 0.011 mg/kg. Skim milk and cream were analysed individually, showing residues of < 0.01 mg/kg for skim milk and of 0.023 mg/kg for cream. Muscle, liver and kidney did not contain residues of pendimethalin at or above the LOQ of 0.05 mg/kg. Only in fat tissues mean and maximum concentration of 0.1 mg/kg and 0.18 mg/kg were found, respectively.

Residues of M455H025 were below the LOQ (0.01 mg/kg for milk and 0.05 for tissues) in all samples except one cream sample (0.012 mg/kg). M455H029 was found in liver and kidney at mean/maximum concentration of 0.49/1.2 mg/kg and 1.0/2.5 mg/kg, respectively.

In the second feeding study on lactating cows the animals received daily dosed of 10.4, 29 or 99 ppm for 29 consecutive days. No detectable residues of pendimethalin or its metabolites M455H025 and M455H029 were found in any of the samples (LOQ milk: 0.01 mg/kg, LOQ tissues: 0.05 mg/kg).

For laying hens the metabolism study involved administration of ^{14}C-phenyl-labelled pendimethalin for 5 consecutive days at doses of 0.5 or 10 ppm. No residues present at or above the LOQ (0.01 mg eq/kg) were found. In eggs and liver traces of parent pendimethalin were found, however at levels too low for quantification.

Estimated maximum and mean dietary burdens of livestock and animal commodities maximum residue levels

Dietary burden calculations for beef cattle, dairy cattle, broilers and laying poultry are presented in Annex 6. The calculations were made according to the livestock diets from US-Canada, EU, Australia and Japan in the OECD Table (Annex 6 of the 2006 JMPR Report). For the EU dietary burden, it was noted that grass fodder contributed primarily to the intake of layer hens. The Meeting also noted, that in the latest version of the OECD feed table, grass forage and fodder are no longer considered a relevant feed item for poultry in the EU and therefore decided to delete these commodities from the estimate.

In the USA the use of pendimethalin on grassland is registered with no PHI. Residues of pendimethalin in grass forage are only applied to the US-Canada livestock dietary burden since it is not considered a traded commodity whereas residues in grass hay and fodder are assumed to be traded globally. The Meeting was informed by an official communication of the government of Australia that no fodder crops are imported. Therefore residues of grass hay and fodder are only attributed to the EU and Japanese livestock dietary burden.

	Livestock dietary burden, pendimethalin, ppm of dry matter diet							
	US-Canada		EU		Australia		Japan	
	max.	mean	max.	mean	max.	mean	max.	mean
Beef cattle	74	9.2	590	280	0.78	0.17	470	220
Dairy cattle	360	65	700	340	1.0	0.25	820 [A]	390 [B]
Poultry - broiler	0.01	0.01	0.33	0.06	0.04	0.04	none	none
Poultry - layer	0.01	0.01	0.41 [C]	0.08 [D]	0.04	0.04	none	none

[A] Highest maximum beef or dairy cattle burden suitable for MRL estimates for mammalian meat and milk

[B] Highest mean beef or dairy cattle burden suitable for STMR estimates for mammalian meat and milk

[C] Highest maximum broiler or laying hen burden suitable for MRL estimates for poultry products and eggs

[D] Highest mean broiler or laying hen burden suitable for STMR estimates for poultry products and eggs

none no relevant feed items

Animal commodities maximum residue levels

For beef and dairy cattle a maximum and mean dietary burden of 820 ppm and 390 ppm were estimated, respectively, based on dairy cattle. The estimated dietary burdens are evaluated against a lactating cow feeding study involving administration of pendimethalin at 760 ppm.

Pendimethalin feeding study	Feed level	Total residue				
	(ppm)	(mg/kg) in milk	(mg/kg) in muscle	(mg/kg) in kidney	(mg/kg) in liver	(mg/kg) in fat
Maximum residue level: dairy cattle						
Feeding study (HR for each dose group, except for milk)	760	0.011 (cream: 0.23)	< 0.05	< 0.05	< 0.05	0.18
Dietary burden and residue estimate	820	0.012 (cream: 0.25)	< 0.05	< 0.05	< 0.05	0.19
STMR dairy cattle						
Feeding study (Mean for each dose group)	760	0.011 (cream: 0.23)	< 0.05	< 0.05	< 0.05	0.1
Dietary burden and residue estimate	390	0.006 (cream: 0.12)	0.026	0.026	0.026	0.051

The Meeting estimated STMR and HR values of 0.026 mg/kg and 0.05 mg/kg for muscle and edible offal (based on liver and kidney). For fat, STMR and HR values of 0.051 mg/kg and 0.19 mg/kg were estimated, respectively. Corresponding maximum residue levels were estimated at 0.05 mg/kg for edible offal, mammalian (based on liver and kidney) and 0.2 mg/kg for meat (based on the fat) and mammalian fat.

For milk, an STMR value and a maximum residue level of 0.006 mg/kg and 0.02 mg/kg were estimated, respectively. Based on the data for cream and a correction factor of 2.5 for cream to milk fat (40% fat content in cream), the Meeting also estimated an STMR value and a maximum residue level of 0.3 mg/kg and 0.8 mg/kg for pendimethalin in milk fat, respectively.

For poultry a maximum and mean dietary burden of 0.41 and 0.08 ppm were estimated, respectively.

In the farm animal metabolism study on laying hens conducted at 10 ppm, no quantifiable residue above the LOQ of 0.01 mg/kg were found for pendimethalin in any matrix. The Meeting estimated maximum residue levels of 0.01* mg/kg for eggs, poultry meat, poultry fat and poultry, edible offal. The Meeting also estimated STMR and HR values of 0 for these commodities.

RECOMMENDATIONS

On the basis of the data obtained from supervised residue trials the Meeting concluded that the residue levels listed in Annex 1 are suitable for establishing maximum residue limits and for IEDI and IESTI assessment.

The Meeting estimated the STMR and MRL values shown below.

Definition of the residue for compliance with MRL and for dietary intake purposes for plant and animal commodities: *Pendimethalin*

The residue is fat soluble.

DIETARY RISK ASSESSMENT

Long-term dietary exposure

The International Estimated Daily Intakes (IEDI) for pendimethalin was calculated from recommendations for STMRs for raw and processed commodities in combination with consumption data for corresponding food commodities. The results are shown in Annex 3.

The IEDI of the 17 GEMS/Food cluster diets, based on the estimated STMRs represented 0.1% of the maximum ADI of 0.1 mg/kg bw. The Meeting concluded that the long-term exposure to residues of pendimethalin from uses considered by the Meeting is unlikely to present a public health concern.

Short-term dietary exposure

The International Estimated Short term Intake (IESTI) for pendimethalin was calculated for all food commodities (and their processed fractions) for which maximum residue levels were estimated and for which consumption data were available. The results are shown in Annex 4.

For pendimethalin the IESTI represented 0–4% of the ARfD (1 mg/kg bw) for the general population and 0–10% of the ARfD for children. On the basis of information provided the Meeting concluded that the short-term dietary exposure to residues of pendimethalin, when used in ways that have been considered by the JMPR, is unlikely to present a public health concern.

5.20 PINOXADEN (293)

TOXICOLOGY

Pinoxaden is the ISO-approved common name for 2,2-dimethyl-propionic acid 8-(2,6-diethyl-4-methyl-phenyl)-9-oxo-1,2,4,5-tetrahydro-9*H*-pyrazolo[1,2-*d*][1,4,5]oxadiazepin-7-yl ester (IUPAC), with the CAS number 243973-20-8. It is a new herbicide that acts by inhibiting acetyl coenzyme A carboxylase.

Pinoxaden has not been evaluated previously by JMPR and was reviewed by the present Meeting at the request of CCPR.

All critical studies contained statements of compliance with GLP and were conducted in accordance with national or international test guidelines, unless otherwise specified.

Biochemical aspects

The absorption, distribution, excretion and metabolism of pinoxaden were investigated in rats following administration of either [phenyl-1-^{14}C]pinoxaden or [pyrazole-3,5-^{14}C]pinoxaden. Studies were conducted following single-dose administration in males and females and repeated-dose administration of labelled compound for 14 days in females at doses of 0.5 and 300 mg/kg bw.

Independent of dose or sex, pinoxaden was rapidly and extensively absorbed after oral administration, with maximum blood concentrations reached within 1 hour. Pinoxaden was eliminated rapidly, with 90% of the dose eliminated within 72 hours predominantly via urine (60–70% of the dose), followed by faeces (24–29%) and bile (9–12%). Bile duct–cannulated rats also excreted only about 6% or less of the dose in faeces, showing that absorption of a 0.5 mg/kg bw dose exceeded 90%.

Maximum concentrations of radiolabel in blood were reached within 1 hour after a single dose of 0.5 mg/kg bw and declined rapidly to near the limit of determination at 8 hours and 24 hours after dosing in males and females, respectively. The mean half-life was calculated to be about 1 hour for the initial elimination phase in male and female rats and was estimated to be approximately 6 hours for the terminal elimination phase. Following administration of a 300 mg/kg bw dose, concentrations of radioactivity in blood increased rapidly in both sexes, reaching the maximum concentration between 0.25 and 12 hours after dosing and thereafter declining to below the limit of quantification at 48 and 72 hours in male and female rats, respectively. No marked sex dependence of the AUC was observed. The ratio of the AUC values in blood for the high and low doses was in the range of 1100–1500, whereas the ratio between the doses was 600, suggesting that some enterohepatic recirculation occurs at the higher dose level.

Residues in tissues were low, with the highest residues in blood, liver and kidney; there was no indication of accumulation. On cessation of dosing, all tissue residues declined rapidly; more than 90% of the administered dose was recovered within 24 hours. Following this initial decline, the apparent terminal phase half-lives ranged from 1 to 3 days.

There were no qualitative or significant quantitative differences in the metabolic profiles in urine and faeces following single or multiple dosing, irrespective of sex and dose. Pinoxaden was completely metabolized, with no unchanged parent present in urine, bile or faeces. Metabolites generally represented products of hydrolysis, hydroxylation and conjugation. The major metabolite was the hydrolysis product 8-(2,6-diethyl-4-methyl-phenyl)-tetrahydro-pyrazolo[1,2-*d*][1,4,5]oxa-diazepine-7,9-dione (M2; NOA 407854), representing 77–91% of the administered dose at 300 mg/kg bw and 62–70% of the administered dose at 0.5 mg/kg bw. The only other major metabolite, 8-(2,6-diethyl-4-hydroxymethyl-phenyl)-9-hydroxy-1,2,4,5-tetrahydro-pyrazolo[1,2-*d*][1,4,5]oxadiazepin-7-one (M4; SYN 505164), represented 7% of the administered dose at 300 mg/kg bw and 10–16% of the administered dose at 0.5 mg/kg bw. All other metabolites identified (up to 33) were minor, being components of seven fractions, each of which represented less than 1.2% of the administered dose.

Therefore, the main metabolic pathway of pinoxaden is via hydrolysis of the ester moiety to NOA 407854, followed by glucuronide and sulfate conjugation. Hydroxylation of the 4-methyl group of the phenyl moiety transforms NOA 407854 to SYN 505164, followed by further oxidation and conjugation.

Toxicological data

In rats, the acute oral LD_{50} was greater than 5000 mg/kg bw, the acute dermal LD_{50} was greater than 2000 mg/kg bw and the acute inhalation LC_{50} was 4.63 mg/L. Pinoxaden is not irritating to the skin of rabbits, but is irritating to the eyes. Pinoxaden is not a skin sensitizer in guinea-pigs (Magnusson-Kligman), but it is in mice (local lymph node assay).

The short-term toxicity of pinoxaden was tested in rats, mice and dogs, and long-term toxicity was tested in mice and rats. Pinoxaden produced reductions in body weight gain and feed consumption at higher dose levels in all species. In rats and mice, the liver and kidney were target organs.

In a 90-day study in which pinoxaden was administered to mice via gavage at 0, 10, 100, 400, 700 or 1000 mg/kg bw per day, the NOAEL was 400 mg/kg bw per day, based on decreased body weight gain in males and decreased relative liver weight in males and females at 700 mg/kg bw per day.

In a 28-day rat study in which pinoxaden was administered via gavage at 0, 300, 600 or 1000 mg/kg bw per day, the NOAEL was 300 mg/kg bw per day, based on histopathological findings in the kidneys (tubular atrophy), increased relative liver and kidney weights, increased urine volume, increased water consumption in males, and increased urine ketones and clinical chemistry parameters (urea and creatinine) in males at 600 mg/kg bw per day.

In a 90-day rat study in which pinoxaden was given via gavage at 0, 3, 10, 30, 100 or 300 mg/kg bw per day, the NOAEL was 100 mg/kg bw per day, based on changes in clinical chemistry (increased urea and creatinine; decreased glucose in males), urine parameters (increased urine volume and ketones; decreased pH in males) and kidney microscopic findings (mineralization and neutrophil infiltration) in males treated at 300 mg/kg bw per day.

In a 90-day dietary study in rats fed pinoxaden at 0, 150, 1000, 5000 or 10 000 ppm (equal to 0, 14.9, 97.5, 466 and 900 mg/kg bw per day for males and 0, 16.0, 111, 527 and 965 mg/kg bw per day for females, respectively), the NOAEL was 1000 ppm (equal to 97.5 mg/kg bw per day), based on increased blood creatinine levels in females and decreased cholesterol levels in both sexes at 5000 ppm (equal to 466 mg/kg bw per day).

In a 90-day dog study in which pinoxaden was administered via capsule at 0, 25, 100, 250 or 500 mg/kg bw per day, the NOAEL was 100 mg/kg bw per day, based on decreased feed consumption, decreased body weight and clinical signs in both sexes at 250 mg/kg bw per day. The observations of salivation in both sexes, retching in males and clinical chemistry changes (increased alkaline phosphatase) in both sexes at 100 mg/kg bw per day were considered likely to be related to local gastrointestinal effects.

In a 1-year dog study in which pinoxaden was given via capsule at 0, 5, 25 or 125 mg/kg bw per day, the NOAEL was 125 mg/kg bw per day, the highest dose tested. Minor changes in clinical chemistry and blood cell parameters were observed up to the highest dose tested; however, these effects were considered likely to be related to local gastrointestinal effects.

The overall NOAEL was 125 mg/kg bw per day, and the overall LOAEL was 250 mg/kg bw per day.

In an 18-month study in which pinoxaden was given to mice via gavage at 0, 5, 40, 300 or 750 mg/kg bw per day, the NOAEL for systemic toxicity was 5 mg/kg bw per day, based on mortality in both sexes and reduced body weight gain in females at 40 mg/kg bw per day. There was no treatment-related increase in tumour incidence in this study, except for an equivocal incidence of lung tumours in males. The Meeting noted concerns about the conduct and interpretation of this study, including the significant number of deaths due to gavage error and the lack of clarity regarding the appropriateness of some of the statistical analyses.

Two investigative studies conducted to understand the factors contributing to the reduced survival seen in the 18-month gavage study in the mouse support the hypothesis that misplaced application of a gavage dose can result in direct access to the lungs and cause the low survival rate seen in this study.

In a second 18-month mouse study in which pinoxaden was given via the diet at 0, 150, 500, 1500 or 4000 ppm (equal to 0, 16.3, 60.7, 181 and 574 mg/kg bw per day for males and 0, 20.2, 75.7, 217 and 706 mg/kg bw per day for females, respectively), the NOAEL for systemic toxicity was 150 ppm (equal to 20.2 mg/kg bw per day), based on decreased body weight in females at 500 ppm (equal to 75.7 mg/kg bw per day). No treatment-related increases in tumour incidence were observed in this study.

In a 2-year rat study in which pinoxaden was given via gavage at 0, 1, 10, 100, 250 or 500 mg/kg bw per day, the systemic NOAEL was 10 mg/kg bw per day, based on histopathological changes in the kidneys at 100 mg/kg bw per day and associated changes in water intake and urine volume. Hepatocellular adenomas were present in the liver of 5/59 females at 500 mg/kg bw per day compared with 2/60 in controls; however, in the absence of preneoplastic lesions in any repeated-dose studies in rodents, the Meeting concluded that the increase in liver adenomas was incidental. Leiomyosarcomas of the stomach were present in 2/60 males at 250 mg/kg bw per day (males from the 500 mg/kg bw per day group were prematurely terminated) compared with 0/59 in controls. The Meeting considered the slight increase in leiomyosarcomas of the stomach in males (above the concurrent control and the historical control for the performing laboratory) to be incidental, based on the occasional occurrence of leiomyosarcomas of the stomach seen in females at a lower dose but not at higher doses in the current study, the occurrence of leiomyosarcomas in other tissues in both control and treated animals in this study with no relationship to dose and the absence of preneoplastic lesions. In addition, endometrial adenocarcinomas were noted in the uterus of females at 500 (4/59), 250 (3/60) and 100 (2/59) mg/kg bw per day, respectively, compared with 1/60 controls. The incidence of endometrial adenocarcinomas increased at the highest dose level and was above the historical control data mean. However, as no preneoplastic findings could be identified, the Meeting concluded that the increased incidence at the highest dose tested was equivocal.

The Meeting concluded that pinoxaden is not carcinogenic in mice and caused an equivocal increase in the incidence of endometrial adenocarcinomas in rats.

Pinoxaden was tested for genotoxicity in an adequate range of in vitro and in vivo assays. It gave a positive response in two in vitro cytogenetic assays, but it was negative in the in vivo mouse micronucleus and unscheduled DNA synthesis assays.

The Meeting concluded that pinoxaden is unlikely to be genotoxic in vivo.

In view of the lack of genotoxicity in vivo, the absence of carcinogenicity in mice and the equivocal effect in rats at high doses, the Meeting concluded that pinoxaden is unlikely to pose a carcinogenic risk to humans from the diet.

In a two-generation reproductive toxicity study in which rats were administered pinoxaden by gavage at 0, 10, 50, 250 or 500 mg/kg bw per day, the parental NOAEL was 50 mg/kg bw per day, based on increased absolute and relative liver weights and histopathological findings in the liver (glycogen deposition) in F_0 and F_1 females at 250 mg/kg bw per day. The NOAEL for reproductive toxicity was 500 mg/kg bw per day, the highest dose tested. The NOAEL for offspring toxicity was

250 mg/kg bw per day, based on decreased F_1 pup weights at the end of the lactation period at 500 mg/kg bw per day.

In a developmental toxicity study in rats given pinoxaden by gavage at 0, 3, 30, 300 or 800 mg/kg bw per day, the NOAEL for maternal toxicity was 30 mg/kg bw per day, based on reduced body weight gain and feed consumption at 300 mg/kg bw per day. The NOAEL for embryo and fetal toxicity was 30 mg/kg bw per day, based on incomplete ossification of interparietal, metatarsal-1 and posterior distal phalanges (digit 4) bones at 300 mg/kg bw per day.

In a developmental toxicity study in rabbits administered pinoxaden by gavage at 0, 3, 10, 30 or 100 mg/kg bw per day, the NOAEL for maternal toxicity was 30 mg/kg bw per day, based on reduced body weight, body weight gain and feed consumption at 100 mg/kg bw per day. The NOAEL for embryo and fetal toxicity was 30 mg/kg bw per day, based on reduced fetal weight at 100 mg/kg bw per day. A slightly increased incidence of defects of the diaphragm (hernia in two fetuses/litters and fissure in one fetus/litter) also occurred at 100 mg/kg bw per day.

In a non-standard developmental toxicity study in rabbits, pinoxaden was given by gavage at 0 or 100 mg/kg bw per day. The purpose of this study was to clarify the potential association of genetic influence of semen donor (buck 119) with the occurrence of defects of the diaphragm by assessing the reproducibility of the developmental toxicity study in rabbits after administration of pinoxaden at 100 mg/kg bw per day during pregnancy (days 7–28) using only donor buck 119. The results showed that the dose level of 100 mg/kg bw per day resulted in maternal toxicity (reduction in feed consumption and body weight development, one case of abortion and one case of total implantation loss). At this dose level, there were two dead fetuses. At visceral fetal examination, no malformations of the diaphragm were observed in any fetuses.

In a second non-standard developmental toxicity study in rabbits, pinoxaden was given by gavage at 0 or 100 mg/kg bw per day. The purpose of this study was to investigate the potential genetic influence on the effects (diaphragm hernia/fissure) seen in the developmental toxicity study in rabbits. The study was conducted by testing whether this malformation (hernia/fissure) could be repeated in rabbits after administration of pinoxaden during pregnancy (days 7–28) using male donors of the same strain but excluding buck 119. Results showed a reduction in feed consumption and body weight gain, one case of death and two cases of abortion, and higher values of early resorption and post-implantation loss at 100 mg/kg bw per day. Visceral fetal examination revealed no malformation of the diaphragm.

In a second full guideline-compliant developmental toxicity study in rabbits given pinoxaden by gavage at 0, 3, 10, 30 or 100 mg/kg bw per day, the NOAEL for maternal toxicity was 30 mg/kg bw per day, based on decreased body weights, body weight gain and feed consumption at 100 mg/kg bw per day. The NOAEL for embryo and fetal toxicity was 30 mg/kg bw per day, based on total litter resorption at 100 mg/kg bw per day.

Defects of the diaphragm were observed in one out of four studies. All studies used the same strain of rabbits, and all but one were performed in the same laboratory. Combining the numbers of litters from all studies, the Meeting considered the observed diaphragm defects to be incidental.

The overall NOAEL for maternal toxicity was 30 mg/kg bw per day, based on decreased body weight, body weight gain and feed consumption at 100 mg/kg bw per day. The overall NOAEL for embryo and fetal toxicity was 30 mg/kg bw per day, based on total litter resorption, abortions and post-implantation loss at 100 mg/kg bw per day.

The Meeting concluded that pinoxaden is not teratogenic.

In an acute neurotoxicity study in rats given pinoxaden by gavage at 0, 100, 500 or 2000 mg/kg bw, the NOAEL was 2000 mg/kg bw, the highest dose tested.

In a 90-day rat neurotoxicity study in which pinoxaden was given by gavage at 0, 10, 100 or 500 mg/kg bw per day, the NOAEL for neurotoxicity was 500 mg/kg bw per day, the highest dose tested. The NOAEL for systemic toxicity was 100 mg/kg bw per day, based on increased microscopic (focal tubular basophilia) findings in kidneys of males and females at 500 mg/kg bw per day.

The Meeting concluded that pinoxaden is not neurotoxic.

Toxicological data on metabolites and/or degradates

Metabolite 3 (NOA 447204)

Metabolite 3 (M3; 8-(2,6-diethyl-4-methyl-phenyl)-8-hydroxy-tetrahydro-pyrazolo[1,2-*d*][1,4,5]oxa-diazepine-7,9-dione) is a rat metabolite (≤ 1.2% of the applied dose). Acute oral and short-term toxicity studies and five genotoxicity studies were performed with this metabolite.

The acute oral LD_{50} in female rats was estimated to be 1098 mg/kg bw.

In a 28-day dietary study in rats fed metabolite M3 at 0, 500, 3000, 6000 or 10 000 ppm (equal to 0, 64.9, 388, 806 and 1405 mg/kg bw per day for males and 0, 66.9, 383, 770 and 1423 mg/kg bw per day for females, respectively), the NOAEL was 3000 ppm (equal to 388 mg/kg bw per day), based on reduced body weight, changes in clinical chemistry and reduced urine volume in males at 6000 ppm (equal to 806 mg/kg bw per day).

In a 90-day dietary study in rats fed metabolite M3 at 0, 150, 1000 or 6000 ppm (equal to 0, 15, 99.2 and 601 mg/kg bw per day for males and 0, 15.2, 98.8 and 645 mg/kg bw per day for females, respectively), the NOAEL was 1000 ppm (equal to 98.8 mg/kg bw per day), based on reduced body weight in females and clinical changes in both sexes at 6000 ppm (equal to 601 mg/kg bw per day).

Metabolite M3 was tested in an adequate range of in vitro and in vivo assays. There was some evidence of clastogenicity in vitro but not in vivo. The Meeting concluded that metabolite M3 is unlikely to be genotoxic in vivo.

The Meeting concluded that metabolite M3 is of no greater toxicity than pinoxaden.

Metabolite 4 (SYN 505164)

Metabolite 4 (M4; 8-(2,6-diethyl-4-hydroxymethyl-phenyl)-9-hydroxy-1,2,4,5-tetrahydro-pyrazolo-[1,2-*d*][1,4,5]oxadiazepin-7-one) is found in rats as a major metabolite (16% of the dose in urine) and intermediate for a number of other rat metabolites. No specific toxicological data are available, but the Meeting concluded that metabolite M4 would be covered by toxicological studies on the parent.

Metabolite 6 (SYN 502836)

Metabolite 6 (M6; 3,5-diethyl-4-(9-hydroxy-7-oxo-1,2,4,5-tetrahydro-7*H*-pyrazolo[1,2-*d*][1,4,5]oxa-diazepin-8-yl)-benzoic acid) is found in rats (< 1% of the applied dose in urine). Acute oral and short-term toxicity studies and three genotoxicity studies were performed with this metabolite.

The acute oral LD_{50} in rats was greater than 2000 mg/kg bw.

In a 28-day dietary study in rats fed metabolite M6 at 0, 300, 3000, 6000 or 12 000 ppm (equal to 0, 33.8, 334, 659 and 1310 mg/kg bw per day for males and 0, 33.6, 328, 627 and 1287 mg/kg bw per day for females, respectively), the NOAEL was 12 000 ppm (equal to 1287 mg/kg bw per day), the highest dose tested.

In a 90-day dietary study in rats fed metabolite M6 at 0, 300, 3000 or 12 000 ppm (equal to 0, 23.9, 247 and 978 mg/kg bw per day for males and 0, 26.8, 266 and 1035 mg/kg bw per day for females, respectively), the NOAEL was 12 000 ppm (equal to 978 mg/kg bw per day), the highest dose tested.

Metabolite M6 was tested in an adequate range of in vitro assays. No evidence of genotoxicity was found, and the Meeting concluded that M6 was unlikely to be genotoxic.

The Meeting concluded that metabolite M6 is of lower toxicity (at least 10-fold) than pinoxaden.

Metabolite 10 (SYN 505887)

Metabolite 10 (M10; 8-(2,6-diethyl-4-hydroxymethyl-phenyl)-8-hydroxy-tetrahydro-pyrazolo[1,2-*d*][1,4,5]oxadiazepine-7,9-dione) is found in rats (< 1% of the applied dose in urine). Acute oral toxicity and five genotoxicity studies were performed with this metabolite.

The acute oral LD_{50} in female rats was estimated to be greater than 2000 mg/kg bw.

Metabolite M10 was tested in an adequate range of in vitro and in vivo assays. There was some evidence of mutagenicity in vitro, but not in vivo. The Meeting concluded that metabolite M10 was unlikely to be genotoxic in vivo.

Based on structural considerations, the Meeting concluded that metabolite M10 is of no greater toxicity than pinoxaden.

Human data

No information was provided on the health of workers involved in the manufacture or use of pinoxaden. No information on accidental or intentional poisoning in humans is available.

The Meeting concluded that the existing database on pinoxaden was adequate to characterize the potential hazards to the general population, including fetuses, infants and children.

Toxicological evaluation

The Meeting established an ADI for pinoxaden of 0–0.1 mg/kg bw, based on a NOAEL of 10 mg/kg bw per day for histopathological changes in the kidneys and associated changes in water intake and urine volume in a 2-year rat toxicity and carcinogenicity study and using a safety factor of 100. This ADI provides a margin of about 5000 for the LOAEL for equivocal carcinogenic effects in rats.

The Meeting established an ARfD of 0.3 mg/kg bw, based on a NOAEL of 30 mg/kg bw per day for reduced maternal body weight, body weight gain and feed consumption and embryo/fetal toxicity in a developmental toxicity study in rabbits and using a safety factor of 100.

The ADI and ARfD can be applied to the metabolites M3, M4, M6 and M10, which are of no greater toxicity than pinoxaden.

Levels relevant to risk assessment of pinoxaden

Species	Study	Effect	NOAEL	LOAEL
Mouse	Eighteen-month study of toxicity and carcinogenicity[a]	Toxicity	150 ppm, equal to 20.2 mg/kg bw per day	500 ppm, equal to 75.7 mg/kg bw per day
		Carcinogenicity	4 000 ppm, equal to 574 mg/kg bw per day[b]	–
	Eighteen-month study of toxicity and carcinogenicity[c]	Toxicity	5 mg/kg bw per day	40 mg/kg bw per day
		Carcinogenicity	40 mg/kg bw per day	300 mg/kg bw per

Species	Study	Effect	NOAEL	LOAEL
				day
Rat	Twenty-four-month study of toxicity and carcinogenicity[c]	Toxicity	10 mg/kg bw per day	100 mg/kg bw per day
		Carcinogenicity	250 mg/kg bw per day	500 mg/kg bw per day[d]
	Two-generation study of reproductive toxicity[c]	Parental toxicity	50 mg/kg bw per day	250 mg/kg bw per day
		Offspring toxicity	250 mg/kg bw per day	500 mg/kg bw per day
		Reproductive toxicity	500 mg/kg bw per day[b]	–
	Developmental toxicity study[c]	Maternal toxicity	30 mg/kg bw per day	300 mg/kg bw per day
		Embryo and fetal toxicity	30 mg/kg bw per day	300 mg/kg bw per day
	Acute neurotoxicity study[c]	Neurotoxicity	2 000 mg/kg bw[b]	–
		Toxicity	2 000 mg/kg bw[b]	–
	Subchronic neurotoxicity study[c]	Neurotoxicity	500 mg/kg bw per day[b]	–
		Toxicity	100 mg/kg bw per day	500 mg/kg bw per day
Rabbit	Developmental toxicity studies[c,e]	Maternal toxicity	30 mg/kg bw per day	100 mg/kg bw per day
		Embryo and fetal toxicity	30 mg/kg bw per day	100 mg/kg bw per day
Dog	Ninety-day and 1-year toxicity studies[c,e]	Toxicity	125 mg/kg bw per day	250 mg/kg bw per day
Metabolite M3				
Rat	Thirteen-week study of toxicity[a]	Toxicity	1 000 ppm, equal to 98.8 mg/kg bw per day	6 000 ppm, equal to 601 mg/kg bw per day
Metabolite M6				
Rat	Thirteen-week study of toxicity[a]	Toxicity	12 000 ppm, equal to 978 mg/kg bw per day[b]	–

[a] Dietary administration.

[b] Highest dose tested.

[c] Gavage or capsule administration.

[d] Equivocal effect for endometrial adenocarcinomas.

[e] Two or more studies combined.

Acceptable daily intake (ADI; applies to pinoxaden and metabolites M3, M4, M6 and M10, expressed as pinoxaden)

0–0.1 mg/kg bw

Acute reference dose (ARfD; applies to pinoxaden and metabolites M3, M4, M6 and M10, expressed as pinoxaden)

0.3 mg/kg bw

Information that would be useful for the continued evaluation of the compound

Results from epidemiological, occupational health and other such observational studies of human exposure

Critical end-points for setting guidance values for exposure to pinoxaden

Absorption, distribution, excretion and metabolism in mammals	
Rate and extent of oral absorption	Rapid and > 80%
Distribution	Liver, kidney and blood; some enterohepatic recirculation
Potential for accumulation	No evidence of accumulation
Rate and extent of excretion	Rapid and complete
Metabolism in mammals	Extensively metabolized via hydrolysis, hydroxylation, dealkylation, ring cleavage and ring formation reactions, followed by conjugation with glucuronide and other sugars and sulfate
Toxicologically significant compounds in animals and plants	Pinoxaden, M3, M4, M6, M10
Acute toxicity	
Rat, LD_{50}, oral	> 5 000 mg/kg bw
Rat, LD_{50}, dermal	> 2 000 mg/kg bw
Rat, LC_{50}, inhalation	4.63 mg/L (nose-only exposure)
Rabbit, dermal irritation	Non-irritating
Rabbit, ocular irritation	Irritating
Mouse, dermal sensitisation	Sensitizing (local lymph node assay)
Guinea-pig, dermal sensitization	Non-sensitizing (Magnusson-Kligman)
Short-term studies of toxicity	
Target/critical effect	Kidney and clinical chemistry
Lowest relevant oral NOAEL	97.5 mg/kg bw per day (rat)
Lowest relevant dermal NOAEL	1 000 mg/kg bw per day, highest dose tested (rat)
Lowest relevant inhalation NOAEC	No data
Long-term studies of toxicity and carcinogenicity	
Target/critical effect	Kidney
Lowest relevant NOAEL	10 mg/kg bw per day (rat)
Carcinogenicity	Not carcinogenic in mice; equivocal increase in endometrial

	adenocarcinomas in rats[a]
Genotoxicity	
	Some evidence of clastogenicity in vitro, but no other evidence of genotoxicity[a]
Reproductive toxicity	
Target/critical effect	Parental: absolute and relative liver weight increase and histopathological liver findings (glycogen deposition) in F_0 and F_1 females (rat)
	Reproductive: no effect (rat)
	Offspring: reduced F_1 pup weight (rat)
Lowest relevant reproductive NOAEL	500 mg/kg bw per day (rat)
Lowest relevant parental NOAEL	50 mg/kg bw per day (rat)
Lowest relevant offspring NOAEL	250 mg/kg bw per day (rat)
Developmental toxicity	
Target/critical effect	Reduced maternal body weight, body weight gain, feed consumption; total resorptions, abortions and post-implantation loss
Lowest relevant maternal NOAEL	30 mg/kg bw per day (rabbit)
Lowest relevant embryo/fetal NOAEL	30 mg/kg bw per day (rabbit)
Neurotoxicity	
Acute neurotoxicity NOAEL	2 000 mg/kg bw, highest dose tested (rat)
Subchronic neurotoxicity NOAEL	500 mg/kg bw per day, highest dose tested (rat)
Developmental neurotoxicity NOAEL	No data
Studies on metabolites	
Metabolite M3	LD_{50} (rat): 1 098 mg/kg bw (females)
	28-day rat: NOAEL 388.1 mg/kg bw per day
	90-day rat: NOAEL 98.8 mg/kg bw per day
	Not genotoxic in vivo
Metabolite M6	LD_{50} (rat): > 2 000 mg/kg bw
	28-day rat: NOAEL 1 287 mg/kg bw per day
	90-day rat: NOAEL 978 mg/kg bw per day
	Not genotoxic in vitro
Metabolite M10	LD_{50} (rat): > 2 000 mg/kg bw
	Not genotoxic in vivo
Human data	
	No information provided

[a] Unlikely to pose a carcinogenic risk to humans via exposure from the diet.

Summary

	Value	Study	Safety factor
ADI[a]	0–0.1 mg/kg bw	Long-term toxicity and carcinogenicity study (rat)	100
ARfD[a]	0.3 mg/kg bw	Developmental toxicity study (rabbit)	100

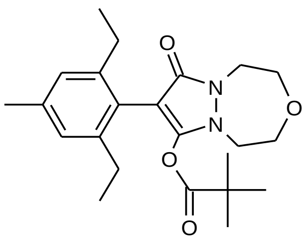
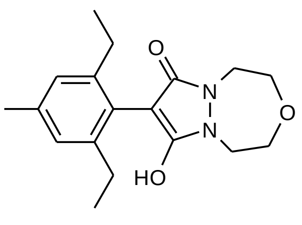
[a] Applies to pinoxaden and metabolites M3, M4, M6 and M10, expressed as pinoxaden.

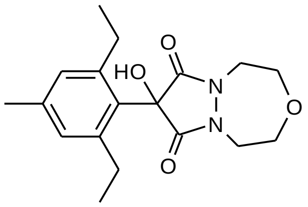
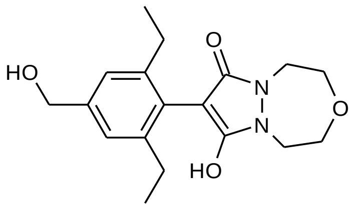
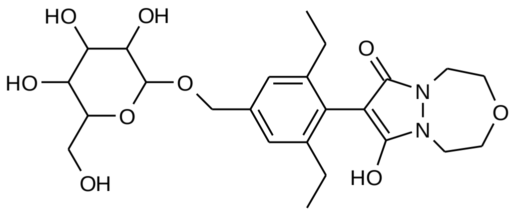
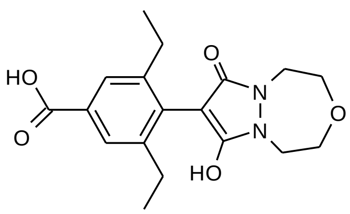
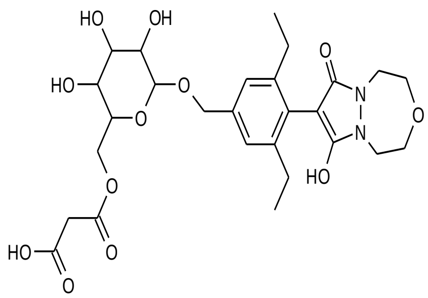
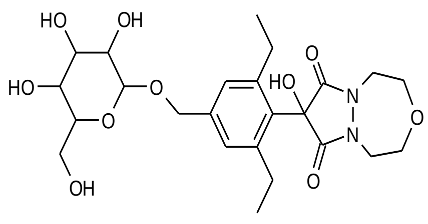
RESIDUE AND ANALYTICAL ASPECTS

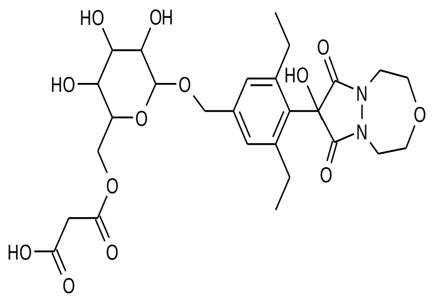
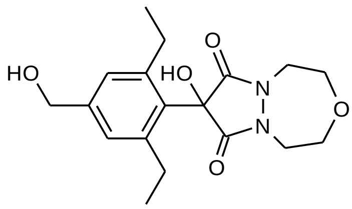
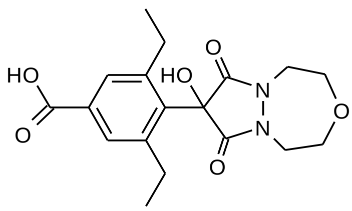
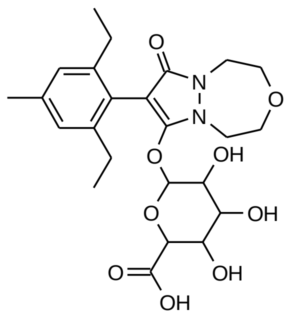
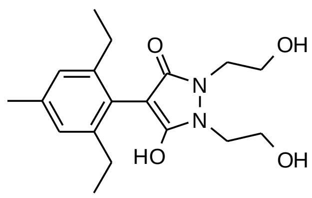
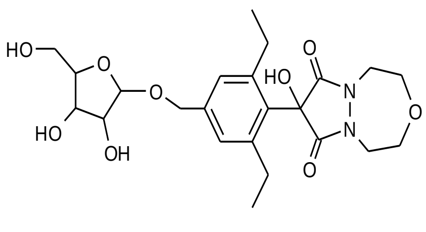
Pinoxaden is a selective post-emergence herbicide for the control of annual grass weeds in cereal crops. Pinoxaden belongs to the phenylpyrazole class of herbicides which act by inhibiting the enzyme acetyl-CoA carboxylase (ACCase). The compound was evaluated for the first time by the 2016 JMPR for both toxicology and residues.

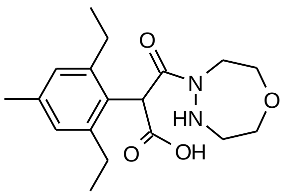
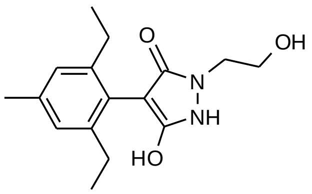
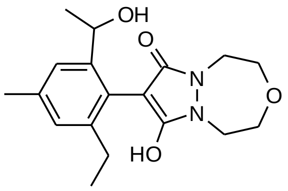
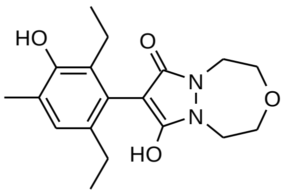
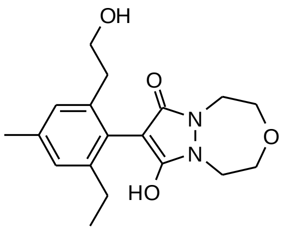
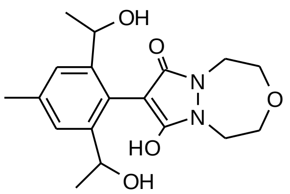
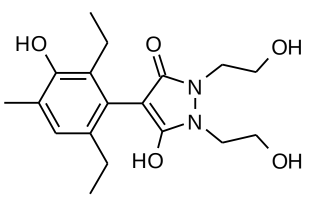
The Meeting received information on the metabolism of pinoxaden in lactating goats, laying hens, wheat and rotational crops, methods of residue analysis, freezer storage stability, GAP information, supervised residue trials and processing studies on wheat and barley as well as livestock transfer studies in both dairy cattle and poultry.

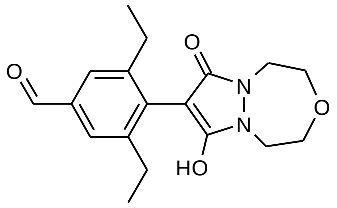
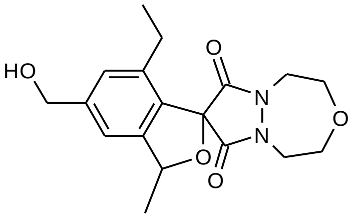
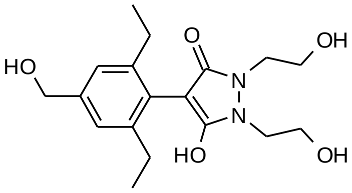
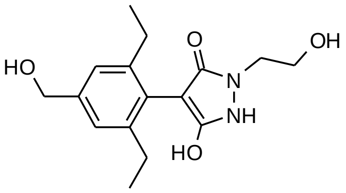
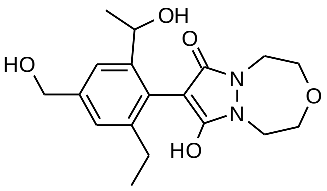
In this document, the code names, chemical structures and chemical names of the metabolites were as follows:

Compound Name	Structure	IUPAC-Name	Occurrence in
Pinoxaden NOA 407855 = M1		8-(2,6-diethyl-p-tolyl)-1,2,4,5-tetrahydro-7-oxo-7H-pyrazolo[1,2-d][1,4,5]oxadiazepin-9-yl 2,2-dimethylpropionate	Plants and animals
NOA 407854 = M2		8-(2,6-Diethyl-4-methyl-phenyl)-tetrahydro-pyrazolo[1,2-d][1,4,5]oxadiazepine-7,9-dione	Winter Wheat (early intervals) Spring Wheat (early intervals) Goat Hen (excreta) Rat

Compound Name	Structure	IUPAC-Name	Occurrence in
NOA 447204 = M3		8-(2,6-Diethyl-4-methyl-phenyl)-8-hydroxy-tetrahydro-pyrazolo[1,2-d][1,4,5]oxadiazepine-7,9-dione	Winter Wheat Hen Rotational Wheat Rotational Lettuce
SYN 505164 = M4		8-(2,6-Diethyl-4-hydroxymethyl-phenyl)-9-hydroxy-1,2,4,5-tetrahydro-pyrazolo[1,2-d][1,4,5]oxadiazepin-7-one	Winter Wheat Spring Wheat Goat Hen Rat
M5 (glucose conjugate of M4)		8-[2,6-Diethyl-4-(3,4,5-trihydroxy-6-hydroxymethyl-tetrahydro-pyran-2-yloxymethyl)-phenyl]-9-hydroxy-1,2,4,5-tetrahydro-pyrazolo[1,2-d][1,4,5]oxadiazepin-7-one	Winter Wheat Spring Wheat Rat
SYN 502836 = M6		3,5-Diethyl-4-(9-hydroxy-7-oxo-1,2,4,5-tetrahydro-7H-pyrazolo[1,2-d][1,4,5]oxadiazepin-8-yl)-benzoic acid	Winter Wheat Spring Wheat Hen Goat Rat
M7 (malonyl-glucose conjugate of M4)		Malonic acid mono-{6-[3,5-diethyl-4-(9-hydroxy-7-oxo-1,2,4,5-tetrahydro-7H-pyrazolo[1,2-d][1,4,5]oxadiazepin-8-yl)-benzyloxy]-3,4,5-trihydroxy-tetrahydro-pyran-2-ylmethyl} ester	Winter Wheat Spring Wheat
M8 (glucose conjugate of M10)		8-[2,6-Diethyl-4-(3,4,5-trihydroxy-6-hydroxymethyl-tetrahydro-pyran-2-yloxymethyl)-phenyl]-8-hydroxy-tetrahydro-pyrazolo[1,2-d][1,4,5]oxadiazepine-	Winter Wheat Spring Wheat

Compound Name	Structure	IUPAC-Name	Occurrence in
		7,9-dione	
M9 (malonyl-glucose conjugate of M10)		Malonic acid mono-{6-[3,5-diethyl-4-(8-hydroxy-7,9-dioxo-hexahydro-pyrazolo[1,2-d][1,4,5]oxadiazepin-8-yl)-benzyloxy]-3,4,5-trihydroxy-tetrahydro-pyran-2-ylmethyl} ester	Winter Wheat
SYN 505887 = M10		8-(2,6-Diethyl-4-hydroxymethyl-phenyl)-8-hydroxy-tetrahydro-pyrazolo[1,2-d][1,4,5]oxadiazepine-7,9-dione	Winter Wheat Spring Wheat Goat Rat
SYN 504574 = M11 = ME7		3,5-Diethyl-4-(8-hydroxy-7,9-dioxo-hexahydro-pyrazolo[1,2-d][1,4,5]oxadiazepin-8-yl)-benzoic acid	Winter Wheat Spring Wheat Rat Rotational crop forage
M12		6-[8-(2,6-diethyl-4-methyl-phenyl)-9-oxo-1,2,4,5-tetrahydro-9H-pyrazolo[1,2-d][1,4,5]oxadiazepin-7-yloxy]-3,4,5-trihydroxy-tetrahydro-pyran-2-carboxylic acid	Goat Rat
M13		4-(2,6-diethyl-4-methyl-phenyl)-5-hydroxy-1,2-bis-(2-hydroxy-ethyl)-1,2-dihydro-pyrazol-3-one	Goat Rat
M14 (pentose conjugate of M4)		8-[4-(3,4-Dihydroxy-5-hydroxymethyl-tetrahydro-furan-2-yloxymethyl)-2,6-diethyl-phenyl]-9-hydroxy-1,2,4,5-tetrahydro-pyrazolo[1,2-d][1,4,5]oxadiazepin-7-	Winter Wheat Spring Wheat Rat

Compound Name	Structure	IUPAC-Name	Occurrence in
		one	
M19		2-(2,6-diethyl-4-methyl-phenyl)-3-[1,4,5]oxadiazepan-4-yl-3-oxo-propionic acid	Goat Rat
M20		4-(2,6-diethyl-4-methyl-phenyl)-5-hydroxy-1-(2-hydroxy-ethyl)-1,2-dihydro-pyrazol-3-one	Goat Rat
M22		8-[2-ethyl-6-(1-hydroxy-ethyl)-4-methyl-phenyl]-9-hydroxy-1,2,4,5-tetrahydro-pyrazolo[1,2-d][1,4,5]oxadiazepin-7-one	Goat Rat
M23		8-(2,6-diethyl-3-hydroxy-4-methyl-phenyl)-9-hydroxy-1,2,4,5-tetrahydro-pyrazolo[1,2-d][1,4,5]oxadiazepin-7-one	Goat Rat
M24		8-[2-ethyl-6-(2-hydroxy-ethyl)-4-methyl-phenyl]-9-hydroxy-1,2,4,5-tetrahydro-pyrazolo[1,2-d][1,4,5]oxadiazepin-7-one	Goat Rat
M26		8-[2,6-bis-(1-hydroxy-ethyl)-4-methyl-phenyl]-9-hydroxy-1,2,4,5-tetrahydro-pyrazolo[1,2-d][1,4,5]oxadiazepin-7-one	Goat Rat
M27		4-(2,6-diethyl-3-hydroxy-4-methyl-phenyl)-5-hydroxy-1,2-bis-(2-hydroxy-ethyl)-1,2-dihydro-pyrazol-3-one	Goat

Compound Name	Structure	IUPAC-Name	Occurrence in
M31		3,5-Diethyl-4-(9-hydroxy-7-oxo-1,2,4,5-tetrahydro-7H-pyrazolo[1,2-d][1,4,5]oxadiazepin-8-yl)-benzaldehyde	Winter Wheat Hen
M32		7-ethyl-5-(hydroxymethyl)-3-methyl-3H-spiro[2-benzofuran-1,8'-pyrazolo[1,2-d][1,4,5]oxadiazepine]-7',9'-dione	Winter wheat Spring Wheat Rotational Crops
M33		4-(2,6-diethyl-4-hydroxymethyl-phenyl)-5-hydroxy-1,2-bis-(2-hydroxy-ethyl)-1,2-dihydro-pyrazol-3-one	Hen
M34		4-(2,6-diethyl-4-hydroxymethyl-phenyl)-5-hydroxy-1-(2-hydroxy-ethyl)-1,2-dihydro-pyrazol-3-one	Hen Rat
M35		8-[2-ethyl-6-(1-hydroxy-ethyl)-4-hydroxymethyl-phenyl]-9-hydroxy-1,2,4,5-tetrahydro-pyrazolo[1,2-d][1,4,5]oxadiazepin-7-one	Hen Rat

Plant metabolism

The metabolism of pinoxaden, labelled in the [pyrazol-3,5-^{14}C], [phenyl-1-^{14}C] and the [oxadiazepin-3,6-^{14}C] rings, was investigated in spring and winter wheat grown under outdoor conditions.

Foliar treatment

Winter wheat (variety Galaxie) was treated as an autumn application with pinoxaden, labelled in the **pyrazole** ring and formulated as an emulsifiable concentrate formulation containing the safener cloquintocet-mexyl. The test material was applied once at growth stage BBCH 13 as a foliar spray at a rate of 68.5 g ai/ha. Samples of forage (immature plant) were harvested 0, 14, 42, and 209 days after application. Mature plants were harvested 264 days after application and separated into grain, straw and husk.

Overall total radioactive residues (TRRs) in mature grain were very low (0.004 mg eq/kg) and hence further identification was not conducted. For straw, approximately 64% of the TRRs were extracted using acetonitrile/water. Acid hydrolysis of the unextracted radioactivity, accounting for 35% of the TRR (0.013 mg/kg) released an additional 13% of the TRR. The only metabolite observed was the metabolite M10 (<3.3% of the TRR).

Stem injection

A stem injection experiment was conducted in order to generate grain and straw samples containing higher measurable residues to aid in metabolite identification. At early booting stage (BBCH 41), 50 µg of -pyrazole-labelled pinoxaden was directly injected into the stem, approximately 1–2 cm above the first node, of each spring wheat plant (variety Toronit), grown in a growth chamber. Wheat was sampled after 14, 28 and 56 days, but only the mature plants (56 DAT) were separated into grain, husk and straw and used for analysis.

The TRR in grain was considerably higher (1.5 mg eq/kg) than that following foliar application, allowing for the identification of the metabolites. Soxhlet extraction of the residue remaining following acetonitrile/water extraction released 12% of the TRR, with M4 and M6 being the only metabolites observed (concentrations not reported in the study). Further hydrolysis work on the unextracted residue (23% of the TRR) indicated that a low amount of the radioactivity (about 2% of the TRR) was incorporated into starch. When extracted with 0.05 N NaOH and hydrolysed using 1 N HCl at 100 °C for 6 hours, the metabolites M4 and M6 (both accounting for < 16% of the TRR; < 0.24 mg eq/kg) were identified.

Conversely, direct acid hydrolysis of whole grain released 100% of the TRRs and after clean-up, the majority of the radioactivity was shown to be M4 (86% of the TRR) with a small amount of M6 (8% of the TRR). This demonstrated that the majority of the radioactivity in grain consisted of conjugates of M4.

Differences in the metabolite pattern between the foliar and the stem injection experiments were noted. Moreover, in the field experiment, the presence of the metabolite M10 was likely due to uptake of the soil metabolite M3 which is subsequently hydroxylated in the plant to the metabolite M10.

Winter wheat (variety Galaxie) was treated as an autumn application with pinoxaden, labelled in the **phenyl** ring and formulated as an emulsifiable concentrate formulation. The test material was applied once at growth stage BBCH 49 as a foliar spray at rates of 64 g ai/ha (1 × rate) or 318 g ai/ha (5 × rate).

At 28 days after treatment (DAT), ears were sampled while mature plants were harvested at 55 DAT and separated into grain, straw and husks.

TRRs in the 5 × grain and straw, accounting for 0.84 mg eq/kg and 16 mg eq/kg, respectively, were 3-fold higher than those from the 1 × experiment.

Extractability of TRRs in grain was higher for the 5 × samples (76% of the TRR) in comparison with the 1 × samples (60% of the TRR). The predominant metabolites in grain were M4 (18–20% of the TRR; 0.05–0.15 mg eq/kg), its malonyl conjugate M7 (4–11% of the TRR; 0.01–0.09 mg eq/kg) and M6 (9.6–12% of the TRR; 0.02–0.11 mg eq/kg). Minor metabolites included M5, M8 and M10 (each representing ≤ 10% of the TRR; ≤ 0.01 mg eq/kg). The unextracted residue in the 1 × grain accounted for 46% of the TRR (0.11 mg eq/kg) while it accounted for 19% of the TRR (0.16 mg eq/kg) in the 5 × grain. To characterize the bound residues, grain samples from the 1 × experiment were subjected to acid hydrolysis with 1 N HCl for 6 hours at 100 °C. Metabolite M4 accounted for the majority of the released radioactivity (79% of the TRR) with M6 accounting for about 11% of the TRR, indicating that the grain unextracted residues predominantly consisted of M4 and M6 or conjugates thereof.

Approximately 78% of the TRRs in straw were extracted with an 80% acetonitrile solution. The predominant metabolites were M4 (15–37% of the TRR; 1.8-2.0 mg eq/kg) and M10 (1 × experiment only: 13% of the TRR; 0.7 mg eq/kg). Several minor metabolites were found in straw from both the 1 × and 5 × experiments including M3, M6, M7, M8, M11, M14 and M31 with M32 only found in the straw sample from the 5 × rate, none of which accounted for > 10% of the TRR). Unextracted radioactivity in the straw sample from the 1 × experiment accounted for 17% of the TRR (0.93 mg eq/kg). Acid hydrolysis of this fraction released 6.2% of the TRR and subsequent base hydrolysis released a further 8.2% of the TRR. The major metabolites released upon hydrolysis were M4 (29–60% of the TRR) and M6 (17–18% of the TRR). The unextracted residues of the straw sample from the 5 × experiment (25% of the TRRs, 3.1 mg eq/kg) were not further subjected to identification/characterisation procedures.

Spring wheat (variety Toronit) was treated with pinoxaden, labelled in the phenyl and oxadiazepine rings and formulated as an emulsifiable concentrate formulation containing the safener cloquintocet-mexyl. The test material was applied once at growth stage BBCH 37–39 as a foliar spray at a rate of 62 g ai/ha for the phenyl label and 66 g ai/ha for the oxadiazepine label. Samples of grain and straw were collected 67 DAT for both labels.

In general, TRRs were similar for both labels, especially at maturity for grain (0.14–0.16 mg eq/kg) and straw (0.91–1.3 mg eq/kg).

In grain nearly 80% of the radioactivity was extracted using acetonitrile/water followed by microwave extraction with 80% n-propanol. Hydrolysis of the cold and microwave extracts with 1N HCl released up to 92% of the TRR. In the case of the phenyl label, the released radioactivity consisted almost entirely of M4 (58% of the TRR) and M6 (6.8% of the TRR). For the oxadiazepine label, the major metabolites M4 and M6 accounted for 65% and 12% of the TRRs, respectively.

Up to 79% of the TRR was extracted from straw using acetonitrile/water (80:20, v/v). The major metabolite was M4 accounting for 34-36% of the TRR (0.33-0.44 mg eq/kg). The metabolite M6 was also found at levels up to 9% of the TRR. Several minor metabolites were identified including M3, M5, M7, M10, M11 and M32, each representing ≤ 9% of the TRR; ≤ 0.08 mg eq/kg). Unextracted radioactivity in straw accounted for 22% of the TRR (0.20 mg eq/kg) for the phenyl label and 28% of the TRR (0.36 mg eq/kg) for the oxadiazepine label. A significant amount of this residue was released by acid hydrolysis, and was attributed to metabolites M4 (0.8–1.3% of the TRR) and M6 (2.4–2.7% of the TRR).

In summary, the major metabolic pathway in wheat proceeds via ester hydrolysis of pinoxaden to M2 and subsequently to M4 followed by conjugation. Oxidation of M4 resulted in the formation of M10 which was subsequently conjugated. Lastly, further oxidation of the methyl-hydroxy function of M4 leads to the corresponding carboxylic acid M6.

The Meeting noted that all metabolites observed in wheat were also identified in the rat metabolism.

Animal metabolism

Metabolism studies were conducted in lactating goats where they were dosed orally once daily for 4 consecutive days with [**phenyl-1-^{14}C**]-pinoxaden at a dose level equivalent to 115–126 ppm feed. The major route of elimination of the radioactivity was via the urine which accounted for 45–48% of the total administered dose (AD), while feces accounted for 15–21% of the AD and milk accounted for ≤ 0.01% of the AD. The tissue burden was very low (< 1% of the AD) considering the dosing levels. The overall recovery of administered radioactivity averaged 86%.

The total radioactive residues (TRRs) were highest in kidney (1.7–4.6 mg eq/kg) followed by liver (0.9–1.4 mg eq/kg), muscle (0.06–0.1 mg eq/kg for both leg muscle and loin muscle), fat (0.01–0.04 mg eq/kg) and milk (0.01–0.02 mg eq/kg). Sequential extractions of tissues and milk with acetonitrile and acetonitrile/water released greater than 92% of the TRR.

Pinoxaden was not observed in any tissue or milk. The hydrolysis product of the parent compound, M2, was the major metabolite in all these tested matrices accounting for 79–90% of the TRR. Several minor metabolites were observed, none of which exceeded 10% of the TRR.

The metabolism of the major plant metabolite M4 was also investigated in lactating goats dosed orally once daily for 4 consecutive days with [Pyrazole-5-^{14}C]-M4 at a dose level of 9–11 ppm feed.

The major route of elimination of the radioactivity was via the feces which accounted for 58–62% of the AD, while urine accounted for 8–9% of the AD and milk accounted for ≤ 0.01% of the AD. The tissue burden was very low (< 0.1% of the AD). The overall recovery of administered radioactivity averaged 92%.

The total radioactive residues (TRRs) were highest in kidney (0.05 mg eq/kg) followed by liver (0.02–0.03 mg eq/kg). TRRs in milk were < 0.002 mg eq/kg while those in fat and muscle were each < 0.011 mg eq/kg, demonstrating very limited transfer of residues. As the radioactivity in muscle, fat and milk were low, the nature of the residues in these matrices was not further elucidated. In liver and kidney, approximately, 88–92% of the TRR was extracted with acetonitrile/water.

The major component identified in kidney and liver was unchanged M4 (41–55% of the TRR; 0.01-0.02 mg eq/kg). Minor amounts of the hydroxylated metabolite M10 were also identified (≤ 9% of the TRR; ≤ 0.004 mg eq/kg). Therefore, the predominant metabolic route was hydroxylation of M4 at the 8-position to form M10.

Leghorn laying hens were dosed orally once daily for 4 consecutive days with [**phenyl-1-^{14}C**] labelled pinoxaden at dose levels equivalent to 97 ppm feed. Approximately 85% of the AD was recovered, most of which (75% of the AD) was excreta-related. TRRs in egg white and egg yolk accounted for about 0.007% of AD (0.003% AD in egg white plus 0.004% AD in yolk). The TRR levels in egg white reached a plateau by Day 3 of dosing, however, no plateau was observed in egg yolk. The tissue burden was very low (< 0.2% of the AD) with highest concentrations found in kidney (1.8 mg eq/kg) followed by liver (0.62 mg eq/kg), skin (0.12 mg eq/kg), lean meat (0.06 mg eq/kg)and peritoneal fat (0.04 mg eq/kg). Sequential extractions of tissues and egg whites with acetonitrile, acetonitrile/water and methanol/water released greater than 92% of the TRR while for egg yolks the extractability was 67% of the TRR.

No pinoxaden was detected in any of the samples. The major metabolites in all tissues and eggs were M2 (1.7–46% of the TRR), M4 (18–44% of TRR) and M6 (13–45% of TRR; only observed in egg yolks). Four minor metabolites were also observed in these matrices, none of which exceeded 10% of the TRRs.

The Meeting concluded that, in all species investigated, the total administered radioactivity was predominantly eliminated in excreta. While the metabolic profiles differed quantitatively between the species, qualitatively there are no major differences; the routes and products of metabolism in animals were similar across the studies resulting from the hydrolysis of the parent compound to the major metabolite M2 followed by hydroxylation of the 4-methyl group of the phenyl moiety to the metabolite M4. This was followed by further oxidation of M4 to M6.

Environmental fate

The FAO Manual (FAO, 2016) explained the data requirements for studies of environmental fate. The focus should be on those aspects that are most relevant to MRL setting. For pinoxaden, supervised residue trials data were received for foliar spray on annual crops. Therefore, according to the FAO Manual, only studies on rotational crops (confined, field), aerobic degradation, hydrolysis and photolysis were evaluated.

Confined rotational crops

The Meeting received three confined rotational crop studies where pinoxaden was labelled in the **[phenyl-1-^{14}C], [oxadiazepin-3,6-^{14}C]** and both [**phenyl-1-^{14}C**] and [**oxadiazepin-3,6-^{14}C1**] rings and formulated as emulsifiable concentrate formulations. The radioalabelled material was applied once to soil at rates of 60.3–70 g ai/ha. Lettuce, radish and wheat (spring and winter) were planted 29-30, 120, 168–177 (wheat only) and 361–365 days after soil treatment. Spring wheat, mustard greens and turnip were also planted at a 15-day PBI.

The TRRs in all crop fractions planted following the longer PBIs (168-365 days) were well below 0.01 mg/kg. Hence no further work was conducted on samples from these intervals. Therefore, analysis was only conducted on fractions where residues were above 0.01 mg eq/kg. For all tested matrices, residues of the parent compound, pinoxaden, were not detectable.

Several metabolites were identified including M2, M3, M8, M9, M11 and M32, none of which exceeded 0.01 mg eq/kg, however, the metabolite M3 generally accounted for the highest proportions (9–29% of the TRR; 0.0006–0.012 mg eq/kg) in all tested commodities. Enzymatic hydrolysis of some of the extracted residues as well as acid hydrolysis of the unextracted residues revealed that 5–55% of the TRRs were attributed to free and conjugated M10 (< 0.001–0.008 mg eq/kg).

In summary, the main metabolite observed in rotational crops was M3 which was in turn hydroxylated to M10. These metabolites were all identified in the primary crop (wheat) metabolism studies, albeit at non-detectable levels in grain.

Field rotational crops

Pinoxaden, formulated as an emulsifiable concentrate formulation, was applied to the primary crop, wheat, as a single application at a rate of 69 g ai/ha, equivalent to the registered GAP. Spinach, radish, and oat crops were planted 60 and 90 days after the application (60 and 90-day plant-back intervals (PBI)).

At the 60-day PBI, no quantifiable residues (< 0.01 ppm) of the metabolite were found in any of the edible portions of the harvested commodities.

Based on this information, measurable residues of M3 are not expected in follow crops, when planted in rotation with wheat and barley treated in accordance with the registered GAP.

Soil degradation

The Meeting received soil degradation studies where **^{14}C-phenyl-, ^{14}C-pyrazole- and ^{14}C-oxadiazepine** labelled pinoxaden were each applied to soil and incubated at 20–25 °C in the dark under aerobic conditions. The soil samples were analysed after 181 days (phenyl label) and 100 days (pyrazole and oxadiazepine labels).

The volatiles were identified exclusively as carbon dioxide, demonstrating mineralization which accounted for > 45% of the applied radioactivity.

Pinoxaden was rapidly hydrolysed to M2 followed by oxidation to M3, which was further degraded. The maximum observed concentration of M2 was 88% of the AR (after 1 day), and the maximum observed concentration of M3 was 17% of the AR (between 7 and 30 days).

Under aerobic conditions pinoxaden was degraded rapidly by hydrolysis of the ester bond to M2. M2 was then degraded with a half-life of 2–16 days, forming M3 that was in turn degraded with a half-life of 7–51 days.

The Meeting also received a soil degradation study which investigated the rate of aerobic degradation of **^{14}C-pyrazole ring labelled M3** in three different soils. ^{14}C-labelled M3 was applied at a dose rate equivalent to a single field application rate of 63 g ai/ha (representing the maximum registered seasonal application rate). The soils were incubated under aerobic conditions in the laboratory under dark conditions at 20 °C ± 2 °C for up to 120 days.

Mineralization to carbon dioxide reached comparable levels in all soils with maximum levels ranging from 13-19% of the applied dose by the end of the incubation.

The amount of unchanged M3 extracted from the soil decreased continuously throughout the study in all three soil types, with DT_{50} values between 130 to 220 days. In conclusion, the degradation of pinoxaden in soil maintained under aerobic conditions is rapid with formation of the major degradation products M2 and M3. Neither pinoxaden nor the metabolite M2 are persistent in soil ($DT_{50} \leq 16$ days), however, the metabolite M3 appears to be relatively more persistent ($DT_{50} \leq 220$ days).

Hydrolytic degradation

^{14}C-phenyl-labelled pinoxaden was incubated in diluted aqueous buffer solution at a concentration of 5 mg/L at temperatures of 15 °C (pH 7 and pH 9), 25 °C (pH 5, 7, and 9) under sterile conditions in the dark.

Pinoxaden was relatively stable to hydrolysis at pH 5 and 7 (DT_{50} of 10–23 days) but undergoes rapid hydrolysis at pH 9 (DT_{50} of ≤ 0.6 days), suggesting that hydrolysis is a significant route of degradation and occurs faster at higher pHs. The main hydrolysis degradate was M2 which was stable at all pHs and temperatures tested.

^{14}C-pyrazole labelled M3 was incubated in dilute aqueous buffer solution at a concentration of 5 mg/L under sterile conditions in the dark under the following conditions:at pH 7 at 25 °C (30 days of incubation).

Under neutral conditions (pH 7) M3 hydrolysed with a DT_{50} of 58 days at 25 °C.

Four minor metabolites resulting from the hydrolysis of the metabolite M3 were observed, however, none accounted for >10% of the AR. In summary, hydrolysis is a major degradation route of pinoxaden, with metabolites M2 and M3 being less susceptible to hydrolysis under environmental conditions.

Photolysis

During irradiation at 25 °C, pinoxaden degraded rapidly to M2, with a DT_{50} of 22 days. M2 was further photolytically degraded by the light with a DT_{50} of 8 days. In the dark, pinoxaden was also hydrolytically degraded to M2, with a comparable DT_{50} of 18 days yet M2 was not further degraded in the dark. Therefore, photolysis appears to be a major route of degradation of pinoxaden.

Methods of analysis

Methods have been reported in the scientific literature for the analysis of pinoxaden in food, including multi-residue methods. These methods do not involve a hydrolysis step, therefore, the measured residue is reported as pinoxaden, *per se*.

The wheat metabolism studies demonstrated that pinoxaden was only detected in forage samples harvested soon after application, however, as the plant matured, pinoxaden was rapidly hydrolysed to the major metabolite M2 followed by hydroxylation/oxidation and subsequent conjugation. Therefore, any residues of pinoxaden that may be present in wheat and barley commodities would be converted to M2 and all conjugates of the metabolites M4 and M10 would undergo hydrolysis. Consequently, the methods REM199.02/199.03 and 117-01, which involve extraction with 1N HCl by boiling under reflux for 2 hours, were deemed adequate to quantify residues of M2, M4 (and its conjugates), M6 and M10 (and its conjugates) in wheat and barley supervised trials and processing studies

To validate the extraction efficiency of methods REM 199.02/199.03 and 117-01, samples of grain, straw and husks from the winter wheat metabolism study were extracted by heating under reflux in 1N HCl for 2 hours or by heating under reflux in 1M HCl:acetonitrile (90:10, v:v). The overall extractabilities achieved with the analytical methods REM199.02/199.03 and 117-01 were comparable to those achieved using the procedure in the metabolism study. Therefore, these analytical methods are capable of successfully extracting residues for quantitative analysis.

A QuEChERS method was also developed for the metabolites M4 and M6 in plant commodities, but did not include a hydrolysis step. Therefore, this method was found unsuitable for measuring residues of the conjugated forms of the metabolite M4.

The Meeting also received the description and validation data for an analytical method capable of quantifying residues of the metabolites M4 and M6 in animal commodities.

All residue analytical methods rely on LC-MS/MS. Typical LOQs achieved for plant and animal commodities fall in the range of 0.01–0.02 mg/kg/analyte. Methods were successfully validated by independent laboratories, demonstrating good reproducibility.

Stability of pesticide residues in stored analytical samples

The Meeting received storage stability studies under conditions at -18 °C for pinoxaden and its relevant metabolites M2, M4, M6 and M10 for the duration of the storage of 28 months in wheat whole plant, straw, grain and processed commodities. The Meeting concluded that residues of pinoxaden and M2, M4, M6 and M10 are stable for at least 28 months in cereal commodities.

Freezer storage stability studies on animal matrices demonstrated that residues of M4 and M6 in milk, egg, chicken muscle, and beef liver, when stored frozen at -20 °C or lower, were stable for 90 days.

Definition of the residue

In wheat metabolism studies, the parent compound was rapidly hydrolysed to the metabolite M2 which was subsequently hydroxylated to the major metabolite M4 (≤ 20% of the TRRs in grain and ≤ 37% of the TRR in wheat straw) followed by conjugation (up to 28% of the TRR). Oxidation of the methyl-hydroxy function of M4 also lead to the corresponding carboxylic acid M6 which accounted for up to 14% of the TRRs in grain and less than 10% of the TRRs in straw. Therefore, while pinoxaden may be observed in forage harvested soon after application, there is no expectation of significant pinoxaden residues in mature grain and straw.

The major metabolites M4 (and its conjugates) and M6 in wheat were not identified in rotational crops. Metabolites M3, M10, M11 and the conjugates of M10 were found at (>10% of the TRRs) in all crop commodities at the 15-day, 29-30 day and 120-day plant-back intervals, but at low concentrations. Under field conditions, residues of these metabolites are expected to be low (i.e., <0.01 mg/kg), following uptake from soil.

The free and conjugated forms of the metabolite M4 represent the majority of the residues in primary crops. This is further supported by the results of the wheat and barley crop field trials where residues of free and conjugated M4 in wheat and barley grain accounted for up to 7-fold and 50-fold the residues of the metabolites M6 and M10, respectively. Therefore, the Meeting decided to define the residue for enforcement/monitoring for plant commodities as the free and conjugated forms of the metabolite M4.

Based on toxicity studies reviewed by the Meeting, the metabolite M4 was one of the major metabolites observed in rats. Further to this, toxicity studies on the metabolite M6 showed lower toxicity than pinoxaden. Therefore M6 is not considered relevant for the residue definition for dietary risk assessment. The Meeting decided to define the residue for dietary risk assessment for plant commodities as the free and conjugate metabolite M4.

In the future, should the use of pinoxaden be expanded to any crop other than a cereal crop, the Meeting recommends that additional plant metabolism studies be provided.

The metabolite M4, occurring as a major plant metabolite, was administered to lactating goats in the metabolism study. The predominant component identified in kidney and liver, the only matrices for which there was measurable radioactivity, was the unchanged metabolite M4. A laying hen metabolism study with M4 was not conducted.

In the livestock feeding studies, poultry and dairy cattle were both dosed with M4. While all matrices were analyzed for the metabolites M4 and M6, no quantifiable residues of these metabolites were observed in milk, eggs and all tissues collected from animals administered the highest dose tested. Being the major compound observed in metabolism and feeding studies, M4 could be included in the residue definition for enforcement as a marker compound. Since the analytical method is capable of analyzing M4, the Meeting agreed to define the residue for enforcement/monitoring and dietary intake for livestock commodities as the metabolite M4.

Neither the goat metabolism study nor the dairy cattle feeding study showed a partition of the metabolite M4 into the fat tissues or milk at any dose level. Similarly in the laying hen metabolism study and the poultry feeding study, the partitioning of the metabolite M4 into the fatty tissues and eggs was not observed. Since this metabolite did not sequester to fatty matrices in animals, the Meeting does not consider the residue fat soluble.

Definition of the residue for compliance with the MRLs and dietary intake for plant commodities: Sum of free and conjugated M4 (SYN 505164; *8-(2,6-Diethyl-4-hydroxymethyl-phenyl)-9-hydroxy-1,2,4,5-tetrahydro-pyrazolo[1,2-d][1,4,5]oxadiazepin-7-one*), expressed as pinoxaden equivalents.

Definition of the residue for compliance with the MRLs and dietary intake for animal commodities: M4 (SYN 505164; *8-(2,6-Diethyl-4-hydroxymethyl-phenyl)-9-hydroxy-1,2,4,5-tetrahydro-pyrazolo[1,2-d][1,4,5]oxadiazepin-7-one*), expressed as pinoxaden equivalents.

Results of supervised residue trials on crops

Cereal grains

Results from supervised field trials on wheat and barley conducted in Canada, USA and Europe were provided to the Meeting.

A total of 142 supervised trials were conducted in Canada, the USA, Germany, the Netherlands, United Kingdom, France, Italy, Spain, Switzerland and Greece on wheat (92) and barley (50). The GAP in Canada, the USA and Slovenia for cereal grains allows a single early post-emergence application at growth stages ranging from BBCH 13–39 at a rate of 0.06 kg ai/ha, with a PHI of 60 days for grain (PHI not specified on the Slovenia label). For the 2013 European trials, where grain samples, collected from trials conducted at 0.06 kg ai/ha, were analysed using the QuEChERS method, these residues were not considered in the MRL recommendation as they do not reflect the proposed residue definition for MRL compliance/enforcement.

Residues of total M4 (free and conjugated and expressed as parent equivalents) in wheat grain from 30 Canadian and USA independent trials and 26 European independent trials matching the Canadian and USA critical GAPs were: <0.01 (6), 0.01 (2), 0.02 (4), 0.04 (3), 0.05 (4), 0.06 (2), 0.07 (4), 0.08 (2), 0.10, 0.11 (6), 0.13 (4), 0.14 (2), 0.16 (2), 0.17, 0.18, 0.19, 0.22, 0.23, 0.29 (2), 0.31 (2), 0.35, 0.37, 0.38, 0.50, 0.66 mg/kg (n = 56).

Based on the combined residue data for wheat grain, the Meeting estimated a maximum residue level of 0.7 mg/kg, and an STMR of 0.10 mg/kg.

Residues of total M4 (free and conjugated and expressed as parent equivalents) in barley grain from 21 independent Canadian and USA trials and 17 independent European trials matching the

Canadian and USA critical GAPs were: <0.01, 0.02(3), 0.04 (4), 0.05 (4), 0.06, 0.07(4), 0.08(2), 0.10 (4), 0.12, 0.13, 0.14(2), 0.17 (3), 0.18, 0.19 (2), 0.32, 0.34, 0.36, 0.56 (2) mg/kg (n = 38).

Based on the combined residue data for barley grain, the Meeting estimated a maximum residue level of 0.7 mg/kg and an STMR of 0.09 mg/kg.

Animal feed items

Wheat and barley forage, hay and straw

Supervised field trials on wheat forage/whole plant, hay and straw and barley hay and straw were provided to the Meeting.

These trials were conducted in Canada, the USA, Germany, the Netherlands, United Kingdom, France, Italy, Spain, Switzerland and Greece on wheat and barley.

The GAP in Canada for cereal grains allows a single early post-emergence application at growth stages up to BBCH 37 at a rate of 0.06 kg ai/ha, with a grazing interval of 7 days for forage and PHIs of 30 days for hay and 60 days for straw.

In the USA, the GAP allows for a single early post-emergence application at growth stages up to BBCH 39 at a rate of 0.06 kg ai/ha, however, the forage can only be harvested for hay 30 days after application and the PHI for straw is 90 days.

While the GAP in Slovenia is the same as the Canadian and USA GAPs with applications permitted within growth stages BBCH 13-39, no grazing restrictions or PHIs for feed are specified.

Forage and whole plant of wheat

Residues of total M4 (free and conjugated expressed as parent equivalents) in wheat forage from 9 independent Canadian trials and wheat whole plant from 3 independent European trials, matching the Canadian critical GAP were: 0.24, 0.35, 0.40, 0.73, 1.27, 1.33, 1.48, 1.67, 1.94, 2.24, 2.38, 3.54 mg/kg (n = 12).

Based on the combined residue data from Canada and Europe for wheat forage and whole plant, the Meeting estimated a highest residue of 3.54 mg/kg and a median residue of 1.41 mg/kg.

Hay of wheat and barley

Average residues of total M4 (free and conjugated and expressed as parent equivalents) in wheat hay, as received, from 32 independent Canadian and USA trials matching the Canadian and USA critical GAPs were: <0.02(3), 0.04(2), 0.05(3), 0.06, 0.08, 0.11, 0.13 (2), 0.16, 0.19 (2), 0.20, 0.24, 0.26, 0.53, 0.62, 0.66, 0.73, 0.74, 0.82, 0.86 (2), 0.89, 1.22, 1.36, 1.44 mg/kg (n = 32).

Average residues of total M4 (free and conjugated expressed as parent equivalents) in barley hay, as received, from 20 independent Canadian and USA trials matching the Canadian and USA GAPs were: < 0.02, 0.02(3), 0.05(4), 0.11, 0.12, 0.14, 0.16, 0.24, 0.25, 0.29, 0.31(2), 0.48, 0.60, 0.72 mg/kg (n = 20).

Noting that hay of small cereal grains (wheat and barley) are very similar and difficult to distinguish in trade, and, residue populations for wheat and barley hay are not significantly different (Kruskal-Wallis), the Meeting decided to combine the residues (as received): < 0.02(4), 0.02(3), 0.04(2), 0.05(7), 0.06, 0.08, 0.11(2), 0.12, 0.13 (2), 0.14, 0.16(2), 0.19 (2), 0.20, 0.24(2), 0.25, 0.26, 0.29, 0.31(2), 0.48,0.53, 0.60, 0.62, 0.66, 0.72, 0.73, 0.74, 0.82, 0.86 (2), 0.89, 1.22, 1.36, 1.44 mg/kg (n = 52).

Straw of wheat and barley

Residues of total M4 (free and conjugated and expressed as parent equivalents) in wheat straw, as received, from 31 independent Canadian and USA trials and 26 independent European trials matching the Canadian and USA critical GAPs were: < 0.02(2), 0.04, 0.05(4), 0.06(2), 0.07(3), 0.08, 0.11(3), 0.12, 0.13, 0.17(2), 0.18, 0.19 (2), 0.20 (4), 0.24(3), 0.25(2), 0.29, 0.30, 0.32, 0.34(2), 0.35(2), 0.37, 0.38(2), 0.42(3), 0.43, 0.47, 0.62, 0.68, 0.77, 0.83, 0.89, 0.98, 1.08, 1.31 mg/kg (n = 57).

Residues of total M4 (free and conjugated and expressed as parent equivalents) in barley straw, as received, from 22 independent Canadian and USA trials and 18 independent European trials matching the Canadian and USA critical GAPs were: <0.02(3), 0.02, 0.05(5), 0.06, 0.07(4), 0.08, 0.10(5), 0.11, 0.12(6), 0.13, 0.14 (3), 0.17, 0.18, 0.20, 0.23, 0.24, 0.26, 0.29, 0.41, 0.44, 0.64 mg/kg (n = 40).

Similar to hay, noting that straw of small cereal grains (wheat and barley) are very similar and difficult to distinguish in trade, and, residue populations for wheat and barley straw are not significantly different (Kruskal-Wallis), the Meeting decided to combine the residues (as received): <0.02(5), 0.02, 0.04, 0.05(9), 0.06(3), 0.07(7), 0.08(2), 0.10(5), 0.11(4), 0.12(7), 0.13(2), 0.14(3), 0.17(3), 0.18(2), 0.19(2), 0.20(5), 0.23, 0.24(4), 0.25(2), 0.26, 0.29(2), 0.30, 0.32, 0.34(2), 0.35(2), 0.37, 0.38(2), 0.41, 0.42(3), 0.43, 0.44, 0.47, 0.62, 0.64, 0.68, 0.77, 0.83, 0.89, 0.98, 1.08, 1.31 mg/kg (n = 97).

As the residues of M4 (expressed as parent equivalents) were higher in hay (dry weight basis) compared to straw (dry weight basis), the Meeting estimated a maximum residue level for *wheat and barley straw and fodder* of 3 mg/kg (dry weight basis), a highest residue of 1.44 mg/kg and a median residue of 0.16 mg/kg, all based on wheat hay.

Fate of residues during processing

High temperature hydrolysis

No high temperature hydrolysis studies, simulating the degradation of the metabolite M4 during pasteurization, baking, brewing, boiling and sterilization were provided,

Processing

The Meeting received information on the fate of pinoxaden residues and its metabolites M2, M4 and M6 during the processing of wheat and barley grains.

Processing factors calculated for the processed commodities of the cereal grains are shown in the tables below. Processing factors, best estimates and STMR-Ps were calculated for M4.

Wheat

Commodity	Calculated Processing Factor	Best Estimate	STMR-P or median
Aspirated grain fractions	0.10, 0.16	0.13 (mean)	0.01
Unprocessed bran	1.20, 4.73, 4.38	4.38 (median)	0.44
Flour	0.15, 0.16, 0.21	0.16 (median)	0.02
Middlings	0.58, 0.72, 2.75	0.72 (median)	0.07
Shorts	0.93, 1.0	0.96 (mean)	0.10
Germ	0.21, 0.35, 0.58	0.35 (median)	0.04
Low grade meal (toppings)	1.21	1.21	0.12
Wholemeal flour	1.08	1.08	0.11
Wholemeal bread	0.58	0.58	0.06

Barley

Commodity	Calculated Processing Factors	Best Estimate	STMR-P or median
Pearled barley	1.25, 0.85, 0.48	0.48 (median)	0.04
Flour	0.50, 0.42	0.46 (mean)	0.04
Unprocessed bran	2.65, 0.77	1.71 (mean)	0.15
Malt (after drying)	1.20	1.20	0.11
Malt sprouts	0.47	0.47	0.04
Malt (before brewing)	1.17	1.17	0.11
Beer	0.13	0.13	0.01

As the residue concentrations of M4 in all processed commodities are not higher than the estimated maximum residue levels for wheat and barley grain, separate maximum residue levels will not be estimated for any of the cereal grain processed commodities.

Residues in animal commodities

Farm animal feeding studies

The Meeting received information on the residue levels arising in tissues and milk when three groups of dairy cows were fed with a diet containing 1.11, 3.01, and 10.12 mg of M4/kg feed for 29–30 consecutive days.

In milk, liver, kidney, muscle and fat, no quantifiable (<LOQ) residues of M4 or M6 were observed in the 10× treatment group. Hence, samples from the low and mid dose experiments were not analyzed.

The Meeting also received information on the residue levels arising in tissues and eggs when groups of laying hens were fed with a diet containing M4 at rates of 0.5 mg/kg feed, 1.5 mg/kg feed and 5.0 mg/kg feed per day for 28 consecutive days.

In eggs, muscle, liver, and fat, no quantifiable (<LOQ) residues of M4 or M6 were detected in the 10x treatment group. Because of this, no samples from the low and mid doses were analyzed.

Estimated dietary burdens of farm animals

Maximum and mean dietary burden calculations for pinoxaden are based on the feed items evaluated for cattle and poultry as presented in Annex 6. The calculations were made according to the livestock diets from Australia, the EU, Japan and US-Canada in the OECD feeding table.

The foliar application of pinoxaden to wheat and barley resulted in residues in the following feed items: wheat forage/whole plant, wheat and barley hay, straw and grain (including aspirated grain fractions, bran, meal and milled by-products). Based on the named feed items, the calculated maximum animal dietary burden for dairy or beef cattle was in Australia, followed by EU and US-Canada. For poultry broiler or layer, the calculated maximum dietary burden was in EU, followed by US-Canada and Australia.

	Livestock dietary burden, M4 (expressed as parent equivalents), ppm of dry matter							
	US-Canada		EU		Australia		Japan	
	Max	Mean	Max	Mean	Max	Mean	Max	Mean
Beef cattle	0.49	0.28	3.2	1.3	14.2	5.6	0.32	0.32
Dairy cattle	2.8	1.1	2.8	1.1	8.5	3.4	0	0
Poultry - broiler	0.25	0.25	0.10	0.10	0.10	0.10	0.02	0.02
Poultry-layer	0	0	1.4[A]	0.56[B]	0	0	0	0

[A] Suitable for MRL estimates for eggs, meat, fat and edible offal of poultry

[B] Suitable for STMR estimates for eggs, meat, fat and edible offal of poultry

Animal commodities maximum residue level estimation

As the feeding levels from the dairy cattle feeding study did not address the maximum dietary burdens for cattle in Australia, the Meeting could not estimate MRLs for M4 (expressed in parent equivalents) for milk, meat from mammals, mammalian fat and edible offal (mammalian).

As there were no quantifiable residues of M4 detected in eggs, muscle, liver and fat collected from laying hens dosed 5 mg M4/kg feed (ca. 3-fold the maximum dietary burden in poultry (layer)), the Meeting estimated maximum residue levels of M4, expressed as parent equivalents, of 0.02* mg/kg for eggs and 0.02* mg/kg for edible offal, meat and fats of poultry. The HRs and STMRs for eggs, edible offal, meat and fat were each 0.02 mg/kg.

RECOMMENDATIONS

On the basis of the data from supervised trials the Meeting concluded that the residue levels listed in Annex 1 are suitable for establishing maximum residue limits and for IESTI and IEDI assessments.

Definition of the residue for compliance with the MRLs and dietary intake for plant commodities: Sum of free and conjugated M4 (SYN 505164; *8-(2,6-Diethyl-4-hydroxymethyl-phenyl)-9-hydroxy-1,2,4,5-tetrahydro-pyrazolo[1,2-d][1,4,5]oxadiazepin-7-one*), expressed as pinoxaden.

Definition of the residue for compliance with the MRLs and dietary intake for animal commodities: M4 (SYN 505164; *8-(2,6-Diethyl-4-hydroxymethyl-phenyl)-9-hydroxy-1,2,4,5-tetrahydro-pyrazolo[1,2-d][1,4,5]oxadiazepin-7-one*), expressed as pinoxaden.

The residue is not fat soluble.

DIETARY RISK ASSESSMENT

Long-term dietary exposure

The International Estimated Dietary Intakes (IEDIs) of pinoxaden were calculated for the 17

GEMS/Food cluster diets using STMRs and STMR-Ps estimated by the current Meeting (Annex 3 to the 2015 Report). The ADI is 0–0.1 mg/kg bw and the calculated IEDIs were 0–1% of the maximum ADI. The Meeting concluded that the long-term exposure to residues of pinoxaden resulting from the uses considered by the current JMPR is unlikely to present a public health concern.

Short-term dietary exposure

The ARfD for pinoxaden is 0.3 mg/kg bw. The International Estimate of Short Term Intake (IESTI) for pinoxaden were calculated for the food commodities for which STMRs or HRs were estimated by the present Meeting and for which consumption data were available. The results are shown in Annex 4 of the 2016 JMPR Report. The IESTIs were 1% of the ARfD for the general population including children. The Meeting concluded that the short-term dietary exposure to residues of pinoxaden, from the uses that have been considered by the present Meeting, is unlikely to present a public health concern.

5.21 SAFLUFENACIL (251)

RESIDUE AND ANALYTICAL ASPECTS

Saflufenacil is a herbicide belonging to the uracil family of compounds. The biochemical mode of action is a protoporphyrinogen IX oxidase (PPO) inhibitor. Saflufenacil was evaluated as a new compound by the 2011 JMPR. The 2011 Meeting determined that the residue definition for MRL compliance and estimation of dietary exposure for both plant and animal commodities is parent saflufenacil, and that the residue is not fat soluble. The 2011 Meeting also derived an ADI of 0–0.05 mg/kg bw and determined that an ARfD is not necessary.

Saflufenacil was listed by the 47th Session of the CCPR for the evaluation of additional MRLs. The 2016 Meeting received residue data reflecting use of saflufenacil on pomegranate, dessicant uses on barley and wheat, peanut, sunflower, olive, sugarcane, alfalfa, and perennial grasses. In addition, the Meeting received a metabolism study for rice.

Plant metabolism

In a study depicting the metabolism of saflufenacil in rice, upland (dry land) rice (BBCH 22–24) was treated with a single, foliar application of saflufenacil, radiolabelled in either the phenyl or uracil moieties, at a rate of 100 g ai/ha. A sample of rice forage was collected one week after application, and samples of rice grain and straw were collected four to five months after application. Major residues (defined as ≥ 10% TRR and ≥ 0.01 mg/kg) occurred only in forage and straw, and were identified as saflufenacil (ca. 60–80% TRR, ca. 1 mg/kg in forage; ca. 44% TRR, 0.3–1 mg/kg in straw), M800H11 (14% TRR, 0.25 mg/kg in forage (phenyl-label only)), M800H35 (10% TRR, 0.26 mg/kg in straw(phenyl-label only)), M800H02 (16% TRR 0.3 mg/kg in forage (phenyl-label only)), M800H29 (trifluoroacetic acid; 14% TRR, 0.09 mg/kg in straw (uracil-label only)). In grain, radioactivity was associated primarily with carbohydrates (54–62% TRR, 0.02–0.07 mg eq./kg).

As with studies reviewed by the 2011 Meeting, the metabolism study in rice shows that saflufenacil is the predominant residue in matrices where it was found. The metabolism study in rice supports the original conclusion that the residue definition for both compliance and dietary intake is saflufenacil.

Methods of analysis

Analytical methods used for analysis of saflufenacil trials being evaluated by the current Meeting were found to be acceptable by the 2011 Meeting. The reported limit of quantification (LOQ) is based on the lowest limit of method validation and is either 0.01 mg/kg or 0.025 mg/kg, depending on the matrix.

Stability of pesticide residues in stored analytical samples

The stability of saflufenacil, M800H35, and M800H11 in plant matrices was evaluated by the 2011 Meeting, which determined that residues of saflufenacil, M800H11, and M800H35 are stable in maize, soya bean, orange, radish root, raisin, and chickpea matrices for at least 553 days (JMPR, 2011).

The 2016 Meeting received storage stability data for the saflufenacil metabolite M800H02 in cereal, oilseed, legume, and citrus matrices. The data indicate that M800H02 is stable in orange fruit, kidney bean, canola seed, wheat grain, wheat forage, and wheat hay for at least 768 days. In addition, the 2016 Meeting received storage stability data for saflufenacil in bovine muscle, liver, and milk, and in poultry egg. The data demonstrate that saflufenacil is stable in those matrices for at least 125 days.

Results of supervised residue trials on crops

The Meeting received data from supervised residue trials conducted on olive, pomegranate, barley, wheat, sugar cane, peanut, sunflower seed, alfalfa, and perennial forage grass. Field trials were conducted in Brazil, Canada, and the US. All residue results are supported by adequate method and storage stability data, and reflect independent trials unless otherwise noted.

Olives

For olives, the critical GAP is from the registration in the US (four applications at 50 g ai/ha with a 0-day PHI). The Meeting notes that the label directs the applicator to avoid treating tree foliage, flowers, buds, and fruit. Four field trials are available reflecting residues resulting from three applications, each at 50 g a.i/ha and harvest zero days after the last application (DALA). The Meeting determined that a fourth application would be unlikely to significantly impact residues since it would be made early in the growing season and saflufenacil has a relatively short field half-life. The Meeting noted that olives were harvested by hand and pitted in the field prior to being frozen. Given that residues of saflufenacil are stable to hydrolysis at pH ≤ 7 (JMPR 2011) and that no degradation of residues was observed in homogenised, frozen storage stability samples, the current Meeting determined that the field pitting is unlikely to have had a negative impact on the suitability of the trials.

Mean field trial residues of saflufenacil in pitted olives from independent field trials matching the critical GAP (n = 4) were: < 0.01 (4) mg/kg. Furthermore, residues from a single trial conducted at a five-fold exaggerated application rate were also < 0.01 mg/kg.

Olives are considered a major commodity, generally requiring a minimum of six trials to support a recommendation by the Meeting. Furthermore, hand harvesting of the olives precludes contamination from residues on the ground that would be expected to occur based on the use pattern (ground-directed spray, 0-day PHI) and mechanical harvesting techniques that are frequently used. As the trials are unlikely to reflect residues that would be expected following common agricultural practices for olive, the Meeting decided to not make a recommendation for olives.

Pomegranate

For pomegranate, the critical GAP is from the registration in the US (four applications at 50 g ai/ha on a 21-day interval with a 0-day PHI). The Meeting notes that the label directs the applicator to avoid treating tree foliage, flowers, buds, and fruit. Four field trials are available reflecting residues resulting from four applications, each at 50 g ai/ha and harvest 0 DALA. The Meeting noted that pomegranates were quartered in the field prior to being frozen. Given that residues of saflufenacil are stable to hydrolysis at pH ≤ 7 (JMPR 2011) and that no degradation of residues was observed in homogenised storage stability samples, the field quartering is unlikely to have had a negative impact on the suitability of the trials. Furthermore, the Meeting determined that the two trials conducted in Parlier, California are not independent; therefore, only data from only three independent trials are available.

Mean field trial residues of saflufenacil in pomegranate from independent field trials matching the critical GAP (n = 3) were: < 0.01 (3) mg/kg.

The Meeting noted that saflufenacil is a herbicide that is not translocated, that residues would not be expected from the use under consideration, and that all of the available trials had non-quantifiable residues, the Meeting determined that the available data are sufficient. The Meeting estimated a maximum residue level for pomegranate of 0.01* mg/kg and an STMR of 0.

Barley

For barley, the critical GAP is from registration in the US as a harvest aid (one application at 50 g ai/ha with a 3-day PHI). Fifteen field trials are available reflecting residues resulting from one application at 50 g ai/ha and harvest 3 DALA.

Mean field trial residues of saflufenacil in barley grain from independent field trials matching the critical GAP (n = 14) were: 0.08, 0.12, 0.26, 0.28, 0.30, 0.30, 0.32, 0.34, 0.38, 0.38, 0.39, 0.40, 0.48, and 0.54 mg/kg.

The Meeting estimated a maximum residue level for barley grain of 1 mg/kg and an STMR of 0.33 mg/kg.

Wheat

For wheat, the critical GAP is from a registration in the US as a harvest aid (one application at 50 g ai/ha with a 3-day PHI). Twenty-five field trials are available, reflecting residues resulting from one application at 50 g ai/ha and harvest 3 DALA.

Mean field trial residues of saflufenacil in wheat grain from independent field trials matching the critical GAP (n = 25) were: < 0.01 (2), 0.01 (2), 0.02 (7), 0.03 (5), 0.04, 0.06 (2), 0.08, 0.1 (3), 0.22, and 0.50 mg/kg.

The Meeting estimated a maximum residue level for wheat grain of 0.7 mg/kg and an STMR of 0.03 mg/kg. Noting that the GAP in the US includes use on triticale, the Meeting decided to extrapolate the recommendation to triticale.

Sugar cane

For sugar cane, the critical GAP is from registrations in Brazil as a harvest aid (one application at 98 g ai/ha with a 7-day PHI). Nine field trials are available reflecting residues resulting from one application at 98 g ai/ha and harvest 7 DALA.

Mean field trial residues of saflufenacil in sugar cane stalks from independent field trials matching the critical GAP (n = 9) were: < 0.01 (8), and 0.02 mg/kg.

The Meeting estimated a maximum residue level for sugar cane of 0.03 mg/kg, an STMR of 0.01 mg/kg and a highest residue of 0.02 mg/kg.

Peanut

For peanut, the critical GAP is from registrations in Nicaragua (one crop pre-emergence application at 90 g ai/ha).

Mean independent field trial residues of saflufenacil in peanut nutmeat following a single application at 50 g ai/ha with harvest seven days later (n = 8) were: < 0.01 (8) mg/kg.

The meeting concluded that the use pattern used in the field trials is likely to lead to higher residues than the label GAP due to the much shorter time between application and harvest. As all of the residues in the trials were < LOQ, the Meeting decided to make a recommendation for residues in peanut nutmeat.

The Meeting estimated a maximum residue level for peanut nutmeat of 0.01* mg/kg and an STMR of 0 mg/kg.

Sunflower

The GAP for sunflower in Canada and the US is up to two applications on a 7-day interval at up to 50 g ai/ha, with a 7-day PHI. An additional GAP exists in Brazil (one application up to 98 g ai/ha, 7-

day PHI). The 2011 Meeting evaluated eight saflufenacil residue trials on sunflower matching the US GAP (residues ranging from 0.056 to 0.44 mg/kg) and four trials matching the Brazil GAP (residues ranging from < 0.01 to 0.07 mg/kg). The 2011 Meeting noted that there was no GAP corresponding to the Brazil trials. Comparison of the US and Brazil data showed the Canadian/US GAP to be more critical. The current Meeting received three additional field trials on sunflower matching the GAP in Canada and the US as a harvest aid (two applications at 50 g ai/ha with a 7-day PHI).

Mean field trial residues of saflufenacil in sunflower seed from the newly submitted independent field trials matching the GAP (n = 3) were: 0.03, 0.12, and 0.14 mg/kg.

The Meeting recognised that residues found in the newly submitted supervised field trials are covered by the existing MRL, and confirms its previous recommendation for sunflower (maximum residue = 0.7 mg/kg, STMR = 0.12 mg/kg).

Alfalfa

For alfalfa, the critical GAP is from registrations in the US as broadcast applications during the dormant season (not to exceed 50 g ai/ha) and between cuttings (one application per cutting at 25 g ai/ha with a 21-day PHI). Twelve field trials are available reflecting residues resulting from one application at 50 g ai/ha during the dormant period, just prior to green-up and a second application at 25 g ai/ha immediately after the first cutting. Multiple cuttings were harvested, ranging from 21 to 161 DALA. Of those, eight trials had harvest approximating the label PHI (i.e., 21–28 DALA).

Mean field trial residues of saflufenacil in alfalfa forage from independent field trials matching the critical GAP (n = 8) were: < 0.025 (8) mg/kg. Residues were also < 0.025 mg/kg at all other cuttings, regardless of the DALA.

For alfalfa forage the Meeting estimated median and highest residues of 0.025 mg/kg.

Mean field trial residues of saflufenacil in alfalfa fodder (fresh) from independent field trials matching the critical GAP (n = 8) were: < 0.025 (7), and 0.026 mg/kg.

The Meeting estimated a maximum residue level for alfalfa fodder (dry) of 0.06 mg/kg, a median residue of 0.025 mg/kg (fresh), and a highest residue of 0.026 mg/kg (fresh).

Forage grass

For forage grasses, the critical GAP is from registration in the US as a post-crop emergence broadcast application (applications any time during the dormant phase, not to exceed 100 g ai/ha, followed by applications in season, on a 14-day interval, not to exceed 50 g ai/ha; neither a PHI nor a pre-grazing interval (PGI) is specified). Sixteen field trials are available reflecting residues resulting from one application at 100 g ai/ha during the dormant period, just prior to green-up and a second application at 50 g ai/ha at the boot growth stage.

Mean field trial residues of saflufenacil in grass forage from independent field trials matching the critical GAP (n = 16) were: 1.4, 1.6, 1.8, 2.2, 2.3, 2.6, 3.3, 3.6 (2), 3.8, 3.9, 4.0, 4.2, 7.1 (2), and 7.5 mg/kg.

For grass forage (fresh) the Meeting estimated a median residue of 3.6 mg/kg and a highest residue of 7.5 mg/kg.

Hay or fodder (dry) of grasses

Mean field trial residues of saflufenacil in grass hay (as received) from independent field trials matching the critical GAP noted above (n = 16) were: 2.5, 3.2, 3.7, 3.8, 4.1, 4.2, 4.8, 5.0, 5.6, 6.3, 6.8, 6.9, 8.9, 9.8, 10, and 13 mg/kg.

The Meeting estimated a maximum residue level for grass hay (dry) of 30 mg/kg based on a dry matter content of 88%.

For grass hay (as received), the Meeting estimated a median residue of 5.3 and a highest residue of 13 mg/kg.

Barley straw

For barley, the critical GAP is from registrations in Canada and the US as a harvest aid (one application at 50 g ai/ha with a 3-day PHI). Fifteen field trials are available reflecting residues resulting from one application at 50 g ai/ha and harvest 3 DALA.

Mean field trial residues of saflufenacil in barley straw (as received) from independent field trials matching the critical GAP (n = 15) were: 0.10, 0.12, 0.81, 0.86, 0.90, 1.5, 1.6, 2.3, 2.4, 2.5, 4.1, 4.6, 5.7 (2), and 6.6 mg/kg.

Wheat straw

For wheat, the critical GAP is from registrations in Canada and the US as a harvest aid (one application at 50 g ai/ha with a 3-day PHI). Twenty-five field trials are available, reflecting residues resulting from one application at 50 g ai/ha and harvest 3 DALA.

Mean field trial residues of saflufenacil in wheat straw (as received) from independent field trials matching the critical GAP (n = 25) were: 0.07, 0.22 (2), 0.34, 0.82, 0.84, 0.90, 0.92, 1.1, 1.3, 1.4 (2), 1.8, 1.9 (2), 2.0, 2.1, 2.3, 2.4 (2), 2.5, 2.6, 3.0, 3.2, and 3.4 mg/kg.

Noting that it is difficult to discern cereal straws from one another, and that there is no evidence for a difference in the residue populations between straw from barley and hay (Kruskal-Wallis test), the Meeting decided to combine the residues (as received; n = 40): 0.07, 0.10, 0.12, 0.22 (2), 0.34, 0.81, 0.82, 0.84, 0.86, 0.90 (2), 0.92, 1.1, 1.3, 1.4 (2), 1.5, 1.6, 1.8, 1.9 (2), 2.0, 2.1, 2.3 (2), 2.4 (3), 2.5 (2), 2.6, 3.0, 3.2, 3.4, 4.1, 4.6, 5.7 (2), and 6.6 mg/kg.

Based on a dry matter content of 89%, the Meeting estimated a maximum residue level for straw of barley and wheat (dry) of 10 mg/kg.

For barley and wheat straw (as received), the Meeting estimated a median residue of 1.85 mg/kg, and a highest residue of 6.6 mg/kg.

As the GAP in the US includes use on triticale, the Meeting decided to extrapolate the estimates to triticale straw.

Peanut hay

For peanuts, the critical GAP is from registrations in Nicaragua (one crop pre-emergence application at 90 g ai/ha). Eight field trials are available reflecting residues resulting from a single application at 50 g ai/ha with harvest seven days later.

No data are available from trials matching GAP; therefore, the Meeting is not making a recommendation for peanut hay.

Fate of residues during processing

Residues after processing

The Meeting received data depicting the concentration/dilution of residues during processing of barley, wheat, sugar cane, and peanuts. For all crops, processed commodities were derived using simulated commercial practices. The resulting processing factors and STMR-P estimates are summarized below.

Raw agricultural commodity	Processed commodity	Processing factors [median/best estimate][A]	MRL, mg/kg	STMR-P, mg/kg
Barley grain MRL = 1 STMR = 0.33	Pearled barley	0.28, 0.064, 0.084, 0.10 [0.092]	--	0.03
	Bran (unprocessed)	3.1, 1.6, 2.7, 3.5 [2.9]	3	0.96
	Flour	0.22, 0.058, 0.084, 0.11 [0.097]	--	0.032
	Spent grain	0.039, <0.006, <0.009, <0.008 [0.039]	--	0.013
	Beer	0.098, <0.006, <0.009, <0.008 [0.098]	--	0.032
Wheat grain MRL = 0.7 STMR = 0.03	Aspirated grain fraction	245 [245]	--	7.4
	Flour	0.083, 0.24 [0.16]	--	0.0048
	Gluten feed meal	0.50, 0.43 [0.46]	--	0.014
	Shorts	1.0, <0.05 [1.0]	--	0.03
	Whole grain bread	0.50, 0.29 [0.40]	--	0.012
Sugar cane stalk MRL = 0.03 STMR = 0.01	Bagasse	2.5 [2.5]	--	0.025
	Molasses	3.0 [3]	1	0.03

[A] Only finite factors were used to derive the mean processing factor. If no finite factor is available, then the highest factor was used to derive the STMR-P.

Residues in animal commodities

The 2011 Meeting evaluated a cattle feeding study for saflufenacil (feeding levels were 0.15 ppm, 0.48 ppm, and 1.7 ppm), and estimated dietary burdens based on saflufenacil residues in animal feed items from tree nuts, cotton, pulses, cereals, and sunflower. The current Meeting received new feeding studies conducted with lactating cattle and laying hens dosed at higher levels.

In the new cattle feeding study, lactating cows were dosed for 28 days at levels equivalent to ca. 5, 17.8, and 62.5 ppm in the feed. The study is supported by adequate analytical methods and storage stability data. Residues of saflufenacil were < 0.01 mg/kg in all samples from the control group and from all dosing levels in milk, muscle, omental fat, and subcutaneous fat. For other matrices, mean (and maximum) residues of saflufenacil at the 5, 17.8, and 62.5 ppm dose levels, respectively, were:

Perirenal fat = < 0.01 (< 0.01), 0.039, (0.051), and 0.019 (0.027) mg/kg;

Kidney = 0.081 (0.090), 0.26 (0.29), and 0.54 (0.81) mg/kg; and

Liver = 15 (16), 38 (56), and 41 (45) mg/kg.

Residues in kidney increased linearly over the dosing levels used in the study. The levels in perirenal fat and liver indicate that uptake into those commodities reached saturation between the mid- and high-dose levels.

In the new poultry feeding study, laying hens were dosed for 28 days at levels equivalent to ca. 0.98, 9.8, and 49 ppm in the feed. The study is supported by adequate analytical methods and storage stability data. Residues of saflufenacil were < 0.01 mg/kg in all control samples and from samples of eggs, fat, and muscle from the 49 ppm feeding level. Analyses were not conducted for those matrices at lower feeding levels. Residues in liver were < 0.01 mg/kg from the 9.8 ppm dose group; samples from the 0.98 ppm dose group were not analysed. The mean and maximum residues in liver from the 49 ppm dose group were 0.016 and 0.019 mg/kg, respectively.

Estimated maximum and mean dietary burdens of livestock

Dietary burden estimates from the 2011 Meeting have been recalculated by the 2016 Meeting to include contributions from barley, wheat, sugar cane, alfalfa, and forage grasses. Estimated dietary burdens for Australia, the EU, Japan, and Canada/US are summarized below. The livestock diets are listed in Annex 6.

Livestock Dietary Burdens (ppm of dry matter diet) for saflufenacil.

	Australia		EU		Japan		Canada/US	
Livestock	Max	Mean	Max	Mean	Max	Mean	Max	Mean
Cattle (beef)	30	14	15	7.4	7.0	3.1	2.9	1.5
Cattle (dairy)	30	14	18	8.8	12	5.2	14	6.7
Poultry (broiler)	0.083	0.083	0.28	0.28	0.043	0.043	0.31	0.31
Poultry (layer)	0.083	0.083	3.3	1.8	0.060	0.060	0.31	0.31

The bold values, above, reflect the highest burdens for both MRL estimation (maximum diet) and STMR estimation (mean diet).

Animal commodities residue level estimation

Anticipated residues resulting from the dietary burdens and based on the new feeding studies are summarized below.

Saflufenacil feeding study	Feed level (ppm) for milk residues	Residues (mg/kg) in milk	Feed level (ppm) for tissue residues	Residues (mg/kg)			
				Muscle	Liver	Kidney	Fat [C]
MRL beef or dairy cattle							
Feeding study [A]	17.8	< 0.01	17.8	< 0.01	56.5	0.29	0.051
	62.5	< 0.01	62.5	< 0.01	45.6	0.81	0.027
Dietary burden and high residue	30	< 0.01	30	< 0.01	54	0.43	0.044
STMR beef or dairy cattle							
Feeding study [B]	5	< 0.01	5	< 0.01	15	0.081	< 0.01
	17.8	< 0.01	17.8	< 0.01	38	0.26	0.039
Dietary burden and residue estimate	14	< 0.01	14	< 0.01	31	0.21	0.03

[A] Highest residues for tissues and mean residues for milk

[B] Mean residues for tissues and mean residues for milk

[C] Based on residue in perirenal fat

The 2011 Meeting recommended maximum residue levels of 0.3 mg/kg in mammalian edible offal and 0.01 mg/kg in each of mammalian fats (except milk fats), meat (from mammals other than marine mammals), and milks. The 2016 Meeting confirms its previous recommendations of 0.01 mg/kg for meat (from mammals other than marine mammals) and 0.01 mg/kg for milks.

The Meeting estimated new maximum residue levels for edible offal, mammalian except marine mammals of 60 mg/kg and for mammalian fats (except milk fats) of 0.05 mg/kg. The Meeting withdrew its previous recommendations for these commodities.

Furthermore, the Meeting estimated STMRs of 31 mg/kg for mammalian edible offal and 0.03 mg/kg for mammalian fat.

In the poultry feeding study, residues in samples from the 49-ppm feeding level were <0.01 in eggs, fat, and muscle; and < 0.01 to 0.019 mg/kg (mean = 0.016 mg/kg) in liver. Based on an estimated maximum dietary burden for poultry of 3.3 ppm, the Meeting estimated maximum residue levels and STMRs of 0.01* mg/kg and 0 mg/kg, respectively, for poultry meats, fats, and eggs. The Meeting estimated a maximum residue level and STMR of 0.01* mg/kg and 0.01 mg/kg, respectively, for edible offal of poultry.

RECOMMENDATIONS

On the basis of the data from supervised trials, the Meeting concluded that the residue levels listed in Annex 1 are suitable for establishing maximum residue limits and for IEDI assessment.

Definition of the residue (for compliance with the MRL and for estimation of dietary intake) for plant and animal commodities: *saflufenacil*.

The residue is not fat soluble.

DIETARY RISK ASSESSMENT

Long-term dietary exposure

The International Estimated Daily Intakes (IEDIs) of saflufenacil were calculated for the 17 GEMS/Food cluster diets using STMRs/STMR-Ps estimated by the current and previous Meetings. The ADI is 0–0.05 mg/kg bw and the calculated IEDIs were 2–20% of the maximum ADI (0.05 mg/kg bw). The Meeting concluded that the long-term exposure to residues of saflufenacil, when used in ways that have been considered by the JMPR, are unlikely to present a public health concern.

Short-term dietary exposure

The 2011 Meeting determined that establishment of an acute reference dose is not necessary for saflufenacil. The Meeting therefore concluded that the short-term dietary exposure to residues of saflufenacil, resulting from uses that have been considered by the JMPR, is unlikely to present a public health concern.

5.22 SPIROMESIFEN (294)

TOXICOLOGY

Spiromesifen is the ISO-approved common name for 3-mesityl-2-oxo-1-oxaspiro[4.4]non-3-en-4-yl 3,3-dimethylbutyrate (IUPAC), which has the CAS number 283594-90-1. Spiromesifen is an insecticidal compound belonging to the chemical class of cyclic ketoenoles. It is an acetyl coenzyme A carboxylase inhibitor. The biological activity of cyclic ketoenoles correlates with the inhibition of lipogenesis, resulting in decreased lipid contents, especially of triglycerides and free fatty acids, in treated insects.

Spiromesifen has not previously been evaluated by JMPR and was reviewed by the present Meeting at the request of CCPR.

All critical studies contained statements of compliance with GLP and were conducted in accordance with relevant national or international test guidelines, unless specified otherwise.

Biochemical aspects

Following the administration of a single oral dose of 2 mg/kg bw of [^{14}C]spiromesifen to rats, absorption was rapid, although incomplete. At 2 and 500 mg/kg bw, urinary excretion was 39% and 9%, respectively, whereas faecal excretion was 55–57% and 90%, respectively. Bile duct–cannulated rats treated with 2 mg/kg bw excreted approximately 7% of the administered dose with the bile. At 2 mg/kg bw, at least 48% of the dose was absorbed; at 500 mg/kg bw, absorption appeared to be much lower. Maximum concentrations in blood were reached in 2 hours in males and 1 hour in females after a dose of 2 mg/kg bw and in 6 hours (both sexes) after a dose of 500 mg/kg bw. Distribution was widespread. Highest tissue concentrations were found in liver, and concentrations in liver were higher in males than in females. The calculated half-lives for radiolabel in plasma and whole blood, assessed in three experiments, ranged from 7 to 18 hours, without a clear effect of dose or sex. Spiromesifen and its metabolites do not accumulate. The absorbed spiromesifen is extensively metabolized. No parent compound was found in urine or bile.

The first step in the biotransformation of spiromesifen is the cleavage of the alkyl ester group, resulting in spiromesifen-enol, which is subsequently excreted or further transformed via hydroxylation of the cyclopentyl ring or the methyl side-chain of the phenyl ring, carboxylation of the methyl side-chain of the phenyl ring and oxidation in the cyclopentyl ring or the methyl side-chain of the aromatic ring. A sex difference was apparent in excretion profiles. The main metabolite in the excreta of female rats of the low-dose groups was spiromesifen-enol (BSN 0546, M01), whereas the main metabolite in the excreta of the male rats of the low-dose groups was 4-hydroxymethyl-BSN 0546 (M02). The excretion profiles in males and females were not affected by the size of the dose or predosing the rats with unlabelled spiromesifen for 14 days.

Toxicological data

The acute toxicity of spiromesifen in rats is low (oral LD_{50} > 2000 mg/kg bw; dermal LD_{50} > 2000 mg/kg bw; inhalation LC_{50} > 4.9 mg/L). Spiromesifen was not irritating to the skin or the eyes of rabbits. Spiromesifen was a skin sensitizer in a Magnusson and Kligman test in guinea-pigs.

In repeated-dose oral toxicity studies with spiromesifen in mice, rats and dogs, the most sensitive effect was reduction of plasma cholesterol. This is probably secondary to the inhibition of lipogenesis by spiromesifen. Common findings were effects on body weight, liver (including liver enzyme induction), thyroid and adrenals.

In a 14-week study in mice using dietary concentrations of spiromesifen of 0, 140, 700 and 3500 ppm (equal to 0, 22, 105 and 589 mg/kg bw per day for males and 0, 35, 191 and 1010 mg/kg bw per day for females, respectively), a NOAEL could not be identified. The LOAEL was 140 ppm (equal to 22 mg/kg bw per day), based on decreased haemoglobin levels and increased alkaline phosphatase levels in females and decreased cholesterol levels, discoloration of the adrenals and an increased incidence of cytoplasmic eosinophilia in zona fasciculata cells with reduced or absent normal fine vesiculation in adrenals in both sexes.

In a second 14-week study in mice using dietary concentrations of spiromesifen of 0, 20 and 80 ppm (equal to 0, 3.2 and 11.5 mg/kg bw per day for males and 0, 5.1 and 20.3 mg/kg bw per day for females, respectively), the NOAEL was 20 ppm (equal to 3.2 mg/kg bw per day), based on decreased cholesterol levels in both sexes and adrenal cytoplasmic eosinophilia in zona fasciculata in one female at 80 ppm (equal to 11.5 mg/kg bw per day).

In a 14-week study in rats using dietary concentrations of spiromesifen of 0, 100, 500 and 3000 ppm (equal to 0, 6.3, 32 and 204 mg/kg bw per day for males and 0, 7.7, 37 and 232 mg/kg bw per day for females, respectively), the NOAEL was 100 ppm (equal to 6.3 mg/kg bw per day), based on a slight reduction in body weight gain and water intake in males, an increased thromboplastin time, increased alkaline phosphatase activity, decreased concentrations of plasma cholesterol and triglycerides, a tendency to higher TSH values, increased relative kidney weights in males, white jejunal mucosa coverings and cytoplasmic vacuolation of the jejunal mucosa in females and increased incidences of thyroidal follicular cell hypertrophy in females and thyroidal colloidal alterations in males observed at 500 ppm (equal to 32 mg/kg bw per day).

In a 29-day dietary study in dogs using spiromesifen concentrations of 0, 25, 100, 500 and 2000 ppm (equal to 0, 0.9, 3.7, 19.3 and 72.6 mg/kg bw per day for males and 0, 0.9, 3.9, 18.1 and 76.5 mg/kg bw per day for females, respectively), the NOAEL was 2000 ppm (equal to 72.6 mg/kg bw per day), the highest dose tested. The Meeting considered the effects (increased absolute and relative liver weights, increased alkaline phosphatase activity, hepatic enzyme induction, increased T_4 elimination and hepatocellular cytoplasmic changes) observed at 500 and 2000 ppm to reflect hepatic enzyme induction.

In a 3-month dietary study in dogs using spiromesifen concentrations of 0, 20, 50, 250 and 2000 ppm (equal to 0, 0.7, 1.8, 9.2 and 71 mg/kg bw per day for males and 0, 0.8, 1.9, 9.3 and 71 mg/kg bw per day for females, respectively), the NOAEL was 2000 ppm (equal to 71 mg/kg bw per day), the highest dose tested. The Meeting considered the effects (increased plasma alkaline phosphatase activity and triglyceride levels and hepatocellular cytoplasmic changes) observed at 250 and 2000 ppm to reflect hepatic enzyme induction.

In a second 3-month dietary study in dogs using spiromesifen concentrations of 0, 3000 and 5000 ppm (equal to 0, 101 and 172 mg/kg bw per day, respectively, for both sexes), the NOAEL was 3000 ppm (equal to 101 mg/kg bw per day), based on a 9-fold increase in plasma alkaline phosphatase activity and vomiting at 5000 ppm (equal to 172 mg/kg bw per day).

In a 1-year study in dogs using dietary concentrations of spiromesifen of 0, 50, 400 and 4000 ppm (equal to 0, 1.4, 11.5 and 109 mg/kg bw per day for males and 0, 1.4, 10.8 and 117 mg/kg bw per day for females, respectively), the NOAEL was 400 ppm (equal to 10.8 mg/kg bw per day), based on decreased body weights in females, decreased T_4 (due to increased hepatic T_4 elimination), increased alkaline phosphatase activity, hepatic inclusions/vacuoles (hyaline bodies) and a small cell type in adrenocortical zona fasciculata observed in both sexes at 4000 ppm (equal to 109 mg/kg bw per day).

The overall NOAEL for the 3-month and 1-year toxicity studies in dogs was 400 ppm (equal to 10.8 mg/kg bw per day), and the overall LOAEL was 4000 ppm (equal to 109 mg/kg bw per day).

In an 18-month carcinogenicity study in mice using dietary concentrations of spiromesifen of 0, 20, 140, 1000 and 2000 ppm (equal to 0, 3.3, 22, 157 and 335 mg/kg bw per day for males and 0, 3.8, 30, 201 and 401 mg/kg bw per day for females, respectively), the NOAEL was 20 ppm (equal to 3.3 mg/kg bw per day), based on effects on the adrenal glands (i.e. macroscopic discoloration, microscopic cytoplasmic eosinophilia in the zona fasciculata and decreased incidences and/or severities of cortical ceroid deposits and normal diffuse fatty changes) observed at 140 ppm (equal to

22 mg/kg bw per day). No treatment-related increase in the incidence of tumours was observed in mice in this study.

In a 1-year toxicity study in rats using dietary concentrations of spiromesifen of 0, 50, 125, 300 and 800 ppm (equal to 0, 2.6, 6.5, 16 and 42 mg/kg bw per day for males and 0, 3.0, 7.6, 19 and 52 mg/kg bw per day for females, respectively), the NOAEL was 125 ppm (equal to 6.5 mg/kg bw per day), based on increased T_3 levels and thyroidal follicular cell hypertrophy and colloidal alteration in males and a reduction in cholesterol in females at 300 ppm (equal to 16 mg/kg bw per day).

In a 2-year carcinogenicity study in rats using dietary concentrations of spiromesifen of 0, 50, 125, 300 and 800 ppm (equal to 0, 2.5, 6.1, 15 and 40 mg/kg bw per day for males and 0, 3.3, 8.2, 20 and 54 mg/kg bw per day for females, respectively), the NOAEL was 125 ppm (equal to 6.1 mg/kg bw per day), based on increased counts of monocytes, a slight increase of posterior capsular opacities in the ocular lens for which a relationship with treatment cannot be excluded, and decreased plasma cholesterol concentration in females at 300 ppm (equal to 15 mg/kg bw per day). No treatment-related increase in the incidence of tumours was observed in rats in this study.

The Meeting concluded that spiromesifen is not carcinogenic in mice or rats.

Spiromesifen was tested for genotoxicity in an adequate range of assays, both in vitro and in vivo. There was no evidence of genotoxicity.

The Meeting concluded that spiromesifen is unlikely to be genotoxic.

In view of the lack of genotoxicity and the absence of carcinogenicity in mice and rats, the Meeting concluded that spiromesifen is unlikely to pose a carcinogenic risk to humans.

In a two-generation reproductive toxicity study in rats using spiromesifen at dietary concentrations of 0, 30, 120 and 500 ppm (equal to premating doses of 0, 2.6, 10.2 and 47 mg/kg bw per day for F_0 males, 0, 3.3, 14.7 and 56 mg/kg bw per day for F_0 females, 0, 3.1, 13.6 and 58 mg/kg bw per day for F_1 males and 0, 4.7, 21 and 86 mg/kg bw per day for F_1 females, respectively), the NOAEL for parental toxicity was 120 ppm (equal to 10.2 mg/kg bw per day), based on decreased body weights in F_1 males and in F_0 and F_1 females, decreased relative weights of liver, spleen and kidneys in F_0 males, decreased absolute spleen weight in F_0 females, decreased absolute brain weight in F_1 males, slight effects on the thyroid gland (follicular cell hypertrophy, altered follicular colloid) in males and females of both generations, decreased vacuolation of the adrenal zona glomerulosa cells and decreased hepatic periportal fat content in F_0 females observed at 500 ppm (equal to 47 mg/kg bw per day). The NOAEL for offspring toxicity was 120 ppm (equal to 14.7 mg/kg bw per day), based on decreased body weights (F_1, F_2, F_{2b}) during lactation and decreased absolute (F_1 males, F_2 males and females) and increased relative (F_1 and F_2 males and females) brain weights, decreased absolute spleen and thymus weights (F_1 and F_2 males and females, F_{2b} males) and decreased absolute thymus weight in F_{2b} females observed at 500 ppm (equal to 56 mg/kg bw per day). The NOAEL for reproductive toxicity was 500 ppm (equal to 47 mg/kg bw per day), the highest dose tested.

In a second two-generation reproductive toxicity study in rats using dietary concentrations of spiromesifen of 0, 30, 120 and 500 ppm (equal to premating doses of 0, 2.2, 8.8 and 37 mg/kg bw per day for F_0 males, 0, 3.8, 14.2 and 64 mg/kg bw per day for F_0 females, 0, 3.3, 13.2 and 76 mg/kg bw per day for F_1 males and 0, 4.6, 18.0 and 91 mg/kg bw per day for F_1 females, respectively), the NOAEL for parental toxicity was 30 ppm (equal to 3.3 mg/kg bw per day), based on decreased body weights in F_1 males and F_1 females and decreased absolute spleen weights in F_1 males observed at 120 ppm (equal to 13.2 mg/kg bw per day). The NOAEL for offspring toxicity was 30 ppm (equal to 3.8 mg/kg bw per day, maternal intake), based on decreased body weights during lactation in male and female F_1 and F_2 pups and on decreased absolute spleen and thymus weights in male F_1 pups observed at 120 ppm (equal to 14.2 mg/kg bw per day). The NOAEL for reproductive toxicity was 500 ppm (equal to 37 mg/kg bw per day), the highest dose tested.

The overall NOAEL for parental toxicity was 30 ppm (equal to 3.3 mg/kg bw per day); for reproductive toxicity, 500 ppm (equal to 47 mg/kg bw per day), the highest dose tested; and for offspring toxicity, 30 ppm (equal to 3.8 mg/kg bw per day).

In a developmental toxicity study in rats using gavage doses of spiromesifen of 0, 10, 70 and 500 mg/kg bw per day, the NOAEL for maternal toxicity was 10 mg/kg bw per day, based on reduced feed intake and body weight development at 70 mg/kg bw per day. The NOAEL for embryo and fetal toxicity was 70 mg/kg bw per day, based on a marginal decrease in fetal weight and slightly more progressed ossification of phalangeal and single skull bones of equivocal toxicological significance at 500 mg/kg bw per day. No evidence for a teratogenic potential of spiromesifen was identified.

In a developmental toxicity study in rabbits administered spiromesifen by gavage at a dose of 0, 5, 35 or 250 mg/kg bw per day, the NOAEL for maternal toxicity was 5 mg/kg bw per day, based on decreased feed intake and amount of faeces, transient body weight loss and decreased body weight gain at 35 mg/kg bw per day. The NOAEL for embryo and fetal toxicity was 250 mg/kg bw per day, the highest dose tested. There was no evidence for teratogenic potential.

The Meeting concluded that spiromesifen is not teratogenic.

In an acute neurotoxicity study in rats using gavage doses of spiromesifen of 0, 200, 700 and 2000 mg/kg bw, the NOAEL was 2000 mg/kg bw, the highest dose tested.

In a 13-week neurotoxicity study in rats using dietary concentrations of spiromesifen of 0, 100, 500 and 2000 ppm (equal to 0, 6.4, 32 and 123 mg/kg bw per day for males and 0, 7.9, 38 and 149 mg/kg bw per day for females, respectively), the NOAEL was 500 ppm (equal to 32 mg/kg bw per day), based on decreased body weight and feed consumption and behavioural findings at 2000 ppm (equal to 123 mg/kg bw per day).

The Meeting concluded that spiromesifen is not neurotoxic.

The immunotoxic properties of spiromesifen were assessed in plaque-forming cell assays in mice and rats. In a 4-week study in mice using spiromesifen at dietary concentrations of 0, 100, 500 and 3500 ppm (equal to 0, 31, 163 and 1230 mg/kg bw per day for males and 0, 48, 279 and 1510 mg/kg bw per day for females, respectively), a slight increase in plaque-forming cells in the spleen was observed at 500 and 3500 ppm (equal to 163 and 1230 mg/kg bw per day, respectively). In a 4-week study in rats using spiromesifen at dietary concentrations of 0, 100, 500 and 3000 ppm (equal to 0, 9.6, 52.83 and 292 mg/kg bw per day for males and 0, 10.7, 45.7 and 289 mg/kg bw per day for females, respectively), no effect on plaque-forming cells in the spleen was observed. It is noted that there was considerable interindividual variability in both experiments.

The Meeting concluded that spiromesifen is not immunotoxic.

Toxicological data on metabolites and/or degradates

The major residues in crops and livestock were spiromesifen, spiromesifen-enol (M01), 4-hydroxymethyl-spiromesifen-enol (M02) and its glucoside, and 4-carboxy-3-hydroxy-spiromesifen-enol (M07). No specific toxicity studies on metabolites of spiromesifen are available. However, M01, M02 and M07 occur in rats at about 10% of the absorbed dose or higher. The toxicity of the rat metabolites M01, M02 and its glucoside and M07 is therefore considered to be covered by that of spiromesifen.

Human data

There were no reports of adverse health effects from use in agriculture or from manufacturing sites.

The Meeting concluded that the existing database on spiromesifen was adequate to characterize the potential hazards to the general population, including fetuses, infants and children.

Toxicological evaluation

The Meeting established an ADI of 0–0.03 mg/kg bw for spiromesifen on the basis of a NOAEL of 3.3 mg/kg bw per day for macroscopic and histopathological effects on the adrenal glands in an 18-month mouse study and a NOAEL for parental toxicity of 3.3 mg/kg bw per day, based on decreased body weights in F_1 males and F_1 females and decreased absolute spleen weights in F_1 males in a two-generation reproductive toxicity study in rats. This ADI is supported by a NOAEL for offspring toxicity of 3.8 mg/kg bw per day, based on decreased body weights in male and female F_1 and F_2 pups during lactation and on decreased absolute spleen and thymus weights in male F_1 pups observed in a two-generation reproductive toxicity study in rats. A safety factor of 100 was used.

The Meeting concluded that the ADI would apply to spiromesifen and the metabolites spiromesifen-enol (M01), 4-hydroxymethyl-spiromesifen-enol (M02) and its glucoside and 4-carboxy-3-hydroxy-spiromesifen-enol (M07).

The Meeting concluded that it was not necessary to establish an ARfD for spiromesifen in view of its low acute oral toxicity and the absence of any toxicological effects, including developmental toxicity, that would likely be elicited by a single dose.

Levels relevant to risk assessment of spiromesifen

Species	Study	Effect	NOAEL	LOAEL
Mouse	Eighteen-month study of toxicity and carcinogenicity[a]	Toxicity	20 ppm, equal to 3.3 mg/kg bw per day	140 ppm, equal to 22 mg/kg bw per day
		Carcinogenicity	2 000 ppm, equal to 335 mg/kg bw per day[b]	–
Rat	One-year study of toxicity[a]	Toxicity	125 ppm, equal to 6.5 mg/kg bw per day	300 ppm, equal to 16 mg/kg bw per day
	Two-year study of toxicity and carcinogenicity[a]	Toxicity	125 ppm, equal to 6.1 mg/kg bw per day	300 ppm, equal to 15 mg/kg bw per day
		Carcinogenicity	800 ppm, equal to 40 mg/kg bw per day[b]	–
	Two-generation studies of reproductive toxicity[a,c]	Reproductive toxicity	500 ppm, equal to 47 mg/kg bw per day[b]	–
		Parental toxicity	30 ppm, equal to 3.3 mg/kg bw per day	120 ppm, equal to 13.2 mg/kg bw per day
		Offspring toxicity	30 ppm, equal to 3.8 mg/kg bw per day	120 ppm, equal to 14.2 mg/kg bw per day
	Developmental toxicity study[d]	Maternal toxicity	10 mg/kg bw per day	70 mg/kg bw per day
		Embryo and fetal toxicity	70 mg/kg bw per day	500 mg/kg bw per day
	Acute neurotoxicity study[d]	Neurotoxicity	2 000 mg/kg bw[b]	–

Species	Study	Effect	NOAEL	LOAEL
	Thirteen-week neurotoxicity study[a]	Neurotoxicity	2 000 ppm, equal to 123 mg/kg bw per day[b]	–
Rabbit	Developmental toxicity study[d]	Maternal toxicity	5 mg/kg bw per day	35 mg/kg bw per day
		Embryo and fetal toxicity	250 mg/kg bw per day[b]	–
Dog	Thirteen-week and 1-year studies of toxicity[a,c]	Toxicity	400 ppm, equal to 10.8 mg/kg bw per day	4 000 ppm, equal to 109 mg/kg bw per day

[a] Dietary administration.

[b] Highest dose tested.

[c] Two or more studies combined.

[d] Gavage administration.

Acceptable daily intake (ADI; applies to spiromesifen and the metabolites spiromesifen-enol [M01], 4-hydroxymethyl-spiromesifen-enol [M02] and its glucoside and 4-carboxy-3-hydroxy-spiromesifen-enol [M07], expressed as the parent compound)

0–0.03 mg/kg bw

Acute reference dose (ARfD)

Unnecessary

Information that would be useful for the continued evaluation of the compound

Results from epidemiological, occupational health and other such observational studies of human exposure

Critical end-points for setting guidance values for exposure to spiromesifen

Absorption, distribution, excretion and metabolism in mammals	
Rate and extent of oral absorption	Rapid; moderate at low doses, low at high doses (rats and dogs)
Dermal absorption	No data
Distribution	Widespread distribution, highest concentrations found in liver
Potential for accumulation	Low potential for accumulation
Rate and extent of excretion	Rapid; 88–95% in 48 h
Metabolism in animals	Extensively metabolized; no parent compound in urine or bile; seven metabolites identified
Toxicologically significant compounds in animals and plants	Spiromesifen, spiromesifen-enol (M01), 4-hydroxymethyl-spiromesifen-enol (M02) and its glucoside, 4-carboxy-3-hydroxy-spiromesifen-enol (M07)

Acute toxicity	
Rat, LD_{50}, oral	> 2 000 mg/kg bw
Rat, LD_{50}, dermal	> 2 000 mg/kg bw
Rat, LC_{50}, inhalation	> 4.9 mg/L
Rabbit, dermal irritation	Not irritating
Rabbit, ocular irritation	Not irritating
Guinea-pig, dermal sensitization	Sensitizing (maximization test)
Short-term studies of toxicity	
Target/critical effect	Cholesterol reduction, adrenal
Lowest relevant oral NOAEL	3.2 mg/kg bw per day (mouse)
Lowest relevant dermal NOAEL	1 000 mg/kg bw per day, highest dose tested (rat)
Lowest relevant inhalation NOAEC	5.0 mg/m^3
Long-term studies of toxicity and carcinogenicity	
Target/critical effect	Adrenal
Lowest relevant NOAEL	3.3 mg/kg bw per day (mouse)
Carcinogenicity	Not carcinogenic in mice or rats[a]
Genotoxicity	
	No evidence of genotoxicity[a]
Reproductive toxicity	
Target/critical effect	No reproductive effects; decreased body weight and spleen and thymus weights in pups
Lowest relevant parental NOAEL	3.3 mg/kg bw per day (rat)
Lowest relevant offspring NOAEL	3.8 mg/kg bw per day (rat)
Lowest relevant reproductive NOAEL	47 mg/kg bw per day, highest dose tested (rat)
Developmental toxicity	
Target/critical effect	Progressed ossification, marginally decreased body weight (rat)
Lowest relevant maternal NOAEL	5 mg/kg bw per day (rabbit)
Lowest relevant embryo/fetal NOAEL	70 mg/kg bw per day (rat)
Neurotoxicity	
Acute neurotoxicity NOAEL	2 000 mg/kg bw, highest dose tested (rat)
Subchronic neurotoxicity NOAEL	123 mg/kg bw per day, highest dose tested (rat)
Developmental neurotoxicity NOAEL	No data
Other toxicological studies	
Immunotoxicity	Not immunotoxic
Studies on toxicologically relevant metabolites	No data
Human data	
	No adverse effects reported

[a] Unlikely to pose a carcinogenic risk to humans via exposure from the diet.

Summary

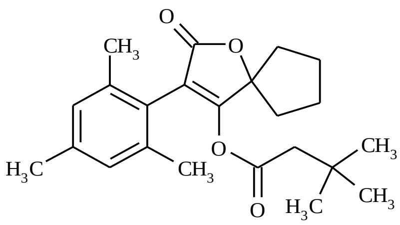
	Value	Study	Safety factor
ADI[a]	0–0.03 mg/kg bw	Two-generation reproductive toxicity study (rat); 18-month toxicity and carcinogenicity study (mouse)	100
ARfD	Unnecessary	–	–

[a] Applies to spiromesifen and the metabolites spiromesifen-enol (M01), 4-hydroxymethyl-spiromesifen-enol (M02) and its glucoside and 4-carboxy-3-hydroxy-spiromesifen-enol (M07), expressed as the parent compound.

RESIDUE AND ANALYTICAL ASPECTS

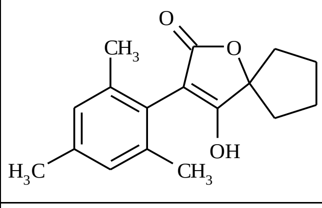
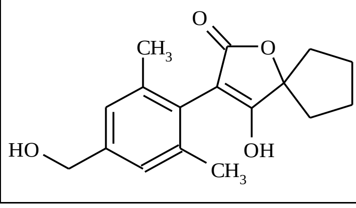
Residue and analytical aspects of spiromesifen were considered for the first time by the present Meeting. The residue evaluation was scheduled for the 2016 JMPR by the 47th Session of the CCPR.

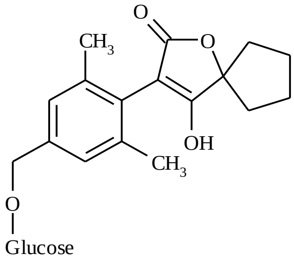
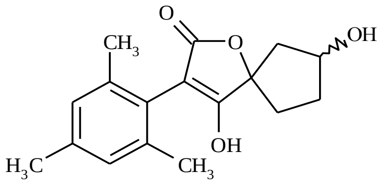
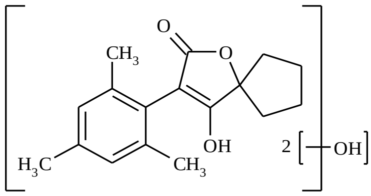
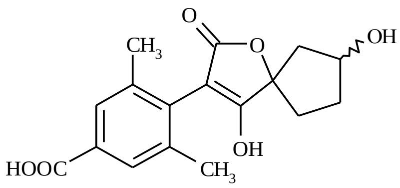
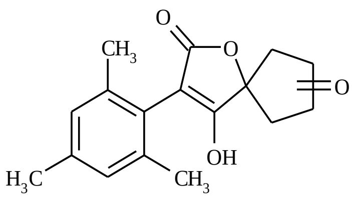
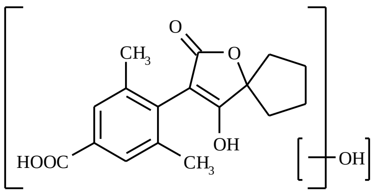
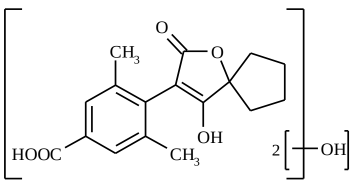
Spiromesifen is a contact insecticide-acaricide belonging to the titronic acid class of compounds. The pesticidal mode of action is inhibition of lipid biosynthesis, especially triglycerides and free fatty acids. The product is mixed with water and applied as a foliar spray using ground, aerial, or chemigation equipment. The Meeting received information on identity, animal and plant metabolism, environmental fate in soil, rotational crops, analytical methods, storage stability, use pattern, supervised trials, dairy cattle feeding studies, and fate of residues in processing.



Butanoic acid, 3,3-dimethyl-, 2 oxo-3-(2,4,6-trimethylphenyl)-1-oxaspiro[4.4]non-3-en-4-yl ester

In this appraisal, the following abbreviated names were used for metabolites.

Identifier	Chemical Structure
Spiromesifen-enol Sp-enol	
4-Hydroxymethyl-Sp-enol	

Identifier	Chemical Structure
4-Hydroxymethyl-glucoside-Sp-enol	
3-Pentanol-Sp-enol	
Dihydroxy-Sp-enol	
4-Carboxy-3-hydroxy-Sp-enol	
Oxo-cyclopentyl-Sp-enol	
4-Carboxy-hydroxy-Sp-enol	
4-Carboxy-dihydroxy-Sp-enol	

Plant metabolism

The Meeting received studies conducted with spiromesifen radiolabelled at the 3-hydrofuranone carbon depicting metabolism of spiromesifen in tomato, lettuce, and cotton.

In the tomato metabolism study, plants growing in a plastic tunnel received two applications of spiromesifen at ca. 400 g ai/ha. The interval between applications was 24 days, and the second application was seven days prior to harvest. Additional treatments were made to plants with protected fruits and to fruits directly, to evaluate translocation. Application to the fruits was equivalent to ca. a three-fold exaggerated application rate.

The translocation portion of the study indicates that residues did not translocate following foliar application. This finding is supported by the wash data showing that ca. 80% of the total radioactive residue (TRR) was associated with the surface wash fraction of both unripe (0.36 mg eq/kg) and ripe fruits (0.67 mg eq/kg). Solvent extraction (acetonitrile followed by acetonitrile:H_2O) removed ca. 0.13 mg eq/kg from unripe and ripe fruits, accounting for 25% and 17% of the whole fruit TRR, respectively. Surface washing and extraction, combined, accounted for ca. 97% of the whole fruit TRR. Spiromesifen was the only major residue ($\geq$ 10% TRR and $\geq$ 0.01 mg/kg) in both surface washes and in extracts, accounting for 86–87% of the total residue in unripe (0.43 mg/kg) and ripe fruits (0.73 mg/kg). The next most abundant residue was the glucoside conjugate of 4-hydroxymethyl-Sp-enol. This metabolite was observed in extracts only (not surface washes), and made up 5.4 to 7.0% of the TRR (0.035 to 0.046 mg/kg). Treatment of the unripe fruit extracts with ß-glucosidase resulted in a decrease in 4-hydroxymethyl-glucoside-Sp-enol and a nearly quantitative increase in the non-conjugated 4-hydroxymethyl-Sp-enol.

In the lettuce metabolism study, lettuce plants grown in a plastic tunnel were treated with radiolabelled spiromesifen, at 300 g ai/ha, 26 days after planting and 1 week prior to harvest.

Of the radioactivity in the lettuce leaves, 0.41 mg eq/kg (98%) was extracted (acetonitrile + acetonitrile:H_2O). Spiromesifen accounted for 58% of the TRR (0.24 mg/kg) in the extract. The only other major residue was 4-hydroxymethyl-glucoside-Sp-enol (12% TRR, 0.049 mg/kg).

In the cotton metabolism study, cotton plants were treated three times, on a 7-day interval during boll-set to boll-split growth stages. Cotton was harvested 21 days after the last application (DALA). Two treatment regimes were established, one at 300 g ai/ha/application and the other at 1000 g ai/ha/application. Some bolls were protected during treatment to assess translocation. Cotton was harvested and separated into gin trash and undelinted seed. The undelinted seed was processed into delinted seed and seed lint.

Total radioactive residue in treated boll components was approximately an order of magnitude greater than that in protected bolls. Solvent extraction (acetonitrile followed by acetonitrile:H_2O) removed 94 and ca. 100% of the radioactivity from undelinted seed and cotton gin trash, respectively. For cotton seed, radioactivity was associated more with seed lint (73% TRR, 0.37 mg eq/kg) than with delinted seed (21% TRR, 0.011 mg eq/kg). In seed lint and delinted seed, spiromesifen and Sp-enol, combined, accounted for ca. 100% of the TRR [seed lint: 52% TRR (0.020 mg/kg) spiromesifen + 48% TRR (0.018 mg/kg) Sp-enol; delinted seed: 82% TRR (0.009 mg/kg) spiromesifen + 18% TRR (0.002 mg/kg) Sp-enol]. As with cotton seed, the only major residues in cotton gin trash were spiromesifen (26% TRR, 1.7 mg/kg) and Sp-enol (49% TRR, 3.1 mg/kg); however, in cotton gin trash, a higher proportion of the residue was the Sp-enol metabolite. Enzymatic treatment did not result in substantial changes in the residue profile.

In the confined rotational crop study, radiolabelled spiromesifen was applied to bare soil at 800 g ai/ha and rotational crops of spring wheat, spinach, and turnip were planted into the treated soil 30, 120–187, and 365 days after application.

Total radioactive residues ranged from 0.027 mg eq/kg (wheat grain) to 1.1 mg eq/kg (wheat straw) at the 30-day plant-back interval (PBI), and decreased with increasing PBI for all matrices except wheat grain. Wheat grain showed a peak TRR (0.18 mg eq/kg) at the 187-day PBI, which declined to 0.082 mg eq/kg at the 365-day PBI. Unlike primary crops, spiromesifen was not a major residue in any rotational crop sample from any PBI. Identified residues in wheat grain were < 0.01 mg eq/kg at all PBIs. The principal residue, especially at earlier PBIs, in all matrices was 4-hydroxymethyl-Sp-enol. With the exception of wheat grain, 4-hydroxymethyl-Sp-enol (including the glucoside conjugate) ranged from 50–65% TRR (0.042–0.61 mg/kg) at the 30-day PBI to < 9–21% TRR (< 0.004–0.067 mg/kg) at the 365-day PBI. Of that, up to 83% was made up of the glucoside conjugate. The other major residues in confined rotational crops were 3-pentanol-Sp-enol (spinach: up to 29% TRR and 0.057 mg/kg; turnip leaves: up to 18% TRR and 0.025 mg/kg; turnip roots: up to 13% TRR and 0.01 mg/kg; and wheat straw: up to 11% TRR and 0.08 mg/kg) and dihydroxy-Sp-enol (spinach: up to 19% TRR and 0.038 mg/kg; wheat forage: up to 11% TRR and 0.071 mg/kg, wheat hay: up to 11% TRR and 0.032 mg/kg; and wheat straw: up to 13% TRR and 0.094 mg/kg).

Field accumulation in rotational crops

Field rotational crop studies were conducted with bulb onion, green onion, sugar beet, barley, wheat, sugar cane, and alfalfa. In addition, greenhouse rotational crop studies were conducted with carrot, lettuce, and tomato. For all of the field studies, spiromesifen was applied to bare soil at a total rate of ca. 840 g ai/ha (as one application for sugar cane or as three applications for other crops). The maximum seasonal rate from any of the registered uses is 864 g ai/ha (as four applications, each at 216 g ai/ha). Rotational crops were planted into the treated soil ca. 30 days after the last application (14 days for sugar cane). In the greenhouse trials, tomato was treated as a primary crop, receiving four applications at 216 g ai/ha. Approximately 30 days after the last application, treated tomato plants were removed and rotational carrot, lettuce, or tomato were planted. In the case of rotational tomato, additional plantings were made at PBIs of 45 days and 127 or 140 days. With the exception of tomato, rotational crops were analysed for spiromesifen, Sp-enol, and 4-hydroxymethyl-Sp-enol; tomato samples were assayed for 4-hydroxymethyl-Sp-enol only. For all crops except sugar cane, the analytical method included a hydrolysis step; therefore, reported concentrations of 4-hydroxymethyl-Sp-enol include the residue contribution from the glucoside metabolite.

Residues of spiromesifen, *per se*, were non-quantifiable in all field rotational crop matrices. Residues of Sp-enol were as follows < 0.01 mg/kg in all matrices except for one sample of bulb onion (0.033 mg/kg) and one sample of green onion (0.039 mg/kg). Residues of 4-hydroxymethyl-Sp-enol in rotational crops were as follows: bulb onion (n = 5), < 0.01 (5) mg/kg; green onion (n = 3), < 0.01 (2), and 0.032 mg/kg, sugar beet roots (n = 11), < 0.01 (11) mg/kg; sugar beet tops (n = 11), < 0.01 (10), and 0.16 mg/kg; barley hay (n = 12), 0.02 (2), 0.04 (3), 0.06 (3), 0.11, 0.12, 0.15, and 0.18 mg/kg; barley straw (n = 12), < 0.01, 0.01, 0.02 (2), 0.03 (3), 0.04, 0.06 (2), 0.09, and 0.11 mg/kg; wheat forage (n = 20), < 0.01 (6), 0.01 (4), 0.02, 0.03 (4), 0.04, 0.08 (2), 0.09, and 0.14 mg/kg; wheat hay (n = 20), < 0.01 (3), 0.01, 0.02 (5), 0.03 (2), 0.04, 0.05, 0.06, 0.07 (2), 0.09, and 0.10 (3) mg/kg; wheat straw (n = 20), 0.01 (6), 0.02 (3), 0.03 (2), 0.04 (3), 0.05, 0.06, 0.07, 0.09, 0.11, and 0.21 mg/kg; sugar cane stalks (n = 6), < 0.01 (6) mg/kg; alfalfa forage (n = 12), < 0.01 (3), 0.02, 0.05, 0.09, 0.14, 0.22, 0.23, 0.33, 0.36, and 0.85 mg/kg; alfalfa hay (n = 12); 0.01 (3), 0.03, 0.12, 0.22, 0.39, 0.64, 0.75, 0.80, 1.0, and 2.2 mg/kg; carrot (greenhouse; n = 4), < 0.02 (4) mg/kg; lettuce (greenhouse; n = 4), < 0.02 (2), 0.03 (2) mg/kg; and tomato (greenhouse; n = 4): < 0.01 (4) mg/kg.

Overall, the residue profile in primary crops and rotational crops differ, with spiromesifen and Sp-enol being the principal residues in primary crops and 4-hydroxy-Sp-enol generally being the principal residue in rotational crops. Both primary and rotational crop residues include the glucose-conjugated 4-hydroxymethyl-Sp-enol metabolite.

Animal metabolism

The Meeting received animal metabolism studies with spiromesifen in rats, lactating goat and laying hens. The metabolism and distribution of spiromesifen in animals were investigated using test material radiolabelled at the 3-dihydrofuranone moiety.

The metabolism of spiromesifen in rats was evaluated by the WHO Core Assessment Group of the 2016 JMPR.

A single lactating goat was dosed with [^{14}C]spiromesifen at a dose equivalent to approximately 344 ppm in the diet daily for three consecutive days. Approximately 50% of the applied dose (AD) was recovered: 33% in urine, 15% in faeces, 1% in cage wash, and < 1% in milk and tissues.

Total radioactive residues (TRR) in the milk accounted for 0.02% AD. Residues in milk may have plateaued; however, the duration of dosing was not sufficient to make a definitive conclusion. In tissues residue levels were highest in kidney (8.4 mg eq/kg), followed by liver (3.8 mg eq/kg), fat (ca. 0.5 mg eq/kg) and muscle ca. 0.23 mg eq/kg.

The principal residue in all matrices was Sp-enol, ranging from 29% TRR (1.0 mg/kg) in liver to 77% TRR (6.9 mg/kg) in kidney. Spiromesifen was not a major residue in tissues. In milk spiromesifen and Sp-enol were reported as combined residues and represented 33% TRR (0.03 mg/kg). Analysis of milk and tissue samples at ca. 1–2 months after sacrifice and ca. 11 months after sacrifice indicated some degradation of spiromesifen and a concomitant increase in Sp-enol in fat and milk; spiromesifen was generally stable in other matrices. 4-hydroxymethyl-Sp-enol was also a significant residue in milk (24% TRR, 0.02 mg/kg). The only other major residue that was reported was a glucuronide conjugate of Sp-enol at 21% TRR (0.77 mg/kg) in liver.

Laying hens were orally dosed with [^{14}C]spiromesifen at a dose equivalent to 190 ppm in the diet daily for three consecutive days. Sixty-three percent of the AD was recovered. The majority of the dose was eliminated in the excreta (58%) and cage wash (4%). Retained residues were highest in liver (1.7 mg eq/kg), lower in skin (0.32 mg eq/kg), fat (0.09 mg eq/kg), muscle (0.067 mg eq/kg), and eggs (0.026 mg eq/kg). Total ^{14}C residues in eggs did not plateau during the dosing period and were 0.032 mg eq/kg on the third day of dosing.

Spiromesifen was the only major residue in fat (51% TRR, 0.046 mg/kg) and a large percentage of the TRR in egg (28% TRR, 0.007 mg/kg). In liver, the only major residue was Sp-enol (38% TRR, 0.026 mg/kg), which was also a major residue in skin (18% TRR, 0.06 mg/kg), liver (18% TRR, 0.30 mg/kg), and egg (44% TRR, 0.011 mg/kg). In skin and liver, 4-carboxy-hydroxy-Sp-enol was a major residue, occurring at 12% TRR (0.04 mg/kg) and 16% TRR (0.26 mg/kg, respectively. The 4-carboxy-3-hydroxy-Sp-enol metabolite was a major residue in liver (20% TRR, 0.34 mg/kg). In other matrices, the 4-carboxy-3-hydroxy-Sp-enol metabolite could not be analytically resolved from oxo-cyclopentyl-Sp-enol. The unresolved residues were major only in skin (42% TRR, 0.13 mg/kg).

Metabolism of spiromesifen in animals is generally similar, with desterification leading to spiromesifen-enol, followed by multiple oxidations to the alkane portions of the molecule. Some differences, however, are noted. While both goats and hens form glucuronide conjugates of metabolised spiromesifen, in the hen, conjugation was to spiromesifen-enol whereas in goats it was to the more oxidized 4-hyroxymethyl-Sp-enol; glucuronide conjugates were not identified in the rat.

Spiromesifen plus spiromesifen-enol (free and glucuronide conjugate) made up the majority of residues in all matrices except poultry skin and liver. In those matrices, the principal residues were comprised of carboxylated and hydroxylated forms of spiromesifen-enol.

Environmental fate in soil and water

The Meeting received information on the environmental fate of spiromesifen in laboratory and field soil systems and on aqueous hydrolysis and photolysis dissipation pathways.

In an aqueous hydrolysis study, spiromesifen was quantitatively hydrolysed to Sp-enol, with hydrolysis occurring more rapidly under higher pH conditions. Estimated hydrolysis half-lives at 20 °C were 4.8 days (pH 9), 45 days (pH 7), and 107 days (pH 4). Spiromesifen is labile to photolysis. In two studies, spiromesifen had a photolysis half-life of 2 to 11 days. A photolysis study with Sp-enol indicated that it is relatively stable to photolysis (93% of the test substance remained after photo radiation equivalent to 31 days at 33° latitude).

In aerobic laboratory soil dissipation studies using four soils, major residues were spiromesifen (81–88% TRR at Day 0; < 5% TRR by Day 30 or 120), Sp-enol (30–60% TRR, Day 7 or Day 14), 4-carboxy-Sp-enol (3–11% TRR, Day 14 or Day 30), and CO_2 (58–70% TRR, Day 120). Other residues, categorized as unknown, were ≤ 2% TRR throughout the study period. At the 120-day time point, unextracted residues accounted for 16 to 21% of the radioactivity in the system. Field dissipation studies resulted in half-life estimates of 2–6 days for spiromesifen, 6–21 days for Sp-enol, and 7–15 days for total residues (spiromesifen, Sp-enol, 4-carboxy-Sp-enol, and photo isomers of spiromesifen and Sp-enol).

The results of the environmental fate studies, including rotational crop studies, indicate that spiromesifen and its major metabolites (Sp-enol and its carboxylated and/or hydroxylated degradation products) are not likely to be persistent in the environment, and mineralisation to CO_2 is likely to be significant.

Methods of analysis

The Meeting received description and validation data for analytical methods for residues of spiromesifen, Sp-enol, 4-hydroxymethyl-Sp-enol, and 4-hydroxymethyl-Sp-enol glucoside in plant and livestock matrices.

For most data gathering methods, residues are extracted with acetonitrile:H_2O (4:1, v/v). Methods designed to include analysis of 4-hydroxymethyl-Sp-enol generally included a hydrolysis step to cleave the glucose conjugate from the molecule. Extracted residues undergo clean-up by solid-phase extraction (SPE). Residue separation and analysis is by HPLC-MS/MS using deuterated internal standards or matrix-matched standards. For most matrices, the limits of quantification (LOQs) for each analyte, defined as the lowest limit of method validation, is 0.01 mg/kg. Papaya and tea have LOQs of 0.02 mg/kg for each analyte.

The method for livestock matrices specifies extraction with acetonitrile:H_2O (4:1, v/v) at elevated temperature and pressure (70 °C, 10300 KPa) and includes both acid and alkaline hydrolysis steps in order to assay free and conjugated 4-hydroxymethyl-Sp-enol. The reported LOQs for each analyte in livestock matrices are 0.005 mg/kg for milk, 0.01 mg/kg for fat and muscle, and 0.05 mg/kg for kidney and liver.

All of the submitted methods are adequate for the direct analysis of residues of spiromesifen and Sp-enol. 4-hydroxymethyl-Sp-enol and its conjugates are also supported with adequate methods, provided that a hydrolysis step is included in order to assay both free and conjugated forms of the hydroxymethyl metabolite.

Stability of pesticide residues in stored analytical samples

The Meeting received data on the stability of residues of spiromesifen and Sp-enol in multiple crop commodities, and the stability of 4-hydroxymethyl-Sp-enol in turnip root and wheat commodities. In the case of spiromesifen and Sp-enol, both compounds were added to homogenized test matrix. Samples were placed into frozen storage and analysed by the method(s) used in the supervised residue trial. For 4-hydroxymethyl-Sp-enol, separate samples were prepared and fortified with the test substance. During the storage periods, the percent remaining of spiromesifen decreased in most commodities, with corresponding increases in the percent remaining of Sp-enol, indicating that the parent compound was degrading in storage and forming the enol metabolite, which remained stable.

Spiromesifen was stable for less than or up to ca. 160 days in mustard greens, maize stover, potato tuber, undelinted cotton seed, and cotton gin trash; for up to or at least 316 to 376 days in cucumber, tomato fruit and processed commodities, maize grain and forage, and potato processed commodities; and at least 679 to 727 days in melon peel, wheat grain, forage, and hay, and turnip root.

The sum of spiromesifen and Sp-enol amounted to ca. 100% of the applied material remaining throughout the storage periods for the various storage stability samples, indicating that in total, those residues are stable for at least ca. 365 days in tomato (fruit and processed commodities), mustard greens, maize (grain and forage), potato (tuber and processed commodities), and cotton (seed and gin trash); and at least ca. 700 days in cucumber, melon peel, French beans, wheat grain, and turnip root.

Residues of 4-hydroxymethyl-Sp-enol were stable during frozen storage for at least ca 450 days in wheat and sugar beet raw commodities.

Analyses from livestock feeding studies were completed within 35 days of sample collection; therefore, supporting storage stability data for residues of spiromesifen in livestock commodities are not required. The Meeting noted, however, that analyses of livestock matrices in the goat metabolism study at 1–2 months after slaughter and again ca. 11 months after slaughter indicated that spiromesifen likely degraded to Sp-enol in fat and milk.

Definition of the residue

Plants

In metabolism studies with tomato, lettuce, and cotton as primary crops, spiromesifen, Sp-enol, and 4-hydroxymethyl-Sp-enol (free and conjugated) consistently accounted for 75 to 100 percent of the total radioactive residues in the harvested commodities at maturity. Spiromesifen was the predominant residue in tomato fruit (86% TRR), lettuce leaves (58% TRR), and cotton seed (82% TRR in delinted seed). Sp-enol was the predominant residue in cotton gin trash (49% TRR), followed by spiromesifen (26% TRR). 4-Hydroxymethyl-Sp-enol was > 10% TRR only in lettuce leaves. Spiromesifen concentrations were at quantifiable levels (0.24–1.7 mg/kg) in all matrices except cotton seed, where the TRR was low (ca. 0.05 mg eq/kg). In crop field trials, spiromesifen was also consistently observed to occur at levels greater than Sp-enol; although in multiple cases, the proportion of Sp-enol increased relative to spiromesifen at longer time periods between final application and harvest. Residues of 4-hydroxymethyl-Sp-enol were not measured in crop field trials.

In confined and field rotational crop studies, spiromesifen and Sp-enol were < LOQ in all crop samples, and 4-hydroxymethyl-Sp-enol (free and conjugated) was the predominant residue (ca. 50% TRR; up to 0.16 mg/kg in food crops and 2.2 mg/kg in feed crops at a 30-day PBI). Residues of 4-hydroxymethyl-Sp-enol in wheat grain were still the predominant residues, but were < 0.005 mg/kg at all PBIs. Two additional metabolites occurred as major residues in most commodities in the confined rotational crop study: 3-pentanol-Sp-enol and dihydroxy-Sp-enol. Maximum residues for both compounds were observed at the 30-day PBI, and ranged across all matrices from 0.004 to 0.09 mg/kg each. Levels were generally lower at longer PBIs and were observed at 10 to 40% of the levels of free and conjugated 4-hydroymethyl-Sp-enol. These compounds were not assayed in the field rotation studies.

In the high-temperature hydrolysis study, spiromesifen was converted to Sp-enol. The conversion was ca 25% under pasteurisation conditions, more extensive (ca. 85%) under baking, boiling, and brewing conditions, and essentially complete under conditions mimicking sterilisation. No other residues were identified in the study. In many crop matrices, spiromesifen was not demonstrated to be stable during storage. Data indicate that the parent compound degrades to the Sp-enol metabolite, which is stable during storage. As a result, when considered together, residues of spiromesifen and Sp-enol are stable during frozen storage.

The analytical method for plant matrices is able to determine residues of spiromesifen, Sp-enol, and free 4-hydroxymethyl-Sp-enol, and with the addition of a hydrolysis step, glucose-conjugated 4-hydroxymethyl-Sp-enol.

Although spiromesifen was the most predominant residue in primary crops and would be a suitable marker for compliance purposes, its breakdown during storage to Sp-enol necessitates that residues of the Sp-enol metabolite be taken into account in stored analytical samples. The Meeting agreed that combined residues of spiromesifen and spiromesifen-enol {4-hydroxy-3-(2,4,6-trimethylphenyl)-1-oxaspiro[4.4]non-3-en-2-one}, expressed as parent spiromesifen, are suitable for enforcement purposes in plant commodities.

In considering residues for dietary risk assessment, crop field trials reported residues of spiromesifen and Sp-enol. However, the trials did not include analysis of free and conjugated 4-hydroxymethyl-Sp-enol. Based on the data from the lettuce metabolism study, residues of 4-hydroxymethyl-Sp-enol (free + conjugated) are expected to be at one fourth the concentration of spiromesifen and Sp-enol (combined) in leafy crops (significant residues of 4-hydroxymethyl-Sp-enol are not expected in other crops). A comparison of dietary exposure estimates with and without residues of 4-hydroxymethyl-Sp-enol in leafy crops indicates that exposure to that compound is not negligible. The Meeting determined that Sp-enol and 4-hydroxymethyl-Sp-enol are no more toxic than spiromesifen, and that for risk assessment, dietary exposure is adequately covered by the ADI for spiromesifen. Therefore, the Meeting determined that combined residues of spiromesifen, Sp-enol, and free and conjugated 4-hydroxymethyl-Sp-enol {4-hydroxy-3-[4-(hydroxymethyl)-2,6-dimethylphenyl]-1-oxaspiro[4.4]non-3-en-2-one} expressed as spiromesifen, are appropriate for assessing dietary risk from residues in plant commodities.

Animals

In the lactating goat metabolism study (dose = 344 ppm in the feed), TRR were higher in kidney (8.9 mg eq/kg) and liver (3.6 mg eq/kg) than in fat (0.47 mg eq/kg), muscle (0.26 mg eq/kg), and milk (0.11 mg eq/kg). The principal residue in all goat matrices was Sp-enol, making up 29 to 77% of the total residue. The glucose conjugate of Sp-enol was also a major residue in liver (21% TRR), and 4-hydroxymethyl-Sp-enol was a major residue in milk (24% TRR). All other residues were < 10% TRR. In the feeding study with lactating cattle (dosing up to 50 ppm in the feed), residues of spiromesifen + Sp-enol were found at quantifiable levels in samples of milk, fat, kidney, and liver from the highest dose group, and in fat and kidney samples from the middle dose group; residues of spiromesifen + Sp-enol were < LOQ in samples of muscle from all dose groups and in all other matrices at the lowest dosing level. Residues of 4-hydroxymethyl-Sp-enol (free and conjugated) were < LOQ in all samples from the feeding study.

In the laying hen metabolism study, TRR were highest in liver (1.7 mg eq/kg) and skin (0.32 mg eq/kg), with lower residues in muscle (0.067 mg eq/kg), fat (0.09 mg eq/kg), and egg (0.026 mg eq/kg). Spiromesifen was the only major residue in fat (51% TRR) and a major residue in egg (28% TRR). The Sp-enol metabolite was a major residue in all matrices except fat, ranging from 18% TRR in skin to 44% TRR in egg. The only other major residues were 4-carboxy-3-hydroxy-Sp-enol in liver (20% TRR), unresolved 4-carboxy-3-hydroxy-Sp-enol + oxo-cyclopentyl-Sp-enol (42% TRR) in skin, and 4-carboxy-hydroxy-Sp-enol in liver (16% TRR) and skin (12% TRR).

Analytical methods for animal matrices are available for the analysis of spiromesifen, Sp-enol, and free and glucuronide-conjugated 4-hydroxymethyl-Sp-enol. Some degradation of spiromesifen to Sp-enol was noted in samples from the lactating goat metabolism study.

The Meeting agreed that combined residues of spiromesifen and Sp-enol are suitable markers for compliance with MRLs in livestock commodities.

In the feeding study, total residues of spiromesifen and spiromesifen-enol were ca. 11 fold greater in fat than in muscle and ca. 22 fold greater in cream than in skim milk. On that basis, the Meeting concluded that the residue is fat soluble.

For assessing dietary risk, the Meeting noted that residues of 4-hydroxymethyl-Sp-enol were not detected in any sample from the cattle feeding study. Therefore, it was excluded from the residue definition for dietary risk assessment. 4-carboxy-3-hydroxy-Sp-enol was as significant residue only in liver and skin (both of which are modelled as edible offal for dietary risk assessment). The Meeting determined that 4-carboxy-3-hydroxy-Sp-enol is not more toxic than spiromesifen and that dietary risk assessment to that metabolite is adequately covered by the ADI for spiromesifen. A similar conclusion could not be made for the related, non-specific hydroxyl analogues (4-carboxy-hydroxy-Sp-enol). For the specific 4-carboxy-3-hydroxy-Sp-enol metabolite, a comparison of long-term dietary exposure estimates for spiromesifen with and without inclusion of 4-carboxy-3-hydroxy-Sp-enol residues are indistinguishable, leading to the conclusion that relative exposure to the metabolite is negligible and that it can be excluded from the residue definition for dietary risk assessment. The Meeting determined that the residue definition for assessing dietary risk from livestock commodities is the sum of residues of spiromesifen and Sp-enol, expressed as spiromesifen.

The non-specific hydroxyl analogues observed in the poultry metabolism study were 4-carboxy-hydroxy-Sp-enol and 4-carboxy-dihydroxy-Sp-enol. The Meeting decided to use the TTC approach to evaluate dietary risk from exposure to these compounds (as combined residues). The ratio of the hydroxy analogues in liver (0.33 mg/kg) to spiromesifen + Sp-enol (0.31 mg/kg) is 1.1. The estimated residue for evaluating both one-day and long-term dietary exposure is 0.055 mg/kg. The IESTI resulted in one-day exposure estimates of ≤ 0.36 µg/kg bw/day. The long-term dietary exposure estimates were ≤ 0.005 µg/kg bw/day. As the Cramer Class III TTC thresholds are 5 µg/kg bw/day for one-day intake and 1.5 µg/kg bw/day for long-term dietary exposure, public-health concerns were considered unlikely for 4-carboxy-hydroxy-Sp-enol and 4-carboxy-dihydroxy-Sp-enol based on the uses evaluated by this Meeting.

Definition of the residue for plant and animal commodities (for compliance with the MRL): *sum of spiromesifen and 4-hydroxy-3-(2,4,6-trimethylphenyl)-1-oxaspiro[4.4]non-3-en-2-one (spiromesifen-enol), expressed as spiromesifen.*

Definition of the residue for plant commodities (for dietary risk assessment): *sum of spiromesifen, 4-hydroxy-3-(2,4,6-trimethylphenyl)-1-oxaspiro[4.4]non-3-en-2-one (spiromesifen-enol), and 4-hydroxy-3-[4-(hydroxymethyl)-2,6-dimethylphenyl]-1-oxaspiro[4.4]non-3-en-2-one (4-hydroxymethyl-spiromesifen-enol) (free and conjugated), all expressed as spiromesifen.*

Definition of the residue for animal commodities (for dietary risk assessment): *sum of spiromesifen and 4-hydroxy-3-(2,4,6-trimethylphenyl)-1-oxaspiro[4.4]non-3-en-2-one (spiromesifen-enol), expressed as spiromesifen.*

The residue is fat soluble.

Results of supervised residue trials on crops

The Meeting received supervised trial data for the foliar application of spiromesifen on strawberry, papaya, broccoli, cabbage, cucumber, melon, summer squash, peppers, tomato, sweet corn, head and leaf lettuce, spinach, mustard greens, common bean (pods and/or immature seeds), dry bean, cassava, potato, maize, popcorn, cotton, coffee, and tea.

Labels for end-use products containing spiromesifen were available from Belgium, Brazil, Canada, Central America, Colombia, Ecuador, France, Greece, India, Italy, Japan, Kenya, Mexico, the Netherlands, New Zealand, Peru, Spain, and the United States describing the registered uses of spiromesifen.

For all trials, residues were determined by a method involving extraction with acetonitrile:H_2O and analysis by HPLC-MS/MS with either deuterated internal standards or matrix-matched standards. For most crops, the extracts underwent clean-up by solid-phase extraction.

For all trials, combined residues of spiromesifen and Sp-enol (i.e., total spiromesifen) are supported by adequate storage stability data.

In determining combined residues of spiromesifen and Sp-enol, the following convention was used: residue > LOQ = finite residue, residue between LOQ and LOD = LOQ (if both compounds are in this category, then combined is < 2 × LOQ), and residue < LOD = 0 contribution (if both compounds < LOD, then combined is < LOQ).

Based on the ratio of free and conjugated 4-hydroxymethyl-Sp-enol to spiromesifen + Sp-enol from the lettuce metabolism study (0.25), residue estimates of spiromesifen + Sp-enol have been multiplied by 1.25 to derive residue estimates for assessing dietary intake from leafy vegetables and Brassica leafy vegetables. An adjustment is not necessary for other crops.

Berries and other small fruits

Spiromesifen is registered in the US for outdoor use on low-growing berry, which includes bearberry, bilberry, blueberry (lowbush), cloudberry, cranberry, lingonberry, muntries, partridgeberry, and strawberry. The US GAP is for up to three applications, on a 7-day interval, each at 0.28 kg ai/ha. The PHI is 3 days. Spiromesifen is also registered for greenhouse use on strawberry in the Netherlands, with an unspecified number of applications at 0.12 kg ai/ha and a 1-day PHI.

Strawberry

Eight supervised trials were conducted in the US according to the US GAP. The trials resulted in the following independent residue values (n = 8): 0.26, 0.27, <u>0.47 (2), 0.57</u>, 0.70, 1.5, and 1.6 mg/kg.

Four trials were conducted in Europe according to the Netherlands GAP. The trials resulted in the following independent residue values (n = 4): 0.11, 0.23, 0.26, and 0.62 mg/kg.

The residue data show the US GAP to be the critical GAP. The Meeting estimated a maximum residue level and STMR for spiromesifen residues in strawberries of 3 mg/kg and 0.52 mg/kg, respectively.

As the berries covered by the registered use correspond to the Codex subgroups for low-growing berries (FB 2009), the Meeting recommends extrapolating the estimates from strawberry to subgroup FB 2009.

Tropical and sub-tropical fruit – inedible peel

Papaya

The GAP for <u>papaya</u> is from registrations in Ecuador, with two applications at 0.12 kg ai/ha and a 7-day PHI. An alternative GAP exists from registrations in Colombia and Mexico, consisting of a single application at 0.12 kg ai/ha and a 7-day PHI. Six residue trials were conducted in Ghana wherein 1 to 3 applications were made at 0.12 kg ai/ha. Fruits were harvested 0 to 56 DALA, with harvest 7 DALA for only two trials. Residues were reported for spiromesifen only.

Two trials were conducted matching the Ecuador GAP and two trials were conducted matching the Columbia and Mexico GAP. The number of trials reflecting either GAP is insufficient. Furthermore, the residues that were reported do not address the residue definition for either enforcement or dietary intake. For these reasons, the Meeting is not making a recommendation for residues of spiromesifen in papaya.

Brassica (cole or cabbage) vegetables, Head cabbage, Flowerhead brassica

Spiromesifen is registered in Canada and the US for use on Brassica leafy vegetables–broccoli and Chinese (gai lon) broccoli, Brussels sprouts, cabbage, Chinese mustard (gai choy) cabbage, cauliflower, cavalo broccolo, kohlrabi, mustard spinach, and rape greens. The GAP is three applications, each at 0.144 kg ai/ha and a 7-day PHI.

Broccoli

Seven supervised trials were conducted in the US at GAP. The two trials at Hillsboro, Oregon are not considered to be independent. The trials resulted in the following independent residue values (n = 6): 0.02, 0.056, 0.091, 0.15, 0.21, and 0.58 mg/kg.

Cabbage

Six supervised trials were conducted in the US, five of which were at GAP. The trials resulted in the following independent residue values (n = 5): < 0.02, 0.18 0.44, 1.6, and 1.8 mg/kg.

As the registered use and available data correspond to the Codex group for Brassica (cole or cabbage) vegetables, head cabbages, flowerhead Brassicas (VB 0040); the median residues from the broccoli and cabbage trials are within 5-fold of each other; and analysis by the Kruskal-Wallis test showed no evidence of a difference between the residue populations, the Meeting decided to make a recommendation for the group based on the following combined broccoli and cabbage data (n = 11): < 0.02, 0.02, 0.056, 0.091, 0.15, 0.18, 0.21, 0.44, 0.58, 1.6, and 1.8 mg/kg.

The Meeting estimated a maximum residue level STMR, and highest residue for spiromesifen residues in Brassica (cole or cabbage) vegetables, head cabbages, flowerhead Brassicas of 3 mg/kg, 0.18 mg/kg, and 1.8 mg/kg, respectively.

Fruiting vegetables, Cucurbits

Spiromesifen has registration for use on field-grown cucurbit vegetables as a group, as well as greenhouse-grown cucumber and melon as individual crops. The field and greenhouse uses are considered to be different GAPs. As such the Meeting has evaluated the greenhouse data against the individual-crop greenhouse GAPs and considered the field data against the crop group field GAP.

Cucumber

Spiromesifen is registered in Greece for use on greenhouse-grown cucumbers, with four applications, each at 0.216 kg ai/ha and a 3-day PHI. In addition, spiromesifen is registered for use on field-grown cucurbit vegetables in Canada and the US, with three applications at 0.144 kg ai/ha and a 7-day PHI.

Seven supervised greenhouse trials were conducted in Europe according to the Grecian GAP. The trials resulted in the following independent residue values (n = 7): 0.03 (2), 0.04, 0.05, 0.06, 0.07, and 0.08 mg/kg.

Six supervised field trials were conducted according to the Canadian/US GAP. The trials resulted in the following independent residue values (n = 6): < 0.02 (4), 0.026, and 0.034 mg/kg.

The residue data show the greenhouse use to be the critical GAP. The Meeting estimated a maximum residue level and STMR for spiromesifen residues in cucumber of 0.15 mg/kg and 0.05 mg/kg, respectively.

Melon

Spiromesifen is registered in Greece for use on greenhouse-grown melons, with four applications, each at 0.216 kg ai/ha and a 3-day PHI. In addition, spiromesifen is registered for use on field-grown cucurbit vegetables in Canada and the US, consisting of three applications at 0.144 kg ai/ha and a 7-day PHI.

Eight supervised greenhouse trials were conducted in Europe with application rates of ca. 0.6 × the greenhouse GAP. The trials resulted in the following independent residue values (n = 8): 0.03 (2), 0.04, 0.05 (2), 0.06, and 0.07 (2) mg/kg.

The Meeting noted that the supervised greenhouse trials available did not correspond to the submitted GAP and decided to apply the proportionality approach. After scaling residues to an application rate of 0.216 kg ai/ha by using a proportionality factor of approximately 1.5 (0.216 kg ai/ha ÷ 0.144 kg ai/ha; individual trial results were scaled based on actual application rates used in the field trials), the following data set resulted (n = 8): 0.045 (2), 0.06, 0.075 (2), 0.088, and 0.11 (2) mg/kg.

In five trials also analysing the pulp, no residues of total spiromesifen above the LOQ of 0.01 mg/kg were found. However, since the proportionality approach was applied by upscaling the results, the LOQ information cannot be used for the refined estimation of the dietary intake. Therefore, the Meeting based its estimation of STMR and HR values on whole melons instead.

Six supervised field trials were conducted according to the Canadian/US GAP. The trials resulted in the following independent residue values (n = 6): < 0.02, 0.025, 0.027, 0.035, and 0.045 mg/kg.

The residue data show the greenhouse use to be the critical GAP. The Meeting estimated a maximum residue level and STMR for spiromesifen residues in melon, except watermelon of 0.3 mg/kg and 0.075 mg/kg, respectively.

Summer squash

The GAP for summer squash is from registrations in Canada and the US for cucurbit vegetables, with three applications, each at 0.144 kg ai/ha and a 7-day PHI.

Six supervised trials were conducted in the US at GAP. The two trials conducted in Vero Beach, Florida are not considered to be independent. The trials resulted in the following independent residue values (n = 5): < 0.02 (2), 0.021, 0.022, and 0.05 mg/kg.

As the registrations in Canada and the US correspond to the "fruiting vegetables, cucurbit" Codex group; the median residue values from the trials conducted according to the Canadian/US GAP with cucumber, melon, and summer squash do not differ by more than 5-fold; and analysis by the Kruskal-Wallis test showed no evidence of a difference between the residue populations, the available data support a group recommendation. The combined field residues from cucumber, melon, and summer squash are (n = 16): < 0.02 (7), 0.021, 0.022, 0.025, 0.026, 0.027, 0.034, 0.035, 0.045, and 0.05 mg/kg.

The Meeting noted the individual recommendations for cucumber and melon from the greenhouse GAPS, and estimated for fruiting vegetables, cucurbit except cucumber and melon, maximum residue level and STMR for spiromesifen residues of 0.09 mg/kg and 0.021 mg/kg, respectively.

Fruiting vegetables, other than cucurbits

Spiromesifen has registrations for use on greenhouse-grown cucumber and melon as individual crops, as well as field-grown fruiting vegetables, other than cucurbits, as a group. The field and greenhouse uses are considered to be different GAPs. As such the Meeting has evaluated the greenhouse data against the individual-crop greenhouse GAPs and considered the field data against the crop group GAP.

