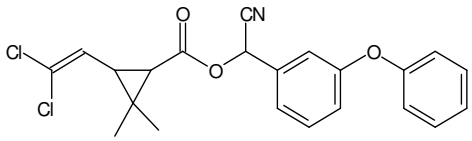
ALPHA-CYPERMETHRIN (118)

See also monographs on cypermethrin and zeta-cypermethrin.

IDENTITY

ISO common name	alpha-cypermethrin
Synonyms:	WL85871
IUPAC name (Wood, 2008)	racemate comprising (*R*)-α-cyano-3-phenoxybenzyl (1*S*,3*S*)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate and (*S*)-α-cyano-3-phenoxybenzyl (1*R*,3*R*)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate or racemate comprising (*R*)-α-cyano-3-phenoxybenzyl (1*S*)-cis-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate and (*S*)-α-cyano-3-phenoxybenzyl (1*R*)-cis-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate
Chemical Abstracts name (Wood, 2008)	(*R*)-cyano(3-phenoxyphenyl)methyl (1*S*,3*S*)-rel-3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate
CAS Number (Wood, 2008)	67375-30-8
CIPAC Number	454
Molecular formula	$C_{22}H_{19}Cl_2NO_3$
Molecular mass	416.3
Structural formula	

Comparison with cypermethrin and zeta-cypermethrin

Isomer	cypermethrin	alpha-cypermethrin	zeta-cypermethrin
1R, cis-R	14	–	3
1S, cis-S	14	–	22
1R, cis-S	11	50	22
1S, cis-R	11	50	3
1R, trans-R	14	–	3
1S, trans-S	14	–	22
1R, trans-S	11	–	22
1S, trans-R	11	–	3

Specifications

Specifications for alpha-cypermethrin have been issued by FAO (2007) and WHO (2007). Formulations included in the specifications are WP, SC, EC and UL.

PHYSICAL AND CHEMICAL PROPERTIES

Pure active ingredient

Property	Description	Ref
Description	White to cream crystalline powder. Mild chemical odour	
Melting point (purity 97.3%)	81.5 °C (range 81.4–83.7 °C)	AL-303-001
Melting point (purity 98.8%)	82.1 °C	2005/1004761
Melting point (purity 99%)	80.5 °C	AL-301-002
Density (purity 97.3%)	1.33 g/cm^3 at 20 °C	AL-308-001
Vapour pressure (purity 98.8%)	7.7E–10 hPa at 20 °C 1.8E–9 hPa at 25 °C	2005/1004761
Vapour pressure (purity 97.3%)	1.9E–5 Pa at 51 °C 3.4E–7 Pa at 25 °C	2005/1004761
Water solubility (purity 98.0%) at 20 °C	Buffer / cis–1, µg/L / cis–2, µg/L / total, µg/L pH 4.08 / 3.92 / 0.67 / 4.59 pH 7.12 / 1.83 / 3.97 / 5.80 pH 9.06 / 3.33 / 4.54 / 7.87 dist water / 0.81 / 1.25 / 2.06	AL-311-002
Water solubility (purity 98.8%) at 20 °C	Buffer / Solubility, µg/L De-ionized water / 23.7 pH 4 / 4.4 pH 7 / 2.5 pH 9 / 20	2005/1004704
Octanol/water partition coefficient (purity 95.4%)	log K_{OW} = 5.5 ± 0.4	AL-315-001
Octanol/water partition coefficient (purity 98.8%)	log K_{OW} = 5.66 at 20 °C	2005/1004703
Octanol/water partition coefficient (purity 99%)	log K_{OW} = 5.2 at 25 °C (shake flask method) log K_{OW} = 6.9 at 22 °C (HPLC method)	AL-301-002
Hydrolysis rate (purity > 99%)%	Hydrolysis rates were measured at 50 °C, 60 °C and 70 °C and extrapolated to 22 °C via the Arrhenius equation. Calculated half-lives at 22 °C:pH 5, 162 days; pH 7, 46 days and pH 9, 2.9 hours. Epimerization at pH 9 and 22 °C was complete within 30 minutes. Epimerization at pH 5 and 60 °C was complete within 24 hours. Epimerization at pH 7 and 50 °C was complete within 1 hour.	AL-322-001
Hydrolysis rate (radiochem purity 99%)	Stable to hydrolysis at pH 4 and 50 °C for 10 days. Estimated half-life at pH 7 and 25 °C:67 days (measurements at higher temperatures and extrapolation). Measured half-life at pH 9 at 25 °C:5.3 days. The major identified hydrolysis product was 3-phenoxybenzaldehyde.	AL-322-022

Property	Description	Ref
Photolysis rate	Radiolabelled cypermethrin in sterile aqueous solutions was exposed to sunlight for 32 days. Remaining cypermethrin in the irradiated solutions accounted for 89% and 92% of the dose, compared with 97% in the dark controls, suggesting a low rate of photolysis,	CY-630-001
Photolysis rate	Radiolabelled alpha-cypermethrin in sterile aqueous solution (0.002 mg/L), pH 5 at 22˚C, was exposed to artificial light (546 W/m^2). After 48 hours, parent compound constituted 53% and 34% of the dose. *Cis*- and *trans*-DCVA, 3-phenoxybenzoic acid and 3-phenoxybenzaldehyde were identified as products of photolysis.	AL-324-003
Dissociation constant in water	Does not dissociate.	

Technical material

Property	Description	Ref
Description	The material shall consist of alpha-cypermethrin together with related manufacturing impurities and shall be a white to cream-coloured crystalline powder with characteristic odour, free from visible extraneous matter and added modifying agents. The alpha-cypermethrin content shall be declared (not less than 930 g/kg).	FAO, 2007
Solubility in organic solvents at 20 °C	Solvent — Solubility, g/L of solution: Methanol 18.4 Toluene > 278 n-heptane 5.0 Ethyl acetate > 276 Dichloromethane > 278 Acetone > 275	2005/1006557

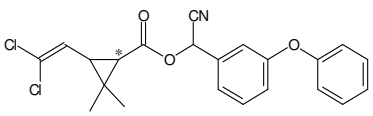
Formulations

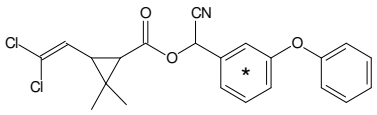
Alpha-cypermethrin is available in many commercial formulations

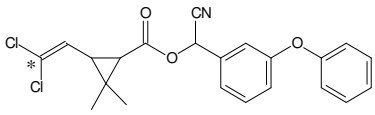
Code	Description	Examples
EC	Emulsifiable concentrate	Fastac 50 EC, Kestac 50 EC, Concord 100EC
SC	Suspension concentrate	Fastac 10 SC, Fastac 100 SC, Fendona 250 SC
WG	Water dispersible granules	Agaclin, Clameur, Fastac Perlen
UL	Ultra-low volume	Fastac 15 ULV, Fastac ULV Insecticide

METABOLISM

Plant metabolism and environmental fate studies used alpha-cypermethrin ^{14}C labelled in the cyclopropyl ring, benzyl ring and vinyl group carbon positions.


cyclopropyl label

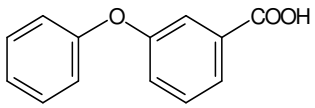
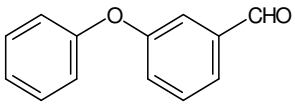
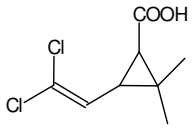
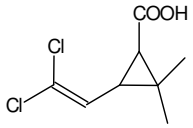
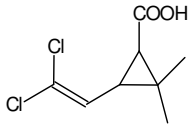
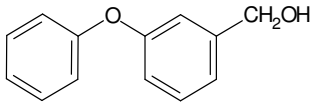
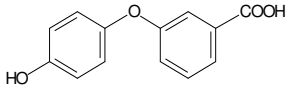
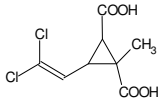

benzyl ring label

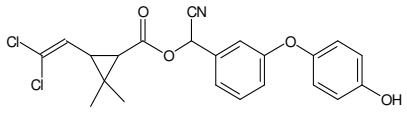

vinyl label

Structures, names and codes for metabolites are summarised below. Five possibilities for describing each metabolite are:

- A simple name, which could be a common name, a simplified systematic name, an abbreviation or a pseudo-common name (e.g. hydroxy-cypermethrin).
- The systematic chemical name—it may be too cumbersome for use in discussion and tables.
- The CAS number—CAS numbers are not available for many metabolites.
- The company code number, e.g., CL 206969.
- Serial numbers, e.g., metab 1, metab 2, are not generally used here.

In this evaluation, metabolites are described by a simple name, often an abbreviation in tables.

Simple:3-phenoxybenzoic acid, PBA, mPB acid Systematic:3-phenoxybenzoic acid CAS number:3739-38-6 Code: CL 206128, WL 44607	
Simple:3-phenoxybenzaldehyde, mPB aldehyde Systematic:3-phenoxybenzaldehyde CAS number:39515-51-0 Code:CL 206969, WL42049	
Simple:Cl2CA, DCVC acid, DCVA Systematic:3-(2,2-dichlorovinyl)2,2-dimethylcyclopropanecarboxylic acid CAS number: Code:	
Simple:*cis*-DCVA Systematic:*cis*-3-(2,2-dichlorovinyl)2,2-dimethylcyclopropanecarboxylic acid CAS number:cis:59042-49-8 Code:CL 912554	
Simple:*trans*-DCVA Systematic:*trans*-3-(2,2-dichlorovinyl)2,2-dimethylcyclopropanecarboxylic acid CAS number:59042-50-1 Code:CL 196336	
Simple:3-phenoxybenzyl alcohol, mPB alcohol Systematic:3-phenoxybenzyl alcohol CAS number:13826-35-2 Code:CL 206138	
Simple:4'-OH mPB acid Systematic:4'-hydroxy-3-phenoxybenzoic acid CAS number: Code: CL 213336, WL 46114	
Simple:DCVA-dicarboxylic acid Systematic:3-(2,2-dichlorovinyl)-2-methylcyclopropane-1,2-dicarboxylic acid CAS number: Code:	

Simple:4'-hydroxy-alpha-cypermethrin Systematic: CAS number: Code:CL 194198, WL 196328	

Animal metabolism

See also zeta-cypermethrin monograph for studies on dairy cows (cypermethrin) and laying hens (cypermethrin).

The Meeting received animal metabolism studies with alpha-cypermethrin in laboratory animals, lactating dairy cows and laying hens.

After oral dosing of livestock with alpha-cypermethrin, much of the residue is readily excreted. Parent compound constitutes the main component of the residue in tissues, milk and eggs. The residue is fat soluble.

Laboratory animals

The metabolic fate of orally administered cypermethrin in rats and mice was reported by the 2006 JMPR (JMPR, 2006):

> "In laboratory animals, cypermethrin was readily hydrolysed at the ester bond, followed by hydroxylation and conjugation of the cyclopropyl and phenoxybenzyl moieties of the molecule. Urinary metabolites consistent with a similar metabolic pathway in humans were recovered from orally dosed volunteers. The animal data indicated that there is little isomeric interconversion during metabolism of cypermethrin or alpha-cypermethrin."

Lactating dairy animals

A dairy cow was dosed orally twice daily with treated feed over five days (eight doses) with [^{14}C-benzyl ring]alpha-cypermethrin at 250 mg per day, equivalent to 19 ppm in the total diet (Morrison and Richardson, 1994, AL-440-014). Mean daily feed consumption was 13.4 kg. The animal was slaughtered for tissue collection six hours after the final dose.

The major route of ^{14}C excretion was via faeces (34% of dose). Urine excretion accounted for 23% of the ^{14}C dose.

Secretion in the milk was < 1% of the dose. TRR in milk approached a plateau level after 48 hours at 0.13–0.2 mg/kg, but with large fluctuations between the 12-hour samples during a 24-hour cycle. The milk collected at hour 90 contained 0.078 mg/kg ^{14}C. The concentrations in cream, curds and whey were 1.13, 0.025 and 0.002 mg/kg respectively, representing 93%, 6% and 1% respectively of the TRR in milk. Most of the residue in milk was fat-soluble.

A comparison of residue levels in the fat with those in muscle also suggested a fat-soluble residue. Liver and kidney contained a range of components, but identification was not pursued. Muscle, fat and milk contained mainly a single component (muscle 85%, fat 91% and milk 97% of the TRR) with similar chromatographic properties to alpha-cypermethrin.

Table 1 TRR in tissues and milk from a lactating dairy cow dosed eight times over five days with [^{14}C-benzyl ring]alpha-cypermethrin at 250 mg per day (Morrison and Richardson, 1994, AL-440-014)

Tissue, Milk	TRR, ^{14}C as alpha-cypermethrin, mg/kg
Liver	0.56
Kidney	0.22
Muscle: rump, leg and shoulder	0.021, 0.019, 0.029
Fat: Omental, renal, subcutaneous	0.43, 0.48, 0.39
Milk, 18 hours	0.014

Tissue, Milk	TRR, ^{14}C as alpha-cypermethrin, mg/kg
Milk, 24 hours	0.034
Milk, 42 hours	0.083
Milk, 48 hours	0.13
Milk, 66 hours	0.085
Milk, 72 hours	0.16
Milk, 90 hours	0.078
Milk, 96 hours	0.20

Laying hens

Groups of ISA Brown laying hens (eight birds per group) were dosed orally once daily via capsule for 14 consecutive days with [^{14}C-benzyl ring]alpha-cypermethrin and [^{14}C-cyclopropyl]alpha-cypermethrin nominally at the equivalent of 10 ppm and 30 ppm in the feed (McCombe and Phillips, 2001, AL-440-021). Actual doses were at 7.8 and 18 ppm for the cyclopropyl label and 7.5 and 17 ppm for the benzyl label. Eggs were collected daily. Birds were slaughtered 22 hours after the final dose for tissue collection.

The TRR was readily excreted, with 93–101% of the ^{14}C recovered in the faeces over the 14 days.

The TRR in eggs reached an approximate plateau after 7–9 days of dosing

Parent alpha-cypermethrin was the major identified component of the residue in fat and eggs. Parent distribution between fat and muscle suggests fat-solubility. Hydroxy-cypermethrin and cis-DCVA were also identified. The numerous components of the residue observed in liver were mostly not identified. The distribution of the residue and the concentrations of identified components are summarised in Table 2.

Table 2 Distribution of ^{14}C residue and metabolites in tissues and eggs of laying hens dosed orally daily for 14 consecutive days with [^{14}C]cypermethrin (McCombe and Phillips, 2001, AL-440-021)

	Concentration, mg/kg, expressed as parent				
Residue component	Abdominal fat	Skin with fat	Liver	Muscle	Eggs, day 14
7.8 ppm dose [^{14}C-cyclopropyl] label					
Total ^{14}C residue (TRR)	0.070	0.039	0.11	0.005	0.033
Extracted residue%	93%	92%	99%	–	87%
Unextractable%	7.0%	8.7%	0%	–	8.5%
Alpha-cypermethrin	0.058	0.031	0.005		0.013
4'-OH-alpha-cypermethrin	0.002	0.002	0.010		0.001
cis-DCVA	not detected	0.001	0.019		0.001
18 ppm dose [^{14}C-cyclopropyl] label					
Total ^{14}C residue (TRR)	0.23	0.13	0.30	0.009	0.063
Extracted residue%	91%	93%	89%	–	97%
Unextractable%	9.0%	6.2%	11%	–	2.6%
Alpha-cypermethrin	0.19	0.098	0.027		0.051
4'-OH-alpha-cypermethrin	0.010	0.004	0.010		0.003
cis-DCVA	0.002	0.005	0.090		0.003
7.5 ppm dose [^{14}C-benzyl ring] label					
Total ^{14}C residue (TRR)	0.098	0.060	0.069	0.002	0.022
Extracted residue%	94%	93%	71%	–	92%

	Concentration, mg/kg, expressed as parent				
Residue component	Abdominal fat	Skin with fat	Liver	Muscle	Eggs, day 14
Unextractable%	6.0%	7.0%	28%	–	8.2%
Alpha-cypermethrin	0.084	0.051	0.012		0.011
4'-OH-alpha-cypermethrin	0.005	0.002	0.003		0.003
17 ppm dose [^{14}C-benzyl ring] label					
Total ^{14}C residue (TRR)	0.19	0.11	0.11	0.003	0.042
Extracted residue%	93%	93%	95%		93%
Unextractable%	6.6%	7.1%	4.6%		6.5%
Alpha-cypermethrin	0.16	0.094	0.005		0.030
4'-OH-alpha-cypermethrin	0.006	0.003	0.009		0.002

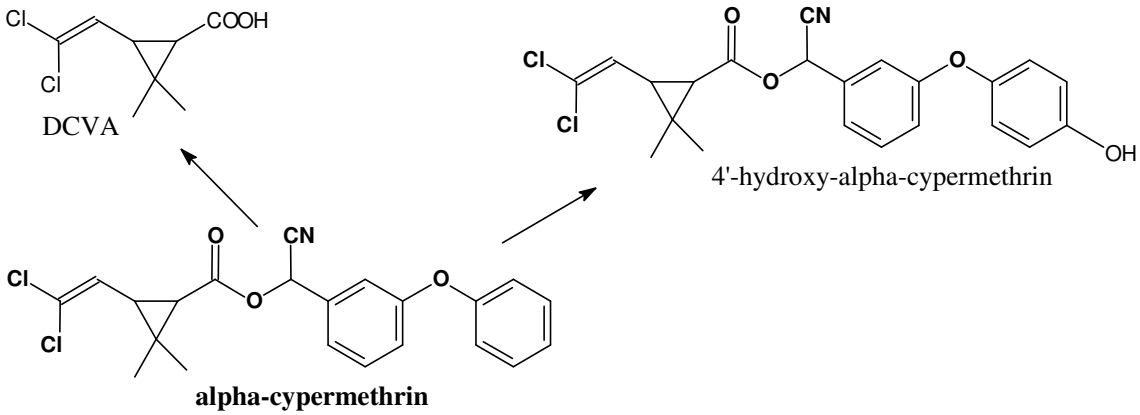


Figure 1 Proposed metabolic pathway for alpha-cypermethrin in hens

Plant metabolism

See also zeta-cypermethrin monograph for studies on sugar beet (cypermethrin), maize (cypermethrin and zeta-cypermethrin), cotton (cypermethrin), lettuce (cypermethrin) and apples (cypermethrin).

See also cypermethrin monograph for a study on lettuce (cypermethrin).

The Meeting received plant metabolism studies with alpha-cypermethrin in cabbages and wheat.

In the cabbage study, the residue occurred mostly on the outer (exposed) leaves and alpha-cypermethrin was the major component. Very little of the alpha-cypermethrin was found to move elsewhere in the plant. The alpha-cypermethrin residue had undergone considerable cis-trans isomerisation.

In the wheat studies, the highest residue of ^{14}C occurred in the chaff and straw—the part of the plant exposed to the application. Translocation to the grain was minor. Where alpha-cypermethrin is exposed to sunlight, it undergoes isomerisation. Identified metabolites result from ester hydrolysis or hydroxylation of a benzene ring.

Cabbage

In a cabbage metabolism study in the UK, McMinn (1983, AL-640-001) foliar sprayed cabbage plants (variety Golden Acre) in pots three times with [^{14}C-benzyl ring]alpha-cypermethrin with the total application at the equivalent of 0.05 kg ai/ha. The mature cabbage plants were harvested 43 days after the third application. Plants were separated into old and new outer leaves, heart, stalk and roots. The plant parts were examined for content of ^{14}C and identity of the residue (Table 3).

The major part of the extractable residue was parent compound, with highest concentration in the old outer leaves, i.e. where it was directly sprayed. Further examination showed that the major

part of the residue was parent compound that had undergone cis-trans isomerisation; presumably a photochemical conversion.

Isomer	alpha-cypermethrin	outer leaves, old	outer leaves, new	stalk
1R, cis-R + 1S, cis-S (cis 1)		32	35	
1R, cis-S + 1S, cis-R (cis 2)	100	44	54	97
1R, trans-R + 1S, trans-S (trans 3)		10	4	
1R, trans-S + 1S, trans-R (trans 4)		14	7	3

Table 3 Distribution of ^{14}C residue in cabbage plants following three applications of [^{14}C-benzyl ring]alpha-cypermethrin (McMinn, 1983, AL-640-001)

Residue component	Concentration, mg/kg, expressed as parent				
	Outer leaves, old	Outer leaves, new	Heart	Stalk	Roots
[^{14}C]benzyl ring label					
Total ^{14}C residue (TRR)	12.3	0.8	< 0.05	0.2	0.34
Extracted residue	7.9	0.6	< 0.05	0.2	0.21
Alpha-cypermethrin	5.1	0.4		0.2	
Metabolites	0.3	< 0.05		< 0.05	

Wheat

In a wheat metabolism study in the UK, Mercer *et al*. (1994, AL-640-002) foliar sprayed outdoor winter wheat plants (variety Riband) once with [^{14}C-vinyl]alpha-cypermethrin at the equivalent of 0.01 and 0.1 kg ai/ha. The mature wheat was harvested 57 days after the application. Plants were separated into grain, chaff, straw and roots. The plant parts were examined for content of ^{14}C (Table 4). Much of the residue was extractable.

Mercer *et al*. (1994, AL-640-003) conducted an analogous study with [^{14}C-benzyl ring]alpha-cypermethrin, with generally similar results (Table 4).

Table 4 Distribution of ^{14}C residue in wheat plants following an application of [^{14}C-vinyl]alpha-cypermethrin (Mercer *et al*., 1994, AL-640-002 and AL-640-003)

	Concentration, mg/kg, expressed as parent							
	Treatment 0.01 kg ai/ha				Treatment 0.1 kg ai/ha			
[^{14}C-vinyl]alpha-cypermethrin	grain	chaff	straw	roots	grain	chaff	straw	roots
Total ^{14}C residue (TRR)	0.007	0.25	0.076	0.006	0.088	3.2	1.1	0.060
Extracted residue	0.005		0.066		0.056		0.97	
Unextractable residue	0.002		0.01		0.032		0.14	
[^{14}C-benzyl]alpha-cypermethrin	grain	chaff	straw	roots	grain	chaff	straw	roots
Total ^{14}C residue (TRR)	0.001	0.25	0.090	0.003	0.010	2.3	0.75	0.035
Extracted residue	0.0003		0.070		0.006		0.60	
Unextractable residue	0.0003		0.02		0.004		0.15	

In a plant metabolism study in the UK, Chapleo *et al*. (2001, AL-640-004) applied [^{14}C-benzyl ring]alpha-cypermethrin and [^{14}C-cyclopropyl]alpha-cypermethrin to spring wheat (variety

Chablis) at 0.08 kg ai/ha, on two occasions. Early wheat forage was harvested 0 and 7 days after the first application and late forage 0 days after the second application. Samples for hay were taken 21 days after the second application while wheat straw and hay were sampled at crop maturity, 42 days after the second application.

The main part of the residue was alpha-cypermethrin, some of which had undergone cis-trans isomerisation (Table 5). Distribution of the residue in the wheat plant and grain and identification of metabolites are summarised in Table 6.

Parent compound is the major part of the residue. Translocation to the grain is very minor. Where alpha-cypermethrin is exposed to sunlight, it undergoes isomerisation.

Table 5 Isomer compositions of alpha-cypermethrin residues in wheat grain, forage and fodder (Chapleo *et al*., 2001, AL-640-004)

[^{14}C-cyclopropyl]alpha-cypermethrin					
Isomer	alpha-cypermethrin	late forage	hay	straw	grain
1R, cis-R + 1S, cis-S (cis 1)		1.1	3.7	5.1	
1R, cis-S + 1S, cis-R (cis 2)	97.8	92	75	71	100
1R, trans-R + 1S, trans-S (trans 3)	2.3	2.7	6.1	6.9	
1R, trans-S + 1S, trans-R (trans 4)		4.6	15	17	
[^{14}C-benzyl ring]alpha-cypermethrin					
Isomer	alpha-cypermethrin	late forage	hay	straw	grain
1R, cis-R + 1S, cis-S (cis 1)	0.1	0.8	3.7	5.5	
1R, cis-S + 1S, cis-R (cis 2)	98.7	94	77	73	[a]
1R, trans-R + 1S, trans-S (trans 3)	1.0	1.3	4.1	5.9	
1R, trans-S + 1S, trans-R (trans 4)	0.1	3.8	15	16	

[a] Concentration 0.022 mg/kg, too low for isomer measurement.

Table 6 Distribution of ^{14}C residue and metabolites in wheat grain, fodder and forage after application of [^{14}C]alpha-cypermethrin to spring wheat (variety Chablis) at 0.08 kg ai/ha on two occasions (Chapleo *et al*., 2001, AL-640-004).

Residue component	Concentration, mg/kg expressed as parent					
	Forage 0 DAT-1	Forage 7 DAT-1	Forage 0 DAT-2	Hay 21 DAT-2	Straw 42 DAT-2	Grain 42 DAT-2
[^{14}C-cyclopropyl] label						
Total ^{14}C residue (TRR)	2.2	1.2	5.4	3.6	3.4	0.15
Unextractable%	0.4[a]	1.9[a]	0.1[a]	0.2[a]	non detect	0.4
Alpha-cypermethrin	2.1	1.1	4.8	2.3	2.4	0.035
cis 1		0.019	0.052	0.086	0.12	
cis 2	2.1	0.97	4.4	1.7	1.7	0.035
trans 3		0.025	0.13	0.14	0.17	
trans 4		0.14	0.22	0.35	0.42	
4'-OH-alpha-cypermethrin		0.011	0.21	0.13	0.16	
cis-DCVA		0.012	0.029	0.023	0.077	
trans-DCVA					0.050	
[^{14}C-benzyl ring] label						
Total ^{14}C residue (TRR)	1.2	0.61	4.4	5.2	2.95	0.037
Unextractable%	2.4[a]	2.4[a]	non detect	1.9[a]	0.7[a]	1.3[a]

Residue component	Concentration, mg/kg expressed as parent					
	Forage 0 DAT-1	Forage 7 DAT-1	Forage 0 DAT-2	Hay 21 DAT-2	Straw 42 DAT-2	Grain 42 DAT-2
Alpha-cypermethrin	1.15	0.56	3.8	2.95	1.7	0.022
cis 1		0.016	0.031	0.11	0.094	
cis 2	1.14	0.46	3.6	2.3	1.2	
trans 3	0.008	0.024	0.050	0.12	0.10	
trans 4		0.062	0.15	0.45	0.27	
4'-OH-alpha-cypermethrin		0.005	0.10	0.17	0.11	
3-phenoxybenzaldehyde			0.054	0.034	0.009	
3-phenoxybenzoic acid			0.020	0.035	0.018	
3-phenoxybenzoic acid glycine					0.007	
3-phenoxybenzyl alcohol					0.007	
3-phenoxybenzoyl glutamic acid					0.008	
4'-OH-3-phenoxybenzoic acid				0.012	0.017	

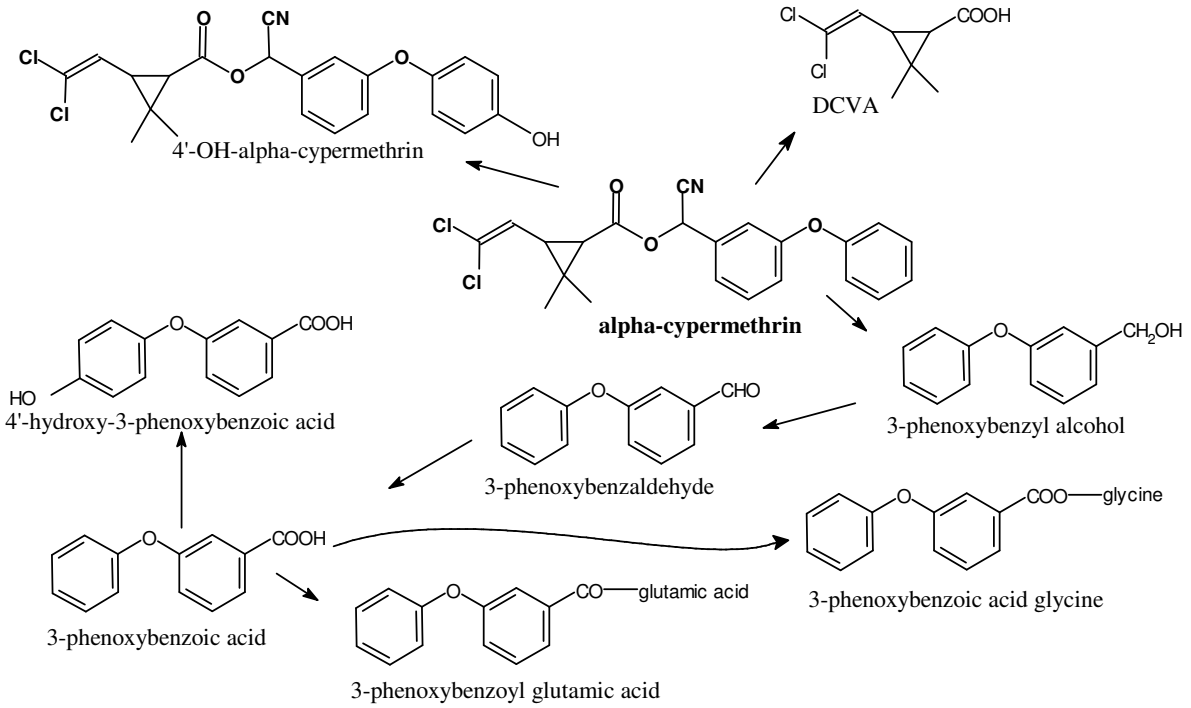


Figure 2 Proposed metabolic pathway for alpha-cypermethrin in wheat

Environmental fate in soil

The 2003 JMPR (JMPR, 2003) explained the data requirements for studies of environmental fate. The focus should be on those aspects that are most relevant to MRL setting. For alpha-cypermethrin, supervised residue trials data are available for root and tuber vegetables, which means that aerobic degradation in soil is relevant, as well as the normal requirements for hydrolysis and rotational crop studies. The 2003 report does not mention soil photolysis studies; however, such studies should be relevant for the same reasons as for aerobic soil degradation—nature and magnitude of residues in soil.

The Meeting received information on soil aerobic metabolism and soil photolysis properties of alpha-cypermethrin, and also received studies on other cypermethrins.

Soil metabolism

The half-life for alpha-cypermethrin in soil under aerobic conditions at 25 °C ranged from 20 days to 24 weeks. The half-life for alpha-cypermethrin when subjected to photolysis conditions on a soil surface was 31 days. Hydrolysis was responsible for part of this decline rate.

When *cis*- and *trans*-cypermethrins were kept in soils under aerobic conditions for one year at 25 °C, the amount of parent remaining was in the range 1.4–11% of the dose. 3-Phenoxybenzoic acid was identified as a soil metabolite.

Aerobic soil metabolism Ref:Standen, 1978, CY-620-003
Test material:[^{14}C-cyclopropyl]cis-cypermethrin Dose rate:2.5 mg ai/kg
Duration:52 weeks Temp:25 °C
Soil:sandy clay pH:8.0 Organic matter:1.4%
% cis-cypermethrin remaining, week 52 = 4.9% of dose % unextractable, week 52 = 25% of dose

Aerobic soil metabolism Ref:Standen, 1978, CY-620-003
Test material:[^{14}C-benzyl]cis-cypermethrin Dose rate:2.5 mg ai/kg
Duration:52 weeks Temp:25 °C
Soil:sandy clay pH:8.0 Organic matter:1.4%
% cis-cypermethrin remaining, week 52 = 5.7% of dose % unextractable, week 52 = 38% of dose

Aerobic soil metabolism Ref:Standen, 1978, CY-620-003
Test material:[^{14}C-cyclopropyl]trans-cypermethrin Dose rate:2.5 mg ai/kg
Duration:52 weeks Temp:25 °C
Soil:sandy clay pH:8.0 Organic matter:1.4%
% trans-cypermethrin remaining, week 52 = 1.4% of dose % unextractable, week 52 = 27% of dose

Aerobic soil metabolism Ref:Standen, 1978, CY-620-003
Test material:[^{14}C-benzyl]trans-cypermethrin Dose rate:2.5 mg ai/kg
Duration:52 weeks Temp:25 °C
Soil:sandy clay pH:8.0 Organic matter:1.4%
% trans-cypermethrin remaining, week 52 = 2.6% of dose % unextractable, week 52 = 26% of dose

Aerobic soil metabolism Ref:Standen, 1978, CY-620-003
Test material:[^{14}C-benzyl]cis-cypermethrin Dose rate:2.5 mg ai/kg
Duration:52 weeks Temp:25 °C
Soil:sandy loam pH:6.8 Organic matter:1.4%
% cis-cypermethrin remaining, week 52 = 8.4% of dose % unextractable, week 52 = 22% of dose

Aerobic soil metabolism Ref:Standen, 1978, CY-620-003
Test material:[^{14}C-benzyl]trans-cypermethrin Dose rate:2.5 mg ai/kg
Duration:52 weeks Temp:25 °C
Soil:sandy loam pH:6.8 Organic matter:1.4%
% trans-cypermethrin remaining, week 52 = 4.1% of dose % unextractable, week 52 = 18% of dose

Aerobic soil metabolism Ref:Standen, 1978, CY-620-003
Test material:[^{14}C-benzyl]cis-cypermethrin Dose rate:2.5 mg ai/kg
Duration:52 weeks Temp:25 °C
Soil:clay pH:7.7 Organic matter:1.8%
% cis-cypermethrin remaining, week 52 = 11% of dose % unextractable, week 52 = 38% of dose
3-phenoxybenzoic acid, week 52 = 24% of dose

Aerobic soil metabolism Ref:Standen, 1978, CY-620-003

Test material:[^{14}C-benzyl]trans-cypermethrin Dose rate:2.5 mg ai/kg

Duration:52 weeks Temp:25 °C

Soil:clay pH:7.7 Organic matter:1.8%

% trans-cypermethrin remaining, week 52 = 3.5% of dose
3-phenoxybenzoic acid, week 52 = 48% of dose % unextractable, week 52 = 35% of dose

Aerobic soil metabolism Ref:McMinn, 1983, AL-620-005

Test material:[^{14}C-benzyl]alpha-cypermethrin Dose rate:10 mg ai/kg

Duration:42 weeks Temp:25 °C Moisture:45% max water-holding capacity

Soil:sandy clay loam pH:5.7 Organic matter:2.9%

Half-life (parent):24 weeks

% alpha-cypermethrin remaining, week 42 = 29% of dose % unextractable, week 42 = 18% of dose

Aerobic soil metabolism Ref:McMinn, 1983, AL-620-005

Test material:[^{14}C-benzyl]alpha-cypermethrin Dose rate:10 mg ai/kg

Duration:42 weeks Temp:25 °C Moisture:45% max water-holding capacity

Soil:clay loam pH:7.5 Organic matter:3.6%

Half-life (parent):19 weeks

% alpha-cypermethrin remaining, week 42 = 22% of dose % unextractable, week 42 = 32% of dose

Aerobic soil metabolism Ref:Gedik and Kiers, 2001, AL-620-013

Test material:[^{14}C-benzyl]alpha-cypermethrin Dose rate:0.3 mg ai/kg

Duration:120 days Temp:20 °C Moisture:50% max water-holding capacity

Soil:sandy loam pH:6.5 Organic matter:1.6%

Half-life (parent):20 days ^{14}C accountability 91–103%

% alpha-cypermethrin remaining, day 120 = 7.5% of dose % mineralization, day 120 = 51% of dose

% unextractable, day 120 = 37% of dose

Aerobic soil metabolism Ref:Gedik and Kiers, 2001, AL-620-013

Test material:[^{14}C-benzyl]alpha-cypermethrin Dose rate:0.3 mg ai/kg

Duration:120 days Temp:10 °C Moisture:50% max water-holding capacity

Soil:sandy loam pH:6.5 Organic matter:1.6%

Half-life (parent):52 days ^{14}C accountability 93–103%

% alpha-cypermethrin remaining, day 120 = 27% of dose % mineralization, day 120 = 32% of dose

% unextractable, day 120 = 34% of dose

Soil photodegradation Ref:Van Dijk & Burri, 1993, AL-620-010

Test material:[^{14}C-benzyl]alpha-cypermethrin Dose rate:4.0 mg ai/kg

Duration:30 days Temp:22 °C Moisture:40% max water-holding capacity

Soil:sandy silty loam pH:7.3 Organic carbon:1.2%

Soil applied as a slurry 1 mm thick on a glass plate. Irradiation:Hanau Suntest CPS apparatus, simulating sunlight, max 765 W/m^2

Half-life (parent):31 days (light:dark cycle 12 hours) ^{14}C accountability 87–100%

% alpha-cypermethrin remaining, day 30 = 47% of dose % mineralization, day 30 = 6.2% of dose

% alpha-cypermethrin, dark control, day39:81% % mineralization, dark control:negligible

% unextractable, day 30 = 13.3% of dose

% unextractable, dark control, day 39:2.0%

METHODS OF RESIDUE ANALYSIS

Analytical methods

The Meeting received descriptions and validation data for analytical methods for residues of alpha-cypermethrin in animal tissues, milk and many plant commodities.

The methods rely on GC-ECD, GC-MS and LC-MS-MS. Typically, alpha-cypermethrin (or cypermethrin) residues can be measured in most matrices to an LOQ of 0.01 mg/kg. Multiresidue method DFG S-19 is suitable for residue analysis of cypermethrin.

Animal tissues (Anon, 1988, AL-245-001)

Analyte:	alpha-cypermethrin	GC-ECD	SAMS 461-1
LOQ:	0.01 mg/kg.		
Description	Samples of chopped or minced tissues are boiled with an acetone-hexane mixture. The extraction solution is evaporated and taken up in hexane for partition cleanup with acetonitrile. Further cleanup is effected on a Florisil column before final analysis by GLC-ECD with confirmation by GC-MS.		

Milk (Anon, 1988, AL-245-003)

Analyte:	alpha-cypermethrin	GC-ECD	SAMS 456-1
LOQ:	0.001 mg/L.		
Description	Samples of milk are treated with potassium oxalate solution and ethanol and extracted with diethyl ether and hexane. The extract is taken to dryness before the residue is taken up in hexane for cleanup by an Extrelut column and a cyano cartridge. Final analysis is achieved by GLC-ECD with confirmation by GC-MS.		

Crops (Anon, 1989, AL-244-001)

Analyte:	alpha-cypermethrin	GC-ECD	SAMS 351-2
LOQ:	0.01 mg/kg.		
Description	Finely divided samples are mixed with anhydrous sodium sulphate and extracted with acetone + hexane. Extracts are washed with water to remove the acetone. Oily samples are cleaned up by solvent partitioning between hexane and water+acetonitrile. Extracts are further cleaned up by Florisil column chromatography, after which the residue is analysed by GLC-ECD. Confirmation is achieved by GC-MS. The method is intended for alpha-cypermethrin residues in dry, oily and aqueous-based crops.		

Grapes, wheat, cabbage, oilseed rape (Walker and Linkerhägner, 2000, AL-244-08)

Analyte:	alpha-cypermethrin	GC-ECD	DFG Method S-19 extended
LOQ:	0.01 mg/kg.		
Description	Samples are extracted with acetone after water is added depending on the natural water content of the specimen. The extract is partitioned after the addition of ethyl acetate, cyclohexane and sodium chloride. The organic layer is evaporated and the residue is dissolved ready for GPC (gel permeation chromatography) cleanup. For oilseed rape, the sample is mixed with calcium silicate, acetone and acetonitrile after which the filtrate is evaporated and the residue is dissolved ready for GPC cleanup. The residue containing fraction from the GPC cleanup is concentrated and subjected to further cleanup by mini-column silica gel before analysis by GC-ECD.		

Cabbage, oilseed rape, barley grain, grape (Young, 2001, AL-244-010)

Analyte:	alpha-cypermethrin	GC-MS	RLA 12644.00
LOQ:	0.01 mg/kg.		
Description	Extraction and cleanup are similar to the 'DFG Method S-19 extended' procedure described above. Final analysis is by GC-MS.		

Cabbage, carrots, lettuce (Atkinson, 2002, AL-244-012)

Analyte:	cypermethrin	GC-MSD	83265
LOQ:	0.01 mg/kg.		
Description	Samples are extracted with a mixture of heptane and acetone and the filtrate is mixed with water and heptane. The heptane layer is retained, washed with water, dried with anhydrous sodium sulphate and an aliquot is cleaned up through a silica solid phase extraction cartridge. The residue is then analysed by GC-MSD.		

Plant matrices (Rabe and Mackenrodt, 2007, 2004/1010543)

Analyte:	alpha-cypermethrin	LC-MS-MS	546/0
LOQ:	0.05 mg/kg.		
Description	Samples are extracted with a mixture of methanol, water and hydrochloric acid. The extract is centrifuged and the solution is cleaned up by liquid/liquid partition with cyclohexane. Residues in the cyclohexane phase are cleaned up by a silica gel SPE column. The cleaned up residue is then analysed by HPLC-MS-MS.		

Plant matrices (Stewart, 2005, 2005/5000063)

Analyte:	alpha-cypermethrin or cypermethrin	LC-MS-MS	567/0

LOQ: 0.01 mg/kg.

Description Samples, other than high-lipid content samples, are extracted with a mixture of methanol, water and hydrochloric acid. The extract is centrifuged and the solution is cleaned up by liquid/liquid partition with cyclohexane. Residues in the cyclohexane phase are cleaned up by a silica gel SPE column. The cleaned up residue is then analysed by LC-MS-MS using the ammonium adduct of cypermethrin.

High-lipid content samples are extracted with a hexane + acetonitrile mixture. After centrifugation and solvent partitioning cleanup, the acetonitrile phase is ready for LC-MS-MS analysis.

Walker and Linkerhägner (2000, AL-244-08) subjected DFG Method S-19 (extended) to independent laboratory validation for the purpose of analysing grapes, wheat grain, cabbage and oilseed rape for residues of alpha-cypermethrin. The method was suitable with an LOQ of 0.01 mg/kg.

Walker and Linkerhägner (2000, AL-244-09) subjected DFG Method S-19 (extended) to independent laboratory validation for the purpose of analysing boiled cabbage leaves, sauerkraut, oilseed rape press cake and refined rapeseed oil for residues of alpha-cypermethrin. The method was suitable with an LOQ of 0.01 mg/kg.

Young (2001, AL-244-010) subjected method RLA 12644 to laboratory validation for the purpose of analysing cabbage, oilseed rape, barley grain and grapes for residues of alpha-cypermethrin. The method was suitable with an LOQ of 0.01 mg/kg.

Smalley (2002, AL-244-011) subjected method RLA 12644 to laboratory validation for the purpose of analysing wheat straw and grain for residues of cypermethrin. The method was suitable with an LOQ of 0.01 mg/kg.

Atkinson (2002, AL-244-012) subjected method 83265 to laboratory validation for the purpose of analysing cabbage, carrots and lettuce for residues of cypermethrin. The method was suitable with an LOQ of 0.01 mg/kg.

Rabe and Mackenrodt (2007, 2004/1010543) subjected HPLC method 546/0 to laboratory validation for the purpose of analysing wheat (forage, grain and straw), oilseed rape (plant and seed), grapes and oranges for residues of alpha-cypermethrin. The method was suitable with an LOQ of 0.05 mg/kg.

Hausmann (2000, AL-245-007) subjected multi-residue method DFG S19 to laboratory validation for the purpose of analysing milk and eggs for residues of alpha-cypermethrin. The method was suitable with an LOQ of 0.01 mg/kg.

Ennis *et al*. (2007, 2007/7007768) subjected LC-MS-MS method 567/0 to independent laboratory validation for the purpose of analysing lettuce, oranges, cotton seed and wheat for residues of alpha-cypermethrin. The method was workable as written with an LOQ of 0.01 mg/kg.

Recovery data from the internal and independent laboratory validation (ILV) testing are summarised in Table 7.