Tomato

Spiromesifen is registered in France and Italy for use on greenhouse-grown tomato, with four applications, each at 0.216 kg ai/ha and a 3-day PHI. In addition, there are registrations in Canada, Mexico, and the US for use on field-grown crops in the NAFTA crop group fruiting vegetables, which corresponds to the Codex group fruiting vegetables other than cucurbits—except sweet corn and mushrooms. Under the field GAP, three applications are allowed, each at 0.144 kg ai/ha, with a 1-day PHI.

Sixteen supervised greenhouse trials were conducted in Europe according to the greenhouse GAP. The trials resulted in the following independent residue values (n = 16): 0.07, 0.09 (2), 0.10, 0.11, 0.12, 0.15, 0.16, 0.17, 0.19 (2), 0.21, 0.24, 0.29, 0.42, and 0.50 mg/kg.

Twelve supervised field trials were conducted in the US according to the field GAP. The trials resulted in the following independent residue values (n = 12): 0.047, 0.056, 0.063, 0.065 (2), 0.094, 0.099, 0.11, 0.14, 0.17, 0.18, and 0.34 mg/kg.

The residue data show the greenhouse use to be the critical GAP for tomato. The Meeting estimated a maximum residue level and STMR for spiromesifen residues in tomato of 0.7 mg/kg and 0.165 mg/kg, respectively. Noting the registration for use of spiromesifen in Greece on greenhouse-grown eggplant, the Meeting decided to extrapolate these estimates to greenhouse-grown eggplant.

Peppers

Spiromesifen is registered in Greece and Italy for use on greenhouse-grown sweet peppers, with four applications, each at 0.216 kg ai/ha, and a 3-day PHI. In addition, there are registrations in Canada, Mexico, and the US for use on the NAFTA crop group fruiting vegetables, which corresponds to the Codex group fruiting vegetables other than cucurbits-except sweet corn and mushrooms. Under the Canada, Mexico, and US GAPs, three applications are allowed, each at 0.144 kg ai/ha, with a 1-day PHI.

Nine supervised greenhouse trials were conducted on sweet peppers in Europe according to the greenhouse GAP. The trials resulted in the following independent residue values (n = 9): 0.07, 0.09, 0.11, 0.12, 0.13 (2), 0.19, and 0.22 (2) mg/kg.

Twenty supervised field trials were conducted on peppers (including chilli peppers) in the US; however only ten matched the GAP with respect to the PHI. The trials resulted in the following independent residue values (n = 10): < 0.02, 0.030, 0.035, 0.040, 0.050, 0.060 (2), 0.085, 0.17, and 0.32 mg/kg.

The residue data show the field use to be the critical GAP for peppers. Given that, and noting the GAPs for use of fruiting vegetables other than cucurbits in Canada, Mexico, and the US, the Meeting decided to explore using combined field data to evaluate residues in fruiting vegetables, other than cucurbits-except sweet corn and mushroom (excluding tomato and eggplant, as they are addressed by the greenhouse use discussed above). The residue data from field-grown peppers and tomato have median values that do not differ by more than five-fold; however, the Kruskal-Wallis test indicates that the residues are from separate populations.

As the residues in field-grown tomato are, overall, greater than those in field-grown pepper, the Meeting used the data from field-grown tomato and estimated maximum residue levels and STMRs for spiromesifen residues in peppers, okra, and pepino of 0.5 mg/kg and 0.097 mg/kg, respectively.

Of the available data from peppers, only three trials were conducted with chilli pepper varieties, which is insufficient for making a recommendation for dried chilli pepper based on chilli-pepper-specific data. Therefore, the Meeting used the generic pepper data and a default processing factor of 10 to estimate a maximum residue level and STMR for spiromesifen residues in chilli pepper (dried) of 5 mg/kg and 0.55 mg/kg, respectively.

Sweet corn

The GAP for sweet corn is from a registration in the US, with two applications, each at up to 0.3 kg ai/ha (not to exceed 0.3 kg ai/ha/season) and a 5-day PHI for sweet corn for fresh consumption.

Twelve supervised trials were conducted in the US at GAP. The trials resulted in the following independent residue values (n = 12): < 0.02 (12) mg/kg.

Noting that residues were below the limit of detection (0.0016 mg/kg) in all samples, the Meeting estimated a maximum residue level, STMR, and highest residue for spiromesifen residues in sweet corn (corn-on-the-cob) of 0.02* mg/kg, 0 mg/kg, and 0 mg/kg, respectively.

Leafy vegetables, including Brassica leafy vegetables

The GAP is from registrations in Canada and the US for leafy vegetables and Brassica leafy vegetables, with three applications, each at 0.144 kg ai/ha and a 7-day PHI.

Six supervised trials were conducted on head lettuce in the US at GAP. The trials resulted in the following independent residue values (n = 6): 0.16, 0.74, 0.97, 1.4, 2.4, and 4.5 mg/kg.

Seven supervised trials were conducted on leaf lettuce in the US at GAP. The two trials in Fresno, CA are not considered to be independent. The trials resulted in the following independent residue values (n = 6): 0.52, 0.90, 1.0, 1.7, 2.5, and 9.3 mg/kg.

Seven supervised trials were conducted on spinach in the US at GAP. The two trials in Suffolk, VA are not considered to be independent. The trials resulted in the following independent residue values (n = 6): 0.27, 1.8, 2.2, 5.0, 6.4, and 7.3 mg/kg.

Eight supervised trials were conducted on mustard greens in the US at GAP. The trials resulted in the following independent residue values (n = 8): 0.66, 1.1, 1.3, 1.5, 1.6, 2.1, 9.9, and 10 mg/kg.

The Meeting noted that the GAP in the US covers the Codex group of leafy vegetables including Brassica leafy vegetables and decided to explore the possibility of estimating a group maximum residue level for spiromesifen. As median residues in head lettuce, leaf lettuce, spinach, and mustard greens differed by less than 5-fold and the residue populations were not significantly different by the Kruskal-Wallis test, the Meeting decided to make a recommendation for leafy vegetables, including Brassica leafy vegetables based on the following combined data set (n = 26): 0.16, 0.27, 0.52, 0.66, 0.74, 0.90, 0.97, 1.0, 1.1, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 2.1, 2.2, 2.4, 2.5, 4.5, 5.0, 6.4, 7.3, 9.3, 9.9, and 10 mg/kg.

From those combined data, the Meeting estimated a maximum residue level for spiromesifen residues in leafy vegetables and in Brassica leafy vegetables of 15 mg/kg. The median and highest residues are 1.65 mg/kg and 10 mg/kg, respectively. Correcting these values to account for residues of 4-hydroxymethyl-Sp-enol (factor of 1.25) results in STMR and highest residue estimates of 2.06 mg/kg and 12.5 mg/kg, respectively.

Legume vegetables

Common beans (pods and/or immature seeds)

The GAP in the Netherlands allows for an unspecified number of applications to greenhouse-grown beans, each at up to 0.12 kg ai/ha, with a 1-day PHI.

Four supervised greenhouse trials were conducted in southern Europe approximating the Netherlands GAP were (n = 4): 0.11, 0.12, 0.27, and 0.64 mg/kg.

As four trials are not adequate for making robust residue estimates for beans, and no other trials matching the Netherlands GAP were available, the Meeting considered an alternate greenhouse GAP from Greece (up to four applications, each up to 0.144 kg ai/ha, and a 3-day PHI).

Eight supervised greenhouse trials were conducted in southern Europe matching the Greece GAP. The trials resulted in the following independent residue values (n = 8): 0.04, 0.06, 0.07, <u>0.08, 0.09</u>, 0.14, 0.26, and 0.64 mg/kg.

The Meeting estimated a maximum residue level and STMR for spiromesifen residues in beans (*Phaseolus)* (green pods and/or immature seeds) of 1 mg/kg and 0.085 mg/kg, respectively.

Pulses

Dry beans

The GAP for <u>bean</u> (dry seed) is from a registration in Brazil, with three applications, each at 0.144 kg ai/ha and a 21-day PHI.

Three supervised trials were conducted in Brazil at GAP and at an application rate of 2 × GAP. The trials reported residues of parent spiromesifen only.

Three trials are insufficient for making robust estimates of expected residues. Furthermore, the residues that were reported do not address the residue definition for either enforcement or dietary intake. For these reasons, the Meeting is not making a recommendation for residues of spiromesifen in bean (dry seed).

Root and tuber vegetables

The GAP for is from a registration in the US for <u>tuberous</u> and <u>corm</u> vegetables, with two applications, each at 0.280 kg ai/ha and a 7-day PHI. An alternate GAP exists from registration in Canada for use on tuberous and corm vegetables, with two applications, each at 0.144 kg ai/ha and a 7-day PHI.

Cassava (manioc)

Five supervised trials on <u>cassava</u> (manioc) were conducted in Brazil using three applications, each at ca. 0.14 kg ai/ha and included harvest 7 DALA. The trials resulted in the following independent residue values (n = 5): < 0.02 (5) mg/kg.

Potato

Sixteen supervised trials on <u>potatoes</u> were conducted in the US at GAP. The trials resulted in the following independent residue values (n = 16): < 0.02 (16) mg/kg.

Based on the registrations on tuberous and corm vegetables, and the lack of quantifiable residues in cassava and the lack of detected residues in potato, the Meeting extrapolated the results to include sweet potato, and estimated a maximum residue level, STMR, and highest residue for spiromesifen residues in cassava, potato, and sweet potato of 0.02* mg/kg, 0.01 mg/kg, and 0.01 mg/kg, respectively.

Cereal grains

Maize

The GAP for <u>maize</u> is from a registration in the US, with two applications, each at up to 0.3 kg ai/ha (not to exceed 0.3 kg ai/ha/season) and a 30-day PHI.

Forty supervised trials were conducted in the US at GAP. The trials resulted in the following independent residue values (n = 40): < 0.02 (40) mg/kg. In addition, spiromesifen + Sp-enol residues in corn grain were < 0.02 mg/kg from three trials conducted at a 5-fold exaggerated rate.

The Meeting estimated a maximum residue level and STMR for spiromesifen residues in maize of 0.02* mg/kg and 0 mg/kg, respectively.

Popcorn

The GAP for popcorn is from a registration in the US, with two applications, each at up to 0.3 kg ai/ha (not to exceed 0.3 kg ai/ha/season) and a 30-day PHI.

Three supervised trials were conducted in the US at GAP. The trials resulted in the following independent residue values (n = 3): < 0.02 (3) mg/kg.

Three trials are insufficient for making robust estimates of expected residues; however, based on the data from maize showing residues below the LOD in all trials, including exaggerated rate trials, the Meeting estimated a maximum residue level and STMR for spiromesifen residues in popcorn of 0.02* mg/kg and 0 mg/kg, respectively.

Oilseeds

Cotton

The GAP for cotton is from a registration in the US, with applications up to 0.28 kg ai/ha each (not to exceed three sprays or 0.56 kg ai/ha per season) and a 30-day PHI.

Twelve supervised trials were conducted in the US compliant with the US GAP. The trials resulted in the following independent residue values (n = 12): < 0.02 (4), 0.034, 0.11 (2), 0.18, 0.28, 0.32, 0.34, and 0.39 mg/kg.

The Meeting determined that the trials are suitable and estimated a maximum residue level and STMR for spiromesifen residues in cotton seed of 0.7 mg/kg and 0.11 mg/kg, respectively.

Seed for beverages and sweets

Coffee

The GAP for coffee is from a registration in Brazil, with two applications, each at 0.144 kg ai/ha and a 21-day PHI.

Five supervised trials were conducted in Brazil matching the Brazil GAP. The trials resulted in the following independent residue values (n = 5): < 0.02 (3), and 0.035 mg/kg and 0.11 mg/kg.

The Meeting estimated a maximum residue level and STMR for spiromesifen residues in coffee beans of 0.2 mg/kg and 0.02 mg/kg, respectively.

Derived products of plant origin

Tea

The GAP for tea is from a registration in Japan, with one application of a spray concentration of 0.015 kg ai/hL and a 7-day PHI. The label recommends spray rates of 2000 to 4000 L/ha.

Two trials were conducted in Japan according to the Japanese GAP; however, only summary reports were provided and they could not be adequately assessed. No other trials were available matching the Japanese GAP.

Six supervised trials were conducted in India with an application rate of 0.63 kg ai/ha and a 7-day PHI. The Meeting noted that the spray concentration used in the trials was exaggerated approximately 10-fold relative to the Japanese GAP. The Meeting used the spray concentration and maximum spray rate from the Japanese label to derive an application rate on a kg a.i./ha basis. As the application rate (0.63 kg ai/ha) from the India trials corresponds to the estimated maximum per-hectare rate from the Japanese label, the Meeting considered the residues resulting from the India trials approximating the Japanese GAP.

In trials conducted in India approximating the Japanese GAP, residues in fresh tea leaves were (n = 6): 0.66, 1.4, 4.4, 7.1, 7.7, and 10 mg/kg.

Sample of fresh tea (spiromesifen + Sp-enol = 7.1 mg/kg) from one trial in India were dried to form green tea (16 mg/kg) or fermented to form black tea (23 mg/kg). Applying the ratios of the residues for green tea (2.3) and black tea (3.2) results in residues as follows: green tea (n = 6), 1.5, 3.2, 10, 16, 18, and 23 mg/kg; and black tea (n = 6), 2.1, 4.5, 14, 23, 25, and 32 mg/kg.

Using the anticipated residues in black tea, the Meeting estimated a maximum residue level and STMR for tea green and black (black fermented and dried) of 70 mg/kg and 18.5 mg/kg, respectively.

Straw, fodder, and forage of cereal grains

Maize (including popcorn and sweet corn)

The GAP for maize is from a registration in the US, with two applications, each at up to 0.3 kg ai/ha (not to exceed 0.3 kg ai/ha/season) and PHIs of 5 days for forage and 30 days for fodder.

Maize forage

Fifty-six supervised trials were conducted with maize, popcorn, and sweet corn in the US at GAP. The trials resulted in the following independent residue values for forage (n = 27): 0.27, 0.42, 0.78, 1.0 (2), 1.3, 1.4, 1.5, 1.6, 1.7, 1.8 (3), 2.0, 2.1, 2.2 (2), 2.5 (3), 2.9, 3.0, 3.1, 3.2, 3.5, 3.6, and 4.4 mg/kg.

The Meeting estimated a median and highest residue for spiromesifen residues in maize forage (fresh) of 2 mg/kg and 4.4 mg/kg, respectively.

Maize fodder

The trials resulted in the following independent residue values for fodder (n = 34): 0.02, 0.08, 0.19 (2), 0.29, 0.31, 0.33, 0.34, 0.42, 0.49, 0.66, 0.73, 0.77, 0.84, 0.87, 0.88, 0.95, 0.97, 0.98, 1.0, 1.2, 1.3 (2), 1.4, 1.5, 1.6, 1.8, 1.9, 2.0, 2.2, 2.3, 2.6, and 4.1 mg/kg.

Based on a dry matter content of 83%, the Meeting estimated a maximum residue level for spiromesifen residues in maize fodder of 6 mg/kg.

The Meeting estimated median, and highest residues for spiromesifen residues in maize fodder (as received) of 0.96 mg/kg, and 4.1 mg/kg, respectively.

Miscellaneous fodder and forage crops

Cotton gin trash

The GAP for cotton is from a registration in the US, with three applications, each at maximum of 0.28 kg ai/ha (not to exceed 0.56 kg ai/ha/season) and a 30-day PHI.

Six supervised trials were conducted in the US at GAP. The trials resulted in the following independent residue values (n = 6): 0.41, 1.6, 2.7, 4.6, 6.0, and 11 mg/kg.

The Meeting estimated a median for spiromesifen residues in cotton gin trash of 3.65 mg/kg and a highest residue (from a single sample) of 12 mg/kg.

Fate of residues during processing

Under high-temperature hydrolysis conditions meant to mimic pasteurisation (90 °C, pH 4, 20 min.); baking, brewing, boiling (100 °C, pH 5, 60 min); and sterilisation (120 °C, pH 6, 20 min.), spiromesifen was converted to its Sp-enol metabolite. No other residues were identified. Conversion was less under the pH-4 conditions (ca. 20% formation of Sp-enol) and essentially quantitative under the pH-6 conditions.

The Meeting received data depicting the effects of processing and preparation on residue levels in strawberry, cucumber, summer squash, peppers, tomato, lettuce, spinach, beans, potato, sugar beet, maize, sorghum, wheat, cotton seed, and tea. Residue information, processing factors, and recommendations of STMR-P, HR-P, and MRLs relevant to the current evaluation are shown in the table, below.

Summary of spiromesifen residues (spiromesifen + Sp-enol) in processed commodities

	RAC residues, mg/kg				Processed residues, mg/kg	
RAC	MRL	STMR	Processed commodity	Processing factors [Median/Best estimate]	MRL	STMR-P
Strawberry	3	0.52	Jam	0.44, 0.46, 0.47, 0.58 [0.46]	–	0.24
			Preserve	0.28, 0.28, 0.32, 0.27 [0.28]	–	0.15
Broccoli	3	0.15	Cooked	1.9 [1.9]	–	0.28
Summer squash	0.09	0.02	Cooked	0.70 [0.7]	–	0.014
Tomato	0.7	0.165	Canned	0.21, < 0.06, < 0.07, 0.17, 0.35 [0.21]	–	0.035
			Juice (canned)	0.72, < 0.06, 0.13, 0.35, 0.3 [0.35]	–	0.058
			Puree	0.78, 0.72, 1.2, 2.3, 2 [1.2]	–	0.20
			Paste	2.6 [2.6]	2	0.43
			Wet pomace	4.1, 8.3, 7.4, 7.6 [7.5]	–	1.2
			Dried	5 [5]	4	0.82
Mustard greens	20	1.55	Cooked	0.14 [0.14]	–	0.22
Spinach	15	2.06	Cooked	2.1 [2.1]	–	4.3
Cotton seed	0.7	0.11	Refined oil	0.043, 0.026 [0.034]	–	0.0037
			Meal	0.08, 0.21 [0.14]	–	0.015
			Hulls	0.34 (0.34)		0.04
Tea, green, black (black, fermented and dried)	70	18.5	Black tea infusion	0.034 [0.034]	–	0.63

Residues in animal commodities

Farm animal dietary burden

The Meeting estimated the dietary burden of spiromesifen in farm animals on the basis of the diets listed in Appendix IX of the FAO Manual 2016. Calculation from highest residue, STMR (some bulk commodities) and STMR-P values provides levels in feed suitable for estimating MRLs, while calculation from STMR and STMR-P values for feed is suitable for estimating STMR values for animal commodities.

Estimated maximum and mean dietary burdens of farm animals

Dietary burden calculations for beef cattle, dairy cattle, broilers and laying poultry are provided in Appendix IX of the FAO manual. The calculations were made according to the animal diets from US-Canada, EU, Australia and Japan in the Table (Appendix IX of the FAO manual). The diets are based on residues in kale, and cotton, corn, and potato livestock feed commodities.

Livestock dietary burden for spiromesifen, ppm of dry matter diet								
	US-Canada		EU		Australia		Japan	
	Max	Mean	Max	Mean	Max	Mean	Max	Mean
Beef cattle	2.3	0.97	25	6.7	9.4	4.6	–	0.015
Dairy cattle	5.0	2.3	23	5.8	40	8.6	5.5	2.5
Poultry—broiler	–	–	0.01	0.01	–	–	–	–
Poultry—layer	–	–	5.3	1.2	–	–	–	–

The bold values, above, reflect the highest burdens for both MRL estimation (maximum diet) and STMR estimation (mean diet). Burdens from dairy cattle and layer hens are being used for beef cattle and broiler poultry, respectively.

Farm animal feeding studies

The Meeting received lactating dairy cow feeding studies, which provided information on likely residues resulting in animal commodities and milk from spiromesifen residues in the animal diet.

Lactating dairy cows

Lactating dairy cows were dosed with spiromesifen for 29 days at the equivalent of 5, 15 or 50 ppm in the diet. Analysis was for residues of spiromesifen, Sp-enol, and 4-hydroxymethyl-Sp-enol. Residues for all analyses and tissues were < 0.01 for control animals.

Residues of spiromesifen in milk reached a plateau beginning on Day 4. From Day 4 through Day 28 median and maximum residues were both 0.012 mg/kg at the 50-ppm dose level (other levels not analysed). In tissues, mean (and maximum) residues at the 5, 15, and 50-ppm feeding levels, respectively were: fat < 0.01 (< 0.01), 0.03 (0.045), and 0.093 (0.12) mg/kg; kidney < 0.05 (< 0.05), 0.065 (0.096), and 0.15 (0.26) mg/kg; liver < 0.05 (< 0.05), < 0.05 (< 0.05), and 0.053 (0.059) mg/kg; and muscle < 0.01 (< 0.010), < 0.01 (0.01), and < 0.01 (< 0.01) mg/kg.

Laying hens

The Meeting did not receive a feeding study for poultry. In the metabolism study conducted with laying hens, daily dosing at a rate of ca. 190 ppm resulted in combined residues of spiromesifen and Sp-enol of 0.018 mg/kg in egg (may be less than plateau level), 0.049 mg/kg in fat, 0.3 mg/kg in liver, 0.028 mg/kg in muscle, and 0.07 mg/kg in skin.

Animal commodities maximum residue levels

For MRL estimation in animal commodities, the residue definition is the combined residues of spiromesifen and spiromesifen-enol, expressed as spiromesifen

Estimated residues in tissues and milk at the dietary burden summarized above are shown in the table below.

Spiromesifen feeding study	Feed level (ppm) for milk residues	Residues (mg/kg) in milk	Feed level (ppm) for tissue residues	Residues (mg/kg)			
				Muscle	Liver	Kidney	Fat
MRL beef or dairy cattle							
Feeding study [a]	50	0.012	15	< 0.01	< 0.05	0.096	0.045
			50	< 0.01	0.059	0.26	0.12
Dietary burden and high residue	40	0.0096	40	< 0.01	0.056	0.21	0.099
STMR beef or dairy cattle							
Feeding study [b]	50	0.012	5	< 0.01	< 0.05	< 0.05	< 0.01
			15	< 0.01	< 0.05	0.065	0.03
Dietary burden and residue estimate	8.6	0.0021	8.6	< 0.01	< 0.05	0.055	0.017

[a] Highest residues for tissues and mean residues for milk

[b] Mean residues for tissues and mean residues for milk

The Meeting estimated the following maximum residue levels: Milks = 0.015 mg/kg; mammalian fats except milk fats = 0.15 mg/kg; meat (from mammals other than marine mammals) = 0.15 (F) mg/kg; and edible offal (mammalian) 0.3 mg/kg.

The Meeting estimated the following STMR levels: Milks = 0.0021 mg/kg; mammalian fats except milk fats = 0.017 mg/kg; meat (from mammals other than marine mammals) = 0.017 (F) mg/kg, 0.01 mg/kg (meat); and edible offal (mammalian) 0.055 mg/kg.

For poultry, a comparison of the feeding level in the metabolism study (190 ppm) with the maximum dietary burden (5.3 ppm) indicates that residues of spiromesifen plus Sp-enol would not be expected to exceed 0.0073 mg/kg in any poultry commodity. For poultry meat, egg, and fat, the Meeting estimated maximum residue levels of 0.02 mg/kg and STMRs of 0.01 mg/kg. For poultry edible offal, the Meeting estimated a maximum residue level of 0.05* mg/kg, and STMR and highest residue of 0.05 mg/kg, each.

RECOMMENDATIONS

On the basis of the data from supervised trials, the Meeting concluded that the residue levels listed in Annex 1 are suitable for establishing maximum residue limits and for IEDI assessments.

Definition of the residue for plant and animal commodities (for compliance with the MRL): *sum of spiromesifen and 4-hydroxy-3-(2,4,6-trimethylphenyl)-1-oxaspiro[4.4]non-3-en-2-one, expressed as spiromesifen.*

Definition of the residue for plant commodities (for dietary risk assessment): *sum of spiromesifen, 4-hydroxy-3-(2,4,6-trimethylphenyl)-1-oxaspiro[4.4]non-3-en-2-one, and 4-hydroxy-3-[4-(hydroxymethyl)-2,6-dimethylphenyl]-1-oxaspiro[4.4]non-3-en-2-one (free and conjugated), all expressed as spiromesifen.*

Definition of the residue for livestock commodities (for dietary risk assessment): *sum of spiromesifen and 4-hydroxy-3-(2,4,6-trimethylphenyl)-1-oxaspiro[4.4]non-3-en-2-one, expressed as spiromesifen.*

The residue is fat soluble.

DIETARY RISK ASSESSMENT

Long-term dietary exposure

The International Estimated Daily Intakes (IEDIs) of spiromesifen were calculated for the 17 GEMS/Food cluster diets using STMRs/STMR-Ps estimated by the current Meeting. The ADI is 0–0.03 mg/kg bw and the calculated IEDIs were 2–20% of the maximum ADI (0.03 mg/kg bw). The Meeting concluded that the long-term dietary exposure to residues of spiromesifen, resulting from the uses considered by the current JMPR, are unlikely to present a public health concern.

Short-term dietary exposure

The Meeting determined that an ARfD is not necessary for spiromesifen. The Meeting therefore concluded that the short-term dietary exposure to residues of spiromesifen resulting from uses that have been considered by the JMPR is unlikely to present a public health concern.

5.23 SULFOXAFLOR (252)

RESIDUE AND ANALYTICAL ASPECTS

Sulfoxaflor, a sulfoximine insecticide, was first evaluated by JMPR in 2011 where an ADI and AfRD of 0–0.05 mg/kg bw and 0.3 mg/kg bw respectively were established A residue definition of *sulfoxaflor* was established for both compliance and dietary risk assessment in plant and animal commodities.

Sulfoxaflor was also evaluated by JMPR in 2014 where the previously reviewed residue trial data on citrus fruits, pome fruits, stone fruits and tree nuts were reassessed against the registered USA GAP.

After the 2015 CCPR Meeting, the proposed MRL for tree nuts was held at Step 4 pending additional crop field trials, conducted in accordance to the USA GAP, for consideration by JMPR

The current Meeting received additional supervised residue trials for almonds and pecans as well as new GAP information (Columbia, Indonesia, Malaysia, Vietnam, Mexico and Ivory Coast) and supervised residue trials on assorted tropical and subtropical fruits, sweet corn, cereal grains and seed for beverages and sweets.

It should be noted that all uses in the USA were recently cancelled for reasons unrelated to food safety.

Results of supervised residue trials on crops

Supervised residue trials data were provided for cocoa beans (Costa Rica) and for avocadoes, rice, sorghum and cocoa beans (the USA). However, as these trials did not match the critical GAPs provided to the Meeting, and proportionality could not be applied due the different number of applications and PHIs in the trials, the Meeting could not recommend any maximum residue levels.

The Meeting also received supervised residue trials conducted in pineapples (Cost Rica and the USA) and on sweet corn, maize and tree nuts (the USA). However, as no GAPs were provided to the Meeting for these crops, maximum residue levels could not be recommended.

5.24 TEFLUBENZURON (190)

TOXICOLOGY

Teflubenzuron is the ISO-approved common name for 1-(3,5-dichloro-2,4-difluorophenyl)-3-(2,6-difluorobenzoyl)urea (IUPAC), with the CAS number 83121-18-0. Teflubenzuron is an insect growth regulator belonging to the benzoyl urea group of compounds. It acts at the developmental stages of insect pests, primarily via ingestion, by interfering with chitin synthesis and the moulting process. It has an ovicidal effect in some insects.

Teflubenzuron was previously evaluated by JMPR in 1994, when an ADI of 0–0.01 mg/kg bw was established, based on a LOAEL for liver changes in the mouse carcinogenicity study at 2 mg/kg bw per day. There was no consideration of an ARfD. Teflubenzuron was evaluated by the present Meeting under the periodic review programme of CCPR.

In 2015, the eighty-first meeting of JECFA reviewed teflubenzuron for use as a veterinary drug and established an ADI of 0–0.005 mg/kg bw, based on a lower 95% confidence limit on the benchmark dose for a 10% response ($BMDL_{10}$) for hepatocellular hypertrophy in a mouse carcinogenicity study.

A number of additional studies have been made available to the Meeting since the 1994 review by JMPR. A search of the published literature was conducted, and no relevant publications were identified. All critical studies contained statements of compliance with GLP and met the minimum requirements of applicable national or international test guidelines.

Biochemical aspects

The toxicokinetics and biotransformation of teflubenzuron were investigated in rats administered ^{14}C-labelled teflubenzuron at a single dose of 25 or 750 mg/kg bw by gavage or 14 daily doses of 25 mg/kg bw per day of unlabelled teflubenzuron followed by a single labelled dose of 25 mg/kg bw. Following administration of a single oral dose of radiolabelled teflubenzuron at 25 mg/kg bw, approximately 20% of the radioactivity was absorbed, based on urinary and biliary excretion; only 4% was absorbed when rats were dosed at 750 mg/kg bw, suggesting a dose-dependent absorption. Peak plasma concentrations were reached within 1–2 hours post-dosing and were maintained at similar levels for up to 8 hours (low dose) or 24 hours (high dose). In repeatedly dosed animals, there was some evidence of a dose-dependent plateau in plasma concentration.

More than 90% of the radioactivity was excreted via faeces within the first 24 hours of dosing, most of which was unchanged compound. Only a small fraction (0.15–3%) of the radioactivity was excreted in the urine. There was no difference in excretion pattern between sexes or between animals dosed with a single or multiple low doses. Absorbed teflubenzuron was mostly excreted through bile (16% of the administered dose at 5 mg/kg bw). Only negligible residues of radioactivity were detected in tissues and organs (< 2% of the administered dose), with no evidence of accumulation. Metabolites identified in bile and urine were benzoyl or aniline ring hydroxylated teflubenzuron and conjugates of (3,5-dichloro-2,4-difluorophenyl)urea and 3,5-dichloro-2,4-difluoroaniline. Several polar metabolites were detected in faeces, but the only metabolite characterized was (3,5-dichloro-2,4-difluorophenyl)urea. Hydrolytic cleavage of the phenylurea bridge was identified as the predominant pathway of teflubenzuron metabolism in a study in which rats were gavaged once with approximately 55 mg/kg bw. The cleavage products were either excreted unmodified or further metabolized before being excreted.

Analyses of blood samples from a 28-day toxicity study and a 2-year study of chronic toxicity and carcinogenicity in rats indicated a plateau in plasma levels of teflubenzuron at doses equivalent to approximately 100 mg/kg bw per day. These results are in agreement with the findings in the routine absorption studies described above.

Toxicological data

Teflubenzuron was of low acute toxicity in rats and mice via the oral route (LD_{50} > 5000 mg/kg bw) and in rats via the dermal route (LD_{50} > 2000 mg/kg bw) and by inhalation (LC_{50} > 5.04 mg/L). Teflubenzuron was not irritating to the skin of rabbits, but was transiently and slightly irritating to the eyes of rabbits. Teflubenzuron was not a skin sensitizer in guinea-pigs in a maximization test.

In repeated-dose toxicity studies in mice, rats and dogs, the predominant effect was liver toxicity, characterized by increased organ weight, increased serum activities of marker enzymes of liver toxicity and histopathological changes.

In a 90-day study of toxicity in mice, dietary concentrations of teflubenzuron were 0, 100, 1000 and 10 000 ppm (equal to 0, 12, 115 and 1213 mg/kg bw per day for males and 0, 14, 143 and 1450 mg/kg bw per day for females, respectively). The NOAEL was 100 ppm (equal to 12 mg/kg bw per day), based on increased liver weights, hepatocellular swelling and fatty change at 1000 ppm (equal to 115 mg/kg bw per day).

In a 28-day study of toxicity in rats, dietary concentrations of teflubenzuron were 0, 1500, 5000 and 15 000 ppm (equal to 0, 133, 392 and 1302 mg/kg bw per day for males and 0, 119, 385 and 1284 mg/kg bw per day for females, respectively). The LOAEL was 1500 ppm (equal to 133 mg/kg bw per day), on the basis of increased serum activities of alkaline phosphatase and aspartate aminotransferase and increased bilirubin levels, outside the normal ranges, in males at all dose levels.

In a 90-day study of toxicity in rats, nominal dietary concentrations of teflubenzuron were 0, 100, 1000 and 10 000 ppm, but measured levels were typically 85% of the nominal values. Achieved intakes were reported as 0, 8.0, 81.6 and 809 mg/kg bw per day for males and 0, 9.1, 94.0 and 942 mg/kg bw per day for females, respectively. The NOAEL was 100 ppm (equal to 8.0 mg/kg bw per day), on the basis of significantly increased activities of alkaline phosphatase and lactate dehydrogenase in serum in males at 1000 ppm (equal to 81.6 mg/kg bw per day).

In a 90-day dietary study in which dogs were administered teflubenzuron at 0, 100, 1000 or 10 000 ppm (equal to mean intakes of 0, 3.2, 30.4 and 323 mg/kg bw per day, respectively), the NOAEL was 100 ppm (equal to 3.2 mg/kg bw per day), based on pathological findings in the stomach at 1000 ppm (equal to 30.4 mg/kg bw per day).

In a subsequent dietary study in which dogs were administered teflubenzuron at 0, 30 or 100 ppm (equal to mean intakes of 0, 1.15 and 4.1 mg/kg bw per day, respectively), there were no adverse effects of treatment. The NOAEL was 100 ppm (equal to 4.1 mg/kg bw per day), the highest dose tested.

In a 1-year study in dogs in which teflubenzuron was administered in the diet at 0, 30, 100 or 500 ppm (equal to 0, 1.0, 3.2 and 17 mg/kg bw per day for males and 0, 1.2, 4.0 and 18 mg/kg bw per day for females, respectively), the NOAEL was 500 ppm (equal to 17 mg/kg bw per day), the highest dose tested. The Meeting considered that the increase in absolute and relative liver weights in males at 500 ppm (equal to 17 mg/kg bw per day) was not adverse in the absence of associated histopathological or clinical chemistry changes.

The overall NOAEL for dogs was 500 ppm (equal to 17 mg/kg bw per day), and the overall LOAEL was 1000 ppm (equal to 30.4 mg/kg bw per day).

In a carcinogenicity study in mice, teflubenzuron was administered in the diet at 0, 15, 75 or 375 ppm (equal to 0, 2.1, 10.5 and 53.6 mg/kg bw per day for males and 0, 3.1, 15.4 and 71.7 mg/kg bw per day for females, respectively) for 78 weeks, with an interim kill at week 52. Several treatment-related, dose-dependent non-neoplastic hepatic changes were observed, which were more pronounced in males than in females. In particular, males had dose-dependent incidences of hepatocellular hypertrophy, single-cell necrosis, phagocytic cell foci and lipofuscin accumulation. In the low-dose group, the incidence, but not the severity, of these non-neoplastic hepatic changes was significantly higher when compared with the controls. Histopathological investigation of neoplastic lesions indicated an increased incidence of hepatocellular adenomas and nodular hepatocellular hyperplasia in male mice treated at the middle and high doses compared with both concurrent and historical controls, but there was no difference in the incidence of hepatocellular carcinoma. Histopathological sections of liver from male mice in this study were subsequently re-evaluated by one independent pathologist, with a focus on nodular liver lesions. This pathologist concluded that there was a dose-related increase in the incidence of hepatocellular hyperplastic nodules and a slight, but statistically non-significant, increase in the incidence of hepatocellular adenomas.

Given that only benign hepatic adenomas were observed, the Meeting considered that teflubenzuron was not carcinogenic in mice. However, the Meeting concluded that teflubenzuron induced hyperplastic proliferation in liver of mice by an unknown mechanism. Based on the increased incidence of non-neoplastic hepatic changes observed in liver (e.g. hepatocellular hypertrophy, single-cell necrosis, phagocytic cell foci, lipofuscin accumulation) at all doses, no NOAEL could be identified. The lowest dietary concentration, 15 ppm (equal to 2.1 mg/kg bw per day), was identified as the LOAEL.

In the absence of a NOAEL, to better characterize the point of departure, the Meeting evaluated a dose–response analysis of these data performed by JECFA, using the benchmark dose (BMD) approach. Of several non-neoplastic hepatic changes identified, hepatocellular hypertrophy (diffuse plus centrilobular) was considered to be the most toxicologically relevant effect for dose–response modelling. The BMD for a 10% response (BMD_{10}) and the lower 95% confidence limit on the BMD_{10} ($BMDL_{10}$) were determined using nine different dichotomous models. The Meeting confirmed the conclusion of JECFA that the $BMDL_{10}$ of 0.54 mg/kg bw per day estimated by the multistage model was the most appropriate point of departure for this study.

In a dietary study of chronic toxicity and carcinogenicity, rats were administered teflubenzuron at 0, 20, 100 or 500 ppm (equal to 0, 1.0, 4.8 and 24.8 mg/kg bw per day for males and 0, 1.2, 5.9 and 29.9 mg/kg bw per day for females, respectively) for 120 weeks, with interim kills at weeks 53 and 107. Mortality, which was not influenced by treatment, ranged from 40% to 50% at week 120. Trend analysis identified increased incidences of haemangiomas in mesenteric lymph nodes and pancreatic exocrine carcinomas in the high-dose males. However, they were not significantly different when compared with historical controls. Also, the occurrence of pancreatic exocrine carcinoma was too infrequent (2/47 versus 0/50) to allow a meaningful comparison to be drawn. The NOAEL was 100 ppm (equal to 4.8 mg/kg bw per day), based on the changes in liver marker enzymes and liver weight at 500 ppm (equal to 24.8 mg/kg bw per day).

In a subsequent dietary study of carcinogenicity, rats were administered teflubenzuron at 0, 2500 or 10 000 ppm (equal to 0, 123 and 487 mg/kg bw per day for males and 0, 154 and 615 mg/kg bw per day for females, respectively) for 111 weeks, with an interim kill at week 104. Liver toxicity was evident, with findings including altered serum enzyme activities, increased liver weight and non-neoplastic microscopic changes noted in the liver of both sexes at both doses tested, lesions being more severe in males than in females. There was no compound-related increase in the incidence of any tumours observed in this study, including mesenteric lymph node haemangioma and pancreatic exocrine carcinoma in male rats. The results of this study confirm the lack of association between substance administration and incidences of tumours reported from the previous study.

Although no NOAEL could be identified in the second study owing to non-neoplastic microscopic hepatic changes and elevated liver enzyme activities in both treatment groups, the Meeting was able to identify an overall NOAEL of 100 ppm (equal to 4.8 mg/kg bw per day) from the two long-term toxicity and carcinogenicity studies in rats.

The Meeting concluded that teflubenzuron is not carcinogenic in mice or rats.

Teflubenzuron was tested for genotoxicity in an adequate range of assays, both in vitro and in vivo. All studies produced negative results. Teflubenzuron exhibited no potential to bind to the DNA from the livers of male NMRI mice.

The Meeting concluded that teflubenzuron is unlikely to be genotoxic.

In view of the fact that teflubenzuron is unlikely to be genotoxic, the absence of carcinogenicity in rats and the demonstration of a threshold for benign liver tumours in mice, the Meeting concluded that teflubenzuron is unlikely to pose a carcinogenic risk to humans from the diet.

In a two-generation study of reproductive toxicity in rats, with one litter per generation, dietary concentrations of teflubenzuron were 0, 20, 100 and 500 ppm (equal to mean intakes of 0, 1.5, 7.4 and 37 mg/kg bw per day for males and 0, 1.6, 7.9 and 39.5 mg/kg bw per day for females, respectively). The NOAEL for reproductive effects was 500 ppm (equal to 37 mg/kg bw per day), the highest dose tested. The NOAEL for parental toxicity was 500 ppm (equal to 37 mg/kg bw per day), the highest dose tested. The NOAEL for effects on offspring was 100 ppm (equal to 7.9 mg/kg bw per day), based on renal pelvis dilatation in F_1 pups at 500 ppm (equal to 39.5 mg/kg bw per day).[1]

In a study of developmental toxicity in rats dosed with teflubenzuron at 0, 10, 50 or 250 mg/kg bw per day by gavage in 0.5% carboxymethyl cellulose, there were no effects on any measured fetal or maternal parameters. An apparent decrease in fetal numbers was associated with fewer corpora lutea and hence unrelated to dosing with teflubenzuron. The NOAEL for maternal toxicity was 250 mg/kg bw per day, the highest dose tested. The NOAEL for embryo and fetal toxicity was 250 mg/kg bw per day, the highest dose tested.

In a subsequent study of developmental toxicity in rats dosed with teflubenzuron at 0, 100, 300 or 1000 mg/kg bw per day by gavage in 0.5% carboxymethyl cellulose, there were no effects on any measured fetal or maternal parameters. The NOAEL for maternal toxicity was 1000 mg/kg bw per day, the highest dose tested. The NOAEL for embryo and fetal toxicity was 1000 mg/kg bw per day, the highest dose tested.

In a study of developmental toxicity in rabbits dosed with teflubenzuron at 0, 10, 50 or 250 mg/kg bw per day by gavage, there were no effects on any measured maternal parameters. An apparent slight decrease in fetuses surviving for 24 hours at 250 mg/kg bw per day is considered to be an equivocal effect. The cause of death for these fetuses was not identified. Investigations for fetal abnormalities did not identify any malformations incompatible with initial survival. The Meeting concluded that the deaths of these fetuses was unlikely to have resulted from a single exposure of the dam. The NOAEL for maternal toxicity was 250 mg/kg bw per day, the highest dose tested. The NOAEL for embryo and fetal toxicity was 50 mg/kg bw per day, based on decreased survival at the highest dose.

In a subsequent study of developmental toxicity in rabbits dosed with teflubenzuron at 0 or 1000 mg/kg bw per day by gavage, there were no effects on any measured fetal parameters. In dams, a finding of granular livers of unknown toxicological significance was increased in the teflubenzuron-treated group. A NOAEL for maternal toxicity could not be determined based on the liver changes was 1000 mg/kg bw per day, the only dose tested. The NOAEL for embryo and fetal toxicity was 1000 mg/kg bw per day, the highest dose tested.

The Meeting concluded that teflubenzuron is not teratogenic.

The acute neurotoxicity of teflubenzuron was investigated in rats administered a dose level of 0, 125, 500 or 2000 mg/kg bw by gavage. No adverse effects were reported. The NOAEL for neurotoxicity was 2000 mg/kg bw, the highest dose tested.

In a subchronic (90-day) neurotoxicity study in rats, dietary concentrations of teflubenzuron were adjusted to give mean intakes of 0, 100, 300 and 1000 mg/kg bw per day. No adverse effects were reported. The NOAEL for neurotoxicity was 1000 mg/kg bw per day, the highest dose tested.

The Meeting concluded that teflubenzuron is not neurotoxic.

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[1] During the meeting, the Meeting became aware of the existence of a second multigeneration reproductive toxicity study from a different sponsor, but that study was not available for evaluation.

In a 28-day immunotoxicity study in male mice, dietary concentrations were 0, 200, 1000 and 5000 ppm (equal to 0, 44, 218 and 1059 mg/kg bw per day, respectively). No adverse effects were reported. The NOAEL for immunotoxicity was 5000 ppm (equal to 1059 mg/kg bw per day), the highest dose tested.

The Meeting concluded that teflubenzuron is not immunotoxic.

Toxicological data on metabolites and/or degradates

Data are available on two minor plant metabolites. 2,4-Difluoro-3,5-dichlorophenylurea has an acute oral LD_{50} of 700 mg/kg bw in rats and was not mutagenic in an Ames test. 2,4-Difluoro-3,5-dichloroaniline has an acute oral LD_{50} of 1759 mg/kg bw in rats and was not mutagenic in an Ames test.

Human data

No data were submitted on humans exposed to teflubenzuron.

The Meeting concluded that the existing database on teflubenzuron was adequate to characterize the potential hazards to the general population, including fetuses, infants and children.

Toxicological evaluation

The Meeting established an ADI for teflubenzuron of 0–0.005 mg/kg bw, on the basis of the $BMDL_{10}$ of 0.54 mg/kg bw per day for hepatocellular hypertrophy from the carcinogenicity study in mice. A safety factor of 100 was applied.

The Meeting concluded that it was not necessary to establish an ARfD for teflubenzuron in view of its low acute oral toxicity and the absence of any toxicological effects, including developmental toxicity, that would likely be elicited by a single dose.

A toxicological monograph was prepared.

Levels relevant to risk assessment of teflubenzuron

Species	Study	Effect	NOAEL	LOAEL
Mouse	Eighteen-month study of toxicity and carcinogenicity[a]	Toxicity	0.54 mg/kg bw per day ($BMDL_{10}$)	15 ppm, equal to 2.1 mg/kg bw per day
		Tumorigenicity	15 ppm, equal to 2.1 mg/kg bw per day	75 ppm, equal to 10.5 mg/kg bw per day
Rat	Two-year studies of toxicity and carcinogenicity[a,b]	Toxicity	100 ppm, equal to 4.8 mg/kg bw per day	500 ppm, equal to 24.8 mg/kg bw per day
		Carcinogenicity	10 000 ppm, equal to 487 mg/kg bw per day[c]	–
	Two-generation study of reproductive toxicity[a]	Reproductive toxicity	500 ppm, equal to 37 mg/kg bw per day[c]	–
		Parental toxicity	500 ppm, equal to 37 mg/kg bw per day[c]	–

Species	Study	Effect	NOAEL	LOAEL
		Offspring toxicity	100 ppm, equal to 7.9 mg/kg bw per day	500 ppm, equal to 39.5 mg/kg bw per day
	Developmental toxicity study[b]	Maternal toxicity	1 000 mg/kg bw per day[c]	–
		Embryo and fetal toxicity	1 000 mg/kg bw per day[c]	–
	Acute neurotoxicity study[b]	Neurotoxicity	2 000 mg/kg bw per day[c]	–
Rabbit	Developmental toxicity studies[b,d]	Maternal toxicity	250 mg/kg bw per day	1 000 mg/kg bw per day
		Embryo and fetal toxicity	50 mg/kg bw per day[c]	250 mg/kg bw per day
Dog	Thirteen-week and 1-year studies of toxicity[a,b]	Toxicity	500 ppm, equal to 17 mg/kg bw per day	1 000 ppm, equal to 30.4 mg/kg bw per day

[a] Dietary administration.

[b] Two or more studies combined.

[c] Highest dose tested.

[d] Gavage administration.

Acceptable daily intake (ADI)

0–0.005 mg/kg bw

Acute reference dose (ARfD)

Unnecessary

Information that would be useful for the continued evaluation of the compound

Results from epidemiological, occupational health and other such observational studies of human exposure

Critical end-points for setting guidance values for exposure to teflubenzuron

Absorption, distribution, excretion and metabolism in mammals	
Rate and extent of oral absorption	Relatively rapid (peak plasma level 1–8 h); poorly absorbed, 20% at 25 mg/kg bw, 4% at 750 mg/kg bw (based on urine and bile)
Dermal absorption	No data submitted
Distribution	Limited information, highest levels in liver
Potential for accumulation	No evidence of accumulation
Rate and extent of excretion	Rapid, > 90% in 24 h
Metabolism in animals	Extensive; hydroxylation or cleavage followed by hydroxylation and conjugation

Toxicologically significant compounds in animals and plants	Teflubenzuron
Acute toxicity	
Rat, LD_{50}, oral	> 5 000 mg/kg bw
Rat, LD_{50}, dermal	> 2 000 mg/kg bw
Rat, LC_{50}, inhalation	> 5.04 mg/L
Rabbit, dermal irritation	Not irritating
Rabbit, ocular irritation	Transiently and slightly irritating
Guinea-pig, dermal sensitization	Not sensitizing (maximization test)
Short-term studies of toxicity	
Target/critical effect	Clinical chemistry changes
Lowest relevant oral NOAEL	8.0 mg/kg bw per day (rat)
Lowest relevant dermal NOAEL	No data
Lowest relevant inhalation NOAEC	No data
Long-term studies of toxicity and carcinogenicity	
Target/critical effect	Liver: single-cell necrosis and hepatocellular hypertrophy (mice); hepatocellular adenomas (male mice)
Lowest relevant NOAEL	0.54 mg/kg bw per day ($BMDL_{10}$)
Carcinogenicity	Not carcinogenic in mice or rats[a]
Genotoxicity	
	No evidence of genotoxicity[a]
Reproductive toxicity	
Target/critical effect	Renal pelvis dilatation
Lowest relevant parental NOAEL	37 mg/kg bw per day, highest dose tested (rat)
Lowest relevant offspring NOAEL	7.9 mg/kg bw per day (rat)
Lowest relevant reproductive NOAEL	37 mg/kg bw per day, highest dose tested (rat)
Developmental toxicity	
Target/critical effect	Mortality on postnatal day 1 for offspring; liver toxicity in dams (rabbit)
Lowest relevant maternal NOAEL	250 mg/kg bw per day (rabbit)
Lowest relevant embryo/fetal NOAEL	50 mg/kg bw per day (rabbit)
Neurotoxicity	
Acute neurotoxicity NOAEL	2 000 mg/kg bw, highest dose tested (rat)
Subchronic neurotoxicity NOAEL	1 000 mg/kg bw per day, highest dose tested (rat)
Developmental neurotoxicity NOAEL	No data
Other toxicological studies	
Immunotoxicity NOAEL	1 059 mg/kg bw per day, highest dose tested (mouse)
DNA binding assay	No evidence of binding to mouse liver DNA

Human data	
	No data

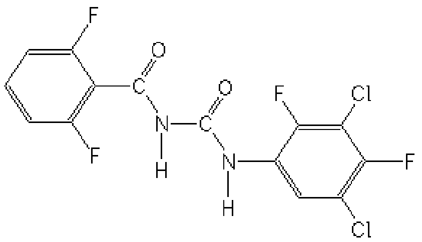
[a] Unlikely to pose a carcinogenic risk to humans via exposure from the diet.

Summary

	Value	**Study**	**Safety factor**
ADI	0–0.005 mg/kg bw	Eighteen-month toxicity and carcinogenicity study (mouse)	100
ARfD	Unnecessary	–	–

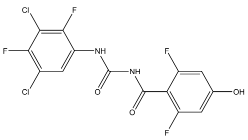
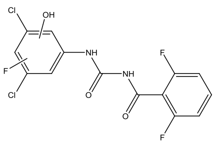
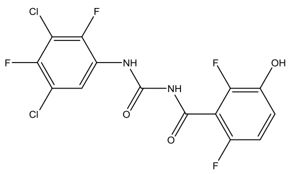
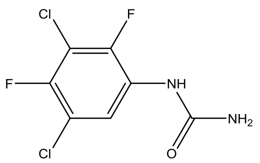
RESIDUE AND ANALYTICAL ASPECTS

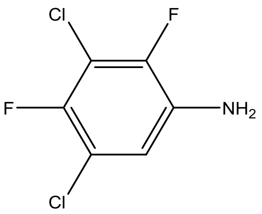
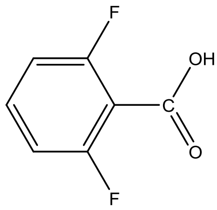
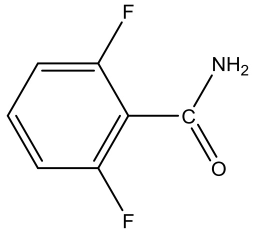
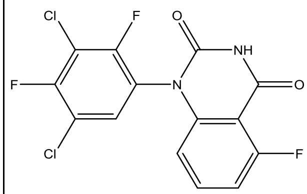
Teflubenzuron (1-(3,5-dichloro-2,4-difluorophenyl)-3-(2,6-difluorobenzoyl)urea) is a benzoylurea insecticide to control a range of insects including codling moth, leaf miners, whiteflies and caterpillars in a wide range of crops including fruit trees, vegetables, soya beans, oilseeds, maize, sugar cane and coffee. Teflubenzuron was first evaluated by JMPR in 1994 (toxicology) and in 1996 (residues). Teflubenzuron was scheduled at the 47th Session of the CCPR for Periodic Re-evaluation for residues and toxicology by the 2016 JMPR.



The Meeting received information from the manufacturer on physical and chemical properties, metabolism studies on plants and animals, rotational crop studies, environmental fate in soil, analytical method and stability in stored analytical samples, use patterns and supervised residue trials, processing studies, and livestock feeding studies.

The metabolism and distribution of teflubenzuron in plants and animals was studied using the aniline or benzoyl ^{14}C-labelled compound. The following abbreviations are used for the metabolites or degradation products discussed below:

3379	3380； E114	3381； E115; CL902374	CL902374; E15; CFPU
			
N-((3,5-dichloro-2,4-difluorophenyl)carbamoyl)-	1-(3,5-dichloro-2-fluoro-4-hydroxy-phenyl)-3-	N-((3,5-dichloro-2,4-difluorophenyl)carbamoyl)-	3,5-dichloro-2,4-difluorophenyl urea

2,6-difluoro-4-hydroxybenzamide;	(2,6-difluorobenzoyl)urea Or 1-(3,5-dichloro-4-fluoro-2-hydroxy-; phenyl)-3-(2,6-difluorobenzoyl)urea	2,6-difluoro-3-hydroxybenzamide	
E14; CL902373; EMD	CL245508	CL 211558	E30
			
3,5-dichloro-2,4-difluoroaniline;	2,6-difluorobenzoic acid;	2,6-difluorobenzamide;	N-(2,4-difluoro-3,5-dichlorobenzene)-5-fluoro[3H]-dihydroquinazoline-2,4-dione;

Plant metabolism

The metabolism of teflubenzuron has been studied with [^{14}C]teflubenzuron on apples, potatoes and spinach. The study designs of the plant uptake parts reflect the registered use patterns with several foliar applications.

Following foliar applications, there was little translocation from treated foliage to other parts of the plants, which is consistent with its properties (log P_{ow}> 4). In the studies on apples, the teflubenzuron residues remained predominantly associated with the peel (98–99% TRR), low residues (1.2–2.0% of TRR) were extracted from the pulp. In foliage, > 99% TRR was extracted from the surface of leaves. Teflubenzuron was identified as the major component in fruits and leaves (97–99% TRR).

In the studies on potatoes, more than 99% TRR was extracted from treated potato tops at harvest after foliar application. Low radioactive residues (< 0.001 mg/kg) were detected in the tubers. Almost all extracted residues in surfaces of leaves and stems (99% and 98% TRR) were identified as parent teflubenzuron. Radioactive residues in potato tops and tubers after soil drench were 0.001–0.003 mg/kg. Identification of these radioactive residues was not conducted.

In studies on spinach, no significant metabolism of teflubenzuron was observed. The TRR levels in spinach leaves were highest immediately after foliar application at 12–14 mg eq/kg, and decreased to 0.88–0.90 mg eq/kg and 0.08–0.26 mg eq/kg in the 15 and 30 DAA. Most radioactive residues (99–100% TRR) were extracted in leaves, of which 96–100% TRR was identified as parent teflubenzuron in samples from 30 days after application. Minor unidentified metabolites (< 3.2% of the TRR) were detected at 30 DAA.

Plant metabolism studies in apples, potatoes and spinach show that most of teflubenzuron residue remains on the surface of plants and is not readily translocated into the pulp of apple fruit (< 2.2% of TRR translocated into apple pulp) or from potato leaves to tubers (> 98% TRR remaining in potato leaves and stems). A very high level of the radioactivity was attributed to parent compound (> 97% TRR in apple peel, 96–100% TRR in spinach leaves and 99% TRR in potato tops) with no indication of the presence of metabolites or cleavage products.

Confined rotational crop studies

Two studies on confined rotational crops with [^{14}C]teflubenzuron radiolabelled either in the aniline or benzoyl moiety were provided to the Meeting. [^{14}C]teflubenzuron was applied at a rate of 0.5 kg ai/ha to a sandy loam soil in indoor plots, which covered most application scenarios. The TRR in the crop samples at harvest declined with longer plant back intervals. The TRRs in lettuce after 30, 120, and 360 days of plant back interval were 0.007–0.001 mg eq/kg, 0.026–0.001 mg eq/kg in carrot roots, 0.24–0.007 mg eq/kg in wheat straw and 0.012–0.002 mg eq/kg in wheat grain. The TRR in the crops at harvest were low (< 0.01 mg eq/kg) with the exception of wheat straw. Characterisation of the radioactive residues in wheat straw after 30 and 120 days of plant back intervals showed several polar unknowns at concentrations < 0.05 mg/kg. Neither teflubenzuron, nor the two known soil metabolites 3, 5-dichloro-2, 4-difluorophenyl urea and 3,5-dichloro-2,4-difluoroaniline were detected in the plants at levels > 0.01 mg/kg.

The Meeting concluded that due to the very low levels of radioactive residues of teflubenzuron and metabolites detected in confined rotational crops studies, no residues above the limit of quantitation (LOQ) would be expected in rotational crops.

Animal metabolism

Studies were submitted on the metabolism of teflubenzuron in lactating goats. The aniline labelled [^{14}C]teflubenzuron was administered orally to two lactating goats twice daily for 7.5 days at a dose of 1 mg/kg bw/day (equivalent to 25 ppm diet, based on a daily feed intake of 2 kg). More than 93% of the total radioactivity administered was excreted via faeces and urine. Highest levels of total radioactivity were found in liver (0.49 mg eq/kg) corresponding to 0.14% of the total administered dose. Levels in kidney and fat were 0.03 and 0.08 mg eq/kg, respectively. Levels in muscle and skin were at or below the limit of detection. 58% of TRR in liver was extracted. Identification of radioactive residues in liver showed that the major components (81% TRR) were the polar unknowns, along with low levels of metabolite 3379 (3.7% TRR), parent compound (1.6% TRR) and metabolite 3381(1.5% TRR). The TRR in milk was close to the limit of detection; the highest levels of total radioactivity in milk were found in Day 5 evening milk (0.01–0.015 mg eq/kg) and accounted for 0.002–0.005% of the cumulative administered dose. Analysis of milk extracts showed the presence of teflubenzuron (6.5% TRR), metabolite 3381 (1.5% TRR) and polar unknowns (82.5% TRR). Further attempts to separate compounds produced no interpretable results due to the low amounts (< 0.015 mg eq/kg) of radioactivity.

A study on identification of metabolites in laying hens was available to the Meeting. The aniline-labelled [^{14}C]teflubenzuron was administered orally to eighteen laying hens twice daily for 7.5 days at a dose of 1.25 mg/kg bw /day (equivalent to 25 ppm diet, based on a daily feed intake of 100 g). 88% of the total administered radioactivity was excreted, with less than 0.01% in the eggs and less than 0.4% in the tissues. The radioactive residues in egg yolk reached a maximum of 0.99 mg eq/kg on Day 9. 92% TRR in egg yolk was extracted with methanol, and more than 62% TRR was identified as parent teflubenzuron. Low levels of metabolite E15 (5.4% TRR) and 3381(7.1% TRR) were observed in yolk extracts. The radioactive residues in the tissues (expressed as parent equivalent) were 0.33 mg eq/kg in liver, 0.17 mg eq/kg in kidney, 0.95–1.1 mg eq/kg in fat, 0.45 mg eq/kg in skin, and 0.026–0.066 mg eq/kg in muscle. 70% TRR in liver, 90% TRR in kidney and 94% TRR in fat were extracted with methanol; 35% TRR in liver, 30.1% TRR in kidney and 79% TRR in fat were identified as parent teflubenzuron. Metabolites 3381 and E15 were observed at low levels in liver (6.8% TRR, 3.4% TRR) and kidney (4.5% TRR, 13% TRR). The radioactive residues in muscle were not sufficiently high to enable characterisation.

Metabolism studies performed on goats and hens have shown that teflubenzuron is poorly absorbed and metabolised with more than 88% of total administered radioactivity excreted. The major residues in milk and goat liver were polar unknowns. The most prominent residue in egg yolk and hen tissues (liver and kidney) was parent teflubenzuron. The main metabolites found were metabolite E15 with highest amounts in kidneys of hens (13% TRR) and metabolite 3381 with highest amounts in livers of goats (30% TRR).

Environmental fate

Studies on the degradation of aniline and benzoyl labelled [^{14}C]teflubenzuron under aerobic conditions, field dissipation, hydrolysis and photolysis were received. The [^{14}C]teflubenzuron was applied to sandy loam soil at a rate of 5 mg/kg and silty clay loam at rate of 0.5 mg/kg. The major part of the radioactive residues in soil was from parent teflubenzuron (97% AR on Day 0 to > 48% AR on Day 30) under aerobic conditions. Major metabolites identified were 3,5-dichloro-2,4-difluoroaniline (maximum of 28% AR after 14 days), 3,5-dichloro-2,4-difluorophenylurea (CL902374, maximum of 10% AR after 29 days). Up to 52% AR was mineralized to CO_2 in silty clay soil after 150 days. Cleavage of the [^{14}C-benzoyl]-teflubenzuron into 2,6-difluorobenzoic acid was not observed under aerobic conditions.

Four field dissipation trials at a rate of 0.36 kg ai/ha showed DT_{50} and DT_{90} values of 17–24 and 55–78 days for teflubenzuron. Degradation of teflubenzuron in the humic sand was relatively fast with a half-life of approximately 2 weeks, and significantly slower in the sandy loam where a half-life of around 6 weeks was calculated.

The hydrolysis of aniline or benzoyl labelled [^{14}C]teflubenzuron was studied in buffered solutions of 0.04 mg/L at pH 5, 7 and 9 in the absence of light at 25 °C. The teflubenzuron is stable to hydrolysis at pH 5–7 after 30 days at 25 °C. At pH 9, teflubenzuron was extensively hydrolysed with a half-life of 10 days. The major metabolites identified after 30 days at pH 9 were 3,5-dichloro-2,4-difluorophenylurea (61% from the aniline labelled), 3,5-dichloro-2,4-difluoroaniline (12% from the aniline labelled), 2,6-difluorobenzoic acid (62% from the benzoyl labelled) and 2,6-difluorobenzamide (12% from the benzoyl labelled). No other metabolites were at levels above 10% AR.

The study on photo-degradation of aniline labelled [^{14}C]teflubenzuron on soil estimated a photolytic half-life time of approximately 10 days. The only metabolite identified was N-(2,4-difluoro-3,5-dichlorobenzene)5-fluoro[3H]-dihydroquinazoline-2,4-dione (32% AR after 15 days).

The Meeting concluded that teflubenzuron is stable to hydrolysis under neutral and acidic conditions, and photolysis might contribute significantly to degradation of teflubenzuron. In soil its degradation is moderately quick, indicating no potential for accumulation.

Methods of analysis

The Meeting received descriptions and validation data for analytical methods for residues of teflubenzuron in plant matrices (avocadoes, peppers, cucumbers, tomatoes, cherry tomatoes, oats, sugar cane, citrus, cauliflowers, maize, sunflowers, wheat and rye) and animal commodities (milk, liver, muscle, fat and egg). The homogenized samples were extracted with acetone and purified with silica gel for cucumbers, tomatoes, oats, sugar cane, citrus and cauliflowers; extracted with methanol and purified with PSA for maize grain; and extracted with isohexane and acetonitrile purified with formic acid for sunflower seeds. Samples of animal tissues, egg and milk were extracted with acetonitrile and purified with PSA. The determination of teflubenzuron used LC-MS/MS for plants and animal matrices. Typical LOQs achieved for plant and animal commodities were 0.01 mg/kg. The recoveries were within the range of 70–120%, and RSD was within 20%. Methods have been subjected to independent laboratory validation. Multiple residue method of QuEChERS was validated for analysis of teflubenzuron in plant commodities and animal commodities.

Stability of pesticide residues in stored analytical samples

Information was received on the freezer storage stability of teflubenzuron in plant commodities. Studies on stability showed that teflubenzuron residues were stable under freezer condition (-20 °C) in spiked samples of apples, pears, potatoes and cabbage for at least 36 months, and in samples of tomatoes, oranges, cotton seeds, soya bean, maize and sunflower seeds for at least 24 months. No information on storage stability of animal commodities were available.

Definition of the residue

In plant metabolism studies performed on fruits (apples), leafy crops (spinach) and tuber crops (potatoes) similar metabolic behaviour was observed. The parent compound teflubenzuron is the dominant component of the residues in plant commodities and ranged from 96–99% TRR in apples, potato tops and spinach leaves. No individual metabolite occurred at a level of > 0.05 mg eq/kg.

The Meeting concluded that teflubenzuron was the major residue in all primary treated plants. No significant residues are expected in rotational crops following application of the active substance. Analytical single- and multi-residue methods are available to measure teflubenzuron in plant matrices. The Meeting decided that the residue definition for plants (compliance with MRLs and dietary intake purposes) is parent teflubenzuron.

Low levels of TRR were detected in milk (< 0.01 mg eq/kg) and tissues of goats (< 0.01 in muscle to 0.49 mg eq/kg in liver). The major components (81% TRR) of radioactive residues in liver were polar unknowns. Minor levels of teflubenzuron (1.6% TRR), metabolite 3379 (3.7% TRR) and 3381 (1.5% TRR) were observed in livers of goats.

Teflubenzuron was the major compound observed in eggs (66% TRR), livers (35% TRR), kidneys (30%TRR), and fat (79%) of hens. TRR levels in muscles were too low to be characterized. Minor metabolites 3381and E15 were observed in livers (6.8% TRR, 3.4% TRR) and kidneys (4.5% TRR, 13% TRR). The parent teflubenzuron serves as a suitable marker for poultry commodities.

The Meeting concluded that teflubenzuron was the major residue in poultry tissues and eggs and present in goat matrices at levels sufficient for identification. No other compounds were suitable for markers in animal commodities. The Meeting decided that the residue definition for animals (compliance with MRLs and dietary intake purposes) is parent teflubenzuron.

Teflubenzuron has a log P_{ow} of 4.2. In feeding studies on hens, the teflubenzuron residues in fat were 8.3–18 times higher than residues in muscle. The Meeting decided that the residue of teflubenzuron is fat soluble.

Definition of the residue (for compliance with the MRL and for estimation of dietary intake) for plant and animal commodities: *Teflubenzuron.*

The residue is fat soluble.

Results of supervised residue trials on crops

The Meeting received supervised residue trial data for citrus fruits, apples, grapes, mangoes, papaya, pineapples, broccoli, cauliflower, melons, cucumbers, gherkins, tomatoes, sweet peppers, pulse, maize and coffee. If two field samples were taken or results of two replicate plots were submitted, the mean value was calculated. When two or more trials were carried out side-by-side, the higher residue was chosen.

Oranges, Sweet, Sour

The critical GAP in Brazil is two foliar applications on citrus at a rate of 0.09 kg ai/ha with a PHI of 28 days. No trials matched GAP.

Field trials conducted at 2 × 0.12 kg ai/ha were taken into account by applying the proportionality principle (scaling factor of 0.75; 0.09 kg ai/ha ÷ 0.12 kg ai/ha). In 11 supervised trials conducted on oranges in Brazil at a rate of 2 × 0.12 kg ai/ha in Brazil, teflubenzuron residues in whole fruit of oranges at 28 DALA were: 0.02, 0.02, 0.03, 0.04, 0.12, 0.14, 0.22, 0.23, 0.24, 0.25 and

0.26 mg/kg (n = 11). The residues in pulp were: < 0.01 mg/kg (n = 3). The residues in whole fruits after scaling according to the factor of 0.75 were: 0.015, 0.015, 0.023, 0.03, 0.09, 0.11, 0.17, 0.17, 0.18, 0.19 and 0.20 mg/kg (n = 11).

Based on residues after scaling, the Meeting estimated an STMR of 0.11 mg/kg, an HR of 0.2 mg/kg, and a maximum residue level of 0.5 mg/kg for teflubenzuron on oranges. The Meeting noted that the residues in orange pulp from three trials and lemon pulps from three trials were < 0.01 mg/kg. Based on the residues in pulp of oranges and lemons, the Meeting estimated an STMR of 0.01 mg/kg and an HR of 0.01 mg/kg for teflubenzuron on oranges for dietary estimation.

The Meeting noted that the GAP in Brazil is for citrus, and agreed to extrapolate the estimation from orange to the subgroups of oranges (sweet and sour).

The Meeting estimated an STMR of 0.01 mg/kg, an HR of 0.01 mg/kg and recommended a group maximum residue level of 0.5 mg/kg for teflubenzuron on the sub-group of oranges (sweet and sour).

Lemons

The critical GAP for citrus in Brazil is two foliar applications at a rate of 0.09 kg ai/ha with a PHI of 28 days. No trials on lemons matched GAP. Five trials on lemons conducted in Brazil at 2 ×0.12 kg ai/ha were taken into account by applying the proportionality principle. The teflubenzuron residues in whole fruit of lemons were: 0.06, 0.09, 0.12, 0.36 and 0.36 mg/kg, the residues in pulp were < 0.01 mg/kg (n = 3). The residues after scaling according to the factor of 0.75 were: 0.045, 0.068, 0.09, 0.27 and 0.27 mg/kg.

The Meeting recommended the maximum residue level of 0.5 mg/kg for teflubenzuron on lemons. Based on the residues in pulps of lemons and oranges, the Meeting estimated an STMR of 0.01 mg/kg and an HR of 0.01 mg/kg for teflubenzuron on lemons for dietary estimation.

The Meeting noted that the GAP in Brazil is for citrus, and agreed to extrapolate the estimation from lemon to the sub-groups of lemons and limes.

The Meeting estimated an STMR of 0.01 mg/kg, an HR of 0.01 mg/kg and recommended a group maximum residue level of 0.5 mg/kg for teflubenzuron on the sub-groups of lemons and limes.

Apples

Teflubenzuron is registered for foliar spray application on apples in Brazil at a rate of 3 × 0.045–0.060 kg ai/ha with a PHI of 1 day. In 12 supervised trials conducted in Brazil at a rate of 4 × 0.045 kg ai/ha at 10 days interval, the teflubenzuron residues in whole fruits at 1 DALA were: 0.06, 0.08, 0.09, 0.11, 0.14, 0.14, 0.17, 0.18, 0.21, 0.21, 0.22 and 0.29 mg/kg (n = 12).

The Meeting noted that the application number in supervised trials is one more than the GAP. The Meeting also noted that the total application rate in field trials was 0.18 kg ai/ha, same as the maximum rate for GAP. Metabolism studies and decline trials indicated no decrease of teflubenzuron, which is expected to be a stable surface residue. Therefore, the Meeting agreed that the supervised trials with four applications approximately matched the Brazilian GAP.

The Meeting estimated an STMR of 0.16 mg/kg, and recommended a maximum residue level of 0.5 mg/kg for teflubenzuron on apples. The previous recommendation of 1 mg/kg for Pome fruits is withdrawn, as no supporting data was provided.

Plums

The Meeting agreed the previous recommendation of a maximum residue level of 0.1 mg/kg for plums (FS 0014) should be withdrawn as no supporting data was provided.

Grapes

The GAP for grapes in Brazil is three foliar applications of up to 0.048 kg ai/ha with a PHI of 7 days. No trials matching GAP were submitted. However, in 12 supervised trials conducted on grapes in Brazil at rates of 3× 0.075 kg ai/ha at 6–7 days interval, the teflubenzuron residue in berries at 7 DALA were: 0.02, 0.04, 0.06, 0.11, 0.12, 0.15, 0.15, 0.26, 0.31, 0.37, 0.49 and 0.62 mg/kg. The Meeting agreed to use the proportionality approach according to the scaling factor of 0.64 (0.048 kg ai/ha/0.075 kg ai/ha). The rank order of scaled residues was: 0.013, 0.026, 0.038, 0.07, 0.077, 0.096, 0.096, 0.17, 0.20, 0.24, 0.31 and 0.40 mg/kg (n = 12).

The Meeting estimated an STMR of 0.096 mg/kg, and recommended a maximum residue level of 0.7 mg/kg for teflubenzuron on grapes.

Assorted tropical and sub-tropical fruit-inedible peel

Mango

Teflubenzuron is registered for one foliar spray application on mangoes in Brazil at a rate of 0.015 to a maximum of 0.24 kg ai/ha with a PHI of 7 days. There were no supervised trials provided (3 × 0.30 kg ai/ha) matching GAP.

Papaya

Teflubenzuron is registered for foliar application on papaya in Brazil at a rate of 3 × 0.06 kg ai/ha with a PHI of 7 days. In four supervised trials conducted in Brazil at a rate of 3 × 0.075 kg ai/ha at 6–8 days interval, teflubenzuron residues in fruit at 7 DALA were: 0.04, 0.13, 0.18 and 0.19 mg/kg.

The Meeting agreed to estimate an STMR of 0.16 mg/kg, and recommended a maximum residue level of 0.4 mg/kg for teflubenzuron on papaya.

Pineapples

The registered use of teflubenzuron on pineapples in Brazil is one foliar application of 0.24 kg ai/ha with a PHI of 7 days. There were no supervised trials provided (3 × 0.3 kg ai/ha) matching GAP.

Brassica (cole or cabbage) vegetables, Head cabbages, Flowerhead cabbages

Broccoli

Teflubenzuron is registered for three foliar applications on broccoli in Brazil at rate of 0.0375 kg ai/ha with a PHI of 14 days. No trials were provided that matched GAP.

Cauliflower

Teflubenzuron is registered for foliar spray applications on cruciferae (Brassicae) in Central America (Guatemala, El Salvador, Honduras, Nicaragua and Panama） at a rate of 0.0225 kg ai/ha with a PHI of 21 days. In seven supervised trials conducted in Guatemala, Costa Rica and Honduras at a rate of 3 × 0.0225 kg ai/ha with 6–8 days interval, teflubenzuron residues in the inflorescence at 21 days after the last application were < 0.01 mg/kg (n = 7).

The Meeting noted that the number of applications is not specified in the GAP in Central America. However, since three treatments in the supervised field trials did not result in residues above the LOQ in cauliflower, the additional previous applications are considered unlikely to contribute significantly to the terminal residues. Therefore, the Meeting agreed that the supervised trials matched the GAP irrespective of the number of applications.

The Meeting estimated an STMR of 0.01 mg/kg, and recommended a maximum residue level of 0.01* mg/kg for teflubenzuron on cauliflowers.

Brussels sprouts

The current MRL of 0.5 mg/kg for Brussels sprouts (VB 0402) should be withdrawn as no supporting data was provided.

Cabbages, Head

The current MRL of 0.1 mg/kg for cabbages, head (VB 0041) should be withdrawn as no supporting data was provided.

Potatoes

The current MRL of 0.05 mg/kg for potatoes (VR 0589) should be withdrawn as no supporting data was provided.

Fruiting vegetables, Cucurbits

Melon

Teflubenzuron is registered for three foliar applications on melons in Brazil at a rate of up to 0.06 kg ai/ha with a PHI of 7 days. In eight supervised trials conducted in Brazil at rates of 3 × 0.075 kg ai/ha at 7 days interval, teflubenzuron residues in whole fruit at 7 DALA were: 0.04, 0.05, 0.06, 0.07, 0.09, 0.09, 0.11 and 0.19mg/kg (n = 8), the teflubenzuron residues in pulp were: < 0.01, < 0.01, 0.02 and 0.02 mg/kg.

The Meeting recommended a maximum residue level of 0.3 mg/kg for teflubenzuron on melons. The Meeting estimated an STMR of 0.01 mg/kg based on residues in pulp for dietary estimation.

Cucumber

Teflubenzuron is registered for three foliar applications on cucumbers (field and greenhouse) in the Netherlands, at a rate of up to 0.225 kg ai/ha with a PHI of 3 days.

In three supervised trials conducted in France and Greece matching the critical GAP, the residues in fruit were: 0.05, 0.06 and 0.33 mg/kg.

In five trials conducted in the Netherland at a rate of two applications of 0.27 kg ai/ha, the residues in fruit were: 0.05, 0.10, 0.10, 0.12 and 0.16 mg/kg.

The Meeting noted that the first application of GAP was 20 days before last application. As cucumbers in greenhouses grow quickly from flowering to harvest, the Meeting concluded that the fruits are unlikely to ever receive three treatments. The Meeting agreed that two applications in trials approximated the GAP.

The residues in eight trials were: 0.05, 0.05, 0.06, 0.10, 0.10, 0.12, 0.16 and 0.33 mg/kg (n = 8).

The Meeting estimated an STMR of 0.10 mg/kg, and recommended a maximum residue level of 0.5 mg/kg for teflubenzuron on cucumbers.

Gherkins

Teflubenzuron is registered for three foliar applications on gherkins in the Netherlands at a rate of 0.225 kg ai/ha with a PHI of 3 days.

The teflubenzuron residues in whole fruit from four supervised trials conducted in France, Poland and Spain matching GAP were: 0.08, 0.23, 0.42 and 0.55 mg/kg (n = 4).

The Meeting estimated an STMR of 0.33 mg/kg, and recommended a maximum residue level of 1.5 mg/kg for teflubenzuron on gherkins.

Fruiting vegetables, other than Cucurbits

Tomato

The critical GAP of teflubenzuron for tomatoes (field and greenhouse) in the Netherlands with three foliar applications, at a rate of 0.225 kg ai/ha and a PHI of 3 days.

The teflubenzuron residues in whole fruit (field) from two supervised trials conducted in the Netherlands matching the critical GAP were (n = 2): 0.32 and 0.49mg/kg.

The teflubenzuron residues in whole fruit (greenhouse) from 10 supervised trials on tomatoes conducted in France, the Netherlands and Spain matching the critical GAP were (n = 10): 0.07, 0.07, 0.07, 0.09, 0.26, 0.33, 0.35, 0.36, 0.42 and 0.88 mg/kg

Based on tomatoes grown in greenhouses, the Meeting estimated an STMR of 0.30 mg/kg, and recommended a maximum residue level of 1.5 mg/kg for teflubenzuron on tomatoes.

Sweet pepper

The critical GAP of teflubenzuron for peppers (bell) in the Netherlands with three foliar spray applications, at a rate of 0.225 kg ai/ha and a PHI of 3 days.

In trials conducted in the Netherlands at the rate of 3 × 0.27 kg ai/ha, the teflubenzuron residues in whole fruit were: 0.46, 0.46 and 0.61 mg/kg.

The Meeting considered three trials to be insufficient to make any recommendations for sweet peppers.

Soya bean

Teflubenzuron is registered for foliar applications on soya beans in Central America (Guatemala, El Salvador, Honduras, Nicaragua and Panama) at a rate of 0.025–0.03375 kg ai/ha with a PHI of 21 days.

The teflubenzuron residues at 21 DALA in soya beans from 10 supervised trials conducted at a rate of 3× 0.034 kg ai/ha with 10 days interval in Argentina and Brazil were (n = 10): < 0.01(4), 0.01(3), 0.02 (2) and 0.03 mg/kg. The Meeting noted that the GAP in Central America did not specify the application number, and the early applications are unlikely to contribute significantly to residues at harvest. Therefore, The Meeting agreed that the trials approximated the GAP of Central America.

The Meeting estimated an STMR of 0.01 mg/kg and recommended a maximum residue level of 0.05 mg/kg for teflubenzuron on soya beans.

Maize

Teflubenzuron is registered for two foliar spray applications on maize in Bolivia at a rate of 0.018–0.0225 kg ai/ha with a PHI of 45 days.

In nine trials conducted at a rate of 1–4 × 0.0225 kg ai/ha, the teflubenzuron residues in grain at 30 or 45 DALA were (n = 9) all < 0.01 mg/kg.

The Meeting estimated an STMR of 0.01 mg/kg and recommended a maximum residue level of 0.01* mg/kg for teflubenzuron on maize.

Sugar cane

Teflubenzuron is registered for two foliar spray applications on sugar cane in Brazil at a rate of 0.0225 kg ai/ha with a PHI of 40 days.

In four trials conducted at a rate of 3× 0.0225 kg ai/ha, the teflubenzuron residues in stalks at 40 DALA were (n = 4) < 0.01 mg/kg.

The Meeting estimated an STMR of 0 mg/kg, and recommended a maximum residue level of 0.01* mg/kg for teflubenzuron on sugar cane.

Sunflower

Teflubenzuron is registered for two foliar spray applications on sunflowers in Brazil at a rate of 0.0075–0.01125 kg ai/ha with a PHI of 7 days.

In eight trials conducted at rate of 2× 0.01275–0.0132 kg ai/ha, the teflubenzuron residues in seeds at 7 DALA were (n = 8): < 0.01(6), 0.08 and 0.13 mg/kg.

The Meeting estimated an STMR of 0.01 mg/kg and recommended a maximum residue level of 0.2 mg/kg for teflubenzuron on sunflower seeds.

Coffee

Teflubenzuron is registered for two foliar spray applications on coffee in Brazil at a rate of 0.0375 kg ai/ha with a PHI of 30 days.

The teflubenzuron residues in dry beans from one supervised trial conducted in Brazil matching the GAP was < 0.01 mg/kg. The Meeting noted that coffee cherries were mechanically pulped and dried at room temperature for about 2 weeks in trials on dry beans.

Since one trial is insufficient for estimation, the Meeting took into consideration seven trials conducted at a rate of 0.075 kg ai/ha using the proportionality approach. The teflubenzuron residues in dry beans were: < 0.01, < 0.01, 0.01, 0.01, 0.08, 0.29 and 0.29 mg/kg. The scaled (using the factor of 0.0375/0.075 = 0.5) residue data was: < 0.005(2), 0.005(2), 0.004, 0.15 and 0.15 mg/kg (n = 7).

The data set available for estimation was: < 0.005(2), 0.005(2), < 0.01, 0.004, 0.15 and 0.15 mg/kg (n = 8).

Based on the data above, the Meeting estimated an STMR of 0.01 mg/kg and recommended a maximum residue level of 0.3 mg/kg for teflubenzuron on coffee beans.

Fate of residues during processing

The Meeting received information on hydrolysis studies and on the fate of teflubenzuron residues during the processing of oranges to juice, oil and dry pulp; of apples to juice, puree, dried pomace and wet pomace; of grapes to juice, must, wine, dry pomace and wet pomace; of tomatoes to juice, canned tomatoes, puree and wet pomace; of soya beans to meal and oil; of sunflowers to meal and oil; of maize to grits, meal, flour, oil and starch; of sugar cane to bagasse, molasses and sugar; and of coffee to roasted beans and instant coffee.

Studies on hydrolysis in solutions simulating pasteurization and sterilization (pH 6, incubation for 25 minutes at 120 °C) showed that teflubenzuron is stable under hydrolysis conditions representing sterilisation and pasteurisation (recoveries of 89% and 94% remained as unchanged parent).

The processing factors obtained in the processing studies and estimated STMR-P and HR-P values are summarized below.

Raw agricultural commodity (RAC)		Processed commodity			
Name	STMR (mg/kg)	Name	Processing factor	(median or best estimate)	STMR-P (mg/kg)
Oranges	0.11	Juice	< 0.03, 0.05	< 0.04	0.0044
		Oil	413, 91	252	28
		Dry pulp	1.4, 0.7	1.1	0.12
Apples	0.16	Juice	< 0.15, < 0.035, < 0.08	< 0.035	0.0056
		Dried pomace	6, 6.9,	6.5	1.0
		Wet pomace	1.8, 3.83	2.4	0.38
		Apple puree	0.25	0.25	0.04
		Dry apple	12	12	1.9
Grapes	0.096				
		Must	1.3, 0.4	1.3	0.12
		Wet pomace	1.8, 1.7	1.8	0.17
		Dry pomace	1.4, 1.5	1.4	0.13
		Young wine	0.02, 0.03, < 0.03, < 0.04	0.03	0.0029
Tomatoes	0.30				
		Peeled tomatoes	0.08		0.024
		Juice	0.17		0.051
		Wet pomace	1.78		0.534
		Puree	0.45		0.135
		Canned tomatoes	0.07		0.021
Soya bean	0.01	Hull	6.4, 2.7	4.6	0.046
		Meal	< 0.1, 0.04	0.1	0.001
		Oil	0.3, 0.6	0.5	0.005
Sunflower	0.01	meal	< 0.1, < 0.2	< 0.2	0.002
		Oil (refined)	< 0.1, < 0.1	< 0.1	0.001
Maize	0.01	Grits	< 0.5, n/a	< 0.5	0.005
		Meal	< 0.5, n/a	< 0.5	0.005
		Flour	1.0, n/a	1.0	0.01
		Starch	< 0.5, n/a	< 0.5	0.005
		Refined oil (dry milling)	1.5, n/a	1.5	0.015
		Refined oil (wet milling)	1.0, n/a	1.0	0.01
Sugar cane	0	Bagasse	1.0, n/a	1.0	0
		Molasses	< 0.5, n/a	< 0.5	0
		Sugar	< 0.5, n/a	< 0.5	0
Coffee	0.01	Roasted beans	< 0.1		0.001
		Liquor extract	< 0.1		0.001
		Instant coffee	< 0.1		0.001

The Meeting noted that teflubenzuron concentrated during processing in orange pomace and oil. Based on the recommended MRL of 0.5 mg/kg for teflubenzuron residues in oranges and the processing factor of 252, the Meeting estimated a maximum residue level of 126 mg/kg for orange oil ($252 \times 0.5 = 126$).

The Meeting noted that teflubenzuron concentrated during processing in hulls of soya beans. The Meeting estimated a maximum residue level of 0.2 mg/kg for soya bean hulls based on the processing factor of 4.6 and recommended a MRL of 0.05mg/kg for soya beans.

The Meeting noted that teflubenzuron concentrated during processing in refined oil (dry milling) of maize. Based on the recommended MRL of 0.01 mg/kg for teflubenzuron residues in maize and the processing factor of 1.5, the Meeting estimated a maximum residues level of 0.015 mg/kg for maize oil.

Residues in animal commodities

Farm animal dietary burden

The Meeting estimated the dietary burden of teflubenzuron in farm animals on the basis of the diets listed in Appendix XIV of the 2016 Edition of the JMPR Manual. The calculations were made according to the livestock diets from Australia, the EU, Japan and US-Canada in the OECD Table. Because the calculation is mainly based on the STMR-P values of the processed by-products, the maximum and mean burden is identical. The dietary burden calculated for the beef cattle, dairy cattle, broilers and laying poultry are summarized below.

Summary of livestock dietary burden (ppm of dry matter diet)								
	US-Canada		EU		Australia		Japan	
	max	mean	max	mean	max	mean	max	mean
Beef cattle	0.027	0.027	0.51	0.51	0.54 [A]	0.54 [C]	0.01	0.01
Dairy cattle	0.26	0.26	0.026	0.026	0.36 [B]	0.36 [D]	0.01	0.01
Poultry-broiler	0.011	0.011	0.015 [E]	0.015 [F]	0.004	0.004	0.008	0.008
Poultry-layer	0.011	0.011	0.012 [G]	0.012 [H]	0.004	0.004	0.009	0.009

[A] Highest maximum beef or dairy cattle dietary burden suitable for MRL estimates for mammalian meat

[B] Highest maximum dairy cattle dietary burden suitable for MRL estimates for mammalian milk

[C] Highest mean beef or dairy cattle dietary burden suitable for STMR estimates for mammalian meat

[D] Highest mean dairy cattle dietary burden suitable for STMR estimates for mammalian milk

[E] Highest maximum poultry dietary burden suitable for MRL estimates for poultry meat and eggs

[F] Highest mean poultry dietary burden suitable for STMR estimates for poultry meat and eggs

[G] Highest mean poultry dietary burden suitable for MRL estimates for poultry eggs

[H] Highest mean poultry dietary burden suitable for STMR estimates for poultry eggs

For beef and dairy cattle, the calculated maximum and mean dietary burden is 0.54 ppm and 0.36 ppm dry weight of feed respectively. For poultry, the calculated maximum and mean dietary burden is 0.015 ppm and 0.012 ppm dry weight of feed respectively.

Farm animal feeding studies

The Meeting received feeding studies on dairy cows and laying hens. It was noted that the storage period for milk, egg and tissues samples was about 2.5 months.

Lactating dairy cows were orally fed with teflubenzuron at levels of 10, 30 and 100 ppm in the feed for 4 weeks. Cows were sacrificed at 29–30, 36 and 43 days after first dosing. No teflubenzuron residues above LOQ (0.01 mg/kg) were found in any of the milk samples. Since occasional residues up to 0.026 mg/kg found in tissues of animals in the control group were unrelated to doses, no teflubenzuron residues above LOQ (0.01 mg/kg) were expected in tissues (muscle, liver, kidney and fat).

The Meeting note that the highest animal burden (0.54 ppm) is much less than the lowest feed level (10 ppm), and estimated the maximum residue levels of 0.01* mg/kg and STMRs of 0.01 mg/kg for milk and milk fat, mammalian meat, edible offal and mammalian fat (other than fat from milk).

Laying hens were treated with teflubenzuron orally via the diet at 0.5, 1.5 and 5 ppm for 28 days. Birds without withdrawal periods were sacrificed at the end of 28 days, birds with withdrawal periods were sacrificed at 35 and 42 days (7 and 14 days after treatment end). Residues of teflubenzuron in eggs were found at the highest level (0.34 mg/kg) in the 5 ppm dose group on Day 26. Highest residues of teflubenzuron in tissues were found in the 5 ppm dose group with 0.70 mg/kg in abdominal fat, 0.32 mg/kg in skin and subcutaneous fat, 0.081 mg/kg in liver, 0.036 mg/kg in kidney and 0.038 mg/kg in muscle.

The calculation used to estimate highest total residues for use in estimating maximum residue levels, STMR and HR values for poultry matrices is shown below.

	Feed level ppm) for egg residues	Residues (mg/kg) in eggs	Feed level (ppm) for tissue residues	Residues (mg/kg)			
				kidney	liver	Muscle	Fat
MRL (mg/kg)							
Feeding study	0.5	0.04	0.5	0.021	0.058	0.011	0.086
Dietary burden and high residue estimation	0.015	0.0012	0.015	0.0063	0.0017	0.0033	0.0026
STMR (mg/kg)							
Feeding study	0.5	0.04	0.5	0.015	0.041	< 0.01	0.077
Dietary burden and median residue estimated	0.012	0.00096	0.012	0.00036	0.00098	< 0.00024	0.0018

The Meeting noted that the LOQ for egg and poultry tissues is 0.01 mg/kg. The Meeting estimated maximum residue levels and an STMR of 0.01* mg/kg respectively for eggs, poultry meat, fat and edible offal.

RECOMMENDATIONS

On the basis of the data from supervised trials the Meeting concluded that the residue levels listed in Annex 1 are suitable for establishing maximum residue limits and for IEDI and IESTI assessment.

Definition of the residue (for compliance with the MRL and for estimation of dietary intake) for plant and animal commodities: *teflubenzuron.*

The residue is fat soluble.

DIETARY RISK ASSESSMENT

Long-term dietary exposure

The International Estimated Dietary Intakes (IEDIs) of teflubenzuron were calculated for the 17 GEMS/Food cluster diets using STMRs and STMR-Ps estimated by the current Meeting (Annex 3). The ADI is 0–0.005 mg/kg bw and the calculated IEDIs were 1–30% of the maximum ADI. The Meeting concluded that the long-term exposure to residues of teflubenzuron resulting from the uses considered by the current JMPR is unlikely to present a public health concern.

Short-term dietary exposure

The 2016 JMPR decided that ARfD for teflubenzuron was unnecessary. The Meeting therefore concluded that the short-term dietary exposure to residues of teflubenzuron, resulting from uses that have been considered by the present Meeting, is unlikely present a public health concern.

5.25 TOLFENPYRAD (269)

RESIDUE AND ANALYTICAL ASPECTS

Tolfenpyrad is a broad spectrum insecticide and a miticide, with contact activity against target pests on eggs, larvae, nymphs, and adults. It also has anti-feeding activity on lepidopteran insects. It belongs to the pyrazole class of insecticides. It has activity against several economically important insect pests of vegetables, fruits, nuts, vines and row crops. It was first evaluated by JMPR in 2013 for toxicology and residues. The 2013 Meeting established an ADI of 0–0.006 mg/kg bw and an ARfD of 0.01 mg/kg bw, and an MRL for green tea was recommended.

Tolfenpyrad was listed by the 47th Session of the CCPR for the evaluation of additional uses. The current Meeting received information on the latest use patterns and supervised residue trials on potato and tree nuts conducted in the USA.

The 2013 JMPR recommended the following definition for tolfenpyrad:

Definition of the residue for compliance with the MRL and estimation of dietary intake for plant commodities: *Tolfenpyrad*.

Definition of the residue for compliance with the MRL and estimation of dietary intake for animal commodities: *sum of tolfenpyrad and free and conjugated PT-CA (4-[4-[(4-chloro-3-ethyl-1-methylpyrazol-5-yl)carbonylaminomethyl] phenoxy]benzoic acid and OH-PT-CA (4-[4-[[4-chloro-3-(1-hydroxyethyl)-1-methylpyrazol-5-yl]carbonylaminomethyl]phenoxy] benzoic acid) (released with alkaline hydrolysis) expressed as tolfenpyrad.*

The residue is not fat soluble.

Results of supervised residue trials on crops

The current Meeting received information on the latest use patterns and supervised residue trials for foliar application of tolfenpyrad on potato and tree nuts conducted in the USA. For estimating HR or highest residue, the highest individual residue value from the trials conducted in accordance with GAP was used.

Potatoes

The GAP for tolfenpyrad on potato in the USA is two foliar spray applications at 230 g ai/ha with a re-treatment interval of 14 days and a 14-day PHI. A total of sixteen supervised trials on potato were conducted in the USA. The residues of tolfenpyrad in potato from fifteen independent trials in accordance with US GAP were: < 0.01(15) mg/kg. The total residues of tolfenpyrad from one trial in which the application rate was 5 times the GAP rate were also < 0.01 mg/kg.

The Meeting estimated a maximum residue level, an STMR and a HR at 0.01*, 0 and 0 mg/kg for tolfenpyrad in potato, respectively.

Tree nuts

The GAP for tolfenpyrad on tree nuts in the USA consists of a single foliar spray application at 310 g ai/ha and a PHI of 14 days.

Residue trials conducted in the USA in almonds and pecans were made available to the Meeting.

Almonds

Four independent trials were conducted on almonds in the USA, 2 × 310 g ai/ha applications. Tolfenpyrad residues in nutmeat at a 14-day PHI were < 0.01 (3) and 0.027 mg/kg (n = 4). All trials were overdosed with two applications instead of one. The Meeting noted that the trials did not match GAP and concluded that a maximum residue level could not be estimated for almonds.

Pecan

Five independent trials were conducted on pecans in the USA, 2 × 310 g ai/ha applications. Tolfenpyrad residues in nutmeat at a 14-day PHI were all < 0.01 mg/kg (n = 5). All trials were overdosed with two applications instead of one.

The Meeting noted that the additional application above GAP did not result in finite residues in pecans and considered that the data could be used for estimation of a maximum residue level. The Meeting estimated a maximum residue level, an STMR and an HR at 0.01*, 0.01 and 0.01 mg/kg respectively for tolfenpyrad in pecan.

Animal feed

Almond hulls

The US GAP in almonds is 1 × 310 g ai/ha application with a 14-day PHI. Results from supervised trials on almond hulls conducted in the USA were provided to the Meeting. Four independent trials were conducted on almond, involving two applications at 310 g ai/ha.

The Meeting noted that the trials did not match GAP, with two applications rather than one being made. The Meeting did not estimate a maximum residue level or median residue for tolfenpyrad in almond hulls.

Fate of residues during processing

A processing study on potato was reviewed by the 2013 JMPR. One trial had an additional plot treated at an exaggerated rate (5×) with the EC formulation to provide samples for processing. Neither the RAC nor the processed fractions contained residues of tolfenpyrad and OH-PT above the LOQ of 0.01 mg/kg. Therefore, no processing factors could be calculated for potato.

Residues in animal commodities

Estimation of dietary burdens

The only commodity used as a livestock feed and for which the JMPR has estimated a maximum residue level is for potatoes; the estimated STMR and HR values are 0. Therefore the additional livestock dietary burden for tolfenpyrad is nil.

Farm animal feeding studies

As the livestock dietary burden is zero, no maximum residue levels are estimated for animal commodities.

RECOMMENDATION

On the basis of the data obtained from supervised residue trials the Meeting concluded that the residue levels listed in Annex 1 are suitable for establishing maximum residue limits and for IEDI and IESTI assessment

Definition of the residue_for compliance with the MRL and estimation of dietary intake for plant commodities: *Tolfenpyrad*.

Definition of the residue for compliance with the MRL and estimation of dietary intake for animal commodities: *sum of tolfenpyrad and free and conjugated PT-CA (4-[4-[(4-chloro-3-ethyl-1-methylpyrazol-5-yl)carbonylaminomethyl] phenoxy]benzoic acid and OH-PT-CA (4-[4-[[4-chloro-3-*

(1-hydroxyethyl)-1-methylpyrazol-5-yl]carbonylaminomethyl]phenoxy] benzoic acid) (released with alkaline hydrolysis) expressed as tolfenpyrad.

The residue is not fat soluble.

DIETARY RISK ASSESSMENT

Long-term dietary exposure

The evaluation of tolfenpyrad resulted in recommendations for MRLs and STMR values for potato and tree nut. Where data on consumption were available for the listed food commodities, dietary intakes were calculated from the seventeen GEMS/Food Cluster Diets. The results are shown in Annex 3 of the 2016 JMPR Report. The IEDIs in the seventeen Cluster Diets, based on the estimated STMRs were 0–8% of the maximum ADI (0.006 mg/kg bw). The Meeting concluded that the long-term exposure to residues of tolfenpyrad from uses that have been considered by the JMPR is unlikely to present a public health concern.

Short-term dietary exposure

The IESTI for tolfenpyrad calculated on the basis of the recommendations made by the Meeting represented 0% of the ARfD (0.01 mg/kg bw) for children and 0% for the general population. The results are shown in Annex 4 of the 2016 JMPR Report.

The Meeting concluded that the short-term dietary exposure to residues of tolfenpyrad resulting from uses that have been considered by the JMPR is unlikely to present a public health concern.

6. FUTURE WORK

The items listed below are tentatively scheduled to be considered by the Metings in 2018. Yhe compounds listed include those recommended as priorities by the CCPR at its Forty-seventh and earlier Sessions and compounds scheduled for re-evaluation within the CCPR periodic review programme.

Updated calls for data are available at least ten months before each JMPR meeting from the web pages of the Joint Secretariat.

http://www.fao.org/agriculture/crops/core-themes/theme/pests/jmpr/en/

NEW COMPOUNDS

TOXICOLOGY EVALUATIONS	RESIDUE EVALUATIONS
	Chlorfenapyr [BASF] (254)
Ethiprole [Bayer CropScience]	Ethiprole
Mandestrobin [Sumitomo Chemical]	Mandestrobin
Norflurazon [Tessenderlo Kerley Inc.]	Norflurazon
Pyrifluquinazon [Nihon Nohyaku]	Pyrifluquinazon
Pydiflumetofen - SYN545794 [Syngenta]	Pydiflumetofen - SYN545794
XDE-777 [Dow AgroSciences]	XDE-777
Metconazole [Valent USA Corporation, on behalf of Kureha Corporation]	Metconazole
Fluazinam [ISK Biosciences; Ishihara Sangyo Kaisha]	Fluazinam
Pyriofenone [IshiharaSangyoKaisha/ISK Biosciences]	Pyriofenone
Quinalphos [India]	Quinalphos
Tricyclazole [India]	Tricyclazole India
Tioxazafen [Monsanto]	Tioxazafen and its metabolite benzamidine
Ethion (034) [India[1]]	Ethion (034)
Hexaconazole (170)[2] India	Hexaconazole (170)

PERIODIC RE-EVALUATIONS	
Iprodione (111) [FMC]	Iprodione (111) [FMC]

[1] This compound was previously been removed from the Pesticide List and all CXLs revoked.
[2] This compound was previously been removed from the Pesticide List and all CXLs revoked.

TOXICOLOGY EVALUATIONS	RESIDUE EVALUATIONS
Flumethrin (195) [Bayer CropSciences]	Flumethrin (195) [Bayer CropSciences]
Metalaxyl (138) [Quimicas del Vallés - SCC GmbH]	Metalaxyl (138) [Quimicas del Vallés - SCC GmbH]
Dithiocarbamates (105) [Taminco]	Dithiocarbamates (105) [Taminco]
Tolclofos-methyl (191) [Sumitomo Chemical]	Tolclofos-methyl (191) [Sumitomo Chemical]
Imazalil (110) [Janssen] First reserve for 2017	Imazalil (110) [Janssen] First reserve for 2017
Bromopropylate (070) No manufacturer support	Bromopropylate (070) No manufacturer support
Permethrin (120) No manufacturer support	Permethrin (120) No manufacturer support

NEW USES AND OTHER EVALUATIONS

TOXICOLOGY EVALUATIONS	RESIDUE EVALUATIONS
	Abamectin (177) [Syngenta]
	Acephate (095) India
	Acetamiprid (246) [Nippon Soda]
	Bentazone [BASF] (172)
	Benzovindiflupyr (261) [Syngenta]
	Bifenthrin (178) [FMC]
	Chlorpyrifos (017) India
	Chlorothalonil (081); (fungicide) [Syngenta]
	Cyantraniliprole (263) [DuPont]
	Cyazofamid (281) [ISK Biosciences]
	Diquat (031) [Syngenta]
	Diazinon (22) India
	Fluazifop-p-butyl (283) ([Syngenta]
	Fludioxonil (211) [Syngenta]
	Fluensulfone (265) [Adama]
	Imidacloprid (206) India
	Isofetamid (290) [Ishihara Sangyo Kaisha]

TOXICOLOGY EVALUATIONS	RESIDUE EVALUATIONS
Isoprothiolane LATAM	Isoprothiolane LATAM
	Lufenuron (286) [Syngenta]
	Mesotrione (277) [Syngenta]
	Metalaxyl-M [Syngenta] (212)
	Methomyl (094) India
	Penthiopyrad (253)
	Pyriproxyfen (200) [Valent USA Corporation; subsidiary of Sumitomo Chemical Co., Ltd.]
	Profenofos (171) India
	Propamocarb (148) [Bayer CropSciences]
Spiromesifen (294) [India]	Spiromesifen (294) [India]
Sulfoxaflor [Dow AgroSciences]	Sulfoxaflor (252) [Dow AgroSciences]
	Thiabendazole (065) [Syngenta]
	Triazophos (143) India
	Trinexapac (271) [Syngenta]

7. CORRIGENDA

Pesticide Residues in Food 2015. Report of the Joint Meeting of the FAO Panel of Experts on Pesticide Residues in Food and the Environment and the WHO Core Assessment Group on Pesticide Residues. FAO Plant Production and Protection Paper, 223, 2015.

Changes are shown in bold

Abamectin (177)

Annex 1 Page 347 entries for Blackeberries and Raspberry red, black should read

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
Abamectin (177)**	FB 0264	Blackberries	**0.05**		**0.02**	**0.03**
ADI: 0–0.001 mg/kg bw	FB 0272	Raspberry, red, black	**0.05**		**0.02**	0.03
ARfD: 0.003 mg/kg bw						

ANNEX 1: ACCEPTABLE DAILY INTAKES, SHORT-TERM DIETARY INTAKES, ACUTE REFERENCE DOSES, RECOMMENDED MAXIMUM RESIDUE LIMITS AND SUPERVISED TRIALS MEDIAN RESIDUE VALUES RECORDED BY THE 2016 MEETING

Established ADI and ARfD values and recommended maximum residue level, STMR and HR values

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
Acibenzolar-S-methyl (288)*	FP 0226	Apple	0.3		0.01	0.17
ADI: 0–0.08 mg/kg bw	FI 0327	Banana	0.06		0.02	0.03
ARfD: 0.5 mg/kg bw	VB 0040	Brassica (cole or cabbage) vegetables, Head cabbages, Flowerhead brassicas	0.7		0.315	0.62
	VL 0054	Brassica leafy vegetables	1		0.585	0.795
	FC 0001	Citrus fruits	0.015		0.01	0.01
	MO 0105	Edible offal (Mammalian)	0.02 *		0	0
	PE 0112	Eggs	0.02 *		0	0
	VC 0045	Fruiting vegetables, Cucurbits	0.8		0.175	0.47
	VA 0381	Garlic	0.15		0.05	0.06
	FI 0341	Kiwifruit	0.03		0.01	0.02
	VL 0482	Lettuce, Head	0.2		0.0825	0.15
	VL 0483	Lettuce, Leaf	0.4		0.18	0.27
		Low growing berries (including strawberries)	0.15		0.045	0.08
	MF 0100	Mammalian fats (except milk fats)	0.02 *		0	0
	MM 0095	Meat (from mammals other than marine mammals)	0.02 *		0	0
	ML 0106	Milks	0.01 *		0	0
	VA 0385	Onion, Bulb	0.15		0.05	0.06
	FS 0247	Peaches (including nectarines and apricots)	0.2		0.05	0.13
	PF 0111	Poultry fats	0.02 *		0	0
	PM 0110	Poultry meat	0.02 *		0	0
	PO 0111	Poultry, Edible offal of	0.02 *		0	0
	VA 0388	Shallot	0.15		0.05	0.06
	VL 0502	Spinach	0.6		0.285	0.54
	VO 0448	Tomato	0.3		0.09	0.15
	JF 0048	Tomato juice			0.0702	
	MW 0448	Tomato purée			0.169	
		Tomato canned			0.0594	0.10

Definition of the residue (for compliance with MRLs for animal and plant commodities and for dietary risk assessment for animal commodities): *Sum of acibenzolar-S-methyl and 1,2,3-benzothiadiazole-7-carboxylic acid (acibenzolar acid) (free and conjugates), expressed in terms of acibenzolar-S-methyl.*

Definition of residue (for dietary risk assessment for plants): *Sum of acibenzolar-S-methyl and 1,2,3-benzothiadiazole-7-carboxylic acid (acibenzolar acid), (free and conjugated) and 1,2,3-benzothiadiazole-4-hydroxy-7-carboxylic acid (4-OH acibenzolar acid) (free and conjugated), expressed as acibenzolar-S-methyl.*

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
The residue is not fat soluble.						
Bentazone (261) **ADI: 0–0.09 mg/kg bw** **ARfD: 0.5 mg/kg bw** *Definition of the residue (for compliance with the MRL and for dietary risk assessment for animal and plant commodities):* bentazone. *The residue is not fat soluble*.						
Benzovindiflupyr(172)	VC 0045	Fruiting vegetables, Cucurbits	0.2		0.023	0.16
ADI: 0–0.05 mg/kg bw	GC 0640	Barley	1		0.18	
ARfD: 0.1 mg/kg bw	AS 0640	Barley straw and fodder, dry	15 (dw)		3.9 (ar)	12 (ar)
	VD 0071	Beans (dry)	0.2		0.011	
	SB 0716	Coffee beans	0.15		0.015	
	DF 0269	Dried grapes (= currants, raisins and sultanas)	3		0.7	1.9
	MO0105	Edible offal (Mammalian)	0.1	0.01	0.014	0.064
	PE0112	Eggs	0.01 *	0.01	0	0
	VO 0050	Fruiting vegetables other than Cucurbits	0.9		0.089	0.62
	FB 0269	Grapes	1		0.29	0.81
	MF0100	Mammalian fats (except milk fats)	0.03	0.01	0.01	0.019
	MM0095	Meat (from mammals other than marine mammals)	0.03(F)	0.01	0.01 muscle 0.01 fat	0.01 muscle 0.019 fat
	ML0106	Milks	0.01 *	0.01	0	
	AS 0647	Oat straw and fodder, dry	15 (dw)		3.9 (ar)	12 (ar)
	GC 0647	Oats	1		0.18	
	AL 0072	Pea hay or fodder, dry	8 (dw)		2.2 (ar)	3.8 (ar)
	SO 0697	Peanut	0.04		0.01	
	AL 0697	Peanut fodder	15 (dw)		2.2 (ar)	7.6 (ar)
	VD 0072	Peas (dry)	0.15		0.011	
	HS 0444	Peppers Chili, dried	9		0.89	6.2
	FP 0009	Pome fruits	0.2		0.058	0.17
	VR 0589	Potato	0.02		0.01	0.015
	PF 0111	Poultry fats	0.01 *	0.01	0	0
	PM 0110	Poultry meat	0.01 *	0.01	0	0
	PO 0111	Poultry, Edible offal of	0.01 *	0.01	0	0
	SO 0495	Rape seed	0.2		0.023	
	GC 0650	Rye	0.1		0.023	
	AS 0650	Rye straw and fodder, dry	15 (dw)		3.9 (ar)	12 (ar)
	VD 0541	Soya bean (dry)	0.08	0.05	0.01	
	GS 0659	Sugar cane	0.04		0.02	0.02
	VO 0447	Sweet corn (corn-on-the-cob)	0.01 *		0.01	0.01
	GC 0653	Triticale	0.1		0.023	
	AS 0653	Triticale straw and fodder, dry	15 (dw)		3.9 (ar)	12 (ar)
	GC 0654	Wheat	0.1		0.023	
	AS 0654	Wheat straw and fodder, dry	15 (dw)		3.9 (ar)	12 (ar)
		Apple jelly			0.005	
	JF 0226	Apple juice			0.003	
		Apple sauce			0.026	

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
		Apple, canned fruit			0.003	
		Baked potatoes			0.022	0.033
		Barley bran			0.07	
		Barley flour			0.072	
		Boiled potatoes			0.005	0.044
		Canned tomato			0.003	0.019
	SM 0716	Coffee beans, roasted			0.006	
		Crystal sugar			0.005	
		Dried tomato			0.79	5.52
		Fried potatoes			0.003	0.004
	JF 0269	Grape juice			0.022	
		Instant coffee			0.008	
		Peanut butter			0.023	
		Pearl barley			0.083	
		Potato chips			0.003	
		Red wine			0.023	
		Soya sauce			0.0023	
		Soya bean milk			0.0023	
		Tofu			0.0033	
		Tomato juice			0.008	
	VW 0448	Tomato paste			0.037	
		Tomato purée			0.015	
	CM 0654	Wheat bran, unprocessed			0.053	
	CF 1211	Wheat flour			0.003	
	CF 1210	Wheat germ			0.023	
		White flour			0.008	
		White wine			0.012	
	CP 1212	Wholemeal bread			0.012	
		Wholemeal flour			0.015	
Definition of the residue (for compliance with the MRL and for estimation of dietary risk assessment for plant and animal commodities): *benzovindiflupyr* *The residue is fat soluble.* (ar) Expressed on an "as received" basis						
Bixafen (262)*	GC 0640	Barley	0.4		0.08	-
ADI: 0–0.02 mg/kg bw	AS 0640	Barley, straw and fodder, dry	20 (dw)		2.2 (ar)	11 (ar)
ARfD: 0.2 mg/kg bw	MO 0105	Edible offal (Mammalian)	4		kidney: 0.4 liver: 1.7	kidney: 0.93 liver: 3.9
	PE 0112	Eggs	0.05		0.02	0.047
	MF 0100	Mammalian fats (except milk fats)	2		0.5	1.3
	MM 0095	Meat (from mammals other than marine mammals)	2 (fat)		muscle: 0.21 fat: 0.5	muscle: 0.71 fat: 1.3
	FM 0183	Milk fat	5		2.05	-
	ML 0106	Milks	0.2		0.082	-
	GC 0647	Oats	0.4		0.08	-
	AS 0647	Oats, straw and fodder, dry	20 (dw)		2.2 (ar)	11 (ar)
	PO 0111	Poultry, Edible offal of	0.05		0.02	0.03
	PF 0111	Poultry fats	0.05		0.02	0.04
	PM 0110	Poultry meat	0.02*		0	0
	SO 0495	Rape seed	0.04		0.02	-
	OR 0495	Rape seed oil, refined	0.08		0.03	-

Pesticide (Codex reference number)	**CCN**	**Commodity**	**Recommended Maximum residue level (mg/kg)**		**STMR or STMR-P mg/kg**	**HR or HR-P mg/kg**
			New	**Previous**		
	GC 0650	Rye	0.05		0.02	-
	AS 0650	Rye, straw and fodder, dry	20 (dw)		2.2 (ar)	11 (ar)
	GC 0653	Triticale	0.05		0.02	-
	AS 0653	Triticale, straw and fodder, dry	20 (dw)		2.2 (ar)	11 (ar)
	GC 0654	Wheat	0.05		0.02	-
	CM 0654	Wheat, bran	0.15		0.052	-
	AS 0654	Wheat, straw and fodder, dry	20 (dw)		2.2 (ar)	11 (ar)
		Barley, pearl			0.02	
		Beer			0.009	
	CF 1211	Wheat flour			0.007	
	CF 1210	Wheat germ			0.022	
	CP 1211	White bread			0.007	
	CF 1212	Wheat wholemeal			0.018	
	CP 1212	Wholemeal bread			0.012	

Definition of the residue (for compliance with MRLs) for plant commodities: *bixafen.*

Definition of the residue (for compliance with MRLs) for animal commodities and (for dietary risk assessment) for plant and animal commodities: *sum of bixafen and N-(3',4'-dichloro-5-fluorobiphenyl-2-yl)-3-(difluoromethyl)-1H-pyrazole-4-carboxamide (bixafen-desmethyl), expressed as bixafen.*

The residue is fat soluble.

(dw) Dry weight
(ar) Expressed on an “as received” basis

Pesticide (Codex reference number)	**CCN**	**Commodity**	**New**	**Previous**	**STMR or STMR-P mg/kg**	**HR or HR-P mg/kg**
Buprofezin (173)	FI 0326	Avocado	0.1		0.01	0.01
ADI: 0–0.009 mg/kg bw	HH 0722	Basil	1.5		0.45	0.72
ARfD: 0.5 mg/kg bw	VD 0541	Soya bean, dry	0.01*		0.01	

Definition of the residue (for compliance with MRLs and for dietary risk assessment) for plant and animal commodities: *Buprofezin*.

The residue is not fat soluble.

Pesticide (Codex reference number)	**CCN**	**Commodity**	**New**	**Previous**	**STMR or STMR-P mg/kg**	**HR or HR-P mg/kg**
Chlorantraniliprole (230)	PE 0112	Eggs	0.2	0.2	0.099	
ADI: 0–2 mg/kg bw	SO 0697	Peanut	0.06		0.01	
ARfD: Unnecessary	PF 0111	Poultry fats	0.08	0.01*	0.031	
	PM 0110	Poultry meat	0.02	0.01*	0.008	
	PO 0111	Poultry, Edible offal of	0.07	0.01*	0.028	
	AS 0161	Straw, fodder (dry) and hay of cereal grains and other grass-like plants (except corn and rice).	30 (dw)	-	5.2	15

Definition of the residue (for compliance with MRL and for dietary risk assessment) for plant and animal commodities: *chlorantraniliprole.*

The residue is fat soluble.

(dw) Dry weight

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
Deltamethrin (135) **ADI: 0–0.01 mg/kg bw** **ARfD: 0.05 mg/kg bw**	SO 0495	Rape seed	0.2		0.07	
Definition of the residue (for compliance with MRLs and for dietary risk assessment) for plant and animal commodities: *sum of deltamethrin and its α-R- and trans– isomers.* *The residue is fat soluble.*						
Dimethomorph (225) **ADI: 0–0.2 mg/kg bw** **ARfD: 0.6 mg/kg bw**	VL 0483	Lettuce, Leaf	9	20	0.8	6.2
Definition of the residue (for compliance with MRLs and for dietary risk assessment) for plant and animal commodities: *dimethomorph (sum of isomers).* *The residue is not fat soluble.*						
Fenpropimorph (188)** **ADI: 0–0.003 mg/kg bw** **ARfD: 0.1 mg/kg bw**						
Definition of the residue (for compliance with MRLs and for dietary risk assessment) for plant commodities: *fenpropimorph* Definition of the residue (for compliance with the MRLs and for dietary risk assessment) for animal commodities*: 2-methyl-2-{4-[2-methyl-3-(cis-2,6-dimethylmorpholin-4-yl)propyl]phenyl}propionic acid, expressed as fenpropimorph.* *The residue is not fat soluble*						
Fipronil (202) **ADI: 0–0.0002 mg/kg bw** **ARfD: 0.003 mg/kg bw** *Fipronil and fipronil-desulfinyl, alone or in combination*	HH 0722	Basil	1.5		0.23	0.57
Definition of the residue (for compliance with MRLs and for dietary risk assessment) for plant commodities: *fipronil.* Definition of the residue (for compliance with MRLs and for dietary risk assessment) for animal commodities: *sum of fipronil and 5-amino-3-cyano-1-(2,6-dichloro-4-trifluoromethylphenyl)-4- trifluoromethylsulphonylpyrazole (MB 46136), expressed as fipronil.* *The residue is fat soluble.*						
Flonicamid (282) **ADI: 0–0.07 mg/kg bw** **ARfD: Unnecessary**	MM 032	Edible offal (Mammalian)	0.2	0.06	0.1	
	PE 0112	Eggs	0.15	0.03	0.06	
	MM 031	Mammalian fats	0.05	0.02	0.02	
	MM 030	Meat (from mammals other than marine mammals)	0.15	0.05	0.06	
	MM 033	Milks	0.15	0.04	0.05	
	PF 0111	Poultry fats	0.05	0.02	0.04	
	PM 0110	Poultry meat	0.1	0.02	0.04	
	PO 0111	Poultry, Edible offal of	0.1	0.02	0.04	

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
Definition of the residue (for compliance with MRLs and estimation for dietary risk assessment) for plant commodities: *Flonicamid.* Definition of the residue (for compliance with MRLs and estimation for dietary risk assessment) for animal commodities: *Flonicamid and the metabolite TFNA-AM, expressed as flonicamid.* *The residue is not fat soluble*.						
Fluazifop-P-butyl (283)* [a]	TN 0660	Almonds	0.01*		0.011	0.011
ADI: 0–0.004 mg/kg bw	FI 0327	Banana	0.01*		0.011	0.011
ARfD: 0.4 mg/kg bw	AL 0061	Bean fodder	7 (dw)		0.43 (dw)	3.5 (dw)
	VD 0071	Beans (dry)	40		2.4	
	VP 0061	Beans, except broad bean and soya bean	6		0.32	4.9
	VB 0041	Cabbages, Head	3		0.2	3.7
	FB 2005	Caneberries	0.01*		0.011	0.011
	VR 0577	Carrot	0.6		0.18	0.69
	VR 0578	Celeriac	0.4		0.12	0.4
	FC 0001	Citrus fruits	0.01*		0.011	0.011
	AB 0001	Citrus pulp, dry	0.06*		0.06	
	SB 0716	Coffee beans	0.01*		0.011	0.011
	SO 0691	Cotton seed	0.7		0.053	
	FB 0021	Currants, black, red, white	0.01*		0.011	0.011
	MO 0105	Edible offal (Mammalian)	0.2		0.088	0.18
	VO 0440	Eggplant	0.4		0.053	0.26
	PE 0112	Eggs	0.03		0.014	0.027
	VD 0561	Field pea (dry)	3		0.4	
	AM 1051	Fodder beet	0.5		0.095	0.32
	VA 0381	Garlic	0.3		0.12	0.28
	FB 0268	Gooseberries	0.01*		0.011	0.011
	FB 0269	Grapes	0.01*		0.011	0.011
	VL 0483	Lettuce, Leaf	0.01*		0.013	0.022
	TN 0669	Macadamia nuts	0.01*		0.011	0.011
	MF 0100	Mammalian fats (except milk fats)	0.09		0.048	0.081
	MM 0095	Meat (from mammals other than marine mammals)	0.09 (fat)		0.024	0.038
	ML 0106	Milks	0.2		0.1	
	SO 0305	Olives for oil production	0.01*		0.011	0.011
	VA 0385	Onion, Bulb	0.3		0.12	0.28
		Orange oil	0.05*		0.055	
	VP 0063	Peas (pods and succulent = immature seeds)	2		0.44	1
	VP 0064	Peas, shelled (succulent seeds)	15		0.42	8.1
	TN 0672	Pecan	0.01*		0.011	0.011
	FP 0009	Pome fruits	0.01*		0.011	0.011
	VR 0589	Potato	0.6		0.1	1
	PF 0111	Poultry fats	0.03		0.016	0.025
	PM 0110	Poultry meat	0.03		0.016	0.025
	PO 0111	Poultry, Edible offal of	0.09		0.054	0.082
	VA 0388	Shallots	0.3		0.12	0.28
	VD 0541	Soya bean (dry)	15		2.9	
	AL 0541	Soya bean fodder	4 (dw)		0.32 (dw)	2.1 (dw)
	FS 0012	Stone fruits	0.01*		0.011	0.011
	FB 0275	Strawberries	0.3		0.063	0.13

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
	VR 0596	Sugar beet	0.5		0.19	0.76
	DM 0596	Sugar beet molasses	7		1.33	
	AB 0596	Sugar beet pulp, dry	20		3.8	
	GS 0659	Sugar cane	0.01*		0.011	0.011
	SO 0702	Sunflower seed	7		0.3	
	VR 0497	Swede	4		1.3	4.8
	VR 0508	Sweet potato	2		1	2
	FT 0305	Table Olives	0.01*		0.011	0.011
	VO 0448	Tomato	0.4		0.053	0.26
	VR 0506	Turnip, Garden	4		1.3	4.8
	TN 0678	Walnuts	0.01*		0.011	0.011
	VR 0600	Yams	2		1	2
	OC 0541	Soya bean oil, crude			2.4	
	OR 0702	Sunflower seed oil, edible			0.009	
	JF 0001	Citrus juices			0.0077	
		Peas, green, cooked			0.37	7.1
		Peas, green, canned			0.30	5.8
		Potato, flesh			0.11	1.1
		Potato, cooked without peel			0.080	0.80
		Soya flour			3.2	
		Soya milk			0.46	
		Sugar beet, refined sugar			0.068	

Definition of the residue (for compliance with MRLs for plant commodities): *total fluazifop, defined as the sum of fluazifop-P-butyl, fluazifop-P-acid (II) and their conjugates, expressed as fluazifop-P-acid.*
Definition of the residue (for dietary risk assessment) for plant commodities: *the sum of fluazifop-P-butyl, fluazifop-P-acid (II), 2-[4-(3-hydroxy-5-trifluoromethyl-2-phenoxy)pyridyloxy] propionic acid (XL), 5-trifluoromethyl-2-pyridone (X) and their conjugates, expressed as fluazifop-P-acid.*

Definition of the residue (for compliance with MRLs and for dietary risk assessment) for animal commodities): *total fluazifop, defined as the sum of fluazifop-P-butyl, fluazifop-P-acid (II) and their conjugates, expressed as fluazifop-P-acid*.

The residue is fat soluble.

(dw) Dry weight

[a] The information provided to the JMPR precludes an estimate that the dietary exposure would be below the ADI.

Pesticide (Codex reference number)	CCN	Commodity	New	Previous	STMR or STMR-P mg/kg	HR or HR-P mg/kg
Fluensulfone (265)	VR 0574	Beetroot	4		0.12	0.50
ADI: 0–0.01 mg/kg bw	VB 0400	Brassica (cole or cabbage) vegetables, Head cabbage, Flowerhead brassicas	1.5		0.01	0.01
ARfD: 0.3 mg/kg bw	VR 0577	Carrot	4		0.12	0.50
	VR 0578	Celeriac	4		0.12	0.50
	VS 0624	Celery	2		0.1085	0.55
	VR 0579	Chervil, Turnip-rooted	4		0.12	0.50
	VC 0424	Cucumber	0.7		0.01	0.017
	MO 0105	Edible offal (Mammalian)	0.01*		0	0
	PE 0112	Eggs	0.01*		0	0
	VC 0045	Fruiting vegetables, Cucurbits	W	0.3		
	VO 0050	Fruiting vegetables, other than Cucurbits, except sweetcorn and mushroom	0.7	0.3	0.01	0.01
	VR 0583	Horseradish	4		0.12	0.50
	VL 0481	Komatsuma	9		0.01	0.01

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
	VL 0053	Leafy vegetables (not specified elsewhere)	1 [(R)]		0.01	0.01
	VP 0060	Legume vegetables	0.1 [(R)]		0.01	0.01
	VL 0482	Lettuce, Head	0.8		0.01	0.018
	FB 2009	Low-growing berries	0.5		0.01	0.01
	MF 0100	Mammalian fats (except milk fats)	0.01*		0	0
	MM 0095	Meat (from mammals other than marine mammals)	0.01* (fat)		0	0
	VC 0046	Melons, except watermelon	0.3		0.01	0.01
	ML 0106	Milks	0.01*		0	
	VL 0485	Mustard greens	20		0.01	0.01
	VR 0588	Parsnip	4		0.12	0.50
	HS 0444	Peppers, chilli, dried	7	2	0.10	0.10
	VR 0589	Potato	0.8		0.01	0.01
	DV 0589	Potato, dried	2		0.01	
	PO 0111	Poultry, Edible offal of	0.01*		0	0
	PF 0111	Poultry fats	0.01		0.0005	0.0021
	PM 0110	Poultry meat	0.01*		0 0.005 (fat)	0 0.0021 (fat)
	VR 0494	Radish	4		0.12	0.50
	VR 0591	Radish Japanese	4		0.12	0.50
	VL 0494	Radish leaves	50		0.01	0.01
	VR 0075	Root and tuber vegetables (not specified elsewhere)	3 [(R)]		0.01	0.01
	VL 0502	Spinach	4		0.01	0.01
	VC 0431	Squash, summer	0.7		0.01	0.017
	VR 0497	Swede	4		0.12	0.50
	VR 0508	Sweet potato	0.8		0.01	0.01
	DV 0448	Tomato, dried	1.5	0.5	0.01	0.01
	VW 0448	Tomato paste	1.5	0.5	0.01	
	VR 0506	Turnip, Garden	4		0.12	0.50
	VL 0506	Turnip greens	10		0.01	0.01
	VC 0432	Watermelon	0.3		0.01	0.01

Definition of the residue (for compliance with MRLs) for plant commodities: *sum of fluensulfone and 3,4,4-trifluorobut-3-ene-1-sulfonic acid (BSA), expressed as fluensulfone equivalents.*

Definition of the residue (for dietary risk assessment) for plant commodities: *fluensulfone.*

Definition of the residue (for compliance with MRLs and for dietary risk assessment) for animal commodities: *fluensulfone.*

Residue is fat soluble.

[(R)] Indicates a maximum residue level relating to rotational crops.

Pesticide (Codex reference number)	CCN	Commodity	New	Previous	STMR or STMR-P mg/kg	HR or HR-P mg/kg
Flupyradifurone (285)*		Alfalfa hay	30 (dw)		14	42
ADI: 0–0.08 mg/kg bw	DF 0226	Apples, dried	2		0.44	1.2
ARfD: 0.2 mg/kg bw	VD 0071	Beans, dry	0.4		3.22	
	VP 0062	Beans, shelled (succulent = immature seeds)	0.2		1.17	2.77
	VP 0061	Beans, except broad bean and soya bean (green pods and immature seeds)	1.5		2.63	5.1
		Bean hay	30 (dw)		5.7	17

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
	VA 0036	Bulb vegetables, except Fennel, Bulb	0.01*		0.18	0.39
	FB 2006	Bush berries	4		0.725	2.6
	VB 0041	Cabbages, Head	1.5		0.79	1.71
	VB 0404	Cauliflower	6		0.48	3.01
	VS 0624	Celery	9[a]		2.38	7.19
	GC 0080	Cereal grains (except maize and rice)	3		1.315	
	SO 0691	Cotton seed	0.8		0.395	
	VC 0424	Cucumber	0.4			
	DF 0269	Dried grapes	8		1.6	5.8
	MO 0105	Edible offal (Mammalian)	4		Kidney 0.87 Liver 0.81	Kidney 3.40 Liver 2.75
	PE 0112	Eggs	0.7		0.15	0.42
	FB 0269	Grapes	3		0.63	2.3
	FC 0002	Lemons and limes (including citron)	1.5		0.32	0.73
	VL 0482	Lettuce, Head	4		1.3	2.4
	VL 0483	Lettuce, Leaf	15[a]		2.6	8.0
	FC 0003	Mandarins	1.5		0.44	0.99
	MF 0100	Mammalian fats (except milk fats)	1		0.15	0.86
	MM 0095	Meat (from mammals other than marine mammals)	1.5		Muscle 0.30 Fat 0.15	Muscle 1.27 Fat 0.86
	GC 0645	Maize	0.015		0.49	
		Maize bran	0.05		0.76	
	VC 0046	Melons, except watermelon	0.4		0.57	1.07
	ML 0106	Milks	0.7		0.11	0.48
	VL 0485	Mustard greens	40[a]		12	25
	FC 0004	Oranges, Sweet, Sour	4		0.505	2.2
	SO 0697	Peanut	0.04		0.225	0.35
		Peanut hay	30(dw)		11	20
	VD 0072	Peas (dry)	3		3.605	
		Pea hay	50(dw)		19.5	36
	VP 0063	Peas (pods and succulent = immature seeds)	3		2.68	5.5
	VP 0064	Peas, shelled (succulent seeds)	3		2.78	5.7
	TN 0672	Pecan	0.015		0.060	0.063
	VO 0051	Peppers	0.9		0.68	2.39
	HS 0444	Peppers Chili, dried	9		6.8	23.9
	FP 0009	Pome fruits	0.9		0.45	0.69
	VR 0589	Potato	0.05		0.291	0.57
	PF 0111	Poultry fats	0.3		0.11	0.24
	PM 0110	Poultry meat	0.8		Muscle 0.27 Fat 0.11	Muscle 0.64 Fat 0.24
	PO 0111	Poultry, Edible offal of	1		0.39	0.88
	FC 0005	Pummelo and Grapefruits	0.7		0.21	0.32
	VR 0075	Root and tuber vegetables (except potato)	0.7		0.29	1.37
	VD 0541	Soya bean (dry)	1.5		3.44	
		Soya bean hay	40(dw)		15.5	41
	VL 0502	Spinach	30[a]		8.5	19
	AS 0081	Straw and fodder, dry of cereal grains	40(dw)		9.6 (hay) 6.3 (straw and stover)	31 (hay) 23 (straw and stover)
	FB 0275	Strawberry	1.5		1.505	2.74
	VC 0431	Squash, Summer	0.2		0.655	2.19

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
	VO 0447	Sweet corn (corn-on-the-cob)	0.05		0.56	1.59
	VR 0508	Sweet potato	0.05		0.291	0.57
	VO 0448	Tomato	1		0.71	2.79
	CM 0654	Wheat bran, unprocessed	8		2.0	
	CF 1210	Wheat germ	5		1.64	
	CF 1212	Wheat wholemeal	5		1.64	
	JF 0226	Apple juice			0.14	0.37
		Apple sauce			0.18	0.50
		Beer			0.099	
	VD 0523	Broad bean (dry)			2.49	
	VD 0524	Chick pea (dry)			2.49	
	JF 0001	Citrus juice			0.068	0.30
	OR 0691	Cotton seed oil, edible			0.079	
	JF 0269	Grape juice			0.43	1.6
	VD 0533	Lentil (dry)			2.49	
	VD 0545	Lupin (dry)			2.49	
	CF 1255	Maize flour			0.44	
		Maize germ			0.51	
		Maize meal			0.44	
	OR 0645	Maize oil, edible			0.44	
		Maize starch			0.44	
		Orange marmalade			0.078	0.34
		Orange oil			0.068	0.30
		Pearled barley			0.16	
		Peanut butter			0.17	0.26
		Peanuts, roasted			0.17	0.26
	OR 0697	Peanut oil, edible			0.13	0.20
	VD 0537	Pigeon pea (dry)			2.49	
		Potato chips			0.36	0.71
		Potato flakes			0.45	0.88
		Potato starch			0.16	0.31
		Soya bean milk			0.72	
		Soya flour			5.3	
	OR 0541	Soya bean oil, refined			0.13	
	JF 0048	Tomato juice			0.48	1.9
	VW 0448	Tomato paste			1.3	5.3
	MW 0448	Tomato purée			1.1	4.2
	CF 1211	Wheat flour			0.59	
		Wheat gluten			0.53	
		Wheat starch			0.034	
	CP 1211	White bread			0.42	
	CP 1212	Whole meal bread			1.05	
		Wine			0.26	0.95

Definition of the residue (for compliance with MRLs) for plant commodities: *Flupyradifurone*.

Definition of the residue (for dietary risk assessment) for plant commodities: *Sum of flupyradifurone, difluoroacetic acid and 6-chloronicotinic acid, expressed as parent equivalents*.

Definition of the residue (for compliance with MRLs and for dietary risk assessment) for animal commodities: *Sum of flupyradifurone and difluoroacetic acid, expressed as parent equivalents*.

The residue is not fat soluble.

[a] The information provided to the JMPR precludes an estimate that the dietary intake for celery, leaf lettuce, spinach and

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
mustard greens would be below the ARfD.						
(dw) Dry weight						
Imazethapyr (289)*	AL 1031	Clover hay or fodder	1.5 (dw)	-	0.80 (ar)	2.81 (ar)
ADI: 0–0.6 mg/kg bw	MO 0105	Edible offal (Mammalian)	0.01*	-	Kidney 0.001 Liver 0	-
ARfD: Unnecessary	PE 0112	Eggs	0.01*	-	0	-
	VD 0533	Lentil (dry)	0.1*	-	0.078	-
	GC 0645	Maize	0.1*		0	-
	AS 0645	Maize fodder	0.1* (dw)	-	0.04 (ar)	0.04 (ar)
	MF 0100	Mammalian fats (except milk fats)	0.01*	-	0	-
	MM 0095	Meat (from mammals other than marine mammals)	0.01 *	-	0	-
	ML 0106	Milks	0.01 *	-	0	-
	SO 0697	Peanut	0.1*		0.056	-
	PF 0111	Poultry fats	0.01*	-	0	-
	PM 0110	Poultry meat	0.01*	-	0	-
	PO 0111	Poultry, Edible offal of	0.01*	-	0	-
	SO 0495	Rape seed	0.1*		0	-
	GC 0649	Rice	0.1*	-	0.078	-
	AS 0649	Rice straw and fodder, dry	0.15* (dw)	-	0.078 (ar)	0.084 (ar)
	VD0541	Soya bean (dry)	0.03	-	0.0475	-
		Maize oil			0	
	OR 0541	Soya bean oil, refined			0.012	
Definition of the residue (for compliance with MRLs) for plant commodities and (for compliance with MRLs and dietary risk assessment) for animal commodities: *Sum of imazethapyr, 5-hydroxyethyl-2-(4-isopropyl-4-methyl-5-oxo-2-imidazolin-2-yl)nicotinic acid, expressed as imazethapyr.*						
Definition of the residue (for dietary risk assessment) for plant commodities: *Sum of imazethapyr, and 5-hydroxyethyl-2-(4-isopropyl-4-methyl-5-oxo-2-imidazolin-2-yl)nicotinic acid (OH-imazethapyr), and 5-[1-(beta-D-glucopyranozyloxyethyl)-2-(4-isopropyl-4-methyl-5-oxo-2-imidazolin-2-yl)nicotinic acid, expressed as imazethapyr.*						
The residue is not fat soluble.						
(dw) Dry weight (ar) Expressed on an "as received" basis.						
Isofetamid (290)*	TN 0660	Almonds	0.01*		0.01	0.01
ADI: 0–0.05 mg/kg bw	AB 0660	Almond hulls	0.8 (dw)		0.01 (dw)	-
ARfD: 3 mg/kg bw	DF 0269	Dried grapes (= Currants, Raisins and Sultanas)	7		1.7	5.98
	MO 0105	Edible offal (Mammalian)	0.07		0.058	0.058
	PE 0112	Eggs	0.01*		0	0
	VL 0482	Lettuce, Head	5		0.29	4.7
	VL 0483	Lettuce, Leaf	7		0.115	5.2
	FB 2009	Low growing berries (includes all commodities in this subgroup)	4		0.49	3.1

Pesticide (Codex reference number)	**CCN**	**Commodity**	**Recommended Maximum residue level (mg/kg)**		**STMR or STMR-P mg/kg**	**HR or HR-P mg/kg**
			New	**Previous**		
	MF 0100	Mammalian fats (except milk fats)	0.02		0.012	0.012
	MM 0095	Meat (from mammals other than marine mammals)	0.02 (fat)		0.012 fat 0.01 muscle	0.012 fat 0.01 muscle
	ML 0106	Milks	0.01*		0.003	0.003
	PO 0111	Poultry, Edible offal of	0.01*		0	0
	PF 0111	Poultry fats	0.01*		0	0
	PM 0110	Poultry meat	0.01*		0	0
	SO 0495	Rape seed	0.015		0.01	-
	OR 0495	Rape seed oil, edible	0.03		0.02	-
	FB 2008	Small fruit vine climbing (includes all commodities in this subgroup)	3		0.73	2.6
	JF 0269	Grape juice			0.095	
		Red wine			0.15	
		White wine			0.28	

Definition of the residue (for compliance with MRLs and for dietary risk assessment) for plant commodities: *Isofetamid.*

Definition of the residue (for compliance with MRLs and for dietary risk assessment) for animal commodities: *Sum of isofetamid and 2-[3-methyl-4-[2-methyl-2-(3-methylthiophene-2-carboxamido) propanoyl]phenoxy]propanoic acid (PPA), expressed as isofetamid.*

The residue is fat soluble.

(dw) Dry weight

Pesticide (Codex reference number)	**CCN**	**Commodity**	**New**	**Previous**	**STMR or STMR-P mg/kg**	**HR or HR-P mg/kg**
Methoprene (147) **ADI: 0–0.09 & 0.05. mg/kg body weight (0–0.09 mg/kg bw for the R,S racemate; 0–0.05 mg/kg bw for S-methoprene** **ARfD: Unnecessary**	SO 0089	Oilseed except peanut	4 Po		2.0	2.6

Definition of the residue (for compliance with the MRL and for dietary risk assessment) for plant and animal commodities: *Methoprene.*

The residue is fat soluble.

Pesticide (Codex reference number)	**CCN**	**Commodity**	**New**	**Previous**	**STMR or STMR-P mg/kg**	**HR or HR-P mg/kg**
Metrafenone (278)	FS 0013	Cherries	2		0.52	
ADI: 0–0.3 mg/kg bw	VC 0424	Cucumber	W	0.2		
ARfD: Unnecessary	VO 0440	Egg plant	0.6		0.11	
	VC 0045	Fruiting vegetables, Cucurbits	0.5		0.13	
	VC 0245	Gherkin	W	0.2		
	DH 1100	Hops, dry	70		21	
	FS 2001	Peaches	0.7		0.21	
	HS 0444	Peppers Chili, dried	20	20	3.5	
	VO 0444	Peppers, Chili	2	2	0.35	
	VO 0445	Peppers, Sweet (including Pimento or pimiento)	2	2	0.35	
	FP 0009	Pome fruits	1		0.23	
	VC 0431	Squash, Summer	W	0.06		
	VO 0488	Tomato	0.6	0.4	0.11	

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
	JF 0226	Apple juice			0.048	
	DF 0226	Apples, dried			0.13	
		Apple sauce			1.0	
	JF 00488	Tomato juice			0.037	
	VW 0488	Tomato paste			0.042	
	MW 0448	Tomato purée			0.089	
		Tomato (canned)			0.002	
		Beer			<0.01	
Definition of the residue (for compliance with the MRL and for dietary risk assessment) for plant and animal commodities: *metrafenone.* *The residue is fat soluble.*						
Oxathiapiprolin (291)* **ADI: 0–4 mg/kg bw** **ARfD: Unnecessary**	VB 0400	Broccoli	1.5		0.22	
	VB 0041	Cabbages, Head	0.7		0.14	
	VB 404	Cauliflower	0.3		0.08	
	DF 0269	Dried grapes	1.3		0.29	
	MO 0105	Edible offal (Mammalian)	0.01*		0.015	
	PE 0112	Eggs	0.01*		0	
	VC 0045	Fruiting vegetables, Cucurbits	0.2		0.03	
	VO 0050	Fruiting vegetables, other than Cucurbits (except sweetcorn and mushrooms)	0.4		0.04	
	VA 381	Garlic	0.04		0.01	
	VA 382	Garlic, Great-headed	0.04		0.01	
	DR 0604	Ginseng, dried including red ginseng	0.15		0.04	
	FB 0629	Grapes	0.9		0.21	
	VA 384	Leek	2		0.6	
	VL 482	Lettuce, Head	3		0.97	
	VL 483	Lettuce, Leaf	5		2.2	
	MM 0100	Mammalian fats (except milk fats)	0.01*		0	
	MM 0095	Meat (from mammals other than marine mammals)	0.01*		0	
	ML 0106	Milks	0.01*		0	
	VA 0385	Onion, Bulb	0.04		0.01	
	VA 0387	Onion, Welsh	2		0.6	
	VP 0063	Peas (pods and succulent = immature seeds)	1		0.38	
	VP 0064	Peas, shelled	0.05		0.09	
	HS 0444	Peppers Chili, dried	4		0.4	
	VR 0589	Potato	0.01*		0	
	PF 0111	Poultry fats	0.01*		0	
	PM 0110	Poultry meat	0.01*		0	
	PO 0111	Poultry, Edible offal of	0.01*		0	
	VD 0070	Pulses			0.12	
	VA 388	Shallots	0.04		0.01	
	VA 389	Spring onion	2		0.6	
	VL 502	Spinach	15		3.7	
	VR 0508	Sweet potato	0.01*		0	
	DV 0448	Tomato, dried	3.0		0.28	
		Tomato, canned (and peeled)			0.0016	

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
	VW 0448	Tomato paste			0.044	
	MW 0448	Tomato purée			0.024	
	JF 0448	Tomato juice			0.006	
	JF 0269	Grape juice			0.034	
		Wine			0.029	

Definition of the residue (for compliance with the MRL) for plant and animal commodities: *oxathiapiprolin.*

Definition of the residue (for dietary risk assessment) for plant and animal commodities: *Sum of: oxathiapiprolin, 5-(Trifluoromethyl)-1H-pyrazole-3-carboxylic acid and 1-ß-D-Glucopyranosyl-3-(-(trifluoromethyl)-1H-pyrazole-5-carboxylic acid, expressed as parent*.

The residue is not fat soluble.

Pesticide (Codex reference number)	CCN	Commodity	New	Previous	STMR or STMR-P mg/kg	HR or HR-P mg/kg
Penconazole (182)**	FP 0226	Apple	0.1		0.1	0.4
ADI: 0–0.03 mg/kg bw	VS 0620	Artichoke, globe	0.06		0.1	0.2
ARfD: 0.8 mg/kg bw	FB 0278	Blackcurrant	2		1.5	4.4
	MM 0812	Cattle meat	W	0.05*		
	ML 0812	Cattle milk	W	0.01*		
	MO 0812	Cattle, Edible offal of	W	0.05*		
	PE 0840	Chicken eggs	W	0.05*		
	PM 0840	Chicken meat	W	0.05*		
	VC 0424	Cucumber	0.06	0.1	0.05	0.15
	DF 0269	Dried grape (= currants, raisins and sultanas)	1.5	0.5	0.57	6.1
	MO 0105	Edible offal (Mammalian)	0.05*		0.004	0.004
	VO 0440	Egg plant	0.09		0.1	0.35
	PE 0112	Eggs	0.05*		0	0
	VC 0425	Gherkin	0.06		0.05	0.15
	FB 0269	Grapes	0.4	0.2	0.15	1.6
	DH 1100	Hops, dry	W	0.5		
	MF 0100	Mammalian fats (except milk fats)	0.05*		0	0
	MM 0095	Meat (from mammals other than marine mammals)	0.05*		0	0
	VC 0046	Melons, except watermelon	0.15	0.1	0.2	0.3
	ML 0106	Milks	0.01*		0	0
	FS 0245	Nectarine	W	0.1		
	FS 0247	Peach	W	0.1		
	FS 2001	Peaches	0.08	0.1	0.14	0.34
	FP 0230	Pear	0.1		0.1	0.4
	VO 0445	Pepper, Sweet	0.2		0.14	0.6
	FP 0009	Pome fruits	W	0.2		
	PM 0110	Poultry meat	0.05*		0	0
	PO 0111	Poultry, Edible offal of	0.05*		0	0
	VC 0431	Squash, summer	0.06		0.05	0.15
	FB 0275	Strawberry	0.5	0.1	0.44	2.2
	VO 0448	Tomato	0.09	0.2	0.1	0.35
	JF 0226	Apple juice			0.025	0.1
		Apple sauce			0.017	0.068
		Blackcurrant juice			0.38	1.1
	JF 0269	Grape juice			0.038	0.4
		Strawberry Jam, sterilized			0.37	1.8
		Strawberry, canned pasteurized			0.24	1.2
		Wine			0.038	0.4

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
Definition of the residue (for compliance with the MRL) for plant and animal commodities: *penconazole* Definition of the residue (for dietary risk assessment) for plant commodities: sum of penconazole and *4-(2,4-dichloro-phenyl)-5-[1,2,4]triazol-1-yl-pentan-2-ol (free and conjugated), expressed as penconazole*. Definition of the residue (for dietary risk assessment) for animal commodities: sum of *penconazole, 4-(2,4-dichloro-phenyl)-5-[1,2,4]triazol-1-yl-pentan-2-ol (free and conjugated) and 4-(2,4-dichloro-phenyl)-5-[1,2,4]triazol-1-yl-pentanoic acid , expressed as penconazole.* *The residue is fat soluble.*						
Pendimethalin (292)*	AL 1020	Alfalfa fodder	4 (dw)		0.97 (ar)	2.1 (ar)
ADI: 0–0.1 mg/kg bw	AB 0660	Almond hulls	7 (dw)		0.42 (ar)	
ARfD: 1 mg/kg bw	VS 0621	Asparagus	0.1		0.05	0.062
	AL 0061	Bean fodder	0.3 (dw)		0.05 (ar)	0.11 (ar)
	VD 0071	Beans, dry	0.05		0.05	
	VP 0061	Beans, except broad bean and soya bean (green pods and immature seeds)	0.05		0.05	0.05
	VL 0054	Brassica leafy vegetables, except kale	0.3		0.05	0.11
	VR 0577	Carrot	0.5		0.0625	0.38
	VX 0624	Celery	0.09		0.02	0.05
	FC 0001	Citrus fruits	0.03		0.005	0.019 (whole fruit)
	MO 0105	Edible offal (Mammalian)	0.05		0.026	0.05
	PE 0112	Eggs	0.01*		0	0
	VA 0380	Fennel Bulb	0.05*		0	0
	VA 0381	Garlic	0.05*		0	0
	AS 0162	Hay or fodder (dry) of grasses	2500 (dw)		492 (ar)	1030 (ar)
	DH 1100	Hops, dry	0.05		0.05	
	VL 0480	Kale	0.5		0.05	0.25
	VL 0483	Lettuce, Leaf	4		0.062	2.2
	MF 0100	Mammalian fats	0.2		0.009	0.085
	MM 0095	Meat (from mammals other than marine mammals)	0.2 (fat)		Muscle: 0.026 Fat: 0.051	Muscle: 0.05 Fat: 0.19
	FM 0183	Milk fats	0.8		0.3	
	ML 0106	Milks	0.02		0.006	
	VA 0385	Onion, Bulb	0.05*		0	0
	VA 0387	Onion, Welsh	0.4		0.095	0.12
	VD 0072	Peas (dry)	0.05		0.05	
	VP 0063	Peas (pods and succulent = immature seeds)	0.05		0.01	0.014
	VP 0064	Peas, shelled (succulent seeds)	0.05		0.01	0.036
	PF 0111	Poultry fats	0.01*		0	0
	PM 0110	Poultry meat	0.01*		0	0
	PO 0111	Poultry, Edible offal of	0.01*		0	0
	VA 0388	Shallots	0.05*		0	0
	VA 0389	Spring onion	0.4		0.095	0.12
	TN 0085	Tree nuts	0.05		0.05	0.05
		Carrots, cooked			0.0031	0.019
		Carrot, canned			0.0031	
		Carrot juice			0.024	

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
Definition of the residue (for compliance with the MRL and for dietary risk assessment) for plant and animal commodities: *Pendimethalin*. *The residue is fat soluble.* dw Dry weight (ar) Expressed on an "as received" basis						
Pinoxaden (293)*	GC 0640	Barley	0.7		0.09	
ADI: 0–0.1 mg/kg bw	AS 0640	Barley straw and fodder, dry	3 (dw)		0.16 (ar)	1.44
ARfD: 0.3 mg/kg bw	PE 039	Eggs	0.02*		0.02	
	PF 037	Poultry fats	0.02*		0.02	
	PM 0110	Poultry meat	0.02*		0.02	
	PO 038	Poultry, Edible offal of	0.02*		0.02	
	GC 0654	Wheat	0.7		0.1	
	AS 0654	Wheat straw and fodder, dry	3 (dw)		0.16 (ar)	1.44
		Pearled barley			0.04	
		Barley flour			0.04	
		Barley malt (after drying)			0.11	
		Barley malt sprouts			0.04	
		Barley malt (before brewing)			0.11	
		Beer			0.01	
	CM 0654	Wheat bran (unprocessed)			0.44	
	CF 1211	Wheat flour			0.02	
	CF 1210	Wheat germ			0.04	
	CF 1212	Wholemeal flour			0.11	
	CP 1212	Wholemeal bread			0.06	
Definition of the residue (for compliance with the MRL and for dietary risk assessment) for plant commodities: Sum of free and conjugated M4 (SYN 505164; *8-(2,6-Diethyl-4-hydroxymethyl-phenyl)-9-hydroxy-1,2,4,5-tetrahydro-pyrazolo[1,2-d][1,4,5]oxadiazepin-7-one*), expressed as pinoxaden. Definition of the residue (for compliance with the MRL and for dietary risk assessment) for animal commodities: M4 (SYN 505164; *8-(2,6-Diethyl-4-hydroxymethyl-phenyl)-9-hydroxy-1,2,4,5-tetrahydro-pyrazolo[1,2-d][1,4,5]oxadiazepin-7-one*), expressed as pinoxaden. *The residue is not fat soluble.* (dw) Dry weight (ar) Expressed on an "as received" basis						
Saflufenacil (251)	AL 1020	Alfalfa fodder	0.06		0.025 (ar)	0.025 (ar)
ADI: 0–0.05 mg/kg bw	GC 0640	Barley	1		0.33	
ARfD: Unnecessary	CM 0640	Barley bran (unprocessed)	3		0.96	
	AS 0640	Barley straw and fodder, dry	10		1.85 (ar)	
	MO 0105	Edible offal (Mammalian)	60	0.3	31	
	PE 0112	Eggs	0.01*		0	
	AS 0162	Hay or fodder (dry) of grasses	30		5.3 (ar)	
	MF 0100	Mammalian fats (except milk fats)	0.05	0.01	0.03	
	MM 0095	Meat (from mammals other than marine mammals)	0.01	0.01	0.01	
	ML 0106	Milks	0.01	0.01	0.01	
	SO 0697	Peanut	0.01*		0	
	FI 0355	Pomegranate	0.01*		0	

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg) New	Recommended Maximum residue level (mg/kg) Previous	STMR or STMR-P mg/kg	HR or HR-P mg/kg
	PF 0111	Poultry fats	0.01*		0	
	PM 0110	Poultry meat	0.01*		0	
	PO 0111	Poultry, Edible offal of	0.01*		0.01	
	GS 0659	Sugar cane	0.03		0.01	0.02
	DM 0659	Sugar cane molasses	1		0.03	
	SO 0702	Sunflower seed	0.7	0.7	0.12	
	GC 0653	Triticale	0.7		0.03	
	AS 0653	Triticale straw and fodder, dry	10		1.85 (ar)	
	GC 0654	Wheat	0.7		0.03	
	AS 0654	Wheat straw and fodder, dry	10		1.85 (ar)	
		Barley, pearled			0.03	
		Barley bran			0.96	
		Barley flour			0.032	
		Barely beer			0.032	
		Barley malt			0.019	
	CF 0654	Wheat bran, processed			0.038	
	CF 1211	Wheat flour			0.0048	
	CF 1210	Wheat germ			0.033	
	CP 1212	Wholemeal bread			0.012	
		Sugar cane, white sugar			0.005	

Definition of the residue (for compliance with MRLs and for dietary risk assessment) for plant and animal commodities: *saflufenacil*.

The residue is not fat soluble.

(ar) Expressed on an “as received” basis

Pesticide (Codex reference number)	CCN	Commodity	New	Previous	STMR or STMR-P mg/kg	HR or HR-P mg/kg
Spiromesifen (294)*	VB 0040	Brassica (cole or cabbage) vegetables, Head cabbages, flowerhead Brassicas	3		0.21	1.8
ADI: 0–0.03 mg/kg bw	VL 0054	Brassica leafy vegetables	15		2.06	12.5
ARfD: Unnecessary	VR 0463	Cassava	0.02*		0.01	0.01
	SB 0716	Coffee beans	0.2		0.02	
	VP 0526	Common bean (pods and/or immature seeds)	1		0.085	
	SO 0691	Cotton seed	0.7		0.11	
	VC 0424	Cucumbers	0.15		0.05	
	MO 0105	Edible offal (Mammalian)	0.3		0.055	
	VO 0440	Eggplants	0.7		0.165	
	PE 0112	Eggs	0.02		0.01	
	VC 0045	Fruiting vegetables, Cucurbits, except melon and cucumber	0.09		0.021	
	VL 0053	Leafy vegetables	15		2.06	
	FB 2009	Low-growing berries	3		0.52	
	GC 0645	Maize	0.02*		0	
	AS 0645	Maize fodder	6		0.915 (ar)	4.1 (ar)
	MF 0100	Mammalian fats (except milk fats)	0.15		0.017	
	MM 0095	Meat (from mammals other than marine mammals)	0.15 (F)		0.01 (muscle) 0.017 (fat)	
	VC 0046	Melon, except watermelon	0.3		0.075	
	ML 0106	Milks	0.015		0.0021	
	VO 0442	Okra	0.5		0.097	
	VO 0443	Pepino	0.5		0.097	

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
	VO 0051	Peppers	0.5		0.097	
	HS 0444	Peppers chili, dried	5		0.55	
	GC 0656	Popcorn	0.02*		0	
	VR 0589	Potato	0.02*		0.01	0.01
	PF 0111	Poultry fats	0.02		0.01	
	PM 0110	Poultry meat	0.02		0.01	
	PO 0111	Poultry, Edible offal of	0.05		0.05	0.05
	VO 0447	Sweet corn (corn-on-the-cob)	0.02*		0	
	VR 0508	Sweet potato	0.02*		0.01	
	DT 1114	Tea, Green, Black (black, fermented and dried)	70		18.5	
	VO 0448	Tomato	0.7		0.165	
	VW 0448	Tomato paste	2		0.43	
	DV 0448	Tomato, dried	4		0.82	
		Tomato purée			0.2	
		Tea (green and black infusion)			0.63	

Definition of the residue (for compliance with the MRL) for plant and animal commodities: *sum of spiromesifen and 4-hydroxy-3-(2,4,6-trimethylphenyl)-1-oxaspiro[4.4]non-3-en-2-one, expressed as spiromesifen.*

Definition of the residue (for dietary risk assessment) for plant commodities: *sum of spiromesifen, 4-hydroxy-3-(2,4,6-trimethylphenyl)-1-oxaspiro[4.4]non-3-en-2-one, and 4-hydroxy-3-[4-(hydroxymethyl)-2,6-dimethylphenyl]-1-oxaspiro[4.4]non-3-en-2-one (free and conjugated), all expressed as spiromesifen.*

Definition of the residue (for dietary risk assessment) for animal commodities*: sum of spiromesifen and 4-hydroxy-3-(2,4,6-trimethylphenyl)-1-oxaspiro[4.4]non-3-en-2-one, expressed as spiromesifen.*

Residue is fat soluble.

(ar) Expressed on an "as received" basis

Sulfoxaflor (252)
ADI: 0–0.05 mg/kg bw
ARfD: 0.3 mg/kg bw

Definition of the residue (for compliance with the MRL and for dietary risk assessment) for plant and animal commodities: *Sulfoxaflor.*

The residue is not fat soluble.

Pesticide (Codex reference number)	CCN	Commodity	New	Previous	STMR or STMR-P mg/kg	HR or HR-P mg/kg
Teflubenzuron (190)**	FP 0226	Apple	0.5		0.16	
ADI: 0–0.005 mg/kg bw	VB 0402	Brussels sprouts	W	0.5		
ARfD: Unnecessary	VB 0041	Cabbages, Head	W	0.1		
	VB 0404	Cauliflower	0.01*		0.01	
	SB 0716	Coffee beans	0.3		0.01	
	VC 0424	Cucumber	0.5		0.1	
	MO 0105	Edible offal (Mammalian)	0.01*		0.01	
	PE 0112	Eggs	0.01*		0.01	
	VC 0425	Gherkin	1.5		0.33	
	FB 0269	Grapes	0.7		0.096	
	FC 0002	Lemons and limes (includes all commodities in this subgroup)	0.5		0.01	
	GC 0645	Maize	0.01*		0.01	
	OR 0645	Maize oil, edible	0.015		0.015	

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
	MF 0100	Mammalian fats (except milk fats)	0.01*		0.01	
	MM 0095	Meat from mammals (other than marine mammals)	0.01*		0.01	
	VC 0046	Melons, except watermelon	0.3		0.01	
	FM 0183	Milk fats	0.01*		0.01	
	ML 0107	Milk of cattle, goats and sheep	0.01*		0.01	
		Orange oil	126		28	
	FC 0004	Oranges, Sweet and Sour (includes all commodities in this subgroup)	0.5		0.01	
	FI 0350	Papaya	0.4		0.16	
	FS 0014	Plums (including fresh prunes)	W			
	FP 0009	Pome fruits	W	0.1		
	VR 0589	Potato	W	1		
	PF 0111	Poultry fats	0.01*	0.05		
	PM 0100	Poultry meat	0.01*		0.01	
	PE 0111	Poultry, Edible offal of	0.01*		0.01	
	VD 0541	Soya bean (dry)	0.05		0.01	
	AB 0541	Soya bean hulls	0.2		0.046	
	GS 0659	Sugar cane	0.01*		0	
	SO 0702	Sunflower seed	0.3		0.01	
	VO 0448	Tomato	1.5		0.3	
	JF 0004	Orange juice			0.0044	
	JF 0226	Apple juice			0.0056	
		Apple purée			0.04	
		Grapes young wine			0.0029	
		Peeled tomatoes			0.024	
	JF 0048	Tomato juice			0.051	
	MW 0448	Tomato purée			0.14	
		Canned tomatoes			0.021	
	OR 0541	Soya bean oil, refined			0.005	
	OR 0702	Sunflower seed oil, edible			0.001	
		Maize flour			0.01	
		Maize grits			0.005	
		Maize meal			0.005	
		Maize starch			0.005	
		Sugar cane, sugar			0	
		Roasted coffee beans			0.001	
		Coffee liquor extract			0.001	
		Instant coffee			0.001	

Definition of the residue (for compliance with the MRL and for dietary risk assessment) for plant and animal commodities: *Teflubenzuron*.

The residue is fat soluble.

Pesticide (Codex reference number)	CCN	Commodity	New	Previous	STMR or STMR-P mg/kg	HR or HR-P mg/kg
Tolfenpyrad (269)	TN 0672	Pecan	0.01*		0.01	0.01
ADI: 0–0.006 mg/kg bw	VR 0589	Potato	0.01*		0	0
ARfD: 0.01 mg/kg bw						

Definition of the residue (for compliance with the MRL and for dietary risk assessment) for plant commodities: *Tolfenpyrad*.

Definition of the residue (for compliance with the MRL and dietary risk assessment) for animal commodities: *sum of*

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
tolfenpyrad and free and conjugated PT-CA (4-[4-[(4-chloro-3-ethyl-1- methylpyrazol-5-yl)carbonylaminomethyl] phenoxy]benzoic acid and OH-PT-CA (4-[4-[[4-chloro-3-(1-hydroxyethyl)-1-methylpyrazol-5-yl]carbonylaminomethyl]phenoxy] benzoic acid) (released with alkaline hydrolysis) expressed as tolfenpyrad. *The residue is not fat soluble.*						

ANNEX 2: INDEX OF REPORTS AND EVALUATIONS OF PESTICIDES BY THE JMPR

Numbers in parentheses after the names of pesticides are Codex classification numbers. The abbreviations used are:

T, evaluation of toxicology

R, evaluation of residue and analytical aspects

E, evaluation of effects on the environment

Azinphos-methyl (002)	1965 (T), 1968 (T,R), 1972 (R), 1973 (T), 1974 (R), 1991 (T,R), 1992 (corr. to 1991 report), 1993 (R), 1995 (R), 2007 (T)
Azocyclotin (129)	1979 (R), 1981 (T), 1982 (R), 1983 (R), 1985 (R), 1989 (T,R), 1991 (R), 1994 (T), 2005 (T,R)
Azoxystrobin (229)	2008 (T,R), 2011 (R), 2012 (R), 2013 (R)
Benalaxyl (155)	1986 (R), 1987 (T), 1988 (R), 1992 (R), 1993 (R), 2005 (T), 2009 (R)
Bendiocarb (137)	1982 (T,R), 1984 (T,R), 1989 (R), 1990 (R)
Benomyl (069)	1973 (T,R), 1975 (T,R), 1978 (T,R), 1983 (T,R), 1988 (R), 1990 (R), 1994 (R), 1995 (T,E), 1998 (R)
Bentazone (172)	1991 (T,R), 1992 (corr. to 1991 report, Annex I), 1994 (R), 1995 (R), 1998 (T,R), 1999 (corr. to 1998 report), 2004 (T), 2012 (T), 2013 (R), 2016 (T)
Benzovindiflupyr (261)	2013 (T), 2014 (R), 2016 (R)
BHC (technical-grade)	1965 (T), 1968 (T,R), 1973 (T,R) (see also Lindane)
Bifenazate (219)	2006 (T,R), 2008 (R), 2010 (R)
Bifenthrin (178)	1992 (T,R), 1995 (R), 1996 (R), 1997 (R), 2009 (T), 2010 (R), 2015 (R)
Binapacryl (003)	1969 (T,R), 1974 (R), 1982 (T), 1984 (R), 1985 (T,R)
Bioresmethrin (093)	1975 (R), 1976 (T,R), 1991 (T,R)
Biphenyl	See Diphenyl
Bitertanol (144)	1983 (T), 1984 (R), 1986 (R), 1987 (T), 1988 (R), 1989 (R), 1991 (R), 1998 (T), 1999 (R), 2002 (R)
Bixafen (262)	2013 (T,R), 2016 (R)
Boscalid (221)	2006 (T,R), 2008 (R), 2010 (R)
Bromide ion (047)	1968 (R), 1969 (T,R), 1971 (R), 1979 (R), 1981 (R), 1983 (R), 1988 (T,R), 1989 (R), 1992 (R)
Bromomethane (052)	1965 (T,R), 1966 (T,R), 1967 (R), 1968 (T,R), 1971 (R), 1979 (R), 1985 (R), 1992 (R)
Bromophos (004)	1972 (T,R), 1975 (R), 1977 (T,R), 1982 (R), 1984 (R), 1985 (R)
Bromophos-ethyl (005)	1972 (T,R), 1975 (T,R), 1977 (R)
Bromopropylate (070)	1973 (T,R), 1993 (T,R)
Butocarboxim (139)	1983 (R), 1984 (T), 1985 (T), 1986 (R)
Buprofezin (173)	1991 (T,R), 1995 (R), 1996 (corr. to 1995 report.), 1999 (R), 2008 (T,R), 2009 (R), 2012 (R), 2014 (R), 2016 (R)
sec-Butylamine (089)	1975 (T,R), 1977 (R), 1978 (T,R), 1979 (R), 1980 (R), 1981 (T), 1984 (T,R: withdrawal of temporary ADI, but no evaluation)

Cadusafos (174)	1991 (T,R), 1992 (R), 1992 (R), 2009 (R), 2010 (R)
Campheclor (071)	1968 (T,R), 1973 (T,R)
Captafol (006)	1969 (T,R), 1973 (T,R), 1974 (R), 1976 (R), 1977 (T,R), 1982 (T), 1985 (T,R), 1986 (corr. to 1985 report), 1990 (R), 1999 (ARfD)
Captan (007)	1965 (T), 1969 (T,R), 1973 (T), 1974 (R), 1977 (T,R), 1978 (T,R), 1980 (R), 1982 (T), 1984 (T,R), 1986 (R), 1987 (R and corr. to 1986 R evaluation), 1990 (T,R), 1991 (corr. to 1990 R evaluation), 1994 (R), 1995 (T), 1997 (R), 2000 (R), 2004 (T), 2007 (T)
Carbaryl (008)	1965 (T), 1966 (T,R), 1967 (T,R), 1968 (R), 1969 (T,R), 1970 (R), 1973 (T,R), 1975 (R), 1976 (R), 1977 (R), 1979 (R), 1984 (R), 1996 (T), 2001 (T), 2002 (R), 2007 (R)
Carbendazim (072)	1973 (T,R), 1976 (R), 1977 (T), 1978 (R), 1983 (T,R), 1985 (T,R), 1987 (R), 1988 (R), 1990 (R), 1994 (R), 1995 (T,E), 1998 (T,R), 2003 (R), 2005 (T), 2012 (R)
Carbofuran (096)	1976 (T,R), 1979 (T,R), 1980 (T), 1982 (T), 1991 (R), 1993 (R), 1996 (T), 1997 (R), 1999 (corr. to 1997 report), 2002 (T,R), 2003 (R) (See also carbosulfan), 2004 (R), 2008 (T), 2009 (R)
Carbon disulfide (009)	1965 (T,R), 1967 (R), 1968 (R), 1971 (R), 1985 (R)
Carbon tetrachloride (010)	1965 (T,R), 1967 (R), 1968 (T,R), 1971 (R), 1979 (R), 1985 (R)
Carbophenothion (011)	1972 (T,R), 1976 (T,R), 1977 (T,R), 1979 (T,R), 1980 (T,R), 1983 (R)
Carbosulfan (145)	1984 (T,R), 1986 (T), 1991 (R), 1992 (corr. to 1991 report), 1993 (R), 1997 (R), 1999 (R), 2002 (R), 2003 (T,R), 2004 (R, corr. to 2003 report)
Cartap (097)	1976 (T,R), 1978 (T,R), 1995 (T,R)
Chinomethionat (080)	1968 (T,R) (as oxythioquinox), 1974 (T,R), 1977 (T,R), 1981 (T,R), 1983 (R), 1984 (T,R), 1987 (T)
Chlorantraniliprole (230)	2008 (T,R), 2010 (R), 2013 (R), 2014 (R), 2016 (R)
Chlorbenside	1965 (T)
Chlordane (012)	1965 (T), 1967 (T,R), 1969 (R), 1970 (T,R), 1972 (R), 1974 (R), 1977 (T,R), 1982 (T), 1984 (T,R), 1986 (T)
Chlordimeform (013)	1971 (T,R), 1975 (T,R), 1977 (T), 1978 (T,R), 1979 (T), 1980 (T), 1985 (T), 1986 (R), 1987 (T)
Chlorfenapyr (254)	2013 (T)
Chlorfenson	1965 (T)
Chlorfenvinphos (014)	1971 (T,R), 1984 (R), 1994 (T), 1996 (R)

Chlormequat (015)	1970 (T,R), 1972 (T,R), 1976 (R), 1985 (R), 1994 (T,R), 1997 (T), 1999 (ARfD), 2000 (R)
Chlorobenzilate (016)	1965 (T), 1968 (T,R), 1972 (R), 1975 (R), 1977 (R), 1980 (T)
Chloropicrin	1965 (T,R)
Chloropropylate	1968 (T,R), 1972 (R)
Chlorothalonil (081)	1974 (T,R), 1977 (T,R), 1978 (R), 1979 (T,R), 1981 (T,R), 1983 (T,R), 1984 (corr. to 1983 report and T evaluation), 1985 (T,R), 1987 (T), 1988 (R), 1990 (T,R), 1991 (corr. to 1990 evaluation), 1992 (T), 1993 (R), 1997 (R), 2009 (T), 2010 (R), 2012 (R), 2015 (R)
Chlorpropham (201)	1965 (T), 2000 (T), 2001 (R), 2005 (T), 2008 (R)
Chlorpyrifos (017)	1972 (T,R), 1974 (R), 1975 (R), 1977 (T,R), 1981 (R), 1982 (T,R), 1983 (R), 1989 (R), 1995 (R), 1999 (T), 2000 (R), 2004 (R), 2006 (R)
Chlorpyrifos-methyl (090)	1975 (T,R), 1976 (R, Annex I only), 1979 (R), 1990 (R), 1991 (T,R), 1992 (T and corr. to 1991 report), 1993 (R), 1994 (R), 2001 (T), 2009 (R)
Chlorthion	1965 (T)
Clethodim (187)	1994 (T,R), 1997 (R), 1999 (R), 2002 (R)
Clofentezine (156)	1986 (T,R), 1987 (R), 1989 (R), 1990 (R), 1992 (R), 2005 (T), 2007 (R)
Clothianidin (238)	2010 (T,R), 2011 (R), 2014 (R)
Coumaphos (018)	1968 (T,R), 1972 (R), 1975 (R), 1978 (R), 1980 (T,R), 1983 (R), 1987 (T), 1990 (T,R)
Crufomate (019)	1968 (T,R), 1972 (R)
Cyanophenfos (091)	1975 (T,R), 1978 (T: ADI extended, but no evaluation), 1980 (T), 1982 (R), 1983 (T)
Cyantraniliprole (263)	2013 (T,R), 2015 (R)
Cyazofamid (281)	2015 (T, R)
Cycloxydim (179)	1992 (T,R), 1993 (R), 2009 (T), 2012 (R)
Cyflumetofen (273)	2014 (T,R)
Cyfluthrin (157)	1986 (R), 1987 (T and corr. to 1986 report), 1989 (R), 1990 (R), 1992 (R), 2006 (T), 2007 (R)
Cyhalothrin (146)	1984 (T,R), 1986 (R), 1988 (R), 2007 (T), 2008 (R), 2015 (R)
Cyhexatin (067)	1970 (T,R), 1973 (T,R), 1974 (R), 1975 (R), 1977 (T), 1978 (T,R), 1980 (T), 1981 (T), 1982 (R), 1983 (R), 1985 (R), 1988 (T), 1989 (T), 1991 (T,R), 1992 (R), 1994 (T), 2005 (T,R)
Cypermethrin (118)	1979 (T,R), 1981 (T,R), 1982 (R), 1983 (R), 1984 (R), 1985 (R), 1986 (R), 1987 (corr. to 1986

	evaluation), 1988 (R), 1990 (R), 2006 (T), 2008 (R), 2009 (R), 2011 (R)
Cyproconazole (239)	2010 (T,R), 2013 (R)
Cyprodinil (207)	2003 (T,R), 2004 (corr. to 2003 report), 2013 (R), 2015 (R)
Cyromazine (169)	1990 (T,R), 1991 (corr. to 1990 R evaluation), 1992 (R), 2006 (T), 2007 (R), 2012 (R)
2,4-D (020)	1970 (T,R), 1971 (T,R), 1974 (T,R), 1975 (T,R), 1980 (R), 1985 (R), 1986 (R), 1987 (corr. to 1986 report, Annex I), 1996 (T), 1997 (E), 1998 (R), 2001 (R)
Daminozide (104)	1977 (T,R), 1983 (T), 1989 (T,R), 1991 (T)
DDT (021)	1965 (T), 1966 (T,R), 1967 (T,R), 1968 (T,R), 1969 (T,R), 1978 (R), 1979 (T), 1980 (T), 1983 (T), 1984 (T), 1993 (R), 1994 (R), 1996 (R)
Deltamethrin (135)	1980 (T,R), 1981 (T,R), 1982 (T,R), 1984 (R), 1985 (R), 1986 (R), 1987 (R), 1988 (R), 1990 (R), 1992 (R), 2000 (T), 2002 (R), 2016 (R)
Demeton (092)	1965 (T), 1967 (R), 1975 (R), 1982 (T)
Demeton-S-methyl (073)	1973 (T,R), 1979 (R), 1982 (T), 1984 (T,R), 1989 (T,R), 1992 (R), 1998 (R)
Demeton-S-methylsulfon (164)	1973 (T,R), 1982 (T), 1984 (T,R), 1989 (T,R), 1992 (R)
Dialifos (098)	1976 (T,R), 1982 (T), 1985 (R)
Diazinon (022)	1965 (T), 1966 (T), 1967 (R), 1968 (T,R), 1970 (T,R), 1975 (R), 1979 (R), 1993 (T,R), 1994 (R), 1996 (R), 1999 (R), 2001 (T), 2006 (T,R), 2016 (T)
1,2-Dibromoethane (023)	1965 (T,R), 1966 (T,R), 1967 (R), 1968 (R), 1971 (R), 1979 (R), 1985 (R)
Dicamba (240)	2010 (T,R), 2011 (R), 2012 (R), 2013 (R)
Dichlobenil (274)	2014 (T,R)
Dicloran (083)	2003 (R)
Dichlorfluanid (082)	1969 (T,R), 1974 (T,R), 1977 (T,R), 1979 (T,R), 1981 (R), 1982 (R), 1983 (T,R), 1985 (R)
1,2-Dichloroethane (024)	1965 (T,R), 1967 (R), 1971 (R), 1979 (R), 1985 (R)
Dichlorvos (025)	1965 (T,R), 1966 (T,R), 1967 (T,R), 1969 (R), 1970 (T,R), 1974 (R), 1977 (T), 1993 (T,R), 2011 (T), 2012 (R)
Dicloran (083)	1974 (T,R), 1977 (T,R), 1998 (T,R)
Dicofol (026)	1968 (T,R), 1970 (R), 1974 (R), 1992 (T,R), 1994 (R), 2011 (T), 2012 (R)

Dieldrin (001)	1965 (T), 1966 (T,R), 1967 (T,R), 1968 (R), 1969 (R), 1970 (T,R), 1974 (R), 1975 (R), 1977 (T), 1990 (R), 1992 (R)
Difenoconazole (224)	2007 (T,R), 2010 (R), 2013 (R), 2015 (R)
Diflubenzuron (130)	1981 (T,R), 1983 (R), 1984 (T,R), 1985 (T,R), 1988 (R), 2001 (T), 2002 (R), 2011 (R)
Dimethenamid-P (214)	2005 (T,R)
Dimethipin (151)	1985 (T,R), 1987 (T,R), 1988 (T,R), 1999 (T), 2001 (R), 2004 (T)
Dimethoate (027)	1965 (T), 1966 (T), 1967 (T,R), 1970 (R), 1973 (R in evaluation of formothion), 1977 (R), 1978 (R), 1983 (R) 1984 (T,R), 1986 (R), 1987 (T,R), 1988 (R), 1990 (R), 1991 (corr. to 1990 evaluation), 1994 (R), 1996 (T), 1998 (R), 2003 (T,R), 2004 (corr. to 2003 report), 2006 (R), 2008 (R)
Dimethomorph (225)	2007 (T,R), 2014 (R), 2016 (R)
Dimethrin	1965 (T)
Dinocap (087)	1969 (T,R), 1974 (T,R), 1989 (T,R), 1992 (R), 1998 (R), 1999 (R), 2000 (T), 2001 (R)
Dinotefuran (255)	2012 (T,R)
Dioxathion (028)	1968 (T,R), 1972 (R)
Diphenyl (029)	1966 (T,R), 1967 (T)
Diphenylamine (030)	1969 (T,R), 1976 (T,R), 1979 (R), 1982 (T), 1984 (T,R), 1998 (T), 2001 (R), 2003 (R), 2008 (R)
Diquat (031)	1970 (T,R), 1972 (T,R), 1976 (R), 1977 (T,R), 1978 (R), 1994 (R), 2013 (T,R)
Disulfoton (074)	1973 (T,R), 1975 (T,R), 1979 (R), 1981 (R), 1984 (R), 1991 (T,R), 1992 (corr. to 1991 report, Annex I), 1994 (R), 1996 (T), 1998 (R), 2006 (R)
Dithianon (180)	1992 (T,R), 1995 (R), 1996 (corr. to 1995 report), 2010 (T), 2013 (T,R)
Dithiocarbamates (105)	1965 (T), 1967 (T,R), 1970 (T,R), 1983 (R propineb, thiram), 1984 (R propineb), 1985 (R), 1987 (T thiram), 1988 (R thiram), 1990 (R), 1991 (corr. to 1990 evaluation), 1992 (T thiram), 1993 (T,R), 1995 (R), 1996 (T,R ferbam, ziram; R thiram), 2004 (R), 2012 (R), 2014 (R)
4,6-Dinitro-*ortho*-cresol (DNOC)	1965 (T)
Dodine (084)	1974 (T,R), 1976 (T,R), 1977 (R), 2000 (T), 2003 (R), 2004 (corr. to 2003 report)
Edifenphos (099)	1976 (T,R), 1979 (T,R), 1981 (T,R)
Emamectin benzoate (247)	2011 (T,R), 2014 (R)

Endosulfan (032)	1965 (T), 1967 (T,R), 1968 (T,R), 1971 (R), 1974 (R), 1975 (R), 1982 (T), 1985 (T,R), 1989 (T,R), 1993 (R), 1998 (T), 2006 (R), 2010 (R)
Endrin (033)	1965 (T), 1970 (T,R), 1974 (R), 1975 (R), 1990 (R), 1992 (R)
Esfenvalerate (204)	2002 (T,R)
Ethephon (106)	1977 (T,R), 1978 (T,R), 1983 (R), 1985 (R), 1993 (T), 1994 (R), 1995 (T), 1997 (T), 2002 (T), 2015 (T, R)
Ethiofencarb (107)	1977 (T,R), 1978 (R), 1981 (R), 1982 (T,R), 1983 (R)
Ethion (034)	1968 (T,R), 1969 (R), 1970 (R), 1972 (T,R), 1975 (R), 1982 (T), 1983 (R), 1985 (T), 1986 (T), 1989 (T), 1990 (T), 1994 (R)
Ethoprophos (149)	1983 (T), 1984 (R), 1987 (T), 1999 (T), 2004 (R)
Ethoxyquin (035)	1969 (T,R), 1998 (T), 1999 (R), 2005 (T), 2008 (R)
Ethylene dibromide	See 1,2-Dibromoethane
Ethylene dichloride	See 1,2-Dichloroethane
Ethylene oxide	1965 (T,R), 1968 (T,R), 1971 (R)
Ethylenethiourea (ETU) (108)	1974 (R), 1977 (T,R), 1986 (T,R), 1987 (R), 1988 (T,R), 1990 (R), 1993 (T,R)
Etofenprox (184)	1993 (T,R), 2011 (T,R)
Etoxazole (241)	2010 (T,R), 2011 (R)
Etrimfos (123)	1980 (T,R), 1982 (T,R), 1986 (T,R), 1987 (R), 1988 (R), 1989 (R), 1990 (R)
Famoxadone (208)	2003 (T,R)
Fenamidone (264)	2013 (T), 2014 (T,R)
Fenamiphos (085)	1974 (T,R), 1977 (R), 1978 (R), 1980 (R), 1985 (T), 1987 (T), 1997 (T), 1999 (R), 2002 (T), 2006 (R)
Fenarimol (192)	1995 (T,R,E), 1996 (R and corr. to 1995 report)
Fenbuconazole (197)	1997 (T,R), 2009 (R), 2012 (T), 2013 (R)
Fenbutatin oxide (109)	1977 (T,R), 1979 (R), 1992 (T), 1993 (R)
Fenchlorfos (036)	1968 (T,R), 1972 (R), 1983 (R)
Fenhexamid (215)	2005 (T,R)
Fenitrothion (037)	1969 (T,R), 1974 (T,R), 1976 (R), 1977 (T,R), 1979 (R), 1982 (T), 1983 (R), 1984 (T,R), 1986 (T,R), 1987 (R and corr. to 1986 R evaluation), 1988 (T), 1989 (R), 2000 (T), 2003 (R), 2004 (R, corr. to 2003 report), 2007 (T,R)
Fenpropathrin (185)	1993 (T,R), 2006 (R), 2012 (T), 2014 (R)
Fenpropimorph (188)	1994 (T), 1995 (R), 1999 (R), 2001 (T), 2004 (T), 2016 (T)

Fenpyroximate (193)	1995 (T,R), 1996 (corr. to 1995 report), 1999 (R), 2004 (T), 2007 (T), 2010 (R), 2013 (R)
Fensulfothion (038)	1972 (T,R), 1982 (T), 1983 (R)
Fenthion (039)	1971 (T,R), 1975 (T,R), 1977 (R), 1978 (T,R), 1979 (T), 1980 (T), 1983 (R), 1989 (R), 1995 (T,R,E), 1996 (corr. to 1995 report), 1997 (T), 2000 (R)
Fentin compounds (040)	1965 (T), 1970 (T,R), 1972 (R), 1986 (R), 1991 (T,R), 1993 (R), 1994 (R)
Fenvalerate (119)	1979 (T,R), 1981 (T,R), 1982 (T), 1984 (T,R), 1985 (R), 1986 (T,R), 1987 (R and corr. to 1986 report), 1988 (R), 1990 (R), 1991 (corr. to 1990 R evaluation), 2012 (T,R)
Ferbam	See Dithiocarbamates, 1965 (T), 1967 (T,R), 1996 (T,R)
Fipronil (202)	1997 (T), 2000 (T), 2001 (R), 2016 (R)
Fipronil-desulfinyl	1997 (T)
Flonicamid (282)	2015 (T,R), 2016 (R)
Fluazifop-P-butyl	2016 (T,R)
Flubendiamide (242)	2010 (T,R)
Flucythrinate (152)	1985 (T,R), 1987 (R), 1988 (R), 1989 (R), 1990 (R), 1993 (R)
Fludioxonil (211)	2004 (T,R), 2006 (R), 2010 (R), 2012 (R), 2013 (R)
Fluensulfone (265)	2013 (T), 2014 (T,R), 2016 (T,R)
Flufenoxuron (275)	2014 (T,R)
Flumethrin (195)	1996 (T,R)
Fluopicolide (235)	2009 (T,R), 2014 (R)
Fluopyram (243)	2010 (T,R), 2012 (R), 2014 (R), 2015 (R)
Flupyradifurone (285)	2015 (T), 2016 (R)
Flusilazole (165)	1989 (T,R), 1990 (R), 1991 (R), 1993 (R), 1995 (T), 2007 (T,R)
Flutolanil (205)	2002 (T,R), 2013 (R)
Flutriafol (248)	2011 (T,R), 2015 (R)
Fluxapyroxad (256)	2012 (T,R), 2015 (R)
Folpet (041)	1969 (T,R), 1973 (T), 1974 (R), 1982 (T), 1984 (T,R), 1986 (T), 1987 (R), 1990 (T,R), 1991 (corr. to 1990 R evaluation), 1993 (T,R), 1994 (R), 1995 (T), 1997 (R), 1998 (R), 1999 (R) , 2002 (T), 2004 (T), 2007 (T)
Formothion (042)	1969 (T,R), 1972 (R), 1973 (T,R), 1978 (R), 1998 (R)

Glufosinate-ammonium (175)	1991 (T,R), 1992 (corr. to 1991 report, Annex I), 1994 (R), 1998 (R), 1999 (T,R), 2012 (T,R), 2014 (R)
Glyphosate (158)	1986 (T,R), 1987 (R and corr. to 1986 report), 1988 (R), 1994 (R), 1997 (T,R), 2004 (T), 2005 (R), 2011 (T,R), 2013 (R), 2016 (T)
Guazatine (114)	1978 (T,R), 1980 (R), 1997 (T,R)
Haloxyfop (194)	1995 (T,R), 1996 (R and corr. to 1995 report), 2001 (R), 2006 (T), 2009 (R)
Heptachlor (043)	1965 (T), 1966 (T,R), 1967 (R), 1968 (R), 1969 (R), 1970 (T,R), 1974 (R), 1975 (R), 1977 (R), 1987 (R), 1991 (T,R), 1992 (corr. to 1991 report, Annex I), 1993 (R), 1994 (R)
Hexachlorobenzene (044)	1969 (T,R), 1973 (T,R), 1974 (T,R), 1978 (T), 1985 (R)
Hexaconazole (170)	1990 (T,R), 1991 (R and corr. to 1990 R evaluation), 1993 (R)
Hexythiazox (176)	1991 (T,R), 1994 (R), 1998 (R), 2008 (T), 2009 (R)
Hydrogen cyanide (045)	1965 (T,R)
Hydrogen phosphide (046)	1965 (T,R), 1966 (T,R), 1967 (R), 1969 (R), 1971 (R)
Imazalil (110)	1977 (T,R), 1980 (T,R), 1984 (T,R), 1985 (T,R), 1986 (T), 1988 (R), 1989 (R), 1991 (T), 1994 (R), 2000 (T), 2001 (T), 2005 (T)
Imazamox (276)	2014 (T,R)
Imazapic (266)	2013 (T,R), 2015 (R)
Imazapyr (267)	2013 (T,R), 2015 (R)
Imazethapyr (289)	2016 (T,R)
Imidacloprid (206)	2001 (T), 2002 (R), 2006 (R), 2008 (R), 2012 (R), 2015 (R)
Indoxacarb (216)	2005 (T,R), 2007 (R), 2009 (R), 2012 (R), 2013 (R)
Iprodione (111)	1977 (T,R), 1980 (R), 1992 (T), 1994 (R), 1995 (T), 2001 (R)
Isofenphos (131)	1981 (T,R), 1982 (T,R), 1984 (R), 1985 (R), 1986 (T,R), 1988 (R), 1992 (R)
Isofetamid (290)	2016 (T,R)
Isopyrazam (249)	2011 (T,R)
Isoxaflutole (268)	2013 (T,R)
Kresoxim-methyl (199)	1998 (T,R), 2001 (R)
Lead arsenate	1965 (T), 1968 (T,R)
Leptophos (088)	1974 (T,R), 1975 (T,R), 1978 (T,R)

Lindane (048)	1965 (T), 1966 (T,R), 1967 (R), 1968 (R), 1969 (R), 1970 (T,R, published as Annex VI to 1971 evaluations), 1973 (T,R), 1974 (R), 1975 (R), 1977 (T,R), 1978 (R), 1979 (R), 1989 (T,R), 1997 (T), 2002 (T), 2003 (R), 2004 (corr. to 2003 report), 2015 (R)
Lufenuron (286)	2015 (T, R)
Malathion (049)	1965 (T), 1966 (T,R), 1967 (corr. to 1966 R evaluation), 1968 (R), 1969 (R), 1970 (R), 1973 (R), 1975 (R), 1977 (R), 1984 (R), 1997 (T), 1999 (R), 2000 (R), 2003 (T), 2004 (R), 2005 (R), 2008 (R), 2013 (R), 2016 (T)
Maleic hydrazide (102)	1976 (T,R), 1977 (T,R), 1980 (T), 1984 (T,R), 1996 (T), 1998 (R)
Mancozeb (050)	1967 (T,R), 1970 (T,R), 1974 (R), 1977 (R), 1980 (T,R), 1993 (T,R)
Mandipropamid (231)	2008 (T,R), 2013 (R)
Maneb	See Dithiocarbamates, 1965 (T), 1967 (T,R), 1987 (T), 1993 (T,R)
MCPA (257)	2012 (T,R)
Mecarbam (124)	1980 (T,R), 1983 (T,R), 1985 (T,R), 1986 (T,R), 1987 (R)
Meptyldinocap (244)	2010 (T,R)
Mesotrione (277)	2014 (T,R)
Metaflumizone (236)	2009 (T,R)
Metalaxyl (138)	1982 (T,R), 1984 (R), 1985 (R), 1986 (R), 1987 (R), 1989 (R), 1990 (R), 1992 (R), 1995 (R)
Metalaxyl –M (212)	2002 (T), 2004 (R)
Methacrifos (125)	1980 (T,R), 1982 (T), 1986 (T), 1988 (T), 1990 (T,R), 1992 (R)
Methamidophos (100)	1976 (T,R), 1979 (R), 1981 (R), 1982 (T,R), 1984 (R), 1985 (T), 1989 (R), 1990 (T,R), 1994 (R), 1996 (R), 1997 (R), 2002 (T), 2003 (R), 2004 (R, corr. to 2003 report)
Methidathion (051)	1972 (T,R), 1975 (T,R), 1979 (R), 1992 (T,R), 1994 (R), 1997 (T)
Methiocarb (132)	1981 (T,R), 1983 (T,R), 1984 (T), 1985 (T), 1986 (R), 1987 (T,R), 1988 (R), 1998 (T), 1999 (R), 2005 (R)
Methomyl (094)	1975 (R), 1976 (R), 1977 (R), 1978 (R), 1986 (T,R), 1987 (R), 1988 (R), 1989 (T,R), 1990 (R), 1991 (R), 2001 (T,R), 2004 (R), 2008 (R)
Methoprene (147)	1984 (T,R), 1986 (R), 1987 (T and corr. to 1986 report), 1988 (R), 1989 (R), 2001 (T), 2005 (R), 2016 (R)

Methoxychlor	1965 (T), 1977 (T)
Methoxyfenozide (209)	2003 (T,R), 2004 (corr. to 2003 report), 2006 (R), 2009 (R), 2012 (R)
Methyl bromide (052)	See Bromomethane
Metrafenone (278)	2014 (T,R), 2016 (R)
Metiram (186)	1993 (T), 1995 (R)
Mevinphos (053)	1965 (T), 1972 (T,R), 1996 (T), 1997 (E,R), 2000 (R)
MGK 264	1967 (T,R)
Monocrotophos (054)	1972 (T,R), 1975 (T,R), 1991 (T,R), 1993 (T), 1994 (R)
Myclobutanil (181)	1992 (T,R), 1997 (R), 1998 (R), (2001 (R)), 2014 (T,R)
Nabam	See Dithiocarbamates, 1965 (T), 1976 (T,R)
Nitrofen (140)	1983 (T,R)
Novaluron (217)	2005 (T,R), 2010 (R)
Omethoate (055)	1971 (T,R), 1975 (T,R), 1978 (T,R), 1979 (T), 1981 (T,R), 1984 (R), 1985 (T), 1986 (R), 1987 (R), 1988 (R), 1990 (R), 1998 (R)
Organomercury compounds	1965 (T), 1966 (T,R), 1967 (T,R)
Oxamyl (126)	1980 (T,R), 1983 (R), 1984 (T), 1985 (T,R), 1986 (R), 2002 (T,R)
Oxathiapiprolin (291)	2016 (T,R)
Oxydemeton-methyl (166)	1965 (T, as demeton-*S*-methyl sulfoxide), 1967 (T), 1968 (R), 1973 (T,R), 1982 (T), 1984 (T,R), 1989 (T,R), 1992 (R), 1998 (R), 1999 (corr. to 1992 report), 2002 (T), 2004 (R)
Oxythioquinox	See Chinomethionat
Paclobutrazol (161)	1988 (T,R), 1989 (R)
Paraquat (057)	1970 (T,R), 1972 (T,R), 1976 (T,R), 1978 (R), 1981 (R), 1982 (T), 1985 (T), 1986 (T), 2003 (T), 2004 (R), 2009 (R)
Parathion (058)	1965 (T), 1967 (T,R), 1969 (R), 1970 (R), 1984 (R), 1991 (R), 1995 (T,R), 1997 (R), 2000 (R)
Parathion-methyl (059)	1965 (T), 1968 (T,R), 1972 (R), 1975 (T,R), 1978 (T,R), 1979 (T), 1980 (T), 1982 (T), 1984 (T,R), 1991 (R), 1992 (R), 1994 (R), 1995 (T), 2000 (R), 2003 (R)
Penconazole (182)	1992 (T,R), 1995 (R), 2015 (T), 2016 (R)
Pendimethalin (292)	2016 (T,R)
Penthiopyrad (253)	2011 (T), 2012 (R), 2013 (R)
Permethrin (120)	1979 (T,R), 1980 (R), 1981 (T,R), 1982 (R), 1983 (R), 1984 (R), 1985 (R), 1986 (T,R), 1987 (T),

	1988 (R), 1989 (R), 1991 (R), 1992 (corr. to 1991 report), 1999 (T)
2-Phenylphenol (056)	1969 (T,R), 1975 (R), 1983 (T), 1985 (T,R), 1989 (T), 1990 (T,R), 1999 (T,R), 2002 (R)
Phenothrin (127)	1979 (R), 1980 (T,R), 1982 (T), 1984 (T), 1987 (R), 1988 (T,R)
Phenthoate (128)	1980 (T,R), 1981 (R), 1984 (T)
Phorate (112)	1977 (T,R), 1982 (T), 1983 (T), 1984 (R), 1985 (T), 1990 (R), 1991 (R), 1992 (R), 1993 (T), 1994 (T), 1996 (T), 2004 (T), 2005 (R), 2012 (R), 2014 (R)
Phosalone (060)	1972 (T,R), 1975 (R), 1976 (R), 1993 (T), 1994 (R), 1997 (T), 1999 (R), 2001 (T)
Phosmet (103)	1976 (R), 1977 (corr. to 1976 R evaluation), 1978 (T,R), 1979 (T,R), 1981 (R), 1984 (R), 1985 (R), 1986 (R), 1987 (R and corr. to 1986 R evaluation), 1988 (R), 1994 (T), 1997 (R), 1998 (T), 2002 (R), 2003 (R), 2007 (R)
Phosphine	See Hydrogen phosphide
Phosphamidon (061)	1965 (T), 1966 (T), 1968 (T,R), 1969 (R), 1972 (R), 1974 (R), 1982 (T), 1985 (T), 1986 (T)
Phoxim (141)	1982 (T), 1983 (R), 1984 (T,R), 1986 (R), 1987 (R), 1988 (R)
Picoxystrobin (258)	2012 (T,R), 2013 (R), 2016 (R)
Pinoxaden (293)	2016 (T,R)
Piperonyl butoxide (062)	1965 (T,R), 1966 (T,R), 1967 (R), 1969 (R), 1972 (T,R), 1992 (T,R), 1995 (T), 2001 (R), 2002 (R)
Pirimicarb (101)	1976 (T,R), 1978 (T,R), 1979 (R), 1981 (T,R), 1982 (T), 1985 (R), 2004 (T), 2006 (R)
Pirimiphos-methyl (086)	1974 (T,R), 1976 (T,R), 1977 (R), 1979 (R), 1983 (R), 1985 (R), 1992 (T), 1994 (R), 2003 (R), 2004 (R, corr. to 2003 report), 2006 (T)
Prochloraz (142)	1983 (T,R), 1985 (R), 1987 (R), 1988 (R), 1989 (R), 1990 (R), 1991 (corr. to 1990 report, Annex I, and R evaluation), 1992 (R), 2001 (T), 2004 (R), 2009 (R)
Procymidone(136)	1981 (R), 1982 (T), 1989 (T,R), 1990 (R), 1991 (corr. to 1990 Annex I), 1993 (R), 1998 (R), 2007 (T)
Profenofos (171)	1990 (T,R), 1992 (R), 1994 (R), 1995 (R), 2007 (T), 2008 (R), 2011 (R)
Propamocarb (148)	1984 (T,R), 1986 (T,R), 1987 (R), 2005 (T), 2006 (R), 2014 (R)
Propargite (113)	1977 (T,R), 1978 (R), 1979 (R), 1980 (T,R), 1982 (T,R), 1999 (T), 2002 (R), 2006 (R)
Propham (183)	1965 (T), 1992 (T,R)

Propiconazole (160)	1987 (T,R), 1991 (R), 1994 (R), 2004 (T), 2006 (R), 2007 (R), 2013 (R), 2014 (R), 2015 (R)
Propineb	1977 (T,R), 1980 (T), 1983 (T), 1984 (R), 1985 (T,R), 1993 (T,R), 2004 (R)
Propoxur (075)	1973 (T,R), 1977 (R), 1981 (R), 1983 (R), 1989 (T), 1991 (R), 1996 (R)
Propylene oxide (250)	2011 (T,R)
Propylenethiourea (PTU, 150)	1993 (T,R), 1994 (R), 1999 (T)
Prothioconazole (232)	2008 (T,R), 2009 (R), 2014 (R)
Pymetrozine (279)	2014 (T,R)
Pyraclostrobin (210)	2003 (T), 2004 (R), 2006 (R), 2011 (R), 2012 (R), 2014 (R)
Pyrazophos (153)	1985 (T,R), 1987 (R), 1992 (T,R), 1993 (R)
Pyrethrins (063)	1965 (T), 1966 (T,R), 1967 (R), 1968 (R), 1969 (R), 1970 (T), 1972 (T,R), 1974 (R), 1999 (T), 2000 (R), 2003 (T,R), 2005 (R)
Pyrimethanil (226)	2007 (T,R), 2013 (R)
Pyriproxyfen (200)	1999 (R,T), 2000 (R), 2001 (T)
Quinclorac (287)	2015 (T, R)
Quinoxyfen (223)	2006 (T,R)
Quintozene (064)	1969 (T,R), 1973 (T,R), 1974 (R), 1975 (T,R), 1976 (Annex I, corr. to 1975 R evaluation), 1977 (T,R), 1995 (T,R), 1998 (R)
Saflufenacil (251)	2011 (T,R), 2016 (R)
Sedaxane (259)	2012 (T,R), 2014 (R)
Spices	2004 (R), 2005 (R), 2007 (R), 2010 (R), 2015 (R)
Spinetoram (233)	2008 (T,R), 2012 (R)
Spinosad (203)	2001 (T,R), 2004 (R), 2008 (R), 2011 (R)
Spirodiclofen (237)	2009 (T,R)
Spiromesifen (294)	2016 (T,R)
Spirotetramat (234)	2008 (T,R), 2011 (R), 2012 (R), 2013 (R), 2015 (R)
Sulfoxaflor (252)	2011 (T,R), 2013 (R), 2014 (R), 2016 (R)
Sulfuryl fluoride (218)	2005 (T,R)
2,4,5-T (121)	1970 (T,R), 1979 (T,R), 1981 (T)
Tebuconazole (189)	1994 (T,R), 1996 (corr. to Annex II of 1995 report), 1997 (R), 2008 (R), 2010 (T), 2011 (R), 2015 (R)
Tebufenozide (196)	1996 (T,R), 1997 (R), 1999 (R), 2001 (T,R), 2003 (T)
Tecnazine (115)	1974 (T,R), 1978 (T,R), 1981 (R), 1983 (T), 1987 (R), 1989 (R), 1994 (T,R)

Teflubenzuron (190)	1994 (T), 1996 (R), 2016 (T,R)
Temephos	2006 (T)
Terbufos (167)	1989 (T,R), 1990 (T,R), 2003 (T), 2005 (R)
Thiabendazole (065)	1970 (T,R), 1971 (R), 1972 (R), 1975 (R), 1977 (T,R), 1979 (R), 1981 (R), 1997 (R), 2000 (R), 2006 (T,R)
Thiacloprid (223)	2006 (T,R)
Thiamethoxam (245)	2010 (T,R), 2011 (R), 2012 (R), 2014 (R)
Thiodicarb (154)	1985 (T,R), 1986 (T), 1987 (R), 1988 (R), 2000 (T), 2001 (R)
Thiometon (076)	1969 (T,R), 1973 (T,R), 1976 (R), 1979 (T,R), 1988 (R)
Thiophanate-methyl (077)	1973 (T,R), 1975 (T,R), 1977 (T), 1978 (R), 1988 (R), 2002 (R), 1990 (R), 1994 (R), 1995 (T,E), 1998 (T,R), 2006 (T)
Thiram (105)	See Dithiocarbamates, 1965 (T), 1967 (T,R), 1970 (T,R), 1974 (T), 1977 (T), 1983 (R), 1984 (R), 1985 (T,R), 1987 (T), 1988 (R), 1989 (R), 1992 (T), 1996 (R)
Tolclofos-methyl (191)	1994 (T,R), 1996 (corr. to Annex II of 1995 report)
Tolfenpyrad (269)	2013 (T), 2016 (R)
Tolylfluanid (162)	1988 (T,R), 1990 (R), 1991 (corr. to 1990 report), 2002 (T,R), 2003 (R)
Toxaphene	See Camphechlor
Triadimefon (133)	1979 (R), 1981 (T,R), 1983 (T,R), 1984 (R), 1985 (T,R), 1986 (R), 1987 (R and corr. to 1986 R evaluation), 1988 (R), 1989 (R), 1992 (R), 1995 (R), 2004 (T), 2007 (R)
Triadimenol (168)	1989 (T,R), 1992 (R), 1995 (R), 2004 (T), 2007 (R), 2014 (R)
Triazolylalanine	1989 (T,R)
Triazophos (143)	1982 (T), 1983 (R), 1984 (corr. to 1983 report, Annex I), 1986 (T,R), 1990 (R), 1991 (T and corr. to 1990 R evaluation), 1992 (R), 1993 (T,R), 2002 (T), 2007 (R), 2010 (R), 2013 (R)
Trichlorfon (066)	1971 (T,R), 1975 (T,R), 1978 (T,R), 1987 (R)
Trichloronat	1971 (T,R)
Trichloroethylene	1968 (R)
Tricyclohexyltin hydroxide	See Cyhexatin
Trifloxystrobin (213)	2004 (T,R), 2012 (R), 2015 (R)
Triflumizole (270)	2013 (T,R)
Triforine (116)	1977 (T), 1978 (T,R), 1997 (T), 2004 (R), 2014 (T,R)

Trinexapac-ethyl (271)	2013 (T,R)
Triphenyltin compounds	See Fentin compounds
Vamidothion (078)	1973 (T,R), 1982 (T), 1985 (T,R), 1987 (R), 1988 (T), 1990 (R), 1992 (R)
Vinclozolin (159)	1986 (T,R), 1987 (R and corr. to 1986 report and R evaluation), 1988 (T,R), 1989 (R), 1990 (R), 1992 (R), 1995 (T)
Zineb (105)	See Dithiocarbamates, 1965 (T), 1967 (T,R), 1993 (T)
Ziram (105)	See Dithiocarbamates, 1965 (T), 1967 (T,R), 1996 (T,R)
Zoxamide (227)	2007 (T,R), 2009 (R)

ANNEX 3: INTERNATIONAL ESTIMATED DAILY INTAKES OF PESTICIDE RESIDUES

ACIBENZOLAR-S-METHYL (288) International Estimated Daily Intake (IEDI) ADI=0-0.08 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day	Intake as ug/person/day										
FC 0001	Citrus fruit, raw (incl citrus fruit juice, incl kumquat commodities)	RAC	0.01	34.91	0.35	16.51	0.17	17.23	0.17	104.48	1.04	35.57	0.36	98.49	0.98
FP 0226	Apple, raw (incl juice, incl cider)	RAC	0.01	13.94	0.14	30.81	0.31	15.14	0.15	23.10	0.23	6.86	0.07	55.48	0.55
FS 2001	Peaches, nectarines, apricots, raw (incl dried apricots)	RAC	0.05	8.01	0.40	5.87	0.29	0.18	0.01	8.19	0.41	1.64	0.08	22.46	1.12
FB 2009	Low growing berries, raw (i.e. cranberry and strawberry)	RAC	0.045	0.71	0.03	2.02	0.09	0.10	0.00	1.39	0.06	0.37	0.02	2.53	0.11
FI 0327	Banana, raw (incl plantains) (incl dried)	RAC	0.02	5.06	0.10	6.91	0.14	37.17	0.74	31.16	0.62	40.21	0.80	18.96	0.38
FI 0341	Kiwi fruit, raw	RAC	0.01	0.10	0.00	0.36	0.00	0.10	0.00	1.17	0.01	0.10	0.00	0.69	0.01
VA 0381	Garlic, raw	RAC	0.05	2.29	0.11	5.78	0.29	0.11	0.01	3.69	0.18	1.65	0.08	3.91	0.20
-	Onions, mature bulbs, dry	RAC	0.05	29.36	1.47	37.50	1.88	3.56	0.18	34.78	1.74	18.81	0.94	43.38	2.17
VB 0040	Brassica vegetables, raw: head cabbages, flowerhead brassicas, Brussels sprouts & kohlrabi	RAC	0.315	6.41	2.02	35.79	11.27	0.71	0.22	9.81	3.09	12.07	3.80	16.58	5.22
VC 0045	Fruiting vegetables, cucurbits, raw	RAC	0.175	53.14	9.30	86.21	15.09	6.28	1.10	92.76	16.23	15.64	2.74	155.30	27.18
VO 0448	Tomato, raw (incl juice, incl paste, incl canned)	RAC	0.09	51.75	4.66	81.80	7.36	16.99	1.53	102.02	9.18	26.32	2.37	214.77	19.33
VL 0054	Brassica leafy vegetables, raw	RAC	0.585	1.07	0.63	10.95	6.41	0.22	0.13	1.75	1.02	5.72	3.35	4.02	2.35
VL 0482	Lettuce, head, raw	RAC	0.0825	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0483	Lettuce, leaf, raw	RAC	0.18	0.53	0.10	0.36	0.06	0.16	0.03	6.21	1.12	1.90	0.34	6.05	1.09
VL 0502	Spinach, raw	RAC	0.285	0.74	0.21	0.22	0.06	0.10	0.03	0.91	0.26	0.10	0.03	2.92	0.83
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) -80% as muscle	RAC	0	24.96	0.00	57.95	0.00	16.70	0.00	38.38	0.00	26.46	0.00	29.00	0.00
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) - 20% as fat	RAC	0	6.24	0.00	14.49	0.00	4.18	0.00	9.60	0.00	6.62	0.00	7.25	0.00
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0	3.29	0.00	6.14	0.00	0.82	0.00	1.57	0.00	2.23	0.00	1.07	0.00

ACIBENZOLAR-S-METHYL (288) International Estimated Daily Intake (IEDI) ADI=0-0.08 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day			Intake as ug/person/day								
MO 0105	Edible offal (mammalian), raw	RAC	0	4.79	0.00	9.68	0.00	2.97	0.00	5.49	0.00	3.84	0.00	5.03	0.00
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0	289.65	0.00	485.88	0.00	26.92	0.00	239.03	0.00	199.91	0.00	180.53	0.00
PM 0110	Poultry meat, raw (incl prepared) - 90% as muscle	RAC	0	13.17	0.00	26.78	0.00	7.24	0.00	116.71	0.00	22.54	0.00	32.09	0.00
PM 0110	Poultry meat, raw (incl prepared) - 10% as fat	RAC	0	1.46	0.00	2.98	0.00	0.80	0.00	12.97	0.00	2.50	0.00	3.57	0.00
PF 0111	Poultry fat, raw (incl rendered)	RAC	0	0.10	0.00	0.10	0.00	NC	-	0.10	0.00	0.10	0.00	0.10	0.00
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0	0.12	0.00	0.12	0.00	0.11	0.00	5.37	0.00	0.24	0.00	0.10	0.00
PE 0112	Eggs, raw, (incl dried)	RAC	0	7.84	0.00	23.08	0.00	2.88	0.00	14.89	0.00	9.81	0.00	14.83	0.00
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				19.5		43.4		4.3		35.2		15.0		61.5
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (ug/person)=				4800		4800		4800		4800		4800		4800
	%ADI=				0.4%		0.9%		0.1%		0.7%		0.3%		1.3%
	Rounded %ADI=				0%		1%		0%		1%		0%		1%

ACIBENZOLAR-S-METHYL (288) International Estimated Daily Intake (IEDI) ADI=0-0.08 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day			Intake as ug/person/day								
FC 0001	Citrus fruit, raw (incl citrus fruit juice, incl kumquat commodities)	RAC	0.01	114.42	1.14	62.91	0.63	26.97	0.27	96.72	0.97	96.22	0.96	563.19	5.63
FP 0226	Apple, raw (incl juice, incl cider)	RAC	0.01	61.44	0.61	72.81	0.73	26.84	0.27	45.18	0.45	93.28	0.93	7.78	0.08
FS 2001	Peaches, nectarines, apricots, raw (incl dried apricots)	RAC	0.05	13.03	0.65	16.29	0.81	8.29	0.41	12.95	0.65	5.35	0.27	0.10	0.01
FB 2009	Low growing berries, raw (i.e. cranberry and strawberry)	RAC	0.045	4.55	0.20	5.66	0.25	0.10	0.00	7.85	0.35	5.86	0.26	0.10	0.00
FI 0327	Banana, raw (incl plantains) (incl dried)	RAC	0.02	25.14	0.50	23.37	0.47	23.06	0.46	23.40	0.47	18.44	0.37	39.29	0.79

Annex 3

	ACIBENZOLAR-S-METHYL (288)		International Estimated Daily Intake (IEDI)				ADI=0-0.08 mg/kg bw								
			STMR	Diets as g/person/day			Intake as ug/person/day								
Codex Code	Commodity description	Expras	mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
FI 0341	Kiwi fruit, raw	RAC	0.01	2.46	0.02	3.62	0.04	0.10	0.00	1.48	0.01	7.43	0.07	0.10	0.00
VA 0381	Garlic, raw	RAC	0.05	0.98	0.05	1.49	0.07	12.88	0.64	3.74	0.19	2.05	0.10	1.14	0.06
-	Onions, mature bulbs, dry	RAC	0.05	19.69	0.98	29.83	1.49	24.64	1.23	31.35	1.57	9.72	0.49	12.59	0.63
VB 0040	Brassica vegetables, raw: head cabbages, flowerhead brassicas, Brussels sprouts & kohlrabi	RAC	0.315	20.71	6.52	39.81	12.54	16.70	5.26	28.49	8.97	18.12	5.71	15.03	4.73
VC 0045	Fruiting vegetables, cucurbits, raw	RAC	0.175	27.81	4.87	41.93	7.34	123.30	21.58	49.47	8.66	15.95	2.79	35.99	6.30
VO 0448	Tomato, raw (incl juice, incl paste, incl canned)	RAC	0.09	64.74	5.83	68.31	6.15	36.05	3.24	82.09	7.39	54.50	4.91	11.69	1.05
VL 0054	Brassica leafy vegetables, raw	RAC	0.585	NC	-	NC	-	33.86	19.81	9.44	5.52	NC	-	4.40	2.57
VL 0482	Lettuce, head, raw	RAC	0.0825	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0483	Lettuce, leaf, raw	RAC	0.18	14.50	2.61	11.76	2.12	13.14	2.37	19.50	3.51	4.81	0.87	2.23	0.40
VL 0502	Spinach, raw	RAC	0.285	2.20	0.63	1.76	0.50	13.38	3.81	2.94	0.84	5.53	1.58	0.10	0.03
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) -80% as muscle	RAC	0	112.02	0.00	120.71	0.00	63.46	0.00	88.99	0.00	96.24	0.00	41.02	0.00
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) - 20% as fat	RAC	0	28.01	0.00	30.18	0.00	15.86	0.00	22.25	0.00	24.06	0.00	10.25	0.00
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0	6.44	0.00	15.51	0.00	3.79	0.00	8.29	0.00	18.44	0.00	8.00	0.00
MO 0105	Edible offal (mammalian), raw	RAC	0	15.17	0.00	5.19	0.00	6.30	0.00	6.78	0.00	3.32	0.00	3.17	0.00
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0	388.92	0.00	335.88	0.00	49.15	0.00	331.25	0.00	468.56	0.00	245.45	0.00
PM 0110	Poultry meat, raw (incl prepared) - 90% as muscle	RAC	0	66.38	0.00	48.47	0.00	21.58	0.00	78.41	0.00	48.04	0.00	76.01	0.00
PM 0110	Poultry meat, raw (incl prepared) - 10% as fat	RAC	0	7.38	0.00	5.39	0.00	2.40	0.00	8.71	0.00	5.34	0.00	8.45	0.00
PF 0111	Poultry fat, raw (incl rendered)	RAC	0	0.10	0.00	0.10	0.00	NC	-	0.10	0.00	0.71	0.00	NC	-
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0	0.33	0.00	0.72	0.00	0.27	0.00	0.35	0.00	0.80	0.00	NC	-
PE 0112	Eggs, raw, (incl dried)	RAC	0	25.84	0.00	29.53	0.00	28.05	0.00	33.19	0.00	36.44	0.00	8.89	0.00
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				24.6		33.1		59.4		39.5		19.3		22.3

Annex 3

	ACIBENZOLAR-S-METHYL (288)		International Estimated Daily Intake (IEDI)				ADI=0-0.08 mg/kg bw								
			STMR	Diets as g/person/day			Intake as ug/person/day								
Codex Code	Commodity description	Expras	mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (ug/person)=				4800		4800		4400		4800		4800		4800
	%ADI=				0.5%		0.7%		1.3%		0.8%		0.4%		0.5%
	Rounded %ADI=				1%		1%		1%		1%		0%		0%

	ACIBENZOLAR-S-METHYL (288)		International Estimated Daily Intake (IEDI)				ADI=0-0.08 mg/kg bw						
			STMR	Diets: g/person/day			Intake = daily intake: ug/person						
Codex Code	Commodity description	Expr as	mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
FC 0001	Citrus fruit, raw (incl citrus fruit juice, incl kumquat commodities)	RAC	0.01	21.16	0.21	2.94	0.03	58.52	0.59	0.44	0.00	5.13	0.05
FP 0226	Apple, raw (incl juice, incl cider)	RAC	0.01	66.71	0.67	2.19	0.02	65.63	0.66	188.34	1.88	1.38	0.01
FS 2001	Peaches, nectarines, apricots, raw (incl dried apricots)	RAC	0.05	0.10	0.01	0.10	0.01	10.76	0.54	0.10	0.01	NC	-
FB 2009	Low growing berries, raw (i.e. cranberry and strawberry)	RAC	0.045	0.10	0.00	0.10	0.00	3.37	0.15	0.10	0.00	0.10	0.00
FI 0327	Banana, raw (incl plantains) (incl dried)	RAC	0.02	20.88	0.42	81.15	1.62	24.58	0.49	37.92	0.76	310.23	6.20
FI 0341	Kiwi fruit, raw	RAC	0.01	0.10	0.00	0.10	0.00	2.00	0.02	0.10	0.00	NC	-
VA 0381	Garlic, raw	RAC	0.05	0.82	0.04	2.06	0.10	3.79	0.19	0.10	0.01	0.29	0.01
-	Onions, mature bulbs, dry	RAC	0.05	9.01	0.45	20.24	1.01	30.90	1.55	9.61	0.48	2.11	0.11
VB 0040	Brassica vegetables, raw: head cabbages, flowerhead brassicas, Brussels sprouts & kohlrabi	RAC	0.315	4.84	1.52	3.79	1.19	58.72	18.50	0.10	0.03	NC	-
VC 0045	Fruiting vegetables, cucurbits, raw	RAC	0.175	5.96	1.04	9.74	1.70	51.82	9.07	13.61	2.38	0.10	0.02
VO 0448	Tomato, raw (incl juice, incl paste, incl canned)	RAC	0.09	15.50	1.40	5.78	0.52	71.52	6.44	2.00	0.18	12.50	1.13
VL 0054	Brassica leafy vegetables, raw	RAC	0.585	1.50	0.88	1.17	0.68	NC	-	0.10	0.06	NC	-
VL 0482	Lettuce, head, raw	RAC	0.0825	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0483	Lettuce, leaf, raw	RAC	0.18	0.29	0.05	0.10	0.02	6.71	1.21	0.10	0.02	NC	-
VL 0502	Spinach, raw	RAC	0.285	0.17	0.05	0.10	0.03	0.81	0.23	0.10	0.03	NC	-
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) -80% as muscle	RAC	0	23.34	0.00	40.71	0.00	97.15	0.00	18.06	0.00	57.71	0.00
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) - 20% as fat	RAC	0	5.84	0.00	10.18	0.00	24.29	0.00	4.52	0.00	14.43	0.00
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0	1.05	0.00	1.14	0.00	18.69	0.00	0.94	0.00	3.12	0.00
MO 0105	Edible offal (mammalian), raw	RAC	0	4.64	0.00	1.97	0.00	10.01	0.00	3.27	0.00	3.98	0.00

	ACIBENZOLAR-S-METHYL (288)		International Estimated Daily Intake (IEDI)				ADI=0-0.08 mg/kg bw						
			STMR	Diets: g/person/day			Intake = daily intake: ug/person						
Codex Code	Commodity description	Expr as	mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0	108.75	0.00	70.31	0.00	436.11	0.00	61.55	0.00	79.09	0.00
PM 0110	Poultry meat, raw (incl prepared) - 90% as muscle	RAC	0	3.53	0.00	10.83	0.00	51.36	0.00	4.53	0.00	50.00	0.00
PM 0110	Poultry meat, raw (incl prepared) - 10% as fat	RAC	0	0.39	0.00	1.20	0.00	5.71	0.00	0.50	0.00	5.56	0.00
PF 0111	Poultry fat, raw (incl rendered)	RAC	0	NC	-	NC	-	0.32	0.00	NC	-	NC	-
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0	0.10	0.00	0.70	0.00	0.97	0.00	0.10	0.00	NC	-
PE 0112	Eggs, raw, (incl dried)	RAC	0	3.84	0.00	4.41	0.00	27.25	0.00	1.13	0.00	7.39	0.00
-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				6.7		6.9		39.6		5.8		7.5
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (ug/person)=				4800		4800		4800		4800		4800
	%ADI=				0.1%		0.1%		0.8%		0.1%		0.2%
	Rounded %ADI=				0%		0%		1%		0%		0%

BENZOVINDIFLUPYR (261) International Estimated Daily Intake (IEDI) ADI = 0-0.05 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day	Intake as ug/person/day										
002	**POME FRUIT**	-	0.058	-	-	-	-	-	-	-	-	-	-	-	-
FP 0226	Apple, raw (incl cider, excl juice)	RAC	0.058	13.49	0.78	26.63	1.54	15.05	0.87	16.28	0.94	6.47	0.38	47.88	2.78
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.003	0.32	0.00	3.07	0.01	0.10	0.00	5.00	0.02	0.29	0.00	5.57	0.02
FP 0230	Pear, raw	RAC	0.058	2.16	0.13	6.24	0.36	0.10	0.01	4.07	0.24	1.16	0.07	5.34	0.31
004D	**Small fruit vine climbing**	-	0.29	-	-	-	-	-	-	-	-	-	-	-	-
FB 0269	Grape, raw	RAC	0.29	12.68	3.68	9.12	2.64	0.10	0.03	16.88	4.90	3.70	1.07	54.42	15.78
-	Grape must	PP	0.38	0.33	0.13	0.13	0.05	0.10	0.04	0.10	0.04	0.10	0.04	0.10	0.04
DF 0269	Grape, dried (= currants, raisins and sultanas)	PP	0.7	0.51	0.36	0.51	0.36	0.10	0.07	1.27	0.89	0.12	0.08	2.07	1.45
JF 0269	Grape juice	PP	0.022	0.14	0.00	0.29	0.01	0.10	0.00	0.30	0.01	0.24	0.01	0.10	0.00
-	Grape wine (incl vermouths)	PP	0.023	0.67	0.02	12.53	0.29	2.01	0.05	1.21	0.03	3.53	0.08	4.01	0.09
VC 0046	Melons, raw (excl watermelons)	RAC	0.023	8.90	0.20	8.64	0.20	0.80	0.02	17.90	0.41	2.80	0.06	29.17	0.67
VC 0424	Cucumber, raw	RAC	0.023	8.01	0.18	30.66	0.71	1.45	0.03	19.84	0.46	0.27	0.01	34.92	0.80
VC 0431	Squash, summer, raw (= courgette, zuchini)	RAC	0.023	0.78	0.02	2.06	0.05	0.30	0.01	1.61	0.04	2.25	0.05	2.36	0.05
VO 0050	Fruiting vegetables other than cucurbits, raw, (incl processed commodities), excl tomato commodities, excl sweet corn commodities, excl mushroom commodities	RAC	0.089	18.97	1.69	21.73	1.93	20.61	1.83	27.35	2.43	35.54	3.16	50.62	4.51
-	Peppers, chili, dried	PP	0.89	0.42	0.37	0.53	0.47	0.84	0.75	0.50	0.45	0.95	0.85	0.37	0.33
VO 0445	Peppers, sweet, raw (incl dried)	RAC	0.089	4.49	0.40	6.44	0.57	7.21	0.64	5.68	0.51	9.52	0.85	8.92	0.79
VO 0447	Sweet corn on the cob, raw (i.e kernels plus cob without husks)	RAC	0.01	0.10	0.00	0.10	0.00	5.67	0.06	0.10	0.00	1.77	0.02	NC	-
VO 0448	Tomato, raw (incl paste, excl juice, excl canned)	RAC	0.089	51.07	4.55	80.96	7.21	16.96	1.51	99.83	8.88	26.09	2.32	212.26	18.89
-	Tomato, canned (& peeled)	PP	0.01	0.20	0.00	0.31	0.00	0.10	0.00	1.11	0.01	0.11	0.00	1.50	0.02
JF 0448	Tomato, juice (single strength, incl concentrated)	PP	0.01	0.29	0.00	0.29	0.00	0.10	0.00	0.38	0.00	0.10	0.00	0.14	0.00
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.011	2.39	0.03	1.61	0.02	10.47	0.12	1.84	0.02	12.90	0.14	7.44	0.08
VD 0072	Peas, dry, raw (Pisum spp, Vigna spp): garden peas & field peas & cow peas	RAC	0.014	1.67	0.02	3.22	0.05	2.66	0.04	1.51	0.02	2.91	0.04	0.24	0.00
VD 0541	Soya bean, dry, raw (Glycine soja)	RAC	0.01	0.58	0.01	0.10	0.00	0.37	0.00	0.10	0.00	1.65	0.02	0.30	0.00

BENZOVINDIFLUPYR (261) International Estimated Daily Intake (IEDI) ADI = 0-0.05 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day		Intake as ug/person/day									
-	Soya paste (i.e. miso)	PP	0.0013	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Soya curd (i.e. tofu)	PP	0.0033	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
OR 0541	Soya oil, refined	PP	0.0064	12.99	0.08	10.43	0.07	3.63	0.02	13.10	0.08	10.70	0.07	13.10	0.08
-	Soya sauce	PP	0.0023	0.10	0.00	0.10	0.00	0.10	0.00	0.34	0.00	0.10	0.00	0.10	0.00
-	Soya flour	PP	0.0024	0.10	0.00	0.86	0.00	0.10	0.00	1.02	0.00	0.10	0.00	0.15	0.00
VR 0589	Potato, raw (incl flour, incl frozen, incl tapioca, excl starch)	RAC	0.01	59.60	0.60	316.10	3.16	9.77	0.10	59.59	0.60	54.12	0.54	119.82	1.20
-	Potato, starch	PP	0.01	0.10	0.00	0.10	0.00	0.10	0.00	0.15	0.00	0.10	0.00	0.10	0.00
GC 0640	Barley, raw	RAC	0.175	2.49	0.44	NC	-	0.10	0.02	0.10	0.02	0.18	0.03	0.38	0.07
-	Barley, pot&pearled	PP	0.083	7.12	0.59	7.34	0.61	0.10	0.01	0.10	0.01	0.67	0.06	0.20	0.02
-	Barley, flour (white flour and wholemeal flour)	PP	0.072	2.93	0.21	0.30	0.02	0.10	0.01	0.10	0.01	0.48	0.03	0.10	0.01
GC 0647	Oats, raw	RAC	0.18	0.10	0.02	NC	-	0.10	0.02	0.45	0.08	0.10	0.02	0.10	0.02
GC 0650	Rye, raw	RAC	0.023	NC	-	NC	-	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00
GC 0653	Triticale, raw	RAC	0.023	NC	-	NC	-	NC	-	0.10	0.00	NC	-	NC	-
GC 0654	Wheat, raw (incl meslin)	RAC	0.023	0.10	0.00	1.12	0.03	NC	-	0.10	0.00	0.56	0.01	NC	-
CF 1210	Wheat, germ	PP	0.017	NC	-	NC	-	0.10	0.00	0.10	0.00	0.14	0.00	0.10	0.00
CF 0654	Wheat, bran	PP	0.053	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1212	Wheat, wholemeal flour	PP	0.008	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CP 1212	Wheat, wholemeal bread	PP	0.012	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00
-	Wheat, gluten	PP	0.011	0.10	0.00	0.10	0.00	0.10	0.00	0.27	0.00	0.10	0.00	0.10	0.00
GS 0659	Sugar cane, raw	RAC	0.02	38.16	0.76	NC	-	12.58	0.25	0.34	0.01	17.79	0.36	42.78	0.86
-	Sugar cane, molasses	PP	0.007	NC	-	NC	-	NC	-	NC	-	0.10	0.00	NC	-
-	Sugar cane, sugar (incl non-centrifugal sugar, incl refined sugar and maltose)	PP	0.005	61.52	0.31	86.27	0.43	18.80	0.09	80.02	0.40	66.39	0.33	56.32	0.28
SO 0495	Rape seed, raw	RAC	0.023	0.10	0.00	NC	-	NC	-	0.10	0.00	0.75	0.02	0.10	0.00
OR 0495	Rape seed oil, edible	PP	0.023	0.35	0.01	0.44	0.01	0.19	0.00	0.97	0.02	3.28	0.08	0.77	0.02
SO 0697	Peanuts, nutmeat, raw	RAC	0.01	0.40	0.00	1.01	0.01	6.60	0.07	1.47	0.01	1.17	0.01	1.82	0.02
-	Peanuts, roasted	PP	0.01	0.10	0.00	0.19	0.00	0.10	0.00	1.05	0.01	0.10	0.00	0.10	0.00
OR 0697	Peanut oil, edible	PP	0.016	0.36	0.01	0.10	0.00	2.57	0.04	0.10	0.00	2.29	0.04	0.36	0.01
-	Peanut butter	PP	0.01	0.10	0.00	0.10	0.00	0.10	0.00	0.19	0.00	0.10	0.00	0.10	0.00
SB 0716	Coffee beans, raw (i.e. green coffee)	RAC	0.015	0.96	0.01	0.16	0.00	0.91	0.01	0.27	0.00	1.37	0.02	0.46	0.01
SM 0716	Coffee beans, roasted	PP	0.01	0.19	0.00	0.91	0.01	0.16	0.00	2.50	0.03	0.39	0.00	0.40	0.00
-	Coffee beans, instant coffee (incl essences	PP	0.01	0.10	0.00	0.94	0.01	0.10	0.00	0.70	0.01	0.10	0.00	0.29	0.00

BENZOVINDIFLUPYR (261) International Estimated Daily Intake (IEDI) ADI = 0-0.05 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day			Intake as ug/person/day								
	and concentrates)														
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat)	RAC	0.01	31.20	0.31	72.44	0.72	20.88	0.21	47.98	0.48	33.08	0.33	36.25	0.36
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.01	3.29	0.03	6.14	0.06	0.82	0.01	1.57	0.02	2.23	0.02	1.07	0.01
MO 0105	Edible offal (mammalian), raw	RAC	0.014	4.79	0.07	9.68	0.14	2.97	0.04	5.49	0.08	3.84	0.05	5.03	0.07
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.01	289.65	2.90	485.88	4.86	26.92	0.27	239.03	2.39	199.91	2.00	180.53	1.81
PM 0110	Poultry meat, raw (incl prepared)	RAC	0	14.63	0.00	29.76	0.00	8.04	0.00	129.68	0.00	25.04	0.00	35.66	0.00
PF 0111	Poultry fat, raw (incl rendered)	RAC	0	0.10	0.00	0.10	0.00	NC	-	0.10	0.00	0.10	0.00	0.10	0.00
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0	0.12	0.00	0.12	0.00	0.11	0.00	5.37	0.00	0.24	0.00	0.10	0.00
PE 0112	Eggs, raw, (incl dried)	RAC	0	7.84	0.00	23.08	0.00	2.88	0.00	14.89	0.00	9.81	0.00	14.83	0.00
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				18.9		26.6		7.3		24.6		13.3		51.5
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (ug/person)=				3000		3000		3000		3000		3000		3000
	%ADI=				0.6%		0.9%		0.2%		0.8%		0.4%		1.7%
	Rounded %ADI=				1%		1%		0%		1%		0%		2%

BENZOVINDIFLUPYR (261) International Estimated Daily Intake (IEDI) ADI = 0-0.05 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day			Intake as ug/person/day								
002	**POME FRUIT**	-	0.058	-	-	-	-	-	-	-	-	-	-	-	-
FP 0226	Apple, raw (incl cider, excl juice)	RAC	0.058	41.14	2.39	56.49	3.28	26.64	1.55	31.58	1.83	51.94	3.01	3.05	0.18
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.003	14.88	0.04	11.98	0.04	0.15	0.00	9.98	0.03	30.32	0.09	3.47	0.01
FP 0230	Pear, raw	RAC	0.058	8.79	0.51	8.44	0.49	12.37	0.72	9.60	0.56	10.27	0.60	0.23	0.01
004D	**Small fruit vine climbing**	-	0.29	-	-	-	-	-	-	-	-	-	-	-	-

BENZOVINDIFLUPYR (261) International Estimated Daily Intake (IEDI) ADI = 0-0.05 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day	Intake as ug/person/day										
FB 0269	Grape, raw	RAC	0.29	6.33	1.84	11.22	3.25	5.21	1.51	9.38	2.72	4.55	1.32	0.78	0.23
-	Grape must	PP	0.38	0.16	0.06	0.10	0.04	0.10	0.04	0.12	0.05	0.11	0.04	NC	-
DF 0269	Grape, dried (= currants, raisins and sultanas)	PP	0.7	3.09	2.16	1.51	1.06	0.10	0.07	1.38	0.97	4.26	2.98	0.42	0.29
JF 0269	Grape juice	PP	0.022	0.56	0.01	1.96	0.04	0.10	0.00	2.24	0.05	2.27	0.05	0.34	0.01
-	Grape wine (incl vermouths)	PP	0.023	88.93	2.05	62.41	1.44	1.84	0.04	25.07	0.58	61.17	1.41	5.84	0.13
VC 0046	Melons, raw (excl watermelons)	RAC	0.023	9.20	0.21	11.95	0.27	14.63	0.34	8.99	0.21	7.86	0.18	2.46	0.06
VC 0424	Cucumber, raw	RAC	0.023	6.72	0.15	11.03	0.25	32.10	0.74	15.10	0.35	4.05	0.09	9.57	0.22
VC 0431	Squash, summer, raw (= courgette, zuchini)	RAC	0.023	NC	-	NC	-	5.48	0.13	NC	-	NC	-	1.03	0.02
VO 0050	Fruiting vegetables other than cucurbits, raw, (incl processed commodities), excl tomato commodities, excl sweet corn commodities, excl mushroom commodities	RAC	0.089	8.19	0.73	18.68	1.66	42.99	3.83	15.04	1.34	11.46	1.02	6.30	0.56
-	Peppers, chili, dried	PP	0.89	0.11	0.10	0.21	0.19	0.36	0.32	0.21	0.19	0.25	0.22	0.15	0.13
VO 0445	Peppers, sweet, raw (incl dried)	RAC	0.089	0.82	0.07	1.53	0.14	10.85	0.97	4.59	0.41	1.84	0.16	2.00	0.18
VO 0447	Sweet corn on the cob, raw (i.e kernels plus cob without husks)	RAC	0.01	4.94	0.05	0.30	0.00	0.58	0.01	5.33	0.05	0.10	0.00	NC	-
VO 0448	Tomato, raw (incl paste, excl juice, excl canned)	RAC	0.089	51.98	4.63	64.09	5.70	35.52	3.16	79.82	7.10	42.65	3.80	10.96	0.98
-	Tomato, canned (& peeled)	PP	0.01	7.57	0.08	2.66	0.03	0.30	0.00	0.97	0.01	7.31	0.07	0.41	0.00
JF 0448	Tomato, juice (single strength, incl concentrated)	PP	0.01	0.80	0.01	0.10	0.00	0.10	0.00	0.61	0.01	0.40	0.00	0.10	0.00
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.011	1.51	0.02	1.50	0.02	1.90	0.02	5.11	0.06	1.36	0.01	23.43	0.26
VD 0072	Peas, dry, raw (Pisum spp, Vigna spp): garden peas & field peas & cow peas	RAC	0.014	3.80	0.05	1.25	0.02	1.06	0.01	2.33	0.03	2.70	0.04	3.83	0.05
VD 0541	Soya bean, dry, raw (Glycine soja)	RAC	0.01	0.10	0.00	0.33	0.00	6.64	0.07	3.94	0.04	NC	-	5.78	0.06
-	Soya paste (i.e. miso)	PP	0.0013	NC	-	NC	-	NC	-	1.87	0.00	NC	-	NC	-
-	Soya curd (i.e. tofu)	PP	0.0033	NC	-	NC	-	0.68	0.00	0.87	0.00	NC	-	NC	-
OR 0541	Soya oil, refined	PP	0.0064	19.06	0.12	21.06	0.13	5.94	0.04	33.78	0.22	40.05	0.26	13.39	0.09
-	Soya sauce	PP	0.0023	0.45	0.00	0.29	0.00	2.93	0.01	4.35	0.01	0.10	0.00	0.70	0.00
-	Soya flour	PP	0.0024	0.22	0.00	0.27	0.00	0.29	0.00	0.17	0.00	NC	-	NC	-
VR 0589	Potato, raw (incl flour, incl frozen, incl tapioca, excl starch)	RAC	0.01	225.03	2.25	226.35	2.26	71.26	0.71	173.36	1.73	234.55	2.35	37.71	0.38
-	Potato, starch	PP	0.01	NC	-	1.74	0.02	0.10	0.00	0.92	0.01	NC	-	NC	-
GC 0640	Barley, raw	RAC	0.175	0.10	0.02	NC	-	0.10	0.02	1.36	0.24	NC	-	NC	-

Annex 3

BENZOVINDIFLUPYR (261) International Estimated Daily Intake (IEDI) ADI = 0-0.05 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day	Intake as ug/person/day										
				G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
-	Barley, pot&pearled	PP	0.083	0.57	0.05	2.56	0.21	0.33	0.03	0.56	0.05	0.36	0.03	NC	-
-	Barley, flour (white flour and wholemeal flour)	PP	0.072	0.10	0.01	0.10	0.01	0.10	0.01	0.10	0.01	0.68	0.05	0.10	0.01
GC 0647	Oats, raw	RAC	0.18	NC	-	NC	-	0.10	0.02	0.10	0.02	NC	-	0.23	0.04
GC 0650	Rye, raw	RAC	0.023	0.10	0.00	NC	-	0.10	0.00	0.10	0.00	NC	-	NC	-
GC 0653	Triticale, raw	RAC	0.023	NC	-	NC	-	0.10	0.00	0.10	0.00	NC	-	NC	-
GC 0654	Wheat, raw (incl meslin)	RAC	0.023	NC	-	NC	-	NC	-	0.10	0.00	NC	-	NC	-
CF 1210	Wheat, germ	PP	0.017	0.97	0.02	0.10	0.00	0.10	0.00	0.10	0.00	NC	-	0.10	0.00
CF 0654	Wheat, bran	PP	0.053	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1212	Wheat, wholemeal flour	PP	0.008	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CP 1212	Wheat, wholemeal bread	PP	0.012	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00
-	Wheat, gluten	PP	0.011	0.68	0.01	NC	-	0.10	0.00	0.10	0.00	NC	-	NC	-
GS 0659	Sugar cane, raw	RAC	0.02	NC	-	NC	-	4.27	0.09	0.10	0.00	NC	-	3.24	0.06
-	Sugar cane, molasses	PP	0.007	NC	-	NC	-	0.10	0.00	NC	-	NC	-	NC	-
-	Sugar cane, sugar (incl non-centrifugal sugar, incl refined sugar and maltose)	PP	0.005	92.24	0.46	95.72	0.48	24.12	0.12	77.39	0.39	117.73	0.59	100.67	0.50
SO 0495	Rape seed, raw	RAC	0.023	NC	-	NC	-	0.10	0.00	NC	-	NC	-	NC	-
OR 0495	Rape seed oil, edible	PP	0.023	12.52	0.29	7.63	0.18	3.00	0.07	6.01	0.14	NC	-	NC	-
SO 0697	Peanuts, nutmeat, raw	RAC	0.01	2.39	0.02	2.05	0.02	5.25	0.05	4.39	0.04	1.30	0.01	0.62	0.01
-	Peanuts, roasted	PP	0.01	0.80	0.01	0.14	0.00	0.11	0.00	0.43	0.00	0.10	0.00	0.45	0.00
OR 0697	Peanut oil, edible	PP	0.016	1.02	0.02	0.23	0.00	1.81	0.03	0.42	0.01	5.23	0.08	0.10	0.00
-	Peanut butter	PP	0.01	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.15	0.00	0.75	0.01
SB 0716	Coffee beans, raw (i.e. green coffee)	RAC	0.015	0.60	0.01	NC	-	0.62	0.01	1.71	0.03	NC	-	3.51	0.05
SM 0716	Coffee beans, roasted	PP	0.01	7.02	0.07	9.75	0.10	0.10	0.00	5.09	0.05	13.38	0.13	0.77	0.01
-	Coffee beans, instant coffee (incl essences and concentrates)	PP	0.01	0.75	0.01	0.30	0.00	0.10	0.00	0.67	0.01	2.43	0.02	1.43	0.01
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat)	RAC	0.01	140.03	1.40	150.89	1.51	79.32	0.79	111.24	1.11	120.30	1.20	51.27	0.51
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.01	6.44	0.06	15.51	0.16	3.79	0.04	8.29	0.08	18.44	0.18	8.00	0.08
MO 0105	Edible offal (mammalian), raw	RAC	0.014	15.17	0.21	5.19	0.07	6.30	0.09	6.78	0.09	3.32	0.05	3.17	0.04
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.01	388.92	3.89	335.88	3.36	49.15	0.49	331.25	3.31	468.56	4.69	245.45	2.45
PM 0110	Poultry meat, raw (incl prepared)	RAC	0	73.76	0.00	53.86	0.00	23.98	0.00	87.12	0.00	53.38	0.00	84.45	0.00

Annex 3

BENZOVINDIFLUPYR (261) International Estimated Daily Intake (IEDI) ADI = 0-0.05 mg/kg bw

			STMR	Diets as g/person/day		Intake as ug/person/day									
Codex Code	Commodity description	Expr as	mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
PF 0111	Poultry fat, raw (incl rendered)	RAC	0	0.10	0.00	0.10	0.00	NC	-	0.10	0.00	0.71	0.00	NC	-
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0	0.33	0.00	0.72	0.00	0.27	0.00	0.35	0.00	0.80	0.00	NC	-
PE 0112	Eggs, raw, (incl dried)	RAC	0	25.84	0.00	29.53	0.00	28.05	0.00	33.19	0.00	36.44	0.00	8.89	0.00
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				24.1		26.4		16.1		24.1		24.8		7.7
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (ug/person)=				3000		3000		2750		3000		3000		3000
	%ADI=				0.8%		0.9%		0.6%		0.8%		0.8%		0.3%
	Rounded %ADI=				1%		1%		1%		1%		1%		0%

BENZOVINDIFLUPYR (261) International Estimated Daily Intake (IEDI) ADI = 0-0.05 mg/kg bw

			STMR	Diets: g/person/day		Intake = daily intake: ug/person							
Codex Code	Commodity description	Expr as	mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
002	POME FRUIT	-	0.058	-	-	-	-	-	-	-	-	-	-
FP 0226	Apple, raw (incl cider, excl juice)	RAC	0.058	66.67	3.87	2.06	0.12	55.83	3.24	188.29	10.92	1.38	0.08
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.003	0.10	0.00	0.10	0.00	7.19	0.02	0.10	0.00	NC	-
FP 0230	Pear, raw	RAC	0.058	0.10	0.01	0.14	0.01	9.45	0.55	0.10	0.01	0.14	0.01
004D	Small fruit vine climbing	-	0.29	-	-	-	-	-	-	-	-	-	-
FB 0269	Grape, raw	RAC	0.29	0.14	0.04	0.36	0.10	15.22	4.41	0.10	0.03	0.10	0.03
-	Grape must	PP	0.38	0.10	0.04	0.10	0.04	0.11	0.04	0.10	0.04	0.19	0.07
DF 0269	Grape, dried (= currants, raisins and sultanas)	PP	0.7	0.10	0.07	0.13	0.09	1.06	0.74	0.10	0.07	0.10	0.07
JF 0269	Grape juice	PP	0.022	0.10	0.00	0.10	0.00	0.41	0.01	0.10	0.00	NC	-
-	Grape wine (incl vermouths)	PP	0.023	0.31	0.01	0.23	0.01	60.43	1.39	0.52	0.01	31.91	0.73
VC 0046	Melons, raw (excl watermelons)	RAC	0.023	0.19	0.00	0.10	0.00	4.98	0.11	0.10	0.00	NC	-
VC 0424	Cucumber, raw	RAC	0.023	0.68	0.02	1.81	0.04	10.40	0.24	0.10	0.00	0.10	0.00
VC 0431	Squash, summer, raw (= courgette, zuchini)	RAC	0.023	0.10	0.00	1.01	0.02	NC	-	1.91	0.04	NC	-
VO 0050	Fruiting vegetables other than cucurbits, raw,	RAC	0.089	20.58	1.83	31.41	2.80	37.56	3.34	1.79	0.16	NC	-

Annex 3

BENZOVINDIFLUPYR (261) International Estimated Daily Intake (IEDI) ADI = 0-0.05 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day G13 diet	Intake = daily intake: ug/person G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
	(incl processed commodities), excl tomato commodities, excl sweet corn commodities, excl mushroom commodities												
-	Peppers, chili, dried	PP	0.89	0.58	0.52	1.27	1.13	1.21	1.08	0.12	0.11	NC	-
VO 0445	Peppers, sweet, raw (incl dried)	RAC	0.089	5.49	0.49	10.57	0.94	8.84	0.79	0.91	0.08	NC	-
VO 0447	Sweet corn on the cob, raw (i.e kernels plus cob without husks)	RAC	0.01	3.61	0.04	20.45	0.20	6.00	0.06	0.10	0.00	0.17	0.00
VO 0448	Tomato, raw (incl paste, excl juice, excl canned)	RAC	0.089	15.33	1.36	5.65	0.50	67.23	5.98	1.88	0.17	12.48	1.11
-	Tomato, canned (& peeled)	PP	0.01	0.10	0.00	0.10	0.00	2.42	0.02	0.10	0.00	NC	-
JF 0448	Tomato, juice (single strength, incl concentrated)	PP	0.01	0.10	0.00	0.10	0.00	0.42	0.00	0.10	0.00	0.10	0.00
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.011	7.11	0.08	2.33	0.03	3.76	0.04	44.70	0.49	3.27	0.04
VD 0072	Peas, dry, raw (Pisum spp, Vigna spp): garden peas & field peas & cow peas	RAC	0.014	14.30	0.20	3.51	0.05	3.52	0.05	7.89	0.11	0.74	0.01
VD 0541	Soya bean, dry, raw (Glycine soja)	RAC	0.01	2.76	0.03	0.10	0.00	0.33	0.00	3.16	0.03	NC	-
-	Soya paste (i.e. miso)	PP	0.0013	NC	-	NC	-	NC	-	NC	-	NC	-
-	Soya curd (i.e. tofu)	PP	0.0033	NC	-	NC	-	NC	-	NC	-	NC	-
OR 0541	Soya oil, refined	PP	0.0064	2.32	0.01	2.54	0.02	18.70	0.12	2.51	0.02	6.29	0.04
-	Soya sauce	PP	0.0023	0.10	0.00	0.13	0.00	0.17	0.00	0.10	0.00	0.56	0.00
-	Soya flour	PP	0.0024	0.11	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00
VR 0589	Potato, raw (incl flour, incl frozen, incl tapioca, excl starch)	RAC	0.01	23.96	0.24	13.54	0.14	213.41	2.13	104.35	1.04	8.56	0.09
-	Potato, starch	PP	0.01	0.10	0.00	0.10	0.00	NC	-	NC	-	NC	-
GC 0640	Barley, raw	RAC	0.175	0.10	0.02	0.10	0.02	0.16	0.03	NC	-	NC	-
-	Barley, pot&pearled	PP	0.083	5.46	0.45	0.10	0.01	1.44	0.12	0.10	0.01	NC	-
-	Barley, flour (white flour and wholemeal flour)	PP	0.072	0.10	0.01	NC	-	0.32	0.02	0.10	0.01	NC	-
GC 0647	Oats, raw	RAC	0.18	0.10	0.02	0.10	0.02	NC	-	0.10	0.02	NC	-
GC 0650	Rye, raw	RAC	0.023	0.10	0.00	NC	-	NC	-	0.10	0.00	NC	-
GC 0653	Triticale, raw	RAC	0.023	0.10	0.00	NC	-	NC	-	NC	-	NC	-
GC 0654	Wheat, raw (incl meslin)	RAC	0.023	NC	-	NC	-	NC	-	NC	-	0.97	0.02
CF 1210	Wheat, germ	PP	0.017	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	NC	-
CF 0654	Wheat, bran	PP	0.053	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1212	Wheat, wholemeal flour	PP	0.008	NC	-	NC	-	NC	-	NC	-	NC	-
CP 1212	Wheat, wholemeal bread	PP	0.012	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00

BENZOVINDIFLUPYR (261) International Estimated Daily Intake (IEDI) ADI = 0-0.05 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day G13 diet	G13 intake	Intake = daily intake: ug/person G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
-	Wheat, gluten	PP	0.011	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.19	0.00
GS 0659	Sugar cane, raw	RAC	0.02	5.62	0.11	50.91	1.02	NC	-	11.04	0.22	0.10	0.00
-	Sugar cane, molasses	PP	0.007	NC	-	NC	-	NC	-	NC	-	NC	-
-	Sugar cane, sugar (incl non-centrifugal sugar, incl refined sugar and maltose)	PP	0.005	28.13	0.14	55.38	0.28	78.09	0.39	18.04	0.09	45.60	0.23
SO 0495	Rape seed, raw	RAC	0.023	NC	-	0.10	0.00	NC	-	NC	-	NC	-
OR 0495	Rape seed oil, edible	PP	0.023	0.10	0.00	0.10	0.00	4.62	0.11	0.10	0.00	NC	-
SO 0697	Peanuts, nutmeat, raw	RAC	0.01	7.12	0.07	0.32	0.00	1.34	0.01	6.21	0.06	0.53	0.01
-	Peanuts, roasted	PP	0.01	0.10	0.00	0.10	0.00	0.48	0.00	0.10	0.00	NC	-
OR 0697	Peanut oil, edible	PP	0.016	5.02	0.08	0.10	0.00	0.17	0.00	0.29	0.00	NC	-
-	Peanut butter	PP	0.01	0.10	0.00	0.10	0.00	0.10	0.00	NC	-	NC	-
SB 0716	Coffee beans, raw (i.e. green coffee)	RAC	0.015	0.83	0.01	0.69	0.01	1.09	0.02	2.91	0.04	0.82	0.01
SM 0716	Coffee beans, roasted	PP	0.01	0.10	0.00	0.41	0.00	7.50	0.08	0.10	0.00	0.10	0.00
-	Coffee beans, instant coffee (incl essences and concentrates)	PP	0.01	0.10	0.00	0.10	0.00	0.60	0.01	0.10	0.00	5.53	0.06
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat)	RAC	0.01	29.18	0.29	50.89	0.51	121.44	1.21	22.58	0.23	72.14	0.72
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.01	1.05	0.01	1.14	0.01	18.69	0.19	0.94	0.01	3.12	0.03
MO 0105	Edible offal (mammalian), raw	RAC	0.014	4.64	0.06	1.97	0.03	10.01	0.14	3.27	0.05	3.98	0.06
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.01	108.75	1.09	70.31	0.70	436.11	4.36	61.55	0.62	79.09	0.79
PM 0110	Poultry meat, raw (incl prepared)	RAC	0	3.92	0.00	12.03	0.00	57.07	0.00	5.03	0.00	55.56	0.00
PF 0111	Poultry fat, raw (incl rendered)	RAC	0	NC	-	NC	-	0.32	0.00	NC	-	NC	-
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0	0.10	0.00	0.70	0.00	0.97	0.00	0.10	0.00	NC	-
PE 0112	Eggs, raw, (incl dried)	RAC	0	3.84	0.00	4.41	0.00	27.25	0.00	1.13	0.00	7.39	0.00
-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				11.2		8.9		31.1		14.7		4.2
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (ug/person)=				3000		3000		3000		3000		3000
	%ADI=				0.4%		0.3%		1.0%		0.5%		0.1%
	Rounded %ADI=				0%		0%		1%		0%		0%

BIXAFEN (262) International Estimated Daily Intake (IEDI) ADI = 0-000 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day			Intake as ug/person/day								
GC 0640	Barley, raw	RAC	0.08	2.49	0.20	NC	-	0.10	0.01	0.10	0.01	0.18	0.01	0.38	0.03
-	Barley, pot&pearled	PP	0.02	7.12	0.14	7.34	0.15	0.10	0.00	0.10	0.00	0.67	0.01	0.20	0.00
-	Barley, flour (white flour and wholemeal flour)	PP	0.08	2.93	0.23	0.30	0.02	0.10	0.01	0.10	0.01	0.48	0.04	0.10	0.01
-	Barley beer	PP	0.009	4.87	0.04	93.78	0.84	24.28	0.22	12.76	0.11	39.28	0.35	18.15	0.16
-	Barley Malt	PP	0.076	0.10	0.01	1.04	0.08	0.18	0.01	0.33	0.03	0.10	0.01	0.10	0.01
-	Barley Malt Extract	PP	0.08	0.10	0.01	0.10	0.01	0.10	0.01	0.10	0.01	0.10	0.01	0.10	0.01
GC 0647	Oats, raw (incl rolled)	RAC	0.08	0.10	0.01	7.05	0.56	0.10	0.01	1.71	0.14	0.96	0.08	0.10	0.01
GC 0650	Rye, raw (incl flour)	RAC	0.02	0.13	0.00	19.38	0.39	0.10	0.00	0.12	0.00	0.10	0.00	2.15	0.04
GC 0653	Triticale, raw (incl flour)	RAC	0.02	NC	-	NC	-	NC	-	0.10	0.00	0.39	0.01	NC	-
GC 0654	Wheat, raw (incl meslin)	RAC	0.02	0.10	0.00	1.12	0.02	NC	-	0.10	0.00	0.56	0.01	NC	-
-	Wheat, bulgur	PP	0.02	NC	-	NC	-	NC	-	0.10	0.00	NC	-	NC	-
CF 1210	Wheat, germ	PP	0.022	NC	-	NC	-	0.10	0.00	0.10	0.00	0.14	0.00	0.10	0.00
CF 0654	Wheat, bran	PP	0.052	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1212	Wheat, wholemeal flour	PP	0.02	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CP 1212	Wheat, wholemeal bread	PP	0.012	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00
CP 1211	Wheat, white bread	PP	0.007	0.25	0.00	0.63	0.00	0.12	0.00	0.43	0.00	1.39	0.01	0.22	0.00
-	Wheat, Fermented Beverages (Korean jakju and takju)	PP	0.02	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1211	Wheat, white flour (incl white flour products: starch, gluten, macaroni, pastry)	PP	0.007	301.49	2.11	269.27	1.88	30.33	0.21	222.94	1.56	136.12	0.95	343.34	2.40
SO 0495	Rape seed, raw	RAC	0.02	0.10	0.00	NC	-	NC	-	0.10	0.00	0.75	0.02	0.10	0.00
OR 0495	Rape seed oil, edible	PP	0.03	0.35	0.01	0.44	0.01	0.19	0.01	0.97	0.03	3.28	0.10	0.77	0.02
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) -80% as muscle	RAC	0.21	24.96	5.24	57.95	12.17	16.70	3.51	38.38	8.06	26.46	5.56	29.00	6.09
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) - 20% as fat	RAC	0.5	6.24	3.12	14.49	7.24	4.18	2.09	9.60	4.80	6.62	3.31	7.25	3.63
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.5	3.29	1.65	6.14	3.07	0.82	0.41	1.57	0.79	2.23	1.12	1.07	0.54
MO	Edible offal (mammalian), raw	RAC	1.7	4.79	8.14	9.68	16.46	2.97	5.05	5.49	9.33	3.84	6.53	5.03	8.55

BIXAFEN (262) International Estimated Daily Intake (IEDI) ADI = 0-000 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day			Intake as ug/person/day								
0105															
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.082	289.65	23.75	485.88	39.84	26.92	2.21	239.03	19.60	199.91	16.39	180.53	14.80
PM 0110	Poultry meat, raw (incl prepared) - 90% as muscle	RAC	0	13.17	0.00	26.78	0.00	7.24	0.00	116.71	0.00	22.54	0.00	32.09	0.00
PM 0110	Poultry meat, raw (incl prepared) - 10% as fat	RAC	0.02	1.46	0.03	2.98	0.06	0.80	0.02	12.97	0.26	2.50	0.05	3.57	0.07
PF 0111	Poultry fat, raw (incl rendered)	RAC	0.02	0.10	0.00	0.10	0.00	NC	-	0.10	0.00	0.10	0.00	0.10	0.00
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.02	0.12	0.00	0.12	0.00	0.11	0.00	5.37	0.11	0.24	0.00	0.10	0.00
PE 0112	Eggs, raw, (incl dried)	RAC	0.02	7.84	0.16	23.08	0.46	2.88	0.06	14.89	0.30	9.81	0.20	14.83	0.30
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				44.9		83.3		13.8		45.2		34.8		36.7
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (ug/person)=				1200		1200		1200		1200		1200		1200
	%ADI=				3.7%		6.9%		1.2%		3.8%		2.9%		3.1%
	Rounded %ADI=				4%		7%		1%		4%		3%		3%

BIXAFEN (262) International Estimated Daily Intake (IEDI) ADI = 0-000 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day			Intake as ug/person/day								
GC 0640	Barley, raw	RAC	0.08	0.10	0.01	NC	-	0.10	0.01	1.36	0.11	NC	-	NC	-
-	Barley, pot&pearled	PP	0.02	0.57	0.01	2.56	0.05	0.33	0.01	0.56	0.01	0.36	0.01	NC	-
-	Barley, flour (white flour and wholemeal flour)	PP	0.08	0.10	0.01	0.10	0.01	0.10	0.01	0.10	0.01	0.68	0.05	0.10	0.01
-	Barley beer	PP	0.009	180.21	1.62	259.46	2.34	45.91	0.41	172.36	1.55	234.42	2.11	65.30	0.59
-	Barley Malt	PP	0.076	0.19	0.01	NC	-	0.10	0.01	0.10	0.01	NC	-	2.14	0.16
-	Barley Malt Extract	PP	0.08	0.37	0.03	0.10	0.01	0.10	0.01	0.10	0.01	0.18	0.01	0.29	0.02

Annex 3

BIXAFEN (262) International Estimated Daily Intake (IEDI) ADI = 0-000 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day		Intake as ug/person/day									
GC 0647	Oats, raw (incl rolled)	RAC	0.08	7.50	0.60	6.26	0.50	0.15	0.01	4.87	0.39	3.16	0.25	2.98	0.24
GC 0650	Rye, raw (incl flour)	RAC	0.02	3.21	0.06	35.38	0.71	0.21	0.00	6.50	0.13	1.49	0.03	NC	-
GC 0653	Triticale, raw (incl flour)	RAC	0.02	0.10	0.00	0.17	0.00	0.29	0.01	0.10	0.00	NC	-	NC	-
GC 0654	Wheat, raw (incl meslin)	RAC	0.02	NC	-	NC	-	NC	-	0.10	0.00	NC	-	NC	-
-	Wheat, bulgur	PP	0.02	NC	-	NC	-	0.10	0.00	NC	-	NC	-	NC	-
CF 1210	Wheat, germ	PP	0.022	0.97	0.02	0.10	0.00	0.10	0.00	0.10	0.00	NC	-	0.10	0.00
CF 0654	Wheat, bran	PP	0.052	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1212	Wheat, wholemeal flour	PP	0.02	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CP 1212	Wheat, wholemeal bread	PP	0.012	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00
CP 1211	Wheat, white bread	PP	0.007	1.30	0.01	0.46	0.00	0.10	0.00	0.22	0.00	2.44	0.02	0.77	0.01
-	Wheat, Fermented Beverages (Korean jakju and takju)	PP	0.02	NC	-	NC	-	NC	-	4.36	0.09	NC	-	NC	-
CF 1211	Wheat, white flour (incl white flour products: starch, gluten, macaroni, pastry)	PP	0.007	199.38	1.40	193.50	1.35	106.30	0.74	185.31	1.30	171.11	1.20	132.37	0.93
SO 0495	Rape seed, raw	RAC	0.02	NC	-	NC	-	0.10	0.00	NC	-	NC	-	NC	-
OR 0495	Rape seed oil, edible	PP	0.03	12.52	0.38	7.63	0.23	3.00	0.09	6.01	0.18	NC	-	NC	-
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) -80% as muscle	RAC	0.21	112.02	23.53	120.71	25.35	63.46	13.33	88.99	18.69	96.24	20.21	41.02	8.61
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) - 20% as fat	RAC	0.5	28.01	14.00	30.18	15.09	15.86	7.93	22.25	11.12	24.06	12.03	10.25	5.13
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.5	6.44	3.22	15.51	7.76	3.79	1.90	8.29	4.15	18.44	9.22	8.00	4.00
MO 0105	Edible offal (mammalian), raw	RAC	1.7	15.17	25.79	5.19	8.82	6.30	10.71	6.78	11.53	3.32	5.64	3.17	5.39
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.082	388.92	31.89	335.88	27.54	49.15	4.03	331.25	27.16	468.56	38.42	245.45	20.13
PM 0110	Poultry meat, raw (incl prepared) - 90% as muscle	RAC	0	66.38	0.00	48.47	0.00	21.58	0.00	78.41	0.00	48.04	0.00	76.01	0.00
PM 0110	Poultry meat, raw (incl prepared) - 10% as fat	RAC	0.02	7.38	0.15	5.39	0.11	2.40	0.05	8.71	0.17	5.34	0.11	8.45	0.17
PF 0111	Poultry fat, raw (incl rendered)	RAC	0.02	0.10	0.00	0.10	0.00	NC	-	0.10	0.00	0.71	0.01	NC	-
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.02	0.33	0.01	0.72	0.01	0.27	0.01	0.35	0.01	0.80	0.02	NC	-
PE 0112	Eggs, raw, (incl dried)	RAC	0.02	25.84	0.52	29.53	0.59	28.05	0.56	33.19	0.66	36.44	0.73	8.89	0.18
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

BIXAFEN (262) International Estimated Daily Intake (IEDI) ADI = 0-000 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day	Intake as ug/person/day										
				G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
	Total intake (ug/person)=				103.3		90.5		39.8		77.3		90.1		45.6
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (ug/person)=				1200		1200		1100		1200		1200		1200
	%ADI=				8.6%		7.5%		3.6%		6.4%		7.5%		3.8%
	Rounded %ADI=				9%		8%		4%		6%		8%		4%

BIXAFEN (262) International Estimated Daily Intake (IEDI) ADI = 0-000 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day	Intake = daily intake: ug/person								
				G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
GC 0640	Barley, raw	RAC	0.08	0.10	0.01	0.10	0.01	0.16	0.01	NC	-	NC	-
-	Barley, pot&pearled	PP	0.02	5.46	0.11	0.10	0.00	1.44	0.03	0.10	0.00	NC	-
-	Barley, flour (white flour and wholemeal flour)	PP	0.08	0.10	0.01	NC	-	0.32	0.03	0.10	0.01	NC	-
-	Barley beer	PP	0.009	16.25	0.15	11.36	0.10	225.21	2.03	19.49	0.18	52.17	0.47
-	Barley Malt	PP	0.076	0.10	0.01	0.11	0.01	0.67	0.05	0.10	0.01	4.61	0.35
-	Barley Malt Extract	PP	0.08	0.10	0.01	0.10	0.01	0.10	0.01	0.10	0.01	0.10	0.01
GC 0647	Oats, raw (incl rolled)	RAC	0.08	0.37	0.03	0.10	0.01	2.79	0.22	0.10	0.01	NC	-
GC 0650	Rye, raw (incl flour)	RAC	0.02	0.10	0.00	0.10	0.00	13.95	0.28	0.10	0.00	0.88	0.02
GC 0653	Triticale, raw (incl flour)	RAC	0.02	0.10	0.00	NC	-	NC	-	NC	-	NC	-
GC 0654	Wheat, raw (incl meslin)	RAC	0.02	NC	-	NC	-	NC	-	NC	-	0.97	0.02
-	Wheat, bulgur	PP	0.02	0.10	0.00	NC	-	NC	-	NC	-	NC	-
CF 1210	Wheat, germ	PP	0.022	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	NC	-
CF 0654	Wheat, bran	PP	0.052	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1212	Wheat, wholemeal flour	PP	0.02	NC	-	NC	-	NC	-	NC	-	NC	-
CP 1212	Wheat, wholemeal bread	PP	0.012	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00
CP 1211	Wheat, white bread	PP	0.007	0.43	0.00	0.41	0.00	1.56	0.01	0.11	0.00	0.10	0.00
-	Wheat, Fermented Beverages (Korean jakju and takju)	PP	0.02	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1211	Wheat, white flour (incl white flour products: starch, gluten, macaroni, pastry)	PP	0.007	45.21	0.32	87.37	0.61	215.61	1.51	20.42	0.14	103.67	0.73
SO 0495	Rape seed, raw	RAC	0.02	NC	-	0.10	0.00	NC	-	NC	-	NC	-

Annex 3

BIXAFEN (262) International Estimated Daily Intake (IEDI) ADI = 0-000 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
				Diets: g/person/day			Intake = daily intake: ug/person						
OR 0495	Rape seed oil, edible	PP	0.03	0.10	0.00	0.10	0.00	4.62	0.14	0.10	0.00	NC	-
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) -80% as muscle	RAC	0.21	23.34	4.90	40.71	8.55	97.15	20.40	18.06	3.79	57.71	12.12
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) - 20% as fat	RAC	0.5	5.84	2.92	10.18	5.09	24.29	12.14	4.52	2.26	14.43	7.21
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.5	1.05	0.53	1.14	0.57	18.69	9.35	0.94	0.47	3.12	1.56
MO 0105	Edible offal (mammalian), raw	RAC	1.7	4.64	7.89	1.97	3.35	10.01	17.02	3.27	5.56	3.98	6.77
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.082	108.75	8.92	70.31	5.77	436.11	35.76	61.55	5.05	79.09	6.49
PM 0110	Poultry meat, raw (incl prepared) - 90% as muscle	RAC	0	3.53	0.00	10.83	0.00	51.36	0.00	4.53	0.00	50.00	0.00
PM 0110	Poultry meat, raw (incl prepared) - 10% as fat	RAC	0.02	0.39	0.01	1.20	0.02	5.71	0.11	0.50	0.01	5.56	0.11
PF 0111	Poultry fat, raw (incl rendered)	RAC	0.02	NC	-	NC	-	0.32	0.01	NC	-	NC	-
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.02	0.10	0.00	0.70	0.01	0.97	0.02	0.10	0.00	NC	-
PE 0112	Eggs, raw, (incl dried)	RAC	0.02	3.84	0.08	4.41	0.09	27.25	0.55	1.13	0.02	7.39	0.15
-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				25.9		24.2		99.7		17.5		36.0
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (ug/person)=				1200		1200		1200		1200		1200
	%ADI=				2.2%		2.0%		8.3%		1.5%		3.0%
	Rounded %ADI=				2%		2%		8%		1%		3%

BUPROFEZIN (173) International Estimated Daily Intake (IEDI) ADI = 0-0.009 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day			Intake as ug/person/day								
FC 0002	Lemons and limes, raw (excl kumquat commodities)	RAC	0.04	2.42	0.10	2.15	0.09	0.43	0.02	10.74	0.43	6.59	0.26	14.06	0.56
-	Lemon, juice (single strength, incl. concentrated)	PP	0.13	0.10	0.01	0.10	0.01	0.11	0.01	0.10	0.01	0.18	0.02	0.17	0.02
FC 0003	Mandarins, raw	RAC	0.04	6.18	0.25	3.66	0.15	0.25	0.01	6.82	0.27	3.49	0.14	19.38	0.78
-	Mandarins, juice	PP	0.13	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
FC 0004	Oranges, sweet, sour, raw	RAC	0.04	20.66	0.83	5.23	0.21	11.90	0.48	37.90	1.52	21.16	0.85	56.46	2.26
JF 0004	Oranges, juice (single strength, incl. concentrated)	PP	0.13	1.27	0.17	2.20	0.29	0.10	0.01	11.81	1.54	0.46	0.06	1.69	0.22
FC 0005	Pummelo and grapefruits, raw	RAC	0.04	0.64	0.03	0.35	0.01	0.93	0.04	6.10	0.24	1.01	0.04	1.36	0.05
JF 0203	Grapefruits, juice (single strength, incl. concentrated)	PP	0.13	0.10	0.01	0.16	0.02	0.10	0.01	1.97	0.26	0.12	0.02	0.77	0.10
FP 0226	Apple, raw (incl cider, excl juice)	RAC	0.28	13.49	3.78	26.63	7.46	15.05	4.21	16.28	4.56	6.47	1.81	47.88	13.41
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.16	0.32	0.05	3.07	0.49	0.10	0.02	5.00	0.80	0.29	0.05	5.57	0.89
FP 0230	Pear, raw	RAC	1.09	2.16	2.35	6.24	6.80	0.10	0.11	4.07	4.44	1.16	1.26	5.34	5.82
FS 0013	Cherries, raw	RAC	0.73	0.92	0.67	9.15	6.68	0.10	0.07	0.61	0.45	0.10	0.07	6.64	4.85
FS 0014	Plums, raw (excl Chinese jujube)	RAC	0.155	2.40	0.37	8.60	1.33	0.10	0.02	2.52	0.39	0.58	0.09	4.16	0.64
DF 0014	Plum, dried (prunes)	PP	0.465	0.10	0.05	0.10	0.05	0.10	0.05	0.18	0.08	0.10	0.05	0.10	0.05
-	Peaches and nectarines, raw	RAC	1.355	2.87	3.89	2.21	2.99	0.15	0.20	5.94	8.05	1.47	1.99	15.66	21.22
FB 0269	Grape, raw (incl must, excl dried, excl juice, excl wine)	RAC	0.17	13.02	2.21	9.25	1.57	0.10	0.02	16.91	2.87	3.70	0.63	54.44	9.25
DF 0269	Grape, dried (= currants, raisins and sultanas)	PP	0.37	0.51	0.19	0.51	0.19	0.10	0.04	1.27	0.47	0.12	0.04	2.07	0.77
JF 0269	Grape juice	PP	0.098	0.14	0.01	0.29	0.03	0.10	0.01	0.30	0.03	0.24	0.02	0.10	0.01
-	Grape wine (incl vermouths)	PP	0.15	0.67	0.10	12.53	1.88	2.01	0.30	1.21	0.18	3.53	0.53	4.01	0.60
FB 0275	Strawberry, raw	RAC	0.44	0.70	0.31	2.01	0.88	0.10	0.04	1.36	0.60	0.37	0.16	2.53	1.11
FT 0305	Table olive, raw (incl preserved)	RAC	1.125	0.70	0.79	0.32	0.36	0.10	0.11	1.53	1.72	0.17	0.19	1.85	2.08
FI 0326	Avocado, raw	RAC	0.01	0.13	0.00	0.10	0.00	2.05	0.02	2.54	0.03	2.34	0.02	0.12	0.00
FI 0327	Banana, raw (incl plantains) (incl dried)	RAC	0.01	5.06	0.05	6.91	0.07	37.17	0.37	31.16	0.31	40.21	0.40	18.96	0.19
FI 0345	Mango, raw (incl canned mango, incl mango juice)	RAC	0.01	10.48	0.10	0.10	0.00	7.24	0.07	6.87	0.07	19.98	0.20	6.25	0.06

BUPROFEZIN (173) International Estimated Daily Intake (IEDI) ADI = 0-0.009 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day	Intake as ug/person/day										
VC 0045	Fruiting vegetables, cucurbits, raw	RAC	0.195	53.14	10.36	86.21	16.81	6.28	1.22	92.76	18.09	15.64	3.05	155.30	30.28
VO 0444	Peppers, chili, raw (incl dried)	RAC	0.33	6.93	2.29	10.97	3.62	8.83	2.91	9.13	3.01	6.65	2.19	20.01	6.60
VO 0445	Peppers, sweet, raw (incl dried)	RAC	0.33	4.49	1.48	6.44	2.13	7.21	2.38	5.68	1.87	9.52	3.14	8.92	2.94
VO 0448	Tomato, raw (incl canned, excl juice, excl paste)	RAC	0.24	42.04	10.09	76.13	18.27	10.69	2.57	84.59	20.30	24.92	5.98	203.27	48.78
-	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.22	2.34	0.51	1.33	0.29	1.57	0.35	4.24	0.93	0.34	0.07	2.83	0.62
JF 0448	Tomato, juice (single strength, incl concentrated)	PP	0.053	0.29	0.02	0.29	0.02	0.10	0.01	0.38	0.02	0.10	0.01	0.14	0.01
VD 0541	Soya bean, dry, raw (incl paste, incl curd, incl oil, incl sauce)	RAC	0.01	72.79	0.73	59.05	0.59	20.55	0.21	74.20	0.74	61.12	0.61	73.24	0.73
TN 0660	Almonds, nutmeat	RAC	0.05	1.38	0.07	0.10	0.01	0.10	0.01	1.00	0.05	0.10	0.01	0.81	0.04
-	Olive oil (virgin and residue oil)	PP	3.49	2.17	7.57	0.13	0.45	0.10	0.35	1.32	4.61	0.10	0.35	2.76	9.63
SB 0716	Coffee beans, raw (i.e. green coffee)	RAC	0.08	0.96	0.08	0.16	0.01	0.91	0.07	0.27	0.02	1.37	0.11	0.46	0.04
SM 0716	Coffee beans, roasted	PP	0.0256	0.19	0.00	0.91	0.02	0.16	0.00	2.50	0.06	0.39	0.01	0.40	0.01
-	Coffee beans, instant coffee (incl essences and concentrates)	PP	0.016	0.10	0.00	0.94	0.02	0.10	0.00	0.70	0.01	0.10	0.00	0.29	0.00
HH 0722	Basil, raw (incl dried)	RAC	0.45	0.14	0.06	0.26	0.12	0.16	0.07	0.38	0.17	NC	-	0.19	0.09
DT 1114	Tea, green or black, fermented and dried, (including concentrates)	RAC	9	2.28	20.52	1.98	17.82	0.46	4.14	2.43	21.87	1.29	11.61	3.04	27.36
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat)	RAC	0	31.20	0.00	72.44	0.00	20.88	0.00	47.98	0.00	33.08	0.00	36.25	0.00
MO 0105	Edible offal (mammalian), raw	RAC	0	4.79	0.00	9.68	0.00	2.97	0.00	5.49	0.00	3.84	0.00	5.03	0.00
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0	289.65	0.00	485.88	0.00	26.92	0.00	239.03	0.00	199.91	0.00	180.53	0.00
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				70.1		91.7		20.5		101.1		36.1		192.1
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (ug/person)=				540		540		540		540		540		540
	%ADI=				13.0%		17.0%		3.8%		18.7%		6.7%		35.6%
	Rounded %ADI=				10%		20%		4%		20%		7%		40%

BUPROFEZIN (173) International Estimated Daily Intake (IEDI) ADI = 0-0.009 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day	Intake as ug/person/day										
FC 0002	Lemons and limes, raw (excl kumquat commodities)	RAC	0.04	3.78	0.15	8.84	0.35	0.92	0.04	6.71	0.27	4.09	0.16	4.57	0.18
-	Lemon, juice (single strength, incl. concentrated)	PP	0.13	0.60	0.08	0.36	0.05	0.10	0.01	1.49	0.19	0.43	0.06	0.24	0.03
FC 0003	Mandarins, raw	RAC	0.04	12.34	0.49	14.99	0.60	16.08	0.64	10.76	0.43	9.94	0.40	NC	-
-	Mandarins, juice	PP	0.13	0.10	0.01	NC	-	0.10	0.01	0.10	0.01	NC	-	NC	-
FC 0004	Oranges, sweet, sour, raw	RAC	0.04	15.68	0.63	24.00	0.96	6.80	0.27	29.09	1.16	15.39	0.62	160.47	6.42
JF 0004	Oranges, juice (single strength, incl. concentrated)	PP	0.13	33.31	4.33	1.78	0.23	0.28	0.04	18.97	2.47	14.01	1.82	13.36	1.74
FC 0005	Pummelo and grapefruits, raw	RAC	0.04	2.19	0.09	1.24	0.05	0.60	0.02	3.44	0.14	4.60	0.18	299.96	12.00
JF 0203	Grapefruits, juice (single strength, incl. concentrated)	PP	0.13	2.89	0.38	1.61	0.21	0.10	0.01	1.15	0.15	7.39	0.96	33.07	4.30
FP 0226	Apple, raw (incl cider, excl juice)	RAC	0.28	41.14	11.52	56.49	15.82	26.64	7.46	31.58	8.84	51.94	14.54	3.05	0.85
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.16	14.88	2.38	11.98	1.92	0.15	0.02	9.98	1.60	30.32	4.85	3.47	0.56
FP 0230	Pear, raw	RAC	1.09	8.79	9.58	8.44	9.20	12.37	13.48	9.60	10.46	10.27	11.19	0.23	0.25
FS 0013	Cherries, raw	RAC	0.73	1.40	1.02	4.21	3.07	0.10	0.07	2.93	2.14	1.50	1.10	NC	-
FS 0014	Plums, raw (excl Chinese jujube)	RAC	0.155	3.75	0.58	3.33	0.52	5.94	0.92	2.64	0.41	2.50	0.39	0.10	0.02
DF 0014	Plum, dried (prunes)	PP	0.465	0.61	0.28	0.35	0.16	0.10	0.05	0.35	0.16	0.49	0.23	0.13	0.06
-	Peaches and nectarines, raw	RAC	1.355	8.76	11.87	12.98	17.59	8.23	11.15	10.09	13.67	3.64	4.93	0.10	0.14
FB 0269	Grape, raw (incl must, excl dried, excl juice, excl wine)	RAC	0.17	6.48	1.10	11.31	1.92	5.21	0.89	9.50	1.62	4.66	0.79	0.78	0.13
DF 0269	Grape, dried (= currants, raisins and sultanas)	PP	0.37	3.09	1.14	1.51	0.56	0.10	0.04	1.38	0.51	4.26	1.58	0.42	0.16
JF 0269	Grape juice	PP	0.098	0.56	0.05	1.96	0.19	0.10	0.01	2.24	0.22	2.27	0.22	0.34	0.03
-	Grape wine (incl vermouths)	PP	0.15	88.93	13.34	62.41	9.36	1.84	0.28	25.07	3.76	61.17	9.18	5.84	0.88
FB 0275	Strawberry, raw	RAC	0.44	4.49	1.98	5.66	2.49	0.10	0.04	6.63	2.92	5.75	2.53	0.10	0.04
FT 0305	Table olive, raw (incl preserved)	RAC	1.125	2.00	2.25	2.48	2.79	0.10	0.11	1.21	1.36	1.64	1.85	0.27	0.30
FI 0326	Avocado, raw	RAC	0.01	2.65	0.03	0.87	0.01	0.46	0.00	1.64	0.02	1.30	0.01	0.96	0.01
FI 0327	Banana, raw (incl plantains) (incl dried)	RAC	0.01	25.14	0.25	23.37	0.23	23.06	0.23	23.40	0.23	18.44	0.18	39.29	0.39
FI 0345	Mango, raw (incl canned mango, incl mango juice)	RAC	0.01	1.80	0.02	0.63	0.01	10.05	0.10	1.07	0.01	3.52	0.04	16.44	0.16
VC 0045	Fruiting vegetables, cucurbits, raw	RAC	0.195	27.81	5.42	41.93	8.18	123.30	24.04	49.47	9.65	15.95	3.11	35.99	7.02
VO 0444	Peppers, chili, raw (incl dried)	RAC	0.33	6.36	2.10	15.46	5.10	10.74	3.54	7.28	2.40	8.21	2.71	3.58	1.18
VO 0445	Peppers, sweet, raw (incl dried)	RAC	0.33	0.82	0.27	1.53	0.50	10.85	3.58	4.59	1.51	1.84	0.61	2.00	0.66

Annex 3

BUPROFEZIN (173) International Estimated Daily Intake (IEDI) ADI = 0-0.009 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day	Intake as ug/person/day										
				G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
VO 0448	Tomato, raw (incl canned, excl juice, excl paste)	RAC	0.24	43.88	10.53	55.41	13.30	35.38	8.49	74.88	17.97	26.50	6.36	9.51	2.28
-	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.22	4.96	1.09	3.20	0.70	0.15	0.03	1.61	0.35	6.88	1.51	0.52	0.11
JF 0448	Tomato, juice (single strength, incl concentrated)	PP	0.053	0.80	0.04	0.10	0.01	0.10	0.01	0.61	0.03	0.40	0.02	0.10	0.01
VD 0541	Soya bean, dry, raw (incl paste, incl curd, incl oil, incl sauce)	RAC	0.01	106.33	1.06	117.78	1.18	42.12	0.42	195.70	1.96	222.52	2.23	80.47	0.80
TN 0660	Almonds, nutmeat	RAC	0.05	0.81	0.04	2.21	0.11	0.10	0.01	1.02	0.05	1.47	0.07	NC	-
-	Olive oil (virgin and residue oil)	PP	3.49	3.40	11.87	9.49	33.12	0.10	0.35	4.28	14.94	2.74	9.56	0.48	1.68
SB 0716	Coffee beans, raw (i.e. green coffee)	RAC	0.08	0.60	0.05	NC	-	0.62	0.05	1.71	0.14	NC	-	3.51	0.28
SM 0716	Coffee beans, roasted	PP	0.0256	7.02	0.18	9.75	0.25	0.10	0.00	5.09	0.13	13.38	0.34	0.77	0.02
-	Coffee beans, instant coffee (incl essences and concentrates)	PP	0.016	0.75	0.01	0.30	0.00	0.10	0.00	0.67	0.01	2.43	0.04	1.43	0.02
HH 0722	Basil, raw (incl dried)	RAC	0.45	0.52	0.23	0.10	0.05	3.23	1.45	0.18	0.08	0.12	0.05	0.27	0.12
DT 1114	Tea, green or black, fermented and dried, (including concentrates)	RAC	9	2.91	26.19	1.73	15.57	1.14	10.26	1.85	16.65	2.29	20.61	0.74	6.66
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat)	RAC	0	140.03	0.00	150.89	0.00	79.32	0.00	111.24	0.00	120.30	0.00	51.27	0.00
MO 0105	Edible offal (mammalian), raw	RAC	0	15.17	0.00	5.19	0.00	6.30	0.00	6.78	0.00	3.32	0.00	3.17	0.00
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0	388.92	0.00	335.88	0.00	49.15	0.00	331.25	0.00	468.56	0.00	245.45	0.00
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				122.6		146.4		88.2		118.6		105.0		49.5
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (ug/person)=				540		540		495		540		540		540
	%ADI=				22.7%		27.1%		17.8%		22.0%		19.5%		9.2%
	Rounded %ADI=				20%		30%		20%		20%		20%		9%

BUPROFEZIN (173) International Estimated Daily Intake (IEDI) ADI = 0-0.009 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day			Intake = daily intake: ug/person						
				G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
FC 0002	Lemons and limes, raw (excl kumquat commodities)	RAC	0.04	0.61	0.02	0.73	0.03	4.01	0.16	0.10	0.00	NC	-
-	Lemon, juice (single strength, incl. concentrated)	PP	0.13	0.10	0.01	0.10	0.01	0.16	0.02	0.10	0.01	NC	-
FC 0003	Mandarins, raw	RAC	0.04	0.16	0.01	0.27	0.01	9.06	0.36	0.10	0.00	0.10	0.00
-	Mandarins, juice	PP	0.13	0.10	0.01	NC	-	NC	-	NC	-	NC	-
FC 0004	Oranges, sweet, sour, raw	RAC	0.04	1.18	0.05	1.11	0.04	14.28	0.57	0.10	0.00	1.08	0.04
JF 0004	Oranges, juice (single strength, incl. concentrated)	PP	0.13	0.10	0.01	0.26	0.03	12.61	1.64	0.14	0.02	0.33	0.04
FC 0005	Pummelo and grapefruits, raw	RAC	0.04	0.63	0.03	0.10	0.00	1.58	0.06	0.10	0.00	NC	-
JF 0203	Grapefruits, juice (single strength, incl. concentrated)	PP	0.13	0.10	0.01	0.10	0.01	0.78	0.10	0.10	0.01	NC	-
FP 0226	Apple, raw (incl cider, excl juice)	RAC	0.28	66.67	18.67	2.06	0.58	55.83	15.63	188.29	52.72	1.38	0.39
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.16	0.10	0.02	0.10	0.02	7.19	1.15	0.10	0.02	NC	-
FP 0230	Pear, raw	RAC	1.09	0.10	0.11	0.14	0.15	9.45	10.30	0.10	0.11	0.14	0.15
FS 0013	Cherries, raw	RAC	0.73	0.10	0.07	0.10	0.07	5.96	4.35	0.10	0.07	NC	-
FS 0014	Plums, raw (excl Chinese jujube)	RAC	0.155	0.10	0.02	0.10	0.02	15.56	2.41	0.10	0.02	NC	-
DF 0014	Plum, dried (prunes)	PP	0.465	0.10	0.05	0.10	0.05	0.37	0.17	0.10	0.05	NC	-
-	Peaches and nectarines, raw	RAC	1.355	0.10	0.14	0.10	0.14	7.47	10.12	0.10	0.14	NC	-
FB 0269	Grape, raw (incl must, excl dried, excl juice, excl wine)	RAC	0.17	0.14	0.02	0.36	0.06	15.33	2.61	0.10	0.02	0.28	0.05
DF 0269	Grape, dried (= currants, raisins and sultanas)	PP	0.37	0.10	0.04	0.13	0.05	1.06	0.39	0.10	0.04	0.10	0.04
JF 0269	Grape juice	PP	0.098	0.10	0.01	0.10	0.01	0.41	0.04	0.10	0.01	NC	-
-	Grape wine (incl vermouths)	PP	0.15	0.31	0.05	0.23	0.03	60.43	9.06	0.52	0.08	31.91	4.79
FB 0275	Strawberry, raw	RAC	0.44	0.10	0.04	0.10	0.04	3.35	1.47	0.10	0.04	0.10	0.04
FT 0305	Table olive, raw (incl preserved)	RAC	1.125	0.10	0.11	0.10	0.11	1.75	1.97	0.10	0.11	0.24	0.27
FI 0326	Avocado, raw	RAC	0.01	1.12	0.01	0.10	0.00	0.84	0.01	0.10	0.00	6.60	0.07
FI 0327	Banana, raw (incl plantains) (incl dried)	RAC	0.01	20.88	0.21	81.15	0.81	24.58	0.25	37.92	0.38	310.23	3.10
FI 0345	Mango, raw (incl canned mango, incl mango juice)	RAC	0.01	12.25	0.12	6.83	0.07	0.76	0.01	0.10	0.00	20.12	0.20
VC 0045	Fruiting vegetables, cucurbits, raw	RAC	0.195	5.96	1.16	9.74	1.90	51.82	10.10	13.61	2.65	0.10	0.02
VO 0444	Peppers, chili, raw (incl dried)	RAC	0.33	7.55	2.49	12.48	4.12	24.78	8.18	0.87	0.29	NC	-
VO 0445	Peppers, sweet, raw (incl dried)	RAC	0.33	5.49	1.81	10.57	3.49	8.84	2.92	0.91	0.30	NC	-
VO 0448	Tomato, raw (incl canned, excl juice, excl paste)	RAC	0.24	13.10	3.14	4.90	1.18	62.16	14.92	1.04	0.25	0.10	0.02

Annex 3

BUPROFEZIN (173) International Estimated Daily Intake (IEDI) ADI = 0-0.009 mg/kg bw

			STMR	Diets: g/person/day			Intake = daily intake: ug/person						
Codex Code	Commodity description	Expr as	mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
-	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.22	0.58	0.13	0.22	0.05	2.21	0.49	0.24	0.05	3.10	0.68
JF 0448	Tomato, juice (single strength, incl concentrated)	PP	0.053	0.10	0.01	0.10	0.01	0.42	0.02	0.10	0.01	0.10	0.01
VD 0541	Soya bean, dry, raw (incl paste, incl curd, incl oil, incl sauce)	RAC	0.01	15.80	0.16	14.29	0.14	104.36	1.04	17.11	0.17	35.20	0.35
TN 0660	Almonds, nutmeat	RAC	0.05	0.10	0.01	0.10	0.01	0.61	0.03	0.10	0.01	NC	-
-	Olive oil (virgin and residue oil)	PP	3.49	0.10	0.35	0.10	0.35	2.14	7.47	0.10	0.35	0.10	0.35
SB 0716	Coffee beans, raw (i.e. green coffee)	RAC	0.08	0.83	0.07	0.69	0.06	1.09	0.09	2.91	0.23	0.82	0.07
SM 0716	Coffee beans, roasted	PP	0.0256	0.10	0.00	0.41	0.01	7.50	0.19	0.10	0.00	0.10	0.00
-	Coffee beans, instant coffee (incl essences and concentrates)	PP	0.016	0.10	0.00	0.10	0.00	0.60	0.01	0.10	0.00	5.53	0.09
HH 0722	Basil, raw (incl dried)	RAC	0.45	0.25	0.11	0.18	0.08	0.13	0.06	0.17	0.08	0.33	0.15
DT 1114	Tea, green or black, fermented and dried, (including concentrates)	RAC	9	0.53	4.77	5.25	47.25	0.86	7.74	0.56	5.04	0.88	7.92
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat)	RAC	0	29.18	0.00	50.89	0.00	121.44	0.00	22.58	0.00	72.14	0.00
MO 0105	Edible offal (mammalian), raw	RAC	0	4.64	0.00	1.97	0.00	10.01	0.00	3.27	0.00	3.98	0.00
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0	108.75	0.00	70.31	0.00	436.11	0.00	61.55	0.00	79.09	0.00
-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				34.0		61.0		116.1		63.3		18.8
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (ug/person)=				540		540		540		540		540
	%ADI=				6.3%		11.3%		21.5%		11.7%		3.5%
	Rounded %ADI=				6%		10%		20%		10%		3%

CHLORANTRANILIPROLE (230) International Estimated Daily Intake (IEDI) ADI = 0-2 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day	Intake as ug/person/day										
FC 0001	Citrus fruit, raw (incl citrus fruit juice, incl kumquat commodities)	RAC	0.06	34.91	2.09	16.51	0.99	17.23	1.03	104.48	6.27	35.57	2.13	98.49	5.91
JF 0001	Citrus fruit, juice	PP	0.037	1.30	0.05	2.37	0.09	0.22	0.01	13.88	0.51	0.75	0.03	2.63	0.10
FP 0009	Pome fruit, raw (incl cider, excl apple juice)	RAC	0.07	19.35	1.35	34.06	2.38	17.87	1.25	25.74	1.80	7.69	0.54	56.85	3.98
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.0098	0.32	0.00	3.07	0.03	0.10	0.00	5.00	0.05	0.29	0.00	5.57	0.05
FS 0012	Stone fruits, raw (incl dried plums, incl dried apricots)	RAC	0.2	11.60	2.32	23.79	4.76	0.25	0.05	11.84	2.37	2.41	0.48	33.44	6.69
FB 0018	Berries and other small fruits, raw, (incl processed), excl small fruit vine climbing (group 004D)	RAC	0.336	2.29	0.77	4.71	1.58	0.78	0.26	4.48	1.51	0.39	0.13	6.27	2.11
FB 0269	Grape, raw (incl must, excl dried, excl juice, excl wine)	RAC	0.119	13.02	1.55	9.25	1.10	0.10	0.01	16.91	2.01	3.70	0.44	54.44	6.48
DF 0269	Grape, dried (= currants, raisins and sultanas)	PP	0.411	0.51	0.21	0.51	0.21	0.10	0.04	1.27	0.52	0.12	0.05	2.07	0.85
JF 0269	Grape juice	PP	0.0869	0.14	0.01	0.29	0.03	0.10	0.01	0.30	0.03	0.24	0.02	0.10	0.01
-	Grape wine (incl vermouths)	PP	0.14	0.67	0.09	12.53	1.75	2.01	0.28	1.21	0.17	3.53	0.49	4.01	0.56
FI 0355	Pomegranate, raw, (incl processed)	RAC	0.1	3.40	0.34	2.10	0.21	2.65	0.27	10.89	1.09	NC	-	6.67	0.67
VB 0040	Brassica vegetables, raw: head cabbages, flowerhead brassicas, Brussels sprouts & kohlrabi	RAC	0.385	6.41	2.47	35.79	13.78	0.71	0.27	9.81	3.78	12.07	4.65	16.58	6.38
VC 0045	Fruiting vegetables, cucurbits, raw	RAC	0.065	53.14	3.45	86.21	5.60	6.28	0.41	92.76	6.03	15.64	1.02	155.30	10.09
VO 0050	Fruiting vegetables other than cucurbits, raw, (incl processed commodities), excl tomato commodities, excl sweet corn commodities, excl mushroom commodities	RAC	0.066	18.97	1.25	21.73	1.43	20.61	1.36	27.35	1.81	35.54	2.35	50.62	3.34
-	Peppers, chili, dried	PP	0.46	0.42	0.19	0.53	0.24	0.84	0.39	0.50	0.23	0.95	0.44	0.37	0.17
VO 0447	Sweet corn on the cob, raw (incl frozen, incl canned) (i.e. kernels plus cob without husks)	RAC	0.01	0.14	0.00	0.94	0.01	5.70	0.06	2.61	0.03	1.94	0.02	0.22	0.00
VO 0448	Tomato, raw (incl canned, excl juice, excl	RAC	0.066	42.04	2.77	76.13	5.02	10.69	0.71	84.59	5.58	24.92	1.64	203.27	13.42

CHLORANTRANILIPROLE (230) International Estimated Daily Intake (IEDI) ADI = 0-2 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G01 diet	Intake as ug/person/day G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
	paste)														
-	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.109	2.34	0.26	1.33	0.14	1.57	0.17	4.24	0.46	0.34	0.04	2.83	0.31
JF 0448	Tomato, juice (single strength, incl concentrated)	PP	0.0589	0.29	0.02	0.29	0.02	0.10	0.01	0.38	0.02	0.10	0.01	0.14	0.01
VL 0053	Leafy vegetables, raw	RAC	7.3	8.47	61.83	22.36	163.23	7.74	56.50	25.51	186.22	45.77	334.12	21.22	154.91
VL 0494	Radish leaves, raw	RAC	10.5	0.26	2.73	0.45	4.73	0.28	2.94	0.68	7.14	NC	-	0.33	3.47
VP 0061	Beans, green, with pods, raw: beans except broad bean & soya bean (i.e. immature seeds + pods) (Phaseolus spp)	RAC	0.16	0.68	0.11	NC	-	NC	-	0.39	0.06	0.22	0.04	0.49	0.08
VP 0063	Peas green, with pods, raw (i.e. immature seeds + pods) (Pisum spp)	RAC	0.545	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VP 0064	Peas, green, without pods, raw (i.e. immature seeds only) (Pisum spp)	RAC	0.025	1.97	0.05	0.51	0.01	0.10	0.00	0.79	0.02	3.68	0.09	3.80	0.10
VP 0541	Soya bean, green, without pods, raw (i.e. immature seeds only) (Glycine max)	RAC	0.16	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VD 0541	Soya bean, dry, raw (incl paste, incl curd, incl oil, incl sauce)	RAC	0.01	72.79	0.73	59.05	0.59	20.55	0.21	74.20	0.74	61.12	0.61	73.24	0.73
VR 0075	Root and tuber vegetables, raw (incl processed)	RAC	0.01	87.83	0.88	374.04	3.74	668.92	6.69	121.64	1.22	94.20	0.94	247.11	2.47
VR 0494	Radish roots, raw	RAC	0.055	2.31	0.13	4.09	0.22	2.53	0.14	6.15	0.34	5.88	0.32	2.97	0.16
VR 0577	Carrots, raw	RAC	0.02	9.51	0.19	30.78	0.62	0.37	0.01	8.75	0.18	2.80	0.06	6.10	0.12
VS 0620	Artichoke globe	RAC	0.56	0.69	0.39	0.10	0.06	0.10	0.06	0.32	0.18	0.26	0.15	1.21	0.68
VS 0624	Celery	RAC	2.1	2.14	4.49	3.79	7.96	2.35	4.94	5.69	11.95	0.10	0.21	2.75	5.78
GC 0080	Cereal grains, raw (incl processed), excl rice commodities	RAC	0.01	438.89	4.39	449.64	4.50	177.48	1.77	375.07	3.75	274.87	2.75	520.93	5.21
CM 0649 (GC 0649)	Rice, husked, dry (incl flour, incl oil, incl beverages, incl starch, excl polished)	REP	0.115	1.26	0.14	1.58	0.18	31.05	3.57	5.43	0.62	0.90	0.10	2.18	0.25
CM 1205	Rice polished, dry	PP	0.013	34.21	0.44	10.39	0.14	41.72	0.54	82.38	1.07	150.24	1.95	70.47	0.92
GC 0654	Wheat, raw (incl bulgur, incl fermented beverages, excl germ, excl wholemeal bread, excl white flour products, excl white bread)	RAC	0.01	0.10	0.00	1.12	0.01	0.10	0.00	0.10	0.00	0.61	0.01	0.10	0.00
CF 1210	Wheat, germ	PP	0.012	NC	-	NC	-	0.10	0.00	0.10	0.00	0.14	0.00	0.10	0.00

Annex 3

CHLORANTRANILIPROLE (230) International Estimated Daily Intake (IEDI) ADI = 0-2 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day			Intake as ug/person/day								
CF 0654	Wheat, bran	PP	0.011	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1212	Wheat, wholemeal flour	PP	0.01	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CP 1212	Wheat, wholemeal bread	PP	0.01	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00
CF 1211	Wheat, white flour (incl white flour products: starch, gluten, macaroni, pastry)	PP	0.004	301.49	1.21	269.27	1.08	30.33	0.12	222.94	0.89	136.12	0.54	343.34	1.37
-	Fonio, raw (incl flour)	RAC	0.01	NC	-	NC	-	1.01	0.01	NC	-	NC	-	NC	-
GS 0659	Sugar cane, raw (incl sugar, incl molasses)	RAC	0.145	99.68	14.45	86.27	12.51	31.38	4.55	80.36	11.65	84.18	12.21	99.10	14.37
TN 0085	Tree nuts, raw (incl processed)	RAC	0.01	4.06	0.04	3.27	0.03	7.01	0.07	13.93	0.14	14.01	0.14	9.36	0.09
SO 0495	Rape seed, raw (incl oil)	RAC	0.295	0.93	0.27	1.16	0.34	0.49	0.14	2.53	0.75	9.32	2.75	2.02	0.60
SO 0691	Cotton seed, raw	RAC	0.049	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
OR 0691	Cotton seed oil, edible	PP	0.0122	3.22	0.04	1.54	0.02	1.01	0.01	0.74	0.01	1.12	0.01	2.93	0.04
SO 0697	Peanuts, nutmeat, raw (incl roasted, incl oil, incl butter)	RAC	0.01	1.30	0.01	1.23	0.01	12.62	0.13	2.87	0.03	6.59	0.07	2.67	0.03
SO 0702	Sunflower seed, raw (incl oil)	RAC	0.185	7.40	1.37	35.86	6.63	1.15	0.21	8.76	1.62	5.45	1.01	13.62	2.52
SB 0716	Coffee beans raw (incl roasted, incl instant coffee, incl substitutes)	RAC	0.015	1.36	0.02	3.59	0.05	1.44	0.02	5.18	0.08	2.02	0.03	1.70	0.03
HH 0738	Mints, raw	RAC	4.6	0.50	2.30	0.10	0.46	NC	-	NC	-	NC	-	NC	-
DH 1100	Hops, dry	RAC	10.9	0.10	1.09	0.10	1.09	0.10	1.09	0.10	1.09	NC	-	0.10	1.09
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) -80% as muscle	RAC	0.009	24.96	0.22	57.95	0.52	16.70	0.15	38.38	0.35	26.46	0.24	29.00	0.26
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) - 20% as fat	RAC	0.049	6.24	0.31	14.49	0.71	4.18	0.20	9.60	0.47	6.62	0.32	7.25	0.36
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.049	3.29	0.16	6.14	0.30	0.82	0.04	1.57	0.08	2.23	0.11	1.07	0.05
MO 0105	Edible offal (mammalian), raw	RAC	0.047	4.79	0.23	9.68	0.45	2.97	0.14	5.49	0.26	3.84	0.18	5.03	0.24
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.013	289.65	3.77	485.88	6.32	26.92	0.35	239.03	3.11	199.91	2.60	180.53	2.35
PM 0110	Poultry meat, raw (incl prepared) - 90% as muscle	RAC	0.008	13.17	0.11	26.78	0.21	7.24	0.06	116.71	0.93	22.54	0.18	32.09	0.26
PM 0110	Poultry meat, raw (incl prepared) - 10% as fat	RAC	0.031	1.46	0.05	2.98	0.09	0.80	0.02	12.97	0.40	2.50	0.08	3.57	0.11
PF 0111	Poultry fat, raw (incl rendered)	RAC	0.031	0.10	0.00	0.10	0.00	NC	-	0.10	0.00	0.10	0.00	0.10	0.00

CHLORANTRANILIPROLE (230) International Estimated Daily Intake (IEDI) ADI = 0-2 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day	Intake as ug/person/day										
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.028	0.12	0.00	0.12	0.00	0.11	0.00	5.37	0.15	0.24	0.01	0.10	0.00
PE 0112	Eggs, raw, (incl dried)	RAC	0.099	7.84	0.78	23.08	2.28	2.88	0.29	14.89	1.47	9.81	0.97	14.83	1.47
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				122.1		258.5		91.6		271.2		377.3		261.2
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (ug/person)=				120000		120000		120000		120000		120000		120000
	%ADI=				0.1%		0.2%		0.1%		0.2%		0.3%		0.2%
	Rounded %ADI=				0%		0%		0%		0%		0%		0%

CHLORANTRANILIPROLE (230) International Estimated Daily Intake (IEDI) ADI = 0-2 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day	Intake as ug/person/day										
FC 0001	Citrus fruit, raw (incl citrus fruit juice, incl kumquat commodities)	RAC	0.06	114.42	6.87	62.91	3.77	26.97	1.62	96.72	5.80	96.22	5.77	563.19	33.79
JF 0001	Citrus fruit, juice	PP	0.037	36.84	1.36	3.75	0.14	0.30	0.01	21.62	0.80	21.82	0.81	46.67	1.73
FP 0009	Pome fruit, raw (incl cider, excl apple juice)	RAC	0.07	51.09	3.58	65.40	4.58	42.71	2.99	45.29	3.17	62.51	4.38	7.74	0.54
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.0098	14.88	0.15	11.98	0.12	0.15	0.00	9.98	0.10	30.32	0.30	3.47	0.03
FS 0012	Stone fruits, raw (incl dried plums, incl dried apricots)	RAC	0.2	19.98	4.00	24.87	4.97	14.41	2.88	19.54	3.91	10.78	2.16	0.50	0.10
FB 0018	Berries and other small fruits, raw, (incl processed), excl small fruit vine climbing (group 004D)	RAC	0.336	14.68	4.93	12.74	4.28	0.23	0.08	11.77	3.95	8.01	2.69	4.08	1.37
FB 0269	Grape, raw (incl must, excl dried, excl juice, excl wine)	RAC	0.119	6.48	0.77	11.31	1.35	5.21	0.62	9.50	1.13	4.66	0.55	0.78	0.09
DF 0269	Grape, dried (= currants, raisins and sultanas)	PP	0.411	3.09	1.27	1.51	0.62	0.10	0.04	1.38	0.57	4.26	1.75	0.42	0.17
JF 0269	Grape juice	PP	0.0869	0.56	0.05	1.96	0.17	0.10	0.01	2.24	0.19	2.27	0.20	0.34	0.03

CHLORANTRANILIPROLE (230) International Estimated Daily Intake (IEDI) ADI = 0-2 mg/kg bw

			STMR	Diets as g/person/day		Intake as ug/person/day									
Codex Code	Commodity description	Expr as	mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
-	Grape wine (incl vermouths)	PP	0.14	88.93	12.45	62.41	8.74	1.84	0.26	25.07	3.51	61.17	8.56	5.84	0.82
FI 0355	Pomegranate, raw, (incl processed)	RAC	0.1	7.91	0.79	9.72	0.97	7.67	0.77	5.26	0.53	9.04	0.90	14.43	1.44
VB 0040	Brassica vegetables, raw: head cabbages, flowerhead brassicas, Brussels sprouts & kohlrabi	RAC	0.385	20.71	7.97	39.81	15.33	16.70	6.43	28.49	10.97	18.12	6.98	15.03	5.79
VC 0045	Fruiting vegetables, cucurbits, raw	RAC	0.065	27.81	1.81	41.93	2.73	123.30	8.01	49.47	3.22	15.95	1.04	35.99	2.34
VO 0050	Fruiting vegetables other than cucurbits, raw, (incl processed commodities), excl tomato commodities, excl sweet corn commodities, excl mushroom commodities	RAC	0.066	8.19	0.54	18.68	1.23	42.99	2.84	15.04	0.99	11.46	0.76	6.30	0.42
-	Peppers, chili, dried	PP	0.46	0.11	0.05	0.21	0.10	0.36	0.17	0.21	0.10	0.25	0.12	0.15	0.07
VO 0447	Sweet corn on the cob, raw (incl frozen, incl canned) (i.e. kernels plus cob without husks)	RAC	0.01	11.43	0.11	3.71	0.04	0.74	0.01	13.63	0.14	3.07	0.03	1.50	0.02
VO 0448	Tomato, raw (incl canned, excl juice, excl paste)	RAC	0.066	43.88	2.90	55.41	3.66	35.38	2.34	74.88	4.94	26.50	1.75	9.51	0.63
-	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.109	4.96	0.54	3.20	0.35	0.15	0.02	1.61	0.18	6.88	0.75	0.52	0.06
JF 0448	Tomato, juice (single strength, incl concentrated)	PP	0.0589	0.80	0.05	0.10	0.01	0.10	0.01	0.61	0.04	0.40	0.02	0.10	0.01
VL 0053	Leafy vegetables, raw	RAC	7.3	18.83	137.46	21.85	159.51	121.23	884.98	43.09	314.56	18.18	132.71	18.32	133.74
VL 0494	Radish leaves, raw	RAC	10.5	NC	-	NC	-	NC	-	3.78	39.69	NC	-	0.48	5.04
VP 0061	Beans, green, with pods, raw: beans except broad bean & soya bean (i.e. immature seeds + pods) (Phaseolus spp)	RAC	0.16	5.07	0.81	0.83	0.13	0.17	0.03	3.70	0.59	NC	-	NC	-
VP 0063	Peas green, with pods, raw (i.e. immature seeds + pods) (Pisum spp)	RAC	0.545	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VP 0064	Peas, green, without pods, raw (i.e. immature seeds only) (Pisum spp)	RAC	0.025	10.72	0.27	1.99	0.05	2.72	0.07	4.26	0.11	4.23	0.11	NC	-
VP 0541	Soya bean, green, without pods, raw (i.e. immature seeds only) (Glycine max)	RAC	0.16	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VD 0541	Soya bean, dry, raw (incl paste, incl curd, incl oil, incl sauce)	RAC	0.01	106.33	1.06	117.78	1.18	42.12	0.42	195.70	1.96	222.52	2.23	80.47	0.80
VR 0075	Root and tuber vegetables, raw (incl processed)	RAC	0.01	290.31	2.90	300.35	3.00	214.25	2.14	242.72	2.43	348.67	3.49	137.52	1.38

CHLORANTRANILIPROLE (230) International Estimated Daily Intake (IEDI) ADI = 0-2 mg/kg bw

			STMR	Diets as g/person/day	Intake as ug/person/day										
Codex Code	Commodity description	Expr as	mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
VR 0494	Radish roots, raw	RAC	0.055	3.83	0.21	11.99	0.66	NC	-	5.26	0.29	2.19	0.12	4.37	0.24
VR 0577	Carrots, raw	RAC	0.02	26.26	0.53	27.13	0.54	10.07	0.20	16.49	0.33	44.69	0.89	8.75	0.18
VS 0620	Artichoke globe	RAC	0.56	0.98	0.55	3.65	2.04	0.10	0.06	1.67	0.94	0.26	0.15	NC	-
VS 0624	Celery	RAC	2.1	7.68	16.13	2.85	5.99	NC	-	3.34	7.01	16.83	35.34	4.04	8.48
GC 0080	Cereal grains, raw (incl processed), excl rice commodities	RAC	0.01	324.67	3.25	370.12	3.70	174.66	1.75	327.21	3.27	278.45	2.78	273.84	2.74
CM 0649 (GC 0649)	Rice, husked, dry (incl flour, incl oil, incl beverages, incl starch, excl polished)	REP	0.115	3.70	0.43	2.11	0.24	1.51	0.17	1.75	0.20	0.29	0.03	5.12	0.59
CM 1205	Rice polished, dry	PP	0.013	13.38	0.17	10.80	0.14	262.08	3.41	57.16	0.74	12.83	0.17	62.78	0.82
GC 0654	Wheat, raw (incl bulgur, incl fermented beverages, excl germ, excl wholemeal bread, excl white flour products, excl white bread)	RAC	0.01	0.37	0.00	0.10	0.00	0.10	0.00	0.10	0.00	NC	-	0.10	0.00
CF 1210	Wheat, germ	PP	0.012	0.97	0.01	0.10	0.00	0.10	0.00	0.10	0.00	NC	-	0.10	0.00
CF 0654	Wheat, bran	PP	0.011	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1212	Wheat, wholemeal flour	PP	0.01	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CP 1212	Wheat, wholemeal bread	PP	0.01	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00
CF 1211	Wheat, white flour (incl white flour products: starch, gluten, macaroni, pastry)	PP	0.004	199.38	0.80	193.50	0.77	106.30	0.43	185.31	0.74	171.11	0.68	132.37	0.53
-	Fonio, raw (incl flour)	RAC	0.01	NC	-	NC	-	0.10	0.00	NC	-	NC	-	NC	-
GS 0659	Sugar cane, raw (incl sugar, incl molasses)	RAC	0.145	92.24	13.37	95.72	13.88	28.47	4.13	77.39	11.22	117.73	17.07	103.90	15.07
TN 0085	Tree nuts, raw (incl processed)	RAC	0.01	8.52	0.09	8.94	0.09	15.09	0.15	9.60	0.10	14.57	0.15	26.26	0.26
SO 0495	Rape seed, raw (incl oil)	RAC	0.295	32.68	9.64	19.91	5.87	7.83	2.31	15.69	4.63	NC	-	NC	-
SO 0691	Cotton seed, raw	RAC	0.049	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
OR 0691	Cotton seed oil, edible	PP	0.0122	1.68	0.02	0.66	0.01	1.13	0.01	1.18	0.01	0.89	0.01	0.37	0.00
SO 0697	Peanuts, nutmeat, raw (incl roasted, incl oil, incl butter)	RAC	0.01	5.63	0.06	2.75	0.03	9.58	0.10	5.82	0.06	13.71	0.14	1.84	0.02
SO 0702	Sunflower seed, raw (incl oil)	RAC	0.185	23.40	4.33	29.33	5.43	1.24	0.23	13.85	2.56	6.48	1.20	6.91	1.28
SB 0716	Coffee beans raw (incl roasted, incl instant coffee, incl substitutes)	RAC	0.015	10.90	0.16	12.44	0.19	0.77	0.01	9.48	0.14	22.07	0.33	8.15	0.12
HH 0738	Mints, raw	RAC	4.6	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
DH 1100	Hops, dry	RAC	10.9	NC	-	NC	-	0.10	1.09	0.10	1.09	NC	-	NC	-
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared	RAC	0.009	112.02	1.01	120.71	1.09	63.46	0.57	88.99	0.80	96.24	0.87	41.02	0.37

CHLORANTRANILIPROLE (230) International Estimated Daily Intake (IEDI) ADI = 0-2 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day			Intake as ug/person/day								
	meat) -80% as muscle														
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) - 20% as fat	RAC	0.049	28.01	1.37	30.18	1.48	15.86	0.78	22.25	1.09	24.06	1.18	10.25	0.50
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.049	6.44	0.32	15.51	0.76	3.79	0.19	8.29	0.41	18.44	0.90	8.00	0.39
MO 0105	Edible offal (mammalian), raw	RAC	0.047	15.17	0.71	5.19	0.24	6.30	0.30	6.78	0.32	3.32	0.16	3.17	0.15
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.013	388.92	5.06	335.88	4.37	49.15	0.64	331.25	4.31	468.56	6.09	245.45	3.19
PM 0110	Poultry meat, raw (incl prepared) - 90% as muscle	RAC	0.008	66.38	0.53	48.47	0.39	21.58	0.17	78.41	0.63	48.04	0.38	76.01	0.61
PM 0110	Poultry meat, raw (incl prepared) - 10% as fat	RAC	0.031	7.38	0.23	5.39	0.17	2.40	0.07	8.71	0.27	5.34	0.17	8.45	0.26
PF 0111	Poultry fat, raw (incl rendered)	RAC	0.031	0.10	0.00	0.10	0.00	NC	-	0.10	0.00	0.71	0.02	NC	-
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.028	0.33	0.01	0.72	0.02	0.27	0.01	0.35	0.01	0.80	0.02	NC	-
PE 0112	Eggs, raw, (incl dried)	RAC	0.099	25.84	2.56	29.53	2.92	28.05	2.78	33.19	3.29	36.44	3.61	8.89	0.88
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				254.2		268.0		936.3		448.0		250.5		227.1
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (ug/person)=				120000		120000		110000		120000		120000		120000
	%ADI=				0.2%		0.2%		0.9%		0.4%		0.2%		0.2%
	Rounded %ADI=				0%		0%		1%		0%		0%		0%

CHLORANTRANILIPROLE (230) International Estimated Daily Intake (IEDI) ADI = 0-2 mg/kg bw

			STMR	Diets: g/person/day			Intake = daily intake: ug/person						
Codex Code	Commodity description	Expr as	mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
FC 0001	Citrus fruit, raw (incl citrus fruit juice, incl kumquat commodities)	RAC	0.06	21.16	1.27	2.94	0.18	58.52	3.51	0.44	0.03	5.13	0.31
JF 0001	Citrus fruit, juice	PP	0.037	0.11	0.00	0.29	0.01	13.55	0.50	0.14	0.01	0.33	0.01
FP 0009	Pome fruit, raw (incl cider, excl apple juice)	RAC	0.07	68.85	4.82	10.93	0.77	70.82	4.96	189.78	13.28	19.56	1.37
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.0098	0.10	0.00	0.10	0.00	7.19	0.07	0.10	0.00	NC	-
FS 0012	Stone fruits, raw (incl dried plums, incl dried apricots)	RAC	0.2	0.10	0.02	0.10	0.02	33.36	6.67	0.10	0.02	NC	-
FB 0018	Berries and other small fruits, raw, (incl processed), excl small fruit vine climbing (group 004D)	RAC	0.336	1.54	0.52	18.66	6.27	11.59	3.89	0.81	0.27	4.99	1.68
FB 0269	Grape, raw (incl must, excl dried, excl juice, excl wine)	RAC	0.119	0.14	0.02	0.36	0.04	15.33	1.82	0.10	0.01	0.28	0.03
DF 0269	Grape, dried (= currants, raisins and sultanas)	PP	0.411	0.10	0.04	0.13	0.05	1.06	0.44	0.10	0.04	0.10	0.04
JF 0269	Grape juice	PP	0.0869	0.10	0.01	0.10	0.01	0.41	0.04	0.10	0.01	NC	-
-	Grape wine (incl vermouths)	PP	0.14	0.31	0.04	0.23	0.03	60.43	8.46	0.52	0.07	31.91	4.47
FI 0355	Pomegranate, raw, (incl processed)	RAC	0.1	5.49	0.55	27.17	2.72	NC	-	2.89	0.29	17.87	1.79
VB 0040	Brassica vegetables, raw: head cabbages, flowerhead brassicas, Brussels sprouts & kohlrabi	RAC	0.385	4.84	1.86	3.79	1.46	58.72	22.61	0.10	0.04	NC	-
VC 0045	Fruiting vegetables, cucurbits, raw	RAC	0.065	5.96	0.39	9.74	0.63	51.82	3.37	13.61	0.88	0.10	0.01
VO 0050	Fruiting vegetables other than cucurbits, raw, (incl processed commodities), excl tomato commodities, excl sweet corn commodities, excl mushroom commodities	RAC	0.066	20.58	1.36	31.41	2.07	37.56	2.48	1.79	0.12	NC	-
-	Peppers, chili, dried	PP	0.46	0.58	0.27	1.27	0.58	1.21	0.56	0.12	0.06	NC	-

CHLORANTRANILIPROLE (230) International Estimated Daily Intake (IEDI) ADI = 0-2 mg/kg bw

			STMR	Diets: g/person/day			Intake = daily intake: ug/person						
Codex Code	Commodity description	Expr as	mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
VO 0447	Sweet corn on the cob, raw (incl frozen, incl canned) (i.e. kernels plus cob without husks)	RAC	0.01	3.63	0.04	20.50	0.21	8.78	0.09	0.10	0.00	0.17	0.00
VO 0448	Tomato, raw (incl canned, excl juice, excl paste)	RAC	0.066	13.10	0.86	4.90	0.32	62.16	4.10	1.04	0.07	0.10	0.01
-	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.109	0.58	0.06	0.22	0.02	2.21	0.24	0.24	0.03	3.10	0.34
JF 0448	Tomato, juice (single strength, incl concentrated)	PP	0.0589	0.10	0.01	0.10	0.01	0.42	0.02	0.10	0.01	0.10	0.01
VL 0053	Leafy vegetables, raw	RAC	7.3	12.42	90.67	8.75	63.88	7.53	54.97	7.07	51.61	14.11	103.00
VL 0494	Radish leaves, raw	RAC	10.5	0.44	4.62	0.32	3.36	NC	-	0.30	3.15	0.59	6.20
VP 0061	Beans, green, with pods, raw: beans except broad bean & soya bean (i.e. immature seeds + pods) (Phaseolus spp)	RAC	0.16	NC	-	NC	-	NC	-	NC	-	NC	-
VP 0063	Peas green, with pods, raw (i.e. immature seeds + pods) (Pisum spp)	RAC	0.545	NC	-	NC	-	NC	-	NC	-	NC	-
VP 0064	Peas, green, without pods, raw (i.e. immature seeds only) (Pisum spp)	RAC	0.025	0.21	0.01	0.10	0.00	5.51	0.14	0.10	0.00	NC	-
VP 0541	Soya bean, green, without pods, raw (i.e. immature seeds only) (Glycine max)	RAC	0.16	NC	-	NC	-	NC	-	NC	-	NC	-
VD 0541	Soya bean, dry, raw (incl paste, incl curd, incl oil, incl sauce)	RAC	0.01	15.80	0.16	14.29	0.14	104.36	1.04	17.11	0.17	35.20	0.35
VR 0075	Root and tuber vegetables, raw (incl processed)	RAC	0.01	282.25	2.82	232.11	2.32	281.91	2.82	620.21	6.20	459.96	4.60
VR 0494	Radish roots, raw	RAC	0.055	3.96	0.22	2.86	0.16	3.30	0.18	2.67	0.15	5.34	0.29
VR 0577	Carrots, raw	RAC	0.02	2.07	0.04	3.00	0.06	25.29	0.51	0.10	0.00	NC	-
VS 0620	Artichoke globe	RAC	0.56	0.10	0.06	NC	-	0.10	0.06	0.10	0.06	NC	-
VS 0624	Celery	RAC	2.1	3.66	7.69	2.65	5.57	4.84	10.16	2.47	5.19	4.94	10.37
GC 0080	Cereal grains, raw (incl processed), excl rice commodities	RAC	0.01	354.49	3.54	131.02	1.31	384.15	3.84	175.62	1.76	188.16	1.88

Annex 3

CHLORANTRANILIPROLE (230) International Estimated Daily Intake (IEDI) ADI = 0-2 mg/kg bw

			STMR	Diets: g/person/day		Intake = daily intake: ug/person							
Codex Code	Commodity description	Expr as	mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
CM 0649 (GC 0649)	Rice, husked, dry (incl flour, incl oil, incl beverages, incl starch, excl polished)	REP	0.115	13.58	1.56	4.29	0.49	2.17	0.25	0.10	0.01	8.84	1.02
CM 1205	Rice polished, dry	PP	0.013	30.20	0.39	218.34	2.84	12.77	0.17	15.24	0.20	51.35	0.67
GC 0654	Wheat, raw (incl bulgur, incl fermented beverages, excl germ, excl wholemeal bread, excl white flour products, excl white bread)	RAC	0.01	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.97	0.01
CF 1210	Wheat, germ	PP	0.012	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	NC	-
CF 0654	Wheat, bran	PP	0.011	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1212	Wheat, wholemeal flour	PP	0.01	NC	-	NC	-	NC	-	NC	-	NC	-
CP 1212	Wheat, wholemeal bread	PP	0.01	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00
CF 1211	Wheat, white flour (incl white flour products: starch, gluten, macaroni, pastry)	PP	0.004	45.21	0.18	87.37	0.35	215.61	0.86	20.42	0.08	103.67	0.41
-	Fonio, raw (incl flour)	RAC	0.01	0.61	0.01	NC	-	NC	-	NC	-	NC	-
GS 0659	Sugar cane, raw (incl sugar, incl molasses)	RAC	0.145	33.75	4.89	106.29	15.41	78.09	11.32	29.09	4.22	45.70	6.63
TN 0085	Tree nuts, raw (incl processed)	RAC	0.01	4.39	0.04	135.53	1.36	6.11	0.06	0.72	0.01	317.74	3.18
SO 0495	Rape seed, raw (incl oil)	RAC	0.295	0.19	0.06	0.10	0.03	12.07	3.56	0.10	0.03	NC	-
SO 0691	Cotton seed, raw	RAC	0.049	NC	-	NC	-	NC	-	NC	-	NC	-
OR 0691	Cotton seed oil, edible	PP	0.0122	1.28	0.02	0.10	0.00	0.45	0.01	0.42	0.01	0.15	0.00
SO 0697	Peanuts, nutmeat, raw (incl roasted, incl oil, incl butter)	RAC	0.01	18.82	0.19	0.57	0.01	2.28	0.02	6.90	0.07	0.53	0.01
SO 0702	Sunflower seed, raw (incl oil)	RAC	0.185	0.94	0.17	0.22	0.04	32.01	5.92	12.12	2.24	0.48	0.09
SB 0716	Coffee beans raw (incl roasted, incl instant coffee, incl substitutes)	RAC	0.015	0.95	0.01	1.32	0.02	11.64	0.17	2.96	0.04	14.73	0.22
HH 0738	Mints, raw	RAC	4.6	NC	-	NC	-	NC	-	NC	-	NC	-
DH 1100	Hops, dry	RAC	10.9	NC	-	NC	-	0.10	1.09	NC	-	NC	-
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) -80% as muscle	RAC	0.009	23.34	0.21	40.71	0.37	97.15	0.87	18.06	0.16	57.71	0.52

CHLORANTRANILIPROLE (230) International Estimated Daily Intake (IEDI) ADI = 0-2 mg/kg bw

			STMR	Diets: g/person/day		Intake = daily intake: ug/person							
Codex Code	Commodity description	Expr as	mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) - 20% as fat	RAC	0.049	5.84	0.29	10.18	0.50	24.29	1.19	4.52	0.22	14.43	0.71
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.049	1.05	0.05	1.14	0.06	18.69	0.92	0.94	0.05	3.12	0.15
MO 0105	Edible offal (mammalian), raw	RAC	0.047	4.64	0.22	1.97	0.09	10.01	0.47	3.27	0.15	3.98	0.19
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.013	108.75	1.41	70.31	0.91	436.11	5.67	61.55	0.80	79.09	1.03
PM 0110	Poultry meat, raw (incl prepared) - 90% as muscle	RAC	0.008	3.53	0.03	10.83	0.09	51.36	0.41	4.53	0.04	50.00	0.40
PM 0110	Poultry meat, raw (incl prepared) - 10% as fat	RAC	0.031	0.39	0.01	1.20	0.04	5.71	0.18	0.50	0.02	5.56	0.17
PF 0111	Poultry fat, raw (incl rendered)	RAC	0.031	NC	-	NC	-	0.32	0.01	NC	-	NC	-
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.028	0.10	0.00	0.70	0.02	0.97	0.03	0.10	0.00	NC	-
PE 0112	Eggs, raw, (incl dried)	RAC	0.099	3.84	0.38	4.41	0.44	27.25	2.70	1.13	0.11	7.39	0.73
-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				132.1		115.3		173.4		92.0		152.9
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (ug/person)=				120000		120000		120000		120000		120000
	%ADI=				0.1%		0.1%		0.1%		0.1%		0.1%
	Rounded %ADI=				0%		0%		0%		0%		0%

DELTAMETHRIN (135) International Estimated Daily Intake (IEDI) ADI = 0-0.01 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day		Intake as ug/person/day									
FC 0001	Citrus fruit, raw (incl citrus fruit juice, incl kumquat commodities)	RAC	0.01	34.91	0.35	16.51	0.17	17.23	0.17	104.48	1.04	35.57	0.36	98.49	0.98
FP 0226	Apple, raw	RAC	0.03	13.39	0.40	26.46	0.79	0.52	0.02	16.07	0.48	6.37	0.19	47.79	1.43
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.0027	0.32	0.00	3.07	0.01	0.10	0.00	5.00	0.01	0.29	0.00	5.57	0.02
FS 0014	Plums, raw (incl dried plums, excl Chinese jujube)	RAC	0.02	2.67	0.05	8.77	0.18	0.10	0.00	3.03	0.06	0.70	0.01	4.34	0.09
-	Peaches and nectarines, raw	RAC	0.02	2.87	0.06	2.21	0.04	0.15	0.00	5.94	0.12	1.47	0.03	15.66	0.31
FB 0269	Grape, raw (incl juice, incl wine, excl must, excl dried)	RAC	0.04	13.78	0.55	26.70	1.07	2.85	0.11	18.92	0.76	8.84	0.35	59.99	2.40
FB 0275	Strawberry, raw	RAC	0.02	0.70	0.01	2.01	0.04	0.10	0.00	1.36	0.03	0.37	0.01	2.53	0.05
VA 0384	Leek, raw	RAC	0.07	0.18	0.01	1.59	0.11	0.10	0.01	0.28	0.02	0.10	0.01	3.21	0.22
-	Onions, mature bulbs, dry	RAC	0.02	29.36	0.59	37.50	0.75	3.56	0.07	34.78	0.70	18.81	0.38	43.38	0.87
VB 0042	Flowerhead brassicas, raw	RAC	0.02	2.96	0.06	0.57	0.01	0.10	0.00	4.17	0.08	7.79	0.16	3.64	0.07
VC 0045	Fruiting vegetables, cucurbits, raw	RAC	0.02	53.14	1.06	86.21	1.72	6.28	0.13	92.76	1.86	15.64	0.31	155.30	3.11
VO 0447	Sweet corn on the cob, raw (incl frozen, incl canned) (i.e. kernels plus cob without husks)	RAC	0.02	0.14	0.00	0.94	0.02	5.70	0.11	2.61	0.05	1.94	0.04	0.22	0.00
VO 0448	Tomato, raw (incl juice, incl canned, excl paste)	RAC	0.02	42.41	0.85	76.50	1.53	10.69	0.21	85.07	1.70	24.98	0.50	203.44	4.07
-	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.002	2.34	0.00	1.33	0.00	1.57	0.00	4.24	0.01	0.34	0.00	2.83	0.01
-	Mushrooms (cultivated & wild), raw (incl canned, incl dried)	RAC	0.02	0.10	0.00	0.56	0.01	0.10	0.00	2.65	0.05	0.11	0.00	0.51	0.01
VL 0053	Leafy vegetables, raw	RAC	0.125	8.47	1.06	22.36	2.80	7.74	0.97	25.51	3.19	45.77	5.72	21.22	2.65
VP 0060	Legume vegetables, raw	RAC	0.01	7.73	0.08	1.53	0.02	0.51	0.01	2.95	0.03	5.08	0.05	12.86	0.13
VD 0070	Pulses, raw (incl processed)	RAC	0.5	85.59	42.80	64.02	32.01	34.15	17.08	88.02	44.01	89.38	44.69	96.88	48.44
VR 0494	Radish roots, raw	RAC	0.01	2.31	0.02	4.09	0.04	2.53	0.03	6.15	0.06	5.88	0.06	2.97	0.03
VR 0577	Carrots, raw	RAC	0.01	9.51	0.10	30.78	0.31	0.37	0.00	8.75	0.09	2.80	0.03	6.10	0.06
VR 0589	Potato, raw (incl flour, incl frozen, incl	RAC	0.01	59.74	0.60	316.14	3.16	9.78	0.10	60.26	0.60	54.12	0.54	119.82	1.20

DELTAMETHRIN (135) International Estimated Daily Intake (IEDI) ADI = 0-0.01 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day		Intake as ug/person/day									
				G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
	starch, incl tapioca)														
GC 0640	Barley, raw (incl malt extract, incl pot&pearled, incl flour & grits, incl beer, incl malt)	RAC	0.7	19.91	13.94	31.16	21.81	5.04	3.53	3.10	2.17	9.77	6.84	4.31	3.02
GC 0641	Buckwheat, raw (incl flour)	RAC	0.7	NC	-	0.40	0.28	0.10	0.07	0.10	0.07	0.10	0.07	0.10	0.07
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl beer, incl starch, excl oil, excl germ)	RAC	0.7	28.85	20.20	43.93	30.75	108.66	76.06	46.94	32.86	59.64	41.75	73.58	51.51
-	Maize, germ	PP	0.224	0.10	0.02	NC	-	0.10	0.02	0.10	0.02	0.22	0.05	NC	-
OR 0645	Maize oil	PP	12.6	0.96	12.10	0.85	10.71	0.29	3.65	5.42	68.29	0.42	5.29	2.10	26.46
GC 0646	Millet, raw (incl flour, incl beer)	RAC	0.7	1.46	1.02	2.32	1.62	5.84	4.09	0.89	0.62	16.17	11.32	0.10	0.07
GC 0647	Oats, raw (incl rolled)	RAC	0.7	0.10	0.07	7.05	4.94	0.10	0.07	1.71	1.20	0.96	0.67	0.10	0.07
GC 0648	Quinoa, raw	RAC	0.7	NC	-	NC	-	NC	-	NC	-	0.10	0.07	NC	-
CM 0649 (GC 0649)	Rice, husked, dry (incl flour, incl oil, incl beverages, incl starch, excl polished)	REP	0.105	1.26	0.13	1.58	0.17	31.05	3.26	5.43	0.57	0.90	0.09	2.18	0.23
CM 1205	Rice polished, dry	PP	0.042	34.21	1.44	10.39	0.44	41.72	1.75	82.38	3.46	150.24	6.31	70.47	2.96
GC 0650	Rye, raw (incl flour)	RAC	0.7	0.13	0.09	19.38	13.57	0.10	0.07	0.12	0.08	0.10	0.07	2.15	1.51
GC 0651	Sorghum, raw (incl beer, excl flour)	RAC	0.7	NC	-	0.10	0.07	3.34	2.34	0.10	0.07	NC	-	NC	-
-	Sorghum, flour (white flour and wholemeal flour)	PP	0.231	3.91	0.90	NC	-	11.62	2.68	14.24	3.29	9.87	2.28	2.62	0.61
GC 0653	Triticale, raw (incl flour)	RAC	0.7	NC	-	NC	-	NC	-	0.10	0.07	0.39	0.27	NC	-
GC 0654	Wheat, raw (incl meslin)	RAC	0.7	0.10	0.07	1.12	0.78	NC	-	0.10	0.07	0.56	0.39	NC	-
-	Wheat, bulgur	PP	0.637	NC	-	NC	-	NC	-	0.10	0.06	NC	-	NC	-
CF 1210	Wheat, germ	PP	0.84	NC	-	NC	-	0.10	0.08	0.10	0.08	0.14	0.12	0.10	0.08
CF 0654	Wheat, bran	PP	2.31	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1212	Wheat, wholemeal flour	PP	0.637	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CP 1212	Wheat, wholemeal bread	PP	0.294	0.10	0.03	0.10	0.03	0.10	0.03	0.10	0.03	0.10	0.03	0.10	0.03
CP 1211	Wheat, white bread	PP	0.098	0.25	0.02	0.63	0.06	0.12	0.01	0.43	0.04	1.39	0.14	0.22	0.02
CF 1211	Wheat, white flour (incl white flour products: starch, gluten, macaroni, pastry)	PP	0.217	301.49	65.42	269.27	58.43	30.33	6.58	222.94	48.38	136.12	29.54	343.34	74.50
-	Fonio, raw (incl flour)	RAC	0.7	NC	-	NC	-	1.01	0.71	NC	-	NC	-	NC	-
-	Cereals, NES, raw (including processed) : canagua, quihuicha, Job's tears and wild	RAC	0.7	2.04	1.43	2.99	2.09	1.86	1.30	19.17	13.42	3.33	2.33	1.66	1.16

DELTAMETHRIN (135) International Estimated Daily Intake (IEDI) ADI = 0-0.01 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G01 diet	Intake as ug/person/day G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
	rice														
TN 0666	Hazelnuts, nutmeat	RAC	0.02	0.10	0.00	0.13	0.00	0.10	0.00	0.11	0.00	0.10	0.00	1.11	0.02
TN 0678	Walnuts, nutmeat	RAC	0.02	0.23	0.00	1.49	0.03	0.10	0.00	0.33	0.01	0.10	0.00	2.06	0.04
SO 0305	Olives for oil production, raw	RAC	0.21	1.47	0.31	0.67	0.14	NC	-	1.26	0.26	0.10	0.02	7.63	1.60
-	Olive oil (virgin and residue oil)	PP	0.336	2.17	0.73	0.13	0.04	0.10	0.03	1.32	0.44	0.10	0.03	2.76	0.93
SO 0495	Rape seed, raw (incl oil)	RAC	0.07	0.93	0.07	1.16	0.08	0.49	0.03	2.53	0.18	9.32	0.65	2.02	0.14
SO 0702	Sunflower seed, raw (incl oil)	RAC	0.05	7.40	0.37	35.86	1.79	1.15	0.06	8.76	0.44	5.45	0.27	13.62	0.68
DT 1114	Tea, green or black, fermented and dried, (including concentrates)	RAC	2.2	2.28	5.02	1.98	4.36	0.46	1.01	2.43	5.35	1.29	2.84	3.04	6.69
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) -80% as muscle	RAC	0.03	24.96	0.75	57.95	1.74	16.70	0.50	38.38	1.15	26.46	0.79	29.00	0.87
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) - 20% as fat	RAC	0.155	6.24	0.97	14.49	2.25	4.18	0.65	9.60	1.49	6.62	1.03	7.25	1.12
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.155	3.29	0.51	6.14	0.95	0.82	0.13	1.57	0.24	2.23	0.35	1.07	0.17
MO 0105	Edible offal (mammalian), raw	RAC	0.03	4.79	0.14	9.68	0.29	2.97	0.09	5.49	0.16	3.84	0.12	5.03	0.15
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.017	289.65	4.92	485.88	8.26	26.92	0.46	239.03	4.06	199.91	3.40	180.53	3.07
PM 0110	Poultry meat, raw (incl prepared) - 90% as muscle	RAC	0.03	13.17	0.40	26.78	0.80	7.24	0.22	116.71	3.50	22.54	0.68	32.09	0.96
PM 0110	Poultry meat, raw (incl prepared) - 10% as fat	RAC	0.038	1.46	0.06	2.98	0.11	0.80	0.03	12.97	0.49	2.50	0.10	3.57	0.14
PF 0111	Poultry fat, raw (incl rendered)	RAC	0.038	0.10	0.00	0.10	0.00	NC	-	0.10	0.00	0.10	0.00	0.10	0.00
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.02	0.12	0.00	0.12	0.00	0.11	0.00	5.37	0.11	0.24	0.00	0.10	0.00
PE 0112	Eggs, raw, (incl dried)	RAC	0.02	7.84	0.16	23.08	0.46	2.88	0.06	14.89	0.30	9.81	0.20	14.83	0.30
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				179.9		211.9		128.6		248.0		171.5		245.3
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (ug/person)=				600		600		600		600		600		600
	%ADI=				30.0%		35.3%		21.4%		41.3%		28.6%		40.9%
	Rounded %ADI=				30%		40%		20%		40%		30%		40%

DELTAMETHRIN (135) International Estimated Daily Intake (IEDI) ADI = 0-0.01 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day				Intake as ug/person/day							
FC 0001	Citrus fruit, raw (incl citrus fruit juice, incl kumquat commodities)	RAC	0.01	114.42	1.14	62.91	0.63	26.97	0.27	96.72	0.97	96.22	0.96	563.19	5.63
FP 0226	Apple, raw	RAC	0.03	27.44	0.82	49.21	1.48	21.57	0.65	31.09	0.93	51.60	1.55	1.77	0.05
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.0027	14.88	0.04	11.98	0.03	0.15	0.00	9.98	0.03	30.32	0.08	3.47	0.01
FS 0014	Plums, raw (incl dried plums, excl Chinese jujube)	RAC	0.02	5.55	0.11	4.37	0.09	6.08	0.12	3.66	0.07	3.93	0.08	0.46	0.01
-	Peaches and nectarines, raw	RAC	0.02	8.76	0.18	12.98	0.26	8.23	0.16	10.09	0.20	3.64	0.07	0.10	0.00
FB 0269	Grape, raw (incl juice, incl wine, excl must, excl dried)	RAC	0.04	129.18	5.17	99.38	3.98	7.75	0.31	46.58	1.86	91.37	3.65	9.23	0.37
FB 0275	Strawberry, raw	RAC	0.02	4.49	0.09	5.66	0.11	0.10	0.00	6.63	0.13	5.75	0.12	0.10	0.00
VA 0384	Leek, raw	RAC	0.07	4.01	0.28	4.41	0.31	0.72	0.05	0.54	0.04	16.41	1.15	0.10	0.01
-	Onions, mature bulbs, dry	RAC	0.02	19.69	0.39	29.83	0.60	24.64	0.49	31.35	0.63	9.72	0.19	12.59	0.25
VB 0042	Flowerhead brassicas, raw	RAC	0.02	9.50	0.19	6.77	0.14	9.03	0.18	3.21	0.06	9.36	0.19	0.87	0.02
VC 0045	Fruiting vegetables, cucurbits, raw	RAC	0.02	27.81	0.56	41.93	0.84	123.30	2.47	49.47	0.99	15.95	0.32	35.99	0.72
VO 0447	Sweet corn on the cob, raw (incl frozen, incl canned) (i.e. kernels plus cob without husks)	RAC	0.02	11.43	0.23	3.71	0.07	0.74	0.01	13.63	0.27	3.07	0.06	1.50	0.03
VO 0448	Tomato, raw (incl juice, incl canned, excl paste)	RAC	0.02	44.88	0.90	55.49	1.11	35.44	0.71	75.65	1.51	27.00	0.54	9.61	0.19
-	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.002	4.96	0.01	3.20	0.01	0.15	0.00	1.61	0.00	6.88	0.01	0.52	0.00
-	Mushrooms (cultivated & wild), raw (incl canned, incl dried)	RAC	0.02	7.31	0.15	5.92	0.12	1.26	0.03	3.73	0.07	14.85	0.30	0.57	0.01
VL 0053	Leafy vegetables, raw	RAC	0.125	18.83	2.35	21.85	2.73	121.23	15.15	43.09	5.39	18.18	2.27	18.32	2.29
VP 0060	Legume vegetables, raw	RAC	0.01	18.21	0.18	8.91	0.09	7.22	0.07	10.04	0.10	23.22	0.23	0.17	0.00
VD 0070	Pulses, raw (incl processed)	RAC	0.5	112.88	56.44	123.05	61.53	47.15	23.58	204.64	102.32	227.37	113.69	109.11	54.56
VR 0494	Radish roots, raw	RAC	0.01	3.83	0.04	11.99	0.12	NC	-	5.26	0.05	2.19	0.02	4.37	0.04
VR 0577	Carrots, raw	RAC	0.01	26.26	0.26	27.13	0.27	10.07	0.10	16.49	0.16	44.69	0.45	8.75	0.09
VR 0589	Potato, raw (incl flour, incl frozen, incl starch, incl tapioca)	RAC	0.01	225.03	2.25	234.24	2.34	71.48	0.71	177.55	1.78	234.55	2.35	37.71	0.38

DELTAMETHRIN (135) International Estimated Daily Intake (IEDI) ADI = 0-0.01 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day	Intake as ug/person/day										
GC 0640	Barley, raw (incl malt extract, incl pot&pearled, incl flour & grits, incl beer, incl malt)	RAC	0.7	36.18	25.33	53.45	37.42	9.39	6.57	35.25	24.68	46.68	32.68	15.92	11.14
GC 0641	Buckwheat, raw (incl flour)	RAC	0.7	0.10	0.07	0.79	0.55	0.18	0.13	0.35	0.25	NC	-	NC	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl beer, incl starch, excl oil, excl germ)	RAC	0.7	17.61	12.33	25.71	18.00	25.89	18.12	36.98	25.89	5.49	3.84	64.21	44.95
-	Maize, germ	PP	0.224	0.10	0.02	NC	-	NC	-	0.10	0.02	NC	-	0.10	0.02
OR 0645	Maize oil	PP	12.6	0.90	11.34	0.47	5.92	0.15	1.89	3.01	37.93	1.86	23.44	0.36	4.54
GC 0646	Millet, raw (incl flour, incl beer)	RAC	0.7	0.10	0.07	0.16	0.11	1.75	1.23	0.69	0.48	NC	-	NC	-
GC 0647	Oats, raw (incl rolled)	RAC	0.7	7.50	5.25	6.26	4.38	0.15	0.11	4.87	3.41	3.16	2.21	2.98	2.09
GC 0648	Quinoa, raw	RAC	0.7	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CM 0649 (GC 0649)	Rice, husked, dry (incl flour, incl oil, incl beverages, incl starch, excl polished)	REP	0.105	3.70	0.39	2.11	0.22	1.51	0.16	1.75	0.18	0.29	0.03	5.12	0.54
CM 1205	Rice polished, dry	PP	0.042	13.38	0.56	10.80	0.45	262.08	11.01	57.16	2.40	12.83	0.54	62.78	2.64
GC 0650	Rye, raw (incl flour)	RAC	0.7	3.21	2.25	35.38	24.77	0.21	0.15	6.50	4.55	1.49	1.04	NC	-
GC 0651	Sorghum, raw (incl beer, excl flour)	RAC	0.7	NC	-	NC	-	0.10	0.07	1.15	0.81	NC	-	7.12	4.98
-	Sorghum, flour (white flour and wholemeal flour)	PP	0.231	NC	-	NC	-	1.29	0.30	0.10	0.02	NC	-	NC	-
GC 0653	Triticale, raw (incl flour)	RAC	0.7	0.10	0.07	0.17	0.12	0.29	0.20	0.10	0.07	NC	-	NC	-
GC 0654	Wheat, raw (incl meslin)	RAC	0.7	NC	-	NC	-	NC	-	0.10	0.07	NC	-	NC	-
-	Wheat, bulgur	PP	0.637	NC	-	NC	-	0.10	0.06	NC	-	NC	-	NC	-
CF 1210	Wheat, germ	PP	0.84	0.97	0.81	0.10	0.08	0.10	0.08	0.10	0.08	NC	-	0.10	0.08
CF 0654	Wheat, bran	PP	2.31	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1212	Wheat, wholemeal flour	PP	0.637	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CP 1212	Wheat, wholemeal bread	PP	0.294	0.10	0.03	0.10	0.03	0.10	0.03	0.10	0.03	0.10	0.03	0.10	0.03
CP 1211	Wheat, white bread	PP	0.098	1.30	0.13	0.46	0.05	0.10	0.01	0.22	0.02	2.44	0.24	0.77	0.08
CF 1211	Wheat, white flour (incl white flour products: starch, gluten, macaroni, pastry)	PP	0.217	199.38	43.27	193.50	41.99	106.30	23.07	185.31	40.21	171.11	37.13	132.37	28.72
-	Fonio, raw (incl flour)	RAC	0.7	NC	-	NC	-	0.10	0.07	NC	-	NC	-	NC	-
-	Cereals, NES, raw (including processed) : canagua, quihuicha, Job's tears and wild rice	RAC	0.7	6.17	4.32	3.01	2.11	0.76	0.53	3.30	2.31	3.38	2.37	15.84	11.09
TN 0666	Hazelnuts, nutmeat	RAC	0.02	0.45	0.01	1.12	0.02	0.10	0.00	0.34	0.01	1.63	0.03	NC	-

DELTAMETHRIN (135) International Estimated Daily Intake (IEDI) ADI = 0-0.01 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day	Intake as ug/person/day										
TN 0678	Walnuts, nutmeat	RAC	0.02	0.34	0.01	0.84	0.02	0.28	0.01	0.39	0.01	0.45	0.01	NC	-
SO 0305	Olives for oil production, raw	RAC	0.21	0.35	0.07	0.10	0.02	0.10	0.02	0.57	0.12	0.10	0.02	NC	-
-	Olive oil (virgin and residue oil)	PP	0.336	3.40	1.14	9.49	3.19	0.10	0.03	4.28	1.44	2.74	0.92	0.48	0.16
SO 0495	Rape seed, raw (incl oil)	RAC	0.07	32.68	2.29	19.91	1.39	7.83	0.55	15.69	1.10	NC	-	NC	-
SO 0702	Sunflower seed, raw (incl oil)	RAC	0.05	23.40	1.17	29.33	1.47	1.24	0.06	13.85	0.69	6.48	0.32	6.91	0.35
DT 1114	Tea, green or black, fermented and dried, (including concentrates)	RAC	2.2	2.91	6.40	1.73	3.81	1.14	2.51	1.85	4.07	2.29	5.04	0.74	1.63
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) -80% as muscle	RAC	0.03	112.02	3.36	120.71	3.62	63.46	1.90	88.99	2.67	96.24	2.89	41.02	1.23
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) - 20% as fat	RAC	0.155	28.01	4.34	30.18	4.68	15.86	2.46	22.25	3.45	24.06	3.73	10.25	1.59
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.155	6.44	1.00	15.51	2.40	3.79	0.59	8.29	1.28	18.44	2.86	8.00	1.24
MO 0105	Edible offal (mammalian), raw	RAC	0.03	15.17	0.46	5.19	0.16	6.30	0.19	6.78	0.20	3.32	0.10	3.17	0.10
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.017	388.92	6.61	335.88	5.71	49.15	0.84	331.25	5.63	468.56	7.97	245.45	4.17
PM 0110	Poultry meat, raw (incl prepared) - 90% as muscle	RAC	0.03	66.38	1.99	48.47	1.45	21.58	0.65	78.41	2.35	48.04	1.44	76.01	2.28
PM 0110	Poultry meat, raw (incl prepared) - 10% as fat	RAC	0.038	7.38	0.28	5.39	0.20	2.40	0.09	8.71	0.33	5.34	0.20	8.45	0.32
PF 0111	Poultry fat, raw (incl rendered)	RAC	0.038	0.10	0.00	0.10	0.00	NC	-	0.10	0.00	0.71	0.03	NC	-
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.02	0.33	0.01	0.72	0.01	0.27	0.01	0.35	0.01	0.80	0.02	NC	-
PE 0112	Eggs, raw, (incl dried)	RAC	0.02	25.84	0.52	29.53	0.59	28.05	0.56	33.19	0.66	36.44	0.73	8.89	0.18
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				207.7		241.8		119.3		285.0		258.1		188.8
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (ug/person)=				600		600		550		600		600		600
	%ADI=				34.6%		40.3%		21.7%		47.5%		43.0%		31.5%
	Rounded %ADI=				30%		40%		20%		50%		40%		30%

DELTAMETHRIN (135) International Estimated Daily Intake (IEDI) ADI = 0-0.01 mg/kg bw

			STMR	Diets: g/person/day		Intake = daily intake: ug/person							
Codex Code	Commodity description	Expr as	mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
FC 0001	Citrus fruit, raw (incl citrus fruit juice, incl kumquat commodities)	RAC	0.01	21.16	0.21	2.94	0.03	58.52	0.59	0.44	0.00	5.13	0.05
FP 0226	Apple, raw	RAC	0.03	0.21	0.01	2.05	0.06	54.48	1.63	0.10	0.00	1.38	0.04
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.0027	0.10	0.00	0.10	0.00	7.19	0.02	0.10	0.00	NC	-
FS 0014	Plums, raw (incl dried plums, excl Chinese jujube)	RAC	0.02	0.10	0.00	0.10	0.00	16.65	0.33	0.10	0.00	NC	-
-	Peaches and nectarines, raw	RAC	0.02	0.10	0.00	0.10	0.00	7.47	0.15	0.10	0.00	NC	-
FB 0269	Grape, raw (incl juice, incl wine, excl must, excl dried)	RAC	0.04	0.58	0.02	0.70	0.03	98.74	3.95	0.73	0.03	43.92	1.76
FB 0275	Strawberry, raw	RAC	0.02	0.10	0.00	0.10	0.00	3.35	0.07	0.10	0.00	0.10	0.00
VA 0384	Leek, raw	RAC	0.07	0.10	0.01	1.44	0.10	1.22	0.09	0.10	0.01	NC	-
-	Onions, mature bulbs, dry	RAC	0.02	9.01	0.18	20.24	0.40	30.90	0.62	9.61	0.19	2.11	0.04
VB 0042	Flowerhead brassicas, raw	RAC	0.02	0.10	0.00	0.10	0.00	4.86	0.10	0.10	0.00	NC	-
VC 0045	Fruiting vegetables, cucurbits, raw	RAC	0.02	5.96	0.12	9.74	0.19	51.82	1.04	13.61	0.27	0.10	0.00
VO 0447	Sweet corn on the cob, raw (incl frozen, incl canned) (i.e. kernels plus cob without husks)	RAC	0.02	3.63	0.07	20.50	0.41	8.78	0.18	0.10	0.00	0.17	0.00
VO 0448	Tomato, raw (incl juice, incl canned, excl paste)	RAC	0.02	13.17	0.26	4.92	0.10	62.69	1.25	1.04	0.02	0.11	0.00
-	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.002	0.58	0.00	0.22	0.00	2.21	0.00	0.24	0.00	3.10	0.01
-	Mushrooms (cultivated & wild), raw (incl canned, incl dried)	RAC	0.02	0.10	0.00	0.10	0.00	3.73	0.07	0.10	0.00	NC	-
VL 0053	Leafy vegetables, raw	RAC	0.125	12.42	1.55	8.75	1.09	7.53	0.94	7.07	0.88	14.11	1.76
VP 0060	Legume vegetables, raw	RAC	0.01	0.58	0.01	3.16	0.03	10.38	0.10	0.10	0.00	NC	-
VD 0070	Pulses, raw (incl processed)	RAC	0.5	44.03	22.02	29.00	14.50	112.51	56.26	75.50	37.75	39.69	19.85
VR 0494	Radish roots, raw	RAC	0.01	3.96	0.04	2.86	0.03	3.30	0.03	2.67	0.03	5.34	0.05
VR 0577	Carrots, raw	RAC	0.01	2.07	0.02	3.00	0.03	25.29	0.25	0.10	0.00	NC	-
VR 0589	Potato, raw (incl flour, incl frozen, incl starch, incl tapioca)	RAC	0.01	23.96	0.24	13.56	0.14	213.41	2.13	104.35	1.04	8.56	0.09
GC 0640	Barley, raw (incl malt extract, incl pot&pearled, incl flour & grits, incl beer, incl malt)	RAC	0.7	11.58	8.11	2.33	1.63	46.71	32.70	3.72	2.60	16.26	11.38
GC 0641	Buckwheat, raw (incl flour)	RAC	0.7	0.10	0.07	2.82	1.97	0.10	0.07	0.10	0.07	NC	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl beer, incl starch, excl oil, excl germ)	RAC	0.7	116.33	81.43	10.45	7.32	37.65	26.36	76.60	53.62	34.44	24.11
-	Maize, germ	PP	0.224	0.10	0.02	NC	-	NC	-	NC	-	NC	-
OR 0645	Maize oil	PP	12.6	0.33	4.16	0.10	1.26	0.81	10.21	0.10	1.26	NC	-

DELTAMETHRIN (135) International Estimated Daily Intake (IEDI) ADI = 0-0.01 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day G13 diet	Intake = daily intake: ug/person G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
GC 0646	Millet, raw (incl flour, incl beer)	RAC	0.7	61.13	42.79	0.78	0.55	NC	-	33.55	23.49	NC	-
GC 0647	Oats, raw (incl rolled)	RAC	0.7	0.37	0.26	0.10	0.07	2.79	1.95	0.10	0.07	NC	-
GC 0648	Quinoa, raw	RAC	0.7	NC	-	NC	-	NC	-	NC	-	NC	-
CM 0649 (GC 0649)	Rice, husked, dry (incl flour, incl oil, incl beverages, incl starch, excl polished)	REP	0.105	13.58	1.43	4.29	0.45	2.17	0.23	0.10	0.01	8.84	0.93
CM 1205	Rice polished, dry	PP	0.042	30.20	1.27	218.34	9.17	12.77	0.54	15.24	0.64	51.35	2.16
GC 0650	Rye, raw (incl flour)	RAC	0.7	0.10	0.07	0.10	0.07	13.95	9.77	0.10	0.07	0.88	0.62
GC 0651	Sorghum, raw (incl beer, excl flour)	RAC	0.7	4.73	3.31	NC	-	NC	-	13.36	9.35	NC	-
-	Sorghum, flour (white flour and wholemeal flour)	PP	0.231	75.99	17.55	1.82	0.42	NC	-	19.82	4.58	NC	-
GC 0653	Triticale, raw (incl flour)	RAC	0.7	0.10	0.07	NC	-	NC	-	NC	-	NC	-
GC 0654	Wheat, raw (incl meslin)	RAC	0.7	NC	-	NC	-	NC	-	NC	-	0.97	0.68
-	Wheat, bulgur	PP	0.637	0.10	0.06	NC	-	NC	-	NC	-	NC	-
CF 1210	Wheat, germ	PP	0.84	0.10	0.08	0.10	0.08	0.10	0.08	0.10	0.08	NC	-
CF 0654	Wheat, bran	PP	2.31	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1212	Wheat, wholemeal flour	PP	0.637	NC	-	NC	-	NC	-	NC	-	NC	-
CP 1212	Wheat, wholemeal bread	PP	0.294	0.10	0.03	0.10	0.03	0.10	0.03	0.10	0.03	0.10	0.03
CP 1211	Wheat, white bread	PP	0.098	0.43	0.04	0.41	0.04	1.56	0.15	0.11	0.01	0.10	0.01
CF 1211	Wheat, white flour (incl white flour products: starch, gluten, macaroni, pastry)	PP	0.217	45.21	9.81	87.37	18.96	215.61	46.79	20.42	4.43	103.67	22.50
-	Fonio, raw (incl flour)	RAC	0.7	0.61	0.43	NC	-	NC	-	NC	-	NC	-
-	Cereals, NES, raw (including processed) : canagua, quihuicha, Job's tears and wild rice	RAC	0.7	17.71	12.40	2.00	1.40	9.61	6.73	0.45	0.32	4.55	3.19
TN 0666	Hazelnuts, nutmeat	RAC	0.02	0.10	0.00	0.10	0.00	0.21	0.00	0.10	0.00	NC	-
TN 0678	Walnuts, nutmeat	RAC	0.02	0.10	0.00	0.10	0.00	0.81	0.02	0.10	0.00	NC	-
SO 0305	Olives for oil production, raw	RAC	0.21	NC	-	NC	-	0.10	0.02	NC	-	NC	-
-	Olive oil (virgin and residue oil)	PP	0.336	0.10	0.03	0.10	0.03	2.14	0.72	0.10	0.03	0.10	0.03
SO 0495	Rape seed, raw (incl oil)	RAC	0.07	0.19	0.01	0.10	0.01	12.07	0.84	0.10	0.01	NC	-
SO 0702	Sunflower seed, raw (incl oil)	RAC	0.05	0.94	0.05	0.22	0.01	32.01	1.60	12.12	0.61	0.48	0.02
DT 1114	Tea, green or black, fermented and dried, (including concentrates)	RAC	2.2	0.53	1.17	5.25	11.55	0.86	1.89	0.56	1.23	0.88	1.94
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) -80% as muscle	RAC	0.03	23.34	0.70	40.71	1.22	97.15	2.91	18.06	0.54	57.71	1.73

DELTAMETHRIN (135) International Estimated Daily Intake (IEDI) ADI = 0-0.01 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day			Intake = daily intake: ug/person						
				G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) - 20% as fat	RAC	0.155	5.84	0.90	10.18	1.58	24.29	3.76	4.52	0.70	14.43	2.24
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.155	1.05	0.16	1.14	0.18	18.69	2.90	0.94	0.15	3.12	0.48
MO 0105	Edible offal (mammalian), raw	RAC	0.03	4.64	0.14	1.97	0.06	10.01	0.30	3.27	0.10	3.98	0.12
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.017	108.75	1.85	70.31	1.20	436.11	7.41	61.55	1.05	79.09	1.34
PM 0110	Poultry meat, raw (incl prepared) - 90% as muscle	RAC	0.03	3.53	0.11	10.83	0.32	51.36	1.54	4.53	0.14	50.00	1.50
PM 0110	Poultry meat, raw (incl prepared) - 10% as fat	RAC	0.038	0.39	0.01	1.20	0.05	5.71	0.22	0.50	0.02	5.56	0.21
PF 0111	Poultry fat, raw (incl rendered)	RAC	0.038	NC	-	NC	-	0.32	0.01	NC	-	NC	-
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.02	0.10	0.00	0.70	0.01	0.97	0.02	0.10	0.00	NC	-
PE 0112	Eggs, raw, (incl dried)	RAC	0.02	3.84	0.08	4.41	0.09	27.25	0.55	1.13	0.02	7.39	0.15
-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				213.4		76.9		230.1		145.5		99.0
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (ug/person)=				600		600		600		600		600
	%ADI=				35.6%		12.8%		38.4%		24.2%		16.5%
	Rounded %ADI=				40%		10%		40%		20%		20%