Table 7 Analytical recoveries for spiked alpha-cypermethrin in various substrates

Commodity	Spiked analyte	Spike conc, mg/kg	n	Mean recov%	Range recov%	Method	Ref
barley grain	alpha-cypermethrin	0.01	3	71%	65–80%	RLA 12644.00	AL-244-010
cabbage leaves, boiled	alpha-cypermethrin	0.01, 0.1	10	89%	84–95%	DFG S-19, extended	AL-244-09
cabbage	alpha-cypermethrin	0.01	3	86%	72–103%	RLA 12644.00	AL-244-010
cabbage	alpha-cypermethrin	0.01, 0.1	10	96%	85–102%	DFG S-19, extended	AL-244-08
cabbage	cypermethrin	0.01, 0.1	10	76%	63–89%	83265	AL-244-011
carrots	cypermethrin	0.01	5	75%	73–78%	83265	AL-244-011
carrots	cypermethrin	0.1	5	94%	83–101%	83265	AL-244-011
cotton seed	alpha-cypermethrin	0.01, 0.1	10	87%	72–94%	567/0	2005/5000063
cotton seed	alpha-cypermethrin	0.01, 0.1	10	77%	70–94%	567/0	2007/7007768
eggs	alpha-cypermethrin	0.01, 0.1	10	88%	78–101%	DFG S19	AL-245-007
fat	alpha-cypermethrin	0.1, 0.2	8	97%	80–115%	SAMS 461-1	AL-245-001
fat	alpha-cypermethrin	0.05, 0.1, 0.2	9	96%	78–108%	SAMS 461-1	AL-245-006
grapes	alpha-cypermethrin	0.05, 0.5	10	97%	88–108%	546/0	2004/1010543
grapes	alpha-cypermethrin	0.01	3	92%	91–94%	RLA 12644.00	AL-244-010
grapes	alpha-cypermethrin	0.01, 0.1	10	99%	93–106%	DFG S-19, extended	AL-244-08
kidney	alpha-cypermethrin	0.1, 0.2	3	90%	85–95%	SAMS 461-1	AL-245-001
kidney	alpha-cypermethrin	0.05, 0.1, 0.2	9	95%	82–106%	SAMS 461-1	AL-245-006
lettuce	alpha-cypermethrin	0.01, 0.1	10	92%	70–115%	567/0	2007/7007768
lettuce	cypermethrin	0.01, 0.1	10	81%	72–89%	83265	AL-244-011
liver	alpha-cypermethrin	0.1, 0.2	3	90%	80–95%	SAMS 461-1	AL-245-001
liver	alpha-cypermethrin	0.05, 0.1, 0.2	9	91%	78–101%	SAMS 461-1	AL-245-006
milk	alpha-cypermethrin	0.005–0.02	5	99%	90–105%	SAMS 456-1	AL-245-003
milk	alpha-cypermethrin	0.01, 0.02, 0.04	9	99%	84–115%	SAMS 456-1	AL-245-006
milk	alpha-cypermethrin	0.01, 0.1	10	97%	85–107%	DFG S19	AL-245-007
muscle	alpha-cypermethrin	0.1, 0.2	4	90%	85–100%	SAMS 461-1	AL-245-001
muscle	alpha-cypermethrin	0.05, 0.1, 0.2	9	102%	92–109%	SAMS 461-1	AL-245-006
oilseed rape	alpha-cypermethrin	0.01	3	85%	78–97%	RLA 12644.00	AL-244-010
oilseed rape	alpha-cypermethrin	0.01, 0.1	10	91%	82–101%	DFG S-19, extended	AL-244-08
oilseed rape plant	alpha-cypermethrin	0.05, 0.5	10	105%	89–127%	546/0	2004/1010543
oilseed rape press cake	alpha-cypermethrin	0.01, 0.1	10	84%	74–102%	DFG S-19, extended	AL-244-09
oilseed rape seed	alpha-cypermethrin	0.05, 0.5	10	90%	85–102%	546/0	2004/1010543
orange	alpha-cypermethrin	0.01, 0.1	10	92%	77–109%	567/0	2005/5000063
oranges	alpha-cypermethrin	0.05, 0.5	10	98%	88–114%	546/0	2004/1010543
oranges	alpha-cypermethrin	0.01, 0.1	10	96%	88–108%	567/0	2007/7007768
cabbage leaves, outer	alpha-cypermethrin	0.01, 0.1	10	86%	78–98%	DFG S-19, extended	AL-244-09
potato	alpha-cypermethrin	0.01, 0.1	10	93%	78–102%	567/0	2005/5000063

Commodity	Spiked analyte	Spike conc, mg/kg	n	Mean recov%	Range recov%	Method	Ref
refined rapeseed oil	alpha-cypermethrin	0.01, 0.1	10	96%	89–103%	DFG S-19, extended	AL-244-09
sauerkraut	alpha-cypermethrin	0.01, 0.1	10	91%	78–101%	DFG S-19, extended	AL-244-09
succulent pea	alpha-cypermethrin	0.01, 0.1	10	83%	66–99%	567/0	2005/5000063
tomato	alpha-cypermethrin	0.01, 0.1	10	90%	77–89%	567/0	2005/5000063
wheat	alpha-cypermethrin	0.01, 0.1	10	96%	77–118%	567/0	2007/7007768
wheat forage	alpha-cypermethrin	0.05, 0.5	10	92%	72–104%	546/0	2004/1010543
wheat grain	alpha-cypermethrin	0.05, 0.5	10	89%	79–97%	546/0	2004/1010543
wheat grain	alpha-cypermethrin	0.01, 0.1	10	90%	85–98%	567/0	2005/5000063
wheat grain	alpha-cypermethrin	0.01, 0.1	10	98%	90–106%	DFG S-19, extended	AL-244-08
wheat grain	cypermethrin	0.01	5	77%	72–83%	RLA 12644	AL-244-011
wheat grain	cypermethrin	0.1	5	94%	91–98%	RLA 12644	AL-244-011
wheat plant	alpha-cypermethrin	0.01, 1.0	10	83%	88–97%	567/0	2005/5000063
wheat plant	cypermethrin	0.01, 0.1	10	113%	84–152%	567/0	2005/5000063
wheat straw	alpha-cypermethrin	0.05, 0.5	10	93%	87–101%	546/0	2004/1010543
wheat straw	alpha-cypermethrin	0.01, 1.0	10	87%	80–137%	567/0	2005/5000063
wheat straw	cypermethrin	0.01, 0.1	10	98%	83–108%	567/0	2005/5000063
wheat straw	cypermethrin	0.01	5	83%	73–90%	RLA 12644	AL-244-011
wheat straw	cypermethrin	0.1	5	112%	104–123	RLA 12644	AL-244-011

Stability of residues in stored analytical samples

Information was received on the freezer storage stability of alpha-cypermethrin in plant and animal commodities.

Bixler and Kukel (2001, AL-326-035) spiked cattle tissue and milk samples in small glass jars with alpha-cypermethrin and stored them in a freezer below –15 ˚C. The vials or jars were removed at intervals for analysis. Procedural recoveries on freshly spiked samples provided quality control information on the performance of the analytical methods (SAMS 461-1 and SAMS 456-1). The results are summarised in Table 8.

Residues in the tested matrices were apparently stable for the stored intervals, mostly 12 months.

Apple, wheat and soybean matrices were studied for isomer conversion during freezer storage. Isomer conversion was generally minimal, except in one wheat sample (possibly an experimental deficiency).

Table 8 Freezer storage stability data for alpha-cypermethrin spiked into matrices of milk and bovine tissues (Bixler and Kukel, 2001, AL-326-035)

Storage interval	Procedural recov%	Cypermethrin, mg/kg	Storage interval	Procedural recov%	Cypermethrin, mg/kg
CATTLE MUSCLE, fortified with alpha-cypermethrin at 0.5 mg/kg in small glass jars, storage temperature below -15 °C.			CATTLE LIVER, fortified with alpha-cypermethrin at 0.5 mg/kg in small glass jars, storage temperature below -15 ˚C.		
0	88% 77% 82%		0	84% 92% 90%	
1.5 months	119%	0.51 0.51	1 month	88%	0.47 0.40
3 months	89%	0.45 0.43	3 months	110%	0.51 0.47
6 months	89%	0.51 0.51	6 months	87%	0.50 0.51

Storage interval	Procedural recov%	Cypermethrin, mg/kg	Storage interval	Procedural recov%	Cypermethrin, mg/kg
residues apparently stable			residues apparently stable		
CATTLE KIDNEY, fortified with alpha-cypermethrin at 0.5 mg/kg in small glass jars, storage temperature below -15 ˚C.			CATTLE FAT, fortified with alpha-cypermethrin at 0.5 mg/kg in small glass jars, storage temperature below -15 ˚C.		
0	84% 83% 85%		0	81% 90% 96%	
1.5 months	90%	0.40 0.47	1 month	83%	0.42 0.41
3 months	98%	0.50 0.51	3 months	91%.	0.45 0.48
6 months	99%	0.50 0.47	6 months	108%	0.52 0.49
residues apparently stable			residues apparently stable		
CATTLE MILK, fortified with alpha-cypermethrin at 0.1 mg/kg in small glass jars, storage temperature below -15 ˚C.					
0	87% 92% 88%				
1.5 months	98%	0.092 0.117			
3 months	77%	0.086 0.084			
6 months	94%	0.108 0.102			
9 months	98%	0.106 0.098			
residues apparently stable					

Table 9 Freezer storage stability data for alpha-cypermethrin spiked into matrices of tomatoes; lettuce; wheat straw, green plant and grain; oilseed rape plant, pod and seeds

Storage interval	Procedural recov%	Alpha-cypermethrin, mg/kg or% remaining	Storage interval	Procedural recov%	Alpha-cypermethrin, mg/kg or% remaining
TOMATO, fortified with alpha-cypermethrin at 0.1 mg/kg in small glass bottles, storage temperature below -18 ˚C (Müller, 1998, AL-723-029).			LETTUCE, containing incurred residues of alpha-cypermethrin from study AL-726-010, storage temperature below -18 ˚C (Müller, 1998, AL-726-015).		
0	97% 94%	0.09 0.09 0.10	0	93% 96%	0.16 0.13 0.15 0.14 0.13
3 months	91% 91%	0.07 0.09 0.09	3 months	98% 96%	0.14 0.15 0.13
6 months	92% 93%	0.09 0.09 0.09	6 months	95% 91%	0.14 0.14 0.14
9 months	99% 100%	0.10 1.10 0.10	9 months	97% 95%	0.13 0.14 0.16
12 months	95% 88%	0.09 0.09 0.09	12 months	74% 73%	0.14 0.12 0.14
residues apparently stable			residues apparently stable		
WHEAT STRAW, containing incurred residues of alpha-cypermethrin from study AL-730-040, storage temperature below -18 ˚C (Müller, 1998, AL-730-066).			WHEAT GREEN PLANT, containing incurred residues of alpha-cypermethrin from study AL-730-040, storage temperature below -18 ˚C (Müller, 1998, AL-730-066).		
0	85% 83%	1.44 1.37 1.35 1.30 1.38	0	96% 95%	1.30 1.42 1.24 1.37 1.33
3 months	84% 88%	1.44 1.34 1.36	3 months	96% 95%	1.27 1.36 1.46
6 months	82% 88%	1.52 1.50 1.58	6 months	99% 94%	1.29 1.34 1.43
9 months	72% 71%	1.44 1.45 1.41	9 months	75% 73%	1.25 1.13 1.13
12 months	98% 91%	1.78 1.84 1.53	12 months	99% 97%	1.44 1.46 1.33
residues apparently stable			residues apparently stable		
WHEAT GRAIN, fortified with alpha-cypermethrin at 0.1 mg/kg in small glass bottles, storage temperature below -18 ˚C (Müller, 1998, AL-730-066).			OILSEED RAPE PLANT, fortified with alpha-cypermethrin at 0.5 mg/kg in small glass jars, storage temperature below -20 ˚C (Smalley, 2002, AL-750-040).		
0	85% 84%	0.08 0.08 0.08			% of 0.5 mg/kg
3 months	85% 82%	0.08 0.08 0.08	4.5 months	72% 75%	54% 51% 76%

Storage interval	Procedural recov%	Alpha-cypermethrin, mg/kg or% remaining	Storage interval	Procedural recov%	Alpha-cypermethrin, mg/kg or% remaining
6 months	84% 84%	0.08 0.08 0.08	7.5 months	94% 95%	59% 61% 41%
9 months	74% 74%	0.09 0.09 0.09	10.5 months	88% 85%	53% 40% 40%
12 months	106% 99%	0.10 0.11 0.10	14 months	77% 90%	43% 55% 47%
residues apparently stable			deficient study, possibly inaccurate fortification		
OILSEED RAPE POD, fortified with alpha-cypermethrin at 0.5 mg/kg in small glass jars, storage temperature below -20 ˚C (Smalley, 2002, AL-750-040).			OILSEED RAPE SEEDS, fortified with alpha-cypermethrin at 0.5 mg/kg in small glass jars, storage temperature below -20 ˚C (Smalley, 2002, AL-750-040).		
		% of 0.5 mg/kg			% of 0.5 mg/kg
5 months	84% 89%	47% 47% 85%	5 months	76% 81%	38% 36% 67%
8 months	88% 94%	73% 64% 60%	8 months	77% 89%	45% 40% 47%
11 months	103% 95%	39% 42% 39%	9 months	91% 73%	35% 36% 41%
14 months	87% 78%	36% 50% 42%	11 months	88% 85%	32% 50% 33%
			14 months	89% 80%	28% 53% 34%
deficient study, possibly inaccurate fortification			deficient study, possibly inaccurate fortification		
OILSEED RAPE POD, fortified with alpha-cypermethrin at 0.5 mg/kg in small glass jars, storage temperature approximately -20 ˚C (Dale, 2003, 2003/1009948).			OILSEED RAPE SEEDS, fortified with alpha-cypermethrin at 0.5 mg/kg in small glass jars, storage temperature approximately -20 ˚C (Dale, 2003, 2003/1009948).		
8 weeks	96% 99%	0.396 0.434	6 weeks	91% 89%	0.433 0.453
13 weeks	88% 89%	0.392 0.427	12 weeks	99% 105%	0.500 0.428
25 weeks	85% 83%	0.346 0.307	24 weeks	99% 97%	0.394 0.362
53 weeks	89% 88%	0.331 0.314	52 weeks	99% 98%	0.368 0.372
test period 45 weeks, residues apparently stable			test period 46 weeks, residues apparently stable		
OILSEED RAPE PLANT, fortified with alpha-cypermethrin at 0.5 mg/kg in small glass jars, storage temperature approximately -20 ˚C (Dale, 2003, 2003/1009948).					
7 weeks	90% 90%	0.393 0.430			
13 weeks	86% 90%	0.266 0.361			
25 weeks	79% 81%	0.397 0.396			
53 weeks	97% 96%	0.430 0.421			
test period 46 weeks, residues apparently stable					

Table 10 Freezer storage stability data for alpha-cypermethrin spiked into matrices of: apples, wheat and soya bean

Storage interval	^{14}C as% of dose	% conversion from cis isomer	Storage interval	^{14}C as% of dose	% conversion from cis isomer
APPLE, diced and fortified with [^{14}C]alpha-cypermethrin at 0.94 mg/kg in small glass jars, storage temperature approximately -18 ˚C (Archer and Forbes, 1985, AL-326-006).			WHEAT, whole grains fortified with [^{14}C]alpha-cypermethrin at 0.94 mg/kg in small glass jars, storage temperature approximately -18 ˚C (Archer and Forbes, 1985, AL-326-006).		
12 weeks	105%	5%	12 weeks	105%	<5 %
24 weeks	105%	< 5%	24 weeks	110%	< 5%
50 weeks	110%	25%[a]	50 weeks	115%	< 5%
84 weeks	65%	< 5%	84 weeks	110%	< 5%
residues apparently unstable at longest interval			residues apparently stable		

Storage interval	^{14}C as% of dose	% conversion from cis isomer	Storage interval	^{14}C as% of dose	% conversion from cis isomer
SOYA BEAN, ground and fortified with [^{14}C]alpha-cypermethrin at 0.94 mg/kg in small glass jars, storage temperature approximately -18 ˚C (Archer and Forbes, 1985, AL-326-006).					
12 weeks	105%	10			
24 weeks	100%	< 5%			
50 weeks	110%	< 5%			
84 weeks	100%	< 5%			
residues apparently stable					

[a] The report notes that conversion may have occurred in the sample extracts, which were stored for several weeks before analysis.

USE PATTERN

Alpha-cypermethrin (a pyrethroid compound), is a non-systemic broad spectrum insecticide with rapid knockdown activity. It is effective by contact and ingestion at relatively low application rates and can be used as a preventive or curative treatment.

Copies of alpha-cypermethrin labels from the following countries were made available to the Meeting: Algeria, Argentina, Australia, Austria, Belarus, Belgium, Bolivia, Brazil, Bulgaria, Chile, China, Colombia, Cyprus, Czech Republic, Denmark, Estonia, France, Georgia, Germany, Greece, India, Iraq, Ireland, Italy, Jordan, Kazakhstan, Kenya, Korea, Kuwait, Latvia, Lebanon, Lithuania, Mexico, Morocco, Norway, Peru, Poland, Portugal, Romania, Russia, Saudi Arabia, Slovenia, South Africa, Spain, Sudan, Sweden, Syria, Tunisia, Turkey, Ukraine, United Arab Emirates, UK, Uruguay, Vietnam and Yemen. The labels are evidence of an extensive range of uses of alpha-cypermethrin. Only some of the labels (those in English) were readable by the reviewer and the compilation of registered uses is based on the summary prepared by the proposer.

Table 11 Registered uses of alpha-cypermethrin in horticultural and field crops. The table is based on a summary of uses provided by the proposer

Crop	Country	Application						PHI days
		Form	Type	Max rate kg ai/ha	Max conc kg ai/hL	Spray vol, L/ha	Max number	
Alfalfa	France	EC WG	foliar, field	0.011	0.0053	400	2	150
Alfalfa	Romania	EC	foliar, field	0.015	0.0075	300	2	
Alfalfa	Spain	EC	foliar, field	0.03	0.01	300	1	2
Almond	Cyprus	EC	foliar	0.075	0.003	2500	2	7
Apple	Poland	EC	foliar, field	0.018	0.009	750	2	7
Apple	Romania	EC	foliar, field	0.03	0.002	1500	2	3
Artichoke	Cyprus	EC	foliar, field	0.06	0.006	1000	3	3
Artichoke	Greece	EC WG SC	foliar, field	0.03			1	7
Artichoke	Italy	WG	foliar, field	0.030	0.0075	1000	1	7
Asparagus	France	EC WG	foliar, field	0.015	0.0075	400	2	
Asparagus	Germany	SC	foliar	0.0125		400	1	
Asparagus	Greece	EC WG SC	foliar, field	0.03	0.0075	400	1	180
Asparagus	Italy	WG	foliar, field	0.030	0.0075	1000	1	180
Barley, spring	Denmark	EC	foliar, field	0.015			2	42
Barley, spring	Norway	EC	foliar, field	0.015			2	42
Barley, spring	Poland	EC	foliar, field	0.01	0.005	600	1	7

Crop	Country	Application						PHI days
		Form	Type	Max rate kg ai/ha	Max conc kg ai/hL	Spray vol, L/ha	Max number	
Barley, winter	Denmark	EC	foliar, field	0.015			2	42
Barley, winter	Norway	EC	foliar, field	0.015			2	42
Barley, winter	Poland	EC	foliar, field	0.012	0.006	600	1	7
Beans	Denmark	EC	foliar, field	0.015			2	7
Beans	France	EC WG	foliar, field	0.03	0.015	400	1	7
Beans	Greece	EC WG SC	foliar, field	0.03	0.0075	400	1	7
Beans	Latvia	EC	foliar, field	0.015			2	7
Beans	Sweden	EC	foliar, field	0.015			2	7
Beans, broad	UK	EC WG	foliar, field	0.0125	0.00625	400	2	7
Beans, field	UK	EC WG	foliar, field	0.0125	0.00625	400	2	7
Beet	France	EC WG	foliar, field	0.011	0.0053	600	2	21
Brassica veg	Spain	EC	foliar, field	0.03	0.00375	800	1	2
Brassica veg	Spain	EC	foliar, field	0.03	0.00375		1	2
Broccoli	Algeria	EC	foliar		0.002		1	7
Broccoli	Denmark	EC	foliar, field	0.015			2	7
Broccoli	Estonia	EC	foliar, field	0.015			2	7
Broccoli	Finland	EC	foliar, field	0.015			2	7
Broccoli	France	EC	see cauliflower					
Broccoli	Greece	EC WG SC	foliar, field	0.03	0.015	400	1	7
Broccoli	Italy	WG	foliar, field	0.030	0.0075	1000	1	7
Broccoli	Latvia	EC	foliar, field	0.015			2	7
Broccoli	Norway	EC	foliar, field	0.015			2	7
Broccoli	Poland	EC	foliar, field	0.008	0.004	600	2	7
Broccoli	Sweden	EC	foliar, field	0.015			2	7
Broccoli	UK	EC WG	foliar, field	0.010	0.005	400	2	7
Brussels sprouts	France	EC	see cabbage					
Brussels sprouts	Greece	EC WG SC	foliar, field	0.03	0.015	400	1	7
Brussels sprouts	Poland	EC	foliar, field	0.008	0.004	600	2	7
Brussels sprouts	UK	EC WG	foliar, field	0.010	0.005	400	2	7
Cabbage, head	Australia	EC	foliar, field	0.04		600		1
Cabbage, head	Australia	EC	foliar, field	0.04		60 ✈		1
Cabbage, head	Australia	EC	foliar, field		0.005	1000		1
Cabbage, head	Czech Republic	EC	foliar, field	0.015			2	7
Cabbage, head	Denmark	EC	foliar, field	0.015			2	7
Cabbage, head	France	EC WG	foliar, field	0.011	0.0053	400	2	14
Cabbage, head	Greece	EC WG SC	foliar, field	0.03	0.015	400	1	7
Cabbage, head	Italy	WG	foliar, field	0.030	0.0075	1000	1	7
Cabbage, head	Latvia	EC	foliar, field	0.015			2	7
Cabbage, head	Poland	EC	foliar, field	0.008	0.004	600	2	7
Cabbage, head	Portugal	EC	foliar, field	0.03	0.015	400	1	7
Cabbage, head	Sweden	EC	foliar, field	0.015			2	7
Cabbage, head	UK	EC WG	foliar, field	0.010	0.005	400	2	7
Cabbage, leafy	France	EC WG	foliar, field	0.011	0.0053	400	2	14

Crop	Country	Application						PHI days
		Form	Type	Max rate kg ai/ha	Max conc kg ai/hL	Spray vol, L/ha	Max number	
Cabbage, leafy	Greece	EC WG SC	foliar, field	0.03	0.015	400	1	7
Cabbage, leafy	Italy	WG	foliar, field	0.030	0.0075	1000	1	7
Cabbage, leafy	Portugal	EC	foliar, field	0.03	0.015	400	1	7
Cabbage, leafy	UK	EC WG	foliar, field	0.01	0.005	400	2	7
Cacao	Malaysia	EC	foliar	0.01		200	14	7
Cauliflower	Austria	SC	foliar, field	0.01				14
Cauliflower	Belgium	EC	foliar, field	0.01	0.0025	400	2	7
Cauliflower	Denmark	EC	foliar, field	0.015			2	7
Cauliflower	Estonia	EC	foliar, field	0.015			2	7
Cauliflower	Finland	EC	foliar, field	0.015			2	7
Cauliflower	France	EC WG	foliar, field	0.011	0.0053	400	2	14
Cauliflower	Germany	SC	foliar, field	0.009		400	1	7
Cauliflower	Greece	EC WG SC	foliar, field	0.03	0.015	400	1	7
Cauliflower	Italy	WG	foliar, field	0.030	0.0075	1000	1	7
Cauliflower	Latvia	EC	foliar, field	0.015			2	7
Cauliflower	Norway	EC	foliar, field	0.015			2	7
Cauliflower	Poland	EC	foliar, field	0.008	0.004	600	2	7
Cauliflower	UK	EC WG	foliar, field	0.010	0.005	400	2	7
Cereals	Belgium	EC	foliar, field	0.01	0.0025	400	2	42
Cereals	Bulgaria	EC	foliar, field	0.03	0.015	300	2	30
Cereals	Spain	EC	foliar, field	0.03	0.012	250	1	21
Cereals [a]	Germany	SC	foliar, field	0.0125		400	1	35
Cereals (winter and spring)	Czech Republic	EC	foliar, field	0.015	0.0075	400	2	42
Cereals (winter and spring)	France	EC WG	foliar, field	0.015	0.0075	400	2	28
Cereals (winter and spring)	Greece	EC WG SC	foliar, field	0.03	0.0075	400	1	42
Cereals (winter and spring)	Italy	WG	foliar, field	0.030	0.0075	1000	1	42
Cereals (winter and spring)	UK	EC WG	foliar, field	0.0125	0.005	400	2	30
Cherry	Czech Republic	EC	foliar, field	0.03	0.002	1500	2	14
Cherry, sweet	Romania	EC	foliar, field	0.015	0.0015	1500	2	7
Citrus	Algeria	EC	foliar		0.003		1	14
Citrus	Thailand	EC	foliar, field	0.12	0.009	1250	2	10
Coffee	Vietnam	EC	foliar	0.03	0.008	600	1	7
Cotton	Argentina	EC	foliar	0.012	0.011	150	2	14
Cotton	Australia	EC	foliar, field	0.05				14
Cotton	Brazil	SC	foliar	0.05	0.0166	300	3	7
Cotton	Colombia	EC	foliar	0.035	0.0088	400		15
Cotton	Greece	EC WG SC	foliar, field	0.03	0.0075	400	1	7
Cotton	Paraguay	SC	foliar	0.03		200	4	15
Cotton	South Africa	SC EC	foliar	0.035		30 ✈		28

Crop	Country	Application						PHI days
		Form	Type	Max rate kg ai/ha	Max conc kg ai/hL	Spray vol, L/ha	Max number	
Cotton	Spain	EC	foliar, field	0.03	0.006	500	1	21
Cruciferae	South Africa	SC EC	foliar		0.0065	300 min	2	
Cruciferae	South Africa	EC	foliar		0.0065	30 ✈	2	
Crucifers	Thailand	EC	foliar, field	0.0675	0.009	750	3	10
Cucumber	Algeria	EC	foliar		0.002		1	7
Cucumber	Cyprus	WG	foliar	0.02	0.002	1000	3	3
Cucumber	Denmark	EC	foliar, glasshouse	0.015			2	7
Cucumber	Finland	EC	foliar, glasshouse	0.015			2	7
Cucumber	Finland	EC	foliar, field	0.015			2	7
Cucumber	France	EC WG	foliar, field	0.011	0.0026	1000	2	3
Cucumber	France	EC WG	foliar, glasshouse	0.011	0.0026	1000	2	3
Cucumber	Germany	SC	foliar	0.0125		600	1	3
Cucumber	Greece	EC WG SC	foliar, field	0.03	0.0075	1000	1	7
Cucumber	Greece	EC WG SC	foliar, glasshouse	0.025	0.0063	1000	1	7
Cucumber	Italy	WG	foliar, glasshouse	0.05	0.0125	1000	1	7
Cucurbits	Romania	EC	foliar, field	0.016	0.002	800	2	1
Cucurbits	Romania	EC	foliar, glasshouse	0.05	0.002	3000	1	
Cucurbits	Spain	EC	foliar, field, glasshouse	0.03	0.003	1000	1	2
Eggplant	France	EC WG	foliar, field, glasshouse	0.012	0.003	1000	2	7
Eggplant	Greece	EC WG SC	foliar, field	0.03	0.0075	1000	1	7
Eggplant	Italy	WG	foliar, field	0.030	0.0075	1000	1	7
Eggplant	Italy	WG	foliar, glasshouse	0.05	0.0125	1000	1	7
Eggplant	Portugal	EC	foliar, field	0.03	0.0075	1000	1	7
Eggplant	Romania	EC	foliar, glasshouse	0.05	0.002	3000	1	
Eggplant	Romania	EC	foliar, field	0.016	0.002	800	2	1
Grapes	Bulgaria	EC	foliar, field	0.0125	0.0031	1000	2	14
Grapes	Cyprus	WG	foliar	0.015	0.0023	1000	3	7
Grapes	Cyprus	EC	foliar	0.0375	0.0025	1000	3	7
Grapes	Czech Republic	EC	foliar, field	0.015			2	14
Grapes	France	EC WG	foliar, field	0.015	0.005	600	2	14
Grapes	Greece	EC WG SC	foliar, field	0.015	0.005	1000	1	7
Grapes	Portugal	EC	foliar, field	0.015	0.005	1000	1	7
Grapes	Romania	EC	foliar, field	0.0075	0.0008	1000	2	
Grapes	Slovenia	SC	foliar, field	0.015			1	21
Herbs, fresh	Germany	EC	foliar, field	0.009		400	1	3
Hops	Czech Republic	EC	foliar, field	0.04			2	
Hops	Romania	EC	foliar, field	0.04	0.002	2000	2	
Lambs lettuce	France	EC WG	foliar, glasshouse	0.011	0.0026	1000	2	7
Leek	Algeria	EC	foliar		0.002		1	7
Leek	Germany	SC	foliar	0.009		400	1	14
Leek	Greece	EC WG SC	foliar, field	0.03	0.0075	400	1	7

Crop	Country	Application						PHI days
		Form	Type	Max rate kg ai/ha	Max conc kg ai/hL	Spray vol, L/ha	Max number	
Leek	Spain	EC	foliar, field	0.03	0.00375	800	1	2
Lettuce	Spain	EC	foliar, field	0.03	0.00375	800	1	2
Lettuce and similar	Algeria	EC	foliar		0.002		1	7
Lettuce and similar	France	EC WG	foliar, field, glasshouse	0.011	0.0026	1000	2	7
Lettuce and similar	Germany	SC	foliar	0.009		400	1	3
Lettuce and similar	Greece	EC WG SC	foliar, field	0.03	0.0075	1000	1	7
Lettuce and similar	Greece	EC WG SC	foliar, glasshouse	0.05	0.0125	1000	1	7
Lettuce and similar	Italy	WG	foliar, field	0.030	0.0075	1000	1	7
Lettuce and similar	Italy	WG	foliar, glasshouse	0.05	0.0125	1000	1	7
Linseed	Australia	EC	foliar	0.03				14
Linseed	Belgium	EC	foliar, field	0.0125	0.0025	400	2	
Maize	France	EC WG	foliar, field	0.03	0.015	400	1	21
Maize	Greece	EC WG SC	foliar, field	0.03	0.015	400	1	14
Maize	Italy	WG	foliar, field	0.030	0.0075	1000	1	13
Maize	South Africa	SC EC	foliar	0.0125		30 ✈		14.
Melon	Brazil	EC	foliar	0.03	0.005	600	4	7
Melon	Cyprus	WG	foliar, field	0.02	0.002	1000	3	3
Melon	France	EC WG	foliar, field	0.011	0.0026	1000	2	7
Melon	France	EC WG	foliar, field	0.03	0.0075	1000	1	7
Melon	Greece	EC WG SC	foliar, field	0.03	0.0075	1000	1	7
Melon	Greece	EC WG SC	foliar, glasshouse	0.05	0.0125	1000	1	7
Melon	Italy	WG	foliar, field	0.030	0.0075	1000	1	7
Melon	Italy	WG	foliar, glasshouse	0.05	0.0125	1000	1	7
Oats	Denmark	EC	foliar, field	0.015			2	42
Oats	Finland	EC	foliar, field	0.015			2	42
Oats	Norway	EC	foliar, field	0.015			2	42
Oats	Sweden	EC	foliar, field	0.015			2	42
Oil palm	Malaysia	EC	foliar	0.011		270	14	7
Oilseed rape	Belgium	EC	foliar, field	0.0075	0.005	400	2	49
Oilseed rape	Bulgaria	EC	foliar, field	0.02	0.01	400	2	30
Oilseed rape	Czech Republic	EC	foliar, field	0.01			2	14-21
Oilseed rape	France	EC WG	foliar, field	0.011	0.0053	400	2	49
Oilseed rape	Germany	SC	foliar, field	0.01		400	1	56
Oilseed rape, summer	Denmark	EC	foliar, field	0.0125			2	14
Oilseed rape, summer	Greece	EC WG SC	foliar, field	0.03	0.005	400	1	14
Oilseed rape, winter	Denmark	EC	foliar, field	0.0125			2	49
Oilseed rape, winter	Greece	EC WG SC	foliar, field	0.03	0.005	400	1	49
Olive	Algeria	EC	foliar		0.002		1	14
Olives	Greece	EC WG SC	foliar, field	0.030	0.003	1000	1	7

Crop	Country	Application						PHI days
		Form	Type	Max rate kg ai/ha	Max conc kg ai/hL	Spray vol, L/ha	Max number	
Onion	Algeria	EC	foliar		0.002		1	7
Onion	Germany	SC	foliar	0.0125		600	1	14
Onion	Greece	EC WG SC	foliar, field	0.03	0.015	400	1	7
Onion	Latvia	EC	foliar, field	0.015			2	7
Onion	Norway	EC	foliar, field	0.015			2	7
Onion	Romania	EC	foliar, field	0.012	0.002	600	2	7
Onion	Sweden	EC	foliar, field	0.01			2	7
Orchards	Bulgaria	EC	foliar, field	0.015	0.00375	1000	2	7
Pea	Cyprus	EC	foliar	0.06	0.006	1000	3	3
Peach	Cyprus	EC	foliar	0.075	0.003	2500	2	7
Peach	Romania	EC	foliar, field	0.015	0.0015	1000	2	7
Peach	Slovenia	EC	foliar, field	0.020			1	14
Peach	South Africa	SC EC	foliar	0.035	0.001		2	14
Peach	South Africa	SC	foliar		0.0005			14
Pear	Algeria	EC	foliar		0.003		1	14
Peas	Belgium	EC	foliar, field	0.0125	0.0025	400	2	7
Peas	Bulgaria	EC	foliar, field	0.02	0.01	400	2	14
Peas	Czech Republic	EC	foliar, field	0.015			2	7
Peas	Denmark	EC	foliar, field	0.015			2	7
Peas	Germany	SC	foliar	0.009		600	1	7
Peas	Greece	EC WG SC	foliar, field	0.03	0.0075	400	1	7
Peas	Poland	EC	foliar, field	0.012	0.006	600	2	7
Peas	Sweden	EC	foliar, field	0.015			2	7
Peas (dry)	Bulgaria	EC	foliar, field	0.02	0.01	400	2	14
Peas, field fodder	France	EC WG	foliar, field	0.013	0.006	400	2	14
Peas, green	Spain	EC	foliar, field, glasshouse	0.03	0.003	1000	1	2
Peas, pulses	UK	EC WG	foliar, field	0.0125	0.00625	400	2	7
Peas, vining	UK	EC WG	foliar, field	0.0125	0.00625	400	2	3
Peppers	Romania	EC	foliar, field, glasshouse	0.016	0.002	800	2	1
Peppers, sweet	Greece	EC WG SC	foliar, field	0.03	0.015	400	1	7
Peppers, sweet	Greece	EC WG SC	foliar, glasshouse	0.050	0.0125	1000	1	7
Peppers, sweet	Italy	WG	foliar, field	0.030	0.0075	1000	1	7
Peppers, sweet	Italy	WG	foliar, glasshouse	0.05	0.0125	1000	1	7
Peppers, sweet	Portugal	EC	foliar, field	0.03	0.015	400	1	7
Potato	Austria	SC	foliar, field	0.01			1	7
Potato	Belgium	EC	foliar, field	0.0125	0.0031	400	2	14
Potato	Brazil	EC	foliar	0.03	0.005	600	4	7
Potato	Bulgaria	EC	foliar, field	0.01	0.005	400	2	7
Potato	Cyprus	EC	foliar, field	0.03	0.003	1000	2	7
Potato	Czech Republic	EC	foliar, field	0.015	0.0075	400	2	14
Potato	Denmark	EC	foliar, field	0.015			2	14

Crop	Country	Application						PHI days
		Form	Type	Max rate kg ai/ha	Max conc kg ai/hL	Spray vol, L/ha	Max number	
Potato	France	EC WG	foliar, field	0.0125	0.0063	400	2	21
Potato	Germany	SC	foliar, field	0.0065		400	1	7
Potato	Greece	EC WG SC	foliar, field	0.03	0.0075	400	1	14
Potato	Italy	WG	foliar, field	0.030	0.0075	1000	1	14
Potato	Spain	EC	foliar, field	0.03	0.00375	800	1	21
Potato	Sweden	EC	foliar, field	0.015			2	14
Pulses	Algeria	EC	foliar		0.002		1	7
Pulses	Greece	EC WG SC	foliar, field	0.03	0.0075	400	1	7
Pulses	Spain	EC	foliar, field	0.03	0.006	500	1	21
Rice	Brazil	EC	foliar	0.03	0.015	200	2	10
Rice	Malaysia	EC	foliar	0.0072		160	4	7
Rice	Philippines	SC	foliar	0.078				3
Rice	Thailand	?	foliar	0.030		500	3	10
Rice	Vietnam	EC	foliar	0.025		600		7
Sorghum	Australia	EC	foliar	0.04				7
Sorghum	South Africa	SC EC	foliar	0.0125		30 ✈		28
Soybean	Argentina	EC	foliar	0.015	0.01	150	2	14
Soybean	Brazil	SC	foliar	0.02	0.01	200	2	10
Soybean	Brazil	?	foliar	0.024	0.012	200	2	15
Soybean	Paraguay	SC	foliar	0.025		200	3	15
Soybean	Uruguay	EC	foliar	0.01	0.012	150	2	14
Spinach and similar	Greece	EC WG SC	foliar, field	0.03	0.0125	1000	1	7
Spinach and similar	Italy	WG	foliar, field	0.030	0.0075	1000	1	7
Strawberry	Cyprus	EC	foliar, field	0.03	0.015	1000	3	7
Strawberry	Cyprus	WG	foliar, field	0.015	0.030	1000	3	7
Strawberry	Denmark	EC	foliar, field	0.0125			2	3
Strawberry	France	EC WG	foliar, field	0.011	0.0035	800	2	3
Strawberry	Greece	EC WG SC	foliar, glasshouse	0.050	0.017	800	1	3
Strawberry	Greece	EC WG SC	foliar, field	0.030	0.01	800	1	3
Strawberry	Italy	WG	foliar, glasshouse	0.050	0.017	800	1	3
Strawberry	Italy	WG	foliar, field	0.030	0.01	1000	1	3
Sugar beet	Bulgaria	EC	foliar, field	0.0125	0.00625	300	2	24
Sugar beet	Denmark	EC	foliar, field	0.015			2	14
Sugar beet	Germany	SC	foliar, field	0.01		400	1	
Sugar beet	Greece	EC WG SC	foliar, field	0.03	0.015	400	1	14
Sugar beet	Italy	WG	foliar, field	0.030	0.0075	1000	1	14
Sugar beet	Spain	EC	foliar, field	0.03	0.006	500	1	7
Sugar beet	Sweden	EC	foliar, field	0.015			2	14
Tea	Taiwan	EC	foliar	0.03		1000		9
Tomato	Brazil	EC	foliar	0.03	0.01	1000	6	5
Tomato	Denmark	EC	foliar, glasshouse	0.015			2	7

Crop	Country	Application						PHI days
		Form	Type	Max rate kg ai/ha	Max conc kg ai/hL	Spray vol, L/ha	Max number	
Tomato	France	EC WG	foliar, field, glasshouse	0.011	0.0026	1000	2	3
Tomato	Greece	EC WG SC	foliar, field	0.03	0.0075	1000	1	7
Tomato	Greece	EC WG SC	foliar, glasshouse	0.050	0.0125	1000	1	7
Tomato	Italy	WG	foliar, field	0.030	0.0075	1000	1	7
Tomato	Italy	WG	foliar, glasshouse	0.05	0.0125	1000	1	7
Tomato	Romania	EC	foliar, field	0.02	0.002	1000	2	1
Tomato	Romania	EC	foliar, glasshouse	0.05	0.002	3000	1	
Tomato	South Africa	SC EC	foliar	0.01	0.001	500		4
Tomato	Spain	EC	foliar, field, glasshouse	0.03	0.003	1000	1	2
Turnip	Austria	?	foliar, field	0.01				56
Turnip	Germany	SC	foliar, field	0.0125		400	1	28
Vegetables [b]	Bulgaria	EC	foliar, field, glasshouse	0.03	0.015	400	2	7
Vegetables [c]	Bulgaria	EC	foliar, field, glasshouse	0.03	0.015	400	2	7
Vegetables [d]	Bulgaria	EC	foliar, field, glasshouse	0.03	0.015	400	2	7
Vegetables	Bulgaria	EC	foliar, field	0.03	0.015	400	2	7
Vegetables [f]	Bulgaria	EC	foliar, field	0.03	0.015	400	2	7
Vegetables [g]	Bulgaria	EC	foliar, field	0.03	0.015	400	2	7
Wheat	Brazil	SC	foliar	0.013	0.00318	200	2	14
Wheat	Bulgaria	EC	foliar, field	0.02	0.01	400	2	30
Wheat, spring	Denmark	EC	foliar, field	0.015			2	42
Wheat, spring	Finland	EC	foliar, field	0.015			2	42
Wheat, spring	Norway	EC	foliar, field	0.015			2	42
Wheat, spring	Sweden	EC	foliar, field	0.015			2	42
Wheat, winter	Denmark	EC	foliar, field	0.015			2	42
Wheat, winter	Finland	EC	foliar, field	0.015			2	42
Wheat, winter	Norway	EC	foliar, field	0.015			2	42
Wheat, winter	Sweden	EC	foliar, field	0.015			2	42

[a] Includes wheat, Barley, rye, triticale and oats

[b] Includes cucumber and melon

[c] Includes lettuce, spinach and leafy vegetables

[d] Includes eggplant, sweet pepper and tomatoes

[e] Includes broccoli, cauliflower, Brussels sprouts and cabbages

[f] Includes onions and leeks

[g] Includes peas and beans (with and without pods)

✈ Aerial application

In Australia, alpha-cypermethrin is registered for direct use on livestock as a pour-on formulation (50 g ai/L on sheep at an application rate of 5–20 mL product per sheep (DPI&F.ALPHA-CYPERMETHRIN.2008.1).

RESIDUES RESULTING FROM SUPERVISED TRIALS

The Meeting received information on supervised field trials for alpha-cypermethrin uses that produced residues on the following commodities.

Crop	Commodity	Table No.
Citrus	Citrus fruits	Table 12
Apples	Pome fruits	Table 13
Pears	Pome fruits	Table 14
Cherries	Stone fruits	Table 15
Peaches	Stone fruits	Table 16
Grapes	Berries and other small fruits	Table 17
Strawberries	Berries and other small fruits	Table 18
Olives	Tropical fruit, edible peel	Table 19
Leek	Bulb vegetables	Table 20
Onion	Bulb vegetables	Table 21
Broccoli	Brassica vegetables	Table 22
Brussels sprouts	Brassica vegetables	Table 23
Cabbage, head	Brassica vegetables	Table 24
Cauliflower	Brassica vegetables	Table 25
Cucumber	Cucurbits	Table 26
Melon	Cucurbits	Table 27
Eggplant	Fruiting vegetables	Table 28
Sweet peppers	Fruiting vegetables	Table 29
Sweet corn	Fruiting vegetables	Table 30
Tomato	Fruiting vegetables	Table 31
Kale	Leafy vegetables	Table 32
Leafy cabbage	Leafy vegetables	Table 33
Lambs lettuce	Leafy vegetables	Table 34
Lettuce	Leafy vegetables	Table 35
Spinach	Leafy vegetables	Table 36
Peas	Legume vegetables	Table 37
Beans	Legume vegetables	Table 38
Soya beans	Legume vegetables	Table 39
Potato	Root and tuber vegetables	Table 40
Sugar beet	Root and tuber vegetables	Table 41
Turnip	Root and tuber vegetables	Table 42
Asparagus	Stalk and stem vegetables	Table 43
Artichoke	Stalk and stem vegetables	Table 44
Barley	Cereal grains	Table 45
Maize	Cereal grains	Table 46
Oats	Cereal grains	Table 47
Rice	Cereal grains	Table 48
Sorghum	Cereal grains	Table 49
Wheat	Cereal grains	Table 50
Almond	Tree nuts	Table 51
Cotton	Oilseed	Table 52
Linseed	Oilseed	Table 53
Rapeseed	Oilseed	Table 54
Cocoa	Seed for beverages	Table 55
Parsley	Herbs	Table 56
Alfalfa	Legume animal feeds	Table 57
Pea fodder and forage	Legume animal feeds	Table 58
Bean fodder and forage	Legume animal feeds	Table 59
Barley fodder and forage	Straw, fodder and forage of cereal grains	Table 60
Maize fodder and forage	Straw, fodder and forage of cereal grains	Table 61

Crop	Commodity	Table No.
Oats fodder and forage	Straw, fodder and forage of cereal grains	Table 62
Rice fodder and forage	Straw, fodder and forage of cereal grains	Table 63
Wheat fodder and forage	Straw, fodder and forage of cereal grains	Table 64
Sugar beet leaves or tops	Miscellaneous fodder and forage	Table 65
Cotton fodder	Miscellaneous fodder and forage	Table 66
Rape seed fodder	Miscellaneous fodder and forage	Table 67
Hops	Dried herbs	Table 68
Tea	Teas	Table 69

Modern trials were generally well documented with laboratory and field reports; trials from the 1980s followed the standards of those times. Laboratory reports included method validation with procedural recoveries from spiking at residue levels similar to those occurring in samples from the supervised trials. Dates of analyses or duration of residue sample storage were also provided. Although trials included control plots, no control data are recorded in the tables except where residues in control samples exceeded the LOQ. Control samples are indicated in the summary tables with a "c". Residue data are recorded unadjusted for recovery.

In some studies, undetected residues were reported as < LOD (below limit of detection) and they are listed in the residue tables as < LOD. Residues that were detected but below the limit of quantification (LOQ) are listed as < 0.01 (the numerical value of the LOQ).

Residues, application rates and spray concentrations have generally been rounded to two significant figures or, for residues near the LOQ, to one significant figure. Residue values from the trials conducted according to maximum GAP have been used for the estimation of maximum residue levels. Those results included in the evaluation are double underlined.

In some trials, samples were taken just before the final application and then, again on the same day after the spray had dried. In the data tables the notation for these two sampling times is '0–' and '0+' respectively.

When multiple applications were made to a crop, the application rate, spray concentration and spray volume were not always identical from one application to the next. If the variation was small, only the final values for application rate, concentration and spray volume were recorded. For larger variations all values were recorded.

Conditions of the supervised residue trials were generally well reported in detailed field reports. Most trial designs used non-replicated plots. Most field reports provided data on the sprayers used, plot size, field sample size and sampling date.