DIMETHOMORPH (225) International Estimated Daily Intake (IEDI) ADI = 0-0.2000 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day			Intake as µg/person/day								
				G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
FB 0269	Grape, raw (incl must, incl juice, excl dried, excl wine)	RAC	0.6	13.19	7.91	9.61	5.77	0.10	0.06	17.28	10.37	4.00	2.40	54.50	32.70
DF 0269	Grape, dried (= currants, raisins and sultanas)	PP	1.17	0.51	0.60	0.51	0.60	0.10	0.12	1.27	1.49	0.12	0.14	2.07	2.42
-	Grape wine (incl vermouths)	PP	0.18	0.67	0.12	12.53	2.26	2.01	0.36	1.21	0.22	3.53	0.64	4.01	0.72
FB 0275	Strawberry, raw	RAC	0.02	0.70	0.01	2.01	0.04	0.10	0.00	1.36	0.03	0.37	0.01	2.53	0.05
FI 0353	Pineapple, raw (incl canned pineapple, incl pineapple juice, incl dried pineapple)	RAC	0	0.61	0.00	1.56	0.00	7.89	0.00	9.36	0.00	8.76	0.00	1.30	0.00
VA 0035	Bulb vegetables, raw	RAC	0.17	34.29	5.83	46.37	7.88	4.73	0.80	41.36	7.03	21.08	3.58	52.54	8.93
VA 0384	Leek, raw	RAC	0.08	0.18	0.01	1.59	0.13	0.10	0.01	0.28	0.02	0.10	0.01	3.21	0.26
-	Onions, mature bulbs, dry	RAC	0.022	29.36	0.65	37.50	0.83	3.56	0.08	34.78	0.77	18.81	0.41	43.38	0.95
-	Onions, green, raw	RAC	2.1	2.45	5.15	1.49	3.13	1.02	2.14	2.60	5.46	0.60	1.26	2.03	4.26
VB 0041	Cabbages, head, raw	RAC	1.1	2.73	3.00	27.92	30.71	0.55	0.61	4.47	4.92	4.27	4.70	10.25	11.28
VB 0400	Broccoli, raw	RAC	1.3	0.88	1.14	0.17	0.22	0.10	0.13	1.25	1.63	3.00	3.90	1.09	1.42
VB 0405	Kohlrabi, raw	RAC	0.02	0.10	0.00	0.89	0.02	0.10	0.00	0.14	0.00	NC	-	0.33	0.01
VC 0045	Fruiting vegetables, cucurbits, raw	RAC	0.15	53.14	7.97	86.21	12.93	6.28	0.94	92.76	13.91	15.64	2.35	155.30	23.30
VO 0050	Fruiting vegetables other than cucurbits, raw (incl processed commodities)	RAC	0.13	70.95	9.22	105.03	13.65	43.33	5.63	134.64	17.50	63.92	8.31	266.11	34.59
VL 0470	Lambs lettuce, raw (i.e. corn salad)	RAC	3.4	0.64	2.18	1.13	3.84	0.70	2.38	1.70	5.78	NC	-	0.82	2.79
VL 0482	Lettuce, head, raw	RAC	3.6	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0483	Lettuce, leaf, raw	RAC	0.77	0.53	0.41	0.36	0.28	0.16	0.12	6.21	4.78	1.90	1.46	6.05	4.66
VL 0502	Spinach, raw	RAC	8.3	0.74	6.14	0.22	1.83	0.10	0.83	0.91	7.55	0.10	0.83	2.92	24.24
VL 0505	Taro leaves, raw	RAC	1.64	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VP 0062	Beans, green, without pods, raw: beans except broad bean & soya bean (i.e. immature seeds only) (Phaseolus spp..)	RAC	0.055	1.56	0.09	0.60	0.03	0.49	0.03	1.18	0.06	0.90	0.05	7.79	0.43
VP 0064	Peas, green, without pods, raw (i.e. immature seeds only) (Pisum spp)	RAC	0.01	1.97	0.02	0.51	0.01	0.10	0.00	0.79	0.01	3.68	0.04	3.80	0.04
VR 0589	Potato, raw (incl flour, incl frozen, incl starch, incl tapioca)	RAC	0.02	59.74	1.19	316.14	6.32	9.78	0.20	60.26	1.21	54.12	1.08	119.82	2.40

DIMETHOMORPH (225) International Estimated Daily Intake (IEDI) ADI = 0-0.2000 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day	Intake as µg/person/day										
				G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
VS 0620	Artichoke globe	RAC	0.25	0.69	0.17	0.10	0.03	0.10	0.03	0.32	0.08	0.26	0.07	1.21	0.30
VS 0624	Celery	RAC	2.44	2.14	5.22	3.79	9.25	2.35	5.73	5.69	13.88	0.10	0.24	2.75	6.71
DH 1100	Hops, dry	RAC	26	0.10	2.60	0.10	2.60	0.10	2.60	0.10	2.60	NC	-	0.10	2.60
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat)	RAC	0	31.20	0.00	72.44	0.00	20.88	0.00	47.98	0.00	33.08	0.00	36.25	0.00
MO 0105	Edible offal (mammalian), raw	RAC	0	4.79	0.00	9.68	0.00	2.97	0.00	5.49	0.00	3.84	0.00	5.03	0.00
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0	289.65	0.00	485.88	0.00	26.92	0.00	239.03	0.00	199.91	0.00	180.53	0.00
PM 0110	Poultry meat, raw (incl prepared)	RAC	0	14.63	0.00	29.76	0.00	8.04	0.00	129.68	0.00	25.04	0.00	35.66	0.00
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0	0.12	0.00	0.12	0.00	0.11	0.00	5.37	0.00	0.24	0.00	0.10	0.00
PE 0112	Eggs, raw, (incl dried)	RAC	0	7.84	0.00	23.08	0.00	2.88	0.00	14.89	0.00	9.81	0.00	14.83	0.00
	Total intake (µg/person)=				59.6		102.3		22.8		99.3		31.5		165.0
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (µg/person)=				12000		12000		12000		12000		12000		12000
	%ADI=				0.5%		0.9%		0.2%		0.8%		0.3%		1.4%
	Rounded %ADI=				0%		1%		0%		1%		0%		1%

DIMETHOMORPH (225) International Estimated Daily Intake (IEDI) ADI = 0-0.2000 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day	Intake as µg/person/day										
				G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
FB 0269	Grape, raw (incl must, incl juice, excl dried, excl wine)	RAC	0.6	7.18	4.31	13.73	8.24	5.24	3.14	12.27	7.36	7.46	4.48	1.21	0.73
DF 0269	Grape, dried (= currants, raisins and sultanas)	PP	1.17	3.09	3.62	1.51	1.77	0.10	0.12	1.38	1.61	4.26	4.98	0.42	0.49
-	Grape wine (incl vermouths)	PP	0.18	88.93	16.01	62.41	11.23	1.84	0.33	25.07	4.51	61.17	11.01	5.84	1.05
FB 0275	Strawberry, raw	RAC	0.02	4.49	0.09	5.66	0.11	0.10	0.00	6.63	0.13	5.75	0.12	0.10	0.00

Annex 3

DIMETHOMORPH (225) International Estimated Daily Intake (IEDI) ADI = 0-0.2000 mg/kg bw

			STMR	Diets as g/person/day		Intake as µg/person/day									
Codex Code	Commodity description	Expr as	mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
FI 0353	Pineapple, raw (incl canned pineapple, incl pineapple juice, incl dried pineapple)	RAC	0	13.13	0.00	11.13	0.00	6.94	0.00	14.36	0.00	36.74	0.00	18.81	0.00
VA 0035	Bulb vegetables, raw	RAC	0.17	26.24	4.46	36.47	6.20	39.29	6.68	39.37	6.69	29.12	4.95	20.21	3.44
VA 0384	Leek, raw	RAC	0.08	4.01	0.32	4.41	0.35	0.72	0.06	0.54	0.04	16.41	1.31	0.10	0.01
-	Onions, mature bulbs, dry	RAC	0.022	19.69	0.43	29.83	0.66	24.64	0.54	31.35	0.69	9.72	0.21	12.59	0.28
-	Onions, green, raw	RAC	2.1	1.55	3.26	0.74	1.55	1.05	2.21	3.74	7.85	0.94	1.97	6.45	13.55
VB 0041	Cabbages, head, raw	RAC	1.1	8.97	9.87	27.12	29.83	1.44	1.58	24.96	27.46	4.55	5.01	11.23	12.35
VB 0400	Broccoli, raw	RAC	1.3	4.24	5.51	1.76	2.29	NC	-	0.51	0.66	3.79	4.93	0.26	0.34
VB 0405	Kohlrabi, raw	RAC	0.02	NC	-	3.25	0.07	NC	-	NC	-	0.10	0.00	0.36	0.01
VC 0045	Fruiting vegetables, cucurbits, raw	RAC	0.15	27.81	4.17	41.93	6.29	123.30	18.50	49.47	7.42	15.95	2.39	35.99	5.40
VO 0050	Fruiting vegetables other than cucurbits, raw (incl processed commodities)	RAC	0.13	91.66	11.92	96.61	12.56	81.03	10.53	114.49	14.88	83.88	10.90	20.05	2.61
VL 0470	Lambs lettuce, raw (i.e. corn salad)	RAC	3.4	1.41	4.79	4.28	14.55	NC	-	0.10	0.34	5.11	17.37	1.20	4.08
VL 0482	Lettuce, head, raw	RAC	3.6	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0483	Lettuce, leaf, raw	RAC	0.77	14.50	11.17	11.76	9.06	13.14	10.12	19.50	15.02	4.81	3.70	2.23	1.72
VL 0502	Spinach, raw	RAC	8.3	2.20	18.26	1.76	14.61	13.38	111.05	2.94	24.40	5.53	45.90	0.10	0.83
VL 0505	Taro leaves, raw	RAC	1.64	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VP 0062	Beans, green, without pods, raw: beans except broad bean & soya bean (i.e. immature seeds only) (Phaseolus spp..)	RAC	0.055	2.21	0.12	5.25	0.29	4.17	0.23	1.61	0.09	16.95	0.93	0.17	0.01
VP 0064	Peas, green, without pods, raw (i.e. immature seeds only) (Pisum spp)	RAC	0.01	10.72	0.11	1.99	0.02	2.72	0.03	4.26	0.04	4.23	0.04	NC	-
VR 0589	Potato, raw (incl flour, incl frozen, incl starch, incl tapioca)	RAC	0.02	225.03	4.50	234.24	4.68	71.48	1.43	177.55	3.55	234.55	4.69	37.71	0.75
VS 0620	Artichoke globe	RAC	0.25	0.98	0.25	3.65	0.91	0.10	0.03	1.67	0.42	0.26	0.07	NC	-
VS 0624	Celery	RAC	2.44	7.68	18.74	2.85	6.95	NC	-	3.34	8.15	16.83	41.07	4.04	9.86
DH 1100	Hops, dry	RAC	26	NC	-	NC	-	0.10	2.60	0.10	2.60	NC	-	NC	-
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat)	RAC	0	140.03	0.00	150.89	0.00	79.32	0.00	111.24	0.00	120.30	0.00	51.27	0.00
MO 0105	Edible offal (mammalian), raw	RAC	0	15.17	0.00	5.19	0.00	6.30	0.00	6.78	0.00	3.32	0.00	3.17	0.00

DIMETHOMORPH (225) International Estimated Daily Intake (IEDI) ADI = 0-0.2000 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day				Intake as µg/person/day							
				G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0	388.92	0.00	335.88	0.00	49.15	0.00	331.25	0.00	468.56	0.00	245.45	0.00
PM 0110	Poultry meat, raw (incl prepared)	RAC	0	73.76	0.00	53.86	0.00	23.98	0.00	87.12	0.00	53.38	0.00	84.45	0.00
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0	0.33	0.00	0.72	0.00	0.27	0.00	0.35	0.00	0.80	0.00	NC	-
PE 0112	Eggs, raw, (incl dried)	RAC	0	25.84	0.00	29.53	0.00	28.05	0.00	33.19	0.00	36.44	0.00	8.89	0.00
	Total intake (µg/person)=				121.9		132.2		169.2		133.9		166.0		57.5
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (µg/person)=				12000		12000		11000		12000		12000		12000
	%ADI=				1.0%		1.1%		1.5%		1.1%		1.4%		0.5%
	Rounded %ADI=				1%		1%		2%		1%		1%		0%

DIMETHOMORPH (225) International Estimated Daily Intake (IEDI) ADI = 0-0.2 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day				Intake = daily intake: µg/person					
				G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
FB 0269	Grape, raw (incl must, incl juice, excl dried, excl wine)	RAC	0.6	0.15	0.09	0.38	0.23	15.84	9.50	0.10	0.06	0.28	0.17
DF 0269	Grape, dried (= currants, raisins and sultanas)	PP	1.17	0.10	0.12	0.13	0.15	1.06	1.24	0.10	0.12	0.10	0.12
-	Grape wine (incl vermouths)	PP	0.18	0.31	0.06	0.23	0.04	60.43	10.88	0.52	0.09	31.91	5.74
FB 0275	Strawberry, raw	RAC	0.02	0.10	0.00	0.10	0.00	3.35	0.07	0.10	0.00	0.10	0.00
FI 0353	Pineapple, raw (incl canned pineapple, incl pineapple juice, incl dried pineapple)	RAC	0	8.51	0.00	6.27	0.00	6.89	0.00	0.18	0.00	24.94	0.00
VA 0035	Bulb vegetables, raw	RAC	0.17	11.28	1.92	23.80	4.05	36.11	6.14	9.66	1.64	8.69	1.48
VA 0384	Leek, raw	RAC	0.08	0.10	0.01	1.44	0.12	1.22	0.10	0.10	0.01	NC	-
-	Onions, mature bulbs, dry	RAC	0.022	9.01	0.20	20.24	0.45	30.90	0.68	9.61	0.21	2.11	0.05
-	Onions, green, raw	RAC	2.1	1.43	3.00	0.10	0.21	0.20	0.42	NC	-	6.30	13.23
VB 0041	Cabbages, head, raw	RAC	1.1	3.82	4.20	2.99	3.29	49.16	54.08	0.10	0.11	NC	-
VB 0400	Broccoli, raw	RAC	1.3	0.10	0.13	0.10	0.13	2.13	2.77	0.10	0.13	NC	-
VB 0405	Kohlrabi, raw	RAC	0.02	0.12	0.00	0.10	0.00	1.81	0.04	0.10	0.00	NC	-
VC 0045	Fruiting vegetables, cucurbits, raw	RAC	0.15	5.96	0.89	9.74	1.46	51.82	7.77	13.61	2.04	0.10	0.02
VO 0050	Fruiting vegetables other than cucurbits, raw	RAC	0.13	39.73	5.16	57.72	7.50	121.60	15.81	3.82	0.50	12.67	1.65

Annex 3

DIMETHOMORPH (225) International Estimated Daily Intake (IEDI) ADI = 0-0.2 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day	Intake = daily intake: µg/person								
				G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
	(incl processed commodities)												
VL 0470	Lambs lettuce, raw (i.e. corn salad)	RAC	3.4	1.09	3.71	0.79	2.69	NC	-	0.74	2.52	1.47	5.00
VL 0482	Lettuce, head, raw	RAC	3.6	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0483	Lettuce, leaf, raw	RAC	0.77	0.29	0.22	0.10	0.08	6.71	5.17	0.10	0.08	NC	-
VL 0502	Spinach, raw	RAC	8.3	0.17	1.41	0.10	0.83	0.81	6.72	0.10	0.83	NC	-
VL 0505	Taro leaves, raw	RAC	1.64	NC	-	NC	-	NC	-	NC	-	NC	-
VP 0062	Beans, green, without pods, raw: beans except broad bean & soya bean (i.e. immature seeds only) (Phaseolus spp..)	RAC	0.055	0.30	0.02	3.13	0.17	4.11	0.23	0.10	0.01	NC	-
VP 0064	Peas, green, without pods, raw (i.e. immature seeds only) (Pisum spp)	RAC	0.01	0.21	0.00	0.10	0.00	5.51	0.06	0.10	0.00	NC	-
VR 0589	Potato, raw (incl flour, incl frozen, incl starch, incl tapioca)	RAC	0.02	23.96	0.48	13.56	0.27	213.41	4.27	104.35	2.09	8.56	0.17
VS 0620	Artichoke globe	RAC	0.25	0.10	0.03	NC	-	0.10	0.03	0.10	0.03	NC	-
VS 0624	Celery	RAC	2.44	3.66	8.93	2.65	6.47	4.84	11.81	2.47	6.03	4.94	12.05
DH 1100	Hops, dry	RAC	26	NC	-	NC	-	0.10	2.60	NC	-	NC	-
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat)	RAC	0	29.18	0.00	50.89	0.00	121.44	0.00	22.58	0.00	72.14	0.00
MO 0105	Edible offal (mammalian), raw	RAC	0	4.64	0.00	1.97	0.00	10.01	0.00	3.27	0.00	3.98	0.00
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0	108.75	0.00	70.31	0.00	436.11	0.00	61.55	0.00	79.09	0.00
PM 0110	Poultry meat, raw (incl prepared)	RAC	0	3.92	0.00	12.03	0.00	57.07	0.00	5.03	0.00	55.56	0.00
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0	0.10	0.00	0.70	0.00	0.97	0.00	0.10	0.00	NC	-
PE 0112	Eggs, raw, (incl dried)	RAC	0	3.84	0.00	4.41	0.00	27.25	0.00	1.13	0.00	7.39	0.00
	Total intake (µg/person)=				30.6		28.1		140.4		16.5		39.7
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (µg/person)=				12000		12000		12000		12000		12000
	%ADI=				0.3%		0.2%		1.2%		0.1%		0.3%
	Rounded %ADI=				0%		0%		1%		0%		0%

FIPRONIL (202) International Estimated Daily Intake (IEDI) ADI = 0-0.0002 mg/kg bw

			STMR	Diets as g/person/day		Intake as µg/person/day									
Codex Code	Commodity description	Expr as	mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
FI 0327	Banana, raw (incl plantains) (incl dried)	RAC	0.004	5.06	0.02	6.91	0.03	37.17	0.15	31.16	0.12	40.21	0.16	18.96	0.08
VB 0041	Cabbages, head, raw	RAC	0.005	2.73	0.01	27.92	0.14	0.55	0.00	4.47	0.02	4.27	0.02	10.25	0.05
VB 0042	Flowerhead brassicas, raw	RAC	0.005	2.96	0.01	0.57	0.00	0.10	0.00	4.17	0.02	7.79	0.04	3.64	0.02
VR 0589	Potato, raw (incl flour, incl frozen, incl starch, incl tapioca)	RAC	0.004	59.74	0.24	316.14	1.26	9.78	0.04	60.26	0.24	54.12	0.22	119.82	0.48
VR 0596	Sugar beet, raw (incl sugar)	RAC	0.0125	0.13	0.00	NC	-	0.10	0.00	0.66	0.01	0.47	0.01	88.94	1.11
GC 0640	Barley, raw (incl malt extract, incl pot&pearled, incl flour & grits, incl beer, incl malt)	RAC	0.004	19.91	0.08	31.16	0.12	5.04	0.02	3.10	0.01	9.77	0.04	4.31	0.02
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl oil, incl beer, incl germ, incl starch)	RAC	0.005	29.81	0.15	44.77	0.22	108.95	0.54	52.37	0.26	60.28	0.30	75.69	0.38
GC 0647	Oats, raw (incl rolled)	RAC	0.004	0.10	0.00	7.05	0.03	0.10	0.00	1.71	0.01	0.96	0.00	0.10	0.00
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl flour, incl starch, incl oil, incl beverages)	REP	0.006	45.40	0.27	14.99	0.09	84.88	0.51	111.73	0.67	194.75	1.17	93.12	0.56
GC 0650	Rye, raw (incl flour)	RAC	0.004	0.13	0.00	19.38	0.08	0.10	0.00	0.12	0.00	0.10	0.00	2.15	0.01
GC 0653	Triticale, raw (incl flour)	RAC	0.004	NC	-	NC	-	NC	-	0.10	0.00	0.39	0.00	NC	-
GC 0654	Wheat, raw (incl bulgur, incl fermented beverages, incl germ, incl wholemeal bread, incl white flour products, incl white bread)	RAC	0.004	381.15	1.52	341.55	1.37	38.35	0.15	281.89	1.13	172.83	0.69	434.07	1.74
SO 0702	Sunflower seed, raw (incl oil)	RAC	0.004	7.40	0.03	35.86	0.14	1.15	0.00	8.76	0.04	5.45	0.02	13.62	0.05
HH 0722	Basil, raw (incl dried)	RAC	0.23	0.14	0.03	0.26	0.06	0.16	0.04	0.38	0.09	NC	-	0.19	0.04
MM 0812	Cattle meat, raw, (incl calf meat, incl prepared meat)	RAC	0.015	14.05	0.21	35.15	0.53	8.04	0.12	22.64	0.34	20.19	0.30	16.40	0.25
MO 0105	Edible offal (mammalian), raw	RAC	0.064	4.79	0.31	9.68	0.62	2.97	0.19	5.49	0.35	3.84	0.25	5.03	0.32
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.011	289.65	3.19	485.88	5.34	26.92	0.30	239.03	2.63	199.91	2.20	180.53	1.99
PM 0110	Poultry meat, raw (incl prepared)	RAC	0.006	14.63	0.09	29.76	0.18	8.04	0.05	129.68	0.78	25.04	0.15	35.66	0.21
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.008	0.12	0.00	0.12	0.00	0.11	0.00	5.37	0.04	0.24	0.00	0.10	0.00
PE 0112	Eggs, raw, (incl dried)	RAC	0.006	7.84	0.05	23.08	0.14	2.88	0.02	14.89	0.09	9.81	0.06	14.83	0.09

FIPRONIL (202) International Estimated Daily Intake (IEDI) ADI = 0-0.0002 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day		Intake as µg/person/day									
				G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
	Total intake (µg/person)=				6.2		10.4		2.1		6.9		5.6		7.4
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (µg/person)=				12		12		12		12		12		12
	%ADI=				51.8%		86.3%		17.8%		57.1%		46.9%		61.6%
	Rounded %ADI=				50%		90%		20%		60%		50%		60%

FIPRONIL (202) International Estimated Daily Intake (IEDI) ADI = 0-0.0002 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day		Intake as µg/person/day									
				G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
FI 0327	Banana, raw (incl plantains) (incl dried)	RAC	0.004	25.14	0.10	23.37	0.09	23.06	0.09	23.40	0.09	18.44	0.07	39.29	0.16
VB 0041	Cabbages, head, raw	RAC	0.005	8.97	0.04	27.12	0.14	1.44	0.01	24.96	0.12	4.55	0.02	11.23	0.06
VB 0042	Flowerhead brassicas, raw	RAC	0.005	9.50	0.05	6.77	0.03	9.03	0.05	3.21	0.02	9.36	0.05	0.87	0.00
VR 0589	Potato, raw (incl flour, incl frozen, incl starch, incl tapioca)	RAC	0.004	225.03	0.90	234.24	0.94	71.48	0.29	177.55	0.71	234.55	0.94	37.71	0.15
VR 0596	Sugar beet, raw (incl sugar)	RAC	0.0125	0.10	0.00	NC	-	0.10	0.00	0.10	0.00	NC	-	NC	-
GC 0640	Barley, raw (incl malt extract, incl pot&pearled, incl flour & grits, incl beer, incl malt)	RAC	0.004	36.18	0.14	53.45	0.21	9.39	0.04	35.25	0.14	46.68	0.19	15.92	0.06
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl oil, incl beer, incl germ, incl starch)	RAC	0.005	18.51	0.09	26.18	0.13	26.04	0.13	39.99	0.20	7.36	0.04	64.58	0.32
GC 0647	Oats, raw (incl rolled)	RAC	0.004	7.50	0.03	6.26	0.03	0.15	0.00	4.87	0.02	3.16	0.01	2.98	0.01
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl flour, incl starch, incl oil, incl beverages)	REP	0.006	20.96	0.13	16.04	0.10	339.67	2.04	75.51	0.45	16.86	0.10	86.13	0.52
GC 0650	Rye, raw (incl flour)	RAC	0.004	3.21	0.01	35.38	0.14	0.21	0.00	6.50	0.03	1.49	0.01	NC	-
GC 0653	Triticale, raw (incl flour)	RAC	0.004	0.10	0.00	0.17	0.00	0.29	0.00	0.10	0.00	NC	-	NC	-
GC 0654	Wheat, raw (incl bulgur, incl fermented beverages, incl germ, incl wholemeal bread, incl white flour products, incl	RAC	0.004	253.07	1.01	244.73	0.98	134.44	0.54	235.10	0.94	216.39	0.87	167.40	0.67

FIPRONIL (202) International Estimated Daily Intake (IEDI) ADI = 0-0.0002 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day			Intake as µg/person/day								
	white bread)														
SO 0702	Sunflower seed, raw (incl oil)	RAC	0.004	23.40	0.09	29.33	0.12	1.24	0.00	13.85	0.06	6.48	0.03	6.91	0.03
HH 0722	Basil, raw (incl dried)	RAC	0.23	0.52	0.12	0.10	0.02	3.23	0.74	0.18	0.04	0.12	0.03	0.27	0.06
MM 0812	Cattle meat, raw, (incl calf meat, incl prepared meat)	RAC	0.015	52.97	0.79	24.56	0.37	8.72	0.13	54.63	0.82	41.75	0.63	22.18	0.33
MO 0105	Edible offal (mammalian), raw	RAC	0.064	15.17	0.97	5.19	0.33	6.30	0.40	6.78	0.43	3.32	0.21	3.17	0.20
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.011	388.92	4.28	335.88	3.69	49.15	0.54	331.25	3.64	468.56	5.15	245.45	2.70
PM 0110	Poultry meat, raw (incl prepared)	RAC	0.006	73.76	0.44	53.86	0.32	23.98	0.14	87.12	0.52	53.38	0.32	84.45	0.51
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.008	0.33	0.00	0.72	0.01	0.27	0.00	0.35	0.00	0.80	0.01	NC	-
PE 0112	Eggs, raw, (incl dried)	RAC	0.006	25.84	0.16	29.53	0.18	28.05	0.17	33.19	0.20	36.44	0.22	8.89	0.05
	Total intake (µg/person)=				9.4		7.8		5.3		8.4		8.9		5.8
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (µg/person)=				12		12		11		12		12		12
	%ADI=				78.1%		65.2%		48.3%		70.4%		74.0%		48.7%
	Rounded %ADI=				80%		70%		50%		70%		70%		50%

FIPRONIL (202) International Estimated Daily Intake (IEDI) ADI = 0-0.0002 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
				Diets: g/person/day			Intake = daily intake: µg/person						
FI 0327	Banana, raw (incl plantains) (incl dried)	RAC	0.004	20.88	0.08	81.15	0.32	24.58	0.10	37.92	0.15	310.23	1.24
VB 0041	Cabbages, head, raw	RAC	0.005	3.82	0.02	2.99	0.01	49.16	0.25	0.10	0.00	NC	-
VB 0042	Flowerhead brassicas, raw	RAC	0.005	0.10	0.00	0.10	0.00	4.86	0.02	0.10	0.00	NC	-
VR 0589	Potato, raw (incl flour, incl frozen, incl starch, incl tapioca)	RAC	0.004	23.96	0.10	13.56	0.05	213.41	0.85	104.35	0.42	8.56	0.03
VR 0596	Sugar beet, raw (incl sugar)	RAC	0.0125	3.93	0.05	1.68	0.02	NC	-	NC	-	36.12	0.45
GC 0640	Barley, raw (incl malt extract, incl pot&pearled, incl flour & grits, incl beer, incl malt)	RAC	0.004	11.58	0.05	2.33	0.01	46.71	0.19	3.72	0.01	16.26	0.07
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl oil, incl beer, incl germ, incl starch)	RAC	0.005	116.66	0.58	10.52	0.05	38.46	0.19	76.60	0.38	34.44	0.17

FIPRONIL (202) International Estimated Daily Intake (IEDI) ADI = 0-0.0002 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day G13 diet	G13 intake	G14 diet	Intake = daily intake: µg/person G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
GC 0647	Oats, raw (incl rolled)	RAC	0.004	0.37	0.00	0.10	0.00	2.79	0.01	0.10	0.00	NC	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl flour, incl starch, incl oil, incl beverages)	REP	0.006	52.55	0.32	286.02	1.72	18.64	0.11	19.67	0.12	75.09	0.45
GC 0650	Rye, raw (incl flour)	RAC	0.004	0.10	0.00	0.10	0.00	13.95	0.06	0.10	0.00	0.88	0.00
GC 0653	Triticale, raw (incl flour)	RAC	0.004	0.10	0.00	NC	-	NC	-	NC	-	NC	-
GC 0654	Wheat, raw (incl bulgur, incl fermented beverages, incl germ, incl wholemeal bread, incl white flour products, incl white bread)	RAC	0.004	57.20	0.23	110.47	0.44	272.62	1.09	25.82	0.10	132.04	0.53
SO 0702	Sunflower seed, raw (incl oil)	RAC	0.004	0.94	0.00	0.22	0.00	32.01	0.13	12.12	0.05	0.48	0.00
HH 0722	Basil, raw (incl dried)	RAC	0.23	0.25	0.06	0.18	0.04	0.13	0.03	0.17	0.04	0.33	0.08
MM 0812	Cattle meat, raw, (incl calf meat, incl prepared meat)	RAC	0.015	15.34	0.23	4.73	0.07	29.58	0.44	9.56	0.14	16.86	0.25
MO 0105	Edible offal (mammalian), raw	RAC	0.064	4.64	0.30	1.97	0.13	10.01	0.64	3.27	0.21	3.98	0.25
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.011	108.75	1.20	70.31	0.77	436.11	4.80	61.55	0.68	79.09	0.87
PM 0110	Poultry meat, raw (incl prepared)	RAC	0.006	3.92	0.02	12.03	0.07	57.07	0.34	5.03	0.03	55.56	0.33
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.008	0.10	0.00	0.70	0.01	0.97	0.01	0.10	0.00	NC	-
PE 0112	Eggs, raw, (incl dried)	RAC	0.006	3.84	0.02	4.41	0.03	27.25	0.16	1.13	0.01	7.39	0.04
	Total intake (µg/person)=				3.3		3.8		9.4		2.3		4.8
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (µg/person)=				12		12		12		12		12
	%ADI=				27.1%		31.3%		78.5%		19.5%		39.8%
	Rounded %ADI=				30%		30%		80%		20%		40%

FLONICAMID (282) International Estimated Daily Intake (IEDI) ADI = 0-0.07 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day	Intake as ug/person/day										
FP 0009	Pome fruits, raw (incl. apple juice, incl cider)	RAC	0.13	19.79	2.57	38.25	4.97	17.96	2.33	32.56	4.23	8.08	1.05	64.45	8.38
FS 0013	Cherries, raw	RAC	0.28	0.92	0.26	9.15	2.56	0.10	0.03	0.61	0.17	0.10	0.03	6.64	1.86
FS 0014	Plums, raw (incl Chinese jujube)	RAC	0.03	2.40	0.07	8.60	0.26	0.10	0.00	2.52	0.08	0.58	0.02	4.16	0.12
DF 0014	Plum, dried (prunes)	PP	0.04	0.10	0.00	0.10	0.00	0.10	0.00	0.18	0.01	0.10	0.00	0.10	0.00
FS 2001	Peaches, nectarines, apricots, raw (incl dried apricots)	RAC	0.14	8.01	1.12	5.87	0.82	0.18	0.03	8.19	1.15	1.64	0.23	22.46	3.14
FB 2009	Low growing berries, raw (i.e. cranberry and strawberry)	RAC	0.37	0.71	0.26	2.02	0.75	0.10	0.04	1.39	0.51	0.37	0.14	2.53	0.94
VB 0041	Cabbages, head, raw	RAC	0.025	2.73	0.07	27.92	0.70	0.55	0.01	4.47	0.11	4.27	0.11	10.25	0.26
VB 0042	Flowerhead brassicas, raw	RAC	0.358	2.96	1.06	0.57	0.20	0.10	0.04	4.17	1.49	7.79	2.79	3.64	1.30
VB 0400	Broccoli, raw	RAC	0.358	0.88	0.32	0.17	0.06	0.10	0.04	1.25	0.45	3.00	1.07	1.09	0.39
VB 0401	Chinese Broccoli, raw (i.e. kailan)	RAC	0.358	0.42	0.15	0.10	0.04	0.10	0.04	0.60	0.21	NC	-	0.52	0.19
VB 0402	Brussels sprouts, raw	RAC	0.358	0.63	0.23	6.41	2.29	0.13	0.05	1.03	0.37	NC	-	2.35	0.84
VB 0404	Cauliflower, raw	RAC	0.358	1.65	0.59	0.32	0.11	0.10	0.04	2.33	0.83	4.79	1.71	2.03	0.73
VB 0405	Kohlrabi, raw	RAC	0.358	0.10	0.04	0.89	0.32	0.10	0.04	0.14	0.05	NC	-	0.33	0.12
VC 0045	Fruiting vegetables, cucurbits, raw	RAC	0.04	53.14	2.13	86.21	3.45	6.28	0.25	92.76	3.71	15.64	0.63	155.30	6.21
VO 0050	Fruiting vegetables other than cucurbits, raw, (incl processed commodities), excl tomato commodities, excl sweet corn commodities, excl mushroom commodities	RAC	0.09	18.97	1.71	21.73	1.96	20.61	1.85	27.35	2.46	35.54	3.20	50.62	4.56
VO 0448	Tomato, raw (incl juice, incl canned, excl paste)	RAC	0.09	42.41	3.82	76.50	6.89	10.69	0.96	85.07	7.66	24.98	2.25	203.44	18.31
-	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	1.45	2.34	3.39	1.33	1.93	1.57	2.28	4.24	6.15	0.34	0.49	2.83	4.10
VL 0054	Brassica leafy vegetables, raw	RAC	8.31	1.07	8.89	10.95	90.99	0.22	1.83	1.75	14.54	5.72	47.53	4.02	33.41
VL 0482	Lettuce, head, raw	RAC	0.51	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0483	Lettuce, leaf, raw	RAC	2.67	0.53	1.42	0.36	0.96	0.16	0.43	6.21	16.58	1.90	5.07	6.05	16.15
VL 0494	Radish leaves, raw	RAC	8.5	0.26	2.21	0.45	3.83	0.28	2.38	0.68	5.78	NC	-	0.33	2.81
VL 0502	Spinach, raw	RAC	5.72	0.74	4.23	0.22	1.26	0.10	0.57	0.91	5.21	0.10	0.57	2.92	16.70
VR 0494	Radish roots, raw	RAC	0.1	2.31	0.23	4.09	0.41	2.53	0.25	6.15	0.62	5.88	0.59	2.97	0.30
VR 0589	Potato, raw (incl flour, incl frozen, incl	RAC	0.01	59.74	0.60	316.14	3.16	9.78	0.10	60.26	0.60	54.12	0.54	119.82	1.20

Annex 3

FLONICAMID (282) International Estimated Daily Intake (IEDI) ADI = 0-0.07 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G01 diet	Intake as ug/person/day G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
	starch, incl tapioca)														
VS 0624	Celery	RAC	0.45	2.14	0.96	3.79	1.71	2.35	1.06	5.69	2.56	0.10	0.05	2.75	1.24
GC 0650	Rye, raw (incl flour)	RAC	0.01	0.13	0.00	19.38	0.19	0.10	0.00	0.12	0.00	0.10	0.00	2.15	0.02
GC 0653	Triticale, raw (incl flour)	RAC	0.01	NC	-	NC	-	NC	-	0.10	0.00	0.39	0.00	NC	-
GC 0654	Wheat, raw (incl bulgur, incl fermented beverages, incl germ, incl wholemeal bread, incl white flour products, incl white bread)	RAC	0.01	381.15	3.81	341.55	3.42	38.35	0.38	281.89	2.82	172.83	1.73	434.07	4.34
TN 0660	Almonds, nutmeat	RAC	0.01	1.38	0.01	0.10	0.00	0.10	0.00	1.00	0.01	0.10	0.00	0.81	0.01
TN 0672	Pecan nuts, nutmeat	RAC	0.01	0.10	0.00	0.10	0.00	0.10	0.00	0.14	0.00	0.10	0.00	0.13	0.00
SO 0495	Rape seed, raw	RAC	0.04	0.10	0.00	NC	-	NC	-	0.10	0.00	0.75	0.03	0.10	0.00
OR 0495	Rape seed oil, edible	PP	0.004	0.35	0.00	0.44	0.00	0.19	0.00	0.97	0.00	3.28	0.01	0.77	0.00
SO 0691	Cotton seed, raw	RAC	0.06	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
OR 0691	Cotton seed oil, edible	PP	0.02	3.22	0.06	1.54	0.03	1.01	0.02	0.74	0.01	1.12	0.02	2.93	0.06
HH 0738	Mints, raw	RAC	1.92	0.50	0.96	0.10	0.19	NC	-	NC	-	NC	-	NC	-
DH 1100	Hops, dry	RAC	1.98	0.10	0.20	0.10	0.20	0.10	0.20	0.10	0.20	NC	-	0.10	0.20
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) -80% as muscle	RAC	0.06	24.96	1.50	57.95	3.48	16.70	1.00	38.38	2.30	26.46	1.59	29.00	1.74
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) - 20% as fat	RAC	0.02	6.24	0.12	14.49	0.29	4.18	0.08	9.60	0.19	6.62	0.13	7.25	0.15
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.02	3.29	0.07	6.14	0.12	0.82	0.02	1.57	0.03	2.23	0.04	1.07	0.02
MO 0105	Edible offal (mammalian), raw	RAC	0.1	4.79	0.48	9.68	0.97	2.97	0.30	5.49	0.55	3.84	0.38	5.03	0.50
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.05	289.65	14.48	485.88	24.29	26.92	1.35	239.03	11.95	199.91	10.00	180.53	9.03
PM 0110	Poultry meat, raw (incl prepared)	RAC	0.04	14.63	0.59	29.76	1.19	8.04	0.32	129.68	5.19	25.04	1.00	35.66	1.43
PF 0111	Poultry fat, raw (incl rendered)	RAC	0.04	0.10	0.00	0.10	0.00	NC	-	0.10	0.00	0.10	0.00	0.10	0.00
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.04	0.12	0.00	0.12	0.00	0.11	0.00	5.37	0.21	0.24	0.01	0.10	0.00
PE 0112	Eggs, raw, (incl dried)	RAC	0.06	7.84	0.47	23.08	1.38	2.88	0.17	14.89	0.89	9.81	0.59	14.83	0.89
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				59.1		165.4		18.5		99.9		83.6		141.6
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (ug/person)=				4200		4200		4200		4200		4200		4200
	%ADI=				1.4%		3.9%		0.4%		2.4%		2.0%		3.4%

Annex 3

FLONICAMID (282) International Estimated Daily Intake (IEDI) ADI = 0-0.07 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day	Intake as ug/person/day										
	Rounded %ADI=				1%		4%		0%		2%		2%		3%

FLONICAMID (282) International Estimated Daily Intake (IEDI) ADI = 0-0.07 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day	Intake as ug/person/day										
FP 0009	Pome fruits, raw (incl. apple juice, incl cider)	RAC	0.13	71.38	9.28	81.73	10.62	42.91	5.58	58.89	7.66	103.85	13.50	12.48	1.62
FS 0013	Cherries, raw	RAC	0.28	1.40	0.39	4.21	1.18	0.10	0.03	2.93	0.82	1.50	0.42	NC	-
FS 0014	Plums, raw (incl Chinese jujube)	RAC	0.03	3.75	0.11	3.33	0.10	5.94	0.18	2.64	0.08	2.50	0.08	0.10	0.00
DF 0014	Plum, dried (prunes)	PP	0.04	0.61	0.02	0.35	0.01	0.10	0.00	0.35	0.01	0.49	0.02	0.13	0.01
FS 2001	Peaches, nectarines, apricots, raw (incl dried apricots)	RAC	0.14	13.03	1.82	16.29	2.28	8.29	1.16	12.95	1.81	5.35	0.75	0.10	0.01
FB 2009	Low growing berries, raw (i.e. cranberry and strawberry)	RAC	0.37	4.55	1.68	5.66	2.09	0.10	0.04	7.85	2.90	5.86	2.17	0.10	0.04
VB 0041	Cabbages, head, raw	RAC	0.025	8.97	0.22	27.12	0.68	1.44	0.04	24.96	0.62	4.55	0.11	11.23	0.28
VB 0042	Flowerhead brassicas, raw	RAC	0.358	9.50	3.40	6.77	2.42	9.03	3.23	3.21	1.15	9.36	3.35	0.87	0.31
VB 0400	Broccoli, raw	RAC	0.358	4.24	1.52	1.76	0.63	NC	-	0.51	0.18	3.79	1.36	0.26	0.09
VB 0401	Chinese Broccoli, raw (i.e. kailan)	RAC	0.358	NC	-	NC	-	9.03	3.23	NC	-	NC	-	0.12	0.04
VB 0402	Brussels sprouts, raw	RAC	0.358	2.24	0.80	2.67	0.96	6.23	2.23	0.32	0.11	4.19	1.50	2.58	0.92
VB 0404	Cauliflower, raw	RAC	0.358	5.27	1.89	5.01	1.79	NC	-	2.70	0.97	5.57	1.99	0.49	0.18
VB 0405	Kohlrabi, raw	RAC	0.358	NC	-	3.25	1.16	NC	-	NC	-	0.10	0.04	0.36	0.13
VC 0045	Fruiting vegetables, cucurbits, raw	RAC	0.04	27.81	1.11	41.93	1.68	123.30	4.93	49.47	1.98	15.95	0.64	35.99	1.44
VO 0050	Fruiting vegetables other than cucurbits, raw, (incl processed commodities), excl tomato commodities, excl sweet corn commodities, excl mushroom commodities	RAC	0.09	8.19	0.74	18.68	1.68	42.99	3.87	15.04	1.35	11.46	1.03	6.30	0.57
VO 0448	Tomato, raw (incl juice, incl canned, excl paste)	RAC	0.09	44.88	4.04	55.49	4.99	35.44	3.19	75.65	6.81	27.00	2.43	9.61	0.86

FLONICAMID (282) International Estimated Daily Intake (IEDI) ADI = 0-0.07 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G07 diet	Intake as ug/person/day G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
-	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	1.45	4.96	7.19	3.20	4.64	0.15	0.22	1.61	2.33	6.88	9.98	0.52	0.75
VL 0054	Brassica leafy vegetables, raw	RAC	8.31	NC	-	NC	-	33.86	281.38	9.44	78.45	NC	-	4.40	36.56
VL 0482	Lettuce, head, raw	RAC	0.51	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0483	Lettuce, leaf, raw	RAC	2.67	14.50	38.72	11.76	31.40	13.14	35.08	19.50	52.07	4.81	12.84	2.23	5.95
VL 0494	Radish leaves, raw	RAC	8.5	NC	-	NC	-	NC	-	3.78	32.13	NC	-	0.48	4.08
VL 0502	Spinach, raw	RAC	5.72	2.20	12.58	1.76	10.07	13.38	76.53	2.94	16.82	5.53	31.63	0.10	0.57
VR 0494	Radish roots, raw	RAC	0.1	3.83	0.38	11.99	1.20	NC	-	5.26	0.53	2.19	0.22	4.37	0.44
VR 0589	Potato, raw (incl flour, incl frozen, incl starch, incl tapioca)	RAC	0.01	225.03	2.25	234.24	2.34	71.48	0.71	177.55	1.78	234.55	2.35	37.71	0.38
VS 0624	Celery	RAC	0.45	7.68	3.46	2.85	1.28	NC	-	3.34	1.50	16.83	7.57	4.04	1.82
GC 0650	Rye, raw (incl flour)	RAC	0.01	3.21	0.03	35.38	0.35	0.21	0.00	6.50	0.07	1.49	0.01	NC	-
GC 0653	Triticale, raw (incl flour)	RAC	0.01	0.10	0.00	0.17	0.00	0.29	0.00	0.10	0.00	NC	-	NC	-
GC 0654	Wheat, raw (incl bulgur, incl fermented beverages, incl germ, incl wholemeal bread, incl white flour products, incl white bread)	RAC	0.01	253.07	2.53	244.73	2.45	134.44	1.34	235.10	2.35	216.39	2.16	167.40	1.67
TN 0660	Almonds, nutmeat	RAC	0.01	0.81	0.01	2.21	0.02	0.10	0.00	1.02	0.01	1.47	0.01	NC	-
TN 0672	Pecan nuts, nutmeat	RAC	0.01	0.38	0.00	NC	-	NC	-	0.27	0.00	NC	-	0.26	0.00
SO 0495	Rape seed, raw	RAC	0.04	NC	-	NC	-	0.10	0.00	NC	-	NC	-	NC	-
OR 0495	Rape seed oil, edible	PP	0.004	12.52	0.05	7.63	0.03	3.00	0.01	6.01	0.02	NC	-	NC	-
SO 0691	Cotton seed, raw	RAC	0.06	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
OR 0691	Cotton seed oil, edible	PP	0.02	1.68	0.03	0.66	0.01	1.13	0.02	1.18	0.02	0.89	0.02	0.37	0.01
HH 0738	Mints, raw	RAC	1.92	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
DH 1100	Hops, dry	RAC	1.98	NC	-	NC	-	0.10	0.20	0.10	0.20	NC	-	NC	-
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) -80% as muscle	RAC	0.06	112.02	6.72	120.71	7.24	63.46	3.81	88.99	5.34	96.24	5.77	41.02	2.46
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) - 20% as fat	RAC	0.02	28.01	0.56	30.18	0.60	15.86	0.32	22.25	0.44	24.06	0.48	10.25	0.21
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.02	6.44	0.13	15.51	0.31	3.79	0.08	8.29	0.17	18.44	0.37	8.00	0.16
MO 0105	Edible offal (mammalian), raw	RAC	0.1	15.17	1.52	5.19	0.52	6.30	0.63	6.78	0.68	3.32	0.33	3.17	0.32
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.05	388.92	19.45	335.88	16.79	49.15	2.46	331.25	16.56	468.56	23.43	245.45	12.27

FLONICAMID (282) International Estimated Daily Intake (IEDI) ADI = 0-0.07 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day			Intake as ug/person/day								
PM 0110	Poultry meat, raw (incl prepared)	RAC	0.04	73.76	2.95	53.86	2.15	23.98	0.96	87.12	3.48	53.38	2.14	84.45	3.38
PF 0111	Poultry fat, raw (incl rendered)	RAC	0.04	0.10	0.00	0.10	0.00	NC	-	0.10	0.00	0.71	0.03	NC	-
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.04	0.33	0.01	0.72	0.03	0.27	0.01	0.35	0.01	0.80	0.03	NC	-
PE 0112	Eggs, raw, (incl dried)	RAC	0.06	25.84	1.55	29.53	1.77	28.05	1.68	33.19	1.99	36.44	2.19	8.89	0.53
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				127.2		115.5		433.2		243.4		130.9		78.1
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (ug/person)=				4200		4200		3850		4200		4200		4200
	%ADI=				3.0%		2.8%		11.3%		5.8%		3.1%		1.9%
	Rounded %ADI=				3%		3%		10%		6%		3%		2%

FLONICAMID (282) International Estimated Daily Intake (IEDI) ADI = 0-0.07 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
				Diets: g/person/day			Intake = daily intake: ug/person						
FP 0009	Pome fruits, raw (incl. apple juice, incl cider)	RAC	0.13	68.89	8.96	11.06	1.44	80.62	10.48	189.82	24.68	19.56	2.54
FS 0013	Cherries, raw	RAC	0.28	0.10	0.03	0.10	0.03	5.96	1.67	0.10	0.03	NC	-
FS 0014	Plums, raw (incl Chinese jujube)	RAC	0.03	0.10	0.00	0.10	0.00	15.56	0.47	0.10	0.00	NC	-
DF 0014	Plum, dried (prunes)	PP	0.04	0.10	0.00	0.10	0.00	0.37	0.01	0.10	0.00	NC	-
FS 2001	Peaches, nectarines, apricots, raw (incl dried apricots)	RAC	0.14	0.10	0.01	0.10	0.01	10.76	1.51	0.10	0.01	NC	-
FB 2009	Low growing berries, raw (i.e. cranberry and strawberry)	RAC	0.37	0.10	0.04	0.10	0.04	3.37	1.25	0.10	0.04	0.10	0.04
VB 0041	Cabbages, head, raw	RAC	0.025	3.82	0.10	2.99	0.07	49.16	1.23	0.10	0.00	NC	-
VB 0042	Flowerhead brassicas, raw	RAC	0.358	0.10	0.04	0.10	0.04	4.86	1.74	0.10	0.04	NC	-
VB 0400	Broccoli, raw	RAC	0.358	0.10	0.04	0.10	0.04	2.13	0.76	0.10	0.04	NC	-
VB 0401	Chinese Broccoli, raw (i.e. kailan)	RAC	0.358	0.10	0.04	0.10	0.04	NC	-	0.10	0.04	NC	-

FLONICAMID (282) International Estimated Daily Intake (IEDI) ADI = 0-0.07 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
				Diets: g/person/day	Intake = daily intake: ug/person								
VB 0402	Brussels sprouts, raw	RAC	0.358	0.88	0.32	0.69	0.25	2.89	1.03	0.10	0.04	NC	-
VB 0404	Cauliflower, raw	RAC	0.358	0.10	0.04	0.10	0.04	2.73	0.98	0.10	0.04	NC	-
VB 0405	Kohlrabi, raw	RAC	0.358	0.12	0.04	0.10	0.04	1.81	0.65	0.10	0.04	NC	-
VC 0045	Fruiting vegetables, cucurbits, raw	RAC	0.04	5.96	0.24	9.74	0.39	51.82	2.07	13.61	0.54	0.10	0.00
VO 0050	Fruiting vegetables other than cucurbits, raw, (incl processed commodities), excl tomato commodities, excl sweet corn commodities, excl mushroom commodities	RAC	0.09	20.58	1.85	31.41	2.83	37.56	3.38	1.79	0.16	NC	-
VO 0448	Tomato, raw (incl juice, incl canned, excl paste)	RAC	0.09	13.17	1.19	4.92	0.44	62.69	5.64	1.04	0.09	0.11	0.01
-	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	1.45	0.58	0.84	0.22	0.32	2.21	3.20	0.24	0.35	3.10	4.50
VL 0054	Brassica leafy vegetables, raw	RAC	8.31	1.50	12.47	1.17	9.72	NC	-	0.10	0.83	NC	-
VL 0482	Lettuce, head, raw	RAC	0.51	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0483	Lettuce, leaf, raw	RAC	2.67	0.29	0.77	0.10	0.27	6.71	17.92	0.10	0.27	NC	-
VL 0494	Radish leaves, raw	RAC	8.5	0.44	3.74	0.32	2.72	NC	-	0.30	2.55	0.59	5.02
VL 0502	Spinach, raw	RAC	5.72	0.17	0.97	0.10	0.57	0.81	4.63	0.10	0.57	NC	-
VR 0494	Radish roots, raw	RAC	0.1	3.96	0.40	2.86	0.29	3.30	0.33	2.67	0.27	5.34	0.53
VR 0589	Potato, raw (incl flour, incl frozen, incl starch, incl tapioca)	RAC	0.01	23.96	0.24	13.56	0.14	213.41	2.13	104.35	1.04	8.56	0.09
VS 0624	Celery	RAC	0.45	3.66	1.65	2.65	1.19	4.84	2.18	2.47	1.11	4.94	2.22
GC 0650	Rye, raw (incl flour)	RAC	0.01	0.10	0.00	0.10	0.00	13.95	0.14	0.10	0.00	0.88	0.01
GC 0653	Triticale, raw (incl flour)	RAC	0.01	0.10	0.00	NC	-	NC	-	NC	-	NC	-
GC 0654	Wheat, raw (incl bulgur, incl fermented beverages, incl germ, incl wholemeal bread, incl white flour products, incl white bread)	RAC	0.01	57.20	0.57	110.47	1.10	272.62	2.73	25.82	0.26	132.04	1.32
TN 0660	Almonds, nutmeat	RAC	0.01	0.10	0.00	0.10	0.00	0.61	0.01	0.10	0.00	NC	-
TN 0672	Pecan nuts, nutmeat	RAC	0.01	0.15	0.00	0.22	0.00	0.31	0.00	0.10	0.00	0.10	0.00
SO 0495	Rape seed, raw	RAC	0.04	NC	-	0.10	0.00	NC	-	NC	-	NC	-
OR 0495	Rape seed oil, edible	PP	0.004	0.10	0.00	0.10	0.00	4.62	0.02	0.10	0.00	NC	-
SO 0691	Cotton seed, raw	RAC	0.06	NC	-	NC	-	NC	-	NC	-	NC	-
OR 0691	Cotton seed oil, edible	PP	0.02	1.28	0.03	0.10	0.00	0.45	0.01	0.42	0.01	0.15	0.00
HH 0738	Mints, raw	RAC	1.92	NC	-	NC	-	NC	-	NC	-	NC	-

Annex 3

FLONICAMID (282) International Estimated Daily Intake (IEDI) ADI = 0-0.07 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day		Intake = daily intake: ug/person							
				G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
DH 1100	Hops, dry	RAC	1.98	NC	-	NC	-	0.10	0.20	NC	-	NC	-
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) -80% as muscle	RAC	0.06	23.34	1.40	40.71	2.44	97.15	5.83	18.06	1.08	57.71	3.46
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) - 20% as fat	RAC	0.02	5.84	0.12	10.18	0.20	24.29	0.49	4.52	0.09	14.43	0.29
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.02	1.05	0.02	1.14	0.02	18.69	0.37	0.94	0.02	3.12	0.06
MO 0105	Edible offal (mammalian), raw	RAC	0.1	4.64	0.46	1.97	0.20	10.01	1.00	3.27	0.33	3.98	0.40
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.05	108.75	5.44	70.31	3.52	436.11	21.81	61.55	3.08	79.09	3.95
PM 0110	Poultry meat, raw (incl prepared)	RAC	0.04	3.92	0.16	12.03	0.48	57.07	2.28	5.03	0.20	55.56	2.22
PF 0111	Poultry fat, raw (incl rendered)	RAC	0.04	NC	-	NC	-	0.32	0.01	NC	-	NC	-
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.04	0.10	0.00	0.70	0.03	0.97	0.04	0.10	0.00	NC	-
PE 0112	Eggs, raw, (incl dried)	RAC	0.06	3.84	0.23	4.41	0.26	27.25	1.64	1.13	0.07	7.39	0.44
-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				42.4		29.2		99.8		37.9		27.1
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (ug/person)=				4200		4200		4200		4200		4200
	%ADI=				1.0%		0.7%		2.4%		0.9%		0.6%
	Rounded %ADI=				1%		1%		2%		1%		1%

	FLUAZIFOP-P-BUTYL (283)		International Estimated Daily Intake (IEDI)							ADI = 0-0.004 mg/kg bw					
			STMR	Diets as g/person/day		Intake as ug/person/day									
Codex Code	Commodity description	Expr as	mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
001	**CITRUS FRUIT**	-		-	-	-	-	-	-	-	-	-	-	-	-
FC 0001	Citrus fruit, raw (incl citrus fruit juice, incl kumquat commodities)	RAC		34.91	-	16.51	-	17.23	-	104.48	-	35.57	-	98.49	-
FC 0001	Citrus fruit, raw (incl citrus fruit juice, excl kumquat commodities)	RAC		32.55	-	16.24	-	14.04	-	90.04	-	33.92	-	96.78	-
FC 0001	Citrus fruit, raw (incl kumquat commodities)	RAC	0.011	32.25	0.34	11.67	0.12	16.70	0.18	76.01	0.80	33.90	0.36	92.97	0.98
FC 0001	Citrus fruit, raw (excl kumquat commodities)	RAC		29.89	-	11.40	-	13.51	-	61.57	-	32.24	-	91.26	-
JF 0001	Citrus fruit, juice	PP	0.0077	1.30	0.01	2.37	0.02	0.22	0.00	13.88	0.11	0.75	0.01	2.63	0.02
001A	**Lemons and limes**	-		-	-	-	-	-	-	-	-	-	-	-	-
FC 0002	Lemons and limes, raw (incl lemon juice) (incl kumquat commodities)	RAC		4.82	-	2.45	-	3.93	-	25.44	-	8.74	-	16.23	-
FC 0002	Lemons and limes, raw (incl lemon juice, excl kumquat commodities)	RAC		2.46	-	2.18	-	0.74	-	10.99	-	7.09	-	14.51	-
FC 0002	Lemons and limes, raw (incl kumquat commodities)	RAC		4.78	-	2.42	-	3.61	-	25.18	-	8.25	-	15.77	-
FC 0002	Lemons and limes, raw (excl kumquat commodities)	RAC		2.42	-	2.15	-	0.43	-	10.74	-	6.59	-	14.06	-
-	Lemon, juice (single strength, incl. concentrated)	PP		0.10	-	0.10	-	0.11	-	0.10	-	0.18	-	0.17	-
FC 0303	Kumquats, raw (incl juice)	RAC		2.36	-	0.27	-	3.19	-	14.44	-	1.66	-	1.71	-
001B	**Mandarins**	-		-	-	-	-	-	-	-	-	-	-	-	-
FC 0003	Mandarins, raw (incl mandarin juice)	RAC		6.18	-	3.66	-	0.25	-	6.82	-	3.49	-	19.38	-
FC 0003	Mandarins, raw	RAC		6.18	-	3.66	-	0.25	-	6.82	-	3.49	-	19.38	-
-	Mandarins, juice	PP		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
001C	**Oranges, sweet, sour**	-		-	-	-	-	-	-	-	-	-	-	-	-
FC 0004	Oranges, sweet, sour, raw (incl orange juice)	RAC		23.26	-	9.71	-	12.09	-	62.02	-	22.09	-	59.91	-
FC 0004	Oranges, sweet, sour, raw	RAC		20.66	-	5.23	-	11.90	-	37.90	-	21.16	-	56.46	-
JF 0004	Oranges, juice (single strength, incl. concentrated)	PP		1.27	-	2.20	-	0.10	-	11.81	-	0.46	-	1.69	-
001D	**Pummelos**	-		-	-	-	-	-	-	-	-	-	-	-	-
FC 0005	Pummelo and grapefruits, raw (incl	RAC		0.66	-	0.69	-	0.96	-	10.20	-	1.25	-	2.97	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

			STMR	Diets as g/person/day		Intake as ug/person/day									
Codex Code	Commodity description	Expr as	mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
	grapefruit juice)														
FC 0005	Pummelo and grapefruits, raw	RAC		0.64	-	0.35	-	0.93	-	6.10	-	1.01	-	1.36	-
JF 0203	Grapefruits, juice (single strength, incl. concentrated)	PP		0.10	-	0.16	-	0.10	-	1.97	-	0.12	-	0.77	-
002	**POME FRUIT**	-		-	-	-	-	-	-	-	-	-	-	-	-
FP 0009	Pome fruits, raw (incl. apple juice, incl cider)	RAC	0.011	19.79	0.21	38.25	0.40	17.96	0.19	32.56	0.34	8.08	0.08	64.45	0.68
FP 0009	Pome fruit, raw (incl apple juice, excl cider)	RAC		19.69	-	38.08	-	3.43	-	32.35	-	7.98	-	64.35	-
FP 0009	Pome fruit, raw (incl cider, excl apple juice)	RAC		19.35	-	34.06	-	17.87	-	25.74	-	7.69	-	56.85	-
FP 0009	Pomefruits, raw	RAC		19.24	-	33.89	-	3.34	-	25.53	-	7.59	-	56.76	-
FP 0226	Apple, raw (incl juice, incl cider)	RAC		13.94	-	30.81	-	15.14	-	23.10	-	6.86	-	55.48	-
FP 0226	Apple, raw (incl juice, excl cider)	RAC		13.83	-	30.65	-	0.61	-	22.89	-	6.76	-	55.39	-
FP 0226	Apple, raw (incl cider, excl juice)	RAC		13.49	-	26.63	-	15.05	-	16.28	-	6.47	-	47.88	-
FP 0226	Apple, raw	RAC		13.39	-	26.46	-	0.52	-	16.07	-	6.37	-	47.79	-
JF 0226	Apple juice, single strength (incl. concentrated)	PP		0.32	-	3.07	-	0.10	-	5.00	-	0.29	-	5.57	-
-	Cider (i.e. fermented apple juice)	PP		0.10	-	0.12	-	10.66	-	0.15	-	0.10	-	0.10	-
FP 0227	Crab-apple, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
FP 0228	Loquat, raw (incl processed)	RAC		0.59	-	0.36	-	0.46	-	1.88	-	NC	-	1.15	-
FP 0229	Medlar, raw (incl processed)	RAC		0.47	-	0.29	-	0.36	-	1.49	-	NC	-	0.92	-
FP 0230	Pear, raw	RAC		2.16	-	6.24	-	0.10	-	4.07	-	1.16	-	5.34	-
FP 0307	Persimmon, Japanese, raw	RAC		1.91	-	0.10	-	1.94	-	1.96	-	NC	-	0.25	-
FP 0231	Quince, raw	RAC		0.73	-	0.54	-	0.10	-	0.10	-	0.10	-	1.31	-
003	**STONE FRUIT**	-		-	-	-	-	-	-	-	-	-	-	-	-
FS 0012	Stone fruits, raw (incl dried plums, incl dried apricots)	RAC	0.011	11.60	0.12	23.79	0.25	0.25	0.00	11.84	0.12	2.41	0.03	33.44	0.35
FS 0012	Stone fruits, raw (incl dried plums, excl dried apricots)	RAC		11.08	-	22.90	-	0.24	-	10.98	-	2.36	-	32.09	-
FS 0012	Stone fruits, raw (incl dried apricots, excl dried plums)	RAC		11.33	-	23.62	-	0.24	-	11.32	-	2.28	-	33.26	-
FS 0012	Stone fruits, raw	RAC		10.82	-	22.73	-	0.24	-	10.46	-	2.23	-	31.91	-
003A	**Cherries**	-		-	-	-	-	-	-	-	-	-	-	-	-
FS 0013	Cherries, raw	RAC		0.92	-	9.15	-	0.10	-	0.61	-	0.10	-	6.64	-
003B	**Plums**	-		-	-	-	-	-	-	-	-	-	-	-	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day	Intake as ug/person/day										
				G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
FS 0014	Plums, raw (incl dried plums, incl Chinese jujube)	RAC		2.67	-	8.77	-	0.10	-	3.03	-	0.70	-	4.34	-
FS 0014	Plums, raw (incl dried plums, excl Chinese jujube)	RAC		2.67	-	8.77	-	0.10	-	3.03	-	0.70	-	4.34	-
FS 0014	Plums, raw (incl Chinese jujube)	RAC		2.40	-	8.60	-	0.10	-	2.52	-	0.58	-	4.16	-
FS 0014	Plums, raw (excl Chinese jujube)	RAC		2.40	-	8.60	-	0.10	-	2.52	-	0.58	-	4.16	-
DF 0014	Plum, dried (prunes)	PP		0.10	-	0.10	-	0.10	-	0.18	-	0.10	-	0.10	-
FS 0302	Jujube, Chinese, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
003C	**Peaches**	-		-	-	-	-	-	-	-	-	-	-	-	-
FS 2001	Peaches, nectarines, apricots, raw (incl dried apricots)	RAC		8.01	-	5.87	-	0.18	-	8.19	-	1.64	-	22.46	-
FS 2001	Peaches, nectarines, apricots, raw	RAC		7.50	-	4.98	-	0.18	-	7.33	-	1.59	-	21.11	-
FS 0240	Apricot, raw (incl dried)	RAC		5.15	-	3.66	-	0.10	-	2.25	-	0.17	-	6.80	-
FS 0240	Apricot, raw	RAC		4.63	-	2.77	-	0.10	-	1.39	-	0.12	-	5.45	-
DF 0240	Apricot, dried	PP		0.10	-	0.16	-	0.10	-	0.16	-	0.10	-	0.24	-
FS 2237	Japanese apricot (ume)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Peaches and nectarines, raw	RAC		2.87	-	2.21	-	0.15	-	5.94	-	1.47	-	15.66	-
004	**BERRIES AND OTHER SMALL FRUITS**	-		-	-	-	-	-	-	-	-	-	-	-	-
FB 0018	Berries and other small fruits, raw (incl processed)	RAC		18.53	-	33.67	-	3.65	-	28.70	-	9.72	-	74.91	-
FB 0018	Berries and other small fruits, raw, (incl processed), excl small fruit vine climbing (group 004D)	RAC		2.29	-	4.71	-	0.78	-	4.48	-	0.39	-	6.27	-
FB 0018	Berries and other small fruits, raw, (incl processed), excl small fruit vine climbing (group 004D), excl low growing berries (group 004E)	RAC		1.57	-	2.69	-	0.74	-	3.10	-	0.10	-	3.74	-
004A	**Cane berries**	-		-	-	-	-	-	-	-	-	-	-	-	-
FB 2005	Caneberries, raw	RAC	0.011	0.42	0.00	1.05	0.01	0.10	0.00	0.10	0.00	0.10	0.00	1.24	0.01
FB 0264	Blackberries, raw	RAC		0.35	-	0.11	-	0.10	-	0.10	-	0.10	-	1.23	-
FB 0266	Dewberries, incl boysen- & loganberry, raw	RAC		0.10	-	0.10	-	0.10	-	0.10	-	0.10	-	0.10	-
FB 0272	Raspberries, red, black, raw	RAC		0.10	-	0.93	-	0.10	-	0.10	-	0.10	-	0.10	-
004B	**Bush berries**	-		-	-	-	-	-	-	-	-	-	-	-	-
FB 2006	Bush berries, raw (including processed) (i.e.	RAC		0.53	-	1.31	-	0.40	-	1.66	-	0.10	-	0.99	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day	Intake as ug/person/day										
	blueberries, currants, gooseberries, rose hips)														
FB 0020	Blueberries, raw	RAC		0.10	-	0.10	-	0.10	-	0.10	-	0.10	-	0.10	-
FB 0021	Currants, red, black, white, raw	RAC	0.011	0.10	0.00	0.74	0.01	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00
FB 0268	Gooseberries, raw	RAC	0.011	0.10	0.00	0.24	0.00	NC	-	0.10	0.00	0.10	0.00	NC	-
FB 0273	Rose hips, raw (incl processed)	RAC		0.51	-	0.31	-	0.39	-	1.62	-	NC	-	0.99	-
004C	**Large shrub/tree berries**	-		-	-	-	-	-	-	-	-	-	-	-	-
FB 2007	Large shrub/tree berries, raw (including processed) (i.e. elderberries, mulberries)	RAC		0.62	-	0.33	-	0.34	-	1.42	-	0.10	-	1.51	-
FB 0267	Elderberries, raw (incl processed)	RAC		0.44	-	0.27	-	0.34	-	1.41	-	NC	-	0.87	-
FB 0271	Mulberries, red, white, raw	RAC		0.18	-	0.10	-	0.10	-	0.10	-	0.10	-	0.64	-
004D	**Small fruit vine climbing**	-		-	-	-	-	-	-	-	-	-	-	-	-
FB 2008	Small fruit vine climbing, raw (incl processed) (i.e. grapes)	RAC	0.011	16.25	0.17	28.96	0.30	2.87	0.03	24.22	0.25	9.33	0.10	68.64	0.72
FB 0269	Grape, raw (incl must, incl dried, incl juice, incl wine)	RAC		16.25	-	28.96	-	2.87	-	24.22	-	9.33	-	68.64	-
FB 0269	Grape, raw (incl must, incl dried, incl wine, excl juice)	RAC		16.07	-	28.60	-	2.81	-	23.85	-	9.03	-	68.58	-
FB 0269	Grape, raw (incl must, incl juice, incl wine, excl dried)	RAC		14.11	-	26.83	-	2.85	-	18.95	-	8.84	-	60.01	-
FB 0269	Grape, raw (incl dried, incl juice, incl wine, excl must)	RAC		15.91	-	28.84	-	2.87	-	24.20	-	9.33	-	68.62	-
FB 0269	Grape, raw (incl must, incl dried, incl juice, excl wine)	RAC		15.33	-	11.75	-	0.11	-	22.55	-	4.49	-	63.13	-
FB 0269	Grape, raw (incl must, incl dried, excl juice, excl wine)	RAC		15.15	-	11.38	-	0.10	-	22.18	-	4.19	-	63.07	-
FB 0269	Grape, raw (incl must, incl juice, excl dried, excl wine)	RAC		13.19	-	9.61	-	0.10	-	17.28	-	4.00	-	54.50	-
FB 0269	Grape, raw (incl must, incl wine, excl dried, excl juice)	RAC		13.94	-	26.46	-	2.79	-	18.58	-	8.54	-	59.95	-
FB 0269	Grape, raw (incl dried, incl juice, excl wine, excl must)	RAC		14.99	-	11.62	-	0.11	-	22.53	-	4.48	-	63.11	-
FB 0269	Grape, raw (incl dried, incl wine, excl must, excl juice)	RAC		15.74	-	28.47	-	2.81	-	23.83	-	9.03	-	68.56	-
FB 0269	Grape, raw (incl juice, incl wine, excl must,	RAC		13.78	-	26.70	-	2.85	-	18.92	-	8.84	-	59.99	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G01 diet	Intake as ug/person/day G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
	excl dried)														
FB 0269	Grape, raw (incl must, excl dried, excl juice, excl wine)	RAC		13.02	-	9.25	-	0.10	-	16.91	-	3.70	-	54.44	-
FB 0269	Grape, raw (incl dried, excl must, excl juice, excl wine)	RAC		14.82	-	11.26	-	0.10	-	22.16	-	4.19	-	63.05	-
FB 0269	Grape, raw (incl juice, excl must, excl dried, excl wine)	RAC		12.86	-	9.49	-	0.10	-	17.25	-	3.99	-	54.48	-
FB 0269	Grape, raw (incl wine, excl must, excl dried, excl juice)	RAC		13.60	-	26.34	-	2.79	-	18.55	-	8.54	-	59.93	-
FB 0269	Grape, raw	RAC		12.68	-	9.12	-	0.10	-	16.88	-	3.70	-	54.42	-
-	Grape must	PP		0.33	-	0.13	-	0.10	-	0.10	-	0.10	-	0.10	-
DF 0269	Grape, dried (= currants, raisins and sultanas)	PP		0.51	-	0.51	-	0.10	-	1.27	-	0.12	-	2.07	-
JF 0269	Grape juice	PP		0.14	-	0.29	-	0.10	-	0.30	-	0.24	-	0.10	-
-	Grape wine (incl vermouths)	PP		0.67	-	12.53	-	2.01	-	1.21	-	3.53	-	4.01	-
004E	**Low growing berries**	-		-	-	-	-	-	-	-	-	-	-	-	-
FB 2009	Low growing berries, raw (i.e. cranberry and strawberry)	RAC		0.71	-	2.02	-	0.10	-	1.39	-	0.37	-	2.53	-
FB 0265	Cranberries, raw	RAC		0.10	-	0.10	-	NC	-	0.10	-	0.10	-	0.10	-
FB 0275	Strawberry, raw	RAC	0.063	0.70	0.04	2.01	0.13	0.10	0.01	1.36	0.09	0.37	0.02	2.53	0.16
005	**ASSORTED (SUB)TROPICAL FRUITS - EDIBLE PEEL**	-		-	-	-	-	-	-	-	-	-	-	-	-
FT 0026	Tropical and subtropical fruits, edible peel, raw (incl processed)	RAC		14.52	-	2.34	-	2.45	-	72.46	-	18.20	-	29.59	-
005A	**Assorted (sub) tropical fruits - edible peel - small**	-		-	-	-	-	-	-	-	-	-	-	-	-
FT 2011	Assorted (sub) tropical fruits - edible peel - small, raw (including processed)	RAC		0.73	-	0.34	-	0.10	-	1.64	-	0.45	-	1.91	-
FT 0287	Barbados cherry (i.e. Antilles cherry or acerola), raw	RAC		0.10	-	0.10	-	0.10	-	0.11	-	0.28	-	0.10	-
FT 0340	Java apple, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
FT 0305	Table olive, raw (incl preserved)	RAC	0.011	0.70	0.01	0.32	0.00	0.10	0.00	1.53	0.02	0.17	0.00	1.85	0.02
FT 0305	Table olive, raw	RAC		0.10	-	0.16	-	NC	-	0.24	-	0.10	-	0.65	-
DM 0305	Table olive, preserved	PP		0.58	-	0.15	-	0.10	-	1.22	-	0.15	-	1.13	-
005B	**Assorted (sub) tropical fruits - edible peel**	-		-	-	-	-	-	-	-	-	-	-	-	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G01 diet	Intake as ug/person/day G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
	- medium to large														
FT 2012	Assorted (sub) tropical fruits - edible peel - medium to large, raw (incl processed)	RAC		2.48	-	0.86	-	1.32	-	1.91	-	6.33	-	4.54	-
FT 2381	Babaco, raw, incl processed	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
FT 0289	Carambola, raw (i.e. star fruit)	RAC		0.10	-	0.10	-	0.10	-	0.10	-	NC	-	0.10	-
FT 0291	Carob (Locust Tree, St John's Bread)	RAC		0.10	-	0.10	-	NC	-	0.10	-	0.10	-	NC	-
FT 0292	Cashew apple, raw	RAC		NC	-	0.10	-	0.62	-	NC	-	1.77	-	NC	-
FT 0297	Fig, raw (incl dried)	RAC		1.71	-	0.71	-	0.10	-	0.62	-	0.13	-	4.00	-
FT 0297	Fig, raw	RAC		1.06	-	0.41	-	0.10	-	0.19	-	0.10	-	3.23	-
DF 0297	Fig, dried or dried and candied	PP		0.22	-	0.10	-	0.10	-	0.15	-	0.10	-	0.26	-
FT 0336	Guava, raw	RAC		0.47	-	0.10	-	0.48	-	0.49	-	4.42	-	0.10	-
FT 0300	Jaboticaba, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
FT 0301	Jujube, Indian, raw (incl processed)	RAC		0.24	-	0.15	-	0.19	-	0.77	-	NC	-	0.47	-
FT 0309	Rose apple, raw	RAC		0.10	-	0.10	-	0.10	-	0.10	-	NC	-	0.10	-
FT 0364	Sentul, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
005C	**Assorted (sub) tropical fruits - edible peel - palms**	-		-	-	-	-	-	-	-	-	-	-	-	-
FT 2011	Assorted (sub) tropical fruits - edible peel - palms, raw (incl processed)	RAC		11.31	-	1.14	-	1.09	-	68.91	-	11.43	-	23.14	-
FT 2400	Açai berry, raw	RAC		1.36	-	0.84	-	1.06	-	4.37	-	11.03	-	2.68	-
FT 0295	Date, raw (incl dried)	RAC		9.94	-	0.30	-	0.10	-	64.54	-	0.40	-	20.46	-
006	**ASSORTED (SUB)TROPICAL FRUITS-INEDIBLE PEEL**	-		-	-	-	-	-	-	-	-	-	-	-	-
FI 0030	(Sub)Tropical fruits, inedible peel, raw (incl processed)	RAC		25.21	-	12.67	-	63.75	-	74.70	-	84.45	-	40.60	-
006A	**Assorted (sub) tropical fruits - inedible peel - small**	-		-	-	-	-	-	-	-	-	-	-	-	-
FI 2021	Assorted (sub) tropical fruits - inedible peel - small, raw (incl processed)	RAC		2.54	-	1.54	-	1.99	-	8.06	-	NC	-	4.91	-
FI 0343	Litchi, raw (incl processed)	RAC		2.32	-	1.43	-	1.81	-	7.42	-	NC	-	4.54	-
FI 0342	Longan, raw	RAC		0.10	-	0.10	-	0.10	-	0.10	-	NC	-	0.10	-
FI 0369	Tamarind, sweet varieties, raw (incl processed)	RAC		0.19	-	0.12	-	0.15	-	0.60	-	NC	-	0.37	-
006B	**Assorted (sub) tropical fruits - inedible smooth peel - large**	-		-	-	-	-	-	-	-	-	-	-	-	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day		Intake as ug/person/day									
FI 2022	Assorted (sub) tropical fruits - inedible smooth peel - large, raw (incl processed)	RAC		20.18	-	9.08	-	114.42	-	55.13	-	78.33	-	38.72	-
FI 0326	Avocado, raw	RAC		0.13	-	0.10	-	2.05	-	2.54	-	2.34	-	0.12	-
FI 0327	Banana, raw (incl plantains) (incl dried)	RAC	0.011	5.06	0.05	6.91	0.07	37.17	0.39	31.16	0.33	40.21	0.42	18.96	0.20
FI 0327	Banana, raw (incl plantains)	RAC		4.90	-	6.94	-	99.37	-	32.44	-	48.24	-	24.67	-
FI 0327	Banana, dried (incl plantains)	RAC		0.11	-	0.10	-	0.10	-	0.10	-	0.10	-	0.10	-
FI 2483	Cupuaçu, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
FI 0335	Feijoa (Pineapple guava), raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
FI 2488	Langsat (i.e. longkong)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
FI 0345	Mango, raw (incl canned mango, incl mango juice)	RAC		10.48	-	0.10	-	7.24	-	6.87	-	19.98	-	6.25	-
FI 0345	Mango, raw (incl canned mango, excl mango juice)	RAC		10.40	-	0.10	-	7.24	-	6.85	-	19.64	-	5.95	-
FI 0345	Mango, raw (incl mango juice, excl canned mango)	RAC		10.46	-	0.10	-	7.24	-	6.87	-	19.88	-	4.83	-
FI 0345	Mango, raw	RAC		10.38	-	0.10	-	7.24	-	6.85	-	19.53	-	4.52	-
-	Mango, juice	PP		0.10	-	0.10	-	NC	-	0.10	-	0.18	-	0.16	-
-	Mango, canned	PP		0.10	-	0.10	-	NC	-	0.10	-	0.10	-	0.98	-
FI 0346	Mangosteen, raw (i.e. mangostan)	RAC		0.10	-	0.10	-	0.10	-	0.10	-	NC	-	0.10	-
FI 0350	Papaya, raw	RAC		0.35	-	0.10	-	3.05	-	0.80	-	7.28	-	1.00	-
FI 0352	Persimmon, American	RAC		0.88	-	NC	-	NC	-	1.53	-	0.20	-	0.10	-
FI 0355	Pomegranate, raw, (incl processed)	RAC		3.40	-	2.10	-	2.65	-	10.89	-	NC	-	6.67	-
FI 0360	Sapote, black	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
FI 0367	Star apple, raw (i.e. cainito)	RAC		0.10	-	0.10	-	0.10	-	0.10	-	0.28	-	0.10	-
FI 0312	Tamarillo (i.e. Tree tomato)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
006C	**Assorted (sub) tropical fruits - inedible rough or hairy peel - large**	-		-	-	-	-	-	-	-	-	-	-	-	-
FI 2023	Assorted (sub) tropical fruits - inedible rough or hairy peel - large, raw	RAC		0.97	-	1.56	-	8.26	-	9.73	-	9.50	-	1.35	-
FI 0331	Cherimoya, raw	RAC		0.18	-	0.10	-	0.18	-	0.18	-	NC	-	0.10	-
FI 0332	Custard apple, raw	RAC		0.10	-	0.10	-	0.10	-	0.10	-	0.35	-	0.10	-
FI 0334	Durian, raw	RAC		0.10	-	0.10	-	0.10	-	0.10	-	NC	-	0.10	-
FI 0338	Jackfruit	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
FI 0353	Pineapple, raw (incl canned pineapple, incl	RAC		0.61	-	1.56	-	7.89	-	9.36	-	8.76	-	1.30	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day			Intake as ug/person/day								
	pineapple juice, incl dried pineapple)														
FI 0353	Pineapple, raw (incl canned pineapple, incl pineapple juice, excl dried pineapple)	RAC		0.32	-	1.56	-	7.82	-	9.33	-	8.71	-	1.27	-
FI 0353	Pineapple, raw (incl pineapple juice, incl dried pineapple, excl canned pineapple)	RAC		0.36	-	1.09	-	7.42	-	5.20	-	7.55	-	0.96	-
FI 0353	Pineapple, raw (incl canned pineapple, incl dried pineapple, excl pineapple juice)	RAC		0.54	-	0.58	-	7.69	-	6.02	-	8.26	-	0.82	-
FI 0353	Pineapple, raw (incl canned pineapple, excl pineapple juice, excl dried pineapple)	RAC		0.26	-	0.58	-	7.62	-	5.99	-	8.21	-	0.80	-
FI 0353	Pineapple, raw (incl pineapple juice, excl pineapple canned, excl dried pineapple)	RAC		0.10	-	1.08	-	7.35	-	5.18	-	7.51	-	0.93	-
FI 0353	Pineapple, raw (incl dried pineapple, excl pineapple juice, excl canned pineapple)	RAC		0.36	-	1.09	-	7.42	-	5.20	-	7.55	-	0.96	-
FI 0353	Pineapple, raw	RAC		0.10	-	0.10	-	7.15	-	1.84	-	7.01	-	0.46	-
-	Pineapple, canned	PP		0.13	-	0.25	-	0.24	-	2.16	-	0.63	-	0.18	-
JF 0341	Pineapple juice (single strength, incl concentrated)	PP		0.10	-	0.57	-	0.12	-	1.96	-	0.29	-	0.28	-
-	Pineapple, dried	PP		0.10	-	0.10	-	0.10	-	0.10	-	0.10	-	0.10	-
FI 0358	Rambutan, raw	RAC		0.10	-	0.10	-	0.10	-	0.10	-	NC	-	0.10	-
FI 0359	Sapodilla, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
FI 0365	Soursop, raw (i.e. guanabana)	RAC		0.10	-	0.10	-	0.10	-	0.10	-	0.39	-	0.10	-
006D	**Assorted (sub) tropical fruits - inedible peel - cactus**	-		-	-	-	-	-	-	-	-	-	-	-	-
FI 2024	Assorted (sub) tropical fruits - inedible peel - cactus, raw (incl processed)	RAC		0.26	-	0.16	-	0.20	-	0.82	-	NC	-	0.50	-
FI 2540	Pitaya, raw (i.e dragon fruit or pitahaya)	RAC		0.10	-	0.10	-	0.10	-	0.10	-	NC	-	0.10	-
FI 0356	Prickly pear, raw (incl processed)	RAC		0.25	-	0.16	-	0.20	-	0.81	-	NC	-	0.50	-
006D	**Assorted (sub) tropical fruits - inedible peel - vines**	-		-	-	-	-	-	-	-	-	-	-	-	-
FI 2025	Assorted (sub) tropical fruits - inedible peel - vines, raw	RAC		0.61	-	0.36	-	0.59	-	1.77	-	0.24	-	0.77	-
FI 0341	Kiwi fruit, raw	RAC		0.10	-	0.36	-	0.10	-	1.17	-	0.10	-	0.69	-
FI 0351	Passion fruit, raw	RAC		0.58	-	0.10	-	0.59	-	0.60	-	0.18	-	0.10	-
006E	**Assorted (sub) tropical fruits - inedible peel - palms**	-		-	-	-	-	-	-	-	-	-	-	-	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G01 diet	Intake as ug/person/day G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
FI 2026	Assorted (sub) tropical fruits - inedible peel - palms	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
009	**BULB VEGETABLES**	-		-	-	-	-	-	-	-	-	-	-	-	-
VA 0035	Bulb vegetables, raw	RAC		34.29	-	46.37	-	4.73	-	41.36	-	21.08	-	52.54	-
VA 0380	Fennel, bulb, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VA 0381	Garlic, raw	RAC	0.12	2.29	0.28	5.78	0.71	0.11	0.01	3.69	0.45	1.65	0.20	3.91	0.48
VA 0384	Leek, raw	RAC		0.18	-	1.59	-	0.10	-	0.28	-	0.10	-	3.21	-
-	Onions, mature bulbs, dry	RAC	0.12	29.36	3.59	37.50	4.59	3.56	0.44	34.78	4.26	18.81	2.30	43.38	5.31
-	Onions, green, raw	RAC		2.45	-	1.49	-	1.02	-	2.60	-	0.60	-	2.03	-
010	**BRASSICA**	-		-	-	-	-	-	-	-	-	-	-	-	-
VB 0040	Brassica vegetables, raw: head cabbages, flowerhead brassicas, Brussels sprouts & kohlrabi	RAC		6.41	-	35.79	-	0.71	-	9.81	-	12.07	-	16.58	-
VB 0041	Cabbages, head, raw	RAC	0.20	2.73	0.54	27.92	5.50	0.55	0.11	4.47	0.88	4.27	0.84	10.25	2.02
VB 0042	Flowerhead brassicas, raw	RAC		2.96	-	0.57	-	0.10	-	4.17	-	7.79	-	3.64	-
VB 0400	Broccoli, raw	RAC		0.88	-	0.17	-	0.10	-	1.25	-	3.00	-	1.09	-
VB 0401	Chinese Broccoli, raw (i.e. kailan)	RAC		0.42	-	0.10	-	0.10	-	0.60	-	NC	-	0.52	-
VB 0402	Brussels sprouts, raw	RAC		0.63	-	6.41	-	0.13	-	1.03	-	NC	-	2.35	-
VB 0404	Cauliflower, raw	RAC		1.65	-	0.32	-	0.10	-	2.33	-	4.79	-	2.03	-
VB 0405	Kohlrabi, raw	RAC		0.10	-	0.89	-	0.10	-	0.14	-	NC	-	0.33	-
011	**FRUITING VEGETABLES, CUCURBITS**	-		-	-	-	-	-	-	-	-	-	-	-	-
VC 0045	Fruiting vegetables, cucurbits, raw	RAC		53.14	-	86.21	-	6.28	-	92.76	-	15.64	-	155.30	-
VC 0045	Fruiting vegetables, cucurbits, raw (excl watermelons)	RAC		24.18	-	60.56	-	4.73	-	53.51	-	10.71	-	88.40	-
VC 0045	Fruiting vegetables, cucurbits, raw (excl melons)	RAC		44.24	-	77.56	-	5.48	-	74.86	-	12.84	-	126.13	-
VC 0045	Fruiting vegetables, cucurbits, raw (excl melons, excl watermelons)	RAC		15.28	-	51.92	-	3.93	-	35.60	-	7.91	-	59.23	-
VC 0046	Melons, raw (excl watermelons)	RAC		8.90	-	8.64	-	0.80	-	17.90	-	2.80	-	29.17	-
VC 0421	Balsam pear (Bitter cucumber, Bitter gourd, Bitter melon)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VC 0422	Bottle gourd (Cucuzzi)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VC 0423	Chayote (Christophine)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VC 0424	Cucumber, raw	RAC		8.01	-	30.66	-	1.45	-	19.84	-	0.27	-	34.92	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

			STMR	Diets as g/person/day		Intake as ug/person/day									
Codex Code	Commodity description	Expr as	mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
VC 0425	Gherkin, raw	RAC		1.73	-	6.64	-	0.31	-	4.29	-	0.29	-	7.56	-
VC 0427	Loofah, Angled (Sinkwa, Sinkwa towel gourd), raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VC 0428	Loofah, Smooth, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VC 0430	Snake gourd	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VC 0431	Squash, summer, raw (= courgette, zuchini)	RAC		0.78	-	2.06	-	0.30	-	1.61	-	2.25	-	2.36	-
VC 0432	Watermelon, raw	RAC		28.96	-	25.65	-	1.56	-	39.26	-	4.94	-	66.90	-
VC 0433	Winter squash, raw (= pumpkin)	RAC		4.76	-	12.56	-	1.85	-	9.86	-	5.11	-	14.39	-
012	**FRUITING VEGETABLES OTHER THAN CUCURBITS**	-		-	-	-	-	-	-	-	-	-	-	-	-
VO 0050	Fruiting vegetables other than cucurbits, raw (incl processed commodities)	RAC		70.95	-	105.03	-	43.33	-	134.64	-	63.92	-	266.11	-
VO 0050	Fruiting vegetables other than cucurbits, raw, (incl processed commodities), excl sweet corn commodities, excl mushroom commodities	RAC		70.72	-	103.53	-	37.61	-	129.38	-	61.87	-	265.39	-
VO 0050	Fruiting vegetables other than cucurbits, raw, (incl processed commodities), excl tomato commodities, excl sweet corn commodities, excl mushroom commodities	RAC		18.97	-	21.73	-	20.61	-	27.35	-	35.54	-	50.62	-
VO 0440	Egg plants, raw (= aubergines)	RAC	0.053	5.58	0.29	4.31	0.23	0.89	0.05	9.31	0.49	13.64	0.72	20.12	1.06
VO 0442	Okra, raw	RAC		1.97	-	NC	-	3.68	-	3.24	-	5.72	-	1.57	-
VO 0443	Pepino (Melon pear, Tree melon)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VO 0444	Peppers, chili, raw (incl dried)	RAC		6.93	-	10.97	-	8.83	-	9.13	-	6.65	-	20.01	-
VO 0444	Peppers, chili, raw	RAC		3.99	-	7.30	-	2.93	-	5.62	-	NC	-	17.44	-
-	Peppers, chili, dried	PP		0.42	-	0.53	-	0.84	-	0.50	-	0.95	-	0.37	-
VO 0445	Peppers, sweet, raw (incl dried)	RAC		4.49	-	6.44	-	7.21	-	5.68	-	9.52	-	8.92	-
VO 0445	Peppers, sweet, raw	RAC		1.43	-	2.61	-	1.05	-	2.01	-	2.59	-	6.24	-
-	Peppers, sweet, dried	PP		0.42	-	0.53	-	0.84	-	0.50	-	0.95	-	0.37	-
VO 0447	Sweet corn on the cob, raw (incl frozen, incl canned) (i.e. kernels plus cob without husks)	RAC		0.14	-	0.94	-	5.70	-	2.61	-	1.94	-	0.22	-
VO 0447	Sweet corn on the cob, raw (incl frozen, excl canned) (i.e. kernels plus cob without	RAC		0.10	-	0.16	-	5.67	-	1.21	-	1.83	-	0.10	-

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
	FLUAZIFOP-P-BUTYL (283)		International Estimated Daily Intake (IEDI)						ADI = 0-0.004 mg/kg bw						
				Diets as g/person/day			Intake as ug/person/day								
	husks)														
VO 0447	Sweet corn on the cob, raw (incl canned, excl frozen) (i.e. kernels plus cob without husks)	RAC		0.14	-	0.86	-	5.70	-	1.46	-	1.88	-	0.14	-
VO 0447	Sweet corn on the cob, raw (i.e kernels plus cob without husks)	RAC		0.10	-	0.10	-	5.67	-	0.10	-	1.77	-	NC	-
VO 0447	Sweet corn, frozen (kernels)	PP		0.10	-	0.10	-	0.10	-	0.63	-	0.10	-	0.10	-
VO 0447	Sweet corn, canned (kernels)	PP		0.10	-	0.43	-	0.10	-	0.77	-	0.10	-	0.10	-
VO 0448	Tomato, raw (incl juice, incl paste, incl canned)	RAC	0.053	51.75	2.72	81.80	4.29	16.99	0.89	102.02	5.36	26.32	1.38	214.77	11.28
VO 0448	Tomato, raw (incl juice, incl paste, excl canned)	RAC		51.44	-	81.32	-	16.96	-	100.30	-	26.16	-	212.43	-
VO 0448	Tomato, raw (incl juice, incl canned, excl paste)	RAC		42.41	-	76.50	-	10.69	-	85.07	-	24.98	-	203.44	-
VO 0448	Tomato, raw (incl paste, incl canned, excl juice)	RAC		51.39	-	81.44	-	16.99	-	101.55	-	26.26	-	214.59	-
VO 0448	Tomato, raw (incl juice, excl paste, excl canned)	RAC		42.09	-	76.01	-	10.67	-	83.35	-	24.82	-	201.11	-
VO 0448	Tomato, raw (incl paste, excl juice, excl canned)	RAC		51.07	-	80.96	-	16.96	-	99.83	-	26.09	-	212.26	-
VO 0448	Tomato, raw (incl canned, excl juice, excl paste)	RAC		42.04	-	76.13	-	10.69	-	84.59	-	24.92	-	203.27	-
VO 0448	Tomato, raw	RAC		41.73	-	75.65	-	10.66	-	82.87	-	24.75	-	200.93	-
-	Tomato, canned (& peeled)	PP		0.20	-	0.31	-	0.10	-	1.11	-	0.11	-	1.50	-
-	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP		2.34	-	1.33	-	1.57	-	4.24	-	0.34	-	2.83	-
JF 0448	Tomato, juice (single strength, incl concentrated)	PP		0.29	-	0.29	-	0.10	-	0.38	-	0.10	-	0.14	-
-	Mushrooms (cultivated & wild), raw (incl canned, incl dried)	RAC		0.10	-	0.56	-	0.10	-	2.65	-	0.11	-	0.51	-
-	Mushrooms (cultivated & wild), raw (incl canned, excl dried)	RAC		0.10	-	0.42	-	0.10	-	2.00	-	0.10	-	0.31	-
-	Mushrooms (cultivated & wild), raw (incl dried, excl canned)	RAC		0.10	-	0.18	-	0.10	-	0.78	-	0.10	-	0.30	-
-	Mushrooms (cultivated & wild), raw	RAC		0.10	-	0.15	-	0.10	-	0.67	-	0.10	-	0.17	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G01 diet	Intake as ug/person/day G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
-	Mushrooms (cultivated & wild), canned	PP		0.10	-	0.27	-	0.10	-	1.33	-	0.10	-	0.14	-
-	Mushrooms (cultivated & wild), dried	PP		0.10	-	0.10	-	0.10	-	0.10	-	0.10	-	0.10	-
-	Gilo (scarlet egg plant)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Goji berry	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Quorn	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Seaweed	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
013	**LEAFY VEGETABLES**	-		-	-	-	-	-	-	-	-	-	-	-	-
VL 0053	Leafy vegetables, raw	RAC		8.47	-	22.36	-	7.74	-	25.51	-	45.77	-	21.22	-
VL 0053	Leafy vegetables, raw (excl brassica leafy vegetables)	RAC		7.40	-	11.42	-	7.52	-	23.76	-	40.05	-	17.20	-
VL 0054	Brassica leafy vegetables, raw	RAC		1.07	-	10.95	-	0.22	-	1.75	-	5.72	-	4.02	-
VL 0269	Grape leaves, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0446	Roselle leaves, raw (vinagreira)	RAC		0.39	-	0.69	-	0.43	-	1.04	-	4.57	-	0.50	-
VL 0460	Amaranth leaves, raw (i.e. bledo)	RAC		1.09	-	1.94	-	1.20	-	2.91	-	NC	-	1.41	-
VL 0463	Cassava leaves, raw	RAC		NC	-	NC	-	0.65	-	0.10	-	NC	-	NC	-
VL 0464	Chard, raw (i.e. beet leaves)	RAC		0.40	-	0.70	-	0.44	-	1.06	-	4.66	-	0.51	-
VL 0465	Chervil, raw	RAC		0.19	-	0.34	-	0.21	-	0.52	-	NC	-	0.25	-
VL 0466	Chinese cabbage, type pak-choi, raw (i.e. Brassica)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0467	Chinese cabbage, type pe-tsai, raw (i.e. Brassica)	RAC		0.45	-	4.56	-	0.10	-	0.73	-	NC	-	1.67	-
VL 0469	Chicory leaves (sugar loaf), raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0470	Lambs lettuce, raw (i.e. corn salad)	RAC		0.64	-	1.13	-	0.70	-	1.70	-	NC	-	0.82	-
VL 0472	Garden cress, raw	RAC		0.10	-	0.10	-	0.10	-	0.15	-	NC	-	0.10	-
VL 0473	Watercress, raw	RAC		1.21	-	2.15	-	1.33	-	3.24	-	11.36	-	1.56	-
VL 0474	Dandelion leaves, raw	RAC		0.13	-	0.23	-	0.14	-	0.34	-	1.44	-	0.16	-
VL 0476	Endive, raw (i.e. scarole)	RAC		0.10	-	0.10	-	0.10	-	0.40	-	0.10	-	0.39	-
VL 0478	Indian mustard (Amsoi) (i.e. Brassica)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0479	Japanese greens, raw (i.e. Chrysanthemum)	RAC		0.10	-	0.10	-	0.10	-	0.10	-	NC	-	0.10	-
VL 0480	Kale, raw (i.e. collards) (i.e. Brassica)	RAC		0.57	-	5.77	-	0.11	-	0.92	-	5.25	-	2.12	-
VL 0481	Komatsuna, raw (i.e. Brassica)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0482	Lettuce, head, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0483	Lettuce, leaf, raw	RAC	0.013	0.53	0.01	0.36	0.00	0.16	0.00	6.21	0.08	1.90	0.02	6.05	0.08
VL 0485	Mustard greens, raw (i.e. Brassica)	RAC		0.10	-	0.31	-	0.10	-	0.10	-	0.47	-	0.11	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day		Intake as ug/person/day									
VL 0492	Purslane, raw	RAC		0.10	-	0.10	-	0.10	-	0.10	-	NC	-	0.10	-
VL 0494	Radish leaves, raw	RAC		0.26	-	0.45	-	0.28	-	0.68	-	NC	-	0.33	-
VL 0495	Rape greens, raw (i.e. Brassica)	RAC		0.10	-	0.31	-	0.10	-	0.10	-	NC	-	0.11	-
VL 0496	Rucola, raw (i.e. arrugula, rocket salad, roquette)	RAC		1.27	-	2.25	-	1.39	-	3.38	-	13.81	-	1.63	-
VL 0501	Sowthistle, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0502	Spinach, raw	RAC		0.74	-	0.22	-	0.10	-	0.91	-	0.10	-	2.92	-
VL 0503	Indian spinach, raw (i.e. vine spinach)	RAC		0.10	-	0.10	-	0.10	-	0.10	-	0.16	-	0.10	-
VL 0504	Tannia leaves, raw (i.e. taioba)	RAC		0.18	-	0.31	-	0.19	-	0.47	-	2.06	-	0.23	-
VL 0505	Taro leaves, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0506	Turnip greens, raw (i.e. Namenia, Tendergreen)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0507	Kang kung, raw (i.e. water spinach)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0510	Cos lettuce, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Perilla leaves, raw (i.e. sesame leaves)	RAC		0.15	-	0.27	-	0.17	-	0.40	-	NC	-	0.19	-
-	Bracken, raw (i.e. ferns)	RAC		0.10	-	0.19	-	0.12	-	0.28	-	NC	-	0.13	-
-	Water parsley, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Chinese cabbage flowering stalk, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
014	**LEGUME VEGETABLES**	-		-	-	-	-	-	-	-	-	-	-	-	-
VP 0060	Legume vegetables, raw	RAC		7.73	-	1.53	-	0.51	-	2.95	-	5.08	-	12.86	-
VP 0061	Beans, green, with pods, raw: beans except broad bean & soya bean (i.e. immature seeds + pods) (Phaseolus spp)	RAC	0.32	0.68	0.22	NC	-	NC	-	0.39	0.12	0.22	0.07	0.49	0.16
VP 0062	Beans, green, without pods, raw: beans except broad bean & soya bean (i.e. immature seeds only) (Phaseolus spp..)	RAC		1.56	-	0.60	-	0.49	-	1.18	-	0.90	-	7.79	-
VP 0063	Peas green, with pods, raw (i.e. immature seeds + pods) (Pisum spp)	RAC	0.44	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VP 0064	Peas, green, without pods, raw (i.e. immature seeds only) (Pisum spp)	RAC	0.42	1.97	0.83	0.51	0.21	0.10	0.04	0.79	0.33	3.68	1.55	3.80	1.60
VP 0520	Bambara groundnut, green, without pods (i.e. immature seeds only) (Voandzeia spp)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VP 0522	Broad bean, green, with pods (i.e. immature seeds + pods) (Vicia spp)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day			Intake as ug/person/day								
VP 0523	Broad beans, green, without pods, raw (i.e. immature seeds only) (Vicia faba)	RAC		3.51	-	0.43	-	0.10	-	0.60	-	0.29	-	0.78	-
VP 0541	Soya bean, green, without pods, raw (i.e. immature seeds only) (Glycine max)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VP 0542	Sword bean, green, with pods (i.e. immature seeds + pods) (Canavalia spp)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VP 0553	Lentil, green, with pods (i.e. immature seeds + pods) (Lens spp)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
015	**PULSES**	-		-	-	-	-	-	-	-	-	-	-	-	-
VD 0070	Pulses, raw (incl processed)	RAC		85.59	-	64.02	-	34.15	-	88.02	-	89.38	-	96.88	-
VD 0070	Pulses, raw (incl processed), excl soya bean commodities	RAC		12.80	-	4.97	-	13.60	-	13.82	-	28.25	-	23.64	-
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	2.4	2.39	5.77	1.61	3.89	10.47	25.29	1.84	4.44	12.90	31.15	7.44	17.97
VD 0072	Peas, dry, raw (Pisum spp, Vigna spp): garden peas & field peas & cow peas	RAC	0.40	1.67	0.67	3.22	1.28	2.66	1.06	1.51	0.60	2.91	1.16	0.24	0.10
VD 0520	Bambara beans, dry, raw (Voandzeia subterranea)	RAC		NC	-	NC	-	0.20	-	NC	-	NC	-	NC	-
VD 0523	Broad bean, dry, raw (incl horse-bean, broad bean, field bean) (Vicia faba)	RAC		1.27	-	0.10	-	0.12	-	2.49	-	0.23	-	5.54	-
VD 0524	Chick-pea, dry, raw (Cicer arietinum)	RAC		5.34	-	0.13	-	0.10	-	4.69	-	7.24	-	5.52	-
VD 0531	Hyacinth bean (dry) (Lablab spp), raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VD 0533	Lentil, dry, raw (Ervum lens)	RAC		2.12	-	0.10	-	0.10	-	3.21	-	1.60	-	4.90	-
VD 0537	Pigeon pea dry, raw (Cajanus cajan)	RAC		NC	-	NC	-	0.10	-	0.10	-	3.38	-	NC	-
VD 0541	Soya bean, dry, raw (incl paste, incl curd, incl oil, incl sauce)	RAC		72.79	-	59.05	-	20.55	-	74.20	-	61.12	-	73.24	-
VD 0541	Soya bean, dry, raw (incl flour, incl paste, incl curd, incl oil, excl sauce)	RAC		72.79	-	59.05	-	20.55	-	74.06	-	61.11	-	73.23	-
VD 0541	Soya bean, dry, raw (incl flour, incl paste, incl curd, incl sauce, excl oil)	RAC		0.63	-	1.09	-	0.40	-	1.40	-	1.68	-	0.48	-
VD 0541	Soya bean, dry, raw (incl flour, incl paste, incl oil, incl sauce, excl curd)	RAC		72.79	-	59.05	-	20.55	-	74.20	-	61.12	-	73.24	-
VD 0541	Soya bean, dry, raw (incl flour, incl curd, incl oil, incl sauce, excl paste)	RAC		72.79	-	59.05	-	20.55	-	74.20	-	61.12	-	73.24	-
VD 0541	Soya bean, dry, raw (incl flour, incl paste, incl curd, excl oil, excl sauce)	RAC		0.63	-	1.09	-	0.40	-	1.26	-	1.67	-	0.47	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day	Intake as ug/person/day										
VD 0541	Soya bean, dry, raw (incl flour, incl paste, incl oil, excl sauce, excl curd)	RAC		72.79	-	59.05	-	20.55	-	74.06	-	61.11	-	73.23	-
VD 0541	Soya bean, dry, raw (incl flour, incl paste, incl sauce, excl curd, excl oil)	RAC		0.63	-	1.09	-	0.40	-	1.40	-	1.68	-	0.48	-
VD 0541	Soya bean, dry, raw (incl flour,incl curd, incl oil, excl sauce, excl paste)	RAC		72.79	-	59.05	-	20.55	-	74.06	-	61.11	-	73.23	-
VD 0541	Soya bean, dry, raw (incl flour, incl curd, incl sauce, excl paste, excl oil)	RAC		0.63	-	1.09	-	0.40	-	1.40	-	1.68	-	0.48	-
VD 0541	Soya bean, dry, raw (incl flour, incl oil, incl sauce, excl paste, excl curd)	RAC		72.79	-	59.05	-	20.55	-	74.20	-	61.12	-	73.24	-
VD 0541	Soya bean, dry, raw (incl flour, incl paste, excl curd, excl oil, excl sauce)	RAC		0.63	-	1.09	-	0.40	-	1.26	-	1.67	-	0.47	-
VD 0541	Soya bean, dry, raw (incl flour, incl curd, excl oil, excl paste, excl sauce)	RAC		0.63	-	1.09	-	0.40	-	1.26	-	1.67	-	0.47	-
VD 0541	Soya bean, dry, raw (incl flour, incl oil, excl paste, excl curd, excl sauce)	RAC		72.79	-	59.05	-	20.55	-	74.06	-	61.11	-	73.23	-
VD 0541	Soya bean, dry, raw (incl flour, incl sauce, excl paste, excl curd, excl oil)	RAC		0.63	-	1.09	-	0.40	-	1.40	-	1.68	-	0.48	-
VD 0541	Soya bean, dry, raw (Glycine soja)	RAC	2.9	0.58	1.71	0.10	0.29	0.37	1.09	0.10	0.29	1.65	4.85	0.30	0.88
-	Soya paste (i.e. miso)	PP	2.9	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Soya curd (i.e. tofu)	PP	2.9	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
OR 0541	Soya oil, refined	PP	2.4	12.99	31.18	10.43	25.03	3.63	8.71	13.10	31.44	10.70	25.68	13.10	31.44
-	Soya sauce	PP	2.9	0.10	0.29	0.10	0.29	0.10	0.29	0.34	1.00	0.10	0.29	0.10	0.29
-	Soya flour	PP	3.2	0.10	0.32	0.86	2.75	0.10	0.32	1.02	3.26	0.10	0.32	0.15	0.48
-	Pulses, NES, dry, raw: lablab or hyacinth bean, jack or sword bean, winged bean, guar bean, velvet bean, yam bean (Dolichos spp., Canavalia spp., Psophocarpus tetragonolobus, Cyamopsis tetragonoloba, Stizolobium spp., Pachyrrhizus erosus)	RAC		1.70	-	0.10	-	3.00	-	1.80	-	1.64	-	1.33	-
-	Mung bean sprouts	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Soybean sprouts	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
016	**ROOT AND TUBER VEGETABLES**	-		-	-	-	-	-	-	-	-	-	-	-	-
VR 0075	Root and tuber vegetables, raw (incl	RAC		87.83	-	374.04	-	668.92	-	121.64	-	94.20	-	247.11	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G01 diet	Intake as ug/person/day G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
	processed)														
VR 0463	Cassava raw (incl starch, incl tapioca, incl flour)	RAC		0.10	-	0.10	-	482.56	-	0.99	-	25.75	-	3.29	-
VR 0463	Cassava raw (incl starch, incl flour, excl tapioca)	RAC		0.10	-	0.10	-	478.42	-	0.70	-	25.39	-	3.28	-
VR 0463	Cassava raw (incl starch, incl tapioca, excl flour)	RAC		0.10	-	0.10	-	306.72	-	0.97	-	11.51	-	3.29	-
VR 0463	Cassava raw (incl tapioca, incl flour, excl starch)	RAC		0.10	-	NC	-	482.53	-	0.99	-	25.37	-	3.29	-
VR 0463	Cassava raw (incl starch, excl tapioca, excl flour)	RAC		0.10	-	0.10	-	302.58	-	0.68	-	11.15	-	3.28	-
VR 0463	Cassava raw (incl tapioca, excl flour, excl starch)	RAC		0.10	-	NC	-	306.70	-	0.97	-	11.13	-	3.29	-
VR 0463	Cassava raw (incl flour, excl tapioca, excl starch)	RAC		0.10	-	NC	-	478.39	-	0.70	-	25.02	-	3.28	-
VR 0463	Cassava, raw	RAC		NC	-	NC	-	302.56	-	0.68	-	10.77	-	3.28	-
-	Cassava, flour	PP		0.10	-	NC	-	49.23	-	0.10	-	3.99	-	NC	-
-	Cassava, starch	PP		0.10	-	0.10	-	0.10	-	NC	-	0.11	-	NC	-
-	Cassava, tapioca	PP		0.10	-	NC	-	1.16	-	0.10	-	0.10	-	0.10	-
VR 0469	Chicory, roots, raw	RAC		0.10	-	0.20	-	0.10	-	0.10	-	0.10	-	0.10	-
VR 0494	Radish roots, raw	RAC		2.31	-	4.09	-	2.53	-	6.15	-	5.88	-	2.97	-
VR 0497	Swede, raw (i.e. rutabaga)	RAC	1.3	1.58	1.99	2.80	3.52	1.74	2.19	4.21	5.30	NC	-	2.03	2.55
VR 0498	Salsify, raw (i.e. oysterplant)	RAC		0.21	-	0.37	-	0.23	-	0.55	-	NC	-	0.27	-
VR 0504	Tannia, raw (i.e. yautia)	RAC		NC	-	NC	-	NC	-	0.10	-	0.26	-	1.27	-
VR 0505	Taro, raw	RAC		0.10	-	NC	-	25.12	-	0.10	-	0.10	-	0.97	-
VR 0506	Garden turnip, raw	RAC	1.3	2.50	3.14	4.44	5.58	2.75	3.46	6.67	8.39	0.14	0.18	3.22	4.05
VR 0508	Sweet potato, raw (incl dried)	RAC	1.0	0.18	0.18	0.18	0.18	42.16	42.34	1.61	1.62	3.06	3.07	6.67	6.70
VR 0573	Arrowroot, raw	RAC		1.53	-	0.10	-	0.93	-	1.33	-	0.47	-	0.10	-
VR 0574	Beetroot, raw	RAC		3.42	-	6.06	-	3.75	-	9.11	-	NC	-	4.39	-
VR 0575	Burdock, greater or edible, raw	RAC		0.10	-	0.10	-	0.10	-	0.10	-	NC	-	0.10	-
VR 0577	Carrots, raw	RAC	0.18	9.51	1.67	30.78	5.40	0.37	0.06	8.75	1.54	2.80	0.49	6.10	1.07
VR 0578	Celeriac, raw	RAC	0.12	1.70	0.20	3.01	0.35	1.87	0.22	4.53	0.53	NC	-	2.19	0.26
VR 0583	Horseradish, raw	RAC		0.51	-	0.91	-	0.56	-	1.37	-	NC	-	0.66	-
VR 0585	Jerusalem artichoke, raw (i.e. topinambur)	RAC		1.57	-	0.10	-	0.96	-	1.36	-	0.48	-	0.10	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day		Intake as ug/person/day									
VR 0587	Parsley turnip-rooted, raw	RAC		0.32	-	0.57	-	0.35	-	0.85	-	NC	-	0.41	-
VR 0588	Parsnip, raw	RAC		0.59	-	1.05	-	0.65	-	1.58	-	NC	-	0.76	-
VR 0589	Potato, raw (incl flour, incl frozen, incl starch, incl tapioca)	RAC	0.098	59.74	5.82	316.14	30.82	9.78	0.95	60.26	5.88	54.12	5.28	119.82	11.68
VR 0589	Potato, raw (incl flour, incl frozen, incl tapioca, excl starch)	RAC		59.60	-	316.10	-	9.77	-	59.59	-	54.12	-	119.82	-
VR 0589	Potato, raw (incl flour, incl starch, incl tapioca, excl frozen)	RAC		59.49	-	314.47	-	9.69	-	53.34	-	52.79	-	117.71	-
VR 0589	Potato, raw (incl frozen, incl starch, incl tapioca, excl flour)	RAC		59.49	-	315.67	-	9.39	-	56.25	-	53.71	-	119.55	-
VR 0589	Potato, raw (incl frozen, incl starch, incl flour, excl tapioca)	RAC		59.70	-	316.14	-	9.72	-	59.76	-	54.12	-	119.82	-
VR 0589	Potato, raw (incl flour, incl tapioca, excl frozen, excl starch)	RAC		59.35	-	314.44	-	9.68	-	52.67	-	52.79	-	117.71	-
VR 0589	Potato, raw (incl frozen, incl tapioca, excl flour, excl starch)	RAC		59.36	-	315.64	-	9.38	-	55.58	-	53.71	-	119.55	-
VR 0589	Potato, raw (incl frozen, incl flour, excl tapioca, excl starch)	RAC		59.56	-	316.10	-	9.71	-	59.09	-	54.12	-	119.82	-
VR 0589	Potato, raw (incl starch, incl tapioca, excl flour, excl frozen)	RAC		59.24	-	314.01	-	9.30	-	49.33	-	52.38	-	117.44	-
VR 0589	Potato, raw (incl frozen, incl starch, excl tapioca, excl flour)	RAC		59.45	-	315.67	-	9.33	-	55.75	-	53.71	-	119.55	-
VR 0589	Potato, raw (incl flour, incl starch, excl frozen, excl tapioca)	RAC		59.45	-	314.47	-	9.63	-	52.84	-	52.78	-	117.70	-
VR 0589	Potato, raw (incl starch, excl tapioca, excl flour, excl frozen)	RAC		59.20	-	314.01	-	9.24	-	48.83	-	52.38	-	117.43	-
VR 0589	Potato, raw (incl frozen, excl starch, excl tapioca, excl flour)	RAC		59.32	-	315.64	-	9.32	-	55.08	-	53.71	-	119.55	-
VR 0589	Potato, raw (incl flour, excl starch, excl frozen, excl tapioca)	RAC		59.31	-	314.44	-	9.62	-	52.17	-	52.78	-	117.70	-
VR 0589	Potato, raw (incl tapioca, excl starch, excl frozen, excl flour)	RAC		59.11	-	313.97	-	9.29	-	48.66	-	52.38	-	117.44	-
VR 0589	Potato, raw	RAC		59.07	-	313.97	-	9.23	-	48.16	-	52.38	-	117.43	-
-	Potato, flour	PP		0.10	-	0.10	-	0.10	-	0.88	-	0.10	-	0.10	-
-	Potato, frozen	PP		0.13	-	0.87	-	0.10	-	3.60	-	0.69	-	1.10	-

Annex 3

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

			STMR	Diets as g/person/day			Intake as ug/person/day								
Codex Code	Commodity description	Expr as	mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
-	Potato, starch	PP		0.10	-	0.10	-	0.10	-	0.15	-	0.10	-	0.10	-
-	Potato, tapioca	PP		0.10	-	0.10	-	0.10	-	0.11	-	0.10	-	0.10	-
VR 0590	Black radish, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VR 0591	Japanese radish, raw (i.e. daikon)	RAC		1.90	-	3.36	-	2.08	-	5.06	-	NC	-	2.44	-
VR 0596	Sugar beet, raw (incl sugar)	RAC		0.13	-	NC	-	0.10	-	0.66	-	0.47	-	88.94	-
VR 0596	Sugar beet, raw	RAC	0.19	NC	-	NC	-	NC	-	NC	-	0.10	0.02	NC	-
-	Sugar beet, sugar	PP	0.066	0.10	0.01	NC	-	0.10	0.01	0.10	0.01	0.10	0.01	12.63	0.84
VR 0600	Yams, raw (incl dried)	RAC	1.0	0.10	0.10	NC	-	90.40	90.78	6.45	6.48	0.74	0.74	0.65	0.65
-	Lotus root, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Water chestnut, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
017	**STALK AND STEM VEGETABLES**	-		-	-	-	-	-	-	-	-	-	-	-	-
-	Stalk and stem vegetables, raw	RAC		5.96	-	9.30	-	5.75	-	14.64	-	2.67	-	8.49	-
VS 0469	Witloof chicory (sprouts)	RAC		0.10	-	0.10	-	0.10	-	0.36	-	0.10	-	0.35	-
VS 0620	Artichoke globe	RAC		0.69	-	0.10	-	0.10	-	0.32	-	0.26	-	1.21	-
VS 0621	Asparagus	RAC		0.10	-	0.10	-	0.10	-	0.10	-	0.10	-	0.21	-
VS 0622	Bamboo shoots	RAC		1.72	-	3.05	-	1.89	-	4.59	-	NC	-	2.21	-
VS 0623	Cardoon	RAC		0.24	-	0.43	-	0.27	-	0.64	-	NC	-	0.31	-
VS 0624	Celery	RAC		2.14	-	3.79	-	2.35	-	5.69	-	0.10	-	2.75	-
VS 0626	Palm hearts	RAC		0.39	-	0.70	-	0.43	-	1.05	-	2.27	-	0.51	-
VS 0627	Rhubarb	RAC		0.73	-	1.30	-	0.80	-	1.95	-	NC	-	0.94	-
020	**CEREAL GRAINS**	-		-	-	-	-	-	-	-	-	-	-	-	-
GC 0080	Cereal grains, raw, (incl processed)	RAC		484.29	-	464.63	-	262.36	-	486.81	-	469.62	-	614.04	-
GC 0080	Cereal grains, raw (incl processed), excl rice commodities	RAC		438.89	-	449.64	-	177.48	-	375.07	-	274.87	-	520.93	-
GC 0640	Barley, raw (incl malt extract, incl pot&pearled, incl flour & grits, incl beer, incl malt)	RAC		19.91	-	31.16	-	5.04	-	3.10	-	9.77	-	4.31	-
GC 0640	Barley, raw (incl malt extract, incl pot&pearled, incl flour & grits, incl beer, excl malt)	RAC		19.78	-	29.75	-	4.79	-	2.66	-	9.71	-	4.17	-
GC 0640	Barley, raw (incl malt extract, incl pot&pearled, incl flour & grits, incl malt, excl beer)	RAC		18.98	-	13.35	-	0.42	-	0.67	-	2.30	-	0.86	-
GC 0640	Barley, raw (incl malt extract, incl pot&pearled, incl beer, incl malt, excl	RAC		14.50	-	30.61	-	5.01	-	3.08	-	8.88	-	4.29	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G01 diet	Intake as ug/person/day G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
	flour & grits)														
GC 0640	Barley, raw (incl malt extract, incl flour & grits, incl beer, incl malt, excl pot&pearled)	RAC		8.95	-	19.87	-	5.01	-	3.04	-	8.73	-	4.00	-
GC 0640	Barley, raw (incl malt extract, incl pot&pearled, incl flour & grits, excl beer, excl malt)	RAC		18.86	-	11.93	-	0.18	-	0.23	-	2.25	-	0.72	-
GC 0640	Barley, raw (incl malt extract, incl pot&pearled, incl beer, excl flour & grits, excl malt)	RAC		14.38	-	29.20	-	4.77	-	2.64	-	8.83	-	4.15	-
GC 0640	Barley, raw (incl malt extract, incl pot&pearled, incl malt, excl flour & grits, excl beer,)	RAC		9.74	-	8.84	-	0.39	-	0.63	-	1.06	-	0.73	-
GC 0640	Barley, raw (incl malt extract, incl flour & grits, incl beer, excl pot&pearled, excl malt)	RAC		8.83	-	18.46	-	4.76	-	2.60	-	8.68	-	3.86	-
GC 0640	Barley, raw (incl malt extract, incl flour & grits, incl malt, excl pot&pearled, excl beer)	RAC		8.03	-	2.05	-	0.39	-	0.62	-	1.27	-	0.56	-
GC 0640	Barley, raw (incl malt extract, incl beer, incl malt, excl pot&pearled, excl flour & grits)	RAC		3.55	-	19.31	-	4.98	-	3.02	-	7.85	-	3.98	-
GC 0640	Barley, raw (incl malt extract, incl pot&pearled, excl flour & grits, excl beer, excl malt)	RAC		13.45	-	11.38	-	0.15	-	0.21	-	1.36	-	0.70	-
GC 0640	Barley, raw (incl malt extract, incl flour & grits, excl pot&pearled, excl beer, excl malt)	RAC		7.91	-	0.64	-	0.15	-	0.18	-	1.21	-	0.41	-
GC 0640	Barley, raw (incl malt extract, incl beer, excl pot&pearled, excl flour&grits, excl malt)	RAC		3.43	-	17.90	-	4.74	-	2.58	-	7.79	-	3.84	-
GC 0640	Barley, raw (incl malt extract, incl malt, excl pot&pearled, excl flour & grits,excl beer)	RAC		2.62	-	1.50	-	0.37	-	0.60	-	0.38	-	0.53	-
GC 0640	Barley, raw	RAC		2.49	-	NC	-	0.10	-	0.10	-	0.18	-	0.38	-
-	Barley, pot&pearled	PP		7.12	-	7.34	-	0.10	-	0.10	-	0.67	-	0.20	-

Annex 3

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day		Intake as ug/person/day									
				G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
-	Barley, flour (white flour and wholemeal flour)	PP		2.93	-	0.30	-	0.10	-	0.10	-	0.48	-	0.10	-
-	Barley beer	PP		4.87	-	93.78	-	24.28	-	12.76	-	39.28	-	18.15	-
-	Barley Malt	PP		0.10	-	1.04	-	0.18	-	0.33	-	0.10	-	0.10	-
-	Barley Malt Extract	PP		0.10	-	0.10	-	0.10	-	0.10	-	0.10	-	0.10	-
GC 0641	Buckwheat, raw (incl flour)	RAC		NC	-	0.40	-	0.10	-	0.10	-	0.10	-	0.10	-
GC 0641	Buckwheat, raw	RAC		NC	-	0.10	-	0.10	-	0.10	-	0.10	-	0.10	-
-	Buckwheat, flour (white flour and wholemeal flour)	PP		NC	-	0.32	-	NC	-	0.10	-	0.10	-	NC	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl oil, incl beer, incl germ, incl starch)	RAC		29.81	-	44.77	-	108.95	-	52.37	-	60.28	-	75.69	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl oil, incl beer, incl germ, excl starch)	RAC		29.68	-	44.77	-	108.93	-	48.73	-	60.16	-	75.51	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl oil, incl beer, incl starch, excl germ)	RAC		29.81	-	44.77	-	108.95	-	52.36	-	60.06	-	75.69	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl oil, incl germ, incl starch, excl beer)	RAC		29.81	-	44.77	-	108.07	-	52.37	-	60.28	-	75.69	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl beer, incl germ, incl starch, excl oil)	RAC		28.85	-	43.93	-	108.66	-	46.94	-	59.87	-	73.58	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl oil, incl beer, incl germ, incl starch, excl flour)	RAC		1.93	-	1.08	-	1.86	-	9.52	-	2.97	-	15.42	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl oil, incl beer, excl germ, excl starch)	RAC		29.68	-	44.77	-	108.93	-	48.73	-	59.93	-	75.51	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl oil, incl germ, excl beer, excl starch)	RAC		29.68	-	44.77	-	108.05	-	48.73	-	60.16	-	75.51	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl oil, incl	RAC		29.81	-	44.77	-	108.07	-	52.36	-	60.06	-	75.69	-

Annex 3

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G01 diet	Intake as ug/person/day G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
	starch, excl beer, excl germ)														
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl beer, incl germ, excl starch, excl oil)	RAC		28.72	-	43.93	-	108.65	-	43.31	-	59.74	-	73.40	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl beer, incl starch, excl oil, excl germ)	RAC		28.85	-	43.93	-	108.66	-	46.94	-	59.64	-	73.58	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl germ, incl starch, excl oil, excl beer)	RAC		28.85	-	43.93	-	107.79	-	46.94	-	59.87	-	73.58	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl oil, incl beer, incl germ, excl starch, excl flour)	RAC		1.80	-	1.08	-	1.85	-	5.89	-	2.85	-	15.24	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl starch, incl oil, incl beer, excl germ, excl flour)	RAC		1.93	-	1.08	-	1.86	-	9.52	-	2.75	-	15.42	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl oil, incl germ, incl starch, excl flour, excl beer)	RAC		1.93	-	1.08	-	0.99	-	9.52	-	2.97	-	15.42	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl beer, incl germ, incl starch, excl flour, excl oil)	RAC		0.97	-	0.24	-	1.58	-	4.10	-	2.56	-	13.31	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl oil, excl beer, excl germ, excl starch)	RAC		29.68	-	44.77	-	108.05	-	48.73	-	59.93	-	75.51	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl beer, excl germ, excl starch, excl oil)	RAC		28.72	-	43.93	-	108.64	-	43.30	-	59.52	-	73.40	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl germ, excl starch, excl oil, excl beer)	RAC		28.72	-	43.93	-	107.77	-	43.31	-	59.74	-	73.40	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl starch, excl oil, excl beer, excl germ)	RAC		28.85	-	43.93	-	107.79	-	46.94	-	59.64	-	73.58	-
GC 0645	Maize, raw (incl glucose & dextrose &	RAC		1.80	-	1.08	-	1.85	-	5.88	-	2.63	-	15.24	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day	Intake as ug/person/day										
				G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
	isoglucose, incl oil, incl beer, excl flour, excl germ, excl starch)														
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl oil, incl germ, excl flour, excl beer, excl starch)	RAC		1.80	-	1.08	-	0.97	-	5.89	-	2.85	-	15.24	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl starch, incl oil, excl beer, excl germ, excl flour)	RAC		1.93	-	1.08	-	0.99	-	9.52	-	2.75	-	15.42	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl beer, incl germ, excl flour, excl oil, excl starch)	RAC		0.84	-	0.24	-	1.56	-	0.46	-	2.44	-	13.13	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl beer, incl starch, excl flour, excl oil, excl germ)	RAC		0.97	-	0.24	-	1.58	-	4.09	-	2.33	-	13.31	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl germ, incl starch, excl flour, excl oil, excl beer)	RAC		0.97	-	0.24	-	0.70	-	4.10	-	2.56	-	13.31	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, excl oil, excl beer, excl germ, excl starch)	RAC		28.72	-	43.93	-	107.77	-	43.30	-	59.52	-	73.40	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl oil, excl flour, excl beer,excl germ, excl starch)	RAC		1.80	-	1.08	-	0.97	-	5.88	-	2.63	-	15.24	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl beer, excl flour, excl oil, excl germ, excl starch)	RAC		0.84	-	0.24	-	1.56	-	0.46	-	2.21	-	13.13	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl germ, excl flour, excl oil, excl beer, excl starch)	RAC		0.84	-	0.24	-	0.68	-	0.46	-	2.44	-	13.13	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl starch, excl flour, excl oil, excl beer, excl germ)	RAC		0.97	-	0.24	-	0.70	-	4.09	-	2.33	-	13.31	-
GC 0645	Maize, raw	RAC		0.62	-	NC	-	0.55	-	NC	-	1.24	-	12.33	-
GC 0656	Popcorn (i.e. maize used for preparation of popcorn)	RAC		-	-	-	-	-	-	-	-	-	-	-	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day	Intake as ug/person/day										
				G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
CF 1255	Maize, flour (white flour and wholemeal flour)	PP		22.72	-	35.61	-	87.27	-	34.92	-	46.71	-	49.12	-
-	Maize, germ	PP		0.10	-	NC	-	0.10	-	0.10	-	0.22	-	NC	-
-	Maize starch	PP		0.10	-	NC	-	0.10	-	2.29	-	0.10	-	0.11	-
-	Maize, glucose, isoglucose and Dextrose	PP		0.22	-	0.24	-	0.13	-	0.46	-	0.97	-	0.80	-
-	Maize beer	PP		NC	-	NC	-	4.61	-	NC	-	NC	-	NC	-
OR 0645	Maize oil	PP		0.96	-	0.85	-	0.29	-	5.42	-	0.42	-	2.10	-
GC 0646	Millet, raw (incl flour, incl beer)	RAC		1.46	-	2.32	-	5.84	-	0.89	-	16.17	-	0.10	-
GC 0646	Millet, raw (incl flour, excl beer)	RAC		1.46	-	2.32	-	5.10	-	0.89	-	16.17	-	0.10	-
GC 0646	Millet, raw (incl beer, excl flour)	RAC		0.10	-	NC	-	0.73	-	0.10	-	0.10	-	0.10	-
GC 0646	Millet, raw	RAC		0.10	-	NC	-	0.10	-	0.10	-	0.10	-	0.10	-
-	Millet, flour (white flour and wholemeal flour)	PP		1.31	-	2.09	-	4.59	-	0.80	-	14.55	-	NC	-
-	Millet beer	PP		NC	-	NC	-	3.86	-	NC	-	NC	-	NC	-
GC 0647	Oats, raw (incl rolled)	RAC		0.10	-	7.05	-	0.10	-	1.71	-	0.96	-	0.10	-
GC 0647	Oats, raw	RAC		0.10	-	NC	-	0.10	-	0.45	-	0.10	-	0.10	-
GC 0647	Oats, rolled (i.e. oatmeal dry)	PP		0.10	-	3.88	-	0.10	-	0.69	-	0.53	-	0.10	-
GC 0648	Quinoa, raw	RAC		NC	-	NC	-	NC	-	NC	-	0.10	-	NC	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl flour, incl starch, incl oil, incl beverages)	REP		45.40	-	14.99	-	84.88	-	111.73	-	194.75	-	93.12	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl flour, incl oil, incl beverages, excl starch)	REP		45.39	-	14.99	-	84.88	-	111.73	-	194.75	-	93.12	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl flour, incl oil, incl starch, excl beverages)	REP		45.40	-	14.99	-	84.88	-	111.73	-	194.75	-	93.12	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl flour, incl beverages, incl starch, excl oil)	REP		45.37	-	14.99	-	84.88	-	111.73	-	194.40	-	93.12	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl oil, incl beverages, incl starch, excl flour)	REP		45.34	-	14.71	-	84.88	-	111.09	-	194.47	-	93.09	-
CM 0649 (GC	Rice, husked, dry (incl flour, incl oil, incl beverages, incl starch, excl polished)	REP		1.26	-	1.58	-	31.05	-	5.43	-	0.90	-	2.18	-

Annex 3

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

			STMR	Diets as g/person/day		Intake as ug/person/day									
Codex Code	Commodity description	Expr as	mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
0649)															
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl flour, incl oil, excl beverages, excl starch)	REP		45.39	-	14.99	-	84.88	-	111.73	-	194.75	-	93.12	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl flour, incl beverages, excl oil, excl starch)	REP		45.36	-	14.99	-	84.88	-	111.73	-	194.40	-	93.12	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl flour, incl starch, excl oil, excl beverages,)	REP		45.37	-	14.99	-	84.88	-	111.73	-	194.40	-	93.12	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl oil, incl beverages, excl flour, excl starch)	REP		45.33	-	14.71	-	84.88	-	111.09	-	194.47	-	93.09	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl oil, incl starch, excl flour, excl beverages)	REP		45.34	-	14.71	-	84.88	-	111.09	-	194.47	-	93.09	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl beverages, incl starch, excl flour, excl oil)	REP		45.31	-	14.71	-	84.88	-	111.09	-	194.11	-	93.09	-
CM 0649 (GC 0649)	Rice, husked, dry (incl flour, incl oil, incl starch, excl beverages, excl polished)	REP		1.26	-	1.58	-	31.05	-	5.43	-	0.90	-	2.18	-
CM 0649 (GC 0649)	Rice, husked, dry (incl flour, incl starch, incl beverages, excl polished, excl oil)	REP		1.23	-	1.58	-	31.05	-	5.43	-	0.54	-	2.18	-
CM 0649 (GC 0649)	Rice, husked, dry (incl oil, incl beverages, incl starch, excl polished, excl flour)	REP		1.20	-	1.30	-	31.05	-	4.79	-	0.61	-	2.16	-
CM 0649 (GC 0649)	Rice, husked, dry (incl flour, incl oil, incl beverages, excl polished, excl starch)	REP		1.26	-	1.58	-	31.05	-	5.43	-	0.90	-	2.18	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl flour, excl oil, excl beverages, excl starch)	REP		45.36	-	14.99	-	84.88	-	111.73	-	194.40	-	93.12	-
CM 0649	Rice, husked, dry (incl polished, incl oil,	REP		45.33	-	14.71	-	84.88	-	111.09	-	194.47	-	93.09	-

Annex 3

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day		Intake as ug/person/day									
				G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
(GC 0649)	excl flour, excl beverages, excl starch)														
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl starch, excl oil, excl beverages, excl flour)	REP		45.31	-	14.71	-	84.88	-	111.09	-	194.11	-	93.09	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl beverages, excl flour, excl oil, excl starch)	REP		45.30	-	14.71	-	84.88	-	111.09	-	194.11	-	93.09	-
CM 0649 (GC 0649)	Rice, husked, dry (incl flour, incl starch, excl polished, excl oil, excl beverages)	REP		1.23	-	1.58	-	31.05	-	5.43	-	0.54	-	2.18	-
CM 0649 (GC 0649)	Rice, husked, dry (incl flour, incl oil, excl polished,excl beverages, excl starch)	REP		1.26	-	1.58	-	31.05	-	5.43	-	0.90	-	2.18	-
CM 0649 (GC 0649)	Rice, husked, dry (incl flour, incl beverages, excl polished, excl oil, excl starch)	REP		1.23	-	1.58	-	31.05	-	5.43	-	0.54	-	2.18	-
CM 0649 (GC 0649)	Rice, husked, dry (incl oil, incl beverages, excl polished, excl flour, excl starch)	REP		1.19	-	1.30	-	31.05	-	4.79	-	0.61	-	2.16	-
CM 0649 (GC 0649)	Rice, husked, dry (incl oil, incl starch, excl polished, excl flour, excl beverages)	REP		1.20	-	1.30	-	31.05	-	4.79	-	0.61	-	2.16	-
CM 0649 (GC 0649)	Rice, husked, dry (incl beverages, incl starch, excl polished, excl flour, excl oil)	REP		1.17	-	1.30	-	31.05	-	4.79	-	0.25	-	2.16	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, excl flour, excl oil, excl beverages, excl starch)	REP		45.30	-	14.71	-	84.88	-	111.09	-	194.11	-	93.09	-
CM 0649 (GC 0649)	Rice, husked, dry (incl flour, excl polished, excl oil, excl beverages, excl starch)	REP		1.23	-	1.58	-	31.05	-	5.43	-	0.54	-	2.18	-
CM 0649 (GC 0649)	Rice, husked, dry (incl oil, excl polished, excl flour, excl beverages, excl starch)	REP		1.19	-	1.30	-	31.05	-	4.79	-	0.61	-	2.16	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

			STMR	Diets as g/person/day		Intake as ug/person/day									
Codex Code	Commodity description	Expr as	mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
CM 0649 (GC 0649)	Rice, husked, dry (incl beverages, excl polished, excl flour, excl oil, excl starch)	REP		1.17	-	1.30	-	31.05	-	4.79	-	0.25	-	2.16	-
CM 0649 (GC 0649)	Rice, husked, dry (incl starch, excl polished, excl flour, excl oil, excl beverages)	REP		1.17	-	1.30	-	31.05	-	4.79	-	0.25	-	2.16	-
CM 0649 (GC 0649)	Rice, husked, dry (incl paddy rice)	REP		1.17	-	1.30	-	31.05	-	4.79	-	0.25	-	2.16	-
CM 1205	Rice polished, dry	PP		34.21	-	10.39	-	41.72	-	82.38	-	150.24	-	70.47	-
-	Rice flour	PP		0.10	-	0.22	-	0.10	-	0.50	-	0.22	-	0.10	-
-	Rice, starch	PP		0.10	-	0.10	-	NC	-	0.10	-	NC	-	0.10	-
-	Rice bran oil	PP		0.10	-	NC	-	NC	-	NC	-	0.36	-	NC	-
-	Rice, Fermented Beverages (rice wine, sake)	PP		NC	-	NC	-	NC	-	NC	-	0.10	-	NC	-
GC 0650	Rye, raw (incl flour)	RAC		0.13	-	19.38	-	0.10	-	0.12	-	0.10	-	2.15	-
GC 0650	Rye, raw	RAC		NC	-	NC	-	0.10	-	0.10	-	0.10	-	0.10	-
CF 1250	Rye, flour (white flour and wholemeal flour)	PP		0.11	-	15.51	-	0.10	-	0.10	-	0.10	-	1.72	-
GC 0651	Sorghum, raw (incl flour, incl beer)	RAC		4.34	-	0.10	-	16.25	-	15.82	-	10.97	-	2.92	-
GC 0651	Sorghum, raw (incl flour, excl beer)	RAC		4.34	-	0.10	-	12.91	-	15.82	-	10.97	-	2.92	-
GC 0651	Sorghum, raw (incl beer, excl flour)	RAC		NC	-	0.10	-	3.34	-	0.10	-	NC	-	NC	-
GC 0651	Sorghum, raw	RAC		NC	-	0.10	-	NC	-	0.10	-	NC	-	NC	-
-	Sorghum, flour (white flour and wholemeal flour)	PP		3.91	-	NC	-	11.62	-	14.24	-	9.87	-	2.62	-
-	Sorghum beer	PP		NC	-	NC	-	17.56	-	NC	-	NC	-	NC	-
GC 0653	Triticale, raw (incl flour)	RAC		NC	-	NC	-	NC	-	0.10	-	0.39	-	NC	-
GC 0653	Triticale, raw	RAC		NC	-	NC	-	NC	-	0.10	-	NC	-	NC	-
GC 0653	Triticale, flour (white flour and wholemeal flour)	PP		NC	-	NC	-	NC	-	NC	-	0.31	-	NC	-
GC 0654	Wheat, raw (incl bulgur, incl fermented beverages, incl germ, incl wholemeal bread, incl white flour products, incl white bread)	RAC		381.15	-	341.55	-	38.35	-	281.89	-	172.83	-	434.07	-
GC 0654	Wheat, raw (incl bulgur, incl fermented beverages, incl germ, incl wholemeal	RAC		0.10	-	1.13	-	0.10	-	0.10	-	0.74	-	0.10	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G01 diet	Intake as ug/person/day G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
	bread, excl white flour products, excl white bread)														
GC 0654	Wheat, raw (incl bulgur, incl fermented beverages, incl white flour products, incl white bread, excl germ, excl wholemeal bread)	RAC		381.15	-	341.54	-	38.34	-	281.88	-	172.79	-	434.06	-
GC 0654	Wheat, raw (incl bulgur, incl fermented beverages, excl germ, excl wholemeal bread, excl white flour products, excl white bread)	RAC		0.10	-	1.12	-	0.10	-	0.10	-	0.61	-	0.10	-
GC 0654	Wheat, raw (incl meslin)	RAC		0.10	-	1.12	-	NC	-	0.10	-	0.56	-	NC	-
-	Wheat, bulgur	PP		NC	-	NC	-	NC	-	0.10	-	NC	-	NC	-
CF 1210	Wheat, germ	PP		NC	-	NC	-	0.10	-	0.10	-	0.14	-	0.10	-
CF 0654	Wheat, bran	PP		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1212	Wheat, wholemeal flour	PP		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CP 1212	Wheat, wholemeal bread	PP		0.10	-	0.10	-	0.10	-	0.10	-	0.10	-	0.10	-
CP 1211	Wheat, white bread	PP		0.25	-	0.63	-	0.12	-	0.43	-	1.39	-	0.22	-
-	Wheat, Fermented Beverages (Korean jakju and takju)	PP		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1211	Wheat, white flour (incl white flour products: starch, gluten, macaroni, pastry)	PP		301.49	-	269.27	-	30.33	-	222.94	-	136.12	-	343.34	-
CF 1211	Wheat, white flour	PP		299.27	-	263.32	-	27.93	-	214.18	-	133.47	-	340.03	-
-	Wheat, starch	PP		0.10	-	NC	-	0.10	-	0.10	-	0.13	-	0.10	-
-	Wheat, gluten	PP		0.10	-	0.10	-	0.10	-	0.27	-	0.10	-	0.10	-
-	Wheat, macaroni, dry	PP		0.72	-	2.20	-	1.22	-	3.99	-	0.53	-	1.66	-
-	Wheat, pastry, baked	PP		1.21	-	3.13	-	1.05	-	4.02	-	0.60	-	1.40	-
-	Fonio, raw (incl flour)	RAC		NC	-	NC	-	1.01	-	NC	-	NC	-	NC	-
-	Fonio, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Fonio flour (white flour and wholemeal flour)	RAC		NC	-	NC	-	0.91	-	NC	-	NC	-	NC	-
-	Cereals, NES, raw (including processed) : canagua, quihuicha, Job's tears and wild rice	RAC		2.04	-	2.99	-	1.86	-	19.17	-	3.33	-	1.66	-
021	**GRASSES FOR SUGAR OR SYRUP**	-		-	-	-	-	-	-	-	-	-	-	-	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G01 diet	Intake as ug/person/day G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
	PRODUCTION														
GS 0659	Sugar cane, raw (incl sugar, incl molasses)	RAC	0.011	99.68	1.05	86.27	0.91	31.38	0.33	80.36	0.84	84.18	0.88	99.10	1.04
GS 0659	Sugar cane, raw	RAC		38.16	-	NC	-	12.58	-	0.34	-	17.79	-	42.78	-
-	Sugar cane, molasses	PP		NC	-	NC	-	NC	-	NC	-	0.10	-	NC	-
-	Sugar cane, sugar (incl non-centrifugal sugar, incl refined sugar and maltose)	PP		61.52	-	86.27	-	18.80	-	80.02	-	66.39	-	56.32	-
-	Sugar crops NES, raw (incl sugar, syrup and others): sugar maple, sweet sorghum, sugar palm	RAC		1.30	-	2.72	-	0.92	-	3.26	-	0.71	-	0.90	-
022	**TREE NUTS**	-		-	-	-	-	-	-	-	-	-	-	-	-
TN 0085	Tree nuts, raw (incl processed)	RAC		4.06	-	3.27	-	7.01	-	13.93	-	14.01	-	9.36	-
TN 0085	Tree nuts raw, excl coconut commodities	RAC		2.33	-	2.07	-	0.39	-	3.75	-	0.93	-	6.38	-
TN 0295	Cashew nuts, nutmeat	RAC		0.10	-	0.10	-	0.24	-	0.47	-	0.32	-	0.10	-
TN 0660	Almonds, nutmeat	RAC	0.011	1.38	0.01	0.10	0.00	0.10	0.00	1.00	0.01	0.10	0.00	0.81	0.01
TN 0662	Brazil nuts, nutmeat	RAC		0.10	-	0.10	-	0.10	-	0.10	-	0.10	-	0.10	-
TN 0664	Chestnut, raw	RAC		0.10	-	0.10	-	0.10	-	0.31	-	0.10	-	0.67	-
TN 0665	Coconut, nutmeat (incl. copra, incl desiccated, incl oil)	RAC		1.73	-	1.20	-	6.63	-	10.18	-	13.07	-	2.98	-
TN 0665	Coconut, nutmeat (incl copra, incl desiccated, excl oil)	RAC		0.38	-	0.12	-	2.62	-	4.80	-	10.04	-	1.56	-
TN 0665	Coconut, nutmeat (incl copra, incl oil, excl desiccated)	RAC		1.46	-	1.09	-	6.21	-	7.98	-	12.90	-	2.26	-
TN 0665	Coconut, nutmeat (incl copra, excl desiccated, excl oil)	RAC		0.11	-	0.10	-	2.20	-	2.61	-	9.87	-	0.85	-
-	Coconut, desiccated nutmeat	PP		0.10	-	0.10	-	0.13	-	0.67	-	0.10	-	0.22	-
-	Coconut, copra	PP		0.10	-	NC	-	NC	-	0.10	-	0.10	-	NC	-
OR 0665	Coconut, oil	PP		0.26	-	0.20	-	0.76	-	1.02	-	0.57	-	0.27	-
TN 0666	Hazelnuts, nutmeat	RAC		0.10	-	0.13	-	0.10	-	0.11	-	0.10	-	1.11	-
TN 0669	Macadamia nuts, nutmeat (i.e. Queensland nuts)	RAC	0.011	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	NC	-	0.10	0.00
TN 0672	Pecan nuts, nutmeat	RAC	0.011	0.10	0.00	0.10	0.00	0.10	0.00	0.14	0.00	0.10	0.00	0.13	0.00
TN 0673	Pine nuts, nutmeat (i.e. pignolia nuts)	RAC		0.18	-	0.18	-	0.10	-	0.49	-	0.25	-	0.43	-
TN 0675	Pistachio nut, nutmeat	RAC		0.41	-	0.10	-	0.10	-	0.85	-	0.10	-	1.08	-
TN 0678	Walnuts, nutmeat	RAC	0.011	0.23	0.00	1.49	0.02	0.10	0.00	0.33	0.00	0.10	0.00	2.06	0.02
023	**OILSEED**	-		-	-	-	-	-	-	-	-	-	-	-	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G01 diet	Intake as ug/person/day G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
SO 0088	Oilseeds, raw (incl processed)	RAC		79.30	-	54.81	-	96.74	-	137.72	-	61.07	-	88.71	-
SO 0089	Oilseeds, raw (incl processed), excl peanut commodities	RAC		78.01	-	53.57	-	84.12	-	134.84	-	54.48	-	86.04	-
SO 0089	Oilseeds, raw	RAC		3.32	-	2.25	-	9.23	-	5.70	-	2.84	-	11.16	-
SO 0090	Mustard seeds, raw (incl flour, incl oil)	RAC		0.10	-	0.10	-	0.10	-	0.31	-	0.10	-	0.10	-
SO 0090	Mustard seeds, raw (incl flour, excl oil)	RAC		0.10	-	0.10	-	0.10	-	0.16	-	0.10	-	0.10	-
SO 0090	Mustard seeds, raw (incl oil, excl flour)	RAC		0.10	-	0.10	-	0.10	-	0.17	-	0.10	-	0.10	-
SO 0090	Mustard seeds, raw	RAC		0.10	-	0.10	-	0.10	-	0.10	-	0.10	-	0.10	-
-	Mustard seeds, flour	PP		0.10	-	0.10	-	0.10	-	0.14	-	0.10	-	0.10	-
-	Mustard seeds, oil	PP		NC	-	0.10	-	NC	-	0.10	-	0.10	-	NC	-
SO 0305	Olives for oil production, raw (incl oil)	RAC	0.011	12.61	0.13	1.35	0.01	0.27	0.00	8.04	0.08	0.58	0.01	21.80	0.23
SO 0305	Olives for oil production, raw	RAC		1.47	-	0.67	-	NC	-	1.26	-	0.10	-	7.63	-
-	Olive oil (virgin and residue oil)	PP		2.17	-	0.13	-	0.10	-	1.32	-	0.10	-	2.76	-
SO 0495	Rape seed, raw (incl oil)	RAC		0.93	-	1.16	-	0.49	-	2.53	-	9.32	-	2.02	-
SO 0495	Rape seed, raw	RAC		0.10	-	NC	-	NC	-	0.10	-	0.75	-	0.10	-
OR 0495	Rape seed oil, edible	PP		0.35	-	0.44	-	0.19	-	0.97	-	3.28	-	0.77	-
SO 0691	Cotton seed, raw (incl oil)	RAC	0.0525	20.53	1.08	9.80	0.51	6.42	0.34	4.73	0.25	7.14	0.37	18.68	0.98
SO 0691	Cotton seed, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
OR 0691	Cotton seed oil, edible	PP		3.22	-	1.54	-	1.01	-	0.74	-	1.12	-	2.93	-
SO 0693	Linseed, raw (incl oil)	RAC		0.10	-	NC	-	NC	-	0.10	-	0.13	-	NC	-
SO 0693	Linseed, raw	RAC		0.10	-	NC	-	NC	-	0.10	-	0.10	-	NC	-
-	Linseed oil, edible	PP		0.10	-	NC	-	NC	-	0.10	-	0.10	-	NC	-
SO 0696	Palm kernels, raw (incl oil)	RAC		5.81	-	3.77	-	20.07	-	24.53	-	5.94	-	8.99	-
SO 0696	Palm kernels, raw	RAC		0.10	-	NC	-	0.10	-	0.10	-	0.10	-	0.10	-
OR 1240	Palm kernel oil, edible	PP		0.32	-	0.21	-	1.10	-	1.35	-	0.33	-	0.49	-
SO 0696	Palm fruit, raw (incl oil)	RAC		28.87	-	1.09	-	53.08	-	80.61	-	24.20	-	17.72	-
OR 0696	Palm fruit oil, edible	PP		5.34	-	0.20	-	9.82	-	14.91	-	4.48	-	3.28	-
SO 0697	Peanuts, nutmeat, raw (incl roasted, incl oil, incl butter)	RAC		1.30	-	1.23	-	12.62	-	2.87	-	6.59	-	2.67	-
SO 0697	Peanuts, nutmeat, raw (incl roasted, incl oil, excl butter)	RAC		1.30	-	1.23	-	12.62	-	2.68	-	6.58	-	2.67	-
SO 0697	Peanuts, nutmeat, raw (incl roasted, incl butter, excl oil)	RAC		0.46	-	1.21	-	6.64	-	2.71	-	1.26	-	1.84	-
SO 0697	Peanuts, nutmeat, raw (incl roasted, excl oil,	RAC		0.46	-	1.21	-	6.64	-	2.52	-	1.25	-	1.83	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day Intake as ug/person/day G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
	excl butter)														
SO 0697	Peanuts, nutmeat, raw	RAC		0.40	-	1.01	-	6.60	-	1.47	-	1.17	-	1.82	-
-	Peanuts, roasted	PP		0.10	-	0.19	-	0.10	-	1.05	-	0.10	-	0.10	-
OR 0697	Peanut oil, edible	PP		0.36	-	0.10	-	2.57	-	0.10	-	2.29	-	0.36	-
-	Peanut butter	PP		0.10	-	0.10	-	0.10	-	0.19	-	0.10	-	0.10	-
SO 0698	Poppy seed, raw (incl oil)	RAC		0.10	-	0.10	-	0.10	-	0.10	-	0.10	-	0.10	-
SO 0698	Poppy seed, raw	RAC		0.10	-	0.10	-	0.10	-	0.10	-	0.10	-	0.10	-
-	Poppy seed oil	PP		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
SO 0699	Safflower seed, raw (incl oil)	RAC		0.10	-	0.20	-	0.10	-	0.10	-	0.29	-	0.10	-
SO 0699	Safflower seed, raw	RAC		NC	-	NC	-	0.10	-	0.10	-	0.10	-	0.10	-
OR 0699	Safflower seed oil, edible	PP		0.10	-	0.10	-	NC	-	0.10	-	0.12	-	0.10	-
SO 0700	Sesame seed, raw (incl oil)	RAC		1.22	-	0.10	-	0.54	-	4.23	-	0.82	-	2.77	-
SO 0700	Sesame seed, raw	RAC		0.73	-	0.10	-	0.48	-	1.62	-	0.25	-	1.29	-
OR 0700	Sesame seed oil, edible	PP		0.17	-	0.10	-	0.10	-	0.94	-	0.21	-	0.53	-
SO 0701	Shea nut (karite nuts), nutmeat, raw (incl butter)	RAC		NC	-	NC	-	0.34	-	NC	-	NC	-	NC	-
SO 0701	Shea nut (karite nuts), nutmeat, raw	RAC		NC	-	NC	-	0.26	-	NC	-	NC	-	NC	-
-	Shea nut (karite nut), butter	PP		NC	-	NC	-	0.10	-	NC	-	NC	-	NC	-
SO 0702	Sunflower seed, raw (incl oil)	RAC		7.40	-	35.86	-	1.15	-	8.76	-	5.45	-	13.62	-
SO 0702	Sunflower seed, raw	RAC	0.30	0.10	0.03	0.33	0.10	0.10	0.03	0.24	0.07	0.10	0.03	0.10	0.03
OR 0702	Sunflower seed oil, edible	PP	0.0090	2.97	0.03	14.42	0.13	0.43	0.00	3.46	0.03	2.20	0.02	5.53	0.05
-	borage seeds, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Castor bean, raw (incl oil)	RAC		NC	-	0.10	-	NC	-	NC	-	NC	-	0.10	-
-	Castor bean, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Castor bean, oil	PP		NC	-	0.10	-	NC	-	NC	-	NC	-	0.10	-
-	Cucurbitaceae seeds, raw (melonseeds, pumpkin seeds, watermelon seeds)	RAC		0.10	-	NC	-	1.08	-	0.38	-	0.10	-	0.25	-
-	Oilseeds, NES, raw (including flour, incl myrtle wax, incl Japan wax): beech nut, Aleurites moluccana; Carapa guineensis; Croton tiglium; Bassia latifolia; Guizotia abyssinia; Licania rigida; Perilla frutescens; Jatropha curcas; Shorea robusta; Pongamia glabra; Astrocaryum spp., as well as tea seeds, grape seed and	RAC		0.51	-	0.23	-	0.66	-	0.68	-	0.58	-	0.15	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G01 diet	Intake as ug/person/day G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
	tomato seeds for oil extraction														
024	**SEED FOR BEVERAGES AND SWEETS**	-		-	-	-	-	-	-	-	-	-	-	-	-
-	Seeds for beverages and seeds, raw or roasted (incl processed)	RAC		2.08	-	7.80	-	3.32	-	9.39	-	2.44	-	2.48	-
SB 0715	Cocoa beans, raw (incl roasted, incl powder, incl butter, incl paste, incl nes products)	RAC		0.72	-	4.20	-	0.60	-	4.21	-	0.42	-	0.78	-
SB 0715	Cocoa beans, raw (incl roasted)	RAC		0.10	-	0.30	-	0.10	-	0.10	-	0.10	-	0.10	-
-	Cocoa paste	PP		0.10	-	0.16	-	0.10	-	0.10	-	0.10	-	0.10	-
DM 0715	Cocoa powder	PP		0.11	-	0.10	-	0.19	-	0.79	-	0.27	-	0.34	-
DM 1215	Cocoa butter	PP		0.10	-	0.28	-	0.10	-	0.10	-	0.10	-	0.10	-
-	Cocoa products NES	PP		0.59	-	3.39	-	0.31	-	3.33	-	0.13	-	0.43	-
SB 0716	Coffee beans raw (incl roasted, incl instant coffee, incl substitutes)	RAC	0.011	1.36	0.01	3.59	0.04	1.44	0.02	5.18	0.05	2.02	0.02	1.70	0.02
SB 0716	Coffee beans, raw (i.e. green coffee)	RAC		0.96	-	0.16	-	0.91	-	0.27	-	1.37	-	0.46	-
SM 0716	Coffee beans, roasted	PP		0.19	-	0.91	-	0.16	-	2.50	-	0.39	-	0.40	-
-	Coffee beans, instant coffee (incl essences and concentrates)	PP		0.10	-	0.94	-	0.10	-	0.70	-	0.10	-	0.29	-
-	Coffee beans, substitutes, containing coffee	PP		0.10	-	0.10	-	0.16	-	0.17	-	0.10	-	0.10	-
SB 0717	Cola nuts, raw	RAC		NC	-	NC	-	1.29	-	NC	-	0.10	-	NC	-
027	**HERBS**	-		-	-	-	-	-	-	-	-	-	-	-	-
HH 0720	Herbs, raw (incl dried)	RAC		1.69	-	1.91	-	1.18	-	3.35	-	0.55	-	1.64	-
HH 0624	Celery leaves, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
HH 0721	Angelica herb, raw	RAC		0.10	-	0.10	-	0.10	-	0.10	-	NC	-	0.10	-
HH 0723	Bay leaves, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
HH 0722	Basil, raw (incl dried)	RAC		0.14	-	0.26	-	0.16	-	0.38	-	NC	-	0.19	-
HH 0723	Bay leaves	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
HH 0727	Chives	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
HH 0730	Dill herb, raw	RAC		0.16	-	0.29	-	0.18	-	0.44	-	NC	-	0.21	-
HH 0731	Fennel herb, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
HH 0733	Hyssop	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
HH 0735	Lovage	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
HH 0736	Marjoram, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
HH 0738	Mints, raw	RAC		0.50	-	0.10	-	NC	-	NC	-	NC	-	NC	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G01 diet	Intake as ug/person/day G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
HH 0740	Parsley, raw (incl dried)	RAC		0.60	-	1.07	-	0.66	-	1.60	-	NC	-	0.77	-
HH 0741	Rosemary, raw	RAC		0.10	-	0.10	-	0.10	-	0.10	-	NC	-	0.10	-
HH 0743	Sage and related Salvia species, raw	RAC		0.10	-	0.10	-	0.10	-	0.10	-	NC	-	0.10	-
HH 0745	Savory, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
HH 0749	Tarragon, raw	RAC		0.10	-	0.10	-	0.10	-	0.10	-	NC	-	0.10	-
HH 0750	Thyme, raw	RAC		0.14	-	0.10	-	0.10	-	0.55	-	0.55	-	0.29	-
HH 0751	Land cress	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
HH 0756	Cilantro, raw (i.e. coriander leaves)	RAC		0.13	-	0.23	-	0.14	-	0.35	-	NC	-	0.17	-
HH 0761	Lemongrass, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Toona leaves, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
028	**SPICES**	-		-	-	-	-	-	-	-	-	-	-	-	-
HS 0093	Spices, as traded	RAC		1.33	-	0.57	-	0.49	-	5.48	-	2.00	-	1.18	-
HS 0730	Dill, seed	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
HS 0773	Caper buds	RAC		0.18	-	0.32	-	0.20	-	0.48	-	NC	-	0.23	-
HS 0777	Cinnamon	RAC		0.10	-	0.10	-	0.10	-	0.21	-	0.10	-	0.10	-
HS 0778	Cloves, buds	RAC		0.10	-	0.10	-	0.10	-	0.32	-	0.10	-	0.10	-
HS 0782	Fenugreek, seed	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
HS 0783	Galangal, rhizomes	RAC		0.10	-	0.10	-	0.10	-	0.10	-	0.10	-	0.10	-
HS 0784	Ginger root, raw incl dried	RAC		0.25	-	0.10	-	0.16	-	1.16	-	0.59	-	0.10	-
HS 0789	Liquorice, roots	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
HS 0790	Pepper (black, white)	RAC		0.10	-	0.13	-	0.10	-	0.36	-	0.17	-	0.13	-
HS 0792	Pimento, fruit (allspice fruit)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
HS 0794	Turmeric, root	RAC		0.10	-	0.10	-	0.10	-	0.17	-	0.17	-	0.10	-
HS 0795	Vanilla, beans	RAC		0.10	-	0.10	-	0.10	-	0.10	-	0.10	-	0.10	-
-	Anise seeds, star anise seeds, caraway seeds, coriander seeds, cumin seeds, fennel seeds, juniper berries	RAC		0.48	-	0.10	-	0.10	-	1.12	-	0.25	-	0.27	-
-	Nutmeg, mace, cardamom, grains of paradise	RAC		0.10	-	0.10	-	0.10	-	0.92	-	0.10	-	0.10	-
-	Anise pepper	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Black caraway	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Saffron	RAC		0.19	-	0.10	-	0.10	-	0.72	-	0.71	-	0.38	-
057	**DRIED HERBS**	-		-	-	-	-	-	-	-	-	-	-	-	-
DH 1100	Hops, dry	RAC		0.10	-	0.10	-	0.10	-	0.10	-	NC	-	0.10	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day	Intake as ug/person/day										
				G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
066	**TEAS**	-		-	-	-	-	-	-	-	-	-	-	-	-
-	Teas and herbal teas, dried (incl concentrates)	RAC		2.39	-	1.99	-	1.47	-	2.46	-	2.31	-	3.06	-
DT 1114	Tea, green or black, fermented and dried, (including concentrates)	RAC		2.28	-	1.98	-	0.46	-	2.43	-	1.29	-	3.04	-
DT 1114	Tea, green or black, fermented and dried	RAC		2.28	-	1.92	-	0.46	-	2.40	-	1.29	-	3.04	-
-	Tea concentrates	PP		0.10	-	0.10	-	0.10	-	0.10	-	0.10	-	0.10	-
DT 1113	Mate, dried	RAC		0.11	-	0.10	-	1.01	-	0.10	-	1.02	-	0.10	-
-	Herbal teas NES, dried	RAC		NC	-	0.10	-	NC	-	NC	-	0.10	-	NC	-
030	**MEAT FROM MAMMALS**	-		-	-	-	-	-	-	-	-	-	-	-	-
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat)	RAC	0.024	31.20	0.75	72.44	1.74	20.88	0.50	47.98	1.15	33.08	0.79	36.25	0.87
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) -80% as muscle	RAC		24.96	-	57.95	-	16.70	-	38.38	-	26.46	-	29.00	-
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) - 20% as fat	RAC		6.24	-	14.49	-	4.18	-	9.60	-	6.62	-	7.25	-
MM 0810	Buffalo meat, raw	RAC		3.90	-	0.19	-	0.10	-	0.10	-	1.55	-	3.01	-
MM 0810	Buffalo meat, raw - 80% as muscle	RAC		3.12	-	0.15	-	0.08	-	0.08	-	1.24	-	2.41	-
MM 0810	Buffalo meat, raw - 20% as fat	RAC		0.78	-	0.04	-	0.02	-	0.02	-	0.31	-	0.60	-
MM 0811	Camel meat, raw (including meat of other domestic camelids)	RAC		0.38	-	0.10	-	NC	-	4.35	-	0.10	-	0.48	-
MM 0811	Camel meat, raw (including meat of other domestic camelids) - 80% as muscle	RAC		0.30	-	0.08	-	NC	-	3.48	-	0.08	-	0.38	-
MM 0811	Camel meat, raw (including meat of other domestic camelids) - 20% as fat	RAC		0.08	-	0.02	-	NC	-	0.87	-	0.02	-	0.10	-
MM 0812	Cattle meat, raw, (incl calf meat, incl prepared meat)	RAC		14.05	-	35.15	-	8.04	-	22.64	-	20.19	-	16.40	-
MM 0812	Cattle meat, raw, (incl calf meat, incl prepared meat) - 80% as muscle	RAC		11.24	-	28.12	-	6.43	-	18.11	-	16.15	-	13.12	-
MM 0812	Cattle meat, raw, (incl calf meat, incl prepared meat) - 20% as fat	RAC		2.81	-	7.03	-	1.61	-	4.53	-	4.04	-	3.28	-
MM 0813	Dear, meat, raw (domestic)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

			STMR	Diets as g/person/day	Intake as ug/person/day										
Codex Code	Commodity description	Expr as	mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
MM 0813	Dear, meat, raw (domestic) - 80% as muscle	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
MM 0813	Dear, meat, raw (domestic) - 20% as fat	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
MM 0814	Goat meat, raw, (incl kids meat)	RAC		3.69	-	1.21	-	1.42	-	3.53	-	1.00	-	2.53	-
MM 0814	Goat meat, raw, (incl kids meat) - 80% as muscle	RAC		2.95	-	0.97	-	1.14	-	2.82	-	0.80	-	2.02	-
MM 0814	Goat meat, raw, (incl kids meat) - 20% as fat	RAC		0.74	-	0.24	-	0.28	-	0.71	-	0.20	-	0.51	-
MM 0816	Horse meat raw, incl meat of other equidae (asses, mules)	RAC		0.26	-	3.04	-	0.10	-	0.10	-	0.20	-	0.10	-
MM 0816	Horse meat raw, incl meat of other equidae (asses, mules) -80% as muscle	RAC		0.21	-	2.43	-	0.08	-	0.08	-	0.16	-	0.08	-
MM 0816	Horse meat raw, incl meat of other equidae (asses, mules) -20% as fat	RAC		0.05	-	0.61	-	0.02	-	0.02	-	0.04	-	0.02	-
MM 0817	Kangaroo meat, raw (domestic)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
MM 0817	Kangaroo meat, raw (domestic) - 80% as muscle	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
MM 0817	Kangaroo meat, raw (domestic) -20% as fat	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
MM 0818	Pig meat, raw (incl prepared meat)	RAC		0.17	-	26.63	-	5.55	-	2.78	-	8.39	-	3.84	-
MM 0818	Pig meat, raw (incl prepared meat) - 80% as muscle	RAC		0.14	-	21.30	-	4.44	-	2.22	-	6.71	-	3.07	-
MM 0818	Pig meat, raw (incl prepared meat) -20% as fat	RAC		0.03	-	5.33	-	1.11	-	0.56	-	1.68	-	0.77	-
MM 0819	Rabbit meat, raw (including other domestic rodents meat) (domestic)	RAC		0.10	-	0.52	-	0.10	-	0.10	-	0.56	-	0.90	-
-	Rabbit meat, raw (including other domestic rodents meat) -80% as muscle	RAC		0.08	-	0.42	-	0.08	-	0.08	-	0.45	-	0.72	-
-	Rabbit meat, raw (including other domestic rodents meat) - 20% as muscle	RAC		0.02	-	0.10	-	0.02	-	0.02	-	0.11	-	0.18	-
MM 0822	Sheep meat, raw (incl lamb meat)	RAC		8.40	-	5.68	-	0.76	-	14.64	-	1.08	-	8.90	-
MM 0822	Sheep meat, raw (incl lamb meat) - 80% as muscle	RAC		6.72	-	4.54	-	0.61	-	11.71	-	0.86	-	7.12	-
MM 0822	Sheep meat, raw (incl lamb meat) - 20% as fat	RAC		1.68	-	1.14	-	0.15	-	2.93	-	0.22	-	1.78	-
-	Game meat, raw	RAC		0.30	-	0.10	-	5.08	-	0.10	-	0.10	-	0.14	-
-	Game meat, raw -80% as muscle	RAC		0.24	-	0.08	-	4.06	-	0.08	-	0.08	-	0.11	-
-	Game meat, raw -20% as fat	RAC		0.06	-	0.02	-	1.02	-	0.02	-	0.02	-	0.03	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day Intake as ug/person/day G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
031	**MAMMALIAN FATS**	-		-	-	-	-	-	-	-	-	-	-	-	-
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.048	3.29	0.16	6.14	0.29	0.82	0.04	1.57	0.08	2.23	0.11	1.07	0.05
MF 0810	Buffalo fat, raw	RAC		0.32	-	NC	-	NC	-	0.10	-	NC	-	0.10	-
MF 0811	Camel fat, raw (incl fat of other camelids)	RAC		0.10	-	NC	-	NC	-	0.10	-	0.10	-	0.10	-
MF 0812	Cattle fat, raw (incl rendered)	RAC		2.20	-	1.99	-	0.49	-	0.74	-	0.81	-	0.80	-
MF 0814	Goat fat, raw	RAC		0.19	-	0.10	-	0.10	-	0.10	-	0.10	-	0.10	-
MF 0818	Pig fat, raw (incl rendered)	RAC		0.10	-	4.12	-	0.26	-	0.35	-	1.41	-	0.14	-
MF 0822	Sheep fat, raw	RAC		0.53	-	0.10	-	0.10	-	0.42	-	0.10	-	0.10	-
032	**EDIBLE OFFAL (MAMMALIAN)**	-		-	-	-	-	-	-	-	-	-	-	-	-
MO 0105	Edible offal (mammalian), raw	RAC	0.088	4.79	0.42	9.68	0.85	2.97	0.26	5.49	0.48	3.84	0.34	5.03	0.44
MO 0810	Buffalo edible offal, raw	RAC		0.43	-	NC	-	NC	-	0.10	-	0.36	-	0.48	-
MO 0811	Camel edible offal, raw (including edible offals of other camelids)	RAC		0.10	-	NC	-	NC	-	0.68	-	0.10	-	0.10	-
MO 0812	Cattle edible offal, raw	RAC		1.81	-	7.21	-	1.77	-	2.07	-	2.18	-	2.56	-
MO 0814	Goat edible offal, raw	RAC		1.06	-	0.10	-	0.26	-	0.71	-	0.16	-	0.38	-
MO 0816	Horse edible offal, raw	RAC		0.10	-	0.10	-	0.10	-	NC	-	0.10	-	0.10	-
MO 0818	Pig edible offal, raw	RAC		0.10	-	1.67	-	0.80	-	0.32	-	0.94	-	0.18	-
MO 0822	Sheep edible offal, raw	RAC		1.43	-	0.70	-	0.12	-	1.70	-	0.20	-	1.39	-
033	**MILK AND MILK PRODUCTS**	-		-	-	-	-	-	-	-	-	-	-	-	-
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.1	289.65	28.97	485.88	48.59	26.92	2.69	239.03	23.90	199.91	19.99	180.53	18.05
ML 0106	Milks, raw or skimmed	RAC		254.97	-	449.99	-	19.20	-	108.65	-	171.36	-	144.18	-
ML 0810	Buffalo milk, raw or skimmed (incl dairy products)	RAC		107.99	-	0.19	-	NC	-	0.10	-	51.71	-	11.74	-
ML 0810	Buffalo milk, raw or skimmed	RAC		104.11	-	0.19	-	NC	-	0.10	-	47.43	-	8.13	-
ML 0811	Camel milk, raw	RAC		0.51	-	0.10	-	NC	-	9.19	-	0.10	-	NC	-
ML 0812	Cattle milk, raw or skimmed (incl dairy products)	RAC		164.82	-	476.23	-	25.81	-	204.56	-	141.82	-	149.95	-
ML 0812	Cattle milk, raw or skimmed	RAC		135.11	-	441.05	-	18.09	-	74.44	-	117.61	-	120.40	-
ML 0814	Goat milk, raw or skimmed (incl dairy products)	RAC		8.28	-	2.98	-	0.88	-	18.03	-	6.33	-	7.20	-
ML 0814	Goat milk, raw or skimmed	RAC		8.05	-	2.64	-	0.88	-	18.02	-	6.28	-	6.13	-
ML 0822	Sheep milk, raw or skimmed (incl dairy products)	RAC		7.90	-	6.48	-	0.24	-	7.25	-	0.10	-	11.64	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G01 diet	Intake as ug/person/day G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
ML 0822	Sheep milk, raw or skimmed	RAC		7.04	-	6.11	-	0.24	-	7.00	-	0.10	-	9.51	-
-	Horse milk, raw, incl milk of other equidae (suckmilk)	RAC		0.16	-	NC	-	NC	-	NC	-	NC	-	NC	-
036	**POULTRY MEAT**	-		-	-	-	-	-	-	-	-	-	-	-	-
PM 0110	Poultry meat, raw (incl prepared)	RAC	0.016	14.63	0.23	29.76	0.48	8.04	0.13	129.68	2.07	25.04	0.40	35.66	0.57
PM 0110	Poultry meat, raw (incl prepared) - 90% as muscle	RAC		13.17	-	26.78	-	7.24	-	116.71	-	22.54	-	32.09	-
PM 0110	Poultry meat, raw (incl prepared) - 10% as fat	RAC		1.46	-	2.98	-	0.80	-	12.97	-	2.50	-	3.57	-
PM 0840	Chicken meat, raw (incl prepared)	RAC		14.04	-	29.06	-	7.13	-	119.00	-	23.89	-	33.85	-
PM 0840	Chicken meat, raw (incl prepared) - 90% as muscle	RAC		12.64	-	26.15	-	6.42	-	107.10	-	21.50	-	30.47	-
PM 0840	Chicken meat, raw (incl prepared) - 10% as fat	RAC		1.40	-	2.91	-	0.71	-	11.90	-	2.39	-	3.39	-
PM 0841	Duck meat, raw	RAC		0.10	-	0.10	-	0.18	-	0.31	-	0.28	-	0.49	-
PM 0841	Duck meat, raw - 90% as muscle	RAC		0.09	-	0.09	-	0.16	-	0.28	-	0.25	-	0.44	-
PM 0841	Duck meat, raw - 10% as fat	RAC		0.01	-	0.01	-	0.02	-	0.03	-	0.03	-	0.05	-
PM 0842	Goose meat, raw	RAC		0.10	-	0.10	-	0.17	-	0.24	-	0.10	-	0.54	-
PM 0842	Goose meat, raw - 90% as muscle	RAC		0.09	-	0.09	-	0.15	-	0.22	-	0.09	-	0.49	-
PM 0842	Goose meat, raw - 10% as fat	RAC		0.01	-	0.01	-	0.02	-	0.02	-	0.01	-	0.05	-
PM 0846	Pigeon meat, raw	RAC		0.10	-	0.10	-	NC	-	0.10	-	0.10	-	0.15	-
PM 0846	Pigeon meat, raw - 90% as muscle	RAC		0.09	-	0.09	-	NC	-	0.09	-	0.09	-	0.14	-
PM 0846	Pigeon meat, raw - 10% as fat	RAC		0.01	-	0.01	-	NC	-	0.01	-	0.01	-	0.02	-
PM 0847	Quail meat, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
PM 0847	Quail meat, raw - 90% as muscle	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
PM 0847	Quail meat, raw - 10% as fat	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
PM 0848	Turkey meat, raw	RAC		0.51	-	0.40	-	0.55	-	9.11	-	0.78	-	0.54	-
PM 0848	Turkey meat, raw- 90% as muscle	RAC		13.17	-	26.78	-	7.24	-	116.71	-	22.54	-	32.09	-
PM 0848	Turkey meat, raw -10% as fat	RAC		1.46	-	2.98	-	0.80	-	12.97	-	2.50	-	3.57	-
-	Emu meat, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Emu meat, raw - 90% as muscle	RAC		13.17	-	26.78	-	7.24	-	116.71	-	22.54	-	32.09	-
-	Emu meat, raw -10% as fat	RAC		1.46	-	2.98	-	0.80	-	12.97	-	2.50	-	3.57	-
037	**POULTRY FATS**	-		-	-	-	-	-	-	-	-	-	-	-	-
PF 0111	Poultry fat, raw (incl rendered)	RAC	0.016	0.10	0.00	0.10	0.00	NC	-	0.10	0.00	0.10	0.00	0.10	0.00

Annex 3

	FLUAZIFOP-P-BUTYL (283)		International Estimated Daily Intake (IEDI)							ADI = 0-0.004 mg/kg bw					
			STMR	Diets as g/person/day			Intake as ug/person/day								
Codex Code	Commodity description	Expr as	mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
038	**POULTRY, EDIBLE OFFAL OF**	-		-	-	-	-	-	-	-	-	-	-	-	-
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.054	0.12	0.01	0.12	0.01	0.11	0.01	5.37	0.29	0.24	0.01	0.10	0.01
PO 0840	Chicken edible offal, raw	RAC		0.12	-	0.10	-	0.11	-	5.34	-	0.23	-	0.10	-
PO 0841	Duck edible offal, raw (incl prepared)	RAC		0.10	-	0.10	-	0.10	-	0.10	-	0.10	-	0.10	-
PO 0842	Goose edible offal, raw (incl prepared)	RAC		NC	-	NC	-	0.10	-	0.10	-	0.10	-	0.10	-
PO 0848	Turkey edible offal, raw	RAC		0.10	-	0.10	-	NC	-	0.10	-	0.10	-	0.10	-
039	**EGGS**	-		-	-	-	-	-	-	-	-	-	-	-	-
PE 0112	Eggs, raw, (incl dried)	RAC	0.014	7.84	0.11	23.08	0.32	2.88	0.04	14.89	0.21	9.81	0.14	14.83	0.21
PE 0840	Chicken eggs, raw (incl dried)	RAC		7.78	-	22.75	-	2.84	-	14.86	-	9.70	-	14.82	-
-	Eggs, NES (in shell)	RAC+		0.10	-	0.32	-	0.10	-	0.10	-	0.11	-	0.10	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				95.5		150.3		183.5		114.3		104.5		126.6
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (ug/person)=				240		240		240		240		240		240
	%ADI=				39.8%		62.6%		76.5%		47.6%		43.5%		52.8%
	Rounded %ADI=				40%		60%		80%		50%		40%		50%