Table 12 Alpha-cypermethrin residues in citrus fruits resulting from supervised trials with alpha-cypermethrin in Spain

CITRUS FRUITS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Spain, 1983 (Berna) lemons	EC	0.175	0.00175		1	0 7 14	whole fruit	0.12 0.17 0.07	AL-710-002
Spain, 1983 (Berna) lemons	EC	0.20	0.002		1	0 7 14 0 7 14 0 7 14	whole fruit whole fruit whole fruit peel peel peel flesh flesh flesh	0.11 0.17 0.12 0.30 0.44 0.34 < 0.01 < 0.01 < 0.01	AL-710-002

CITRUS FRUITS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Spain, 1983 (Meserofino) lemons	EC	0.175	0.00175		1	0 7 14	whole fruit	0.14 0.13 0.07	AL-710-002
Spain, 1983 (Meserofino) lemons	EC	0.20	0.002		1	0 7 14	whole fruit	0.13 0.17 0.16	AL-710-002
Spain, 1983 (Navel) oranges	EC	0.175	0.00175		2	61 91 61 91 61 91	whole fruit whole fruit peel peel flesh flesh	0.03 0.02 0.10 0.05 < 0.01 < 0.01	AL-710-003
Spain, 1983 (Navel) oranges	EC	0.20	0.002		2	61 91 61 91 61 91	whole fruit whole fruit peel peel flesh flesh	0.05 0.02 0.16 0.07 < 0.01 < 0.01	AL-710-003
Spain, 1983 (Navel) oranges	EC	0.175	0.00175		2	61 91 61 91 61 91	whole fruit whole fruit peel peel flesh flesh	0.03 0.02 0.08 0.04 < 0.01 < 0.01	AL-710-003
Spain, 1983 (Navel) oranges	EC	0.20	0.002		2	61 91 61 91 61 91	whole fruit whole fruit peel peel flesh flesh	0.05 0.02 0.12 0.05 < 0.01 < 0.01	AL-710-003
Spain, 1983 (Satsuma) mandarins	EC	0.175	0.00175		2	30 61 30 61 30 61	whole fruit whole fruit peel peel flesh flesh	0.10 0.03 0.36 0.10 < 0.01 < 0.01	AL-710-001
Spain, 1983 (Satsuma) mandarins	EC	0.20	0.002		2	30 61 30 61 30 61	whole fruit whole fruit peel peel flesh flesh	0.20 0.03 0.60 0.11 < 0.01 < 0.01	AL-710-001
Spain, 1983 (Satsuma) mandarins	EC	0.175	0.00175		2	30 61 30 61 30 61	whole fruit whole fruit peel peel flesh flesh	0.08 0.06 0.26 0.18 < 0.01 < 0.01	AL-710-001
Spain, 1983 (Satsuma) mandarins	EC	0.20	0.002		2	30 61 30 61 30 61	whole fruit whole fruit peel peel flesh flesh	0.12 0.05 0.38 0.16 < 0.01 < 0.01	AL-710-001

Table 13 Alpha-cypermethrin residues in apples resulting from supervised trials with alpha-cypermethrin in Canada, France, Germany and UK

APPLES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Canada, 1982 (Spy)	EC	0.040	0.00119	3370 runoff	1	14 14 30 60 14 30 60	apples apples apples apples peeled apples peeled apples peeled apples	< 0.01 0.02 0.02 0.01 0.02 0.03 0.03 0.03 0.01 0.02 < 0.01 0.01 < 0.01 (5) < 0.01 (3) < 0.01 (4)[a]	AL-711-006
Canada, 1983 (Spy)	EC	0.040	0.0073	550	1	28	apples[b]	0.08	AL-711-008
Canada, 1984 (McIntosh)	EC	0.040	0.008	500	1	28	apples[b]	0.03	AL-711-008
France, 1980 (Golden Delicious) apple	EC cyper	0.025	0.0025		7	28	apples peeled apples	0.05 cyper < 0.01	AL-711-001
France, 1980 (Golden Delicious) apple	EC cis-cyp	0.017	0.0017		7	28	apples peeled apples	0.04 cis-cyper < 0.01	AL-711-001
France, 1980 (Golden Delicious) apple	EC	0.0125	0.00125		7	28	apples peeled apples	0.04 < 0.01	AL-711-001
France, 1981 (Cardinal)	EC	0.009	0.0009	1000	1	0 3 7 0 3 7	apples apples apples peeled apples peeled apples peeled apples	0.02 0.02 0.01 < 0.01 < 0.01 < 0.01	AL-711-005
France, 1981 (Cardinal)	EC	0.015	0.0015	1000	1	0 3 7 0 3 7	apples apples apples peeled apples peeled apples peeled apples	0.01 0.02 0.01 < 0.01 < 0.01 < 0.01	AL-711-005
France, 1981 (Golden Delicious)	EC	0.009	0.0009	1000	1	0 7 14 0 7 14	apples apples apples peeled apples peeled apples peeled apples	0.04 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	AL-711-005
France, 1981 (Golden Delicious)	EC	0.015	0.0015	1000	1	0 7 14 0 7 14	apples apples apples peeled apples peeled apples peeled apples	0.07 0.05 < 0.01 < 0.01 < 0.01 < 0.01	AL-711-005
Germany, 1984	EC	0.0225	0.0015	1500	5	0 7 14 21	apples apples apples apples	0.05 0.07 0.08 0.05	AL-711-007
Germany, 1984 (Golden Delicious)	EC	0.0225	0.0015	1500	5	0 7 14 21	apples apples apples apples	0.22 0.17 0.16 0.17	AL-711-007
Germany, 1984 (Holsteiner Cox)	EC	0.0225	0.0015	1500	5	0 7 14 21	apples apples apples apples	0.08 0.05 0.04 0.03	AL-711-007

APPLES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Germany, 1984 (Jonathan)	EC	0.0225	0.0015	1500	5	0 7 14 21	apples apples apples apples	0.09 0.08 0.04 0.06	AL-711-007
Germany, 1984 (Jonathan)	EC	0.0225	0.0015	1500	5	0 7 14 21 	apples apples apples apples flesh	0.08 0.05 0.04 0.05 < 0.01	AL-711-007
Germany, 1984 (Melrose)	EC	0.0225	0.0015	1500	5	0 7 14 21	apples apples apples apples	0.10 0.05 0.05 0.03	AL-711-007
UK, 1980 (Worcester)	EC		0.010		1	109	apples peeled apples	< 0.01 < 0.01	AL-711-002
UK, 1980 (Worcester)	EC		0.010		1	109	apples peeled apples	< 0.01 < 0.01	AL-711-002

[a] Canadian trial AL-711-006. Replicate samples were analysed at day 14 (5), day 30 (3) and day 60 (4).

[b] Canadian trial AL-711-008. Samples in freezer storage before analysis for approximately 430 and 800 days

Table 14 Alpha-cypermethrin residues in pears resulting from supervised trials with alpha-cypermethrin in Canada

PEARS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Canada, 1982 (Keiffer)	EC	0.040	0.0012	3370 runoff	1	14 14 30 30 60 60	pears peeled pears pears peeled pears pears peeled pears	0.03 0.01 0.04 0.02 0.03 < 0.01 (5) 0.04 0.05 0.04 0.03 < 0.01 (4) 0.02 (6) < 0.01 (6)[a]	AL-711-010
Canada, 1984 (Bartlett)	EC	0.020	0.004	500	1	21	pears	0.02	AL-711-011
Canada, 1984 (Bartlett)	EC	0.04	0.008	500	1	21	pears	0.04	AL-711-011

[a] Canadian trial AL-711-010. Replicate samples were analysed at day 14 (5), day 30 (4) and day 60 (6).

Table 15 Alpha-cypermethrin residues in cherries resulting from supervised trials with alpha-cypermethrin in France

CHERRIES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
France, 1988 (Sunburst)	WG	0.015	0.0015	1000	2	7	flesh whole fruit[a]	0.07 0.06	AL-713-015

CHERRIES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
France, 1998 (Sunburst)	WG	0.015	0.0015	1000	2	0- 0+ 3 7 14 0- 0+ 3 7 14	flesh flesh flesh flesh flesh whole fruit[a] whole fruit whole fruit whole fruit whole fruit	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-713-016
France, 1998 (Summit)	WG	0.015	0.0015	990	2	0– 0+ 3 7 14 21 0– 0+ 3 7 14 21	flesh flesh flesh flesh flesh flesh whole fruit[a] whole fruit whole fruit whole fruit whole fruit whole fruit	< 0.05 0.11 0.14 0.12 0.05 0.06 < 0.05 0.10 0.13 0.11 < 0.05 0.06	AL-713-016

[a] Residues measured on flesh and calculated on whole fruit.

Table 16 Alpha-cypermethrin residues in peaches resulting from supervised trials with alpha-cypermethrin in France and South Africa

PEACHES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
France, 1980 (Cardinal)	EC cyper	0.050		630	1	52	peaches peeled peaches	0.01 cyper < 0.01	AL-712-001
France, 1980 (Cardinal)	EC cis-cyp	0.033		630	1	52	peaches peeled peaches	< 0.01 cis-cyper < 0.01	AL-712-001
France, 1980 (Cardinal)	EC	0.025		630	1	52	peaches peeled peaches	< 0.01 < 0.01	AL-712-001
France, 1981 (Redhaven)	EC	0.015	0.0015	1000	1	0 3 7 0 3 7	peaches peaches peaches peeled peaches peeled peaches peeled peaches	0.05 0.03 0.02 < 0.01 < 0.01 < 0.01	AL-712-002
France, 1981 (Redhaven)	EC	0.025	0.0025	1000	1	0 3 7 0 3 7	peaches peaches peaches peeled peaches peeled peaches peeled peaches	0.06 0.05 0.04 0.01 < 0.01 < 0.01	AL-712-002
South Africa, 1985	EC		0.00025	runoff	3	14	peaches[a]	< 0.05 (2)	AL-712-003
South Africa, 1985	EC		0.0005	runoff	3	14	peaches[a]	< 0.05 (2)	AL-712-003
South Africa, 1985	EC		0.001	runoff	3	14	peaches[a]	< 0.05 (2)	AL-712-003
South Africa, 1985	SC		0.00025	runoff	3	14	peaches[a]	< 0.05 (2)	AL-712-003

PEACHES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
South Africa, 1985	SC		0.0005	runoff	3	14	peaches[a]	0.06 0.09	AL-712-003
South Africa, 1985	SC		0.001	runoff	3	14	peaches[a]	0.09 0.06	AL-712-003

[a] Fruit without stone. Results adjusted for recovery. No field report.

Table 17 Alpha-cypermethrin residues in grapes resulting from supervised trials with alpha-cypermethrin in France, Germany, Greece, Italy and Spain

GRAPES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
France, 1980 (Carignan)	EC cyper	0.030	0.0075	400	1	77	grapes	0.11 cyper	AL-713-001
France, 1980 (Carignan)	EC cis-cyper	0.020	0.005	400	1	77	grapes	0.01 cis-cyper	AL-713-001
France, 1980 (Carignan)	EC	0.015	0.0037	400	1	77	grapes	< 0.01	AL-713-001
France, 1981 (55)	EC	0.011		400	1	0 3 7	grapes	< 0.01 < 0.01 < 0.01	AL-713-002
France, 1981 (55)	EC	0.018		400	1	0 3 7	grapes	< 0.01 < 0.01 < 0.01	AL-713-002
France, 1981 (Aubun)	EC	0.011		1000	1	0 3 7	grapes	0.03 < 0.01 < 0.01	AL-713-002
France, 1981 (Aubun)	EC	0.018		1000	1	0 3 7	grapes	0.10 0.07 0.06	AL-713-002
France, 1981 (Cuisault)	EC	0.011		500	1	0 3 7	grapes	0.07 0.09 0.03	AL-713-002
France, 1981 (Cuisault)	EC	0.018		500	1	0 3 7	grapes	0.06 0.05 0.04	AL-713-002
France, 1981 (Grenache)	EC	0.011		500	1	0 3 7	grapes	0.20 0.05 0.08	AL-713-002
France, 1981 (Grenache)	EC	0.018		500	1	0 3 7	grapes	0.06 0.17 0.09	AL-713-002
France, 1982 (Cabernet franc)	EC	0.015		500	1	0 3 7	grapes	0.01 < 0.01 < 0.01	AL-713-004
France, 1982 (Cabernet franc)	SC	0.015		500	1	0 3 7	grapes	0.01 < 0.01 < 0.01	AL-713-004

GRAPES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
France, 1982 (Cabernet franc)	WP	0.015		500	1	0 3 7	grapes	< 0.01 < 0.01 < 0.01	AL-713-004
France, 1982 (Chasseslas)	EC cyper	0.030		450	1	0 3 7	grapes	0.06 cyper 0.05 cyper 0.01 cyper	AL-713-003
France, 1982 (Chasseslas)	EW	0.030		450	1	0 3 7	grapes	0.12 cyper 0.07 cyper 0.06 cyper	AL-713-003
France, 1982 (Chasseslas)	EC	0.015		450	1	0 3 7	grapes	0.10 0.09 0.08	AL-713-003
France, 1982 (Gamay)	EC	0.015		600	1	0 2 7	grapes	0.01 < 0.01 < 0.01	AL-713-004
France, 1982 (Gamay)	SC	0.015		600	1	0 2 7	grapes	< 0.01 < 0.01 < 0.01	AL-713-004
France, 1982 (Gamay)	WP	0.015		600	1	0 2 7	grapes	0.01 < 0.01 0.01	AL-713-004
France, 1982 (Grenache)	EC	0.015		500	1	0 3 7	grapes	0.10 0.02 0.01	AL-713-004
France, 1982 (Grenache)	SC	0.015		500	1	0 3 7	grapes	0.01 0.02 < 0.01	AL-713-004
France, 1982 (Grenache)	WP	0.015		500	1	0 3 7	grapes	0.01 < 0.01 < 0.01	AL-713-004
France, 1983 (Muscat)[a]	EC	0.018	0.0035	500	1	0 6 14 21	grapes	0.03 0.02 0.02 0.02	AL-713-005
France, 2003 (Barbera)	EC	0.015	0.0019	800	1	0 3 6 14	grapes	< 0.05 < 0.05 < 0.05 < 0.05	2005/1006474
France, 2003 (Barbera)	EC	0.015	0.0019	800	2	0 3 6 14	grapes	< 0.05 < 0.05 < 0.05 < 0.05	2005/1006474
France, 2003 (Chardonnay)	EC	0.015	0.0019	800	1	0 3 7 14	grapes	< 0.05 < 0.05 < 0.05 < 0.05	2005/1006474
France, 2003 (Chardonnay)	EC	0.015	0.0019	800	2	0 3 7 14	grapes	< 0.05 < 0.05 < 0.05 < 0.05	2005/1006474

GRAPES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
France, 2003 (Grolleau)	EC	0.015	0.0019	800	1	0 3 6 14	grapes	< 0.05 < 0.05 < 0.05 < 0.05	2005/1006474
France, 2003 (Grolleau)	EC	0.015	0.0019	800	2	0 3 6 14	grapes	< 0.05 < 0.05 < 0.05 < 0.05	2005/1006474
France, 2003 (Pinot Noir)	EC	0.015	0.0019	800	1	0 3 7 14	grapes	< 0.05 < 0.05 < 0.05 < 0.05	2005/1006474
France, 2003 (Pinot Noir)	EC	0.015	0.0019	800	2	0 3 7 14	grapes	< 0.05 < 0.05 < 0.05 < 0.05	2005/1006474
France, 2004 (Auxerrois)	SC	0.015	0.0019	800	1	0 3 7 14	grapes	< 0.01 < 0.01 0.01 < 0.01	2005/1007591
France, 2004 (Auxerrois)	SC	0.015	0.0019	800	2	0 3 7 14	grapes	0.018 0.015 0.018 0.013	2005/1007591
France, 2004 (Chenin)	SC	0.015	0.0019	800	1	0 3 7 14	grapes	0.021 0.012 < 0.01 0.014	2005/1007591
France, 2004 (Chenin)	SC	0.015	0.0019	800	2	0 3 7 14	grapes	0.014 0.019 0.019 0.020	2005/1007591
France, 2004 (Negrette)	SC	0.015	0.0019	800	2	0 2 7 13	grapes	0.084 0.034 0.036 0.061	2005/1007589
France, 2004 (Syrah)	SC	0.015	0.0019	800	2	0 2 7 13	grapes	0.090 0.084 0.055 0.069	2005/1007589
France, 2005 (Chardonnay)	EC	0.013	0.0013	1000	1	0 2 7 14	grape bunches	0.049 0.033 0.031 0.033	2006/1026853
France, 2005 (Chardonnay)	EC	0.013	0.0013	1000	2	0 2 7 14	grape bunches	0.082 0.077 0.064 0.063	2006/1026853
France, 2005 (Gamay)	EC	0.013	0.0013	1000	1	0 4 8 14	grape bunches	0.035 0.044 0.020 0.027	2006/1026853

GRAPES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
France, 2005 (Gamay)	EC	0.013	0.0013	1000	2	0 4 8 14	grape bunches	0.071 0.036 0.034 0.051	2006/1026853
France, 2005 (Grolleau)	EC	0.013	0.0013	1000	1	0 3 7 14	grape bunches	0.019 0.026 0.021 0.015	2006/1026853
France, 2005 (Grolleau)	EC	0.013	0.0013	1000	2	0 3 7 14	grape bunches	0.026 0.028 0.033 0.013	2006/1026853
France, 2006 (Chardonnay)	EC	0.011	0.001	910	1	0 3 6 15	grapes	< 0.01 < 0.01 < 0.01 < 0.01	2007/1008492
France, 2006 (Chardonnay)	EC	0.014 0.013	0.001	1090 1040	2	0 3 6 15	grapes	0.018 0.016 0.012 0.012	2007/1008492
France, 2006 (Chardonnay)	EC	0.013	0.001	1060	1	0 4 8 14	grapes	0.012 0.010 0.011 < 0.01	2007/1008492
France, 2006 (Chardonnay)	EC	0.011 0.013	0.001	920 1060	2	0 4 8 14	grapes	0.017 0.025 0.019 0.010	2007/1008492
France, 2006 (Grenache)	EC	0.012	0.001	990	1	0 3 7 14	grapes	0.014 0.014 < 0.01 < 0.01	2007/1008492
France, 2006 (Grenache)	EC	0.012 0.013	0.001	980 1040	2	0 3 7 14	grapes	0.029 0.015 0.015 0.011	2007/1008492
Germany, 2004 (Gewuerztraminer)	SC	0.015	0.0019	800	1	0 3 7 14	grapes	0.013 0.046 < 0.01 0.011	2005/1007591
Germany, 2004 (Gewuerztraminer)	SC	0.015	0.0019	800	2	0 3 7 14	grapes	0.045 0.01 0.031 0.029	2005/1007591
Germany, 2004 (Spaetburgunder)	SC	0.015	0.0019	800	1	0 3 7 14	grapes	0.013 0.011 0.011 < 0.01	2005/1007591
Germany, 2004 (Spaetburgunder)	SC	0.015	0.0019	800	2	0 3 7 14	grapes	0.027 0.026 0.030 0.024	2005/1007591

GRAPES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Germany, 2005 (Müller-Thurgau)	EC	0.013	0.0013	1000	1	0 3 7 14	grape bunches	< 0.05 < 0.05 < 0.05 < 0.05	2006/1026853
Germany, 2005 (Müller-Thurgau)	EC	0.013	0.0013	1000	2	0 3 7 14	grape bunches	< 0.05 < 0.05 < 0.05 < 0.05	2006/1026853
Germany, 2005 (Riesling)	EC	0.013	0.0013	1000	1	0 3 7 14	grape bunches	< 0.01 < 0.01 < 0.01 0.013	2006/1026853
Germany, 2005 (Riesling)	EC	0.013	0.0013	1000	2	0 3 7 14	grape bunches	0.016 < 0.01 0.028 0.037	2006/1026853
Germany, 2006 (Mueller-Thurgau)	EC	0.013	0.001	970	1	0 3 7 14	grapes	0.012 < 0.01 < 0.01 0.016	2007/1008492
Germany, 2006 (Mueller-Thurgau)	EC	0.013	0.001	980	2	0 3 7 14	grapes	0.016 0.014 0.020 0.021	2007/1008492
Germany, 2006 (Phoenix)	EC	0.014	0.001	1140	1	0 3 7 14	grapes	< 0.01 < 0.01 < 0.01 < 0.01	2007/1008492
Germany, 2006 (Phoenix)	EC	0.012	0.001	1000	2	0 3 7 14	grapes	0.013 0.01. 0.014 0.028	2007/1008492
Greece, 2004 (Xinomavro)	SC	0.015	0.0019	800	2	0 2 7 13	grapes	0.079 0.027 0.048 0.045	2005/1007589
Greece, 2004 (Xinomavro)	SC	0.015	0.0019	800	2	0 2 7 13	grapes	0.075 0.054 0.051 0.043	2005/1007589
Greece, 2005 (Roditis)	EC	0.013	0.0013	1000	1	0 3 7 14	grape bunches	< 0.01 0.019 0.012 < 0.01	2006/1026853
Greece, 2005 (Roditis)	EC	0.013	0.0013	1000	2	0 3 7 14	grape bunches	0.030 0.035 < 0.01 < 0.01	2006/1026853
Greece, 2006 (Muscat)	EC	0.013	0.001	1010	1	0 3 7 13	grapes	< 0.01 < 0.01 < 0.01 < 0.01	2007/1008492

GRAPES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Greece, 2006 (Muscat)	EC	0.012 0.013	0.001	850 1020	2	0 3 7 13	grapes	0.022 0.011 0.012 < 0.01	2007/1008492
Italy, 2003 (Barbera)	EC	0.015	0.0019	800	2	0 3 6 14	grape bunches	< 0.05 < 0.05 < 0.05 < 0.05	2005/1004977
Italy, 2003 (Croatina)	EC	0.015	0.0019	800	2	0 3 6 14	grape bunches	< 0.05 < 0.05 < 0.05 < 0.05	2005/1004977
Italy, 2005 (Montuni)	EC	0.013	0.0013	1000	1	0 3 7 14	grape bunches	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026853
Italy, 2005 (Montuni)	EC	0.013	0.0013	1000	2	0 3 7 14	grape bunches	0.02 < 0.01 < 0.01 < 0.01	2006/1026853
Italy, 2006 (Barbera)	EC	0.013	0.001	1030	1	0 4 6 13	grapes	0.029 0.016 0.014 0.011	2007/1008492
Italy, 2006 (Barbera)	EC	0.013 0.012	0.001	1020 970	2	0 4 6 13	grapes	0.043 0.035 0.030 0.025	2007/1008492
Spain, 2003 (Airen)	EC	0.015	0.0019	800	2	0 3 7 14	grape bunches	< 0.05 < 0.05 < 0.05 < 0.05	2005/1004977
Spain, 2003 (Cardenal)	EC	0.015	0.0019	800	2	0 3 7 14	grape bunches	< 0.05 < 0.05 < 0.05 < 0.05	2005/1004977
Spain, 2005 (Macabeo)	EC	0.013	0.0013	1000	1	0 3 7 14	grape bunches	0.021 0.039 0.013 0.019	2006/1026853
Spain, 2005 (Macabeo)	EC	0.013	0.0013	1000	2	0 3 7 14	grape bunches	0.035 0.027 0.045 0.020	2006/1026853
Spain, 2006 (Tempranillo)	EC	0.013	0.001	1010	1	0 3 7 13	grapes	0.043 0.026 0.043 0.023	2007/1008492
Spain, 2006 (Tempranillo)	EC	0.013	0.001	1000	2	0 3 7 13	grapes	0.035 0.029 0.028 0.039	2007/1008492

[a] No field report.

Table 18 Alpha-cypermethrin residues in strawberries resulting from supervised trials with alpha-cypermethrin in Belgium, France, Germany, Greece, Italy, Netherlands, Spain and UK

STRAWBERRIES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Belgium, 2005 (Darselect)	EC	0.039	0.0133	300	1	0 3 8	strawberries	0.047 0.040 0.023	2007/1007935
Belgium, 2005 (Elsanta)[b]	EC	0.013	0.004	310	1	0 1 3 7	strawberries	< 0.01 0.01 < 0.01 < 0.01	2007/1008489
Belgium, 2005 (Elsanta)[b]	EC	0.013	0.004	310	2	0 1 3 7	strawberries	0.012 0.012 < 0.01 < 0.01	2007/1008489
France, 1992 (Seascape)[a]	EC	0.010	0.001	1000	1	3	strawberries	0.005	AL-713-012
France, 1992 (Selva)[a]	EC	0.010	0.001	1000	1	3	strawberries	0.006	AL-713-012
France, 1997 (Pajaro) indoor	WG	0.011	0.0013	800	2	3	strawberries	< 0.05	AL-713-018
France, 1997 (Pajaro) indoor	WG	0.011	0.0013	800	2	3	strawberries	< 0.05	AL-713-018
France, 1997 (Selva) indoor	WG	0.011	0.0021	500	2	3	strawberries	< 0.05	AL-713-018
France, 1998 (Gariguette) glasshouse	WG	0.011	0.0022	470	2	0– 0+ 3 7 13 21	strawberries	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-713-017
France, 1998 (Pajaro) glasshouse	WG	0.011	0.0026	400	2	0– 0+ 3 7 14 21	strawberries	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-713-017
France, 2005 (Cariguette)[b]	EC	0.026	0.006	410	1	0 1 3 7	strawberries	0.012 0.011 < 0.01 < 0.01	2007/1008489
France, 2005 (Cirrafine)	EC	0.043	0.0133	320	1	0 3 7	strawberries	0.056 0.054 0.041	2007/1007935
France, 2005 (Cirrafine)[b]	EC	0.012	0.004	300	1	0 1 3 6	strawberries	0.032 0.029 0.022 0.017	2007/1008489
France, 2005 (Cirrafine)[b]	EC	0.012	0.004	300	2	0 1 3 6	strawberries	0.049 0.042 0.031 0.02	2007/1008489
France, 2005 (Dark Select)	EC	0.040	0.0133	300	1	0 3 7	strawberries	< 0.01 < 0.01 < 0.01	2007/1007935

STRAWBERRIES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
France, 2006 (Cleret)	EC	0.026	0.006	420	1	0 1 3 7	strawberries	0.015 0.030 0.018 < 0.01	2007/1008493
France, 2006 (Florence)	EC	0.012	0.004	290	1	0 1 3 7	strawberries	0.01 < 0.01 < 0.01 < 0.01	2007/1008493
France, 2006 (Florence)	EC	0.014 0.012	0.004	330 290	2	0 1 3 7	strawberries	0.018 0.018 < 0.01 < 0.01	2007/1008493
Germany, 2005 (Avanta)	EC	0.037	0.0133	280	1	0 3 7	strawberries	< 0.01 < 0.01 < 0.01	2007/1007935
Germany, 2005 (Chandler)[b]	EC	0.012	0.004	280	1	0 1 3 7	strawberries	< 0.02 < 0.01 < 0.01 < 0.01	2007/1008489
Germany, 2005 (Chandler)[b]	EC	0.012	0.004	280	2	0 1 3 7	strawberries	0.01 < 0.01 < 0.01 < 0.01	2007/1008489
Germany, 2005 (Rosella)	EC	0.039	0.0133	290	1	0 3 7	strawberries	0.01 < 0.01 < 0.01	2007/1007935
Germany, 2006 (Florence)	EC	0.013	0.004	310	1	0 1 2 8	strawberries	< 0.01 < 0.01 < 0.01 < 0.01	2007/1008493
Germany, 2006 (Florence)	EC	0.013	0.004	310	2	0 1 2 8	strawberries	< 0.01 < 0.01 < 0.01 < 0.01	2007/1008493
Greece, 2005 (Aroma)	EC	0.039	0.0133	300	1	0 3 7	strawberries	0.060 0.048 0.035	2007/1007935
Greece, 2006 (Aroma)	EC	0.025	0.006	400	1	0 1 3 6	strawberries	< 0.01 < 0.01 < 0.01 < 0.01	2007/1008493
Italy, 2005 (Alba)	EC	0.045	0.0133	340	1	0 3 7	strawberries	0.037 0.029 0.015	2007/1007935
Italy, 2005 (Granada)[b]	EC	0.024	0.006	380	1	0 1 3 7	strawberries	0.015 < 0.01 < 0.01 < 0.01	2007/1008489
Italy, 2005 (Grande)[b]	EC	0.028	0.006	450	1	0 1 7	strawberries	0.038 0.028 0.022	2007/1008489
Italy, 2006 (Marmohede)	EC	0.027	0.006	430	1	0 1 3 7	strawberries	0.016 0.019 < 0.01 < 0.01	2007/1008493

STRAWBERRIES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Netherlands, 2006 (Elsanta)	EC	0.013	0.004	310	1	0 1 4 8	strawberries	< 0.01 < 0.01 < 0.01 < 0.01	2007/1008493
Netherlands, 2006 (Elsanta)	EC	0.013	0.004	300	2	0 1 4 8	strawberries	< 0.01 < 0.01 < 0.01 < 0.01	2007/1008493
Spain, 2005 (Plantafrigo)[b]	EC	0.026	0.006	420	1	0 1 3 7	strawberries	< 0.01 < 0.01 < 0.01 < 0.01	2007/1008489
Spain, 2005 (Ventana)	EC	0.040	0.0133	300	1	0 3 7	strawberries	0.01 < 0.01 < 0.01	2007/1007935
Spain, 2006 (Camarosa)	EC	0.025	0.006	400	1	0 1 3 8	strawberries	0.026 0.017 0.017 0.015	2007/1008493
UK, 2005 (Florence)[b]	EC	0.012	0.004	290	1	0 1 3 7	strawberries	< 0.01 < 0.01 < 0.01 < 0.01	2007/1008489
UK, 2005 (Florence)[b]	EC	0.012	0.004	290 310	2	0 1 3 7	strawberries	< 0.01 < 0.01 < 0.01 < 0.01	2007/1008489
UK, 2006 (Pegasus)	EC	0.014	0.004	350	1	0 1 3 7	strawberries	0.01 0.01 < 0.01 < 0.01	2007/1008493
UK, 2006 (Pegasus)	EC	0.014	0.004	330	2	0 1 3 7	strawberries	0.020 0.027 0.018 0.023	2007/1008493

[a] No field report.

[b] No analytical report.

Table 19 Alpha-cypermethrin residues in olives resulting from supervised trials with alpha-cypermethrin in Greece and Spain

OLIVES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Greece, 2003 (Amfisis)	EC	0.015	0.0015	1000	1	0 4 8 15	olives	< 0.05 < 0.05 < 0.05 < 0.05	2005/1004975
Greece, 2003 (Amfisis)	EC	0.015	0.0015	1000	2	0 4 8 15	olives	< 0.05 < 0.05 < 0.05 < 0.05	2005/1004975

OLIVES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Greece, 2003 (Koroneiki)	EC	0.015	0.0015	1000	1	0 3 7 14	olives	< 0.05 < 0.05 0.066 < 0.05	2005/1004975
Greece, 2003 (Koroneiki)	EC	0.015	0.0015	1000	2	0 3 7 14	olives	< 0.05 < 0.05 < 0.05 < 0.05	2005/1004975
Greece, 2004 (Halkidikis)	SC	0.015	0.0015	1000	1	0 3 7 14	olives	0.02 0.02 0.05 0.01 c[a]	2005/1007582
Greece, 2004 (Halkidikis)	SC	0.015	0.0015	1000	2	0 3 7 14	olives	0.02 0.04 0.04 0.02 c[a]	2005/1007582
Greece, 2004 (Halkidikis)	SC	0.015	0.0015	1000	1	0 3 7 14	olives	0.02 < 0.01 < 0.01 < 0.01 c[a]	2005/1007582
Greece, 2004 (Halkidikis)	SC	0.015	0.0015	1000	2	0 3 7 14	olives	0.03 < 0.01 < 0.01 < 0.01 c[a]	2005/1007582
Spain, 2003 (Manzanilla)	EC	0.015	0.0015	1000	1	0 3 6 14	olives	< 0.05 < 0.05 < 0.05 < 0.05	2005/1004975
Spain, 2003 (Manzanilla)	EC	0.015	0.0015	1000	2	0 3 6 14	olives	< 0.05 < 0.05 < 0.05 < 0.05	2005/1004975
Spain, 2003 (Manzanilla)	EC	0.015	0.0015	1000	1	0 3 6 14	olives	< 0.05 < 0.05 < 0.05 < 0.05	2005/1004975
Spain, 2003 (Manzanilla)	EC	0.015	0.0015	1000	2	0 3 6 14	olives	< 0.05 < 0.05 < 0.05 < 0.05	2005/1004975
Spain, 2004 (Manzanilla)	SC	0.015	0.0015	1000	1	0 3 7 13	olives	0.01 0.02 0.02 0.02 c[b]	2005/1007582
Spain, 2004 (Manzanilla)	SC	0.015	0.0015	1000	2	0 3 7 13	olives	0.04 0.04 0.04 0.04 c[b]	2005/1007582

OLIVES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Spain, 2004 (Manzanilla)	SC	0.015	0.0015	1000	1	0 3 7 13	olives	0.09 0.10 0.09 0.06 c[b]	2005/1007582
Spain, 2004 (Manzanilla)	SC	0.015	0.0015	1000	2	0 3 7 13	olives	0.16 0.08 0.09 0.07 c[b]	2005/1007582

[a] Residues in samples from control plot < 0.01, 0.04, 0.01 and < 0.01 mg/kg

[b] Residues in samples from control plot < 0.01, 0.04 and 0.03 mg/kg

Table 20 Alpha-cypermethrin residues in leeks resulting from supervised trials with alpha-cypermethrin in Belgium, France, Germany, Netherlands, Spain and UK

LEEKS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg [a]	
Belgium, 2006 (Ashton)	EC	0.013	0.003	400	1	0 3 7 14	whole plant	0.021 0.029 0.020 0.015	2007/1008498
Belgium, 2006 (Ashton)	EC	0.013	0.003	390	2	0 3 7 14	whole plant	0.048 0.038 0.039 0.026	2007/1008498
France, 1985 (Armor)	EC	0.013	0.0013	1000	1	0 7 17	whole plant	0.05 0.02 < 0.01	AL-722-002
France, 1985 (Labrador)	EC	0.013	0.0025	500	1	0 8 14	whole plant	0.06 0.03 0.02	AL-722-002
France, 1985 (Maxine)	EC	0.013	0.0021	600	1	0 7 14	whole plant	0.14 0.10 0.03	AL-722-002
France, 1985 (Triomphator)	EC	0.013	0.0025	500	1	0 7 14	whole plant	0.06 0.01 < 0.01	AL-722-002
France, 1991 (Carina Gaillard)	EC	0.050	0.0013	400	3	14 21 28	whole plant	0.05 0.04 0.02	AL-722-003
France, 2005 (Pegasus)	EC	0.025	0.006	400	1	0 3 7 14	plant without roots	0.093 0.062 0.045 0.030	2006/1026850
France, 2005 (Ventura)	EC	0.013	0.003	400	1	0 3 7 14	plant without roots	0.059 0.052 0.037 0.017	2006/1026850

LEEKS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg [a]	
France, 2005 (Ventura)	EC	0.013	0.003	400	2	0 3 7 14	plant without roots	0.083 0.070 0.053 0.034	2006/1026850
France, 2006 (Pasteur)	EC	0.013	0.003	440	1	0 3 7 13	whole plant	0.026 0.024 0.016 < 0.01	2007/1008498
France, 2006 (Pasteur)	EC	0.013	0.003	440	2	0 3 7 13	whole plant	0.032 0.029 0.018 0.01	2007/1008498
France, 2006 (Selecta)	EC	0.026	0.006	410	1	0 3 7 14	whole plant	0.14 0.032 < 0.01 < 0.01	2007/1008498
Germany, 1994 (Albana)	SC	0.009			3	0 7 10 14 21	whole plant	0.09 0.04 0.02 < 0.01 0.01	AL-722-004
Germany, 1994 (Albana)	SC	0.009			3	0 7 10 15 21	whole plant	0.03 0.01 0.02 < 0.01 < 0.01	AL-722-004
Germany, 1994 (Rami)	SC	0.009			3	0 7 9 14	whole plant	0.03 0.02 < 0.01 < 0.01	AL-722-004
Germany, 1994 (Rami)	SC	0.009			3	0 6 9 13 20	whole plant	0.02 0.01 < 0.01 < 0.01 < 0.01	AL-722-004
Germany, 1995 (Rami)	SC	0.009	0.0023	400	3	14	plant without roots	0.02	AL-722-005
Germany, 1995 (Rami)	SC	0.009	0.0023	400	3	14	plant without roots	0.01	AL-722-005
Germany, 1995 (Rami)	SC	0.009	0.0023	400	3	14	plant without roots	0.02	AL-722-005
Germany, 1995 (Rami)	SC	0.009	0.0023	400	3	14	plant without roots	0.03	AL-722-005
Germany, 2005 (Teuton)	EC	0.013	0.003	400	1	0 3 7 14	plant without roots	0.056 0.055 0.046 0.033	2006/1026850
Germany, 2005 (Teuton)	EC	0.013	0.003	400	2	0 3 7 14	plant without roots	0.084 0.069 0.071 0.064	2006/1026850
Germany, 2006 (Kenton)	EC	0.013	0.003	420	1	0 2 7 14	whole plant	0.018 0.025 0.023 0.017	2007/1008498

LEEKS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg [a]	
Germany, 2006 (Kenton)	EC	0.013	0.003	420	2	0 2 7 14	whole plant	0.042 0.036 0.032 0.032	2007/1008498
Italy, 2005 (Armor)	EC	0.025	0.006	400	1	0 2 7 15	plant without roots	0.15 0.11 0.11 0.054	2006/1026850
Netherlands, 2005 (Kenton)	EC	0.013	0.003	400	1	0 3 7 14	plant without roots	0.026 0.026 0.014 0.014	2006/1026850
Netherlands, 2005 (Kenton)	EC	0.013	0.003	400	2	0 3 7 14	plant without roots	0.055 0.031 0.033 0.021	2006/1026850
Spain, 2006 (Stal)	EC	0.027	0.006	420	1	0 3 7 14	whole plant	0.042 0.017 0.01 0.014	2007/1008498
UK, 2005 (Shelton)	EC	0.013	0.003	400	1	0 3 7 14	plant without roots	0.18 c 0.01 0.078 0.047 0.055	2006/1026850
UK, 2005 (Shelton)	EC	0.013	0.003	400	2	0 3 7 14	plant without roots	0.14 c 0.01 0.082 0.056 0.059	2006/1026850
UK, 2006 (Pancho)	EC	0.013	0.003	430	1	0 4 7 15	whole plant	0.063 0.052 0.037 < 0.01	2007/1008498
UK, 2006 (Pancho)	EC	0.013	0.003	430	2	0 4 7 15	whole plant	0.13 0.078 0.048 < 0.01	2007/1008498

[a] c: sample from control (untreated) plot.

Table 21 Alpha-cypermethrin residues in onions resulting from supervised trials with alpha-cypermethrin in France, Germany, Netherlands, Spain and UK

ONIONS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg [a]	
France, 2006 (Barito)	EC	0.012	0.003	400	1	0 3 8 15	onion bulbs	< 0.01 < 0.01 < 0.01 < 0.01	2007/1008499
France, 2006 (Barito)	EC	0.013	0.003	410	2	0 3 8 15	onion bulbs	0.01 < 0.01 < 0.01 < 0.01	2007/1008499

ONIONS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg [a]	
France. 2005 (Summit)	EC	0.013	0.003	400	1	0 3 7 14	onion bulbs	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026854
France. 2005 (Summit)	EC	0.013	0.003	400	2	0 3 7 14	onion bulbs	0.01 < 0.01 0.01 < 0.01	2006/1026854
France. 2005 (Summit)	EC	0.013	0.003	400	1	0 3 7 14	onion bulbs	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026854
France. 2005 (Summit)	EC	0.013	0.003	400	2	0 3 7 14	onion bulbs	0.016 < 0.01 < 0.01 < 0.01	2006/1026854
Germany, 2006 (Sturon)	EC	0.012	0.003	370	1	0 4 7 14	onion bulbs	< 0.01 < 0.01 < 0.01 < 0.01	2007/1008499
Germany, 2006 (Sturon)	EC	0.013	0.003	410	2	0 4 7 14	onion bulbs	< 0.01 < 0.01 < 0.01 < 0.01	2007/1008499
Germany, 2006 (Stuttgarter Riesen)	EC	0.013	0.003	430	1	0 3 7 14	onion bulbs	< 0.01 < 0.01 < 0.01 < 0.01	2007/1008499
Germany, 2006 (Stuttgarter Riesen)	EC	0.013	0.003	420	2	0 3 7 14	onion bulbs	< 0.01 < 0.01 < 0.01 < 0.01	2007/1008499
Netherlands, 2006 (Donna)	EC	0.012	0.003	390	1	0 3 7 15	onion bulbs	< 0.01 < 0.01 < 0.01 < 0.01	2007/1008499
Netherlands, 2006 (Donna)	EC	0.013	0.003	410	2	0 3 7 15	onion bulbs	< 0.01 < 0.01 < 0.01 < 0.01	2007/1008499
Netherlands. 2005 (Hyfort)	EC	0.013	0.003	400	1	0 4 7 14	onion bulbs	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026854
Netherlands. 2005 (Hyfort)	EC	0.013	0.003	400	2	0 4 7 14	onion bulbs	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026854
Spain, 1984 (Bahia Piriforme Precoce)	EC	0.015 0.030	0.0015 0.003	1000	2	13	onion bulbs	< 0.01 (2)	AL-722-001
UK. 2005 (Hyskin)	EC	0.013	0.003	400	1	0 3 7 14	onion bulbs	< 0.01 0.01 < 0.01 < 0.01	2006/1026854

ONIONS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg [a]	
UK. 2005 (Hyskin)	EC	0.013	0.003	400	2	0 3 7 14	onion bulbs	0.017 0.01 0.01 < 0.01	2006/1026854

Table 22 Alpha-cypermethrin residues in broccoli resulting from supervised trials with alpha-cypermethrin in Denmark, France, Germany, Italy, Netherlands, Spain and the UK

BROCCOLI	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Denmark, 2006 (Marathon)	EC	0.013	0.003	420	1	0 2 7 14	flower-head	0.053 0.030 0.014 < 0.01	2007/1013274
Denmark, 2006 (Marathon)	EC	0.013	0.003	400	2	0 2 7 14	flower-head	0.052 0.032 0.017 < 0.01	2007/1013274
France, 2005 (Chevalier)	EC	0.025	0.006	400	1	0 3 7 14	flower-head	0.070 0.028 0.017 < 0.01	2006/1026863
France, 2005 (Marathon)	EC	0.013	0.003	400	1	0 3 7 14	flower-head	0.035 0.018 0.01 < 0.01	2006/1026863
France, 2005 (Marathon)	EC	0.013	0.003	400	2	0 3 7 14	flower-head	0.069 0.034 0.018 < 0.01	2006/1026863
France, 2006 (Monterey)	EC	0.013	0.003	430	1	0 3 7 13	flower-head	0.036 0.016 0.01 < 0.01	2007/1013274
France, 2006 (Monterey)	EC	0.014 0.012	0.003	440 400	2	0 3 7 13	flower-head	0.050 0.017 0.01 < 0.01	2007/1013274
Germany, 2005 (Ovation)	EC	0.013	0.003	400	1	0 3 7 14	flower-head	0.16 0.048 < 0.01 < 0.01	2006/1026863
Germany, 2005 (Ovation)	EC	0.013	0.003	400	2	0 3 7 14	flower-head	0.26 < 0.01 < 0.01 < 0.01	2006/1026863
Germany, 2006 (Ironman)	EC	0.013	0.003	400	1	0 3 6 14	flower-head	0.032 0.030 0.017 0.017	2007/1013274

BROCCOLI	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Germany, 2006 (Ironman)	EC	0.013	0.003	400	2	0 3 6 14	flower-head	0.052 0.035 0.029 0.018	2007/1013274
Greece, 2006 (Marathon)	EC	0.025	0.006	400	1	0 3 7 14	flower-head	0.056 0.032 0.014 < 0.01	2007/1013274
Italy, 2005 (Eyron)	EC	0.025	0.006	400	1	0 3 7 14	flower-head	0.065 0.047 0.027 0.01	2006/1026863
Netherlands, 2005 (Volta)	EC	0.013	0.003	400	1	0 3 7 14	flower-head	0.044 0.030 0.015 < 0.01	2006/1026863
Netherlands, 2005 (Volta)	EC	0.013	0.003	400	2	0 3 7 14	flower-head	0.074 0.039 0.015 < 0.01	2006/1026863
Spain, 2006 (Monaco)	EC	0.027	0.006	430	1	0 4 7 13	flower-head	0.050 0.026 0.013 < 0.01	2007/1013274
UK, 2005 (Chevalier)	EC	0.013	0.003	400	1	0 3 7 14	flower-head	0.056 0.033 0.016 < 0.01	2006/1026863
UK, 2005 (Chevalier)	EC	0.013	0.003	400	2	0 3 7 14	flower-head	0.048 0.015 < 0.01 < 0.01	2006/1026863
UK, 2006 (Marathon)	EC	0.013	0.003	420	1	0 3 7 15	flower-head	0.044 0.032 0.025 < 0.01	2007/1013274
UK, 2006 (Marathon)	EC	0.013	0.003	400	2	0 3 7 15	flower-head	0.050 0.036 0.018 < 0.01	2007/1013274

Table 23 Alpha-cypermethrin residues in Brussels sprouts resulting from supervised trials with alpha-cypermethrin in Belgium, France, Germany, Greece, Italy, Netherlands, Spain and the UK

BRUSSELS SPROUTS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Belgium, 2006 (Millenium)	EC	0.013	0.003	400	1	0 4 7 14	sprouts	0.01 0.01 < 0.01 < 0.01	2007/1007943

BRUSSELS SPROUTS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Belgium, 2006 (Millenium)	EC	0.013	0.003	400	2	0 4 7 14	sprouts	0.02 0.02 0.02 0.01	2007/1007943
France, 2005 (Cirius)	EC	0.013	0.003	400	1	0 4 7 14	sprouts	0.01 < 0.01 < 0.01 < 0.01	2006/1026859
France, 2005 (Cirius)	EC	0.013	0.003	400	2	0 4 7 14	sprouts	0.017 0.013 0.017 0.014	2006/1026859
France, 2006 (Diablo)	EC	0.013	0.003	400	1	0 3 7 14	sprouts	< 0.01 < 0.01 0.01 0.01	2007/1007943
France, 2006 (Diablo)	EC	0.013	0.003	400	2	0 3 7 14	sprouts	0.03 0.02 0.03 0.02	2007/1007943
France, 2006 (Dominator)	EC	0.025	0.006	400	1	0 4 7 14	sprouts	0.02 0.03 0.02 0.02	2007/1007943
Germany, 2005 (Esperal)	EC	0.013	0.003	400	1	0 3 7 14	sprouts	0.051 0.055 0.046 0.033	2006/1026859
Germany, 2005 (Esperal)	EC	0.013	0.003	400	2	0 3 7 14	sprouts	0.018 0.016 0.016 0.014	2006/1026859
Germany, 2006 (F1 Esperal, F1 Lunet)	EC	0.013	0.003	400	1	0 3 7 14	sprouts	0.02 0.02 0.01 < 0.01	2007/1007943
Germany, 2006 (F1 Esperal, F1 Lunet)	EC	0.013	0.003	400	2	0 3 7 14	sprouts	0.04 0.02 0.02 0.02	2007/1007943
Greece, 2005 (Ikaross)	EC	0.025	0.006	400	1	0 3 7 14	sprouts	0.016 0.01 0.01 < 0.01	2006/1026859
Italy, 2006 (Grosso di Cassano)	EC	0.025	0.006	400	1	0 4 7 14	sprouts	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007943
Netherlands, 2005 (Cumulus)	EC	0.013	0.003	400	1	0 3 7 14	sprouts	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026859