Annex 3

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day			Intake as ug/person/day								
001	CITRUS FRUIT	-		-	-	-	-	-	-	-	-	-	-	-	-
FC 0001	Citrus fruit, raw (incl citrus fruit juice, incl kumquat commodities)	RAC		114.42	-	62.91	-	26.97	-	96.72	-	96.22	-	563.19	-
FC 0001	Citrus fruit, raw (incl citrus fruit juice, excl kumquat commodities)	RAC		109.75	-	57.06	-	25.01	-	95.27	-	79.17	-	561.83	-
FC 0001	Citrus fruit, raw (incl kumquat commodities)	RAC	0.011	38.66	0.41	54.93	0.58	26.36	0.28	51.46	0.54	51.06	0.54	466.36	4.90
FC 0001	Citrus fruit, raw (excl kumquat commodities)	RAC		33.99	-	49.07	-	24.40	-	50.01	-	34.01	-	464.99	-
JF 0001	Citrus fruit, juice	PP	0.0077	36.84	0.28	3.75	0.03	0.30	0.00	21.62	0.17	21.82	0.17	46.67	0.36
001A	Lemons and limes	-		-	-	-	-	-	-	-	-	-	-	-	-
FC 0002	Lemons and limes, raw (incl lemon juice) (incl kumquat commodities)	RAC		10.12	-	15.69	-	2.88	-	12.30	-	22.32	-	6.59	-
FC 0002	Lemons and limes, raw (incl lemon juice, excl kumquat commodities)	RAC		5.45	-	9.83	-	0.92	-	10.85	-	5.27	-	5.23	-
FC 0002	Lemons and limes, raw (incl kumquat commodities)	RAC		8.45	-	14.69	-	2.88	-	8.16	-	21.14	-	5.93	-
FC 0002	Lemons and limes, raw (excl kumquat commodities)	RAC		3.78	-	8.84	-	0.92	-	6.71	-	4.09	-	4.57	-
-	Lemon, juice (single strength, incl. concentrated)	PP		0.60	-	0.36	-	0.10	-	1.49	-	0.43	-	0.24	-
FC 0303	Kumquats, raw (incl juice)	RAC		4.67	-	5.86	-	1.96	-	1.45	-	17.05	-	1.37	-
001B	Mandarins	-		-	-	-	-	-	-	-	-	-	-	-	-
FC 0003	Mandarins, raw (incl mandarin juice)	RAC		12.42	-	14.99	-	16.08	-	10.78	-	9.94	-	NC	-
FC 0003	Mandarins, raw	RAC		12.34	-	14.99	-	16.08	-	10.76	-	9.94	-	NC	-
-	Mandarins, juice	PP		0.10	-	NC	-	0.10	-	0.10	-	NC	-	NC	-
001C	Oranges, sweet, sour	-		-	-	-	-	-	-	-	-	-	-	-	-
FC 0004	Oranges, sweet, sour, raw (incl orange juice)	RAC		83.66	-	27.64	-	7.37	-	67.80	-	43.97	-	187.74	-
FC 0004	Oranges, sweet, sour, raw	RAC		15.68	-	24.00	-	6.80	-	29.09	-	15.39	-	160.47	-
JF 0004	Oranges, juice (single strength, incl. concentrated)	PP		33.31	-	1.78	-	0.28	-	18.97	-	14.01	-	13.36	-
001D	Pummelos	-		-	-	-	-	-	-	-	-	-	-	-	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day Intake as ug/person/day G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
FC 0005	Pummelo and grapefruits, raw (incl grapefruit juice)	RAC		8.21	-	4.60	-	0.64	-	5.85	-	19.98	-	368.86	-
FC 0005	Pummelo and grapefruits, raw	RAC		2.19	-	1.24	-	0.60	-	3.44	-	4.60	-	299.96	-
JF 0203	Grapefruits, juice (single strength, incl. concentrated)	PP		2.89	-	1.61	-	0.10	-	1.15	-	7.39	-	33.07	-
002	POME FRUIT	-		-	-	-	-	-	-	-	-	-	-	-	-
FP 0009	Pome fruits, raw (incl. apple juice, incl cider)	RAC	0.011	71.38	0.75	81.73	0.86	42.91	0.45	58.89	0.62	103.85	1.09	12.48	0.13
FP 0009	Pome fruit, raw (incl apple juice, excl cider)	RAC		57.68	-	74.45	-	37.84	-	58.40	-	103.51	-	11.20	-
FP 0009	Pome fruit, raw (incl cider, excl apple juice)	RAC		51.09	-	65.40	-	42.71	-	45.29	-	62.51	-	7.74	-
FP 0009	Pomefruits, raw	RAC		37.39	-	58.13	-	37.64	-	44.80	-	62.17	-	6.47	-
FP 0226	Apple, raw (incl juice, incl cider)	RAC		61.44	-	72.81	-	26.84	-	45.18	-	93.28	-	7.78	-
FP 0226	Apple, raw (incl juice, excl cider)	RAC		47.74	-	65.54	-	21.78	-	44.69	-	92.94	-	6.51	-
FP 0226	Apple, raw (incl cider, excl juice)	RAC		41.14	-	56.49	-	26.64	-	31.58	-	51.94	-	3.05	-
FP 0226	Apple, raw	RAC		27.44	-	49.21	-	21.57	-	31.09	-	51.60	-	1.77	-
JF 0226	Apple juice, single strength (incl. concentrated)	PP		14.88	-	11.98	-	0.15	-	9.98	-	30.32	-	3.47	-
-	Cider (i.e. fermented apple juice)	PP		10.05	-	5.34	-	3.72	-	0.36	-	0.25	-	0.93	-
FP 0227	Crab-apple, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
FP 0228	Loquat, raw (incl processed)	RAC		0.96	-	NC	-	NC	-	3.92	-	NC	-	2.49	-
FP 0229	Medlar, raw (incl processed)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	1.98	-
FP 0230	Pear, raw	RAC		8.79	-	8.44	-	12.37	-	9.60	-	10.27	-	0.23	-
FP 0307	Persimmon, Japanese, raw	RAC		0.10	-	0.30	-	3.59	-	0.15	-	0.10	-	NC	-
FP 0231	Quince, raw	RAC		0.19	-	0.18	-	0.11	-	0.10	-	0.28	-	NC	-
003	STONE FRUIT	-		-	-	-	-	-	-	-	-	-	-	-	-
FS 0012	Stone fruits, raw (incl dried plums, incl dried apricots)	RAC	0.011	19.98	0.21	24.87	0.26	14.41	0.15	19.54	0.21	10.78	0.11	0.50	0.01
FS 0012	Stone fruits, raw (incl dried plums, excl dried apricots)	RAC		17.77	-	23.89	-	14.40	-	18.41	-	9.52	-	0.50	-
FS 0012	Stone fruits, raw (incl dried apricots, excl dried plums)	RAC		18.18	-	23.83	-	14.27	-	18.52	-	9.35	-	0.11	-
FS 0012	Stone fruits, raw	RAC		15.97	-	22.86	-	14.26	-	17.39	-	8.09	-	0.11	-
003A	Cherries	-		-	-	-	-	-	-	-	-	-	-	-	-
FS 0013	Cherries, raw	RAC		1.40	-	4.21	-	0.10	-	2.93	-	1.50	-	NC	-
003B	Plums	-		-	-	-	-	-	-	-	-	-	-	-	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day Intake as ug/person/day G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
FS 0014	Plums, raw (incl dried plums, incl Chinese jujube)	RAC		5.55	-	4.37	-	6.08	-	3.66	-	3.93	-	0.46	-
FS 0014	Plums, raw (incl dried plums, excl Chinese jujube)	RAC		5.55	-	4.37	-	6.08	-	3.66	-	3.93	-	0.46	-
FS 0014	Plums, raw (incl Chinese jujube)	RAC		3.75	-	3.33	-	5.94	-	2.64	-	2.50	-	0.10	-
FS 0014	Plums, raw (excl Chinese jujube)	RAC		3.75	-	3.33	-	5.94	-	2.64	-	2.50	-	0.10	-
DF 0014	Plum, dried (prunes)	PP		0.61	-	0.35	-	0.10	-	0.35	-	0.49	-	0.13	-
FS 0302	Jujube, Chinese, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
003C	Peaches	-		-	-	-	-	-	-	-	-	-	-	-	-
FS 2001	Peaches, nectarines, apricots, raw (incl dried apricots)	RAC		13.03	-	16.29	-	8.29	-	12.95	-	5.35	-	0.10	-
FS 2001	Peaches, nectarines, apricots, raw	RAC		10.82	-	15.31	-	8.28	-	11.82	-	4.08	-	0.10	-
FS 0240	Apricot, raw (incl dried)	RAC		4.27	-	3.31	-	0.10	-	2.86	-	1.71	-	NC	-
FS 0240	Apricot, raw	RAC		2.06	-	2.34	-	0.10	-	1.73	-	0.44	-	NC	-
DF 0240	Apricot, dried	PP		0.40	-	0.18	-	0.10	-	0.20	-	0.23	-	NC	-
FS 2237	Japanese apricot (ume)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Peaches and nectarines, raw	RAC		8.76	-	12.98	-	8.23	-	10.09	-	3.64	-	0.10	-
004	BERRIES AND OTHER SMALL FRUITS	-		-	-	-	-	-	-	-	-	-	-	-	-
FB 0018	Berries and other small fruits, raw (incl processed)	RAC		156.91	-	118.51	-	8.10	-	64.22	-	117.23	-	15.04	-
FB 0018	Berries and other small fruits, raw, (incl processed), excl small fruit vine climbing (group 004D)	RAC		14.68	-	12.74	-	0.23	-	11.77	-	8.01	-	4.08	-
FB 0018	Berries and other small fruits, raw, (incl processed), excl small fruit vine climbing (group 004D), excl low growing berries (group 004E)	RAC		10.13	-	7.08	-	0.21	-	3.92	-	2.15	-	4.03	-
004A	Cane berries	-		-	-	-	-	-	-	-	-	-	-	-	-
FB 2005	Caneberries, raw	RAC	0.011	0.56	0.01	1.43	0.02	0.14	0.00	1.23	0.01	1.14	0.01	0.10	0.00
FB 0264	Blackberries, raw	RAC		0.10	-	0.52	-	0.14	-	0.24	-	NC	-	0.10	-
FB 0266	Dewberries, incl boysen- & loganberry, raw	RAC		0.10	-	NC	-	0.10	-	0.10	-	NC	-	0.10	-
FB 0272	Raspberries, red, black, raw	RAC		0.47	-	0.91	-	0.10	-	0.99	-	1.14	-	NC	-
004B	Bush berries	-		-	-	-	-	-	-	-	-	-	-	-	-
FB 2006	Bush berries, raw (including processed) (i.e. blueberries, currants, gooseberries, rose	RAC		1.31	-	5.50	-	0.10	-	2.57	-	0.82	-	2.15	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day	Intake as ug/person/day										
				G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
	hips)														
FB 0020	Blueberries, raw	RAC		0.10	-	0.23	-	0.10	-	0.83	-	0.33	-	NC	-
FB 0021	Currants, red, black, white, raw	RAC	0.011	0.48	0.01	4.23	0.04	NC	-	1.51	0.02	0.49	0.01	NC	-
FB 0268	Gooseberries, raw	RAC	0.011	0.10	0.00	1.04	0.01	0.10	0.00	0.23	0.00	NC	-	NC	-
FB 0273	Rose hips, raw (incl processed)	RAC		0.76	-	NC	-	NC	-	NC	-	NC	-	2.15	-
004C	Large shrub/tree berries	-		-	-	-	-	-	-	-	-	-	-	-	-
FB 2007	Large shrub/tree berries, raw (including processed) (i.e. elderberries, mulberries)	RAC		8.26	-	0.14	-	0.10	-	0.13	-	0.19	-	1.87	-
FB 0267	Elderberries, raw (incl processed)	RAC		8.20	-	0.14	-	NC	-	NC	-	NC	-	1.87	-
FB 0271	Mulberries, red, white, raw	RAC		0.10	-	NC	-	0.10	-	0.13	-	0.19	-	0.10	-
004D	Small fruit vine climbing	-		-	-	-	-	-	-	-	-	-	-	-	-
FB 2008	Small fruit vine climbing, raw (incl processed) (i.e. grapes)	RAC	0.011	142.23	1.49	105.77	1.11	7.87	0.08	52.44	0.55	109.22	1.15	10.96	0.12
FB 0269	Grape, raw (incl must, incl dried, incl juice, incl wine)	RAC		142.23	-	105.77	-	7.87	-	52.44	-	109.22	-	10.96	-
FB 0269	Grape, raw (incl must, incl dried, incl wine, excl juice)	RAC		141.53	-	103.35	-	7.85	-	49.67	-	106.42	-	10.53	-
FB 0269	Grape, raw (incl must, incl juice, incl wine, excl dried)	RAC		129.34	-	99.46	-	7.76	-	46.71	-	91.48	-	9.23	-
FB 0269	Grape, raw (incl dried, incl juice, incl wine, excl must)	RAC		142.07	-	105.68	-	7.87	-	52.32	-	109.11	-	10.96	-
FB 0269	Grape, raw (incl must, incl dried, incl juice, excl wine)	RAC		20.07	-	20.04	-	5.35	-	18.01	-	25.20	-	2.94	-
FB 0269	Grape, raw (incl must, incl dried, excl juice, excl wine)	RAC		19.37	-	17.62	-	5.33	-	15.24	-	22.40	-	2.51	-
FB 0269	Grape, raw (incl must, incl juice, excl dried, excl wine)	RAC		7.18	-	13.73	-	5.24	-	12.27	-	7.46	-	1.21	-
FB 0269	Grape, raw (incl must, incl wine, excl dried, excl juice)	RAC		128.64	-	97.04	-	7.74	-	43.94	-	88.68	-	8.80	-
FB 0269	Grape, raw (incl dried, incl juice, excl wine, excl must)	RAC		19.92	-	19.96	-	5.35	-	17.88	-	25.09	-	2.94	-
FB 0269	Grape, raw (incl dried, incl wine, excl must, excl juice)	RAC		141.38	-	103.26	-	7.84	-	49.55	-	106.31	-	10.53	-
FB 0269	Grape, raw (incl juice, incl wine, excl must, excl dried)	RAC		129.18	-	99.38	-	7.75	-	46.58	-	91.37	-	9.23	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

			STMR	Diets as g/person/day			Intake as ug/person/day								
Codex Code	Commodity description	Expr as	mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
FB 0269	Grape, raw (incl must, excl dried, excl juice, excl wine)	RAC		6.48	-	11.31	-	5.21	-	9.50	-	4.66	-	0.78	-
FB 0269	Grape, raw (incl dried, excl must, excl juice, excl wine)	RAC		19.22	-	17.53	-	5.32	-	15.12	-	22.29	-	2.51	-
FB 0269	Grape, raw (incl juice, excl must, excl dried, excl wine)	RAC		7.03	-	13.65	-	5.23	-	12.15	-	7.35	-	1.21	-
FB 0269	Grape, raw (incl wine, excl must, excl dried, excl juice)	RAC		128.49	-	96.95	-	7.73	-	43.82	-	88.57	-	8.80	-
FB 0269	Grape, raw	RAC		6.33	-	11.22	-	5.21	-	9.38	-	4.55	-	0.78	-
-	Grape must	PP		0.16	-	0.10	-	0.10	-	0.12	-	0.11	-	NC	-
DF 0269	Grape, dried (= currants, raisins and sultanas)	PP		3.09	-	1.51	-	0.10	-	1.38	-	4.26	-	0.42	-
JF 0269	Grape juice	PP		0.56	-	1.96	-	0.10	-	2.24	-	2.27	-	0.34	-
-	Grape wine (incl vermouths)	PP		88.93	-	62.41	-	1.84	-	25.07	-	61.17	-	5.84	-
004E	Low growing berries	-		-	-	-	-	-	-	-	-	-	-	-	-
FB 2009	Low growing berries, raw (i.e. cranberry and strawberry)	RAC		4.55	-	5.66	-	0.10	-	7.85	-	5.86	-	0.10	-
FB 0265	Cranberries, raw	RAC		0.10	-	0.10	-	0.10	-	1.22	-	0.11	-	NC	-
FB 0275	Strawberry, raw	RAC	0.063	4.49	0.28	5.66	0.36	0.10	0.01	6.63	0.42	5.75	0.36	0.10	0.01
005	ASSORTED (SUB)TROPICAL FRUITS - EDIBLE PEEL	-		-	-	-	-	-	-	-	-	-	-	-	-
FT 0026	Tropical and subtropical fruits, edible peel, raw (incl processed)	RAC		3.43	-	3.60	-	3.63	-	1.90	-	2.50	-	7.24	-
005A	Assorted (sub) tropical fruits - edible peel - small	-		-	-	-	-	-	-	-	-	-	-	-	-
FT 2011	Assorted (sub) tropical fruits - edible peel - small, raw (including processed)	RAC		2.00	-	2.48	-	0.10	-	1.21	-	1.64	-	0.42	-
FT 0287	Barbados cherry (i.e. Antilles cherry or acerola), raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	0.15	-
FT 0340	Java apple, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
FT 0305	Table olive, raw (incl preserved)	RAC	0.011	2.00	0.02	2.48	0.03	0.10	0.00	1.21	0.01	1.64	0.02	0.27	0.00
FT 0305	Table olive, raw	RAC		0.10	-	0.10	-	0.10	-	0.10	-	0.10	-	NC	-
DM 0305	Table olive, preserved	PP		1.85	-	2.34	-	0.10	-	1.11	-	1.54	-	0.26	-
005B	Assorted (sub) tropical fruits - edible peel - medium to large	-		-	-	-	-	-	-	-	-	-	-	-	-
FT 2012	Assorted (sub) tropical fruits - edible peel -	RAC		0.91	-	0.82	-	3.41	-	0.49	-	0.54	-	1.02	-

Annex 3

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

			STMR	Diets as g/person/day	Intake as ug/person/day										
Codex Code	Commodity description	Expr as	mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
	medium to large, raw (incl processed)														
FT 2381	Babaco, raw, incl processed	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
FT 0289	Carambola, raw (i.e. star fruit)	RAC		NC	-	0.10	-	0.10	-	NC	-	NC	-	NC	-
FT 0291	Carob (Locust Tree, St John's Bread)	RAC		0.10	-	NC	-	NC	-	0.10	-	NC	-	NC	-
FT 0292	Cashew apple, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
FT 0297	Fig, raw (incl dried)	RAC		0.88	-	0.82	-	0.10	-	0.48	-	0.54	-	NC	-
FT 0297	Fig, raw	RAC		0.16	-	0.21	-	0.10	-	0.14	-	0.10	-	NC	-
DF 0297	Fig, dried or dried and candied	PP		0.24	-	0.20	-	0.10	-	0.11	-	0.16	-	NC	-
FT 0336	Guava, raw	RAC		0.10	-	NC	-	0.42	-	NC	-	NC	-	NC	-
FT 0300	Jaboticaba, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
FT 0301	Jujube, Indian, raw (incl processed)	RAC		NC	-	NC	-	2.63	-	NC	-	NC	-	1.02	-
FT 0309	Rose apple, raw	RAC		NC	-	NC	-	0.30	-	NC	-	NC	-	NC	-
FT 0364	Sentul, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
005C	Assorted (sub) tropical fruits - edible peel - palms	-		-	-	-	-	-	-	-	-	-	-	-	-
FT 2011	Assorted (sub) tropical fruits - edible peel - palms, raw (incl processed)	RAC		0.52	-	0.30	-	0.22	-	0.20	-	0.32	-	5.80	-
FT 2400	Açai berry, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	5.79	-
FT 0295	Date, raw (incl dried)	RAC		0.52	-	0.30	-	0.22	-	0.20	-	0.32	-	0.10	-
006	ASSORTED (SUB)TROPICAL FRUITS- INEDIBLE PEEL	-		-	-	-	-	-	-	-	-	-	-	-	-
FI 0030	(Sub)Tropical fruits, inedible peel, raw (incl processed)	RAC		62.49	-	53.99	-	60.55	-	50.79	-	88.89	-	102.73	-
006A	Assorted (sub) tropical fruits - inedible peel - small	-		-	-	-	-	-	-	-	-	-	-	-	-
FI 2021	Assorted (sub) tropical fruits - inedible peel - small, raw (incl processed)	RAC		8.00	-	3.70	-	5.55	-	0.10	-	11.86	-	10.62	-
FI 0343	Litchi, raw (incl processed)	RAC		8.00	-	3.70	-	2.91	-	0.10	-	11.86	-	9.83	-
FI 0342	Longan, raw	RAC		NC	-	NC	-	0.61	-	NC	-	NC	-	NC	-
FI 0369	Tamarind, sweet varieties, raw (incl processed)	RAC		NC	-	NC	-	2.03	-	NC	-	NC	-	0.79	-
006B	Assorted (sub) tropical fruits - inedible smooth peel - large	-		-	-	-	-	-	-	-	-	-	-	-	-
FI 2022	Assorted (sub) tropical fruits - inedible smooth peel - large, raw (incl processed)	RAC		38.31	-	34.99	-	46.19	-	34.76	-	33.28	-	134.46	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

			STMR	Diets as g/person/day	Intake as ug/person/day										
Codex Code	Commodity description	Expr as	mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
FI 0326	Avocado, raw	RAC		2.65	-	0.87	-	0.46	-	1.64	-	1.30	-	0.96	-
FI 0327	Banana, raw (incl plantains) (incl dried)	RAC	0.011	25.14	0.26	23.37	0.25	23.06	0.24	23.40	0.25	18.44	0.19	39.29	0.41
FI 0327	Banana, raw (incl plantains)	RAC		25.61	-	23.59	-	23.58	-	24.26	-	18.88	-	101.55	-
FI 0327	Banana, dried (incl plantains)	RAC		0.10	-	0.10	-	0.10	-	0.10	-	0.18	-	NC	-
FI 2483	Cupuaçu, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
FI 0335	Feijoa (Pineapple guava), raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
FI 2488	Langsat (i.e. longkong)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
FI 0345	Mango, raw (incl canned mango, incl mango juice)	RAC		1.80	-	0.63	-	10.05	-	1.07	-	3.52	-	16.44	-
FI 0345	Mango, raw (incl canned mango, excl mango juice)	RAC		1.80	-	0.63	-	9.93	-	1.07	-	3.52	-	16.44	-
FI 0345	Mango, raw (incl mango juice, excl canned mango)	RAC		1.80	-	0.63	-	9.85	-	1.07	-	3.52	-	16.44	-
FI 0345	Mango, raw	RAC		1.80	-	0.63	-	9.73	-	1.07	-	3.52	-	16.44	-
-	Mango, juice	PP		NC	-	NC	-	0.10	-	NC	-	NC	-	NC	-
-	Mango, canned	PP		NC	-	NC	-	0.14	-	NC	-	NC	-	NC	-
FI 0346	Mangosteen, raw (i.e. mangostan)	RAC		NC	-	NC	-	0.37	-	NC	-	NC	-	NC	-
FI 0350	Papaya, raw	RAC		0.31	-	0.18	-	1.50	-	0.51	-	0.54	-	1.08	-
FI 0352	Persimmon, American	RAC		0.10	-	NC	-	2.57	-	2.03	-	NC	-	NC	-
FI 0355	Pomegranate, raw, (incl processed)	RAC		7.91	-	9.72	-	7.67	-	5.26	-	9.04	-	14.43	-
FI 0360	Sapote, black	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
FI 0367	Star apple, raw (i.e. cainito)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
FI 0312	Tamarillo (i.e. Tree tomato)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
006C	Assorted (sub) tropical fruits - inedible rough or hairy peel - large	-		-	-	-	-	-	-	-	-	-	-	-	-
FI 2023	Assorted (sub) tropical fruits - inedible rough or hairy peel - large, raw	RAC		13.13	-	11.29	-	8.79	-	14.36	-	36.74	-	18.81	-
FI 0331	Cherimoya, raw	RAC		NC	-	0.16	-	NC	-	NC	-	NC	-	NC	-
FI 0332	Custard apple, raw	RAC		NC	-	NC	-	0.32	-	NC	-	NC	-	NC	-
FI 0334	Durian, raw	RAC		NC	-	NC	-	0.55	-	NC	-	NC	-	NC	-
FI 0338	Jackfruit	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
FI 0353	Pineapple, raw (incl canned pineapple, incl pineapple juice, incl dried pineapple)	RAC		13.13	-	11.13	-	6.94	-	14.36	-	36.74	-	18.81	-
FI 0353	Pineapple, raw (incl canned pineapple, incl	RAC		13.01	-	11.07	-	6.72	-	14.27	-	36.27	-	18.81	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G07 diet	Intake as ug/person/day G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
	pineapple juice, excl dried pineapple)														
FI 0353	Pineapple, raw (incl pineapple juice, incl dried pineapple, excl canned pineapple)	RAC		8.38	-	5.85	-	4.97	-	10.58	-	29.81	-	18.35	-
FI 0353	Pineapple, raw (incl canned pineapple, incl dried pineapple, excl pineapple juice)	RAC		8.17	-	7.53	-	5.95	-	7.61	-	8.17	-	16.18	-
FI 0353	Pineapple, raw (incl canned pineapple, excl pineapple juice, excl dried pineapple)	RAC		8.04	-	7.47	-	5.73	-	7.53	-	7.70	-	16.18	-
FI 0353	Pineapple, raw (incl pineapple juice, excl pineapple canned, excl dried pineapple)	RAC		8.26	-	5.80	-	4.75	-	10.50	-	29.34	-	18.35	-
FI 0353	Pineapple, raw (incl dried pineapple, excl pineapple juice, excl canned pineapple)	RAC		8.38	-	5.85	-	4.97	-	10.58	-	29.81	-	18.35	-
FI 0353	Pineapple, raw	RAC		3.29	-	2.19	-	3.77	-	3.75	-	0.77	-	15.72	-
-	Pineapple, canned	PP		2.47	-	2.74	-	1.02	-	1.96	-	3.60	-	0.24	-
JF 0341	Pineapple juice (single strength, incl concentrated)	PP		2.91	-	2.11	-	0.58	-	3.95	-	16.73	-	1.54	-
-	Pineapple, dried	PP		0.10	-	0.10	-	0.10	-	0.10	-	0.10	-	NC	-
FI 0358	Rambutan, raw	RAC		NC	-	NC	-	0.98	-	NC	-	NC	-	NC	-
FI 0359	Sapodilla, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
FI 0365	Soursop, raw (i.e. guanabana)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
006D	Assorted (sub) tropical fruits - inedible peel - cactus	-		-	-	-	-	-	-	-	-	-	-	-	-
FI 2024	Assorted (sub) tropical fruits - inedible peel - cactus, raw (incl processed)	RAC		1.06	-	0.61	-	0.10	-	1.01	-	NC	-	1.07	-
FI 2540	Pitaya, raw (i.e dragon fruit or pitahaya)	RAC		NC	-	NC	-	0.10	-	NC	-	NC	-	NC	-
FI 0356	Prickly pear, raw (incl processed)	RAC		1.06	-	0.61	-	NC	-	1.01	-	NC	-	1.07	-
006D	Assorted (sub) tropical fruits - inedible peel - vines	-		-	-	-	-	-	-	-	-	-	-	-	-
FI 2025	Assorted (sub) tropical fruits - inedible peel - vines, raw	RAC		2.46	-	3.62	-	0.10	-	1.48	-	7.45	-	0.10	-
FI 0341	Kiwi fruit, raw	RAC		2.46	-	3.62	-	0.10	-	1.48	-	7.43	-	0.10	-
FI 0351	Passion fruit, raw	RAC		0.10	-	0.10	-	NC	-	NC	-	0.10	-	NC	-
006E	Assorted (sub) tropical fruits - inedible peel - palms	-		-	-	-	-	-	-	-	-	-	-	-	-
FI 2026	Assorted (sub) tropical fruits - inedible peel - palms	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-

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			STMR	Diets as g/person/day			Intake as ug/person/day								
Codex Code	Commodity description	Expr as	mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
009	BULB VEGETABLES	-		-	-	-	-	-	-	-	-	-	-	-	-
VA 0035	Bulb vegetables, raw	RAC		26.24	-	36.47	-	39.29	-	39.37	-	29.12	-	20.21	-
VA 0380	Fennel, bulb, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VA 0381	Garlic, raw	RAC	0.12	0.98	0.12	1.49	0.18	12.88	1.58	3.74	0.46	2.05	0.25	1.14	0.14
VA 0384	Leek, raw	RAC		4.01	-	4.41	-	0.72	-	0.54	-	16.41	-	0.10	-
-	Onions, mature bulbs, dry	RAC	0.12	19.69	2.41	29.83	3.65	24.64	3.02	31.35	3.84	9.72	1.19	12.59	1.54
-	Onions, green, raw	RAC		1.55	-	0.74	-	1.05	-	3.74	-	0.94	-	6.45	-
010	BRASSICA	-		-	-	-	-	-	-	-	-	-	-	-	-
VB 0040	Brassica vegetables, raw: head cabbages, flowerhead brassicas, Brussels sprouts & kohlrabi	RAC		20.71	-	39.81	-	16.70	-	28.49	-	18.12	-	15.03	-
VB 0041	Cabbages, head, raw	RAC	0.20	8.97	1.77	27.12	5.34	1.44	0.28	24.96	4.91	4.55	0.90	11.23	2.21
VB 0042	Flowerhead brassicas, raw	RAC		9.50	-	6.77	-	9.03	-	3.21	-	9.36	-	0.87	-
VB 0400	Broccoli, raw	RAC		4.24	-	1.76	-	NC	-	0.51	-	3.79	-	0.26	-
VB 0401	Chinese Broccoli, raw (i.e. kailan)	RAC		NC	-	NC	-	9.03	-	NC	-	NC	-	0.12	-
VB 0402	Brussels sprouts, raw	RAC		2.24	-	2.67	-	6.23	-	0.32	-	4.19	-	2.58	-
VB 0404	Cauliflower, raw	RAC		5.27	-	5.01	-	NC	-	2.70	-	5.57	-	0.49	-
VB 0405	Kohlrabi, raw	RAC		NC	-	3.25	-	NC	-	NC	-	0.10	-	0.36	-
011	FRUITING VEGETABLES, CUCURBITS	-		-	-	-	-	-	-	-	-	-	-	-	-
VC 0045	Fruiting vegetables, cucurbits, raw	RAC		27.81	-	41.93	-	123.30	-	49.47	-	15.95	-	35.99	-
VC 0045	Fruiting vegetables, cucurbits, raw (excl watermelons)	RAC		23.22	-	32.11	-	54.80	-	36.28	-	13.96	-	21.43	-
VC 0045	Fruiting vegetables, cucurbits, raw (excl melons)	RAC		18.61	-	29.97	-	108.67	-	40.47	-	8.09	-	33.53	-
VC 0045	Fruiting vegetables, cucurbits, raw (excl melons, excl watermelons)	RAC		14.02	-	20.16	-	40.17	-	27.28	-	6.10	-	18.97	-
VC 0046	Melons, raw (excl watermelons)	RAC		9.20	-	11.95	-	14.63	-	8.99	-	7.86	-	2.46	-
VC 0421	Balsam pear (Bitter cucumber, Bitter gourd, Bitter melon)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VC 0422	Bottle gourd (Cucuzzi)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VC 0423	Chayote (Christophine)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VC 0424	Cucumber, raw	RAC		6.72	-	11.03	-	32.10	-	15.10	-	4.05	-	9.57	-
VC 0425	Gherkin, raw	RAC		0.41	-	5.89	-	NC	-	0.10	-	0.37	-	2.07	-
VC 0427	Loofah, Angled (Sinkwa, Sinkwa towel	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-

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	gourd), raw														
VC 0428	Loofah, Smooth, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VC 0430	Snake gourd	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VC 0431	Squash, summer, raw (= courgette, zuchini)	RAC		NC	-	NC	-	5.48	-	NC	-	NC	-	1.03	-
VC 0432	Watermelon, raw	RAC		4.60	-	9.82	-	68.50	-	13.19	-	1.99	-	14.56	-
VC 0433	Winter squash, raw (= pumpkin)	RAC		6.88	-	3.23	-	2.59	-	12.12	-	1.68	-	6.30	-
012	FRUITING VEGETABLES OTHER THAN CUCURBITS	-		-	-	-	-	-	-	-	-	-	-	-	-
VO 0050	Fruiting vegetables other than cucurbits, raw (incl processed commodities)	RAC		91.66	-	96.61	-	81.03	-	114.49	-	83.88	-	20.05	-
VO 0050	Fruiting vegetables other than cucurbits, raw, (incl processed commodities), excl sweet corn commodities, excl mushroom commodities	RAC		72.92	-	86.99	-	79.04	-	97.13	-	65.96	-	17.98	-
VO 0050	Fruiting vegetables other than cucurbits, raw, (incl processed commodities), excl tomato commodities, excl sweet corn commodities, excl mushroom commodities	RAC		8.19	-	18.68	-	42.99	-	15.04	-	11.46	-	6.30	-
VO 0440	Egg plants, raw (= aubergines)	RAC	0.053	1.01	0.05	1.69	0.09	21.37	1.12	3.00	0.16	1.40	0.07	NC	-
VO 0442	Okra, raw	RAC		NC	-	NC	-	0.10	-	0.17	-	NC	-	0.72	-
VO 0443	Pepino (Melon pear, Tree melon)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VO 0444	Peppers, chili, raw (incl dried)	RAC		6.36	-	15.46	-	10.74	-	7.28	-	8.21	-	3.58	-
VO 0444	Peppers, chili, raw	RAC		5.57	-	14.00	-	8.25	-	5.77	-	6.44	-	2.53	-
-	Peppers, chili, dried	PP		0.11	-	0.21	-	0.36	-	0.21	-	0.25	-	0.15	-
VO 0445	Peppers, sweet, raw (incl dried)	RAC		0.82	-	1.53	-	10.85	-	4.59	-	1.84	-	2.00	-
VO 0445	Peppers, sweet, raw	RAC		NC	-	NC	-	8.25	-	3.03	-	NC	-	0.91	-
-	Peppers, sweet, dried	PP		0.11	-	0.21	-	0.36	-	0.21	-	0.25	-	0.15	-
VO 0447	Sweet corn on the cob, raw (incl frozen, incl canned) (i.e. kernels plus cob without husks)	RAC		11.43	-	3.71	-	0.74	-	13.63	-	3.07	-	1.50	-
VO 0447	Sweet corn on the cob, raw (incl frozen, excl canned) (i.e. kernels plus cob without husks)	RAC		7.76	-	0.71	-	0.62	-	8.62	-	1.34	-	0.10	-
VO 0447	Sweet corn on the cob, raw (incl canned, excl	RAC		8.60	-	3.30	-	0.69	-	10.34	-	1.80	-	1.43	-

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Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G07 diet	Intake as ug/person/day G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
	frozen) (i.e. kernels plus cob without husks)														
VO 0447	Sweet corn on the cob, raw (i.e kernels plus cob without husks)	RAC		4.94	-	0.30	-	0.58	-	5.33	-	0.10	-	NC	-
VO 0447	Sweet corn, frozen (kernels)	PP		1.54	-	0.22	-	0.10	-	1.79	-	0.69	-	0.10	-
VO 0447	Sweet corn, canned (kernels)	PP		2.00	-	1.64	-	0.10	-	2.73	-	0.94	-	0.78	-
VO 0448	Tomato, raw (incl juice, incl paste, incl canned)	RAC	0.053	64.74	3.40	68.31	3.59	36.05	1.89	82.09	4.31	54.50	2.86	11.69	0.61
VO 0448	Tomato, raw (incl juice, incl paste, excl canned)	RAC		52.99	-	64.18	-	35.59	-	80.59	-	43.15	-	11.06	-
VO 0448	Tomato, raw (incl juice, incl canned, excl paste)	RAC		44.88	-	55.49	-	35.44	-	75.65	-	27.00	-	9.61	-
VO 0448	Tomato, raw (incl paste, incl canned, excl juice)	RAC		63.73	-	68.22	-	35.98	-	81.33	-	54.01	-	11.59	-
VO 0448	Tomato, raw (incl juice, excl paste, excl canned)	RAC		33.13	-	51.36	-	34.99	-	74.14	-	15.64	-	8.98	-
VO 0448	Tomato, raw (incl paste, excl juice, excl canned)	RAC		51.98	-	64.09	-	35.52	-	79.82	-	42.65	-	10.96	-
VO 0448	Tomato, raw (incl canned, excl juice, excl paste)	RAC		43.88	-	55.41	-	35.38	-	74.88	-	26.50	-	9.51	-
VO 0448	Tomato, raw	RAC		32.13	-	51.27	-	34.92	-	73.37	-	15.15	-	8.88	-
-	Tomato, canned (& peeled)	PP		7.57	-	2.66	-	0.30	-	0.97	-	7.31	-	0.41	-
-	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP		4.96	-	3.20	-	0.15	-	1.61	-	6.88	-	0.52	-
JF 0448	Tomato, juice (single strength, incl concentrated)	PP		0.80	-	0.10	-	0.10	-	0.61	-	0.40	-	0.10	-
-	Mushrooms (cultivated & wild), raw (incl canned, incl dried)	RAC		7.31	-	5.92	-	1.26	-	3.73	-	14.85	-	0.57	-
-	Mushrooms (cultivated & wild), raw (incl canned, excl dried)	RAC		6.85	-	5.06	-	1.06	-	3.04	-	14.05	-	0.38	-
-	Mushrooms (cultivated & wild), raw (incl dried, excl canned)	RAC		6.31	-	3.51	-	0.93	-	2.66	-	12.41	-	0.25	-
-	Mushrooms (cultivated & wild), raw	RAC		6.14	-	3.35	-	0.83	-	2.27	-	12.31	-	0.15	-
-	Mushrooms (cultivated & wild), canned	PP		0.71	-	1.71	-	0.23	-	0.76	-	1.74	-	0.23	-
-	Mushrooms (cultivated & wild), dried	PP		0.10	-	0.10	-	0.10	-	0.11	-	0.10	-	0.10	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

			STMR	Diets as g/person/day	Intake as ug/person/day										
Codex Code	Commodity description	Expr as	mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
-	Gilo (scarlet egg plant)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Goji berry	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Quorn	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Seaweed	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
013	LEAFY VEGETABLES	-		-	-	-	-	-	-	-	-	-	-	-	-
VL 0053	Leafy vegetables, raw	RAC		18.83	-	21.85	-	121.23	-	43.09	-	18.18	-	18.32	-
VL 0053	Leafy vegetables, raw (excl brassica leafy vegetables)	RAC		18.83	-	21.85	-	87.37	-	33.65	-	18.18	-	13.92	-
VL 0054	Brassica leafy vegetables, raw	RAC		NC	-	NC	-	33.86	-	9.44	-	NC	-	4.40	-
VL 0269	Grape leaves, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0446	Roselle leaves, raw (vinagreira)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	0.74	-
VL 0460	Amaranth leaves, raw (i.e. bledo)	RAC		NC	-	NC	-	47.45	-	NC	-	NC	-	2.07	-
VL 0463	Cassava leaves, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0464	Chard, raw (i.e. beet leaves)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	0.75	-
VL 0465	Chervil, raw	RAC		NC	-	NC	-	8.39	-	NC	-	NC	-	0.37	-
VL 0466	Chinese cabbage, type pak-choi, raw (i.e. Brassica)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0467	Chinese cabbage, type pe-tsai, raw (i.e. Brassica)	RAC		NC	-	NC	-	17.39	-	9.44	-	NC	-	1.83	-
VL 0469	Chicory leaves (sugar loaf), raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0470	Lambs lettuce, raw (i.e. corn salad)	RAC		1.41	-	4.28	-	NC	-	0.10	-	5.11	-	1.20	-
VL 0472	Garden cress, raw	RAC		0.10	-	NC	-	1.27	-	0.13	-	0.21	-	0.10	-
VL 0473	Watercress, raw	RAC		0.35	-	3.13	-	0.32	-	NC	-	NC	-	2.30	-
VL 0474	Dandelion leaves, raw	RAC		0.10	-	0.10	-	NC	-	NC	-	0.10	-	0.24	-
VL 0476	Endive, raw (i.e. scarole)	RAC		0.21	-	0.93	-	NC	-	0.30	-	2.14	-	0.14	-
VL 0478	Indian mustard (Amsoi) (i.e. Brassica)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0479	Japanese greens, raw (i.e. Chrysanthemum)	RAC		NC	-	NC	-	NC	-	0.32	-	NC	-	0.10	-
VL 0480	Kale, raw (i.e. collards) (i.e. Brassica)	RAC		NC	-	NC	-	14.54	-	NC	-	NC	-	2.32	-
VL 0481	Komatsuna, raw (i.e. Brassica)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0482	Lettuce, head, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0483	Lettuce, leaf, raw	RAC	0.013	14.50	0.18	11.76	0.15	13.14	0.17	19.50	0.25	4.81	0.06	2.23	0.03
VL 0485	Mustard greens, raw (i.e. Brassica)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	0.13	-
VL 0492	Purslane, raw	RAC		0.10	-	NC	-	NC	-	NC	-	NC	-	0.10	-
VL 0494	Radish leaves, raw	RAC		NC	-	NC	-	NC	-	3.78	-	NC	-	0.48	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day	Intake as ug/person/day										
				G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
VL 0495	Rape greens, raw (i.e. Brassica)	RAC		NC	-	NC	-	1.93	-	NC	-	NC	-	0.12	-
VL 0496	Rucola, raw (i.e. arrugula, rocket salad, roquette)	RAC		NC	-	NC	-	NC	-	1.09	-	0.38	-	2.40	-
VL 0501	Sowthistle, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0502	Spinach, raw	RAC		2.20	-	1.76	-	13.38	-	2.94	-	5.53	-	0.10	-
VL 0503	Indian spinach, raw (i.e. vine spinach)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	0.10	-
VL 0504	Tannia leaves, raw (i.e. taioba)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	0.33	-
VL 0505	Taro leaves, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0506	Turnip greens, raw (i.e. Namenia, Tendergreen)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0507	Kang kung, raw (i.e. water spinach)	RAC		NC	-	NC	-	3.42	-	NC	-	NC	-	NC	-
VL 0510	Cos lettuce, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Perilla leaves, raw (i.e. sesame leaves)	RAC		NC	-	NC	-	NC	-	2.23	-	NC	-	0.29	-
-	Bracken, raw (i.e. ferns)	RAC		NC	-	NC	-	NC	-	1.55	-	NC	-	0.20	-
-	Water parsley, raw	RAC		NC	-	NC	-	NC	-	1.79	-	NC	-	NC	-
-	Chinese cabbage flowering stalk, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
014	LEGUME VEGETABLES	-		-	-	-	-	-	-	-	-	-	-	-	-
VP 0060	Legume vegetables, raw	RAC		18.21	-	8.91	-	7.22	-	10.04	-	23.22	-	0.17	-
VP 0061	Beans, green, with pods, raw: beans except broad bean & soya bean (i.e. immature seeds + pods) (Phaseolus spp)	RAC	0.32	5.07	1.62	0.83	0.27	0.17	0.05	3.70	1.18	NC	-	NC	-
VP 0062	Beans, green, without pods, raw: beans except broad bean & soya bean (i.e. immature seeds only) (Phaseolus spp..)	RAC		2.21	-	5.25	-	4.17	-	1.61	-	16.95	-	0.17	-
VP 0063	Peas green, with pods, raw (i.e. immature seeds + pods) (Pisum spp)	RAC	0.44	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VP 0064	Peas, green, without pods, raw (i.e. immature seeds only) (Pisum spp)	RAC	0.42	10.72	4.50	1.99	0.84	2.72	1.14	4.26	1.79	4.23	1.78	NC	-
VP 0520	Bambara groundnut, green, without pods (i.e. immature seeds only) (Voandzeia spp)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VP 0522	Broad bean, green, with pods (i.e. immature seeds + pods) (Vicia spp)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VP 0523	Broad beans, green, without pods, raw (i.e. immature seeds only) (Vicia faba)	RAC		0.22	-	0.84	-	0.15	-	0.48	-	2.04	-	NC	-
VP 0541	Soya bean, green, without pods, raw (i.e.	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

			STMR	Diets as g/person/day	Intake as ug/person/day										
Codex Code	Commodity description	Expr as	mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
	immature seeds only) (Glycine max)														
VP 0542	Sword bean, green, with pods (i.e. immature seeds + pods) (Canavalia spp)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VP 0553	Lentil, green, with pods (i.e. immature seeds + pods) (Lens spp)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
015	PULSES	-		-	-	-	-	-	-	-	-	-	-	-	-
VD 0070	Pulses, raw (incl processed)	RAC		112.88	-	123.05	-	47.15	-	204.64	-	227.37	-	109.11	-
VD 0070	Pulses, raw (incl processed), excl soya bean commodities	RAC		6.54	-	5.27	-	5.03	-	8.94	-	4.84	-	28.65	-
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	2.4	1.51	3.65	1.50	3.62	1.90	4.59	5.11	12.34	1.36	3.28	23.43	56.58
VD 0072	Peas, dry, raw (Pisum spp, Vigna spp): garden peas & field peas & cow peas	RAC	0.40	3.80	1.52	1.25	0.50	1.06	0.42	2.33	0.93	2.70	1.08	3.83	1.53
VD 0520	Bambara beans, dry, raw (Voandzeia subterranea)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VD 0523	Broad bean, dry, raw (incl horse-bean, broad bean, field bean) (Vicia faba)	RAC		0.10	-	0.10	-	1.16	-	0.40	-	NC	-	0.10	-
VD 0524	Chick-pea, dry, raw (Cicer arietinum)	RAC		0.27	-	1.33	-	0.32	-	0.15	-	0.10	-	0.10	-
VD 0531	Hyacinth bean (dry) (Lablab spp), raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VD 0533	Lentil, dry, raw (Ervum lens)	RAC		0.95	-	1.18	-	0.40	-	0.96	-	0.71	-	1.28	-
VD 0537	Pigeon pea dry, raw (Cajanus cajan)	RAC		NC	-	NC	-	0.20	-	NC	-	NC	-	NC	-
VD 0541	Soya bean, dry, raw (incl paste, incl curd, incl oil, incl sauce)	RAC		106.33	-	117.78	-	42.12	-	195.70	-	222.52	-	80.47	-
VD 0541	Soya bean, dry, raw (incl flour, incl paste, incl curd, incl oil, excl sauce)	RAC		106.15	-	117.67	-	40.94	-	193.94	-	222.48	-	80.19	-
VD 0541	Soya bean, dry, raw (incl flour, incl paste, incl curd, incl sauce, excl oil)	RAC		0.47	-	0.77	-	9.12	-	8.05	-	0.10	-	6.06	-
VD 0541	Soya bean, dry, raw (incl flour, incl paste, incl oil, incl sauce, excl curd)	RAC		106.33	-	117.78	-	41.17	-	194.48	-	222.52	-	80.47	-
VD 0541	Soya bean, dry, raw (incl flour, incl curd, incl oil, incl sauce, excl paste)	RAC		106.33	-	117.78	-	42.12	-	194.76	-	222.52	-	80.47	-
VD 0541	Soya bean, dry, raw (incl flour, incl paste, incl curd, excl oil, excl sauce)	RAC		0.28	-	0.65	-	7.93	-	6.30	-	NC	-	5.78	-
VD 0541	Soya bean, dry, raw (incl flour, incl paste, incl oil, excl sauce, excl curd)	RAC		106.15	-	117.67	-	39.99	-	192.73	-	222.48	-	80.19	-
VD 0541	Soya bean, dry, raw (incl flour, incl paste,	RAC		0.47	-	0.77	-	8.17	-	6.84	-	0.10	-	6.06	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

			STMR	Diets as g/person/day	Intake as ug/person/day										
Codex Code	Commodity description	Expr as	mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
	incl sauce, excl curd, excl oil)														
VD 0541	Soya bean, dry, raw (incl flour,incl curd, incl oil, excl sauce, excl paste)	RAC		106.15	-	117.67	-	40.94	-	193.01	-	222.48	-	80.19	-
VD 0541	Soya bean, dry, raw (incl flour, incl curd, incl sauce, excl paste, excl oil)	RAC		0.47	-	0.77	-	9.12	-	7.12	-	0.10	-	6.06	-
VD 0541	Soya bean, dry, raw (incl flour, incl oil, incl sauce, excl paste, excl curd)	RAC		106.33	-	117.78	-	41.17	-	193.55	-	222.52	-	80.47	-
VD 0541	Soya bean, dry, raw (incl flour, incl paste, excl curd, excl oil, excl sauce)	RAC		0.28	-	0.65	-	6.98	-	5.08	-	NC	-	5.78	-
VD 0541	Soya bean, dry, raw (incl flour, incl curd, excl oil, excl paste, excl sauce)	RAC		0.28	-	0.65	-	7.93	-	5.36	-	NC	-	5.78	-
VD 0541	Soya bean, dry, raw (incl flour, incl oil, excl paste, excl curd, excl sauce)	RAC		106.15	-	117.67	-	39.99	-	191.80	-	222.48	-	80.19	-
VD 0541	Soya bean, dry, raw (incl flour, incl sauce, excl paste, excl curd, excl oil)	RAC		0.47	-	0.77	-	8.17	-	5.90	-	0.10	-	6.06	-
VD 0541	Soya bean, dry, raw (Glycine soja)	RAC	2.9	0.10	0.29	0.33	0.97	6.64	19.52	3.94	11.58	NC	-	5.78	16.99
-	Soya paste (i.e. miso)	PP	2.9	NC	-	NC	-	NC	-	1.87	5.50	NC	-	NC	-
-	Soya curd (i.e. tofu)	PP	2.9	NC	-	NC	-	0.68	2.00	0.87	2.56	NC	-	NC	-
OR 0541	Soya oil, refined	PP	2.4	19.06	45.74	21.06	50.54	5.94	14.26	33.78	81.07	40.05	96.12	13.39	32.14
-	Soya sauce	PP	2.9	0.45	1.32	0.29	0.85	2.93	8.61	4.35	12.79	0.10	0.29	0.70	2.06
-	Soya flour	PP	3.2	0.22	0.70	0.27	0.86	0.29	0.93	0.17	0.54	NC	-	NC	-
-	Pulses, NES, dry, raw: lablab or hyacinth bean, jack or sword bean, winged bean, guar bean, velvet bean, yam bean (Dolichos spp., Canavalia spp., Psophocarpus tetragonolobus, Cyamopsis tetragonoloba, Stizolobium spp., Pachyrrhizus erosus)	RAC		0.10	-	NC	-	0.57	-	0.11	-	0.16	-	0.94	-
-	Mung bean sprouts	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Soybean sprouts	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
016	ROOT AND TUBER VEGETABLES	-		-	-	-	-	-	-	-	-	-	-	-	-
VR 0075	Root and tuber vegetables, raw (incl processed)	RAC		290.31	-	300.35	-	214.25	-	242.72	-	348.67	-	137.52	-
VR 0463	Cassava raw (incl starch, incl tapioca, incl flour)	RAC		0.10	-	NC	-	20.96	-	0.14	-	NC	-	9.62	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

			STMR	Diets as g/person/day	Intake as ug/person/day										
Codex Code	Commodity description	Expr as	mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
VR 0463	Cassava raw (incl starch, incl flour, excl tapioca)	RAC		0.10	-	NC	-	17.67	-	0.10	-	NC	-	9.62	-
VR 0463	Cassava raw (incl starch, incl tapioca, excl flour)	RAC		NC	-	NC	-	19.91	-	0.13	-	NC	-	9.62	-
VR 0463	Cassava raw (incl tapioca, incl flour, excl starch)	RAC		0.10	-	NC	-	20.96	-	0.14	-	NC	-	9.62	-
VR 0463	Cassava raw (incl starch, excl tapioca, excl flour)	RAC		NC	-	NC	-	16.62	-	NC	-	NC	-	9.62	-
VR 0463	Cassava raw (incl tapioca, excl flour, excl starch)	RAC		NC	-	NC	-	19.90	-	0.13	-	NC	-	9.62	-
VR 0463	Cassava raw (incl flour, excl tapioca, excl starch)	RAC		0.10	-	NC	-	17.67	-	0.10	-	NC	-	9.62	-
VR 0463	Cassava, raw	RAC		NC	-	NC	-	16.61	-	NC	-	NC	-	9.62	-
-	Cassava, flour	PP		0.10	-	NC	-	0.29	-	0.10	-	NC	-	NC	-
-	Cassava, starch	PP		NC	-	NC	-	0.10	-	NC	-	NC	-	NC	-
-	Cassava, tapioca	PP		NC	-	NC	-	0.92	-	0.10	-	NC	-	NC	-
VR 0469	Chicory, roots, raw	RAC		0.10	-	0.51	-	0.10	-	0.10	-	21.12	-	NC	-
VR 0494	Radish roots, raw	RAC		3.83	-	11.99	-	NC	-	5.26	-	2.19	-	4.37	-
VR 0497	Swede, raw (i.e. rutabaga)	RAC	1.3	10.01	12.59	1.66	2.09	NC	-	NC	-	3.06	3.85	2.99	3.76
VR 0498	Salsify, raw (i.e. oysterplant)	RAC		1.02	-	0.52	-	NC	-	NC	-	2.08	-	0.39	-
VR 0504	Tannia, raw (i.e. yautia)	RAC		NC	-	NC	-	NC	-	0.10	-	NC	-	10.74	-
VR 0505	Taro, raw	RAC		NC	-	NC	-	1.93	-	0.84	-	NC	-	19.94	-
VR 0506	Garden turnip, raw	RAC	1.3	5.78	7.27	15.35	19.31	NC	-	6.54	8.23	1.95	2.45	4.73	5.95
VR 0508	Sweet potato, raw (incl dried)	RAC	1.0	0.93	0.93	0.32	0.32	64.65	64.92	5.37	5.39	0.30	0.30	3.13	3.14
VR 0573	Arrowroot, raw	RAC		0.10	-	0.10	-	2.05	-	0.21	-	NC	-	0.76	-
VR 0574	Beetroot, raw	RAC		9.91	-	6.34	-	NC	-	9.65	-	19.11	-	6.47	-
VR 0575	Burdock, greater or edible, raw	RAC		NC	-	NC	-	NC	-	0.48	-	NC	-	0.10	-
VR 0577	Carrots, raw	RAC	0.18	26.26	4.61	27.13	4.76	10.07	1.77	16.49	2.89	44.69	7.84	8.75	1.54
VR 0578	Celeriac, raw	RAC	0.12	2.97	0.35	1.79	0.21	NC	-	0.10	0.01	16.91	1.98	3.22	0.38
VR 0583	Horseradish, raw	RAC		0.10	-	0.42	-	13.01	-	0.26	-	2.70	-	0.97	-
VR 0585	Jerusalem artichoke, raw (i.e. topinambur)	RAC		0.11	-	0.10	-	NC	-	0.22	-	NC	-	0.78	-
VR 0587	Parsley turnip-rooted, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	0.61	-
VR 0588	Parsnip, raw	RAC		4.42	-	0.10	-	NC	-	NC	-	NC	-	1.12	-
VR 0589	Potato, raw (incl flour, incl frozen, incl	RAC	0.098	225.03	21.94	234.24	22.84	71.48	6.97	177.55	17.31	234.55	22.87	37.71	3.68

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G07 diet	Intake as ug/person/day G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
	starch, incl tapioca)														
VR 0589	Potato, raw (incl flour, incl frozen, incl tapioca, excl starch)	RAC		225.03	-	226.35	-	71.26	-	173.36	-	234.55	-	37.71	-
VR 0589	Potato, raw (incl flour, incl starch, incl tapioca, excl frozen)	RAC		206.74	-	225.92	-	71.05	-	172.16	-	221.86	-	25.62	-
VR 0589	Potato, raw (incl frozen, incl starch, incl tapioca, excl flour)	RAC		221.34	-	232.04	-	70.64	-	176.43	-	227.39	-	37.41	-
VR 0589	Potato, raw (incl frozen, incl starch, incl flour, excl tapioca)	RAC		224.88	-	234.24	-	71.47	-	177.31	-	234.26	-	37.71	-
VR 0589	Potato, raw (incl flour, incl tapioca, excl frozen, excl starch)	RAC		206.74	-	218.03	-	70.83	-	167.97	-	221.86	-	25.62	-
VR 0589	Potato, raw (incl frozen, incl tapioca, excl flour, excl starch)	RAC		221.34	-	224.14	-	70.42	-	172.24	-	227.39	-	37.41	-
VR 0589	Potato, raw (incl frozen, incl flour, excl tapioca, excl starch)	RAC		224.88	-	226.35	-	71.26	-	173.12	-	234.26	-	37.71	-
VR 0589	Potato, raw (incl starch, incl tapioca, excl flour, excl frozen)	RAC		203.05	-	223.72	-	70.20	-	171.04	-	214.70	-	25.32	-
VR 0589	Potato, raw (incl frozen, incl starch, excl tapioca, excl flour)	RAC		221.19	-	232.03	-	70.63	-	176.19	-	227.10	-	37.41	-
VR 0589	Potato, raw (incl flour, incl starch, excl frozen, excl tapioca)	RAC		206.59	-	225.92	-	71.04	-	171.92	-	221.57	-	25.62	-
VR 0589	Potato, raw (incl starch, excl tapioca, excl flour, excl frozen)	RAC		202.90	-	223.72	-	70.20	-	170.80	-	214.41	-	25.32	-
VR 0589	Potato, raw (incl frozen, excl starch, excl tapioca, excl flour)	RAC		221.19	-	224.14	-	70.42	-	172.00	-	227.10	-	37.41	-
VR 0589	Potato, raw (incl flour, excl starch, excl frozen, excl tapioca)	RAC		206.59	-	218.03	-	70.83	-	167.73	-	221.57	-	25.62	-
VR 0589	Potato, raw (incl tapioca, excl starch, excl frozen, excl flour)	RAC		203.05	-	215.83	-	69.99	-	166.85	-	214.70	-	25.32	-
VR 0589	Potato, raw	RAC		202.90	-	215.82	-	69.98	-	166.61	-	214.41	-	25.32	-
-	Potato, flour	PP		0.81	-	0.48	-	0.19	-	0.25	-	1.57	-	0.10	-
-	Potato, frozen	PP		9.51	-	4.33	-	0.23	-	2.80	-	6.60	-	6.29	-
-	Potato, starch	PP		NC	-	1.74	-	0.10	-	0.92	-	NC	-	NC	-
-	Potato, tapioca	PP		0.10	-	0.10	-	0.10	-	0.10	-	0.10	-	NC	-
VR 0590	Black radish, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day			Intake as ug/person/day								
VR 0591	Japanese radish, raw (i.e. daikon)	RAC		NC	-	NC	-	26.64	-	18.92	-	NC	-	3.59	-
VR 0596	Sugar beet, raw (incl sugar)	RAC		0.10	-	NC	-	0.10	-	0.10	-	NC	-	NC	-
VR 0596	Sugar beet, raw	RAC	0.19	0.10	0.02	NC	-	0.10	0.02	0.10	0.02	NC	-	NC	-
-	Sugar beet, sugar	PP	0.066	0.10	0.01	NC	-	0.10	0.01	NC	-	NC	-	NC	-
VR 0600	Yams, raw (incl dried)	RAC	1.0	NC	-	NC	-	0.10	0.10	0.71	0.71	NC	-	17.57	17.64
-	Lotus root, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Water chestnut, raw	RAC		NC	-	NC	-	3.42	-	NC	-	NC	-	NC	-
017	STALK AND STEM VEGETABLES	-		-	-	-	-	-	-	-	-	-	-	-	-
-	Stalk and stem vegetables, raw	RAC		14.07	-	16.53	-	72.50	-	8.41	-	29.43	-	10.06	-
VS 0469	Witloof chicory (sprouts)	RAC		1.50	-	0.95	-	NC	-	1.84	-	0.65	-	0.13	-
VS 0620	Artichoke globe	RAC		0.98	-	3.65	-	0.10	-	1.67	-	0.26	-	NC	-
VS 0621	Asparagus	RAC		0.84	-	2.08	-	7.11	-	1.01	-	1.69	-	0.10	-
VS 0622	Bamboo shoots	RAC		0.92	-	0.55	-	61.79	-	NC	-	1.72	-	3.26	-
VS 0623	Cardoon	RAC		0.10	-	3.49	-	NC	-	0.10	-	NC	-	0.46	-
VS 0624	Celery	RAC		7.68	-	2.85	-	NC	-	3.34	-	16.83	-	4.04	-
VS 0626	Palm hearts	RAC		0.51	-	0.73	-	3.54	-	0.10	-	0.66	-	0.75	-
VS 0627	Rhubarb	RAC		1.61	-	2.23	-	NC	-	0.52	-	7.63	-	1.39	-
020	CEREAL GRAINS	-		-	-	-	-	-	-	-	-	-	-	-	-
GC 0080	Cereal grains, raw, (incl processed)	RAC		345.63	-	386.16	-	514.33	-	402.72	-	295.30	-	359.97	-
GC 0080	Cereal grains, raw (incl processed), excl rice commodities	RAC		324.67	-	370.12	-	174.66	-	327.21	-	278.45	-	273.84	-
GC 0640	Barley, raw (incl malt extract, incl pot&pearled, incl flour & grits, incl beer, incl malt)	RAC		36.18	-	53.45	-	9.39	-	35.25	-	46.68	-	15.92	-
GC 0640	Barley, raw (incl malt extract, incl pot&pearled, incl flour & grits, incl beer, excl malt)	RAC		35.93	-	53.45	-	9.33	-	35.14	-	46.68	-	13.03	-
GC 0640	Barley, raw (incl malt extract, incl pot&pearled, incl flour & grits, incl malt, excl beer)	RAC		1.94	-	4.15	-	0.66	-	2.50	-	2.14	-	3.52	-
GC 0640	Barley, raw (incl malt extract, incl pot&pearled, incl beer, incl malt, excl flour & grits)	RAC		36.04	-	53.39	-	9.38	-	35.17	-	45.43	-	15.82	-
GC 0640	Barley, raw (incl malt extract, incl flour & grits, incl beer, incl malt, excl	RAC		35.31	-	49.50	-	8.87	-	34.39	-	46.12	-	15.92	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

			STMR	Diets as g/person/day		Intake as ug/person/day									
Codex Code	Commodity description	Expr as	mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
	pot&pearled)														
GC 0640	Barley, raw (incl malt extract, incl pot&pearled, incl flour & grits, excl beer, excl malt)	RAC		1.69	-	4.15	-	0.60	-	2.39	-	2.14	-	0.63	-
GC 0640	Barley, raw (incl malt extract, incl pot&pearled, incl beer, excl flour & grits, excl malt)	RAC		35.79	-	53.39	-	9.32	-	35.06	-	45.43	-	12.94	-
GC 0640	Barley, raw (incl malt extract, incl pot&pearled, incl malt, excl flour & grits, excl beer,)	RAC		1.50	-	2.71	-	0.48	-	2.12	-	0.69	-	3.42	-
GC 0640	Barley, raw (incl malt extract, incl flour & grits, incl beer, excl pot&pearled, excl malt)	RAC		35.06	-	49.50	-	8.81	-	34.28	-	46.12	-	13.03	-
GC 0640	Barley, raw (incl malt extract, incl flour & grits, incl malt, excl pot&pearled, excl beer)	RAC		1.07	-	0.21	-	0.15	-	1.64	-	1.58	-	3.52	-
GC 0640	Barley, raw (incl malt extract, incl beer, incl malt, excl pot&pearled, excl flour & grits)	RAC		35.17	-	49.45	-	8.86	-	34.31	-	44.87	-	15.82	-
GC 0640	Barley, raw (incl malt extract, incl pot&pearled, excl flour & grits, excl beer, excl malt)	RAC		1.55	-	4.09	-	0.59	-	2.31	-	0.88	-	0.53	-
GC 0640	Barley, raw (incl malt extract, incl flour & grits, excl pot&pearled, excl beer, excl malt)	RAC		0.82	-	0.21	-	0.10	-	1.53	-	1.58	-	0.63	-
GC 0640	Barley, raw (incl malt extract, incl beer, excl pot&pearled, excl flour&grits, excl malt)	RAC		34.92	-	49.45	-	8.80	-	34.20	-	44.87	-	12.94	-
GC 0640	Barley, raw (incl malt extract, incl malt, excl pot&pearled, excl flour & grits,excl beer)	RAC		0.93	-	0.15	-	0.14	-	1.56	-	0.33	-	3.42	-
GC 0640	Barley, raw	RAC		0.10	-	NC	-	0.10	-	1.36	-	NC	-	NC	-
-	Barley, pot&pearled	PP		0.57	-	2.56	-	0.33	-	0.56	-	0.36	-	NC	-
-	Barley, flour (white flour and wholemeal flour)	PP		0.10	-	0.10	-	0.10	-	0.10	-	0.68	-	0.10	-
-	Barley beer	PP		180.21	-	259.46	-	45.91	-	172.36	-	234.42	-	65.30	-
-	Barley Malt	PP		0.19	-	NC	-	0.10	-	0.10	-	NC	-	2.14	-
-	Barley Malt Extract	PP		0.37	-	0.10	-	0.10	-	0.10	-	0.18	-	0.29	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day		Intake as ug/person/day									
GC 0641	Buckwheat, raw (incl flour)	RAC		0.10	-	0.79	-	0.18	-	0.35	-	NC	-	NC	-
GC 0641	Buckwheat, raw	RAC		0.10	-	0.10	-	0.10	-	0.10	-	NC	-	NC	-
-	Buckwheat, flour (white flour and wholemeal flour)	PP		NC	-	0.60	-	0.14	-	0.27	-	NC	-	NC	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl oil, incl beer, incl germ, incl starch)	RAC		18.51	-	26.18	-	26.04	-	39.99	-	7.36	-	64.58	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl oil, incl beer, incl germ, excl starch)	RAC		18.51	-	26.18	-	25.73	-	28.68	-	7.36	-	64.58	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl oil, incl beer, incl starch, excl germ)	RAC		18.51	-	26.18	-	26.04	-	39.99	-	7.36	-	64.57	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl oil, incl germ, incl starch, excl beer)	RAC		18.51	-	26.18	-	26.04	-	39.61	-	7.36	-	64.58	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl beer, incl germ, incl starch, excl oil)	RAC		17.61	-	25.71	-	25.89	-	36.98	-	5.49	-	64.23	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl oil, incl beer, incl germ, incl starch, excl flour)	RAC		0.99	-	10.40	-	1.86	-	24.59	-	2.19	-	0.41	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl oil, incl beer, excl germ, excl starch)	RAC		18.51	-	26.18	-	25.73	-	28.68	-	7.36	-	64.57	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl oil, incl germ, excl beer, excl starch)	RAC		18.51	-	26.18	-	25.73	-	28.30	-	7.36	-	64.58	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl oil, incl starch, excl beer, excl germ)	RAC		18.51	-	26.18	-	26.04	-	39.61	-	7.36	-	64.57	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl beer, incl germ, excl starch, excl oil)	RAC		17.61	-	25.71	-	25.58	-	25.66	-	5.49	-	64.23	-
GC 0645	Maize, raw (incl glucose & dextrose &	RAC		17.61	-	25.71	-	25.89	-	36.98	-	5.49	-	64.21	-

Annex 3

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day			Intake as ug/person/day								
	isoglucose, incl flour, incl beer, incl starch, excl oil, excl germ)														
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl germ, incl starch, excl oil, excl beer)	RAC		17.61	-	25.71	-	25.89	-	36.60	-	5.49	-	64.23	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl oil, incl beer, incl germ, excl starch, excl flour)	RAC		0.99	-	10.40	-	1.55	-	13.27	-	2.19	-	0.41	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl starch, incl oil, incl beer, excl germ, excl flour)	RAC		0.99	-	10.40	-	1.86	-	24.59	-	2.19	-	0.40	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl oil, incl germ, incl starch, excl flour, excl beer)	RAC		0.99	-	10.40	-	1.86	-	24.21	-	2.19	-	0.41	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl beer, incl germ, incl starch, excl flour, excl oil)	RAC		0.10	-	9.93	-	1.71	-	21.57	-	0.33	-	0.10	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl oil, excl beer, excl germ, excl starch)	RAC		18.51	-	26.18	-	25.73	-	28.30	-	7.36	-	64.57	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl beer, excl germ, excl starch, excl oil)	RAC		17.61	-	25.71	-	25.58	-	25.66	-	5.49	-	64.21	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl germ, excl starch, excl oil, excl beer)	RAC		17.61	-	25.71	-	25.58	-	25.29	-	5.49	-	64.23	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl starch, excl oil, excl beer, excl germ)	RAC		17.61	-	25.71	-	25.89	-	36.60	-	5.49	-	64.21	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl oil, incl beer, excl flour, excl germ, excl starch)	RAC		0.99	-	10.40	-	1.55	-	13.27	-	2.19	-	0.40	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl oil, incl germ, excl flour, excl beer, excl starch)	RAC		0.99	-	10.40	-	1.55	-	12.89	-	2.19	-	0.41	-

Annex 3

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day			Intake as ug/person/day								
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl starch, incl oil, excl beer, excl germ, excl flour)	RAC		0.99	-	10.40	-	1.86	-	24.21	-	2.19	-	0.40	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl beer, incl germ, excl flour, excl oil, excl starch)	RAC		0.10	-	9.93	-	1.40	-	10.26	-	0.33	-	0.10	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl beer, incl starch, excl flour, excl oil, excl germ)	RAC		0.10	-	9.93	-	1.71	-	21.57	-	0.33	-	0.10	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl germ, incl starch, excl flour, excl oil, excl beer)	RAC		0.10	-	9.93	-	1.71	-	21.20	-	0.33	-	0.10	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, excl oil, excl beer, excl germ, excl starch)	RAC		17.61	-	25.71	-	25.58	-	25.29	-	5.49	-	64.21	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl oil, excl flour, excl beer,excl germ, excl starch)	RAC		0.99	-	10.40	-	1.55	-	12.89	-	2.19	-	0.40	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl beer, excl flour, excl oil, excl germ, excl starch)	RAC		0.10	-	9.93	-	1.40	-	10.26	-	0.33	-	0.10	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl germ, excl flour, excl oil, excl beer, excl starch)	RAC		0.10	-	9.93	-	1.40	-	9.88	-	0.33	-	0.10	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl starch, excl flour, excl oil, excl beer, excl germ)	RAC		0.10	-	9.93	-	1.71	-	21.20	-	0.33	-	0.10	-
GC 0645	Maize, raw	RAC		NC	-	NC	-	1.35	-	NC	-	NC	-	NC	-
GC 0656	Popcorn (i.e. maize used for preparation of popcorn)	RAC		-	-	-	-	-	-	-	-	-	-	-	-
CF 1255	Maize, flour (white flour and wholemeal flour)	PP		14.27	-	12.86	-	19.71	-	12.55	-	4.21	-	52.30	-
-	Maize, germ	PP		0.10	-	NC	-	NC	-	0.10	-	NC	-	0.10	-
-	Maize starch	PP		NC	-	NC	-	0.19	-	7.13	-	NC	-	NC	-
-	Maize, glucose, isoglucose and Dextrose	PP		0.10	-	9.93	-	0.10	-	9.88	-	0.33	-	0.10	-

Annex 3

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

			STMR	Diets as g/person/day	Intake as ug/person/day										
Codex Code	Commodity description	Expr as	mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
-	Maize beer	PP		NC	-	NC	-	NC	-	1.99	-	NC	-	NC	-
OR 0645	Maize oil	PP		0.90	-	0.47	-	0.15	-	3.01	-	1.86	-	0.36	-
GC 0646	Millet, raw (incl flour, incl beer)	RAC		0.10	-	0.16	-	1.75	-	0.69	-	NC	-	NC	-
GC 0646	Millet, raw (incl flour, excl beer)	RAC		0.10	-	0.16	-	1.75	-	0.69	-	NC	-	NC	-
GC 0646	Millet, raw (incl beer, excl flour)	RAC		0.10	-	0.16	-	0.10	-	NC	-	NC	-	NC	-
GC 0646	Millet, raw	RAC		0.10	-	0.16	-	0.10	-	NC	-	NC	-	NC	-
-	Millet, flour (white flour and wholemeal flour)	PP		NC	-	NC	-	1.54	-	0.62	-	NC	-	NC	-
-	Millet beer	PP		NC	-	NC	-	0.10	-	NC	-	NC	-	NC	-
GC 0647	Oats, raw (incl rolled)	RAC		7.50	-	6.26	-	0.15	-	4.87	-	3.16	-	2.98	-
GC 0647	Oats, raw	RAC		NC	-	NC	-	0.10	-	0.10	-	NC	-	0.23	-
GC 0647	Oats, rolled (i.e. oatmeal dry)	PP		4.12	-	3.44	-	0.10	-	2.67	-	1.74	-	1.51	-
GC 0648	Quinoa, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl flour, incl starch, incl oil, incl beverages)	REP		20.96	-	16.04	-	339.67	-	75.51	-	16.86	-	86.13	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl flour, incl oil, incl beverages, excl starch)	REP		20.96	-	16.04	-	339.66	-	75.51	-	16.86	-	86.12	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl flour, incl oil, incl starch, excl beverages)	REP		20.96	-	16.04	-	339.67	-	74.98	-	16.86	-	86.13	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl flour, incl beverages, incl starch, excl oil)	REP		20.96	-	16.04	-	339.52	-	75.41	-	16.86	-	86.13	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl oil, incl beverages, incl starch, excl flour)	REP		19.69	-	15.55	-	338.75	-	75.45	-	16.56	-	86.04	-
CM 0649 (GC 0649)	Rice, husked, dry (incl flour, incl oil, incl beverages, incl starch, excl polished)	REP		3.70	-	2.11	-	1.51	-	1.75	-	0.29	-	5.12	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl flour, incl oil, excl beverages, excl starch)	REP		20.96	-	16.04	-	339.66	-	74.98	-	16.86	-	86.12	-
CM 0649	Rice, husked, dry (incl polished, incl flour,	REP		20.96	-	16.04	-	339.51	-	75.41	-	16.86	-	86.12	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G07 diet	Intake as ug/person/day G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
(GC 0649)	incl beverages, excl oil, excl starch)														
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl flour, incl starch, excl oil, excl beverages,)	REP		20.96	-	16.04	-	339.52	-	74.88	-	16.86	-	86.13	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl oil, incl beverages, excl flour, excl starch)	REP		19.69	-	15.55	-	338.74	-	75.45	-	16.56	-	86.03	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl oil, incl starch, excl flour, excl beverages)	REP		19.69	-	15.55	-	338.74	-	74.92	-	16.56	-	86.04	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl beverages, incl starch, excl flour, excl oil)	REP		19.69	-	15.55	-	338.60	-	75.35	-	16.56	-	86.04	-
CM 0649 (GC 0649)	Rice, husked, dry (incl flour, incl oil, incl starch, excl beverages, excl polished)	REP		3.70	-	2.11	-	1.50	-	1.22	-	0.29	-	5.12	-
CM 0649 (GC 0649)	Rice, husked, dry (incl flour, incl starch, incl beverages, excl polished, excl oil)	REP		3.70	-	2.11	-	1.36	-	1.65	-	0.29	-	5.12	-
CM 0649 (GC 0649)	Rice, husked, dry (incl oil, incl beverages, incl starch, excl polished, excl flour)	REP		2.43	-	1.62	-	0.58	-	1.69	-	NC	-	5.03	-
CM 0649 (GC 0649)	Rice, husked, dry (incl flour, incl oil, incl beverages, excl polished, excl starch)	REP		3.70	-	2.11	-	1.50	-	1.75	-	0.29	-	5.11	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl flour, excl oil, excl beverages, excl starch)	REP		20.96	-	16.04	-	339.51	-	74.88	-	16.86	-	86.12	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl oil, excl flour, excl beverages, excl starch)	REP		19.69	-	15.55	-	338.73	-	74.92	-	16.56	-	86.03	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl starch, excl oil, excl beverages, excl flour)	REP		19.69	-	15.55	-	338.59	-	74.82	-	16.56	-	86.04	-

Annex 3

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

			STMR	Diets as g/person/day	Intake as ug/person/day										
Codex Code	Commodity description	Expr as	mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl beverages, excl flour, excl oil, excl starch)	REP		19.69	-	15.55	-	338.59	-	75.35	-	16.56	-	86.03	-
CM 0649 (GC 0649)	Rice, husked, dry (incl flour, incl starch, excl polished, excl oil, excl beverages)	REP		3.70	-	2.11	-	1.35	-	1.12	-	0.29	-	5.12	-
CM 0649 (GC 0649)	Rice, husked, dry (incl flour, incl oil, excl polished,excl beverages, excl starch)	REP		3.70	-	2.11	-	1.49	-	1.22	-	0.29	-	5.11	-
CM 0649 (GC 0649)	Rice, husked, dry (incl flour, incl beverages, excl polished, excl oil, excl starch)	REP		3.70	-	2.11	-	1.35	-	1.65	-	0.29	-	5.11	-
CM 0649 (GC 0649)	Rice, husked, dry (incl oil, incl beverages, excl polished, excl flour, excl starch)	REP		2.43	-	1.62	-	0.57	-	1.69	-	NC	-	5.02	-
CM 0649 (GC 0649)	Rice, husked, dry (incl oil, incl starch, excl polished, excl flour, excl beverages)	REP		2.43	-	1.62	-	0.58	-	1.16	-	NC	-	5.03	-
CM 0649 (GC 0649)	Rice, husked, dry (incl beverages, incl starch, excl polished, excl flour, excl oil)	REP		2.43	-	1.62	-	0.43	-	1.59	-	NC	-	5.03	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, excl flour, excl oil, excl beverages, excl starch)	REP		19.69	-	15.55	-	338.58	-	74.82	-	16.56	-	86.03	-
CM 0649 (GC 0649)	Rice, husked, dry (incl flour, excl polished, excl oil, excl beverages, excl starch)	REP		3.70	-	2.11	-	1.34	-	1.12	-	0.29	-	5.11	-
CM 0649 (GC 0649)	Rice, husked, dry (incl oil, excl polished, excl flour, excl beverages, excl starch)	REP		2.43	-	1.62	-	0.57	-	1.16	-	NC	-	5.02	-
CM 0649 (GC 0649)	Rice, husked, dry (incl beverages, excl polished, excl flour, excl oil, excl starch)	REP		2.43	-	1.62	-	0.42	-	1.59	-	NC	-	5.02	-
CM 0649 (GC	Rice, husked, dry (incl starch, excl polished, excl flour, excl oil, excl beverages)	REP		2.43	-	1.62	-	0.43	-	1.06	-	NC	-	5.03	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G07 diet	G07 intake	G08 diet	Intake as ug/person/day G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
0649)															
CM 0649 (GC 0649)	Rice, husked, dry (incl paddy rice)	REP		2.43	-	1.62	-	0.42	-	1.06	-	NC	-	5.02	-
CM 1205	Rice polished, dry	PP		13.38	-	10.80	-	262.08	-	57.16	-	12.83	-	62.78	-
-	Rice flour	PP		0.98	-	0.38	-	0.72	-	0.10	-	0.23	-	0.10	-
-	Rice, starch	PP		NC	-	NC	-	0.10	-	NC	-	NC	-	0.10	-
-	Rice bran oil	PP		NC	-	NC	-	0.15	-	0.10	-	NC	-	NC	-
-	Rice, Fermented Beverages (rice wine, sake)	PP		NC	-	NC	-	0.10	-	2.77	-	NC	-	NC	-
GC 0650	Rye, raw (incl flour)	RAC		3.21	-	35.38	-	0.21	-	6.50	-	1.49	-	NC	-
GC 0650	Rye, raw	RAC		0.10	-	NC	-	0.10	-	0.10	-	NC	-	NC	-
CF 1250	Rye, flour (white flour and wholemeal flour)	PP		2.57	-	28.31	-	0.12	-	5.20	-	1.20	-	NC	-
GC 0651	Sorghum, raw (incl flour, incl beer)	RAC		NC	-	NC	-	1.44	-	1.15	-	NC	-	7.12	-
GC 0651	Sorghum, raw (incl flour, excl beer)	RAC		NC	-	NC	-	1.44	-	1.15	-	NC	-	7.12	-
GC 0651	Sorghum, raw (incl beer, excl flour)	RAC		NC	-	NC	-	0.10	-	1.15	-	NC	-	7.12	-
GC 0651	Sorghum, raw	RAC		NC	-	NC	-	0.10	-	1.15	-	NC	-	7.12	-
-	Sorghum, flour (white flour and wholemeal flour)	PP		NC	-	NC	-	1.29	-	0.10	-	NC	-	NC	-
-	Sorghum beer	PP		NC	-	NC	-	0.10	-	NC	-	NC	-	NC	-
GC 0653	Triticale, raw (incl flour)	RAC		0.10	-	0.17	-	0.29	-	0.10	-	NC	-	NC	-
GC 0653	Triticale, raw	RAC		NC	-	NC	-	0.10	-	0.10	-	NC	-	NC	-
GC 0653	Triticale, flour (white flour and wholemeal flour)	PP		0.10	-	0.14	-	0.23	-	NC	-	NC	-	NC	-
GC 0654	Wheat, raw (incl bulgur, incl fermented beverages, incl germ, incl wholemeal bread, incl white flour products, incl white bread)	RAC		253.07	-	244.73	-	134.44	-	235.10	-	216.39	-	167.40	-
GC 0654	Wheat, raw (incl bulgur, incl fermented beverages, incl germ, incl wholemeal bread, excl white flour products, excl white bread)	RAC		1.00	-	0.11	-	0.10	-	0.84	-	0.10	-	0.10	-
GC 0654	Wheat, raw (incl bulgur, incl fermented beverages, incl white flour products, incl white bread, excl germ, excl wholemeal bread)	RAC		253.03	-	244.72	-	134.44	-	235.10	-	216.33	-	167.38	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G07 diet	G07 intake	G08 diet	Intake as ug/person/day G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
GC 0654	Wheat, raw (incl bulgur, incl fermented beverages, excl germ, excl wholemeal bread, excl white flour products, excl white bread)	RAC		0.37	-	0.10	-	0.10	-	0.10	-	NC	-	0.10	-
GC 0654	Wheat, raw (incl meslin)	RAC		NC	-	NC	-	NC	-	0.10	-	NC	-	NC	-
-	Wheat, bulgur	PP		NC	-	NC	-	0.10	-	NC	-	NC	-	NC	-
CF 1210	Wheat, germ	PP		0.97	-	0.10	-	0.10	-	0.10	-	NC	-	0.10	-
CF 0654	Wheat, bran	PP		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1212	Wheat, wholemeal flour	PP		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CP 1212	Wheat, wholemeal bread	PP		0.10	-	0.10	-	0.10	-	0.10	-	0.10	-	0.10	-
CP 1211	Wheat, white bread	PP		1.30	-	0.46	-	0.10	-	0.22	-	2.44	-	0.77	-
-	Wheat, Fermented Beverages (Korean jakju and takju)	PP		NC	-	NC	-	NC	-	4.36	-	NC	-	NC	-
CF 1211	Wheat, white flour (incl white flour products: starch, gluten, macaroni, pastry)	PP		199.38	-	193.50	-	106.30	-	185.31	-	171.11	-	132.37	-
CF 1211	Wheat, white flour	PP		182.77	-	187.54	-	103.82	-	180.42	-	164.00	-	118.84	-
-	Wheat, starch	PP		NC	-	NC	-	0.10	-	0.31	-	NC	-	NC	-
-	Wheat, gluten	PP		0.68	-	NC	-	0.10	-	0.10	-	NC	-	NC	-
-	Wheat, macaroni, dry	PP		6.71	-	4.98	-	2.12	-	1.90	-	2.89	-	4.12	-
-	Wheat, pastry, baked	PP		7.93	-	0.51	-	0.29	-	2.44	-	1.78	-	8.64	-
-	Fonio, raw (incl flour)	RAC		NC	-	NC	-	0.10	-	NC	-	NC	-	NC	-
-	Fonio, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Fonio flour (white flour and wholemeal flour)	RAC		NC	-	NC	-	0.10	-	NC	-	NC	-	NC	-
-	Cereals, NES, raw (including processed) : canagua, quihuicha, Job's tears and wild rice	RAC		6.17	-	3.01	-	0.76	-	3.30	-	3.38	-	15.84	-
021	GRASSES FOR SUGAR OR SYRUP PRODUCTION	-		-	-	-	-	-	-	-	-	-	-	-	-
GS 0659	Sugar cane, raw (incl sugar, incl molasses)	RAC	0.011	92.24	0.97	95.72	1.01	28.47	0.30	77.39	0.81	117.73	1.24	103.90	1.09
GS 0659	Sugar cane, raw	RAC		NC	-	NC	-	4.27	-	0.10	-	NC	-	3.24	-
-	Sugar cane, molasses	PP		NC	-	NC	-	0.10	-	NC	-	NC	-	NC	-
-	Sugar cane, sugar (incl non-centrifugal sugar, incl refined sugar and maltose)	PP		92.24	-	95.72	-	24.12	-	77.39	-	117.73	-	100.67	-
-	Sugar crops NES, raw (incl sugar, syrup and	RAC		4.87	-	2.50	-	0.89	-	40.03	-	1.05	-	2.83	-

Annex 3

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day	Intake as ug/person/day										
	others): sugar maple, sweet sorghum, sugar palm														
022	TREE NUTS	-		-	-	-	-	-	-	-	-	-	-	-	-
TN 0085	Tree nuts, raw (incl processed)	RAC		8.52	-	8.94	-	15.09	-	9.60	-	14.57	-	26.26	-
TN 0085	Tree nuts raw, excl coconut commodities	RAC		4.38	-	6.21	-	1.94	-	3.76	-	7.65	-	4.01	-
TN 0295	Cashew nuts, nutmeat	RAC		0.59	-	0.23	-	0.18	-	0.52	-	1.75	-	2.78	-
TN 0660	Almonds, nutmeat	RAC	0.011	0.81	0.01	2.21	0.02	0.10	0.00	1.02	0.01	1.47	0.02	NC	-
TN 0662	Brazil nuts, nutmeat	RAC		0.12	-	0.10	-	0.10	-	0.10	-	0.13	-	NC	-
TN 0664	Chestnut, raw	RAC		0.34	-	0.21	-	1.14	-	0.52	-	0.10	-	NC	-
TN 0665	Coconut, nutmeat (incl. copra, incl desiccated, incl oil)	RAC		4.13	-	2.73	-	13.15	-	5.85	-	6.92	-	22.24	-
TN 0665	Coconut, nutmeat (incl copra, incl desiccated, excl oil)	RAC		1.81	-	1.38	-	7.58	-	0.82	-	3.78	-	11.19	-
TN 0665	Coconut, nutmeat (incl copra, incl oil, excl desiccated)	RAC		2.47	-	1.43	-	13.04	-	5.13	-	3.44	-	22.24	-
TN 0665	Coconut, nutmeat (incl copra, excl desiccated, excl oil)	RAC		0.15	-	0.10	-	7.46	-	0.10	-	0.30	-	11.19	-
-	Coconut, desiccated nutmeat	PP		0.51	-	0.40	-	0.10	-	0.22	-	1.07	-	NC	-
-	Coconut, copra	PP		NC	-	NC	-	0.10	-	NC	-	NC	-	NC	-
OR 0665	Coconut, oil	PP		0.44	-	0.25	-	1.05	-	0.95	-	0.59	-	2.09	-
TN 0666	Hazelnuts, nutmeat	RAC		0.45	-	1.12	-	0.10	-	0.34	-	1.63	-	NC	-
TN 0669	Macadamia nuts, nutmeat (i.e. Queensland nuts)	RAC	0.011	NC	-	0.40	0.00	NC	-	NC	-	NC	-	0.10	0.00
TN 0672	Pecan nuts, nutmeat	RAC	0.011	0.38	0.00	NC	-	NC	-	0.27	0.00	NC	-	0.26	0.00
TN 0673	Pine nuts, nutmeat (i.e. pignolia nuts)	RAC		0.99	-	0.66	-	0.22	-	0.27	-	1.89	-	0.89	-
TN 0675	Pistachio nut, nutmeat	RAC		0.35	-	0.48	-	0.10	-	0.39	-	0.23	-	0.10	-
TN 0678	Walnuts, nutmeat	RAC	0.011	0.34	0.00	0.84	0.01	0.28	0.00	0.39	0.00	0.45	0.00	NC	-
023	OILSEED	-		-	-	-	-	-	-	-	-	-	-	-	-
SO 0088	Oilseeds, raw (incl processed)	RAC		108.63	-	112.14	-	64.25	-	81.75	-	66.09	-	20.34	-
SO 0089	Oilseeds, raw (incl processed), excl peanut commodities	RAC		103.00	-	109.39	-	54.67	-	75.93	-	52.38	-	18.50	-
SO 0089	Oilseeds, raw	RAC		2.97	-	4.12	-	5.94	-	7.42	-	1.87	-	0.96	-
SO 0090	Mustard seeds, raw (incl flour, incl oil)	RAC		0.30	-	0.48	-	0.33	-	0.63	-	1.03	-	0.40	-
SO 0090	Mustard seeds, raw (incl flour, excl oil)	RAC		0.27	-	0.44	-	0.10	-	0.56	-	1.03	-	0.40	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day	Intake as ug/person/day										
				G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
SO 0090	Mustard seeds, raw (incl oil, excl flour)	RAC		0.10	-	0.45	-	0.32	-	0.58	-	0.43	-	NC	-
SO 0090	Mustard seeds, raw	RAC		0.10	-	0.41	-	0.10	-	0.50	-	0.43	-	NC	-
-	Mustard seeds, flour	PP		0.25	-	0.10	-	0.10	-	0.10	-	0.60	-	0.40	-
-	Mustard seeds, oil	PP		0.10	-	0.10	-	0.10	-	0.10	-	NC	-	NC	-
SO 0305	Olives for oil production, raw (incl oil)	RAC	0.011	17.78	0.19	48.67	0.51	0.10	0.00	22.50	0.24	14.09	0.15	2.46	0.03
SO 0305	Olives for oil production, raw	RAC		0.35	-	0.10	-	0.10	-	0.57	-	0.10	-	NC	-
-	Olive oil (virgin and residue oil)	PP		3.40	-	9.49	-	0.10	-	4.28	-	2.74	-	0.48	-
SO 0495	Rape seed, raw (incl oil)	RAC		32.68	-	19.91	-	7.83	-	15.69	-	NC	-	NC	-
SO 0495	Rape seed, raw	RAC		NC	-	NC	-	0.10	-	NC	-	NC	-	NC	-
OR 0495	Rape seed oil, edible	PP		12.52	-	7.63	-	3.00	-	6.01	-	NC	-	NC	-
SO 0691	Cotton seed, raw (incl oil)	RAC	0.0525	10.71	0.56	4.23	0.22	7.19	0.38	7.54	0.40	5.66	0.30	2.38	0.12
SO 0691	Cotton seed, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
OR 0691	Cotton seed oil, edible	PP		1.68	-	0.66	-	1.13	-	1.18	-	0.89	-	0.37	-
SO 0693	Linseed, raw (incl oil)	RAC		NC	-	NC	-	0.10	-	0.10	-	NC	-	NC	-
SO 0693	Linseed, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Linseed oil, edible	PP		NC	-	NC	-	0.10	-	0.10	-	NC	-	NC	-
SO 0696	Palm kernels, raw (incl oil)	RAC		5.33	-	5.04	-	11.83	-	7.94	-	10.77	-	4.53	-
SO 0696	Palm kernels, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
OR 1240	Palm kernel oil, edible	PP		0.29	-	0.28	-	0.65	-	0.44	-	0.59	-	0.25	-
SO 0696	Palm fruit, raw (incl oil)	RAC		12.11	-	1.38	-	24.43	-	6.52	-	14.27	-	1.35	-
OR 0696	Palm fruit oil, edible	PP		2.24	-	0.25	-	4.52	-	1.21	-	2.64	-	0.25	-
SO 0697	Peanuts, nutmeat, raw (incl roasted, incl oil, incl butter)	RAC		5.63	-	2.75	-	9.58	-	5.82	-	13.71	-	1.84	-
SO 0697	Peanuts, nutmeat, raw (incl roasted, incl oil, excl butter)	RAC		5.56	-	2.71	-	9.56	-	5.78	-	13.56	-	1.08	-
SO 0697	Peanuts, nutmeat, raw (incl roasted, incl butter, excl oil)	RAC		3.26	-	2.22	-	5.38	-	4.85	-	1.54	-	1.82	-
SO 0697	Peanuts, nutmeat, raw (incl roasted, excl oil, excl butter)	RAC		3.19	-	2.19	-	5.36	-	4.82	-	1.40	-	1.06	-
SO 0697	Peanuts, nutmeat, raw	RAC		2.39	-	2.05	-	5.25	-	4.39	-	1.30	-	0.62	-
-	Peanuts, roasted	PP		0.80	-	0.14	-	0.11	-	0.43	-	0.10	-	0.45	-
OR 0697	Peanut oil, edible	PP		1.02	-	0.23	-	1.81	-	0.42	-	5.23	-	0.10	-
-	Peanut butter	PP		0.10	-	0.10	-	0.10	-	0.10	-	0.15	-	0.75	-
SO 0698	Poppy seed, raw (incl oil)	RAC		0.10	-	0.25	-	0.10	-	0.10	-	NC	-	NC	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G07 diet	Intake as ug/person/day G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
SO 0698	Poppy seed, raw	RAC		0.10	-	0.25	-	0.10	-	0.10	-	NC	-	NC	-
-	Poppy seed oil	PP		NC	-	0.10	-	NC	-	NC	-	NC	-	NC	-
SO 0699	Safflower seed, raw (incl oil)	RAC		0.10	-	0.10	-	0.10	-	0.16	-	NC	-	NC	-
SO 0699	Safflower seed, raw	RAC		NC	-	0.10	-	0.10	-	0.10	-	NC	-	NC	-
OR 0699	Safflower seed oil, edible	PP		0.10	-	0.10	-	0.10	-	0.10	-	NC	-	NC	-
SO 0700	Sesame seed, raw (incl oil)	RAC		0.61	-	0.10	-	1.53	-	0.85	-	0.10	-	0.14	-
SO 0700	Sesame seed, raw	RAC		0.15	-	0.10	-	0.41	-	0.54	-	0.10	-	0.10	-
OR 0700	Sesame seed oil, edible	PP		0.17	-	0.10	-	0.40	-	0.11	-	NC	-	0.10	-
SO 0701	Shea nut (karite nuts), nutmeat, raw (incl butter)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
SO 0701	Shea nut (karite nuts), nutmeat, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Shea nut (karite nut), butter	PP		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
SO 0702	Sunflower seed, raw (incl oil)	RAC		23.40	-	29.33	-	1.24	-	13.85	-	6.48	-	6.91	-
SO 0702	Sunflower seed, raw	RAC	0.30	0.10	0.03	1.32	0.40	0.10	0.03	1.17	0.36	NC	-	0.10	0.03
OR 0702	Sunflower seed oil, edible	PP	0.0090	9.50	0.09	11.37	0.10	0.49	0.00	5.15	0.05	2.63	0.02	2.80	0.03
-	borage seeds, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Castor bean, raw (incl oil)	RAC		NC	-	NC	-	0.10	-	NC	-	NC	-	NC	-
-	Castor bean, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Castor bean, oil	PP		NC	-	NC	-	0.10	-	NC	-	NC	-	NC	-
-	Cucurbitaceae seeds, raw (melonseeds, pumpkin seeds, watermelon seeds)	RAC		NC	-	NC	-	0.10	-	NC	-	NC	-	NC	-
-	Oilseeds, NES, raw (including flour, incl myrtle wax, incl Japan wax): beech nut, Aleurites moluccana; Carapa guineensis; Croton tiglium; Bassia latifolia; Guizotia abyssinia; Licania rigida; Perilla frutescens; Jatropha curcas; Shorea robusta; Pongamia glabra; Astrocaryum spp., as well as tea seeds, grape seed and tomato seeds for oil extraction	RAC		0.10	-	0.10	-	0.17	-	0.22	-	NC	-	0.32	-
024	SEED FOR BEVERAGES AND SWEETS	-		-	-	-	-	-	-	-	-	-	-	-	-
-	Seeds for beverages and seeds, raw or roasted (incl processed)	RAC		18.44	-	18.03	-	1.06	-	13.62	-	23.34	-	13.43	-
SB 0715	Cocoa beans, raw (incl roasted, incl powder, incl butter, incl paste, incl nes products)	RAC		7.54	-	5.59	-	0.29	-	4.14	-	1.27	-	5.29	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G07 diet	Intake as ug/person/day G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
SB 0715	Cocoa beans, raw (incl roasted)	RAC		NC	-	NC	-	0.10	-	0.26	-	NC	-	1.41	-
-	Cocoa paste	PP		NC	-	NC	-	0.10	-	0.10	-	NC	-	NC	-
DM 0715	Cocoa powder	PP		2.78	-	1.82	-	0.20	-	1.66	-	0.10	-	0.74	-
DM 1215	Cocoa butter	PP		0.98	-	0.59	-	0.10	-	0.10	-	1.05	-	NC	-
-	Cocoa products NES	PP		3.79	-	3.18	-	0.10	-	2.10	-	0.17	-	3.13	-
SB 0716	Coffee beans raw (incl roasted, incl instant coffee, incl substitutes)	RAC	0.011	10.90	0.11	12.44	0.13	0.77	0.01	9.48	0.10	22.07	0.23	8.15	0.09
SB 0716	Coffee beans, raw (i.e. green coffee)	RAC		0.60	-	NC	-	0.62	-	1.71	-	NC	-	3.51	-
SM 0716	Coffee beans, roasted	PP		7.02	-	9.75	-	0.10	-	5.09	-	13.38	-	0.77	-
-	Coffee beans, instant coffee (incl essences and concentrates)	PP		0.75	-	0.30	-	0.10	-	0.67	-	2.43	-	1.43	-
-	Coffee beans, substitutes, containing coffee	PP		0.10	-	0.10	-	0.10	-	0.10	-	0.10	-	0.15	-
SB 0717	Cola nuts, raw	RAC		NC	-	NC	-	0.10	-	NC	-	NC	-	NC	-
027	HERBS	-		-	-	-	-	-	-	-	-	-	-	-	-
HH 0720	Herbs, raw (incl dried)	RAC		2.61	-	2.31	-	8.89	-	3.92	-	1.16	-	2.06	-
HH 0624	Celery leaves, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
HH 0721	Angelica herb, raw	RAC		NC	-	NC	-	0.10	-	NC	-	NC	-	0.10	-
HH 0723	Bay leaves, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
HH 0722	Basil, raw (incl dried)	RAC		0.52	-	0.10	-	3.23	-	0.18	-	0.12	-	0.27	-
HH 0723	Bay leaves	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
HH 0727	Chives	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
HH 0730	Dill herb, raw	RAC		0.48	-	0.10	-	NC	-	1.17	-	NC	-	0.31	-
HH 0731	Fennel herb, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
HH 0733	Hyssop	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
HH 0735	Lovage	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
HH 0736	Marjoram, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
HH 0738	Mints, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
HH 0740	Parsley, raw (incl dried)	RAC		1.43	-	2.14	-	NC	-	2.54	-	0.78	-	1.14	-
HH 0741	Rosemary, raw	RAC		0.10	-	0.10	-	NC	-	0.10	-	NC	-	0.10	-
HH 0743	Sage and related Salvia species, raw	RAC		0.10	-	0.10	-	NC	-	0.10	-	NC	-	0.10	-
HH 0745	Savory, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
HH 0749	Tarragon, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	0.10	-
HH 0750	Thyme, raw	RAC		0.17	-	0.10	-	NC	-	NC	-	0.26	-	0.10	-
HH 0751	Land cress	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

			STMR	Diets as g/person/day		Intake as ug/person/day									
Codex Code	Commodity description	Expr as	mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
HH 0756	Cilantro, raw (i.e. coriander leaves)	RAC		NC	-	NC	-	5.66	-	NC	-	NC	-	0.25	-
HH 0761	Lemongrass, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Toona leaves, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
028	SPICES	-		-	-	-	-	-	-	-	-	-	-	-	-
HS 0093	Spices, as traded	RAC		0.96	-	0.99	-	1.09	-	1.53	-	6.06	-	2.46	-
HS 0730	Dill, seed	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
HS 0773	Caper buds	RAC		0.10	-	0.15	-	NC	-	0.10	-	3.50	-	0.34	-
HS 0777	Cinnamon	RAC		0.10	-	0.10	-	0.10	-	0.10	-	0.23	-	0.40	-
HS 0778	Cloves, buds	RAC		0.10	-	0.10	-	0.10	-	0.10	-	0.10	-	0.10	-
HS 0782	Fenugreek, seed	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
HS 0783	Galangal, rhizomes	RAC		NC	-	NC	-	0.10	-	NC	-	0.10	-	0.10	-
HS 0784	Ginger root, raw incl dried	RAC		0.27	-	0.10	-	0.54	-	0.69	-	0.58	-	0.56	-
HS 0789	Liquorice, roots	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
HS 0790	Pepper (black, white)	RAC		0.31	-	0.41	-	0.12	-	0.34	-	0.70	-	0.89	-
HS 0792	Pimento, fruit (allspice fruit)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
HS 0794	Turmeric, root	RAC		NC	-	NC	-	NC	-	NC	-	0.10	-	0.10	-
HS 0795	Vanilla, beans	RAC		0.10	-	0.10	-	0.10	-	0.10	-	0.10	-	NC	-
-	Anise seeds, star anise seeds, caraway seeds, coriander seeds, cumin seeds, fennel seeds, juniper berries	RAC		0.22	-	0.21	-	0.10	-	0.14	-	0.36	-	0.10	-
-	Nutmeg, mace, cardamom, grains of paradise	RAC		0.10	-	0.10	-	0.10	-	0.10	-	0.17	-	0.10	-
-	Anise pepper	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Black caraway	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Saffron	RAC		NC	-	0.10	-	0.21	-	0.14	-	0.34	-	0.10	-
057	DRIED HERBS	-		-	-	-	-	-	-	-	-	-	-	-	-
DH 1100	Hops, dry	RAC		NC	-	NC	-	0.10	-	0.10	-	NC	-	NC	-
066	TEAS	-		-	-	-	-	-	-	-	-	-	-	-	-
-	Teas and herbal teas, dried (incl concentrates)	RAC		3.37	-	1.75	-	1.12	-	1.86	-	2.30	-	0.75	-
DT 1114	Tea, green or black, fermented and dried, (including concentrates)	RAC		2.91	-	1.73	-	1.14	-	1.85	-	2.29	-	0.74	-
DT 1114	Tea, green or black, fermented and dried	RAC		2.71	-	0.82	-	1.14	-	1.59	-	1.82	-	0.53	-
-	Tea concentrates	PP		0.20	-	0.91	-	0.10	-	0.26	-	0.47	-	0.21	-
DT 1113	Mate, dried	RAC		0.46	-	0.10	-	0.10	-	0.10	-	0.10	-	0.10	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G07 diet	Intake as ug/person/day G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
-	Herbal teas NES, dried	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
030	MEAT FROM MAMMALS	-		-	-	-	-	-	-	-	-	-	-	-	-
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat)	RAC	0.024	140.03	3.36	150.89	3.62	79.32	1.90	111.24	2.67	120.30	2.89	51.27	1.23
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) -80% as muscle	RAC		112.02	-	120.71	-	63.46	-	88.99	-	96.24	-	41.02	-
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) - 20% as fat	RAC		28.01	-	30.18	-	15.86	-	22.25	-	24.06	-	10.25	-
MM 0810	Buffalo meat, raw	RAC		NC	-	NC	-	1.10	-	0.10	-	NC	-	NC	-
MM 0810	Buffalo meat, raw - 80% as muscle	RAC		NC	-	NC	-	0.88	-	0.08	-	NC	-	NC	-
MM 0810	Buffalo meat, raw - 20% as fat	RAC		NC	-	NC	-	0.22	-	0.02	-	NC	-	NC	-
MM 0811	Camel meat, raw (including meat of other domestic camelids)	RAC		NC	-	NC	-	0.10	-	0.10	-	NC	-	NC	-
MM 0811	Camel meat, raw (including meat of other domestic camelids) - 80% as muscle	RAC		NC	-	NC	-	0.08	-	0.08	-	NC	-	NC	-
MM 0811	Camel meat, raw (including meat of other domestic camelids) - 20% as fat	RAC		NC	-	NC	-	0.02	-	0.02	-	NC	-	NC	-
MM 0812	Cattle meat, raw, (incl calf meat, incl prepared meat)	RAC		52.97	-	24.56	-	8.72	-	54.63	-	41.75	-	22.18	-
MM 0812	Cattle meat, raw, (incl calf meat, incl prepared meat) - 80% as muscle	RAC		42.38	-	19.65	-	6.98	-	43.70	-	33.40	-	17.74	-
MM 0812	Cattle meat, raw, (incl calf meat, incl prepared meat) - 20% as fat	RAC		10.59	-	4.91	-	1.74	-	10.93	-	8.35	-	4.44	-
MM 0813	Dear, meat, raw (domestic)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
MM 0813	Dear, meat, raw (domestic) - 80% as muscle	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
MM 0813	Dear, meat, raw (domestic) - 20% as fat	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
MM 0814	Goat meat, raw, (incl kids meat)	RAC		0.12	-	0.24	-	2.47	-	0.14	-	0.10	-	0.44	-
MM 0814	Goat meat, raw, (incl kids meat) - 80% as muscle	RAC		0.10	-	0.19	-	1.98	-	0.11	-	0.08	-	0.35	-
MM 0814	Goat meat, raw, (incl kids meat) - 20% as fat	RAC		0.02	-	0.05	-	0.49	-	0.03	-	0.02	-	0.09	-
MM 0816	Horse meat raw, incl meat of other equidae (asses, mules)	RAC		0.98	-	0.18	-	0.55	-	0.58	-	1.91	-	NC	-

Annex 3

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G07 diet	Intake as ug/person/day G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
MM 0816	Horse meat raw, incl meat of other equidae (asses, mules) -80% as muscle	RAC		0.78	-	0.14	-	0.44	-	0.46	-	1.53	-	NC	-
MM 0816	Horse meat raw, incl meat of other equidae (asses, mules) -20% as fat	RAC		0.20	-	0.04	-	0.11	-	0.12	-	0.38	-	NC	-
MM 0817	Kangaroo meat, raw (domestic)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
MM 0817	Kangaroo meat, raw (domestic) - 80% as muscle	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
MM 0817	Kangaroo meat, raw (domestic) -20% as fat	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
MM 0818	Pig meat, raw (incl prepared meat)	RAC		69.21	-	117.73	-	63.14	-	52.12	-	72.83	-	28.08	-
MM 0818	Pig meat, raw (incl prepared meat) - 80% as muscle	RAC		55.37	-	94.18	-	50.51	-	41.70	-	58.26	-	22.46	-
MM 0818	Pig meat, raw (incl prepared meat) -20% as fat	RAC		13.84	-	23.55	-	12.63	-	10.42	-	14.57	-	5.62	-
MM 0819	Rabbit meat, raw (including other domestic rodents meat) (domestic)	RAC		1.10	-	2.08	-	0.77	-	0.93	-	0.19	-	NC	-
-	Rabbit meat, raw (including other domestic rodents meat) -80% as muscle	RAC		0.88	-	1.66	-	0.62	-	0.74	-	0.15	-	NC	-
-	Rabbit meat, raw (including other domestic rodents meat) - 20% as muscle	RAC		0.22	-	0.42	-	0.15	-	0.19	-	0.04	-	NC	-
MM 0822	Sheep meat, raw (incl lamb meat)	RAC		15.29	-	4.89	-	2.53	-	2.09	-	3.47	-	0.57	-
MM 0822	Sheep meat, raw (incl lamb meat) - 80% as muscle	RAC		12.23	-	3.91	-	2.02	-	1.67	-	2.78	-	0.46	-
MM 0822	Sheep meat, raw (incl lamb meat) - 20% as fat	RAC		3.06	-	0.98	-	0.51	-	0.42	-	0.69	-	0.11	-
-	Game meat, raw	RAC		0.37	-	1.22	-	0.10	-	0.73	-	0.14	-	NC	-
-	Game meat, raw -80% as muscle	RAC		0.30	-	0.98	-	0.08	-	0.58	-	0.11	-	NC	-
-	Game meat, raw -20% as fat	RAC		0.07	-	0.24	-	0.02	-	0.15	-	0.03	-	NC	-
031	MAMMALIAN FATS	-		-	-	-	-	-	-	-	-	-	-	-	-
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.048	6.44	0.31	15.51	0.74	3.79	0.18	8.29	0.40	18.44	0.89	8.00	0.38
MF 0810	Buffalo fat, raw	RAC		NC	-	NC	-	0.10	-	NC	-	NC	-	NC	-
MF 0811	Camel fat, raw (incl fat of other camelids)	RAC		NC	-	NC	-	NC	-	0.10	-	NC	-	NC	-
MF 0812	Cattle fat, raw (incl rendered)	RAC		2.43	-	1.74	-	0.66	-	4.27	-	5.01	-	1.43	-
MF 0814	Goat fat, raw	RAC		0.10	-	NC	-	0.10	-	0.10	-	NC	-	0.10	-
MF 0818	Pig fat, raw (incl rendered)	RAC		4.00	-	13.78	-	3.08	-	4.02	-	13.43	-	6.55	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

			STMR	Diets as g/person/day			Intake as ug/person/day								
Codex Code	Commodity description	Expr as	mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
MF 0822	Sheep fat, raw	RAC		0.10	-	NC	-	0.10	-	0.10	-	NC	-	0.10	-
032	EDIBLE OFFAL (MAMMALIAN)	-		-	-	-	-	-	-	-	-	-	-	-	-
MO 0105	Edible offal (mammalian), raw	RAC	0.088	15.17	1.33	5.19	0.46	6.30	0.55	6.78	0.60	3.32	0.29	3.17	0.28
MO 0810	Buffalo edible offal, raw	RAC		NC	-	NC	-	0.24	-	0.10	-	NC	-	NC	-
MO 0811	Camel edible offal, raw (including edible offals of other camelids)	RAC		NC	-	NC	-	NC	-	0.10	-	NC	-	NC	-
MO 0812	Cattle edible offal, raw	RAC		8.22	-	1.97	-	2.10	-	3.39	-	0.98	-	2.42	-
MO 0814	Goat edible offal, raw	RAC		0.10	-	0.10	-	0.45	-	0.10	-	0.10	-	0.10	-
MO 0816	Horse edible offal, raw	RAC		0.10	-	0.10	-	0.10	-	0.10	-	0.10	-	NC	-
MO 0818	Pig edible offal, raw	RAC		5.24	-	2.62	-	3.19	-	3.30	-	2.10	-	0.60	-
MO 0822	Sheep edible offal, raw	RAC		1.68	-	0.53	-	0.34	-	0.10	-	0.20	-	0.10	-
033	MILK AND MILK PRODUCTS	-		-	-	-	-	-	-	-	-	-	-	-	-
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.1	388.92	38.89	335.88	33.59	49.15	4.92	331.25	33.13	468.56	46.86	245.45	24.55
ML 0106	Milks, raw or skimmed	RAC		268.56	-	225.54	-	39.09	-	237.92	-	224.70	-	60.37	-
ML 0810	Buffalo milk, raw or skimmed (incl dairy products)	RAC		NC	-	NC	-	4.44	-	0.10	-	NC	-	NC	-
ML 0810	Buffalo milk, raw or skimmed	RAC		NC	-	NC	-	4.40	-	0.10	-	NC	-	NC	-
ML 0811	Camel milk, raw	RAC		NC	-	NC	-	0.10	-	0.10	-	NC	-	NC	-
ML 0812	Cattle milk, raw or skimmed (incl dairy products)	RAC		386.24	-	333.72	-	41.04	-	329.16	-	468.40	-	245.45	-
ML 0812	Cattle milk, raw or skimmed	RAC		268.05	-	225.11	-	31.17	-	236.35	-	224.70	-	60.37	-
ML 0814	Goat milk, raw or skimmed (incl dairy products)	RAC		1.78	-	1.17	-	2.62	-	1.53	-	NC	-	NC	-
ML 0814	Goat milk, raw or skimmed	RAC		0.44	-	0.43	-	2.61	-	1.48	-	NC	-	NC	-
ML 0822	Sheep milk, raw or skimmed (incl dairy products)	RAC		0.89	-	0.99	-	1.03	-	0.48	-	0.16	-	NC	-
ML 0822	Sheep milk, raw or skimmed	RAC		0.10	-	0.10	-	0.89	-	0.10	-	NC	-	NC	-
-	Horse milk, raw, incl milk of other equidae (suckmilk)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
036	POULTRY MEAT	-		-	-	-	-	-	-	-	-	-	-	-	-
PM 0110	Poultry meat, raw (incl prepared)	RAC	0.016	73.76	1.18	53.86	0.86	23.98	0.38	87.12	1.39	53.38	0.85	84.45	1.35
PM 0110	Poultry meat, raw (incl prepared) - 90% as muscle	RAC		66.38	-	48.47	-	21.58	-	78.41	-	48.04	-	76.01	-
PM 0110	Poultry meat, raw (incl prepared) - 10% as fat	RAC		7.38	-	5.39	-	2.40	-	8.71	-	5.34	-	8.45	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

			STMR	Diets as g/person/day	Intake as ug/person/day										
Codex Code	Commodity description	Expr as	mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
PM 0840	Chicken meat, raw (incl prepared)	RAC		55.83	-	42.97	-	18.31	-	74.27	-	44.53	-	78.07	-
PM 0840	Chicken meat, raw (incl prepared) - 90% as muscle	RAC		50.25	-	38.67	-	16.48	-	66.84	-	40.08	-	70.26	-
PM 0840	Chicken meat, raw (incl prepared) - 10% as fat	RAC		5.58	-	4.30	-	1.83	-	7.43	-	4.45	-	7.81	-
PM 0841	Duck meat, raw	RAC		4.74	-	1.16	-	3.10	-	0.57	-	0.71	-	0.16	-
PM 0841	Duck meat, raw - 90% as muscle	RAC		4.27	-	1.04	-	2.79	-	0.51	-	0.64	-	0.14	-
PM 0841	Duck meat, raw - 10% as fat	RAC		0.47	-	0.12	-	0.31	-	0.06	-	0.07	-	0.02	-
PM 0842	Goose meat, raw	RAC		0.19	-	0.39	-	2.41	-	0.10	-	0.10	-	NC	-
PM 0842	Goose meat, raw - 90% as muscle	RAC		0.17	-	0.35	-	2.17	-	0.09	-	0.09	-	NC	-
PM 0842	Goose meat, raw - 10% as fat	RAC		0.02	-	0.04	-	0.24	-	0.01	-	0.01	-	NC	-
PM 0846	Pigeon meat, raw	RAC		0.10	-	0.10	-	0.10	-	0.15	-	0.12	-	NC	-
PM 0846	Pigeon meat, raw - 90% as muscle	RAC		0.09	-	0.09	-	0.09	-	0.14	-	0.11	-	NC	-
PM 0846	Pigeon meat, raw - 10% as fat	RAC		0.01	-	0.01	-	0.01	-	0.02	-	0.01	-	NC	-
PM 0847	Quail meat, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
PM 0847	Quail meat, raw - 90% as muscle	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
PM 0847	Quail meat, raw - 10% as fat	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
PM 0848	Turkey meat, raw	RAC		10.29	-	7.96	-	0.10	-	10.82	-	7.00	-	5.37	-
PM 0848	Turkey meat, raw- 90% as muscle	RAC		66.38	-	48.47	-	21.58	-	78.41	-	48.04	-	76.01	-
PM 0848	Turkey meat, raw -10% as fat	RAC		7.38	-	5.39	-	2.40	-	8.71	-	5.34	-	8.45	-
-	Emu meat, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Emu meat, raw - 90% as muscle	RAC		66.38	-	48.47	-	21.58	-	78.41	-	48.04	-	76.01	-
-	Emu meat, raw -10% as fat	RAC		7.38	-	5.39	-	2.40	-	8.71	-	5.34	-	8.45	-
037	POULTRY FATS	-		-	-	-	-	-	-	-	-	-	-	-	-
PF 0111	Poultry fat, raw (incl rendered)	RAC	0.016	0.10	0.00	0.10	0.00	NC	-	0.10	0.00	0.71	0.01	NC	-
038	POULTRY, EDIBLE OFFAL OF	-		-	-	-	-	-	-	-	-	-	-	-	-
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.054	0.33	0.02	0.72	0.04	0.27	0.01	0.35	0.02	0.80	0.04	NC	-
PO 0840	Chicken edible offal, raw	RAC		0.14	-	0.62	-	0.26	-	0.32	-	0.52	-	NC	-
PO 0841	Duck edible offal, raw (incl prepared)	RAC		0.10	-	0.10	-	0.10	-	0.10	-	0.10	-	NC	-
PO 0842	Goose edible offal, raw (incl prepared)	RAC		0.10	-	0.10	-	0.10	-	0.10	-	0.10	-	NC	-
PO 0848	Turkey edible offal, raw	RAC		0.10	-	0.10	-	0.10	-	0.10	-	0.22	-	NC	-
039	EGGS	-		-	-	-	-	-	-	-	-	-	-	-	-
PE 0112	Eggs, raw, (incl dried)	RAC	0.014	25.84	0.36	29.53	0.41	28.05	0.39	33.19	0.46	36.44	0.51	8.89	0.12
PE 0840	Chicken eggs, raw (incl dried)	RAC		25.49	-	29.46	-	23.08	-	33.03	-	36.39	-	8.89	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day			Intake as ug/person/day								
-	Eggs, NES (in shell)	RAC+		0.34	-	0.10	-	4.97	-	0.16	-	0.10	-	NC	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				166.1		166.6		143.7		222.2		205.1		185.2
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (ug/person)=				240		240		220		240		240		240
	%ADI=				69.2%		69.4%		65.3%		92.6%		85.5%		77.1%
	Rounded %ADI=				70%		70%		70%		90%		90%		80%

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
				Diets: g/person/day			Intake = daily intake: ug/person						
001	CITRUS FRUIT	-		-	-	-	-	-	-	-	-	-	-
FC 0001	Citrus fruit, raw (incl citrus fruit juice, incl kumquat commodities)	RAC		21.16	-	2.94	-	58.52	-	0.44	-	5.13	-
FC 0001	Citrus fruit, raw (incl citrus fruit juice, excl kumquat commodities)	RAC		2.80	-	2.71	-	56.74	-	0.36	-	1.78	-
FC 0001	Citrus fruit, raw (incl kumquat commodities)	RAC	0.011	20.93	0.22	2.35	0.02	30.71	0.32	0.15	0.00	4.45	0.05
FC 0001	Citrus fruit, raw (excl kumquat commodities)	RAC		2.57	-	2.12	-	28.93	-	0.10	-	1.10	-
JF 0001	Citrus fruit, juice	PP	0.0077	0.11	0.00	0.29	0.00	13.55	0.10	0.14	0.00	0.33	0.00
001A	Lemons and limes	-		-	-	-	-	-	-	-	-	-	-
FC 0002	Lemons and limes, raw (incl lemon juice) (incl kumquat commodities)	RAC		18.97	-	0.97	-	6.23	-	0.10	-	3.35	-
FC 0002	Lemons and limes, raw (incl lemon juice, excl kumquat commodities)	RAC		0.62	-	0.74	-	4.44	-	0.10	-	NC	-
FC 0002	Lemons and limes, raw (incl kumquat commodities)	RAC		18.96	-	0.97	-	5.79	-	0.10	-	3.35	-
FC 0002	Lemons and limes, raw (excl kumquat commodities)	RAC		0.61	-	0.73	-	4.01	-	0.10	-	NC	-
-	Lemon, juice (single strength, incl.	PP		0.10	-	0.10	-	0.16	-	0.10	-	NC	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
				Diets: g/person/day			Intake = daily intake: ug/person						
	concentrated)												
FC 0303	Kumquats, raw (incl juice)	RAC		18.35	-	0.23	-	1.78	-	0.10	-	3.35	-
001B	Mandarins	-		-	-	-	-	-	-	-	-	-	-
FC 0003	Mandarins, raw (incl mandarin juice)	RAC		0.16	-	0.27	-	9.06	-	0.10	-	0.10	-
FC 0003	Mandarins, raw	RAC		0.16	-	0.27	-	9.06	-	0.10	-	0.10	-
-	Mandarins, juice	PP		0.10	-	NC	-	NC	-	NC	-	NC	-
001C	Oranges, sweet, sour	-		-	-	-	-	-	-	-	-	-	-
FC 0004	Oranges, sweet, sour, raw (incl orange juice)	RAC		1.34	-	1.65	-	40.03	-	0.33	-	1.76	-
FC 0004	Oranges, sweet, sour, raw	RAC		1.18	-	1.11	-	14.28	-	0.10	-	1.08	-
JF 0004	Oranges, juice (single strength, incl. concentrated)	PP		0.10	-	0.26	-	12.61	-	0.14	-	0.33	-
001D	Pummelos	-		-	-	-	-	-	-	-	-	-	-
FC 0005	Pummelo and grapefruits, raw (incl grapefruit juice)	RAC		0.68	-	0.10	-	3.21	-	0.10	-	NC	-
FC 0005	Pummelo and grapefruits, raw	RAC		0.63	-	0.10	-	1.58	-	0.10	-	NC	-
JF 0203	Grapefruits, juice (single strength, incl. concentrated)	PP		0.10	-	0.10	-	0.78	-	0.10	-	NC	-
002	POME FRUIT	-		-	-	-	-	-	-	-	-	-	-
FP 0009	Pome fruits, raw (incl. apple juice, incl cider)	RAC	0.011	68.89	0.72	11.06	0.12	80.62	0.85	189.82	1.99	19.56	0.21
FP 0009	Pome fruit, raw (incl apple juice, excl cider)	RAC		2.43	-	11.06	-	79.27	-	1.64	-	19.56	-
FP 0009	Pome fruit, raw (incl cider, excl apple juice)	RAC		68.85	-	10.93	-	70.82	-	189.78	-	19.56	-
FP 0009	Pomefruits, raw	RAC		2.39	-	10.93	-	69.47	-	1.59	-	19.56	-
FP 0226	Apple, raw (incl juice, incl cider)	RAC		66.71	-	2.19	-	65.63	-	188.34	-	1.38	-
FP 0226	Apple, raw (incl juice, excl cider)	RAC		0.25	-	2.18	-	64.28	-	0.15	-	1.38	-
FP 0226	Apple, raw (incl cider, excl juice)	RAC		66.67	-	2.06	-	55.83	-	188.29	-	1.38	-
FP 0226	Apple, raw	RAC		0.21	-	2.05	-	54.48	-	0.10	-	1.38	-
JF 0226	Apple juice, single strength (incl. concentrated)	PP		0.10	-	0.10	-	7.19	-	0.10	-	NC	-
-	Cider (i.e. fermented apple juice)	PP		48.75	-	0.10	-	0.99	-	138.03	-	NC	-
FP 0227	Crab-apple, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
FP 0228	Loquat, raw (incl processed)	RAC		0.94	-	4.68	-	NC	-	0.50	-	3.08	-
FP 0229	Medlar, raw (incl processed)	RAC		0.75	-	3.73	-	4.87	-	0.40	-	2.45	-
FP 0230	Pear, raw	RAC		0.10	-	0.14	-	9.45	-	0.10	-	0.14	-
FP 0307	Persimmon, Japanese, raw	RAC		0.41	-	0.32	-	0.10	-	0.58	-	12.51	-
FP 0231	Quince, raw	RAC		NC	-	NC	-	0.65	-	NC	-	NC	-
003	STONE FRUIT	-		-	-	-	-	-	-	-	-	-	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day	Intake = daily intake: ug/person								
				G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
FS 0012	Stone fruits, raw (incl dried plums, incl dried apricots)	RAC	0.011	0.10	0.00	0.10	0.00	33.36	0.35	0.10	0.00	NC	-
FS 0012	Stone fruits, raw (incl dried plums, excl dried apricots)	RAC		0.10	-	0.10	-	32.53	-	0.10	-	NC	-
FS 0012	Stone fruits, raw (incl dried apricots, excl dried plums)	RAC		0.10	-	0.10	-	32.27	-	0.10	-	NC	-
FS 0012	Stone fruits, raw	RAC		0.10	-	0.10	-	31.44	-	0.10	-	NC	-
003A	Cherries	-		-	-	-	-	-	-	-	-	-	-
FS 0013	Cherries, raw	RAC		0.10	-	0.10	-	5.96	-	0.10	-	NC	-
003B	Plums	-		-	-	-	-	-	-	-	-	-	-
FS 0014	Plums, raw (incl dried plums, incl Chinese jujube)	RAC		0.10	-	0.10	-	16.65	-	0.10	-	NC	-
FS 0014	Plums, raw (incl dried plums, excl Chinese jujube)	RAC		0.10	-	0.10	-	16.65	-	0.10	-	NC	-
FS 0014	Plums, raw (incl Chinese jujube)	RAC		0.10	-	0.10	-	15.56	-	0.10	-	NC	-
FS 0014	Plums, raw (excl Chinese jujube)	RAC		0.10	-	0.10	-	15.56	-	0.10	-	NC	-
DF 0014	Plum, dried (prunes)	PP		0.10	-	0.10	-	0.37	-	0.10	-	NC	-
FS 0302	Jujube, Chinese, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
003C	Peaches	-		-	-	-	-	-	-	-	-	-	-
FS 2001	Peaches, nectarines, apricots, raw (incl dried apricots)	RAC		0.10	-	0.10	-	10.76	-	0.10	-	NC	-
FS 2001	Peaches, nectarines, apricots, raw	RAC		0.10	-	0.10	-	9.93	-	0.10	-	NC	-
FS 0240	Apricot, raw (incl dried)	RAC		0.10	-	0.10	-	3.29	-	0.10	-	NC	-
FS 0240	Apricot, raw	RAC		0.10	-	0.10	-	2.46	-	0.10	-	NC	-
DF 0240	Apricot, dried	PP		0.10	-	0.10	-	0.15	-	0.10	-	NC	-
FS 2237	Japanese apricot (ume)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
-	Peaches and nectarines, raw	RAC		0.10	-	0.10	-	7.47	-	0.10	-	NC	-
004	BERRIES AND OTHER SMALL FRUITS	-		-	-	-	-	-	-	-	-	-	-
FB 0018	Berries and other small fruits, raw (incl processed)	RAC		2.14	-	19.92	-	114.85	-	1.55	-	49.22	-
FB 0018	Berries and other small fruits, raw, (incl processed), excl small fruit vine climbing (group 004D)	RAC		1.54	-	18.66	-	11.59	-	0.81	-	4.99	-
FB 0018	Berries and other small fruits, raw, (incl processed), excl small fruit vine climbing (group 004D), excl low growing berries	RAC		1.53	-	18.66	-	8.22	-	0.81	-	4.98	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

			STMR	Diets: g/person/day		Intake = daily intake: ug/person							
Codex Code	Commodity description	Expr as	mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
	(group 004E)												
004A	Cane berries	-		-	-	-	-	-	-	-	-	-	-
FB 2005	Caneberries, raw	RAC	0.011	0.10	0.00	7.30	0.08	2.29	0.02	0.10	0.00	NC	-
FB 0264	Blackberries, raw	RAC		0.10	-	7.29	-	0.25	-	0.10	-	NC	-
FB 0266	Dewberries, incl boysen- & loganberry, raw	RAC		0.10	-	0.10	-	NC	-	0.10	-	NC	-
FB 0272	Raspberries, red, black, raw	RAC		0.10	-	0.10	-	2.04	-	0.10	-	NC	-
004B	Bush berries	-		-	-	-	-	-	-	-	-	-	-
FB 2006	Bush berries, raw (including processed) (i.e. blueberries, currants, gooseberries, rose hips)	RAC		0.82	-	4.05	-	5.94	-	0.43	-	2.66	-
FB 0020	Blueberries, raw	RAC		NC	-	NC	-	0.20	-	NC	-	NC	-
FB 0021	Currants, red, black, white, raw	RAC	0.011	0.10	0.00	NC	-	0.74	0.01	NC	-	NC	-
FB 0268	Gooseberries, raw	RAC	0.011	NC	-	NC	-	0.12	0.00	NC	-	NC	-
FB 0273	Rose hips, raw (incl processed)	RAC		0.82	-	4.05	-	4.87	-	0.43	-	2.66	-
004C	Large shrub/tree berries	-		-	-	-	-	-	-	-	-	-	-
FB 2007	Large shrub/tree berries, raw (including processed) (i.e. elderberries, mulberries)	RAC		0.71	-	7.32	-	NC	-	0.38	-	2.32	-
FB 0267	Elderberries, raw (incl processed)	RAC		0.71	-	3.52	-	NC	-	0.38	-	2.32	-
FB 0271	Mulberries, red, white, raw	RAC		0.10	-	3.79	-	NC	-	0.10	-	NC	-
004D	Small fruit vine climbing	-		-	-	-	-	-	-	-	-	-	-
FB 2008	Small fruit vine climbing, raw (incl processed) (i.e. grapes)	RAC	0.011	0.60	0.01	1.26	0.01	103.25	1.08	0.74	0.01	44.23	0.46
FB 0269	Grape, raw (incl must, incl dried, incl juice, incl wine)	RAC		0.60	-	1.26	-	103.25	-	0.74	-	44.23	-
FB 0269	Grape, raw (incl must, incl dried, incl wine, excl juice)	RAC		0.59	-	1.24	-	102.74	-	0.74	-	44.23	-
FB 0269	Grape, raw (incl must, incl juice, incl wine, excl dried)	RAC		0.58	-	0.70	-	98.85	-	0.73	-	44.12	-
FB 0269	Grape, raw (incl dried, incl juice, incl wine, excl must)	RAC		0.60	-	1.26	-	103.14	-	0.74	-	44.04	-
FB 0269	Grape, raw (incl must, incl dried, incl juice, excl wine)	RAC		0.17	-	0.94	-	20.24	-	0.10	-	0.40	-
FB 0269	Grape, raw (incl must, incl dried, excl juice, excl wine)	RAC		0.16	-	0.92	-	19.73	-	0.10	-	0.40	-
FB 0269	Grape, raw (incl must, incl juice, excl dried, excl wine)	RAC		0.15	-	0.38	-	15.84	-	0.10	-	0.28	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day		Intake = daily intake: ug/person							
				G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
FB 0269	Grape, raw (incl must, incl wine, excl dried, excl juice)	RAC		0.57	-	0.69	-	98.34	-	0.73	-	44.12	-
FB 0269	Grape, raw (incl dried, incl juice, excl wine, excl must)	RAC		0.17	-	0.93	-	20.13	-	0.10	-	0.21	-
FB 0269	Grape, raw (incl dried, incl wine, excl must, excl juice)	RAC		0.59	-	1.24	-	102.62	-	0.74	-	44.04	-
FB 0269	Grape, raw (incl juice, incl wine, excl must, excl dried)	RAC		0.58	-	0.70	-	98.74	-	0.73	-	43.92	-
FB 0269	Grape, raw (incl must, excl dried, excl juice, excl wine)	RAC		0.14	-	0.36	-	15.33	-	0.10	-	0.28	-
FB 0269	Grape, raw (incl dried, excl must, excl juice, excl wine)	RAC		0.16	-	0.92	-	19.62	-	0.10	-	0.21	-
FB 0269	Grape, raw (incl juice, excl must, excl dried, excl wine)	RAC		0.15	-	0.38	-	15.73	-	0.10	-	0.10	-
FB 0269	Grape, raw (incl wine, excl must, excl dried, excl juice)	RAC		0.57	-	0.68	-	98.23	-	0.73	-	43.92	-
FB 0269	Grape, raw	RAC		0.14	-	0.36	-	15.22	-	0.10	-	0.10	-
-	Grape must	PP		0.10	-	0.10	-	0.11	-	0.10	-	0.19	-
DF 0269	Grape, dried (= currants, raisins and sultanas)	PP		0.10	-	0.13	-	1.06	-	0.10	-	0.10	-
JF 0269	Grape juice	PP		0.10	-	0.10	-	0.41	-	0.10	-	NC	-
-	Grape wine (incl vermouths)	PP		0.31	-	0.23	-	60.43	-	0.52	-	31.91	-
004E	Low growing berries	-		-	-	-	-	-	-	-	-	-	-
FB 2009	Low growing berries, raw (i.e. cranberry and strawberry)	RAC		0.10	-	0.10	-	3.37	-	0.10	-	0.10	-
FB 0265	Cranberries, raw	RAC		NC	-	NC	-	0.10	-	NC	-	NC	-
FB 0275	Strawberry, raw	RAC	0.063	0.10	0.01	0.10	0.01	3.35	0.21	0.10	0.01	0.10	0.01
005	ASSORTED (SUB)TROPICAL FRUITS - EDIBLE PEEL	-		-	-	-	-	-	-	-	-	-	-
FT 0026	Tropical and subtropical fruits, edible peel, raw (incl processed)	RAC		5.84	-	13.83	-	3.07	-	1.56	-	12.17	-
005A	Assorted (sub) tropical fruits - edible peel - small	-		-	-	-	-	-	-	-	-	-	-
FT 2011	Assorted (sub) tropical fruits - edible peel - small, raw (including processed)	RAC		0.10	-	0.29	-	1.75	-	0.10	-	0.42	-
FT 0287	Barbados cherry (i.e. Antilles cherry or acerola), raw	RAC		0.10	-	0.28	-	NC	-	0.10	-	0.18	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
				Diets: g/person/day			Intake = daily intake: ug/person						
FT 0340	Java apple, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
FT 0305	Table olive, raw (incl preserved)	RAC	0.011	0.10	0.00	0.10	0.00	1.75	0.02	0.10	0.00	0.24	0.00
FT 0305	Table olive, raw	RAC		NC	-	NC	-	0.10	-	NC	-	NC	-
DM 0305	Table olive, preserved	PP		0.10	-	0.10	-	1.65	-	0.10	-	0.23	-
005B	Assorted (sub) tropical fruits - edible peel - medium to large	-		-	-	-	-	-	-	-	-	-	-
FT 2012	Assorted (sub) tropical fruits - edible peel - medium to large, raw (incl processed)	RAC		1.37	-	2.01	-	1.14	-	0.36	-	4.57	-
FT 2381	Babaco, raw, incl processed	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
FT 0289	Carambola, raw (i.e. star fruit)	RAC		0.10	-	0.10	-	NC	-	0.10	-	0.10	-
FT 0291	Carob (Locust Tree, St John's Bread)	RAC		0.10	-	NC	-	0.10	-	NC	-	NC	-
FT 0292	Cashew apple, raw	RAC		0.87	-	NC	-	NC	-	NC	-	NC	-
FT 0297	Fig, raw (incl dried)	RAC		0.10	-	0.10	-	1.13	-	0.10	-	0.10	-
FT 0297	Fig, raw	RAC		0.10	-	NC	-	0.34	-	NC	-	NC	-
DF 0297	Fig, dried or dried and candied	PP		0.10	-	0.10	-	0.27	-	0.10	-	0.10	-
FT 0336	Guava, raw	RAC		0.10	-	0.10	-	NC	-	0.14	-	3.11	-
FT 0300	Jaboticaba, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
FT 0301	Jujube, Indian, raw (incl processed)	RAC		0.39	-	1.93	-	NC	-	0.21	-	1.27	-
FT 0309	Rose apple, raw	RAC		0.10	-	0.10	-	NC	-	0.10	-	0.13	-
FT 0364	Sentul, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
005C	Assorted (sub) tropical fruits - edible peel - palms	-		-	-	-	-	-	-	-	-	-	-
FT 2011	Assorted (sub) tropical fruits - edible peel - palms, raw (incl processed)	RAC		4.40	-	11.53	-	0.18	-	1.16	-	7.17	-
FT 2400	Açai berry, raw	RAC		2.20	-	10.91	-	NC	-	1.16	-	7.17	-
FT 0295	Date, raw (incl dried)	RAC		2.20	-	0.62	-	0.18	-	0.10	-	NC	-
006	ASSORTED (SUB)TROPICAL FRUITS-INEDIBLE PEEL	-		-	-	-	-	-	-	-	-	-	-
FI 0030	(Sub)Tropical fruits, inedible peel, raw (incl processed)	RAC		59.49	-	143.96	-	40.17	-	43.80	-	430.58	-
006A	Assorted (sub) tropical fruits - inedible peel - small	-		-	-	-	-	-	-	-	-	-	-
FI 2021	Assorted (sub) tropical fruits - inedible peel - small, raw (incl processed)	RAC		4.05	-	20.01	-	4.87	-	2.14	-	13.42	-
FI 0343	Litchi, raw (incl processed)	RAC		3.74	-	18.51	-	4.87	-	1.97	-	12.17	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day G13 diet	G13 intake	G14 diet	Intake = daily intake: ug/person G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
FI 0342	Longan, raw	RAC		0.10	-	0.10	-	NC	-	0.10	-	0.27	-
FI 0369	Tamarind, sweet varieties, raw (incl processed)	RAC		0.30	-	1.49	-	NC	-	0.16	-	0.98	-
006B	Assorted (sub) tropical fruits - inedible smooth peel - large	-		-	-	-	-	-	-	-	-	-	-
FI 2022	Assorted (sub) tropical fruits - inedible smooth peel - large, raw (incl processed)	RAC		70.09	-	152.43	-	27.00	-	457.41	-	381.55	-
FI 0326	Avocado, raw	RAC		1.12	-	0.10	-	0.84	-	0.10	-	6.60	-
FI 0327	Banana, raw (incl plantains) (incl dried)	RAC	0.011	20.88	0.22	81.15	0.85	24.58	0.26	37.92	0.40	310.23	3.26
FI 0327	Banana, raw (incl plantains)	RAC		44.76	-	118.16	-	25.19	-	454.49	-	310.23	-
FI 0327	Banana, dried (incl plantains)	RAC		0.10	-	0.10	-	0.10	-	NC	-	NC	-
FI 2483	Cupuaçu, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
FI 0335	Feijoa (Pineapple guava), raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
FI 2488	Langsat (i.e. longkong)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
FI 0345	Mango, raw (incl canned mango, incl mango juice)	RAC		12.25	-	6.83	-	0.76	-	0.10	-	20.12	-
FI 0345	Mango, raw (incl canned mango, excl mango juice)	RAC		12.25	-	6.74	-	0.76	-	0.10	-	20.12	-
FI 0345	Mango, raw (incl mango juice, excl canned mango)	RAC		12.25	-	6.83	-	0.76	-	0.10	-	20.12	-
FI 0345	Mango, raw	RAC		12.25	-	6.74	-	0.76	-	0.10	-	20.12	-
-	Mango, juice	PP		0.10	-	0.10	-	NC	-	NC	-	NC	-
-	Mango, canned	PP		NC	-	NC	-	NC	-	NC	-	NC	-
FI 0346	Mangosteen, raw (i.e. mangostan)	RAC		0.10	-	0.10	-	NC	-	0.10	-	0.16	-
FI 0350	Papaya, raw	RAC		6.47	-	0.25	-	0.19	-	0.10	-	26.42	-
FI 0352	Persimmon, American	RAC		NC	-	NC	-	0.10	-	NC	-	NC	-
FI 0355	Pomegranate, raw, (incl processed)	RAC		5.49	-	27.17	-	NC	-	2.89	-	17.87	-
FI 0360	Sapote, black	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
FI 0367	Star apple, raw (i.e. cainito)	RAC		0.10	-	0.10	-	NC	-	0.10	-	0.15	-
FI 0312	Tamarillo (i.e. Tree tomato)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
006C	Assorted (sub) tropical fruits - inedible rough or hairy peel - large	-		-	-	-	-	-	-	-	-	-	-
FI 2023	Assorted (sub) tropical fruits - inedible rough or hairy peel - large, raw	RAC		8.59	-	6.33	-	6.89	-	0.29	-	27.33	-
FI 0331	Cherimoya, raw	RAC		0.10	-	0.10	-	0.10	-	0.10	-	1.18	-
FI 0332	Custard apple, raw	RAC		0.10	-	0.10	-	NC	-	0.10	-	0.33	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day G13 diet	Intake = daily intake: ug/person G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
FI 0334	Durian, raw	RAC		0.10	-	0.10	-	NC	-	0.10	-	0.24	-
FI 0338	Jackfruit	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
FI 0353	Pineapple, raw (incl canned pineapple, incl pineapple juice, incl dried pineapple)	RAC		8.51	-	6.27	-	6.89	-	0.18	-	24.94	-
FI 0353	Pineapple, raw (incl canned pineapple, incl pineapple juice, excl dried pineapple)	RAC		8.48	-	6.27	-	6.84	-	0.18	-	24.94	-
FI 0353	Pineapple, raw (incl pineapple juice, incl dried pineapple, excl canned pineapple)	RAC		6.96	-	6.18	-	3.18	-	0.17	-	24.94	-
FI 0353	Pineapple, raw (incl canned pineapple, incl dried pineapple, excl pineapple juice)	RAC		7.68	-	6.15	-	4.79	-	0.15	-	24.94	-
FI 0353	Pineapple, raw (incl canned pineapple, excl pineapple juice, excl dried pineapple)	RAC		7.64	-	6.15	-	4.75	-	0.15	-	24.94	-
FI 0353	Pineapple, raw (incl pineapple juice, excl pineapple canned, excl dried pineapple)	RAC		6.93	-	6.17	-	3.14	-	0.17	-	24.94	-
FI 0353	Pineapple, raw (incl dried pineapple, excl pineapple juice, excl canned pineapple)	RAC		6.96	-	6.18	-	3.18	-	0.17	-	24.94	-
FI 0353	Pineapple, raw	RAC		6.09	-	6.05	-	1.04	-	0.15	-	24.94	-
-	Pineapple, canned	PP		0.81	-	0.10	-	1.93	-	0.10	-	NC	-
JF 0341	Pineapple juice (single strength, incl concentrated)	PP		0.49	-	0.10	-	1.23	-	0.10	-	NC	-
-	Pineapple, dried	PP		0.10	-	0.10	-	0.10	-	NC	-	NC	-
FI 0358	Rambutan, raw	RAC		0.10	-	0.10	-	NC	-	0.10	-	0.43	-
FI 0359	Sapodilla, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
FI 0365	Soursop, raw (i.e. guanabana)	RAC		0.10	-	0.10	-	NC	-	0.10	-	0.21	-
006D	Assorted (sub) tropical fruits - inedible peel - cactus	-		-	-	-	-	-	-	-	-	-	-
FI 2024	Assorted (sub) tropical fruits - inedible peel - cactus, raw (incl processed)	RAC		0.41	-	2.02	-	NC	-	0.22	-	1.37	-
FI 2540	Pitaya, raw (i.e dragon fruit or pitahaya)	RAC		0.10	-	0.10	-	NC	-	0.10	-	0.10	-
FI 0356	Prickly pear, raw (incl processed)	RAC		0.41	-	2.02	-	NC	-	0.22	-	1.33	-
006D	Assorted (sub) tropical fruits - inedible peel - vines	-		-	-	-	-	-	-	-	-	-	-
FI 2025	Assorted (sub) tropical fruits - inedible peel - vines, raw	RAC		0.13	-	0.11	-	2.02	-	0.18	-	3.81	-
FI 0341	Kiwi fruit, raw	RAC		0.10	-	0.10	-	2.00	-	0.10	-	NC	-
FI 0351	Passion fruit, raw	RAC		0.12	-	0.10	-	0.10	-	0.18	-	3.81	-

Annex 3

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

			STMR	Diets: g/person/day		Intake = daily intake: ug/person							
Codex Code	Commodity description	Expr as	mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
006E	Assorted (sub) tropical fruits - inedible peel - palms	-		-	-	-	-	-	-	-	-	-	-
FI 2026	Assorted (sub) tropical fruits - inedible peel - palms	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
009	BULB VEGETABLES	-		-	-	-	-	-	-	-	-	-	-
VA 0035	Bulb vegetables, raw	RAC		11.28	-	23.80	-	36.11	-	9.66	-	8.69	-
VA 0380	Fennel, bulb, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
VA 0381	Garlic, raw	RAC	0.12	0.82	0.10	2.06	0.25	3.79	0.46	0.10	0.01	0.29	0.04
VA 0384	Leek, raw	RAC		0.10	-	1.44	-	1.22	-	0.10	-	NC	-
-	Onions, mature bulbs, dry	RAC	0.12	9.01	1.10	20.24	2.48	30.90	3.78	9.61	1.18	2.11	0.26
-	Onions, green, raw	RAC		1.43	-	0.10	-	0.20	-	NC	-	6.30	-
010	BRASSICA	-		-	-	-	-	-	-	-	-	-	-
VB 0040	Brassica vegetables, raw: head cabbages, flowerhead brassicas, Brussels sprouts & kohlrabi	RAC		4.84	-	3.79	-	58.72	-	0.10	-	NC	-
VB 0041	Cabbages, head, raw	RAC	0.20	3.82	0.75	2.99	0.59	49.16	9.68	0.10	0.02	NC	-
VB 0042	Flowerhead brassicas, raw	RAC		0.10	-	0.10	-	4.86	-	0.10	-	NC	-
VB 0400	Broccoli, raw	RAC		0.10	-	0.10	-	2.13	-	0.10	-	NC	-
VB 0401	Chinese Broccoli, raw (i.e. kailan)	RAC		0.10	-	0.10	-	NC	-	0.10	-	NC	-
VB 0402	Brussels sprouts, raw	RAC		0.88	-	0.69	-	2.89	-	0.10	-	NC	-
VB 0404	Cauliflower, raw	RAC		0.10	-	0.10	-	2.73	-	0.10	-	NC	-
VB 0405	Kohlrabi, raw	RAC		0.12	-	0.10	-	1.81	-	0.10	-	NC	-
011	FRUITING VEGETABLES, CUCURBITS	-		-	-	-	-	-	-	-	-	-	-
VC 0045	Fruiting vegetables, cucurbits, raw	RAC		5.96	-	9.74	-	51.82	-	13.61	-	0.10	-
VC 0045	Fruiting vegetables, cucurbits, raw (excl watermelons)	RAC		1.67	-	9.45	-	23.12	-	13.61	-	0.10	-
VC 0045	Fruiting vegetables, cucurbits, raw (excl melons)	RAC		5.76	-	9.64	-	46.84	-	13.61	-	0.10	-
VC 0045	Fruiting vegetables, cucurbits, raw (excl melons, excl watermelons)	RAC		1.48	-	9.35	-	18.15	-	13.61	-	0.10	-
VC 0046	Melons, raw (excl watermelons)	RAC		0.19	-	0.10	-	4.98	-	0.10	-	NC	-
VC 0421	Balsam pear (Bitter cucumber, Bitter gourd, Bitter melon)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
VC 0422	Bottle gourd (Cucuzzi)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
VC 0423	Chayote (Christophine)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-

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Codex Code	Commodity description	Expr as	STMR mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
				Diets: g/person/day			Intake = daily intake: ug/person						
VC 0424	Cucumber, raw	RAC		0.68	-	1.81	-	10.40	-	0.10	-	0.10	-
VC 0425	Gherkin, raw	RAC		0.15	-	0.39	-	3.15	-	0.10	-	0.10	-
VC 0427	Loofah, Angled (Sinkwa, Sinkwa towel gourd), raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
VC 0428	Loofah, Smooth, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
VC 0430	Snake gourd	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
VC 0431	Squash, summer, raw (= courgette, zuchini)	RAC		0.10	-	1.01	-	NC	-	1.91	-	NC	-
VC 0432	Watermelon, raw	RAC		4.29	-	0.30	-	28.70	-	0.10	-	NC	-
VC 0433	Winter squash, raw (= pumpkin)	RAC		0.56	-	6.14	-	4.59	-	11.70	-	NC	-
012	FRUITING VEGETABLES OTHER THAN CUCURBITS	-		-	-	-	-	-	-	-	-	-	-
VO 0050	Fruiting vegetables other than cucurbits, raw (incl processed commodities)	RAC		39.73	-	57.72	-	121.60	-	3.82	-	12.67	-
VO 0050	Fruiting vegetables other than cucurbits, raw, (incl processed commodities), excl sweet corn commodities, excl mushroom commodities	RAC		36.09	-	37.19	-	109.09	-	3.78	-	12.50	-
VO 0050	Fruiting vegetables other than cucurbits, raw, (incl processed commodities), excl tomato commodities, excl sweet corn commodities, excl mushroom commodities	RAC		20.58	-	31.41	-	37.56	-	1.79	-	NC	-
VO 0440	Egg plants, raw (= aubergines)	RAC	0.053	1.31	0.07	8.26	0.43	3.95	0.21	0.10	0.01	NC	-
VO 0442	Okra, raw	RAC		6.23	-	0.10	-	NC	-	NC	-	NC	-
VO 0443	Pepino (Melon pear, Tree melon)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
VO 0444	Peppers, chili, raw (incl dried)	RAC		7.55	-	12.48	-	24.78	-	0.87	-	NC	-
VO 0444	Peppers, chili, raw	RAC		3.47	-	3.56	-	16.30	-	0.10	-	NC	-
-	Peppers, chili, dried	PP		0.58	-	1.27	-	1.21	-	0.12	-	NC	-
VO 0445	Peppers, sweet, raw (incl dried)	RAC		5.49	-	10.57	-	8.84	-	0.91	-	NC	-
VO 0445	Peppers, sweet, raw	RAC		1.24	-	1.27	-	NC	-	0.10	-	NC	-
-	Peppers, sweet, dried	PP		0.58	-	1.27	-	1.21	-	0.12	-	NC	-
VO 0447	Sweet corn on the cob, raw (incl frozen, incl canned) (i.e. kernels plus cob without husks)	RAC		3.63	-	20.50	-	8.78	-	0.10	-	0.17	-
VO 0447	Sweet corn on the cob, raw (incl frozen, excl canned) (i.e. kernels plus cob without husks)	RAC		3.62	-	20.47	-	6.82	-	0.10	-	0.17	-

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			STMR	Diets: g/person/day		Intake = daily intake: ug/person							
Codex Code	Commodity description	Expr as	mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
VO 0447	Sweet corn on the cob, raw (incl canned, excl frozen) (i.e. kernels plus cob without husks)	RAC		3.62	-	20.47	-	7.96	-	0.10	-	0.17	-
VO 0447	Sweet corn on the cob, raw (i.e kernels plus cob without husks)	RAC		3.61	-	20.45	-	6.00	-	0.10	-	0.17	-
VO 0447	Sweet corn, frozen (kernels)	PP		0.10	-	0.10	-	0.44	-	0.10	-	NC	-
VO 0447	Sweet corn, canned (kernels)	PP		0.10	-	0.10	-	1.07	-	0.10	-	NC	-
VO 0448	Tomato, raw (incl juice, incl paste, incl canned)	RAC	0.053	15.50	0.81	5.78	0.30	71.52	3.75	2.00	0.11	12.50	0.66
VO 0448	Tomato, raw (incl juice, incl paste, excl canned)	RAC		15.40	-	5.66	-	67.76	-	1.88	-	12.50	-
VO 0448	Tomato, raw (incl juice, incl canned, excl paste)	RAC		13.17	-	4.92	-	62.69	-	1.04	-	0.11	-
VO 0448	Tomato, raw (incl paste, incl canned, excl juice)	RAC		15.44	-	5.77	-	70.99	-	1.99	-	12.48	-
VO 0448	Tomato, raw (incl juice, excl paste, excl canned)	RAC		13.06	-	4.80	-	58.93	-	0.92	-	0.11	-
VO 0448	Tomato, raw (incl paste, excl juice, excl canned)	RAC		15.33	-	5.65	-	67.23	-	1.88	-	12.48	-
VO 0448	Tomato, raw (incl canned, excl juice, excl paste)	RAC		13.10	-	4.90	-	62.16	-	1.04	-	0.10	-
VO 0448	Tomato, raw	RAC		12.99	-	4.79	-	58.40	-	0.92	-	0.10	-
-	Tomato, canned (& peeled)	PP		0.10	-	0.10	-	2.42	-	0.10	-	NC	-
-	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP		0.58	-	0.22	-	2.21	-	0.24	-	3.10	-
JF 0448	Tomato, juice (single strength, incl concentrated)	PP		0.10	-	0.10	-	0.42	-	0.10	-	0.10	-
-	Mushrooms (cultivated & wild), raw (incl canned, incl dried)	RAC		0.10	-	0.10	-	3.73	-	0.10	-	NC	-
-	Mushrooms (cultivated & wild), raw (incl canned, excl dried)	RAC		0.10	-	0.10	-	3.11	-	0.10	-	NC	-
-	Mushrooms (cultivated & wild), raw (incl dried, excl canned)	RAC		0.10	-	0.10	-	1.92	-	0.10	-	NC	-
-	Mushrooms (cultivated & wild), raw	RAC		0.10	-	0.10	-	1.82	-	0.10	-	NC	-
-	Mushrooms (cultivated & wild), canned	PP		0.10	-	0.10	-	1.29	-	0.10	-	NC	-
-	Mushrooms (cultivated & wild), dried	PP		0.10	-	0.10	-	0.10	-	0.10	-	NC	-
-	Gilo (scarlet egg plant)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
-	Goji berry	RAC		NC	-	NC	-	NC	-	NC	-	NC	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day		Intake = daily intake: ug/person							
				G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
-	Quorn	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
-	Seaweed	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
013	LEAFY VEGETABLES	-		-	-	-	-	-	-	-	-	-	-
VL 0053	Leafy vegetables, raw	RAC		12.42	-	8.75	-	7.53	-	7.07	-	14.11	-
VL 0053	Leafy vegetables, raw (excl brassica leafy vegetables)	RAC		10.92	-	7.58	-	7.53	-	7.06	-	14.11	-
VL 0054	Brassica leafy vegetables, raw	RAC		1.50	-	1.17	-	NC	-	0.10	-	NC	-
VL 0269	Grape leaves, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
VL 0446	Roselle leaves, raw (vinagreira)	RAC		0.67	-	0.48	-	NC	-	0.45	-	0.90	-
VL 0460	Amaranth leaves, raw (i.e. bledo)	RAC		1.87	-	1.35	-	NC	-	1.27	-	2.53	-
VL 0463	Cassava leaves, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
VL 0464	Chard, raw (i.e. beet leaves)	RAC		0.68	-	0.49	-	NC	-	0.46	-	0.92	-
VL 0465	Chervil, raw	RAC		0.33	-	0.24	-	NC	-	0.22	-	0.45	-
VL 0466	Chinese cabbage, type pak-choi, raw (i.e. Brassica)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
VL 0467	Chinese cabbage, type pe-tsai, raw (i.e. Brassica)	RAC		0.62	-	0.49	-	NC	-	0.10	-	NC	-
VL 0469	Chicory leaves (sugar loaf), raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
VL 0470	Lambs lettuce, raw (i.e. corn salad)	RAC		1.09	-	0.79	-	NC	-	0.74	-	1.47	-
VL 0472	Garden cress, raw	RAC		0.10	-	0.10	-	NC	-	0.10	-	0.13	-
VL 0473	Watercress, raw	RAC		2.08	-	1.50	-	0.10	-	1.41	-	2.81	-
VL 0474	Dandelion leaves, raw	RAC		0.22	-	0.16	-	NC	-	0.15	-	0.29	-
VL 0476	Endive, raw (i.e. scarole)	RAC		0.10	-	0.10	-	0.10	-	0.10	-	NC	-
VL 0478	Indian mustard (Amsoi) (i.e. Brassica)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
VL 0479	Japanese greens, raw (i.e. Chrysanthemum)	RAC		0.10	-	0.10	-	NC	-	0.10	-	0.10	-
VL 0480	Kale, raw (i.e. collards) (i.e. Brassica)	RAC		0.79	-	0.62	-	NC	-	0.10	-	NC	-
VL 0481	Komatsuna, raw (i.e. Brassica)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
VL 0482	Lettuce, head, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
VL 0483	Lettuce, leaf, raw	RAC	0.013	0.29	0.00	0.10	0.00	6.71	0.09	0.10	0.00	NC	-
VL 0485	Mustard greens, raw (i.e. Brassica)	RAC		0.10	-	0.10	-	NC	-	0.10	-	NC	-
VL 0492	Purslane, raw	RAC		0.10	-	0.10	-	NC	-	0.10	-	0.10	-
VL 0494	Radish leaves, raw	RAC		0.44	-	0.32	-	NC	-	0.30	-	0.59	-
VL 0495	Rape greens, raw (i.e. Brassica)	RAC		0.10	-	0.10	-	NC	-	0.10	-	NC	-
VL 0496	Rucola, raw (i.e. arrugula, rocket salad, roquette)	RAC		2.17	-	1.57	-	NC	-	1.47	-	2.93	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

			STMR	Diets: g/person/day		Intake = daily intake: ug/person							
Codex Code	Commodity description	Expr as	mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
VL 0501	Sowthistle, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
VL 0502	Spinach, raw	RAC		0.17	-	0.10	-	0.81	-	0.10	-	NC	-
VL 0503	Indian spinach, raw (i.e. vine spinach)	RAC		0.10	-	0.10	-	NC	-	0.10	-	0.10	-
VL 0504	Tannia leaves, raw (i.e. taioba)	RAC		0.30	-	0.22	-	NC	-	0.20	-	0.41	-
VL 0505	Taro leaves, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
VL 0506	Turnip greens, raw (i.e. Namenia, Tendergreen)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
VL 0507	Kang kung, raw (i.e. water spinach)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
VL 0510	Cos lettuce, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
-	Perilla leaves, raw (i.e. sesame leaves)	RAC		0.26	-	0.19	-	NC	-	0.18	-	0.35	-
-	Bracken, raw (i.e. ferns)	RAC		0.18	-	0.13	-	NC	-	0.12	-	0.24	-
-	Water parsley, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
-	Chinese cabbage flowering stalk, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
014	LEGUME VEGETABLES	-		-	-	-	-	-	-	-	-	-	-
VP 0060	Legume vegetables, raw	RAC		0.58	-	3.16	-	10.38	-	0.10	-	NC	-
VP 0061	Beans, green, with pods, raw: beans except broad bean & soya bean (i.e. immature seeds + pods) (Phaseolus spp)	RAC	0.32	NC	-	NC	-	NC	-	NC	-	NC	-
VP 0062	Beans, green, without pods, raw: beans except broad bean & soya bean (i.e. immature seeds only) (Phaseolus spp..)	RAC		0.30	-	3.13	-	4.11	-	0.10	-	NC	-
VP 0063	Peas green, with pods, raw (i.e. immature seeds + pods) (Pisum spp)	RAC	0.44	NC	-	NC	-	NC	-	NC	-	NC	-
VP 0064	Peas, green, without pods, raw (i.e. immature seeds only) (Pisum spp)	RAC	0.42	0.21	0.09	0.10	0.04	5.51	2.31	0.10	0.04	NC	-
VP 0520	Bambara groundnut, green, without pods (i.e. immature seeds only) (Voandzeia spp)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
VP 0522	Broad bean, green, with pods (i.e. immature seeds + pods) (Vicia spp)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
VP 0523	Broad beans, green, without pods, raw (i.e. immature seeds only) (Vicia faba)	RAC		0.10	-	0.10	-	0.76	-	NC	-	NC	-
VP 0541	Soya bean, green, without pods, raw (i.e. immature seeds only) (Glycine max)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
VP 0542	Sword bean, green, with pods (i.e. immature seeds + pods) (Canavalia spp)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
VP 0553	Lentil, green, with pods (i.e. immature seeds + pods) (Lens spp)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day	Intake = daily intake: ug/person								
				G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
015	PULSES	-		-	-	-	-	-	-	-	-	-	-
VD 0070	Pulses, raw (incl processed)	RAC		44.03	-	29.00	-	112.51	-	75.50	-	39.69	-
VD 0070	Pulses, raw (incl processed), excl soya bean commodities	RAC		28.22	-	14.71	-	8.15	-	58.39	-	4.48	-
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	2.4	7.11	17.17	2.33	5.63	3.76	9.08	44.70	107.95	3.27	7.90
VD 0072	Peas, dry, raw (Pisum spp, Vigna spp): garden peas & field peas & cow peas	RAC	0.40	14.30	5.71	3.51	1.40	3.52	1.40	7.89	3.15	0.74	0.30
VD 0520	Bambara beans, dry, raw (Voandzeia subterranea)	RAC		0.20	-	NC	-	NC	-	NC	-	NC	-
VD 0523	Broad bean, dry, raw (incl horse-bean, broad bean, field bean) (Vicia faba)	RAC		3.70	-	0.10	-	0.17	-	0.10	-	NC	-
VD 0524	Chick-pea, dry, raw (Cicer arietinum)	RAC		1.09	-	1.56	-	0.33	-	0.18	-	0.47	-
VD 0531	Hyacinth bean (dry) (Lablab spp), raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
VD 0533	Lentil, dry, raw (Ervum lens)	RAC		0.67	-	7.26	-	0.37	-	0.10	-	NC	-
VD 0537	Pigeon pea dry, raw (Cajanus cajan)	RAC		1.14	-	0.10	-	NC	-	5.53	-	NC	-
VD 0541	Soya bean, dry, raw (incl paste, incl curd, incl oil, incl sauce)	RAC		15.80	-	14.29	-	104.36	-	17.11	-	35.20	-
VD 0541	Soya bean, dry, raw (incl flour, incl paste, incl curd, incl oil, excl sauce)	RAC		15.80	-	14.24	-	104.29	-	17.11	-	34.98	-
VD 0541	Soya bean, dry, raw (incl flour, incl paste, incl curd, incl sauce, excl oil)	RAC		2.89	-	0.21	-	0.48	-	3.16	-	0.26	-
VD 0541	Soya bean, dry, raw (incl flour, incl paste, incl oil, incl sauce, excl curd)	RAC		15.80	-	14.29	-	104.36	-	17.11	-	35.20	-
VD 0541	Soya bean, dry, raw (incl flour, incl curd, incl oil, incl sauce, excl paste)	RAC		15.80	-	14.29	-	104.36	-	17.11	-	35.20	-
VD 0541	Soya bean, dry, raw (incl flour, incl paste, incl curd, excl oil, excl sauce)	RAC		2.89	-	0.16	-	0.42	-	3.16	-	0.10	-
VD 0541	Soya bean, dry, raw (incl flour, incl paste, incl oil, excl sauce, excl curd)	RAC		15.80	-	14.24	-	104.29	-	17.11	-	34.98	-
VD 0541	Soya bean, dry, raw (incl flour, incl paste, incl sauce, excl curd, excl oil)	RAC		2.89	-	0.21	-	0.48	-	3.16	-	0.26	-
VD 0541	Soya bean, dry, raw (incl flour,incl curd, incl oil, excl sauce, excl paste)	RAC		15.80	-	14.24	-	104.29	-	17.11	-	34.98	-
VD 0541	Soya bean, dry, raw (incl flour, incl curd, incl sauce, excl paste, excl oil)	RAC		2.89	-	0.21	-	0.48	-	3.16	-	0.26	-
VD 0541	Soya bean, dry, raw (incl flour, incl oil, incl	RAC		15.80	-	14.29	-	104.36	-	17.11	-	35.20	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day		Intake = daily intake: ug/person							
				G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
	sauce, excl paste, excl curd)												
VD 0541	Soya bean, dry, raw (incl flour, incl paste, excl curd, excl oil, excl sauce)	RAC		2.89	-	0.16	-	0.42	-	3.16	-	0.10	-
VD 0541	Soya bean, dry, raw (incl flour, incl curd, excl oil, excl paste, excl sauce)	RAC		2.89	-	0.16	-	0.42	-	3.16	-	0.10	-
VD 0541	Soya bean, dry, raw (incl flour, incl oil, excl paste, excl curd, excl sauce)	RAC		15.80	-	14.24	-	104.29	-	17.11	-	34.98	-
VD 0541	Soya bean, dry, raw (incl flour, incl sauce, excl paste, excl curd, excl oil)	RAC		2.89	-	0.21	-	0.48	-	3.16	-	0.26	-
VD 0541	Soya bean, dry, raw (Glycine soja)	RAC	2.9	2.76	8.11	0.10	0.29	0.33	0.97	3.16	9.29	NC	-
-	Soya paste (i.e. miso)	PP	2.9	NC	-	NC	-	NC	-	NC	-	NC	-
-	Soya curd (i.e. tofu)	PP	2.9	NC	-	NC	-	NC	-	NC	-	NC	-
OR 0541	Soya oil, refined	PP	2.4	2.32	5.57	2.54	6.10	18.70	44.88	2.51	6.02	6.29	15.10
-	Soya sauce	PP	2.9	0.10	0.29	0.13	0.38	0.17	0.50	0.10	0.29	0.56	1.65
-	Soya flour	PP	3.2	0.11	0.35	0.10	0.32	0.10	0.32	0.10	0.32	0.10	0.32
-	Pulses, NES, dry, raw: lablab or hyacinth bean, jack or sword bean, winged bean, guar bean, velvet bean, yam bean (Dolichos spp., Canavalia spp., Psophocarpus tetragonolobus, Cyamopsis tetragonoloba, Stizolobium spp., Pachyrrhizus erosus)	RAC		2.54	-	1.77	-	0.10	-	0.10	-	3.99	-
-	Mung bean sprouts	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
-	Soybean sprouts	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
016	ROOT AND TUBER VEGETABLES	-		-	-	-	-	-	-	-	-	-	-
VR 0075	Root and tuber vegetables, raw (incl processed)	RAC		282.25	-	232.11	-	281.91	-	620.21	-	459.96	-
VR 0463	Cassava raw (incl starch, incl tapioca, incl flour)	RAC		91.92	-	34.12	-	NC	-	259.92	-	45.48	-
VR 0463	Cassava raw (incl starch, incl flour, excl tapioca)	RAC		87.78	-	33.53	-	NC	-	259.92	-	45.48	-
VR 0463	Cassava raw (incl starch, incl tapioca, excl flour)	RAC		41.16	-	34.12	-	NC	-	203.39	-	45.48	-
VR 0463	Cassava raw (incl tapioca, incl flour, excl starch)	RAC		91.92	-	34.05	-	NC	-	259.92	-	45.48	-
VR 0463	Cassava raw (incl starch, excl tapioca, excl flour)	RAC		37.02	-	33.53	-	NC	-	203.39	-	45.48	-
VR 0463	Cassava raw (incl tapioca, excl flour, excl	RAC		41.16	-	34.05	-	NC	-	203.38	-	45.48	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day		Intake = daily intake: ug/person							
				G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
	starch)												
VR 0463	Cassava raw (incl flour, excl tapioca, excl starch)	RAC		87.77	-	33.46	-	NC	-	259.92	-	45.48	-
VR 0463	Cassava, raw	RAC		37.01	-	33.46	-	NC	-	203.38	-	45.48	-
-	Cassava, flour	PP		14.21	-	NC	-	NC	-	15.83	-	NC	-
-	Cassava, starch	PP		0.10	-	0.10	-	NC	-	0.10	-	NC	-
-	Cassava, tapioca	PP		1.16	-	0.16	-	NC	-	0.10	-	NC	-
VR 0469	Chicory, roots, raw	RAC		0.10	-	0.10	-	0.10	-	NC	-	NC	-
VR 0494	Radish roots, raw	RAC		3.96	-	2.86	-	3.30	-	2.67	-	5.34	-
VR 0497	Swede, raw (i.e. rutabaga)	RAC	1.3	2.71	3.41	1.96	2.47	7.80	9.81	1.83	2.30	3.66	4.60
VR 0498	Salsify, raw (i.e. oysterplant)	RAC		0.36	-	0.26	-	NC	-	0.24	-	0.48	-
VR 0504	Tannia, raw (i.e. yautia)	RAC		NC	-	NC	-	0.10	-	NC	-	NC	-
VR 0505	Taro, raw	RAC		6.71	-	31.91	-	NC	-	10.73	-	264.31	-
VR 0506	Garden turnip, raw	RAC	1.3	4.29	5.40	3.10	3.90	6.41	8.06	2.90	3.65	5.79	7.28
VR 0508	Sweet potato, raw (incl dried)	RAC	1.0	28.83	28.95	61.55	61.81	0.15	0.15	221.94	222.88	NC	-
VR 0573	Arrowroot, raw	RAC		13.83	-	18.24	-	0.10	-	0.10	-	19.60	-
VR 0574	Beetroot, raw	RAC		5.86	-	4.23	-	9.46	-	3.96	-	7.91	-
VR 0575	Burdock, greater or edible, raw	RAC		0.10	-	0.10	-	NC	-	0.10	-	0.10	-
VR 0577	Carrots, raw	RAC	0.18	2.07	0.36	3.00	0.53	25.29	4.44	0.10	0.02	NC	-
VR 0578	Celeriac, raw	RAC	0.12	2.91	0.34	2.10	0.25	7.59	0.89	1.97	0.23	3.93	0.46
VR 0583	Horseradish, raw	RAC		0.88	-	0.63	-	0.54	-	0.59	-	1.19	-
VR 0585	Jerusalem artichoke, raw (i.e. topinambur)	RAC		14.22	-	18.75	-	0.10	-	0.10	-	20.14	-
VR 0587	Parsley turnip-rooted, raw	RAC		0.55	-	0.40	-	4.29	-	0.37	-	0.74	-
VR 0588	Parsnip, raw	RAC		1.02	-	0.74	-	3.50	-	0.69	-	1.37	-
VR 0589	Potato, raw (incl flour, incl frozen, incl starch, incl tapioca)	RAC	0.098	23.96	2.34	13.56	1.32	213.41	20.81	104.35	10.17	8.56	0.83
VR 0589	Potato, raw (incl flour, incl frozen, incl tapioca, excl starch)	RAC		23.96	-	13.54	-	213.41	-	104.35	-	8.56	-
VR 0589	Potato, raw (incl flour, incl starch, incl tapioca, excl frozen)	RAC		22.73	-	11.43	-	196.50	-	100.53	-	8.36	-
VR 0589	Potato, raw (incl frozen, incl starch, incl tapioca, excl flour)	RAC		23.72	-	12.63	-	211.06	-	101.89	-	8.53	-
VR 0589	Potato, raw (incl frozen, incl starch, incl flour, excl tapioca)	RAC		23.92	-	13.54	-	212.36	-	104.27	-	8.27	-
VR 0589	Potato, raw (incl flour, incl tapioca, excl	RAC		22.73	-	11.41	-	196.50	-	100.53	-	8.36	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day		Intake = daily intake: ug/person							
				G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
	frozen, excl starch)												
VR 0589	Potato, raw (incl frozen, incl tapioca, excl flour, excl starch)	RAC		23.72	-	12.61	-	211.06	-	101.89	-	8.53	-
VR 0589	Potato, raw (incl frozen, incl flour, excl tapioca, excl starch)	RAC		23.92	-	13.53	-	212.36	-	104.27	-	8.27	-
VR 0589	Potato, raw (incl starch, incl tapioca, excl flour, excl frozen)	RAC		22.49	-	10.50	-	194.15	-	98.07	-	8.32	-
VR 0589	Potato, raw (incl frozen, incl starch, excl tapioca, excl flour)	RAC		23.68	-	12.61	-	210.01	-	101.81	-	8.23	-
VR 0589	Potato, raw (incl flour, incl starch, excl frozen, excl tapioca)	RAC		22.69	-	11.42	-	195.45	-	100.46	-	8.07	-
VR 0589	Potato, raw (incl starch, excl tapioca, excl flour, excl frozen)	RAC		22.45	-	10.49	-	193.10	-	98.00	-	8.03	-
VR 0589	Potato, raw (incl frozen, excl starch, excl tapioca, excl flour)	RAC		23.68	-	12.60	-	210.01	-	101.81	-	8.23	-
VR 0589	Potato, raw (incl flour, excl starch, excl frozen, excl tapioca)	RAC		22.69	-	11.40	-	195.45	-	100.46	-	8.07	-
VR 0589	Potato, raw (incl tapioca, excl starch, excl frozen, excl flour)	RAC		22.49	-	10.48	-	194.15	-	98.07	-	8.32	-
VR 0589	Potato, raw	RAC		22.45	-	10.47	-	193.10	-	98.00	-	8.03	-
-	Potato, flour	PP		0.10	-	0.20	-	0.52	-	0.54	-	0.10	-
-	Potato, frozen	PP		0.64	-	1.11	-	8.79	-	1.98	-	0.11	-
-	Potato, starch	PP		0.10	-	0.10	-	NC	-	NC	-	NC	-
-	Potato, tapioca	PP		0.10	-	0.10	-	0.23	-	0.10	-	0.10	-
VR 0590	Black radish, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
VR 0591	Japanese radish, raw (i.e. daikon)	RAC		3.25	-	2.35	-	NC	-	2.20	-	4.39	-
VR 0596	Sugar beet, raw (incl sugar)	RAC		3.93	-	1.68	-	NC	-	NC	-	36.12	-
VR 0596	Sugar beet, raw	RAC	0.19	0.10	0.02	NC	-	NC	-	NC	-	NC	-
-	Sugar beet, sugar	PP	0.066	0.56	0.04	0.24	0.02	NC	-	NC	-	5.13	0.34
VR 0600	Yams, raw (incl dried)	RAC	1.0	70.93	71.23	30.62	30.75	0.10	0.10	5.65	5.67	30.85	30.98
-	Lotus root, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
-	Water chestnut, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
017	STALK AND STEM VEGETABLES	-		-	-	-	-	-	-	-	-	-	-
-	Stalk and stem vegetables, raw	RAC		8.98	-	6.47	-	7.59	-	6.06	-	12.10	-
VS 0469	Witloof chicory (sprouts)	RAC		0.10	-	0.10	-	0.10	-	0.10	-	NC	-
VS 0620	Artichoke globe	RAC		0.10	-	NC	-	0.10	-	0.10	-	NC	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day G13 diet	G13 intake	Intake = daily intake: ug/person G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
VS 0621	Asparagus	RAC		0.10	-	0.10	-	0.17	-	0.10	-	NC	-
VS 0622	Bamboo shoots	RAC		2.95	-	2.13	-	1.52	-	2.00	-	3.99	-
VS 0623	Cardoon	RAC		0.41	-	0.30	-	NC	-	0.28	-	0.56	-
VS 0624	Celery	RAC		3.66	-	2.65	-	4.84	-	2.47	-	4.94	-
VS 0626	Palm hearts	RAC		0.67	-	0.49	-	NC	-	0.46	-	0.91	-
VS 0627	Rhubarb	RAC		1.26	-	0.91	-	0.96	-	0.85	-	1.70	-
020	CEREAL GRAINS	-		-	-	-	-	-	-	-	-	-	-
GC 0080	Cereal grains, raw, (incl processed)	RAC		407.04	-	417.04	-	402.79	-	195.30	-	263.26	-
GC 0080	Cereal grains, raw (incl processed), excl rice commodities	RAC		354.49	-	131.02	-	384.15	-	175.62	-	188.16	-
GC 0640	Barley, raw (incl malt extract, incl pot&pearled, incl flour & grits, incl beer, incl malt)	RAC		11.58	-	2.33	-	46.71	-	3.72	-	16.26	-
GC 0640	Barley, raw (incl malt extract, incl pot&pearled, incl flour & grits, incl beer, excl malt)	RAC		11.57	-	2.18	-	45.80	-	3.72	-	10.02	-
GC 0640	Barley, raw (incl malt extract, incl pot&pearled, incl flour & grits, incl malt, excl beer)	RAC		8.50	-	0.17	-	3.92	-	0.10	-	6.34	-
GC 0640	Barley, raw (incl malt extract, incl pot&pearled, incl beer, incl malt, excl flour & grits)	RAC		11.54	-	2.33	-	46.13	-	3.72	-	16.26	-
GC 0640	Barley, raw (incl malt extract, incl flour & grits, incl beer, incl malt, excl pot&pearled)	RAC		3.19	-	2.31	-	44.50	-	3.72	-	16.26	-
GC 0640	Barley, raw (incl malt extract, incl pot&pearled, incl flour & grits, excl beer, excl malt)	RAC		8.49	-	0.10	-	3.01	-	0.10	-	0.11	-
GC 0640	Barley, raw (incl malt extract, incl pot&pearled, incl beer, excl flour & grits, excl malt)	RAC		11.53	-	2.18	-	45.22	-	3.71	-	10.02	-
GC 0640	Barley, raw (incl malt extract, incl pot&pearled, incl malt, excl flour & grits, excl beer,)	RAC		5.52	-	0.17	-	2.56	-	0.10	-	6.34	-
GC 0640	Barley, raw (incl malt extract, incl flour & grits, incl beer, excl pot&pearled, excl malt)	RAC		3.17	-	2.16	-	43.59	-	3.71	-	10.02	-
GC 0640	Barley, raw (incl malt extract, incl flour &	RAC		0.10	-	0.15	-	1.71	-	0.10	-	6.34	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

			STMR	Diets: g/person/day		Intake = daily intake: ug/person							
Codex Code	Commodity description	Expr as	mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
	grits, incl malt, excl pot&pearled, excl beer)												
GC 0640	Barley, raw (incl malt extract, incl beer, incl malt, excl pot&pearled, excl flour & grits)	RAC		3.15	-	2.31	-	43.92	-	3.72	-	16.26	-
GC 0640	Barley, raw (incl malt extract, incl pot&pearled, excl flour & grits, excl beer, excl malt)	RAC		8.45	-	0.10	-	2.43	-	0.10	-	0.11	-
GC 0640	Barley, raw (incl malt extract, incl flour & grits, excl pot&pearled, excl beer, excl malt)	RAC		0.10	-	0.10	-	0.80	-	0.10	-	0.11	-
GC 0640	Barley, raw (incl malt extract, incl beer, excl pot&pearled, excl flour&grits, excl malt)	RAC		3.13	-	2.16	-	43.01	-	3.71	-	10.02	-
GC 0640	Barley, raw (incl malt extract, incl malt, excl pot&pearled, excl flour & grits,excl beer)	RAC		0.10	-	0.15	-	1.13	-	0.10	-	6.34	-
GC 0640	Barley, raw	RAC		0.10	-	0.10	-	0.16	-	NC	-	NC	-
-	Barley, pot&pearled	PP		5.46	-	0.10	-	1.44	-	0.10	-	NC	-
-	Barley, flour (white flour and wholemeal flour)	PP		0.10	-	NC	-	0.32	-	0.10	-	NC	-
-	Barley beer	PP		16.25	-	11.36	-	225.21	-	19.49	-	52.17	-
-	Barley Malt	PP		0.10	-	0.11	-	0.67	-	0.10	-	4.61	-
-	Barley Malt Extract	PP		0.10	-	0.10	-	0.10	-	0.10	-	0.10	-
GC 0641	Buckwheat, raw (incl flour)	RAC		0.10	-	2.82	-	0.10	-	0.10	-	NC	-
GC 0641	Buckwheat, raw	RAC		0.10	-	2.82	-	0.10	-	0.10	-	NC	-
-	Buckwheat, flour (white flour and wholemeal flour)	PP		NC	-	NC	-	NC	-	NC	-	NC	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl oil, incl beer, incl germ, incl starch)	RAC		116.66	-	10.52	-	38.46	-	76.60	-	34.44	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl oil, incl beer, incl germ, excl starch)	RAC		116.63	-	10.50	-	38.46	-	76.60	-	34.44	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl oil, incl beer, incl starch, excl germ)	RAC		116.66	-	10.52	-	38.46	-	76.60	-	34.44	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl oil, incl germ, incl starch, excl beer)	RAC		116.46	-	10.52	-	38.46	-	68.82	-	34.44	-
GC 0645	Maize, raw (incl glucose & dextrose &	RAC		116.33	-	10.45	-	37.65	-	76.60	-	34.44	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day G13 diet	G13 intake	Intake = daily intake: ug/person G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
	isoglucose, incl flour, incl beer, incl germ, incl starch, excl oil)												
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl oil, incl beer, incl germ, incl starch, excl flour)	RAC		0.91	-	0.59	-	4.07	-	7.96	-	NC	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl oil, incl beer, excl germ, excl starch)	RAC		116.63	-	10.50	-	38.46	-	76.60	-	34.44	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl oil, incl germ, excl beer, excl starch)	RAC		116.44	-	10.50	-	38.46	-	68.82	-	34.44	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl oil, incl starch, excl beer, excl germ)	RAC		116.46	-	10.52	-	38.46	-	68.82	-	34.44	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl beer, incl germ, excl starch, excl oil)	RAC		116.30	-	10.44	-	37.65	-	76.60	-	34.44	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl beer, incl starch, excl oil, excl germ)	RAC		116.33	-	10.45	-	37.65	-	76.60	-	34.44	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl germ, incl starch, excl oil, excl beer)	RAC		116.14	-	10.45	-	37.65	-	68.82	-	34.44	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl oil, incl beer, incl germ, excl starch, excl flour)	RAC		0.88	-	0.58	-	4.07	-	7.96	-	NC	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl starch, incl oil, incl beer, excl germ, excl flour)	RAC		0.90	-	0.59	-	4.07	-	7.96	-	NC	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl oil, incl germ, incl starch, excl flour, excl beer)	RAC		0.71	-	0.59	-	4.07	-	0.19	-	NC	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl beer, incl germ, incl starch, excl flour, excl oil)	RAC		0.58	-	0.52	-	3.26	-	7.96	-	NC	-
GC 0645	Maize, raw (incl glucose & dextrose &	RAC		116.43	-	10.50	-	38.46	-	68.82	-	34.44	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day G13 diet	G13 intake	G14 diet	Intake = daily intake: ug/person G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
	isoglucose, incl flour, incl oil, excl beer, excl germ, excl starch)												
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl beer, excl germ, excl starch, excl oil)	RAC		116.30	-	10.44	-	37.65	-	76.60	-	34.44	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl germ, excl starch, excl oil, excl beer)	RAC		116.11	-	10.44	-	37.65	-	68.82	-	34.44	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl starch, excl oil, excl beer, excl germ)	RAC		116.13	-	10.45	-	37.65	-	68.82	-	34.44	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl oil, incl beer, excl flour, excl germ, excl starch)	RAC		0.87	-	0.58	-	4.07	-	7.96	-	NC	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl oil, incl germ, excl flour, excl beer, excl starch)	RAC		0.68	-	0.58	-	4.07	-	0.19	-	NC	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl starch, incl oil, excl beer, excl germ, excl flour)	RAC		0.70	-	0.59	-	4.07	-	0.19	-	NC	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl beer, incl germ, excl flour, excl oil, excl starch)	RAC		0.55	-	0.51	-	3.26	-	7.96	-	NC	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl beer, incl starch, excl flour, excl oil, excl germ)	RAC		0.57	-	0.52	-	3.26	-	7.96	-	NC	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl germ, incl starch, excl flour, excl oil, excl beer)	RAC		0.38	-	0.52	-	3.26	-	0.18	-	NC	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, excl oil, excl beer, excl germ, excl starch)	RAC		116.10	-	10.44	-	37.65	-	68.82	-	34.44	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl oil, excl flour, excl beer,excl germ, excl starch)	RAC		0.68	-	0.58	-	4.07	-	0.19	-	NC	-
GC 0645	Maize, raw (incl glucose & dextrose &	RAC		0.54	-	0.51	-	3.26	-	7.96	-	NC	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

			STMR	Diets: g/person/day		Intake = daily intake: ug/person							
Codex Code	Commodity description	Expr as	mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
	isoglucose, incl beer, excl flour, excl oil, excl germ, excl starch)												
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl germ, excl flour, excl oil, excl beer, excl starch)	RAC		0.35	-	0.51	-	3.26	-	0.18	-	NC	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl starch, excl flour, excl oil, excl beer, excl germ)	RAC		0.37	-	0.52	-	3.26	-	0.18	-	NC	-
GC 0645	Maize, raw	RAC		NC	-	0.10	-	0.10	-	NC	-	NC	-
GC 0656	Popcorn (i.e. maize used for preparation of popcorn)	RAC		-	-	-	-	-	-	-	-	-	-
CF 1255	Maize, flour (white flour and wholemeal flour)	PP		94.34	-	8.09	-	28.03	-	55.94	-	28.07	-
-	Maize, germ	PP		0.10	-	NC	-	NC	-	NC	-	NC	-
-	Maize starch	PP		0.10	-	0.10	-	NC	-	NC	-	NC	-
-	Maize, glucose, isoglucose and Dextrose	PP		0.35	-	0.51	-	3.23	-	0.18	-	NC	-
-	Maize beer	PP		1.03	-	NC	-	NC	-	40.94	-	NC	-
OR 0645	Maize oil	PP		0.33	-	0.10	-	0.81	-	0.10	-	NC	-
GC 0646	Millet, raw (incl flour, incl beer)	RAC		61.13	-	0.78	-	NC	-	33.55	-	NC	-
GC 0646	Millet, raw (incl flour, excl beer)	RAC		60.02	-	0.78	-	NC	-	29.19	-	NC	-
GC 0646	Millet, raw (incl beer, excl flour)	RAC		1.10	-	NC	-	NC	-	4.36	-	NC	-
GC 0646	Millet, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
-	Millet, flour (white flour and wholemeal flour)	PP		54.02	-	0.70	-	NC	-	26.27	-	NC	-
-	Millet beer	PP		5.80	-	NC	-	NC	-	22.96	-	NC	-
GC 0647	Oats, raw (incl rolled)	RAC		0.37	-	0.10	-	2.79	-	0.10	-	NC	-
GC 0647	Oats, raw	RAC		0.10	-	0.10	-	NC	-	0.10	-	NC	-
GC 0647	Oats, rolled (i.e. oatmeal dry)	PP		0.20	-	0.10	-	1.54	-	0.10	-	NC	-
GC 0648	Quinoa, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl flour, incl starch, incl oil, incl beverages)	REP		52.55	-	286.02	-	18.64	-	19.67	-	75.09	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl flour, incl oil, incl beverages, excl starch)	REP		52.54	-	285.98	-	18.64	-	19.67	-	75.09	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl flour, incl oil, incl starch, excl beverages)	REP		52.55	-	286.02	-	18.64	-	19.67	-	75.09	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

			STMR	Diets: g/person/day		Intake = daily intake: ug/person							
Codex Code	Commodity description	Expr as	mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl flour, incl beverages, incl starch, excl oil)	REP		52.55	-	285.42	-	18.64	-	19.67	-	75.09	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl oil, incl beverages, incl starch, excl flour)	REP		52.50	-	285.86	-	18.44	-	19.67	-	75.09	-
CM 0649 (GC 0649)	Rice, husked, dry (incl flour, incl oil, incl beverages, incl starch, excl polished)	REP		13.58	-	4.29	-	2.17	-	0.10	-	8.84	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl flour, incl oil, excl beverages, excl starch)	REP		52.54	-	285.98	-	18.64	-	19.67	-	75.09	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl flour, incl beverages, excl oil, excl starch)	REP		52.54	-	285.38	-	18.64	-	19.67	-	75.09	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl flour, incl starch, excl oil, excl beverages,)	REP		52.55	-	285.42	-	18.64	-	19.67	-	75.09	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl oil, incl beverages, excl flour, excl starch)	REP		52.50	-	285.81	-	18.44	-	19.67	-	75.09	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl oil, incl starch, excl flour, excl beverages)	REP		52.50	-	285.86	-	18.44	-	19.67	-	75.09	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl beverages, incl starch, excl flour, excl oil)	REP		52.50	-	285.25	-	18.44	-	19.67	-	75.09	-
CM 0649 (GC 0649)	Rice, husked, dry (incl flour, incl oil, incl starch, excl beverages, excl polished)	REP		13.58	-	4.29	-	2.17	-	0.10	-	8.84	-
CM 0649 (GC 0649)	Rice, husked, dry (incl flour, incl starch, incl beverages, excl polished, excl oil)	REP		13.58	-	3.69	-	2.17	-	0.10	-	8.84	-
CM 0649 (GC 0649)	Rice, husked, dry (incl oil, incl beverages, incl starch, excl polished, excl flour)	REP		13.54	-	4.12	-	1.96	-	0.10	-	8.84	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
				Diets: g/person/day			Intake = daily intake: ug/person						
CM 0649 (GC 0649)	Rice, husked, dry (incl flour, incl oil, incl beverages, excl polished, excl starch)	REP		13.57	-	4.24	-	2.17	-	0.10	-	8.84	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl flour, excl oil, excl beverages, excl starch)	REP		52.54	-	285.38	-	18.64	-	19.67	-	75.09	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl oil, excl flour, excl beverages, excl starch)	REP		52.50	-	285.81	-	18.44	-	19.67	-	75.09	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl starch, excl oil, excl beverages, excl flour)	REP		52.50	-	285.25	-	18.44	-	19.67	-	75.09	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl beverages, excl flour, excl oil, excl starch)	REP		52.50	-	285.21	-	18.44	-	19.67	-	75.09	-
CM 0649 (GC 0649)	Rice, husked, dry (incl flour, incl starch, excl polished, excl oil, excl beverages)	REP		13.58	-	3.69	-	2.17	-	0.10	-	8.84	-
CM 0649 (GC 0649)	Rice, husked, dry (incl flour, incl oil, excl polished,excl beverages, excl starch)	REP		13.57	-	4.24	-	2.17	-	0.10	-	8.84	-
CM 0649 (GC 0649)	Rice, husked, dry (incl flour, incl beverages, excl polished, excl oil, excl starch)	REP		13.57	-	3.64	-	2.17	-	0.10	-	8.84	-
CM 0649 (GC 0649)	Rice, husked, dry (incl oil, incl beverages, excl polished, excl flour, excl starch)	REP		13.53	-	4.08	-	1.96	-	0.10	-	8.84	-
CM 0649 (GC 0649)	Rice, husked, dry (incl oil, incl starch, excl polished, excl flour, excl beverages)	REP		13.54	-	4.12	-	1.96	-	0.10	-	8.84	-
CM 0649 (GC 0649)	Rice, husked, dry (incl beverages, incl starch, excl polished, excl flour, excl oil)	REP		13.54	-	3.52	-	1.96	-	0.10	-	8.84	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, excl flour, excl oil, excl beverages, excl starch)	REP		52.50	-	285.21	-	18.44	-	19.67	-	75.09	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day	Intake = daily intake: ug/person								
				G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
CM 0649 (GC 0649)	Rice, husked, dry (incl flour, excl polished, excl oil, excl beverages, excl starch)	REP		13.57	-	3.64	-	2.17	-	0.10	-	8.84	-
CM 0649 (GC 0649)	Rice, husked, dry (incl oil, excl polished, excl flour, excl beverages, excl starch)	REP		13.53	-	4.08	-	1.96	-	0.10	-	8.84	-
CM 0649 (GC 0649)	Rice, husked, dry (incl beverages, excl polished, excl flour, excl oil, excl starch)	REP		13.53	-	3.48	-	1.96	-	0.10	-	8.84	-
CM 0649 (GC 0649)	Rice, husked, dry (incl starch, excl polished, excl flour, excl oil, excl beverages)	REP		13.54	-	3.52	-	1.96	-	0.10	-	8.84	-
CM 0649 (GC 0649)	Rice, husked, dry (incl paddy rice)	REP		13.53	-	3.48	-	1.96	-	0.10	-	8.84	-
CM 1205	Rice polished, dry	PP		30.20	-	218.34	-	12.77	-	15.24	-	51.35	-
-	Rice flour	PP		0.10	-	0.13	-	0.16	-	0.10	-	NC	-
-	Rice, starch	PP		0.10	-	0.10	-	NC	-	NC	-	NC	-
-	Rice bran oil	PP		NC	-	0.60	-	NC	-	NC	-	NC	-
-	Rice, Fermented Beverages (rice wine, sake)	PP		NC	-	NC	-	NC	-	NC	-	NC	-
GC 0650	Rye, raw (incl flour)	RAC		0.10	-	0.10	-	13.95	-	0.10	-	0.88	-
GC 0650	Rye, raw	RAC		0.10	-	NC	-	NC	-	0.10	-	NC	-
CF 1250	Rye, flour (white flour and wholemeal flour)	PP		0.10	-	0.10	-	11.16	-	0.10	-	0.70	-
GC 0651	Sorghum, raw (incl flour, incl beer)	RAC		89.16	-	2.02	-	NC	-	35.38	-	NC	-
GC 0651	Sorghum, raw (incl flour, excl beer)	RAC		84.43	-	2.02	-	NC	-	22.02	-	NC	-
GC 0651	Sorghum, raw (incl beer, excl flour)	RAC		4.73	-	NC	-	NC	-	13.36	-	NC	-
GC 0651	Sorghum, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
-	Sorghum, flour (white flour and wholemeal flour)	PP		75.99	-	1.82	-	NC	-	19.82	-	NC	-
-	Sorghum beer	PP		24.90	-	NC	-	NC	-	70.33	-	NC	-
GC 0653	Triticale, raw (incl flour)	RAC		0.10	-	NC	-	NC	-	NC	-	NC	-
GC 0653	Triticale, raw	RAC		0.10	-	NC	-	NC	-	NC	-	NC	-
GC 0653	Triticale, flour (white flour and wholemeal flour)	PP		NC	-	NC	-	NC	-	NC	-	NC	-
GC 0654	Wheat, raw (incl bulgur, incl fermented beverages, incl germ, incl wholemeal	RAC		57.20	-	110.47	-	272.62	-	25.82	-	132.04	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day			Intake = daily intake: ug/person						
				G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
	bread, incl white flour products, incl white bread)												
GC 0654	Wheat, raw (incl bulgur, incl fermented beverages, incl germ, incl wholemeal bread, excl white flour products, excl white bread)	RAC		0.10	-	0.10	-	0.10	-	0.10	-	0.97	-
GC 0654	Wheat, raw (incl bulgur, incl fermented beverages, incl white flour products, incl white bread, excl germ, excl wholemeal bread)	RAC		57.19	-	110.46	-	272.58	-	25.81	-	132.04	-
GC 0654	Wheat, raw (incl bulgur, incl fermented beverages, excl germ, excl wholemeal bread, excl white flour products, excl white bread)	RAC		0.10	-	0.10	-	0.10	-	0.10	-	0.97	-
GC 0654	Wheat, raw (incl meslin)	RAC		NC	-	NC	-	NC	-	NC	-	0.97	-
-	Wheat, bulgur	PP		0.10	-	NC	-	NC	-	NC	-	NC	-
CF 1210	Wheat, germ	PP		0.10	-	0.10	-	0.10	-	0.10	-	NC	-
CF 0654	Wheat, bran	PP		NC	-	NC	-	NC	-	NC	-	NC	-
CF 1212	Wheat, wholemeal flour	PP		NC	-	NC	-	NC	-	NC	-	NC	-
CP 1212	Wheat, wholemeal bread	PP		0.10	-	0.10	-	0.10	-	0.10	-	0.10	-
CP 1211	Wheat, white bread	PP		0.43	-	0.41	-	1.56	-	0.11	-	0.10	-
-	Wheat, Fermented Beverages (Korean jakju and takju)	PP		NC	-	NC	-	NC	-	NC	-	NC	-
CF 1211	Wheat, white flour (incl white flour products: starch, gluten, macaroni, pastry)	PP		45.21	-	87.37	-	215.61	-	20.42	-	103.67	-
CF 1211	Wheat, white flour	PP		43.75	-	85.81	-	206.68	-	19.38	-	92.92	-
-	Wheat, starch	PP		0.10	-	0.10	-	NC	-	NC	-	NC	-
-	Wheat, gluten	PP		0.10	-	0.10	-	0.10	-	0.10	-	0.19	-
-	Wheat, macaroni, dry	PP		0.52	-	0.63	-	2.99	-	0.26	-	5.18	-
-	Wheat, pastry, baked	PP		0.51	-	0.51	-	4.36	-	0.67	-	5.32	-
-	Fonio, raw (incl flour)	RAC		0.61	-	NC	-	NC	-	NC	-	NC	-
-	Fonio, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
-	Fonio flour (white flour and wholemeal flour)	RAC		0.55	-	NC	-	NC	-	NC	-	NC	-
-	Cereals, NES, raw (including processed) : canagua, quihuicha, Job's tears and wild rice	RAC		17.71	-	2.00	-	9.61	-	0.45	-	4.55	-
021	GRASSES FOR SUGAR OR SYRUP	-		-	-	-	-	-	-	-	-	-	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
				Diets: g/person/day			Intake = daily intake: ug/person						
	PRODUCTION												
GS 0659	Sugar cane, raw (incl sugar, incl molasses)	RAC	0.011	33.75	0.35	106.29	1.12	78.09	0.82	29.09	0.31	45.70	0.48
GS 0659	Sugar cane, raw	RAC		5.62	-	50.91	-	NC	-	11.04	-	0.10	-
-	Sugar cane, molasses	PP		NC	-	NC	-	NC	-	NC	-	NC	-
-	Sugar cane, sugar (incl non-centrifugal sugar, incl refined sugar and maltose)	PP		28.13	-	55.38	-	78.09	-	18.04	-	45.60	-
-	Sugar crops NES, raw (incl sugar, syrup and others): sugar maple, sweet sorghum, sugar palm	RAC		0.49	-	0.63	-	4.52	-	0.40	-	5.87	-
022	TREE NUTS	-		-	-	-	-	-	-	-	-	-	-
TN 0085	Tree nuts, raw (incl processed)	RAC		4.39	-	135.53	-	6.11	-	0.72	-	317.74	-
TN 0085	Tree nuts raw, excl coconut commodities	RAC		1.61	-	1.16	-	3.31	-	0.10	-	0.10	-
TN 0295	Cashew nuts, nutmeat	RAC		0.91	-	0.14	-	0.11	-	0.10	-	NC	-
TN 0660	Almonds, nutmeat	RAC	0.011	0.10	0.00	0.10	0.00	0.61	0.01	0.10	0.00	NC	-
TN 0662	Brazil nuts, nutmeat	RAC		0.10	-	0.10	-	0.10	-	0.10	-	NC	-
TN 0664	Chestnut, raw	RAC		0.10	-	0.10	-	0.75	-	0.10	-	NC	-
TN 0665	Coconut, nutmeat (incl. copra, incl desiccated, incl oil)	RAC		2.77	-	134.37	-	2.81	-	0.70	-	317.67	-
TN 0665	Coconut, nutmeat (incl copra, incl desiccated, excl oil)	RAC		1.34	-	109.38	-	0.97	-	0.10	-	272.24	-
TN 0665	Coconut, nutmeat (incl copra, incl oil, excl desiccated)	RAC		2.71	-	133.09	-	1.91	-	0.69	-	280.50	-
TN 0665	Coconut, nutmeat (incl copra, excl desiccated, excl oil)	RAC		1.28	-	108.09	-	0.10	-	0.10	-	235.07	-
-	Coconut, desiccated nutmeat	PP		0.10	-	0.39	-	0.28	-	0.10	-	11.41	-
-	Coconut, copra	PP		NC	-	NC	-	NC	-	NC	-	NC	-
OR 0665	Coconut, oil	PP		0.27	-	4.72	-	0.35	-	0.13	-	8.59	-
TN 0666	Hazelnuts, nutmeat	RAC		0.10	-	0.10	-	0.21	-	0.10	-	NC	-
TN 0669	Macadamia nuts, nutmeat (i.e. Queensland nuts)	RAC	0.011	0.10	0.00	0.10	0.00	NC	-	0.10	0.00	0.10	0.00
TN 0672	Pecan nuts, nutmeat	RAC	0.011	0.15	0.00	0.22	0.00	0.31	0.00	0.10	0.00	0.10	0.00
TN 0673	Pine nuts, nutmeat (i.e. pignolia nuts)	RAC		0.51	-	0.74	-	0.36	-	0.10	-	0.10	-
TN 0675	Pistachio nut, nutmeat	RAC		0.10	-	0.10	-	0.15	-	0.10	-	NC	-
TN 0678	Walnuts, nutmeat	RAC	0.011	0.10	0.00	0.10	0.00	0.81	0.01	0.10	0.00	NC	-
023	OILSEED	-		-	-	-	-	-	-	-	-	-	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

			STMR	Diets: g/person/day		Intake = daily intake: ug/person							
Codex Code	Commodity description	Expr as	mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
SO 0088	Oilseeds, raw (incl processed)	RAC		131.71	-	22.49	-	69.33	-	57.68	-	86.74	-
SO 0089	Oilseeds, raw (incl processed), excl peanut commodities	RAC		112.89	-	21.92	-	67.05	-	50.78	-	86.21	-
SO 0089	Oilseeds, raw	RAC		10.97	-	1.26	-	1.75	-	16.04	-	2.96	-
SO 0090	Mustard seeds, raw (incl flour, incl oil)	RAC		0.10	-	0.19	-	0.32	-	0.10	-	0.10	-
SO 0090	Mustard seeds, raw (incl flour, excl oil)	RAC		0.10	-	0.18	-	0.29	-	0.10	-	0.10	-
SO 0090	Mustard seeds, raw (incl oil, excl flour)	RAC		0.10	-	0.19	-	0.11	-	0.10	-	NC	-
SO 0090	Mustard seeds, raw	RAC		0.10	-	0.17	-	0.10	-	0.10	-	NC	-
-	Mustard seeds, flour	PP		0.10	-	0.10	-	0.21	-	0.10	-	0.10	-
-	Mustard seeds, oil	PP		NC	-	0.10	-	0.10	-	0.10	-	NC	-
SO 0305	Olives for oil production, raw (incl oil)	RAC	0.011	0.18	0.00	0.11	0.00	11.00	0.12	0.10	0.00	0.49	0.01
SO 0305	Olives for oil production, raw	RAC		NC	-	NC	-	0.10	-	NC	-	NC	-
-	Olive oil (virgin and residue oil)	PP		0.10	-	0.10	-	2.14	-	0.10	-	0.10	-
SO 0495	Rape seed, raw (incl oil)	RAC		0.19	-	0.10	-	12.07	-	0.10	-	NC	-
SO 0495	Rape seed, raw	RAC		NC	-	0.10	-	NC	-	NC	-	NC	-
OR 0495	Rape seed oil, edible	PP		0.10	-	0.10	-	4.62	-	0.10	-	NC	-
SO 0691	Cotton seed, raw (incl oil)	RAC	0.0525	8.14	0.43	0.32	0.02	2.84	0.15	2.69	0.14	0.97	0.05
SO 0691	Cotton seed, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
OR 0691	Cotton seed oil, edible	PP		1.28	-	0.10	-	0.45	-	0.42	-	0.15	-
SO 0693	Linseed, raw (incl oil)	RAC		0.10	-	NC	-	0.10	-	NC	-	NC	-
SO 0693	Linseed, raw	RAC		0.10	-	NC	-	NC	-	NC	-	NC	-
-	Linseed oil, edible	PP		NC	-	NC	-	0.10	-	NC	-	NC	-
SO 0696	Palm kernels, raw (incl oil)	RAC		60.84	-	12.77	-	5.41	-	0.57	-	53.45	-
SO 0696	Palm kernels, raw	RAC		0.10	-	0.10	-	NC	-	NC	-	NC	-
OR 1240	Palm kernel oil, edible	PP		3.35	-	0.70	-	0.30	-	0.10	-	2.94	-
SO 0696	Palm fruit, raw (incl oil)	RAC		36.35	-	7.16	-	2.99	-	22.89	-	28.38	-
OR 0696	Palm fruit oil, edible	PP		6.72	-	1.32	-	0.55	-	4.23	-	5.25	-
SO 0697	Peanuts, nutmeat, raw (incl roasted, incl oil, incl butter)	RAC		18.82	-	0.57	-	2.28	-	6.90	-	0.53	-
SO 0697	Peanuts, nutmeat, raw (incl roasted, incl oil, excl butter)	RAC		18.82	-	0.54	-	2.23	-	6.90	-	0.53	-
SO 0697	Peanuts, nutmeat, raw (incl roasted, incl butter, excl oil)	RAC		7.14	-	0.45	-	1.87	-	6.22	-	0.53	-
SO 0697	Peanuts, nutmeat, raw (incl roasted, excl oil, excl butter)	RAC		7.14	-	0.42	-	1.83	-	6.22	-	0.53	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
				Diets: g/person/day			Intake = daily intake: ug/person						
SO 0697	Peanuts, nutmeat, raw	RAC		7.12	-	0.32	-	1.34	-	6.21	-	0.53	-
-	Peanuts, roasted	PP		0.10	-	0.10	-	0.48	-	0.10	-	NC	-
OR 0697	Peanut oil, edible	PP		5.02	-	0.10	-	0.17	-	0.29	-	NC	-
-	Peanut butter	PP		0.10	-	0.10	-	0.10	-	NC	-	NC	-
SO 0698	Poppy seed, raw (incl oil)	RAC		0.10	-	0.10	-	0.11	-	NC	-	NC	-
SO 0698	Poppy seed, raw	RAC		0.10	-	0.10	-	0.11	-	NC	-	NC	-
-	Poppy seed oil	PP		NC	-	NC	-	NC	-	NC	-	NC	-
SO 0699	Safflower seed, raw (incl oil)	RAC		0.10	-	NC	-	NC	-	NC	-	NC	-
SO 0699	Safflower seed, raw	RAC		0.10	-	NC	-	NC	-	NC	-	NC	-
OR 0699	Safflower seed oil, edible	PP		0.10	-	NC	-	NC	-	NC	-	NC	-
SO 0700	Sesame seed, raw (incl oil)	RAC		2.34	-	0.66	-	0.26	-	9.84	-	NC	-
SO 0700	Sesame seed, raw	RAC		0.89	-	0.34	-	0.16	-	5.13	-	NC	-
OR 0700	Sesame seed oil, edible	PP		0.52	-	0.11	-	0.10	-	1.70	-	NC	-
SO 0701	Shea nut (karite nuts), nutmeat, raw (incl butter)	RAC		0.95	-	NC	-	NC	-	NC	-	NC	-
SO 0701	Shea nut (karite nuts), nutmeat, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
-	Shea nut (karite nut), butter	PP		0.95	-	NC	-	NC	-	NC	-	NC	-
SO 0702	Sunflower seed, raw (incl oil)	RAC		0.94	-	0.22	-	32.01	-	12.12	-	0.48	-
SO 0702	Sunflower seed, raw	RAC	0.30	0.10	0.03	0.10	0.03	0.10	0.03	2.23	0.68	NC	-
OR 0702	Sunflower seed oil, edible	PP	0.0090	0.37	0.00	0.10	0.00	12.98	0.12	4.01	0.04	0.20	0.00
-	borage seeds, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
-	Castor bean, raw (incl oil)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
-	Castor bean, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
-	Castor bean, oil	PP		NC	-	NC	-	NC	-	NC	-	NC	-
-	Cucurbitaceae seeds, raw (melonseeds, pumpkin seeds, watermelon seeds)	RAC		1.81	-	NC	-	0.10	-	NC	-	NC	-
-	Oilseeds, NES, raw (including flour, incl myrtle wax, incl Japan wax): beech nut, Aleurites moluccana; Carapa guineensis; Croton tiglium; Bassia latifolia; Guizotia abyssinia; Licania rigida; Perilla frutescens; Jatropha curcas; Shorea robusta; Pongamia glabra; Astrocaryum spp., as well as tea seeds, grape seed and tomato seeds for oil extraction	RAC		1.00	-	0.42	-	NC	-	2.47	-	2.43	-
024	SEED FOR BEVERAGES AND SWEETS	-		-	-	-	-	-	-	-	-	-	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day				Intake = daily intake: ug/person					
				G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
-	Seeds for beverages and seeds, raw or roasted (incl processed)	RAC		1.61	-	2.21	-	17.92	-	3.14	-	17.04	-
SB 0715	Cocoa beans, raw (incl roasted, incl powder, incl butter, incl paste, incl nes products)	RAC		0.11	-	0.89	-	6.28	-	0.17	-	2.31	-
SB 0715	Cocoa beans, raw (incl roasted)	RAC		0.10	-	0.53	-	0.33	-	0.10	-	NC	-
-	Cocoa paste	PP		0.10	-	0.10	-	NC	-	0.10	-	NC	-
DM 0715	Cocoa powder	PP		0.10	-	0.20	-	1.17	-	0.10	-	1.80	-
DM 1215	Cocoa butter	PP		0.10	-	0.10	-	0.38	-	0.10	-	NC	-
-	Cocoa products NES	PP		0.10	-	0.17	-	4.41	-	0.10	-	0.51	-
SB 0716	Coffee beans raw (incl roasted, incl instant coffee, incl substitutes)	RAC	0.011	0.95	0.01	1.32	0.01	11.64	0.12	2.96	0.03	14.73	0.15
SB 0716	Coffee beans, raw (i.e. green coffee)	RAC		0.83	-	0.69	-	1.09	-	2.91	-	0.82	-
SM 0716	Coffee beans, roasted	PP		0.10	-	0.41	-	7.50	-	0.10	-	0.10	-
-	Coffee beans, instant coffee (incl essences and concentrates)	PP		0.10	-	0.10	-	0.60	-	0.10	-	5.53	-
-	Coffee beans, substitutes, containing coffee	PP		0.10	-	0.10	-	0.13	-	0.10	-	NC	-
SB 0717	Cola nuts, raw	RAC		0.56	-	NC	-	NC	-	0.10	-	NC	-
027	HERBS	-		-	-	-	-	-	-	-	-	-	-
HH 0720	Herbs, raw (incl dried)	RAC		1.85	-	1.67	-	2.80	-	1.24	-	2.75	-
HH 0624	Celery leaves, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
HH 0721	Angelica herb, raw	RAC		0.10	-	0.10	-	NC	-	0.10	-	0.10	-
HH 0723	Bay leaves, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
HH 0722	Basil, raw (incl dried)	RAC		0.25	-	0.18	-	0.13	-	0.17	-	0.33	-
HH 0723	Bay leaves	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
HH 0727	Chives	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
HH 0730	Dill herb, raw	RAC		0.28	-	0.20	-	0.65	-	0.19	-	0.38	-
HH 0731	Fennel herb, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
HH 0733	Hyssop	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
HH 0735	Lovage	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
HH 0736	Marjoram, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
HH 0738	Mints, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
HH 0740	Parsley, raw (incl dried)	RAC		1.03	-	0.74	-	1.87	-	0.70	-	1.39	-
HH 0741	Rosemary, raw	RAC		0.10	-	0.10	-	0.10	-	0.10	-	0.10	-
HH 0743	Sage and related Salvia species, raw	RAC		0.10	-	0.10	-	0.10	-	0.10	-	0.10	-
HH 0745	Savory, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

			STMR	Diets: g/person/day		Intake = daily intake: ug/person							
Codex Code	Commodity description	Expr as	mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
HH 0749	Tarragon, raw	RAC		0.10	-	0.10	-	0.10	-	0.10	-	0.10	-
HH 0750	Thyme, raw	RAC		0.10	-	0.37	-	0.12	-	0.10	-	0.33	-
HH 0751	Land cress	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
HH 0756	Cilantro, raw (i.e. coriander leaves)	RAC		0.22	-	0.16	-	NC	-	0.15	-	0.30	-
HH 0761	Lemongrass, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
-	Toona leaves, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
028	SPICES	-		-	-	-	-	-	-	-	-	-	-
HS 0093	Spices, as traded	RAC		1.26	-	4.34	-	0.78	-	0.41	-	1.46	-
HS 0730	Dill, seed	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
HS 0773	Caper buds	RAC		0.31	-	0.22	-	NC	-	0.21	-	0.42	-
HS 0777	Cinnamon	RAC		0.10	-	0.13	-	0.10	-	0.10	-	0.26	-
HS 0778	Cloves, buds	RAC		0.10	-	0.10	-	0.10	-	0.10	-	NC	-
HS 0782	Fenugreek, seed	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
HS 0783	Galangal, rhizomes	RAC		0.10	-	0.10	-	NC	-	0.10	-	0.10	-
HS 0784	Ginger root, raw incl dried	RAC		0.75	-	0.68	-	0.10	-	0.10	-	0.10	-
HS 0789	Liquorice, roots	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
HS 0790	Pepper (black, white)	RAC		0.10	-	1.12	-	0.24	-	0.14	-	0.18	-
HS 0792	Pimento, fruit (allspice fruit)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
HS 0794	Turmeric, root	RAC		0.10	-	0.12	-	0.17	-	0.10	-	0.10	-
HS 0795	Vanilla, beans	RAC		0.10	-	0.10	-	0.10	-	0.10	-	0.10	-
-	Anise seeds, star anise seeds, caraway seeds, coriander seeds, cumin seeds, fennel seeds, juniper berries	RAC		0.10	-	1.49	-	0.22	-	0.10	-	0.10	-
-	Nutmeg, mace, cardamom, grains of paradise	RAC		0.10	-	0.10	-	0.10	-	0.10	-	NC	-
-	Anise pepper	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
-	Black caraway	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
-	Saffron	RAC		0.10	-	0.48	-	NC	-	0.10	-	0.42	-
057	DRIED HERBS	-		-	-	-	-	-	-	-	-	-	-
DH 1100	Hops, dry	RAC		NC	-	NC	-	0.10	-	NC	-	NC	-
066	TEAS	-		-	-	-	-	-	-	-	-	-	-
-	Teas and herbal teas, dried (incl concentrates)	RAC		1.62	-	5.25	-	0.87	-	0.56	-	0.88	-
DT 1114	Tea, green or black, fermented and dried, (including concentrates)	RAC		0.53	-	5.25	-	0.86	-	0.56	-	0.88	-
DT 1114	Tea, green or black, fermented and dried	RAC		0.53	-	5.25	-	0.63	-	0.56	-	0.82	-
-	Tea concentrates	PP		0.10	-	0.10	-	0.23	-	0.10	-	0.10	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day G13 diet	G13 intake	G14 diet	Intake = daily intake: ug/person G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
DT 1113	Mate, dried	RAC		0.10	-	0.10	-	0.10	-	0.10	-	NC	-
-	Herbal teas NES, dried	RAC		1.09	-	NC	-	NC	-	NC	-	NC	-
030	MEAT FROM MAMMALS	-		-	-	-	-	-	-	-	-	-	-
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat)	RAC	0.024	29.18	0.70	50.89	1.22	121.44	2.91	22.58	0.54	72.14	1.73
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) -80% as muscle	RAC		23.34	-	40.71	-	97.15	-	18.06	-	57.71	-
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) - 20% as fat	RAC		5.84	-	10.18	-	24.29	-	4.52	-	14.43	-
MM 0810	Buffalo meat, raw	RAC		NC	-	0.34	-	0.10	-	NC	-	NC	-
MM 0810	Buffalo meat, raw - 80% as muscle	RAC		NC	-	0.27	-	0.08	-	NC	-	NC	-
MM 0810	Buffalo meat, raw - 20% as fat	RAC		NC	-	0.07	-	0.02	-	NC	-	NC	-
MM 0811	Camel meat, raw (including meat of other domestic camelids)	RAC		0.95	-	NC	-	NC	-	NC	-	NC	-
MM 0811	Camel meat, raw (including meat of other domestic camelids) - 80% as muscle	RAC		0.76	-	NC	-	NC	-	NC	-	NC	-
MM 0811	Camel meat, raw (including meat of other domestic camelids) - 20% as fat	RAC		0.19	-	NC	-	NC	-	NC	-	NC	-
MM 0812	Cattle meat, raw, (incl calf meat, incl prepared meat)	RAC		15.34	-	4.73	-	29.58	-	9.56	-	16.86	-
MM 0812	Cattle meat, raw, (incl calf meat, incl prepared meat) - 80% as muscle	RAC		12.27	-	3.78	-	23.66	-	7.65	-	13.49	-
MM 0812	Cattle meat, raw, (incl calf meat, incl prepared meat) - 20% as fat	RAC		3.07	-	0.95	-	5.92	-	1.91	-	3.37	-
MM 0813	Dear, meat, raw (domestic)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
MM 0813	Dear, meat, raw (domestic) - 80% as muscle	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
MM 0813	Dear, meat, raw (domestic) - 20% as fat	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
MM 0814	Goat meat, raw, (incl kids meat)	RAC		4.80	-	0.27	-	0.27	-	2.33	-	0.16	-
MM 0814	Goat meat, raw, (incl kids meat) - 80% as muscle	RAC		3.84	-	0.22	-	0.22	-	1.86	-	0.13	-
MM 0814	Goat meat, raw, (incl kids meat) - 20% as fat	RAC		0.96	-	0.05	-	0.05	-	0.47	-	0.03	-
MM 0816	Horse meat raw, incl meat of other equidae (asses, mules)	RAC		0.19	-	0.10	-	0.44	-	NC	-	NC	-
MM 0816	Horse meat raw, incl meat of other equidae	RAC		0.15	-	0.08	-	0.35	-	NC	-	NC	-

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
				Diets: g/person/day			Intake = daily intake: ug/person						
	(asses, mules) -80% as muscle												
MM 0816	Horse meat raw, incl meat of other equidae (asses, mules) -20% as fat	RAC		0.04	-	0.02	-	0.09	-	NC	-	NC	-
MM 0817	Kangaroo meat, raw (domestic)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
MM 0817	Kangaroo meat, raw (domestic) - 80% as muscle	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
MM 0817	Kangaroo meat, raw (domestic) -20% as fat	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
MM 0818	Pig meat, raw (incl prepared meat)	RAC		2.28	-	8.19	-	84.60	-	7.51	-	34.18	-
MM 0818	Pig meat, raw (incl prepared meat) - 80% as muscle	RAC		1.82	-	6.55	-	67.68	-	6.01	-	27.34	-
MM 0818	Pig meat, raw (incl prepared meat) -20% as fat	RAC		0.46	-	1.64	-	16.92	-	1.50	-	6.84	-
MM 0819	Rabbit meat, raw (including other domestic rodents meat) (domestic)	RAC		0.10	-	NC	-	1.50	-	0.27	-	NC	-
-	Rabbit meat, raw (including other domestic rodents meat) -80% as muscle	RAC		0.08	-	NC	-	1.20	-	0.22	-	NC	-
-	Rabbit meat, raw (including other domestic rodents meat) - 20% as muscle	RAC		0.02	-	NC	-	0.30	-	0.05	-	NC	-
MM 0822	Sheep meat, raw (incl lamb meat)	RAC		3.53	-	3.41	-	4.31	-	0.65	-	20.93	-
MM 0822	Sheep meat, raw (incl lamb meat) - 80% as muscle	RAC		2.82	-	2.73	-	3.45	-	0.52	-	16.74	-
MM 0822	Sheep meat, raw (incl lamb meat) - 20% as fat	RAC		0.71	-	0.68	-	0.86	-	0.13	-	4.19	-
-	Game meat, raw	RAC		2.06	-	33.94	-	0.74	-	2.26	-	NC	-
-	Game meat, raw -80% as muscle	RAC		1.65	-	27.15	-	0.59	-	1.81	-	NC	-
-	Game meat, raw -20% as fat	RAC		0.41	-	6.79	-	0.15	-	0.45	-	NC	-
031	MAMMALIAN FATS	-		-	-	-	-	-	-	-	-	-	-
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.048	1.05	0.05	1.14	0.05	18.69	0.90	0.94	0.05	3.12	0.15
MF 0810	Buffalo fat, raw	RAC		NC	-	0.10	-	NC	-	NC	-	NC	-
MF 0811	Camel fat, raw (incl fat of other camelids)	RAC		0.10	-	NC	-	NC	-	NC	-	NC	-
MF 0812	Cattle fat, raw (incl rendered)	RAC		0.65	-	0.50	-	2.44	-	0.24	-	0.98	-
MF 0814	Goat fat, raw	RAC		0.13	-	0.10	-	NC	-	0.10	-	0.10	-
MF 0818	Pig fat, raw (incl rendered)	RAC		0.15	-	0.61	-	16.25	-	0.60	-	2.13	-
MF 0822	Sheep fat, raw	RAC		0.11	-	0.10	-	0.10	-	0.10	-	0.10	-
032	EDIBLE OFFAL (MAMMALIAN)	-		-	-	-	-	-	-	-	-	-	-
MO 0105	Edible offal (mammalian), raw	RAC	0.088	4.64	0.41	1.97	0.17	10.01	0.88	3.27	0.29	3.98	0.35

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day	Intake = daily intake: ug/person								
				G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
MO 0810	Buffalo edible offal, raw	RAC		NC	-	0.10	-	NC	-	NC	-	NC	-
MO 0811	Camel edible offal, raw (including edible offals of other camelids)	RAC		0.13	-	NC	-	NC	-	NC	-	NC	-
MO 0812	Cattle edible offal, raw	RAC		2.66	-	1.08	-	3.29	-	1.85	-	1.68	-
MO 0814	Goat edible offal, raw	RAC		0.93	-	0.10	-	0.10	-	0.67	-	0.10	-
MO 0816	Horse edible offal, raw	RAC		0.10	-	NC	-	0.10	-	NC	-	NC	-
MO 0818	Pig edible offal, raw	RAC		0.16	-	0.73	-	6.15	-	0.61	-	2.24	-
MO 0822	Sheep edible offal, raw	RAC		0.75	-	0.10	-	0.55	-	0.14	-	0.10	-
033	MILK AND MILK PRODUCTS	-		-	-	-	-	-	-	-	-	-	-
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.1	108.75	10.88	70.31	7.03	436.11	43.61	61.55	6.16	79.09	7.91
ML 0106	Milks, raw or skimmed	RAC		96.86	-	15.76	-	345.35	-	58.34	-	21.38	-
ML 0810	Buffalo milk, raw or skimmed (incl dairy products)	RAC		NC	-	2.42	-	NC	-	NC	-	NC	-
ML 0810	Buffalo milk, raw or skimmed	RAC		NC	-	2.42	-	NC	-	NC	-	NC	-
ML 0811	Camel milk, raw	RAC		6.10	-	NC	-	NC	-	NC	-	NC	-
ML 0812	Cattle milk, raw or skimmed (incl dairy products)	RAC		84.32	-	67.43	-	420.83	-	59.87	-	79.09	-
ML 0812	Cattle milk, raw or skimmed	RAC		73.36	-	12.88	-	331.50	-	56.66	-	21.38	-
ML 0814	Goat milk, raw or skimmed (incl dairy products)	RAC		12.02	-	0.46	-	0.90	-	1.54	-	NC	-
ML 0814	Goat milk, raw or skimmed	RAC		11.22	-	0.46	-	0.80	-	1.54	-	NC	-
ML 0822	Sheep milk, raw or skimmed (incl dairy products)	RAC		6.31	-	NC	-	14.37	-	0.14	-	NC	-
ML 0822	Sheep milk, raw or skimmed	RAC		6.17	-	NC	-	13.06	-	0.14	-	NC	-
-	Horse milk, raw, incl milk of other equidae (suckmilk)	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
036	POULTRY MEAT	-		-	-	-	-	-	-	-	-	-	-
PM 0110	Poultry meat, raw (incl prepared)	RAC	0.016	3.92	0.06	12.03	0.19	57.07	0.91	5.03	0.08	55.56	0.89
PM 0110	Poultry meat, raw (incl prepared) - 90% as muscle	RAC		3.53	-	10.83	-	51.36	-	4.53	-	50.00	-
PM 0110	Poultry meat, raw (incl prepared) - 10% as fat	RAC		0.39	-	1.20	-	5.71	-	0.50	-	5.56	-
PM 0840	Chicken meat, raw (incl prepared)	RAC		3.84	-	11.81	-	47.24	-	4.65	-	54.96	-
PM 0840	Chicken meat, raw (incl prepared) - 90% as muscle	RAC		3.46	-	10.63	-	42.52	-	4.19	-	49.46	-
PM 0840	Chicken meat, raw (incl prepared) - 10% as fat	RAC		0.38	-	1.18	-	4.72	-	0.47	-	5.50	-

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			STMR	Diets: g/person/day		Intake = daily intake: ug/person							
Codex Code	Commodity description	Expr as	mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
PM 0841	Duck meat, raw	RAC		0.10	-	0.10	-	1.66	-	0.10	-	0.28	-
PM 0841	Duck meat, raw - 90% as muscle	RAC		0.09	-	0.09	-	1.49	-	0.09	-	0.25	-
PM 0841	Duck meat, raw - 10% as fat	RAC		0.01	-	0.01	-	0.17	-	0.01	-	0.03	-
PM 0842	Goose meat, raw	RAC		0.10	-	0.10	-	1.00	-	NC	-	NC	-
PM 0842	Goose meat, raw - 90% as muscle	RAC		0.09	-	0.09	-	0.90	-	NC	-	NC	-
PM 0842	Goose meat, raw - 10% as fat	RAC		0.01	-	0.01	-	0.10	-	NC	-	NC	-
PM 0846	Pigeon meat, raw	RAC		0.10	-	NC	-	0.10	-	NC	-	NC	-
PM 0846	Pigeon meat, raw - 90% as muscle	RAC		0.09	-	NC	-	0.09	-	NC	-	NC	-
PM 0846	Pigeon meat, raw - 10% as fat	RAC		0.01	-	NC	-	0.01	-	NC	-	NC	-
PM 0847	Quail meat, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
PM 0847	Quail meat, raw - 90% as muscle	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
PM 0847	Quail meat, raw - 10% as fat	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
PM 0848	Turkey meat, raw	RAC		0.10	-	0.10	-	6.49	-	0.37	-	0.13	-
PM 0848	Turkey meat, raw- 90% as muscle	RAC		3.53	-	10.83	-	51.36	-	4.53	-	50.00	-
PM 0848	Turkey meat, raw -10% as fat	RAC		0.39	-	1.20	-	5.71	-	0.50	-	5.56	-
-	Emu meat, raw	RAC		NC	-	NC	-	NC	-	NC	-	NC	-
-	Emu meat, raw - 90% as muscle	RAC		3.53	-	10.83	-	51.36	-	4.53	-	50.00	-
-	Emu meat, raw -10% as fat	RAC		0.39	-	1.20	-	5.71	-	0.50	-	5.56	-
037	POULTRY FATS	-		-	-	-	-	-	-	-	-	-	-
PF 0111	Poultry fat, raw (incl rendered)	RAC	0.016	NC	-	NC	-	0.32	0.01	NC	-	NC	-
038	POULTRY, EDIBLE OFFAL OF	-		-	-	-	-	-	-	-	-	-	-
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.054	0.10	0.01	0.70	0.04	0.97	0.05	0.10	0.01	NC	-
PO 0840	Chicken edible offal, raw	RAC		0.10	-	0.70	-	0.81	-	0.10	-	NC	-
PO 0841	Duck edible offal, raw (incl prepared)	RAC		0.10	-	NC	-	0.10	-	NC	-	NC	-
PO 0842	Goose edible offal, raw (incl prepared)	RAC		0.10	-	0.10	-	0.10	-	0.10	-	NC	-
PO 0848	Turkey edible offal, raw	RAC		0.10	-	NC	-	0.10	-	NC	-	NC	-
039	EGGS	-		-	-	-	-	-	-	-	-	-	-
PE 0112	Eggs, raw, (incl dried)	RAC	0.014	3.84	0.05	4.41	0.06	27.25	0.38	1.13	0.02	7.39	0.10
PE 0840	Chicken eggs, raw (incl dried)	RAC		3.83	-	4.27	-	26.38	-	1.13	-	7.39	-
-	Eggs, NES (in shell)	RAC+		0.10	-	0.14	-	0.87	-	NC	-	NC	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				166.4		130.3		176.0		384.1		86.5
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (ug/person)=				240		240		240		240		240
	%ADI=				69.3%		54.3%		73.3%		160.0%		36.0%

FLUAZIFOP-P-BUTYL (283) International Estimated Daily Intake (IEDI) ADI = 0-0.004 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day G13 diet	G13 intake	G14 diet	Intake = daily intake: ug/person G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
	Rounded %ADI=				70%		50%		70%		160%		40%

FLUENSULFONE (265) International Estimated Daily Intake (IEDI) ADI = 0-0.01 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day		Intake as ug/person/day									
FB 2009	Low growing berries, raw (i.e. cranberry and strawberry)	RAC	0.01	0.71	0.01	2.02	0.02	0.10	0.00	1.39	0.01	0.37	0.00	2.53	0.03
VB 0040	Brassica vegetables, raw: head cabbages, flowerhead brassicas, Brussels sprouts & kohlrabi	RAC	0.01	6.41	0.06	35.79	0.36	0.71	0.01	9.81	0.10	12.07	0.12	16.58	0.17
VC 0046	Melons, raw (excl watermelons)	RAC	0.01	8.90	0.09	8.64	0.09	0.80	0.01	17.90	0.18	2.80	0.03	29.17	0.29
VC 0424	Cucumber, raw	RAC	0.01	8.01	0.08	30.66	0.31	1.45	0.01	19.84	0.20	0.27	0.00	34.92	0.35
VC 0431	Squash, summer, raw (= courgette, zuchini)	RAC	0.01	0.78	0.01	2.06	0.02	0.30	0.00	1.61	0.02	2.25	0.02	2.36	0.02
VO 0440	Egg plants, raw (= aubergines)	RAC	0.01	5.58	0.06	4.31	0.04	0.89	0.01	9.31	0.09	13.64	0.14	20.12	0.20
VO 0442	Okra, raw	RAC	0.01	1.97	0.02	NC	-	3.68	0.04	3.24	0.03	5.72	0.06	1.57	0.02
VO 0443	Pepino (Melon pear, Tree melon)	RAC	0.01	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VO 0444	Peppers, chili, raw	RAC	0.01	3.99	0.04	7.30	0.07	2.93	0.03	5.62	0.06	NC	-	17.44	0.17
-	Peppers, chili, dried	PP	0.1	0.42	0.04	0.53	0.05	0.84	0.08	0.50	0.05	0.95	0.10	0.37	0.04
VO 0445	Peppers, sweet, raw (incl dried)	RAC	0.01	4.49	0.04	6.44	0.06	7.21	0.07	5.68	0.06	9.52	0.10	8.92	0.09
VO 0448	Tomato, raw (incl juice, incl paste, incl canned)	RAC	0.01	51.75	0.52	81.80	0.82	16.99	0.17	102.02	1.02	26.32	0.26	214.77	2.15
-	Gilo (scarlet egg plant)	RAC	0.01	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Goji berry	RAC	0.01	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Quorn	RAC	0.01	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Seaweed	RAC	0.01	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0053	Leafy vegetables, raw	RAC	0.01	8.47	0.08	22.36	0.22	7.74	0.08	25.51	0.26	45.77	0.46	21.22	0.21
VP 0060	Legume vegetables, raw	RAC	0.01	7.73	0.08	1.53	0.02	0.51	0.01	2.95	0.03	5.08	0.05	12.86	0.13
VR 0463	Cassava raw (incl starch, incl tapioca, incl flour)	RAC	0.01	0.10	0.00	0.10	0.00	482.56	4.83	0.99	0.01	25.75	0.26	3.29	0.03
VR 0469	Chicory, roots, raw	RAC	0.01	0.10	0.00	0.20	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00
VR 0494	Radish roots, raw	RAC	0.12	2.31	0.28	4.09	0.49	2.53	0.30	6.15	0.74	5.88	0.71	2.97	0.36
VR 0497	Swede, raw (i.e. rutabaga)	RAC	0.12	1.58	0.19	2.80	0.34	1.74	0.21	4.21	0.51	NC	-	2.03	0.24
VR 0498	Salsify, raw (i.e. oysterplant)	RAC	0.01	0.21	0.00	0.37	0.00	0.23	0.00	0.55	0.01	NC	-	0.27	0.00
VR 0504	Tannia, raw (i.e. yautia)	RAC	0.01	NC	-	NC	-	NC	-	0.10	0.00	0.26	0.00	1.27	0.01
VR 0505	Taro, raw	RAC	0.01	0.10	0.00	NC	-	25.12	0.25	0.10	0.00	0.10	0.00	0.97	0.01
VR 0506	Garden turnip, raw	RAC	0.12	2.50	0.30	4.44	0.53	2.75	0.33	6.67	0.80	0.14	0.02	3.22	0.39
VR 0508	Sweet potato, raw (incl dried)	RAC	0.01	0.18	0.00	0.18	0.00	42.16	0.42	1.61	0.02	3.06	0.03	6.67	0.07

FLUENSULFONE (265) International Estimated Daily Intake (IEDI) ADI = 0-0.01 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day			Intake as ug/person/day								
VR 0573	Arrowroot, raw	RAC	0.01	1.53	0.02	0.10	0.00	0.93	0.01	1.33	0.01	0.47	0.00	0.10	0.00
VR 0574	Beetroot, raw	RAC	0.12	3.42	0.41	6.06	0.73	3.75	0.45	9.11	1.09	NC	-	4.39	0.53
VR 0575	Burdock, greater or edible, raw	RAC	0.01	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	NC	-	0.10	0.00
VR 0577	Carrots, raw	RAC	0.12	9.51	1.14	30.78	3.69	0.37	0.04	8.75	1.05	2.80	0.34	6.10	0.73
VR 0578	Celeriac, raw	RAC	0.12	1.70	0.20	3.01	0.36	1.87	0.22	4.53	0.54	NC	-	2.19	0.26
VR 0583	Horseradish, raw	RAC	0.12	0.51	0.06	0.91	0.11	0.56	0.07	1.37	0.16	NC	-	0.66	0.08
VR 0585	Jerusalem artichoke, raw (i.e. topinambur)	RAC	0.01	1.57	0.02	0.10	0.00	0.96	0.01	1.36	0.01	0.48	0.00	0.10	0.00
VR 0587	Parsley turnip-rooted, raw	RAC	0.01	0.32	0.00	0.57	0.01	0.35	0.00	0.85	0.01	NC	-	0.41	0.00
VR 0588	Parsnip, raw	RAC	0.12	0.59	0.07	1.05	0.13	0.65	0.08	1.58	0.19	NC	-	0.76	0.09
VR 0589	Potato, raw (incl flour, incl frozen, incl starch, incl tapioca)	RAC	0.01	59.74	0.60	316.14	3.16	9.78	0.10	60.26	0.60	54.12	0.54	119.82	1.20
VR 0590	Black radish, raw	RAC	0.01	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VR 0591	Japanese radish, raw (i.e. daikon)	RAC	0.12	1.90	0.23	3.36	0.40	2.08	0.25	5.06	0.61	NC	-	2.44	0.29
VR 0596	Sugar beet, raw (incl sugar)	RAC	0.01	0.13	0.00	NC	-	0.10	0.00	0.66	0.01	0.47	0.00	88.94	0.89
VR 0600	Yams, raw (incl dried)	RAC	0.01	0.10	0.00	NC	-	90.40	0.90	6.45	0.06	0.74	0.01	0.65	0.01
-	Lotus root, raw	RAC	0.01	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Water chestnut, raw	RAC	0.01	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VS 0624	Celery	RAC	0.1085	2.14	0.23	3.79	0.41	2.35	0.25	5.69	0.62	0.10	0.01	2.75	0.30
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				4.9		12.5		9.3		9.2		3.3		9.4
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (ug/person)=				600		600		600		600		600		600
	%ADI=				0.8%		2.1%		1.5%		1.5%		0.5%		1.6%
	Rounded %ADI=				1%		2%		2%		2%		1%		2%

Annex 3

FLUENSULFONE (265) International Estimated Daily Intake (IEDI) ADI = 0-0.01 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day	Intake as ug/person/day										
				G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
FB 2009	Low growing berries, raw (i.e. cranberry and strawberry)	RAC	0.01	4.55	0.05	5.66	0.06	0.10	0.00	7.85	0.08	5.86	0.06	0.10	0.00
VB 0040	Brassica vegetables, raw: head cabbages, flowerhead brassicas, Brussels sprouts & kohlrabi	RAC	0.01	20.71	0.21	39.81	0.40	16.70	0.17	28.49	0.28	18.12	0.18	15.03	0.15
VC 0046	Melons, raw (excl watermelons)	RAC	0.01	9.20	0.09	11.95	0.12	14.63	0.15	8.99	0.09	7.86	0.08	2.46	0.02
VC 0424	Cucumber, raw	RAC	0.01	6.72	0.07	11.03	0.11	32.10	0.32	15.10	0.15	4.05	0.04	9.57	0.10
VC 0431	Squash, summer, raw (= courgette, zuchini)	RAC	0.01	NC	-	NC	-	5.48	0.05	NC	-	NC	-	1.03	0.01
VO 0440	Egg plants, raw (= aubergines)	RAC	0.01	1.01	0.01	1.69	0.02	21.37	0.21	3.00	0.03	1.40	0.01	NC	-
VO 0442	Okra, raw	RAC	0.01	NC	-	NC	-	0.10	0.00	0.17	0.00	NC	-	0.72	0.01
VO 0443	Pepino (Melon pear, Tree melon)	RAC	0.01	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VO 0444	Peppers, chili, raw	RAC	0.01	5.57	0.06	14.00	0.14	8.25	0.08	5.77	0.06	6.44	0.06	2.53	0.03
-	Peppers, chili, dried	PP	0.1	0.11	0.01	0.21	0.02	0.36	0.04	0.21	0.02	0.25	0.03	0.15	0.02
VO 0445	Peppers, sweet, raw (incl dried)	RAC	0.01	0.82	0.01	1.53	0.02	10.85	0.11	4.59	0.05	1.84	0.02	2.00	0.02
VO 0448	Tomato, raw (incl juice, incl paste, incl canned)	RAC	0.01	64.74	0.65	68.31	0.68	36.05	0.36	82.09	0.82	54.50	0.55	11.69	0.12
-	Gilo (scarlet egg plant)	RAC	0.01	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Goji berry	RAC	0.01	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Quorn	RAC	0.01	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Seaweed	RAC	0.01	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0053	Leafy vegetables, raw	RAC	0.01	18.83	0.19	21.85	0.22	121.23	1.21	43.09	0.43	18.18	0.18	18.32	0.18
VP 0060	Legume vegetables, raw	RAC	0.01	18.21	0.18	8.91	0.09	7.22	0.07	10.04	0.10	23.22	0.23	0.17	0.00
VR 0463	Cassava raw (incl starch, incl tapioca, incl flour)	RAC	0.01	0.10	0.00	NC	-	20.96	0.21	0.14	0.00	NC	-	9.62	0.10
VR 0469	Chicory, roots, raw	RAC	0.01	0.10	0.00	0.51	0.01	0.10	0.00	0.10	0.00	21.12	0.21	NC	-
VR 0494	Radish roots, raw	RAC	0.12	3.83	0.46	11.99	1.44	NC	-	5.26	0.63	2.19	0.26	4.37	0.52
VR 0497	Swede, raw (i.e. rutabaga)	RAC	0.12	10.01	1.20	1.66	0.20	NC	-	NC	-	3.06	0.37	2.99	0.36
VR 0498	Salsify, raw (i.e. oysterplant)	RAC	0.01	1.02	0.01	0.52	0.01	NC	-	NC	-	2.08	0.02	0.39	0.00
VR 0504	Tannia, raw (i.e. yautia)	RAC	0.01	NC	-	NC	-	NC	-	0.10	0.00	NC	-	10.74	0.11
VR 0505	Taro, raw	RAC	0.01	NC	-	NC	-	1.93	0.02	0.84	0.01	NC	-	19.94	0.20
VR 0506	Garden turnip, raw	RAC	0.12	5.78	0.69	15.35	1.84	NC	-	6.54	0.78	1.95	0.23	4.73	0.57
VR 0508	Sweet potato, raw (incl dried)	RAC	0.01	0.93	0.01	0.32	0.00	64.65	0.65	5.37	0.05	0.30	0.00	3.13	0.03
VR 0573	Arrowroot, raw	RAC	0.01	0.10	0.00	0.10	0.00	2.05	0.02	0.21	0.00	NC	-	0.76	0.01
VR 0574	Beetroot, raw	RAC	0.12	9.91	1.19	6.34	0.76	NC	-	9.65	1.16	19.11	2.29	6.47	0.78

FLUENSULFONE (265) International Estimated Daily Intake (IEDI) ADI = 0-0.01 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day Intake as ug/person/day											
				G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
VR 0575	Burdock, greater or edible, raw	RAC	0.01	NC	-	NC	-	NC	-	0.48	0.00	NC	-	0.10	0.00
VR 0577	Carrots, raw	RAC	0.12	26.26	3.15	27.13	3.26	10.07	1.21	16.49	1.98	44.69	5.36	8.75	1.05
VR 0578	Celeriac, raw	RAC	0.12	2.97	0.36	1.79	0.21	NC	-	0.10	0.01	16.91	2.03	3.22	0.39
VR 0583	Horseradish, raw	RAC	0.12	0.10	0.01	0.42	0.05	13.01	1.56	0.26	0.03	2.70	0.32	0.97	0.12
VR 0585	Jerusalem artichoke, raw (i.e. topinambur)	RAC	0.01	0.11	0.00	0.10	0.00	NC	-	0.22	0.00	NC	-	0.78	0.01
VR 0587	Parsley turnip-rooted, raw	RAC	0.01	NC	-	NC	-	NC	-	NC	-	NC	-	0.61	0.01
VR 0588	Parsnip, raw	RAC	0.12	4.42	0.53	0.10	0.01	NC	-	NC	-	NC	-	1.12	0.13
VR 0589	Potato, raw (incl flour, incl frozen, incl starch, incl tapioca)	RAC	0.01	225.03	2.25	234.24	2.34	71.48	0.71	177.55	1.78	234.55	2.35	37.71	0.38
VR 0590	Black radish, raw	RAC	0.01	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VR 0591	Japanese radish, raw (i.e. daikon)	RAC	0.12	NC	-	NC	-	26.64	3.20	18.92	2.27	NC	-	3.59	0.43
VR 0596	Sugar beet, raw (incl sugar)	RAC	0.01	0.10	0.00	NC	-	0.10	0.00	0.10	0.00	NC	-	NC	-
VR 0600	Yams, raw (incl dried)	RAC	0.01	NC	-	NC	-	0.10	0.00	0.71	0.01	NC	-	17.57	0.18
-	Lotus root, raw	RAC	0.01	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Water chestnut, raw	RAC	0.01	NC	-	NC	-	3.42	0.03	NC	-	NC	-	NC	-
VS 0624	Celery	RAC	0.1085	7.68	0.83	2.85	0.31	NC	-	3.34	0.36	16.83	1.83	4.04	0.44
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				12.2		12.3		10.4		11.2		16.7		6.4
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (ug/person)=				600		600		550		600		600		600
	%ADI=				2.0%		2.1%		1.9%		1.9%		2.8%		1.1%
	Rounded %ADI=				2%		2%		2%		2%		3%		1%

FLUENSULFONE (265) International Estimated Daily Intake (IEDI) ADI = 0-0.01 mg/kg bw

			STMR	Diets: g/person/day		Intake = daily intake: ug/person							
Codex Code	Commodity description	Expr as	mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
FB 2009	Low growing berries, raw (i.e. cranberry and strawberry)	RAC	0.01	0.10	0.00	0.10	0.00	3.37	0.03	0.10	0.00	0.10	0.00
VB 0040	Brassica vegetables, raw: head cabbages, flowerhead brassicas, Brussels sprouts & kohlrabi	RAC	0.01	4.84	0.05	3.79	0.04	58.72	0.59	0.10	0.00	NC	-
VC 0046	Melons, raw (excl watermelons)	RAC	0.01	0.19	0.00	0.10	0.00	4.98	0.05	0.10	0.00	NC	-
VC 0424	Cucumber, raw	RAC	0.01	0.68	0.01	1.81	0.02	10.40	0.10	0.10	0.00	0.10	0.00
VC 0431	Squash, summer, raw (= courgette, zuchini)	RAC	0.01	0.10	0.00	1.01	0.01	NC	-	1.91	0.02	NC	-
VO 0440	Egg plants, raw (= aubergines)	RAC	0.01	1.31	0.01	8.26	0.08	3.95	0.04	0.10	0.00	NC	-
VO 0442	Okra, raw	RAC	0.01	6.23	0.06	0.10	0.00	NC	-	NC	-	NC	-
VO 0443	Pepino (Melon pear, Tree melon)	RAC	0.01	NC	-	NC	-	NC	-	NC	-	NC	-
VO 0444	Peppers, chili, raw	RAC	0.01	3.47	0.03	3.56	0.04	16.30	0.16	0.10	0.00	NC	-
-	Peppers, chili, dried	PP	0.1	0.58	0.06	1.27	0.13	1.21	0.12	0.12	0.01	NC	-
VO 0445	Peppers, sweet, raw (incl dried)	RAC	0.01	5.49	0.05	10.57	0.11	8.84	0.09	0.91	0.01	NC	-
VO 0448	Tomato, raw (incl juice, incl paste, incl canned)	RAC	0.01	15.50	0.16	5.78	0.06	71.52	0.72	2.00	0.02	12.50	0.13
-	Gilo (scarlet egg plant)	RAC	0.01	NC	-	NC	-	NC	-	NC	-	NC	-
-	Goji berry	RAC	0.01	NC	-	NC	-	NC	-	NC	-	NC	-
-	Quorn	RAC	0.01	NC	-	NC	-	NC	-	NC	-	NC	-
-	Seaweed	RAC	0.01	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0053	Leafy vegetables, raw	RAC	0.01	12.42	0.12	8.75	0.09	7.53	0.08	7.07	0.07	14.11	0.14
VP 0060	Legume vegetables, raw	RAC	0.01	0.58	0.01	3.16	0.03	10.38	0.10	0.10	0.00	NC	-
VR 0463	Cassava raw (incl starch, incl tapioca, incl flour)	RAC	0.01	91.92	0.92	34.12	0.34	NC	-	259.92	2.60	45.48	0.45
VR 0469	Chicory, roots, raw	RAC	0.01	0.10	0.00	0.10	0.00	0.10	0.00	NC	-	NC	-
VR 0494	Radish roots, raw	RAC	0.12	3.96	0.48	2.86	0.34	3.30	0.40	2.67	0.32	5.34	0.64
VR 0497	Swede, raw (i.e. rutabaga)	RAC	0.12	2.71	0.33	1.96	0.24	7.80	0.94	1.83	0.22	3.66	0.44
VR 0498	Salsify, raw (i.e. oysterplant)	RAC	0.01	0.36	0.00	0.26	0.00	NC	-	0.24	0.00	0.48	0.00
VR 0504	Tannia, raw (i.e. yautia)	RAC	0.01	NC	-	NC	-	0.10	0.00	NC	-	NC	-
VR 0505	Taro, raw	RAC	0.01	6.71	0.07	31.91	0.32	NC	-	10.73	0.11	264.31	2.64
VR 0506	Garden turnip, raw	RAC	0.12	4.29	0.51	3.10	0.37	6.41	0.77	2.90	0.35	5.79	0.69
VR 0508	Sweet potato, raw (incl dried)	RAC	0.01	28.83	0.29	61.55	0.62	0.15	0.00	221.94	2.22	NC	-
VR 0573	Arrowroot, raw	RAC	0.01	13.83	0.14	18.24	0.18	0.10	0.00	0.10	0.00	19.60	0.20
VR 0574	Beetroot, raw	RAC	0.12	5.86	0.70	4.23	0.51	9.46	1.14	3.96	0.48	7.91	0.95
VR 0575	Burdock, greater or edible, raw	RAC	0.01	0.10	0.00	0.10	0.00	NC	-	0.10	0.00	0.10	0.00

FLUENSULFONE (265) International Estimated Daily Intake (IEDI) ADI = 0-0.01 mg/kg bw

			STMR	Diets: g/person/day			Intake = daily intake: ug/person						
Codex Code	Commodity description	Expr as	mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
VR 0577	Carrots, raw	RAC	0.12	2.07	0.25	3.00	0.36	25.29	3.03	0.10	0.01	NC	-
VR 0578	Celeriac, raw	RAC	0.12	2.91	0.35	2.10	0.25	7.59	0.91	1.97	0.24	3.93	0.47
VR 0583	Horseradish, raw	RAC	0.12	0.88	0.11	0.63	0.08	0.54	0.06	0.59	0.07	1.19	0.14
VR 0585	Jerusalem artichoke, raw (i.e. topinambur)	RAC	0.01	14.22	0.14	18.75	0.19	0.10	0.00	0.10	0.00	20.14	0.20
VR 0587	Parsley turnip-rooted, raw	RAC	0.01	0.55	0.01	0.40	0.00	4.29	0.04	0.37	0.00	0.74	0.01
VR 0588	Parsnip, raw	RAC	0.12	1.02	0.12	0.74	0.09	3.50	0.42	0.69	0.08	1.37	0.16
VR 0589	Potato, raw (incl flour, incl frozen, incl starch, incl tapioca)	RAC	0.01	23.96	0.24	13.56	0.14	213.41	2.13	104.35	1.04	8.56	0.09
VR 0590	Black radish, raw	RAC	0.01	NC	-	NC	-	NC	-	NC	-	NC	-
VR 0591	Japanese radish, raw (i.e. daikon)	RAC	0.12	3.25	0.39	2.35	0.28	NC	-	2.20	0.26	4.39	0.53
VR 0596	Sugar beet, raw (incl sugar)	RAC	0.01	3.93	0.04	1.68	0.02	NC	-	NC	-	36.12	0.36
VR 0600	Yams, raw (incl dried)	RAC	0.01	70.93	0.71	30.62	0.31	0.10	0.00	5.65	0.06	30.85	0.31
-	Lotus root, raw	RAC	0.01	NC	-	NC	-	NC	-	NC	-	NC	-
-	Water chestnut, raw	RAC	0.01	NC	-	NC	-	NC	-	NC	-	NC	-
VS 0624	Celery	RAC	0.1085	3.66	0.40	2.65	0.29	4.84	0.53	2.47	0.27	4.94	0.54
-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				6.8		5.5		12.5		8.5		9.1
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (ug/person)=				600		600		600		600		600
	%ADI=				1.1%		0.9%		2.1%		1.4%		1.5%
	Rounded %ADI=				1%		1%		2%		1%		2%

FLUPYRADIFURONE (285) International Estimated Daily Intake (IEDI) ADI = 0-0.0800 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G01 diet	Intake as µg/person/day G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
FC 0002	Lemons and limes, raw (incl lemon juice) (incl kumquat commodities)	RAC	0.32	4.82	1.54	2.45	0.78	3.93	1.26	25.44	8.14	8.74	2.80	16.23	5.19
FC 0003	Mandarins, raw (incl mandarin juice)	RAC	0.44	6.18	2.72	3.66	1.61	0.25	0.11	6.82	3.00	3.49	1.54	19.38	8.53
FC 0004	Oranges, sweet, sour, raw	RAC	0.505	20.66	10.43	5.23	2.64	11.90	6.01	37.90	19.14	21.16	10.69	56.46	28.51
JF 0004	Oranges, juice (single strength, incl. concentrated)	PP	0.068	1.27	0.09	2.20	0.15	0.10	0.01	11.81	0.80	0.46	0.03	1.69	0.11
FC 0005	Pummelo and grapefruits, raw (incl grapefruit juice)	RAC	0.21	0.66	0.14	0.69	0.14	0.96	0.20	10.20	2.14	1.25	0.26	2.97	0.62
FP 0009	Pome fruit, raw (incl cider, excl apple juice)	RAC	0.44	19.35	8.51	34.06	14.99	17.87	7.86	25.74	11.33	7.69	3.38	56.85	25.01
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.14	0.32	0.04	3.07	0.43	0.10	0.01	5.00	0.70	0.29	0.04	5.57	0.78
FB 2006	Bush berries, raw (including processed) (i.e. blueberries, currants, gooseberries, rose hips)	RAC	0.725	0.53	0.38	1.31	0.95	0.40	0.29	1.66	1.20	0.10	0.07	0.99	0.72
FB 0269	Grape, raw	RAC	0.63	12.68	7.99	9.12	5.75	0.10	0.06	16.88	10.63	3.70	2.33	54.42	34.28
-	Grape must	PP	0.44	0.33	0.15	0.13	0.06	0.10	0.04	0.10	0.04	0.10	0.04	0.10	0.04
DF 0269	Grape, dried (= currants, raisins and sultanas)	PP	1.6	0.51	0.82	0.51	0.82	0.10	0.16	1.27	2.03	0.12	0.19	2.07	3.31
JF 0269	Grape juice	PP	0.43	0.14	0.06	0.29	0.12	0.10	0.04	0.30	0.13	0.24	0.10	0.10	0.04
-	Grape wine (incl vermouths)	PP	0.26	0.67	0.17	12.53	3.26	2.01	0.52	1.21	0.31	3.53	0.92	4.01	1.04
FB 0275	Strawberry, raw	RAC	1.495	0.70	1.05	2.01	3.00	0.10	0.15	1.36	2.03	0.37	0.55	2.53	3.78
VA 0035	Bulb vegetables, raw	RAC	0.18	34.29	6.17	46.37	8.35	4.73	0.85	41.36	7.44	21.08	3.79	52.54	9.46
VB 0041	Cabbages, head, raw	RAC	0.79	2.73	2.16	27.92	22.06	0.55	0.43	4.47	3.53	4.27	3.37	10.25	8.10
VB 0404	Cauliflower, raw	RAC	0.48	1.65	0.79	0.32	0.15	0.10	0.05	2.33	1.12	4.79	2.30	2.03	0.97
VC 0046	Melons, raw (excl watermelons)	RAC	0.57	8.90	5.07	8.64	4.92	0.80	0.46	17.90	10.20	2.80	1.60	29.17	16.63
VC 0431	Squash, summer, raw (= courgette, zuchini)	RAC	0.655	0.78	0.51	2.06	1.35	0.30	0.20	1.61	1.05	2.25	1.47	2.36	1.55
VO 0444	Peppers, chili, raw	RAC	0.68	3.99	2.71	7.30	4.96	2.93	1.99	5.62	3.82	NC	-	17.44	11.86
-	Peppers, chili, dried	PP	6.8	0.42	2.86	0.53	3.60	0.84	5.71	0.50	3.40	0.95	6.46	0.37	2.52
VO 0445	Peppers, sweet, raw	RAC	0.68	1.43	0.97	2.61	1.77	1.05	0.71	2.01	1.37	2.59	1.76	6.24	4.24
VO 0447	Sweet corn on the cob, raw (incl frozen, incl canned) (i.e. kernels plus cob without husks)	RAC	0.56	0.14	0.08	0.94	0.53	5.70	3.19	2.61	1.46	1.94	1.09	0.22	0.12

FLUPYRADIFURONE (285) International Estimated Daily Intake (IEDI) ADI = 0-0.0800 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G01 diet	Intake as µg/person/day G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
VO 0448	Tomato, raw (incl canned, excl juice, excl paste)	RAC	0.66	42.04	27.75	76.13	50.25	10.69	7.06	84.59	55.83	24.92	16.45	203.27	134.16
-	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	1.3	2.34	3.04	1.33	1.73	1.57	2.04	4.24	5.51	0.34	0.44	2.83	3.68
JF 0448	Tomato, juice (single strength, incl concentrated)	PP	0.44	0.29	0.13	0.29	0.13	0.10	0.04	0.38	0.17	0.10	0.04	0.14	0.06
VL 0482	Lettuce, head, raw	RAC	1.25	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0483	Lettuce, leaf, raw	RAC	2.55	0.53	1.35	0.36	0.92	0.16	0.41	6.21	15.84	1.90	4.85	6.05	15.43
VL 0485	Mustard greens, raw (i.e. Brassica)	RAC	12.5	0.10	1.25	0.31	3.88	0.10	1.25	0.10	1.25	0.47	5.88	0.11	1.38
VL 0502	Spinach, raw	RAC	8.5	0.74	6.29	0.22	1.87	0.10	0.85	0.91	7.74	0.10	0.85	2.92	24.82
VP 0062	Beans, green, without pods, raw: beans except broad bean & soya bean (i.e. immature seeds only) (Phaseolus spp..)	RAC	1.16	1.56	1.81	0.60	0.70	0.49	0.57	1.18	1.37	0.90	1.04	7.79	9.04
VP 0063	Peas green, with pods, raw (i.e. immature seeds + pods) (Pisum spp)	RAC	2.67	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VP 0064	Peas, green, without pods, raw (i.e. immature seeds only) (Pisum spp)	RAC	2.77	1.97	5.46	0.51	1.41	0.10	0.28	0.79	2.19	3.68	10.19	3.80	10.53
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	3.22	2.39	7.70	1.61	5.18	10.47	33.71	1.84	5.92	12.90	41.54	7.44	23.96
VD 0071	Peas, dry, raw (Pisum spp, Vigna spp): garden peas & field peas & cow peas	RAC	3.605	1.67	6.02	3.22	11.61	2.66	9.59	1.51	5.44	2.91	10.49	0.24	0.87
VD 0523	Broad bean, dry, raw (incl horse-bean, broad bean, field bean) (Vicia faba)	RAC	2.49	1.27	3.16	0.10	0.25	0.12	0.30	2.49	6.20	0.23	0.57	5.54	13.79
VD 0524	Chick-pea, dry, raw (Cicer arietinum)	RAC	2.49	5.34	13.30	0.13	0.32	0.10	0.25	4.69	11.68	7.24	18.03	5.52	13.74
VD 0533	Lentil, dry, raw (Ervum lens)	RAC	2.49	2.12	5.28	0.10	0.25	0.10	0.25	3.21	7.99	1.60	3.98	4.90	12.20
VD 0537	Pigeon pea dry, raw (Cajanus cajan)	RAC	2.49	NC	-	NC	-	0.10	0.25	0.10	0.25	3.38	8.42	NC	-
VD 0541	Soya bean, dry, raw (incl flour, incl paste, incl curd, incl sauce, excl oil)	RAC	3.44	0.63	2.17	1.09	3.75	0.40	1.38	1.40	4.82	1.68	5.78	0.48	1.65
OR 0541	Soya oil, refined	PP	0.13	12.99	1.69	10.43	1.36	3.63	0.47	13.10	1.70	10.70	1.39	13.10	1.70
-	Soya flour	PP	5.3	0.10	0.53	0.86	4.56	0.10	0.53	1.02	5.41	0.10	0.53	0.15	0.80
VR 0075	Root and tuber vegetables, raw (incl processed)	RAC	0.29	87.83	25.47	374.04	108.47	668.92	193.99	121.64	35.28	94.20	27.32	247.11	71.66
VR 0469	Chicory, roots, raw	RAC	0.25	0.10	0.03	0.20	0.05	0.10	0.03	0.10	0.03	0.10	0.03	0.10	0.03
VR 0494	Radish roots, raw	RAC	0.25	2.31	0.58	4.09	1.02	2.53	0.63	6.15	1.54	5.88	1.47	2.97	0.74
VR 0497	Swede, raw (i.e. rutabaga)	RAC	0.25	1.58	0.40	2.80	0.70	1.74	0.44	4.21	1.05	NC	-	2.03	0.51
VR 0498	Salsify, raw (i.e. oysterplant)	RAC	0.25	0.21	0.05	0.37	0.09	0.23	0.06	0.55	0.14	NC	-	0.27	0.07

FLUPYRADIFURONE (285) International Estimated Daily Intake (IEDI) ADI = 0-0.0800 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day	Intake as µg/person/day										
VR 0504	Tannia, raw (i.e. yautia)	RAC	0.25	NC	-	NC	-	NC	-	0.10	0.03	0.26	0.07	1.27	0.32
VR 0505	Taro, raw	RAC	0.25	0.10	0.03	NC	-	25.12	6.28	0.10	0.03	0.10	0.03	0.97	0.24
VR 0506	Garden turnip, raw	RAC	0.25	2.50	0.63	4.44	1.11	2.75	0.69	6.67	1.67	0.14	0.04	3.22	0.81
VR 0508	Sweet potato, raw (incl dried)	RAC	0.291	0.18	0.05	0.18	0.05	42.16	12.27	1.61	0.47	3.06	0.89	6.67	1.94
VR 0573	Arrowroot, raw	RAC	0.25	1.53	0.38	0.10	0.03	0.93	0.23	1.33	0.33	0.47	0.12	0.10	0.03
VR 0574	Beetroot, raw	RAC	0.25	3.42	0.86	6.06	1.52	3.75	0.94	9.11	2.28	NC	-	4.39	1.10
VR 0575	Burdock, greater or edible, raw	RAC	0.25	0.10	0.03	0.10	0.03	0.10	0.03	0.10	0.03	NC	-	0.10	0.03
VR 0577	Carrots, raw	RAC	0.25	9.51	2.38	30.78	7.70	0.37	0.09	8.75	2.19	2.80	0.70	6.10	1.53
VR 0578	Celeriac, raw	RAC	0.25	1.70	0.43	3.01	0.75	1.87	0.47	4.53	1.13	NC	-	2.19	0.55
VR 0583	Horseradish, raw	RAC	0.25	0.51	0.13	0.91	0.23	0.56	0.14	1.37	0.34	NC	-	0.66	0.17
VR 0585	Jerusalem artichoke, raw (i.e. topinambur)	RAC	0.25	1.57	0.39	0.10	0.03	0.96	0.24	1.36	0.34	0.48	0.12	0.10	0.03
VR 0587	Parsley turnip-rooted, raw	RAC	0.25	0.32	0.08	0.57	0.14	0.35	0.09	0.85	0.21	NC	-	0.41	0.10
VR 0588	Parsnip, raw	RAC	0.25	0.59	0.15	1.05	0.26	0.65	0.16	1.58	0.40	NC	-	0.76	0.19
VR 0589	Potato, raw (incl flour, incl frozen, incl tapioca, excl starch)	RAC	0.291	59.60	17.34	316.10	91.99	9.77	2.84	59.59	17.34	54.12	15.75	119.82	34.87
-	Potato, starch	PP	0.16	0.10	0.02	0.10	0.02	0.10	0.02	0.15	0.02	0.10	0.02	0.10	0.02
VR 0590	Black radish, raw	RAC	0.25	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VR 0591	Japanese radish, raw (i.e. daikon)	RAC	0.25	1.90	0.48	3.36	0.84	2.08	0.52	5.06	1.27	NC	-	2.44	0.61
VR 0596	Sugar beet, raw (incl sugar)	RAC	0.25	0.13	0.03	NC	-	0.10	0.03	0.66	0.17	0.47	0.12	88.94	22.24
VR 0600	Yams, raw (incl dried)	RAC	0.25	0.10	0.03	NC	-	90.40	22.60	6.45	1.61	0.74	0.19	0.65	0.16
-	Lotus root, raw	RAC	0.25	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Water chestnut, raw	RAC	0.25	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VS 0624	Celery	RAC	2.48	2.14	5.31	3.79	9.40	2.35	5.83	5.69	14.11	0.10	0.25	2.75	6.82
GC 0640	Barley, raw (incl malt extract, incl flour & grits, excl pot&pearled, excl beer, excl malt)	RAC	1.315	7.91	10.40	0.64	0.84	0.15	0.20	0.18	0.24	1.21	1.59	0.41	0.54
-	Barley, pot&pearled	PP	0.16	7.12	1.14	7.34	1.17	0.10	0.02	0.10	0.02	0.67	0.11	0.20	0.03
-	Barley beer	PP	0.099	4.87	0.48	93.78	9.28	24.28	2.40	12.76	1.26	39.28	3.89	18.15	1.80
-	Barley Malt	PP	0.64	0.10	0.06	1.04	0.67	0.18	0.12	0.33	0.21	0.10	0.06	0.10	0.06
GC 0641	Buckwheat, raw (incl flour)	RAC	1.315	NC	-	0.40	0.53	0.10	0.13	0.10	0.13	0.10	0.13	0.10	0.13
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl beer, excl flour, excl oil, excl germ, excl starch)	RAC	0.49	0.84	0.41	0.24	0.12	1.56	0.76	0.46	0.23	2.21	1.08	13.13	6.43
CF 1255	Maize, flour (white flour and wholemeal	PP	0.44	22.72	10.00	35.61	15.67	87.27	38.40	34.92	15.36	46.71	20.55	49.12	21.61

FLUPYRADIFURONE (285) International Estimated Daily Intake (IEDI) ADI = 0-0.0800 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day Intake as µg/person/day											
				G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
	flour)														
-	Maize, germ	PP	0.51	0.10	0.05	NC	-	0.10	0.05	0.10	0.05	0.22	0.11	NC	-
-	Maize starch	PP	0.44	0.10	0.04	NC	-	0.10	0.04	2.29	1.01	0.10	0.04	0.11	0.05
OR 0645	Maize oil	PP	0.44	0.96	0.42	0.85	0.37	0.29	0.13	5.42	2.38	0.42	0.18	2.10	0.92
GC 0646	Millet, raw (incl flour, incl beer)	RAC	1.315	1.46	1.92	2.32	3.05	5.84	7.68	0.89	1.17	16.17	21.26	0.10	0.13
GC 0647	Oats, raw (incl rolled)	RAC	1.315	0.10	0.13	7.05	9.27	0.10	0.13	1.71	2.25	0.96	1.26	0.10	0.13
GC 0650	Rye, raw (incl flour)	RAC	1.315	0.13	0.17	19.38	25.48	0.10	0.13	0.12	0.16	0.10	0.13	2.15	2.83
GC 0651	Sorghum, raw (incl flour, incl beer)	RAC	1.315	4.34	5.71	0.10	0.13	16.25	21.37	15.82	20.80	10.97	14.43	2.92	3.84
GC 0653	Triticale, raw (incl flour)	RAC	1.315	NC	-	NC	-	NC	-	0.10	0.13	0.39	0.51	NC	-
GC 0654	Wheat, raw (incl bulgur, incl fermented beverages, excl germ, excl wholemeal bread, excl white flour products, excl white bread)	RAC	1.315	0.10	0.13	1.12	1.47	0.10	0.13	0.10	0.13	0.61	0.80	0.10	0.13
CF 1210	Wheat, germ	PP	1.64	NC	-	NC	-	0.10	0.16	0.10	0.16	0.14	0.23	0.10	0.16
CF 0654	Wheat, bran	PP	2	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CP 1212	Wheat, wholemeal bread	PP	1.05	0.10	0.11	0.10	0.11	0.10	0.11	0.10	0.11	0.10	0.11	0.10	0.11
CP 1211	Wheat, white bread	PP	0.42	0.25	0.11	0.63	0.26	0.12	0.05	0.43	0.18	1.39	0.58	0.22	0.09
CF 1211	Wheat, white flour (incl white flour products: starch, gluten, macaroni, pastry)	PP	0.59	301.49	177.88	269.27	158.87	30.33	17.89	222.94	131.53	136.12	80.31	343.34	202.57
-	Wheat, starch	PP	0.034	0.10	0.00	NC	-	0.10	0.00	0.10	0.00	0.13	0.00	0.10	0.00
-	Wheat, gluten	PP	0.53	0.10	0.05	0.10	0.05	0.10	0.05	0.27	0.14	0.10	0.05	0.10	0.05
TN 0672	Pecan nuts, nutmeat	RAC	0.06	0.10	0.01	0.10	0.01	0.10	0.01	0.14	0.01	0.10	0.01	0.13	0.01
SO 0691	Cotton seed, raw	RAC	0.395	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
OR 0691	Cotton seed oil, edible	PP	0.079	3.22	0.25	1.54	0.12	1.01	0.08	0.74	0.06	1.12	0.09	2.93	0.23
SO 0697	Peanuts, nutmeat, raw	RAC	0.225	0.40	0.09	1.01	0.23	6.60	1.49	1.47	0.33	1.17	0.26	1.82	0.41
-	Peanuts, roasted	PP	0.16	0.10	0.02	0.19	0.03	0.10	0.02	1.05	0.17	0.10	0.02	0.10	0.02
OR 0697	Peanut oil, edible	PP	0.11	0.36	0.04	0.10	0.01	2.57	0.28	0.10	0.01	2.29	0.25	0.36	0.04
-	Peanut butter	PP	0.16	0.10	0.02	0.10	0.02	0.10	0.02	0.19	0.03	0.10	0.02	0.10	0.02
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat)	RAC	0.3	31.20	9.36	72.44	21.73	20.88	6.26	47.98	14.39	33.08	9.92	36.25	10.88
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.15	3.29	0.49	6.14	0.92	0.82	0.12	1.57	0.24	2.23	0.33	1.07	0.16
MO 0105	Edible offal (mammalian), raw	RAC	0.87	4.79	4.17	9.68	8.42	2.97	2.58	5.49	4.78	3.84	3.34	5.03	4.38

FLUPYRADIFURONE (285) International Estimated Daily Intake (IEDI) ADI = 0-0.0800 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day		Intake as µg/person/day									
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.11	289.65	31.86	485.88	53.45	26.92	2.96	239.03	26.29	199.91	21.99	180.53	19.86
PM 0110	Poultry meat, raw (incl prepared)	RAC	0.27	14.63	3.95	29.76	8.04	8.04	2.17	129.68	35.01	25.04	6.76	35.66	9.63
PF 0111	Poultry fat, raw (incl rendered)	RAC	0.11	0.10	0.01	0.10	0.01	NC	-	0.10	0.01	0.10	0.01	0.10	0.01
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.39	0.12	0.05	0.12	0.05	0.11	0.04	5.37	2.09	0.24	0.09	0.10	0.04
PE 0112	Eggs, raw, (incl dried)	RAC	0.15	7.84	1.18	23.08	3.46	2.88	0.43	14.89	2.23	9.81	1.47	14.83	2.22
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (µg/person)=				458.3		718.8		444.6		579.6		414.4		869.5
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (µg/person)=				4800		4800		4800		4800		4800		4800
	%ADI=				9.5%		15.0%		9.3%		12.1%		8.6%		18.1%
	Rounded %ADI=				10%		10%		9%		10%		9%		20%

FLUPYRADIFURONE (285) International Estimated Daily Intake (IEDI) ADI = 0-0.0800 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day		Intake as µg/person/day									
FC 0002	Lemons and limes, raw (incl lemon juice) (incl kumquat commodities)	RAC	0.32	10.12	3.24	15.69	5.02	2.88	0.92	12.30	3.94	22.32	7.14	6.59	2.11
FC 0003	Mandarins, raw (incl mandarin juice)	RAC	0.44	12.42	5.46	14.99	6.60	16.08	7.08	10.78	4.74	9.94	4.37	NC	-
FC 0004	Oranges, sweet, sour, raw	RAC	0.505	15.68	7.92	24.00	12.12	6.80	3.43	29.09	14.69	15.39	7.77	160.47	81.04
JF 0004	Oranges, juice (single strength, incl. concentrated)	PP	0.068	33.31	2.27	1.78	0.12	0.28	0.02	18.97	1.29	14.01	0.95	13.36	0.91
FC 0005	Pummelo and grapefruits, raw (incl grapefruit juice)	RAC	0.21	8.21	1.72	4.60	0.97	0.64	0.13	5.85	1.23	19.98	4.20	368.86	77.46
FP 0009	Pome fruit, raw (incl cider, excl apple juice)	RAC	0.44	51.09	22.48	65.40	28.78	42.71	18.79	45.29	19.93	62.51	27.50	7.74	3.41
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.14	14.88	2.08	11.98	1.68	0.15	0.02	9.98	1.40	30.32	4.24	3.47	0.49
FB 2006	Bush berries, raw (including processed) (i.e.	RAC	0.725	1.31	0.95	5.50	3.99	0.10	0.07	2.57	1.86	0.82	0.59	2.15	1.56

FLUPYRADIFURONE (285) International Estimated Daily Intake (IEDI) ADI = 0-0.0800 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day		Intake as µg/person/day									
				G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
	blueberries, currants, gooseberries, rose hips)														
FB 0269	Grape, raw	RAC	0.63	6.33	3.99	11.22	7.07	5.21	3.28	9.38	5.91	4.55	2.87	0.78	0.49
-	Grape must	PP	0.44	0.16	0.07	0.10	0.04	0.10	0.04	0.12	0.05	0.11	0.05	NC	-
DF 0269	Grape, dried (= currants, raisins and sultanas)	PP	1.6	3.09	4.94	1.51	2.42	0.10	0.16	1.38	2.21	4.26	6.82	0.42	0.67
JF 0269	Grape juice	PP	0.43	0.56	0.24	1.96	0.84	0.10	0.04	2.24	0.96	2.27	0.98	0.34	0.15
-	Grape wine (incl vermouths)	PP	0.26	88.93	23.12	62.41	16.23	1.84	0.48	25.07	6.52	61.17	15.90	5.84	1.52
FB 0275	Strawberry, raw	RAC	1.495	4.49	6.71	5.66	8.46	0.10	0.15	6.63	9.91	5.75	8.60	0.10	0.15
VA 0035	Bulb vegetables, raw	RAC	0.18	26.24	4.72	36.47	6.56	39.29	7.07	39.37	7.09	29.12	5.24	20.21	3.64
VB 0041	Cabbages, head, raw	RAC	0.79	8.97	7.09	27.12	21.42	1.44	1.14	24.96	19.72	4.55	3.59	11.23	8.87
VB 0404	Cauliflower, raw	RAC	0.48	5.27	2.53	5.01	2.40	NC	-	2.70	1.30	5.57	2.67	0.49	0.24
VC 0046	Melons, raw (excl watermelons)	RAC	0.57	9.20	5.24	11.95	6.81	14.63	8.34	8.99	5.12	7.86	4.48	2.46	1.40
VC 0431	Squash, summer, raw (= courgette, zuchini)	RAC	0.655	NC	-	NC	-	5.48	3.59	NC	-	NC	-	1.03	0.67
VO 0444	Peppers, chili, raw	RAC	0.68	5.57	3.79	14.00	9.52	8.25	5.61	5.77	3.92	6.44	4.38	2.53	1.72
-	Peppers, chili, dried	PP	6.8	0.11	0.75	0.21	1.43	0.36	2.45	0.21	1.43	0.25	1.70	0.15	1.02
VO 0445	Peppers, sweet, raw	RAC	0.68	NC	-	NC	-	8.25	5.61	3.03	2.06	NC	-	0.91	0.62
VO 0447	Sweet corn on the cob, raw (incl frozen, incl canned) (i.e. kernels plus cob without husks)	RAC	0.56	11.43	6.40	3.71	2.08	0.74	0.41	13.63	7.63	3.07	1.72	1.50	0.84
VO 0448	Tomato, raw (incl canned, excl juice, excl paste)	RAC	0.66	43.88	28.96	55.41	36.57	35.38	23.35	74.88	49.42	26.50	17.49	9.51	6.28
-	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	1.3	4.96	6.45	3.20	4.16	0.15	0.20	1.61	2.09	6.88	8.94	0.52	0.68
JF 0448	Tomato, juice (single strength, incl concentrated)	PP	0.44	0.80	0.35	0.10	0.04	0.10	0.04	0.61	0.27	0.40	0.18	0.10	0.04
VL 0482	Lettuce, head, raw	RAC	1.25	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0483	Lettuce, leaf, raw	RAC	2.55	14.50	36.98	11.76	29.99	13.14	33.51	19.50	49.73	4.81	12.27	2.23	5.69
VL 0485	Mustard greens, raw (i.e. Brassica)	RAC	12.5	NC	-	NC	-	NC	-	NC	-	NC	-	0.13	1.63
VL 0502	Spinach, raw	RAC	8.5	2.20	18.70	1.76	14.96	13.38	113.73	2.94	24.99	5.53	47.01	0.10	0.85
VP 0062	Beans, green, without pods, raw: beans except broad bean & soya bean (i.e. immature seeds only) (Phaseolus spp..)	RAC	1.16	2.21	2.56	5.25	6.09	4.17	4.84	1.61	1.87	16.95	19.66	0.17	0.20
VP 0063	Peas green, with pods, raw (i.e. immature seeds + pods) (Pisum spp)	RAC	2.67	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VP 0064	Peas, green, without pods, raw (i.e. immature	RAC	2.77	10.72	29.69	1.99	5.51	2.72	7.53	4.26	11.80	4.23	11.72	NC	-

FLUPYRADIFURONE (285) International Estimated Daily Intake (IEDI) ADI = 0-0.0800 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G07 diet	Intake as µg/person/day G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
	seeds only) (Pisum spp)														
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	3.22	1.51	4.86	1.50	4.83	1.90	6.12	5.11	16.45	1.36	4.38	23.43	75.44
VD 0071	Peas, dry, raw (Pisum spp, Vigna spp): garden peas & field peas & cow peas	RAC	3.605	3.80	13.70	1.25	4.51	1.06	3.82	2.33	8.40	2.70	9.73	3.83	13.81
VD 0523	Broad bean, dry, raw (incl horse-bean, broad bean, field bean) (Vicia faba)	RAC	2.49	0.10	0.25	0.10	0.25	1.16	2.89	0.40	1.00	NC	-	0.10	0.25
VD 0524	Chick-pea, dry, raw (Cicer arietinum)	RAC	2.49	0.27	0.67	1.33	3.31	0.32	0.80	0.15	0.37	0.10	0.25	0.10	0.25
VD 0533	Lentil, dry, raw (Ervum lens)	RAC	2.49	0.95	2.37	1.18	2.94	0.40	1.00	0.96	2.39	0.71	1.77	1.28	3.19
VD 0537	Pigeon pea dry, raw (Cajanus cajan)	RAC	2.49	NC	-	NC	-	0.20	0.50	NC	-	NC	-	NC	-
VD 0541	Soya bean, dry, raw (incl flour, incl paste, incl curd, incl sauce, excl oil)	RAC	3.44	0.47	1.62	0.77	2.65	9.12	31.37	8.05	27.69	0.10	0.34	6.06	20.85
OR 0541	Soya oil, refined	PP	0.13	19.06	2.48	21.06	2.74	5.94	0.77	33.78	4.39	40.05	5.21	13.39	1.74
-	Soya flour	PP	5.3	0.22	1.17	0.27	1.43	0.29	1.54	0.17	0.90	NC	-	NC	-
VR 0075	Root and tuber vegetables, raw (incl processed)	RAC	0.29	290.31	84.19	300.35	87.10	214.25	62.13	242.72	70.39	348.67	101.11	137.52	39.88
VR 0469	Chicory, roots, raw	RAC	0.25	0.10	0.03	0.51	0.13	0.10	0.03	0.10	0.03	21.12	5.28	NC	-
VR 0494	Radish roots, raw	RAC	0.25	3.83	0.96	11.99	3.00	NC	-	5.26	1.32	2.19	0.55	4.37	1.09
VR 0497	Swede, raw (i.e. rutabaga)	RAC	0.25	10.01	2.50	1.66	0.42	NC	-	NC	-	3.06	0.77	2.99	0.75
VR 0498	Salsify, raw (i.e. oysterplant)	RAC	0.25	1.02	0.26	0.52	0.13	NC	-	NC	-	2.08	0.52	0.39	0.10
VR 0504	Tannia, raw (i.e. yautia)	RAC	0.25	NC	-	NC	-	NC	-	0.10	0.03	NC	-	10.74	2.69
VR 0505	Taro, raw	RAC	0.25	NC	-	NC	-	1.93	0.48	0.84	0.21	NC	-	19.94	4.99
VR 0506	Garden turnip, raw	RAC	0.25	5.78	1.45	15.35	3.84	NC	-	6.54	1.64	1.95	0.49	4.73	1.18
VR 0508	Sweet potato, raw (incl dried)	RAC	0.291	0.93	0.27	0.32	0.09	64.65	18.81	5.37	1.56	0.30	0.09	3.13	0.91
VR 0573	Arrowroot, raw	RAC	0.25	0.10	0.03	0.10	0.03	2.05	0.51	0.21	0.05	NC	-	0.76	0.19
VR 0574	Beetroot, raw	RAC	0.25	9.91	2.48	6.34	1.59	NC	-	9.65	2.41	19.11	4.78	6.47	1.62
VR 0575	Burdock, greater or edible, raw	RAC	0.25	NC	-	NC	-	NC	-	0.48	0.12	NC	-	0.10	0.03
VR 0577	Carrots, raw	RAC	0.25	26.26	6.57	27.13	6.78	10.07	2.52	16.49	4.12	44.69	11.17	8.75	2.19
VR 0578	Celeriac, raw	RAC	0.25	2.97	0.74	1.79	0.45	NC	-	0.10	0.03	16.91	4.23	3.22	0.81
VR 0583	Horseradish, raw	RAC	0.25	0.10	0.03	0.42	0.11	13.01	3.25	0.26	0.07	2.70	0.68	0.97	0.24
VR 0585	Jerusalem artichoke, raw (i.e. topinambur)	RAC	0.25	0.11	0.03	0.10	0.03	NC	-	0.22	0.06	NC	-	0.78	0.20
VR 0587	Parsley turnip-rooted, raw	RAC	0.25	NC	-	NC	-	NC	-	NC	-	NC	-	0.61	0.15
VR 0588	Parsnip, raw	RAC	0.25	4.42	1.11	0.10	0.03	NC	-	NC	-	NC	-	1.12	0.28
VR 0589	Potato, raw (incl flour, incl frozen, incl tapioca, excl starch)	RAC	0.291	225.03	65.48	226.35	65.87	71.26	20.74	173.36	50.45	234.55	68.25	37.71	10.97

FLUPYRADIFURONE (285) International Estimated Daily Intake (IEDI) ADI = 0-0.0800 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day	Intake as µg/person/day										
				G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
-	Potato, starch	PP	0.16	NC	-	1.74	0.28	0.10	0.02	0.92	0.15	NC	-	NC	-
VR 0590	Black radish, raw	RAC	0.25	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VR 0591	Japanese radish, raw (i.e. daikon)	RAC	0.25	NC	-	NC	-	26.64	6.66	18.92	4.73	NC	-	3.59	0.90
VR 0596	Sugar beet, raw (incl sugar)	RAC	0.25	0.10	0.03	NC	-	0.10	0.03	0.10	0.03	NC	-	NC	-
VR 0600	Yams, raw (incl dried)	RAC	0.25	NC	-	NC	-	0.10	0.03	0.71	0.18	NC	-	17.57	4.39
-	Lotus root, raw	RAC	0.25	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Water chestnut, raw	RAC	0.25	NC	-	NC	-	3.42	0.86	NC	-	NC	-	NC	-
VS 0624	Celery	RAC	2.48	7.68	19.05	2.85	7.07	NC	-	3.34	8.28	16.83	41.74	4.04	10.02
GC 0640	Barley, raw (incl malt extract, incl flour & grits, excl pot&pearled, excl beer, excl malt)	RAC	1.315	0.82	1.08	0.21	0.28	0.10	0.13	1.53	2.01	1.58	2.08	0.63	0.83
-	Barley, pot&pearled	PP	0.16	0.57	0.09	2.56	0.41	0.33	0.05	0.56	0.09	0.36	0.06	NC	-
-	Barley beer	PP	0.099	180.21	17.84	259.46	25.69	45.91	4.55	172.36	17.06	234.42	23.21	65.30	6.46
-	Barley Malt	PP	0.64	0.19	0.12	NC	-	0.10	0.06	0.10	0.06	NC	-	2.14	1.37
GC 0641	Buckwheat, raw (incl flour)	RAC	1.315	0.10	0.13	0.79	1.04	0.18	0.24	0.35	0.46	NC	-	NC	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl beer, excl flour, excl oil, excl germ, excl starch)	RAC	0.49	0.10	0.05	9.93	4.87	1.40	0.69	10.26	5.03	0.33	0.16	0.10	0.05
CF 1255	Maize, flour (white flour and wholemeal flour)	PP	0.44	14.27	6.28	12.86	5.66	19.71	8.67	12.55	5.52	4.21	1.85	52.30	23.01
-	Maize, germ	PP	0.51	0.10	0.05	NC	-	NC	-	0.10	0.05	NC	-	0.10	0.05
-	Maize starch	PP	0.44	NC	-	NC	-	0.19	0.08	7.13	3.14	NC	-	NC	-
OR 0645	Maize oil	PP	0.44	0.90	0.40	0.47	0.21	0.15	0.07	3.01	1.32	1.86	0.82	0.36	0.16
GC 0646	Millet, raw (incl flour, incl beer)	RAC	1.315	0.10	0.13	0.16	0.21	1.75	2.30	0.69	0.91	NC	-	NC	-
GC 0647	Oats, raw (incl rolled)	RAC	1.315	7.50	9.86	6.26	8.23	0.15	0.20	4.87	6.40	3.16	4.16	2.98	3.92
GC 0650	Rye, raw (incl flour)	RAC	1.315	3.21	4.22	35.38	46.52	0.21	0.28	6.50	8.55	1.49	1.96	NC	-
GC 0651	Sorghum, raw (incl flour, incl beer)	RAC	1.315	NC	-	NC	-	1.44	1.89	1.15	1.51	NC	-	7.12	9.36
GC 0653	Triticale, raw (incl flour)	RAC	1.315	0.10	0.13	0.17	0.22	0.29	0.38	0.10	0.13	NC	-	NC	-
GC 0654	Wheat, raw (incl bulgur, incl fermented beverages, excl germ, excl wholemeal bread, excl white flour products, excl white bread)	RAC	1.315	0.37	0.49	0.10	0.13	0.10	0.13	0.10	0.13	NC	-	0.10	0.13
CF 1210	Wheat, germ	PP	1.64	0.97	1.59	0.10	0.16	0.10	0.16	0.10	0.16	NC	-	0.10	0.16
CF 0654	Wheat, bran	PP	2	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CP 1212	Wheat, wholemeal bread	PP	1.05	0.10	0.11	0.10	0.11	0.10	0.11	0.10	0.11	0.10	0.11	0.10	0.11

Annex 3

FLUPYRADIFURONE (285) International Estimated Daily Intake (IEDI) ADI = 0-0.0800 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day		Intake as µg/person/day									
				G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
CP 1211	Wheat, white bread	PP	0.42	1.30	0.55	0.46	0.19	0.10	0.04	0.22	0.09	2.44	1.02	0.77	0.32
CF 1211	Wheat, white flour (incl white flour products: starch, gluten, macaroni, pastry)	PP	0.59	199.38	117.63	193.50	114.17	106.30	62.72	185.31	109.33	171.11	100.95	132.37	78.10
-	Wheat, starch	PP	0.034	NC	-	NC	-	0.10	0.00	0.31	0.01	NC	-	NC	-
-	Wheat, gluten	PP	0.53	0.68	0.36	NC	-	0.10	0.05	0.10	0.05	NC	-	NC	-
TN 0672	Pecan nuts, nutmeat	RAC	0.06	0.38	0.02	NC	-	NC	-	0.27	0.02	NC	-	0.26	0.02
SO 0691	Cotton seed, raw	RAC	0.395	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
OR 0691	Cotton seed oil, edible	PP	0.079	1.68	0.13	0.66	0.05	1.13	0.09	1.18	0.09	0.89	0.07	0.37	0.03
SO 0697	Peanuts, nutmeat, raw	RAC	0.225	2.39	0.54	2.05	0.46	5.25	1.18	4.39	0.99	1.30	0.29	0.62	0.14
-	Peanuts, roasted	PP	0.16	0.80	0.13	0.14	0.02	0.11	0.02	0.43	0.07	0.10	0.02	0.45	0.07
OR 0697	Peanut oil, edible	PP	0.11	1.02	0.11	0.23	0.03	1.81	0.20	0.42	0.05	5.23	0.58	0.10	0.01
-	Peanut butter	PP	0.16	0.10	0.02	0.10	0.02	0.10	0.02	0.10	0.02	0.15	0.02	0.75	0.12
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat)	RAC	0.3	140.03	42.01	150.89	45.27	79.32	23.80	111.24	33.37	120.30	36.09	51.27	15.38
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.15	6.44	0.97	15.51	2.33	3.79	0.57	8.29	1.24	18.44	2.77	8.00	1.20
MO 0105	Edible offal (mammalian), raw	RAC	0.87	15.17	13.20	5.19	4.52	6.30	5.48	6.78	5.90	3.32	2.89	3.17	2.76
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.11	388.92	42.78	335.88	36.95	49.15	5.41	331.25	36.44	468.56	51.54	245.45	27.00
PM 0110	Poultry meat, raw (incl prepared)	RAC	0.27	73.76	19.92	53.86	14.54	23.98	6.47	87.12	23.52	53.38	14.41	84.45	22.80
PF 0111	Poultry fat, raw (incl rendered)	RAC	0.11	0.10	0.01	0.10	0.01	NC	-	0.10	0.01	0.71	0.08	NC	-
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.39	0.33	0.13	0.72	0.28	0.27	0.11	0.35	0.14	0.80	0.31	NC	-
PE 0112	Eggs, raw, (incl dried)	RAC	0.15	25.84	3.88	29.53	4.43	28.05	4.21	33.19	4.98	36.44	5.47	8.89	1.33
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (µg/person)=				736.6		758.4		547.2		739.5		745.3		598.3
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (µg/person)=				4800		4800		4400		4800		4800		4800
	%ADI=				15.3%		15.8%		12.4%		15.4%		15.5%		12.5%
	Rounded %ADI=				20%		20%		10%		20%		20%		10%

FLUPYRADIFURONE (285) International Estimated Daily Intake (IEDI) ADI = 0-0.0800 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day G13 diet	G13 intake	G14 diet	Intake = daily intake: µg/person G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
FC 0002	Lemons and limes, raw (incl lemon juice) (incl kumquat commodities)	RAC	0.32	18.97	6.07	0.97	0.31	6.23	1.99	0.10	0.03	3.35	1.07
FC 0003	Mandarins, raw (incl mandarin juice)	RAC	0.44	0.16	0.07	0.27	0.12	9.06	3.99	0.10	0.04	0.10	0.04
FC 0004	Oranges, sweet, sour, raw	RAC	0.505	1.18	0.60	1.11	0.56	14.28	7.21	0.10	0.05	1.08	0.55
JF 0004	Oranges, juice (single strength, incl. concentrated)	PP	0.068	0.10	0.01	0.26	0.02	12.61	0.86	0.14	0.01	0.33	0.02
FC 0005	Pummelo and grapefruits, raw (incl grapefruit juice)	RAC	0.21	0.68	0.14	0.10	0.02	3.21	0.67	0.10	0.02	NC	-
FP 0009	Pome fruit, raw (incl cider, excl apple juice)	RAC	0.44	68.85	30.29	10.93	4.81	70.82	31.16	189.78	83.50	19.56	8.61
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.14	0.10	0.01	0.10	0.01	7.19	1.01	0.10	0.01	NC	-
FB 2006	Bush berries, raw (including processed) (i.e. blueberries, currants, gooseberries, rose hips)	RAC	0.725	0.82	0.59	4.05	2.94	5.94	4.31	0.43	0.31	2.66	1.93
FB 0269	Grape, raw	RAC	0.63	0.14	0.09	0.36	0.23	15.22	9.59	0.10	0.06	0.10	0.06
-	Grape must	PP	0.44	0.10	0.04	0.10	0.04	0.11	0.05	0.10	0.04	0.19	0.08
DF 0269	Grape, dried (= currants, raisins and sultanas)	PP	1.6	0.10	0.16	0.13	0.21	1.06	1.70	0.10	0.16	0.10	0.16
JF 0269	Grape juice	PP	0.43	0.10	0.04	0.10	0.04	0.41	0.18	0.10	0.04	NC	-
-	Grape wine (incl vermouths)	PP	0.26	0.31	0.08	0.23	0.06	60.43	15.71	0.52	0.14	31.91	8.30
FB 0275	Strawberry, raw	RAC	1.495	0.10	0.15	0.10	0.15	3.35	5.01	0.10	0.15	0.10	0.15
VA 0035	Bulb vegetables, raw	RAC	0.18	11.28	2.03	23.80	4.28	36.11	6.50	9.66	1.74	8.69	1.56
VB 0041	Cabbages, head, raw	RAC	0.79	3.82	3.02	2.99	2.36	49.16	38.84	0.10	0.08	NC	-
VB 0404	Cauliflower, raw	RAC	0.48	0.10	0.05	0.10	0.05	2.73	1.31	0.10	0.05	NC	-
VC 0046	Melons, raw (excl watermelons)	RAC	0.57	0.19	0.11	0.10	0.06	4.98	2.84	0.10	0.06	NC	-
VC 0431	Squash, summer, raw (= courgette, zuchini)	RAC	0.655	0.10	0.07	1.01	0.66	NC	-	1.91	1.25	NC	-
VO 0444	Peppers, chili, raw	RAC	0.68	3.47	2.36	3.56	2.42	16.30	11.08	0.10	0.07	NC	-
-	Peppers, chili, dried	PP	6.8	0.58	3.94	1.27	8.64	1.21	8.23	0.12	0.82	NC	-
VO 0445	Peppers, sweet, raw	RAC	0.68	1.24	0.84	1.27	0.86	NC	-	0.10	0.07	NC	-
VO 0447	Sweet corn on the cob, raw (incl frozen, incl canned) (i.e. kernels plus cob without husks)	RAC	0.56	3.63	2.03	20.50	11.48	8.78	4.92	0.10	0.06	0.17	0.10
VO 0448	Tomato, raw (incl canned, excl juice, excl paste)	RAC	0.66	13.10	8.65	4.90	3.23	62.16	41.03	1.04	0.69	0.10	0.07
-	Tomato, paste (i.e. concentrated tomato	PP	1.3	0.58	0.75	0.22	0.29	2.21	2.87	0.24	0.31	3.10	4.03

FLUPYRADIFURONE (285) International Estimated Daily Intake (IEDI) ADI = 0-0.0800 mg/kg bw

			STMR	Diets: g/person/day		Intake = daily intake: µg/person							
Codex Code	Commodity description	Expr as	mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
	sauce/puree)												
JF 0448	Tomato, juice (single strength, incl concentrated)	PP	0.44	0.10	0.04	0.10	0.04	0.42	0.18	0.10	0.04	0.10	0.04
VL 0482	Lettuce, head, raw	RAC	1.25	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0483	Lettuce, leaf, raw	RAC	2.55	0.29	0.74	0.10	0.26	6.71	17.11	0.10	0.26	NC	-
VL 0485	Mustard greens, raw (i.e. Brassica)	RAC	12.5	0.10	1.25	0.10	1.25	NC	-	0.10	1.25	NC	-
VL 0502	Spinach, raw	RAC	8.5	0.17	1.45	0.10	0.85	0.81	6.89	0.10	0.85	NC	-
VP 0062	Beans, green, without pods, raw: beans except broad bean & soya bean (i.e. immature seeds only) (Phaseolus spp..)	RAC	1.16	0.30	0.35	3.13	3.63	4.11	4.77	0.10	0.12	NC	-
VP 0063	Peas green, with pods, raw (i.e. immature seeds + pods) (Pisum spp)	RAC	2.67	NC	-	NC	-	NC	-	NC	-	NC	-
VP 0064	Peas, green, without pods, raw (i.e. immature seeds only) (Pisum spp)	RAC	2.77	0.21	0.58	0.10	0.28	5.51	15.26	0.10	0.28	NC	-
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	3.22	7.11	22.89	2.33	7.50	3.76	12.11	44.70	143.93	3.27	10.53
VD 0071	Peas, dry, raw (Pisum spp, Vigna spp): garden peas & field peas & cow peas	RAC	3.605	14.30	51.55	3.51	12.65	3.52	12.69	7.89	28.44	0.74	2.67
VD 0523	Broad bean, dry, raw (incl horse-bean, broad bean, field bean) (Vicia faba)	RAC	2.49	3.70	9.21	0.10	0.25	0.17	0.42	0.10	0.25	NC	-
VD 0524	Chick-pea, dry, raw (Cicer arietinum)	RAC	2.49	1.09	2.71	1.56	3.88	0.33	0.82	0.18	0.45	0.47	1.17
VD 0533	Lentil, dry, raw (Ervum lens)	RAC	2.49	0.67	1.67	7.26	18.08	0.37	0.92	0.10	0.25	NC	-
VD 0537	Pigeon pea dry, raw (Cajanus cajan)	RAC	2.49	1.14	2.84	0.10	0.25	NC	-	5.53	13.77	NC	-
VD 0541	Soya bean, dry, raw (incl flour, incl paste, incl curd, incl sauce, excl oil)	RAC	3.44	2.89	9.94	0.21	0.72	0.48	1.65	3.16	10.87	0.26	0.89
OR 0541	Soya oil, refined	PP	0.13	2.32	0.30	2.54	0.33	18.70	2.43	2.51	0.33	6.29	0.82
-	Soya flour	PP	5.3	0.11	0.58	0.10	0.53	0.10	0.53	0.10	0.53	0.10	0.53
VR 0075	Root and tuber vegetables, raw (incl processed)	RAC	0.29	282.25	81.85	232.11	67.31	281.91	81.75	620.21	179.86	459.96	133.39
VR 0469	Chicory, roots, raw	RAC	0.25	0.10	0.03	0.10	0.03	0.10	0.03	NC	-	NC	-
VR 0494	Radish roots, raw	RAC	0.25	3.96	0.99	2.86	0.72	3.30	0.83	2.67	0.67	5.34	1.34
VR 0497	Swede, raw (i.e. rutabaga)	RAC	0.25	2.71	0.68	1.96	0.49	7.80	1.95	1.83	0.46	3.66	0.92
VR 0498	Salsify, raw (i.e. oysterplant)	RAC	0.25	0.36	0.09	0.26	0.07	NC	-	0.24	0.06	0.48	0.12
VR 0504	Tannia, raw (i.e. yautia)	RAC	0.25	NC	-	NC	-	0.10	0.03	NC	-	NC	-
VR 0505	Taro, raw	RAC	0.25	6.71	1.68	31.91	7.98	NC	-	10.73	2.68	264.31	66.08
VR 0506	Garden turnip, raw	RAC	0.25	4.29	1.07	3.10	0.78	6.41	1.60	2.90	0.73	5.79	1.45
VR 0508	Sweet potato, raw (incl dried)	RAC	0.291	28.83	8.39	61.55	17.91	0.15	0.04	221.94	64.58	NC	-

FLUPYRADIFURONE (285) International Estimated Daily Intake (IEDI) ADI = 0-0.0800 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day		Intake = daily intake: µg/person							
				G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
VR 0573	Arrowroot, raw	RAC	0.25	13.83	3.46	18.24	4.56	0.10	0.03	0.10	0.03	19.60	4.90
VR 0574	Beetroot, raw	RAC	0.25	5.86	1.47	4.23	1.06	9.46	2.37	3.96	0.99	7.91	1.98
VR 0575	Burdock, greater or edible, raw	RAC	0.25	0.10	0.03	0.10	0.03	NC	-	0.10	0.03	0.10	0.03
VR 0577	Carrots, raw	RAC	0.25	2.07	0.52	3.00	0.75	25.29	6.32	0.10	0.03	NC	-
VR 0578	Celeriac, raw	RAC	0.25	2.91	0.73	2.10	0.53	7.59	1.90	1.97	0.49	3.93	0.98
VR 0583	Horseradish, raw	RAC	0.25	0.88	0.22	0.63	0.16	0.54	0.14	0.59	0.15	1.19	0.30
VR 0585	Jerusalem artichoke, raw (i.e. topinambur)	RAC	0.25	14.22	3.56	18.75	4.69	0.10	0.03	0.10	0.03	20.14	5.04
VR 0587	Parsley turnip-rooted, raw	RAC	0.25	0.55	0.14	0.40	0.10	4.29	1.07	0.37	0.09	0.74	0.19
VR 0588	Parsnip, raw	RAC	0.25	1.02	0.26	0.74	0.19	3.50	0.88	0.69	0.17	1.37	0.34
VR 0589	Potato, raw (incl flour, incl frozen, incl tapioca, excl starch)	RAC	0.291	23.96	6.97	13.54	3.94	213.41	62.10	104.35	30.37	8.56	2.49
-	Potato, starch	PP	0.16	0.10	0.02	0.10	0.02	NC	-	NC	-	NC	-
VR 0590	Black radish, raw	RAC	0.25	NC	-	NC	-	NC	-	NC	-	NC	-
VR 0591	Japanese radish, raw (i.e. daikon)	RAC	0.25	3.25	0.81	2.35	0.59	NC	-	2.20	0.55	4.39	1.10
VR 0596	Sugar beet, raw (incl sugar)	RAC	0.25	3.93	0.98	1.68	0.42	NC	-	NC	-	36.12	9.03
VR 0600	Yams, raw (incl dried)	RAC	0.25	70.93	17.73	30.62	7.66	0.10	0.03	5.65	1.41	30.85	7.71
-	Lotus root, raw	RAC	0.25	NC	-	NC	-	NC	-	NC	-	NC	-
-	Water chestnut, raw	RAC	0.25	NC	-	NC	-	NC	-	NC	-	NC	-
VS 0624	Celery	RAC	2.48	3.66	9.08	2.65	6.57	4.84	12.00	2.47	6.13	4.94	12.25
GC 0640	Barley, raw (incl malt extract, incl flour & grits, excl pot&pearled, excl beer, excl malt)	RAC	1.315	0.10	0.13	0.10	0.13	0.80	1.05	0.10	0.13	0.11	0.14
-	Barley, pot&pearled	PP	0.16	5.46	0.87	0.10	0.02	1.44	0.23	0.10	0.02	NC	-
-	Barley beer	PP	0.099	16.25	1.61	11.36	1.12	225.21	22.30	19.49	1.93	52.17	5.16
-	Barley Malt	PP	0.64	0.10	0.06	0.11	0.07	0.67	0.43	0.10	0.06	4.61	2.95
GC 0641	Buckwheat, raw (incl flour)	RAC	1.315	0.10	0.13	2.82	3.71	0.10	0.13	0.10	0.13	NC	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl beer, excl flour, excl oil, excl germ, excl starch)	RAC	0.49	0.54	0.26	0.51	0.25	3.26	1.60	7.96	3.90	NC	-
CF 1255	Maize, flour (white flour and wholemeal flour)	PP	0.44	94.34	41.51	8.09	3.56	28.03	12.33	55.94	24.61	28.07	12.35
-	Maize, germ	PP	0.51	0.10	0.05	NC	-	NC	-	NC	-	NC	-
-	Maize starch	PP	0.44	0.10	0.04	0.10	0.04	NC	-	NC	-	NC	-
OR 0645	Maize oil	PP	0.44	0.33	0.15	0.10	0.04	0.81	0.36	0.10	0.04	NC	-
GC 0646	Millet, raw (incl flour, incl beer)	RAC	1.315	61.13	80.39	0.78	1.03	NC	-	33.55	44.12	NC	-
GC 0647	Oats, raw (incl rolled)	RAC	1.315	0.37	0.49	0.10	0.13	2.79	3.67	0.10	0.13	NC	-
GC 0650	Rye, raw (incl flour)	RAC	1.315	0.10	0.13	0.10	0.13	13.95	18.34	0.10	0.13	0.88	1.16

FLUPYRADIFURONE (285) International Estimated Daily Intake (IEDI) ADI = 0-0.0800 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day	Intake = daily intake: µg/person								
				G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
GC 0651	Sorghum, raw (incl flour, incl beer)	RAC	1.315	89.16	117.25	2.02	2.66	NC	-	35.38	46.52	NC	-
GC 0653	Triticale, raw (incl flour)	RAC	1.315	0.10	0.13	NC	-	NC	-	NC	-	NC	-
GC 0654	Wheat, raw (incl bulgur, incl fermented beverages, excl germ, excl wholemeal bread, excl white flour products, excl white bread)	RAC	1.315	0.10	0.13	0.10	0.13	0.10	0.13	0.10	0.13	0.97	1.28
CF 1210	Wheat, germ	PP	1.64	0.10	0.16	0.10	0.16	0.10	0.16	0.10	0.16	NC	-
CF 0654	Wheat, bran	PP	2	NC	-	NC	-	NC	-	NC	-	NC	-
CP 1212	Wheat, wholemeal bread	PP	1.05	0.10	0.11	0.10	0.11	0.10	0.11	0.10	0.11	0.10	0.11
CP 1211	Wheat, white bread	PP	0.42	0.43	0.18	0.41	0.17	1.56	0.66	0.11	0.05	0.10	0.04
CF 1211	Wheat, white flour (incl white flour products: starch, gluten, macaroni, pastry)	PP	0.59	45.21	26.67	87.37	51.55	215.61	127.21	20.42	12.05	103.67	61.17
-	Wheat, starch	PP	0.034	0.10	0.00	0.10	0.00	NC	-	NC	-	NC	-
-	Wheat, gluten	PP	0.53	0.10	0.05	0.10	0.05	0.10	0.05	0.10	0.05	0.19	0.10
TN 0672	Pecan nuts, nutmeat	RAC	0.06	0.15	0.01	0.22	0.01	0.31	0.02	0.10	0.01	0.10	0.01
SO 0691	Cotton seed, raw	RAC	0.395	NC	-	NC	-	NC	-	NC	-	NC	-
OR 0691	Cotton seed oil, edible	PP	0.079	1.28	0.10	0.10	0.01	0.45	0.04	0.42	0.03	0.15	0.01
SO 0697	Peanuts, nutmeat, raw	RAC	0.225	7.12	1.60	0.32	0.07	1.34	0.30	6.21	1.40	0.53	0.12
-	Peanuts, roasted	PP	0.16	0.10	0.02	0.10	0.02	0.48	0.08	0.10	0.02	NC	-
OR 0697	Peanut oil, edible	PP	0.11	5.02	0.55	0.10	0.01	0.17	0.02	0.29	0.03	NC	-
-	Peanut butter	PP	0.16	0.10	0.02	0.10	0.02	0.10	0.02	NC	-	NC	-
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat)	RAC	0.3	29.18	8.75	50.89	15.27	121.44	36.43	22.58	6.77	72.14	21.64
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.15	1.05	0.16	1.14	0.17	18.69	2.80	0.94	0.14	3.12	0.47
MO 0105	Edible offal (mammalian), raw	RAC	0.87	4.64	4.04	1.97	1.71	10.01	8.71	3.27	2.84	3.98	3.46
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.11	108.75	11.96	70.31	7.73	436.11	47.97	61.55	6.77	79.09	8.70
PM 0110	Poultry meat, raw (incl prepared)	RAC	0.27	3.92	1.06	12.03	3.25	57.07	15.41	5.03	1.36	55.56	15.00
PF 0111	Poultry fat, raw (incl rendered)	RAC	0.11	NC	-	NC	-	0.32	0.04	NC	-	NC	-
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.39	0.10	0.04	0.70	0.27	0.97	0.38	0.10	0.04	NC	-
PE 0112	Eggs, raw, (incl dried)	RAC	0.15	3.84	0.58	4.41	0.66	27.25	4.09	1.13	0.17	7.39	1.11
-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (µg/person)=				608.4		315.1		754.9		734.7		428.0
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (µg/person)=				4800		4800		4800		4800		4800
	%ADI=				12.7%		6.6%		15.7%		15.3%		8.9%

FLUPYRADIFURONE (285) International Estimated Daily Intake (IEDI) ADI = 0-0.0800 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
				Diets: g/person/day			Intake = daily intake: µg/person						
	Rounded %ADI=				10%		7%		20%		20%		9%

IMAZETHAPYR (289) International Estimated Daily Intake (IEDI) ADI = 0-0.6 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day	Intake as ug/person/day										
MO 0105	Edible offal (mammalian), raw	RAC	0.001	4.79	0.00	9.68	0.01	2.97	0.00	5.49	0.01	3.84	0.00	5.03	0.01
PE 0112	Eggs, raw, (incl dried)	RAC	0	7.84	0.00	23.08	0.00	2.88	0.00	14.89	0.00	9.81	0.00	14.83	0.00
VD 0533	Lentil, dry, raw (Ervum lens)	RAC	0.078	2.12	0.17	0.10	0.01	0.10	0.01	3.21	0.25	1.60	0.12	4.90	0.38
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl oil, incl beer, incl germ, incl starch)	RAC	0	29.81	0.00	44.77	0.00	108.95	0.00	52.37	0.00	60.28	0.00	75.69	0.00
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0	3.29	0.00	6.14	0.00	0.82	0.00	1.57	0.00	2.23	0.00	1.07	0.00
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat)	RAC	0	31.20	0.00	72.44	0.00	20.88	0.00	47.98	0.00	33.08	0.00	36.25	0.00
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0	289.65	0.00	485.88	0.00	26.92	0.00	239.03	0.00	199.91	0.00	180.53	0.00
SO 0697	Peanuts, nutmeat, raw	RAC	0.056	0.40	0.02	1.01	0.06	6.60	0.37	1.47	0.08	1.17	0.07	1.82	0.10
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0	0.12	0.00	0.12	0.00	0.11	0.00	5.37	0.00	0.24	0.00	0.10	0.00
PF 0111	Poultry fat, raw (incl rendered)	RAC	0	0.10	0.00	0.10	0.00	NC	-	0.10	0.00	0.10	0.00	0.10	0.00
PM 0110	Poultry meat, raw (incl prepared)	RAC	0	14.63	0.00	29.76	0.00	8.04	0.00	129.68	0.00	25.04	0.00	35.66	0.00
SO 0495	Rape seed, raw (incl oil)	RAC	0	0.93	0.00	1.16	0.00	0.49	0.00	2.53	0.00	9.32	0.00	2.02	0.00
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl flour, incl starch, incl oil, incl beverages)	REP	0.078	45.40	3.54	14.99	1.17	84.88	6.62	111.73	8.71	194.75	15.19	93.12	7.26
VD 0541	Soya bean, dry, raw (incl paste, incl curd, incl oil, incl sauce)	RAC	0.0475	72.79	3.46	59.05	2.80	20.55	0.98	74.20	3.52	61.12	2.90	73.24	3.48
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				7.2		4.0		8.0		12.6		18.3		11.2
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (ug/person)=				36000		36000		36000		36000		36000		36000
	%ADI=				0.0%		0.0%		0.0%		0.0%		0.1%		0.0%
	Rounded %ADI=				0%		0%		0%		0%		0%		0%

IMAZETHAPYR (289) International Estimated Daily Intake (IEDI) ADI = 0-0.6 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day		Intake as ug/person/day									
				G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
MO 0105	Edible offal (mammalian), raw	RAC	0.001	15.17	0.02	5.19	0.01	6.30	0.01	6.78	0.01	3.32	0.00	3.17	0.00
PE 0112	Eggs, raw, (incl dried)	RAC	0	25.84	0.00	29.53	0.00	28.05	0.00	33.19	0.00	36.44	0.00	8.89	0.00
VD 0533	Lentil, dry, raw (Ervum lens)	RAC	0.078	0.95	0.07	1.18	0.09	0.40	0.03	0.96	0.07	0.71	0.06	1.28	0.10
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl oil, incl beer, incl germ, incl starch)	RAC	0	18.51	0.00	26.18	0.00	26.04	0.00	39.99	0.00	7.36	0.00	64.58	0.00
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0	6.44	0.00	15.51	0.00	3.79	0.00	8.29	0.00	18.44	0.00	8.00	0.00
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat)	RAC	0	140.03	0.00	150.89	0.00	79.32	0.00	111.24	0.00	120.30	0.00	51.27	0.00
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0	388.92	0.00	335.88	0.00	49.15	0.00	331.25	0.00	468.56	0.00	245.45	0.00
SO 0697	Peanuts, nutmeat, raw	RAC	0.056	2.39	0.13	2.05	0.11	5.25	0.29	4.39	0.25	1.30	0.07	0.62	0.03
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0	0.33	0.00	0.72	0.00	0.27	0.00	0.35	0.00	0.80	0.00	NC	-
PF 0111	Poultry fat, raw (incl rendered)	RAC	0	0.10	0.00	0.10	0.00	NC	-	0.10	0.00	0.71	0.00	NC	-
PM 0110	Poultry meat, raw (incl prepared)	RAC	0	73.76	0.00	53.86	0.00	23.98	0.00	87.12	0.00	53.38	0.00	84.45	0.00
SO 0495	Rape seed, raw (incl oil)	RAC	0	32.68	0.00	19.91	0.00	7.83	0.00	15.69	0.00	NC	-	NC	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl flour, incl starch, incl oil, incl beverages)	REP	0.078	20.96	1.63	16.04	1.25	339.67	26.49	75.51	5.89	16.86	1.32	86.13	6.72
VD 0541	Soya bean, dry, raw (incl paste, incl curd, incl oil, incl sauce)	RAC	0.0475	106.33	5.05	117.78	5.59	42.12	2.00	195.70	9.30	222.52	10.57	80.47	3.82
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				6.9		7.1		28.8		15.5		12.0		10.7
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (ug/person)=				36000		36000		33000		36000		36000		36000
	%ADI=				0.0%		0.0%		0.1%		0.0%		0.0%		0.0%
	Rounded %ADI=				0%		0%		0%		0%		0%		0%

IMAZETHAPYR (289) International Estimated Daily Intake (IEDI) ADI = 0-0.6 mg/kg bw

			STMR	Diets: g/person/day		Intake = daily intake: ug/person							
Codex Code	Commodity description	Expr as	mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
MO 0105	Edible offal (mammalian), raw	RAC	0.001	4.64	0.00	1.97	0.00	10.01	0.01	3.27	0.00	3.98	0.00
PE 0112	Eggs, raw, (incl dried)	RAC	0	3.84	0.00	4.41	0.00	27.25	0.00	1.13	0.00	7.39	0.00
VD 0533	Lentil, dry, raw (Ervum lens)	RAC	0.078	0.67	0.05	7.26	0.57	0.37	0.03	0.10	0.01	NC	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl oil, incl beer, incl germ, incl starch)	RAC	0	116.66	0.00	10.52	0.00	38.46	0.00	76.60	0.00	34.44	0.00
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0	1.05	0.00	1.14	0.00	18.69	0.00	0.94	0.00	3.12	0.00
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat)	RAC	0	29.18	0.00	50.89	0.00	121.44	0.00	22.58	0.00	72.14	0.00
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0	108.75	0.00	70.31	0.00	436.11	0.00	61.55	0.00	79.09	0.00
SO 0697	Peanuts, nutmeat, raw	RAC	0.056	7.12	0.40	0.32	0.02	1.34	0.08	6.21	0.35	0.53	0.03
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0	0.10	0.00	0.70	0.00	0.97	0.00	0.10	0.00	NC	-
PF 0111	Poultry fat, raw (incl rendered)	RAC	0	NC	-	NC	-	0.32	0.00	NC	-	NC	-
PM 0110	Poultry meat, raw (incl prepared)	RAC	0	3.92	0.00	12.03	0.00	57.07	0.00	5.03	0.00	55.56	0.00
SO 0495	Rape seed, raw (incl oil)	RAC	0	0.19	0.00	0.10	0.00	12.07	0.00	0.10	0.00	NC	-
CM 0649 (GC 0649)	Rice, husked, dry (incl polished, incl flour, incl starch, incl oil, incl beverages)	REP	0.078	52.55	4.10	286.02	22.31	18.64	1.45	19.67	1.53	75.09	5.86
VD 0541	Soya bean, dry, raw (incl paste, incl curd, incl oil, incl sauce)	RAC	0.0475	15.80	0.75	14.29	0.68	104.36	4.96	17.11	0.81	35.20	1.67
-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				5.3		23.6		6.5		2.7		7.6
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (ug/person)=				36000		36000		36000		36000		36000
	%ADI=				0.0%		0.1%		0.0%		0.0%		0.0%
	Rounded %ADI=				0%		0%		0%		0%		0%

ISOFETAMID (290) International Estimated Daily Intake (IEDI) ADI = 0-0.05 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day			Intake as ug/person/day								
FB 0269	Grape, raw	RAC	0.73	12.68	9.26	9.12	6.66	0.10	0.07	16.88	12.32	3.70	2.70	54.42	39.73
-	Grape must	PP	0.77	0.33	0.25	0.13	0.10	0.10	0.08	0.10	0.08	0.10	0.08	0.10	0.08
DF 0269	Grape, dried (= currants, raisins and sultanas)	PP	1.7	0.51	0.87	0.51	0.87	0.10	0.17	1.27	2.16	0.12	0.20	2.07	3.52
JF 0269	Grape juice	PP	0.095	0.14	0.01	0.29	0.03	0.10	0.01	0.30	0.03	0.24	0.02	0.10	0.01
-	Grape wine (incl vermouths)	PP	0.28	0.67	0.19	12.53	3.51	2.01	0.56	1.21	0.34	3.53	0.99	4.01	1.12
FB 2009	Low growing berries, raw (i.e. cranberry and strawberry)	RAC	0.49	0.71	0.35	2.02	0.99	0.10	0.05	1.39	0.68	0.37	0.18	2.53	1.24
VL 0482	Lettuce, head, raw	RAC	0.29	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0483	Lettuce, leaf, raw	RAC	0.115	0.53	0.06	0.36	0.04	0.16	0.02	6.21	0.71	1.90	0.22	6.05	0.70
TN 0660	Almonds, nutmeat	RAC	0.01	1.38	0.01	0.10	0.00	0.10	0.00	1.00	0.01	0.10	0.00	0.81	0.01
SO 0495	Rape seed, raw	RAC	0.01	0.10	0.00	NC	-	NC	-	0.10	0.00	0.75	0.01	0.10	0.00
OR 0495	Rape seed oil, edible	PP	0.02	0.35	0.01	0.44	0.01	0.19	0.00	0.97	0.02	3.28	0.07	0.77	0.02
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) -80% as muscle	RAC	0.01	24.96	0.25	57.95	0.58	16.70	0.17	38.38	0.38	26.46	0.26	29.00	0.29
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) - 20% as fat	RAC	0.012	6.24	0.07	14.49	0.17	4.18	0.05	9.60	0.12	6.62	0.08	7.25	0.09
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.012	3.29	0.04	6.14	0.07	0.82	0.01	1.57	0.02	2.23	0.03	1.07	0.01
MO 0105	Edible offal (mammalian), raw	RAC	0.058	4.79	0.28	9.68	0.56	2.97	0.17	5.49	0.32	3.84	0.22	5.03	0.29
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.003	289.65	0.87	485.88	1.46	26.92	0.08	239.03	0.72	199.91	0.60	180.53	0.54
PM 0110	Poultry meat, raw (incl prepared)	RAC	0	14.63	0.00	29.76	0.00	8.04	0.00	129.68	0.00	25.04	0.00	35.66	0.00
PF 0111	Poultry fat, raw (incl rendered)	RAC	0	0.10	0.00	0.10	0.00	NC	-	0.10	0.00	0.10	0.00	0.10	0.00
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0	0.12	0.00	0.12	0.00	0.11	0.00	5.37	0.00	0.24	0.00	0.10	0.00
PE 0112	Eggs, raw, (incl dried)	RAC	0	7.84	0.00	23.08	0.00	2.88	0.00	14.89	0.00	9.81	0.00	14.83	0.00
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				12.5		15.0		1.4		17.9		5.7		47.6
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (ug/person)=				3000		3000		3000		3000		3000		3000
	%ADI=				0.4%		0.5%		0.0%		0.6%		0.2%		1.6%
	Rounded %ADI=				0%		1%		0%		1%		0%		2%

ISOFETAMID (290) International Estimated Daily Intake (IEDI) ADI = 0-0.05 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day			Intake as ug/person/day								
FB 0269	Grape, raw	RAC	0.73	6.33	4.62	11.22	8.19	5.21	3.80	9.38	6.85	4.55	3.32	0.78	0.57
-	Grape must	PP	0.77	0.16	0.12	0.10	0.08	0.10	0.08	0.12	0.09	0.11	0.08	NC	-
DF 0269	Grape, dried (= currants, raisins and sultanas)	PP	1.7	3.09	5.25	1.51	2.57	0.10	0.17	1.38	2.35	4.26	7.24	0.42	0.71
JF 0269	Grape juice	PP	0.095	0.56	0.05	1.96	0.19	0.10	0.01	2.24	0.21	2.27	0.22	0.34	0.03
-	Grape wine (incl vermouths)	PP	0.28	88.93	24.90	62.41	17.47	1.84	0.52	25.07	7.02	61.17	17.13	5.84	1.64
FB 2009	Low growing berries, raw (i.e. cranberry and strawberry)	RAC	0.49	4.55	2.23	5.66	2.77	0.10	0.05	7.85	3.85	5.86	2.87	0.10	0.05
VL 0482	Lettuce, head, raw	RAC	0.29	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0483	Lettuce, leaf, raw	RAC	0.115	14.50	1.67	11.76	1.35	13.14	1.51	19.50	2.24	4.81	0.55	2.23	0.26
TN 0660	Almonds, nutmeat	RAC	0.01	0.81	0.01	2.21	0.02	0.10	0.00	1.02	0.01	1.47	0.01	NC	-
SO 0495	Rape seed, raw	RAC	0.01	NC	-	NC	-	0.10	0.00	NC	-	NC	-	NC	-
OR 0495	Rape seed oil, edible	PP	0.02	12.52	0.25	7.63	0.15	3.00	0.06	6.01	0.12	NC	-	NC	-
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) -80% as muscle	RAC	0.01	112.02	1.12	120.71	1.21	63.46	0.63	88.99	0.89	96.24	0.96	41.02	0.41
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) - 20% as fat	RAC	0.012	28.01	0.34	30.18	0.36	15.86	0.19	22.25	0.27	24.06	0.29	10.25	0.12
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.012	6.44	0.08	15.51	0.19	3.79	0.05	8.29	0.10	18.44	0.22	8.00	0.10
MO 0105	Edible offal (mammalian), raw	RAC	0.058	15.17	0.88	5.19	0.30	6.30	0.37	6.78	0.39	3.32	0.19	3.17	0.18
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.003	388.92	1.17	335.88	1.01	49.15	0.15	331.25	0.99	468.56	1.41	245.45	0.74
PM 0110	Poultry meat, raw (incl prepared)	RAC	0	73.76	0.00	53.86	0.00	23.98	0.00	87.12	0.00	53.38	0.00	84.45	0.00
PF 0111	Poultry fat, raw (incl rendered)	RAC	0	0.10	0.00	0.10	0.00	NC	-	0.10	0.00	0.71	0.00	NC	-
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0	0.33	0.00	0.72	0.00	0.27	0.00	0.35	0.00	0.80	0.00	NC	-
PE 0112	Eggs, raw, (incl dried)	RAC	0	25.84	0.00	29.53	0.00	28.05	0.00	33.19	0.00	36.44	0.00	8.89	0.00
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				42.7		35.9		7.6		25.4		34.5		4.8
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (ug/person)=				3000		3000		2750		3000		3000		3000
	%ADI=				1.4%		1.2%		0.3%		0.8%		1.2%		0.2%
	Rounded %ADI=				1%		1%		0%		1%		1%		0%

ISOFETAMID (290) International Estimated Daily Intake (IEDI) ADI = 0-0.05 mg/kg bw

			STMR	Diets: g/person/day			Intake = daily intake: ug/person						
Codex Code	Commodity description	Expr as	mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
FB 0269	Grape, raw	RAC	0.73	0.14	0.10	0.36	0.26	15.22	11.11	0.10	0.07	0.10	0.07
-	Grape must	PP	0.77	0.10	0.08	0.10	0.08	0.11	0.08	0.10	0.08	0.19	0.15
DF 0269	Grape, dried (= currants, raisins and sultanas)	PP	1.7	0.10	0.17	0.13	0.22	1.06	1.80	0.10	0.17	0.10	0.17
JF 0269	Grape juice	PP	0.095	0.10	0.01	0.10	0.01	0.41	0.04	0.10	0.01	NC	-
-	Grape wine (incl vermouths)	PP	0.28	0.31	0.09	0.23	0.06	60.43	16.92	0.52	0.15	31.91	8.93
FB 2009	Low growing berries, raw (i.e. cranberry and strawberry)	RAC	0.49	0.10	0.05	0.10	0.05	3.37	1.65	0.10	0.05	0.10	0.05
VL 0482	Lettuce, head, raw	RAC	0.29	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0483	Lettuce, leaf, raw	RAC	0.115	0.29	0.03	0.10	0.01	6.71	0.77	0.10	0.01	NC	-
TN 0660	Almonds, nutmeat	RAC	0.01	0.10	0.00	0.10	0.00	0.61	0.01	0.10	0.00	NC	-
SO 0495	Rape seed, raw	RAC	0.01	NC	-	0.10	0.00	NC	-	NC	-	NC	-
OR 0495	Rape seed oil, edible	PP	0.02	0.10	0.00	0.10	0.00	4.62	0.09	0.10	0.00	NC	-
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) -80% as muscle	RAC	0.01	23.34	0.23	40.71	0.41	97.15	0.97	18.06	0.18	57.71	0.58
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) - 20% as fat	RAC	0.012	5.84	0.07	10.18	0.12	24.29	0.29	4.52	0.05	14.43	0.17
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.012	1.05	0.01	1.14	0.01	18.69	0.22	0.94	0.01	3.12	0.04
MO 0105	Edible offal (mammalian), raw	RAC	0.058	4.64	0.27	1.97	0.11	10.01	0.58	3.27	0.19	3.98	0.23
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.003	108.75	0.33	70.31	0.21	436.11	1.31	61.55	0.18	79.09	0.24
PM 0110	Poultry meat, raw (incl prepared)	RAC	0	3.92	0.00	12.03	0.00	57.07	0.00	5.03	0.00	55.56	0.00
PF 0111	Poultry fat, raw (incl rendered)	RAC	0	NC	-	NC	-	0.32	0.00	NC	-	NC	-
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0	0.10	0.00	0.70	0.00	0.97	0.00	0.10	0.00	NC	-
PE 0112	Eggs, raw, (incl dried)	RAC	0	3.84	0.00	4.41	0.00	27.25	0.00	1.13	0.00	7.39	0.00
-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				1.4		1.6		35.9		1.2		10.6
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (ug/person)=				3000		3000		3000		3000		3000
	%ADI=				0.0%		0.1%		1.2%		0.0%		0.4%
	Rounded %ADI=				0%		0%		1%		0%		0%

S-METHOPRENE (147) International Estimated Daily Intake (IEDI) ADI = 0-0.05 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day	Intake as ug/person/day										
				G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
GC 0640	Barley, raw (incl malt extract, incl pot&pearled, incl flour & grits, incl beer, incl malt)	RAC	4.85	19.91	96.56	31.16	151.13	5.04	24.44	3.10	15.04	9.77	47.38	4.31	20.90
GC 0641	Buckwheat, raw (incl flour)	RAC	4.85	NC	-	0.40	1.94	0.10	0.49	0.10	0.49	0.10	0.49	0.10	0.49
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl beer, incl germ, incl starch, excl oil)	RAC	4.85	28.85	139.92	43.93	213.06	108.66	527.00	46.94	227.66	59.87	290.37	73.58	356.86
OR 0645	Maize oil	PP	0	0.96	0.00	0.85	0.00	0.29	0.00	5.42	0.00	0.42	0.00	2.10	0.00
GC 0646	Millet, raw (incl flour, incl beer)	RAC	4.85	1.46	7.08	2.32	11.25	5.84	28.32	0.89	4.32	16.17	78.42	0.10	0.49
GC 0647	Oats, raw (incl rolled)	RAC	4.85	0.10	0.49	7.05	34.19	0.10	0.49	1.71	8.29	0.96	4.66	0.10	0.49
GC 0648	Quinoa, raw	RAC	4.85	NC	-	NC	-	NC	-	NC	-	0.10	0.49	NC	-
CM 0649 (GC 0649)	Rice, husked, dry (incl flour, incl oil, incl beverages, incl starch, excl polished)	REP	1.07	1.26	1.35	1.58	1.69	31.05	33.22	5.43	5.81	0.90	0.96	2.18	2.33
CM 1205	Rice polished, dry	PP	0.1	34.21	3.42	10.39	1.04	41.72	4.17	82.38	8.24	150.24	15.02	70.47	7.05
GC 0650	Rye, raw (incl flour)	RAC	4.85	0.13	0.63	19.38	93.99	0.10	0.49	0.12	0.58	0.10	0.49	2.15	10.43
GC 0651	Sorghum, raw (incl flour, incl beer)	RAC	4.85	4.34	21.05	0.10	0.49	16.25	78.81	15.82	76.73	10.97	53.20	2.92	14.16
GC 0653	Triticale, raw (incl flour)	RAC	4.85	NC	-	NC	-	NC	-	0.10	0.49	0.39	1.89	NC	-
GC 0654	Wheat, raw (incl meslin)	RAC	4.85	0.10	0.49	1.12	5.43	NC	-	0.10	0.49	0.56	2.72	NC	-
-	Wheat, bulgur	PP	4.85	NC	-	NC	-	NC	-	0.10	0.49	NC	-	NC	-
CF 1210	Wheat, germ	PP	23.3	NC	-	NC	-	0.10	2.33	0.10	2.33	0.14	3.26	0.10	2.33
CF 0654	Wheat, bran	PP	13.6	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1212	Wheat, wholemeal flour	PP	4.51	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CP 1212	Wheat, wholemeal bread	PP	4.51	0.10	0.45	0.10	0.45	0.10	0.45	0.10	0.45	0.10	0.45	0.10	0.45
CP 1211	Wheat, white bread	PP	1.72	0.25	0.43	0.63	1.08	0.12	0.21	0.43	0.74	1.39	2.39	0.22	0.38
-	Wheat, Fermented Beverages (Korean jakju and takju)	PP	4.85	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1211	Wheat, white flour (incl white flour products: starch, gluten, macaroni, pastry)	PP	1.72	301.49	518.56	269.27	463.14	30.33	52.17	222.94	383.46	136.12	234.13	343.34	590.54
-	Fonio, raw (incl flour)	RAC	4.85	NC	-	NC	-	1.01	4.90	NC	-	NC	-	NC	-
-	Cereals, NES, raw (including processed) : canagua, quihuicha, Job's tears and wild	RAC	4.85	2.04	9.89	2.99	14.50	1.86	9.02	19.17	92.97	3.33	16.15	1.66	8.05

S-METHOPRENE (147) International Estimated Daily Intake (IEDI) ADI = 0-0.05 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G01 diet	Intake as ug/person/day G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
	rice														
SO 0089	Oilseeds, raw (incl processed), excl peanut commodities	RAC	2	78.01	156.02	53.57	107.14	84.12	168.24	134.84	269.68	54.48	108.96	86.04	172.08
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) -80% as muscle	RAC	0.007	24.96	0.17	57.95	0.41	16.70	0.12	38.38	0.27	26.46	0.19	29.00	0.20
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) - 20% as fat	RAC	0.092	6.24	0.57	14.49	1.33	4.18	0.38	9.60	0.88	6.62	0.61	7.25	0.67
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.092	3.29	0.30	6.14	0.56	0.82	0.08	1.57	0.14	2.23	0.21	1.07	0.10
MO 0105	Edible offal (mammalian), raw	RAC	0.014	4.79	0.07	9.68	0.14	2.97	0.04	5.49	0.08	3.84	0.05	5.03	0.07
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.044	289.65	12.74	485.88	21.38	26.92	1.18	239.03	10.52	199.91	8.80	180.53	7.94
PM 0110	Poultry meat, raw (incl prepared)	RAC	0.007	14.63	0.10	29.76	0.21	8.04	0.06	129.68	0.91	25.04	0.18	35.66	0.25
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.007	0.12	0.00	0.12	0.00	0.11	0.00	5.37	0.04	0.24	0.00	0.10	0.00
PE 0112	Eggs, raw, (incl dried)	RAC	0.006	7.84	0.05	23.08	0.14	2.88	0.02	14.89	0.09	9.81	0.06	14.83	0.09
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				970.4		1124.7		936.6		1111.2		871.5		1196.3
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (ug/person)=				3000		3000		3000		3000		3000		3000
	%ADI=				32.3%		37.5%		31.2%		37.0%		29.1%		39.9%
	Rounded %ADI=				30%		40%		30%		40%		30%		40%

S-METHOPRENE (147) International Estimated Daily Intake (IEDI) ADI = 0-0.05 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day			Intake as ug/person/day								
GC 0640	Barley, raw (incl malt extract, incl pot&pearled, incl flour & grits, incl beer, incl malt)	RAC	4.85	36.18	175.47	53.45	259.23	9.39	45.54	35.25	170.96	46.68	226.40	15.92	77.21
GC 0641	Buckwheat, raw (incl flour)	RAC	4.85	0.10	0.49	0.79	3.83	0.18	0.87	0.35	1.70	NC	-	NC	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl beer, incl germ, incl starch, excl oil)	RAC	4.85	17.61	85.41	25.71	124.69	25.89	125.57	36.98	179.35	5.49	26.63	64.23	311.52
OR 0645	Maize oil	PP	0	0.90	0.00	0.47	0.00	0.15	0.00	3.01	0.00	1.86	0.00	0.36	0.00
GC 0646	Millet, raw (incl flour, incl beer)	RAC	4.85	0.10	0.49	0.16	0.78	1.75	8.49	0.69	3.35	NC	-	NC	-
GC 0647	Oats, raw (incl rolled)	RAC	4.85	7.50	36.38	6.26	30.36	0.15	0.73	4.87	23.62	3.16	15.33	2.98	14.45
GC 0648	Quinoa, raw	RAC	4.85	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CM 0649 (GC 0649)	Rice, husked, dry (incl flour, incl oil, incl beverages, incl starch, excl polished)	REP	1.07	3.70	3.96	2.11	2.26	1.51	1.62	1.75	1.87	0.29	0.31	5.12	5.48
CM 1205	Rice polished, dry	PP	0.1	13.38	1.34	10.80	1.08	262.08	26.21	57.16	5.72	12.83	1.28	62.78	6.28
GC 0650	Rye, raw (incl flour)	RAC	4.85	3.21	15.57	35.38	171.59	0.21	1.02	6.50	31.53	1.49	7.23	NC	-
GC 0651	Sorghum, raw (incl flour, incl beer)	RAC	4.85	NC	-	NC	-	1.44	6.98	1.15	5.58	NC	-	7.12	34.53
GC 0653	Triticale, raw (incl flour)	RAC	4.85	0.10	0.49	0.17	0.82	0.29	1.41	0.10	0.49	NC	-	NC	-
GC 0654	Wheat, raw (incl meslin)	RAC	4.85	NC	-	NC	-	NC	-	0.10	0.49	NC	-	NC	-
-	Wheat, bulgur	PP	4.85	NC	-	NC	-	0.10	0.49	NC	-	NC	-	NC	-
CF 1210	Wheat, germ	PP	23.3	0.97	22.60	0.10	2.33	0.10	2.33	0.10	2.33	NC	-	0.10	2.33
CF 0654	Wheat, bran	PP	13.6	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1212	Wheat, wholemeal flour	PP	4.51	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CP 1212	Wheat, wholemeal bread	PP	4.51	0.10	0.45	0.10	0.45	0.10	0.45	0.10	0.45	0.10	0.45	0.10	0.45
CP 1211	Wheat, white bread	PP	1.72	1.30	2.24	0.46	0.79	0.10	0.17	0.22	0.38	2.44	4.20	0.77	1.32
-	Wheat, Fermented Beverages (Korean jakju and takju)	PP	4.85	NC	-	NC	-	NC	-	4.36	21.15	NC	-	NC	-
CF 1211	Wheat, white flour (incl white flour products: starch, gluten, macaroni, pastry)	PP	1.72	199.38	342.93	193.50	332.82	106.30	182.84	185.31	318.73	171.11	294.31	132.37	227.68
-	Fonio, raw (incl flour)	RAC	4.85	NC	-	NC	-	0.10	0.49	NC	-	NC	-	NC	-
-	Cereals, NES, raw (including processed) : canagua, quihuicha, Job's tears and wild rice	RAC	4.85	6.17	29.92	3.01	14.60	0.76	3.69	3.30	16.01	3.38	16.39	15.84	76.82

S-METHOPRENE (147) International Estimated Daily Intake (IEDI) ADI = 0-0.05 mg/kg bw

			STMR	Diets as g/person/day		Intake as ug/person/day									
Codex Code	Commodity description	Expr as	mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
SO 0089	Oilseeds, raw (incl processed), excl peanut commodities	RAC	2	103.00	206.00	109.39	218.78	54.67	109.34	75.93	151.86	52.38	104.76	18.50	37.00
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) -80% as muscle	RAC	0.007	112.02	0.78	120.71	0.84	63.46	0.44	88.99	0.62	96.24	0.67	41.02	0.29
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) - 20% as fat	RAC	0.092	28.01	2.58	30.18	2.78	15.86	1.46	22.25	2.05	24.06	2.21	10.25	0.94
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.092	6.44	0.59	15.51	1.43	3.79	0.35	8.29	0.76	18.44	1.70	8.00	0.74
MO 0105	Edible offal (mammalian), raw	RAC	0.014	15.17	0.21	5.19	0.07	6.30	0.09	6.78	0.09	3.32	0.05	3.17	0.04
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.044	388.92	17.11	335.88	14.78	49.15	2.16	331.25	14.58	468.56	20.62	245.45	10.80
PM 0110	Poultry meat, raw (incl prepared)	RAC	0.007	73.76	0.52	53.86	0.38	23.98	0.17	87.12	0.61	53.38	0.37	84.45	0.59
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.007	0.33	0.00	0.72	0.01	0.27	0.00	0.35	0.00	0.80	0.01	NC	-
PE 0112	Eggs, raw, (incl dried)	RAC	0.006	25.84	0.16	29.53	0.18	28.05	0.17	33.19	0.20	36.44	0.22	8.89	0.05
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				945.7		1184.9		523.1		954.5		723.1		808.5
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (ug/person)=				3000		3000		2750		3000		3000		3000
	%ADI=				31.5%		39.5%		19.0%		31.8%		24.1%		27.0%
	Rounded %ADI=				30%		40%		20%		30%		20%		30%

S-METHOPRENE (147) International Estimated Daily Intake (IEDI) ADI = 0-0.05 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day			Intake = daily intake: ug/person						
				G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
GC 0640	Barley, raw (incl malt extract, incl pot&pearled, incl flour & grits, incl beer, incl malt)	RAC	4.85	11.58	56.16	2.33	11.30	46.71	226.54	3.72	18.04	16.26	78.86
GC 0641	Buckwheat, raw (incl flour)	RAC	4.85	0.10	0.49	2.82	13.68	0.10	0.49	0.10	0.49	NC	-
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl beer, incl germ, incl starch, excl oil)	RAC	4.85	116.33	564.20	10.45	50.68	37.65	182.60	76.60	371.51	34.44	167.03
OR 0645	Maize oil	PP	0	0.33	0.00	0.10	0.00	0.81	0.00	0.10	0.00	NC	-
GC 0646	Millet, raw (incl flour, incl beer)	RAC	4.85	61.13	296.48	0.78	3.78	NC	-	33.55	162.72	NC	-
GC 0647	Oats, raw (incl rolled)	RAC	4.85	0.37	1.79	0.10	0.49	2.79	13.53	0.10	0.49	NC	-
GC 0648	Quinoa, raw	RAC	4.85	NC	-	NC	-	NC	-	NC	-	NC	-
CM 0649 (GC 0649)	Rice, husked, dry (incl flour, incl oil, incl beverages, incl starch, excl polished)	REP	1.07	13.58	14.53	4.29	4.59	2.17	2.32	0.10	0.11	8.84	9.46
CM 1205	Rice polished, dry	PP	0.1	30.20	3.02	218.34	21.83	12.77	1.28	15.24	1.52	51.35	5.14
GC 0650	Rye, raw (incl flour)	RAC	4.85	0.10	0.49	0.10	0.49	13.95	67.66	0.10	0.49	0.88	4.27
GC 0651	Sorghum, raw (incl flour, incl beer)	RAC	4.85	89.16	432.43	2.02	9.80	NC	-	35.38	171.59	NC	-
GC 0653	Triticale, raw (incl flour)	RAC	4.85	0.10	0.49	NC	-	NC	-	NC	-	NC	-
GC 0654	Wheat, raw (incl meslin)	RAC	4.85	NC	-	NC	-	NC	-	NC	-	0.97	4.70
-	Wheat, bulgur	PP	4.85	0.10	0.49	NC	-	NC	-	NC	-	NC	-
CF 1210	Wheat, germ	PP	23.3	0.10	2.33	0.10	2.33	0.10	2.33	0.10	2.33	NC	-
CF 0654	Wheat, bran	PP	13.6	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1212	Wheat, wholemeal flour	PP	4.51	NC	-	NC	-	NC	-	NC	-	NC	-
CP 1212	Wheat, wholemeal bread	PP	4.51	0.10	0.45	0.10	0.45	0.10	0.45	0.10	0.45	0.10	0.45
CP 1211	Wheat, white bread	PP	1.72	0.43	0.74	0.41	0.71	1.56	2.68	0.11	0.19	0.10	0.17
-	Wheat, Fermented Beverages (Korean jakju and takju)	PP	4.85	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1211	Wheat, white flour (incl white flour products: starch, gluten, macaroni, pastry)	PP	1.72	45.21	77.76	87.37	150.28	215.61	370.85	20.42	35.12	103.67	178.31
-	Fonio, raw (incl flour)	RAC	4.85	0.61	2.96	NC	-	NC	-	NC	-	NC	-
-	Cereals, NES, raw (including processed) : canagua, quihuicha, Job's tears and wild rice	RAC	4.85	17.71	85.89	2.00	9.70	9.61	46.61	0.45	2.18	4.55	22.07
SO 0089	Oilseeds, raw (incl processed), excl peanut commodities	RAC	2	112.89	225.78	21.92	43.84	67.05	134.10	50.78	101.56	86.21	172.42
MM 0095	MEAT FROM MAMMALS other than marine	RAC	0.007	23.34	0.16	40.71	0.28	97.15	0.68	18.06	0.13	57.71	0.40

Annex 3

S-METHOPRENE (147) International Estimated Daily Intake (IEDI) ADI = 0-0.05 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day			Intake = daily intake: ug/person						
				G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
	mammals, raw (incl prepared meat) -80% as muscle												
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) - 20% as fat	RAC	0.092	5.84	0.54	10.18	0.94	24.29	2.23	4.52	0.42	14.43	1.33
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.092	1.05	0.10	1.14	0.10	18.69	1.72	0.94	0.09	3.12	0.29
MO 0105	Edible offal (mammalian), raw	RAC	0.014	4.64	0.06	1.97	0.03	10.01	0.14	3.27	0.05	3.98	0.06
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.044	108.75	4.79	70.31	3.09	436.11	19.19	61.55	2.71	79.09	3.48
PM 0110	Poultry meat, raw (incl prepared)	RAC	0.007	3.92	0.03	12.03	0.08	57.07	0.40	5.03	0.04	55.56	0.39
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.007	0.10	0.00	0.70	0.00	0.97	0.01	0.10	0.00	NC	-
PE 0112	Eggs, raw, (incl dried)	RAC	0.006	3.84	0.02	4.41	0.03	27.25	0.16	1.13	0.01	7.39	0.04
-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				1772.2		328.5		1076.0		872.2		648.9
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (ug/person)=				3000		3000		3000		3000		3000
	%ADI=				59.1%		10.9%		35.9%		29.1%		21.6%
	Rounded %ADI=				60%		10%		40%		30%		20%

METRAFENONE (278) International Estimated Daily Intake (IEDI) ADI = 0-0.3 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day		Intake as ug/person/day									
FP 0009	Pome fruit, raw (incl cider, excl apple juice)	RAC	0.23	19.35	4.45	34.06	7.83	17.87	4.11	25.74	5.92	7.69	1.77	56.85	13.08
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.048	0.32	0.02	3.07	0.15	0.10	0.00	5.00	0.24	0.29	0.01	5.57	0.27
FS 0013	Cherries, raw	RAC	0.52	0.92	0.48	9.15	4.76	0.10	0.05	0.61	0.32	0.10	0.05	6.64	3.45
FS 2001	Peaches, nectarines, apricots, raw (incl dried apricots)	RAC	0.21	8.01	1.68	5.87	1.23	0.18	0.04	8.19	1.72	1.64	0.34	22.46	4.72
FB 0269	Grape, raw	RAC	0.76	12.68	9.64	9.12	6.93	0.10	0.08	16.88	12.83	3.70	2.81	54.42	41.36
-	Grape must	PP	0.51	0.33	0.17	0.13	0.07	0.10	0.05	0.10	0.05	0.10	0.05	0.10	0.05
DF 0269	Grape, dried (= currants, raisins and sultanas)	PP	2.85	0.51	1.45	0.51	1.45	0.10	0.29	1.27	3.62	0.12	0.34	2.07	5.90
JF 0269	Grape juice	PP	0.038	0.14	0.01	0.29	0.01	0.10	0.00	0.30	0.01	0.24	0.01	0.10	0.00
-	Grape wine (incl vermouths)	PP	0.14	0.67	0.09	12.53	1.75	2.01	0.28	1.21	0.17	3.53	0.49	4.01	0.56
FB 0275	Strawberry, raw	RAC	0.13	0.70	0.09	2.01	0.26	0.10	0.01	1.36	0.18	0.37	0.05	2.53	0.33
VC 0045	Fruiting vegetables, cucurbits, raw	RAC	0.13	53.14	6.91	86.21	11.21	6.28	0.82	92.76	12.06	15.64	2.03	155.30	20.19
VO 0440	Egg plants, raw (= aubergines)	RAC	0.11	5.58	0.61	4.31	0.47	0.89	0.10	9.31	1.02	13.64	1.50	20.12	2.21
VO 0444	Peppers, chili, raw	RAC	0.35	3.99	1.40	7.30	2.56	2.93	1.03	5.62	1.97	NC	-	17.44	6.10
-	Peppers, chili, dried	PP	3.5	0.42	1.47	0.53	1.86	0.84	2.94	0.50	1.75	0.95	3.33	0.37	1.30
VO 0445	Peppers, sweet, raw (incl dried)	RAC	0.35	4.49	1.57	6.44	2.25	7.21	2.52	5.68	1.99	9.52	3.33	8.92	3.12
VO 0448	Tomato, raw	RAC	0.11	41.73	4.59	75.65	8.32	10.66	1.17	82.87	9.12	24.75	2.72	200.93	22.10
-	Tomato, canned (& peeled)	PP	0.002	0.20	0.00	0.31	0.00	0.10	0.00	1.11	0.00	0.11	0.00	1.50	0.00
-	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.089	2.34	0.21	1.33	0.12	1.57	0.14	4.24	0.38	0.34	0.03	2.83	0.25
JF 0448	Tomato, juice (single strength, incl concentrated)	PP	0.037	0.29	0.01	0.29	0.01	0.10	0.00	0.38	0.01	0.10	0.00	0.14	0.01
-	Mushrooms (cultivated & wild), raw (incl dried, excl canned)	RAC	0.105	0.10	0.01	0.18	0.02	0.10	0.01	0.78	0.08	0.10	0.01	0.30	0.03
-	Mushrooms (cultivated & wild), canned	PP	0.017	0.10	0.00	0.27	0.00	0.10	0.00	1.33	0.02	0.10	0.00	0.14	0.00
GC 0640	Barley, raw	RAC	0.06	2.49	0.15	NC	-	0.10	0.01	0.10	0.01	0.18	0.01	0.38	0.02
-	Barley, pot&pearled	PP	0.01	7.12	0.07	7.34	0.07	0.10	0.00	0.10	0.00	0.67	0.01	0.20	0.00
-	Barley beer	PP	0.01	4.87	0.05	93.78	0.94	24.28	0.24	12.76	0.13	39.28	0.39	18.15	0.18
-	Barley Malt	PP	0.024	0.10	0.00	1.04	0.02	0.18	0.00	0.33	0.01	0.10	0.00	0.10	0.00
GC 0647	Oats, raw (incl rolled)	RAC	0.06	0.10	0.01	7.05	0.42	0.10	0.01	1.71	0.10	0.96	0.06	0.10	0.01
GC 0650	Rye, raw (incl flour)	RAC	0.01	0.13	0.00	19.38	0.19	0.10	0.00	0.12	0.00	0.10	0.00	2.15	0.02

Annex 3

METRAFENONE (278) International Estimated Daily Intake (IEDI) ADI = 0-0.3 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day	Intake as ug/person/day										
GC 0653	Triticale, raw (incl flour)	RAC	0.01	NC	-	NC	-	NC	-	0.10	0.00	0.39	0.00	NC	-
GC 0654	Wheat, raw (incl meslin)	RAC	0.01	0.10	0.00	1.12	0.01	NC	-	0.10	0.00	0.56	0.01	NC	-
-	Wheat, bulgur	PP	0.014	NC	-	NC	-	NC	-	0.10	0.00	NC	-	NC	-
CF 1210	Wheat, germ	PP	0.01	NC	-	NC	-	0.10	0.00	0.10	0.00	0.14	0.00	0.10	0.00
CF 0654	Wheat, bran	PP	0.042	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1212	Wheat, wholemeal flour	PP	0.014	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CP 1212	Wheat, wholemeal bread	PP	0.007	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00
CP 1211	Wheat, white bread	PP	0.002	0.25	0.00	0.63	0.00	0.12	0.00	0.43	0.00	1.39	0.00	0.22	0.00
-	Wheat, Fermented Beverages (Korean jakju and takju)	PP	0.01	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1211	Wheat, white flour (incl white flour products: starch, gluten, macaroni, pastry)	PP	0.002	301.49	0.60	269.27	0.54	30.33	0.06	222.94	0.45	136.12	0.27	343.34	0.69
CF 1211	Wheat, white flour	PP	0.002	299.27	0.60	263.32	0.53	27.93	0.06	214.18	0.43	133.47	0.27	340.03	0.68
DH 1100	Hops, dry	RAC	21	0.10	2.10	0.10	2.10	0.10	2.10	0.10	2.10	NC	-	0.10	2.10
MO 0105	Edible offal (mammalian), raw	RAC	0.01	4.79	0.05	9.68	0.10	2.97	0.03	5.49	0.05	3.84	0.04	5.03	0.05
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				38.5		56.2		16.2		56.7		20.0		128.8
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (ug/person)=				18000		18000		18000		18000		18000		18000
	%ADI=				0.2%		0.3%		0.1%		0.3%		0.1%		0.7%
	Rounded %ADI=				0%		0%		0%		0%		0%		1%

METRAFENONE (278) International Estimated Daily Intake (IEDI) ADI = 0-0.3 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day	Intake as ug/person/day										
FP 0009	Pome fruit, raw (incl cider, excl apple juice)	RAC	0.23	51.09	11.75	65.40	15.04	42.71	9.82	45.29	10.42	62.51	14.38	7.74	1.78
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.048	14.88	0.71	11.98	0.58	0.15	0.01	9.98	0.48	30.32	1.46	3.47	0.17
FS 0013	Cherries, raw	RAC	0.52	1.40	0.73	4.21	2.19	0.10	0.05	2.93	1.52	1.50	0.78	NC	-

METRAFENONE (278) International Estimated Daily Intake (IEDI) ADI = 0-0.3 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day	Intake as ug/person/day										
FS 2001	Peaches, nectarines, apricots, raw (incl dried apricots)	RAC	0.21	13.03	2.74	16.29	3.42	8.29	1.74	12.95	2.72	5.35	1.12	0.10	0.02
FB 0269	Grape, raw	RAC	0.76	6.33	4.81	11.22	8.53	5.21	3.96	9.38	7.13	4.55	3.46	0.78	0.59
-	Grape must	PP	0.51	0.16	0.08	0.10	0.05	0.10	0.05	0.12	0.06	0.11	0.06	NC	-
DF 0269	Grape, dried (= currants, raisins and sultanas)	PP	2.85	3.09	8.81	1.51	4.30	0.10	0.29	1.38	3.93	4.26	12.14	0.42	1.20
JF 0269	Grape juice	PP	0.038	0.56	0.02	1.96	0.07	0.10	0.00	2.24	0.09	2.27	0.09	0.34	0.01
-	Grape wine (incl vermouths)	PP	0.14	88.93	12.45	62.41	8.74	1.84	0.26	25.07	3.51	61.17	8.56	5.84	0.82
FB 0275	Strawberry, raw	RAC	0.13	4.49	0.58	5.66	0.74	0.10	0.01	6.63	0.86	5.75	0.75	0.10	0.01
VC 0045	Fruiting vegetables, cucurbits, raw	RAC	0.13	27.81	3.62	41.93	5.45	123.30	16.03	49.47	6.43	15.95	2.07	35.99	4.68
VO 0440	Egg plants, raw (= aubergines)	RAC	0.11	1.01	0.11	1.69	0.19	21.37	2.35	3.00	0.33	1.40	0.15	NC	-
VO 0444	Peppers, chili, raw	RAC	0.35	5.57	1.95	14.00	4.90	8.25	2.89	5.77	2.02	6.44	2.25	2.53	0.89
-	Peppers, chili, dried	PP	3.5	0.11	0.39	0.21	0.74	0.36	1.26	0.21	0.74	0.25	0.88	0.15	0.53
VO 0445	Peppers, sweet, raw (incl dried)	RAC	0.35	0.82	0.29	1.53	0.54	10.85	3.80	4.59	1.61	1.84	0.64	2.00	0.70
VO 0448	Tomato, raw	RAC	0.11	32.13	3.53	51.27	5.64	34.92	3.84	73.37	8.07	15.15	1.67	8.88	0.98
-	Tomato, canned (& peeled)	PP	0.002	7.57	0.02	2.66	0.01	0.30	0.00	0.97	0.00	7.31	0.01	0.41	0.00
-	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.089	4.96	0.44	3.20	0.28	0.15	0.01	1.61	0.14	6.88	0.61	0.52	0.05
JF 0448	Tomato, juice (single strength, incl concentrated)	PP	0.037	0.80	0.03	0.10	0.00	0.10	0.00	0.61	0.02	0.40	0.01	0.10	0.00
-	Mushrooms (cultivated & wild), raw (incl dried, excl canned)	RAC	0.105	6.31	0.66	3.51	0.37	0.93	0.10	2.66	0.28	12.41	1.30	0.25	0.03
-	Mushrooms (cultivated & wild), canned	PP	0.017	0.71	0.01	1.71	0.03	0.23	0.00	0.76	0.01	1.74	0.03	0.23	0.00
GC 0640	Barley, raw	RAC	0.06	0.10	0.01	NC	-	0.10	0.01	1.36	0.08	NC	-	NC	-
-	Barley, pot&pearled	PP	0.01	0.57	0.01	2.56	0.03	0.33	0.00	0.56	0.01	0.36	0.00	NC	-
-	Barley beer	PP	0.01	180.21	1.80	259.46	2.59	45.91	0.46	172.36	1.72	234.42	2.34	65.30	0.65
-	Barley Malt	PP	0.024	0.19	0.00	NC	-	0.10	0.00	0.10	0.00	NC	-	2.14	0.05
GC 0647	Oats, raw (incl rolled)	RAC	0.06	7.50	0.45	6.26	0.38	0.15	0.01	4.87	0.29	3.16	0.19	2.98	0.18
GC 0650	Rye, raw (incl flour)	RAC	0.01	3.21	0.03	35.38	0.35	0.21	0.00	6.50	0.07	1.49	0.01	NC	-
GC 0653	Triticale, raw (incl flour)	RAC	0.01	0.10	0.00	0.17	0.00	0.29	0.00	0.10	0.00	NC	-	NC	-
GC 0654	Wheat, raw (incl meslin)	RAC	0.01	NC	-	NC	-	NC	-	0.10	0.00	NC	-	NC	-
-	Wheat, bulgur	PP	0.014	NC	-	NC	-	0.10	0.00	NC	-	NC	-	NC	-
CF 1210	Wheat, germ	PP	0.01	0.97	0.01	0.10	0.00	0.10	0.00	0.10	0.00	NC	-	0.10	0.00
CF 0654	Wheat, bran	PP	0.042	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1212	Wheat, wholemeal flour	PP	0.014	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-

METRAFENONE (278) International Estimated Daily Intake (IEDI) ADI = 0-0.3 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day			Intake as ug/person/day								
CP 1212	Wheat, wholemeal bread	PP	0.007	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00
CP 1211	Wheat, white bread	PP	0.002	1.30	0.00	0.46	0.00	0.10	0.00	0.22	0.00	2.44	0.00	0.77	0.00
-	Wheat, Fermented Beverages (Korean jakju and takju)	PP	0.01	NC	-	NC	-	NC	-	4.36	0.04	NC	-	NC	-
CF 1211	Wheat, white flour (incl white flour products: starch, gluten, macaroni, pastry)	PP	0.002	199.38	0.40	193.50	0.39	106.30	0.21	185.31	0.37	171.11	0.34	132.37	0.26
CF 1211	Wheat, white flour	PP	0.002	182.77	0.37	187.54	0.38	103.82	0.21	180.42	0.36	164.00	0.33	118.84	0.24
DH 1100	Hops, dry	RAC	21	NC	-	NC	-	0.10	2.10	0.10	2.10	NC	-	NC	-
MO 0105	Edible offal (mammalian), raw	RAC	0.01	15.17	0.15	5.19	0.05	6.30	0.06	6.78	0.07	3.32	0.03	3.17	0.03
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				57.0		66.0		49.5		55.5		55.7		13.9
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (ug/person)=				18000		18000		16500		18000		18000		18000
	%ADI=				0.3%		0.4%		0.3%		0.3%		0.3%		0.1%
	Rounded %ADI=				0%		0%		0%		0%		0%		0%

METRAFENONE (278) International Estimated Daily Intake (IEDI) ADI = 0-0.3 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
				Diets: g/person/day			Intake = daily intake: ug/person						
FP 0009	Pome fruit, raw (incl cider, excl apple juice)	RAC	0.23	68.85	15.84	10.93	2.51	70.82	16.29	189.78	43.65	19.56	4.50
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.048	0.10	0.00	0.10	0.00	7.19	0.35	0.10	0.00	NC	-
FS 0013	Cherries, raw	RAC	0.52	0.10	0.05	0.10	0.05	5.96	3.10	0.10	0.05	NC	-
FS 2001	Peaches, nectarines, apricots, raw (incl dried apricots)	RAC	0.21	0.10	0.02	0.10	0.02	10.76	2.26	0.10	0.02	NC	-
FB 0269	Grape, raw	RAC	0.76	0.14	0.11	0.36	0.27	15.22	11.57	0.10	0.08	0.10	0.08
-	Grape must	PP	0.51	0.10	0.05	0.10	0.05	0.11	0.06	0.10	0.05	0.19	0.10
DF 0269	Grape, dried (= currants, raisins and sultanas)	PP	2.85	0.10	0.29	0.13	0.37	1.06	3.02	0.10	0.29	0.10	0.29
JF 0269	Grape juice	PP	0.038	0.10	0.00	0.10	0.00	0.41	0.02	0.10	0.00	NC	-
-	Grape wine (incl vermouths)	PP	0.14	0.31	0.04	0.23	0.03	60.43	8.46	0.52	0.07	31.91	4.47
FB 0275	Strawberry, raw	RAC	0.13	0.10	0.01	0.10	0.01	3.35	0.44	0.10	0.01	0.10	0.01
VC 0045	Fruiting vegetables, cucurbits, raw	RAC	0.13	5.96	0.77	9.74	1.27	51.82	6.74	13.61	1.77	0.10	0.01