BRUSSELS SPROUTS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Netherlands, 2005 (Cumulus)	EC	0.013	0.003	400	2	0 3 7 14	sprouts	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026859
Spain, 2005 (Jade Cross)	EC	0.025	0.006	400	1	0 4 7 14	sprouts	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026859
UK, 2005 (Romulus)	EC	0.013	0.003	400	1	0 3 7 14	sprouts	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026859
UK, 2005 (Romulus)	EC	0.013	0.003	400	2	0 3 7 14	sprouts	< 0.01 < 0.01 0.01 < 0.01	2006/1026859
UK, 2006 (Hellemus)	EC	0.013	0.003	400	1	0 3 6 13	sprouts	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007943
UK, 2006 (Hellemus)	EC	0.013	0.003	400	2	0 3 6 13	sprouts	< 0.01 0.02 0.01 < 0.01	2007/1007943

Table 24 Alpha-cypermethrin residues in cabbage resulting from supervised trials with alpha-cypermethrin in Australia, Belgium, Brazil, Canada, Denmark, France, Germany, Greece, Italy, South Africa, Spain and the UK

CABBAGE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg [a]	
Australia (Vic), 1983	EC	0.020	0.016	125	8	0 4 7 25	whole cabbages [b]	0.04 0.04 0.15 0.03	AL-721-009
Australia (Vic), 1983	EC	0.040	0.032	125	8	0 4 7 25	whole cabbages [b]	0.07 0.04 0.03 0.06	AL-721-009
Australia (Vic), 1983	EC	0.080	0.064	125	8	0 4 7 25	whole cabbages [b]	0.11 0.07 0.04 0.04	AL-721-009
Belgium, 2006 (Galaxy)	EC	0.013	0.003	400	1	0 3 7 14	cabbage heads	< 0.01 < 0.01 < 0.01 < 0.01	2007/1013148
Belgium, 2006 (Galaxy)	EC	0.013	0.003	400	2	0 3 7 14	cabbage heads	< 0.01 < 0.01 < 0.01 < 0.01	2007/1013148

CABBAGE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg [a]	
Brazil, 1986 (Manteisa)	EC	0.01	0.002	500	2	4	cabbages	0.35	AL-721-014
Brazil, 1986 (Manteisa)	EC	0.02	0.004	500	2	4	cabbages	0.80	AL-721-014
Canada (Ont), 1982 (Evergreen Bull)	EC	0.015	0.0019	800	2	7 14 21	whole cabbages [c]	< 0.01 (4) < 0.01 (4) < 0.01 (4)	AL-721-003
Canada (Ont), 1984 (Ball Head)	EC	0.020		200	3	7 14	cabbages	0.08 0.02	AL-721-015
Canada (Ont), 1984 (Ball Head)	EC	0.010		200	3	7 14	cabbages	0.04 < 0.01	AL-721-015
Denmark, 2003 (Mila) savoy cabbage	EC	0.015	0.0025	600	1	0 2 7 14	cabbage heads	< 0.05 < 0.05 < 0.05 < 0.05	2004/1006470
Denmark, 2003 (Mila) savoy cabbage	EC	0.015	0.0025	600	2	0 2 7 14	cabbage heads	< 0.05 < 0.05 < 0.05 < 0.05	2004/1006470
France, 1984 (Amasa)	EC	0.010	0.002	480	1	0 3 7	whole cabbages	0.06 0.02 < 0.01	AL-721-012
France, 1984 (Langen Dijk Hatif)	EC	0.010	0.002	500	1	0 3 7	whole cabbages	0.13 0.05 0.03	AL-721-012
France, 2000 (Paresa)	WG	0.010	0.0026	400	1	7	cabbage heads	< 0.05	AL-721-043
France, 2000 (Paresa)	WG	0.010	0.0026	400	3	7	cabbage heads	< 0.05	AL-721-043
France, 2000 (Paresa)	WG	0.021	0.0051	400	1	7	cabbage heads	< 0.05	AL-721-043
France, 2000 (Paresa)	WG	0.021	0.0051	400	3	7	cabbage heads	< 0.05	AL-721-043
France, 2000 (Saga)	WG	0.010	0.0025	400	1	0 1 3 5 7	cabbage heads	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-721-047
France, 2000 (Saga)	WG	0.010	0.0025	400	3	0– 0+ 1 3 5 7	cabbage heads	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-721-047
France, 2000 (Saga)	WG	0.020	0.0051	400	1	0 1 3 5 7	cabbage heads	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-721-047
France, 2000 (Saga)	WG	0.020	0.0051	400	3	0– 0+ 1 3 5 7	cabbage heads	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-721-047

CABBAGE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg [a]	
France, 2003 (Zerlina) white cabbage	EC	0.015	0.0025	600	1	0 3 7 14	cabbage heads	< 0.05 < 0.05 < 0.05 < 0.05	2004/1006470
France, 2003 (Zerlina) white cabbage	EC	0.015	0.0025	600	2	0 3 7 14	cabbage heads	< 0.05 < 0.05 < 0.05 < 0.05	2004/1006470
France, 2005 (Castello)	EC	0.025	0.006	400	1	0 3 7 14	cabbage heads	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026852
France, 2005 (Spitfire)	EC	0.013	0.003	400	1	0 3 7 14	cabbage heads	< 0.01 0.01 < 0.01 < 0.01	2006/1026852
France, 2005 (Spitfire)	EC	0.013	0.003	400	2	0 3 7 14	cabbage heads	0.017 < 0.01 < 0.01 < 0.01	2006/1026852
France, 2006 (Clarissa HF1)	EC	0.026	0.006	420	1	0 3 7 14	cabbage heads	0.045 0.010 < 0.01 < 0.01	2007/1013148
France, 2006 (Guisor)	EC	0.012	0.003	400	1	0 4 8 14	cabbage heads	< 0.01 < 0.01 < 0.01 < 0.01	2007/1013148
France, 2006 (Guisor)	EC	0.012	0.003	380	2	0 4 8 14	cabbage heads	< 0.01 < 0.01 < 0.01 < 0.01	2007/1013148
Germany, 1984 (Dieners July Wirsing) savoy cabbage	EC	0.012	0.002	600	3	0 7 14 21	whole cabbages	0.05 0.02 0.02 < 0.01	AL-721-010
Germany, 1984 (Marner Frühkopfwirsing) savoy cabbage	EC	0.012	0.002	600	3	0 7 14 21	whole cabbages	0.14 < 0.01 0.05 < 0.01	AL-721-010
Germany, 1984 (Nagels FruhweibkohL)	EC	0.012	0.002	600	3	0 7 14 21	whole cabbages	0.03 0.02 < 0.01 < 0.01	AL-721-008
Germany, 1984 (Praeco) savoy cabbage	EC	0.012	0.002	600	3	0 7 14 21	whole cabbages	0.06 0.02 0.02 < 0.01	AL-721-010
Germany, 1984 (Praeco) savoy cabbage	EC	0.012	0.002	600	3	0 7 14 21	whole cabbages	0.95 0.65 0.03 < 0.01	AL-721-010

CABBAGE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg [a]	
Germany, 1984 (Ramco)	EC	0.012	0.002	600	3	0 7 14 21	whole cabbages	0.04 c 0.01 0.02 0.01 0.01	AL-721-008
Germany, 1993 (Autoro) red cabbage	EC	0.009	0.002	400	3	0 8 11 16 21	cabbage heads	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01	AL-721-020
Germany, 1993 (Quisto) white cabbage	EC	0.009	0.0023	400	3	0 7 10 14 20	cabbage heads	0.067 0.015 0.010 < 0.01 < 0.01	AL-721-021
Germany, 1994 red cabbage	EC	0.009			3	0 7 10 14 21	cabbage [d]	0.01 0.01 0.01 < 0.01 < 0.01	AL-721-017
Germany, 1994 white cabbage	EC	0.009			3	0 7 10 14 21	cabbage [d]	0.01 0.01 < 0.01 < 0.01 < 0.01	AL-721-018
Germany, 1996 (Wirosa F1) savoy cabbage	WG	0.010	0.0025	400	3	0– 0+ 7 14	cabbage heads	<LOD < 0.01 < 0.01 <LOD	AL-726-011
Germany, 1996 (Wirosa F1) savoy cabbage	SC	0.010	0.0025	400	3	0– 0+ 7 14	cabbage heads	<LOD 0.01 < 0.01 <LOD	AL-726-011
Germany, 1996 (Wirosa F1) savoy cabbage	EC	0.010	0.0025	400	3	0– 0+ 7 14	cabbage heads	<LOD < 0.01 < 0.01 <LOD	AL-726-011
Germany, 1996 (Wirosa) savoy cabbage	WG	0.010	0.0025	400	3	0– 0+ 7 14	cabbage heads	<LOD < 0.01 <LOD <LOD	AL-726-011
Germany, 1996 (Wirosa) savoy cabbage	SC	0.010	0.0025	400	3	0– 0+ 7 14	cabbage heads	<LOD < 0.01 <LOD <LOD	AL-726-011
Germany, 1996 (Wirosa) savoy cabbage	EC	0.010	0.0025	400	3	0– 0+ 7 14	cabbage heads	<LOD 0.01 < 0.01 <LOD	AL-726-011
Germany, 2003 (Rodon F1) red cabbage	EC	0.015	0.0025	600	1	0 2 7 14	cabbage heads	< 0.05 < 0.05 < 0.05 < 0.05	2004/1006470
Germany, 2003 (Rodon F1) red cabbage	EC	0.015	0.0025	600	2	0 2 7 14	cabbage heads	< 0.05 < 0.05 < 0.05 < 0.05	2004/1006470

CABBAGE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg [a]	
Germany, 2005 (Nula)	EC	0.013	0.003	400	1	0 3 7 14	cabbage heads	0.084 0.082 0.062 0.072	2006/1026852
Germany, 2005 (Nula)	EC	0.013	0.003	400	2	0 3 7 14	cabbage heads	0.16 0.15 0.10 0.097	2006/1026852
Germany, 2006 (Kilatou)	EC	0.013	0.003	410	1	0 3 7 14	cabbage heads	< 0.01 < 0.01 < 0.01 < 0.01	2007/1013148
Germany, 2006 (Kilatou)	EC	0.013	0.003	430 410	2	0 3 7 14	cabbage heads	< 0.01 < 0.01 < 0.01 < 0.01	2007/1013148
Greece, 2000 (Craislam)	WG	0.010	0.0022	460	1	6	cabbage heads	< 0.05	AL-721-045
Greece, 2000 (Craislam)	WG	0.010	0.0022	420–510	3	6	cabbage heads	< 0.05	AL-721-045
Greece, 2000 (Craislam)	WG	0.020	0.0044	440	1	6	cabbage heads	< 0.05	AL-721-045
Greece, 2000 (Craislam)	WG	0.020	0.0044	440–470	3	6	cabbage heads	< 0.05	AL-721-045
Greece, 2000 (Craislam)	WG	0.012	0.0022	530	1	0+ 1 3 5 6	cabbage heads	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-721-046
Greece, 2000 (Craislam)	WG	0.010	0.0022	440–470	3	0– 0+ 1 3 5 6	cabbage heads	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-721-046
Greece, 2000 (Craislam)	WG	0.020	0.0044	450	1	0+ 1 3 5 6	cabbage heads	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-721-046
Greece, 2000 (Craislam)	WG	0.020	0.0044	430–460	3	0– 0+ 1 3 5 6	cabbage heads	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-721-046
Italy, 2000 (Famosa)	WG	0.01	0.0010	960	1	7	cabbage heads	< 0.05	AL-721-042
Italy, 2000 (Famosa)	WG	0.01	0.0010	960	3	7	cabbage heads	< 0.05	AL-721-042
Italy, 2000 (Famosa)	WG	0.02	0.0021	960	1	7	cabbage heads	< 0.05	AL-721-042
Italy, 2000 (Famosa)	WG	0.02	0.0021	960	3	7	cabbage heads	0.08	AL-721-042
Italy, 2001 (Concerto)	WG	0.065	0.011	590	1	0 3 7 13	cabbage heads	< 0.05 < 0.05 < 0.05 < 0.05	AL-721-048

CABBAGE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg [a]	
Italy, 2001 (Concerto)	WG	0.069 0.063	0.011	630 570	2	0 3 7 13	cabbage heads	< 0.05 < 0.05 < 0.05 < 0.05	AL-721-048
Italy, 2001 (Concerto)	WG	0.13	0.022	600	1	0 3 7 13	cabbage heads	< 0.05 < 0.05 < 0.05 < 0.05	AL-721-048
Italy, 2001 (Concerto)	WG	0.13	0.022	600 630	2	0 3 7 13	cabbage heads	0.1 < 0.05 < 0.05 < 0.05	AL-721-048
Italy, 2005 (Primero)	EC	0.025	0.006	400	1	0 3 7 14	cabbage heads	0.015 0.013 < 0.01 < 0.01	2006/1026852
South Africa, 1984	EC		0.00075	420	5	0– 0+ 1 2 7 14	cabbages [d]	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-721-005
South Africa, 1984	EC		0.001	420	5	0– 0+ 1 2 7 14	cabbages [d]	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-721-005
Spain, 2001 (Bronco)	WG	0.067	0.011	600	1	0 3 8 14	cabbage heads	< 0.05 < 0.05 < 0.05 < 0.05	AL-721-048
Spain, 2001 (Bronco)	WG	0.067	0.011	590	2	0 3 8 14	cabbage heads	< 0.05 < 0.05 < 0.05 < 0.05	AL-721-048
Spain, 2001 (Bronco)	WG	0.13	0.022	590	1	0 3 8 14	cabbage heads	< 0.05 < 0.05 < 0.05 < 0.05	AL-721-048
Spain, 2001 (Bronco)	WG	0.13	0.022	590	2	0 3 8 14	cabbage heads	< 0.05 < 0.05 < 0.05 < 0.05	AL-721-048
Spain, 2006 (Melissa)	EC	0.024	0.006	400	1	0 3 6 13	cabbage heads	0.01 0.01 0.01 < 0.01	2007/1013148
UK, 1981 (Golden Acre)	EC	0.030 cyper	0.003	480	2	0 6 13 27	whole cabbages [e]	0.04 cyper 0.13 0.06 0.03 c 0.01	AL-721-001

CABBAGE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg [a]	
UK, 1981 (Golden Acre)	EC	0.015	0.0015	480	2	0 6 13 27	whole cabbages [e]	< 0.01 0.03 0.03 < 0.01	AL-721-001
UK, 1982 (Golden Acre)	EC	0.032	0.008	400	1	0 4 8	whole cabbages	0.22 0.11 0.11	AL-721-004
UK, 1982 (Golden Acre)	EC	0.064	0.016	400	1	0 4 8	whole cabbages	0.50 0.24 0.22	AL-721-004
UK, 1982 (Golden Acre)	SC	0.032	0.008	400	1	0 4 8	whole cabbages	0.18 0.13 0.15	AL-721-004
UK, 1982 (Golden Acre)	SC	0.064	0.016	400	1	0 4 8	whole cabbages	0.26 0.26 0.19	AL-721-004
UK, 1982 (Golden Acre)	WP	0.032	0.008	400	1	0 4 8	whole cabbages	0.19 0.12 0.11	AL-721-004
UK, 1982 (Golden Acre)	WP	0.064	0.016	400	1	0 4 8	whole cabbages	0.36 0.26 0.32	AL-721-004
UK, 1982 (Golden Acre)	DF	0.032	0.008	400	1	0 4 8	whole cabbages	0.24 0.17 0.12	AL-721-004
UK, 1982 (Golden Acre)	DF	0.064	0.016	400	1	0 4 8	whole cabbages	0.34 0.30 0.19	AL-721-004
UK, 1983 (Bartello)	EC	0.012	0.0025	490	6	34	whole cabbages	< 0.01	AL-721-006
UK, 1983 (Bartello)	EC	0.012	0.0025	490	6	34	whole cabbages	< 0.01	AL-721-006
UK, 1983 (January King)	EC	0.012	0.0025	490	5	47	whole cabbages	0.16	AL-721-006
UK, 1996 (Mila) savoy cabbage	WG	0.010	0.005	190–210	4	0– 0+ 7 14	whole cabbages whole cabbages whole cabbages cabbage heads	0.08 0.20 0.10 0.02	AL-721-019
UK, 1996 (Mila) savoy cabbage	SC	0.010	0.005	190–210	4	0– 0+ 7 14	whole cabbages whole cabbages whole cabbages cabbage heads	0.18 0.21 0.11 0.02	AL-721-019
UK, 1996 (Mila) savoy cabbage	EC	0.010	0.005	190–210	4	0– 0+ 7 14	whole cabbages whole cabbages whole cabbages cabbage heads	0.09 0.18 0.12 0.02	AL-721-019

CABBAGE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg [a]	
UK, 1996 (Novausa) savoy cabbage	WG	0.010	0.005	210–220	4	0– 0+ 7 14	whole cabbages whole cabbages whole cabbages cabbage heads	< 0.01 0.07 0.05 0.02	AL-721-019
UK, 1996 (Novausa) savoy cabbage	SC	0.010	0.005	200–210	4	0– 0+ 7 14	whole cabbages whole cabbages whole cabbages cabbage heads	0.01 0.08 0.07 0.01	AL-721-019
UK, 1996 (Novausa) savoy cabbage	EC	0.010	0.005	200–210	4	0– 0+ 7 14	whole cabbages whole cabbages whole cabbages cabbage heads	0.03 0.11 0.05 < 0.01	AL-721-019
UK, 2000 (Hispo)	WG	0.010	0.003	300	4	7	cabbage heads	< 0.05	AL-440-019
UK, 2000 (Hispo)	EC	0.010	0.003	300	4	7	cabbage heads	< 0.05	AL-440-019
UK, 2000 (Hispo)	WG	0.010	0.003	300	1	7	cabbage heads	< 0.05	AL-440-019
UK, 2000 (Kalorama)	WG	0.010	0.003	300	4	0– 0+ 1 3 5 7	cabbage heads	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-440-020
UK, 2000 (Kalorama)	WG	0.010	0.003	300	1	0– 0+ 1 3 5 7	cabbage heads	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-440-020
UK, 2000 (Kalorama)	EC	0.010	0.003	300	4	0– 0+ 1 3 5 7	cabbage heads	< 0.05 < 0.05 0.07 < 0.05 < 0.05 < 0.05	AL-440-020
UK, 2000 (Rodima) red cabbage	WG	0.010	0.003	300	4	0– 0+ 1 3 5 7	cabbage heads	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-440-020
UK, 2000 (Rodima) red cabbage	WG	0.010	0.003	300	1	0– 0+ 1 3 5 7	cabbage heads	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-440-020

CABBAGE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg [a]	
UK, 2000 (Rodima) red cabbage	EC	0.010	0.003	300	4	0– 0+ 1 3 5 7	cabbage heads	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-440-020
UK, 2003 (Rona) red cabbage	EC	0.015	0.0025	600	1	0 3 6 13	cabbage heads	< 0.05 < 0.05 < 0.05 < 0.05	2004/1006470
UK, 2003 (Rona) red cabbage	EC	0.015	0.0025	600	2	0 3 6 13	cabbage heads	< 0.05 < 0.05 < 0.05 < 0.05	2004/1006470
UK, 2005 (Summer Greens)	EC	0.013	0.003	400	1	0 3 7 14	cabbage heads	0.069 0.035 0.012 < 0.01	2006/1026852
UK, 2005 (Summer Greens)	EC	0.013	0.003	400	2	0 3 7 14	cabbage heads	0.088 0.055 0.018 < 0.01	2006/1026852
UK, 2005 (Wirosa F1)	EC	0.013	0.003	400	1	0 3 7 14	cabbage heads	0.015 0.030 < 0.01 < 0.01	2006/1026852
UK, 2005 (Wirosa F1)	EC	0.013	0.003	400	2	0 3 7 14	cabbage heads	0.025 0.42 0.014 < 0.01	2006/1026852
UK, 2006 (Stonehead)	EC	0.013	0.003	400	1	0 3 7 14	cabbage heads	0.067 0.077 0.051 0.030	2007/1013148
UK, 2006 (Stonehead)	EC	0.013	0.003	420	2	0 3 7 14	cabbage heads	0.16 0.18 0.10 0.032	2007/1013148

[a] c: sample from control (untreated) plot.
Residues reported as undetected are listed as <LOD (limit of detection 0.003 mg/kg for cabbages). Detected residues below LOQ are listed as less than the LOQ value, e.g., < 0.01 mg/kg.

[b] Samples in frozen storage for two years before analysis

[c] Outer leaves removed in the field

[d] No field report

[e] Outer soiled leaves removed prior to analysis

Table 25 Alpha-cypermethrin residues in cauliflowers resulting from supervised trials with alpha-cypermethrin in Denmark, France, Germany, Greece, Italy, Netherlands, Spain and the UK

CAULIFLOWER	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg [a]	

CAULIFLOWER	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg [a]	
Denmark, 2006 (Fremont)	EC	0.012	0.003	390	1	0 3 8 14	flower-heads	0.028 0.032 0.012 < 0.01	2007/1008495
Denmark, 2006 (Fremont)	EC	0.012	0.003	400	2	0 3 8 14	flower-heads	0.048 0.024 0.011 < 0.01	2007/1008495
France, 1981 (Géant d'automne)	EC	0.009		1000	1	0 3 7	flower-heads	0.03 0.02 < 0.01	AL-721-002
France, 1981 (Géant d'automne)	EC	0.015		1000	1	0 3 7	flower-heads	0.07 0.03 < 0.01	AL-721-002
France, 2005 (Fremont)	EC	0.025	0.006	400	1	0 3 7 14	flower-heads	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026864
France, 2005 (Optimist)	EC	0.013	0.003	400	1	0 3 7 14	flower-heads	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026864
France, 2005 (Optimist)	EC	0.013	0.003	400	2	0 3 7 14	flower-heads	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026864
France, 2006 (Cartier)	EC	0.013	0.003	410	1	0 3 6 13	flower-heads	< 0.01 < 0.01 < 0.01 < 0.01	2007/1008495
France, 2006 (Cartier)	EC	0.012	0.003	390	2	0 3 6 13	flower-heads	< 0.01 < 0.01 < 0.01 < 0.01	2007/1008495
France, 2006 (Kintore)	EC	0.025	0.006	400	1	0 3 8 14	flower-heads	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007936
France, 2006 (Kintore)	WG	0.025	0.006	400	1	0 3 8 14	flower-heads	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007936
Germany, 1984	EC	0.012	0.002	600	3	0 7 14 21	flower-heads	0.09 < 0.01 < 0.01 < 0.01	AL-721-007
Germany, 1984 (Celesta)	EC	0.012	0.002	600	3	0 7 14 21	flower-heads	0.03 < 0.01 < 0.01 < 0.01	AL-721-007
Germany, 1984 (Tornado)	EC	0.012	0.002	600	3	0 7 14 21	flower-heads	0.16 0.02 0.02 0.01	AL-721-007

CAULIFLOWER	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg [a]	
Germany, 1993	EC	0.009	0.002	400	3	0 7 10 14 21	flower-heads	0.01 < 0.01 < 0.01 < 0.01 < 0.01	AL-721-028
Germany, 1993 (Durlan)	EC	0.009	0.002	400	3	0 8 11 16 21	flower-heads	0.026 0.01 0.01 0.01 0.01	AL-721-026
Germany, 1993 (Nautilus)	EC	0.009	0.002	400	3	0 7 10 14 21	flower-heads	0.033 < 0.01 < 0.01 < 0.01 < 0.01	AL-721-025
Germany, 1993 (Nautilus)	EC	0.009	0.002	400	3	0 7 10 14 21	flower-heads	0.01 < 0.01 < 0.01 < 0.01 < 0.01	AL-721-027
Germany, 2005 (Freedom)	EC	0.011	0.003	360	1	0 3 7 14	flower-heads	0.12 0.042 0.053 0.01	2006/1026864
Germany, 2005 (Freedom)	EC	0.013	0.003	400	2	0 3 7 14	flower-heads	0.20 0.075 0.085 0.027	2006/1026864
Germany, 2006 (Gregor)	EC	0.013	0.003	400	1	0 2 7 14	flower-heads	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007936
Germany, 2006 (Gregor)	EC	0.013	0.003	400	2	0 2 7 14	flower-heads	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007936
Germany, 2006 (Gregor)	WG	0.013	0.003	400	1	0 2 7 14	flower-heads	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007936
Germany, 2006 (Gregor)	WG	0.013	0.003	400	2	0 2 7 14	flower-heads	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007936
Greece, 2006 (Siria)	EC	0.025	0.006	400	1	0 4 7 13	flower-heads	0.01 < 0.01 < 0.01 < 0.01	2007/1008495
Italy, 2005 (Emeraude)	EC	0.025	0.006	400	1	0 3 7 14	flower-heads	0.01 < 0.01 < 0.01 < 0.01	2006/1026864
Italy, 2006 (Dunia)	EC	0.025	0.006	400	1	0 2 8 13	flower-heads	0.16 0.050 < 0.01 < 0.01	2007/1007936

CAULIFLOWER	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg [a]	
Italy, 2006 (Dunia)	WG	0.025	0.006	400	1	0 2 8 13	flower-heads	0.13 0.083 0.014 < 0.01	2007/1007936
Netherlands, 2005 (Fremont)	EC	0.013	0.003	400	1	0 3 7 14	flower-heads	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026864
Netherlands, 2005 (Fremont)	EC	0.013	0.003	400	2	0 3 7 14	flower-heads	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026864
Netherlands, 2006 (Fremont)	EC	0.012	0.003	390	1	0 3 7 14	flower-heads	0.028 0.017 0.013 < 0.01	2007/1008495
Netherlands, 2006 (Fremont)	EC	0.013	0.003	400	2	0 3 7 14	flower-heads	0.036 0.017 0.01 < 0.01	2007/1008495
Spain, 2006 (Flamenco)	EC	0.027	0.006	430	1	0 4 7 14	flower-heads	0.016 < 0.01 < 0.01 < 0.01	2007/1008495
UK, 2000 (Castlegrant)	WG	0.010	0.003	300	4	0– 0+ 1 3 5 7	flower-heads	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-721-038
UK, 2000 (Castlegrant)	WG	0.010	0.003	300	1	0– 0+ 1 3 5 7	flower-heads	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-721-038
UK, 2000 (Castlegrant)	EC	0.010	0.003	300	4	0– 0+ 1 3 5 7	flower-heads	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-721-038
UK, 2000 (Freemont)	WG	0.010	0.003	300	4	0– 0+ 1 3 5 7	flower-heads	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-721-038
UK, 2000 (Freemont)	WG	0.010	0.003	300	1	0– 0+ 1 3 5 7	flower-heads	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-721-038

CAULIFLOWER	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg [a]	
UK, 2000 (Freemont)	EC	0.010	0.003	300	4	0– 0+ 1 3 5 7	flower-heads	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-721-038
UK, 2000 (Nautilus)	WG	0.010	0.003	300	4	7	flower-heads	< 0.05	AL-721-039
UK, 2000 (Nautilus)	WG	0.010	0.003	300	1	7	flower-heads	< 0.05	AL-721-039
UK, 2000 (Nautilus)	EC	0.010	0.003	300	4	7	flower-heads	< 0.05	AL-721-039
UK, 2005 (White Rock)	EC	0.013	0.003	400	1	0 3 7 14	flower-heads	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026864
UK, 2005 (White Rock)	EC	0.013	0.003	400	2	0 3 7 14	flower-heads	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026864
UK, 2006 (Correll)	EC	0.013	0.003	400	1	0 4 6 14	flower-heads	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007936
UK, 2006 (Correll)	EC	0.013	0.003	400	2	0 4 6 14	flower-heads	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007936
UK, 2006 (Correll)	WG	0.013	0.003	400	1	0 4 6 14	flower-heads	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007936
UK, 2006 (Correll)	WG	0.013	0.003	400	2	0 4 6 14	flower-heads	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007936
UK, 2006 (Fremont)	EC	0.013	0.003	400	1	0 3 8 13	flower-heads	0.022 0.025 < 0.01 < 0.01	2007/1008495
UK, 2006 (Fremont)	EC	0.012	0.003	390	2	0 3 8 13	flower-heads	0.056 0.017 < 0.01 < 0.01	2007/1008495

Table 26 Alpha-cypermethrin residues in cucumbers resulting from supervised trials with alpha-cypermethrin in Belgium, Denmark, France, Germany, Greece, Italy, Netherlands and Spain

CUCUMBERS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Belgium, 2005 (Loretta) glasshouse	EC	0.040	0.010	400	1	0 3 7 14	cucumbers	0.02 0.01 < 0.01 < 0.01	2006/1036934

CUCUMBERS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Denmark, 1982 glasshouse	EC	0.018		3000	1	1 3 5 7	cucumbers	< 0.01 < 0.01 < 0.01 < 0.01	AL-723-002
Denmark, 2004 (Naomi) glasshouse	SC	0.015	0.004	400	1	0 4 7 13	cucumbers	0.023 < 0.01 < 0.01 < 0.01	2004/5000720
Denmark, 2004 (Naomi) glasshouse	SC	0.015	0.004	400	2	0 4 7 13	cucumbers	0.030 0.012 < 0.01 < 0.01	2004/5000720
Denmark, 2005 (Naomi) glasshouse	EC	0.040	0.010	400	1	0 3 7 14	cucumbers	0.01 0.02 0.01 < 0.01	2006/1036934
France, 2004 (Rawa) glasshouse	SC	0.015	0.004	400	1	0 3 7 14	cucumbers	0.015 < 0.01 < 0.01 < 0.01	2004/5000720
France, 2004 (Rawa) glasshouse	SC	0.015	0.004	400	2	0 3 7 14	cucumbers	< 0.01 < 0.01 < 0.01 < 0.01	2004/5000720
France, 2004 (Solverde) glasshouse	SC	0.015	0.004	400	1	0 2 8 14	cucumbers	< 0.01 < 0.01 < 0.01 < 0.01	2004/5000720
France, 2004 (Solverde) glasshouse	SC	0.015	0.004	400	2	0 2 8 14	cucumbers	< 0.01 < 0.01 < 0.01 < 0.01	2004/5000720
France, 2005 (Columbia) glasshouse	EC	0.040	0.010	400	1	0 3 7 14	cucumbers	0.04 0.03 0.01 0.01	2006/1036934
France, 2005 (Defens) glasshouse	EC	0.040	0.010	400	1	0 3 7 14	cucumbers	0.03 0.01 0.01 < 0.01	2006/1036934
Germany, 2004 (Euphoria) glasshouse	SC	0.015	0.004	400	1	0 3 7 14	cucumbers	< 0.01 < 0.01 < 0.01 < 0.01	2004/5000720
Germany, 2004 (Euphoria) glasshouse	SC	0.015	0.004	400	2	0 3 7 14	cucumbers	< 0.01 < 0.01 < 0.01 < 0.01	2004/5000720
Germany, 2005 (Avonis) glasshouse	EC	0.040	0.010	400	1	0 3 7 15	cucumbers	< 0.01 < 0.01 < 0.01 < 0.01	2006/1036934

CUCUMBERS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Greece, 2004 (Palmera) glasshouse	SC	0.015	0.004	400	1	0 4 8 14	cucumbers	0.026 < 0.01 < 0.01 < 0.01	2004/5000720
Greece, 2004 (Palmera) glasshouse	SC	0.015	0.004	400	2	0 4 8 14	cucumbers	0.01 < 0.01 < 0.01 < 0.01	2004/5000720
Greece, 2005 (Luberon) glasshouse	EC	0.040	0.010	400	1	0 3 7 14	cucumbers	0.04 0.01 < 0.01 < 0.01	2006/1036934
Italy, 2004 (Hiyield) glasshouse	SC	0.015	0.004	400	1	0 3 7 14	cucumbers	< 0.01 < 0.01 < 0.01 < 0.01	2004/5000720
Italy, 2004 (Hiyield) glasshouse	SC	0.015	0.004	400	2	0 3 7 14	cucumbers	< 0.01 < 0.01 < 0.01 < 0.01	2004/5000720
Italy, 2005 (Jumbo) glasshouse	EC	0.040	0.010	400	1	0 3 7 14	cucumbers	0.09 0.04 0.01 < 0.01	2006/1036934
Netherlands, 2004 (Sheila) glasshouse	SC	0.015	0.004	400	1	0 3 7 13	cucumbers	< 0.01 < 0.01 < 0.01 < 0.01	2004/5000720
Netherlands, 2004 (Sheila) glasshouse	SC	0.015	0.004	400	2	0 3 7 13	cucumbers	< 0.01 < 0.01 < 0.01 < 0.01	2004/5000720
Spain, 2004 (Suxo) glasshouse	SC	0.015	0.004	400	1	0 4 7 13	cucumbers	< 0.01 < 0.01 < 0.01 < 0.01	2004/5000720
Spain, 2004 (Suxo) glasshouse	SC	0.015	0.004	400	2	0 4 7 13	cucumbers	< 0.01 < 0.01 < 0.01 < 0.01	2004/5000720
Spain, 2005 (Suso) glasshouse	EC	0.040	0.010	400	1	0 3 7 14	cucumbers	< 0.01 < 0.01 < 0.01 < 0.01	2006/1036934

Table 27 Alpha-cypermethrin residues in melons resulting from supervised trials with alpha-cypermethrin in Belgium, Denmark, France, Germany, Greece, Italy, Netherlands and Spain

MELONS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	

MELONS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Belgium, 2005 (Delta F1) glasshouse	EC	0.040	0.010	400	1	0 3 7 13	melons	0.058 0.057 0.022 0.030	2006/1037507
Denmark, 2004 (Aroma) glasshouse	SC	0.015	0.004	400	1	0 3 7 13	melons	< 0.01 < 0.01 < 0.01 < 0.01	2004/5000721
Denmark, 2004 (Aroma) glasshouse	SC	0.015	0.004	400	2	0 3 7 13	melons	< 0.01 < 0.01 < 0.01 < 0.01	2004/5000721
Denmark, 2005 (Aroma) glasshouse	EC	0.040	0.010	400	1	0 2 7 14	melons	0.01 0.01 < 0.01 < 0.01	2006/1037507
France, 1992 (Delta)	EC	0.030	0.0038	800	3	2	melons	0.02	AL-723-023
France, 1992 (Delta)	EC	0.030	0.0038	800	3	2	melons	0.01	AL-723-023
France, 1992 (Panchito)	EC	0.030	0.0038	800	3	0– 0+ 2 5 7 9	melons	0.01 0.01 0.04 0.03 0.03 0.01	AL-723-023
France, 1996 (Dalton)	WG	0.030	0.0048	630	2	3	melons	< 0.02	AL-723-028
France, 2004 (Nagaro) glasshouse	SC	0.015	0.004	400	1	0 4 7 14	melons	< 0.01 < 0.01 < 0.01 < 0.01	2004/5000721
France, 2004 (Nagaro) glasshouse	SC	0.015	0.004	400	2	0 4 7 14	melons	< 0.01 < 0.01 < 0.01 < 0.01	2004/5000721
France, 2004 (Panchito) glasshouse	SC	0.015	0.004	400	1	0 3 7 14	melons	< 0.01 < 0.01 < 0.01 < 0.01	2004/5000721
France, 2004 (Panchito) glasshouse	SC	0.015	0.004	400	2	0 3 7 14	melons	0.01 0.01 0.01 0.01	2004/5000721
France, 2005 (Anasta)	EC	0.025	0.006	400	1	0 3 7 14	melons	< 0.01 < 0.01 < 0.01 < 0.01	2006/1024607
France, 2005 (Anasta)	EC	0.025	0.006	400	1	0 3 7 14	melons	< 0.01 < 0.01 < 0.01 < 0.01	2006/1024607
France, 2005 (Anasta) glasshouse	EC	0.040	0.010	400	1	0 3 7 13	melons	< 0.01 < 0.01 < 0.01 < 0.01	2006/1037507

MELONS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
France, 2005 (Luna Star) glasshouse	EC	0.040	0.010	400	1	0 3 7 13	melons	< 0.01 0.01 < 0.01 < 0.01	2006/1037507
France, 2006 (Cezanne)	EC	0.025	0.006	400	1	0 2 7 14	melons	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007940
Germany, 2005 (Delta F1) glasshouse	EC	0.040	0.010	400	1	0 3 8 14	melons	0.047 0.045 0.029 0.022	2006/1037507
Greece, 2005 (Gali F1) glasshouse	EC	0.040	0.010	400	1	0 3 7 14	melons	< 0.01 < 0.01 < 0.01 < 0.01	2006/1037507
Greece, 2006 (Masada F1)	EC	0.025	0.006	400	1	0 3 7 14	melons	0.01 0.01 < 0.01 < 0.01	2007/1007940
Italy, 2004 (Macigno) glasshouse	SC	0.015	0.004	400	1	0 3 7 15	melons	< 0.01 < 0.01 < 0.01 < 0.01	2004/5000721
Italy, 2004 (Macigno) glasshouse	SC	0.015	0.004	400	2	0 3 7 15	melons	< 0.01 < 0.01 < 0.01 < 0.01	2004/5000721
Italy, 2005 (C5)	EC	0.025	0.006	400	1	0 3 7 14	melons	< 0.01 < 0.01 < 0.01 < 0.01	2006/1024607
Italy, 2005 (Creso) glasshouse	EC	0.040	0.010	400	1	0 3 7 14	melons	< 0.01 < 0.01 < 0.01 < 0.01	2006/1037507
Italy, 2006 (Tamaris)	EC	0.025	0.006	400	1	0 4 7 14	melons	0.01 < 0.01 < 0.01 < 0.01	2007/1007940
Netherlands, 2004 (Lunabel) glasshouse	SC	0.015	0.004	400	1	0 2 7 14	melons	0.01 < 0.01 0.01 0.01	2004/5000721
Netherlands, 2004 (Lunabel) glasshouse	SC	0.015	0.004	400	2	0 2 7 14	melons	0.01 0.01 0.019 0.01	2004/5000721
Spain, 2004 (Ciclo) greenhouse	SC	0.75	0.19	400	2	0 6	melons melons pulp peel	0.03 0.02 < 0.01 0.07	2006/8038660

MELONS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Spain, 2004 (Ciclo) greenhouse	SC	0.75	0.19	400	2	0 6	melons melons pulp peel	0.02 0.02 < 0.01 0.05	2006/8038660
Spain, 2004 (Maxdimon) glasshouse	SC	0.015	0.004	400	1	0 3 7 14	melons	< 0.01 < 0.01 < 0.01 < 0.01	2004/5000721
Spain, 2004 (Maxdimon) glasshouse	SC	0.015	0.004	400	2	0 3 7 14	melons	0.01 0.01 < 0.01 < 0.01	2004/5000721
Spain, 2004 (Maxdimon) greenhouse	SC	0.75	0.19	400	2	0 7	melons melons pulp peel	< 0.01 < 0.01 < 0.01 < 0.01	2006/8038660
Spain, 2004 (Piñonet) greenhouse	SC	0.75	0.19	400	2	0 7	melons melons pulp peel	0.02 0.01 < 0.01 0.01	2006/8038660
Spain, 2005 (Lusitano)	EC	0.025	0.006	400	1	0 3 7 14	melons	< 0.01 < 0.01 < 0.01 < 0.01	2006/1024607
Spain, 2005 (Maxdimon) glasshouse	EC	0.040	0.010	400	1	0 3 7 13	melons	0.074 0.070 0.048 0.045	2006/1037507
Spain, 2006 (Piel de Sapo, Nicolas)	EC	0.025	0.006	400	1	0 3 6 14	melons	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007940

Table 28 Alpha-cypermethrin residues in eggplant resulting from supervised trials with alpha-cypermethrin in France

EGGPLANT	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
France, 1992 (Mileda), plastic tunnel[a]	EC	0.013	0.001		2	2 8	fruit	< 0.01 < 0.01	AL-723-020
France, 1992 (F1 Dobrix), glasshouse[a]	EC	0.013	0.003		2	1	fruit	0.01	AL-723-020

[a] Supporting data limited. Study suggests LOQ was 0.005 mg/kg, but recoveries were tested only at 0.01 mg/kg.

Table 29 Alpha-cypermethrin residues in sweet peppers resulting from supervised trials with alpha-cypermethrin in Belgium, France, Greece, Italy and Spain

SWEET PEPPERS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	Days[a]		mg/kg	
Belgium, 2005 (Dazzle) glasshouse	EC	0.040	0.010	400	1	0 3 7 14	fruit	0.019 0.028 0.029 0.033	2006/1036933
France, 1992 (Osim), plastic tunnel[b]	EC	0.030	0.005	600	2	0– 0+ 1 2 5 7	fruit	0.03 0.04 0.05 0.09 0.07 0.11	AL-723-021
France, 1993 (Sonar), plastic tunnel[b]	EC	0.030			2	2	fruit	0.03	AL-723-022
France, 2005 (Albi)	EC	0.025	0.006	400	1	0 3 7 14	fruit	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026860
France, 2005 (Galilleo) glasshouse	EC	0.040	0.010	400	1	0 3 7 14	fruit	0.016 0.017 < 0.01 0.013	2006/1036933
France, 2005 (Hannibal) glasshouse	EC	0.040	0.010	400	1	0 3 7 14	fruit	0.016 0.016 0.015 0.011	2006/1036933
France, 2006 (Galilo)	EC	0.025	0.006	400	1	0 4 8 14	fruit	0.065 0.011 < 0.01 < 0.01	2007/1008497
Greece, 2005 (Florinis)	EC	0.025	0.006	400	1	0 3 7 14	fruit	0.032 0.026 0.014 0.015	2006/1026860
Greece, 2005 (Staboli) glasshouse	EC	0.040	0.010	400	1	0 3 7 14	fruit	0.049 0.016 0.016 0.016	2006/1036933
Greece, 2006 (Laser F1)	EC	0.025	0.006	400	1	0 3 7 13	fruit	0.019 0.030 0.017 < 0.01	2007/1008497
Italy, 2005 (Quadrato d'Asti) glasshouse	EC	0.040	0.010	400	1	0 3 7 14	fruit	0.044 0.011 0.018 0.013	2006/1036933
Italy, 2005 (Senior)	EC	0.025	0.006	400	1	0 2 6 13	fruit	0.018 0.024 0.028 < 0.01	2006/1026860
Italy, 2006 (Quadrato d'Asti)	EC	0.025	0.006	400	1	0 3 8 13	fruit	0.032 0.015 < 0.01 < 0.01	2007/1008497

SWEET PEPPERS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	Days[a]		mg/kg	
Spain, 2005 (Italico) glasshouse	EC	0.040	0.010	400	1	0 3 7 13	fruit	0.031 0.027 0.029 0.023	2006/1036933
Spain, 2005 (Negrillo)	EC	0.025	0.006	400	1	0 3 7 14	fruit	0.011 < 0.01 < 0.01 < 0.01	2006/1026860
Spain, 2006 (Stilo)	EC	0.025	0.006	400	1	0 3 8 13	fruit	0.033 0.025 0.024 0.012	2007/1008497

[a] 0– (approximately 1 hour before final application), 0+ (approximately 1 hour after final application)

[b] Supporting data limited.

Table 30 Alpha-cypermethrin residues in sweet corn resulting from supervised trials with alpha-cypermethrin in Canada

SWEET CORN	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Canada, 1983 (Seneca)[a]	EC	0.020	0.0013	1500	5	7	cobs grain	< 0.01 < 0.01	AL-723-009

[a] Supporting data limited.