METRAFENONE (278) International Estimated Daily Intake (IEDI) ADI = 0-0.3 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day G13 diet	Intake = daily intake: ug/person G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
VO 0440	Egg plants, raw (= aubergines)	RAC	0.11	1.31	0.14	8.26	0.91	3.95	0.43	0.10	0.01	NC	-
VO 0444	Peppers, chili, raw	RAC	0.35	3.47	1.21	3.56	1.25	16.30	5.71	0.10	0.04	NC	-
-	Peppers, chili, dried	PP	3.5	0.58	2.03	1.27	4.45	1.21	4.24	0.12	0.42	NC	-
VO 0445	Peppers, sweet, raw (incl dried)	RAC	0.35	5.49	1.92	10.57	3.70	8.84	3.09	0.91	0.32	NC	-
VO 0448	Tomato, raw	RAC	0.11	12.99	1.43	4.79	0.53	58.40	6.42	0.92	0.10	0.10	0.01
-	Tomato, canned (& peeled)	PP	0.002	0.10	0.00	0.10	0.00	2.42	0.00	0.10	0.00	NC	-
-	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.089	0.58	0.05	0.22	0.02	2.21	0.20	0.24	0.02	3.10	0.28
JF 0448	Tomato, juice (single strength, incl concentrated)	PP	0.037	0.10	0.00	0.10	0.00	0.42	0.02	0.10	0.00	0.10	0.00
-	Mushrooms (cultivated & wild), raw (incl dried, excl canned)	RAC	0.105	0.10	0.01	0.10	0.01	1.92	0.20	0.10	0.01	NC	-
-	Mushrooms (cultivated & wild), canned	PP	0.017	0.10	0.00	0.10	0.00	1.29	0.02	0.10	0.00	NC	-
GC 0640	Barley, raw	RAC	0.06	0.10	0.01	0.10	0.01	0.16	0.01	NC	-	NC	-
-	Barley, pot&pearled	PP	0.01	5.46	0.05	0.10	0.00	1.44	0.01	0.10	0.00	NC	-
-	Barley beer	PP	0.01	16.25	0.16	11.36	0.11	225.21	2.25	19.49	0.19	52.17	0.52
-	Barley Malt	PP	0.024	0.10	0.00	0.11	0.00	0.67	0.02	0.10	0.00	4.61	0.11
GC 0647	Oats, raw (incl rolled)	RAC	0.06	0.37	0.02	0.10	0.01	2.79	0.17	0.10	0.01	NC	-
GC 0650	Rye, raw (incl flour)	RAC	0.01	0.10	0.00	0.10	0.00	13.95	0.14	0.10	0.00	0.88	0.01
GC 0653	Triticale, raw (incl flour)	RAC	0.01	0.10	0.00	NC	-	NC	-	NC	-	NC	-
GC 0654	Wheat, raw (incl meslin)	RAC	0.01	NC	-	NC	-	NC	-	NC	-	0.97	0.01
-	Wheat, bulgur	PP	0.014	0.10	0.00	NC	-	NC	-	NC	-	NC	-
CF 1210	Wheat, germ	PP	0.01	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	NC	-
CF 0654	Wheat, bran	PP	0.042	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1212	Wheat, wholemeal flour	PP	0.014	NC	-	NC	-	NC	-	NC	-	NC	-
CP 1212	Wheat, wholemeal bread	PP	0.007	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00
CP 1211	Wheat, white bread	PP	0.002	0.43	0.00	0.41	0.00	1.56	0.00	0.11	0.00	0.10	0.00
-	Wheat, Fermented Beverages (Korean jakju and takju)	PP	0.01	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1211	Wheat, white flour (incl white flour products: starch, gluten, macaroni, pastry)	PP	0.002	45.21	0.09	87.37	0.17	215.61	0.43	20.42	0.04	103.67	0.21
CF 1211	Wheat, white flour	PP	0.002	43.75	0.09	85.81	0.17	206.68	0.41	19.38	0.04	92.92	0.19
DH 1100	Hops, dry	RAC	21	NC	-	NC	-	0.10	2.10	NC	-	NC	-
MO 0105	Edible offal (mammalian), raw	RAC	0.01	4.64	0.05	1.97	0.02	10.01	0.10	3.27	0.03	3.98	0.04
-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				24.5		16.0		78.3		47.2		10.8

METRAFENONE (278) International Estimated Daily Intake (IEDI) ADI = 0-0.3 mg/kg bw

			STMR	Diets: g/person/day		Intake = daily intake: ug/person							
Codex Code	Commodity description	Expr as	mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (ug/person)=				18000		18000		18000		18000		18000
	%ADI=				0.1%		0.1%		0.4%		0.3%		0.1%
	Rounded %ADI=				0%		0%		0%		0%		0%

OXATHIAPIPROLIN (291) International Estimated Daily Intake (IEDI) ADI = 0-4 mg/kg bw

			STMR	Diets as g/person/day		Intake as ug/person/day									
Codex Code	Commodity description	Expr as	mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
FB 0269	Grape, raw	RAC	0.21	12.68	2.66	9.12	1.92	0.10	0.02	16.88	3.54	3.70	0.78	54.42	11.43
-	Grape must	PP	0.13	0.33	0.04	0.13	0.02	0.10	0.01	0.10	0.01	0.10	0.01	0.10	0.01
DF 0269	Grape, dried (= currants, raisins and sultanas)	PP	0.29	0.51	0.15	0.51	0.15	0.10	0.03	1.27	0.37	0.12	0.03	2.07	0.60
JF 0269	Grape juice	PP	0.034	0.14	0.00	0.29	0.01	0.10	0.00	0.30	0.01	0.24	0.01	0.10	0.00
-	Grape wine (incl vermouths)	PP	0.029	0.67	0.02	12.53	0.36	2.01	0.06	1.21	0.04	3.53	0.10	4.01	0.12
VA 0381	Garlic, raw	RAC	0.01	2.29	0.02	5.78	0.06	0.11	0.00	3.69	0.04	1.65	0.02	3.91	0.04
VA 0384	Leek, raw	RAC	0.6	0.18	0.11	1.59	0.95	0.10	0.06	0.28	0.17	0.10	0.06	3.21	1.93
-	Onions, mature bulbs, dry	RAC	0.01	29.36	0.29	37.50	0.38	3.56	0.04	34.78	0.35	18.81	0.19	43.38	0.43
-	Onions, green, raw	RAC	0.6	2.45	1.47	1.49	0.89	1.02	0.61	2.60	1.56	0.60	0.36	2.03	1.22
VB 0041	Cabbages, head, raw	RAC	0.14	2.73	0.38	27.92	3.91	0.55	0.08	4.47	0.63	4.27	0.60	10.25	1.44
VB 0400	Broccoli, raw	RAC	0.22	0.88	0.19	0.17	0.04	0.10	0.02	1.25	0.28	3.00	0.66	1.09	0.24
VB 0404	Cauliflower, raw	RAC	0.08	1.65	0.13	0.32	0.03	0.10	0.01	2.33	0.19	4.79	0.38	2.03	0.16
VC 0045	Fruiting vegetables, cucurbits, raw	RAC	0.03	53.14	1.59	86.21	2.59	6.28	0.19	92.76	2.78	15.64	0.47	155.30	4.66
VO 0440	Egg plants, raw (= aubergines)	RAC	0.04	5.58	0.22	4.31	0.17	0.89	0.04	9.31	0.37	13.64	0.55	20.12	0.80
VO 0442	Okra, raw	RAC	0.04	1.97	0.08	NC	-	3.68	0.15	3.24	0.13	5.72	0.23	1.57	0.06
VO 0443	Pepino (Melon pear, Tree melon)	RAC	0.04	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VO 0444	Peppers, chili, raw (incl dried)	RAC	0.04	6.93	0.28	10.97	0.44	8.83	0.35	9.13	0.37	6.65	0.27	20.01	0.80
-	Peppers, chili, dried	PP	0.4	0.42	0.17	0.53	0.21	0.84	0.34	0.50	0.20	0.95	0.38	0.37	0.15
VO 0448	Tomato, raw	RAC	0.04	41.73	1.67	75.65	3.03	10.66	0.43	82.87	3.31	24.75	0.99	200.93	8.04
-	Tomato, canned (& peeled)	PP	0.0016	0.20	0.00	0.31	0.00	0.10	0.00	1.11	0.00	0.11	0.00	1.50	0.00
-	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.044	2.34	0.10	1.33	0.06	1.57	0.07	4.24	0.19	0.34	0.01	2.83	0.12
JF 0448	Tomato, juice (single strength, incl concentrated)	PP	0.006	0.29	0.00	0.29	0.00	0.10	0.00	0.38	0.00	0.10	0.00	0.14	0.00
-	Gilo (scarlet egg plant)	RAC	0.04	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Goji berry	RAC	0.04	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Quorn	RAC	0.04	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0482	Lettuce, head, raw	RAC	0.97	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0483	Lettuce, leaf, raw	RAC	2.2	0.53	1.17	0.36	0.79	0.16	0.35	6.21	13.66	1.90	4.18	6.05	13.31
VL 0502	Spinach, raw	RAC	3.7	0.74	2.74	0.22	0.81	0.10	0.37	0.91	3.37	0.10	0.37	2.92	10.80
VP 0063	Peas green, with pods, raw (i.e. immature seeds + pods) (Pisum spp)	RAC	0.38	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-

OXATHIAPIPROLIN (291) International Estimated Daily Intake (IEDI) ADI = 0-4 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day	Intake as ug/person/day										
VP 0064	Peas, green, without pods, raw (i.e. immature seeds only) (Pisum spp)	RAC	0.09	1.97	0.18	0.51	0.05	0.10	0.01	0.79	0.07	3.68	0.33	3.80	0.34
VD 0070	Pulses, raw (incl processed)	RAC	0.12	85.59	10.27	64.02	7.68	34.15	4.10	88.02	10.56	89.38	10.73	96.88	11.63
MO 0105	Edible offal (mammalian), raw	RAC	0.015	4.79	0.07	9.68	0.15	2.97	0.04	5.49	0.08	3.84	0.06	5.03	0.08
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				24.0		24.7		7.4		42.3		21.8		68.4
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (ug/person)=				240000		240000		240000		240000		240000		240000
	%ADI=				0.0%		0.0%		0.0%		0.0%		0.0%		0.0%
	Rounded %ADI=				0%		0%		0%		0%		0%		0%

OXATHIAPIPROLIN (291) International Estimated Daily Intake (IEDI) ADI = 0-4 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day	Intake as ug/person/day										
FB 0269	Grape, raw	RAC	0.21	6.33	1.33	11.22	2.36	5.21	1.09	9.38	1.97	4.55	0.96	0.78	0.16
-	Grape must	PP	0.13	0.16	0.02	0.10	0.01	0.10	0.01	0.12	0.02	0.11	0.01	NC	-
DF 0269	Grape, dried (= currants, raisins and sultanas)	PP	0.29	3.09	0.90	1.51	0.44	0.10	0.03	1.38	0.40	4.26	1.24	0.42	0.12
JF 0269	Grape juice	PP	0.034	0.56	0.02	1.96	0.07	0.10	0.00	2.24	0.08	2.27	0.08	0.34	0.01
-	Grape wine (incl vermouths)	PP	0.029	88.93	2.58	62.41	1.81	1.84	0.05	25.07	0.73	61.17	1.77	5.84	0.17
VA 0381	Garlic, raw	RAC	0.01	0.98	0.01	1.49	0.01	12.88	0.13	3.74	0.04	2.05	0.02	1.14	0.01
VA 0384	Leek, raw	RAC	0.6	4.01	2.41	4.41	2.65	0.72	0.43	0.54	0.32	16.41	9.85	0.10	0.06
-	Onions, mature bulbs, dry	RAC	0.01	19.69	0.20	29.83	0.30	24.64	0.25	31.35	0.31	9.72	0.10	12.59	0.13
-	Onions, green, raw	RAC	0.6	1.55	0.93	0.74	0.44	1.05	0.63	3.74	2.24	0.94	0.56	6.45	3.87
VB 0041	Cabbages, head, raw	RAC	0.14	8.97	1.26	27.12	3.80	1.44	0.20	24.96	3.49	4.55	0.64	11.23	1.57
VB 0400	Broccoli, raw	RAC	0.22	4.24	0.93	1.76	0.39	NC	-	0.51	0.11	3.79	0.83	0.26	0.06
VB 0404	Cauliflower, raw	RAC	0.08	5.27	0.42	5.01	0.40	NC	-	2.70	0.22	5.57	0.45	0.49	0.04
VC 0045	Fruiting vegetables, cucurbits, raw	RAC	0.03	27.81	0.83	41.93	1.26	123.30	3.70	49.47	1.48	15.95	0.48	35.99	1.08

OXATHIAPIPROLIN (291) International Estimated Daily Intake (IEDI) ADI = 0-4 mg/kg bw

			STMR	Diets as g/person/day		Intake as ug/person/day									
Codex Code	Commodity description	Expr as	mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
VO 0440	Egg plants, raw (= aubergines)	RAC	0.04	1.01	0.04	1.69	0.07	21.37	0.85	3.00	0.12	1.40	0.06	NC	-
VO 0442	Okra, raw	RAC	0.04	NC	-	NC	-	0.10	0.00	0.17	0.01	NC	-	0.72	0.03
VO 0443	Pepino (Melon pear, Tree melon)	RAC	0.04	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VO 0444	Peppers, chili, raw (incl dried)	RAC	0.04	6.36	0.25	15.46	0.62	10.74	0.43	7.28	0.29	8.21	0.33	3.58	0.14
-	Peppers, chili, dried	PP	0.4	0.11	0.04	0.21	0.08	0.36	0.14	0.21	0.08	0.25	0.10	0.15	0.06
VO 0448	Tomato, raw	RAC	0.04	32.13	1.29	51.27	2.05	34.92	1.40	73.37	2.93	15.15	0.61	8.88	0.36
-	Tomato, canned (& peeled)	PP	0.0016	7.57	0.01	2.66	0.00	0.30	0.00	0.97	0.00	7.31	0.01	0.41	0.00
-	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.044	4.96	0.22	3.20	0.14	0.15	0.01	1.61	0.07	6.88	0.30	0.52	0.02
JF 0448	Tomato, juice (single strength, incl concentrated)	PP	0.006	0.80	0.00	0.10	0.00	0.10	0.00	0.61	0.00	0.40	0.00	0.10	0.00
-	Gilo (scarlet egg plant)	RAC	0.04	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Goji berry	RAC	0.04	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Quorn	RAC	0.04	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0482	Lettuce, head, raw	RAC	0.97	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0483	Lettuce, leaf, raw	RAC	2.2	14.50	31.90	11.76	25.87	13.14	28.91	19.50	42.90	4.81	10.58	2.23	4.91
VL 0502	Spinach, raw	RAC	3.7	2.20	8.14	1.76	6.51	13.38	49.51	2.94	10.88	5.53	20.46	0.10	0.37
VP 0063	Peas green, with pods, raw (i.e. immature seeds + pods) (Pisum spp)	RAC	0.38	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VP 0064	Peas, green, without pods, raw (i.e. immature seeds only) (Pisum spp)	RAC	0.09	10.72	0.96	1.99	0.18	2.72	0.24	4.26	0.38	4.23	0.38	NC	-
VD 0070	Pulses, raw (incl processed)	RAC	0.12	112.88	13.55	123.05	14.77	47.15	5.66	204.64	24.56	227.37	27.28	109.11	13.09
MO 0105	Edible offal (mammalian), raw	RAC	0.015	15.17	0.23	5.19	0.08	6.30	0.09	6.78	0.10	3.32	0.05	3.17	0.05
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				68.5		64.3		93.8		93.7		77.1		26.3
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (ug/person)=				240000		240000		220000		240000		240000		240000
	%ADI=				0.0%		0.0%		0.0%		0.0%		0.0%		0.0%
	Rounded %ADI=				0%		0%		0%		0%		0%		0%

Annex 3

OXATHIAPIPROLIN (291) International Estimated Daily Intake (IEDI) ADI = 0-4 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day		Intake = daily intake: ug/person							
				G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
FB 0269	Grape, raw	RAC	0.21	0.14	0.03	0.36	0.08	15.22	3.20	0.10	0.02	0.10	0.02
-	Grape must	PP	0.13	0.10	0.01	0.10	0.01	0.11	0.01	0.10	0.01	0.19	0.02
DF 0269	Grape, dried (= currants, raisins and sultanas)	PP	0.29	0.10	0.03	0.13	0.04	1.06	0.31	0.10	0.03	0.10	0.03
JF 0269	Grape juice	PP	0.034	0.10	0.00	0.10	0.00	0.41	0.01	0.10	0.00	NC	-
-	Grape wine (incl vermouths)	PP	0.029	0.31	0.01	0.23	0.01	60.43	1.75	0.52	0.02	31.91	0.93
VA 0381	Garlic, raw	RAC	0.01	0.82	0.01	2.06	0.02	3.79	0.04	0.10	0.00	0.29	0.00
VA 0384	Leek, raw	RAC	0.6	0.10	0.06	1.44	0.86	1.22	0.73	0.10	0.06	NC	-
-	Onions, mature bulbs, dry	RAC	0.01	9.01	0.09	20.24	0.20	30.90	0.31	9.61	0.10	2.11	0.02
-	Onions, green, raw	RAC	0.6	1.43	0.86	0.10	0.06	0.20	0.12	NC	-	6.30	3.78
VB 0041	Cabbages, head, raw	RAC	0.14	3.82	0.53	2.99	0.42	49.16	6.88	0.10	0.01	NC	-
VB 0400	Broccoli, raw	RAC	0.22	0.10	0.02	0.10	0.02	2.13	0.47	0.10	0.02	NC	-
VB 0404	Cauliflower, raw	RAC	0.08	0.10	0.01	0.10	0.01	2.73	0.22	0.10	0.01	NC	-
VC 0045	Fruiting vegetables, cucurbits, raw	RAC	0.03	5.96	0.18	9.74	0.29	51.82	1.55	13.61	0.41	0.10	0.00
VO 0440	Egg plants, raw (= aubergines)	RAC	0.04	1.31	0.05	8.26	0.33	3.95	0.16	0.10	0.00	NC	-
VO 0442	Okra, raw	RAC	0.04	6.23	0.25	0.10	0.00	NC	-	NC	-	NC	-
VO 0443	Pepino (Melon pear, Tree melon)	RAC	0.04	NC	-	NC	-	NC	-	NC	-	NC	-
VO 0444	Peppers, chili, raw (incl dried)	RAC	0.04	7.55	0.30	12.48	0.50	24.78	0.99	0.87	0.03	NC	-
-	Peppers, chili, dried	PP	0.4	0.58	0.23	1.27	0.51	1.21	0.48	0.12	0.05	NC	-
VO 0448	Tomato, raw	RAC	0.04	12.99	0.52	4.79	0.19	58.40	2.34	0.92	0.04	0.10	0.00
-	Tomato, canned (& peeled)	PP	0.0016	0.10	0.00	0.10	0.00	2.42	0.00	0.10	0.00	NC	-
-	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.044	0.58	0.03	0.22	0.01	2.21	0.10	0.24	0.01	3.10	0.14
JF 0448	Tomato, juice (single strength, incl concentrated)	PP	0.006	0.10	0.00	0.10	0.00	0.42	0.00	0.10	0.00	0.10	0.00
-	Gilo (scarlet egg plant)	RAC	0.04	NC	-	NC	-	NC	-	NC	-	NC	-
-	Goji berry	RAC	0.04	NC	-	NC	-	NC	-	NC	-	NC	-
-	Quorn	RAC	0.04	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0482	Lettuce, head, raw	RAC	0.97	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0483	Lettuce, leaf, raw	RAC	2.2	0.29	0.64	0.10	0.22	6.71	14.76	0.10	0.22	NC	-
VL 0502	Spinach, raw	RAC	3.7	0.17	0.63	0.10	0.37	0.81	3.00	0.10	0.37	NC	-
VP 0063	Peas green, with pods, raw (i.e. immature seeds + pods) (Pisum spp)	RAC	0.38	NC	-	NC	-	NC	-	NC	-	NC	-
VP 0064	Peas, green, without pods, raw (i.e. immature seeds only) (Pisum spp)	RAC	0.09	0.21	0.02	0.10	0.01	5.51	0.50	0.10	0.01	NC	-
VD 0070	Pulses, raw (incl processed)	RAC	0.12	44.03	5.28	29.00	3.48	112.51	13.50	75.50	9.06	39.69	4.76
MO 0105	Edible offal (mammalian), raw	RAC	0.015	4.64	0.07	1.97	0.03	10.01	0.15	3.27	0.05	3.98	0.06

Annex 3

OXATHIAPIPROLIN (291) International Estimated Daily Intake (IEDI) ADI = 0-4 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day G13 diet	Intake = daily intake: ug/person G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				9.9		7.7		51.6		10.5		9.8
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (ug/person)=				240000		240000		240000		240000		240000
	%ADI=				0.0%		0.0%		0.0%		0.0%		0.0%
	Rounded %ADI=				0%		0%		0%		0%		0%

PENCONAZOLE (182) International Estimated Daily Intake (IEDI) ADI = 0-0.03 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G01 diet	Intake as ug/person/day G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
FP 0226	Apple, raw (incl cider, excl juice)	RAC	0.1	13.49	1.35	26.63	2.66	15.05	1.51	16.28	1.63	6.47	0.65	47.88	4.79
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.025	0.32	0.01	3.07	0.08	0.10	0.00	5.00	0.13	0.29	0.01	5.57	0.14
FP 0230	Pear, raw	RAC	0.1	2.16	0.22	6.24	0.62	0.10	0.01	4.07	0.41	1.16	0.12	5.34	0.53
FS 0013	Cherries, raw	RAC	0.07	0.92	0.06	9.15	0.64	0.10	0.01	0.61	0.04	0.10	0.01	6.64	0.46
FS 2001	Peaches, nectarines, apricots, raw	RAC	0.14	7.50	1.05	4.98	0.70	0.18	0.03	7.33	1.03	1.59	0.22	21.11	2.96
FB 0021	Currants, red, black, white, raw	RAC	1.5	0.10	0.15	0.74	1.11	0.10	0.15	0.10	0.15	0.10	0.15	0.10	0.15
FB 0269	Grape, raw (incl must, excl dried, excl juice, excl wine)	RAC	0.15	13.02	1.95	9.25	1.39	0.10	0.02	16.91	2.54	3.70	0.56	54.44	8.17
DF 0269	Grape, dried (= currants, raisins and sultanas)	PP	0.57	0.51	0.29	0.51	0.29	0.10	0.06	1.27	0.72	0.12	0.07	2.07	1.18
JF 0269	Grape juice	PP	0.038	0.14	0.01	0.29	0.01	0.10	0.00	0.30	0.01	0.24	0.01	0.10	0.00
-	Grape wine (incl vermouths)	PP	0.038	0.67	0.03	12.53	0.48	2.01	0.08	1.21	0.05	3.53	0.13	4.01	0.15
FB 0275	Strawberry, raw	RAC	0.44	0.70	0.31	2.01	0.88	0.10	0.04	1.36	0.60	0.37	0.16	2.53	1.11
VC 0046	Melons, raw (excl watermelons)	RAC	0.2	8.90	1.78	8.64	1.73	0.80	0.16	17.90	3.58	2.80	0.56	29.17	5.83
VC 0424	Cucumber, raw	RAC	0.05	8.01	0.40	30.66	1.53	1.45	0.07	19.84	0.99	0.27	0.01	34.92	1.75
VC 0425	Gherkin, raw	RAC	0.05	1.73	0.09	6.64	0.33	0.31	0.02	4.29	0.21	0.29	0.01	7.56	0.38
VC 0431	Squash, summer, raw (= courgette, zuchini)	RAC	0.05	0.78	0.04	2.06	0.10	0.30	0.02	1.61	0.08	2.25	0.11	2.36	0.12
VO 0440	Egg plants, raw (= aubergines)	RAC	0.1	5.58	0.56	4.31	0.43	0.89	0.09	9.31	0.93	13.64	1.36	20.12	2.01
VO 0445	Peppers, sweet, raw	RAC	0.14	1.43	0.20	2.61	0.37	1.05	0.15	2.01	0.28	2.59	0.36	6.24	0.87
VO 0448	Tomato, raw (incl juice, incl paste, incl canned)	RAC	0.1	51.75	5.18	81.80	8.18	16.99	1.70	102.02	10.20	26.32	2.63	214.77	21.48
VS 0620	Artichoke globe	RAC	0.1	0.69	0.07	0.10	0.01	0.10	0.01	0.32	0.03	0.26	0.03	1.21	0.12
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat)	RAC	0	31.20	0.00	72.44	0.00	20.88	0.00	47.98	0.00	33.08	0.00	36.25	0.00
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0	3.29	0.00	6.14	0.00	0.82	0.00	1.57	0.00	2.23	0.00	1.07	0.00
MO 0105	Edible offal (mammalian), raw	RAC	0.004	4.79	0.02	9.68	0.04	2.97	0.01	5.49	0.02	3.84	0.02	5.03	0.02
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0	289.65	0.00	485.88	0.00	26.92	0.00	239.03	0.00	199.91	0.00	180.53	0.00
PM 0110	Poultry meat, raw (incl prepared)	RAC	0	14.63	0.00	29.76	0.00	8.04	0.00	129.68	0.00	25.04	0.00	35.66	0.00
PF 0111	Poultry fat, raw (incl rendered)	RAC	0	0.10	0.00	0.10	0.00	NC	-	0.10	0.00	0.10	0.00	0.10	0.00

PENCONAZOLE (182) International Estimated Daily Intake (IEDI) ADI = 0-0.03 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day	Intake as ug/person/day										
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0	0.12	0.00	0.12	0.00	0.11	0.00	5.37	0.00	0.24	0.00	0.10	0.00
PE 0112	Eggs, raw, (incl dried)	RAC	0	7.84	0.00	23.08	0.00	2.88	0.00	14.89	0.00	9.81	0.00	14.83	0.00
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				13.7		21.6		4.1		23.6		7.2		52.2
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (ug/person)=				1800		1800		1800		1800		1800		1800
	%ADI=				0.8%		1.2%		0.2%		1.3%		0.4%		2.9%
	Rounded %ADI=				1%		1%		0%		1%		0%		3%

PENCONAZOLE (182) International Estimated Daily Intake (IEDI) ADI = 0-0.03 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day	Intake as ug/person/day										
FP 0226	Apple, raw (incl cider, excl juice)	RAC	0.1	41.14	4.11	56.49	5.65	26.64	2.66	31.58	3.16	51.94	5.19	3.05	0.31
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.025	14.88	0.37	11.98	0.30	0.15	0.00	9.98	0.25	30.32	0.76	3.47	0.09
FP 0230	Pear, raw	RAC	0.1	8.79	0.88	8.44	0.84	12.37	1.24	9.60	0.96	10.27	1.03	0.23	0.02
FS 0013	Cherries, raw	RAC	0.07	1.40	0.10	4.21	0.29	0.10	0.01	2.93	0.21	1.50	0.11	NC	-
FS 2001	Peaches, nectarines, apricots, raw	RAC	0.14	10.82	1.51	15.31	2.14	8.28	1.16	11.82	1.65	4.08	0.57	0.10	0.01
FB 0021	Currants, red, black, white, raw	RAC	1.5	0.48	0.72	4.23	6.35	NC	-	1.51	2.27	0.49	0.74	NC	-
FB 0269	Grape, raw (incl must, excl dried, excl juice, excl wine)	RAC	0.15	6.48	0.97	11.31	1.70	5.21	0.78	9.50	1.43	4.66	0.70	0.78	0.12
DF 0269	Grape, dried (= currants, raisins and sultanas)	PP	0.57	3.09	1.76	1.51	0.86	0.10	0.06	1.38	0.79	4.26	2.43	0.42	0.24
JF 0269	Grape juice	PP	0.038	0.56	0.02	1.96	0.07	0.10	0.00	2.24	0.09	2.27	0.09	0.34	0.01
-	Grape wine (incl vermouths)	PP	0.038	88.93	3.38	62.41	2.37	1.84	0.07	25.07	0.95	61.17	2.32	5.84	0.22
FB 0275	Strawberry, raw	RAC	0.44	4.49	1.98	5.66	2.49	0.10	0.04	6.63	2.92	5.75	2.53	0.10	0.04
VC 0046	Melons, raw (excl watermelons)	RAC	0.2	9.20	1.84	11.95	2.39	14.63	2.93	8.99	1.80	7.86	1.57	2.46	0.49
VC 0424	Cucumber, raw	RAC	0.05	6.72	0.34	11.03	0.55	32.10	1.61	15.10	0.76	4.05	0.20	9.57	0.48

PENCONAZOLE (182) International Estimated Daily Intake (IEDI) ADI = 0-0.03 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day			Intake as ug/person/day								
VC 0425	Gherkin, raw	RAC	0.05	0.41	0.02	5.89	0.29	NC	-	0.10	0.01	0.37	0.02	2.07	0.10
VC 0431	Squash, summer, raw (= courgette, zuchini)	RAC	0.05	NC	-	NC	-	5.48	0.27	NC	-	NC	-	1.03	0.05
VO 0440	Egg plants, raw (= aubergines)	RAC	0.1	1.01	0.10	1.69	0.17	21.37	2.14	3.00	0.30	1.40	0.14	NC	-
VO 0445	Peppers, sweet, raw	RAC	0.14	NC	-	NC	-	8.25	1.16	3.03	0.42	NC	-	0.91	0.13
VO 0448	Tomato, raw (incl juice, incl paste, incl canned)	RAC	0.1	64.74	6.47	68.31	6.83	36.05	3.61	82.09	8.21	54.50	5.45	11.69	1.17
VS 0620	Artichoke globe	RAC	0.1	0.98	0.10	3.65	0.37	0.10	0.01	1.67	0.17	0.26	0.03	NC	-
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat)	RAC	0	140.03	0.00	150.89	0.00	79.32	0.00	111.24	0.00	120.30	0.00	51.27	0.00
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0	6.44	0.00	15.51	0.00	3.79	0.00	8.29	0.00	18.44	0.00	8.00	0.00
MO 0105	Edible offal (mammalian), raw	RAC	0.004	15.17	0.06	5.19	0.02	6.30	0.03	6.78	0.03	3.32	0.01	3.17	0.01
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0	388.92	0.00	335.88	0.00	49.15	0.00	331.25	0.00	468.56	0.00	245.45	0.00
PM 0110	Poultry meat, raw (incl prepared)	RAC	0	73.76	0.00	53.86	0.00	23.98	0.00	87.12	0.00	53.38	0.00	84.45	0.00
PF 0111	Poultry fat, raw (incl rendered)	RAC	0	0.10	0.00	0.10	0.00	NC	-	0.10	0.00	0.71	0.00	NC	-
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0	0.33	0.00	0.72	0.00	0.27	0.00	0.35	0.00	0.80	0.00	NC	-
PE 0112	Eggs, raw, (incl dried)	RAC	0	25.84	0.00	29.53	0.00	28.05	0.00	33.19	0.00	36.44	0.00	8.89	0.00
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				24.7		33.7		17.8		26.3		23.9		3.5
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (ug/person)=				1800		1800		1650		1800		1800		1800
	%ADI=				1.4%		1.9%		1.1%		1.5%		1.3%		0.2%
	Rounded %ADI=				1%		2%		1%		1%		1%		0%

PENCONAZOLE (182) International Estimated Daily Intake (IEDI) ADI = 0-0.03 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day G13 diet	Intake = daily intake: ug/person G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
FP 0226	Apple, raw (incl cider, excl juice)	RAC	0.1	66.67	6.67	2.06	0.21	55.83	5.58	188.29	18.83	1.38	0.14
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.025	0.10	0.00	0.10	0.00	7.19	0.18	0.10	0.00	NC	-
FP 0230	Pear, raw	RAC	0.1	0.10	0.01	0.14	0.01	9.45	0.95	0.10	0.01	0.14	0.01
FS 0013	Cherries, raw	RAC	0.07	0.10	0.01	0.10	0.01	5.96	0.42	0.10	0.01	NC	-
FS 2001	Peaches, nectarines, apricots, raw	RAC	0.14	0.10	0.01	0.10	0.01	9.93	1.39	0.10	0.01	NC	-
FB 0021	Currants, red, black, white, raw	RAC	1.5	0.10	0.15	NC	-	0.74	1.11	NC	-	NC	-
FB 0269	Grape, raw (incl must, excl dried, excl juice, excl wine)	RAC	0.15	0.14	0.02	0.36	0.05	15.33	2.30	0.10	0.02	0.28	0.04
DF 0269	Grape, dried (= currants, raisins and sultanas)	PP	0.57	0.10	0.06	0.13	0.07	1.06	0.60	0.10	0.06	0.10	0.06
JF 0269	Grape juice	PP	0.038	0.10	0.00	0.10	0.00	0.41	0.02	0.10	0.00	NC	-
-	Grape wine (incl vermouths)	PP	0.038	0.31	0.01	0.23	0.01	60.43	2.30	0.52	0.02	31.91	1.21
FB 0275	Strawberry, raw	RAC	0.44	0.10	0.04	0.10	0.04	3.35	1.47	0.10	0.04	0.10	0.04
VC 0046	Melons, raw (excl watermelons)	RAC	0.2	0.19	0.04	0.10	0.02	4.98	1.00	0.10	0.02	NC	-
VC 0424	Cucumber, raw	RAC	0.05	0.68	0.03	1.81	0.09	10.40	0.52	0.10	0.01	0.10	0.01
VC 0425	Gherkin, raw	RAC	0.05	0.15	0.01	0.39	0.02	3.15	0.16	0.10	0.01	0.10	0.01
VC 0431	Squash, summer, raw (= courgette, zuchini)	RAC	0.05	0.10	0.01	1.01	0.05	NC	-	1.91	0.10	NC	-
VO 0440	Egg plants, raw (= aubergines)	RAC	0.1	1.31	0.13	8.26	0.83	3.95	0.40	0.10	0.01	NC	-
VO 0445	Peppers, sweet, raw	RAC	0.14	1.24	0.17	1.27	0.18	NC	-	0.10	0.01	NC	-
VO 0448	Tomato, raw (incl juice, incl paste, incl canned)	RAC	0.1	15.50	1.55	5.78	0.58	71.52	7.15	2.00	0.20	12.50	1.25
VS 0620	Artichoke globe	RAC	0.1	0.10	0.01	NC	-	0.10	0.01	0.10	0.01	NC	-
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat)	RAC	0	29.18	0.00	50.89	0.00	121.44	0.00	22.58	0.00	72.14	0.00
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0	1.05	0.00	1.14	0.00	18.69	0.00	0.94	0.00	3.12	0.00
MO 0105	Edible offal (mammalian), raw	RAC	0.004	4.64	0.02	1.97	0.01	10.01	0.04	3.27	0.01	3.98	0.02
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0	108.75	0.00	70.31	0.00	436.11	0.00	61.55	0.00	79.09	0.00
PM 0110	Poultry meat, raw (incl prepared)	RAC	0	3.92	0.00	12.03	0.00	57.07	0.00	5.03	0.00	55.56	0.00
PF 0111	Poultry fat, raw (incl rendered)	RAC	0	NC	-	NC	-	0.32	0.00	NC	-	NC	-
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0	0.10	0.00	0.70	0.00	0.97	0.00	0.10	0.00	NC	-
PE 0112	Eggs, raw, (incl dried)	RAC	0	3.84	0.00	4.41	0.00	27.25	0.00	1.13	0.00	7.39	0.00
-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				9.0		2.2		25.6		19.4		2.8
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (ug/person)=				1800		1800		1800		1800		1800
	%ADI=				0.5%		0.1%		1.4%		1.1%		0.2%

PENCONAZOLE (182) International Estimated Daily Intake (IEDI) ADI = 0-0.03 mg/kg bw

			STMR	Diets: g/person/day		Intake = daily intake: ug/person							
Codex Code	Commodity description	Expr as	mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
	Rounded %ADI=				0%		0%		1%		1%		0%

PENDIMETHALIN (292) International Estimated Daily Intake (IEDI) ADI = 0-0.1 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day	Intake as ug/person/day										
001	**CITRUS FRUIT**	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-
VA 0380	Fennel, bulb, raw	RAC	0	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VA 0381	Garlic, raw	RAC	0	2.29	0.00	5.78	0.00	0.11	0.00	3.69	0.00	1.65	0.00	3.91	0.00
-	Onions, mature bulbs, dry	RAC	0	29.36	0.00	37.50	0.00	3.56	0.00	34.78	0.00	18.81	0.00	43.38	0.00
-	Onions, green, raw	RAC	0.095	2.45	0.23	1.49	0.14	1.02	0.10	2.60	0.25	0.60	0.06	2.03	0.19
VL 0466	Chinese cabbage, type pak-choi, raw (i.e. Brassica)	RAC	0.05	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0467	Chinese cabbage, type pe-tsai, raw (i.e. Brassica)	RAC	0.05	0.45	0.02	4.56	0.23	0.10	0.01	0.73	0.04	NC	-	1.67	0.08
VL 0478	Indian mustard (Amsoi) (i.e. Brassica)	RAC	0.05	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0480	Kale, raw (i.e. collards) (i.e. Brassica)	RAC	0.05	0.57	0.03	5.77	0.29	0.11	0.01	0.92	0.05	5.25	0.26	2.12	0.11
VL 0481	Komatsuna, raw (i.e. Brassica)	RAC	0.05	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0483	Lettuce, leaf, raw	RAC	0.062	0.53	0.03	0.36	0.02	0.16	0.01	6.21	0.39	1.90	0.12	6.05	0.38
VL 0485	Mustard greens, raw (i.e. Brassica)	RAC	0.05	0.10	0.01	0.31	0.02	0.10	0.01	0.10	0.01	0.47	0.02	0.11	0.01
VL 0494	Radish leaves, raw	RAC	0.05	0.26	0.01	0.45	0.02	0.28	0.01	0.68	0.03	NC	-	0.33	0.02
VL 0495	Rape greens, raw (i.e. Brassica)	RAC	0.05	0.10	0.01	0.31	0.02	0.10	0.01	0.10	0.01	NC	-	0.11	0.01
VL 0506	Turnip greens, raw (i.e. Namenia, Tendergreen)	RAC	0.05	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Chinese cabbage flowering stalk, raw	RAC	0.05	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VP 0061	Beans, green, with pods, raw: beans except broad bean & soya bean (i.e. immature seeds + pods) (Phaseolus spp)	RAC	0.05	0.68	0.03	NC	-	NC	-	0.39	0.02	0.22	0.01	0.49	0.02
VP 0063	Peas green, with pods, raw (i.e. immature seeds + pods) (Pisum spp)	RAC	0.01	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VP 0064	Peas, green, without pods, raw (i.e. immature seeds only) (Pisum spp)	RAC	0.01	1.97	0.02	0.51	0.01	0.10	0.00	0.79	0.01	3.68	0.04	3.80	0.04
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.05	2.39	0.12	1.61	0.08	10.47	0.52	1.84	0.09	12.90	0.65	7.44	0.37
VD 0072	Peas, dry, raw (Pisum spp, Vigna spp): garden peas & field peas & cow peas	RAC	0.05	1.67	0.08	3.22	0.16	2.66	0.13	1.51	0.08	2.91	0.15	0.24	0.01
VR 0577	Carrots, raw	RAC	0.0625	9.51	0.59	30.78	1.92	0.37	0.02	8.75	0.55	2.80	0.18	6.10	0.38
VS 0621	Asparagus	RAC	0.05	0.10	0.01	0.10	0.01	0.10	0.01	0.10	0.01	0.10	0.01	0.21	0.01
VS 0624	Celery	RAC	0.05	2.14	0.11	3.79	0.19	2.35	0.12	5.69	0.28	0.10	0.01	2.75	0.14

PENDIMETHALIN (292) International Estimated Daily Intake (IEDI) ADI = 0-0.1 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G01 diet	Intake as ug/person/day G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
022	**TREE NUTS**	-	0.05	-	-	-	-	-	-	-	-	-	-	-	-
DH 1100	Hops, dry	RAC	0.05	0.10	0.01	0.10	0.01	0.10	0.01	0.10	0.01	NC	-	0.10	0.01
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) -80% as muscle	RAC	0.004	24.96	0.10	57.95	0.23	16.70	0.07	38.38	0.15	26.46	0.11	29.00	0.12
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) - 20% as fat	RAC	0.009	6.24	0.06	14.49	0.13	4.18	0.04	9.60	0.09	6.62	0.06	7.25	0.07
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.009	3.29	0.03	6.14	0.06	0.82	0.01	1.57	0.01	2.23	0.02	1.07	0.01
MO 0105	Edible offal (mammalian), raw	RAC	0.004	4.79	0.02	9.68	0.04	2.97	0.01	5.49	0.02	3.84	0.02	5.03	0.02
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.0009	289.65	0.26	485.88	0.44	26.92	0.02	239.03	0.22	199.91	0.18	180.53	0.16
PM 0110	Poultry meat, raw (incl prepared)	RAC	0	14.63	0.00	29.76	0.00	8.04	0.00	129.68	0.00	25.04	0.00	35.66	0.00
PF 0111	Poultry fat, raw (incl rendered)	RAC	0	0.10	0.00	0.10	0.00	NC	-	0.10	0.00	0.10	0.00	0.10	0.00
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0	0.12	0.00	0.12	0.00	0.11	0.00	5.37	0.00	0.24	0.00	0.10	0.00
PE 0112	Eggs, raw, (incl dried)	RAC	0	7.84	0.00	23.08	0.00	2.88	0.00	14.89	0.00	9.81	0.00	14.83	0.00
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				1.8		4.0		1.1		2.3		1.9		2.1
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (ug/person)=				6000		6000		6000		6000		6000		6000
	%ADI=				0.0%		0.1%		0.0%		0.0%		0.0%		0.0%
	Rounded %ADI=				0%		0%		0%		0%		0%		0%

PENDIMETHALIN (292) International Estimated Daily Intake (IEDI) ADI = 0-0.1 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G07 diet	Intake as ug/person/day G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
001	CITRUS FRUIT	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-
VA 0380	Fennel, bulb, raw	RAC	0	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-

PENDIMETHALIN (292) International Estimated Daily Intake (IEDI) ADI = 0-0.1 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day		Intake as ug/person/day									
VA 0381	Garlic, raw	RAC	0	0.98	0.00	1.49	0.00	12.88	0.00	3.74	0.00	2.05	0.00	1.14	0.00
-	Onions, mature bulbs, dry	RAC	0	19.69	0.00	29.83	0.00	24.64	0.00	31.35	0.00	9.72	0.00	12.59	0.00
-	Onions, green, raw	RAC	0.095	1.55	0.15	0.74	0.07	1.05	0.10	3.74	0.36	0.94	0.09	6.45	0.61
VL 0466	Chinese cabbage, type pak-choi, raw (i.e. Brassica)	RAC	0.05	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0467	Chinese cabbage, type pe-tsai, raw (i.e. Brassica)	RAC	0.05	NC	-	NC	-	17.39	0.87	9.44	0.47	NC	-	1.83	0.09
VL 0478	Indian mustard (Amsoi) (i.e. Brassica)	RAC	0.05	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0480	Kale, raw (i.e. collards) (i.e. Brassica)	RAC	0.05	NC	-	NC	-	14.54	0.73	NC	-	NC	-	2.32	0.12
VL 0481	Komatsuna, raw (i.e. Brassica)	RAC	0.05	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0483	Lettuce, leaf, raw	RAC	0.062	14.50	0.90	11.76	0.73	13.14	0.81	19.50	1.21	4.81	0.30	2.23	0.14
VL 0485	Mustard greens, raw (i.e. Brassica)	RAC	0.05	NC	-	NC	-	NC	-	NC	-	NC	-	0.13	0.01
VL 0494	Radish leaves, raw	RAC	0.05	NC	-	NC	-	NC	-	3.78	0.19	NC	-	0.48	0.02
VL 0495	Rape greens, raw (i.e. Brassica)	RAC	0.05	NC	-	NC	-	1.93	0.10	NC	-	NC	-	0.12	0.01
VL 0506	Turnip greens, raw (i.e. Namenia, Tendergreen)	RAC	0.05	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
-	Chinese cabbage flowering stalk, raw	RAC	0.05	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VP 0061	Beans, green, with pods, raw: beans except broad bean & soya bean (i.e. immature seeds + pods) (Phaseolus spp)	RAC	0.05	5.07	0.25	0.83	0.04	0.17	0.01	3.70	0.19	NC	-	NC	-
VP 0063	Peas green, with pods, raw (i.e. immature seeds + pods) (Pisum spp)	RAC	0.01	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VP 0064	Peas, green, without pods, raw (i.e. immature seeds only) (Pisum spp)	RAC	0.01	10.72	0.11	1.99	0.02	2.72	0.03	4.26	0.04	4.23	0.04	NC	-
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.05	1.51	0.08	1.50	0.08	1.90	0.10	5.11	0.26	1.36	0.07	23.43	1.17
VD 0072	Peas, dry, raw (Pisum spp, Vigna spp): garden peas & field peas & cow peas	RAC	0.05	3.80	0.19	1.25	0.06	1.06	0.05	2.33	0.12	2.70	0.14	3.83	0.19
VR 0577	Carrots, raw	RAC	0.0625	26.26	1.64	27.13	1.70	10.07	0.63	16.49	1.03	44.69	2.79	8.75	0.55
VS 0621	Asparagus	RAC	0.05	0.84	0.04	2.08	0.10	7.11	0.36	1.01	0.05	1.69	0.08	0.10	0.01
VS 0624	Celery	RAC	0.05	7.68	0.38	2.85	0.14	NC	-	3.34	0.17	16.83	0.84	4.04	0.20
022	TREE NUTS	-	0.05	-	-	-	-	-	-	-	-	-	-	-	-
DH 1100	Hops, dry	RAC	0.05	NC	-	NC	-	0.10	0.01	0.10	0.01	NC	-	NC	-
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) -80% as muscle	RAC	0.004	112.02	0.45	120.71	0.48	63.46	0.25	88.99	0.36	96.24	0.38	41.02	0.16
MM 0095	MEAT FROM MAMMALS other than marine	RAC	0.009	28.01	0.25	30.18	0.27	15.86	0.14	22.25	0.20	24.06	0.22	10.25	0.09

Annex 3

PENDIMETHALIN (292) International Estimated Daily Intake (IEDI) ADI = 0-0.1 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G07 diet	Intake as ug/person/day G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
	mammals, raw (incl prepared meat) - 20% as fat														
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.009	6.44	0.06	15.51	0.14	3.79	0.03	8.29	0.07	18.44	0.17	8.00	0.07
MO 0105	Edible offal (mammalian), raw	RAC	0.004	15.17	0.06	5.19	0.02	6.30	0.03	6.78	0.03	3.32	0.01	3.17	0.01
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.0009	388.92	0.35	335.88	0.30	49.15	0.04	331.25	0.30	468.56	0.42	245.45	0.22
PM 0110	Poultry meat, raw (incl prepared)	RAC	0	73.76	0.00	53.86	0.00	23.98	0.00	87.12	0.00	53.38	0.00	84.45	0.00
PF 0111	Poultry fat, raw (incl rendered)	RAC	0	0.10	0.00	0.10	0.00	NC	-	0.10	0.00	0.71	0.00	NC	-
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0	0.33	0.00	0.72	0.00	0.27	0.00	0.35	0.00	0.80	0.00	NC	-
PE 0112	Eggs, raw, (incl dried)	RAC	0	25.84	0.00	29.53	0.00	28.05	0.00	33.19	0.00	36.44	0.00	8.89	0.00
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				4.9		4.2		4.3		5.0		5.6		3.7
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (ug/person)=				6000		6000		5500		6000		6000		6000
	%ADI=				0.1%		0.1%		0.1%		0.1%		0.1%		0.1%
	Rounded %ADI=				0%		0%		0%		0%		0%		0%

PENDIMETHALIN (292) International Estimated Daily Intake (IEDI) ADI = 0-0.1 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day G13 diet	Intake = daily intake: ug/person G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
001	CITRUS FRUIT	-	0.005	-	-	-	-	-	-	-	-	-	-
VA 0380	Fennel, bulb, raw	RAC	0	NC	-	NC	-	NC	-	NC	-	NC	-
VA 0381	Garlic, raw	RAC	0	0.82	0.00	2.06	0.00	3.79	0.00	0.10	0.00	0.29	0.00
-	Onions, mature bulbs, dry	RAC	0	9.01	0.00	20.24	0.00	30.90	0.00	9.61	0.00	2.11	0.00
-	Onions, green, raw	RAC	0.095	1.43	0.14	0.10	0.01	0.20	0.02	NC	-	6.30	0.60
VL 0466	Chinese cabbage, type pak-choi, raw (i.e. Brassica)	RAC	0.05	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0467	Chinese cabbage, type pe-tsai, raw (i.e. Brassica)	RAC	0.05	0.62	0.03	0.49	0.02	NC	-	0.10	0.01	NC	-
VL 0478	Indian mustard (Amsoi) (i.e. Brassica)	RAC	0.05	NC	-	NC	-	NC	-	NC	-	NC	-

PENDIMETHALIN (292) International Estimated Daily Intake (IEDI) ADI = 0-0.1 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day G13 diet	Intake = daily intake: ug/person G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
VL 0480	Kale, raw (i.e. collards) (i.e. Brassica)	RAC	0.05	0.79	0.04	0.62	0.03	NC	-	0.10	0.01	NC	-
VL 0481	Komatsuna, raw (i.e. Brassica)	RAC	0.05	NC	-	NC	-	NC	-	NC	-	NC	-
VL 0483	Lettuce, leaf, raw	RAC	0.062	0.29	0.02	0.10	0.01	6.71	0.42	0.10	0.01	NC	-
VL 0485	Mustard greens, raw (i.e. Brassica)	RAC	0.05	0.10	0.01	0.10	0.01	NC	-	0.10	0.01	NC	-
VL 0494	Radish leaves, raw	RAC	0.05	0.44	0.02	0.32	0.02	NC	-	0.30	0.02	0.59	0.03
VL 0495	Rape greens, raw (i.e. Brassica)	RAC	0.05	0.10	0.01	0.10	0.01	NC	-	0.10	0.01	NC	-
VL 0506	Turnip greens, raw (i.e. Namenia, Tendergreen)	RAC	0.05	NC	-	NC	-	NC	-	NC	-	NC	-
-	Chinese cabbage flowering stalk, raw	RAC	0.05	NC	-	NC	-	NC	-	NC	-	NC	-
VP 0061	Beans, green, with pods, raw: beans except broad bean & soya bean (i.e. immature seeds + pods) (Phaseolus spp)	RAC	0.05	NC	-	NC	-	NC	-	NC	-	NC	-
VP 0063	Peas green, with pods, raw (i.e. immature seeds + pods) (Pisum spp)	RAC	0.01	NC	-	NC	-	NC	-	NC	-	NC	-
VP 0064	Peas, green, without pods, raw (i.e. immature seeds only) (Pisum spp)	RAC	0.01	0.21	0.00	0.10	0.00	5.51	0.06	0.10	0.00	NC	-
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.05	7.11	0.36	2.33	0.12	3.76	0.19	44.70	2.24	3.27	0.16
VD 0072	Peas, dry, raw (Pisum spp, Vigna spp): garden peas & field peas & cow peas	RAC	0.05	14.30	0.72	3.51	0.18	3.52	0.18	7.89	0.39	0.74	0.04
VR 0577	Carrots, raw	RAC	0.0625	2.07	0.13	3.00	0.19	25.29	1.58	0.10	0.01	NC	-
VS 0621	Asparagus	RAC	0.05	0.10	0.01	0.10	0.01	0.17	0.01	0.10	0.01	NC	-
VS 0624	Celery	RAC	0.05	3.66	0.18	2.65	0.13	4.84	0.24	2.47	0.12	4.94	0.25
022	TREE NUTS	-	0.05	-	-	-	-	-	-	-	-	-	-
DH 1100	Hops, dry	RAC	0.05	NC	-	NC	-	0.10	0.01	NC	-	NC	-
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) -80% as muscle	RAC	0.004	23.34	0.09	40.71	0.16	97.15	0.39	18.06	0.07	57.71	0.23
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) - 20% as fat	RAC	0.009	5.84	0.05	10.18	0.09	24.29	0.22	4.52	0.04	14.43	0.13
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.009	1.05	0.01	1.14	0.01	18.69	0.17	0.94	0.01	3.12	0.03
MO 0105	Edible offal (mammalian), raw	RAC	0.004	4.64	0.02	1.97	0.01	10.01	0.04	3.27	0.01	3.98	0.02
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.0009	108.75	0.10	70.31	0.06	436.11	0.39	61.55	0.06	79.09	0.07
PM 0110	Poultry meat, raw (incl prepared)	RAC	0	3.92	0.00	12.03	0.00	57.07	0.00	5.03	0.00	55.56	0.00
PF 0111	Poultry fat, raw (incl rendered)	RAC	0	NC	-	NC	-	0.32	0.00	NC	-	NC	-
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0	0.10	0.00	0.70	0.00	0.97	0.00	0.10	0.00	NC	-

Annex 3

PENDIMETHALIN (292) International Estimated Daily Intake (IEDI) ADI = 0-0.1 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day	Intake = daily intake: ug/person								
				G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
PE 0112	Eggs, raw, (incl dried)	RAC	0	3.84	0.00	4.41	0.00	27.25	0.00	1.13	0.00	7.39	0.00
-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				1.9		1.1		3.9		3.0		1.6
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (ug/person)=				6000		6000		6000		6000		6000
	%ADI=				0.0%		0.0%		0.1%		0.0%		0.0%
	Rounded %ADI=				0%		0%		0%		0%		0%

PINOXADEN (293) International Estimated Daily Intake (IEDI) ADI = 0-0.1 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet (Diets as g/person/day)	G01 intake	G02 diet	G02 intake (Intake as ug/person/day)	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
GC 0640	Barley, raw	RAC	0.09	2.49	0.22	NC	-	0.10	0.01	0.10	0.01	0.18	0.02	0.38	0.03
-	Barley, pot&pearled	PP	0.04	7.12	0.28	7.34	0.29	0.10	0.00	0.10	0.00	0.67	0.03	0.20	0.01
-	Barley, flour (white flour and wholemeal flour)	PP	0.04	2.93	0.12	0.30	0.01	0.10	0.00	0.10	0.00	0.48	0.02	0.10	0.00
-	Barley beer	PP	0.01	4.87	0.05	93.78	0.94	24.28	0.24	12.76	0.13	39.28	0.39	18.15	0.18
-	Barley Malt	PP	0.11	0.10	0.01	1.04	0.11	0.18	0.02	0.33	0.04	0.10	0.01	0.10	0.01
-	Barley Malt Extract	PP	0.11	0.10	0.01	0.10	0.01	0.10	0.01	0.10	0.01	0.10	0.01	0.10	0.01
GC 0654	Wheat, raw (incl bulgur, incl fermented beverages, excl germ, excl wholemeal bread, excl white flour products, excl white bread)	RAC	0.1	0.10	0.01	1.12	0.11	0.10	0.01	0.10	0.01	0.61	0.06	0.10	0.01
GC 0654	Wheat, raw (incl meslin)	RAC	0.1	0.10	0.01	1.12	0.11	NC	-	0.10	0.01	0.56	0.06	NC	-
CF 1210	Wheat, germ	PP	0.04	NC	-	NC	-	0.10	0.00	0.10	0.00	0.14	0.01	0.10	0.00
CF 0654	Wheat, bran	PP	0.44	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1212	Wheat, wholemeal flour	PP	0.11	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CP 1212	Wheat, wholemeal bread	PP	0.06	0.10	0.01	0.10	0.01	0.10	0.01	0.10	0.01	0.10	0.01	0.10	0.01
CP 1211	Wheat, white bread	PP	0.06	0.25	0.02	0.63	0.04	0.12	0.01	0.43	0.03	1.39	0.08	0.22	0.01
-	Wheat, Fermented Beverages (Korean jakju and takju)	PP	0.1	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1211	Wheat, white flour (incl white flour products: starch, gluten, macaroni, pastry)	PP	0.1	301.49	30.15	269.27	26.93	30.33	3.03	222.94	22.29	136.12	13.61	343.34	34.33
PM 0110	Poultry meat, raw (incl prepared)	RAC	0.02	14.63	0.29	29.76	0.60	8.04	0.16	129.68	2.59	25.04	0.50	35.66	0.71
PF 0111	Poultry fat, raw (incl rendered)	RAC	0.02	0.10	0.00	0.10	0.00	NC	-	0.10	0.00	0.10	0.00	0.10	0.00
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.02	0.12	0.00	0.12	0.00	0.11	0.00	5.37	0.11	0.24	0.00	0.10	0.00
PE 0112	Eggs, raw, (incl dried)	RAC	0.02	7.84	0.16	23.08	0.46	2.88	0.06	14.89	0.30	9.81	0.20	14.83	0.30
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				31.3		29.6		3.6		25.5		15.0		35.6
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (ug/person)=				6000		6000		6000		6000		6000		6000
	%ADI=				0.5%		0.5%		0.1%		0.4%		0.3%		0.6%
	Rounded %ADI=				1%		0%		0%		0%		0%		1%

PINOXADEN (293) International Estimated Daily Intake (IEDI) ADI = 0-0.1 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day	Intake as ug/person/day										
				G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
GC 0640	Barley, raw	RAC	0.09	0.10	0.01	NC	-	0.10	0.01	1.36	0.12	NC	-	NC	-
-	Barley, pot&pearled	PP	0.04	0.57	0.02	2.56	0.10	0.33	0.01	0.56	0.02	0.36	0.01	NC	-
-	Barley, flour (white flour and wholemeal flour)	PP	0.04	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.68	0.03	0.10	0.00
-	Barley beer	PP	0.01	180.21	1.80	259.46	2.59	45.91	0.46	172.36	1.72	234.42	2.34	65.30	0.65
-	Barley Malt	PP	0.11	0.19	0.02	NC	-	0.10	0.01	0.10	0.01	NC	-	2.14	0.24
-	Barley Malt Extract	PP	0.11	0.37	0.04	0.10	0.01	0.10	0.01	0.10	0.01	0.18	0.02	0.29	0.03
GC 0654	Wheat, raw (incl bulgur, incl fermented beverages, excl germ, excl wholemeal bread, excl white flour products, excl white bread)	RAC	0.1	0.37	0.04	0.10	0.01	0.10	0.01	0.10	0.01	NC	-	0.10	0.01
GC 0654	Wheat, raw (incl meslin)	RAC	0.1	NC	-	NC	-	NC	-	0.10	0.01	NC	-	NC	-
CF 1210	Wheat, germ	PP	0.04	0.97	0.04	0.10	0.00	0.10	0.00	0.10	0.00	NC	-	0.10	0.00
CF 0654	Wheat, bran	PP	0.44	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1212	Wheat, wholemeal flour	PP	0.11	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CP 1212	Wheat, wholemeal bread	PP	0.06	0.10	0.01	0.10	0.01	0.10	0.01	0.10	0.01	0.10	0.01	0.10	0.01
CP 1211	Wheat, white bread	PP	0.06	1.30	0.08	0.46	0.03	0.10	0.01	0.22	0.01	2.44	0.15	0.77	0.05
-	Wheat, Fermented Beverages (Korean jakju and takju)	PP	0.1	NC	-	NC	-	NC	-	4.36	0.44	NC	-	NC	-
CF 1211	Wheat, white flour (incl white flour products: starch, gluten, macaroni, pastry)	PP	0.1	199.38	19.94	193.50	19.35	106.30	10.63	185.31	18.53	171.11	17.11	132.37	13.24
PM 0110	Poultry meat, raw (incl prepared)	RAC	0.02	73.76	1.48	53.86	1.08	23.98	0.48	87.12	1.74	53.38	1.07	84.45	1.69
PF 0111	Poultry fat, raw (incl rendered)	RAC	0.02	0.10	0.00	0.10	0.00	NC	-	0.10	0.00	0.71	0.01	NC	-
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.02	0.33	0.01	0.72	0.01	0.27	0.01	0.35	0.01	0.80	0.02	NC	-
PE 0112	Eggs, raw, (incl dried)	RAC	0.02	25.84	0.52	29.53	0.59	28.05	0.56	33.19	0.66	36.44	0.73	8.89	0.18
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				24.0		23.8		12.2		23.3		21.5		16.1
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (ug/person)=				6000		6000		5500		6000		6000		6000
	%ADI=				0.4%		0.4%		0.2%		0.4%		0.4%		0.3%
	Rounded %ADI=				0%		0%		0%		0%		0%		0%

PINOXADEN (293) International Estimated Daily Intake (IEDI) ADI = 0-0.1 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day G13 diet	Intake = daily intake: ug/person G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
GC 0640	Barley, raw	RAC	0.09	0.10	0.01	0.10	0.01	0.16	0.01	NC	-	NC	-
-	Barley, pot&pearled	PP	0.04	5.46	0.22	0.10	0.00	1.44	0.06	0.10	0.00	NC	-
-	Barley, flour (white flour and wholemeal flour)	PP	0.04	0.10	0.00	NC	-	0.32	0.01	0.10	0.00	NC	-
-	Barley beer	PP	0.01	16.25	0.16	11.36	0.11	225.21	2.25	19.49	0.19	52.17	0.52
-	Barley Malt	PP	0.11	0.10	0.01	0.11	0.01	0.67	0.07	0.10	0.01	4.61	0.51
-	Barley Malt Extract	PP	0.11	0.10	0.01	0.10	0.01	0.10	0.01	0.10	0.01	0.10	0.01
GC 0654	Wheat, raw (incl bulgur, incl fermented beverages, excl germ, excl wholemeal bread, excl white flour products, excl white bread)	RAC	0.1	0.10	0.01	0.10	0.01	0.10	0.01	0.10	0.01	0.97	0.10
GC 0654	Wheat, raw (incl meslin)	RAC	0.1	NC	-	NC	-	NC	-	NC	-	0.97	0.10
CF 1210	Wheat, germ	PP	0.04	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	NC	-
CF 0654	Wheat, bran	PP	0.44	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1212	Wheat, wholemeal flour	PP	0.11	NC	-	NC	-	NC	-	NC	-	NC	-
CP 1212	Wheat, wholemeal bread	PP	0.06	0.10	0.01	0.10	0.01	0.10	0.01	0.10	0.01	0.10	0.01
CP 1211	Wheat, white bread	PP	0.06	0.43	0.03	0.41	0.02	1.56	0.09	0.11	0.01	0.10	0.01
-	Wheat, Fermented Beverages (Korean jakju and takju)	PP	0.1	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1211	Wheat, white flour (incl white flour products: starch, gluten, macaroni, pastry)	PP	0.1	45.21	4.52	87.37	8.74	215.61	21.56	20.42	2.04	103.67	10.37
PM 0110	Poultry meat, raw (incl prepared)	RAC	0.02	3.92	0.08	12.03	0.24	57.07	1.14	5.03	0.10	55.56	1.11
PF 0111	Poultry fat, raw (incl rendered)	RAC	0.02	NC	-	NC	-	0.32	0.01	NC	-	NC	-
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.02	0.10	0.00	0.70	0.01	0.97	0.02	0.10	0.00	NC	-
PE 0112	Eggs, raw, (incl dried)	RAC	0.02	3.84	0.08	4.41	0.09	27.25	0.55	1.13	0.02	7.39	0.15
-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				5.1		9.3		25.8		2.4		12.9
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (ug/person)=				6000		6000		6000		6000		6000
	%ADI=				0.1%		0.2%		0.4%		0.0%		0.2%
	Rounded %ADI=				0%		0%		0%		0%		0%

SAFLUFENACIL (251) International Estimated Daily Intake (IEDI) ADI = 0-0.05 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G01 diet	Intake as ug/person/day G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
FC 0001	Citrus fruit, raw (incl citrus fruit juice, incl kumquat commodities)	RAC	0	34.91	0.00	16.51	0.00	17.23	0.00	104.48	0.00	35.57	0.00	98.49	0.00
FP 0009	Pome fruits, raw (incl. apple juice, incl cider)	RAC	0	19.79	0.00	38.25	0.00	17.96	0.00	32.56	0.00	8.08	0.00	64.45	0.00
FS 0012	Stone fruits, raw (incl dried plums, incl dried apricots)	RAC	0	11.60	0.00	23.79	0.00	0.25	0.00	11.84	0.00	2.41	0.00	33.44	0.00
FB 0269	Grape, raw (incl must, incl dried, incl juice, incl wine)	RAC	0	16.25	0.00	28.96	0.00	2.87	0.00	24.22	0.00	9.33	0.00	68.64	0.00
FI 0327	Banana, raw (incl plantains) (incl dried)	RAC	0	5.06	0.00	6.91	0.00	37.17	0.00	31.16	0.00	40.21	0.00	18.96	0.00
FI 0355	Pomegranate, raw, (incl processed)	RAC	0	3.40	0.00	2.10	0.00	2.65	0.00	10.89	0.00	NC	-	6.67	0.00
VO 0447	Sweet corn on the cob, raw (incl frozen, incl canned) (i.e. kernels plus cob without husks)	RAC	0	0.14	0.00	0.94	0.00	5.70	0.00	2.61	0.00	1.94	0.00	0.22	0.00
VP 0063	Peas green, with pods, raw (i.e. immature seeds + pods) (Pisum spp)	RAC	0.01	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VP 0064	Peas, green, without pods, raw (i.e. immature seeds only) (Pisum spp)	RAC	0.01	1.97	0.02	0.51	0.01	0.10	0.00	0.79	0.01	3.68	0.04	3.80	0.04
VP 0541	Soya bean, green, without pods, raw (i.e. immature seeds only) (Glycine max)	RAC	0.01	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VD 0070	Pulses, raw (incl processed), excl soya bean commodities	RAC	0.01	12.80	0.13	4.97	0.05	13.60	0.14	13.82	0.14	28.25	0.28	23.64	0.24
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.01	2.39	0.02	1.61	0.02	10.47	0.10	1.84	0.02	12.90	0.13	7.44	0.07
VD 0072	Peas, dry, raw (Pisum spp, Vigna spp): garden peas & field peas & cow peas	RAC	0.01	1.67	0.02	3.22	0.03	2.66	0.03	1.51	0.02	2.91	0.03	0.24	0.00
VD 0541	Soya bean, dry, raw (incl paste, incl curd, incl oil, incl sauce)	RAC	0.01	72.79	0.73	59.05	0.59	20.55	0.21	74.20	0.74	61.12	0.61	73.24	0.73
VD 0541	Soya bean, dry, raw (incl flour, incl paste, incl curd, incl sauce, excl oil)	RAC	0.01	0.63	0.01	1.09	0.01	0.40	0.00	1.40	0.01	1.68	0.02	0.48	0.00
OR 0541	Soya oil, refined	PP	0.0025	12.99	0.03	10.43	0.03	3.63	0.01	13.10	0.03	10.70	0.03	13.10	0.03
GC 0080	Cereal grains, raw, (incl processed)	RAC	0	484.29	0.00	464.63	0.00	262.36	0.00	486.81	0.00	469.62	0.00	614.04	0.00
GC 0640	Barley, raw	RAC	0.33	2.49	0.82	NC	-	0.10	0.03	0.10	0.03	0.18	0.06	0.38	0.13
-	Barley, pot&pearled	PP	0.03	7.12	0.21	7.34	0.22	0.10	0.00	0.10	0.00	0.67	0.02	0.20	0.01
-	Barley, flour (white flour and wholemeal flour)	PP	0.032	2.93	0.09	0.30	0.01	0.10	0.00	0.10	0.00	0.48	0.02	0.10	0.00
-	Barley beer	PP	0.032	4.87	0.16	93.78	3.00	24.28	0.78	12.76	0.41	39.28	1.26	18.15	0.58
-	Barley Malt	PP	0.012	0.10	0.00	1.04	0.01	0.18	0.00	0.33	0.00	0.10	0.00	0.10	0.00
-	Barley Malt Extract	PP	0.012	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00
GC 0653	Triticale, raw	RAC	0.03	NC	-	NC	-	NC	-	0.10	0.00	NC	-	NC	-

Annex 3

SAFLUFENACIL (251) International Estimated Daily Intake (IEDI) ADI = 0-0.05 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day		Intake as ug/person/day									
GC 0653	Triticale, flour (white flour and wholemeal flour)	PP	0.0048	NC	-	NC	-	NC	-	NC	-	0.31	0.00	NC	-
GC 0654	Wheat, raw (incl meslin)	RAC	0.03	0.10	0.00	1.12	0.03	NC	-	0.10	0.00	0.56	0.02	NC	-
CF 1210	Wheat, germ	PP	0.033	NC	-	NC	-	0.10	0.00	0.10	0.00	0.14	0.00	0.10	0.00
CF 0654	Wheat, bran	PP	0.038	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1212	Wheat, wholemeal flour	PP	0.0048	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CP 1212	Wheat, wholemeal bread	PP	0.012	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00
CP 1211	Wheat, white bread	PP	0.012	0.25	0.00	0.63	0.01	0.12	0.00	0.43	0.01	1.39	0.02	0.22	0.00
CF 1211	Wheat, white flour	PP	0.0048	299.27	1.44	263.32	1.26	27.93	0.13	214.18	1.03	133.47	0.64	340.03	1.63
-	Wheat, starch	PP	0.0024	0.10	0.00	NC	-	0.10	0.00	0.10	0.00	0.13	0.00	0.10	0.00
-	Wheat, gluten	PP	0.014	0.10	0.00	0.10	0.00	0.10	0.00	0.27	0.00	0.10	0.00	0.10	0.00
-	Wheat, macaroni, dry	PP	0.0048	0.72	0.00	2.20	0.01	1.22	0.01	3.99	0.02	0.53	0.00	1.66	0.01
-	Wheat, pastry, baked	PP	0.012	1.21	0.01	3.13	0.04	1.05	0.01	4.02	0.05	0.60	0.01	1.40	0.02
GS 0659	Sugar cane, raw	RAC	0.01	38.16	0.38	NC	-	12.58	0.13	0.34	0.00	17.79	0.18	42.78	0.43
-	Sugar cane, molasses	PP	0.03	NC	-	NC	-	NC	-	NC	-	0.10	0.00	NC	-
-	Sugar cane, sugar (incl non-centrifugal sugar, incl refined sugar and maltose)	PP	0.005	61.52	0.31	86.27	0.43	18.80	0.09	80.02	0.40	66.39	0.33	56.32	0.28
-	Sugar crops NES, raw (incl sugar, syrup and others): sugar maple, sweet sorghum, sugar palm	RAC	0.005	1.30	0.01	2.72	0.01	0.92	0.00	3.26	0.02	0.71	0.00	0.90	0.00
TN 0085	Tree nuts, raw (incl processed)	RAC	0	4.06	0.00	3.27	0.00	7.01	0.00	13.93	0.00	14.01	0.00	9.36	0.00
SO 0495	Rape seed, raw (incl oil)	RAC	0.025	0.93	0.02	1.16	0.03	0.49	0.01	2.53	0.06	9.32	0.23	2.02	0.05
SO 0691	Cotton seed, raw (incl oil)	RAC	0.025	20.53	0.51	9.80	0.25	6.42	0.16	4.73	0.12	7.14	0.18	18.68	0.47
OR 0691	Cotton seed oil, edible	PP	0.025	3.22	0.08	1.54	0.04	1.01	0.03	0.74	0.02	1.12	0.03	2.93	0.07
SO 0697	Peanuts, nutmeat, raw (incl roasted, incl oil, incl butter)	RAC	0	1.30	0.00	1.23	0.00	12.62	0.00	2.87	0.00	6.59	0.00	2.67	0.00
SO 0702	Sunflower seed, raw	RAC	0.12	0.10	0.01	0.33	0.04	0.10	0.01	0.24	0.03	0.10	0.01	0.10	0.01
OR 0702	Sunflower seed oil, edible	PP	0.0036	2.97	0.01	14.42	0.05	0.43	0.00	3.46	0.01	2.20	0.01	5.53	0.02
SB 0716	Coffee beans raw (incl roasted, incl instant coffee, incl substitutes)	RAC	0	1.36	0.00	3.59	0.00	1.44	0.00	5.18	0.00	2.02	0.00	1.70	0.00
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat)	RAC	0.01	31.20	0.31	72.44	0.72	20.88	0.21	47.98	0.48	33.08	0.33	36.25	0.36
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.03	3.29	0.10	6.14	0.18	0.82	0.02	1.57	0.05	2.23	0.07	1.07	0.03
MO 0105	Edible offal (mammalian), raw	RAC	31	4.79	148.49	9.68	300.08	2.97	92.07	5.49	170.19	3.84	119.04	5.03	155.93
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.01	289.65	2.90	485.88	4.86	26.92	0.27	239.03	2.39	199.91	2.00	180.53	1.81
PM 0110	Poultry meat, raw (incl prepared)	RAC	0.01	14.63	0.15	29.76	0.30	8.04	0.08	129.68	1.30	25.04	0.25	35.66	0.36
PF 0111	Poultry fat, raw (incl rendered)	RAC	0.01	0.10	0.00	0.10	0.00	NC	-	0.10	0.00	0.10	0.00	0.10	0.00

Annex 3

SAFLUFENACIL (251) International Estimated Daily Intake (IEDI) ADI = 0-0.05 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day	Intake as ug/person/day										
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.01	0.12	0.00	0.12	0.00	0.11	0.00	5.37	0.05	0.24	0.00	0.10	0.00
PE 0112	Eggs, raw, (incl dried)	RAC	0.01	7.84	0.08	23.08	0.23	2.88	0.03	14.89	0.15	9.81	0.10	14.83	0.15
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				157.1		312.6		94.6		177.8		125.9		163.5
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (ug/person)=				3000		3000		3000		3000		3000		3000
	%ADI=				5.2%		10.4%		3.2%		5.9%		4.2%		5.4%
	Rounded %ADI=				5%		10%		3%		6%		4%		5%

SAFLUFENACIL (251) International Estimated Daily Intake (IEDI) ADI = 0-0.05 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day	Intake as ug/person/day										
FC 0001	Citrus fruit, raw (incl citrus fruit juice, incl kumquat commodities)	RAC	0	114.42	0.00	62.91	0.00	26.97	0.00	96.72	0.00	96.22	0.00	563.19	0.00
FP 0009	Pome fruits, raw (incl. apple juice, incl cider)	RAC	0	71.38	0.00	81.73	0.00	42.91	0.00	58.89	0.00	103.85	0.00	12.48	0.00
FS 0012	Stone fruits, raw (incl dried plums, incl dried apricots)	RAC	0	19.98	0.00	24.87	0.00	14.41	0.00	19.54	0.00	10.78	0.00	0.50	0.00
FB 0269	Grape, raw (incl must, incl dried, incl juice, incl wine)	RAC	0	142.23	0.00	105.77	0.00	7.87	0.00	52.44	0.00	109.22	0.00	10.96	0.00
FI 0327	Banana, raw (incl plantains) (incl dried)	RAC	0	25.14	0.00	23.37	0.00	23.06	0.00	23.40	0.00	18.44	0.00	39.29	0.00
FI 0355	Pomegranate, raw, (incl processed)	RAC	0	7.91	0.00	9.72	0.00	7.67	0.00	5.26	0.00	9.04	0.00	14.43	0.00
VO 0447	Sweet corn on the cob, raw (incl frozen, incl canned) (i.e. kernels plus cob without husks)	RAC	0	11.43	0.00	3.71	0.00	0.74	0.00	13.63	0.00	3.07	0.00	1.50	0.00
VP 0063	Peas green, with pods, raw (i.e. immature seeds + pods) (Pisum spp)	RAC	0.01	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VP 0064	Peas, green, without pods, raw (i.e. immature	RAC	0.01	10.72	0.11	1.99	0.02	2.72	0.03	4.26	0.04	4.23	0.04	NC	-

SAFLUFENACIL (251) International Estimated Daily Intake (IEDI) ADI = 0-0.05 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day	Intake as ug/person/day										
	seeds only) (Pisum spp)														
VP 0541	Soya bean, green, without pods, raw (i.e. immature seeds only) (Glycine max)	RAC	0.01	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VD 0070	Pulses, raw (incl processed), excl soya bean commodities	RAC	0.01	6.54	0.07	5.27	0.05	5.03	0.05	8.94	0.09	4.84	0.05	28.65	0.29
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.01	1.51	0.02	1.50	0.02	1.90	0.02	5.11	0.05	1.36	0.01	23.43	0.23
VD 0072	Peas, dry, raw (Pisum spp, Vigna spp): garden peas & field peas & cow peas	RAC	0.01	3.80	0.04	1.25	0.01	1.06	0.01	2.33	0.02	2.70	0.03	3.83	0.04
VD 0541	Soya bean, dry, raw (incl paste, incl curd, incl oil, incl sauce)	RAC	0.01	106.33	1.06	117.78	1.18	42.12	0.42	195.70	1.96	222.52	2.23	80.47	0.80
VD 0541	Soya bean, dry, raw (incl flour, incl paste, incl curd, incl sauce, excl oil)	RAC	0.01	0.47	0.00	0.77	0.01	9.12	0.09	8.05	0.08	0.10	0.00	6.06	0.06
OR 0541	Soya oil, refined	PP	0.0025	19.06	0.05	21.06	0.05	5.94	0.01	33.78	0.08	40.05	0.10	13.39	0.03
GC 0080	Cereal grains, raw, (incl processed)	RAC	0	345.63	0.00	386.16	0.00	514.33	0.00	402.72	0.00	295.30	0.00	359.97	0.00
GC 0640	Barley, raw	RAC	0.33	0.10	0.03	NC	-	0.10	0.03	1.36	0.45	NC	-	NC	-
-	Barley, pot&pearled	PP	0.03	0.57	0.02	2.56	0.08	0.33	0.01	0.56	0.02	0.36	0.01	NC	-
-	Barley, flour (white flour and wholemeal flour)	PP	0.032	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.68	0.02	0.10	0.00
-	Barley beer	PP	0.032	180.21	5.77	259.46	8.30	45.91	1.47	172.36	5.52	234.42	7.50	65.30	2.09
-	Barley Malt	PP	0.012	0.19	0.00	NC	-	0.10	0.00	0.10	0.00	NC	-	2.14	0.03
-	Barley Malt Extract	PP	0.012	0.37	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.18	0.00	0.29	0.00
GC 0653	Triticale, raw	RAC	0.03	NC	-	NC	-	0.10	0.00	0.10	0.00	NC	-	NC	-
GC 0653	Triticale, flour (white flour and wholemeal flour)	PP	0.0048	0.10	0.00	0.14	0.00	0.23	0.00	NC	-	NC	-	NC	-
GC 0654	Wheat, raw (incl meslin)	RAC	0.03	NC	-	NC	-	NC	-	0.10	0.00	NC	-	NC	-
CF 1210	Wheat, germ	PP	0.033	0.97	0.03	0.10	0.00	0.10	0.00	0.10	0.00	NC	-	0.10	0.00
CF 0654	Wheat, bran	PP	0.038	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1212	Wheat, wholemeal flour	PP	0.0048	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
CP 1212	Wheat, wholemeal bread	PP	0.012	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00
CP 1211	Wheat, white bread	PP	0.012	1.30	0.02	0.46	0.01	0.10	0.00	0.22	0.00	2.44	0.03	0.77	0.01
CF 1211	Wheat, white flour	PP	0.0048	182.77	0.88	187.54	0.90	103.82	0.50	180.42	0.87	164.00	0.79	118.84	0.57
-	Wheat, starch	PP	0.0024	NC	-	NC	-	0.10	0.00	0.31	0.00	NC	-	NC	-
-	Wheat, gluten	PP	0.014	0.68	0.01	NC	-	0.10	0.00	0.10	0.00	NC	-	NC	-
-	Wheat, macaroni, dry	PP	0.0048	6.71	0.03	4.98	0.02	2.12	0.01	1.90	0.01	2.89	0.01	4.12	0.02
-	Wheat, pastry, baked	PP	0.012	7.93	0.10	0.51	0.01	0.29	0.00	2.44	0.03	1.78	0.02	8.64	0.10

SAFLUFENACIL (251) International Estimated Daily Intake (IEDI) ADI = 0-0.05 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day		Intake as ug/person/day									
GS 0659	Sugar cane, raw	RAC	0.01	NC	-	NC	-	4.27	0.04	0.10	0.00	NC	-	3.24	0.03
-	Sugar cane, molasses	PP	0.03	NC	-	NC	-	0.10	0.00	NC	-	NC	-	NC	-
-	Sugar cane, sugar (incl non-centrifugal sugar, incl refined sugar and maltose)	PP	0.005	92.24	0.46	95.72	0.48	24.12	0.12	77.39	0.39	117.73	0.59	100.67	0.50
-	Sugar crops NES, raw (incl sugar, syrup and others): sugar maple, sweet sorghum, sugar palm	RAC	0.005	4.87	0.02	2.50	0.01	0.89	0.00	40.03	0.20	1.05	0.01	2.83	0.01
TN 0085	Tree nuts, raw (incl processed)	RAC	0	8.52	0.00	8.94	0.00	15.09	0.00	9.60	0.00	14.57	0.00	26.26	0.00
SO 0495	Rape seed, raw (incl oil)	RAC	0.025	32.68	0.82	19.91	0.50	7.83	0.20	15.69	0.39	NC	-	NC	-
SO 0691	Cotton seed, raw (incl oil)	RAC	0.025	10.71	0.27	4.23	0.11	7.19	0.18	7.54	0.19	5.66	0.14	2.38	0.06
OR 0691	Cotton seed oil, edible	PP	0.025	1.68	0.04	0.66	0.02	1.13	0.03	1.18	0.03	0.89	0.02	0.37	0.01
SO 0697	Peanuts, nutmeat, raw (incl roasted, incl oil, incl butter)	RAC	0	5.63	0.00	2.75	0.00	9.58	0.00	5.82	0.00	13.71	0.00	1.84	0.00
SO 0702	Sunflower seed, raw	RAC	0.12	0.10	0.01	1.32	0.16	0.10	0.01	1.17	0.14	NC	-	0.10	0.01
OR 0702	Sunflower seed oil, edible	PP	0.0036	9.50	0.03	11.37	0.04	0.49	0.00	5.15	0.02	2.63	0.01	2.80	0.01
SB 0716	Coffee beans raw (incl roasted, incl instant coffee, incl substitutes)	RAC	0	10.90	0.00	12.44	0.00	0.77	0.00	9.48	0.00	22.07	0.00	8.15	0.00
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat)	RAC	0.01	140.03	1.40	150.89	1.51	79.32	0.79	111.24	1.11	120.30	1.20	51.27	0.51
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.03	6.44	0.19	15.51	0.47	3.79	0.11	8.29	0.25	18.44	0.55	8.00	0.24
MO 0105	Edible offal (mammalian), raw	RAC	31	15.17	470.27	5.19	160.89	6.30	195.30	6.78	210.18	3.32	102.92	3.17	98.27
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.01	388.92	3.89	335.88	3.36	49.15	0.49	331.25	3.31	468.56	4.69	245.45	2.45
PM 0110	Poultry meat, raw (incl prepared)	RAC	0.01	73.76	0.74	53.86	0.54	23.98	0.24	87.12	0.87	53.38	0.53	84.45	0.84
PF 0111	Poultry fat, raw (incl rendered)	RAC	0.01	0.10	0.00	0.10	0.00	NC	-	0.10	0.00	0.71	0.01	NC	-
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.01	0.33	0.00	0.72	0.01	0.27	0.00	0.35	0.00	0.80	0.01	NC	-
PE 0112	Eggs, raw, (incl dried)	RAC	0.01	25.84	0.26	29.53	0.30	28.05	0.28	33.19	0.33	36.44	0.36	8.89	0.09
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				486.6		179.0		200.5		226.7		121.9		107.3
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (ug/person)=				3000		3000		2750		3000		3000		3000
	%ADI=				16.2%		6.0%		7.3%		7.6%		4.1%		3.6%
	Rounded %ADI=				20%		6%		7%		8%		4%		4%

SAFLUFENACIL (251) International Estimated Daily Intake (IEDI) ADI = 0-0.05 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day		Intake = daily intake: ug/person							
				G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
FC 0001	Citrus fruit, raw (incl citrus fruit juice, incl kumquat commodities)	RAC	0	21.16	0.00	2.94	0.00	58.52	0.00	0.44	0.00	5.13	0.00
FP 0009	Pome fruits, raw (incl. apple juice, incl cider)	RAC	0	68.89	0.00	11.06	0.00	80.62	0.00	189.82	0.00	19.56	0.00
FS 0012	Stone fruits, raw (incl dried plums, incl dried apricots)	RAC	0	0.10	0.00	0.10	0.00	33.36	0.00	0.10	0.00	NC	-
FB 0269	Grape, raw (incl must, incl dried, incl juice, incl wine)	RAC	0	0.60	0.00	1.26	0.00	103.25	0.00	0.74	0.00	44.23	0.00
FI 0327	Banana, raw (incl plantains) (incl dried)	RAC	0	20.88	0.00	81.15	0.00	24.58	0.00	37.92	0.00	310.23	0.00
FI 0355	Pomegranate, raw, (incl processed)	RAC	0	5.49	0.00	27.17	0.00	NC	-	2.89	0.00	17.87	0.00
VO 0447	Sweet corn on the cob, raw (incl frozen, incl canned) (i.e. kernels plus cob without husks)	RAC	0	3.63	0.00	20.50	0.00	8.78	0.00	0.10	0.00	0.17	0.00
VP 0063	Peas green, with pods, raw (i.e. immature seeds + pods) (Pisum spp)	RAC	0.01	NC	-	NC	-	NC	-	NC	-	NC	-
VP 0064	Peas, green, without pods, raw (i.e. immature seeds only) (Pisum spp)	RAC	0.01	0.21	0.00	0.10	0.00	5.51	0.06	0.10	0.00	NC	-
VP 0541	Soya bean, green, without pods, raw (i.e. immature seeds only) (Glycine max)	RAC	0.01	NC	-	NC	-	NC	-	NC	-	NC	-
VD 0070	Pulses, raw (incl processed), excl soya bean commodities	RAC	0.01	28.22	0.28	14.71	0.15	8.15	0.08	58.39	0.58	4.48	0.04
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.01	7.11	0.07	2.33	0.02	3.76	0.04	44.70	0.45	3.27	0.03
VD 0072	Peas, dry, raw (Pisum spp, Vigna spp): garden peas & field peas & cow peas	RAC	0.01	14.30	0.14	3.51	0.04	3.52	0.04	7.89	0.08	0.74	0.01
VD 0541	Soya bean, dry, raw (incl paste, incl curd, incl oil, incl sauce)	RAC	0.01	15.80	0.16	14.29	0.14	104.36	1.04	17.11	0.17	35.20	0.35
VD 0541	Soya bean, dry, raw (incl flour, incl paste, incl curd, incl sauce, excl oil)	RAC	0.01	2.89	0.03	0.21	0.00	0.48	0.00	3.16	0.03	0.26	0.00
OR 0541	Soya oil, refined	PP	0.0025	2.32	0.01	2.54	0.01	18.70	0.05	2.51	0.01	6.29	0.02
GC 0080	Cereal grains, raw, (incl processed)	RAC	0	407.04	0.00	417.04	0.00	402.79	0.00	195.30	0.00	263.26	0.00
GC 0640	Barley, raw	RAC	0.33	0.10	0.03	0.10	0.03	0.16	0.05	NC	-	NC	-
-	Barley, pot&pearled	PP	0.03	5.46	0.16	0.10	0.00	1.44	0.04	0.10	0.00	NC	-
-	Barley, flour (white flour and wholemeal flour)	PP	0.032	0.10	0.00	NC	-	0.32	0.01	0.10	0.00	NC	-
-	Barley beer	PP	0.032	16.25	0.52	11.36	0.36	225.21	7.21	19.49	0.62	52.17	1.67
-	Barley Malt	PP	0.012	0.10	0.00	0.11	0.00	0.67	0.01	0.10	0.00	4.61	0.06
-	Barley Malt Extract	PP	0.012	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00

SAFLUFENACIL (251) International Estimated Daily Intake (IEDI) ADI = 0-0.05 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day G13 diet	G13 intake	G14 diet	Intake = daily intake: ug/person G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
GC 0653	Triticale, raw	RAC	0.03	0.10	0.00	NC	-	NC	-	NC	-	NC	-
GC 0653	Triticale, flour (white flour and wholemeal flour)	PP	0.0048	NC	-	NC	-	NC	-	NC	-	NC	-
GC 0654	Wheat, raw (incl meslin)	RAC	0.03	NC	-	NC	-	NC	-	NC	-	0.97	0.03
CF 1210	Wheat, germ	PP	0.033	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	NC	-
CF 0654	Wheat, bran	PP	0.038	NC	-	NC	-	NC	-	NC	-	NC	-
CF 1212	Wheat, wholemeal flour	PP	0.0048	NC	-	NC	-	NC	-	NC	-	NC	-
CP 1212	Wheat, wholemeal bread	PP	0.012	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00
CP 1211	Wheat, white bread	PP	0.012	0.43	0.01	0.41	0.00	1.56	0.02	0.11	0.00	0.10	0.00
CF 1211	Wheat, white flour	PP	0.0048	43.75	0.21	85.81	0.41	206.68	0.99	19.38	0.09	92.92	0.45
-	Wheat, starch	PP	0.0024	0.10	0.00	0.10	0.00	NC	-	NC	-	NC	-
-	Wheat, gluten	PP	0.014	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.19	0.00
-	Wheat, macaroni, dry	PP	0.0048	0.52	0.00	0.63	0.00	2.99	0.01	0.26	0.00	5.18	0.02
-	Wheat, pastry, baked	PP	0.012	0.51	0.01	0.51	0.01	4.36	0.05	0.67	0.01	5.32	0.06
GS 0659	Sugar cane, raw	RAC	0.01	5.62	0.06	50.91	0.51	NC	-	11.04	0.11	0.10	0.00
-	Sugar cane, molasses	PP	0.03	NC	-	NC	-	NC	-	NC	-	NC	-
-	Sugar cane, sugar (incl non-centrifugal sugar, incl refined sugar and maltose)	PP	0.005	28.13	0.14	55.38	0.28	78.09	0.39	18.04	0.09	45.60	0.23
-	Sugar crops NES, raw (incl sugar, syrup and others): sugar maple, sweet sorghum, sugar palm	RAC	0.005	0.49	0.00	0.63	0.00	4.52	0.02	0.40	0.00	5.87	0.03
TN 0085	Tree nuts, raw (incl processed)	RAC	0	4.39	0.00	135.53	0.00	6.11	0.00	0.72	0.00	317.74	0.00
SO 0495	Rape seed, raw (incl oil)	RAC	0.025	0.19	0.00	0.10	0.00	12.07	0.30	0.10	0.00	NC	-
SO 0691	Cotton seed, raw (incl oil)	RAC	0.025	8.14	0.20	0.32	0.01	2.84	0.07	2.69	0.07	0.97	0.02
OR 0691	Cotton seed oil, edible	PP	0.025	1.28	0.03	0.10	0.00	0.45	0.01	0.42	0.01	0.15	0.00
SO 0697	Peanuts, nutmeat, raw (incl roasted, incl oil, incl butter)	RAC	0	18.82	0.00	0.57	0.00	2.28	0.00	6.90	0.00	0.53	0.00
SO 0702	Sunflower seed, raw	RAC	0.12	0.10	0.01	0.10	0.01	0.10	0.01	2.23	0.27	NC	-
OR 0702	Sunflower seed oil, edible	PP	0.0036	0.37	0.00	0.10	0.00	12.98	0.05	4.01	0.01	0.20	0.00
SB 0716	Coffee beans raw (incl roasted, incl instant coffee, incl substitutes)	RAC	0	0.95	0.00	1.32	0.00	11.64	0.00	2.96	0.00	14.73	0.00
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat)	RAC	0.01	29.18	0.29	50.89	0.51	121.44	1.21	22.58	0.23	72.14	0.72
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.03	1.05	0.03	1.14	0.03	18.69	0.56	0.94	0.03	3.12	0.09
MO 0105	Edible offal (mammalian), raw	RAC	31	4.64	143.84	1.97	61.07	10.01	310.31	3.27	101.37	3.98	123.38

SAFLUFENACIL (251) International Estimated Daily Intake (IEDI) ADI = 0-0.05 mg/kg bw

			STMR	Diets: g/person/day			Intake = daily intake: ug/person						
Codex Code	Commodity description	Expr as	mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.01	108.75	1.09	70.31	0.70	436.11	4.36	61.55	0.62	79.09	0.79
PM 0110	Poultry meat, raw (incl prepared)	RAC	0.01	3.92	0.04	12.03	0.12	57.07	0.57	5.03	0.05	55.56	0.56
PF 0111	Poultry fat, raw (incl rendered)	RAC	0.01	NC	-	NC	-	0.32	0.00	NC	-	NC	-
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.01	0.10	0.00	0.70	0.01	0.97	0.01	0.10	0.00	NC	-
PE 0112	Eggs, raw, (incl dried)	RAC	0.01	3.84	0.04	4.41	0.04	27.25	0.27	1.13	0.01	7.39	0.07
-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				147.4		64.5		327.9		104.9		128.7
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (ug/person)=				3000		3000		3000		3000		3000
	%ADI=				4.9%		2.1%		10.9%		3.5%		4.3%
	Rounded %ADI=				5%		2%		10%		3%		4%

SPIROMESIFEN (294) International Estimated Daily Intake (IEDI) ADI = 0-0.03 mg/kg bw

			STMR	Diets as g/person/day	Intake as ug/person/day										
Codex Code	Commodity description	Expr as	mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
FB 2009	Low growing berries, raw (i.e. cranberry and strawberry)	RAC	0.52	0.71	0.37	2.02	1.05	0.10	0.05	1.39	0.72	0.37	0.19	2.53	1.32
VB 0040	Brassica vegetables, raw: head cabbages, flowerhead brassicas, Brussels sprouts & kohlrabi	RAC	0.21	6.41	1.35	35.79	7.52	0.71	0.15	9.81	2.06	12.07	2.53	16.58	3.48
VC 0046	Melons, raw (excl watermelons)	RAC	0.075	8.90	0.67	8.64	0.65	0.80	0.06	17.90	1.34	2.80	0.21	29.17	2.19
VC 0421	Balsam pear (Bitter cucumber, Bitter gourd, Bitter melon)	RAC	0.021	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VC 0422	Bottle gourd (Cucuzzi)	RAC	0.021	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VC 0423	Chayote (Christophine)	RAC	0.021	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VC 0424	Cucumber, raw	RAC	0.05	8.01	0.40	30.66	1.53	1.45	0.07	19.84	0.99	0.27	0.01	34.92	1.75
VC 0425	Gherkin, raw	RAC	0.05	1.73	0.09	6.64	0.33	0.31	0.02	4.29	0.21	0.29	0.01	7.56	0.38
VC 0427	Loofah, Angled (Sinkwa, Sinkwa towel gourd), raw	RAC	0.021	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VC 0428	Loofah, Smooth, raw	RAC	0.021	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VC 0430	Snake gourd	RAC	0.021	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VC 0431	Squash, summer, raw (= courgette, zuchini)	RAC	0.021	0.78	0.02	2.06	0.04	0.30	0.01	1.61	0.03	2.25	0.05	2.36	0.05
VC 0432	Watermelon, raw	RAC	0.021	28.96	0.61	25.65	0.54	1.56	0.03	39.26	0.82	4.94	0.10	66.90	1.40
VC 0433	Winter squash, raw (= pumpkin)	RAC	0.021	4.76	0.10	12.56	0.26	1.85	0.04	9.86	0.21	5.11	0.11	14.39	0.30
VO 0440	Egg plants, raw (= aubergines)	RAC	0.165	5.58	0.92	4.31	0.71	0.89	0.15	9.31	1.54	13.64	2.25	20.12	3.32
VO 0442	Okra, raw	RAC	0.097	1.97	0.19	NC	-	3.68	0.36	3.24	0.31	5.72	0.55	1.57	0.15
VO 0443	Pepino (Melon pear, Tree melon)	RAC	0.097	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VO 0444	Peppers, chili, raw	RAC	0.097	3.99	0.39	7.30	0.71	2.93	0.28	5.62	0.55	NC	-	17.44	1.69
-	Peppers, chili, dried	PP	0.55	0.42	0.23	0.53	0.29	0.84	0.46	0.50	0.28	0.95	0.52	0.37	0.20
VO 0445	Peppers, sweet, raw (incl dried)	RAC	0.097	4.49	0.44	6.44	0.62	7.21	0.70	5.68	0.55	9.52	0.92	8.92	0.87
VO 0445	Peppers, sweet, raw	RAC	0.097	1.43	0.14	2.61	0.25	1.05	0.10	2.01	0.19	2.59	0.25	6.24	0.61
VO 0447	Sweet corn on the cob, raw (incl frozen, incl canned) (i.e. kernels plus cob without husks)	RAC	0	0.14	0.00	0.94	0.00	5.70	0.00	2.61	0.00	1.94	0.00	0.22	0.00
VO 0448	Tomato, raw (incl juice, incl canned, excl paste)	RAC	0.165	42.41	7.00	76.50	12.62	10.69	1.76	85.07	14.04	24.98	4.12	203.44	33.57
-	Tomato, paste (i.e. concentrated tomato	PP	0.43	2.34	1.01	1.33	0.57	1.57	0.68	4.24	1.82	0.34	0.15	2.83	1.22

SPIROMESIFEN (294) International Estimated Daily Intake (IEDI) ADI = 0-0.03 mg/kg bw

			STMR	Diets as g/person/day		Intake as ug/person/day									
Codex Code	Commodity description	Expr as	mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
	sauce/puree)														
VL 0053	Leafy vegetables, raw	RAC	2.06	8.47	17.45	22.36	46.06	7.74	15.94	25.51	52.55	45.77	94.29	21.22	43.71
VL 0054	Brassica leafy vegetables, raw	RAC	2.06	1.07	2.20	10.95	22.56	0.22	0.45	1.75	3.61	5.72	11.78	4.02	8.28
VP 0061	Beans, green, with pods, raw: beans except broad bean & soya bean (i.e. immature seeds + pods) (Phaseolus spp)	RAC	0.085	0.68	0.06	NC	-	NC	-	0.39	0.03	0.22	0.02	0.49	0.04
VR 0463	Cassava raw (incl starch, incl tapioca, incl flour)	RAC	0.01	0.10	0.00	0.10	0.00	482.56	4.83	0.99	0.01	25.75	0.26	3.29	0.03
VR 0508	Sweet potato, raw (incl dried)	RAC	0.01	0.18	0.00	0.18	0.00	42.16	0.42	1.61	0.02	3.06	0.03	6.67	0.07
VR 0589	Potato, raw (incl flour, incl frozen, incl starch, incl tapioca)	RAC	0.01	59.74	0.60	316.14	3.16	9.78	0.10	60.26	0.60	54.12	0.54	119.82	1.20
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl oil, incl beer, incl germ, incl starch)	RAC	0	29.81	0.00	44.77	0.00	108.95	0.00	52.37	0.00	60.28	0.00	75.69	0.00
GC 0656	Popcorn (i.e. maize used for preparation of popcorn)	RAC	0	-	-	-	-	-	-	-	-	-	-	-	-
SO 0691	Cotton seed, raw (incl oil)	RAC	0.11	20.53	2.26	9.80	1.08	6.42	0.71	4.73	0.52	7.14	0.79	18.68	2.05
SB 0716	Coffee beans raw (incl roasted, incl instant coffee, incl substitutes)	RAC	0.02	1.36	0.03	3.59	0.07	1.44	0.03	5.18	0.10	2.02	0.04	1.70	0.03
-	Teas and herbal teas, dried (incl concentrates)	RAC	12	2.39	28.68	1.99	23.88	1.47	17.64	2.46	29.52	2.31	27.72	3.06	36.72
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) -80% as muscle	RAC	0.01	24.96	0.25	57.95	0.58	16.70	0.17	38.38	0.38	26.46	0.26	29.00	0.29
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) - 20% as fat	RAC	0.017	6.24	0.11	14.49	0.25	4.18	0.07	9.60	0.16	6.62	0.11	7.25	0.12
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.017	3.29	0.06	6.14	0.10	0.82	0.01	1.57	0.03	2.23	0.04	1.07	0.02
MO 0105	Edible offal (mammalian), raw	RAC	0.055	4.79	0.26	9.68	0.53	2.97	0.16	5.49	0.30	3.84	0.21	5.03	0.28
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.0021	289.65	0.61	485.88	1.02	26.92	0.06	239.03	0.50	199.91	0.42	180.53	0.38
PM 0110	Poultry meat, raw (incl prepared)	RAC	0.01	14.63	0.15	29.76	0.30	8.04	0.08	129.68	1.30	25.04	0.25	35.66	0.36
PF 0111	Poultry fat, raw (incl rendered)	RAC	0.01	0.10	0.00	0.10	0.00	NC	-	0.10	0.00	0.10	0.00	0.10	0.00
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.05	0.12	0.01	0.12	0.01	0.11	0.01	5.37	0.27	0.24	0.01	0.10	0.01
PE 0112	Eggs, raw, (incl dried)	RAC	0.01	7.84	0.08	23.08	0.23	2.88	0.03	14.89	0.15	9.81	0.10	14.83	0.15
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	SPIROMESIFEN (294)		International Estimated Daily Intake (IEDI)					ADI = 0-0.03 mg/kg bw						
			STMR	Diets as g/person/day		Intake as ug/person/day								
Codex Code	Commodity description	Expr as	mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
	Total intake (ug/person)=				66.7		127.5		45.6		115.7		148.9		146.2
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (ug/person)=				1800		1800		1800		1800		1800		1800
	%ADI=				3.7%		7.1%		2.5%		6.4%		8.3%		8.1%
	Rounded %ADI=				4%		7%		3%		6%		8%		8%

SPIROMESIFEN (294) International Estimated Daily Intake (IEDI) ADI = 0-0.03 mg/kg bw

			STMR	Diets as g/person/day		Intake as ug/person/day									
Codex Code	Commodity description	Expr as	mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
FB 2009	Low growing berries, raw (i.e. cranberry and strawberry)	RAC	0.52	4.55	2.37	5.66	2.94	0.10	0.05	7.85	4.08	5.86	3.05	0.10	0.05
VB 0040	Brassica vegetables, raw: head cabbages, flowerhead brassicas, Brussels sprouts & kohlrabi	RAC	0.21	20.71	4.35	39.81	8.36	16.70	3.51	28.49	5.98	18.12	3.81	15.03	3.16
VC 0046	Melons, raw (excl watermelons)	RAC	0.075	9.20	0.69	11.95	0.90	14.63	1.10	8.99	0.67	7.86	0.59	2.46	0.18
VC 0421	Balsam pear (Bitter cucumber, Bitter gourd, Bitter melon)	RAC	0.021	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VC 0422	Bottle gourd (Cucuzzi)	RAC	0.021	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VC 0423	Chayote (Christophine)	RAC	0.021	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VC 0424	Cucumber, raw	RAC	0.05	6.72	0.34	11.03	0.55	32.10	1.61	15.10	0.76	4.05	0.20	9.57	0.48
VC 0425	Gherkin, raw	RAC	0.05	0.41	0.02	5.89	0.29	NC	-	0.10	0.01	0.37	0.02	2.07	0.10
VC 0427	Loofah, Angled (Sinkwa, Sinkwa towel gourd), raw	RAC	0.021	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VC 0428	Loofah, Smooth, raw	RAC	0.021	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VC 0430	Snake gourd	RAC	0.021	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VC 0431	Squash, summer, raw (= courgette, zuchini)	RAC	0.021	NC	-	NC	-	5.48	0.12	NC	-	NC	-	1.03	0.02
VC 0432	Watermelon, raw	RAC	0.021	4.60	0.10	9.82	0.21	68.50	1.44	13.19	0.28	1.99	0.04	14.56	0.31

SPIROMESIFEN (294) International Estimated Daily Intake (IEDI) ADI = 0-0.03 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day		Intake as ug/person/day									
VC 0433	Winter squash, raw (= pumpkin)	RAC	0.021	6.88	0.14	3.23	0.07	2.59	0.05	12.12	0.25	1.68	0.04	6.30	0.13
VO 0440	Egg plants, raw (= aubergines)	RAC	0.165	1.01	0.17	1.69	0.28	21.37	3.53	3.00	0.50	1.40	0.23	NC	-
VO 0442	Okra, raw	RAC	0.097	NC	-	NC	-	0.10	0.01	0.17	0.02	NC	-	0.72	0.07
VO 0443	Pepino (Melon pear, Tree melon)	RAC	0.097	NC	-	NC	-	NC	-	NC	-	NC	-	NC	-
VO 0444	Peppers, chili, raw	RAC	0.097	5.57	0.54	14.00	1.36	8.25	0.80	5.77	0.56	6.44	0.62	2.53	0.25
-	Peppers, chili, dried	PP	0.55	0.11	0.06	0.21	0.12	0.36	0.20	0.21	0.12	0.25	0.14	0.15	0.08
VO 0445	Peppers, sweet, raw (incl dried)	RAC	0.097	0.82	0.08	1.53	0.15	10.85	1.05	4.59	0.45	1.84	0.18	2.00	0.19
VO 0445	Peppers, sweet, raw	RAC	0.097	NC	-	NC	-	8.25	0.80	3.03	0.29	NC	-	0.91	0.09
VO 0447	Sweet corn on the cob, raw (incl frozen, incl canned) (i.e. kernels plus cob without husks)	RAC	0	11.43	0.00	3.71	0.00	0.74	0.00	13.63	0.00	3.07	0.00	1.50	0.00
VO 0448	Tomato, raw (incl juice, incl canned, excl paste)	RAC	0.165	44.88	7.41	55.49	9.16	35.44	5.85	75.65	12.48	27.00	4.46	9.61	1.59
-	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.43	4.96	2.13	3.20	1.38	0.15	0.06	1.61	0.69	6.88	2.96	0.52	0.22
VL 0053	Leafy vegetables, raw	RAC	2.06	18.83	38.79	21.85	45.01	121.23	249.73	43.09	88.77	18.18	37.45	18.32	37.74
VL 0054	Brassica leafy vegetables, raw	RAC	2.06	NC	-	NC	-	33.86	69.75	9.44	19.45	NC	-	4.40	9.06
VP 0061	Beans, green, with pods, raw: beans except broad bean & soya bean (i.e. immature seeds + pods) (Phaseolus spp)	RAC	0.085	5.07	0.43	0.83	0.07	0.17	0.01	3.70	0.31	NC	-	NC	-
VR 0463	Cassava raw (incl starch, incl tapioca, incl flour)	RAC	0.01	0.10	0.00	NC	-	20.96	0.21	0.14	0.00	NC	-	9.62	0.10
VR 0508	Sweet potato, raw (incl dried)	RAC	0.01	0.93	0.01	0.32	0.00	64.65	0.65	5.37	0.05	0.30	0.00	3.13	0.03
VR 0589	Potato, raw (incl flour, incl frozen, incl starch, incl tapioca)	RAC	0.01	225.03	2.25	234.24	2.34	71.48	0.71	177.55	1.78	234.55	2.35	37.71	0.38
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl oil, incl beer, incl germ, incl starch)	RAC	0	18.51	0.00	26.18	0.00	26.04	0.00	39.99	0.00	7.36	0.00	64.58	0.00
GC 0656	Popcorn (i.e. maize used for preparation of popcorn)	RAC	0	-	-	-	-	-	-	-	-	-	-	-	-
SO 0691	Cotton seed, raw (incl oil)	RAC	0.11	10.71	1.18	4.23	0.47	7.19	0.79	7.54	0.83	5.66	0.62	2.38	0.26
SB 0716	Coffee beans raw (incl roasted, incl instant coffee, incl substitutes)	RAC	0.02	10.90	0.22	12.44	0.25	0.77	0.02	9.48	0.19	22.07	0.44	8.15	0.16
-	Teas and herbal teas, dried (incl concentrates)	RAC	12	3.37	40.44	1.75	21.00	1.12	13.44	1.86	22.32	2.30	27.60	0.75	9.00
MM 0095	MEAT FROM MAMMALS other than marine	RAC	0.01	112.02	1.12	120.71	1.21	63.46	0.63	88.99	0.89	96.24	0.96	41.02	0.41

SPIROMESIFEN (294) International Estimated Daily Intake (IEDI) ADI = 0-0.03 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day			Intake as ug/person/day								
	mammals, raw (incl prepared meat) -80% as muscle														
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) - 20% as fat	RAC	0.017	28.01	0.48	30.18	0.51	15.86	0.27	22.25	0.38	24.06	0.41	10.25	0.17
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.017	6.44	0.11	15.51	0.26	3.79	0.06	8.29	0.14	18.44	0.31	8.00	0.14
MO 0105	Edible offal (mammalian), raw	RAC	0.055	15.17	0.83	5.19	0.29	6.30	0.35	6.78	0.37	3.32	0.18	3.17	0.17
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.0021	388.92	0.82	335.88	0.71	49.15	0.10	331.25	0.70	468.56	0.98	245.45	0.52
PM 0110	Poultry meat, raw (incl prepared)	RAC	0.01	73.76	0.74	53.86	0.54	23.98	0.24	87.12	0.87	53.38	0.53	84.45	0.84
PF 0111	Poultry fat, raw (incl rendered)	RAC	0.01	0.10	0.00	0.10	0.00	NC	-	0.10	0.00	0.71	0.01	NC	-
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.05	0.33	0.02	0.72	0.04	0.27	0.01	0.35	0.02	0.80	0.04	NC	-
PE 0112	Eggs, raw, (incl dried)	RAC	0.01	25.84	0.26	29.53	0.30	28.05	0.28	33.19	0.33	36.44	0.36	8.89	0.09
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				106.1		98.7		357.4		164.5		88.6		66.0
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (ug/person)=				1800		1800		1650		1800		1800		1800
	%ADI=				5.9%		5.5%		21.7%		9.1%		4.9%		3.7%
	Rounded %ADI=				6%		5%		20%		9%		5%		4%

SPIROMESIFEN (294) International Estimated Daily Intake (IEDI) ADI = 0-0.03 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
				Diets: g/person/day			Intake = daily intake: ug/person						
FB 2009	Low growing berries, raw (i.e. cranberry and strawberry)	RAC	0.52	0.10	0.05	0.10	0.05	3.37	1.75	0.10	0.05	0.10	0.05
VB 0040	Brassica vegetables, raw: head cabbages, flowerhead brassicas, Brussels sprouts & kohlrabi	RAC	0.21	4.84	1.02	3.79	0.80	58.72	12.33	0.10	0.02	NC	-

SPIROMESIFEN (294) International Estimated Daily Intake (IEDI) ADI = 0-0.03 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day G13 diet	Intake = daily intake: ug/person G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
VC 0046	Melons, raw (excl watermelons)	RAC	0.075	0.19	0.01	0.10	0.01	4.98	0.37	0.10	0.01	NC	-
VC 0421	Balsam pear (Bitter cucumber, Bitter gourd, Bitter melon)	RAC	0.021	NC	-	NC	-	NC	-	NC	-	NC	-
VC 0422	Bottle gourd (Cucuzzi)	RAC	0.021	NC	-	NC	-	NC	-	NC	-	NC	-
VC 0423	Chayote (Christophine)	RAC	0.021	NC	-	NC	-	NC	-	NC	-	NC	-
VC 0424	Cucumber, raw	RAC	0.05	0.68	0.03	1.81	0.09	10.40	0.52	0.10	0.01	0.10	0.01
VC 0425	Gherkin, raw	RAC	0.05	0.15	0.01	0.39	0.02	3.15	0.16	0.10	0.01	0.10	0.01
VC 0427	Loofah, Angled (Sinkwa, Sinkwa towel gourd), raw	RAC	0.021	NC	-	NC	-	NC	-	NC	-	NC	-
VC 0428	Loofah, Smooth, raw	RAC	0.021	NC	-	NC	-	NC	-	NC	-	NC	-
VC 0430	Snake gourd	RAC	0.021	NC	-	NC	-	NC	-	NC	-	NC	-
VC 0431	Squash, summer, raw (= courgette, zuchini)	RAC	0.021	0.10	0.00	1.01	0.02	NC	-	1.91	0.04	NC	-
VC 0432	Watermelon, raw	RAC	0.021	4.29	0.09	0.30	0.01	28.70	0.60	0.10	0.00	NC	-
VC 0433	Winter squash, raw (= pumpkin)	RAC	0.021	0.56	0.01	6.14	0.13	4.59	0.10	11.70	0.25	NC	-
VO 0440	Egg plants, raw (= aubergines)	RAC	0.165	1.31	0.22	8.26	1.36	3.95	0.65	0.10	0.02	NC	-
VO 0442	Okra, raw	RAC	0.097	6.23	0.60	0.10	0.01	NC	-	NC	-	NC	-
VO 0443	Pepino (Melon pear, Tree melon)	RAC	0.097	NC	-	NC	-	NC	-	NC	-	NC	-
VO 0444	Peppers, chili, raw	RAC	0.097	3.47	0.34	3.56	0.35	16.30	1.58	0.10	0.01	NC	-
-	Peppers, chili, dried	PP	0.55	0.58	0.32	1.27	0.70	1.21	0.67	0.12	0.07	NC	-
VO 0445	Peppers, sweet, raw (incl dried)	RAC	0.097	5.49	0.53	10.57	1.03	8.84	0.86	0.91	0.09	NC	-
VO 0445	Peppers, sweet, raw	RAC	0.097	1.24	0.12	1.27	0.12	NC	-	0.10	0.01	NC	-
VO 0447	Sweet corn on the cob, raw (incl frozen, incl canned) (i.e. kernels plus cob without husks)	RAC	0	3.63	0.00	20.50	0.00	8.78	0.00	0.10	0.00	0.17	0.00
VO 0448	Tomato, raw (incl juice, incl canned, excl paste)	RAC	0.165	13.17	2.17	4.92	0.81	62.69	10.34	1.04	0.17	0.11	0.02
-	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.43	0.58	0.25	0.22	0.09	2.21	0.95	0.24	0.10	3.10	1.33
VL 0053	Leafy vegetables, raw	RAC	2.06	12.42	25.59	8.75	18.03	7.53	15.51	7.07	14.56	14.11	29.07
VL 0054	Brassica leafy vegetables, raw	RAC	2.06	1.50	3.09	1.17	2.41	NC	-	0.10	0.21	NC	-
VP 0061	Beans, green, with pods, raw: beans except broad bean & soya bean (i.e. immature seeds + pods) (Phaseolus spp)	RAC	0.085	NC	-	NC	-	NC	-	NC	-	NC	-
VR 0463	Cassava raw (incl starch, incl tapioca, incl flour)	RAC	0.01	91.92	0.92	34.12	0.34	NC	-	259.92	2.60	45.48	0.45
VR 0508	Sweet potato, raw (incl dried)	RAC	0.01	28.83	0.29	61.55	0.62	0.15	0.00	221.94	2.22	NC	-
VR 0589	Potato, raw (incl flour, incl frozen, incl starch, incl tapioca)	RAC	0.01	23.96	0.24	13.56	0.14	213.41	2.13	104.35	1.04	8.56	0.09

SPIROMESIFEN (294) International Estimated Daily Intake (IEDI) ADI = 0-0.03 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
				Diets: g/person/day			Intake = daily intake: ug/person						
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl flour, incl oil, incl beer, incl germ, incl starch)	RAC	0	116.66	0.00	10.52	0.00	38.46	0.00	76.60	0.00	34.44	0.00
GC 0656	Popcorn (i.e. maize used for preparation of popcorn)	RAC	0	-	-	-	-	-	-	-	-	-	-
SO 0691	Cotton seed, raw (incl oil)	RAC	0.11	8.14	0.90	0.32	0.04	2.84	0.31	2.69	0.30	0.97	0.11
SB 0716	Coffee beans raw (incl roasted, incl instant coffee, incl substitutes)	RAC	0.02	0.95	0.02	1.32	0.03	11.64	0.23	2.96	0.06	14.73	0.29
-	Teas and herbal teas, dried (incl concentrates)	RAC	12	1.62	19.44	5.25	63.00	0.87	10.44	0.56	6.72	0.88	10.56
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) -80% as muscle	RAC	0.01	23.34	0.23	40.71	0.41	97.15	0.97	18.06	0.18	57.71	0.58
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) - 20% as fat	RAC	0.017	5.84	0.10	10.18	0.17	24.29	0.41	4.52	0.08	14.43	0.25
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.017	1.05	0.02	1.14	0.02	18.69	0.32	0.94	0.02	3.12	0.05
MO 0105	Edible offal (mammalian), raw	RAC	0.055	4.64	0.26	1.97	0.11	10.01	0.55	3.27	0.18	3.98	0.22
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.0021	108.75	0.23	70.31	0.15	436.11	0.92	61.55	0.13	79.09	0.17
PM 0110	Poultry meat, raw (incl prepared)	RAC	0.01	3.92	0.04	12.03	0.12	57.07	0.57	5.03	0.05	55.56	0.56
PF 0111	Poultry fat, raw (incl rendered)	RAC	0.01	NC	-	NC	-	0.32	0.00	NC	-	NC	-
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.05	0.10	0.01	0.70	0.04	0.97	0.05	0.10	0.01	NC	-
PE 0112	Eggs, raw, (incl dried)	RAC	0.01	3.84	0.04	4.41	0.04	27.25	0.27	1.13	0.01	7.39	0.07
-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				57.2		91.2		63.6		29.2		43.9
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (ug/person)=				1800		1800		1800		1800		1800
	%ADI=				3.2%		5.1%		3.5%		1.6%		2.4%
	Rounded %ADI=				3%		5%		4%		2%		2%

Annex 3

TOLFENPYRAD (269) International Estimated Daily Intake (IEDI) ADI = 0-0.006 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day			Intake as ug/person/day								
VR 0589	Potato, raw (incl flour, incl frozen, incl starch, incl tapioca)	RAC	0	59.74	0.00	316.14	0.00	9.78	0.00	60.26	0.00	54.12	0.00	119.82	0.00
TN 0672	Pecan nuts, nutmeat	RAC	0.01	0.10	0.00	0.10	0.00	0.10	0.00	0.14	0.00	0.10	0.00	0.13	0.00
DT 1114	Tea, green or black, fermented and dried, (including concentrates)	RAC	5.65	2.28	12.88	1.98	11.19	0.46	2.60	2.43	13.73	1.29	7.29	3.04	17.18
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				12.9		11.2		2.6		13.7		7.3		17.2
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (ug/person)=				360		360		360		360		360		360
	%ADI=				3.6%		3.1%		0.7%		3.8%		2.0%		4.8%
	Rounded %ADI=				4%		3%		1%		4%		2%		5%

TOLFENPYRAD (269) International Estimated Daily Intake (IEDI) ADI = 0-0.006 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day			Intake as ug/person/day								
VR 0589	Potato, raw (incl flour, incl frozen, incl starch, incl tapioca)	RAC	0	225.03	0.00	234.24	0.00	71.48	0.00	177.55	0.00	234.55	0.00	37.71	0.00
TN 0672	Pecan nuts, nutmeat	RAC	0.01	0.38	0.00	NC	-	NC	-	0.27	0.00	NC	-	0.26	0.00
DT 1114	Tea, green or black, fermented and dried, (including concentrates)	RAC	5.65	2.91	16.44	1.73	9.77	1.14	6.44	1.85	10.45	2.29	12.94	0.74	4.18
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				16.4		9.8		6.4		10.5		12.9		4.2
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (ug/person)=				360		360		330		360		360		360
	%ADI=				4.6%		2.7%		2.0%		2.9%		3.6%		1.2%
	Rounded %ADI=				5%		3%		2%		3%		4%		1%

TOLFENPYRAD (269) International Estimated Daily Intake (IEDI) ADI = 0-0.006 mg/kg bw

			STMR	Diets: g/person/day		Intake = daily intake: ug/person							
Codex Code	Commodity description	Expr as	mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
VR 0589	Potato, raw (incl flour, incl frozen, incl starch, incl tapioca)	RAC	0	23.96	0.00	13.56	0.00	213.41	0.00	104.35	0.00	8.56	0.00
TN 0672	Pecan nuts, nutmeat	RAC	0.01	0.15	0.00	0.22	0.00	0.31	0.00	0.10	0.00	0.10	0.00
DT 1114	Tea, green or black, fermented and dried, (including concentrates)	RAC	5.65	0.53	2.99	5.25	29.66	0.86	4.86	0.56	3.16	0.88	4.97
-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				3.0		29.7		4.9		3.2		5.0
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (ug/person)=				360		360		360		360		360
	%ADI=				0.8%		8.2%		1.4%		0.9%		1.4%
	Rounded %ADI=				1%		8%		1%		1%		1%

TEFLUBENZURON (190) International Estimated Daily Intake (IEDI) ADI = 0-0.005 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day	Intake as ug/person/day										
FC 0002	Lemons and limes, raw (incl lemon juice) (incl kumquat commodities)	RAC	0.01	4.82	0.05	2.45	0.02	3.93	0.04	25.44	0.25	8.74	0.09	16.23	0.16
FC 0004	Oranges, sweet, sour, raw	RAC	0.01	20.66	0.21	5.23	0.05	11.90	0.12	37.90	0.38	21.16	0.21	56.46	0.56
JF 0004	Oranges, juice (single strength, incl. concentrated)	PP	0.0036	1.27	0.00	2.20	0.01	0.10	0.00	11.81	0.04	0.46	0.00	1.69	0.01
FP 0226	Apple, raw	RAC	0.16	13.39	2.14	26.46	4.23	0.52	0.08	16.07	2.57	6.37	1.02	47.79	7.65
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.0056	0.32	0.00	3.07	0.02	0.10	0.00	5.00	0.03	0.29	0.00	5.57	0.03
FB 0269	Grape, raw (incl dried, incl juice, excl wine, excl must)	RAC	0.096	14.99	1.44	11.62	1.12	0.11	0.01	22.53	2.16	4.48	0.43	63.11	6.06
-	Grape must	PP	0.12	0.33	0.04	0.13	0.02	0.10	0.01	0.10	0.01	0.10	0.01	0.10	0.01
-	Grape wine (incl vermouths)	PP	0.0096	0.67	0.01	12.53	0.12	2.01	0.02	1.21	0.01	3.53	0.03	4.01	0.04
FI 0350	Papaya, raw	RAC	0.12	0.35	0.04	0.10	0.01	3.05	0.37	0.80	0.10	7.28	0.87	1.00	0.12
VB 0404	Cauliflower, raw	RAC	0.01	1.65	0.02	0.32	0.00	0.10	0.00	2.33	0.02	4.79	0.05	2.03	0.02
VC 0046	Melons, raw (excl watermelons)	RAC	0.01	8.90	0.09	8.64	0.09	0.80	0.01	17.90	0.18	2.80	0.03	29.17	0.29
VC 0424	Cucumber, raw	RAC	0.1	8.01	0.80	30.66	3.07	1.45	0.15	19.84	1.98	0.27	0.03	34.92	3.49
VC 0425	Gherkin, raw	RAC	0.33	1.73	0.57	6.64	2.19	0.31	0.10	4.29	1.42	0.29	0.10	7.56	2.49
VO 0448	Tomato, raw	RAC	0.3	41.73	12.52	75.65	22.70	10.66	3.20	82.87	24.86	24.75	7.43	200.93	60.28
-	Tomato, canned (& peeled)	PP	0.024	0.20	0.00	0.31	0.01	0.10	0.00	1.11	0.03	0.11	0.00	1.50	0.04
-	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.135	2.34	0.32	1.33	0.18	1.57	0.21	4.24	0.57	0.34	0.05	2.83	0.38
JF 0448	Tomato, juice (single strength, incl concentrated)	PP	0.051	0.29	0.01	0.29	0.01	0.10	0.01	0.38	0.02	0.10	0.01	0.14	0.01
VD 0541	Soya bean, dry, raw (incl flour, incl paste, incl curd, incl sauce, excl oil)	RAC	0.01	0.63	0.01	1.09	0.01	0.40	0.00	1.40	0.01	1.68	0.02	0.48	0.00
OR 0541	Soya oil, refined	PP	0.005	12.99	0.06	10.43	0.05	3.63	0.02	13.10	0.07	10.70	0.05	13.10	0.07
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl beer, incl germ, incl starch, excl flour, excl oil)	RAC	0.01	0.97	0.01	0.24	0.00	1.58	0.02	4.10	0.04	2.56	0.03	13.31	0.13
CF 1255	Maize, flour (white flour and wholemeal flour)	PP	0.01	22.72	0.23	35.61	0.36	87.27	0.87	34.92	0.35	46.71	0.47	49.12	0.49
-	Maize starch	PP	0.005	0.10	0.00	NC	-	0.10	0.00	2.29	0.01	0.10	0.00	0.11	0.00

TEFLUBENZURON (190) International Estimated Daily Intake (IEDI) ADI = 0-0.005 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
				Diets as g/person/day			Intake as ug/person/day								
OR 0645	Maize oil	PP	0.015	0.96	0.01	0.85	0.01	0.29	0.00	5.42	0.08	0.42	0.01	2.10	0.03
GS 0659	Sugar cane, raw	RAC	0	38.16	0.00	NC	-	12.58	0.00	0.34	0.00	17.79	0.00	42.78	0.00
-	Sugar cane, molasses	PP	0	NC	-	NC	-	NC	-	NC	-	0.10	0.00	NC	-
-	Sugar cane, sugar (incl non-centrifugal sugar, incl refined sugar and maltose)	PP	0	61.52	0.00	86.27	0.00	18.80	0.00	80.02	0.00	66.39	0.00	56.32	0.00
SO 0702	Sunflower seed, raw	RAC	0.01	0.10	0.00	0.33	0.00	0.10	0.00	0.24	0.00	0.10	0.00	0.10	0.00
OR 0702	Sunflower seed oil, edible	PP	0.002	2.97	0.01	14.42	0.03	0.43	0.00	3.46	0.01	2.20	0.00	5.53	0.01
SB 0716	Coffee beans, raw (i.e. green coffee)	RAC	0.01	0.96	0.01	0.16	0.00	0.91	0.01	0.27	0.00	1.37	0.01	0.46	0.00
SM 0716	Coffee beans, roasted	PP	0.001	0.19	0.00	0.91	0.00	0.16	0.00	2.50	0.00	0.39	0.00	0.40	0.00
-	Coffee beans, instant coffee (incl essences and concentrates)	PP	0.001	0.10	0.00	0.94	0.00	0.10	0.00	0.70	0.00	0.10	0.00	0.29	0.00
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) -80% as muscle	RAC	0.01	24.96	0.25	57.95	0.58	16.70	0.17	38.38	0.38	26.46	0.26	29.00	0.29
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) - 20% as fat	RAC	0.01	6.24	0.06	14.49	0.14	4.18	0.04	9.60	0.10	6.62	0.07	7.25	0.07
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.01	3.29	0.03	6.14	0.06	0.82	0.01	1.57	0.02	2.23	0.02	1.07	0.01
MO 0105	Edible offal (mammalian), raw	RAC	0.01	4.79	0.05	9.68	0.10	2.97	0.03	5.49	0.05	3.84	0.04	5.03	0.05
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.01	289.65	2.90	485.88	4.86	26.92	0.27	239.03	2.39	199.91	2.00	180.53	1.81
PM 0110	Poultry meat, raw (incl prepared) - 90% as muscle	RAC	0.01	13.17	0.13	26.78	0.27	7.24	0.07	116.71	1.17	22.54	0.23	32.09	0.32
PM 0110	Poultry meat, raw (incl prepared) - 10% as fat	RAC	0.01	1.46	0.01	2.98	0.03	0.80	0.01	12.97	0.13	2.50	0.03	3.57	0.04
PF 0111	Poultry fat, raw (incl rendered)	RAC	0.01	0.10	0.00	0.10	0.00	NC	-	0.10	0.00	0.10	0.00	0.10	0.00
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.01	0.12	0.00	0.12	0.00	0.11	0.00	5.37	0.05	0.24	0.00	0.10	0.00
PE 0112	Eggs, raw, (incl dried)	RAC	0.01	7.84	0.08	23.08	0.23	2.88	0.03	14.89	0.15	9.81	0.10	14.83	0.15
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				22.1		40.6		5.9		39.7		13.7		85.1
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (ug/person)=				300		300		300		300		300		300
	%ADI=				7.4%		13.5%		2.0%		13.2%		4.6%		28.4%
	Rounded %ADI=				7%		10%		2%		10%		5%		30%

TEFLUBENZURON (190) International Estimated Daily Intake (IEDI) ADI = 0-0.005 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets as g/person/day G07 diet	Intake as ug/person/day G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
FC 0002	Lemons and limes, raw (incl lemon juice) (incl kumquat commodities)	RAC	0.01	10.12	0.10	15.69	0.16	2.88	0.03	12.30	0.12	22.32	0.22	6.59	0.07
FC 0004	Oranges, sweet, sour, raw	RAC	0.01	15.68	0.16	24.00	0.24	6.80	0.07	29.09	0.29	15.39	0.15	160.47	1.60
JF 0004	Oranges, juice (single strength, incl. concentrated)	PP	0.0036	33.31	0.12	1.78	0.01	0.28	0.00	18.97	0.07	14.01	0.05	13.36	0.05
FP 0226	Apple, raw	RAC	0.16	27.44	4.39	49.21	7.87	21.57	3.45	31.09	4.97	51.60	8.26	1.77	0.28
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.0056	14.88	0.08	11.98	0.07	0.15	0.00	9.98	0.06	30.32	0.17	3.47	0.02
FB 0269	Grape, raw (incl dried, incl juice, excl wine, excl must)	RAC	0.096	19.92	1.91	19.96	1.92	5.35	0.51	17.88	1.72	25.09	2.41	2.94	0.28
-	Grape must	PP	0.12	0.16	0.02	0.10	0.01	0.10	0.01	0.12	0.01	0.11	0.01	NC	-
-	Grape wine (incl vermouths)	PP	0.0096	88.93	0.85	62.41	0.60	1.84	0.02	25.07	0.24	61.17	0.59	5.84	0.06
FI 0350	Papaya, raw	RAC	0.12	0.31	0.04	0.18	0.02	1.50	0.18	0.51	0.06	0.54	0.06	1.08	0.13
VB 0404	Cauliflower, raw	RAC	0.01	5.27	0.05	5.01	0.05	NC	-	2.70	0.03	5.57	0.06	0.49	0.00
VC 0046	Melons, raw (excl watermelons)	RAC	0.01	9.20	0.09	11.95	0.12	14.63	0.15	8.99	0.09	7.86	0.08	2.46	0.02
VC 0424	Cucumber, raw	RAC	0.1	6.72	0.67	11.03	1.10	32.10	3.21	15.10	1.51	4.05	0.41	9.57	0.96
VC 0425	Gherkin, raw	RAC	0.33	0.41	0.14	5.89	1.94	NC	-	0.10	0.03	0.37	0.12	2.07	0.68
VO 0448	Tomato, raw	RAC	0.3	32.13	9.64	51.27	15.38	34.92	10.48	73.37	22.01	15.15	4.55	8.88	2.66
-	Tomato, canned (& peeled)	PP	0.024	7.57	0.18	2.66	0.06	0.30	0.01	0.97	0.02	7.31	0.18	0.41	0.01
-	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.135	4.96	0.67	3.20	0.43	0.15	0.02	1.61	0.22	6.88	0.93	0.52	0.07
JF 0448	Tomato, juice (single strength, incl concentrated)	PP	0.051	0.80	0.04	0.10	0.01	0.10	0.01	0.61	0.03	0.40	0.02	0.10	0.01
VD 0541	Soya bean, dry, raw (incl flour, incl paste, incl curd, incl sauce, excl oil)	RAC	0.01	0.47	0.00	0.77	0.01	9.12	0.09	8.05	0.08	0.10	0.00	6.06	0.06
OR 0541	Soya oil, refined	PP	0.005	19.06	0.10	21.06	0.11	5.94	0.03	33.78	0.17	40.05	0.20	13.39	0.07
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl beer, incl germ, incl starch, excl flour, excl oil)	RAC	0.01	0.10	0.00	9.93	0.10	1.71	0.02	21.57	0.22	0.33	0.00	0.10	0.00
CF 1255	Maize, flour (white flour and wholemeal flour)	PP	0.01	14.27	0.14	12.86	0.13	19.71	0.20	12.55	0.13	4.21	0.04	52.30	0.52
-	Maize starch	PP	0.005	NC	-	NC	-	0.19	0.00	7.13	0.04	NC	-	NC	-
OR 0645	Maize oil	PP	0.015	0.90	0.01	0.47	0.01	0.15	0.00	3.01	0.05	1.86	0.03	0.36	0.01
GS 0659	Sugar cane, raw	RAC	0	NC	-	NC	-	4.27	0.00	0.10	0.00	NC	-	3.24	0.00

TEFLUBENZURON (190) International Estimated Daily Intake (IEDI) ADI = 0-0.005 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	G07 diet	G07 intake	G08 diet	G08 intake	G09 diet	G09 intake	G10 diet	G10 intake	G11 diet	G11 intake	G12 diet	G12 intake
				Diets as g/person/day			Intake as ug/person/day								
-	Sugar cane, molasses	PP	0	NC	-	NC	-	0.10	0.00	NC	-	NC	-	NC	-
-	Sugar cane, sugar (incl non-centrifugal sugar, incl refined sugar and maltose)	PP	0	92.24	0.00	95.72	0.00	24.12	0.00	77.39	0.00	117.73	0.00	100.67	0.00
SO 0702	Sunflower seed, raw	RAC	0.01	0.10	0.00	1.32	0.01	0.10	0.00	1.17	0.01	NC	-	0.10	0.00
OR 0702	Sunflower seed oil, edible	PP	0.002	9.50	0.02	11.37	0.02	0.49	0.00	5.15	0.01	2.63	0.01	2.80	0.01
SB 0716	Coffee beans, raw (i.e. green coffee)	RAC	0.01	0.60	0.01	NC	-	0.62	0.01	1.71	0.02	NC	-	3.51	0.04
SM 0716	Coffee beans, roasted	PP	0.001	7.02	0.01	9.75	0.01	0.10	0.00	5.09	0.01	13.38	0.01	0.77	0.00
-	Coffee beans, instant coffee (incl essences and concentrates)	PP	0.001	0.75	0.00	0.30	0.00	0.10	0.00	0.67	0.00	2.43	0.00	1.43	0.00
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) -80% as muscle	RAC	0.01	112.02	1.12	120.71	1.21	63.46	0.63	88.99	0.89	96.24	0.96	41.02	0.41
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) - 20% as fat	RAC	0.01	28.01	0.28	30.18	0.30	15.86	0.16	22.25	0.22	24.06	0.24	10.25	0.10
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.01	6.44	0.06	15.51	0.16	3.79	0.04	8.29	0.08	18.44	0.18	8.00	0.08
MO 0105	Edible offal (mammalian), raw	RAC	0.01	15.17	0.15	5.19	0.05	6.30	0.06	6.78	0.07	3.32	0.03	3.17	0.03
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.01	388.92	3.89	335.88	3.36	49.15	0.49	331.25	3.31	468.56	4.69	245.45	2.45
PM 0110	Poultry meat, raw (incl prepared) - 90% as muscle	RAC	0.01	66.38	0.66	48.47	0.48	21.58	0.22	78.41	0.78	48.04	0.48	76.01	0.76
PM 0110	Poultry meat, raw (incl prepared) - 10% as fat	RAC	0.01	7.38	0.07	5.39	0.05	2.40	0.02	8.71	0.09	5.34	0.05	8.45	0.08
PF 0111	Poultry fat, raw (incl rendered)	RAC	0.01	0.10	0.00	0.10	0.00	NC	-	0.10	0.00	0.71	0.01	NC	-
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.01	0.33	0.00	0.72	0.01	0.27	0.00	0.35	0.00	0.80	0.01	NC	-
PE 0112	Eggs, raw, (incl dried)	RAC	0.01	25.84	0.26	29.53	0.30	28.05	0.28	33.19	0.33	36.44	0.36	8.89	0.09
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				26.0		36.3		20.4		38.0		25.6		11.6
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (ug/person)=				300		300		275		300		300		300
	%ADI=				8.7%		12.1%		7.4%		12.7%		8.5%		3.9%
	Rounded %ADI=				9%		10%		7%		10%		9%		4%

TEFLUBENZURON (190) International Estimated Daily Intake (IEDI) ADI = 0-0.005 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day G13 diet	Intake = daily intake: ug/person G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
FC 0002	Lemons and limes, raw (incl lemon juice) (incl kumquat commodities)	RAC	0.01	18.97	0.19	0.97	0.01	6.23	0.06	0.10	0.00	3.35	0.03
FC 0004	Oranges, sweet, sour, raw	RAC	0.01	1.18	0.01	1.11	0.01	14.28	0.14	0.10	0.00	1.08	0.01
JF 0004	Oranges, juice (single strength, incl. concentrated)	PP	0.0036	0.10	0.00	0.26	0.00	12.61	0.05	0.14	0.00	0.33	0.00
FP 0226	Apple, raw	RAC	0.16	0.21	0.03	2.05	0.33	54.48	8.72	0.10	0.02	1.38	0.22
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.0056	0.10	0.00	0.10	0.00	7.19	0.04	0.10	0.00	NC	-
FB 0269	Grape, raw (incl dried, incl juice, excl wine, excl must)	RAC	0.096	0.17	0.02	0.93	0.09	20.13	1.93	0.10	0.01	0.21	0.02
-	Grape must	PP	0.12	0.10	0.01	0.10	0.01	0.11	0.01	0.10	0.01	0.19	0.02
-	Grape wine (incl vermouths)	PP	0.0096	0.31	0.00	0.23	0.00	60.43	0.58	0.52	0.00	31.91	0.31
FI 0350	Papaya, raw	RAC	0.12	6.47	0.78	0.25	0.03	0.19	0.02	0.10	0.01	26.42	3.17
VB 0404	Cauliflower, raw	RAC	0.01	0.10	0.00	0.10	0.00	2.73	0.03	0.10	0.00	NC	-
VC 0046	Melons, raw (excl watermelons)	RAC	0.01	0.19	0.00	0.10	0.00	4.98	0.05	0.10	0.00	NC	-
VC 0424	Cucumber, raw	RAC	0.1	0.68	0.07	1.81	0.18	10.40	1.04	0.10	0.01	0.10	0.01
VC 0425	Gherkin, raw	RAC	0.33	0.15	0.05	0.39	0.13	3.15	1.04	0.10	0.03	0.10	0.03
VO 0448	Tomato, raw	RAC	0.3	12.99	3.90	4.79	1.44	58.40	17.52	0.92	0.28	0.10	0.03
-	Tomato, canned (& peeled)	PP	0.024	0.10	0.00	0.10	0.00	2.42	0.06	0.10	0.00	NC	-
-	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.135	0.58	0.08	0.22	0.03	2.21	0.30	0.24	0.03	3.10	0.42
JF 0448	Tomato, juice (single strength, incl concentrated)	PP	0.051	0.10	0.01	0.10	0.01	0.42	0.02	0.10	0.01	0.10	0.01
VD 0541	Soya bean, dry, raw (incl flour, incl paste, incl curd, incl sauce, excl oil)	RAC	0.01	2.89	0.03	0.21	0.00	0.48	0.00	3.16	0.03	0.26	0.00
OR 0541	Soya oil, refined	PP	0.005	2.32	0.01	2.54	0.01	18.70	0.09	2.51	0.01	6.29	0.03
GC 0645	Maize, raw (incl glucose & dextrose & isoglucose, incl beer, incl germ, incl starch, excl flour, excl oil)	RAC	0.01	0.58	0.01	0.52	0.01	3.26	0.03	7.96	0.08	NC	-
CF 1255	Maize, flour (white flour and wholemeal flour)	PP	0.01	94.34	0.94	8.09	0.08	28.03	0.28	55.94	0.56	28.07	0.28
-	Maize starch	PP	0.005	0.10	0.00	0.10	0.00	NC	-	NC	-	NC	-
OR 0645	Maize oil	PP	0.015	0.33	0.00	0.10	0.00	0.81	0.01	0.10	0.00	NC	-
GS 0659	Sugar cane, raw	RAC	0	5.62	0.00	50.91	0.00	NC	-	11.04	0.00	0.10	0.00
-	Sugar cane, molasses	PP	0	NC	-	NC	-	NC	-	NC	-	NC	-
-	Sugar cane, sugar (incl non-centrifugal sugar, incl refined sugar and maltose)	PP	0	28.13	0.00	55.38	0.00	78.09	0.00	18.04	0.00	45.60	0.00

TEFLUBENZURON (190) International Estimated Daily Intake (IEDI) ADI = 0-0.005 mg/kg bw

Codex Code	Commodity description	Expr as	STMR mg/kg	Diets: g/person/day G13 diet	Intake = daily intake: ug/person G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
SO 0702	Sunflower seed, raw	RAC	0.01	0.10	0.00	0.10	0.00	0.10	0.00	2.23	0.02	NC	-
OR 0702	Sunflower seed oil, edible	PP	0.002	0.37	0.00	0.10	0.00	12.98	0.03	4.01	0.01	0.20	0.00
SB 0716	Coffee beans, raw (i.e. green coffee)	RAC	0.01	0.83	0.01	0.69	0.01	1.09	0.01	2.91	0.03	0.82	0.01
SM 0716	Coffee beans, roasted	PP	0.001	0.10	0.00	0.41	0.00	7.50	0.01	0.10	0.00	0.10	0.00
-	Coffee beans, instant coffee (incl essences and concentrates)	PP	0.001	0.10	0.00	0.10	0.00	0.60	0.00	0.10	0.00	5.53	0.01
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) -80% as muscle	RAC	0.01	23.34	0.23	40.71	0.41	97.15	0.97	18.06	0.18	57.71	0.58
MM 0095	MEAT FROM MAMMALS other than marine mammals, raw (incl prepared meat) - 20% as fat	RAC	0.01	5.84	0.06	10.18	0.10	24.29	0.24	4.52	0.05	14.43	0.14
MF 0100	Mammalian fats, raw, excl milk fats (incl rendered fats)	RAC	0.01	1.05	0.01	1.14	0.01	18.69	0.19	0.94	0.01	3.12	0.03
MO 0105	Edible offal (mammalian), raw	RAC	0.01	4.64	0.05	1.97	0.02	10.01	0.10	3.27	0.03	3.98	0.04
ML 0106	Milks, raw or skimmed (incl dairy products)	RAC	0.01	108.75	1.09	70.31	0.70	436.11	4.36	61.55	0.62	79.09	0.79
PM 0110	Poultry meat, raw (incl prepared) - 90% as muscle	RAC	0.01	3.53	0.04	10.83	0.11	51.36	0.51	4.53	0.05	50.00	0.50
PM 0110	Poultry meat, raw (incl prepared) - 10% as fat	RAC	0.01	0.39	0.00	1.20	0.01	5.71	0.06	0.50	0.01	5.56	0.06
PF 0111	Poultry fat, raw (incl rendered)	RAC	0.01	NC	-	NC	-	0.32	0.00	NC	-	NC	-
PO 0111	Poultry edible offal, raw (incl prepared)	RAC	0.01	0.10	0.00	0.70	0.01	0.97	0.01	0.10	0.00	NC	-
PE 0112	Eggs, raw, (incl dried)	RAC	0.01	3.84	0.04	4.41	0.04	27.25	0.27	1.13	0.01	7.39	0.07
-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total intake (ug/person)=				7.7		3.8		38.8		2.1		6.8
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (ug/person)=				300		300		300		300		300
	%ADI=				2.6%		1.3%		12.9%		0.7%		2.3%
	Rounded %ADI=				3%		1%		10%		1%		2%

ANNEX 4: INTERNATIONAL ESTIMATES OF SHORT-TERM DIETARY EXPOSURE OF PESTICIDE RESIDUES

Annex 4 IESTI calculations can be found at

http://www.fao.org/agriculture/crops/thematic-sitemap/theme/pests/jmpr/jmpr-rep/en/

ACIBENZOLAR-S-METHYL (288)
Acute RfD= 0.5 mg/kg bw (500 µg/kg bw)

IESTI
Maximum %ARfD: 10% all; 9% gen pop; 10% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Coun try	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
001	**CITRUS FRUITS**	-	**0.01**	**0.01**	-	-	-	-	-	-	-	-	-	-	-	-
FC 0303	Kumquats (all commodities)	highest utilisation: Total	0	0.01	1.000	JP	Gen pop, > 1 yrs	135	120.00	<25	NR	1	0–0.02	0%–0%	0%–0%	0%–0%
FC 0204	Lemon (all commodities)	highest utilisation: Total	0.01	0.01	1.000	FR	child, 3-6 yrs	0	58.15	64.0	3	2b	0–0.09	0%–0%	0%–0%	0%–0%
FC 0205	Lime (all commodities)	highest utilisation: Total	0.01	0.01	1.000	AU	Gen pop, > 2 yrs	579	259.21	49.0	3	2a	0–0.05	0%–0%	0%–0%	0%–0%
FC 0003	Mandarins (incl mandarin-like hybrids) (all commodities)	highest utilisation: raw, without peel	0.01	0.01	1.000	CN	Child, 1-6 yrs	151	586.75	124.3	3	2a	0–0.52	0%–0%	0%–0%	0%–0%
FC 0004	Oranges, sweet, sour (incl orange-like	highest utilisation: Total	0.01	0.01	1.000	AU	Child, 2-6 yrs	1735	800.83	155.8	3	2a	0.01–0.59	0%–0%	0%–0%	0%–0%

ACIBENZOLAR-S-METHYL (288)
Acute RfD= 0.5 mg/kg bw (500 µg/kg bw)

IESTI
Maximum %ARfD: 10% all; 9% gen pop; 10% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Coun try	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
	hybrids) (all commodities)															
FC 0005	Pummelo and Grapefruits (incl Shaddock-like hybrids, among others Grapefruit) (all commodities)	highest utilisation: raw, without peel	0.01	0.01	1.000	DE	Child, 2-4 yrs	12	358.60	178.5	3	2a	0–0.44	0%–0%	0%–0%	0%–0%
FP 0226	Apple (all commodities)	highest utilisation: Total	0.01	0.17	1.000	US	Child, 1-6 yrs	-	624.45	127.0	3	2a	0.03–9.95	0%–2%	0%–1%	0%–2%
FS 0240	Apricot (all commodities)	highest utilisation: raw with peel (incl consumption without peel)	0.05	0.13	1.000	AU	Gen pop, > 2 yrs	77	1056.90	54.5	3	2a	0.02–2.26	0%–0%	0%–0%	0%–0%
FS 0245	Nectarine (all commodities)	highest utilisation: raw with peel (incl consumption without peel)	0.05	0.13	1.000	NL	toddler, 8-20 m	6	183.60	131.0	3	2a	0.02–5.68	0%–1%	0%–0%	0%–1%
FS 0247	Peach (all commodities)	highest utilisation: raw with peel (incl consumption without peel)	0.05	0.13	1.000	JP	Child, 1-6 yrs	76	306.00	255.0	3	2a	0.02–6.84	0%–1%	0%–1%	0%–1%

ACIBENZOLAR-S-METHYL (288)
Acute RfD= 0.5 mg/kg bw (500 µg/kg bw)

	IESTI			
Maximum %ARfD:		10% all	9% gen pop	10% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Coun try	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
FB 0265	Cranberry (all commodities)	highest utilisation: Total	0.045	0.08	1.000	AU	Child, 2-16 yrs	103	279.66	1.8	NR	1	0–0.59	0%–0%	0%–0%	0%–0%
FB 0275	Strawberry (all commodities)	highest utilisation: Total	0.045	0.08	1.000	FR	Child, 3-6 yrs	0	339.40	13.4	NR	1	0.03–1.44	0%–0%	0%–0%	0%–0%
FI 0327	Banana (incl dwarf banana & plantain) (all commodities)	highest utilisation: raw without peel	0.01–0.02	0.02–0.03	1.000	CN	Child, 1-6 yrs	286	455.81	767.3	3	2b	0–2.54	0%–1%	0%–0%	0%–1%
VA 0381	Garlic (all commodities)	highest utilisation: raw without skin	0.05	0.06	1.000	CN	Child, 1-6 yrs	290	174.44	59.8	3	2a	0–1.09	0%–0%	0%–0%	0%–0%
VA 0385	Onion, bulb (all commodities)	highest utilisation: raw without skin	0.05	0.06	1.000	JP	Child, 1-6 yrs	748	102.00	244.4	3	2b	0.02–1.12	0%–0%	0%–0%	0%–0%
VA 0388	Shallot (i.e. dry harvested small onion) (all commodities)	highest utilisation: raw without skin	0.05	0.06	1.000	CN	Child, 1-6 yrs	480	115.81	51.4	3	2a	0.04–0.81	0%–0%	0%–0%	0%–0%
VB 0041	Cabbage, head (all commodities)	highest utilisation: raw	0.21	0.62	1.000	CN	Child, 1-6 yrs	287	255.54	1402.5	3	2b	0.15–29.46	0%–6%	0%–3%	0%–6%
VB 0400	Broccoli (all commodities)	highest utilisation: cooked/boiled	0.21	0.62	1.000	NL	toddler, 8-20 m	125	160.73	286.0	3	2b	0.38–29.31	0%–6%	0%–2%	0%–6%
VB 0401	Broccoli, Chinese	highest utilisation:	0	0.62	1.000	CN	Child, 1-6 yrs	334	222.48	311.0	3	2b	8.41–25.65	2%–5%	2%–2%	5%–5%

ACIBENZOLAR-S-METHYL (288)
Acute RfD= 0.5 mg/kg bw (500 µg/kg bw)

IESTI
Maximum %ARfD: 10% all; 9% gen pop; 10% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Coun try	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
	(Kailan) (all commodities)	raw														
VB 0402	Brussels sprouts (all commodities)	highest utilisation: cooked/boiled	0.21	0.62	1.000	NL	toddler, 8-20 m	11	103.77	8.0	NR	1	0.01–6.31	0%–1%	0%–1%	0%–1%
VB 0404	Cauliflower (all commodities)	highest utilisation: cooked/boiled	0.21	0.62	1.000	NL	toddler, 8-20 m	110	141.99	749.0	3	2b	0.03–25.89	0%–5%	0%–3%	0%–5%
VB 0405	Kohlrabi (all commodities)	highest utilisation: Total	0	0.62	1.000	DE	Child, 2-4 yrs	34	161.80	175.2	3	2b	1.91–18.63	0%–4%	0%–1%	1%–4%
VC 0046	Melons, except watermelon (all commodities)	highest utilisation: Total	0.175	0.47	1.000	FR	Child, 3-6 yrs	0	358.11	420.0	3	2b	0.01–26.72	0%–5%	0%–4%	0%–5%
VC 0421	Balsam pear (Bitter cucumber, Bitter gourd, Bitter melon) (all commodities)	highest utilisation: raw without peel	0	0.47	1.000	CN	Gen pop, > 1 yrs	1387	400.21	607.5	3	2b	3.41–10.6	1%–2%	1%–2%	1%–1%
VC 0422	Bottle gourd (Cucuzzi) (all commodities)	highest utilisation: raw with skin	0	0.47	1.000	CN	Gen pop, > 1 yrs	519	453.00	325.0	3	2a	9.74–9.74	2%–2%	2%–2%	0%–0%
VC 0423	Chayote (Christophine) (all commodities)	highest utilisation: raw with skin	0	0.47	1.000	CN	Child, 1-6 yrs	124	284.75	197.4	3	2a	5.22–19.79	1%–4%	1%–2%	1%–4%

ACIBENZOLAR-S-METHYL (288)
Acute RfD= 0.5 mg/kg bw (500 µg/kg bw)

												IESTI			
												Maximum %ARfD:	10% all	9% gen pop	10% child
Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Coun try	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
VC 0424	Cucumber (all commodities)	highest utilisation: raw with skin	0.175	0.47	1.000	CN	Child, 1-6 yrs	340	212.11	458.1	3	2b	0.07–18.54	0%–4%	0%–2%	0%–4%
VC 0425	Gherkin (all commodities)	highest utilisation: raw with skin	0.175	0.47	1.000	JP	Child, 1-6 yrs	484	91.80	54.5	3	2a	0.13–5.62	0%–1%	0%–1%	0%–1%
VC 0427	Loofah, Angled (Sinkwa, Sinkwa towel gourd) (all commodities)	highest utilisation: raw without peel	0	0.47	1.000	TH	Child, 3-6 yrs	759	129.62	133.0	3	2b	10.69–10.69	2%–2%	1%–1%	2%–2%
VC 0428	Loofah, Smooth (all commodities)	highest utilisation: raw without peel	0	0.47	1.000	CN	Child, 1-6 yrs	196	296.64	133.0	3	2a	16.39–16.39	3%–3%	1%–1%	3%–3%
VC 0429	Pumpkins (all commodities)	highest utilisation: raw without peel	0.175	0.47	1.000	CN	Child, 1-6 yrs	561	322.71	1851.8	3	2b	0.29–28.2	0%–6%	0%–4%	0%–6%
VC 0430	Snake gourd (all commodities)	highest utilisation: raw without peel	0	0.47	1.000	TH	Child, 3-6 yrs	759	129.62	133.0	3	2b	10.69–10.69	2%–2%	1%–1%	2%–2%
VC 0431	Squash, summer (courgette, marrow, zucchetti, zucchini) (all commodities)	highest utilisation: Total	0.175	0.47	1.000	FR	Child, 3-6 yrs	0	148.84	270.0	3	2b	0.11–11.1	0%–2%	0%–2%	0%–2%

ACIBENZOLAR-S-METHYL (288)
Acute RfD= 0.5 mg/kg bw (500 µg/kg bw)

IESTI
Maximum %ARfD: 10% all; 9% gen pop; 10% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Coun try	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
VC 0432	Watermelon (all commodities)	highest utilisation: Total	0.175	0.47	1.000	AU	Gen pop, > 2 yrs	267	2542.18	2095.6	3	2a	40.56–47.23	8%–9%	8%–9%	8%–8%
VO 0448	Tomato (all commodities)	highest utilisation: dried	0.09	0.15	5.000	AU	Gen pop, > 2 yrs	61	861.10	8.0	NR	1	0.48–9.64	0%–2%	0%–2%	0%–1%
VL 0466	Chinese cabbage, type pak-choi (all commodities)	highest utilisation: raw	0.39	0.795	1.000	CN	Child, 1-6 yrs	1966	327.07	1548.4	3	2b	0.11–48.34	0%–10%	0%–5%	0%–10%
VL 0467	Chinese cabbage, type pe-tsai (all commodities)	highest utilisation: Total	0.39	0.795	1.000	CN	Child, 1-6 yrs	2788	336.16	1500.0	3	2b	0.11–49.69	0%–10%	0%–6%	0%–10%
VL 0479	Japanese greens: Mizuna (Brassica rapa nipposinica)	Total		0.795	1.000	JP	Gen pop, > 1 yrs	1787	137.70	<25	NR	1	1.95	0%	0%	0%
VL 0480	Kale (borecole, collards) (all commodities)	highest utilisation: Total	0.39	0.795	1.000	DE	Gen pop, 14-80 yrs	123	669.80	672.0	3	2b	0.74–20.92	0%–4%	0%–4%	1%–4%
VL 0481	Komatsuna	Total		0.795	1.000	JP	Child, 1-6 yrs	73	71.40	<25	NR	1	3.38	1%	0%	1%
VL 0482	Lettuce, head (all commodities)	highest utilisation: raw	0.055	0.15	1.000	NL	Child, 2-6 yrs	91	140.10	338.9	3	2b	0.03–3.43	0%–1%	0%–0%	0%–1%
VL 0483	Lettuce, leaf (all commodities)	highest utilisation: Total	0.12	0.27	1.000	CN	Child, 1-6 yrs	243	387.25	305.4	3	2a	0.07–16.7	0%–3%	0%–1%	0%–3%

ACIBENZOLAR-S-METHYL (288)
Acute RfD= 0.5 mg/kg bw (500 µg/kg bw)

IESTI Maximum %ARfD:	10% all	9% gen pop	10% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Coun try	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
VL 0485	Mustard greens (all commodities)	highest utilisation: raw	0.39	0.795	1.000	CN	Child, 1-6 yrs	635	299.31	244.8	3	2a	1.69–38.87	0%–8%	0%–3%	1%–8%
VL 0494	Radish leaves	Total		0.795	1.000	-	-	-	-	-	-	-	-	-	-	-
VL 0495	Rape greens (all commodities)	highest utilisation: cooked/boiled	0	0.795	1.000	JP	Gen pop, > 1 yrs	533	147.90	34.0	3	2a	3.08–3.08	1%–1%	1%–1%	1%–1%
VL 0502	Spinach (all commodities)	highest utilisation: Total	0.19	0.54	1.000	ZA	Child, 1-5 yrs	-	237.48	197.8	3	2a	0.02–24.07	0%–5%	0%–1%	0%–5%
-	Chinese cabbage flowering stalk (all commodities)	highest utilisation: pickled/salted	0.39	0.795	1.000	CN	Gen pop, > 1 yrs	183	175.21	NR	NR	3	1.28–1.28	0%–0%	0%–0%	0%–0%
MM 0095	Meat from mammals other than marine mammals	Total	NA	NA	1.000	CN	Child, 1-6 yrs	302	264.84	NR	NR	1	NA	0%	0%	0%
MM 0095	Meat from mammals other than marine mammals: 20% as fat	Total		0	1.000	CN	Child, 1-6 yrs	302	52.97	NR	NR	1	0.00	0%	0%	0%
MM 0095	Meat from mammals other than marine mammals: 80% as muscle	Total		0	1.000	CN	Child, 1-6 yrs	302	211.87	NR	NR	1	0.00	0%	0%	0%
MF 0100	Mammalian fats (except milk fats)	Total		0	1.000	FR	Child, 3-6 yrs	0	64.80	NR	NR	1	0.00	0%	0%	0%

ACIBENZOLAR-S-METHYL (288)

Acute RfD= 0.5 mg/kg bw (500 µg/kg bw)

IESTI

Maximum %ARfD: 10% all; 9% gen pop; 10% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Coun try	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
MO 0105	Edible offal (mammalian)	Total		0	1.000	US	Child, 1-6 yrs	-	186.60	NR	NR	1	0.00	0%	0%	0%
ML 0106	Milks	Total		0	1.000	NL	toddler, 8-20 m	1882	1060.67	NR	NR	3	ND	-	-	-
PM 0110	Poultry meat	Total	NA	NA	1.000	CN	Child, 1-6 yrs	175	347.00	NR	NR	1	NA	0%	0%	0%
PM 0110	Poultry meat: 10% as fat	Total		0	1.000	CN	Child, 1-6 yrs	175	34.70	NR	NR	1	0.00	0%	0%	0%
PM 0110	Poultry meat: 90% as muscle	Total		0	1.000	CN	Child, 1-6 yrs	175	312.30	NR	NR	1	0.00	0%	0%	0%
PF 0111	Poultry, fats (all commodities)	highest utilisation: Total	0	0	1.000	US	gen pop, all ages	-	42.90	NR	NR	1	0–0	0%–0%	0%–0%	0%–0%
PE 0112	Eggs	Total		0	1.000	CN	Child, 1-6 yrs	136	195.82	NR	NR	1	0.00	0%	0%	0%

BENZOVINDIFLUPYR (261)
Acute RfD= 0.1 mg/kg bw (100 µg/kg bw)

IESTI
Maximum %ARfD: 70% all; 70% gen pop; 60% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Country	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Variability factor	Case	IESTI µg/kg bw/day	% acute RfD rounded (70% all)	% acute RfD rounded (70% gen pop)	% acute RfD rounded (60% child)
002	**POME FRUITS**	-	**0.058**	**0.17**	-	-	-	-	-	-	-	-	-	-	-	-
FP 0226	Apple (all commodities)	highest utilisation: Total	.003–.026	.16–2.19	1.000	US	Child, 1-6 yrs	-	624.45	127.0	3	2a	.05–9.95	0%–10%	0%–4%	0%–10%
FP 0230	Pear (all commodities)	highest utilisation: Total	.059	.17	1.000	UK	Child, 1.5-4.5 yrs	169	278.98	170.2	3	2a	.02–7.26	0%–7%	0%–2%	0%–7%
FB 0269	Grape (all commodities)	highest utilisation: raw with skin	.012–.29	.065–1.9	1.000	CN	Child, 1-6 yrs	232	366.72	636.6	3	2b	.23–55.23	0%–60%	0%–30%	0%–60%
011	**FRUITING VEGETABLES, CUCURBITS**	-	**0.023**	**0.16**	-	-	-	-	-	-	-	-	-	-	-	-
VC 0046	Melons, except watermelon	Total		0.16	1.000	FR	Child, 3-6 yrs	0	358.11	420.0	3	2b	9.09	9%	4%	9%
VC 0424	Cucumber	Total		0.16	1.000	AU	Child, 2-6 yrs	313	151.91	259.0	3	2b	3.84	4%	3%	4%
VC 0431	Squash, summer (courgette, marrow, zucchetti, zucchini) (all commodities)	highest utilisation: Total	0	.16	1.000	FR	Child, 3-6 yrs	0	148.84	270.0	3	2b	.5–3.78	0%–4%	0%–3%	3%–4%
012	**FRUITING VEGETABLES OTHER THAN CUCURBITS**	-	**0.089**	**0.62**	-	-	-	-	-	-	-	-	-	-	-	-
VO 0444	Peppers, chili (all commodities)	highest utilisation: raw with skin	.7	6.2	1.000	CN	Gen pop, > 1 yrs	1743	295.71	43.2	3	2a	.01–44.51	0%–40%	0%–40%	0%–6%
VO 0445	Peppers, sweet (incl. pim(i)ento) (bell pepper, paprika) (all commodities)	highest utilisation: raw with skin	0	.62	1.000	CN	Child, 1-6 yrs	1002	169.85	170.0	3	2b	3.7–19.58	4%–20%	1%–7%	4%–20%
VO 0447	Sweet corn (corn-on-	highest utilisation:	.01	.01	1.000	TH	Child, 3-6	1383	196.99	191.1	3	2a	.01–.34	0%–0%	0%–0%	0%–0%

BENZOVINDIFLUPYR (261)
Acute RfD= 0.1 mg/kg bw (100 µg/kg bw)

IESTI
Maximum %ARfD: 70% all | 70% gen pop | 60% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Country	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Variability factor	Case	IESTI µg/kg bw/day	% acute RfD rounded (70% all)	% acute RfD rounded (70% gen pop)	% acute RfD rounded (60% child)
	the-cob) (all commodities)	cooked/boiled					yrs									
VO 0448	Tomato (all commodities)	highest utilisation: dried	.008–.037	.019–5.52	1.000	AU	Gen pop, > 2 yrs	61	861.10	8.0	NR	1	.1–70.94	0%–70%	0%–70%	0%–20%
VD 0071	Beans (dry) (Phaseolus spp) (all commodities)	highest utilisation: cooked/boiled	.011	0	0.400	CN	Gen pop, > 1 yrs	722	1313.18	0.5	NR	3	.02–.11	0%–0%	0%–0%	0%–0%
VD 0072	Peas (dry) (Pisum spp, Vigna spp) (all commodities)	highest utilisation: cooked/boiled	.014	0	0.400	CN	Gen pop, > 1 yrs	268	1673.82	<25	NR	3	.01–.18	0%–0%	0%–0%	0%–0%
VD 0541	Soya bean (dry) (Glycine spp) (all commodities)	highest utilisation: cooked/boiled	.0023–.01	0	0.400	JP	Child, 1-6 yrs	46	114.75	<25	NR	3	0–.03	0%–0%	0%–0%	0%–0%
VR 0589	Potato (all commodities)	highest utilisation: Total	.003–.01	.004–.033	1.000	ZA	Child, 1-5 yrs	-	299.62	216.0	3	2a	.01–.77	0%–1%	0%–0%	0%–1%
GC 0640	Barley (all commodities)	highest utilisation: beer	.07–.175	0	0.190	BR	Gen pop, > 10 yrs	1636	3600.00	NR	NR	3	.01–1.85	0%–2%	0%–2%	0%–0%
GC 0647	Oats (all commodities)	highest utilisation: Total	.18	0	1.000	CN	Gen pop, > 1 yrs	1740	330.61	<25	NR	3	1.12–1.12	1%–1%	1%–1%	1%–1%
GC 0650	Rye (all commodities)	highest utilisation: Total	.023	0	1.000	FR	gen pop, > 3 yrs	0	160.93	<25	NR	3	.07–.07	0%–0%	0%–0%	0%–0%
GC 0653	Triticale	Total	0.023		1.000	DE	Gen pop, 14-80 yrs	####	394.70	<25	NR	3	0.12	0%	0%	0%
GC 0654	Wheat (all commodities)	highest utilisation: White bread	.008–.053	0	1.000	CN	Child, 1-6 yrs	1756	322.71	NR	NR	3	0–.46	0%–0%	0%–0%	0%–0%
GS 0659	Sugar cane (all commodities)	highest utilisation: thick juice	.005–.02	.01–.02	1.000	CN	Gen pop, > 1 yrs	436	1817.52	NR	NR	3	.01–.68	0%–1%	0%–1%	0%–0%
SO 0495	Rape seed (all commodities)	highest utilisation: sec processing / composite foods	.023	0	1.000	NL	toddler, 8-20 m	1882	8.93	NR	NR	3	.01–.02	0%–0%	0%–0%	0%–0%
SO 0697	Peanut, shelled	highest utilisation:	.006–	0	1.000	CN	Child, 1-6	290	163.07	<25	NR	3	.02–.1	0%–0%	0%–0%	0%–0%

BENZOVINDIFLUPYR (261)
Acute RfD= 0.1 mg/kg bw (100 µg/kg bw)

IESTI
Maximum %ARfD: 70% all; 70% gen pop; 60% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Country	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
	(groundnut) (all commodities)	raw incl roasted	.016				yrs									
SB 0716	Coffee beans (all commodities)	highest utilisation: Total	.006–.015	0	1.000	FR	Child, 3-6 yrs	0	70.31	0.1	NR	3	0–.06	0%–0%	0%–0%	0%–0%
030	**MEAT FROM MAMMALS**	-	**0.01**	**0.01**	-	-	-	-	-	-	-	-	-	-	-	-
MM 0095	Meat from mammals other than marine mammals	Total		0.01	1.000	CN	Child, 1-6 yrs	302	264.84	NR	NR	1	0.16	0%	0%	0%
MF 0100	Mammalian fats (except milk fats)	Total		0.019	1.000	FR	Child, 3-6 yrs	0	64.80	NR	NR	1	0.07	0%	0%	0%
MO 0105	Edible offal (mammalian)	Total		0.064	1.000	US	Child, 1-6 yrs	-	186.60	NR	NR	1	0.80	1%	1%	1%
ML 0106	Milks	Total	0.01		1.000	NL	toddler, 8-20 m	1882	1060.67	NR	NR	3	1.04	1%	0%	1%
PM 0110	Poultry meat	Total	0		1.000	CN	Child, 1-6 yrs	175	347.00	NR	NR	1	ND	-	-	-
PF 0111	Poultry, fats (all commodities)	highest utilisation: Total	0	0	1.000	US	gen pop, all ages	-	42.90	NR	NR	1	0–0	0%–0%	0%–0%	0%–0%
PE 0112	Eggs	Total	0		1.000	CN	Child, 1-6 yrs	136	195.82	NR	NR	1	ND	-	-	-

BIXAFEN (262)
Acute RfD= 0,2 mg/kg bw (200 µg/kg bw)

IESTI
Maximum %ARfD: 20% all; 20% gen pop; 20% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Coun try	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
GC 0640	Barley (all commodities)	highest utilisation: Total	0,009–0,08	0	1.000	AU	Gen pop, > 2 yrs	2834	401.27	<25	NR	3	0,01–0,48	0%–0%	0%–0%	0%–0%
GC 0647	Oats (all commodities)	highest utilisation: Total	0,08	0	1.000	CN	Gen pop, > 1 yrs	1740	330.61	<25	NR	3	0,04–0,5	0%–0%	0%–0%	0%–0%
GC 0650	Rye (all commodities)	highest utilisation: Wholemeal	0,02	0	1.000	DE	Child, 2-4 yrs	242	95.20	NR	NR	3	0–0,12	0%–0%	0%–0%	0%–0%
GC 0653	Triticale	Total	0.02		1.000	DE	Gen pop, 14-80 yrs	####	394.70	<25	NR	3	0.10	0%	0%	0%
GC 0654	Wheat (all commodities)	highest utilisation: Pasta/noodles (dry)	0,007–0,052	0	1.000	CN	Child, 1-6 yrs	2023	225.90	NR	NR	3	0–0,28	0%–0%	0%–0%	0%–0%
SO 0495	Rape seed (all commodities)	highest utilisation: Oil (refined)	0,02–0,03	0	1.000	AU	Gen pop, > 2 yrs	2407	40.72	NR	NR	3	0,01–0,02	0%–0%	0%–0%	0%–0%
MM 0095	Meat from mammals other than marine mammals	Total	NA	NA	1.000	CN	Child, 1-6 yrs	302	264.84	NR	NR	1	NA	7%	4%	7%
MM 0095	Meat from mammals other than marine mammals: 20% as fat	Total		1.3	1.000	CN	Child, 1-6 yrs	302	52.97	NR	NR	1	4.27	2%	1%	2%
MM 0095	Meat from mammals other than marine mammals: 80% as muscle	Total		0.71	1.000	CN	Child, 1-6 yrs	302	211.87	NR	NR	1	9.32	5%	3%	5%
MF 0100	Mammalian fats (except milk fats)	Total		1.3	1.000	FR	Child, 3-6 yrs	0	64.80	NR	NR	1	4.46	2%	1%	2%
MO 0105	Edible offal (mammalian)	Total		3.9	1.000	US	Child, 1-6 yrs	-	186.60	NR	NR	1	48.52	20%	20%	20%
ML 0106	Milks	Total	0.082		1.000	NL	toddler, 8-20 m	1882	1060.67	NR	NR	3	8.53	4%	2%	4%
FM 0812	Cattle milk fat	Total	2.05		1.000	BR	Gen pop,	441	150.00	NR	NR	3	4.76	2%	2%	2%

BIXAFEN (262)
Acute RfD= 0,2 mg/kg bw (200 µg/kg bw)

IESTI
Maximum %ARfD: 20% all | 20% gen pop | 20% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Coun try	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
							> 10 yrs									
PM 0110	Poultry meat	Total	NA	NA	1.000	CN	Child, 1-6 yrs	175	347.00	NR	NR	1	NA	0%	0%	0%
PM 0110	Poultry meat: 10% as fat	Total		0.04	1.000	CN	Child, 1-6 yrs	175	34.70	NR	NR	1	0.09	0%	0%	0%
PM 0110	Poultry meat: 90% as muscle	Total		0	1.000	CN	Child, 1-6 yrs	175	312.30	NR	NR	1	0.00	0%	0%	0%
PF 0111	Poultry, fats	Total		0.04	1.000	US	gen pop, all ages	-	42.90	NR	NR	1	0.03	0%	0%	0%
PO 0111	Poultry, edible offal (includes kidney, liver and skin)	Total		0.03	1.000	CN	Gen pop, > 1 yrs	421	345.63	NR	NR	1	0.19	0%	0%	0%
PE 0112	Eggs	Total		0.047	1.000	CN	Child, 1-6 yrs	136	195.82	NR	NR	1	0.57	0%	0%	0%

BUPROFEZIN (173)
Acute RfD= 0.5 mg/kg bw (500 µg/kg bw)

IESTI
Maximum %ARfD: 0% all, 0% gen pop, 0% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Country	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Variability factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
FI 0326	Avocado	Total	0.01	0.01	1.000	AU	Child, 2-6 yrs	182	229.90	171.4	3	2a	0.30	0%	0%	0%
VD 0541	Soya bean (dry) (Glycine spp) (all commodities)	highest utilisation: Total	0.01	0	1.000	CN	Child, 1-6 yrs	179	239.05	<25	NR	3	0.15	0%	0%	0%
HH 0722	Basil	Total	0.45	0.72	1.000	AU	Child, 2-16 yrs	143	44.19	<25	NR	1	0.84	0%	0%	0%

DELTAMETHRIN (135)
Acute RfD= 0.05 mg/kg bw (50 µg/kg bw)

IESTI
Maximum %ARfD: 0% all, 0% gen pop, 0% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Country	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Variability factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
SO 0495	Rape seed	Total	0.07		1.000	DE	Women, 14-50 yrs	248	18.50	<25	NR	3	0.02	0%	0%	-

DIMETHOMORPH (225)
Acute RfD= 0.6 mg/kg bw (600 µg/kg bw)

IESTI
Maximum %ARfD: 60% all | 20% gen pop | 60% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Preset codes (case 1, case 3)	Country	Population group	n	Large portion, g/person	Unit weight Country	Unit weight, RAC, g	% edible portion	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	%acute RfD	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
VL 0483	Lettuce, leaf (all commodities)	highest utilisation: Total	0.77	6.2	1.000		CN	Child, 1-6 yrs	243	387.25	BR	400.0	76%	305.4	3	2a	0.45–383.47	0.08%–63.91%	0%–60%	0%–20%	0%–60%

Annex 4

FIPRONIL (202)
Acute RfD= 0.003 mg/kg bw (3 µg/kg bw)

IESTI
Maximum %ARfD: 20% all; 10% gen pop; 20% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Country	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Variability factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
HH 0722	Basil (all commodities)	highest utilisation: Total	0.23	0.57	1.000	AU	Child, 2-16 yrs	143	44.19	<25	NR	1	0.06–0.66	2%–20%	0%–10%	2%–20%

FLUAZIFOP-P-BUTYL (283) IESTI

Acute RfD= 0.4 mg/kg bw (400 µg/kg bw) Maximum %ARfD: 40% all 20% gen pop 40% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Country	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Variability factor	Case	IESTI µg/kg bw/day	% acute RfD rounded (40% all)	% acute RfD rounded (20% gen pop)	% acute RfD rounded (40% child)
FC 0303	Kumquats (all commodities)	highest utilisation: Total	0	0.0105	1.000	JP	Gen pop, > 1 yrs	135	120.00	<25	NR	1	0–0.03	0%–0%	0%–0%	0%–0%
FC 0204	Lemon (all commodities)	highest utilisation: Total	0.0077–0.055	0.0105	1.000	FR	child, 3-6 yrs	0	58.15	64.0	3	2b	0–0.1	0%–0%	0%–0%	0%–0%
FC 0205	Lime (all commodities)	highest utilisation: Total	0.0077–0.055	0.0105	1.000	AU	Gen pop, > 2 yrs	579	259.21	49.0	3	2a	0–0.06	0%–0%	0%–0%	0%–0%
FC 0003	Mandarins (incl mandarin-like hybrids) (all commodities)	highest utilisation: raw, without peel	0.0077–0.0105	0.0105	1.000	CN	Child, 1-6 yrs	151	586.75	124.3	3	2a	0–0.54	0%–0%	0%–0%	0%–0%
FC 0004	Oranges, sweet, sour (incl orange-like hybrids) (all commodities)	highest utilisation: Total	0.0077–0.055	0.0105	1.000	AU	Child, 2-6 yrs	1735	800.83	155.8	3	2a	0.01–0.61	0%–0%	0%–0%	0%–0%
FC 0005	Pummelo and Grapefruits (incl Shaddock-like hybrids, among others Grapefruit) (all commodities)	highest utilisation: raw, without peel	0.008085–0.05775	0.0105	1.000	DE	Child, 2-4 yrs	12	358.60	178.5	3	2a	0–0.47	0%–0%	0%–0%	0%–0%
FP 0226	Apple (all commodities)	highest utilisation: Total	0.0105	0.0105	1.000	US	Child, 1-6 yrs	-	624.45	127.0	3	2a	0.03–0.61	0%–0%	0%–0%	0%–0%
FP 0227	Crab-apple (all commodities)	highest utilisation: raw with peel	0	0.0105	1.000	CN	Gen pop, > 1 yrs	204	488.33	-	-	-	0–0	0%–0%	0%–0%	0%–0%
FP 0228	Loquat (Japanese medlar) (all commodities)	highest utilisation: raw without peel	0	0.0105	1.000	JP	Gen pop, > 1 yrs	113	326.40	49.0	3	2a	0.02–0.08	0%–0%	0%–0%	0%–0%
FP 0229	Medlar	Total		0.011	1.000	-	-	-	-	-	-	-	-	-	-	-
FP 0230	Pear	highest utilisation:	0.0105	0.0105	1.000	CN	Child, 1-6	413	418.33	255.0	3	2a	0–0.6	0%–0%	0%–0%	0%–0%

FLUAZIFOP-P-BUTYL (283) IESTI
Acute RfD= 0.4 mg/kg bw (400 µg/kg bw) Maximum %ARfD: 40% all 20% gen pop 40% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Country	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Variability factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
	(all commodities)	raw with peel (incl consumption without peel)					yrs									
FT 0307	Persimmon, Japanese (all commodities)	highest utilisation: raw with peel (incl consumption without peel)	0	0.0105	1.000	TH	Child, 3-6 yrs	20	264.88	227.5	3	2a	0.15–0.44	0%–0%	0%–0%	0%–0%
FP 0231	Quince (all commodities)	highest utilisation: Total	0.0105	0.0105	1.000	DE	child, 2-4 yrs	16	26.30	301.2	3	2b	0–0.05	0%–0%	0%–0%	0%–0%
FS 0013	Cherries (all commodities)	highest utilisation: raw	0.0105	0.0105	1.000	DE	Child, 2-4 yrs	24	187.50	7.2	NR	1	0–0.12	0%–0%	0%–0%	0%–0%
FS 0302	Jujube, Chinese	Total		0.011	1.000	CN	Gen pop, > 1 yrs	1328	286.17	-	-	-	-	-	-	-
FS 0014	Plums (all commodities)	highest utilisation: raw with peel (incl consumption without peel)	0.0105	0.0105	1.000	TH	Child, 3-6 yrs	11	376.88	93.0	3	2a	0–0.35	0%–0%	0%–0%	0%–0%
FS 0240	Apricot (all commodities)	highest utilisation: raw with peel (incl consumption without peel)	0.0105	0.0105	1.000	AU	Gen pop, > 2 yrs	77	1056.90	54.5	3	2a	0–0.18	0%–0%	0%–0%	0%–0%
FS 2237	Japanese apricot (ume)	Total		0.011	1.000	JP	Child, 1-6 yrs	25	25.50	<25	NR	1	0.01	0%	0%	0%
FS 0245	Nectarine (all commodities)	highest utilisation: raw with peel (incl consumption without peel)	0.0105	0.0105	1.000	NL	toddler, 8-20 m	6	183.60	131.0	3	2a	0–0.46	0%–0%	0%–0%	0%–0%
FS 0247	Peach (all commodities)	highest utilisation: raw with peel (incl consumption without peel)	0.0105	0.0105	1.000	JP	Child, 1-6 yrs	76	306.00	255.0	3	2a	0–0.55	0%–0%	0%–0%	0%–0%