Table 31 Alpha-cypermethrin residues in tomatoes resulting from supervised trials with alpha-cypermethrin in Belgium, Brazil, Denmark, France, Germany, Greece, Italy, Netherlands, South Africa and Spain

TOMATOES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg [a]	
Belgium, 2005 (Felicie)	EC	0.013	0.003	410	1	0 3 7 14	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	2007/1008488
Belgium, 2005 (Felicie)	EC	0.013	0.003	400 420	2	0 3 7 14	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	2007/1008488
Belgium, 2005 (Paola) indoor	EC	0.042	0.010	420	1	0 3 7 14	tomatoes	< 0.01 0.015 < 0.01 < 0.01	2007/1007934
Brazil, 1983 (Angela Niper)[b]	EC	0.006	0.0004	1400	6	7	tomatoes	< 0.01	AL-723-005
Brazil, 1983 (Angela Niper)[b]	EC	0.012	0.0009	1400	6	7	tomatoes	< 0.01	AL-723-005

TOMATOES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg [a]	
Brazil, 1986 (Angela Sigante)[b]	EC	0.0245	0.0035	700	7	4	tomatoes	0.03	AL-723-010
Brazil, 1986 (Angela Sigante)[b]	EC	0.049	0.007	700	7	4	tomatoes	0.05	AL-723-010
Denmark, 1982 glasshouse[b]	EC	0.018	0.0006	3000	1	1 3 5 7	tomatoes	0.03 0.01 < 0.01 < 0.01	AL-723-027
Denmark, 2004 (Aromata) glasshouse	SC	0.015	0.004	400	1	0 4 7 14	tomatoes	< 0.01 < 0.01 0.019 < 0.01	2004/5000719
Denmark, 2004 (Aromata) glasshouse	SC	0.015	0.004	400	2	0 4 7 14	tomatoes	0.019 < 0.01 0.013 0.011	2004/5000719
France, 1983 (H 63.5) glasshouse[b]	EC	0.015	0.0015	1000	1	0 1 3 7	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	AL-723-027
France, 1983 (H 63.5) glasshouse[b]	EC	0.030	0.0030	1000	1	0 1 3 7	tomatoes	0.03 0.01 < 0.01 < 0.01	AL-723-027
France, 1993 (Ondina)[b]	EC	0.020 ✈			2	3	tomatoes	< 0.02	AL-723-019
France, 1993 (Recento) plastic tunnel [b]	EC	0.020			2	3	tomatoes	< 0.02	AL-723-019
France, 1996 (Erica)[b]	WG	0.0105	0.0013	800	2	3	tomatoes	< 0.02	AL-723-027
France, 1996 (Granny Mat)[b]	WG	0.0105	0.0013	800	2	3	tomatoes	< 0.02	AL-723-027
France, 2004 (Brenda) glasshouse	SC	0.015	0.004	400	1	0 2 6 13	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	2004/5000719
France, 2004 (Brenda) glasshouse	SC	0.015	0.004	400	2	0 2 6 13	tomatoes	0.011 < 0.01 < 0.01 0.015	2004/5000719
France, 2004 (Petula) glasshouse	SC	0.015	0.004	400	1	0 3 7 14	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	2004/5000719
France, 2004 (Petula) glasshouse	SC	0.015	0.004	400	2	0 3 7 14	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	2004/5000719
France, 2005 (All R 50)	EC	0.028	0.006	450	1	0 3 7 14	tomatoes	< 0.01 < 0.01 0.012 < 0.01	2007/1008488

TOMATOES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg [a]	
France, 2005 (Brenda) indoor	EC	0.042	0.010	420	1	0 3 7 14	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007934
France, 2005 (Coudoulet)	EC	0.025	0.006	400	1	0 3 7 14	tomatoes	0.015 < 0.01 < 0.01 < 0.01	2007/1008488
France, 2005 (Hector)	EC	0.013	0.003	400	1	0 3 7 14	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	2007/1008488
France, 2005 (Hector)	EC	0.013	0.003	430 400	2	0 3 7 14	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	2007/1008488
France, 2005 (Joker)	EC	0.013	0.003	400	1	0 3 7 14	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	2007/1008488
France, 2005 (Joker)	EC	0.013	0.003	410	2	0 3 7 14	tomatoes	0.013 < 0.01 < 0.01 < 0.01	2007/1008488
France, 2005 (Sympathic) indoor	EC	0.039	0.010	390	1	0 3 7 14	tomatoes	< 0.01 0.01 0.011 0.016	2007/1007934
France, 2006 (Leader)	EC	0.025	0.006	400	1	0 4 7 14	tomatoes	0.018 < 0.01 < 0.01 < 0.01	2007/1007937
France, 2006 (Leader)	EC	0.025	0.006	400	1	0 4 7 14	tomatoes	0.016 < 0.01 < 0.01 < 0.01	2007/1007937
France, 2006 (Medina)	EC	0.012	0.003	390	1	0 4 7 14	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	2007/1008494
France, 2006 (Medina)	EC	0.012 0.013	0.003	390 420	2	0 4 7 14	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	2007/1008494
France, 2006 (Perfectil)	EC	0.025	0.006	400	1	0 3 7 14	tomatoes	0.012 < 0.01 < 0.01 < 0.01	2007/1008494
France, 2006 (Topkapi)	EC	0.0125	0.003	400	1	0 3 7 14	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007937

TOMATOES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg [a]	
France, 2006 (Topkapi)	EC	0.0125	0.003	400	2	0 3 7 14	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007937
France, 2006 (Topkapi)	WG	0.0125	0.003	400	1	0 3 7 14	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007937
France, 2006 (Topkapi)	WG	0.0125	0.003	400	2	0 3 7 14	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007937
Germany, 2004 (Swift) glasshouse	SC	0.015	0.004	400	1	0 3 7 14	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	2004/5000719
Germany, 2004 (Swift) glasshouse	SC	0.015	0.004	400	2	0 3 7 14	tomatoes	0.012 0.012 0.01 < 0.01	2004/5000719
Germany, 2005 (Alma) indoor	EC	0.042	0.010	420	1	0 3 7 15	tomatoes	0.012 0.016 < 0.01 < 0.01	2007/1007934
Germany, 2005 (Pipo) indoor	EC	0.037	0.010	370	1	0 2 7 14	tomatoes	0.019 0.025 < 0.01 0.013	2007/1007934
Germany, 2005 (Vanessa)	EC	0.013	0.003	430	1	0 3 7 14	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	2007/1008488
Germany, 2005 (Vanessa)	EC	0.013	0.003	410 375	2	0 3 7 14	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	2007/1008488
Germany, 2006 (Harzfeuer)	EC	0.014	0.003	430	1	0 3 8 14	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	2007/1008494
Germany, 2006 (Harzfeuer)	EC	0.014 0.012	0.003	440 390	2	0 3 8 14	tomatoes	< 0.01 0.01 < 0.01 < 0.01	2007/1008494
Germany, 2006 (Tombolino St Pierre Fiaschetto Mix)	EC	0.012	0.003	390	1	0 3 7 14	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	2007/1008494
Germany, 2006 (Tombolino St Pierre Fiaschetto Mix)	EC	0.013	0.003	420	2	0 3 7 14	tomatoes	0.012 < 0.01 < 0.01 < 0.01	2007/1008494

TOMATOES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg [a]	
Germany, 2006 (Vanessa)	EC	0.0125	0.003	400	1	0 2 7 13	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007937
Germany, 2006 (Vanessa)	EC	0.0125	0.003	400	2	0 2 7 13	tomatoes	0.011 < 0.01 < 0.01 < 0.01	2007/1007937
Germany, 2006 (Vanessa)	WG	0.0125	0.003	400	1	0 2 7 13	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007937
Germany, 2006 (Vanessa)	WG	0.0125	0.003	400	2	0 2 7 13	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007937
Germany, 2006 (Vanessa)	EC	0.013	0.003	400	1	0 3 7 14	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	2007/1008494
Germany, 2006 (Vanessa)	EC	0.013 0.012	0.003	410 380	2	0 3 7 14	tomatoes	0.011 < 0.01 < 0.01 < 0.01	2007/1008494
Greece, 2004 (Alma) glasshouse	SC	0.015	0.004	400	1	0 3 7 14	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	2004/5000719
Greece, 2004 (Alma) glasshouse	SC	0.015	0.004	400	2	0 3 7 14	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	2004/5000719
Greece, 2005 (Alma) indoor	EC	0.038	0.010	390	1	0 3 7 14	tomatoes	< 0.01 < 0.01 0.014 < 0.01	2007/1007934
Greece, 2006 (Alma)	EC	0.024	0.006	390	1	0 4 8 14	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	2007/1008494
Italy, 2004 (Seni) glasshouse	SC	0.015	0.004	400	1	0 3 7 14	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	2004/5000719
Italy, 2004 (Seni) glasshouse	SC	0.015	0.004	400	2	0 3 7 14	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	2004/5000719
Italy, 2005 (Cuor di bue, hybrid) indoor	EC	0.041	0.010	410	1	0 3 7 14	tomatoes	0.029 0.037 0.024 0.032	2007/1007934

TOMATOES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg [a]	
Italy, 2005 (Rio Grande)	EC	0.027	0.006	430	1	0 4 7 15	tomatoes	< 0.01 < 0.01 0.021 < 0.01	2007/1008488
Italy, 2006 (Rio Grande)	EC	0.025	0.006	400	1	0 2 6 14	tomatoes	0.013 0.019 0.013 < 0.01	2007/1008494
Netherlands, 2004 (Cedrico) glasshouse	SC	0.015	0.004	400	1	0 3 7 13	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	2004/5000719
Netherlands, 2004 (Cedrico) glasshouse	SC	0.015	0.004	400	2	0 3 7 13	tomatoes	0.017 0.018 < 0.01 < 0.01	2004/5000719
South Africa, 1984[b]	EC	0.0125	0.00125	1000	1	0 1 3 7 14	tomatoes	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-723-008
South Africa, 1984[b]	EC	0.00375 0.0094 0.0125	0.00125 0.00125 0.00125	300 750 1000	3	0 1 3 7 14	tomatoes	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-723-008
Spain, 1981 (Montfavet)[b]	EC	0.060	0.0015	4000	3 4 5	0 0 0	tomatoes	0.03 c0.02 0.05 0.06	AL-723-001
Spain, 1981 (Montfavet)[b]	EC	0.10	0.0025	4000	3 4 5	0 0 0	tomatoes	0.05 c0.02 0.07 0.08	AL-723-001
Spain, 2004 (Antilla) glasshouse	SC	0.015	0.004	400	1	0 3 7 13	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	2004/5000719
Spain, 2004 (Antilla) glasshouse	SC	0.015	0.004	400	2	0 3 7 13	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	2004/5000719
Spain, 2005 (Marmande RAF) indoor	EC	0.040	0.010	410	1	0 3 7 14	tomatoes	0.030 0.024 0.015 0.014	2007/1007934
Spain, 2005 (Rio Grande)	EC	0.025	0.006	400	1	0 3 7 14	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	2007/1008488
Spain, 2006 (Bodar)	EC	0.025	0.006	400	1	0 3 7 14	tomatoes	0.021 < 0.01 < 0.01 < 0.01	2007/1008494

TOMATOES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg [a]	
Spain, 2006 (Tina)	EC	0.025	0.006	400	1	0 4 7 14	tomatoes	< 0.01 0.013 < 0.01 < 0.01	2007/1007937
Spain, 2006 (Tina)	WG	0.025	0.006	400	1	0 4 7 14	tomatoes	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007937

[a] c: sample from control (untreated) plot.

[b] Supporting data limited.

Table 32 Alpha-cypermethrin residues in kale resulting from supervised trials with alpha-cypermethrin in Germany, Greece, Italy and the UK

KALE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Germany, 1984	EC	0.012	0.002	600	3	0 7 14 21	kale heads	0.80 0.34 0.15 0.05	AL-721-011
Germany, 1984 (Halbhoher Krauser)	EC	0.012	0.002	600	3	0 7 14 21	kale heads	0.50 0.15 0.30 0.13	AL-721-011
Germany, 1984 (Halbhoher Krauser)	EC	0.012	0.002	600	3	0 7 14 21	kale heads	0.34 0.18 0.10 0.10	AL-721-011
Germany, 1984 (Verdura)	EC	0.012	0.002	600	3	0 7 14 21	kale heads	4.6 4.2 3.8 1.6	AL-721-011
Germany, 2005 (Winterbox) curly kale	EC	0.013	0.003	400	1	0 3 7 14	foliage	0.15 0.23 0.17 0.083	2006/1026862
Germany, 2005 (Winterbox) curly kale	EC	0.013	0.003	400	2	0 3 7 14	foliage	0.24 0.17 0.084 0.15	2006/1026862
Greece, 2005 (Vates) curly kale	EC	0.025	0.006	400	1	0 3 7 14	foliage	0.35 0.28 0.26 0.14	2006/1026862
Italy, 2005 (Black Toscano) curly kale	EC	0.025	0.006	400	1	0 3 7 14	foliage	0.52 0.44 0.26 0.24	2006/1026862
UK, 2006 (Winetou) curly kale	EC	0.013	0.003	400	1	0 3 7 14	foliage	0.16 0.20 0.24 0.12	2006/1026862

KALE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
UK, 2006 (Winetou) curly kale	EC	0.013	0.003	400	2	0 3 7 14	foliage	0.24 c 0.01 0.35 c 0.01 0.38 0.25	2006/1026862

Table 33 Alpha-cypermethrin residues in leafy cabbage resulting from supervised trials with alpha-cypermethrin in France, Netherlands and Spain

LEAFY CABBAGE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
France, 2006 (Castelard)	EC	0.025	0.006	400	1	0 3 7 14	cabbage leaves	0.066 0.046 0.01 < 0.01	2007/1013342
France, 2006 (Reflex)	EC	0.013	0.003	400	1	0 3 8 14	cabbage leaves	0.26 0.26 0.22 0.17	2007/1013342
France, 2006 (Reflex)	EC	0.013	0.003	400	2	0 3 8 14	cabbage leaves	0.47 0.59 0.35 0.24	2007/1013342
Netherlands, 2006 (Winnetou)	EC	0.013	0.003	420	1	0 4 7 15	cabbage leaves	0.26 0.18 0.15 0.074	2007/1013342
Netherlands, 2006 (Winnetou)	EC	0.013	0.003	400	2	0 4 7 15	cabbage leaves	0.48 0.35 0.21 0.19	2007/1013342
Spain, 2006 (Manoko)	EC	0.025	0.006	400	1	0 3 6 14	cabbage leaves	0.13 0.056 0.056 0.01	2007/1013342

Table 34 Alpha-cypermethrin residues in lambs lettuce (corn salad) resulting from supervised trials with alpha-cypermethrin in France

LAMBS LETTUCE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
France, 1992 (Verte de Cambrai) plastic tunnel	EC	0.010	0.001	1000	2	7	leaves	0.29	AL-726-012
France, 1992 (Verte de Cambrai) plastic tunnel	EC	0.010	0.001	1000	2	7	leaves	0.28	AL-726-012

Table 35 Alpha-cypermethrin residues in lettuce resulting from supervised trials with alpha-cypermethrin in Belgium, Denmark, France, Germany, Greece, Italy, Netherlands, Spain and the UK

LETTUCE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Belgium, 1984 (Verlia)	EC	0.010		1000	1	0 3 7	lettuces	0.18 0.07 0.02	AL-726-002
Belgium, 2005 (Omega) glasshouse	EC	0.040	0.010	400	1	0 3 8 14	lettuce heads	1.0 0.44 0.21 0.05	2006/1037555
Denmark, 2005 (Hawaii) glasshouse	EC	0.040	0.010	400	1	0 3 7 14	lettuce heads	0.61 0.43 0.27 0.18	2006/1037555
Denmark, 2006 (Matilda)	EC	0.012	0.003	390	1	0 3 7 14	lettuce heads	0.13 0.096 0.027 < 0.01	2007/1008496
Denmark, 2006 (Matilda)	EC	0.012	0.003	400	2	0 3 7 14	lettuce heads	0.13 0.12 0.042 0.010	2007/1008496
France, 1981 (Capitan)	EC	0.009		1000	1	0 3 10	lettuces	0.31 0.21 0.12	AL-726-004
France, 1981 (Capitan)	EC	0.015		1000	1	0 3 10	lettuces	0.41 0.28 0.17	AL-726-004
France, 1982 (Appia)	EC cyper	0.030		1000	1	0 3 7	lettuces	0.45 cyper 0.16 0.12	AL-726-001
France, 1982 (Appia)	EC cyper	0.030		1000	1	0 3 7	lettuces	0.64 cyper 0.25 0.10	AL-726-001
France, 1982 (Appia)	EC	0.013		1000	1	0 3 7	lettuces	0.25 0.07 0.05	AL-726-001
France, 1982 (Appia)	EC	0.013		1000	1	0 3 7	lettuces	0.27 0.07 0.04	AL-726-001
France, 1983 (Jorry) glasshouse	EC	0.013		1000	1	0 7 14 21	lettuces	0.24 0.18 0.15 0.11	AL-726-005
France, 1984 (Massilia)	EC	0.010		1000	1	0 3 7	lettuces	0.19 0.05 0.02	AL-726-002
France, 1992	EC	0.010	0.001	1000	2	7	lettuces	0.07	AL-726-013
France, 1992	EC	0.010	0.001	1000	2	9	lettuces	0.06	AL-726-013
France, 1992 (Nobel) plastic tunnel	EC	0.010	0.0017	600	2	0– 0+ 2 4 7 10	lettuces	0.11 0.23 0.26 0.27 0.22 0.11	AL-726-013

LETTUCE	Application					PHI	Commodity	Alpha-cypermethrin mg/kg	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days			
France, 1992 (Okta) plastic tunnel	EC	0.010	0.0017	600	2	7	lettuces[a]	0.40	AL-726-013
France, 2005 (Boreal) glasshouse	EC	0.040	0.010	400	1	0 3 7 14	lettuce heads	0.93 0.77 0.68 0.45	2006/1037555
France, 2005 (Estelle)	EC	0.013	0.003	400	1	0 2 7 14	lettuce heads	0.42 0.38 0.24 0.19	2006/1026855
France, 2005 (Estelle)	EC	0.013	0.003	400	2	0 2 7 14	lettuce heads	0.65 0.72 0.49 0.41	2006/1026855
France, 2005 (Mathilde) glasshouse	EC	0.040	0.010	400	1	0 3 6 14	lettuce heads	0.93 1.1 0.68 0.43	2006/1037555
France, 2005 (Sagesse)	EC	0.025	0.006	400	1	0 3 7 14	lettuce heads	0.45 0.10 0.067 0.013	2006/1026855
France, 2006 (Jambis)	EC	0.013	0.003	400	1	0 3 7 14	lettuce heads	0.13 0.036 0.018 < 0.01	2007/1007938
France, 2006 (Jambis)	EC	0.013	0.003	400	2	0 3 7 14	lettuce heads	0.19 0.072 0.018 < 0.01	2007/1007938
France, 2006 (Jambis)	WG	0.013	0.003	400	1	0 3 7 14	lettuce heads	0.024 0.028 0.019 < 0.01	2007/1007938
France, 2006 (Jambis)	WG	0.013	0.003	400	2	0 3 7 14	lettuce heads	0.090 0.057 0.022 < 0.01	2007/1007938
France, 2006 (Lucan)	EC	0.012	0.003	380	1	0 3 7 13	lettuce heads	0.38 0.13 0.08 0.025	2007/1008496
France, 2006 (Lucan)	EC	0.012	0.003	380	2	0 3 7 13	lettuce heads	0.35 0.27 0.12 0.039	2007/1008496
France, 2006 (Soleilan)	EC	0.026	0.006	420	1	0 3 7 14	lettuce heads	0.36 0.32 0.10 0.021	2007/1008496
Germany, 1993 (Ovation)	EC	0.009	0.0023	400	3	0 7 10 14 21	lettuce heads	0.092 0.015 < 0.01 < 0.01 < 0.01	AL-726-014

LETTUCE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Germany, 1993 (Ovation)	EC	0.009	0.0023	400	3	0 7 10 14 21	lettuce heads	0.022 < 0.01 < 0.01 < 0.01 < 0.01	AL-726-014
Germany, 1993 (Ovation)	EC	0.009	0.0023	400	3	0 7 10 14 21	whole plant lettuce heads lettuce heads lettuce heads lettuce heads	0.10 0.042 0.025 < 0.01 < 0.01	AL-726-014
Germany, 1993 (Ovation)	EC	0.009	0.0023	400	3	0 7 11 14 21	whole plant lettuce heads lettuce heads lettuce heads lettuce heads	0.27 0.020 < 0.01 0.023 < 0.01	AL-726-014
Germany, 1996 (Mirian)	WG	0.010		400	3	0– 0+ 3 7 14 21	lettuces lettuces lettuces lettuces lettuce heads lettuce heads	< 0.01 0.07 0.01 < 0.01 0.01 < 0.01	AL-726-010
Germany, 1996 (Mirian)	SC	0.010		400	3	0– 0+ 3 7 14 21	lettuces lettuces lettuces lettuces lettuce heads lettuce heads	< 0.01 0.11 0.02 < 0.01 < 0.01 < 0.01	AL-726-010
Germany, 1996 (Mirian)	EC	0.010		400	3	0– 0+ 3 7 14 21	lettuces lettuces lettuces lettuces lettuce heads lettuce heads	< 0.01 0.13 0.04 < 0.01 < 0.01 < 0.01	AL-726-010
Germany, 1996 (Mirian)	WG	0.010		400	3	0– 0+ 3 7 14 21	lettuces lettuces lettuces lettuces lettuce heads lettuce heads	< 0.01 0.06 0.03 0.03 < 0.01 < 0.01	AL-726-010
Germany, 1996 (Mirian)	SC	0.010		400	3	0– 0+ 3 7 14 21	lettuces lettuces lettuces lettuces lettuce heads lettuce heads	< 0.01 0.15 0.03 0.05 0.01 < 0.01	AL-726-010
Germany, 1996 (Mirian)	EC	0.010		400	3	0– 0+ 3 7 14 21	lettuces lettuces lettuces lettuces lettuce heads lettuce heads	< 0.01 0.15 0.05 0.02 < 0.01 < 0.01	AL-726-010
Germany, 2003 (Jesina)	SC	0.009	0.005	200	1	0 3 7	lettuce heads	0.44 0.068 0.054	2004/1006469
Germany, 2003 (Jesina)	SC	0.009	0.005	200	1	0 3 7	lettuce heads	0.29 0.091 0.054	2004/1006469

LETTUCE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Germany, 2003 (Nadine)	SC	0.009	0.005	200	1	0 3 7	lettuce heads	0.19 0.099 < 0.05	2004/1006469
Germany, 2003 (Nadine)	SC	0.009	0.005	200	1	0 3 7	lettuce heads	0.23 0.15 0.063	2004/1006469
Germany, 2003 (Nadine)	SC	0.009	0.005	200	1	0 3 7	lettuce heads	0.17 0.11 < 0.05	2004/1006469
Germany, 2003 (Nadine)	SC	0.009	0.005	200	1	0 3 7	lettuce heads	0.11 0.10 0.082	2004/1006469
Germany, 2003 (Ponchito)	SC	0.009	0.005	200	1	0 3 7	lettuce heads	0.073 < 0.05 0.060	2004/1006469
Germany, 2003 (Ponchito)	SC	0.009	0.005	200	1	0 3 7	lettuce heads	0.16 0.058 < 0.05	2004/1006469
Germany, 2005 (Nobilan)	EC	0.013	0.003	400	1	0 3 7 14	lettuce heads	0.40 0.17 0.17 0.11	2006/1026855
Germany, 2005 (Nobilan)	EC	0.013	0.003	400	2	0 3 7 14	lettuce heads	0.32 0.22 0.18 0.085	2006/1026855
Germany, 2005 (Ponchito) glasshouse	EC	0.040	0.010	400	1	0 4 7 13	lettuce heads	1.1 0.21 0.09 0.02	2006/1037555
Germany, 2006 (mixture of Dynamite and Dolly)	EC	0.011	0.003	340	1	0 2 7 14	lettuce heads	0.024 0.014 < 0.01 < 0.01	2007/1008496
Germany, 2006 (mixture of Dynamite and Dolly)	EC	0.011	0.003	340	2	0 2 7 14	lettuce heads	0.030 0.021 < 0.01 < 0.01	2007/1008496
Greece, 2005 (Atraxion)	EC	0.025	0.006	400	1	0 3 7 15	lettuce heads	1.2 0.59 0.52 0.11	2006/1026855
Greece, 2005 (Atraxion) glasshouse	EC	0.040	0.010	400	1	0 2 7 13	lettuce heads	1.7 0.77 0.57 0.15	2006/1037555
Greece, 2006 (Aberam)	EC	0.025	0.006	400	1	0 4 8 14	lettuce heads	0.33 < 0.01 < 0.01 < 0.01	2007/1008496
Italy, 1995 (Tilina – Royal Louise)	EC	0.050	0.005	1000	1	0 3 7 14 21	leaves (heads)	1.3 0.86 0.14 0.04 < 0.01	AL-726-008

LETTUCE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Italy, 1995 (Tilina – Royal Louise)	WG	0.050	0.005	1000	1	0 3 7 14 21	leaves (heads)	1.0 0.66 0.24 0.04 < 0.01	AL-726-008
Italy, 1995 (Tilina – Royal Louise)	WG	0.050	0.005	1000	1	0 3 7 14 21	leaves (heads)	1.0 0.71 0.32 0.04 < 0.01	AL-726-008
Italy, 2005 (Gentilina)	EC	0.025	0.006	400	1	0 3 7 14	lettuce heads	0.74 0.31 0.065 0.021	2006/1026855
Italy, 2005 (Limax) glasshouse	EC	0.040	0.010	400	1	0 3 7 14	lettuce heads	0.95 0.85 0.30 0.15	2006/1037555
Italy, 2006 (Carinos)	EC	0.026	0.006	410	1	0 3 7 14	lettuce heads	1.1 0.41 0.12 0.031	2007/1008496
Italy, 2006 (Gentilina)	EC	0.025	0.006	400	1	0 2 7 14	lettuce heads	0.51 0.39 0.065 < 0.01	2007/1007938
Italy, 2006 (Gentilina)	WG	0.025	0.006	400	1	0 2 7 14	lettuce heads	0.48 0.29 0.035 < 0.01	2007/1007938
Netherlands, 2005 (Rheinea)	EC	0.013	0.003	400	1	0 3 7 14	lettuce heads	0.28 0.12 0.042 < 0.01	2006/1026855
Netherlands, 2005 (Rheinea)	EC	0.013	0.003	400	2	0 3 7 14	lettuce heads	0.44 0.13 0.052 < 0.01	2006/1026855
Spain, 2005 (Filipus)	EC	0.025	0.006	400	1	0 3 7 14	lettuce heads	0.30 0.21 0.062 0.022	2006/1026855
Spain, 2005 (Filipus) glasshouse	EC	0.040	0.010	400	1	0 3 7 13	lettuce heads	0.80 0.56 0.30 0.20	2006/1037555
Spain, 2006 (Filipo)	EC	0.025	0.006	400	1	0 3 6 14	lettuce heads	0.42 0.14 0.11 < 0.01	2007/1007938
Spain, 2006 (Filipo)	WG	0.025	0.006	400	1	0 3 6 14	lettuce heads	0.23 0.20 0.13 0.013	2007/1007938

LETTUCE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Spain, 2006 (Filippus)	EC	0.023	0.006	370	1	0 3 8 13	lettuce heads	0.24 0.11 0.038 0.011	2007/1008496
UK, 1996 (Farrow)	WG	0.010		200	3	0– 0+ 3 7 14 21	lettuces lettuces lettuces lettuces lettuce heads lettuce heads	0.05 0.30 0.10 0.11 0.02 0.02	AL-726-009
UK, 1996 (Farrow)	SC	0.010		200	3	0– 0+ 3 7 14 21	lettuces lettuces lettuces lettuces lettuce heads lettuce heads	0.10 0.39 0.17 0.09 0.05 0.04	AL-726-009
UK, 1996 (Farrow)	EC	0.010		200	3	0– 0+ 3 7 14 21	lettuces lettuces lettuces lettuces lettuce heads lettuce heads	0.04 0.38 0.25 0.12 0.04 0.03	AL-726-009
UK, 1996 (Monterray)	WG	0.010		200	3	0– 0+ 3 7 14	lettuces lettuces lettuces lettuces lettuce heads	0.05 c 0.04 0.21 0.14 c 0.09 0.07 c 0.05 0.02	AL-726-009
UK, 1996 (Monterray)	SC	0.010		200	3	0– 0+ 3 7 14	lettuces lettuces lettuces lettuces lettuce heads	0.05 0.21 0.19 0.18 0.01	AL-726-009
UK, 1996 (Monterray)	EC	0.010		200	3	0– 0+ 3 7 14	lettuces lettuces lettuces lettuces lettuce heads	0.04 0.16 0.26 0.06 0.01	AL-726-009
UK, 2005 (Tamburo)	EC	0.013	0.003	400	1	0 3 7 14	lettuce heads	0.30 0.24 0.064 0.025	2006/1026855
UK, 2005 (Tamburo)	EC	0.013	0.003	400	2	0 3 7 14	lettuce heads	0.40 0.24 0.086 0.047	2006/1026855
UK, 2006 (Igoma)	EC	0.013	0.003	400	1	0 3 7 14	lettuce heads	0.088 < 0.01 < 0.01 < 0.01	2007/1007938
UK, 2006 (Igoma)	EC	0.013	0.003	400	2	0 3 7 14	lettuce heads	0.13 < 0.01 < 0.01 < 0.01	2007/1007938
UK, 2006 (Igoma)	WG	0.013	0.003	400	1	0 3 7 14	lettuce heads	0.049 < 0.01 < 0.01 < 0.01	2007/1007938

LETTUCE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
UK, 2006 (Igoma)	WG	0.013	0.003	400	2	0 3 7 14	lettuce heads	0.13 < 0.01 < 0.01 < 0.01	2007/1007938
UK, 2006 (Pinochio)	EC	0.013	0.003	420	1	0 3 7 14	lettuce heads	0.14 0.041 0.027 0.010	2007/1008496
UK, 2006 (Pinochio)	EC	0.013	0.003	410	2	0 3 7 14	lettuce heads	0.13 0.055 0.055 0.013	2007/1008496

[a] Sample from control (untreated) plot 0.01 mg/kg

Table 36 Alpha-cypermethrin residues in spinach resulting from supervised trials with alpha-cypermethrin in France, Germany and Netherlands

SPINACH	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
France, 2006 (Laska)	EC	0.013	0.003	400	1	0 3 7 15	spinach foliage	1.1 0.72 0.55 0.21	2007/1007944
France, 2006 (Laska)	EC	0.013	0.003	400	2	0 3 7 15	spinach foliage	1.9 1.3 0.89 0.39	2007/1007944
Germany, 2006 (Elan)	EC	0.013	0.003	400	1	0 2 7 13	spinach foliage	0.55 0.37 0.19 0.07	2007/1007944
Germany, 2006 (Elan)	EC	0.013	0.003	400	2	0 2 7 13	spinach foliage	0.61 0.33 0.19 0.09	2007/1007944
Netherlands, 2005 (Monza)	EC	0.013	0.003	400	1	0 3 7 14	spinach foliage	0.70 0.22 0.18 0.037	2006/1026849
Netherlands, 2005 (Monza)	EC	0.013	0.003	400	2	0 3 7 14	spinach foliage	0.95 0.39 0.14 0.033	2006/1026849

Table 37 Alpha-cypermethrin residues in peas resulting from supervised trials with alpha-cypermethrin in Denmark, France, Germany, Greece, Italy, Netherlands, Spain and the UK

PEAS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Denmark, 2006 (Progress No 9)	EC	0.013	0.003	400	1	0 2 7 14	peas (seeds)	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007951
Denmark, 2006 (Progress No 9)	EC	0.013	0.003	400	2	0 2 7 14	peas (seeds)	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007951
France, 1984	?	0.015	0.0015	1000	1	0 0 7 7	peas (seeds) pods peas (seeds) pods	< 0.01 < 0.01 < 0.01 < 0.01	AL-720-006
France, 1984	?	0.015	0.0015	1000	1	3 3	peas (seeds) pods	< 0.01 < 0.01	AL-720-006
France, 2005 (Hardy) dry pea	EC	0.013	0.003	400	1	0 14 21 28	peas (seed)	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026858
France, 2005 (Hardy) dry pea	EC	0.013	0.003	400	2	0 14 21 28	peas (seed)	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026858
France, 2005 (Utrio)	EC	0.013	0.003	400	1	0 3 7 14	peas (seeds)	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026856
France, 2005 (Utrio)	EC	0.013	0.003	400	2	0 3 7 14	peas (seeds)	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026856
France, 2006 (Arthur) dry pea	EC	0.013	0.003	400	1	0 14 21 28	peas (seed)	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007949
France, 2006 (Arthur) dry pea	EC	0.013	0.003	400	2	0 14 21 28	peas (seed)	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007949
France, 2006 (Baceaua) dry pea	EC	0.025	0.006	400	1	0 13 21	peas (seed)	< 0.01 < 0.01 < 0.01	2007/1007949
France, 2006 (Merveille de Kelvedon)	EC	0.013	0.003	400	1	0 3 7 14	peas (seeds)	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007951
France, 2006 (Merveille de Kelvedon)	EC	0.013	0.003	400	2	0 3 7 14	peas (seeds)	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007951

PEAS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
France, 2006 (Milan)	EC	0.025	0.006	400	1	0 2 7 14	peas (seeds)	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007951
Germany, 2005 (Maxigold)	EC	0.013	0.003	400	1	0 3 7 14	peas (seeds)	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026856
Germany, 2005 (Maxigold)	EC	0.013	0.003	400	2	0 3 7 14	peas (seeds)	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026856
Germany, 2006 (Santana)	EC	0.013	0.003	400	1	0 4 7 14	peas (seeds)	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007951
Germany, 2006 (Santana)	EC	0.013	0.003	400	2	0 4 7 14	peas (seeds)	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007951
Germany, 2006 (Santana) dry pea	EC	0.013	0.003	400	1	0 13 20 28	peas (seed)	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007949
Germany, 2006 (Santana) dry pea	EC	0.013	0.003	400	2	0 13 20 28	peas (seed)	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007949
Greece, 2005 (Ambassadeur)	EC	0.025	0.006	400	1	0 3 7 14	peas (seeds)	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026856
Greece, 2006 (Lotus) dry pea	EC	0.025	0.006	400	1	0 14 21 28	peas (seed)	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007949
Italy, 2005 (Atlas)	EC	0.025	0.006	400	1	0 3 7 14	peas (seeds)	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026856
Italy, 2005 (Coralio) dry pea	EC	0.025	0.006	400	1	0 14 21 28	peas (seed)	< 0.01 < 0.01 0.022 0.040	2006/1026858
Netherlands, 2005 (Arlette)	EC	0.013	0.003	400	1	0 3 7 14	peas (seeds)	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026856
Netherlands, 2005 (Arlette)	EC	0.013	0.003	400	2	0 3 7 14	peas (seeds)	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026856
Spain, 2005 (Ideal) dry pea	EC	0.025	0.006	400	1	0 14 21	peas (seed)	< 0.01 < 0.01 < 0.01	2006/1026858

PEAS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Spain, 2006 (Meteor)	EC	0.025	0.006	400	1	0 4 7 14	peas (seeds)	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007951
UK, 1993 (Scout) vining pea	EC	0.015	0.008	200	4	0 3	peas (seeds)	< 0.05 < 0.05 c 0.71	AL-720-012
UK, 1993 (Scout) vining pea	EC	0.015	0.008	200	4	0 3	peas (seeds)	< 0.05 < 0.05	AL-720-012
UK, 1993 (Skinidao) vining pea	EC	0.015	0.008	200	4	0 3	peas (seeds)	< 0.05 < 0.05	AL-720-012
UK, 1993 (Vera) vining pea	EC	0.015	0.008	200	4	0 3	peas (seeds)	< 0.05 < 0.05	AL-720-012
UK, 1997 (80A Ambassador) vining pea	EC	0.015	0.008	200	3	0– 0+ 1 2 3	pods	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-720-027
UK, 1997 (80A Ambassador) vining pea	EC	0.015	0.008	200	3	1 2 3	peas (seeds)	< 0.05 < 0.05 < 0.05	AL-720-027
UK, 1997 (80A Ambassador) vining pea	WG	0.015	0.008	200	3	0– 0+ 1 2 3	pods	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-720-027
UK, 1997 (80A Ambassador) vining pea	WG	0.015	0.008	200	3	1 2 3	peas (seeds)	< 0.05 < 0.05 < 0.05	AL-720-027
UK, 1997 (Cara) vining pea	EC	0.015	0.0075	200	3	3	peas (seeds)	< 0.05	1998/1004337
UK, 1997 (Vista) vining pea	EC	0.015	0.0075	200	3	2	peas (seeds)	< 0.05	1998/1004336
UK, 1997 (Waverex 16) vining pea	EC	0.015	0.008	200	3	0– 0+ 1 2 3	pods	< 0.05 0.07 0.05 < 0.05 < 0.05	AL-720-027
UK, 1997 (Waverex 16) vining pea	EC	0.015	0.008	200	3	1 2 3	peas (seeds)	< 0.05 < 0.05 < 0.05	AL-720-027
UK, 1997 (Waverex 16) vining pea	WG	0.015	0.008	200	3	0– 0+ 1 2 3	pods	< 0.05 0.06 0.06 0.07 < 0.05	AL-720-027
UK, 1997 (Waverex 16) vining pea	WG	0.015	0.008	200	3	1 2 3	peas (seeds)	< 0.05 < 0.05 < 0.05	AL-720-027
UK, 1999 (24A Tristar) vining pea	WG	0.015	0.008	200	3	1 3 1 3	pods pods peas (seeds) peas (seeds)	< 0.05 < 0.05 < 0.05 < 0.05	AL-720-028

PEAS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
UK, 1999 (24A Tristar) vining pea	EC	0.015	0.008	200	3	1 3 1 3	pods pods peas (seeds) peas (seeds)	< 0.05 < 0.05 < 0.05 < 0.05	AL-720-028
UK, 1999 (65A Ambassador) vining pea	WG	0.015	0.008	200	3	1 3 1 3	pods pods peas (seeds) peas (seeds)	< 0.05 0.05 < 0.05 < 0.05	AL-720-028
UK, 1999 (65A Ambassador) vining pea	EC	0.015	0.008	200	3	1 3 1 3	pods pods peas (seeds) peas (seeds)	0.08 < 0.05 < 0.05 < 0.05	AL-720-028
UK, 2005 (Kobleackie) dry pea	EC	0.013	0.003	400	1	0 14 21 28	peas (seed)	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026858
UK, 2005 (Kobleackie) dry pea	EC	0.013	0.003	400	2	0 14 21 28	peas (seed)	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026858
UK, 2005 (Wavarex)	EC	0.013	0.003	400	1	0 3 7 14	peas (seeds)	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026856
UK, 2005 (Wavarex)	EC	0.013	0.003	400	2	0 3 7 14	peas (seeds)	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026856
UK, 2006 (Geisha)	EC	0.013	0.003	400	1	0 3 7 14	peas (seeds)	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007951
UK, 2006 (Geisha)	EC	0.013	0.003	400	2	0 3 7 14	peas (seeds)	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007951

Table 38 Alpha-cypermethrin residues in beans resulting from supervised trials with alpha-cypermethrin in Belgium, Brazil, France, Germany, Greece, Italy, Netherlands, Spain and the UK

BEANS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Belgium, 2006 (Polder)	EC	0.013	0.003	400	1	0 3 7 14	pods	0.01 0.01 0.01 < 0.01	2007/1007950
Belgium, 2006 (Polder)	EC	0.013	0.003	400	2	0 3 7 14	pods	0.03 0.02 0.02 0.01	2007/1007950

BEANS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Brazil, 1982 (Carioca)[b]	EC	0.01	0.004	250	2	16	beans (seeds)	< 0.01	AL-720-005
Brazil, 1982 (Carioca)[b]	EC	0.02	0.008	250	2	16	beans (seeds)	< 0.01	AL-720-005
France, 1984 (D'Aguadulce) broad beans	EC	0.015	0.0015	1000	1	0 3 7 7	beans (seeds) beans (seeds) beans (seeds) pods	< 0.01 < 0.01 < 0.01 0.04	AL-720-008
France, 1984 (Oblonde) broad beans	EC	0.015	0.0015	1000	1	0 3 7 7	beans (seeds) beans (seeds) beans (seeds) pods	< 0.01 < 0.01 < 0.01 0.02	AL-720-008
France, 1995 (Capitole)	WG	0.030	0.015	200	2	0 7 13 21	pods	0.16 0.07 0.06 0.03	1997/5000309
France, 1995 (Capitole)	WG	0.030	0.015	200	2	0 7 13 21	pods	0.18 0.11 0.08 0.03	1997/5000309
France, 1995 (Capitole)	EC	0.030	0.015	200	2	0 7 13 21	pods	0.18 0.09 0.05 0.03	1997/5000309
France, 1996 (Adana) dwarf bean	WG	0.060	0.006	1000	2	14	pods	< 0.05	AL-720-029
France, 1998 (Argus)	WG	0.030	0.0082	360	1	7	pods	< 0.05	AL-720-024
France, 1998 (Argus)	WG	0.030	0.0082	360	1	0 3 7 11 14	pods	0.11 < 0.05 < 0.05 < 0.05 < 0.05	AL-720-025
France, 1998 (Calvi)	WG	0.030	0.0075	400	1	0 3 7 10 14	pods	0.06 < 0.05 < 0.05 < 0.05 < 0.05	AL-720-026
France, 1998 (Cantare)	WG	0.030	0.0082	360	1	0 3 7 10 13	pods	0.11 < 0.05 < 0.05 < 0.05 < 0.05	AL-720-025
France, 1998 (Filao)	WG	0.030	0.0086	350	1	0 3 7 10 15	pods	0.08 < 0.05 < 0.05 < 0.05 < 0.05	AL-720-026
France, 1998 (Lasso)	WG	0.030	0.0082	360	1	7	pods	< 0.05	AL-720-024
France, 1998 (Primera)	WG	0.030	0.0086	350	1	0 3 7 10 13	pods	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-720-026

BEANS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
France, 1998 (Villebelle)	WG	0.029	0.0084	340	1	0 3 7 10 14	pods	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-720-026
France, 2005 (Adagio)	EC	0.025	0.006	400	1	0 3 7 14	pods	0.047 0.028 0.017 < 0.01	2006/1026857
France, 2005 (Booster)	EC	0.013	0.003	400	1	0 3 7 14	pods	0.019 0.01 0.01 < 0.01	2006/1026857
France, 2005 (Booster)	EC	0.013	0.003	400	2	0 3 7 14	pods	0.025 0.016 0.01 < 0.01	2006/1026857
France, 2005 (Castel) dry bean	EC	0.013	0.003	400	1	0 14 21 28	beans (seed)	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026858
France, 2005 (Castel) dry bean	EC	0.013	0.003	400	2	0 14 21 28	beans (seed)	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026858
France, 2006 (Angers)	EC	0.013	0.003	400	1	0 3 7 14	pods	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007950
France, 2006 (Angers)	EC	0.013	0.003	400	2	0 3 7 14	pods	< 0.01 0.01 < 0.01 < 0.01	2007/1007950
France, 2006 (Booster)	EC	0.025	0.006	400	1	0 3 8 14	pods	0.06 0.05 < 0.01 < 0.01	2007/1007950
France, 2006 (Irena) dry bean	EC	0.013	0.003	400	1	0 14 21 28	beans (seed)	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007949
France, 2006 (Irena) dry bean	EC	0.013	0.003	400	2	0 14 21 28	beans (seed)	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007949
France, 2006 (Linex) dry bean	EC	0.025	0.006	400	2	0 14 21 28	beans (seed)	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007949
Germany, 1993 (Hilds Maxi) dwarf bean	EC	0.009	0.0023	400	3	0 7 10 14 21	beans	0.10 < 0.01 < 0.01 < 0.01 < 0.01	1994/1002588

BEANS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Germany, 1993 (Hilds Maxi) dwarf bean	EC	0.009	0.0023	400	3	0 7 10 14 21	beans	0.07 < 0.01 < 0.01 < 0.01 < 0.01	1994/1002588
Germany, 1993 (Tuff) dwarf bean	EC	0.009	0.0023	400	3	0 7 10 14 21	beans	0.04 < 0.01 < 0.01 < 0.01 < 0.01	1994/1002588
Germany, 1993 (Tuff) dwarf bean	EC	0.009	0.0023	400	3	0 7 11 14 22	beans	0.02 < 0.01 < 0.01 < 0.01 < 0.01	1994/1002588
Germany, 2005 (Sigma)	EC	0.013	0.003	400	1	0 3 7 14	pods	0.016 0.01 < 0.01 < 0.01	2006/1026857
Germany, 2005 (Sigma)	EC	0.013	0.003	400	2	0 3 7 14	pods	0.025 0.020 < 0.01 0.01	2006/1026857
Greece, 2005 (Plati)	EC	0.025	0.006	400	1	0 3 7 14	pods	0.023 0.013 0.018 0.01	2006/1026857
Italy, 1996 (Giulia)	EC	0.029		590	1	42	beans (seeds)	< LOD	AL-720-013
Italy, 1996 (Giulia)	WG	0.030		610	1	42	beans (seeds)	< LOD	AL-720-013
Italy, 1996 (Giulia)	EC	0.031		620	1	42	beans (seeds)	< LOD	AL-720-013
Italy, 1996 (Giulia)	WG	0.030		600	1	42	beans (seeds)	< LOD	AL-720-013
Italy, 1996 (Giulia)	EC	0.030		600	1	42	beans (seeds)	< LOD	AL-720-013
Italy, 1996 (Giulia)	WG	0.030		600	1	42	beans (seeds)	< LOD	AL-720-013
Italy, 1996 (Giulia)	EC	0.030		600	1	42	beans (seeds)	< LOD	AL-720-013
Italy, 1996 (Giulia)	WG	0.030		600	1	42	beans (seeds)	< LOD	AL-720-013
Italy, 2005 (Avalon)	EC	0.025	0.006	400	1	0 3 7 14	pods	0.054 0.063 0.033 0.021	2006/1026857
Italy, 2005 (Polo) dry bean	EC	0.025	0.006	400	1	0 14 21 28	beans (seed)	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026858
Italy, 2006 (Masai)	EC	0.025	0.006	400	1	0 3 7 14	pods	0.02 0.04 0.02 < 0.01	2007/1007950
Netherlands, 2005 (Menthion)	EC	0.013	0.003	400	1	0 3 7 14	pods	0.017 0.01 0.031 0.020	2006/1026857

BEANS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Netherlands, 2005 (Menthion)	EC	0.013	0.003	400	2	0 3 7 14	pods	0.023 0.031 0.015 0.01	2006/1026857
Netherlands, 2006 (Cebeco) dry bean	EC	0.013	0.003	400	1	0 14 22 28	beans (seed)	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007949
Netherlands, 2006 (Cebeco) dry bean	EC	0.013	0.003	400	2	0 14 22 28	beans (seed)	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007949
Netherlands, 2006 (Minidor)	EC	0.013	0.003	400	1	0 3 7 14	pods	< 0.01 0.01 0.01 < 0.01	2007/1007950
Netherlands, 2006 (Minidor)	EC	0.013	0.003	400	2	0 3 7 14	pods	0.02 0.01 0.02 0.01	2007/1007950
Spain, 2005 (Agua Dulce) dry bean	EC	0.025	0.006	400	1	0 14 21 28	beans (seed)	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026858
Spain, 2005 (Antea)	EC	0.025	0.006	400	1	0 3 7 14	pods	0.042 0.020 0.01 < 0.01	2006/1026857
Spain, 2006 (Aneto)	EC	0.025	0.006	400	1	0 3 7 14	pods	0.02 0.03 0.02 0.01	2007/1007950
Spain, 2006 (Reina Blanca) dry bean	EC	0.025	0.006	400	1	0 14 21 28	beans (seed)	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007949
UK, 1980 (Herra) field beans	EC cyper	0.050		370	1	52	beans	0.01 cyper	AL-720-001
UK, 1980 (Herra) field beans	EC cis-cyp	0.025		370	1	52	beans	0.09 cis-cyper	AL-720-001
UK, 1980 (Herra) field beans	EC	0.025		370	1	52	beans	0.01	AL-720-001
UK, 1981 (Herra)	EC	0.02	0.0052	380	1	0 13 0 13	beans (seeds) beans (seeds) beans in pods beans in pods	< 0.01 < 0.01 0.05 0.01	AL-720-004
UK, 1993 (Boxer)[a]	EC	0.015	0.0015	1000	2	0 3	beans (seeds)	< 0.05 < 0.05	1993/5000189
UK, 1993 (Boxer)[a]	EC	0.015 0.015 0.020 0.020	0.0015 0.0015 0.002 0.002	1000	4	0 3	beans (seeds)	< 0.05 < 0.05	1993/5000189

BEANS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
UK, 1993 (Caspar)[a]	EC	0.015	0.0015	1000	2	0 3	beans (seeds)	< 0.05 < 0.05	1993/5000189
UK, 1993 (Caspar)[a]	EC	0.015 0.015 0.020 0.020	0.0015 0.0015 0.002 0.002	1000	4	0 3	beans (seeds)	< 0.05 < 0.05	1993/5000189
UK, 1993 (Maris Bead)[a]	EC	0.015	0.0015	1000	2	0 3	beans (seeds)	< 0.05 < 0.05	1993/5000189
UK, 1993 (Maris Bead)[a]	EC	0.015 0.015 0.020 0.020	0.0015 0.0015 0.002 0.002	1000	4	0 3	beans (seeds)	< 0.05 < 0.05	1993/5000189
UK, 1993 (Punch)[a]	EC	0.015	0.0015	1000	2	0 3	beans (seeds)	< 0.05 < 0.05	1993/5000189
UK, 1993 (Punch)[a]	EC	0.015 0.015 0.020 0.020	0.0015 0.0015 0.002 0.002	1000	4	0 3	beans (seeds)	< 0.05 < 0.05	1993/5000189
UK, 1997 (Punch) winter field bean	EC	0.015	0.0075	200	2	11	dry beans	< 0.05	1998/1004334
UK, 1997 (Punch) winter field bean	EC	0.030	0.015	200	1	11	dry beans	< 0.05	1998/1004334
UK, 1997 (Punch) winter field bean	EC	0.015		200	2	1 11	beans dry beans	< 0.05 < 0.05	1998/1004335
UK, 1997 (Punch) winter field bean	EC	0.032		210	1	1 11	beans dry beans	< 0.05 < 0.05	1998/1004335
UK, 1997 (Target) winter field bean	EC	0.015	0.0075	200	2	11	dry beans	< 0.05	1998/1004334
UK, 1997 (Target) winter field bean	EC	0.03	0.015	200	1	11	dry beans	< 0.05	1998/1004334
UK, 1997 (Target) winter field bean	EC	0.015	0.0075	200	2	11	straw + empty pods	0.39	1998/1004334
UK, 1997 (Target) winter field bean	EC	0.03	0.015	200	1	11	straw + empty pods	0.32	1998/1004334
UK, 1997 (Target) winter field bean	EC	0.015		200	2	1 11	beans dry beans	< 0.05 < 0.05	1998/1004335
UK, 1997 (Target) winter field bean	EC	0.030		200	1	1 11	beans dry beans	< 0.05 < 0.05	1998/1004335
UK, 2005 (Clipper) dry bean	EC	0.013	0.003	400	1	0 14 21 28	beans (seed)	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026858
UK, 2005 (Clipper) dry bean	EC	0.013	0.003	400	2	0 14 21 28	beans (seed)	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026858
UK, 2005 (Paulista)	EC	0.013	0.003	400	1	0 3 7 4	pods	0.052 0.028 0.021 0.011	2006/1026857

BEANS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
UK, 2005 (Paulista)	EC	0.013	0.003	400	2	0 3 7 14	pods	0.048 0.027 0.026 < 0.01	2006/1026857
UK, 2006 (Paulifta)	EC	0.013	0.003	400	1	0 4 8 14	pods	0.02 0.02 0.01 < 0.01	2007/1007950
UK, 2006 (Paulifta)	EC	0.013	0.003	400	2	0 4 8 14	pods	0.02 0.02 0.02 < 0.01	2007/1007950

[a] Supporting data limited.

LOD for beans 0.003 mg/kg

Table 39 Alpha-cypermethrin residues in soya beans resulting from supervised trials with alpha-cypermethrin in Brazil

SOYA BEANS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha[a]	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Brazil, 1981 (Cobb)	EC	0.03 cyper	0.025	120	2	32	beans	< 0.01 cyper	AL-720-003
Brazil, 1981 (Cobb)	EC	0.04 cyper	0.033	120	2	32	beans	< 0.01 cyper	AL-720-003
Brazil, 1981 (Cobb)	EC	0.015	0.013	120	2	32	beans	< 0.01	AL-720-003
Brazil, 1981 (Cobb)	EC	0.02	0.017	120	2	32	beans	< 0.01	AL-720-003
Brazil, 1981 (IAS 4)	EC	0.007	0.005	120	2	0 2 7 14	beans	< 0.01 < 0.01 < 0.01 < 0.01	AL-720-002
Brazil, 1981 (IAS 4)	EC	0.014	0.012	120	2	0 2 7 14	beans	< 0.01 < 0.01 < 0.01 < 0.01	AL-720-002

[a] cyper: cypermethrin

Table 40 Alpha-cypermethrin residues in potatoes resulting from supervised trials with alpha-cypermethrin in Brazil, Canada, Denmark, France, Germany, Greece, Italy, Netherlands, Spain and the UK

POTATOES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Brazil, 1982 (Delta)	EC	0.010	0.0020	500	4	15	potato tubers	< 0.01	AL-724-002
Brazil, 1982 (Delta)	EC	0.020	0.0040	500	4	15	potato tubers	< 0.01	AL-724-002
Canada, 1982 (Kathadin)	EC	0.030	0.0009	3400	1	7 14	potato tubers	< 0.01 < 0.01	AL-724-002

POTATOES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Canada, 1984 (Chieftan)	EC	0.020	0.010	200	2	1 7 14	potato tubers	< 0.01 < 0.01 < 0.01	AL-724-005
Canada, 1984 (Chieftan)	EC	0.015	0.0075	200	2	1 7 14	potato tubers	< 0.01 < 0.01 < 0.01	AL-724-005
Denmark, 2006 (Hamlet)	EC	0.013	0.0030	400	1	0 7 14 21	potato tubers	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007945
Denmark, 2006 (Hamlet)	EC	0.013	0.0030	400	2	0 7 14 21	potato tubers	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007945
France, 1981 (Bintje)	EC	0.009		1000	1	25	potato tubers	< 0.01	AL-724-001
France, 1981 (Bintje)	EC	0.015		1000	1	25	potato tubers	< 0.01	AL-724-001
France, 2001 (Mana)	WG	0.016	0.005	310	1	0 8 22 28 35	potato tubers	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-721-049
France, 2001 (Mana)	WG	0.016	0.005	310	2	0 8 22 28 35	potato tubers	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-721-049
France, 2001 (Nicolas)	WG	0.015	0.0070	200	1	0 7 21 28 35	potato tubers	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-721-049
France, 2001 (Nicolas)	WG	0.015	0.008	190	2	0 7 21 28 35	potato tubers	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-721-049
France, 2005 (Agatha)	EC	0.025	0.0060	400	1	0 7 14 21	potato tubers	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026846
France, 2005 (Synthomas)	EC	0.013	0.0030	400	1	0 7 14 21	potato tubers	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026846
France, 2005 (Synthomas)	EC	0.013	0.0030	400	2	0 7 14 21	potato tubers	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026846
France, 2006 (Mona Lisa)	EC	0.013	0.0030	400	1	0 7 14 21	potato tubers	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007945

POTATOES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
France, 2006 (Mona Lisa)	EC	0.013	0.0030	400	2	0 7 14 21	potato tubers	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007945
France, 2006 (Mona Lisa)	EC	0.013	0.0030	400	1	0 3 7 14	potato tubers	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007945
Germany, 1990 (Bintje)	SC	0.010	0.0025	400	7	0 14 21 28 35	potato tubers	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01	AL-724-015
Germany, 1990 (Granola)	SC	0.010	0.0025	400	7	0 14 21 28 35	potato tubers	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01	AL-724-015
Germany, 1990 (Granola)	SC	0.010	0.0025	400	7	0 14 21 28 35	potato tubers	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01	AL-724-015
Germany, 1990 (Secura)	SC	0.010	0.0025	400	7	0 14 21 28 35	potato tubers	0.08 c 0.069 0.08 c 0.075 0.07 c 0.078 0.07 c 0.079 0.07 c 0.074	AL-724-015
Germany, 2001 (Solana)	WG	0.015	0.005	310	1	0 8 21 28 35	potato tubers	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-721-049
Germany, 2001 (Solana)	WG	0.015	0.005	300	2	0 7 21 28 35	potato tubers	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-721-049
Germany, 2005 (Agria)	EC	0.013	0.0030	400	1	0 7 14 21	potato tubers	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026846
Germany, 2005 (Agria)	EC	0.013	0.0030	400	2	0 7 14 21	potato tubers	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026846
Germany, 2006 (Bernadette)	EC	0.013	0.0030	400	1	0 3 7 14	potato tubers	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007945
Germany, 2006 (Bernadette)	EC	0.013	0.0030	400	2	0 3 7 14	potato tubers	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007945

POTATOES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Greece, 2001 (Spunta)	WG	0.015	0.007	200	1	0 7 21 28 35	potato tubers	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-721-049
Greece, 2001 (Spunta)	WG	0.015	0.008	200	2	0 7 21 28 35	potato tubers	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-721-049
Greece, 2004 (Agria)	SC	0.015	0.005	300	1	0 3 8 14	potato tubers	< 0.01 < 0.01 < 0.01 < 0.01	2005/1007592
Greece, 2004 (Agria)	SC	0.015	0.005	300	2	0 3 8 14	potato tubers	< 0.01 < 0.01 < 0.01 < 0.01	2005/1007592
Greece, 2005 (Sprunta)	EC	0.025	0.0060	400	1	0 7 14 21	potato tubers	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026846
Greece, 2006 (Agria)	EC	0.013	0.0030	400	1	0 7 13 21	potato tubers	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007945
Italy, 2001 (Monalisa)	WG	0.015	0.005	300	1	0 8 22 29 36	potato tubers	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-721-049
Italy, 2001 (Monalisa)	WG	0.017	0.005	340	2	0 8 22 29 36	potato tubers	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-721-049
Italy, 2004 (Agata)	SC	0.015	0.005	300	1	0 3 7 14	potato tubers	< 0.01 < 0.01 < 0.01 < 0.01	2005/1007592
Italy, 2004 (Agata)	SC	0.015	0.005	300	2	0 3 7 14	potato tubers	< 0.01 < 0.01 < 0.01 < 0.01	2005/1007592
Italy, 2005 (Agata)	EC	0.025	0.0060	400	1	0 7 14 21	potato tubers	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026846
Italy, 2006 (Almera)	EC	0.025	0.0060	400	1	0 8 14 21	potato tubers	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007945

POTATOES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Netherlands, 2001 (Cilena)	WG	0.015	0.005	310	1	0 7 20 28 34	potato tubers	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-721-049
Netherlands, 2001 (Cilena)	WG	0.015	0.005	300	2	0 7 20 28 34	potato tubers	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-721-049
Netherlands, 2005 (Agria)	EC	0.013	0.0030	400	1	0 7 14 21	potato tubers	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026846
Netherlands, 2005 (Agria)	EC	0.013	0.0030	400	2	0 7 14 21	potato tubers	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026846
Spain, 2001 (Spunta)	WG	0.015	0.005	310	1	0 7 21 28 35	potato tubers	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-721-049
Spain, 2001 (Spunta)	WG	0.015	0.005	300	2	0 7 21 28 35	potato tubers	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-721-049
Spain, 2005 (Agria)	EC	0.025	0.0060	400	1	0 7 14 21	potato tubers	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026846
Spain, 2006 (Agria)	EC	0.025	0.0060	400	1	0 8 14 21	potato tubers	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007945
UK, 2001 (Wilja)	WG	0.014	0.005	280	1	0 6 20 28 35	potato tubers	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-721-049
UK, 2001 (Wilja)	WG	0.015	0.005	300	2	0 6 20 28 35	potato tubers	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05	AL-721-049
UK, 2005 (Wilja)	EC	0.013	0.0030	400	1	0 7 14 21	potato tubers	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026846
UK, 2005 (Wilja)	EC	0.013	0.0030	400	2	0 7 14 21	potato tubers	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026846

POTATOES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
UK, 2006 (King Edward)	EC	0.013	0.0030	400	1	0 7 14 21	potato tubers	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007945
UK, 2006 (King Edward)	EC	0.013	0.0030	400	2	0 7 14 21	potato tubers	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007945

Table 41 Alpha-cypermethrin residues in sugar beet resulting from supervised trials with alpha-cypermethrin in France, Germany, Greece, Italy, Morocco, Spain and the UK

SUGAR BEET	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
France, 1983 (Monostar)	EC	0.015	0.0052	290	1	98	sugar beet root	< 0.01	AL-724-007
France, 1983 (Monostar)	EC	0.015	0.0052	290	1	98	sugar beet root	< 0.01	AL-724-007
France, 2002 (Angelina)	WG	0.0077	0.0038	200	2	92	sugar beet root	< 0.01	2003/1021716
France, 2002 (Angelina)	WG	0.0074	0.0037	200	2	88	sugar beet root	< 0.01	2003/1021716
France, 2002 (Crocodile)	WG	0.0077	0.0038	200	2	92	sugar beet root	< 0.01	2003/1021716
France, 2002 (Rafole)	WG	0.0078 0.0073	0.0037	200	2	84	sugar beet root	< 0.01	2003/1021716
France, 2006 (Laetitia)	EC	0.025	0.0060	400	1	0 7 14 21	sugar beet root	0.01 < 0.01 < 0.01 < 0.01	2007/1007941
Germany, 1985 (KW-Mono)	SC	0.010			1	98 126	sugar beet root	< 0.01 < 0.01	AL-724-009
Germany, 1985 (Novadima)	SC	0.010			1	112 133	sugar beet root	< 0.01 < 0.01	AL-724-009
Germany, 1985 (Regina)	SC	0.010			1	112 140	sugar beet root	< 0.01 < 0.01	AL-724-009
Germany, 1985 (Regina)	SC	0.010			1	98 126	sugar beet root	< 0.01 < 0.01	AL-724-009
Germany, 1990 (KW-Eva)	EC	0.01	0.0025	400	3	0 14 21 28 35	sugar beet root	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01	AL-724-016
Germany, 1990 (Peragis rot)	EC	0.01	0.0025	400	3	0 15 22 30 35	sugar beet root	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01	AL-724-016

SUGAR BEET	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Germany, 1990 (Peragis rot)	EC	0.01	0.0025	400	3	0 14 21 28 35	sugar beet root	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01	AL-724-016
Germany, 1990 (Viktoria)	EC	0.01	0.0025	400	3	0 14 21 28 35	sugar beet root	0.043 0.027 < 0.01 0.029 0.072	AL-724-016
Germany, 1991 (Brigadier)	EC	0.01	0.0025	400	3	0 13 20 27 34	sugar beet root	< 0.02 < 0.02 < 0.02 < 0.02 < 0.02	AL-731-003
Germany, 1991 (Eva)	SC	0.010	0.0025	400	3	0 14 21 28 35	sugar beet root	< 0.02 < 0.02 < 0.02 < 0.02 < 0.02	AL-724-017
Germany, 1991 (Rhizo)	SC	0.010	0.0025	400	3	0 14 21 28 35	sugar beet root	< 0.02 < 0.02 < 0.02 < 0.02 < 0.02	AL-724-017
Germany, 1991 (variety unknown)	EC	0.01	0.0025	400	3	0 14 21 28 31	sugar beet root	< 0.02 < 0.02 < 0.02 < 0.02 < 0.02	AL-731-003
Germany, 2003 (Dorena)	SC	0.010	0.0050	200	1	14 98	sugar beet root	< 0.05 < 0.05	2004/1006468
Germany, 2003 (Dorena)	SC	0.010	0.0050	200	1	14 98	sugar beet root	< 0.05 < 0.05	2004/1006468
Germany, 2003 (Milan)	SC	0.010	0.0050	200	1	25 108	sugar beet root	< 0.05 < 0.05	2004/1006468
Germany, 2003 (Milan)	SC	0.010	0.0050	200	1	25 108	sugar beet root	< 0.05 < 0.05	2004/1006468
Germany, 2003 (Tatjana)	SC	0.010	0.0050	200	1	21 131	sugar beet root	0.23 < 0.05	2004/1006468
Germany, 2003 (Tatjana)	SC	0.010	0.0050	200	1	21 131	sugar beet root	< 0.05 < 0.05	2004/1006468
Germany, 2003 (Tatjana)	SC	0.010	0.0050	200	1	30 140	sugar beet root	< 0.05 < 0.05	2004/1006468
Germany, 2003 (Tatjana)	SC	0.010	0.0050	200	1	30 140	sugar beet root	< 0.05 < 0.05	2004/1006468
Greece, 2005 (Riose)	EC	0.025	0.0060	400	1	0 7 14 21	sugar beet root	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026851
Greece, 2006 (Doria)	EC	0.025	0.0060	400	1	0 6 14 21	sugar beet root	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007941

SUGAR BEET	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Italy, 2005 (Dorotea)	EC	0.025	0.0060	400	1	0 7 14 21	sugar beet root	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026851
Italy, 2006 (Omelia)	EC	0.025	0.0030	400	1	0 6 13 20	sugar beet root	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007941
Italy, 2006 (Rizor)	EC	0.025	0.0030	400	1	0 7 14 21	sugar beet root	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007941
Morocco, 1986 (Busteco)	EC	0.010	0.0025	400	1	93	sugar beet root	< 0.01	AL-724-010
Spain, 2005 (Dina)	EC	0.025	0.0060	400	1	0 7 14 21	sugar beet root	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026851
Spain, 2005 (Sidonia)	EC	0.025	0.0060	400	1	0 7 14 21	sugar beet root	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026851
UK, 1980 (Monotr 1)	EC cyper	0.10	0.0027	370	1	43	sugar beet root	< 0.01 cyper	AL-724-006
UK, 1980 (Monotr 1)	EC	0.10	0.0027	370	1	43	sugar beet root	< 0.01	AL-724-006

Table 42 Alpha-cypermethrin residues in turnips resulting from supervised trials with alpha-cypermethrin in France

TURNIPS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
France, 1993 (Arcoat)	EC	0.010	0.0013	800	3	14	turnip	< 0.01	AL-724-013
France, 1993 (Milan Rouge)	EC	0.010	0.0013	800	3	15	turnip	< 0.01	AL-724-013

Table 43 Alpha-cypermethrin residues in asparagus resulting from supervised trials with alpha-cypermethrin in France

ASPARAGUS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
France, 1992–93 (Cito)	EC	0.010	0.002	500	5	196	asparagus stalk	< 0.02	AL-725-008
France, 1992–93 (Larac)	EC	0.010	0.001	1000	5	181	asparagus stalk	< 0.02	AL-725-008
France, 1992–93 (Larac)	EC	0.010	0.002	500	5	207	asparagus stalk	< 0.02	AL-725-008

ASPARAGUS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
France, 1993–94 (Cito)	EC	0.015	0.0030	500	3	252	asparagus stalk	< 0.01	AL-725-007
France, 1993–94 (Larac)	EC	0.015	0.0030	500	3	227	asparagus stalk	< 0.01	AL-725-007
France, 1993–94 (Larac)	EC	0.015	0.0025	600	3	252	asparagus stalk	< 0.01	AL-725-007
France, 1996–7 (Lacques Marc 2010)	EC	0.010	0.002	480	3	239	asparagus stalk	< 0.02	AL-725-009

Table 44 Alpha-cypermethrin residues in artichokes resulting from supervised trials with alpha-cypermethrin in France, Italy and Spain

ARTICHOKES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
France, 2006 (Macau)	EC	0.025	0.0060	400	1	0 4 7 13	artichoke heads	0.035 0.026 0.019 0.015	2007/1007948
Greece, 2006	EC	0.025	0.0060	400	1	0 3 7 14	artichoke heads	0.039 0.042 0.025 < 0.01	2007/1007948
Italy, 1995 (Castellamare)	EC	0.040	0.004	1000	2	0 2 4 7	artichoke heads	0.33 0.32 0.49 0.23	AL-725-003
Italy, 1995 (Violetta)	EC	0.040	0.004	1000	2	7	artichoke heads	0.22	AL-725-004
Italy, 1996 (Romanesco)	EC	0.040	0.004	1000	2	7	artichoke heads	0.07	AL-725-005
Italy, 2005 (Violetto Toscano)	EC	0.025	0.0060	400	1	0 3 7 14	artichoke heads	0.060 0.060 0.040 0.014	2006/1026845
Spain, 1996 (Blanca de Aranjuez)	WG	0.070	0.004	1700	2	0– 0+ 3 7 14 21	artichoke	0.05 0.19 0.14 0.04 0.02 < LOD	AL-725-002
Spain, 1996 (Blanca de Aranjuez)	EC	0.070 0.098	0.004	1960 2350	2	0– 0+ 3 7 14 21	artichoke	0.07 0.33 0.10 0.08 0.01 <LOD	AL-725-002
Spain, 2005 (Chata de Tudela)	EC	0.025	0.0060	400	1	0 3 7 14	artichoke heads	0.038 0.019 0.021 0.012	2006/1026845

LOD (limit of detection) for artichokes 0.005 mg/kg. LOQ:0.01 mg/kg.

Table 45 Alpha-cypermethrin residues in barley resulting from supervised trials with alpha-cypermethrin in Denmark, France, Germany, Greece, Italy, Spain and UK

BARLEY	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Denmark, 2004 (Barke)	SC	0.015		300	1	27 35 41	ear barley grain barley grain	0.28 0.022 < 0.01	2004/5000717
Denmark, 2004 (Barke)	SC	0.015		300	2	27 35 41	ear barley grain barley grain	0.23 0.063 < 0.01	2004/5000717
France, 1982 (Igris)	EC	0.013	0.0042	300	1	254	barley grain	< 0.01	AL-730-011
France, 1982 (Sonja)	EC	0.013	0.0042	300	1	258	barley grain	< 0.01	AL-730-011
France, 1992 (Delta)	EC	0.015	0.0015	1000	1	49	barley grain	< 0.01	AL-730-029
France, 1992 (Delta)	EC	0.030	0.003	1000	1	49	barley grain	< 0.01	AL-730-029
France, 1992 (Delta)	PVP	0.015	0.0015	1000	1	49	barley grain	< 0.01	AL-730-029
France, 1992 (Delta)	PVP	0.030	0.003	1000	1	49	barley grain	< 0.01	AL-730-029
France, 2004 (Orelie)	SC	0.015		300	1	28 35 42	ear barley grain barley grain	0.19 0.044 0.042	2004/5000717
France, 2004 (Orelie)	SC	0.015		300	2	28 35 42	ear barley grain barley grain	0.34 0.081 0.052	2004/5000717
France, 2004 (Orelie)	SC	0.015		300	1	28 35 43	ear barley grain barley grain	0.35 < 0.01 < 0.01	2004/5000718
France, 2004 (Orelie)	SC	0.015		300	2	28 35 43	ear barley grain barley grain	0.84 < 0.01 < 0.01	2004/5000718
Germany, 1990 (Igri) winter barley	SC	0.013	0.0031	400	3	0 14 27 35 51	ear ear ear barley grain barley grain	0.31 0.11 0.093 0.027 0.026	AL-730-050
Germany, 1990 (Trixi) winter barley	SC	0.013	0.0031	400	3	0 14 28 35 44	ear ear ear barley grain barley grain	0.84 0.64 0.34 0.17 0.089	AL-730-050
Germany, 1991 (Alexis) spring barley	SC	0.013	0.0031	400	3	0 14 28 35 40	ear ear ear barley grain barley grain	0.69 0.22 0.41 0.04 0.03	AL-730-048
Germany, 1991 (Alexis) summer barley	SC	0.015	0.0038	400	3	0 14 35 38 40	ear ear barley grain ear barley grain	0.54 0.29 0.04 0.43 0.06	AL-730-049
Germany, 1991 (Tapir) winter barley	SC	0.013	0.0031	400	3	0 14 28 35	ear ear ear barley grain	0.44 0.10 0.04 0.04	AL-730-048

BARLEY	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Germany, 1991 (Tapir) winter barley	SC	0.015	0.0038	400	3	0	ear	0.35	AL-730-049
						14	ear	0.15	
						28	ear	0.11	
						35	barley grain	0.04	
Germany, 1992 (Alexis) spring barley	SC	0.015	0.0038	400	3	0	ear	0.70	AL-730-061
						35	barley grain	0.06	
						35	spent barley	0.014	
						35	trub	< 0.01	
						35	yeast	< 0.01	
						35	beer	< 0.01	
						35	malt	0.013	
						35	malt germs	0.011	
Germany, 1992 (Apex) spring barley	SC	0.015	0.0038	400	3	0	ear	0.42	AL-730-061
						35	barley grain	0.019	
						35	malt	0.014	
							malt germs	0.026	
							beer	< 0.01	
							yeast	< 0.01	
							trub	< 0.01	
							spent barley	0.032	
Germany, 1992 (Marika) winter barley	SC	0.015	0.0038	400	3	0	ear	0.71	AL-730-051
						28	ear	0.10	
						35	barley grain	0.015	
						41	barley grain	0.014	
Germany, 1992 (Marika) winter barley	SC	0.015	0.0038	400	3	0	ear	0.53	AL-730-051
						28	ear	0.23	
						35	barley grain	0.035	
						42	barley grain	0.026	
Germany, 1992 (Marinka) winter barley	SC	0.015	0.0038	400	4	0	ear	0.39	AL-730-052
						28	ear	0.14	
						35	barley grain	0.017	
						41	barley grain	0.015	
Germany, 1992 (Tapir) winter barley	SC	0.015	0.0038	400	4	0	ear	0.38	AL-730-052
						28	ear	0.15	
						35	barley grain	0.020	
						42	barley grain	0.032	
Germany, 1995 (Alexis) spring barley	EC	0.03		400	2	0	ear	1.2	AL-730-037
						2	ear	0.60	
						7	ear	0.40	
						14	ear	0.22	
						21	barley grain	0.09	
						35	barley grain	0.07	
						42	barley grain	0.06	
Germany, 1995 (Alexis) spring barley	EC	0.03		400	2	0	ear	0.89	AL-730-037
						2	ear	0.60	
						6	ear	0.28	
						13	ear	0.18	
						20	barley grain	0.02	
						34	barley grain	0.01	
						41	barley grain	< 0.01	
Germany, 1995 (Alexis) spring barley	WG	0.03		400	2	0	ear	0.52	AL-730-037
						2	ear	0.40	
						6	ear	0.29	
						13	ear	0.20	
						20	barley grain	0.02	
						34	barley grain	0.01	
						41	barley grain	0.01	

BARLEY	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Germany, 1995 (Alexis) spring barley	WG	0.03		400	2	0 2 6 13 20 34 41	ear ear ear ear barley grain barley grain barley grain	0.40 0.32 0.20 0.18 0.01 < 0.01 < 0.01	AL-730-037
Germany, 2003 (Alexis) spring barley	SC	0.013	0.006	200	1	0 28 36 42	ear barley grain barley grain barley grain	0.16 0.080 < 0.05 0.17	2004/1006467
Germany, 2003 (Alexis) spring barley	SC	0.013	0.006	200	1	0 28 36 42	ear barley grain barley grain barley grain	0.17 < 0.05 0.22 0.22	2004/1006467
Germany, 2003 (Lomerit) winter barley	SC	0.013	0.006	200	1	0 28 35 42	ear barley grain barley grain barley grain	0.21 0.060 < 0.05 0.05	2004/1006467
Germany, 2003 (Lomerit) winter barley	SC	0.013	0.006	200	1	0 28 35 42	ear barley grain barley grain barley grain	0.19 0.05 0.084 0.090	2004/1006467
Germany, 2004 (Camera)	SC	0.015		300	1	28 35 43	ear barley grain barley grain	0.15 0.031 0.040	2004/5000717
Germany, 2004 (Camera)	SC	0.015		300	2	28 35 43	ear barley grain barley grain	0.28 0.085 0.075	2004/5000717
Greece, 2004 (Mitsu)	SC	0.015		300	1	30 36 44	ear barley grain barley grain	< 0.01 < 0.01 < 0.01	2004/5000718
Greece, 2004 (Mitsu)	SC	0.015		300	2	30 36 44	ear barley grain barley grain	< 0.01 < 0.01 < 0.01	2004/5000718
Italy, 1995 (Sonora)	EC	0.030		480	1	42	barley grain	0.03	AL-730-038
Italy, 1996 (Sonora)	EC	0.030		480	1	42	barley grain	0.03	AL-730-042
Italy, 1996 (Sonora)	WG	0.030		480	1	42	barley grain	0.02	AL-730-042
Italy, 1996 (Trebbia)	EC	0.030		480	1	42	barley grain	0.06	AL-730-042
Italy, 1996 (Trebbia)	WG	0.030		480	1	42	barley grain	0.09	AL-730-042
Italy, 2004 (Thea)	SC	0.015		300	1	28 35 42	ear barley grain barley grain	< 0.01 < 0.01 0.017	2004/5000718
Italy, 2004 (Thea)	SC	0.015		300	2	28 35 42	ear barley grain barley grain	< 0.01 0.027 0.027	2004/5000718
Spain, 2004 (Almudena) spring barley	SC	0.015		300	1	28 35 43	ear ear barley grain	0.096 0.071 0.014	2004/5000718
Spain, 2004 (Almudena) spring barley	SC	0.015		300	2	28 35 43	ear ear barley grain	0.095 0.12 0.019	2004/5000718

BARLEY	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
UK, 1995 (Fighter) winter barley	EC	0.030		200	1	0– 0+ 2 7 14 21 40	ear ear ear ear ear ear barley grain	0.01 0.61 0.42 0.42 0.22 0.24 0.04	AL-730-035
UK, 1995 (Fighter) winter barley	WG	0.030		200	1	0– 0+ 2 7 14 21 40	ear ear ear ear ear ear barley grain	< 0.01 0.91 0.57 0.44 0.24 0.27 0.09	AL-730-035
UK, 1995 (Fighter) winter barley	WG	0.030		200	1	0– 0+ 2 7 14 21 40	ear ear ear ear ear ear barley grain	< 0.01 0.64 0.51 0.46 0.27 0.30 0.06	AL-730-035
UK, 1995 (Fighter) winter barley	WG	0.030		200	1	28	barley grain	0.09	AL-730-036
UK, 2004 (Pearl)	SC	0.015		300	1	28 35 42	ear barley grain barley grain	0.067 0.016 0.023	2004/5000717
UK, 2004 (Pearl)	SC	0.015		300	2	28 35 42	ear barley grain barley grain	0.10 0.022 0.022	2004/5000717

Table 46 Alpha-cypermethrin residues in maize resulting from supervised trials with alpha-cypermethrin in France, Germany and South Africa

MAIZE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
France, 1981 (Fontenac)	EC	0.030		480	1	14	maize grain	< 0.01	AL-730-013
France, 1981 (Fontenac)	EC	0.050		480	1	14	maize grain	< 0.01	AL-730-013
France, 1981 (Stella)	EC	0.030		480	1	14	maize grain	< 0.01	AL-730-013
France, 1981 (Stella)	EC	0.050		480	1	14	maize grain	< 0.01	AL-730-013
France, 1989 (Sabrina)	EC	0.030	0.006	500	2	50	maize grain	< 0.01	AL-730-019
France, 1989 (Sabrina)	EC	0.030	0.0053	500	2	42	maize grain	< 0.01	AL-730-019
France, 1990 (Ibisco)	EC	0.040	0.0077	520	2	40	maize grain	< 0.01	AL-730-027
France, 1990 (Jubilé)	EC	0.040	0.008	500	2	13	maize grain	< 0.01	AL-730-027
France, 1990 (Jubilé)	EC	0.040	0.008	500	2	22	maize grain	< 0.01	AL-730-027
Germany, 1986 (Limac)[a]	SC	0.018	0.0044	400	1	61	cob	< 0.01	AL-730-058

MAIZE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Germany, 1986 (Limac)[a]	SC	0.018	0.0044	400	1	57	cob	< 0.01	AL-730-057
Germany, 1986 (Limac)[a]	SC	0.018	0.004	400	1	59	cob	< 0.01	AL-730-059
Germany, 1986 (Limac)[a]	SC	0.018	0.0044	400	1	59	cob	< 0.01	AL-730-060
Germany, 1987 (Limac) [a]	SC	0.018	0.0044	400	1	63	maize grain	< 0.01	AL-730-062
Germany, 1987 (Limac)[a]	SC	0.018	0.0044	400	1	56	maize grain	< 0.01	AL-730-063
Germany, 1987 (Limac)[a]	SC	0.018	0.0044	400	1	69	maize grain	< 0.01	AL-730-065
Germany, 1987 (Tau)[a]	SC	0.018	0.0044	400	1	60	maize grain	< 0.01	AL-730-064
South Africa, 1982 (Pioneer 473)	EC	0.030			1	0 2 7 14	maize kernels maize kernels maize kernels maize kernels	0.01 < 0.01 < 0.01 < 0.01	AL-730-014

Table 47 Alpha-cypermethrin residues in oats resulting from supervised trials with alpha-cypermethrin in Germany

OATS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Germany, 1990 (Alfred)	SC	0.013	0.003	400	3	0 7 27 39 46	ear ear ear oat grain oat grain	0.26 0.10 0.07 0.05 < 0.01	AL-730-055
Germany, 1990 (Flamingskrone)	SC	0.025	0.006	400	3	0 14 28 35 37	ear ear ear oat grain oat grain	0.33 0.18 0.26 0.02 0.02	AL-730-055
Germany, 1991	SC	0.013	0.003	400	3	0 13 28 35	ear ear ear oat grain	0.24 0.19 0.19 < 0.02	AL-730-053
Germany, 1991	SC	0.015	0.004	400	3	0 13 28 35	ear ear ear oat grain	0.42 0.18 0.15 < 0.02	AL-730-054
Germany, 1991 (Adamo)	SC	0.013	0.003	400	3	0 14 28 35 42	ear ear ear oat grain oat grain	0.22 0.07 0.06 < 0.02 < 0.02	AL-730-053
Germany, 1991 (Adamo)	SC	0.015	0.004	400	3	0 14 28 35 42	ear ear ear oat grain oat grain	0.28 0.10 0.08 < 0.02 < 0.02	AL-730-054

OATS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Germany, 1992 (Adamo)	SC	0.015	0.004	400	3	0 28 35 42	panicle panicle oat grain oat grain	0.23 0.038 < 0.01 < 0.01	AL-730-056
Germany, 1992 (Flamingkrone)	SC	0.015	0.004	400	3	0 29 35 42	panicle panicle oat grain oat grain	0.15 0.18 0.01 < 0.01	AL-730-056

Table 48 Alpha-cypermethrin residues in rice resulting from supervised trials with alpha-cypermethrin in Brazil, France, Greece, Italy, Philippines, Spain and Thailand

RICE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Brazil, 1983 (IAC-1649)	EC	0.012	0.024	50	2	28	rice grain	< 0.01	AL-730-020
Brazil, 1983 (IAC-1649)	EC	0.024	0.048	50	2	28	rice grain	< 0.01	AL-730-020
France, 2005 (Ligalon)	EC	0.013	0.006	200	1	13 21	panicles rice grain	0.16 0.015	2006/1026848
France, 2005 (Ligalon)	EC	0.013	0.006	200	2	13 21	panicles rice grain	0.20 0.011	2006/1026848
France, 2006 (Cigalon)	EC	0.013	0.006	200	1	14 21 27	panicles rice grain rice grain	0.063 0.049 0.027	2007/1007946
France, 2006 (Cigalon)	EC	0.013	0.006	200	2	14 21 27	panicles rice grain rice grain	0.092 0.066 0.036	2007/1007946
Greece, 2005 (Thai Bonnet)	EC	0.013	0.006	200	1	14 21 28	panicles rice grain rice grain	0.10 0.039 0.02	2006/1026848
Greece, 2005 (Thai Bonnet)	EC	0.013	0.006	200	2	14 21 28	panicles rice grain rice grain	0.21 < 0.01 0.039	2006/1026848
Greece, 2006 (Claudio)	EC	0.013	0.006	200	1	14 21 27	panicles rice grain rice grain	0.085 0.04 0.023	2007/1007946
Greece, 2006 (Claudio)	EC	0.013	0.006	200	2	14 21 27	panicles rice grain rice grain	0.14 0.073 0.054	2007/1007946
Italy, 2005 (Lido)	EC	0.013	0.006	200	1	14 21 28	panicles rice grain rice grain	0.14 0.18 0.21	2006/1026848
Italy, 2005 (Lido)	EC	0.013	0.006	200	2	14 21 28	panicles rice grain rice grain	0.36 0.21 0.15	2006/1026848
Italy, 2006 (Cadet)	EC	0.013	0.006	200	1	15 22 29	panicles rice grain rice grain	0.028 0.028 0.02	2007/1007946

RICE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Italy, 2006 (Cadet)	EC	0.013	0.006	200	2	15 22 29	panicles rice grain rice grain	0.18 0.11 0.084	2007/1007946
Philippines, 1987 (IR-22)	EC	0.010			6	20	rice grain de-husked grain	0.03 0.01	AL-730-023
Philippines, 1987 (IR-22)	EC	0.010			6	20	rice grain de-husked grain	0.06 0.02	AL-730-023
Philippines, 1987 (IR-64)	EC	0.013			6	20	rice grain de-husked grain	0.06 c 0.01 0.01 c 0.01	AL-730-023
Philippines, 1987 (IR-64)	EC	0.025			6	20	rice grain de-husked grain	0.34 c 0.01 0.01 c 0.01	AL-730-023
Spain, 2005 (Puntal)	EC	0.013	0.006	200	1	14 21 28	panicles rice grain rice grain	0.097 0.059 0.05	2006/1026848
Spain, 2005 (Puntal)	EC	0.013	0.006	200	2	14 21 28	panicles rice grain rice grain	0.14 0.15 0.011	2006/1026848
Spain, 2006 (Puntal)	EC	0.013	0.006	200	1	13 20 28	panicles rice grain rice grain	0.036 0.064 0.046	2007/1007946
Spain, 2006 (Puntal)	EC	0.013	0.006	200	2	13 20 28	panicles rice grain rice grain	0.12 0.13 0.076	2007/1007946
Thailand, 1983 (RD7)	EC	0.005		500	3	40	rice grain	< 0.01	AL-730-021
Thailand, 1983 (RD7)	EC	0.010		500	3	40	rice grain	< 0.01	AL-730-021
Thailand, 1983 (RD7)	EC	0.015		500	3	40	rice grain	< 0.01	AL-730-021
Thailand, 1987 (RD7)	EC	0.010		500	3	45	rice grain	< 0.02	AL-730-024
Thailand, 1987 (RD7)	EC	0.015		500	3	45	rice grain	< 0.02	AL-730-024

Table 49 Alpha-cypermethrin residues in sorghum resulting from supervised trials with alpha-cypermethrin in Australia and South Africa

SORGHUM	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Australia (Qld), 1983 (Pioneer Pride)	EC	0.030		25	1	41	sorghum ears	0.06 c[a]	AL-730-025
Australia (Qld), 1983 (Pioneer Pride)	EC	0.060		25	1	41	sorghum ears	0.11 c[a]	AL-730-025
Australia (Qld), 1983 (Pioneer Pride)	EC	0.02	✈	10	1	35	sorghum ears	0.04 c[a]	AL-730-025
Australia (Qld), 1983 (Pioneer Pride)	EC	0.03	✈	10	1	35	sorghum ears	0.06 c[a]	AL-730-025
South Africa, 1984	EC	0.01			3	1- 12 7 9 15	sorghum ears	0.72 0.85 0.82 0.70 0.17 0.60	AL-730-026

SORGHUM	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
South Africa, 1984	EC	0.01			3	1- 1 2 7 9 15	sorghum ears	0.72 0.85 0.82 0.70 0.17 0.60	AL-730-026
South Africa, 1984	EC	0.01			3	1- 1 2 7 9 15	sorghum ears[b]	0.72 0.85 0.82 0.70 0.17 0.60	AL-730-026
South Africa, 1984	EC	0.01			1	0 1 3 14	sorghum ears[b]	1.0 0.24 0.23 0.12	AL-730-026
South Africa, 1984	EC	0.015			1	1- 0 1 2 7 15	sorghum ears[b]	0.08 0.57 0.71 0.77 0.52 0.30	AL-730-026

[a] Sample from control (untreated) plot 0.01 mg/kg

[b] No field report, no laboratory report, summary sheet only

Table 50 Alpha-cypermethrin residues in wheat resulting from supervised trials with alpha-cypermethrin in Belgium, Brazil, Canada, France, Germany, Greece, Italy, Spain and UK

WHEAT	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	No.[a]	days		mg/kg	
Belgium, 2004 (Chipie) durum wheat	SC	0.015		300	1	27 34 41	ear wheat grain wheat grain	0.063 < 0.01 < 0.01	2004/5000717
Belgium, 2004 (Chipie) durum wheat	SC	0.015		300	2	27 34 41	ear wheat grain wheat grain	0.54 < 0.01 < 0.01	2004/5000717
Brazil, 1983 (Cocoraque)	EC	0.015	0.019	80	2	18	wheat grain	< 0.01	AL-730-002
Brazil, 1983 (Cocoraque)	EC	0.020	0.025	80	2	18	wheat grain	0.020	AL-730-002
Brazil, 1983 (Cocoraque)	EC	0.040	0.05	80	2	18	wheat grain	0.040	AL-730-002
Brazil,1985 (IAC-5)	EC	0.02	0.016	120	2	21	wheat grain	< 0.01	AL-730-007
Brazil,1985 (IAC-5)	EC	0.04	0.032	120	2	21	wheat grain	< 0.01	AL-730-007
Brazil,1985 (RS-4)	EC	0.02	0.02	100	2	21	wheat grain	< 0.01	AL-730-007
Brazil,1985 (RS-4)	EC	0.02	0.02	100	2	21	wheat grain	< 0.01	AL-730-007
Canada (Saskatchewan) 1987 (Columbus)	SC	0.02	0.02	100	1	103	wheat grain	< 0.01	AL-730-010

WHEAT	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	No.[a]	days		mg/kg	
Canada (Saskatchewan) 1987 (Columbus)	SC	0.03	0.03	100	1	103	wheat grain	< 0.01	AL-730-010
Canada (Saskatchewan) 1987 (Columbus)	SC	0.01	0.01	100	1	103	wheat grain	< 0.01	AL-730-010
France, 1983 (Caton)	EC	0.018	0.0035	500	1	46	wheat grain	< 0.01	AL-730-001
France, 1983 (Hardi)	EC	0.018	0.0035	500	1	42	wheat grain	< 0.01	AL-730-001
France, 1983 (Talent)	EC	0.018	0.0035	500	1	39	wheat grain	< 0.01	AL-730-001
France, 1984 (Caton)	EC	0.015	0.003	500	1	28 42	wheat grain	< 0.005 < 0.005	AL-730-004
France, 1984 (Caton)	EC	0.015	0.003	500	1	7 14 21	wheat grain	< 0.005 < 0.005 < 0.005	AL-730-004
France, 1984 (Rivoli)	EC	0.015	0.003	500	1	28 42 63	wheat grain	< 0.005 < 0.005 < 0.005	AL-730-004
France, 1984 (Rivoli)	EC	0.015	0.003	500	1	0 7 14 21 28 42	wheat grain	< 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005	AL-730-004
France, 1984 (Talent)	EC	0.015	0.003	500	1	14 28 42 70	wheat grain	< 0.005 < 0.005 < 0.005 < 0.005	AL-730-004
France, 1984 (Talent)	EC	0.015	0.003	500	1	0 7 14 21 28 63	wheat grain	< 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005	AL-730-004
France, 1984 (Top)	EC	0.015	0.003	500	1	28 42 70	wheat grain	< 0.005 < 0.005 < 0.005	AL-730-004
France, 1984 (Top)	EC	0.015	0.003	500	1	7 14 21 28 42	wheat grain	< 0.005 < 0.005 < 0.005 < 0.005 < 0.005	AL-730-004
France, 1992 (Artaban)	PVP	0.015	0.0038	400	1	39	wheat grain	< 0.01	AL-730-030
France, 1992 (Artaban)	PVP	0.030	0.0075	400	1	39	wheat grain	< 0.01	AL-730-030
France, 1992 (Artaban)	EC	0.015	0.0038	400	1	39	wheat grain	< 0.01	AL-730-030
France, 1992 (Artaban)	EC	0.030	0.0075	400	1	39	wheat grain	< 0.01	AL-730-030
France, 1992 (Darius)	PVP	0.015	0.0038	400	1	49	wheat grain	< 0.01	AL-730-030
France, 1992 (Darius)	PVP	0.030	0.0075	400	1	49	wheat grain	< 0.01	AL-730-030
France, 1992 (Darius)	EC	0.015	0.0038	400	1	49	wheat grain	< 0.01	AL-730-030

WHEAT	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	No.[a]	days		mg/kg	
France, 1992 (Darius)	EC	0.030	0.0075	400	1	49	wheat grain	< 0.01	AL-730-030
France, 1992 (Prinkal)	EC	0.015	0.0015	1000	1	49	wheat grain	< 0.01	AL-730-029
France, 1992 (Prinkal)	EC	0.030	0.003	1000	1	49	wheat grain	< 0.01	AL-730-029
France, 1992 (Prinkal)	PVP	0.015	0.0015	1000	1	49	wheat grain	< 0.01	AL-730-029
France, 1992 (Prinkal)	PVP	0.030	0.003	1000	1	49	wheat grain	< 0.01	AL-730-029
France, 2000 (Manital)	EC	0.013	0.0031	400	1	28 35 43	ear ear wheat grain	0.05 0.05 < 0.01	AL-730-067
France, 2000 (Manital)	EC	0.013	0.0031	400	3	28 35 43	ear ear wheat grain	0.07 0.12 < 0.01	AL-730-067
France, 2004 (Neodur) durum wheat	SC	0.015		300	1	27 34 40	ear wheat grain wheat grain	< 0.01 < 0.01 < 0.01	2004/5000718
France, 2004 (Neodur) durum wheat	SC	0.015		300	2	27 34 40	ear wheat grain wheat grain	< 0.01 < 0.01 < 0.01	2004/5000718
France, 2004 (Rows / Cap Horn) durum wheat	SC	0.015		300	1	28 35 43	ear ear wheat grain	0.024 0.029 < 0.01	2004/5000717
France, 2004 (Rows / Cap Horn) durum wheat	SC	0.015		300	2	28 35 43	ear ear wheat grain	0.024 0.031 < 0.01	2004/5000717
Germany, 1990 (Kraka)	SC	0.013	0.0031	400	3	0 14 28 35 51	ear ear ear wheat grain wheat grain	0.40 0.12 0.18 0.019 < 0.01	AL-730-044
Germany, 1990 (Urban)	SC	0.013	0.0031	400	3	0 14 29 35 42	ear ear ear wheat grain wheat grain	0.12 0.037 < 0.01 < 0.01 < 0.01	AL-730-044
Germany, 1991 (Herzog) winter wheat	SC	0.013	0.0031	400	3	0 13 28 35 40	ear ear ear wheat grain wheat grain	0.28 0.09 0.09 < 0.02 < 0.02	AL-730-043
Germany, 1991 (Herzog) winter wheat	SC	0.015	0.0038	400	3	0 13 28 35 40	ear ear ear wheat grain wheat grain	0.28 0.12 0.11 < 0.02 < 0.02	AL-730-045
Germany, 1991 (Kanzler) wheat	SC	0.013	0.0031	400	3	0 14 27 35 41	ear ear ear wheat grain wheat grain	0.24 0.09 0.12 < 0.02 < 0.02	AL-730-043

WHEAT	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	No.[a]	days		mg/kg	
Germany, 1991 (Kanzler) winter wheat	SC	0.015	0.0038	400	3	0 14 27 35 41	ear ear ear wheat grain wheat grain	0.20 0.09 0.10 < 0.02 < 0.02	AL-730-045
Germany, 1992 (Greif) winter wheat	SC	0.015	0.0038	400	3	0 28 35 40	ear ear wheat grain wheat grain	0.24 0.072 < 0.01 0.01	AL-730-047
Germany, 1992 (Sperber) winter wheat	SC	0.015	0.0038	400	4	0 28 35 42	ear ear wheat grain wheat grain	0.17 0.18 0.01 < 0.01	AL-730-046
Germany, 1992 (Sperber) winter wheat	SC	0.015	0.0038	400	3	0 28 35 42	ear ear wheat grain wheat grain	0.12 c 0.036 0.21 < 0.01 0.01	AL-730-047
Germany, 1992 (Star)	PVP	0.015	0.0038	400	1	63	wheat grain	< 0.01	AL-730-031
Germany, 1992 (Star)	EC	0.015	0.0038	400	1	63	wheat grain	< 0.01	AL-730-031
Germany, 1992 (Star)	PVP	0.015	0.0038	400	1	63	wheat grain	< 0.01	AL-730-034
Germany, 1992 (Star)	EC	0.015	0.0038	400	1	63	wheat grain	< 0.01	AL-730-034
Germany, 1992 Greif) winter wheat	SC	0.015	0.0038	400	4	0 28 35 40	ear ear wheat grain wheat grain	0.14 0.039 < 0.01 < 0.01	AL-730-046
Germany, 1994 (Turbo) spring wheat	SC	0.012	0.003	400	ST +3	35	wheat grain	< 0.005	AL-730-033
Germany, 1994 (Turbo) spring wheat	SC	0.012	0.003	400	ST+ 3	35	wheat grain	< 0.01	AL-730-033
Germany, 1994 (Turbo) spring wheat	SC	0.012	0.003	400	ST+ 3	35	wheat grain	< 0.005	AL-730-033
Germany, 1994 (Turbo) spring wheat	SC	0.012	0.003	400	ST+ 3	34	wheat grain	< 0.01	AL-730-033
Germany, 1996 (Haven) winter wheat	WG	0.030	0.0075	400	3	35 42	wheat grain wheat grain	< 0.01 < 0.01	AL-730-040
Germany, 1996 (Haven) winter wheat	SC	0.030	0.0075	400	3	35 42	wheat grain wheat grain	0.02 < 0.01	AL-730-040
Germany, 1996 (Haven) winter wheat	EC	0.030	0.0075	400	3	35 42	wheat grain wheat grain	0.02 < 0.01	AL-730-040
Germany, 2003 (Greif) winter wheat	SC	0.013	0.006	200	1	0 27 35 41	ear wheat grain wheat grain wheat grain	0.17 < 0.05 < 0.05 < 0.05	2004/1006467
Germany, 2003 (Greif) winter wheat	SC	0.013	0.006	200	1	0 27 35 41	ear wheat grain wheat grain wheat grain	0.098 < 0.05 < 0.05 < 0.05	2004/1006467
Germany, 2003 (Transit) winter wheat	SC	0.013	0.006	200	1	0 28 34 41	ear wheat grain wheat grain wheat grain	0.19 < 0.05 0.18 < 0.05	2004/1006467

WHEAT	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	No.[a]	days		mg/kg	
Germany, 2003 (Transit) winter wheat	SC	0.013	0.006	200	1	0 28 34 41	ear wheat grain wheat grain wheat grain	0.068 < 0.05 < 0.05 0.36	2004/1006467
Germany, 2004 (Transit) durum wheat	SC	0.015		300	1	27 35 41	ear wheat grain wheat grain	0.083 < 0.01 < 0.01	2004/5000717
Germany, 2004 (Transit) durum wheat	SC	0.015		300	2	27 35 41	ear wheat grain wheat grain	0.25 0.01 < 0.01	2004/5000717
Greece, 2004 (Cimeto) durum wheat	SC	0.015		300	1	29 35 42	ear wheat grain wheat grain	0.087 < 0.01 < 0.01	2004/5000718
Greece, 2004 (Cimeto) durum wheat	SC	0.015		300	2	29 35 42	ear wheat grain wheat grain	0.11 < 0.01 < 0.01	2004/5000718
Italy, 1995 (Nobel)	EC	0.030	0.0063	480	1	42	wheat grain	< 0.01	AL-730-039
Italy, 1996 (Agridur)	EC	0.030	0.0063	480	1	42	wheat grain	< 0.003	AL-730-041
Italy, 1996 (Agridur)	WG	0.030	0.0063	480	1	42	wheat grain	< 0.01	AL-730-041
Italy, 1996 (Centauro)	EC	0.030	0.0063	480	1	42	wheat grain	< 0.003	AL-730-041
Italy, 1996 (Centauro)	WG	0.030	0.0063	480	1	42	wheat grain	< 0.003	AL-730-041
Italy, 2004 (Mieti) durum wheat	SC	0.015		300	1	29 35 42	ear wheat grain wheat grain	0.049 < 0.01 < 0.01	2004/5000718
Italy, 2004 (Mieti) durum wheat	SC	0.015		300	2	29 35 42	ear wheat grain wheat grain	0.095 < 0.01 < 0.01	2004/5000718
Spain, 2004 (Ciccio) spring wheat	SC	0.015		300	1	28 35 42	ear ear wheat grain	0.042 0.037 < 0.01	2004/5000718
Spain, 2004 (Ciccio) spring wheat	SC	0.015		300	2	28 35 42	ear ear wheat grain	0.089 0.061 < 0.01	2004/5000718
UK, 2004 (Rows / Charger) durum wheat	SC	0.015		300	1	28 35 42	ear wheat grain wheat grain	0.041 < 0.01 < 0.01	2004/5000717
UK, 2004 (Rows / Charger) durum wheat	SC	0.015		300	2	28 35 42	ear wheat grain wheat grain	0.11 < 0.01 < 0.01	2004/5000717

[a] ST: seed treatment.