FLUAZIFOP-P-BUTYL (283)

Acute RfD= 0.4 mg/kg bw (400 µg/kg bw)

IESTI

Maximum %ARfD: 40% all; 20% gen pop; 40% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Country	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Variability factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
FB 0264	Blackberries (all commodities)	highest utilisation: raw with skin	0.0105	0.0105	1.000	DE	Gen pop, 14-80 yrs	35	460.00	2.4	NR	1	0–0.06	0%–0%	0%–0%	0%–0%
FB 0266	Dewberries, incl boysen- & loganberry	Total		0.011	1.000	AU	Child, 2-6 yrs	328	3.23	<25	NR	1	0.00	0%	-	0%
FB 0272	Raspberries, red, black (all commodities)	highest utilisation: Total	0.0105	0.0105	1.000	FR	Child, 3-6 yrs	0	157.50	4.3	NR	1	0–0.09	0%–0%	0%–0%	0%–0%
FB 0021	Currants, red, black, white (all commodities)	highest utilisation: juice (pasteurised)	0.0105	0.0105	1.000	NL	Child, 2-6 yrs	E	525.80	NR	NR	3	0.01–0.3	0%–0%	0%–0%	0%–0%
FB 0268	Gooseberries (all commodities)	highest utilisation: raw with skin	0.0105	0.0105	1.000	DE	Women, 14-50 yrs	10	338.10	<25	NR	1	0–0.05	0%–0%	0%–0%	0%–0%
FB 0269	Grape (all commodities)	highest utilisation: raw with skin	0.0105	0.0105	1.000	CN	Child, 1-6 yrs	232	366.72	636.6	3	2b	0.03–0.72	0%–0%	0%–0%	0%–0%
FB 0275	Strawberry (all commodities)	highest utilisation: Total	0.063	0.126	1.000	FR	Child, 3-6 yrs	0	339.40	13.4	NR	1	0.04–2.26	0%–1%	0%–0%	0%–1%
FT 0305	Table olives (all commodities)	highest utilisation: Total	0.0105	0.0105	1.000	AU	Child, 2-6 yrs	77	66.45	4.4	NR	1	0–0.04	0%–0%	0%–0%	0%–0%
FI 0327	Banana (incl dwarf banana & plantain) (all commodities)	highest utilisation: raw without peel	0.0105	0.0105	1.000	CN	Child, 1-6 yrs	286	455.81	767.3	3	2b	0.01–0.89	0%–0%	0%–0%	0%–0%
VA 0381	Garlic (all commodities)	highest utilisation: raw without skin	0.1224	0.2754	1.000	CN	Child, 1-6 yrs	290	174.44	59.8	3	2a	0–5.02	0%–1%	0%–1%	0%–1%
VA 0385	Onion, bulb (all commodities)	highest utilisation: raw without skin	0.1224	0.2754	1.000	JP	Child, 1-6 yrs	748	102.00	244.4	3	2b	0.04–5.14	0%–1%	0%–1%	0%–1%
VA 0388	Shallot (i.e. dry harvested small onion) (all commodities)	highest utilisation: raw without skin	0.1224	0.2754	1.000	CN	Child, 1-6 yrs	480	115.81	51.4	3	2a	0.1–3.73	0%–1%	0%–0%	0%–1%
VB 0041	Cabbage, head (all commodities)	highest utilisation: raw	0.19685	3.672	1.000	CN	Child, 1-6 yrs	287	255.54	1402.5	3	2b	0.14–174.46	0%–40%	0%–20%	0%–40%

FLUAZIFOP-P-BUTYL (283) IESTI

Acute RfD= 0.4 mg/kg bw (400 µg/kg bw) Maximum %ARfD: 40% all 20% gen pop 40% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Country	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Variability factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
VO 0440	Egg plant (aubergine) (all commodities)	highest utilisation: raw with skin	0.0525	0.2625	1.000	CN	Child, 1-6 yrs	969	253.44	443.9	3	2b	0.06–12.37	0%–3%	0%–2%	0%–3%
VO 0448	Tomato (all commodities)	highest utilisation: dried	0.0525	0.2625	5.000	AU	Gen pop, > 2 yrs	61	861.10	8.0	NR	1	0.28–16.87	0%–4%	0%–4%	0%–3%
VL 0483	Lettuce, leaf (all commodities)	highest utilisation: Total	0.0127	0.0216	1.000	CN	Child, 1-6 yrs	243	387.25	305.4	3	2a	0.01–1.34	0%–0%	0%–0%	0%–0%
VP 0061	Beans, green, with pods, raw: beans except broad bean & soya bean (i.e. immature seeds + pods) (Phaseolus spp) (all commodities)	highest utilisation: canned/preserved	0.32025	4.922	1.000	NL	toddler, 8-20 m	E	127.90	2.3	NR	1	0.48–61.72	0%–20%	0%–10%	0%–20%
VP 0063	Peas green, with pods, raw (i.e. immature seeds + pods) (Pisum spp) (all commodities)	highest utilisation: cooked/boiled	0.441	0.963	1.000	CN	Child, 1-6 yrs	1056	290.21	6.2	NR	1	6.74–17.32	2%–4%	1%–2%	2%–4%
VP 0064	Peas, green, without pods, raw (i.e. immature seeds only) (Pisum spp) (all commodities)	highest utilisation: Total	0.3–0.42	5.8–8.132	1.000	UK	Child, 1.5-4.5 yrs	57	174.00	<25	NR	1	0.35–97.58	0%–20%	0%–20%	0%–20%
VD 0071	Beans (dry) (Phaseolus spp) (all commodities)	highest utilisation: cooked/boiled	2.415	0	0.400	CN	Gen pop, > 1 yrs	722	1313.18	0.5	NR	3	4.8–23.83	1%–6%	0%–6%	0%–5%
VD 0072	Peas (dry) (Pisum spp, Vigna spp) (all commodities)	highest utilisation: cooked/boiled	0.399	0	0.400	CN	Gen pop, > 1 yrs	268	1673.82	<25	NR	3	0.3–5.02	0%–1%	0%–1%	0%–1%
VD 0541	Soya bean (dry) (Glycine spp)	highest utilisation: Total	0.46–3.2	0	1.000	CN	Child, 1-6 yrs	179	239.05	<25	NR	3	0.12–43.56	0%–10%	0%–6%	0%–10%

FLUAZIFOP-P-BUTYL (283)
Acute RfD= 0.4 mg/kg bw (400 μg/kg bw)

IESTI
Maximum %ARfD: 40% all; 20% gen pop; 40% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Country	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Variability factor	Case	IESTI μg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
	(all commodities)															
VR 0497	Swede (rutabaga) (all commodities)	highest utilisation: Total	1.25775	4.76	1.000	UK	Child, 1.5-4.5 yrs	147	124.70	500.0	3	2b	0.07–122.81	0%–30%	0%–20%	0%–30%
VR 0506	Turnip, garden (all commodities)	highest utilisation: cooked/boiled (without peel)	1.25775	4.76	1.000	NL	Child, 2-6 yrs	E	133.31	176.0	3	2b	9.2–103.46	2%–30%	1%–10%	2%–30%
VR 0508	Sweet potato (all commodities)	highest utilisation: Total	1.00425	2.023	1.000	CN	Child, 1-6 yrs	587	376.96	546.0	3	2b	7.07–141.78	2%–40%	2%–20%	10%–40%
VR 0577	Carrot (all commodities)	highest utilisation: raw with skin	0.1755	0.6902	1.000	CN	Child, 1-6 yrs	400	234.68	300.0	3	2b	0.02–30.12	0%–8%	0%–3%	0%–8%
VR 0578	Celeriac (all commodities)	highest utilisation: cooked/boiled (without skin)	0.117	0.4046	1.000	NL	Gen pop, > 1 yrs	23	239.12	437.0	3	2b	0.02–4.41	0%–1%	0%–1%	0%–0%
VR 0589	Potato (all commodities)	highest utilisation: Total	0.0975	0.8–1.1	1.000	ZA	Child, 1-5 yrs	-	299.62	216.0	3	2a	0.07–53.95	0%–10%	0%–4%	0%–10%
VR 0596	Sugar beet (all commodities)	highest utilisation: Total	0.068–0.18525	0.7616	1.000	DE	gen pop, 14-80 yrs	####	161.79	160.0	3	2a	0.99–4.8	0%–1%	0%–1%	0%–0%
VR 0600	Yams (all commodities)	highest utilisation: Total	0	2.023	1.000	CN	Gen pop, > 1 yrs	681	441.46	810.0	3	2b	14.66–50.34	4%–10%	4%–10%	2%–9%
GS 0659	Sugar cane (all commodities)	highest utilisation: thick juice	0.0105	0.0105	1.000	CN	Gen pop, > 1 yrs	436	1817.52	NR	NR	3	0.02–0.36	0%–0%	0%–0%	0%–0%
TN 0660	Almonds (all commodities)	highest utilisation: raw incl roasted	0.0105	0.0105	1.000	DE	Women, 14-50 yrs	24	100.00	1.2	NR	1	0–0.02	0%–0%	0%–0%	0%–0%
TN 0669	Macadamia nut (all commodities)	highest utilisation: Total	0.0105	0.0105	1.000	US	Gen pop, all ages	-	106.60	3.2	NR	1	0–0.02	0%–0%	0%–0%	0%–0%
TN 0672	Pecan (all commodities)	highest utilisation: Total	0.0105	0.0105	1.000	AU	Child, 2-16 yrs	52	80.87	5.0	NR	1	0.01–0.02	0%–0%	0%–0%	0%–0%
TN 0678	Walnut (all commodities)	highest utilisation: raw incl roasted	0.0105	0.0105	1.000	DE	Child, 2-4 yrs	75	49.40	7.0	NR	1	0–0.03	0%–0%	0%–0%	0%–0%
SO 0305	Olives for oil extraction	highest utilisation: oil	0.0105	0.0105	1.000	FR	Child, 3-6 yrs	1	24.99	NR	NR	3	0–0.01	0%–0%	0%–0%	0%–0%

FLUAZIFOP-P-BUTYL (283)
Acute RfD= 0.4 mg/kg bw (400 µg/kg bw)

IESTI
Maximum %ARfD: 40% all; 20% gen pop; 40% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Country	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Variability factor	Case	IESTI µg/kg bw/day	% acute RfD rounded (40% all)	% acute RfD rounded (20% gen pop)	% acute RfD rounded (40% child)
	(all commodities)															
SO 0691	Cotton seed (all commodities)	highest utilisation: Oil (refined)	0.0525	0	1.000	US	gen pop, all ages	-	9.10	NR	NR	3	0–0.01	0%–0%	0%–0%	0%–0%
SO 0702	Sunflower seed (all commodities)	highest utilisation: Total	0.009–0.3045	0	1.000	CN	Gen pop, > 1 yrs	781	235.52	<25	NR	3	0.01–1.35	0%–0%	0%–0%	0%–0%
SB 0716	Coffee beans (all commodities)	highest utilisation: Total	0.0105	0	1.000	FR	Child, 3-6 yrs	0	70.31	0.1	NR	3	0–0.04	0%–0%	0%–0%	0%–0%
MM 0095	Meat from mammals other than marine mammals: 20% as fat	Total		0.081	1.000	CN	Child, 1-6 yrs	302	52.97	NR	NR	1	0.27	0%	0%	0%
MM 0095	Meat from mammals other than marine mammals: 80% as muscle	Total		0.027	1.000	CN	Child, 1-6 yrs	302	211.87	NR	NR	1	0.35	0%	0%	0%
MF 0100	Mammalian fats (except milk fats)	Total		0.081	1.000	FR	Child, 3-6 yrs	0	64.80	NR	NR	1	0.28	0%	0%	0%
MO 0105	Edible offal (mammalian)	Total		0.18	1.000	US	Child, 1-6 yrs	-	186.60	NR	NR	1	2.24	1%	1%	1%
ML 0106	Milks	Total	0.1		1.000	NL	toddler, 8-20 m	1882	1060.67	NR	NR	3	10.40	3%	1%	3%
PM 0110	Poultry meat: 10% as fat	Total		0.025	1.000	CN	Child, 1-6 yrs	175	34.70	NR	NR	1	0.05	0%	0%	0%
PM 0110	Poultry meat: 90% as muscle	Total		0.025	1.000	CN	Child, 1-6 yrs	175	312.30	NR	NR	1	0.48	0%	0%	0%
PF 0111	Poultry, fats (all commodities)	highest utilisation: Total	0	0.025–0.082	1.000	CN	Gen pop, > 1 yrs	421	345.63	NR	NR	1	0.02–0.53	0%–0%	0%–0%	0%–0%
PE 0112	Eggs	Total		0.027	1.000	CN	Child, 1-6 yrs	136	195.82	NR	NR	1	0.33	0%	0%	0%

FLUENSULFONE (265)
Acute RfD= 0.3 mg/kg bw (300 µg/kg bw)

IESTI
Maximum %ARfD: 9% all | 5% gen pop | 9% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Country	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Variability factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
FB 0020	Blueberries (all commodities)	highest utilisation: sauce/puree	0.01	0.01	1.000	NL	Child, 2-6 yrs	E	109.70	NR	NR	3	0–0.06	0%–0%	0%–0%	0%–0%
FB 0265	Cranberry (all commodities)	highest utilisation: Total	0.01	0.01	1.000	AU	Child, 2-16 yrs	103	279.66	1.8	NR	1	0–0.07	0%–0%	0%–0%	0%–0%
FB 0275	Strawberry (all commodities)	highest utilisation: Total	0.01	0.01	1.000	FR	Child, 3-6 yrs	0	339.40	13.4	NR	1	0.01–0.18	0%–0%	0%–0%	0%–0%
VB 0041	Cabbage, head (all commodities)	highest utilisation: raw	0.01	0.01	1.000	CN	Child, 1-6 yrs	287	255.54	1402.5	3	2b	0.01–0.48	0%–0%	0%–0%	0%–0%
VB 0400	Broccoli (all commodities)	highest utilisation: cooked/boiled	0.01	0.01	1.000	NL	toddler, 8-20 m	125	160.73	286.0	3	2b	0.02–0.47	0%–0%	0%–0%	0%–0%
VB 0401	Broccoli, Chinese (Kailan) (all commodities)	highest utilisation: raw	0	0.01	1.000	CN	Child, 1-6 yrs	334	222.48	311.0	3	2b	0.14–0.41	0%–0%	0%–0%	0%–0%
VB 0402	Brussels sprouts (all commodities)	highest utilisation: cooked/boiled	0.01	0.01	1.000	NL	toddler, 8-20 m	11	103.77	8.0	NR	1	0–0.1	0%–0%	0%–0%	0%–0%
VB 0404	Cauliflower (all commodities)	highest utilisation: cooked/boiled	0.01	0.01	1.000	NL	toddler, 8-20 m	110	141.99	749.0	3	2b	0–0.42	0%–0%	0%–0%	0%–0%
VB 0405	Kohlrabi (all commodities)	highest utilisation: Total	0	0.01	1.000	DE	Child, 2-4 yrs	34	161.80	175.2	3	2b	0.03–0.3	0%–0%	0%–0%	0%–0%
VC 0046	Melons, except watermelon (all commodities)	highest utilisation: Total	0.01	0.01	1.000	FR	Child, 3-6 yrs	0	358.11	420.0	3	2b	0–0.57	0%–0%	0%–0%	0%–0%
VC 0424	Cucumber (all commodities)	highest utilisation: raw with skin	0.01	0.017	1.000	CN	Child, 1-6 yrs	340	212.11	458.1	3	2b	0–0.67	0%–0%	0%–0%	0%–0%
VC 0431	Squash, summer (courgette, marrow, zucchetti, zucchini) (all commodities)	highest utilisation: Total	0.01	0.017	1.000	FR	Child, 3-6 yrs	0	148.84	270.0	3	2b	0.01–0.4	0%–0%	0%–0%	0%–0%
VC 0432	Watermelon	highest utilisation:	0.01	0.01	1.000	AU	Gen pop, >	267	2542.18	2095.6	3	2a	0.86–1	0%–0%	0%–0%	0%–0%

FLUENSULFONE (265)
Acute RfD= 0.3 mg/kg bw (300 µg/kg bw)

IESTI
Maximum %ARfD: 9% all; 5% gen pop; 9% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Country	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Variability factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
	(all commodities)	Total					2 yrs									
VO 0440	Egg plant (aubergine) (all commodities)	highest utilisation: raw with skin	0.01	0.01	1.000	CN	Child, 1-6 yrs	969	253.44	443.9	3	2b	0.01–0.47	0%–0%	0%–0%	0%–0%
VO 0442	Okra (Lady's finger) (all commodities)	highest utilisation: cooked/boiled (with skin)	0	0.01	1.000	JP	Child, 1-6 yrs	58	84.30	8.5	NR	1	0.04–0.05	0%–0%	0%–0%	0%–0%
VO 0443	Pepino (Melon pear, Tree melon)	Total		0.01	1.000	AU	Gen pop, > 2 yrs	3	73.89	122.9	3	2b	0.03	0%	0%	-
VO 0444	Peppers, chili (all commodities)	highest utilisation: dried (incl powder)	0.01–0.1	0.01–0.1	7.000	CN	Gen Pop, > 1 yrs	1583	32.22	0.0	NR	1	0–0.42	0%–0%	0%–0%	0%–0%
VO 0445	Peppers, sweet (incl. pim(i)ento) (bell pepper, paprika) (all commodities)	highest utilisation: raw with skin	0.01	0.01	1.000	CN	Child, 1-6 yrs	1002	169.85	170.0	3	2b	0–0.32	0%–0%	0%–0%	0%–0%
VO 0448	Tomato (all commodities)	highest utilisation: dried	0.01	0.01	5.000	AU	Gen pop, > 2 yrs	61	861.10	8.0	NR	1	0.05–0.64	0%–0%	0%–0%	0%–0%
-	Gilo (scarlet egg plant) (all commodities)	highest utilisation: cooked/boiled (with skin)	0.01	0.01	1.000	BR	Gen pop, > 10 yrs	280	360.50	28.5	3	2a	0–0.06	0%–0%	0%–0%	0%–0%
VL 0269	Grape leaves (all commodities)	highest utilisation: canned/preserved	0	0.01	1.000	NL	Gen pop, > 1 yrs	1	54.81	1.4	NR	1	0.01–0.01	0%–0%	0%–0%	0%–0%
VL 0460	Amaranth (Bledo) (all commodities)	highest utilisation: raw	0	0.01	1.000	CN	Gen pop, > 1 yrs	714	581.72	85.8	3	2a	0.08–0.14	0%–0%	0%–0%	0%–0%
VL 0464	Chard (silver beet) (all commodities)	highest utilisation: cooked/boiled	0	0.01	1.000	NL	Child, 2-6 yrs	2	81.77	105.0	3	2b	0.04–0.13	0%–0%	0%–0%	0%–0%
VL 0465	Chervil (all commodities)	highest utilisation: raw	0.01	0.01	1.000	NL	Child, 2-6 yrs	E	3.50	<25	NR	1	0–0	0%–0%	0%–0%	0%–0%
VL 0466	Chinese cabbage, type pak-choi (all commodities)	highest utilisation: raw	0.01	0.01	1.000	CN	Child, 1-6 yrs	1966	327.07	1548.4	3	2b	0–0.61	0%–0%	0%–0%	0%–0%
VL 0467	Chinese cabbage, type	highest utilisation:	0.01	0.01	1.000	CN	Child, 1-6	2788	336.16	1500.0	3	2b	0–0.63	0%–0%	0%–0%	0%–0%

FLUENSULFONE (265)
Acute RfD= 0.3 mg/kg bw (300 µg/kg bw)

IESTI
Maximum %ARfD: 9% all | 5% gen pop | 9% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Coun try	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
	pe-tsai (all commodities)	Total					yrs									
VL 0469	Chicory leaves (sugar loaf) (all commodities)	highest utilisation: raw	0	0.01	1.000	DE	Child, 2-4 yrs	16	82.40	280.5	3	2b	0.03–0.15	0%–0%	0%–0%	0%–0%
VL 0470	Corn salad (lambs lettuce) (all commodities)	highest utilisation: raw	0	0.01	1.000	DE	Child, 2-4 yrs	13	41.20	7.8	NR	1	0.01–0.03	0%–0%	0%–0%	0%–0%
VL 0472	Cress, garden (all commodities)	highest utilisation: raw	0	0.01	1.000	CN	Gen pop, > 1 yrs	1443	352.50	15.0	NR	1	0–0.07	0%–0%	0%–0%	0%–0%
VL 0473	Watercress (all commodities)	highest utilisation: raw	0	0.01	1.000	BR	gen pop, > 10 yrs	97	90.92	254.6	3	2b	0.04–0.04	0%–0%	0%–0%	0%–0%
VL 0474	Dandelion leaves (all commodities)	highest utilisation: raw	0	0.01	1.000	NL	gen pop, > 1 yrs	E	49.88	35.0	3	2a	0.02–0.02	0%–0%	0%–0%	0%–0%
VL 0476	Endive (all commodities)	highest utilisation: cooked/boiled	0.01	0.01	1.000	NL	toddler, 8-20 m	22	135.23	251.0	3	2b	0.04–0.4	0%–0%	0%–0%	0%–0%
VL 0478	Indian mustard (Amsoi) (all commodities)	highest utilisation: raw	0	0.01	1.000	NL	Gen pop, > 1 yrs	E	49.88	250.0	3	2b	0.02–0.02	0%–0%	0%–0%	0%–0%
VL 0479	Japanese greens: Chrysanthemum leaves (Chrysanthemum spp) (all commodities)	highest utilisation: raw	0	0.01	1.000	CN	Gen pop, > 1 yrs	993	332.67	<25	NR	1	0.02–0.06	0%–0%	0%–0%	0%–0%
VL 0480	Kale (borecole, collards) (all commodities)	highest utilisation: Total	0.01	0.01	1.000	DE	Gen pop, 14-80 yrs	123	669.80	672.0	3	2b	0.02–0.26	0%–0%	0%–0%	0%–0%
VL 0481	Komatsuna	Total		0.01	1.000	JP	Child, 1-6 yrs	73	71.40	<25	NR	1	0.04	0%	0%	0%
VL 0482	Lettuce, head (all commodities)	highest utilisation: raw	0.01	0.018	1.000	NL	Child, 2-6 yrs	91	140.10	338.9	3	2b	0.01–0.41	0%–0%	0%–0%	0%–0%

FLUENSULFONE (265)
Acute RfD= 0.3 mg/kg bw (300 µg/kg bw)

IESTI
Maximum %ARfD: 9% all; 5% gen pop; 9% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Coun try	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
VL 0483	Lettuce, leaf (all commodities)	highest utilisation: Total	0.01	0.01	1.000	CN	Child, 1-6 yrs	243	387.25	305.4	3	2a	0.01–0.62	0%–0%	0%–0%	0%–0%
VL 0485	Mustard greens (all commodities)	highest utilisation: raw	0.01	0.01	1.000	CN	Child, 1-6 yrs	635	299.31	244.8	3	2a	0.04–0.49	0%–0%	0%–0%	0%–0%
VL 0492	Purslane (all commodities)	highest utilisation: cooked/boiled	0	0.01	1.000	NL	Gen pop, > 1 yrs	5	271.23	<25	NR	1	0.01–0.04	0%–0%	0%–0%	0%–0%
VL 0494	Radish leaves	Total		0.01	1.000	-	-	-	-	-	-	-	-	-	-	-
VL 0495	Rape greens (all commodities)	highest utilisation: cooked/boiled	0	0.01	1.000	JP	Gen pop, > 1 yrs	533	147.90	34.0	3	2a	0.04–0.04	0%–0%	0%–0%	0%–0%
VL 0496	Rucola (arrugula, rocket salad, roquette) (all commodities)	highest utilisation: Total	0	0.01	1.000	AU	Gen pop, > 2 yrs	10	157.33	212.8	3	2b	0.01–0.07	0%–0%	0%–0%	0%–0%
VL 0501	Sowthistle (all commodities)	highest utilisation: raw	0	0.01	1.000	CN	Gen pop, > 1 yrs	1187	592.49	-	-	-	0–0	0%–0%	0%–0%	0%–0%
VL 0502	Spinach (all commodities)	highest utilisation: Total	0.01	0.01	1.000	ZA	Child, 1-5 yrs	-	237.48	197.8	3	2a	0–0.45	0%–0%	0%–0%	0%–0%
VL 0505	Taro leaves (all commodities)	highest utilisation: raw	0	0.01	1.000	NL	Gen pop, > 1 yrs	E	77.78	85.8	3	2b	0.04–0.04	0%–0%	0%–0%	0%–0%
VL 0506	Turnip greens (Namenia, Tendergreen) (all commodities)	highest utilisation: cooked/boiled	0	0.01	1.000	NL	toddler, 8-20 m	64	90.73	<25	NR	1	0.02–0.09	0%–0%	0%–0%	0%–0%
VL 0507	Kangkung (water spinach) (all commodities)	highest utilisation: raw	0	0.01	1.000	CN	Child, 1-6 yrs	183	270.70	85.8	3	2a	0.04–0.27	0%–0%	0%–0%	0%–0%
VL 0510	Cos lettuce (all commodities)	highest utilisation: raw	0.01	0.01	1.000	NL	Child, 2-6 yrs	91	140.10	289.9	3	2b	0.01–0.23	0%–0%	0%–0%	0%–0%
-	Perilla leaves (i.e. sesame leaves) (all commodities)	highest utilisation: pickled/salted	0.01	0.01	1.000	CN	Gen pop, > 1 yrs	183	175.21	NR	NR	3	0.03–0.03	0%–0%	0%–0%	0%–0%
VP 0061	Beans, green, with	highest utilisation:	0.01	0.01	1.000	NL	toddler, 8-	E	127.90	2.3	NR	1	0.02–0.13	0%–0%	0%–0%	0%–0%

FLUENSULFONE (265)
Acute RfD= 0.3 mg/kg bw (300 µg/kg bw)

IESTI
Maximum %ARfD: 9% all; 5% gen pop; 9% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Coun try	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
	pods, raw: beans except broad bean & soya bean (i.e. immature seeds + pods) (Phaseolus spp) (all commodities)	canned/preserved					20 m									
VP 0062	Beans, green, without pods, raw: beans except broad bean & soya bean (i.e. immature seeds only) (Phaseolus spp.) (all commodities)	highest utilisation: Total	0.01	0.01	1.000	FR	Child, 3-6 yrs	1	219.56	5.8	NR	1	0–0.12	0%–0%	0%–0%	0%–0%
VP 0063	Peas green, with pods, raw (i.e. immature seeds + pods) (Pisum spp) (all commodities)	highest utilisation: cooked/boiled	0.01	0.01	1.000	CN	Child, 1-6 yrs	1056	290.21	6.2	NR	1	0.07–0.18	0%–0%	0%–0%	0%–0%
VP 0064	Peas, green, without pods, raw (i.e. immature seeds only) (Pisum spp) (all commodities)	highest utilisation: Total	0.01	0.01	1.000	UK	Child, 1.5-4.5 yrs	57	174.00	<25	NR	1	0.01–0.12	0%–0%	0%–0%	0%–0%
VP 0520	Bambara groundnut, green, without pods (i.e. immature seeds only) (Voandzeia spp)	Total		0.01	1.000	AU	Gen pop, > 2 yrs	22	186.07	<25	NR	1	0.03	0%	-	-
VP 0522	Broad bean, green, with pods (i.e. immature seeds + pods) (Vicia spp)	highest utilisation: cooked/boiled	0	0.01	1.000	JP	Gen pop, > 1 yrs	216	153.00	<25	NR	1	0.02–0.03	0%–0%	0%–0%	0%–0%

FLUENSULFONE (265)
Acute RfD= 0.3 mg/kg bw (300 µg/kg bw)

IESTI
Maximum %ARfD: 9% all | 5% gen pop | 9% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Coun try	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
	(all commodities)															
VP 0523	Broad beans, green, without pods, raw (i.e. immature seeds only) (Vicia faba) (all commodities)	highest utilisation: frozen	0.01	0.01	1.000	NL	Child, 2-6 yrs	E	100.00	5.8	NR	1	0–0.05	0%–0%	0%–0%	0%–0%
VP 0541	Soya bean, green, without pods, raw (i.e. immature seeds only) (Glycine max) (all commodities)	highest utilisation: cooked/boiled	0	0.01	1.000	CN	Child, 1-6 yrs	195	260.25	<25	NR	1	0.02–0.16	0%–0%	0%–0%	0%–0%
VP 0542	Sword bean, green, with pods (i.e. immature seeds + pods) (Canavalia spp) (all commodities)	highest utilisation: cooked/boiled	0	0.01	1.000	CN	Gen pop, > 1 yrs	891	316.83	<25	NR	1	0.06–0.06	0%–0%	0%–0%	0%–0%
VP 0553	Lentil, green, with pods (i.e. immature seeds + pods) (Lens spp) (all commodities)	highest utilisation: cooked/boiled	0	0.01	1.000	CN	Child, 1-6 yrs	371	345.76	<25	NR	1	0.03–0.21	0%–0%	0%–0%	0%–0%
VR 0463	Cassava (Manioc, Tapioca) (all commodities)	highest utilisation: cooked/boiled (without peel)	0.01	0.01	1.000	NL	Gen pop, > 1 yrs	E	249.97	356.0	3	2b	0.01–0.11	0%–0%	0%–0%	0%–0%
VR 0469	Chicory, roots (all commodities)	highest utilisation: Total	0.01	0.01	1.000	AU	Gen pop, > 2 yrs	175	26.16	48.0	3	2b	0.01–0.01	0%–0%	0%–0%	0%–0%
VR 0494	Radish (all commodities)	highest utilisation: raw with skin	0.12	0.5	1.000	NL	Child, 2-6 yrs	E	64.40	172.0	3	2b	0.01–5.25	0%–2%	0%–1%	0%–2%
VR 0497	Swede (rutabaga) (all commodities)	highest utilisation: Total	0.12	0.5	1.000	UK	Child, 1.5-4.5 yrs	147	124.70	500.0	3	2b	0.01–12.9	0%–4%	0%–2%	0%–4%
VR 0498	Salsify (Oyster plant)	highest utilisation:	0.01	0.01	1.000	NL	Child, 2-6	E	133.31	57.0	3	2a	0–0.13	0%–0%	0%–0%	0%–0%

FLUENSULFONE (265)
Acute RfD= 0.3 mg/kg bw (300 µg/kg bw)

IESTI
Maximum %ARfD: 9% all; 5% gen pop; 9% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Coun try	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
	(all commodities)	cooked/boiled (without peel)					yrs									
VR 0504	Tannia (tanier, yautia) (all commodities)	highest utilisation: cooked/boiled (without peel)	0.01	0.01	1.000	NL	Gen pop, > 1 yrs	E	249.97	170.0	3	2a	0.01–0.09	0%–0%	0%–0%	0%–0%
VR 0505	Taro (dasheen, eddoe) (all commodities)	highest utilisation: cooked/boiled (without peel)	0	0.01	1.000	CN	Child, 1-6 yrs	199	384.18	667.8	3	2b	0.71–0.71	0%–0%	0%–0%	0%–0%
VR 0506	Turnip, garden (all commodities)	highest utilisation: cooked/boiled (without peel)	0.12	0.5	1.000	NL	Child, 2-6 yrs	E	133.31	176.0	3	2b	0.88–10.87	0%–4%	0%–1%	0%–4%
VR 0508	Sweet potato (all commodities)	highest utilisation: Total	0.01	0.01	1.000	CN	Child, 1-6 yrs	587	376.96	546.0	3	2b	0.07–0.7	0%–0%	0%–0%	0%–0%
VR 0573	Arrowroot (all commodities)	highest utilisation: starch	0.01	0.01	1.000	NL	Child, 2-6 yrs	E	12.40	NR	NR	3	0.01–0.01	0%–0%	0%–0%	0%–0%
VR 0574	Beetroot (all commodities)	highest utilisation: Total	0.12	0.5	1.000	AU	Child, 2-6 yrs	53	314.08	135.5	3	2a	0.07–15.39	0%–5%	0%–2%	0%–5%
VR 0575	Burdock, greater or edible	Total		0.01	1.000	JP	Child, 1-6 yrs	122	35.70	-	-	-	-	-	-	-
VR 0577	Carrot (all commodities)	highest utilisation: raw with skin	0.12	0.5	1.000	CN	Child, 1-6 yrs	400	234.68	300.0	3	2b	0.01–21.82	0%–7%	0%–3%	0%–7%
VR 0578	Celeriac (all commodities)	highest utilisation: cooked/boiled (without skin)	0.12	0.5	1.000	NL	Gen pop, > 1 yrs	23	239.12	437.0	3	2b	0.02–5.45	0%–2%	0%–2%	0%–1%
VR 0583	Horseradish (all commodities)	highest utilisation: Total	0	0.5	1.000	DE	Gen pop, 14-80 yrs	47	79.50	154.0	3	2b	0.02–1.56	0%–1%	0%–1%	0%–0%
VR 0585	Jerusalem artichoke (all commodities)	highest utilisation: cooked/boiled (without peel)	0	0.01	1.000	NL	Child, 2-6 yrs	E	133.33	56.0	3	2a	0–0.13	0%–0%	0%–0%	0%–0%
VR 0587	parsley, turnip-rooted (all commodities)	highest utilisation: dried (slab)	0.01	0.01	5.000	CN	Child, 1-6 yrs	427	22.79	NR	NR	3	0.07–0.07	0%–0%	0%–0%	0%–0%

FLUENSULFONE (265)
Acute RfD= 0.3 mg/kg bw (300 µg/kg bw)

IESTI
Maximum %ARfD: 9% all, 5% gen pop, 9% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Coun try	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded (9% all)	% acute RfD rounded (5% gen pop)	% acute RfD rounded (9% child)
VR 0588	Parsnip (all commodities)	highest utilisation: Total	0.12	0.5	1.000	UK	Child, 1.5-4.5 yrs	87	227.07	90.0	3	2a	1.14–14.04	0%–5%	0%–2%	4%–5%
VR 0589	Potato (all commodities)	highest utilisation: Total	0.01	0.01	1.000	ZA	Child, 1-5 yrs	-	299.62	216.0	3	2a	0.01–0.52	0%–0%	0%–0%	0%–0%
VR 0590	Radish, black (all commodities)	highest utilisation: raw without skin	0.01	0.01	1.000	NL	Child, 2-6 yrs	E	64.40	180.3	3	2b	0–0.11	0%–0%	0%–0%	0%–0%
VR 0591	Radish, Japanese (Chinese radish, Daikon) (all commodities)	highest utilisation: raw without skin	0.12	0.5	1.000	CN	Child, 1-6 yrs	1187	293.37	1000.0	3	2b	0.01–27.27	0%–9%	0%–5%	0%–9%
VR 0596	Sugar beet (all commodities)	highest utilisation: sugar	0.01	0.01	1.000	FR	Child, 3-6 yrs	1	274.67	NR	NR	3	0.06–0.15	0%–0%	0%–0%	0%–0%
VR 0600	Yams (all commodities)	highest utilisation: Total	0	0.01	1.000	CN	Gen pop, > 1 yrs	681	441.46	810.0	3	2b	0.07–0.25	0%–0%	0%–0%	0%–0%
-	Lotus root (all commodities)	highest utilisation: cooked/boiled without peel	0	0.01	1.000	TH	Child, 3-6 yrs	169	134.24	<25	NR	1	0.02–0.08	0%–0%	0%–0%	0%–0%
VS 0624	Celery (all commodities)	highest utilisation: raw	0.1085	0.55	1.000	CN	Child, 1-6 yrs	454	180.29	861.1	3	2b	0.01–18.44	0%–6%	0%–4%	0%–6%
MM 0095	Meat from mammals other than marine mammals	Total	NA	NA	1.000	CN	Child, 1-6 yrs	302	264.84	NR	NR	1	NA	0%	0%	0%
MM 0095	Meat from mammals other than marine mammals: 20% as fat	Total		0	1.000	CN	Child, 1-6 yrs	302	52.97	NR	NR	1	0.00	0%	0%	0%
MM 0095	Meat from mammals other than marine mammals: 80% as muscle	Total		0	1.000	CN	Child, 1-6 yrs	302	211.87	NR	NR	1	0.00	0%	0%	0%
MF 0100	Mammalian fats (except milk fats)	Total		0	1.000	FR	Child, 3-6 yrs	0	64.80	NR	NR	1	0.00	0%	0%	0%

FLUENSULFONE (265)
Acute RfD= 0.3 mg/kg bw (300 µg/kg bw)

IESTI
Maximum %ARfD: 9% all; 5% gen pop; 9% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Coun try	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded (all)	% acute RfD rounded (gen pop)	% acute RfD rounded (child)
MO 0105	Edible offal (mammalian)	Total		0	1.000	US	Child, 1-6 yrs	-	186.60	NR	NR	1	0.00	0%	0%	0%
ML 0106	Milks	Total	0		1.000	NL	toddler, 8-20 m	1882	1060.67	NR	NR	3	0.00	0%	0%	0%
FM 0812	Cattle milk fat	Total	0		1.000	BR	Gen pop, > 10 yrs	441	150.00	NR	NR	3	0.00	0%	0%	0%
PM 0110	Poultry meat	Total	NA	NA	1.000	CN	Child, 1-6 yrs	175	347.00	NR	NR	1	NA	0%	0%	0%
PM 0110	Poultry meat: 10% as fat	Total		0.0021	1.000	CN	Child, 1-6 yrs	175	34.70	NR	NR	1	0.00	0%	0%	0%
PM 0110	Poultry meat: 90% as muscle	Total		0	1.000	CN	Child, 1-6 yrs	175	312.30	NR	NR	1	0.00	0%	0%	0%
PF 0111	Poultry, fats (all commodities)	highest utilisation: Total	0	0–0.0021	1.000	US	gen pop, all ages	-	42.90	NR	NR	1	0–0	0%–0%	0%–0%	0%–0%
PE 0112	Eggs	Total		0	1.000	CN	Child, 1-6 yrs	136	195.82	NR	NR	1	0.00	0%	0%	0%

FLUPYRADIFURONE (285)
Acute RfD= 0.2 mg/kg bw (200 µg/kg bw)

IESTI Maximum %ARfD: 610% all; 250% gen pop; 610% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Country	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Variability factor	Case	IESTI µg/kg bw/day	% acute RfD rounded (all)	% acute RfD rounded (gen pop)	% acute RfD rounded (child)
FC 0204	Lemon (all commodities)	highest utilisation: Total	0.068–0.32	0.73	1.000	FR	child, 3-6 yrs	0	58.15	64.0	3	2b	0.13–6.74	0%–3%	0%–2%	0%–3%
FC 0205	Lime (all commodities)	highest utilisation: Total	0.068–0.32	0.73	1.000	AU	Gen pop, > 2 yrs	579	259.21	49.0	3	2a	0.03–3.89	0%–2%	0%–2%	0%–2%
FC 0003	Mandarins (incl mandarin-like hybrids) (all commodities)	highest utilisation: raw, without peel	0.068–0.44	0.99	1.000	CN	Child, 1-6 yrs	151	586.75	124.3	3	2a	0.04–51.26	0%–30%	0%–10%	0%–30%
FC 0004	Oranges, sweet, sour (incl orange-like hybrids) (all commodities)	highest utilisation: Total	0.068–0.505	2.2	1.000	AU	Child, 2-6 yrs	1735	800.83	155.8	3	2a	0.34–128.81	0%–60%	0%–40%	0%–60%
FC 0005	Pummelo and Grapefruits (incl Shaddock-like hybrids, among others Grapefruit) (all commodities)	highest utilisation: raw, without peel	0.068–0.21	0.32	1.000	DE	Child, 2-4 yrs	12	358.60	178.5	3	2a	0.04–14.18	0%–7%	0%–4%	0%–7%
FP 0226	Apple (all commodities)	highest utilisation: Total	0.14–0.45	0.69–1.2	1.000	US	Child, 1-6 yrs	-	624.45	127.0	3	2a	1.36–40.41	1%–20%	0%–8%	1%–20%
FP 0227	Crab-apple (all commodities)	highest utilisation: raw with peel	0	0.69	1.000	CN	Gen pop, > 1 yrs	204	488.33	-	-	-	0–0	0%–0%	0%–0%	0%–0%
FP 0228	Loquat (Japanese medlar) (all commodities)	highest utilisation: raw without peel	0	0.69	1.000	JP	Gen pop, > 1 yrs	113	326.40	49.0	3	2a	1.22–5.4	1%–3%	1%–3%	0%–0%
FP 0229	Medlar	Total		0.69	1.000	-	-	-	-	-	-	-	-	-	-	-
FP 0230	Pear (all commodities)	highest utilisation: raw with peel (incl consumption without	0.45	0.69	1.000	CN	Child, 1-6 yrs	413	418.33	255.0	3	2a	0.12–39.7	0%–20%	0%–8%	0%–20%

FLUPYRADIFURONE (285)
Acute RfD= 0.2 mg/kg bw (200 µg/kg bw)

IESTI Maximum %ARfD: 610% all; 250% gen pop; 610% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Coun try	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded (all)	% acute RfD rounded (gen pop)	% acute RfD rounded (child)
		peel)														
FT 0307	Persimmon, Japanese (all commodities)	highest utilisation: raw with peel (incl consumption without peel)	0	0.69	1.000	TH	Child, 3-6 yrs	20	264.88	227.5	3	2a	10.15–29.05	5%–10%	5%–8%	10%–10%
FP 0231	Quince (all commodities)	highest utilisation: Total	0.45	0.69	1.000	DE	child, 2-4 yrs	16	26.30	301.2	3	2b	0.01–3.37	0%–2%	0%–0%	0%–2%
FB 0020	Blueberries (all commodities)	highest utilisation: raw with skin	0.725	2.6	1.000	DE	Gen pop, 14-80 yrs	70	388.00	1.8	NR	1	0.11–13.21	0%–7%	0%–7%	0%–5%
FB 0021	Currants, red, black, white (all commodities)	highest utilisation: Total	0.725	2.6	1.000	AU	Gen pop, > 2 yrs	322	797.60	14.9	NR	1	0.47–30.95	0%–20%	0%–20%	0%–10%
FB 0268	Gooseberries (all commodities)	highest utilisation: raw with skin	0.725	2.6	1.000	DE	Women, 14-50 yrs	10	338.10	<25	NR	1	0.14–13.03	0%–7%	0%–6%	0%–1%
FB 0273	Rose hips (all commodities)	highest utilisation: jam (incl jelly)	0.725	2.6	1.000	NL	Child, 2-6 yrs	E	55.70	NR	NR	3	0.46–2.19	0%–1%	0%–0%	0%–1%
FB 0269	Grape (all commodities)	highest utilisation: raw with skin	0.26–0.63	2.3–5.8	1.000	CN	Child, 1-6 yrs	232	366.72	636.6	3	2b	3.48–156.82	2%–80%	1%–40%	0%–80%
FB 0275	Strawberry (all commodities)	highest utilisation: Total	1.505	2.74	1.000	FR	Child, 3-6 yrs	0	339.40	13.4	NR	1	0.85–49.2	0%–20%	0%–10%	0%–20%
VA 0381	Garlic (all commodities)	highest utilisation: raw without skin	0.18	0.39	1.000	CN	Child, 1-6 yrs	290	174.44	59.8	3	2a	0.01–7.11	0%–4%	0%–1%	0%–4%
VA 0384	Leek (all commodities)	highest utilisation: raw	0.18	0.39	1.000	CN	Child, 1-6 yrs	401	149.40	175.5	3	2b	0.02–10.83	0%–5%	0%–2%	0%–5%
VA 0385	Onion, bulb (all commodities)	highest utilisation: raw without skin	0.18	0.39	1.000	JP	Child, 1-6 yrs	748	102.00	244.4	3	2b	0.07–7.28	0%–4%	0%–2%	0%–4%
VA 0386	Onion, Chinese (all commodities)	highest utilisation: raw	0	0.39	1.000	CN	Child, 1-6 yrs	196	136.53	-	-	-	0–0	0%–0%	0%–0%	0%–0%
VA 0387	Onion, Welsh (Japanese bunching onion, multiplying	highest utilisation: raw	0	0.39	1.000	JP	Child, 1-6 yrs	305	35.70	97.0	3	2b	1.66–2.46	1%–1%	1%–1%	1%–1%

Annex 4

FLUPYRADIFURONE (285)
Acute RfD= 0.2 mg/kg bw (200 µg/kg bw)

IESTI Maximum %ARfD:	610% all	250% gen pop	610% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Coun try	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
	onion) (all commodities)															
VA 0388	Shallot (i.e. dry harvested small onion) (all commodities)	highest utilisation: raw without skin	0.18	0.39	1.000	CN	Child, 1-6 yrs	480	115.81	51.4	3	2a	0.14–5.28	0%–3%	0%–1%	0%–3%
VA 0389	Spring onion (all commodities)	highest utilisation: cooked/boiled	0	0.39	1.000	NL	Child, 2-6 yrs	E	20.30	30.0	3	2b	0.99	0%	0%	0%
VB 0041	Cabbage, head (all commodities)	highest utilisation: raw	0.79	1.71	1.000	CN	Child, 1-6 yrs	287	255.54	1402.5	3	2b	0.57–81.24	0%–40%	1%–20%	0%–40%
VB 0404	Cauliflower (all commodities)	highest utilisation: cooked/boiled	0.48	3.01	1.000	NL	toddler, 8-20 m	110	141.99	749.0	3	2b	0.08–125.71	0%–60%	0%–40%	0%–60%
VC 0046	Melons, except watermelon (all commodities)	highest utilisation: Total	0.57	1.07	1.000	FR	Child, 3-6 yrs	0	358.11	420.0	3	2b	0.03–60.82	0%–30%	0%–20%	0%–30%
VC 0431	Squash, summer (courgette, marrow, zucchetti, zucchini) (all commodities)	highest utilisation: Total	0.655	2.19	1.000	FR	Child, 3-6 yrs	0	148.84	270.0	3	2b	0.41–51.74	0%–30%	0%–20%	0%–30%
VO 0444	Peppers, chili (all commodities)	highest utilisation: dried (incl powder)	0.68	2.39–23.9	10.000	CN	Gen Pop, > 1 yrs	1583	32.22	0.0	NR	1	0.01–144.67	0%–70%	0%–70%	0%–20%
VO 0445	Peppers, sweet (incl. pim(i)ento) (bell pepper, paprika) (all commodities)	highest utilisation: raw with skin	0.68	2.39	1.000	CN	Child, 1-6 yrs	1002	169.85	170.0	3	2b	0.12–75.47	0%–40%	0%–10%	0%–40%
VO 0447	Sweet corn (corn-on-the-cob) (all commodities)	highest utilisation: cooked/boiled	0.56	1.59	1.000	TH	Child, 3-6 yrs	1383	196.99	191.1	3	2a	0.47–53.85	0%–30%	0%–10%	0%–30%
VO 0448	Tomato (all commodities)	highest utilisation: dried	0.48–1.3	2.79	5.000	AU	Gen pop, > 2 yrs	61	861.10	8.0	NR	1	3.75–179.29	2%–90%	1%–90%	2%–50%
VL 0482	Lettuce, head	highest utilisation:	1.3	2.4	1.000	NL	Child, 2-6	91	140.10	338.9	3	2b	0.76–54.82	0%–30%	0%–10%	0%–30%

FLUPYRADIFURONE (285)
Acute RfD= 0.2 mg/kg bw (200 µg/kg bw)

IESTI Maximum %ARfD: 610% all; 250% gen pop; 610% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Country	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
	(all commodities)	raw					yrs									
VL 0483	**Lettuce, leaf**	Total		8	1.000	CN	Child, 1-6 yrs	243	387.25	305.4	3	2a	494.79	**250%**	80%	**250%**
VL 0483	Lettuce, leaf (all other commodities)	highest utilisation: raw	2.6	8	1.000	NL	Child, 2-6 yrs	91	140.10	117.8	3	2a	1.53–163.31	1–80%	1–20%	0–80%
VL 0485	Mustard greens (all other commodities)	highest utilisation: Total	12	25	1.000	US	child, 1-6 yrs	-	36.92	244.8	3	2b	51.9–184.62	30–90%	30–90%	90%
VL 0485	**Mustard greens**	raw		25	1.000	CN	Child, 1-6 yrs	635	299.31	244.8	3	2a	1222.18	**610%**	**250%**	**610%**
VL 0485	**Mustard greens**	cooked/boiled		25	1.000	BR	Gen pop, > 10 yrs	47	288.80	244.8	3	2a	301.39	**150%**	**150%**	-
VL 0502	**Spinach**	Total		19	1.000	ZA	Child, 1-5 yrs	-	237.48	197.8	3	2a	846.95	**420%**	**130%**	**420%**
VL 0502	**Spinach**	raw		19	1.000	JP	Child, 1-6 yrs	229	86.70	90.0	3	2b	294.16	**150%**	60%	**150%**
VL 0502	Spinach (all other commodities)	highest utilisation: frozen	8.5	19	1.000	NL	toddler, 8-20 m	67	151.91	NR	NR	3	0.85–126.59	0–60%	0–40%	0–60%
VP 0061	Beans, green, with pods, raw: beans except broad bean & soya bean (i.e. immature seeds + pods) (Phaseolus spp) (all commodities)	highest utilisation: canned/preserved	2.63	5.1	1.000	NL	toddler, 8-20 m	E	127.90	2.3	NR	1	3.95–63.95	2%–30%	1%–20%	2%–30%
VP 0062	Beans, green, without pods, raw: beans except broad bean & soya bean (i.e.	highest utilisation: Total	1.17	2.77	1.000	FR	Child, 3-6 yrs	1	219.56	5.8	NR	1	0–32.18	0%–20%	5%–10%	0%–20%

FLUPYRADIFURONE (285)
Acute RfD= 0.2 mg/kg bw (200 µg/kg bw)

IESTI Maximum %ARfD: 610% all; 250% gen pop; 610% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Coun try	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
	immature seeds only) (Phaseolus spp.) (all commodities)															
VP 0063	Peas green, with pods, raw (i.e. immature seeds + pods) (Pisum spp) (all commodities)	highest utilisation: cooked/boiled	2.68	5.5	1.000	CN	Child, 1-6 yrs	1056	290.21	6.2	NR	1	38.49–98.92	20%–50%	9%–30%	20%–50%
VP 0064	Peas, green, without pods, raw (i.e. immature seeds only) (Pisum spp) (all commodities)	highest utilisation: Total	2.78	5.7	1.000	UK	Child, 1.5-4.5 yrs	57	174.00	<25	NR	1	2.35–68.4	1%–30%	1%–20%	1%–30%
VD 0071	Beans (dry) (Phaseolus spp) (all commodities)	highest utilisation: cooked/boiled	3.22	0	0.400	CN	Gen pop, > 1 yrs	722	1313.18	0.5	NR	3	6.39–31.78	3%–20%	1%–20%	1%–10%
VD 0072	Peas (dry) (Pisum spp, Vigna spp) (all commodities)	highest utilisation: cooked/boiled	3.605	0	0.400	CN	Gen pop, > 1 yrs	268	1673.82	<25	NR	3	2.72–45.35	1%–20%	4%–20%	1%–10%
VD 0523	Broad bean (dry) (Vicia spp) (all commodities)	highest utilisation: cooked/boiled	2.49	0	0.400	CN	Gen pop, > 1 yrs	737	1190.24	<25	NR	3	0.85–22.27	0%–10%	0%–10%	1%–5%
VD 0524	Chick-pea (dry) (Cicer spp) (all commodities)	highest utilisation: canned/preserved	2.49	0	0.400	NL	Child, 2-6 yrs	6	144.66	<25	NR	3	1.88–7.83	1%–4%	2%–3%	1%–4%
VD 0533	Lentil (dry) (Lens spp) (all commodities)	highest utilisation: Total	2.49	0	1.000	FR	Child, 3-6 yrs	0	290.77	0.1	NR	3	4.87–38.31	2%–20%	1%–10%	2%–20%
VD 0537	Pigeon pea (dry) (Cajanus spp)	Total	2.49		1.000	AU	Gen pop, > 2 yrs	129	95.83	<25	NR	3	3.56	2%	2%	-
VD 0541	Soya bean (dry)	highest utilisation:	0.13–5.3	0	1.000	CN	Child, 1-6	179	239.05	<25	NR	3	0.14–50.96	0%–30%	0%–20%	0%–30%

			FLUPYRADIFURONE (285) Acute RfD= 0.2 mg/kg bw (200 µg/kg bw)							IESTI Maximum %ARfD:				610% all	250% gen pop	610% child
Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Coun try	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
	(Glycine spp) (all commodities)	Total					yrs									
VR 0463	Cassava (Manioc, Tapioca) (all commodities)	highest utilisation: cooked/boiled (without peel)	0.29	1.37	1.000	NL	Gen pop, > 1 yrs	E	249.97	356.0	3	2b	0.25–15.61	0%–8%	0%–8%	0%–5%
VR 0469	Chicory, roots (all commodities)	highest utilisation: Total	0.29	1.37	1.000	AU	Gen pop, > 2 yrs	175	26.16	48.0	3	2b	0.21–1.6	0%–1%	0%–1%	0%–1%
VR 0494	Radish (all commodities)	highest utilisation: raw with skin	0.29	1.37	1.000	NL	Child, 2-6 yrs	E	64.40	172.0	3	2b	0.03–14.39	0%–7%	0%–3%	1%–7%
VR 0497	Swede (rutabaga) (all commodities)	highest utilisation: Total	0.29	1.37	1.000	UK	Child, 1.5-4.5 yrs	147	124.70	500.0	3	2b	0.02–35.35	0%–20%	0%–10%	0%–20%
VR 0498	Salsify (Oyster plant) (all commodities)	highest utilisation: cooked/boiled (without peel)	0.29	1.37	1.000	NL	Child, 2-6 yrs	E	133.31	57.0	3	2a	0.01–18.41	0%–9%	0%–6%	1%–9%
VR 0504	Tannia (tanier, yautia) (all commodities)	highest utilisation: cooked/boiled (without peel)	0.29	1.37	1.000	NL	Gen pop, > 1 yrs	E	249.97	170.0	3	2a	0.2–12.28	0%–6%	0%–6%	0%–0%
VR 0505	Taro (dasheen, eddoe) (all commodities)	highest utilisation: cooked/boiled (without peel)	0	1.37	1.000	CN	Child, 1-6 yrs	199	384.18	667.8	3	2b	97.86–97.86	50%–50%	20%–20%	50%–50%
VR 0506	Turnip, garden (all commodities)	highest utilisation: cooked/boiled (without peel)	0.29	1.37	1.000	NL	Child, 2-6 yrs	E	133.31	176.0	3	2b	2.12–29.78	1%–10%	1%–6%	1%–10%
VR 0508	Sweet potato (all commodities)	highest utilisation: Total	0.291	0.57	1.000	CN	Child, 1-6 yrs	587	376.96	546.0	3	2b	2.05–39.95	1%–20%	1%–10%	7%–20%
VR 0573	Arrowroot (all commodities)	highest utilisation: starch	0.29	1.37	1.000	NL	Child, 2-6 yrs	E	12.40	NR	NR	3	0.2–0.2	0%–0%	0%–0%	0%–0%
VR 0574	Beetroot (all commodities)	highest utilisation: Total	0.29	1.37	1.000	AU	Child, 2-6 yrs	53	314.08	135.5	3	2a	0.17–42.18	0%–20%	0%–8%	0%–20%
VR 0575	Burdock, greater or edible	Total		1.37	1.000	JP	Child, 1-6 yrs	122	35.70	-	-	-	-	-	-	-

FLUPYRADIFURONE (285)
Acute RfD= 0.2 mg/kg bw (200 µg/kg bw)

IESTI Maximum %ARfD:	610%	250%	610%
	all	gen pop	child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Coun try	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
VR 0577	Carrot (all commodities)	highest utilisation: raw with skin	0.29	1.37	1.000	CN	Child, 1-6 yrs	400	234.68	300.0	3	2b	0.03–59.78	0%–30%	0%–10%	0%–30%
VR 0578	Celeriac (all commodities)	highest utilisation: cooked/boiled (without skin)	0.29	1.37	1.000	NL	Gen pop, > 1 yrs	23	239.12	437.0	3	2b	0.05–14.94	0%–7%	0%–7%	0%–2%
VR 0583	Horseradish (all commodities)	highest utilisation: Total	0	1.37	1.000	DE	Gen pop, 14-80 yrs	47	79.50	154.0	3	2b	0.06–4.28	0%–2%	0%–2%	0%–0%
VR 0585	Jerusalem artichoke (all commodities)	highest utilisation: cooked/boiled (without peel)	0	1.37	1.000	NL	Child, 2-6 yrs	E	133.33	56.0	3	2a	0.61–18.27	0%–9%	0%–3%	9%–9%
VR 0587	parsley, turnip-rooted (all commodities)	highest utilisation: dried (slab)	0.29	1.37	5.000	CN	Child, 1-6 yrs	427	22.79	NR	NR	3	2.05–2.05	1%–1%	1%–1%	1%–1%
VR 0588	Parsnip (all commodities)	highest utilisation: Total	0.29	1.37	1.000	UK	Child, 1.5-4.5 yrs	87	227.07	90.0	3	2a	3.12–38.46	2%–20%	2%–6%	10%–20%
VR 0589	Potato (all commodities)	highest utilisation: Total	0.16–0.45	0.57	1.000	ZA	Child, 1-5 yrs	-	299.62	216.0	3	2a	0.11–29.37	0%–10%	0%–5%	0%–10%
VR 0590	Radish, black (all commodities)	highest utilisation: raw without skin	0.29	1.37	1.000	NL	Child, 2-6 yrs	E	64.40	180.3	3	2b	0.03–14.39	0%–7%	0%–3%	1%–7%
VR 0591	Radish, Japanese (Chinese radish, Daikon) (all commodities)	highest utilisation: raw without skin	0.29	1.37	1.000	CN	Child, 1-6 yrs	1187	293.37	1000.0	3	2b	0.03–74.73	0%–40%	0%–20%	1%–40%
VR 0596	Sugar beet (all commodities)	highest utilisation: Total	0.29	1.37	1.000	DE	gen pop, 14-80 yrs	####	161.79	160.0	3	2a	2.66–8.64	1%–4%	1%–4%	0%–2%
VR 0600	Yams (all commodities)	highest utilisation: Total	0	1.37	1.000	CN	Gen pop, > 1 yrs	681	441.46	810.0	3	2b	9.93–34.09	5%–20%	5%–20%	2%–10%
-	Lotus root (all commodities)	highest utilisation: cooked/boiled without peel	0	1.37	1.000	TH	Child, 3-6 yrs	169	134.24	<25	NR	1	2.6–10.75	1%–5%	1%–3%	5%–5%
VS 0624	Celery (all other	highest utilisation: Total	2.38	7.19	1.000	FR	child, 3-6 yrs	0	124.43	861.1	3	2b	0.14–147.95	0–70%	0–70%	2–70%

FLUPYRADIFURONE (285)
Acute RfD= 0.2 mg/kg bw (200 µg/kg bw)

IESTI Maximum %ARfD:	610%	250%	610%
	all	gen pop	child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Coun try	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
	commodities)															
VS 0624	**Celery**	raw		7.19	1.000	CN	Child, 1-6 yrs	454	180.29	861.1	3	2b	241.01	**120%**	60%	**120%**
GC 0640	Barley (all commodities)	highest utilisation: Total	0.099–1.315	0	1.000	AU	Gen pop, > 2 yrs	2834	401.27	<25	NR	3	0.11–7.88	0%–4%	0%–4%	0%–1%
GC 0641	Buckwheat (all commodities)	highest utilisation: cooked/boiled	1.315	0	0.400	CN	Gen pop, > 1 yrs	198	831.68	<25	NR	3	0.11–8.22	0%–4%	0%–4%	0%–4%
GC 0644	Job's tears (all commodities)	highest utilisation: cooked/boiled	1.315	0	0.300	TH	Child, 3-6 yrs	134	85.50	<25	NR	3	1.97–1.97	1%–1%	0%–0%	1%–1%
GC 0645	Maize (corn) (all commodities)	highest utilisation: Total	0.44–0.76	0	1.000	CN	Child, 1-6 yrs	166	524.69	<25	NR	3	0.27–15.93	0%–8%	0%–4%	0%–8%
GC 0656	Popcorn (i.e. maize destined for popcorn preparation) (all commodities)	highest utilisation: Total	1.315	0	1.000	AU	Child, 2-6 yrs	120	73.67	<25	NR	3	4.09–5.1	2%–3%	1%–2%	2%–3%
GC 0646	Millet (all commodities)	highest utilisation: Total	1.315	0	1.000	CN	Child, 1-6 yrs	826	219.53	<25	NR	3	0.94–17.89	0%–9%	0%–5%	0%–9%
GC 0647	Oats (all commodities)	highest utilisation: Total	1.315	0	1.000	CN	Gen pop, > 1 yrs	1740	330.61	<25	NR	3	0.73–8.17	0%–4%	0%–4%	0%–3%
GC 0648	Quinoa	Total	1.315		1.000	AU	Child, 2-16 yrs	32	78.18	<25	NR	3	2.71	1%	-	-
GC 0650	Rye (all commodities)	highest utilisation: Wholemeal	1.315	0	1.000	DE	Child, 2-4 yrs	242	95.20	NR	NR	3	0.11–7.75	0%–4%	0%–2%	0%–4%
GC 0651	Sorghum (Chicken corn, Dari seed, Durra, Feterita) (all commodities)	highest utilisation: cooked/boiled	1.315	0	0.400	CN	Gen pop, > 1 yrs	356	1348.67	<25	NR	3	0.3–13.33	0%–7%	0%–7%	1%–1%
GC 0653	Triticale	Total	1.315		1.000	DE	Gen pop, 14-80 yrs	####	394.70	<25	NR	3	6.80	3%	3%	0%
GC 0654	Wheat (all commodities)	highest utilisation: Pasta/noodles (dry)	0.42–2	0	1.000	CN	Child, 1-6 yrs	2023	225.90	NR	NR	3	0.11–18.41	0%–9%	0%–6%	0%–9%

FLUPYRADIFURONE (285)
Acute RfD= 0.2 mg/kg bw (200 μg/kg bw)

IESTI Maximum %ARfD: 610% all; 250% gen pop; 610% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Country	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI μg/kg bw/day	% acute RfD rounded (all)	% acute RfD rounded (gen pop)	% acute RfD rounded (child)
GC 0655	Wild rice (all commodities)	highest utilisation: cooked/boiled	1.315	0	0.400	CN	Child, 1-6 yrs	129	552.59	<25	NR	3	1.5–18.01	1%–9%	1%–5%	1%–9%
TN 0672	Pecan (all commodities)	highest utilisation: Total	0.06	0.063	1.000	AU	Child, 2-16 yrs	52	80.87	5.0	NR	1	0.04–0.13	0%–0%	0%–0%	0%–0%
SO 0691	Cotton seed (all commodities)	highest utilisation: Total	0.079–0.395	0	1.000	US	Gen pop, all ages	-	3.25	<25	NR	3	0.01–0.02	0%–0%	0%–0%	0%–0%
SO 0697	Peanut, shelled (groundnut) (all commodities)	highest utilisation: raw incl roasted	0.13–0.225	0	1.000	CN	Child, 1-6 yrs	290	163.07	<25	NR	3	0.12–2.27	0%–1%	0%–1%	0%–1%
MM 0095	Meat from mammals other than marine mammals	Total	NA	NA	1.000	CN	Child, 1-6 yrs	302	264.84	NR	NR	1	NA	10%	6%	10%
MM 0095	Meat from mammals other than marine mammals: 20% as fat	Total		0.86	1.000	CN	Child, 1-6 yrs	302	52.97	NR	NR	1	2.82	1%	1%	1%
MM 0095	Meat from mammals other than marine mammals: 80% as muscle	Total		1.27	1.000	CN	Child, 1-6 yrs	302	211.87	NR	NR	1	16.68	8%	5%	8%
MF 0100	Mammalian fats (except milk fats)	Total		0.86	1.000	FR	Child, 3-6 yrs	0	64.80	NR	NR	1	2.95	1%	1%	1%
MO 0105	Edible offal (mammalian)	Total		3.4	1.000	US	Child, 1-6 yrs	-	186.60	NR	NR	1	42.30	20%	20%	20%
ML 0106	Milks	Total	0.11		1.000	NL	toddler, 8-20 m	1882	1060.67	NR	NR	3	11.44	6%	3%	6%
PM 0110	Poultry meat	Total	NA	NA	1.000	CN	Child, 1-6 yrs	175	347.00	NR	NR	1	NA	6%	3%	6%
PM 0110	Poultry meat: 10% as fat	Total		0.24	1.000	CN	Child, 1-6 yrs	175	34.70	NR	NR	1	0.52	0%	0%	0%
PM 0110	Poultry meat: 90% as muscle	Total		0.64	1.000	CN	Child, 1-6 yrs	175	312.30	NR	NR	1	12.39	6%	3%	6%

FLUPYRADIFURONE (285)
Acute RfD= 0.2 mg/kg bw (200 µg/kg bw)

		all	gen pop	child
IESTI	Maximum %ARfD:	610%	250%	610%

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Coun try	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
PF 0111	Poultry, fats (all commodities)	highest utilisation: Total	0	0.24–0.88	1.000	CN	Gen pop, > 1 yrs	421	345.63	NR	NR	1	0.16–5.71	0%–3%	0%–3%	0%–2%
PE 0112	Eggs	Total		0.42	1.000	CN	Child, 1-6 yrs	136	195.82	NR	NR	1	5.10	3%	2%	3%

ISOFETAMID (290)
Acute RfD= 3 mg/kg bw (3000 µg/kg bw)

IESTI
Maximum %ARfD: 10% all | 3%! gen pop | 10% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Coun try	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
FB 0269	Grape (all commodities)	highest utilisation: raw with skin	0.095–0.28	2.6–5.98	1.000	CN	Child, 1-6 yrs	232	366.72	636.6	3	2b	2.89–177.27	0%–6%	0%–3%	0%–6%
FB 0265	Cranberry (all commodities)	highest utilisation: Total	0	3.1	1.000	AU	Child, 2-16 yrs	103	279.66	1.8	NR	1	2–22.81	0%–1%	0%–0%	1%–1%
FB 0275	Strawberry (all commodities)	highest utilisation: Total	0	3.1	1.000	FR	Child, 3-6 yrs	0	339.40	13.4	NR	1	3.53–55.67	0%–2%	0%–1%	0%–2%
VL 0482	Lettuce, head (all commodities)	highest utilisation: raw	0	4.7	1.000	NL	Child, 2-6 yrs	91	140.10	338.9	3	2b	44.19–107.36	1%–4%	1%–2%	1%–4%
VL 0483	Lettuce, leaf (all commodities)	highest utilisation: Total	0	5.2	1.000	CN	Child, 1-6 yrs	243	387.25	305.4	3	2a	29.94–321.62	1%–10%	1%–3%	4%–10%
TN 0660	Almonds (all commodities)	highest utilisation: raw incl roasted	0	0.01	1.000	DE	Women, 14-50 yrs	24	100.00	1.2	NR	1	0.01–0.01	0%–0%	0%–0%	0%–0%
SO 0495	Rape seed (all commodities)	highest utilisation: Oil (refined)	0.01–0.02	0	1.000	AU	Gen pop, > 2 yrs	2407	40.72	NR	NR	3	0–0.01	0%–0%	0%–0%	0%–0%
MM 0095	Meat from mammals other than marine mammals	Total	NA	NA	1.000	CN	Child, 1-6 yrs	302	264.84	NR	NR	1	NA	0%	0%	0%
MM 0095	Meat from mammals other than marine mammals: 20% as fat	Total		0.012	1.000	CN	Child, 1-6 yrs	302	52.97	NR	NR	1	0.04	0%	0%	0%
MM 0095	Meat from mammals other than marine mammals: 80% as muscle	Total		0.01	1.000	CN	Child, 1-6 yrs	302	211.87	NR	NR	1	0.13	0%	0%	0%
MF 0100	Mammalian fats (except milk fats)	Total		0.012	1.000	FR	Child, 3-6 yrs	0	64.80	NR	NR	1	0.04	0%	0%	0%
MO 0105	Edible offal (mammalian)	Total		0.058	1.000	US	Child, 1-6 yrs	-	186.60	NR	NR	1	0.72	0%	0%	0%
ML 0106	Milks	Total	0.003		1.000	NL	toddler, 8-	1882	1060.67	NR	NR	3	0.31	0%	0%	0%

ISOFETAMID (290)
Acute RfD= 3 mg/kg bw (3000 µg/kg bw)

IESTI
Maximum %ARfD: 10% all; 3%! gen pop; 10% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Coun try	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
							20 m									
PM 0110	Poultry meat	Total	NA	NA	1.000	CN	Child, 1-6 yrs	175	347.00	NR	NR	1	NA	0%	0%	0%
PM 0110	Poultry meat: 10% as fat	Total		0	1.000	CN	Child, 1-6 yrs	175	34.70	NR	NR	1	0.00	0%	0%	0%
PM 0110	Poultry meat: 90% as muscle	Total		0	1.000	CN	Child, 1-6 yrs	175	312.30	NR	NR	1	0.00	0%	0%	0%
PF 0111	Poultry, fats (all commodities)	highest utilisation: Total	0	0	1.000	US	gen pop, all ages	-	42.90	NR	NR	1	0–0	0%–0%	0%–0%	0%–0%
PE 0112	Eggs	Total		0	1.000	CN	Child, 1-6 yrs	136	195.82	NR	NR	1	0.00	0%	0%	0%

PENCONAZOLE (182)
Acute RfD= 0.8 mg/kg bw (800 µg/kg bw)

IESTI
Maximum %ARfD: 10% all | 6% gen pop | 10% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Country	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
FP 0226	Apple (all commodities)	highest utilisation: Total	0.017–0.1	0.068–0.4	1.000	US	Child, 1-6 yrs	-	624.45	127.0	3	2a	0.18–23.42	0%–3%	0%–1%	0%–3%
FP 0230	Pear	raw with peel (incl consumption without peel)	0.1	0.4	1.000	CN	Child, 1-6 yrs	413	418.33	255.0	3	2a	23.01	3%	1%	3%
FS 0013	Cherries	raw	0.12	0.42	1.000	DE	Child, 2-4 yrs	24	187.50	7.2	NR	1	4.88	1%	1%	1%
FS 0240	Apricot	raw with peel (incl consumption without peel)	0.14	0.34	1.000	AU	Gen pop, > 2 yrs	77	1056.90	54.5	3	2a	5.92	1%	1%	1%
FS 2237	Japanese apricot (ume)	Total		0.34	1.000	JP	Child, 1-6 yrs	25	25.50	<25	NR	1	0.48	0%	0%	0%
FS 0245	Nectarine	raw with peel (incl consumption without peel)	0.14	0.34	1.000	NL	toddler, 8-20 m	6	183.60	131.0	3	2a	14.85	2%	1%	2%
FS 0247	Peach	raw with peel (incl consumption without peel)	0.14	0.34	1.000	JP	Child, 1-6 yrs	76	306.00	255.0	3	2a	17.90	2%	1%	2%
FB 0021	Currants, red, black, white (all commodities)	highest utilisation: raw with skin	0.38–1.5	1.1–4.4	1.000	DE	Child, 2-4 yrs	7	150.00	14.9	NR	1	10.86–40.87	1%–5%	1%–3%	1%–5%
FB 0269	Grapes (all commodities)	highest utilisation: raw with skin	0.038–0.57	0.4–6.1	1.000	CN	Child, 1-6 yrs	232	366.72	636.6	3	2b	0.73–109.09	0%–10%	0%–6%	0%–10%
FB 0275	Strawberry (all commodities)	highest utilisation: Total	0.24–0.44	1.2–2.2	1.000	FR	Child, 3-6 yrs	0	339.40	13.4	NR	1	0.25–39.51	0%–5%	0%–3%	0%–5%
VC 0046	Melons, except watermelon (all commodities)	highest utilisation: Total	0.2	0.3	1.000	FR	Child, 3-6 yrs	0	358.11	420.0	3	2b	0.01–17.05	0%–2%	0%–2%	0%–2%
VC 0424	Cucumber	raw with skin	0.05	0.15	1.000	CN	Child, 1-6	340	212.11	458.1	3	2b	5.92	1%	0%	1%

PENCONAZOLE (182)
Acute RfD= 0.8 mg/kg bw (800 µg/kg bw)

IESTI
Maximum %ARfD: 10% all; 6% gen pop; 10% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Country	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
							yrs									
VC 0425	Gherkin (all commodities)	highest utilisation: raw with skin	0.05	0.15	1.000	JP	Child, 1-6 yrs	484	91.80	54.5	3	2a	1.79–1.79	0%–0%	0%–0%	0%–0%
VC 0431	Squash, summer (courgette, marrow, zucchetti, zucchini) (all commodities)	highest utilisation: Total	0.05	0.15	1.000	FR	Child, 3-6 yrs	0	148.84	270.0	3	2b	0.03–3.54	0%–0%	0%–0%	0%–0%
VO 0440	Egg plant (aubergine)	raw with skin	0.1	0.35	1.000	CN	Child, 1-6 yrs	969	253.44	443.9	3	2b	16.49	2%	1%	2%
VO 0444	Peppers, chili	dried (incl powder)	2.1	8.4	7.000	CN	Gen Pop, > 1 yrs	1583	32.22	0.0	NR	1	35.59	4%	4%	1%
VO 0445	Peppers, sweet (incl. pim(i)ento) (bell pepper, paprika)	raw with skin	0.14	0.6	1.000	CN	Child, 1-6 yrs	1002	169.85	170.0	3	2b	18.95	2%	1%	2%
VO 0448	Tomato	dried	0.1	0.35	5.000	AU	Gen pop, > 2 yrs	61	861.10	8.0	NR	1	22.49	3%	3%	0%
VS 0620	Artichoke globe (all commodities)	highest utilisation: Total	0	0.2	1.000	FR	Child, 3-6 yrs	0	117.23	98.9	3	2a	0.81–3.33	0%–0%	0%–0%	0%–0%
MM 0095	Meat from mammals other than marine mammals	Total	NA	NA	1.000	CN	Child, 1-6 yrs	302	264.84	NR	NR	1	NA	0%	0%	0%
MM 0095	Meat from mammals other than marine mammals: 20% as fat	Total		0	1.000	CN	Child, 1-6 yrs	302	52.97	NR	NR	1	0.00	0%	0%	0%
MM 0095	Meat from mammals other than marine mammals: 80% as muscle	Total		0	1.000	CN	Child, 1-6 yrs	302	211.87	NR	NR	1	0.00	0%	0%	0%
MF 0100	Mammalian fats (except milk fats)	Total		0	1.000	FR	Child, 3-6 yrs	0	64.80	NR	NR	1	0.00	0%	0%	0%
MO 0105	Edible offal	Total		0.004	1.000	US	Child, 1-6	-	186.60	NR	NR	1	0.05	0%	0%	0%

PENCONAZOLE (182)
Acute RfD= 0.8 mg/kg bw (800 µg/kg bw)

IESTI
Maximum %ARfD: 10% all; 6% gen pop; 10% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Country	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
	(mammalian)						yrs									
ML 0106	Milks	Total	0		1.000	NL	toddler, 8-20 m	1882	1060.67	NR	NR	3	0.00	0%	0%	0%
PM 0110	Poultry meat	Total	NA	NA	1.000	CN	Child, 1-6 yrs	175	347.00	NR	NR	1	NA	0%	0%	0%
PM 0110	Poultry meat: 10% as fat	Total		0	1.000	CN	Child, 1-6 yrs	175	34.70	NR	NR	1	0.00	0%	0%	0%
PM 0110	Poultry meat: 90% as muscle	Total		0	1.000	CN	Child, 1-6 yrs	175	312.30	NR	NR	1	0.00	0%	0%	0%
PF 0111	Poultry, fats (all commodities)	highest utilisation: Total	0	0	1.000	US	gen pop, all ages	-	42.90	NR	NR	1	0–0	0%–0%	0%–0%	0%–0%
PE 0112	Eggs	Total		0	1.000	CN	Child, 1-6 yrs	136	195.82	NR	NR	1	0.00	0%	0%	0%

PENDIMETHALIN (292)
Acute RfD= 1 mg/kg bw (1000 µg/kg bw)

IESTI
Maximum %ARfD: 10% all; 4% gen pop; 10% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Country	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Variability factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
FC 0303	Kumquats (all commodities)	highest utilisation: Total	0	0,019	1.000	JP	Gen pop, > 1 yrs	135	120.00	<25	NR	1	0–0,05	0%–0%	0%–0%	0%–0%
FC 0204	Lemon (all commodities)	highest utilisation: Total	0,005	0,019	1.000	FR	child, 3-6 yrs	0	58.15	64.0	3	2b	0–0,18	0%–0%	0%–0%	0%–0%
FC 0205	Lime (all commodities)	highest utilisation: Total	0,005	0,019	1.000	AU	Gen pop, > 2 yrs	579	259.21	49.0	3	2a	0–0,1	0%–0%	0%–0%	0%–0%
FC 0003	Mandarins (incl mandarin-like hybrids) (all commodities)	highest utilisation: raw, without peel	0,005	0,019	1.000	CN	Child, 1-6 yrs	151	586.75	124.3	3	2a	0–0,98	0%–0%	0%–0%	0%–0%
FC 0004	Oranges, sweet, sour (incl orange-like hybrids) (all commodities)	highest utilisation: Total	0,0007–0,014	0,003–0,053	1.000	AU	Child, 2-6 yrs	1735	800.83	155.8	3	2a	0–1,11	0%–0%	0%–0%	0%–0%
FC 0005	Pummelo and Grapefruits (incl Shaddock-like hybrids, among others Grapefruit) (all commodities)	highest utilisation: raw, without peel	0,005	0,019	1.000	DE	Child, 2-4 yrs	12	358.60	178.5	3	2a	0–0,84	0%–0%	0%–0%	0%–0%
VA 0380	Fennel, bulb (all commodities)	highest utilisation: cooked/boiled	0	0	1.000	NL	Child, 2-6 yrs	E	166.80	251.0	3	2b	0–0	0%–0%	0%–0%	0%–0%
VA 0381	Garlic (all commodities)	highest utilisation: raw without skin	0	0	1.000	CN	Child, 1-6 yrs	290	174.44	59.8	3	2a	0–0	0%–0%	0%–0%	0%–0%
VA 0385	Onion, bulb (all commodities)	highest utilisation: raw without skin	0	0	1.000	JP	Child, 1-6 yrs	748	102.00	244.4	3	2b	0–0	0%–0%	0%–0%	0%–0%
VA 0387	Onion, Welsh (Japanese bunching onion, multiplying	highest utilisation: raw	0	0,12	1.000	JP	Child, 1-6 yrs	305	35.70	97.0	3	2b	0,51–0,76	0%–0%	0%–0%	0%–0%

PENDIMETHALIN (292)
Acute RfD= 1 mg/kg bw (1000 µg/kg bw)

IESTI
Maximum %ARfD: 10% all | 4% gen pop | 10% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Country	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
	onion) (all commodities)															
VA 0388	Shallot (i.e. dry harvested small onion) (all commodities)	highest utilisation: raw without skin	0	0	1.000	CN	Child, 1-6 yrs	480	115.81	51.4	3	2a	0–0	0%–0%	0%–0%	0%–0%
VA 0389	Spring onion (all commodities)	highest utilisation: cooked/boiled	0	0,12	1.000	NL	Child, 2-6 yrs	E	20.30	30.0	3	2b	0,31–0,4	0%–0%	0%–0%	0%–0%
VL 0466	Chinese cabbage, type pak-choi (all commodities)	highest utilisation: raw	0,05	0,11	1.000	CN	Child, 1-6 yrs	1966	327.07	1548.4	3	2b	0,01–6,69	0%–1%	0%–0%	0%–1%
VL 0467	Chinese cabbage, type pe-tsai (all commodities)	highest utilisation: Total	0,05	0,11	1.000	CN	Child, 1-6 yrs	2788	336.16	1500.0	3	2b	0,01–6,88	0%–1%	0%–0%	0%–1%
VL 0478	Indian mustard (Amsoi) (all commodities)	highest utilisation: raw	0	0,11	1.000	NL	Gen pop, > 1 yrs	E	49.88	250.0	3	2b	0,25–0,25	0%–0%	0%–0%	0%–0%
VL 0480	Kale (borecole, collards) (all commodities)	highest utilisation: Total	0,05	0,25	1.000	DE	Gen pop, 14-80 yrs	123	669.80	672.0	3	2b	0,1–6,58	0%–1%	0%–1%	0%–1%
VL 0481	Komatsuna	Total		0.11	1.000	JP	Child, 1-6 yrs	73	71.40	<25	NR	1	0.47	0%	0%	0%
VL 0483	Lettuce, leaf (all commodities)	highest utilisation: Total	0,062	2,2	1.000	CN	Child, 1-6 yrs	243	387.25	305.4	3	2a	0,04–136,07	0%–10%	0%–4%	0%–10%
VL 0485	Mustard greens (all commodities)	highest utilisation: raw	0,05	0,11	1.000	CN	Child, 1-6 yrs	635	299.31	244.8	3	2a	0,22–5,38	0%–1%	0%–0%	0%–1%
VL 0494	Radish leaves	Total		0.11	1.000	-	-	-	-	-	-	-	-	-	-	-
VL 0495	Rape greens (all commodities)	highest utilisation: cooked/boiled	0	0,11	1.000	JP	Gen pop, > 1 yrs	533	147.90	34.0	3	2a	0,43–0,43	0%–0%	0%–0%	0%–0%
VL 0506	Turnip greens (Namenia,	highest utilisation: cooked/boiled	0	0,11	1.000	NL	toddler, 8-20 m	64	90.73	<25	NR	1	0,18–0,98	0%–0%	0%–0%	0%–0%

PENDIMETHALIN (292)
Acute RfD= 1 mg/kg bw (1000 µg/kg bw)

IESTI
Maximum %ARfD: 10% all; 4% gen pop; 10% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Coun try	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
	Tendergreen) (all commodities)															
-	Chinese cabbage flowering stalk (all commodities)	highest utilisation: pickled/salted	0,05	0,11	1.000	CN	Gen pop, > 1 yrs	183	175.21	NR	NR	3	0,16–0,16	0%–0%	0%–0%	0%–0%
VP 0062	Beans, green, without pods, raw: beans except broad bean & soya bean (i.e. immature seeds only) (Phaseolus spp.) (all commodities)	highest utilisation: Total	0,05	0,05	1.000	FR	Child, 3-6 yrs	1	219.56	5.8	NR	1	0–0,58	0%–0%	0%–0%	0%–0%
VP 0063	Peas green, with pods, raw (i.e. immature seeds + pods) (Pisum spp) (all commodities)	highest utilisation: cooked/boiled	0,01	0,014	1.000	CN	Child, 1-6 yrs	1056	290.21	6.2	NR	1	0,1–0,25	0%–0%	0%–0%	0%–0%
VP 0064	Peas, green, without pods, raw (i.e. immature seeds only) (Pisum spp) (all commodities)	highest utilisation: Total	0,01	0,036	1.000	UK	Child, 1.5-4.5 yrs	57	174.00	<25	NR	1	0,01–0,43	0%–0%	0%–0%	0%–0%
VD 0071	Beans (dry) (Phaseolus spp) (all commodities)	highest utilisation: cooked/boiled	0,05	0	0.400	CN	Gen pop, > 1 yrs	722	1313.18	0.5	NR	3	0,1–0,49	0%–0%	0%–0%	0%–0%
VD 0072	Peas (dry) (Pisum spp, Vigna spp) (all commodities)	highest utilisation: cooked/boiled	0,05	0	0.400	CN	Gen pop, > 1 yrs	268	1673.82	<25	NR	3	0,04–0,63	0%–0%	0%–0%	0%–0%
VR 0577	Carrot (all commodities)	highest utilisation: raw with skin	0,024–0,0625	0,019–0,38	1.000	CN	Child, 1-6 yrs	400	234.68	300.0	3	2b	0,01–16,58	0%–2%	0%–1%	0%–2%
VS 0621	Asparagus	highest utilisation:	0,05	0,062	1.000	US	Child, 1-6	-	142.56	42.4	3	2a	0,61–0,94	0%–0%	0%–0%	0%–0%

PENDIMETHALIN (292)
Acute RfD= 1 mg/kg bw (1000 µg/kg bw)

IESTI
Maximum %ARfD: 10% all; 4% gen pop; 10% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Coun try	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded (10% all)	% acute RfD rounded (4% gen pop)	% acute RfD rounded (10% child)
	(all commodities)	Total					yrs									
VS 0624	Celery (all commodities)	highest utilisation: raw	0,02	0,05	1.000	CN	Child, 1-6 yrs	454	180.29	861.1	3	2b	0–1,68	0%–0%	0%–0%	0%–0%
TN 0295	Cashew nut (all commodities)	highest utilisation: raw incl roasted	0,05	0,05	1.000	TH	child, 3-6 yrs	374	98.84	2.5	NR	1	0,11–0,29	0%–0%	0%–0%	0%–0%
TN 0660	Almonds (all commodities)	highest utilisation: raw incl roasted	0,05	0,05	1.000	DE	Women, 14-50 yrs	24	100.00	1.2	NR	1	0–0,07	0%–0%	0%–0%	0%–0%
TN 0662	Brazil nut (all commodities)	highest utilisation: Total	0	0,05	1.000	FR	Gen pop, > 3 yrs	0	57.57	4.0	NR	1	0,04–0,06	0%–0%	0%–0%	0%–0%
TN 0664	Chestnuts (all commodities)	highest utilisation: Total	0	0,05	1.000	FR	child, 3-6 yrs	0	170.41	17.4	NR	1	0,12–0,45	0%–0%	0%–0%	0%–0%
TN 0665	Coconut (all commodities)	highest utilisation: raw (i.e. nutmeat)	0,05	0,05	1.000	TH	child, 3-6 yrs	826	423.40	383.0	3	2a	0,03–3,48	0%–0%	0%–0%	0%–0%
TN 0666	Hazelnut (all commodities)	highest utilisation: Total	0,05	0,05	1.000	FR	Child, 3-6 yrs	0	27.24	1.2	NR	1	0,03–0,07	0%–0%	0%–0%	0%–0%
TN 0669	Macadamia nut (all commodities)	highest utilisation: Total	0,05	0,05	1.000	US	Gen pop, all ages	-	106.60	3.2	NR	1	0,01–0,08	0%–0%	0%–0%	0%–0%
TN 0672	Pecan (all commodities)	highest utilisation: Total	0,05	0,05	1.000	AU	Child, 2-16 yrs	52	80.87	5.0	NR	1	0,03–0,11	0%–0%	0%–0%	0%–0%
TN 0673	Pine nut (all commodities)	highest utilisation: Total	0	0,05	1.000	BR	Gen pop, > 10 yrs	47	200.00	0.2	NR	1	0,03–0,15	0%–0%	0%–0%	0%–0%
TN 0675	Pistachio nut (all commodities)	highest utilisation: Total	0,05	0,05	1.000	FR	child, 3-6 yrs	0	44.89	0.9	NR	1	0–0,12	0%–0%	0%–0%	0%–0%
TN 0678	Walnut (all commodities)	highest utilisation: raw incl roasted	0,05	0,05	1.000	DE	Child, 2-4 yrs	75	49.40	7.0	NR	1	0–0,15	0%–0%	0%–0%	0%–0%
SO 0691	Cotton seed (all commodities)	highest utilisation: Oil (refined)	0,01	0	1.000	US	gen pop, all ages	-	9.10	NR	NR	3	0–0	0%–0%	0%–0%	0%–0%
DH 1100	Hops, dry (all commodities)	highest utilisation: Total	0,05	0	1.000	DE	Gen pop, 14-80 yrs	5866	8.50	<25	NR	3	0–0,01	0%–0%	0%–0%	0%–0%
MM 0095	Meat from mammals other than marine	Total	NA	NA	1.000	CN	Child, 1-6 yrs	302	264.84	NR	NR	1	NA	0%	0%	0%

PENDIMETHALIN (292) IESTI

Acute RfD= 1 mg/kg bw (1000 µg/kg bw) Maximum %ARfD: 10% all 4% gen pop 10% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Country	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Varia-bility factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
	mammals															
MM 0095	Meat from mammals other than marine mammals: 20% as fat	Total		0.085	1.000	CN	Child, 1-6 yrs	302	52.97	NR	NR	1	0.28	0%	0%	0%
MM 0095	Meat from mammals other than marine mammals: 80% as muscle	Total		0.024	1.000	CN	Child, 1-6 yrs	302	211.87	NR	NR	1	0.32	0%	0%	0%
MF 0100	Mammalian fats (except milk fats)	Total		0.085	1.000	FR	Child, 3-6 yrs	0	64.80	NR	NR	1	0.29	0%	0%	0%
MO 0105	Edible offal (mammalian)	Total		0.024	1.000	US	Child, 1-6 yrs	-	186.60	NR	NR	1	0.30	0%	0%	0%
ML 0106	Milks	Total	0.0009		1.000	NL	toddler, 8-20 m	1882	1060.67	NR	NR	3	0.09	0%	0%	0%
FM 0812	Cattle milk fat	Total	0.28		1.000	BR	Gen pop, > 10 yrs	441	150.00	NR	NR	3	0.65	0%	0%	0%
PM 0110	Poultry meat	Total	NA	NA	1.000	CN	Child, 1-6 yrs	175	347.00	NR	NR	1	NA	0%	0%	0%
PM 0110	Poultry meat: 10% as fat	Total		0	1.000	CN	Child, 1-6 yrs	175	34.70	NR	NR	1	0.00	0%	0%	0%
PM 0110	Poultry meat: 90% as muscle	Total		0	1.000	CN	Child, 1-6 yrs	175	312.30	NR	NR	1	0.00	0%	0%	0%
PF 0111	Poultry, fats	Total		0	1.000	US	gen pop, all ages	-	42.90	NR	NR	1	0.00	0%	0%	0%
PO 0111	Poultry, edible offal (includes kidney, liver and skin)	Total		0	1.000	CN	Gen pop, > 1 yrs	421	345.63	NR	NR	1	0.00	0%	0%	0%
PE 0112	Eggs	Total		0	1.000	CN	Child, 1-6 yrs	136	195.82	NR	NR	1	0.00	0%	0%	0%

PINOXADEN (293)
Acute RfD= 0.3 mg/kg bw (300 µg/kg bw)

IESTI
Maximum %ARfD: 1% all; 0% gen pop; 1% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Country	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Variability factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
GC 0640	Barley (all commodities)	highest utilisation: Bran (processed)	0.01–0.15	0	1.000	AU	gen pop, > 2 yrs	46	62.61	NR	NR	3	0.01–0.14	0%–0%	0%–0%	0%–0%
GC 0654	Wheat (all commodities)	highest utilisation: White bread	0.02–0.44	0	1.000	CN	Child, 1-6 yrs	1756	322.71	NR	NR	3	0.01–2	0%–1%	0%–0%	0%–1%
PM 0110	Poultry meat	Total	NA	NA	1.000	CN	Child, 1-6 yrs	175	347.00	NR	NR	1	NA	0.0%	0.0%	0.0%
PM 0110	Poultry meat: 10% as fat	Total	0.02	0.02	1.000	CN	Child, 1-6 yrs	175	34.70	NR	NR	1	0.0430	0.0%	0.0%	0.0%
PM 0110	Poultry meat: 90% as muscle	Total	0.02	0.02	1.000	CN	Child, 1-6 yrs	175	312.30	NR	NR	1	0.3871	0.0%	0.0%	0.0%
PF 0111	Poultry, fats (all commodities)	highest utilisation: Total	0.02	0.02	1.000	CN	Gen pop, > 1 yrs	421	345.63	NR	NR	1	0.01–0.13	0%–0%	0%–0%	0%–0%
PE 0112	Eggs	Total	0.02	0.02	1.000	CN	Child, 1-6 yrs	136	195.82	NR	NR	1	0.2427	0.0%	0.0%	0.0%

TOLFENPYRAD (269)
Acute RfD= 0.01 mg/kg bw (10 µg/kg bw)

IESTI
Maximum %ARfD: 0% all, 0% gen pop, 0% child

Codex Code	Commodity	Processing	STMR or STMR-P mg/kg	HR or HR-P mg/kg	DCF	Country	Population group	n	Large portion, g/person	Unit weight, edible portion, g	Variability factor	Case	IESTI µg/kg bw/day	% acute RfD rounded	% acute RfD rounded	% acute RfD rounded
VR 0589	Potato (all commodities)	highest utilisation: Total	0	0	1.000	ZA	Child, 1-5 yrs	-	299.62	216.0	3	2a	0–0	0%–0%	0%–0%	0%–0%
TN 0672	Pecan (all commodities)	highest utilisation: Total	0.01	0.01	1.000	AU	Child, 2-16 yrs	52	80.87	5.0	NR	1	0.01–0.02	0%–0%	0%–0%	0%–0%

ANNEX 5: REPORTS AND OTHER DOCUMENTS RESULTING FROM PREVIOUS JOINT MEETINGS OF THE FAO PANEL OF EXPERTS ON PESTICIDE RESIDUES IN FOOD AND THE ENVIRONMENT AND THE WHO CORE ASSESSMENT GROUP ON PESTICIDE RESIDUES

1. Principles governing consumer safety in relation to pesticide residues. Report of a meeting of a WHO Expert Committee on Pesticide Residues held jointly with the FAO Panel of Experts on the Use of Pesticides in Agriculture. FAO Plant Production and Protection Division Report, No. PL/1961/11; WHO Technical Report Series, No. 240, 1962.

2. Evaluation of the toxicity of pesticide residues in food. Report of a Joint Meeting of the FAO Committee on Pesticides in Agriculture and the WHO Expert Committee on Pesticide Residues. FAO Meeting Report, No. PL/1963/13; WHO/Food Add./23, 1964.

3. Evaluation of the toxicity of pesticide residues in food. Report of the Second Joint Meeting of the FAO Committee on Pesticides in Agriculture and the WHO Expert Committee on Pesticide Residues. FAO Meeting Report, No. PL/1965/10; WHO/Food Add./26.65, 1965.

4. Evaluation of the toxicity of pesticide residues in food. FAO Meeting Report, No. PL/1965/10/1; WHO/Food Add./27.65, 1965.

5. Evaluation of the hazards to consumers resulting from the use of fumigants in the protection of food. FAO Meeting Report, No. PL/1965/10/2; WHO/Food Add./28.65, 1965.

6. Pesticide residues in food. Joint report of the FAO Working Party on Pesticide Residues and the WHO Expert Committee on Pesticide Residues. FAO Agricultural Studies, No. 73; WHO Technical Report Series, No. 370, 1967.

7. Evaluation of some pesticide residues in food. FAO/PL:CP/15; WHO/Food Add./67.32, 1967.

8. Pesticide residues. Report of the 1967 Joint Meeting of the FAO Working Party and the WHO Expert Committee. FAO Meeting Report, No. PL:1967/M/11; WHO Technical Report Series, No. 391, 1968.

9. 1967 Evaluations of some pesticide residues in food. FAO/PL:1967/M/11/1; WHO/Food Add./68.30, 1968.

10. Pesticide residues in food. Report of the 1968 Joint Meeting of the FAO Working Party of Experts on Pesticide Residues and the WHO Expert Committee on Pesticide Residues. FAO Agricultural Studies, No. 78; WHO Technical Report Series, No. 417, 1968.

11. 1968 Evaluations of some pesticide residues in food. FAO/PL:1968/M/9/1; WHO/Food Add./69.35, 1969.

12. Pesticide residues in food. Report of the 1969 Joint Meeting of the FAO Working Party of Experts on Pesticide Residues and the WHO Expert Group on Pesticide Residues. FAO Agricultural Studies, No. 84; WHO Technical Report Series, No. 458, 1970.

13. 1969 Evaluations of some pesticide residues in food. FAO/PL:1969/M/17/1; WHO/Food Add./70.38, 1970.

14. Pesticide residues in food. Report of the 1970 Joint Meeting of the FAO Working Party of Experts on Pesticide Residues and the WHO Expert Committee on Pesticide Residues. FAO Agricultural Studies, No. 87; WHO Technical Report Series, No. 4574, 1971.

15. 1970 Evaluations of some pesticide residues in food. AGP:1970/M/12/1; WHO/Food Add./71.42, 1971.

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ANNEX 6: LIVESTOCK DIETARY BURDEN

ACIBENZOLAR-S-METHYL

ESTIMATED MAXIMUM DIETARY BURDEN													
BEEF CATTLE													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Kale leaves	AM/AV	0.53	HR	15	3.53		20				0.707		
Citrus dried pulp	AB	0.045	STMR	91	0.05	10	5	30		0.005	0.002	0.015	
Apple pomace, wet	AB	0.031	STMR	100	0.03		15				0.005		
Total						10	40	30		0.005	0.714	0.015	

DAIRY CATTLE													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Kale leaves	AM/AV	0.53	HR	15	3.53		20	40			0.707	1.413	
Citrus dried pulp	AB	0.045	STMR	91	0.05	10	20	30		0.005	0.010	0.015	
Total						10	40	70		0.005	0.717	1.428	

POULTRY LAYER													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Kale leaves	AM/AV	0.53	HR	15	3.53		5				0.177		
Total							5				0.177		

ESTIMATED MEAN DIETARY BURDEN													
BEEF CATTLE													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Kale leaves	AM/AV	0.39	STMR/STMR-P	15	2.60		20				0.520		
Citrus dried pulp	AB	0.045	STMR/STMR-P	91	0.05	10	5	30		0.005	0.002	0.015	
Apple pomace, wet	AB	0.031	STMR/STMR-P	100	0.03		15				0.005		
Total						10	40	30		0.005	0.527	0.015	

Annex 6

DAIRY CATTLE													MEAN
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Kale leaves	AM/AV	0.39	STMR/STMR-P	15	2.60		20	40			0.520	1.040	
Citrus dried pulp	AB	0.045	STMR/STMR-P	91	0.05	10	20	30		0.005	0.010	0.015	
Total						10	40	70		0.005	0.530	1.055	

POULTRY LAYER													MEAN
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Kale leaves	AM/AV	0.39	STMR/STMR-P	15	2.60		5				0.130		
Total							5				0.130		

Annex 6

BENZOVINDYFLUPYR

ESTIMATED MAXIMUM DIETARY BURDEN													
BEEF CATTLE													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Wheat forage	AF/AS	3.70	HR	25.00	14.80		20.00	100.00			2.96	14.80	
Barley hay	AF/AS	12.00	HR	88.00	13.64	15.00				2.05			
Barley straw	AF/AS	12.00	HR	89.00	13.48		10.00				1.35		
Pea hay	AL	3.80	HR	88.00	4.32		25.00				1.08		
Soybean asp gr fn	SM	1.91	STMR	85.00	2.25	5.00				0.11			
Wheat asp gr fn	CM/CF	1.70	STMR	85.00	2.00	5.00				0.10			
Apple pomace, wet	AB	0.20	STMR	40.00	0.50		20.00				0.10		
Barley grain	GC	0.18	STMR	88.00	0.20	50.00	25.00		70.00	0.10	0.05		0.14
Potato process waste	AB	0.01	STMR	12.00	0.08	25.00				0.02			
Barley bran fractions	CM/CF	0.07	STMR	90.00	0.08				10.00				0.01
Rape meal	SM	0.01	STMR	88.00	0.01				15.00				0.00
Soybean seed	VD	0.01	STMR	89.00	0.01				5.00				0.00
Total						100.00	100.00	100.00	100.00	2.38	5.54	14.80	0.15

DAIRY CATTLE													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Wheat forage	AF/AS	3.70	HR	25.00	14.80	20.00	20.00	60.00		2.96	2.96	8.88	
Barley straw	AF/AS	12.00	HR	89.00	13.48		10.00				1.35		
Oat hay	AF/AS	12.00	HR	90.00	13.33	10.00		30.00		1.33		4.00	
Peanut hay	AL	7.60	HR	85.00	8.94	15.00		10.00		1.34		0.89	
Pea hay	AL	3.80	HR	88.00	4.32		30.00				1.30		
Apple pomace, wet	AB	0.20	STMR	40.00	0.50	10.00	10.00			0.05	0.05		
Barley grain	GC	0.18	STMR	88.00	0.20	45.00	30.00		40.00	0.09	0.06		0.08
Rape meal	SM	0.01	STMR	88.00	0.01				25.00				0.00
Soybean seed	VD	0.01	STMR	89.00	0.01				10.00				0.00
Total						100.00	100.00	100.00	75.00	5.78	5.72	13.77	0.09

POULTRY BROILER													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Barley grain	GC	0.18	STMR	88.00	0.20	75.00	70.00	15.00	10.00	0.15	0.14	0.03	0.02
Soybean hulls	SM	0.02	STMR	90.00	0.02		10.00	5.00			0.00	0.00	
Pea seed	VD	0.01	STMR	90.00	0.02	20.00	20.00	5.00		0.00	0.00	0.00	
Canola meal	SM	0.01	STMR	88.00	0.01	5.00				0.00			
Rape meal	SM	0.01	STMR	88.00	0.01				5.00				0.00

Annex 6

POULTRY BROILER													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Bean seed	VD	0.01	STMR	88.00	0.01			65.00				0.01	
Peanut meal	SM	0.01	STMR	85.00	0.01			5.00				0.00	
Total						100.00	100.00	95.00	15.00	0.16	0.15	0.04	0.02

POULTRY LAYER													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Wheat forage	AF/AS	3.70	HR	25.00	14.80		10.00				1.48		
Pea hay	AL	3.80	HR	88.00	4.32		10.00				0.43		
Barley grain	GC	0.18	STMR	88.00	0.20	75.00	80.00	15.00		0.15	0.16	0.03	
Barley bran fractions	CM/CF	0.07	STMR	90.00	0.08				5.00				0.00
Soybean hulls	SM	0.02	STMR	90.00	0.02			5.00				0.00	
Pea seed	VD	0.01	STMR	90.00	0.02	20.00		5.00		0.00		0.00	
Canola meal	SM	0.01	STMR	88.00	0.01	5.00				0.00			
Rape meal	SM	0.01	STMR	88.00	0.01				15.00				0.00
Bean seed	VD	0.01	STMR	88.00	0.01			65.00				0.01	
Peanut meal	SM	0.01	STMR	85.00	0.01			5.00				0.00	
Total						100.00	100.00	95.00	20.00	0.16	2.08	0.04	0.01

ESTIMATED MEAN DIETARY BURDEN													
BEEF CATTLE													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Grape pomace, wet	AB	1.20	STMR/STMR-P	15.00	8.00			20.00				1.60	
Barley hay	AF/AS	3.90	STMR/STMR-P	88.00	4.43	15.00		80.00		0.66		3.55	
Rye straw	AF/AS	3.90	STMR/STMR-P	88.00	4.43		20.00				0.89		
Barley straw	AF/AS	3.90	STMR/STMR-P	89.00	4.38		10.00				0.44		
Pea hay	AL	2.20	STMR/STMR-P	88.00	2.50		25.00				0.63		
Soybean asp gr fn	SM	1.91	STMR/STMR-P	85.00	2.25	5.00				0.11			
Wheat asp gr fn	CM/CF	1.70	STMR/STMR-P	85.00	2.00	5.00				0.10			
Apple pomace, wet	AB	0.20	STMR/STMR-P	40.00	0.50		20.00				0.10		
Barley grain	GC	0.18	STMR/STMR-P	88.00	0.20	50.00	25.00		70.00	0.10	0.05		0.14
Potato process waste	AB	0.01	STMR/STMR-P	12.00	0.08	25.00				0.02			

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ESTIMATED MEAN DIETARY BURDEN													
BEEF CATTLE													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Barley bran fractions	CM/CF	0.07	STMR/STMR-P	90.00	0.08				10.00				0.01
Rape meal	SM	0.01	STMR/STMR-P	88.00	0.01				15.00				0.00
Soybean seed	VD	0.01	STMR/STMR-P	89.00	0.01				5.00				0.00
Total						100.00	100.00	100.00	100.00	1.00	2.10	5.15	0.15

DAIRY CATTLE													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Grape pomace, wet	AB	1.20	STMR/STMR-P	15.00	8.00		0.00	20.00			0.00	1.60	
Barley hay	AF/AS	3.90	STMR/STMR-P	88.00	4.43	20.00		50.00		0.89		2.22	
Wheat forage	AF/AS	1.10	STMR/STMR-P	25.00	4.40	0.00		10.00		0.00		0.44	
Barley straw	AF/AS	3.90	STMR/STMR-P	89.00	4.38	0.00	30.00			0.00	1.31		
Oat hay	AF/AS	3.90	STMR/STMR-P	90.00	4.33	10.00		20.00		0.43		0.87	
Peanut hay	AL	2.20	STMR/STMR-P	85.00	2.59	15.00				0.39			
Pea hay	AL	2.20	STMR/STMR-P	88.00	2.50	0.00	30.00			0.00	0.75		
Apple pomace, wet	AB	0.20	STMR/STMR-P	40.00	0.50	10.00	10.00			0.05	0.05		
Barley grain	GC	0.18	STMR/STMR-P	88.00	0.20	45.00	30.00		40.00	0.09	0.06		0.08
Rape meal	SM	0.01	STMR/STMR-P	88.00	0.01	0.00			25.00	0.00			0.00
Soybean seed	VD	0.01	STMR/STMR-P	89.00	0.01	0.00			10.00	0.00			0.00
Total						100.00	100.00	100.00	75.00	1.85	2.18	5.12	0.09

POULTRY BROILER													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Barley grain	GC	0.18	STMR/STMR-P	88.00	0.20	75.00	70.00	15.00	10.00	0.15	0.14	0.03	0.02
Soybean hulls	SM	0.02	STMR/STMR-P	90.00	0.02		10.00	5.00			0.00	0.00	
Pea seed	VD	0.01	STMR/STMR-P	90.00	0.02	20.00	20.00	5.00		0.00	0.00	0.00	
Canola meal	SM	0.01	STMR/STMR-	88.00	0.01	5.00				0.00			

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POULTRY BROILER													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
			P										
Rape meal	SM	0.01	STMR/STMR-P	88.00	0.01				5.00				0.00
Bean seed	VD	0.01	STMR/STMR-P	88.00	0.01			65.00				0.01	
Peanut meal	SM	0.01	STMR/STMR-P	85.00	0.01			5.00				0.00	
Total						100.00	100.00	95.00	15.00	0.16	0.15	0.04	0.02

POULTRY LAYER													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Wheat forage	AF/AS	1.10	STMR/STMR-P	25.00	4.40		10.00				0.44		
Pea hay	AL	2.20	STMR/STMR-P	88.00	2.50		10.00				0.25		
Barley grain	GC	0.18	STMR/STMR-P	88.00	0.20	75.00	80.00	15.00		0.15	0.16	0.03	
Barley bran fractions	CM/CF	0.07	STMR/STMR-P	90.00	0.08				5.00				0.00
Soybean hulls	SM	0.02	STMR/STMR-P	90.00	0.02			5.00				0.00	
Pea seed	VD	0.01	STMR/STMR-P	90.00	0.02	20.00		5.00		0.00		0.00	
Canola meal	SM	0.01	STMR/STMR-P	88.00	0.01	5.00				0.00			
Rape meal	SM	0.01	STMR/STMR-P	88.00	0.01				15.00				0.00
Bean seed	VD	0.01	STMR/STMR-P	88.00	0.01			65.00				0.01	
Peanut meal	SM	0.01	STMR/STMR-P	85.00	0.01			5.00				0.00	
Total						100.00	100.00	95.00	20.00	0.16	0.85	0.04	0.01

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ESTIMATED MAXIMUM DIETARY BURDEN													
BEEF CATTLE													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Wheat forage	AF/AS	7.3	HR	25	29.20		20	100			5.84	29.2	
Barley forage	AF/AS	7.3	HR	30	24.33		10				2.433		
Barley hay	AF/AS	11	HR	88	12.50	15				1.875			
Barley grain	GC	0.08	STMR	88	0.09	50	70		70	0.046	0.064		0.064
Brewer's grain dried	SM	0.074	STMR	92	0.08	35			30	0.028			0.024
Total						100	100	100	100	1.949	8.337	29.2	0.088

DAIRY CATTLE													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Wheat forage	AF/AS	7.3	HR	25	29.20	20	20	60		5.84	5.84	17.52	
Barley forage	AF/AS	7.3	HR	30	24.33		10				2.433		
Oat forage	AF/AS	7.3	HR	30	24.33	10		40	5	2.43		9.733	1.217
Barley grain	GC	0.08	STMR	88	0.09	45	40		40	0.041	0.036		0.036
Brewer's grain dried	SM	0.074	STMR	92	0.08	25	15		40	0.02	0.012		0.032
Total						100	85	100	85	8.334	8.322	27.25	1.285

POULTRY BROILER													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Barley grain	GC	0.08	STMR	88	0.09	75	70	15	10	0.068182	0.064	0.014	0.009
Brewer's grain dried	SM	0.074	STMR	92	0.08		10				0.008		
Canola meal	SM	0.03	STMR	88	0.03	15	8	5		0.005	0.003	0.002	
Rape meal	SM	0.03	STMR	88	0.03				5				0.002
Rye grain	GC	0.02	STMR	88	0.02			35				0.008	
Wheat grain	GC	0.02	STMR	89	0.02			45				0.01	
Total						90	88	100	15	0.073	0.074	0.033	0.011

POULTRY LAYER													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Wheat forage	AF/AS	7.3	HR	25	29.20		10				2.92		
Barley grain	GC	0.08	STMR	88	0.09	75	90	15		0.068	0.082	0.014	

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POULTRY LAYER													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Canola meal	SM	0.03	STMR	88	0.03	15		5		0.005		0.002	
Rape meal	SM	0.03	STMR	88	0.03				15				0.005
Rye grain	GC	0.02	STMR	88	0.02			20				0.005	
Wheat grain	GC	0.02	STMR	89	0.02			20				0.004	
Total						90	100	60	15	0.073	3.002	0.024	0.005

ESTIMATED MEAN DIETARY BURDEN													
BEEF CATTLE													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Wheat forage	AF/AS	3.5	STMR/STMR-P	25	14.00		20	100			2.8	14	
Barley forage	AF/AS	3.5	STMR/STMR-P	30	11.67		10				1.167		
Barley hay	AF/AS	2.2	STMR/STMR-P	88	2.50	15				0.375			
Barley grain	GC	0.08	STMR/STMR-P	88	0.09	50	70		70	0.045	0.064		0.064
Brewer's grain dried	SM	0.074	STMR/STMR-P	92	0.08	35			30	0.028			0.024
Total						100	100	100	100	0.449	4.03	14	0.088

DAIRY CATTLE													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Wheat forage	AF/AS	3.5	STMR/STMR-P	25	14.00	20	20	60		2.8	2.8	8.4	
Barley forage	AF/AS	3.5	STMR/STMR-P	30	11.67	0	10			0	1.167		
Oat forage	AF/AS	3.5	STMR/STMR-P	30	11.67	10		40	5	1.167		4.667	0.583
Barley grain	GC	0.08	STMR/STMR-P	88	0.09	45	40		40	0.041	0.036		0.036
Brewer's grain dried	SM	0.074	STMR/STMR-P	92	0.08	25	15		40	0.02	0.012		0.032
Total						100	85	100	85	4.028	4.015	13.07	0.652

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POULTRY BROILER													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Barley grain	GC	0.08	STMR/STMR-P	88	0.09	75	70	15	10	0.068	0.064	0.014	0.009
Brewer's grain dried	SM	0.074	STMR/STMR-P	92	0.08		10				0.008		
Canola meal	SM	0.03	STMR/STMR-P	88	0.03	15	8	5		0.005	0.003	0.002	
Rape meal	SM	0.03	STMR/STMR-P	88	0.03				5				0.002
Rye grain	GC	0.02	STMR/STMR-P	88	0.02			35				0.008	
Wheat grain	GC	0.02	STMR/STMR-P	89	0.02			45				0.01	
Total						90	88	100	15	0.073	0.074	0.033	0.011

POULTRY LAYER													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Wheat forage	AF/AS	3.5	STMR/STMR-P	25	14.00		10				1.4		
Barley grain	GC	0.08	STMR/STMR-P	88	0.09	75	90	15		0.068	0.082	0.014	
Canola meal	SM	0.03	STMR/STMR-P	88	0.03	15		5		0.005		0.002	
Rape meal	SM	0.03	STMR/STMR-P	88	0.03				15				0.005
Rye grain	GC	0.02	STMR/STMR-P	88	0.02			20				0.005	
Wheat grain	GC	0.02	STMR/STMR-P	89	0.02			20				0.004	
Total						90	100	60	15	0.073	1.482	0.024	0.005

Annex 6

CHLORANTRANILIPROLE

ESTIMATED MAXIMUM DIETARY BURDEN													
BEEF CATTLE													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Alfalfa hay	AL	38	HR	100	38.00	15		80	10	5.70		30.4	3.8
Alfalfa forage	AL	28.7	HR	100	28.70		70	20			20.09	5.74	
Wheat forage	AF/AS	4.6	HR	25	18.40		20				3.68		
Barley hay	AF/AS	15	HR	88	17.05	15				2.56			
Barley straw	AF/AS	15	HR	89	16.85		10				1.685		
Cotton gin byproducts	AM/AV	13	HR	90	14.44	5				0.72			
Corn, field asp gr fn	CM/CF	0.34	STMR	85	0.40	5				0.02			
Rice bran/pollard	CM/CF	0.196	STMR	90	0.22	10			20	0.02			0.044
Rice grain	GC	0.115	STMR	88	0.13	20				0.03			
Cotton hulls	SM	0.1029	STMR	90	0.11	10				0.01			
Potato culls	VR	0.004	HR	20	0.02	20				0.00			
Barley grain	GC	0.01	STMR	88	0.01				70				0.008
Total						100	100	100	100	9.06	25.46	36.14	3.852

DAIRY CATTLE													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Alfalfa hay	AL	38	HR	100	38.00	20	40	60	25	7.60	15.2	22.8	9.5
Wheat forage	AF/AS	4.6	HR	25	18.40	20	20	40		3.68	3.68	7.36	
Barley straw	AF/AS	15	HR	89	16.85		10				1.685		
Oat hay	AF/AS	15	HR	90	16.67	10				1.67			
Trefoil hay	AL	14	HR	85	16.47	20				3.29			
Corn, field forage/silage	AF/AS	5.7	HR	40	14.25	15	30		50	2.14	4.275		7.125
Almond hulls	AM/AV	0.735	STMR	90	0.82	10				0.08			
Apple pomace, wet	AB	0.805	STMR	100	0.81	5				0.04			
Rice bran/pollard	CM/CF	0.196	STMR	90	0.22				10				0.022
Barley grain	GC	0.01	STMR	88	0.01				15				0.002
Total						100	100	100	100	18.50	24.84	30.16	16.65

POULTRY BROILER													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP

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POULTRY BROILER													MAX
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Alfalfa forage	AL	28.7	HR	100	28.70				5				1.435
Carrot culls	VR	0.046	HR	12	0.38		10				0.038		
Rice bran/pollard	CM/CF	0.196	STMR	90	0.22	10	10	20	5	0.02	0.022	0.044	0.011
Rice grain	GC	0.115	STMR	88	0.13	20		50		0.03		0.065	
Cotton meal	SM	0.0368	STMR	89	0.04	20	5	10		0.01	0.002	0.004	
Bean seed	VD	0.02	STMR	88	0.02		20	20			0.005	0.005	
Pea seed	VD	0.02	STMR	90	0.02	20				0.00			
Barley grain	GC	0.01	STMR	88	0.01	30	55			0.00	0.006		
Corn, field grain	GC	0.01	STMR	88	0.01				70				0.008
Total						100	100	100	80	0.06	0.073	0.118	1.454

POULTRY LAYER													MAX
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Pea vines	AL	6.4	HR	25	25.60		10				2.56		
Wheat forage	AF/AS	4.6	HR	25	18.40		10				1.84		
Cabbage heads, leaves	AM/AV	1.1	HR	15	7.33		5				0.367		
Carrot culls	VR	0.046	HR	12	0.38		10				0.038		
Rice bran/pollard	CM/CF	0.196	STMR	90	0.22	10	5	20	20	0.02	0.011	0.044	0.044
Rice grain	GC	0.115	STMR	88	0.13	20		50		0.03		0.065	
Cotton meal	SM	0.0368	STMR	89	0.04	20	5	10		0.01	0.002	0.004	
Bean seed	VD	0.02	STMR	88	0.02		20	20			0.005	0.005	
Pea seed	VD	0.02	STMR	90	0.02	20				0.00			
Barley grain	GC	0.01	STMR	88	0.01	30	35			0.00	0.004		
Corn, field grain	GC	0.01	STMR	88	0.01				80				0.009
Total						100	100	100	100	0.06	4.826	0.118	0.053

ESTIMATED MEAN DIETARY BURDEN													
BEEF CATTLE													MEAN
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Pea vines	AL	4.4	STMR/STMR-P	25	17.60		20	60			3.52	10.56	
Alfalfa hay	AL	17.3	STMR/STMR-P	100	17.30	15		20	10	2.60		3.46	1.73
Wheat forage	AF/AS	4.3	STMR/STMR-P	25	17.20		20	20			3.44	3.44	
Alfalfa forage	AL	17	STMR/STMR-P	100	17.00		50				8.50		
Barley forage	AF/AS	4.3	STMR/STMR-P	30	14.33		10				1.43		

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ESTIMATED MEAN DIETARY BURDEN													
BEEF CATTLE													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Sorghum, grain forage	AF/AS	4.3	STMR/STMR-P	35	12.29	15				1.84			
Cotton gin byproducts	AM/AV	4.1	STMR/STMR-P	90	4.56	5				0.23			
Corn, field asp gr fn	CM/CF	0.34	STMR/STMR-P	85	0.40	5				0.02			
Rice bran/pollard	CM/CF	0.196	STMR/STMR-P	90	0.22	10			20	0.02			0.044
Rice grain	GC	0.115	STMR/STMR-P	88	0.13	20				0.03			
Cotton hulls	SM	0.1029	STMR/STMR-P	90	0.11	10				0.01			
Potato culls	VR	0.003	STMR/STMR-P	20	0.02	20				0.00			
Barley grain	GC	0.01	STMR/STMR-P	88	0.01				70				0.008
Total						100	100	100	100	4.75	16.89	17.46	1.782

DAIRY CATTLE													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Pea vines	AL	4.4	STMR/STMR-P	25	17.60	10	20	40		1.76	3.52	7.04	
Alfalfa hay	AL	17.3	STMR/STMR-P	100	17.30	10	20	20	25	1.73	3.46	3.46	4.325
Wheat forage	AF/AS	4.3	STMR/STMR-P	25	17.20	20	20	40		3.44	3.44	6.88	
Barley forage	AF/AS	4.3	STMR/STMR-P	30	14.33	0	10			0.00	1.43		
Oat forage	AF/AS	4.3	STMR/STMR-P	30	14.33	10				1.43			
Sorghum, grain forage	AF/AS	4.3	STMR/STMR-P	35	12.29	10			40	1.23			4.914
Corn, field forage/silage	AF/AS	2.4	STMR/STMR-P	40	6.00	5	30		10	0.30	1.80		0.6
Almond hulls	AM/AV	0.735	STMR/STMR-P	90	0.82	10				0.08			
Apple pomace, wet	AB	0.805	STMR/STMR-P	100	0.81	10				0.08			
Rice bran/pollard	CM/CF	0.196	STMR/STMR-P	90	0.22	15			10	0.03			0.022
Barley grain	GC	0.01	STMR/STMR-P	88	0.01	0			15	0.00			0.002
Total						100	100	100	100	10.09	13.65	17.38	9.863

Annex 6

POULTRY BROILER													MEAN
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Alfalfa forage	AL	17	STMR/STMR-P	100	17.00				5				0.85
Rice bran/pollard	CM/CF	0.196	STMR/STMR-P	90	0.22	10	10	20	5	0.02	0.02	0.044	0.011
Carrot culls	VR	0.02	STMR/STMR-P	12	0.17		10				0.02		
Rice grain	GC	0.115	STMR/STMR-P	88	0.13	20		50		0.03		0.065	
Cotton meal	SM	0.0368	STMR/STMR-P	89	0.04	20	5	10		0.01	0.00	0.004	
Bean seed	VD	0.02	STMR/STMR-P	88	0.02		20	20			0.00	0.005	
Pea seed	VD	0.02	STMR/STMR-P	90	0.02	20				0.00			
Barley grain	GC	0.01	STMR/STMR-P	88	0.01	30	55			0.00	0.01		
Corn, field grain	GC	0.01	STMR/STMR-P	88	0.01				70				0.008
Total						100	100	100	80	0.06	0.05	0.118	0.869

POULTRY LAYER													MEAN
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Pea vines	AL	4.4	STMR/STMR-P	25	17.60		10				1.76		
Wheat forage	AF/AS	4.3	STMR/STMR-P	25	17.20		10				1.72		
Cabbage heads, leaves	AM/AV	0.385	STMR/STMR-P	15	2.57		5				0.13		
Rice bran/pollard	CM/CF	0.196	STMR/STMR-P	90	0.22	10	5	20	20	0.02	0.01	0.044	0.044
Carrot culls	VR	0.02	STMR/STMR-P	12	0.17		10				0.02		
Rice grain	GC	0.115	STMR/STMR-P	88	0.13	20		50		0.03		0.065	
Cotton meal	SM	0.0368	STMR/STMR-P	89	0.04	20	5	10		0.01	0.00	0.004	
Bean seed	VD	0.02	STMR/STMR-P	88	0.02		20	20			0.00	0.005	
Pea seed	VD	0.02	STMR/STMR-P	90	0.02	20				0.00			
Barley grain	GC	0.01	STMR/STMR-P	88	0.01	30	35			0.00	0.00		
Corn, field grain	GC	0.01	STMR/STMR-P	88	0.01				80				0.009
Total						100	100	100	100	0.06	3.65	0.118	0.053

Annex 6

DELTAMETHRIN

ESTIMATED MAXIMUM DIETARY BURDEN													
BEEF CATTLE													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Corn, field asp gr fn	CM/CF	21.7	STMR	85	25.53	5				1.276			
Rice hulls	CM/CF	3.15	STMR	90	3.50			5				0.175	
Wheat milled bypdts	CM/CF	2.31	STMR	88	2.63	35	30	35	55	0.919	0.788	0.919	1.444
Rape forage	AM/AV	0.56	HR	30	1.87		10	60			0.187	1.120	
Sorghum, grain grain	GC	0.7	STMR	86	0.81	40	40		35	0.326	0.326		0.285
Barley grain	GC	0.7	STMR	88	0.80	20	20		10	0.159	0.159		0.080
Total						100	100	100	100	2.680	1.459	2.214	1.808

DAIRY CATTLE													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Rice hulls	CM/CF	3.15	STMR	90	3.50			10				0.350	
Wheat milled bypdts	CM/CF	2.31	STMR	88	2.63	30	30	30	45	0.788	0.788	0.788	1.181
Rape forage	AM/AV	0.56	HR	30	1.87	10	10	40		0.187	0.187	0.747	
Rice bran/pollard	CM/CF	1.05	STMR	90	1.17			20				0.233	
Sorghum, grain grain	GC	0.7	STMR	86	0.81	45	40		30	0.366	0.326		0.244
Barley grain	GC	0.7	STMR	88	0.80				25				0.199
Corn, field milled bypdts	CM/CF	0.539	STMR	85	0.63	15	20			0.095	0.127		
Total						100	100	100	100	1.436	1.427	2.118	1.624

POULTRY BROILER													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Wheat milled bypdts	CM/CF	2.31	STMR	88	2.63	50	20	20	5	1.313	0.525	0.525	0.131
Sorghum, grain grain	GC	0.7	STMR	86	0.81	50	70	70	65	0.407	0.570	0.570	0.529
Corn, field grain	GC	0.7	STMR	88	0.80				30				0.239
Corn, field milled bypdts	CM/CF	0.539	STMR	85	0.63		10				0.063		
Lupin seed	VD	0.5	STMR	88	0.57			10				0.057	
Total						100	100	100	100	1.719	1.158	1.152	0.899

Annex 6

POULTRY LAYER													MAX
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Wheat milled bypdts	CM/CF	2.31	STMR	88	2.63	50	20	20	30	1.313	0.525	0.525	0.788
Rape forage	AM/AV	0.56	HR	30	1.87		10				0.187		
Sorghum, grain grain	GC	0.7	STMR	86	0.81	50	70	70	55	0.407	0.570	0.570	0.448
Corn, field grain	GC	0.7	STMR	88	0.80				15				0.119
Lupin seed	VD	0.5	STMR	88	0.57			10				0.057	
Total						100	100	100	100	1.719	1.281	1.152	1.354

ESTIMATED MEAN DIETARY BURDEN													
BEEF CATTLE													MEAN
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Corn, field asp gr fn	CM/CF	21.7	STMR/STMR-P	85	25.53	5				1.276			
Rice hulls	CM/CF	3.15	STMR/STMR-P	90	3.50			5				0.175	
Wheat milled bypdts	CM/CF	2.31	STMR/STMR-P	88	2.63	35	30	35	55	0.919	0.788	0.919	1.444
Sorghum, grain grain	GC	0.7	STMR/STMR-P	86	0.81	40	40	60	35	0.326	0.326	0.488	0.285
Barley grain	GC	0.7	STMR/STMR-P	88	0.80	20	30		10	0.159	0.239		0.080
Total						100	100	100	100	2.680	1.352	1.582	1.808

DAIRY CATTLE													MEAN
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Rice hulls	CM/CF	3.15	STMR/STMR-P	90	3.50		0	10			0.000	0.350	
Wheat milled bypdts	CM/CF	2.31	STMR/STMR-P	88	2.63	30	30	30	45	0.788	0.788	0.788	1.181
Sorghum, grain grain	GC	0.7	STMR/STMR-P	86	0.81	45	40	50	30	0.366	0.326	0.407	0.244
Barley grain	GC	0.7	STMR/STMR-P	88	0.80	0			25	0.000			0.199
Corn, field milled bypdts	CM/CF	0.539	STMR/STMR-P	85	0.63	0		10		0.000		0.063	
Lupin seed	VD	0.5	STMR/STMR-P	88	0.57	0	20			0.000	0.114		
Soybean	VD	0.5	STMR/STMR-	89	0.56	10				0.056			

Annex 6

DAIRY CATTLE													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
seed			P										
Rape forage	AM/AV	0.14	STMR/STMR-P	30	0.47	10	10			0.047	0.047		
Apple pomace, wet	AB	0.17	STMR/STMR-P	40	0.43	5				0.021			
Total						100	100	100	100	1.278	1.273	1.608	1.624

POULTRY BROILER													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Wheat milled bypdts	CM/CF	2.31	STMR/STMR-P	88	2.63	50	20	20	5	1.313	0.525	0.525	0.131
Sorghum, grain grain	GC	0.7	STMR/STMR-P	86	0.81	50	70	70	65	0.407	0.570	0.570	0.529
Corn, field grain	GC	0.7	STMR/STMR-P	88	0.80				30				0.239
Corn, field milled bypdts	CM/CF	0.539	STMR/STMR-P	85	0.63		10				0.063		
Lupin seed	VD	0.5	STMR/STMR-P	88	0.57			10				0.057	
Total						100	100	100	100	1.719	1.158	1.152	0.899

POULTRY LAYER													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Wheat milled bypdts	CM/CF	2.31	STMR/STMR-P	88	2.63	50	20	20	30	1.313	0.525	0.525	0.788
Sorghum, grain grain	GC	0.7	STMR/STMR-P	86	0.81	50	70	70	55	0.407	0.570	0.570	0.448
Barley grain	GC	0.7	STMR/STMR-P	88	0.80		10				0.080		
Corn, field grain	GC	0.7	STMR/STMR-P	88	0.80				15				0.119
Lupin seed	VD	0.5	STMR/STMR-P	88	0.57			10				0.057	
Total						100	100	100	100	1.719	1.174	1.152	1.354

FLUAZIFOP-P-BUTYL

ESTIMATED MAXIMUM DIETARY BURDEN													
BEEF CATTLE													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Swede roots	VR	2	HR	10	20.00		40	10			8	2	
Soybean okara	SM	3.36	STMR	20	16.80				40				6.72
Beet, mangel fodder	AM/AV	1.7	HR	15	11.33		30				3.4		
Pea vines	AL	2.3	HR	25	9.20		20	60			1.84	5.52	
Soybean forage	AL	4	HR	56	7.14			30				2.143	
Turnip tops (leaves)	AM/AV	1.6	HR	30	5.33		10				0.533		
Beet, sugar dried pulp	AB	3.8	STMR	88	4.32	15			5	0.648			0.216
Soybean meal	SM	3.36	STMR	92	3.65	5			55	0.183			2.009
Potato culls	VR	0.44	HR	20	2.20	30				0.660			
Beet, sugar molasses	DM	1.33	STMR	75	1.77	10				0.177			
Soybean hulls	SM	1.43	STMR	90	1.59	10				0.159			
Cotton gin byproducts	AM/AV	0.63	HR	90	0.70	5				0.035			
Potato process waste	AB	0.0277	STMR	12	0.23	25				0.058			
Total						100	100	100	100	1.919	13.77	9.66	8.94

DAIRY CATTLE													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Swede roots	VR	2	HR	10	20.00		20	10			4	2	
Soybean okara	SM	3.36	STMR	20	16.80				20				3.36
Turnip roots	VR	2	HR	15	13.33	10				1.333			
Beet, mangel fodder	AM/AV	1.7	HR	15	11.33		25				2.833		
Pea vines	AL	2.3	HR	25	9.20	10	20	40		0.920	1.84	3.68	
Beet, sugar tops	AM/AV	1.7	HR	23	7.39		5				0.37		
Soybean forage	AL	4	HR	56	7.14	10				0.714			
Bean vines	AL	2.3	HR	35	6.57			50				3.286	
Turnip tops (leaves)	AM/AV	1.6	HR	30	5.33	30				1.600			
Beet, sugar dried pulp	AB	3.8	STMR	88	4.32	15	20		40	0.648	0.864		1.727
Soybean meal	SM	3.36	STMR	92	3.65	10	10		40	0.365	0.365		1.461

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DAIRY CATTLE													MAX
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Soybean hay	AL	2.1	HR	100	2.10	15				0.315			
Total						100	100	100	100	5.896	10.27	8.97	6.55

POULTRY BROILER													MAX
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Swede roots	VR	2	HR	10	20.00		10				2		
Soybean meal	SM	3.36	STMR	92	3.65	25	40	25	35	0.913	1.461	0.913	1.278
Bean seed	VD	2.3	STMR	88	2.61		20	70			0.523	1.83	
Sunflower meal	SM	0.9	STMR	92	0.98			5				0.049	
Pea seed	VD	0.38	STMR	90	0.42	20				0.084			
Potato dried pulp	AB	0.22	STMR	88	0.25		20				0.05		
Total						45	90	100	35	1.00	4.034	2.792	1.278

POULTRY LAYER													MAX
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Swede roots	VR	2	HR	10	20.00		10				2		
Pea vines	AL	2.3	HR	25	9.20		10				0.92		
Beet, sugar tops	AM/AV	1.7	HR	23	7.39		5				0.37		
Soybean meal	SM	3.36	STMR	92	3.65	25	25	25	30	0.913	0.913	0.913	1.096
Bean seed	VD	2.3	STMR	88	2.61		20	70			0.523	1.83	
Sunflower meal	SM	0.9	STMR	92	0.98			5				0.049	
Pea seed	VD	0.38	STMR	90	0.42	20				0.084			
Potato dried pulp	AB	0.22	STMR	88	0.25		15				0.038		
Total						45	85	100	30	1.00	4.763	2.792	1.10

ESTIMATED MEAN DIETARY BURDEN													
BEEF CATTLE													MEAN
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Soybean okara	SM	3.36	STMR/STMR-P	20	16.80				40				6.72
Cabbage	AM/AV	1.7	STMR/STMR-	15	11.33		20				2.267		

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ESTIMATED MEAN DIETARY BURDEN													
BEEF CATTLE													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
heads, leaves			P										
Swede roots	VR	0.645	STMR/STMR-P	10	6.45		40	10			2.58	0.645	
Beet, mangel fodder	AM/AV	0.83	STMR/STMR-P	15	5.53		10				0.553		
Bean vines	AL	1.55	STMR/STMR-P	35	4.43			60				2.657	
Beet, sugar dried pulp	AB	3.8	STMR/STMR-P	88	4.32	15	20		5	0.648	0.864		0.216
Pea vines	AL	0.92	STMR/STMR-P	25	3.68		10				0.368		
Turnip tops (leaves)	AM/AV	1.1	STMR/STMR-P	30	3.67			30				1.1	
Soybean meal	SM	3.36	STMR/STMR-P	92	3.65	5			55	0.183			2.009
Beet, sugar molasses	DM	1.33	STMR/STMR-P	75	1.77	10				0.177			
Soybean hulls	SM	1.43	STMR/STMR-P	90	1.59	10				0.159			
Potato culls	VR	0.05	STMR/STMR-P	20	0.25	30				0.075			
Potato process waste	AB	0.0277	STMR/STMR-P	12	0.23	15				0.035			
Cotton gin byproducts	AM/AV	0.12	STMR/STMR-P	90	0.13	5				0.007			
Total						90	100	100	100	1.283	6.632	4.402	8.9446

DAIRY CATTLE													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Soybean okara	SM	3.36	STMR/STMR-P	20	16.80		0	0	20		0	0	3.36
Cabbage heads, leaves	AM/AV	1.7	STMR/STMR-P	15	11.33	0	20			0.000	2.267		
Swede roots	VR	0.645	STMR/STMR-P	10	6.45	0	20	10		0.000	1.29	0.645	
Beet, mangel fodder	AM/AV	0.83	STMR/STMR-P	15	5.53	0	5			0.000	0.277		
Bean vines	AL	1.55	STMR/STMR-P	35	4.43	0	20	70		0.000	0.886	3.1	
Beet, sugar dried pulp	AB	3.8	STMR/STMR-P	88	4.32	15	20		40	0.648	0.864		1.727
Turnip roots	VR	0.645	STMR/STMR-P	15	4.30	10				0.430			
Pea vines	AL	0.92	STMR/STMR-P	25	3.68	10				0.368			
Turnip tops (leaves)	AM/AV	1.1	STMR/STMR-P	30	3.67	30				1.100			

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DAIRY CATTLE													MEAN
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Soybean meal	SM	3.36	STMR/STMR-P	92	3.65	10	15	15	40	0.365	0.548	0.548	1.461
Soybean forage	AL	1.5	STMR/STMR-P	56	2.68	10				0.268			
Bean seed	VD	2.3	STMR/STMR-P	88	2.61	0		5		0.000		0.131	
Beet, sugar molasses	DM	1.33	STMR/STMR-P	75	1.77	10				0.177			
Sunflower meal	SM	0.9	STMR/STMR-P	92	0.98	5				0.049			
Total						100	100	100	100	3.405	6.13	4.42	6.55

POULTRY BROILER													MEAN
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Swede roots	VR	0.645	STMR/STMR-P	10	6.45		10				0.645		
Soybean meal	SM	3.36	STMR/STMR-P	92	3.65	25	40	25	35	0.913	1.461	0.913	1.278
Bean seed	VD	2.3	STMR/STMR-P	88	2.61		20	70			0.523	1.83	
Sunflower meal	SM	0.9	STMR/STMR-P	92	0.98			5				0.049	
Pea seed	VD	0.38	STMR/STMR-P	90	0.42	20				0.084			
Potato dried pulp	AB	0.22	STMR/STMR-P	88	0.25		20				0.05		
Total						45	90	100	35	0.997	2.679	2.792	1.278

POULTRY LAYER													MEAN
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Cabbage heads, leaves	AM/AV	1.7	STMR/STMR-P	15	11.33		5				0.567		
Swede roots	VR	0.645	STMR/STMR-P	10	6.45		10				0.645		
Pea vines	AL	0.92	STMR/STMR-P	25	3.68		10				0.368		
Soybean meal	SM	3.36	STMR/STMR-P	92	3.65	25	25	25	30	0.913	0.913	0.913	1.096
Bean seed	VD	2.3	STMR/STMR-P	88	2.61		20	70			0.523	1.83	
Sunflower meal	SM	0.9	STMR/STMR-P	92	0.98			5				0.049	

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POULTRY LAYER													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Pea seed	VD	0.38	STMR/STMR-P	90	0.42	20				0.084			
Potato dried pulp	AB	0.22	STMR/STMR-P	88	0.25		15				0.038		
Total						45	85	100	30	0.997	3.053	2.792	1.10

Annex 6

FLUENSULFONE

ESTIMATED MAXIMUM DIETARY BURDEN													
BEEF CATTLE													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Swede roots	VR	0.5	HR	10	5.00		40	10			2	0.5	
Potato process waste	AB	0.01	STMR	12	0.08	30	40	5		0.025	0.033	0.004	
Cabbage heads, leaves	AM/AV	0.01	HR	15	0.07		20				0.013		
Potato culls	VR	0.01	HR	20	0.05	30				0.015			
Turnip tops (leaves)	AM/AV	0.01	HR	30	0.03			80				0.027	
Total						60	100	95		0.04	2.047	0.531	

DAIRY CATTLE													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Swede roots	VR	0.5	HR	10	5.00		20	10			1	0.5	
Carrot culls	VR	0.5	HR	12	4.17	10				0.417			
Potato process waste	AB	0.01	STMR	12	0.08	10	30			0.008	0.025		
Cabbage heads, leaves	AM/AV	0.01	HR	15	0.07		20				0.013		
Potato culls	VR	0.01	HR	20	0.05		10				0.005		
Turnip tops (leaves)	AM/AV	0.01	HR	30	0.03	30				0.01			
Total						50	80	10		0.435	1.043	0.5	

POULTRY BROILER													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Swede roots	VR	0.5	HR	10	5.00		10				0.5		
Cassava/tapioca roots	VR	0.01	HR	37	0.03		10				0.003		
Potato dried pulp	AB	0.01	STMR	88	0.01		20				0.002		
Total							40				0.505		

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POULTRY LAYER													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Swede roots	VR	0.5	HR	10	5.00		10				0.5		
Cabbage heads, leaves	AM/AV	0.01	HR	15	0.07		5				0.003		
Cassava/tapioca roots	VR	0.01	HR	37	0.03		5				0.001		
Potato dried pulp	AB	0.01	STMR	88	0.01		15				0.002		
Total							35				0.506		

ESTIMATED MEAN DIETARY BURDEN													
BEEF CATTLE													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Swede roots	VR	0.12	STMR/STMR-P	10	1.20		40	10			0.48	0.12	
Potato process waste	AB	0.01	STMR/STMR-P	12	0.08	30	40	5		0.025	0.033	0.004	
Cabbage heads, leaves	AM/AV	0.01	STMR/STMR-P	15	0.07		20				0.013		
Potato culls	VR	0.01	STMR/STMR-P	20	0.05	30				0.015			
Turnip tops (leaves)	AM/AV	0.01	STMR/STMR-P	30	0.03			80				0.027	
Total						60	100	95		0.04	0.527	0.151	

DAIRY CATTLE													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Swede roots	VR	0.12	STMR/STMR-P	10	1.20		20	10			0.24	0.12	
Carrot culls	VR	0.12	STMR/STMR-P	12	1.00	10				0.1			
Potato process waste	AB	0.01	STMR/STMR-P	12	0.08	10	30			0.008	0.025		
Cabbage heads, leaves	AM/AV	0.01	STMR/STMR-P	15	0.07	0	20			0	0.013		
Potato culls	VR	0.01	STMR/STMR-P	20	0.05	0	10			0	0.005		
Turnip tops (leaves)	AM/AV	0.01	STMR/STMR-P	30	0.03	30				0.01			
Total						50	80	10		0.118	0.283	0.12	

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POULTRY BROILER													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Swede roots	VR	0.12	STMR/STMR-P	10	1.20		10				0.12		
Cassava/tapioca roots	VR	0.01	STMR/STMR-P	37	0.03		10				0.003		
Potato dried pulp	AB	0.01	STMR/STMR-P	88	0.01		20				0.002		
Total							40				0.125		

POULTRY LAYER													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Swede roots	VR	0.12	STMR/STMR-P	10	1.20		10				0.12		
Cabbage heads, leaves	AM/AV	0.01	STMR/STMR-P	15	0.07		5				0.003		
Cassava/tapioca roots	VR	0.01	STMR/STMR-P	37	0.03		5				0.001		
Potato dried pulp	AB	0.01	STMR/STMR-P	88	0.01		15				0.002		
Total							35				0.126		

FLUPYRADIFURONE

ESTIMATED MAXIMUM DIETARY BURDEN													
BEEF CATTLE													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Barley forage	AF/AS	77	HR	100	77.00		30	50			23.1	38.5	
Corn, field forage/silage	AF/AS	77	HR	100	77.00	15	50	30		11.550	38.5	23.1	
Alfalfa forage	AL	51	HR	100	51.00		20	20			10.2	10.2	
Alfalfa hay	AL	42	HR	100	42.00	15			10	6.300			4.2
Cotton gin byproducts	AM/AV	29	HR	100	29.00	5				1.450			
Soybean asp gr fn	SM	24.4	STMR	85	28.71	5				1.435			
Wheat asp gr fn	CM/CF	13.8	STMR	85	16.24	5				0.812			
Soybean meal	SM	4.6	STMR	92	5.00				65				3.25
Soybean seed	VD	3.44	STMR	89	3.87	5			15	0.193			0.58
Soybean hulls	SM	2.6	STMR	90	2.89	10				0.289			
Potato culls	VR	0.34	HR	20	1.70	30				0.510			
Sorghum, grain grain	GC	1.315	STMR	86	1.53	10			10	0.153			0.153
Total						100	100	100	100	22.692	71.8	71.8	8.183

DAIRY CATTLE													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Barley forage	AF/AS	77	HR	100	77.00		30	50			23.1	38.5	
Corn, field forage/silage	AF/AS	77	HR	100	77.00	45	30	30	50	34.650	23.1	23.1	38.5
Alfalfa forage	AL	51	HR	100	51.00	20	40	20		10.200	20.4	10.2	
Alfalfa hay	AL	42	HR	100	42.00				25				10.5
Soybean meal	SM	4.6	STMR	92	5.00	10			25	0.500			1.25
Soybean seed	VD	3.44	STMR	89	3.87	10				0.387			
Potato culls	VR	0.34	HR	20	1.70	10				0.170			
Sorghum, grain grain	GC	1.315	STMR	86	1.53	5				0.076			
Total						100	100	100	100	45.983	66.6	71.8	50.25

POULTRY BROILER													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Alfalfa forage	AL	51	HR	100	51.00				5				2.55

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POULTRY BROILER													MAX
Soybean meal	SM	4.6	STMR	92	5.00	25	40	25	35	1.250	2	1.25	1.75
Pea seed	VD	3.605	STMR	90	4.01	20	20	5		0.801	0.801	0.2	
Bean seed	VD	3.22	STMR	88	3.66			65				2.378	
Potato culls	VR	0.34	HR	20	1.70		10				0.17		
Sorghum, grain grain	GC	1.315	STMR	86	1.53	55	30	5	60	0.841	0.459	0.076	0.917
Total						100	100	100	100	2.892	3.43	3.905	5.217

POULTRY LAYER													MAX
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Corn, field forage/silage	AF/AS	77	HR	100	77.00		10				7.7		
Soybean forage	AL	46	HR	100	46.00		10				4.6		
Cabbage heads, leaves	AM/AV	1.71	HR	15	11.40		5				0.57		
Soybean meal	SM	4.6	STMR	92	5.00	25	25	25	30	1.250	1.25	1.25	1.5
Pea seed	VD	3.605	STMR	90	4.01	20	20	5		0.801	0.801	0.2	
Bean seed	VD	3.22	STMR	88	3.66			65				2.378	
Potato culls	VR	0.34	HR	20	1.70		10				0.17		
Sorghum, grain grain	GC	1.315	STMR	86	1.53	55	20	5	55	0.841	0.306	0.076	0.841
Corn, field grain	GC	0.49	STMR	88	0.56				15				0.084
Total						100	100	100	100	2.892	15.4	3.905	2.425

ESTIMATED MEAN DIETARY BURDEN													
BEEF CATTLE													MEAN
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Soybean asp gr fn	SM	24.4	STMR/STMR-P	85	28.71	5				1.435			
Soybean forage	AL	23	STMR/STMR-P	100	23.00			100				23	
Pea vines	AL	22.5	STMR/STMR-P	100	22.50		20				4.5		
Alfalfa forage	AL	20	STMR/STMR-P	100	20.00		50				10		
Wheat asp gr fn	CM/CF	13.8	STMR/STMR-P	85	16.24	5				0.812			
Cotton gin byproducts	AM/AV	15	STMR/STMR-P	100	15.00	5				0.75			
Alfalfa hay	AL	14	STMR/STMR-P	100	14.00	15			10	2.1			1.4
Barley hay	AF/AS	9.6	STMR/STMR-P	100	9.60	15				1.44			
Barley forage	AF/AS	6.9	STMR/STMR-P	100	6.90		30				2.07		

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ESTIMATED MEAN DIETARY BURDEN													
BEEF CATTLE													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Soybean meal	SM	4.6	STMR/STMR-P	92	5.00				65				3.25
Soybean seed	VD	3.44	STMR/STMR-P	89	3.87	5			15	0.193			0.58
Soybean hulls	SM	2.6	STMR/STMR-P	90	2.89	10				0.289			
Sorghum, grain grain	GC	1.315	STMR/STMR-P	86	1.53	40			10	0.612			0.152
Total						100	100	100	100	7.631	16.57	23	5.383

DAIRY CATTLE													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Soybean forage	AL	23	STMR/STMR-P	100	23.00	20	0	40		4.6	0	9.2	
Alfalfa forage	AL	20	STMR/STMR-P	100	20.00	0	40	20		0	8	4	
Pea hay	AL	19.5	STMR/STMR-P	100	19.50	0		10		0		1.95	
Alfalfa hay	AL	14	STMR/STMR-P	100	14.00	0			25	0			3.5
Barley hay	AF/AS	9.6	STMR/STMR-P	100	9.60	20		30		1.92		2.88	
Barley forage	AF/AS	6.9	STMR/STMR-P	100	6.90	0	30			0	2.07		
Corn, field forage/silage	AF/AS	6.9	STMR/STMR-P	100	6.90	25	30		50	1.725	2.07		3.45
Soybean meal	SM	4.6	STMR/STMR-P	92	5.00	10			25	0.5			1.25
Soybean seed	VD	3.44	STMR/STMR-P	89	3.87	10				0.387			
Sorghum, grain grain	GC	1.315	STMR/STMR-P	86	1.53	15				0.229			
Total						100	100	100	100	9.361	12.14	18.03	8.2

POULTRY BROILER													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Alfalfa forage	AL	20	STMR/STMR-P	100	20.00				5				1
Soybean meal	SM	4.6	STMR/STMR-P	92	5.00	25	40	25	35	1.25	2	1.25	1.75
Pea seed	VD	3.605	STMR/STMR-	90	4.01	20	20	5		0.801	0.801	0.2	

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POULTRY BROILER													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
			P										
Bean seed	VD	3.22	STMR/STMR-P	88	3.66			65				2.378	
Sorghum, grain grain	GC	1.315	STMR/STMR-P	86	1.53	55	40	5	60	0.841	0.612	0.076	0.917
Total						100	100	100	100	2.892	3.413	3.905	3.667

POULTRY LAYER													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Soybean forage	AL	23	STMR/STMR-P	100	23.00		10				2.3		
Millet hay	AF/AS	9.6	STMR/STMR-P	100	9.60		10				0.96		
Cabbage heads, leaves	AM/AV	0.79	STMR/STMR-P	15	5.27		5				0.263		
Soybean meal	SM	4.6	STMR/STMR-P	92	5.00	25	25	25	30	1.25	1.25	1.25	1.5
Pea seed	VD	3.605	STMR/STMR-P	90	4.01	20	20	5		0.801	0.801	0.2	
Bean seed	VD	3.22	STMR/STMR-P	88	3.66			65				2.378	
Sorghum, grain grain	GC	1.315	STMR/STMR-P	86	1.53	55	30	5	55	0.841	0.459	0.076	0.841
Corn, field grain	GC	0.49	STMR/STMR-P	88	0.56				15				0.084
Total						100	100	100	100	2.892	6.033	3.905	2.425

IMAZETHAPYR

ESTIMATED MAXIMUM DIETARY BURDEN													
BEEF CATTLE													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Clover forage	AL	1.15	HR	30	3.83		30	100			1.150	3.833	
Alfalfa forage	AL	1.25	HR	35	3.57		40				1.429		
Clover hay	AL	2.81	HR	89	3.16	15				0.474			
Alfalfa meal	SM	1.4	STMR	89	1.57				10				0.157
Corn, field forage/silage	AF/AS	0.176	HR	40	0.44	15	30			0.066	0.132		
Rice straw	AF/AS	0.084	HR	90	0.09				55				0.051
Rice grain	GC	0.078	STMR	88	0.09	20				0.018			
Soybean seed	VD	0.0475	STMR	89	0.05	5			15	0.003			0.008
Soybean meal	SM	0.033	STMR	92	0.04	5			20	0.002			0.007
Total						60	100	100	100	0.562	2.711	3.833	0.224

DAIRY CATTLE													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Clover forage	AL	1.15	HR	30	3.83	20	40	60		0.767	1.533	2.300	
Alfalfa meal	SM	1.4	STMR	89	1.57	10	40	40	25	0.157	0.629	0.629	0.393
Corn, field forage/silage	AF/AS	0.176	HR	40	0.44	45	20		50	0.198	0.088		0.220
Rice grain	GC	0.078	STMR	88	0.09	20				0.018			
Soybean seed	VD	0.0475	STMR	89	0.05	5			10	0.003			0.005
Soybean meal	SM	0.033	STMR	92	0.04				15				0.005
Total						100	100	100	100	1.142	2.251	2.929	0.624

POULTRY BROILER													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Alfalfa forage	AL	1.25	HR	35	3.57				5				0.179
Alfalfa meal	SM	1.4	STMR	89	1.57	5	5	10		0.079	0.079	0.157	
Rice grain	GC	0.078	STMR	88	0.09	20		50		0.018		0.044	
Soybean seed	VD	0.0475	STMR	89	0.05	20	20	15		0.011	0.011	0.008	
Soybean meal	SM	0.033	STMR	92	0.04	20	35	15	35	0.007	0.013	0.005	0.013
Total						65	60	90	40	0.114	0.102	0.215	0.191

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POULTRY LAYER													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Clover forage	AL	1.15	HR	30	3.83		10				0.383		
Alfalfa meal	SM	1.4	STMR	89	1.57	5	10	10	10	0.079	0.157	0.157	0.157
Corn, field forage/silage	AF/AS	0.176	HR	40	0.44		10				0.044		
Rice grain	GC	0.078	STMR	88	0.09	20		50		0.018		0.044	
Soybean seed	VD	0.0475	STMR	89	0.05	20	15	15		0.011	0.008	0.008	
Soybean meal	SM	0.033	STMR	92	0.04	20	15	15	20	0.007	0.005	0.005	0.007
Total						65	60	90	30	0.114	0.598	0.215	0.164

ESTIMATED MEAN DIETARY BURDEN													
BEEF CATTLE													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Clover forage	AL	0.78	STMR/STMR-P	30	2.60		30	100			0.780	2.600	
Alfalfa meal	SM	1.4	STMR/STMR-P	89	1.57				10				0.157
Alfalfa forage	AL	0.54	STMR/STMR-P	35	1.54		40				0.617		
Clover hay	AL	0.8	STMR/STMR-P	89	0.90	15				0.135			
Corn, field forage/silage	AF/AS	0.04	STMR/STMR-P	40	0.10	15	30			0.015	0.030		
Rice grain	GC	0.078	STMR/STMR-P	88	0.09	20				0.018			
Rice straw	AF/AS	0.078	STMR/STMR-P	90	0.09				55				0.048
Soybean seed	VD	0.0475	STMR/STMR-P	89	0.05	5			15	0.003			0.008
Soybean meal	SM	0.033	STMR/STMR-P	92	0.04	5			20	0.002			0.007
Total						60	100	100	100	0.172	1.427	2.600	0.220

DAIRY CATTLE													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Clover forage	AL	0.78	STMR/STMR-P	30	2.60	20	40	60		0.520	1.040	1.560	
Alfalfa meal	SM	1.4	STMR/STMR-P	89	1.57	10	40	40	25	0.157	0.629	0.629	0.393
Corn, field forage/silage	AF/AS	0.04	STMR/STMR-P	40	0.10	45	20		50	0.045	0.020		0.050

Annex 6

DAIRY CATTLE													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Rice grain	GC	0.078	STMR/STMR-P	88	0.09	20				0.018			
Soybean seed	VD	0.0475	STMR/STMR-P	89	0.05	5			10	0.003			0.005
Soybean meal	SM	0.033	STMR/STMR-P	92	0.04	0			15	0.000			0.005
Total						100	100	100	100	0.743	1.689	2.189	0.454

POULTRY BROILER													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Alfalfa meal	SM	1.4	STMR/STMR-P	89	1.57	5	5	10		0.079	0.079	0.157	
Alfalfa forage	AL	0.54	STMR/STMR-P	35	1.54				5				0.077
Rice grain	GC	0.078	STMR/STMR-P	88	0.09	20		50		0.018		0.044	
Soybean seed	VD	0.0475	STMR/STMR-P	89	0.05	20	20	15		0.011	0.011	0.008	
Soybean meal	SM	0.033	STMR/STMR-P	92	0.04	20	35	15	35	0.007	0.013	0.005	0.013
Total						65	60	90	40	0.114	0.102	0.215	0.090

POULTRY LAYER													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Clover forage	AL	0.78	STMR/STMR-P	30	2.60		10				0.260		
Alfalfa meal	SM	1.4	STMR/STMR-P	89	1.57	5	10	10	10	0.079	0.157	0.157	0.157
Corn, field forage/silage	AF/AS	0.04	STMR/STMR-P	40	0.10		10				0.010		
Rice grain	GC	0.078	STMR/STMR-P	88	0.09	20		50		0.018		0.044	
Soybean seed	VD	0.0475	STMR/STMR-P	89	0.05	20	15	15		0.011	0.008	0.008	
Soybean meal	SM	0.033	STMR/STMR-P	92	0.04	20	15	15	20	0.007	0.005	0.005	0.007
Total						65	60	90	30	0.114	0.441	0.215	0.164

Annex 6

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ESTIMATED MAXIMUM DIETARY BURDEN													
BEEF CATTLE													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Grape pomace, wet	AB	2.7	STMR	15	18.00			20				3.600	
Almond hulls	AM/AV	0.01	STMR	100	0.01			10				0.001	
Rape meal	SM	0.0017	STMR	88	0.00		20	15	15		0.000	0.000	0.000
Total							20	45	15		0.000	3.601	0.000

DAIRY CATTLE													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Grape pomace, wet	AB	2.7	STMR	15	18.00			20				3.600	
Almond hulls	AM/AV	0.01	STMR	100	0.01	10		10		0.001		0.001	
Rape meal	SM	0.0017	STMR	88	0.00		10	15	25		0.000	0.000	0.000
Total						10	10	45	25	0.001	0.000	3.601	0.000

POULTRY BROILER													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Rape meal	SM	0.0017	STMR	88	0.00			5	5			0.000	0.000
Total								5	5			0.000	0.000

POULTRY LAYER													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Rape meal	SM	0.0017	STMR	88	0.00		10	5	15		0.000	0.000	0.000
Total							10	5	15		0.000	0.000	0.000

Annex 6

ESTIMATED MEAN DIETARY BURDEN													
BEEF CATTLE													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Grape pomace, wet	AB	2.7	STMR/STMR-P	15	18.00			20				3.600	
Almond hulls	AM/AV	0.01	STMR/STMR-P	100	0.01			10				0.001	
Rape meal	SM	0.0017	STMR/STMR-P	88	0.00		20	15	15		0.000	0.000	0.000
Total							20	45	15		0.000	3.601	0.000

DAIRY CATTLE													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Grape pomace, wet	AB	2.7	STMR/STMR-P	15	18.00		0	20			0.000	3.600	
Almond hulls	AM/AV	0.01	STMR/STMR-P	100	0.01	10		10		0.001		0.001	
Rape meal	SM	0.0017	STMR/STMR-P	88	0.00	0	10	15	25	0	0.000	0.000	0.000
Total						10	10	45	25	0.001	0.000	3.601	0.000

POULTRY BROILER													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Rape meal	SM	0.0017	STMR/STMR-P	88	0.00			5	5			0.000	0.000
Total								5	5			0.000	0.000

POULTRY LAYER													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Rape meal	SM	0.0017	STMR/STMR-P	88	0.00		10	5	15		0.000	0.000	0.000
Total							10	5	15		0.000	0.000	0.000

METRAFENONE

ESTIMATED MAXIMUM DIETARY BURDEN													
BEEF CATTLE													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Grape pomace, wet	AB	2.4	STMR	15	16.00			20				3.2	
Rye straw	AF/AS	6.7	HR	88	7.61	10	20	20		0.761	1.523	1.523	
Wheat straw	AF/AS	6.7	HR	88	7.61			60				4.568	
Barley straw	AF/AS	3.9	HR	89	4.38		10				0.438		
Apple pomace, wet	AB	0.28	STMR	40	0.70		20				0.14		
Barley bran fractions	CM/CF	0.15	STMR	90	0.17				10				0.017
Barley grain	GC	0.06	STMR	88	0.07	50	50		70	0.034	0.034		0.048
Brewer's grain dried	SM	0.018	STMR	92	0.02	40			20	0.008			0.004
Total						100	100	100	100	0.803	2.135	9.291	0.068

DAIRY CATTLE													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Grape pomace, wet	AB	2.4	STMR	15	16.00			20				3.2	
Rye straw	AF/AS	6.7	HR	88	7.61	10	20	20	5	0.761	1.523	1.523	0.381
Triticale straw	AF/AS	6.7	HR	90	7.44			60				4.467	
Barley straw	AF/AS	3.9	HR	89	4.38		10				0.438		
Apple pomace, wet	AB	0.28	STMR	40	0.70	10	10			0.070	0.07		
Barley grain	GC	0.06	STMR	88	0.07	45	40		40	0.031	0.027		0.027
Brewer's grain dried	SM	0.018	STMR	92	0.02	30	15		40	0.006	0.003		0.008
Total						95	95	100	85	0.868	2.061	9.189	0.416

POULTRY BROILER													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Barley grain	GC	0.06	STMR	88	0.07	75	70	15	10	0.051	0.048	0.01	0.007
Brewer's grain dried	SM	0.018	STMR	92	0.02		10				0.002		
Rye grain	GC	0.01	STMR	88	0.01			35				0.004	
Total						75	80	50	10	0.051	0.05	0.014	0.007

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POULTRY LAYER													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Wheat straw	AF/AS	6.7	HR	88	7.61		10				0.761		
Barley bran fractions	CM/CF	0.15	STMR	90	0.17				5				0.008
Barley grain	GC	0.06	STMR	88	0.07	75	90	15		0.051	0.061	0.01	
Rye grain	GC	0.01	STMR	88	0.01			20				0.002	
Total						75	100	35	5	0.051	0.823	0.013	0.008

ESTIMATED MEAN DIETARY BURDEN													
BEEF CATTLE													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Grape pomace, wet	AB	2.4	STMR/STMR-P	15	16.00			20				3.2	
Rye straw	AF/AS	1.9	STMR/STMR-P	88	2.16	10	20	20		0.216	0.432	0.432	
Wheat straw	AF/AS	1.9	STMR/STMR-P	88	2.16			60				1.295	
Barley straw	AF/AS	1.3	STMR/STMR-P	89	1.46		10				0.146		
Apple pomace, wet	AB	0.28	STMR/STMR-P	40	0.70		20				0.14		
Barley bran fractions	CM/CF	0.15	STMR/STMR-P	90	0.17				10				0.017
Barley grain	GC	0.06	STMR/STMR-P	88	0.07	50	50		70	0.034	0.034		0.048
Brewer's grain dried	SM	0.018	STMR/STMR-P	92	0.02	40			20	0.008			0.004
Total						100	100	100	100	0.258	0.752	4.927	0.068

DAIRY CATTLE													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Grape pomace, wet	AB	2.4	STMR/STMR-P	15	16.00		0	20			0	3.2	
Rye straw	AF/AS	1.9	STMR/STMR-P	88	2.16	10	20	20	5	0.216	0.432	0.432	0.108
Triticale straw	AF/AS	1.9	STMR/STMR-P	90	2.11	0		60		0.000		1.267	
Barley straw	AF/AS	1.3	STMR/STMR-P	89	1.46	0	10			0.000	0.146		
Apple pomace, wet	AB	0.28	STMR/STMR-P	40	0.70	10	10			0.070	0.07		

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DAIRY CATTLE													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Barley grain	GC	0.06	STMR/STMR-P	88	0.07	45	40		40	0.031	0.027		0.027
Brewer's grain dried	SM	0.018	STMR/STMR-P	92	0.02	30	15		40	0.006	0.003		0.008
Total						95	95	100	85	0.322	0.678	4.898	0.143

POULTRY BROILER													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Barley grain	GC	0.06	STMR/STMR-P	88	0.07	75	70	15	10	0.051	0.048	0.01	0.007
Brewer's grain dried	SM	0.018	STMR/STMR-P	92	0.02		10				0.002		
Rye grain	GC	0.01	STMR/STMR-P	88	0.01			35				0.004	
Total						75	80	50	10	0.051	0.05	0.014	0.007

POULTRY LAYER													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Wheat straw	AF/AS	1.9	STMR/STMR-P	88	2.16		10				0.216		
Barley bran fractions	CM/CF	0.15	STMR/STMR-P	90	0.17				5				0.008
Barley grain	GC	0.06	STMR/STMR-P	88	0.07	75	90	15		0.051	0.061	0.01	
Rye grain	GC	0.01	STMR/STMR-P	88	0.01			20				0.002	
Total						75	100	35	5	0.051	0.277	0.013	0.008

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ESTIMATED MAXIMUM DIETARY BURDEN													
BEEF CATTLE													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Cabbage heads, leaves	AM/AV	0.46	HR	15	3.07		20				0.613		
Grape pomace, wet	AB	0.42	STMR	15	2.80			20				0.56	
Total							20	20			0.613	0.56	

DAIRY CATTLE													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Cabbage heads, leaves	AM/AV	0.46	HR	15	3.07		20				0.613		
Grape pomace, wet	AB	0.42	STMR	15	2.80			20				0.56	
Total							20	20			0.613	0.56	

POULTRY LAYER													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Cabbage heads, leaves	AM/AV	0.46	HR	15	3.07		5				0.153		
Total							5				0.153		

ESTIMATED MEAN DIETARY BURDEN													
BEEF CATTLE													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Grape pomace, wet	AB	0.42	STMR/STMR-P	15	2.80			20				0.56	
Cabbage heads, leaves	AM/AV	0.14	STMR/STMR-P	15	0.93		20				0.187		

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ESTIMATED MEAN DIETARY BURDEN													
BEEF CATTLE													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Total							20	20			0.187	0.56	

DAIRY CATTLE													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Grape pomace, wet	AB	0.42	STMR/STMR-P	15	2.80		0	20			0	0.56	
Cabbage heads, leaves	AM/AV	0.14	STMR/STMR-P	15	0.93	0	20			0	0.187		
Total						0	20	20		0	0.187	0.56	

POULTRY LAYER													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Cabbage heads, leaves	AM/AV	0.14	STMR/STMR-P	15	0.93		5				0.047		
Total							5				0.047		

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ESTIMATED MAXIMUM DIETARY BURDEN													
BEEF CATTLE													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Wheat forage	AF/AS	0.69	HR	25	2.76		20	100			0.552	2.76	
Barley forage	AF/AS	0.69	HR	30	2.30		10				0.23		
Sorghum, grain forage	AF/AS	0.69	HR	35	1.97	15				0.296			
Corn, field forage/silage	AF/AS	0.69	HR	40	1.73		70				1.208		
Potato culls	VR	0.08	HR	20	0.40	30				0.120			
Alfalfa hay	AL	0.084	HR	89	0.09	15			10	0.014			0.009
Soybean seed	VD	0.027	STMR	89	0.03	5			15	0.002			0.005
Total						65	100	100	25	0.431	1.99	2.76	0.014

Annex 6

DAIRY CATTLE													MAX
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Wheat forage	AF/AS	0.69	HR	25	2.76	20	20	60		0.552	0.552	1.656	
Barley forage	AF/AS	0.69	HR	30	2.30		10				0.23		
Oat forage	AF/AS	0.69	HR	30	2.30	10		40	5	0.230		0.92	0.115
Sorghum, grain forage	AF/AS	0.69	HR	35	1.97	10			35	0.197			0.69
Corn, field forage/silage	AF/AS	0.69	HR	40	1.73	5	30		10	0.086	0.518		0.173
Swede roots	VR	0.08	HR	10	0.80		20				0.16		
Carrot culls	VR	0.08	HR	12	0.67	10				0.067			
Pea vines	AL	0.125	HR	25	0.50	10	20			0.050	0.1		
Clover forage	AL	0.125	HR	30	0.42	10				0.042			
Turnip tops (leaves)	AM/AV	0.032	HR	30	0.11	25				0.027			
Alfalfa hay	AL	0.084	HR	89	0.09				25				0.024
Soybean seed	VD	0.027	STMR	89	0.03				10				0.003
Total						100	100	100	85	1.250	1.56	2.576	1.004

POULTRY BROILER													MAX
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Swede roots	VR	0.08	HR	10	0.80		10				0.08		
Alfalfa forage	AL	0.125	HR	35	0.36				5				0.018
Bean seed	VD	0.027	STMR	88	0.03		20	70			0.006	0.021	
Cowpea seed	VD	0.027	STMR	88	0.03	10				0.003			
Pea seed	VD	0.027	STMR	90	0.03	10				0.003			
Total						20	30	70	5	0.006	0.086	0.021	0.018

POULTRY LAYER													MAX
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Wheat forage	AF/AS	0.69	HR	25	2.76		10				0.276		
Swede roots	VR	0.08	HR	10	0.80		10				0.08		
Pea vines	AL	0.125	HR	25	0.50		10				0.05		
Beet, sugar tops	AM/AV	0.032	HR	23	0.14		5				0.007		
Bean seed	VD	0.027	STMR	88	0.03		20	70			0.006	0.021	

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POULTRY LAYER													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Cowpea seed	VD	0.027	STMR	88	0.03	10				0.003			
Pea seed	VD	0.027	STMR	90	0.03	10				0.003			
Total						20	55	70		0.006	0.419	0.021	

ESTIMATED MEAN DIETARY BURDEN													
BEEF CATTLE													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Wheat forage	AF/AS	0.1	STMR/STMR-P	25	0.40		20	100			0.08	0.4	
Barley forage	AF/AS	0.1	STMR/STMR-P	30	0.33		10				0.033		
Barley hay	AF/AS	0.26	STMR/STMR-P	88	0.30	15				0.044			
Corn, field forage/silage	AF/AS	0.1	STMR/STMR-P	40	0.25		70				0.175		
Potato culls	VR	0.013	STMR/STMR-P	20	0.07	30				0.020			
Alfalfa hay	AL	0.04	STMR/STMR-P	89	0.04	15			10	0.007			0.004
Soybean seed	VD	0.027	STMR/STMR-P	89	0.03	5			15	0.002			0.005
Total						65	100	100	25	0.072	0.288	0.4	0.009

DAIRY CATTLE													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Wheat forage	AF/AS	0.1	STMR/STMR-P	25	0.40	20	20	60		0.080	0.08	0.24	
Barley forage	AF/AS	0.1	STMR/STMR-P	30	0.33	0	10			0.000	0.033		
Oat forage	AF/AS	0.1	STMR/STMR-P	30	0.33	10		40	5	0.033		0.133	0.017
Sorghum, grain forage	AF/AS	0.1	STMR/STMR-P	35	0.29	10			35	0.029			0.1
Corn, field forage/silage	AF/AS	0.1	STMR/STMR-P	40	0.25	5	30		10	0.013	0.075		0.025
Pea vines	AL	0.034	STMR/STMR-P	25	0.14	10	20			0.014	0.027		
Swede roots	VR	0.013	STMR/STMR-P	10	0.13	0	20			0.000	0.026		
Clover forage	AL	0.034	STMR/STMR-P	30	0.11	10				0.011			

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DAIRY CATTLE													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Carrot culls	VR	0.013	STMR/STMR-P	12	0.11	10				0.011			
Alfalfa hay	AL	0.04	STMR/STMR-P	89	0.04	0			25	0.000			0.011
Turnip tops (leaves)	AM/AV	0.01	STMR/STMR-P	30	0.03	25				0.008			
Soybean seed	VD	0.027	STMR/STMR-P	89	0.03	0			10	0.000			0.003
Total						100	100	100	85	0.199	0.242	0.373	0.156

POULTRY BROILER													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Swede roots	VR	0.013	STMR/STMR-P	10	0.13		10				0.013		
Alfalfa forage	AL	0.034	STMR/STMR-P	35	0.10				5				0.005
Bean seed	VD	0.027	STMR/STMR-P	88	0.03		20	70			0.006	0.021	
Cowpea seed	VD	0.027	STMR/STMR-P	88	0.03	10				0.003			
Pea seed	VD	0.027	STMR/STMR-P	90	0.03	10				0.003			
Total						20	30	70	5	0.006	0.019	0.021	0.005

POULTRY LAYER													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Wheat forage	AF/AS	0.1	STMR/STMR-P	25	0.40		10				0.04		
Pea vines	AL	0.034	STMR/STMR-P	25	0.14		10				0.014		
Swede roots	VR	0.013	STMR/STMR-P	10	0.13		10				0.013		
Beet, sugar tops	AM/AV	0.01	STMR/STMR-P	23	0.04		5				0.002		
Bean seed	VD	0.027	STMR/STMR-P	88	0.03		20	70			0.006	0.021	
Cowpea seed	VD	0.027	STMR/STMR-P	88	0.03	10				0.003			
Pea seed	VD	0.027	STMR/STMR-P	90	0.03	10				0.003			
Total						20	55	70		0.006	0.075	0.021	

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ESTIMATED MAXIMUM DIETARY BURDEN													
BEEF CATTLE													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Grass forage (fresh)	AF/AS	199	HR	25	796.00								
Grass hay	AF/AS	1030	HR	88	1170,45	15	50		40	175.57	582.23		468.18
Carrot culls	VR	0,38	HR	12	3,17		15	5			0.48	0.16	
Alfalfa hay	AL	2,1	HR	89	2,36	15			10	0.35			0.24
Kale leaves	AM/AV	0,25	HR	15	1,67		20				0.33		
Bean vines	AL	0.33	HR	35	0.94			60				0.57	
Almond hulls	AM/AV	0,42	STMR	90	0,47			10				0.05	
Bean seed	VD	0,05	STMR	88	0,06		15	25			0.01	0.01	
Total						30	100	100	50	175.92	586.04	0.78	468.42

DAIRY CATTLE													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Grass forage (fresh)	AF/AS	199	HR	25	796.00								
Grass hay	AF/AS	1030	HR	88	1170,45	45	60		70	526.70	702.27		819.32
Carrot culls	VR	0,38	HR	12	3,17	10	15	5		0.32	0.48	0.16	
Alfalfa hay	AL	2.7	HR	89	7.71	20	25		25	1.54	0.59		0.59
Kale leaves	AM/AV	0,25	HR	15	1,67			40				0,67	
Bean vines	AL	0,33	HR	35	0,94			55				0,52	
Almond hulls	AM/AV	0,42	STMR	90	0,47	10				0.05			
Total						85	100	100	95	528.61	703.34	1.01	819.91

POULTRY BROILER													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Carrot culls	VR	0,38	HR	12	3,17		10				0.32		
Bean seed	VD	0,05	STMR	88	0,06		20	70			0.01	0.04	
Pea seed	VD	0,05	STMR	90	0,06	20				0.01			
Total						20	30	70		0.01	0.33	0.04	

POULTRY LAYER													**MAX**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Grass hay	AF/AS	1030	HR	88	1170.45								
Carrot culls	VR	0,38	HR	12	3,17		10				0.32		
Kale leaves	AM/AV	0,25	HR	15	1,67		5				0.08		
Bean seed	VD	0,05	STMR	88	0,06		20	70			0.01	0.04	
Pea seed	VD	0,05	STMR	90	0,06	20				0.01			
Total						20	35	70		0.01	0.41	0.04	

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ESTIMATED MEAN DIETARY BURDEN													
BEEF CATTLE													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Grass hay	AF/AS	492,5	STMR	88	559,66	15	50		40	83.95	279.83		223.86
Carrot culls	VR	0,0625	STMR	12	0,52		15	5			0.08	0.03	
Alfalfa hay	AL	0.97	STMR	89	1.09	15			10	0.16			0.11
Almond hulls	AM/AV	0,42	STMR/STMR-P	90	0,47			10				0,05	
Cabbage head, leaves	AM/AV	0,05	STMR	15	0,33		20				0.07		
Bean vines	AL	0,05	STMR/STMR-P	35	0,14			60				0,09	
Bean seed	VD	0,05	STMR	88	0,06		15	25			0.01	0.01	
Total						30	100	100	50	84.03	279.98	0.17	223.97

DAIRY CATTLE													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Grass forage (fresh)	AF/AS	36	STMR	25	144.00								
Grass hay	AF/AS	492,5	STMR	88	559,7	45	60		70	251.59	335.80		391.76
Carrot culls	VR	0,0625	STMR	12	0,52	10		5		0.05		0.03	
Alfalfa hay	AL	0.97	STMR	89	1,09	20	40		25	0.22	0.44		0.27
Almond hulls	AM/AV	0,42	STMR	90	0,47	10		10		0.05		0.05	
Kale leaves	AM/AV	0,05	STMR/STMR-P	15	0,33	0		30		0,00		0,10	
Bean vines	AL	0,05	STMR/STMR-P	35	0,14	0	20	55		0,00	0,03	0,08	
Total						85	100	100	95	251.91	336.23	0.25	392.03

POULTRY BROILER													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Carrot culls	VR	0,0625	STMR/STMR-P	12	0,52		10				0.05		
Bean seed	VD	0,05	STMR/STMR-P	88	0,06		20	70			0.01	0.04	
Pea seed	VD	0,05	STMR/STMR-P	90	0,06	20				0.01			
Total						20	30	70		0.01	0.06	0.04	

POULTRY LAYER													**MEAN**
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Grass hay	AF/AS	492,5	STMR/STMR-P	88	559.66		0						

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POULTRY LAYER													MEAN
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						US-CAN	EU	AU	JP	US-CAN	EU	AU	JP
Carrot culls	VR	0,0625	STMR/STMR-P	12	0,52		10				0.05		
Cabbage heads, leaves	AM/AV	0,05	STMR/STMR-P	15	0,33		5				0.02		
Bean seed	VD	0,05	STMR/STMR-P	88	0,06		20	70			0.01	0.04	
Pea seed	VD	0,05	STMR/STMR-P	90	0,06	20				0.01			
Total						20	35	70		0.01	0.08	0.04	

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The annual Joint Meeting of the FAO Panel of Experts on Pesticide Residues in Food and the Environment and the WHO Core Assessment Group on Pesticide Residues was held in Rome, Italy, from 13 to 22 September 2016. The FAO Panel of Experts had met in preparatory sessions from 08 to 12 September 2016. The Meeting was held in pursuance of recommendations made by previous Meetings and accepted by the governing bodies of FAO and WHO that studies should be undertaken jointly by experts to evaluate possible hazards to humans arising from the occurrence of pesticide residues in foods. During the meeting the FAO Panel of Experts was responsible for reviewing pesticide use patterns (use of good agricultural practices), data on the chemistry and composition of the pesticides and methods of analysis for pesticide residues and for estimating the maximum residue levels that might occur as a result of the use of the pesticides according to good agricultural use practices. The WHO Core Assessment Group was responsible for reviewing toxicological and related data and for estimating, where possible and appropriate, acceptable daily intakes (ADIs) and acute reference doses (ARfDs) of the pesticides for humans. This report contains information on ADIs, ARfDs, maximum residue levels, and general principles for the evaluation of pesticides. The recommendations of the Joint Meeting, including further research and information, are proposed for use by Member governments of the respective agencies and other interested parties.

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