Table 51 Alpha-cypermethrin residues in almonds resulting from supervised trials with alpha-cypermethrin in France

ALMOND	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
France, 1996 (Laurane)	WG	0.015	0.003	500	2	55 110	kernel	< 0.02 < 0.02	AL-740-001

ALMOND	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
France, 1996 (Ferra Star)	WG	0.015	0.003	500	2	55 116	kernel	< 0.02 < 0.02	AL-740-001
France, 1996 (Ai)	WG	0.015	0.0022 0.0028	680 540	2	46 123	kernel	< 0.02 < 0.02	AL-740-001
France, 1996 (Ferragnes)	WG	0.015	0.0022 0.0028	680 540	2	46 123	kernel	< 0.02 < 0.02	AL-740-001

Table 52 Alpha-cypermethrin residues in cotton seed resulting from supervised trials with alpha-cypermethrin in Australia, Brazil, Colombia, Greece, South Africa and Spain

COTTON	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Australia (Qld), 1982 (Deltapine 61)	EC	0.025 0.025 0.04 0.05 0.04	✈	14	5	51	cotton seed	0.01	AL-750-014
Australia (Qld), 1982 (Deltapine 61)	EC	0.025 0.025 0.04 0.05 0.04 0.032	✈	14	6	8 15 23	cotton seed	0.02 0.01 0.01	AL-750-014
Australia, 1983 (Deltapine 61)	UL	0.0032		2	3	54	cotton seed	< 0.01	AL-750-019
Australia, 1983 (Deltapine 61)	EC	0.0032		30	3	54	cotton seed[a]	< 0.01	AL-750-019
Brazil, 1981 (IAC 17)	EC	0.030		140	4	19	cotton seed	< 0.01	AL-750-010
Brazil, 1981 (IAC 17)	EC	0.060		140	4	19	cotton seed	< 0.01	AL-750-010
Brazil, 1982 (IAC 17)	EC	0.030		140	4	0 3 7 13	cotton seed	< 0.01 < 0.01 < 0.01 < 0.01	AL-750-012
Colombia, 1981 (Deltapine 61)	EC	0.030	0.015	200	7	5 14 27	cotton seed	< 0.01 < 0.01 < 0.01	AL-750-011
Colombia, 1981 (Deltapine 61)	EC	0.030	0.015	200	6	5 14 27	cotton seed	< 0.01 < 0.01 < 0.01	AL-750-011
Colombia, 1982	EC	0.020			1	0 7 14 21	cotton seed	< 0.01 < 0.01 < 0.01 < 0.01	AL-750-018
Greece, 2004 (Sandra)	SC	0.015	0.0050	300	1	0 6 14	cotton seed	0.02 < 0.01 < 0.01	2005/1007583
Greece, 2004 (Sandra)	SC	0.015	0.0050	300	2	0 6 14	cotton seed	0.04 < 0.01 0.01	2005/1007583

COTTON	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Greece, 2005 (Velos)	EC	0.025		200	1	0 3 7 14	cotton seed	0.01 < 0.01 < 0.01 < 0.01	2006/1026847
Greece, 2006 (Ermis)	EC	0.025		200	1	0 3 7 13	cotton seed	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007947
Greece, 2006 (Ermis)	EC	0.025		200	1	0 3 7 13	cotton seed	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007947
South Africa, 1982 (Acala 1517)	EC	0.03		200	1	16	cotton seed	< 0.01	AL-750-015
South Africa, 1982 (Acala 1517)	EC	0.015	✈	30	5	0	cotton seed	0.01	AL-750-016
Spain, 1981	EC	0.015	0.0038	400	4	0	cotton seed	0.01	AL-750-013
Spain, 1981	EC	0.025	0.0063	400	4	0	cotton seed	0.02	AL-750-013
Spain, 1981	EC	0.015	0.0038	400	5	0	cotton seed	< 0.01	AL-750-013
Spain, 1981	EC	0.025	0.0063	400	5	0	cotton seed	0.02	AL-750-013
Spain, 1981	EC	0.015	0.0038	400	6	0	cotton seed	0.01	AL-750-013
Spain, 1981	EC	0.025	0.0063	400	6	0	cotton seed	0.02	AL-750-013
Spain, 2004 (Hermes)	SC	0.015	0.0050	300	1	0 6 14	cotton seed	< 0.01 < 0.01 < 0.01	2005/1007583
Spain, 2004 (Hermes)	SC	0.015	0.0050	300	2	0 6 14	cotton seed	< 0.01 < 0.01 < 0.01	2005/1007583
Spain, 2005 (Flora)	EC	0.025		200	1	0 3 7 14	cotton seed	0.01 0.01 < 0.01 < 0.01	2006/1026847
Spain, 2005 (Flora)	EC	0.025		200	1	0 3 6 14	cotton seed	< 0.01 < 0.01 < 0.01 < 0.01	2006/1026847
Spain, 2005 (Pandora)	EC	0.025		200	1	0 2 7 13	cotton seed	0.01 < 0.01 < 0.01 0.018	2006/1026847
Spain, 2006 (Celia)	EC	0.025		200	1	0 3 7 13	cotton seed	< 0.01 < 0.01 < 0.01 < 0.01	2007/1007947
Spain, 2006 (Viky)	EC	0.025		200	1	0 3 7 13	cotton seed	0.02 c 0.01 < 0.01 < 0.01 < 0.01	2007/1007947

[a] Freezer storage duration 1045 days

✈ Aerial application

Table 53 Alpha-cypermethrin residues in linseed resulting from supervised trials with alpha-cypermethrin in Australia and France

LINSEED	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Australia (NSW), 1980 (Glenelb)	EC	0.020		50	1	15	linseed pods[a]	0.65 c 0.06	AL-750-008
Australia (NSW), 1980 (Glenelb)	EC	0.040 cyper		50	1	15	linseed pods[a]	1.4 c 0.17 cyper	AL-750-008
France, 1984 (Ariane)	EC	0.01	0.0033	300	1	28	linseed seeds	< 0.01	AL-750-009
France, 1984 (Ariane)	EC	0.01	0.0033	300	1	21	linseed seeds	< 0.01	AL-750-009

[a] Frozen storage duration 520 days

Table 54 Alpha-cypermethrin residues in rape seed resulting from supervised trials with alpha-cypermethrin in France, Germany, Spain and the UK

RAPE SEED	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
France, 1982 (Brutor)	EC	0.0075	0.0025	300	1	63	rape seed	< 0.01	AL-750-001
France, 1982 (Orpal)	EC	0.0075	0.0025	300	1	63	rape seed	< 0.01	AL-750-001
France, 1992 (Samourai)	EC	0.01	0.0025	400	1	63	rape seed	< 0.01	AL-750-021 W/FR/R/92/24 4 A
France, 1992 (Samourai)	EC	0.02	0.005	400	1	63	rape seed	< 0.01	AL-750-021 W/FR/R/92/24 4 A
France, 1992 (Samourai)	PVP	0.01	0.0025	400	1	63	rape seed	< 0.01	AL-750-021 W/FR/R/92/24 4 B
France, 1992 (Samourai)	PVP	0.02	0.005	400	1	63	rape seed	< 0.01	AL-750-021 W/FR/R/92/24 4 B
France, 1992 (Samourai)	EC	0.01	0.0025	400	1	77	rape seed	< 0.01	AL-750-021 W/FR/R/92/24 6 A
France, 1992 (Samourai)	EC	0.02	0.005	400	1	77	rape seed	< 0.01	AL-750-021 W/FR/R/92/24 6 A
France, 1992 (Samourai)	PVP	0.01	0.0025	400	1	77	rape seed	< 0.01	AL-750-021 W/FR/R/92/24 6 B
France, 1992 (Samourai)	PVP	0.02	0.005	400	1	77	rape seed	< 0.01	AL-750-021 W/FR/R/92/24 6 B
France, 2000 (Bristol)	WG	0.0098	0.0025	390	1	50	rape seed	< 0.05	AL-750-038
France, 2000 (Bristol)	WG	0.0095	0.0025	390	3	50	rape seed	< 0.05	AL-750-038
France, 2000 (Bristol)	WG	0.098	0.025	390	1	50	rape seed raw oil refined oil cake	0.07 < 0.05 < 0.05 < 0.05	AL-750-038
France, 2000 (Bristol)	WG	0.098	0.025	390	3	50	rape seed raw oil refined oil cake	0.07 < 0.05 < 0.05 < 0.05	AL-750-038
France, 2000 (Bristol)	WG	0.0099	0.0025	400	1	21 35 49	pods pods rape seed	< 0.05 < 0.05 < 0.05	AL-750-039

RAPE SEED	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
France, 2000 (Bristol)	WG	0.010	0.0025	400	3	21 35 49	pods pods rape seed	< 0.05 < 0.05 < 0.05	AL-750-039
France, 2000 (Expert)	WG	0.01	0.0025	390	1	50	rape seed	< 0.05	AL-750-038
France, 2000 (Expert)	WG	0.01	0.0025	390	3	50	rape seed	< 0.05	AL-750-038
France, 2000 (Expert)	WG	0.096	0.025	390	1	50	rape seed raw oil refined oil cake	< 0.05 < 0.05 < 0.05 < 0.05	AL-750-038
France, 2000 (Expert)	WG	0.098	0.025	390	3	50	rape seed raw oil refined oil cake	0.10 < 0.05 < 0.05 < 0.05	AL-750-038
France, 2000 (Express)	WG	0.0099	0.0025	400	1	21 35 49	pods pods rape seed	< 0.05 < 0.05 < 0.05	AL-750-039
France, 2000 (Express)	WG	0.0097	0.0025	390	3	21 35 49	pods pods rape seed	< 0.05 < 0.05 < 0.05	AL-750-039
France, 2001 (Kabel)	WG	0.010	0.003	320	1	29 43 50 57	pods rape seed rape seed rape seed	< 0.01 < 0.01 < 0.01 < 0.01	2002/1004087
France, 2001 (Kabel)	WG	0.010	0.003	300	2	29 43 50 57	pods rape seed rape seed rape seed	< 0.01 < 0.01 < 0.01 < 0.01	2002/1004087
Germany, 1984 (Belinda)	SC	0.01	0.0025	400	3	47	rape seed	< 0.01	AL-750-006
Germany, 1984 (Belinda)	SC	0.01	0.0025	400	3	43	rape seed	< 0.01	AL-750-006
Germany, 1984 (Belinda)	SC	0.01	0.0025	400	3	63	rape seed	< 0.01	AL-750-006
Germany, 1984 (Corina)	SC	0.01	0.0025	400	3	57	rape seed	< 0.01	AL-750-006
Germany, 1984 (Jet Neuf)	SC	0.01	0.0025	400	3	45	rape seed	< 0.01	AL-750-006
Germany, 1986 (Jet Neuf)[a]	SC	0.01	0.0025	400	3	44	rape seed	0.42	AL-750-026
Germany, 1986 (Mirander)[a]	SC	0.01	0.0025	400	3	48	rape seed	< 0.01	AL-750-025
Germany, 1986[a]	SC	0.01	0.0025	400	1	52	rape seed	< 0.01	AL-750-027
Germany, 1992 (Arabella)	PVP	0.01	0.0025	400	1	63	rape seed	< 0.01	AL-750-022
Germany, 1992 (Arabella)	EC	0.01	0.0025	400	1	63	rape seed	< 0.01	AL-750-022
Germany, 2000 (Express)	WG	0.01	0.0033	300	1	19 33 49	pods pods rape seed	< 0.05 0.08 < 0.05	AL-750-037
Germany, 2000 (Express)	WG	0.01	0.0033	300	3	19 33 49	pods pods rape seed	0.06 0.09 < 0.05	AL-750-037

RAPE SEED	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Germany, 2000 (Express)	WG	0.10	0.033	310	1	19 33 49	pods pods rape seed	0.74 1.3 < 0.05	AL-750-037
Germany, 2000 (Express)	WG	0.10	0.033	310	3	19 33 49	pods pods rape seed	1.5 2.6 0.05	AL-750-037
Spain, 2001 (Cheyenne)	WG	0.010	0.003	300	1	29 42	pods rape seed	0.11 < 0.05	2002/1004087
Spain, 2001 (Cheyenne)	WG	0.010	0.003	300	2	29 42	pods rape seed	0.36 0.06	2002/1004087
UK, 1983 (Jet Neuf)	EC	0.02	0.01	200	1	61	rape seed	< 0.01	AL-750-004
UK, 1983 (Jet Neuf)	EC	0.02	0.01	200	1	69	rape seed	< 0.01	AL-750-004
UK, 1983 (Jet Neuf)	EC	0.02	0.01	200	1	73	rape seed	< 0.01	AL-750-004
UK, 1983 (Jet Neuf)	EC	0.02	0.01	200	1	70	rape seed	< 0.01	AL-750-004
UK, 1983 (Jet Neuf)	EC	0.02	0.01	200	1	75	rape seed	< 0.01	AL-750-004

[a] No field report, no laboratory report, summary sheet only

Table 55 Alpha-cypermethrin residues in cocoa and coffee resulting from supervised trials with alpha-cypermethrin in Malaysia and Brazil

COCOA, COFFEE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Malaysia, 1983 (mixed hybrid 1977) cocoa	EC		0.005 to runoff		2	7 14 28	cocoa seeds[a]	< 0.01 < 0.01 < 0.01	AL-790-026
Brazil, 1982 (Catuai Amarelo) coffee	EC	0.025/ 1000 pits		280/ 1000 pits	2	30	coffee beans	< 0.01	AL-790-024
Brazil, 1982 (Catuai Amarelo) coffee	EC	0.050/ 1000 pits		280/ 1000 pits	2	30	coffee beans	< 0.01	AL-790-024
Brazil, 1982 (Mundo Novo) coffee	EC	0.025/ 1000 pits			3	0 2 7 12	coffee beans	< 0.01 < 0.01 < 0.01 < 0.01	AL-790-024
Brazil, 1983 (Catuai Vermelho, Catuai Amarelo) coffee	EC	0.007/ 1000 pits	0.00212	330/ 1000 pits	2	0 3 7 14	coffee beans	< 0.01 < 0.01 < 0.01 < 0.01	AL-790-024
Brazil, 1983 (Catuai Vermelho, Catuai Amarelo) coffee	EC	0.007/ 1000 pits	0.00212	330/ 1000 pits	2	0 3 7 14	husks	0.06 0.04 0.02 0.01	AL-790-024
Brazil, 1983 (Catuai Vermelho, Catuai Amarelo) coffee	EC	0.014/ 1000 pits	0.00424	330/ 1000 pits	2	0 3 7 14	coffee beans	< 0.01 < 0.01 < 0.01 < 0.01	AL-790-024

COCOA, COFFEE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Brazil, 1983 (Catuai Vermelho, Catuai Amarelo) coffee	EC	0.014/ 1000 pits	0.00424	330/ 1000 pits	2	0 3 7 14	husks	0.10 0.05 0.03 0.02	AL-790-024

[a] Prepared by fermentation and drying of cocoa pods. Seeds removed

Table 56 Alpha-cypermethrin residues in parsley resulting from supervised trials with alpha-cypermethrin in Finland

PARSLEY	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	mg ai/m^2	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Finland, 1986 (Bravour)	EC	2.4			1	1 4 7	parsley [a]	2.4 1.9 1.0	AL-790-038

[a] No study report available—data from summary sheet

Table 57 Alpha-cypermethrin residues in alfalfa fodder and forage resulting from supervised trials with alpha-cypermethrin in Canada and France

ALFALFA FODDER AND FORAGE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Canada, 1981 alfalfa	EC	0.014		110	1	7 14	alfalfa	0.22 0.10	AL-731-001
France, 2003 (Mercedes) alfalfa	WG	0.0077	0.0038	200	1	216	green matter	< 0.01	2003/1028059
France, 2003 (Diane) alfalfa	WG	0.0076	0.0038	200	1	216	green matter	< 0.01	2003/1028059
France, 2003 (Julia) alfalfa	WG	0.0076	0.0037	200	1	182	green matter	< 0.01	2003/1028059
France, 2003 (Nogara) alfalfa	WG	0.0074	0.0038	200	1	192	green matter	< 0.01	2003/1028059

Table 58 Alpha-cypermethrin residues in pea fodder and forage resulting from supervised trials with alpha-cypermethrin in Denmark, France, Germany, Greece, Italy, Netherlands, Spain and the UK

PEA FODDER AND FORAGE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Denmark, 2006 (Progress No 9)	EC	0.013	0.003	400	1	0 2 7 14	plant without pods	0.51 0.36 0.23 0.28	2007/1007951

PEA FODDER AND FORAGE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Denmark, 2006 (Progress No 9)	EC	0.013	0.003	400	2	0 2 7 14	plant without pods	0.33 0.43 0.20 0.17	2007/1007951
France, 1992 (Alex) fodder pea	EC	0.013	0.004	300	1	28	peas (seeds)	< 0.01	AL-720-010
France, 1992 (Alex) fodder pea	EC	0.025	0.008	300	1	28	peas (seeds)	< 0.01	AL-720-010
France, 1992 (Alex) fodder pea	PVP[a]	0.013	0.004	300	1	28	peas (seeds)	< 0.01	AL-720-010
France, 1992 (Alex) fodder pea	PVP	0.025	0.008	300	1	28	peas (seeds)	< 0.01	AL-720-010
France, 1992 (Alex) fodder pea	PVP	0.013	0.004	300	1	28	peas (seeds)	< 0.01	AL-720-010
France, 1992 (Alex) fodder pea	PVP	0.025	0.008	300	1	28	peas (seeds)	< 0.01	AL-720-010
France, 1992 (Rannis) fodder pea	EC	0.013	0.004	300	1	28	peas (seeds)	< 0.01	AL-720-010
France, 1992 (Rannis) fodder pea	EC	0.025	0.008	300	1	28	peas (seeds)	< 0.01	AL-720-010
France, 2005 (Hardy) dry pea	EC	0.013	0.003	400	1	0 14 21 28	pea straw	0.12 0.12 0.24 0.20	2006/1026858
France, 2005 (Hardy) dry pea	EC	0.013	0.003	400	2	0 14 21 28	pea straw	0.21 0.30 0.37 0.36	2006/1026858
France, 2005 (Utrio)	EC	0.013	0.003	400	1	0 3 7 14	plant without pods	0.07 0.05 0.06 0.05	2006/1026856
France, 2005 (Utrio)	EC	0.013	0.003	400	2	0 3 7 14	plant without pods	0.10 0.06 0.08 0.05	2006/1026856
France, 2006 (Arthur) dry pea	EC	0.013	0.003	400	1	0 14 21 28	pea straw	0.13 0.25 0.58 0.30	2007/1007949
France, 2006 (Arthur) dry pea	EC	0.013	0.003	400	2	0 14 21 28	pea straw	0.31 0.25 1.0 0.67	2007/1007949
France, 2006 (Baceaua) dry pea	EC	0.025	0.006	400	1	0 13 21	pea straw	1.5 0.85 1.0	2007/1007949
France, 2006 (Merveille de Kelvedon)	EC	0.013	0.003	400	1	0 3 7 14	plant without pods	0.16 0.037 0.047 0.033	2007/1007951

PEA FODDER AND FORAGE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
France, 2006 (Merveille de Kelvedon)	EC	0.013	0.003	400	2	0 3 7 14	plant without pods	0.23 0.057 0.10 0.068	2007/1007951
France, 2006 (Milan)	EC	0.025	0.006	400	1	0 2 7 14	plant without pods	0.72 0.17 0.068 0.14	2007/1007951
Germany, 2005 (Maxigold)	EC	0.013	0.003	400	1	0 3 7 14	plant without pods	0.06 0.04 0.02 0.01	2006/1026856
Germany, 2005 (Maxigold)	EC	0.013	0.003	400	2	0 3 7 14	plant without pods	0.07 0.06 0.03 0.01	2006/1026856
Germany, 2006 (Santana)	EC	0.013	0.003	400	1	0 4 7 14	plant without pods	0.29 0.27 0.19 0.18	2007/1007951
Germany, 2006 (Santana)	EC	0.013	0.003	400	2	0 4 7 14	plant without pods	0.64 0.23 0.35 0.26	2007/1007951
Germany, 2006 (Santana) dry pea	EC	0.013	0.003	400	1	0 13 20 28	pea straw	0.35 0.24 0.25 0.21	2007/1007949
Germany, 2006 (Santana) dry pea	EC	0.013	0.003	400	2	0 13 20 28	pea straw	0.39 0.38 0.27 0.33	2007/1007949
Greece, 2005 (Ambassadeur)	EC	0.025	0.006	400	1	0 3 7 14	plant without pods	0.57 c 0.05 0.20 c 0.08 0.28 c 0.07 0.26 c 0.29	2006/1026856
Greece, 2006 (Lotus) dry pea	EC	0.025	0.006	400	1	0 14 21 28	pea straw	1.1 0.41 0.29 0.51	2007/1007949
Italy, 2005 (Atlas)	EC	0.025	0.006	400	1	0 3 7 14	plant without pods	0.24 0.27 0.09 0.10	2006/1026856
Italy, 2005 (Coralio) dry pea	EC	0.025	0.006	400	1	0 14 21 28	pea straw	1.2 0.45 0.48 0.36	2006/1026858
Netherlands, 2005 (Arlette)	EC	0.013	0.003	400	1	0 3 7 14	plant without pods	0.83 0.24 0.25 0.19	2006/1026856

PEA FODDER AND FORAGE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Netherlands, 2005 (Arlette)	EC	0.013	0.003	400	2	0 3 7 14	plant without pods	0.86 0.35 0.23 0.34	2006/1026856
Spain, 2005 (Ideal) dry pea	EC	0.025	0.006	400	1	0 14 21	pea straw	0.23 0.32 0.67	2006/1026858
Spain, 2006 (Meteor)	EC	0.025	0.006	400	1	0 4 7 14	plant without pods	1.0 0.43 0.30 0.071	2007/1007951
UK, 1993 (Scout) vining pea	EC	0.015	0.008	200	4	0 3	plant without pods	< 0.05 0.42	AL-720-012
UK, 1993 (Scout) vining pea	EC	0.015	0.008	200	4	0 3	plant without pods	0.56 0.37	AL-720-012
UK, 1993 (Skinidao) vining pea	EC	0.015	0.008	200	4	0 3	plant without pods	0.5 0.65	AL-720-012
UK, 1993 (Vera) vining pea	EC	0.015	0.008	200	4	0 3	plant without pods	0.48 0.46	AL-720-012
UK, 1997 (80A Ambassador) vining pea	EC	0.015	0.008	200	3	0– 0+ 1 2 3	plant without pods	0.27 0.59 0.65 0.58 0.44	AL-720-027
UK, 1997 (80A Ambassador) vining pea	WG	0.015	0.008	200	3	0– 0+ 1 2 3	plant without pods	0.33 0.73 0.80 0.78 0.69	AL-720-027
UK, 1997 (Cara) vining pea	EC	0.015	0.0075	200	3	3	haulm + empty pods	0.37	1998/1004337
UK, 1997 (Vista) vining pea	EC	0.015	0.0075	200	3	0– 0+ 1 2 3	plant plant plant plant haulm + empty pods	0.06 0.25 0.13 0.16 0.27	1998/1004336
UK, 1997 (Waverex 16) vining pea	EC	0.015	0.008	200	3	0– 0+ 1 2 3	plant without pods	0.18 0.65 0.64 0.53 0.60	AL-720-027
UK, 1997 (Waverex 16) vining pea	WG	0.015	0.008	200	3	0– 0+ 1 2 3	plant without pods	0.36 0.71 0.59 0.90 0.70	AL-720-027
UK, 1999 (24A Tristar) vining pea	WG	0.015	0.008	200	3	1 3	plant without pods	0.62 0.61	AL-720-028
UK, 1999 (24A Tristar) vining pea	EC	0.015	0.008	200	3	1 3	plant without pods	0.40 0.45	AL-720-028
UK, 1999 (65A Ambassador) vining pea	WG	0.015	0.008	200	3	1 3	plant without pods	0.74 0.50	AL-720-028

PEA FODDER AND FORAGE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
UK, 1999 (65A Ambassador) vining pea	EC	0.015	0.008	200	3	1 3	plant without pods	0.64 0.46	AL-720-028
UK, 2005 (Kobleackie) dry pea	EC	0.013	0.003	400	1	0 14 21 28	pea straw	0.19 0.12 0.25 0.27	2006/1026858
UK, 2005 (Kobleackie) dry pea	EC	0.013	0.003	400	2	0 14 21 28	pea straw	0.55 0.44 0.52 0.52	2006/1026858
UK, 2005 (Wavarex)	EC	0.013	0.003	400	1	0 3 7 14	plant without pods	0.35 0.06 0.10 0.10	2006/1026856
UK, 2005 (Wavarex)	EC	0.013	0.003	400	2	0 3 7 14	plant without pods	0.42 0.21 0.30 0.29	2006/1026856
UK, 2006 (Geisha)	EC	0.013	0.003	400	1	0 3 7 14	plant without pods	0.25 0.087 0.062 0.066	2007/1007951
UK, 2006 (Geisha)	EC	0.013	0.003	400	2	0 3 7 14	plant without pods	0.28 0.19 0.20 0.23	2007/1007951

[a] PVP is a solid granulo-formulation made from polyvinylpyrrolidone, probably classified as a WG now

Table 59 Alpha-cypermethrin residues in bean fodder and forage resulting from supervised trials with alpha-cypermethrin in Belgium, France, Germany, Greece, Italy, Netherlands, South Africa, Spain and the UK

BEAN FODDER AND FORAGE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Belgium, 2006 (Polder)	EC	0.013	0.003	400	1	0 3 7 14	plant without pods	0.39 0.20 0.08 0.05	2007/1007950
Belgium, 2006 (Polder)	EC	0.013	0.003	400	2	0 3 7 14	plant without pods	0.36 0.34 0.13 0.07	2007/1007950
France, 1998 (Argus)	WG	0.030	0.0082	360	1	7	plant without pods	0.26	AL-720-024
France, 1998 (Argus)	WG	0.030	0.0082	360	1	0 3 7 11 14	plant without pods	1.4 0.31 0.18 0.18 0.19	AL-720-025

BEAN FODDER AND FORAGE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
France, 1998 (Calvi)	WG	0.030	0.0075	400	1	0 3 7 10 14	plant without pods	1.3 1.4 1.1 0.95 0.73	AL-720-026
France, 1998 (Cantare)	WG	0.030	0.0082	360	1	0 3 7 10 13	plant without pods	0.92 0.75 0.42 0.36 0.30	AL-720-025
France, 1998 (Filao)	WG	0.030	0.0086	350	1	0 3 7 10 15	plant without pods	1.0 0.67 0.52 0.46 0.37	AL-720-026
France, 1998 (Lasso)	WG	0.030	0.0082	360	1	7	plant without pods	0.38	AL-720-024
France, 1998 (Primera)	WG	0.030	0.0086	350	1	0 3 7 10 13	plant without pods	1.1 0.40 0.28 0.24 0.31	AL-720-026
France, 1998 (Villebelle)	WG	0.029	0.0084	340	1	0 3 7 10 14	plant without pods	1.4 0.96 0.53 0.49 0.34	AL-720-026
France, 2005 (Adagio)	EC	0.025	0.006	400	1	0 3 7 14	plant without pods	0.50 0.26 0.11 0.050	2006/1026857
France, 2005 (Booster)	EC	0.013	0.003	400	1	0 3 7 14	plant without pods	0.28 0.24 0.07 0.041	2006/1026857
France, 2005 (Booster)	EC	0.013	0.003	400	2	0 3 7 14	plant without pods	0.37 0.18 0.14 0.077	2006/1026857
France, 2005 (Castel) dry bean	EC	0.013	0.003	400	1	0 14 21 28	bean straw	0.44 0.21 0.24 0.21	2006/1026858
France, 2005 (Castel) dry bean	EC	0.013	0.003	400	2	0 14 21 28	bean straw	0.57 0.46 0.45 0.59	2006/1026858
France, 2006 (Angers)	EC	0.013	0.003	400	1	0 3 7 14	plant without pods	0.42 0.08 0.07 0.04	2007/1007950
France, 2006 (Angers)	EC	0.013	0.003	400	2	0 3 7 14	plant without pods	0.54 0.12 0.09 0.06	2007/1007950

BEAN FODDER AND FORAGE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
France, 2006 (Booster)	EC	0.025	0.006	400	1	0 3 8 14	plant without pods	1.5 0.98 0.04 0.02	2007/1007950
France, 2006 (Irena) dry bean	EC	0.013	0.003	400	1	0 14 21 28	bean straw	0.58 0.079 0.11 0.084	2007/1007949
France, 2006 (Irena) dry bean	EC	0.013	0.003	400	2	0 14 21 28	bean straw	0.54 0.095 0.18 0.20	2007/1007949
France, 2006 (Linex) dry bean	EC	0.025	0.006	400	1	0 14 21 28	bean straw	1.1 0.11 0.057 0.045	2007/1007949
Germany, 2005 (Sigma)	EC	0.013	0.003	400	1	0 3 7 14	plant without pods	0.86 0.19 0.034 0.032	2006/1026857
Germany, 2005 (Sigma)	EC	0.013	0.003	400	2	0 3 7 14	plant without pods	0.82 0.25 0.077 0.092	2006/1026857
Greece, 2005 (Plati)	EC	0.025	0.006	400	1	0 3 7 14	plant without pods	0.92 0.59 0.36 0.19	2006/1026857
Italy, 2005 (Avalon)	EC	0.025	0.006	400	1	0 3 7 14	plant without pods	0.89 0.80 0.31 0.16	2006/1026857
Italy, 2005 (Polo) dry bean	EC	0.025	0.006	400	1	0 14 21 28	bean straw	0.76 0.29 0.15 0.27	2006/1026858
Italy, 2006 (Masai)	EC	0.025	0.006	400	1	0 3 7 14	plant without pods	0.98 0.20 0.07 0.05	2007/1007950
Netherlands, 2005 (Menthion)	EC	0.013	0.003	400	1	0 3 7 14	plant without pods	0.34 0.13 0.13 0.071	2006/1026857
Netherlands, 2005 (Menthion)	EC	0.013	0.003	400	2	0 3 7 14	plant without pods	0.34 0.31 0.18 0.11	2006/1026857
Netherlands, 2006 (Cebeco) dry bean	EC	0.013	0.003	400	1	0 14 22 28	bean straw	0.49 0.11 0.077 0.050	2007/1007949

BEAN FODDER AND FORAGE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Netherlands, 2006 (Cebeco) dry bean	EC	0.013	0.003	400	2	0 14 22 28	bean straw	0.64 0.17 0.075 0.10	2007/1007949
Netherlands, 2006 (Minidor)	EC	0.013	0.003	400	1	0 3 7 14	plant without pods	0.25 0.15 0.08 0.08	2007/1007950
Netherlands, 2006 (Minidor)	EC	0.013	0.003	400	2	0 3 7 14	plant without pods	0.33 0.20 0.17 0.13	2007/1007950
South Africa, 1984[a,b]	EC	0.0125			1	0 1 3 7 14	bean plants	< 0.05 (2) < 0.05 (2) < 0.05 (2) < 0.05 (2) < 0.05 (2)	AL-720-005
South Africa, 1984[a,b]	EC	0.025			1	-1 0 1 3 7 14	bean plants	< 0.05 (2) 0.11 0.10 0.07 0.05 < 0.05 (2) < 0.05 (2) < 0.05 (2)	AL-720-005
Spain, 2005 (Agua Dulce) dry bean	EC	0.025	0.006	400	1	0 14 21 28	bean straw	0.49 0.095 0.077 0.092	2006/1026858
Spain, 2005 (Antea)	EC	0.025	0.006	400	1	0 3 7 14	plant without pods	0.86 0.46 0.27 0.14	2006/1026857
Spain, 2006 (Aneto)	EC	0.025	0.006	400	1	0 3 7 14	plant without pods	0.91 0.63 0.43 0.24	2007/1007950
Spain, 2006 (Reina Blanca) dry bean	EC	0.025	0.006	400	1	0 14 21 28	bean straw	0.73 0.42 0.25 0.26	2007/1007949
UK, 1980 (Herra) field beans	EC cyper	0.050		370	1	52	bean foliage	0.08 cyper	AL-720-001
UK, 1980 (Herra) field beans	EC cis-cyp	0.025		370	1	52	bean foliage	0.08 cis-cyper	AL-720-001
UK, 1980 (Herra) field beans	EC	0.025		370	1	52	bean foliage	0.07	AL-720-001
UK, 1997 (Punch) winter field bean	EC	0.015	0.0075	200	2	11	straw + empty pods	0.36	1998/1004334
UK, 1997 (Punch) winter field bean	EC	0.030	0.015	200	1	11	straw + empty pods	0.45	1998/1004334

BEAN FODDER AND FORAGE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
UK, 1997 (Punch) winter field bean	EC	0.015		200	2	0– 0+ 1 5 7 1 11	plant with pods plant with pods plant with pods plant with pods plant with pods empty pods straw + empty pods	< 0.05 0.15 0.22 0.10 0.15 0.40 0.07	1998/1004335
UK, 1997 (Punch) winter field bean	EC	0.032		210	1	0– 0+ 1 5 7 1 11	plant with pods plant with pods plant with pods plant with pods plant with pods empty pods straw + empty pods	< 0.05 0.32 0.53 0.26 0.31 0.77 0.51	1998/1004335
UK, 1997 (Target) winter field bean	EC	0.015	0.0075	200	2	11	straw + empty pods	0.39	1998/1004334
UK, 1997 (Target) winter field bean	EC	0.03	0.015	200	1	11	straw + empty pods	0.32	1998/1004334
UK, 1997 (Target) winter field bean	EC	0.015		200	2	0– 0+ 1 5 7 1 11	plant with pods plant with pods plant with pods plant with pods plant with pods empty pods straw + empty pods	0.17 0.29 0.39 0.25 0.15 0.82 0.39	1998/1004335
UK, 1997 (Target) winter field bean	EC	0.030		200	1	0– 0+ 1 5 7 1 11	plant with pods plant with pods plant with pods plant with pods plant with pods empty pods straw + empty pods	< 0.05 0.37 0.84 0.23 0.27 0.93 0.32	1998/1004335
UK, 2005 (Clipper) dry bean	EC	0.013	0.003	400	1	0 14 21 28	bean straw	0.17 0.31 0.16 0.089	2006/1026858
UK, 2005 (Clipper) dry bean	EC	0.013	0.003	400	2	0 14 21 28	bean straw	0.28 0.30 0.40 0.11	2006/1026858
UK, 2005 (Paulista)	EC	0.013	0.003	400	1	0 3 7 14	plant without pods	0.52 0.25 0.14 0.034	2006/1026857
UK, 2005 (Paulista)	EC	0.013	0.003	400	2	0 3 7 14	plant without pods	0.39 0.13 0.087 0.055	2006/1026857
UK, 2006 (Paulifta)	EC	0.013	0.003	400	1	0 4 18 14	plant without pods	0.25 0.20 0.01 < 0.01	2007/1007950

BEAN FODDER AND FORAGE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
UK, 2006 (Paulifta)	EC	0.013	0.003	400	2	0 4 8 14	plant without pods	0.52 0.31 0.12 0.07	2007/1007950

[a] field report available.

[b] Supporting data limited.

LOD for beans 0.003 mg/kg

Table 60 Alpha-cypermethrin residues in barley straw and fodder resulting from supervised trials with alpha-cypermethrin in Denmark Germany, Greece, Italy, Spain and the UK

BARLEY STRAW AND FODDER	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Denmark, 2004 (Barke)	SC	0.015		300	1	0 27 35 41	plant culm barley straw barley straw	0.36 0.034 0.44 0.56	2004/5000717
Denmark, 2004 (Barke)	SC	0.015		300	2	0 27 35 41	plant culm barley straw barley straw	0.52 0.72 0.69 0.88	2004/5000717
France, 1982 (Igris)	EC	0.013	0.0042	300	1	254	barley straw	< 0.01	AL-730-011
France, 1982 (Sonja)	EC	0.013	0.0042	300	1	258	barley straw	< 0.01	AL-730-011
France, 1992 (Delta)	EC	0.015	0.0015	1000	1	49	barley straw	0.08	AL-730-029
France, 1992 (Delta)	EC	0.030	0.003	1000	1	49	barley straw	0.08	AL-730-029
France, 1992 (Delta)	PVP	0.015	0.0015	1000	1	49	barley straw	0.05	AL-730-029
France, 1992 (Delta)	PVP	0.030	0.003	1000	1	49	barley straw	0.10	AL-730-029
France, 2004 (Orelie)	SC	0.015		300	1	0 28 35 42	plant culm barley straw barley straw	0.34 0.39 0.38 0.28	2004/5000717
France, 2004 (Orelie)	SC	0.015		300	2	0 28 35 42	plant culm barley straw barley straw	0.66 0.75 0.73 0.46	2004/5000717
France, 2004 (Orelie)	SC	0.015		300	1	0 28 35 43	plant culm barley straw barley straw	0.20 0.23 0.13 0.17	2004/5000718
France, 2004 (Orelie)	SC	0.015		300	2	0 28 35 43	plant culm barley straw barley straw	0.67 0.93 0.30 1.1	2004/5000718
Germany, 1990 (Igri) winter barley	SC	0.013	0.0031	400	3	0 35 51	plant, except ear plant, except ear barley straw	0.40 0.20 0.22	AL-730-050
Germany, 1990 (Trixi) winter barley	SC	0.013	0.0031	400	3	0 35 44	plant, except ear plant, except ear barley straw	0.72 0.55 0.68	AL-730-050

BARLEY STRAW AND FODDER	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Germany, 1991 (Alexis) spring barley	SC	0.013	0.0031	400	3	0 35 40	plant, except ear barley straw barley straw	0.45 0.48 0.53	AL-730-048
Germany, 1991 (Alexis) summer barley	SC	0.015	0.0038	400	3	0 35 40	plant, except ear barley straw barley straw	0.28 0.80 0.83	AL-730-049
Germany, 1991 (Tapir) winter barley	SC	0.013	0.0031	400	3	0 35	plant, except ear barley straw	0.23 0.32	AL-730-048
Germany, 1991 (Tapir) winter barley	SC	0.015	0.0038	400	3	0 35	plant, except ear barley straw	0.24 0.30	AL-730-049
Germany, 1992 (Alexis) spring barley	SC	0.015	0.0038	400	3	0	plant, except ear	0.52	AL-730-061
Germany, 1992 (Apex) spring barley	SC	0.015	0.0038	400	3	0	plant, except ear	0.32	AL-730-061
Germany, 1992 (Marika) winter barley	SC	0.015	0.0038	400	3	0 35 41	plant, except ear barley straw barley straw	0.41 0.31 0.37	AL-730-051
Germany, 1992 (Marika) winter barley	SC	0.015	0.0038	400	3	0 35 42	plant, except ear barley straw barley straw	0.38 0.21 0.70	AL-730-051
Germany, 1992 (Marinka) winter barley	SC	0.015	0.0038	400	4	0 35 41	plant, except ear barley straw barley straw	0.30 0.29 0.23	AL-730-052
Germany, 1992 (Tapir) winter barley	SC	0.015	0.0038	400	4	0 35 42	plant, except ear barley straw barley straw	0.49 0.36 0.89	AL-730-052
Germany, 1995 (Alexis) spring barley	EC	0.03		400	2	0 2 7 14 21 35 42	plant, except ear plant, except ear plant, except ear plant, except ear barley straw barley straw barley straw	0.87 0.42 0.55 0.46 0.46 0.62 0.43	AL-730-037
Germany, 1995 (Alexis) spring barley	EC	0.03		400	2	0 2 6 13 20 34 41	plant, except ear plant, except ear plant, except ear plant, except ear barley straw barley straw barley straw	0.38 0.34 0.29 0.21 0.17 0.18 0.22	AL-730-037
Germany, 1995 (Alexis) spring barley	WG	0.03		400	2	0 2 6 13 20 34 41	plant, except ear plant, except ear plant, except ear plant, except ear barley straw barley straw barley straw	0.22 0.24 0.13 0.20 0.20 0.19 0.21	AL-730-037
Germany, 1995 (Alexis) spring barley	WG	0.03		400	2	0 2 6 13 20 34 41	plant, except ear plant, except ear plant, except ear plant, except ear barley straw barley straw barley straw	0.18 0.19 0.18 0.17 0.16 0.16 0.19	AL-730-037

BARLEY STRAW AND FODDER	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Germany, 2003 (Alexis) spring barley	SC	0.013	0.006	200	1	0 28 36 42	culm barley straw barley straw barley straw	0.24 0.54 0.39 0.12	2004/1006467
Germany, 2003 (Alexis) spring barley	SC	0.013	0.006	200	1	0 28 36 42	culm barley straw barley straw barley straw	0.17 < 0.05 0.22 0.22	2004/1006467
Germany, 2003 (Lomerit) winter barley	SC	0.013	0.006	200	1	0 28 35 42	culm barley straw barley straw barley straw	0.11 0.22 0.18 0.17	2004/1006467
Germany, 2003 (Lomerit) winter barley	SC	0.013	0.006	200	1	0 28 35 42	culm barley straw barley straw barley straw	0.069 0.22 0.13 0.14	2004/1006467
Germany, 2004 (Barke) spring barley	SC	0.15		300	2	0	plant	3.1	2007/1013068 FR 01/04/40
Germany, 2004 (Camera)	SC	0.015		300	1	0 28 35 43	plant culm barley straw barley straw	0.38 0.40 0.48 0.39	2004/5000717
Germany, 2004 (Camera)	SC	0.015		300	2	0 28 35 43	plant culm barley straw barley straw	0.57 0.60 0.83 0.49	2004/5000717
Germany, 2004 (Pasadena) spring barley	SC	0.15		300	2	0	plant	4.4	2007/1013068 FR 01/04/20
Germany, 2004 (Scarlett) spring barley	SC	0.15		300	2	0	plant	2.8	2007/1013068 FR 01/04/50
Germany, 2004 (Ursa) spring barley	SC	0.15		300	2	0	plant	1.8	2007/1013068 FR 01/04/70
Greece, 2004 (Mitsu)	SC	0.015		300	1	0 30 36 44	plant culm barley straw barley straw	0.35 < 0.01 < 0.01 < 0.01	2004/5000718
Greece, 2004 (Mitsu)	SC	0.015		300	2	0 30 36 44	plant culm barley straw barley straw	0.44 < 0.01 < 0.01 < 0.01	2004/5000718
Italy, 1995 (Sonora)	EC	0.030		480	1	0 14 42	plant[a] plant barley straw	< 0.01 c 1.0 0.29 0.15	AL-730-038
Italy, 1996 (Sonora)	EC	0.030		480	1	42	barley straw	0.06	AL-730-042
Italy, 1996 (Sonora)	WG	0.030		480	1	42	barley straw	0.16	AL-730-042
Italy, 1996 (Trebbia)	EC	0.030		480	1	42	barley straw	0.22	AL-730-042
Italy, 1996 (Trebbia)	WG	0.030		480	1	42	barley straw	0.31	AL-730-042
Italy, 2004 (Thea)	SC	0.015		300	1	0 28 35 42	plant culm barley straw barley straw	0.16 0.088 0.22 0.20	2004/5000718

BARLEY STRAW AND FODDER	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Italy, 2004 (Thea)	SC	0.015		300	2	0 28 35 42	plant culm barley straw barley straw	0.52 0.53 0.46 0.35	2004/5000718
Spain, 2004 (Almudena) spring barley	SC	0.015		300	1	0 28 35 43	plant culm culm barley straw	0.35 0.15 0.037 0.24	2004/5000718
Spain, 2004 (Almudena) spring barley	SC	0.015		300	2	0 28 35 43	plant culm culm barley straw	0.80 0.37 0.067 0.062	2004/5000718
UK, 1995 (Fighter) winter barley	EC	0.030		200	1	0– 0+ 2 7 14 21 40	plant, except ear plant, except ear plant, except ear plant, except ear plant, except ear plant, except ear barley straw	< 0.01 0.29 0.27 0.26 0.35 0.41 0.59	AL-730-035
UK, 1995 (Fighter) winter barley	WG	0.030		200	1	0– 0+ 2 7 14 21 40	plant, except ear plant, except ear plant, except ear plant, except ear plant, except ear plant, except ear barley straw	< 0.01 0.36 0.37 0.31 0.37 0.46 0.78	AL-730-035
UK, 1995 (Fighter) winter barley	WG	0.030		200	1	0– 0+ 2 7 14 21 40	plant, except ear plant, except ear plant, except ear plant, except ear plant, except ear plant, except ear barley straw	< 0.01 0.44 0.31 0.30 0.45 0.36 0.78	AL-730-035
UK, 1995 (Fighter) winter barley	WG	0.030		200	1	28	barley straw	0.65	AL-730-036
UK, 2004 (Pearl)	SC	0.015		300	1	0 28 35 42	plant culm barley straw barley straw	0.35 0.33 0.27 0.34	2004/5000717
UK, 2004 (Pearl)	SC	0.015		300	2	0 28 35 42	plant culm barley straw barley straw	0.62 0.36 0.49 0.66	2004/5000717

[a] Apparent misidentification of treated and untreated samples

Table 61 Alpha-cypermethrin residues in maize fodder and forage resulting from supervised trials with alpha-cypermethrin in France and Germany

MAIZE FODDER AND FORAGE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Canada, 1982 (Commander)[a] sweet corn	EC	0.020	0.0017	1200	3	1	whole plant	0.08 0.18 0.11 0.07	AL-723-004
Canada, 1983 (Seneca)[a] sweet corn	EC	0.020	0.0013	1500	5	7	husks	0.38	AL-723-009
France, 1981 (Fontenac)	EC	0.030		480	1	14	maize plant	< 0.01	AL-730-013
France, 1981 (Fontenac)	EC	0.050		480	1	14	maize plant	< 0.01	AL-730-013
France, 1981 (Stella)	EC	0.030		480	1	9	maize plant	< 0.01	AL-730-013
France, 1981 (Stella)	EC	0.050		480	1	9	maize plant	< 0.01	AL-730-013
France, 1989 (Sabrina)	EC	0.030	0.006	500	2	29	maize silage	0.19	AL-730-019
France, 1989 (Sabrina)	EC	0.030	0.0053	500	2	13	maize silage	0.32	AL-730-019
Germany, 1986 (Limac)[b]	SC	0.018	0.0044	400	1	0 7 14 21 61	maize plant maize plant maize plant maize plant maize straw	0.4 0.25 0.12 0.07 0.05	AL-730-058
Germany, 1986 (Limac)[b]	SC	0.018	0.0044	400	1	0 7 14 21 57	maize plant maize plant maize plant maize plant maize straw	0.52 0.16 0.33 0.1 0.08	AL-730-057
Germany, 1986 (Limac)[b]	SC	0.018	0.004	400	1	0 7 14 21 59	maize plant maize plant maize plant maize plant maize straw	0.14 0.10 0.18 0.14 0.08	AL-730-059
Germany, 1986 (Limac)[b]	SC	0.018	0.0044	400	1	0 7 14 21 59	maize plant maize plant maize plant maize plant maize straw	1.2 0.86 0.32 0.15 0.23	AL-730-060
Germany, 1987 (Limac)[b]	SC	0.018	0.0044	400	1	0 7 14 21	maize plant maize plant maize plant maize plant	0.02 0.01 0.01 0.02	AL-730-062
Germany, 1987 (Limac)[b]	SC	0.018	0.0044	400	1	0 7 14 21	maize plant maize plant maize plant maize plant	0.83 0.20 0.29 0.29	AL-730-063
Germany, 1987 (Limac)[b]	SC	0.018	0.0044	400	1	0 7 14 21	maize plant maize plant maize plant maize plant	1.7 0.69 0.46 0.34	AL-730-065
Germany, 1987 (Tau)[b]	SC	0.018	0.0044	400	1	0 7 14 21	maize plant maize plant maize plant maize plant	1.0 0.38 0.11 0.18	AL-730-064

[a] Supporting data limited

[b] No field report, no laboratory report, summary sheet only

Table 62 Alpha-cypermethrin residues in oats fodder and forage resulting from supervised trials with alpha-cypermethrin in Germany

OATS FODDER AND FORAGE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Germany, 1991	SC	0.013	0.003	400	3	0 35	plant, except ear oats straw	0.52 0.45	AL-730-053
Germany, 1991	SC	0.015	0.004	400	3	0 35	plant, except ear oats straw	0.69 0.56	AL-730-054
Germany, 1991 (Adamo)	SC	0.013	0.003	400	3	0 35 42	plant, except ear oats straw oats straw	0.32 0.28 0.31	AL-730-053
Germany, 1991 (Adamo)	SC	0.015	0.004	400	3	0 35 42	plant, except ear oats straw oats straw	0.47 0.44 0.31	AL-730-054
Germany, 1992 (Flamingkrone)	SC	0.015	0.004	400	3	0 35 42	plant, except ear oats straw oats straw	0.50 0.43 0.43	AL-730-056
Germany, 1992 (Adamo)	SC	0.015	0.004	400	3	0 35 42	plant, except ear oats straw oats straw	0.24 0.079 0.083	AL-730-056
Germany, 1990 (Flamingskrone)	SC	0.025	0.006	400	3	0 35 37	plant, except ear plant, except ear oats straw	0.49 1.4 0.41	AL-730-055
Germany, 1990 (Alfred)	SC	0.013	0.003	400	3	0 39 46	plant, except ear plant, except ear oats straw	0.30 0.22 0.75	AL-730-055

Table 63 Alpha-cypermethrin residues in rice fodder and forage resulting from supervised trials with alpha-cypermethrin in France, Greece, Italy, Philippines, Spain and Thailand

RICE FODDER AND FORAGE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
France, 2005 (Ligalon)	EC	0.013	0.006	200	1	0 13 21	rice plant plant, except panicles rice straw	0.27 0.088 0.072	2006/1026848
France, 2005 (Ligalon)	EC	0.013	0.006	200	2	0 13 21	rice plant plant, except panicles rice straw	0.45 0.12 0.19	2006/1026848
France, 2006 (Cigalon)	EC	0.013	0.006	200	1	0 14 21 27	rice plant plant, except panicles rice straw rice straw	0.27 0.12 0.06 0.053	2007/1007946

RICE FODDER AND FORAGE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
France, 2006 (Cigalon)	EC	0.013	0.006	200	2	0 14 21 27	rice plant plant, except panicles rice straw rice straw	0.38 0.14 0.11 0.061	2007/1007946
Greece, 2005 (Thai Bonnet)	EC	0.013	0.006	200	1	0 14 21 28	rice plant plant, except panicles rice straw rice straw	0.42 0.093 0.044 0.056	2006/1026848
Greece, 2005 (Thai Bonnet)	EC	0.013	0.006	200	2	0 14 21 28	rice plant plant, except panicles rice straw rice straw	0.29 0.086 0.14 0.077	2006/1026848
Greece, 2006 (Claudio)	EC	0.013	0.006	200	1	0 14 21 27	rice plant plant, except panicles rice straw rice straw	0.26 0.084 0.049 0.021	2007/1007946
Greece, 2006 (Claudio)	EC	0.013	0.006	200	2	0 14 21 27	rice plant plant, except panicles rice straw rice straw	0.59 0.19 0.065 0.13	2007/1007946
Italy, 2005 (Lido)	EC	0.013	0.006	200	1	0 14 21 28	rice plant plant, except panicles rice straw rice straw	0.51 0.13 0.35 0.33	2006/1026848
Italy, 2005 (Lido)	EC	0.013	0.006	200	2	0 14 21 28	rice plant plant, except panicles rice straw rice straw	0.46 0.19 0.35 0.35	2006/1026848
Italy, 2006 (Cadet)	EC	0.013	0.006	200	1	0 15 22 29	rice plant plant, except panicles rice straw rice straw	0.063 0.015 0.064 0.048	2007/1007946
Italy, 2006 (Cadet)	EC	0.013	0.006	200	2	0 15 22 29	rice plant plant, except panicles rice straw rice straw	0.32 0.086 0.19 0.19	2007/1007946
Philippines, 1987 (IR-22)	EC	0.010			6	20	rice straw bran, husk	0.03 0.18 c 0.02	AL-730-023
Philippines, 1987 (IR-22)	EC	0.010			6	20	rice straw bran, husk	0.04 0.13 c 0.02	AL-730-023
Philippines, 1987 (IR-64)	EC	0.013			6	20	rice straw bran, husk	0.16 0.19 c 0.02	AL-730-023
Philippines, 1987 (IR-64)	EC	0.025			6	20	rice straw bran, husk	0.47 0.35 c 0.02	AL-730-023

RICE FODDER AND FORAGE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Spain, 2005 (Puntal)	EC	0.013	0.006	200	1	0 14 21 28	rice plant plant, except panicles rice straw rice straw	0.18 0.091 0.077 0.052	2006/1026848
Spain, 2005 (Puntal)	EC	0.013	0.006	200	2	0 14 21 28	rice plant plant, except panicles rice straw rice straw	0.34 0.091 0.13 0.082	2006/1026848
Spain, 2006 (Puntal)	EC	0.013	0.006	200	1	0 13 20 28	rice plant plant, except panicles rice straw rice straw	0.25 0.068 0.049 0.052	2007/1007946
Spain, 2006 (Puntal)	EC	0.013	0.006	200	2	0 13 20 28	rice plant plant, except panicles rice straw rice straw	0.35 0.12 0.091 0.075	2007/1007946
Thailand, 1983 (RD7)	EC	0.005		500	3	40	rice straw	0.03 c[a]	AL-730-021
Thailand, 1983 (RD7)	EC	0.010		500	3	40	rice straw	0.05 c[a]	AL-730-021
Thailand, 1983 (RD7)	EC	0.015		500	3	40	rice straw	0.09 c[a]	AL-730-021
Thailand, 1987 (RD7)	EC	0.015		500	3	45	rice grain	< 0.02	AL-730-024
Thailand, 1987 (RD7)	EC	0.010		500	3	45	rice straw	0.02	AL-730-024

[a] Sample of rice straw from control plot of 0.04 mg/kg

Table 64 Alpha-cypermethrin residues in wheat straw and fodder resulting from supervised trials with alpha-cypermethrin in Belgium, Canada, France, Germany, Greece, Italy, Spain and the UK

WHEAT STRAW AND FODDER	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no [b]	days		mg/kg [a]	
Belgium, 2004 (Chipie) durum wheat	SC	0.015		300	1	0 27 34 41	plant culm wheat straw wheat straw	0.21 0.18 0.33 0.34	2004/5000717
Belgium, 2004 (Chipie) durum wheat	SC	0.015		300	2	0 27 34 41	plant culm wheat straw wheat straw	0.54 0.42 0.79 0.92	2004/5000717
Canada (Saskatchewan) 1987 (Columbus)	SC	0.02	0.02	100	1	7 15	wheat plant, green	0.20 0.15	AL-730-010
Canada (Saskatchewan) 1987 (Columbus)	SC	0.03	0.03	100	1	7 15	wheat plant, green	0.15 0.12	AL-730-010
Canada (Saskatchewan) 1987 (Columbus)	SC	0.01	0.01	100	1	7 15	wheat plant, green	0.13 0.08	AL-730-010
France, 1983 (Caton)	EC	0.018	0.0035	500	1	46	wheat straw	0.17	AL-730-001

WHEAT STRAW AND FODDER	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no [b]	days		mg/kg [a]	
France, 1983 (Hardi)	EC	0.018	0.0035	500	1	42	wheat straw	0.29	AL-730-001
France, 1983 (Talent)	EC	0.018	0.0035	500	1	39	wheat straw	0.44	AL-730-001
France, 1984 (Caton)	EC	0.015	0.003	500	1	0 7 14 28 42	wheat straw	0.14 (0.58) 0.06 (0.25) 0.02 (0.04) 0.04 (0.06) 0.05 (0.07)	AL-730-004 AL-730-003
France, 1984 (Caton)	EC	0.015	0.003	500	1	0 7 14 21	wheat straw	0.21 (0.54) 0.16 (0.40) 0.16 (0.36) 0.14 (0.29)	AL-730-004 AL-730-003
France, 1984 (Rivoli)	EC	0.015	0.003	500	1	0 7 14 28 42 63	wheat straw	0.11 (0.38) 0.05 (0.17) 0.07 (0.21) 0.07 (0.19) 0.07 (0.13) 0.09 (0.10)	AL-730-004 AL-730-003
France, 1984 (Rivoli)	EC	0.015	0.003	500	1	0 7 14 21 28 42	wheat straw	0.14 (0.50) 0.08 (0.28) 0.06 (0.18) 0.05 (0.14) 0.05 (0.12) 0.08 (0.10)	AL-730-004 AL-730-003
France, 1984 (Talent)	EC	0.015	0.003	500	1	0 7 14 28 42 70	wheat straw	0.19 (0.66) 0.07 (0.23) 0.03 (0.09) 0.03 (0.08) 0.06 (0.12) 0.11 (0.12)	AL-730-004 AL-730-003
France, 1984 (Talent)	EC	0.015	0.003	500	1	0 7 14 21 28 63	wheat straw	0.05 (0.16) 0.04 (0.12) 0.05 (0.09) 0.03 (0.05) 0.05 (0.06) 0.12 (0.13)	AL-730-004 AL-730-003
France, 1984 (Top)	EC	0.015	0.003	500	1	0 7 14 28 42 70	wheat straw	0.20 (1.1) 0.13 (0.62) 0.06 (0.18) 0.04 (0.16) 0.03 (0.09) 0.03 (0.03)	AL-730-004 AL-730-003
France, 1984 (Top)	EC	0.015	0.003	500	1	0 7 14 21 28 42	wheat straw	0.04 (0.15) 0.02 (0.07) 0.02 (0.05) 0.02 (0.04) 0.02 (0.03) 0.05 (0.06)	AL-730-004 AL-730-003
France, 1992 (Artaban)	PVP	0.015	0.0038	400	1	39	wheat straw	0.60	AL-730-030
France, 1992 (Artaban)	PVP	0.030	0.0075	400	1	39	wheat straw	1.6	AL-730-030
France, 1992 (Artaban)	EC	0.015	0.0038	400	1	39	wheat straw	0.75	AL-730-030
France, 1992 (Artaban)	EC	0.030	0.0075	400	1	39	wheat straw	2.0	AL-730-030

WHEAT STRAW AND FODDER	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no [b]	days		mg/kg [a]	
France, 1992 (Darius)	PVP	0.015	0.0038	400	1	49	wheat straw	0.06	AL-730-030
France, 1992 (Darius)	PVP	0.030	0.0075	400	1	49	wheat straw	0.19	AL-730-030
France, 1992 (Darius)	EC	0.015	0.0038	400	1	49	wheat straw	0.09	AL-730-030
France, 1992 (Darius)	EC	0.030	0.0075	400	1	49	wheat straw	0.30	AL-730-030
France, 1992 (Prinkal)	EC	0.015	0.0015	1000	1	49	wheat straw	0.02	AL-730-029
France, 1992 (Prinkal)	EC	0.030	0.003	1000	1	49	wheat straw	0.08	AL-730-029
France, 1992 (Prinkal)	PVP	0.015	0.0015	1000	1	49	wheat straw	0.05	AL-730-029
France, 1992 (Prinkal)	PVP	0.030	0.003	1000	1	49	wheat straw	0.06	AL-730-029
France, 2000 (Manital)	EC	0.013	0.0031	400	1	0– 0+ 14 43	wheat plant wheat plant wheat plant wheat straw	< 0.05 0.23 0.25 0.15	AL-730-067
France, 2000 (Manital)	EC	0.013	0.0031	400	3	0– 0+ 14 43	wheat plant wheat plant wheat plant wheat straw	0.20 0.36 0.05 0.30	AL-730-067
France, 2004 (Neodur) durum wheat	SC	0.015		300	1	0 27 34 40	plant culm wheat straw wheat straw	0.16 0.075 0.058 0.084	2004/5000718
France, 2004 (Neodur) durum wheat	SC	0.015		300	2	0 27 34 40	plant culm wheat straw wheat straw	0.23 0.17 0.27 0.34	2004/5000718
France, 2004 (Rows / Cap Horn) durum wheat	SC	0.015		300	1	0 28 35 43	plant culm culm wheat straw	0.19 0.075 0.15 0.16	2004/5000717
France, 2004 (Rows / Cap Horn) durum wheat	SC	0.015		300	2	0 28 35 43	plant culm culm wheat straw	0.41 0.15 0.26 0.27	2004/5000717
Germany, 1986–7 (Disponent)	EC	seed dressing 0.75 g ai/kg seed			1	224	green wheat	< 0.01	AL-730-009
Germany, 1986–7 (Disponent)	EC	seed dressing 0.75 g ai/kg seed			1	245	green wheat	< 0.01	AL-730-009
Germany, 1986–7 (Disponent)	EC	seed dressing 0.75 g ai/kg seed			1	231	green wheat	< 0.01	AL-730-009
Germany, 1986–7 (Kanzler)	EC	seed dressing 0.75 g ai/kg seed			1	231	green wheat	< 0.01	AL-730-009
Germany, 1990 (Kraka)	SC	0.013	0.0031	400	3	0 35 51	plant, except ear plant, except ear wheat straw	1.4 1.0 1.7	AL-730-044
Germany, 1990 (Urban)	SC	0.013	0.0031	400	3	0 35 42	plant, except ear plant, except ear wheat straw	0.62 0.15 0.16	AL-730-044

WHEAT STRAW AND FODDER	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no [b]	days		mg/kg [a]	
Germany, 1991 (Herzog) winter wheat	SC	0.013	0.0031	400	3	0 35 40	plant, except ear wheat straw wheat straw	0.23 0.84 0.58	AL-730-043
Germany, 1991 (Herzog) winter wheat	SC	0.015	0.0038	400	3	0 35 40	plant, except ear wheat straw wheat straw	0.55 1.0 0.94	AL-730-045
Germany, 1991 (Kanzler) wheat	SC	0.013	0.0031	400	3	0 35 41	plant, except ear wheat straw wheat straw	0.58 0.36 0.54	AL-730-043
Germany, 1991 (Kanzler) winter wheat	SC	0.015	0.0038	400	3	0 35 41	plant, except ear wheat straw wheat straw	0.38 0.42 0.52	AL-730-045
Germany, 1992 (Greif) winter wheat	SC	0.015	0.0038	400	4	0 35 40	plant, except ear wheat straw wheat straw	0.54 0.43 0.81	AL-730-046
Germany, 1992 (Greif) winter wheat	SC	0.015	0.0038	400	3	0 35 40	plant, except ear wheat straw wheat straw	0.53 0.44 0.75	AL-730-047
Germany, 1992 (Sperber) winter wheat	SC	0.015	0.0038	400	4	0 35 42	plant, except ear wheat straw wheat straw	0.43 1.0 1.2	AL-730-046
Germany, 1992 (Sperber) winter wheat	SC	0.015	0.0038	400	3	0 35 42	plant, except ear wheat straw wheat straw	0.48 0.72 0.73	AL-730-047
Germany, 1992 (Star)	PVP	0.015	0.0038	400	1	63	wheat straw	0.03	AL-730-031
Germany, 1992 (Star)	EC	0.015	0.0038	400	1	63	wheat straw	0.01	AL-730-031
Germany, 1992 (Star)	PVP[c]	0.015	0.0038	400	1	63	wheat straw	0.03	AL-730-034
Germany, 1992 (Star)	EC	0.015	0.0038	400	1	63	wheat straw	0.01	AL-730-034
Germany, 1994 (Turbo) spring wheat	SC	0.012	0.003	400	ST+ 3	35	wheat straw	0.32	AL-730-033
Germany, 1994 (Turbo) spring wheat	SC	0.012	0.003	400	ST+ 3	35	wheat straw	0.37	AL-730-033
Germany, 1994 (Turbo) spring wheat	SC	0.012	0.003	400	ST+ 3	35	wheat straw	0.62	AL-730-033
Germany, 1994 (Turbo) spring wheat	SC	0.012	0.003	400	ST+ 3	34	wheat straw	0.48	AL-730-033
Germany, 1996 (Haven) winter wheat	WG	0.030	0.0075	400	3	0– 0+ 21 28 35 42	wheat plant wheat plant wheat plant wheat plant wheat straw[d] wheat straw	0.42 1.0 1.4 0.72 0.75 1.5	AL-730-040
Germany, 1996 (Haven) winter wheat	SC	0.030	0.0075	400	3	0– 0+ 21 28 35 42	wheat plant wheat plant wheat plant wheat plant wheat straw[d] wheat straw	0.48 0.80 1.6 1.8 1.9 2.2	AL-730-040

WHEAT STRAW AND FODDER	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no [b]	days		mg/kg [a]	
Germany, 1996 (Haven) winter wheat	EC	0.030	0.0075	400	3	0– 0+ 21 28 35 42	wheat plant wheat plant wheat plant wheat plant wheat straw[d] wheat straw	0.43 0.87 1.1 0.78 1.0 1.3	AL-730-040
Germany, 2003 (Greif) winter wheat	SC	0.013	0.006	200	1	0 27 35 41	culm wheat straw wheat straw wheat straw	0.17 0.37 0.33 0.37	2004/1006467
Germany, 2003 (Greif) winter wheat	SC	0.013	0.006	200	1	0 27 35 41	culm wheat straw wheat straw wheat straw	0.072 0.17 0.16 0.11	2004/1006467
Germany, 2003 (Transit) winter wheat	SC	0.013	0.006	200	1	0 28 34 41	culm wheat straw wheat straw wheat straw	0.18 0.36 0.37 0.33	2004/1006467
Germany, 2003 (Transit) winter wheat	SC	0.013	0.006	200	1	0 28 34 41	culm wheat straw wheat straw wheat straw	0.20 0.26 0.44 0.31	2004/1006467
Germany, 2004 (Transit) durum wheat	SC	0.015		300	1	0 27 35 41	plant culm wheat straw wheat straw	0.23 0.38 0.48 0.31	2004/5000717
Germany, 2004 (Transit) durum wheat	SC	0.015		300	2	0 27 35 41	plant culm wheat straw wheat straw	0.47 0.87 0.91 0.98	2004/5000717
Greece, 2004 (Cimeto) durum wheat	SC	0.015		300	1	0 29 35 42	plant culm wheat straw wheat straw	0.043 0.22 0.13 0.21	2004/5000718
Greece, 2004 (Cimeto) durum wheat	SC	0.015		300	2	0 29 35 42	plant culm wheat straw wheat straw	0.32 0.21 0.25 0.25	2004/5000718
Italy, 1995 (Nobel)	EC	0.030	0.0063	480	1	0 14 42	wheat plant wheat plant wheat straw	0.54 0.26 0.37	AL-730-039
Italy, 1996 (Agridur)	EC	0.030	0.0063	480	1	42	wheat straw	0.26	AL-730-041
Italy, 1996 (Agridur)	WG	0.030	0.0063	480	1	42	wheat straw	0.17	AL-730-041
Italy, 1996 (Centauro)	EC	0.030	0.0063	480	1	42	wheat straw	0.26	AL-730-041
Italy, 1996 (Centauro)	WG	0.030	0.0063	480	1	42	wheat straw	0.27	AL-730-041
Italy, 2004 (Mieti) durum wheat	SC	0.015		300	1	0 29 35 42	plant culm wheat straw wheat straw	0.28 0.18 0.23 0.37	2004/5000718
Italy, 2004 (Mieti) durum wheat	SC	0.015		300	2	0 29 35 42	plant culm wheat straw wheat straw	0.62 0.71 0.95 0.95	2004/5000718

WHEAT STRAW AND FODDER	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no [b]	days		mg/kg [a]	
Spain, 2004 (Ciccio) spring wheat	SC	0.015		300	1	0 28 35 42	plant culm culm wheat straw	0.47 0.23 0.21 0.20	2004/5000718
Spain, 2004 (Ciccio) spring wheat	SC	0.015		300	2	0 28 35 42	plant culm culm wheat straw	0.056 0.39 0.37 0.19	2004/5000718
UK, 2004 (Rows / Charger) durum wheat	SC	0.015		300	1	0 28 35 42	plant culm wheat straw wheat straw	0.18 0.26 0.44 0.47	2004/5000717
UK, 2004 (Rows / Charger) durum wheat	SC	0.015		300	2	0 28 35 42	plant culm wheat straw wheat straw	0.38 0.49 0.68 0.67	2004/5000717

[a] Values in parentheses are the residue concentrations expressed on dry weight.

[b] ST: seed treatment.

[c] PVP was a tablet formulation

[d] Samples of straw from control (untreated) plot 0.05 and 0.03 mg/kg

Table 65 Alpha-cypermethrin residues in sugar beet leaves or tops resulting from supervised trials with alpha-cypermethrin in France, Germany, Greece, Italy, Spain and the UK

SUGAR BEET LEAVES OR TOPS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
France, 1983 (Monostar)	EC	0.015	0.0052	290	1	98	sugar beet leaf	< 0.01	AL-724-007
France, 1983 (Monostar)	EC	0.015	0.0052	290	1	98	sugar beet leaf	< 0.01	AL-724-007
France, 2002 (Angelina)	WG	0.0077	0.0038	200	2	92	sugar beet tops	< 0.01	2003/1021716
France, 2002 (Angelina)	WG	0.0074	0.0037	200	2	88	sugar beet tops	< 0.01	2003/1021716
France, 2002 (Crocodile)	WG	0.0077	0.0038	200	2	92	sugar beet tops	< 0.01	2003/1021716
France, 2002 (Rafole)	WG	0.0078 0.0073	0.0037	200	2	84	sugar beet tops	< 0.01	2003/1021716
France, 2006 (Laetitia)	EC	0.025	0.0060	400	1	0 7 14 21	sugar beet tops	0.77 0.10 0.06 0.05	2007/1007941
Germany, 1985 (KW-Mono)	SC	0.010			1	35 98 126	plant sugar beet leaf sugar beet leaf	< 0.01 < 0.01 < 0.01	AL-724-009
Germany, 1985 (Novadima)	SC	0.010			1	28 112 133	plant sugar beet leaf sugar beet leaf	< 0.01 < 0.01 < 0.01	AL-724-009

SUGAR BEET LEAVES OR TOPS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Germany, 1985 (Regina)	SC	0.010			1	35 112 140	plant sugar beet leaf sugar beet leaf	< 0.01 < 0.01 < 0.01	AL-724-009
Germany, 1985 (Regina)	SC	0.010			1	35 98 126	plant sugar beet leaf sugar beet leaf	< 0.01 < 0.01 < 0.01	AL-724-009
Germany, 1990 (KW-Eva)	EC	0.01	0.0025	400	3	0 14 21 28 35	sugar beet leaf	0.37 0.29 0.17 0.19 0.20	AL-724-016
Germany, 1990 (Peragis rot)	EC	0.01	0.0025	400	3	0 15 22 30 35	sugar beet leaf	0.24 0.16 0.11 0.20 0.10	AL-724-016
Germany, 1990 (Peragis rot)	EC	0.01	0.0025	400	3	0 14 21 28 35	sugar beet leaf	0.56 0.27 0.13 < 0.01 0.057	AL-724-016
Germany, 1990 (Viktoria)	EC	0.01	0.0025	400	3	0 14 21 28 35	sugar beet leaf	0.87 1.1 0.96 0.74 0.73	AL-724-016
Germany, 1991 (Brigadier)	EC	0.01	0.0025	400	3	13 20 27 34	sugar beet leaf	0.86 0.39 0.21 0.09	AL-731-003
Germany, 1991 (Eva)	SC	0.010	0.0025	400	3	0 14 21 28 35	sugar beet leaf	0.5 0.34 0.21 0.27 0.19	AL-724-017
Germany, 1991 (Rhizo)	SC	0.010	0.0025	400	3	0 14 21 28 35	sugar beet leaf	1.9 1.3 1.2 0.64 0.51	AL-724-017
Germany, 1991 (variety unknown)	EC	0.01	0.0025	400	3	0 14 21 28 31	sugar beet leaf	0.75 0.52 0.43 0.34 0.94	AL-731-003
Germany, 2003 (Dorena)	SC	0.010	0.0050	200	1	0 14 98	plant sugar beet leaf sugar beet leaf	0.27 < 0.05 < 0.05	2004/1006468
Germany, 2003 (Dorena)	SC	0.010	0.0050	200	1	0 14 98	plant sugar beet leaf sugar beet leaf	0.34 0.07 < 0.05	2004/1006468
Germany, 2003 (Milan)	SC	0.010	0.0050	200	1	0 25 108	plant sugar beet leaf sugar beet leaf	0.45 < 0.05 < 0.05	2004/1006468

SUGAR BEET LEAVES OR TOPS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Germany, 2003 (Milan)	SC	0.010	0.0050	200	1	0 25 108	plant sugar beet leaf sugar beet leaf	0.31 < 0.05 < 0.05	2004/1006468
Germany, 2003 (Tatjana)	SC	0.010	0.0050	200	1	0 21 131	plant sugar beet leaf sugar beet leaf	0.14 0.29 < 0.05	2004/1006468
Germany, 2003 (Tatjana)	SC	0.010	0.0050	200	1	0 21 131	plant sugar beet leaf sugar beet leaf	0.098 < 0.05 < 0.05	2004/1006468
Germany, 2003 (Tatjana)	SC	0.010	0.0050	200	1	0 30 140	plant sugar beet leaf sugar beet leaf	0.21 < 0.05 < 0.05	2004/1006468
Germany, 2003 (Tatjana)	SC	0.010	0.0050	200	1	0 30 140	plant sugar beet leaf sugar beet leaf	0.34 < 0.05 < 0.05	2004/1006468
Greece, 2005 (Riose)	EC	0.025	0.0060	400	1	0 7 14 21	sugar beet leaf	0.22 0.15 0.073 0.052	2006/1026851
Greece, 2006 (Doria)	EC	0.025	0.0060	400	1	0 6 14 21	sugar beet tops	0.38 0.08 0.03 0.02	2007/1007941
Italy, 2005 (Dorotea)	EC	0.025	0.0060	400	1	0 7 14 21	sugar beet leaf	0.72 0.23 0.16 0.045	2006/1026851
Italy, 2006 (Omelia)	EC	0.025	0.0030	400	1	0 6 13 20	sugar beet tops	0.49 0.24 0.09 0.06	2007/1007941
Italy, 2006 (Rizor)	EC	0.025	0.0030	400	1	0 7 14 21	sugar beet tops	0.78 0.17 0.07 0.05	2007/1007941
Spain, 2005 (Dina)	EC	0.025	0.0060	400	1	0 7 14 21	sugar beet leaf	0.48 0.079 0.059 0.02	2006/1026851
Spain, 2005 (Sidonia)	EC	0.025	0.0060	400	1	0 7 14 21	sugar beet leaf	0.46 0.035 0.046 < 0.01	2006/1026851
UK, 1980 (Monotr 1)	EC cyper	0.10	0.0027	370	1	43	sugar beet leaf	0.17 cyper	AL-724-006
UK, 1980 (Monotr 1)	EC	0.10	0.0027	370	1	43	sugar beet leaf	0.12	AL-724-006

Table 66 Alpha-cypermethrin residues in cotton forage and fodder resulting from supervised trials with alpha-cypermethrin in Greece, South Africa and Spain

COTTON FORAGE AND FODDER	Application		PHI	Commodity	Alpha-cypermethrin	Ref

country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Greece, 2004 (Sandra)	SC	0.015	0.0050	300	1	0 6 14	cotton plants	0.06 0.06 0.07	2005/1007583
Greece, 2004 (Sandra)	SC	0.015	0.0050	300	2	0 6 14	cotton plants	0.09 0.11 0.20	2005/1007583
Greece, 2005 (Velos)	EC	0.025		200	1	0 3 7 14	cotton plants	0.99 0.36 0.55 0.19	2006/1026847
Greece, 2006 (Ermis)	EC	0.025		200	1	0 3 7 13	cotton plants	0.84 0.61 0.38 0.20	2007/1007947
Greece, 2006 (Ermis)	EC	0.025		200	1	0 3 7 13	cotton plants	0.57 0.94 0.34 0.38	2007/1007947
South Africa, 1982 (Acala 1517)	EC	0.03		200	1	0 2 7 16	cotton leaves	3.4 c 0.08 2.6 1.3 0.85	AL-750-015
South Africa, 1982 (Acala 1517)	EC	0.015	✈	30	4 5	33 0 7 16	cotton leaves	0.70 2.0 0.70 2.2	AL-750-016
South Africa, 1982 (Acala 1517)	EC	0.015		200	4 5	19 0 2 7 16	cotton leaves [a]	0.3 5.0 3.0 1.4 1.6	AL-750-017
Spain, 2004 (Hermes)	SC	0.015	0.0050	300	1	0 6 14	cotton plants	0.37 c 0.07 0.21 0.05	2005/1007583
Spain, 2004 (Hermes)	SC	0.015	0.0050	300	2	0 6 14	cotton plants	0.49 c 0.05 0.32 0.05	2005/1007583
Spain, 2005 (Flora)	EC	0.025		200	1	0 3 7 14	cotton plants	0.70 0.20 0.20 0.078	2006/1026847
Spain, 2005 (Flora)	EC	0.025		200	1	0 3 6 14	cotton plants	0.27 c 0.025 0.38 c 0.017 0.15 c 0.031 0.14	2006/1026847
Spain, 2005 (Pandora)	EC	0.025		200	1	0 2 7 13	cotton plants	0.78 0.28 0.46 0.19	2006/1026847
Spain, 2006 (Celia)	EC	0.025		200	1	0 3 7 13	cotton plants	0.58 0.34 0.21 0.15	2007/1007947
Spain, 2006 (Viky)	EC	0.025		200	1	0 3 7 13	cotton plants	1.1 c 0.46 0.75 c 0.36 0.48 c 0.28 0.38 c 0.17	2007/1007947

[a] Freezer storage duration 830 days

Table 67 Alpha-cypermethrin residues in rape seed fodder and forage resulting from supervised trials with alpha-cypermethrin in France, Germany and Spain

RAPE SEED FODDER, FORAGE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
France, 2000 (Bristol)	WG	0.0099	0.0025	400	1	0– 0+ 7 21 35	plant plant plant plant without pods plant without pods	< 0.05 0.06 < 0.05 < 0.05 < 0.05	AL-750-039
France, 2000 (Bristol)	WG	0.010	0.0025	400	3	0– 0+ 7 21 35	plant plant plant plant without pods plant without pods	0.08 0.14 0.07 0.06 < 0.05	AL-750-039
France, 2000 (Express)	WG	0.0099	0.0025	400	1	0– 0+ 7 21 35	plant plant plant plant without pods plant without pods	< 0.05 0.09 < 0.05 < 0.05 < 0.05	AL-750-039
France, 2000 (Express)	WG	0.0097	0.0025	390	3	0– 0+ 7 21 35	plant plant plant plant without pods plant without pods	0.06 0.10 0.06 < 0.05 < 0.05	AL-750-039
France, 2001 (Kabel)	WG	0.010	0.003	320	1	0 29	plant plant without pods	0.07 < 0.05	2002/1004087
France, 2001 (Kabel)	WG	0.010	0.003	300	2	0 29	plant plant without pods	0.06 < 0.05	2002/1004087
Germany, 1986 (Jet Neuf)[a]	SC	0.01	0.0025	400	3	0 30	husk	4.0 1.2	AL-750-026
Germany, 1986 (Mirander)[a]	SC	0.01	0.0025	400	3	0 27	husk	1.6 0.1	AL-750-025
Germany, 1986[a]	SC	0.01	0.0025	400	1	0 43	husk	1.5 0.01	AL-750-027
Germany, 2000 (Express)	WG	0.01	0.0033	300	1	0– 0+ 7 19 33	plant plant plant plant without pods plant without pods	< 0.05 0.16 1.5 < 0.05 < 0.05	AL-750-037

RAPE SEED FODDER, FORAGE	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Germany, 2000 (Express)	WG	0.01	0.0033	300	3	0– 0+ 7 19 33	plant plant plant plant without pods plant without pods	0.06 0.16 0.09 < 0.05 < 0.05	AL-750-037
Germany, 2000 (Express)	WG	0.10	0.033	310	1	0– 0+ 7 19 33	plant plant plant plant without pods plant without pods	< 0.05 0.12 0.77 0.32 0.43	AL-750-037
Germany, 2000 (Express)	WG	0.10	0.033	310	3	0– 0+ 7 19 33	plant plant plant plant without pods plant without pods	0.06 0.97 1.2 0.70 0.63	AL-750-037
Spain, 2001 (Cheyenne)	WG	0.010	0.003	300	1	0 29	plant plant without pods	0.11 0.11	2002/1004087
Spain, 2001 (Cheyenne)	WG	0.010	0.003	300	2	0 29	plant plant without pods	0.28 0.24	2002/1004087

[a] No field report, no laboratory report, summary sheet only

Table 68 Alpha-cypermethrin residues in hops resulting from supervised trials with alpha-cypermethrin in Czechoslovakia and Germany

HOPS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Czechoslovakia, 1985 (Osvald 72)	EC	0.063	0.003	2100	1	0 4 7 14 17	hops [a]	2.1 beer < 0.005 0.73 beer < 0.005 0.40 beer < 0.005 0.23 beer < 0.005 0.18 beer < 0.005	AL-790-017 AL-790-019
Germany, 1981 (Hallertauer)	EC	0.053	0.0035	1500	5	0 7 14 21 28	hops	12 8.5 5.4 2.8 2.2	AL-790-016
Germany, 1981 (Hallertauer)	EC	0.053	0.0035	1500	5	0 7 14 21 28	hops	3.0 0.75 0.44 0.30 0.22	AL-790-016
Germany, 1981 (Hallertauer)	EC	0.053	0.0035	1500	5	0 7 14 21	hops	10.5 5.4 4.5 4.3	AL-790-016

HOPS	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Germany, 1981 (Hersbrucker)	EC	0.053	0.0035	1500	5	0 7 14 21	hops	3.0 c 2.1 2.3 1.6 1.3	AL-790-016
Germany, 1981 (Hüller Bitter)	EC	0.053	0.0035	1500	5	0 7 14	hops	5.4 2.9 2.0	AL-790-016
Germany, 1981 (Northern Brewer)	EC	0.053	0.0035	1500	5	0 7 14 21	hops	7.8 6.0 4.0 1.3	AL-790-016
Germany, 1981 (Spalter)	EC	0.053	0.0035	1500	5	0 7 14 21	hops	8.5 c 0.23 3.8 3.1 2.8	AL-790-016
Germany, 1981 (Tettnanger)	EC	0.053	0.0035	1500	5	0 7 14 21 28	hops	7.2 5.5 2.0 1.8 1.3	AL-790-016
Germany, 1985 (Brewers Gold)	EC	0.080 0.11 0.14 0.14 0.14	0.0035	2300 3000 4000 4000 4000	5	0 7 14 21	hops, dried	5.3 beer < 0.1 1.7 2.5 1.7	AL-790-041
Germany, 1985 (Tettnanger)	EC	0.11	0.007	1500	5	0 7 14 21 28	hops	13 (moisture 13%) 7.0 (moisture 14%) 6.0 (moisture 22%) 4.0 (moisture 67%) 5.0 (moisture 15%)	AL-790-018
Germany, 1985 (Tettnanger)	EC	0.11	0.007	1500	5	0 7 14 21 28	hops	20 (moisture 10.5%) 12 (moisture 17.5%) 5.0 (moisture 16%) 6.0 (moisture 24.5%) 3.0 (moisture 11%)	AL-790-018
Germany, 1986 (Brewers Gold)	EC	0.070	0.007	1000	5	0 7 10 14 21	hops	2.6 c 0.02 1.3 2.0 0.8 2.1	AL-790-021
Germany, 1986 (Tettnanger)	EC	0.14	0.007	2000	5	0 7 10 14 21	hops	6.5 c 0.24 5.5 1.9 1.7 0.7	AL-790-021

[a] After sampling, hops were dried at 50 °C for seven hours

Table 69 Alpha-cypermethrin residues in tea resulting from supervised trials with alpha-cypermethrin in Malawi

TEA	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	

TEA	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Malawi,1987 (Mature Indian Hybrid)	EC	0.010	0.0022	470	1	0 5 10 14 28	tea leaves[a]	6.5 2.2 1.0 0.34 0.03	AL-790-027
Malawi,1987 (Mature Indian Hybrid)	EC	0.020	0.0043	470	1	0 5 10 14 28	tea leaves[a]	13 4.9 1.9 0.60 0.06	AL-790-027

[a] No study report available—data from summary sheet.

FATE OF RESIDUES IN STORAGE AND PROCESSING

In processing

The Meeting received information on the fate of alpha-cypermethrin residues during the processing of barley for beer; grapes for wine and raisins; olives for olive oil and fermented olives; cabbage for sauerkraut; gherkins for canned gherkins; tomatoes for juice, pure and paste; oilseed rape for oil; and oil palm for palm oil and palm seed oil. Also information was provided on hydrolysis studies of alpha-cypermethrin to assist with identification of the nature of the residues during processing.

Processing factors have been calculated for alpha-cypermethrin residues in barley, cabbage, gherkins, grapes, olives, rape seed and tomatoes.

Table 70 Hydrolysis of [^{14}C]alpha-cypermethrin under conditions representing food processes (Afzal, 2001, AL-790-046)

alpha-cypermethrin concentration	Hydrolysis conditions			Represent	% alpha-cypermethrin remaining
0.02 mg/L	pH 4	90 ˚C	20 mins	pasteurisation	approximately 100%
0.02 mg/L	pH 5	100 ˚C	60 mins	baking, brewing and boiling	approximately 100%
0.02 mg/L	pH 6	120 ˚C	20 mins	sterilisation	85.4% 89.9%[a]

[a] The hydrolysis products were identified as 3-phenoxybenzaldehyde and DCVA.

Table 71 Alpha-cypermethrin residues in barley and processed commodities resulting from trials with alpha-cypermethrin in Germany

BARLEY	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Germany, 1992 (Alexis) spring barley	SC	0.015	0.0038	400	3	35	barley grain spent barley trub yeast beer malt malt germs	0.06 0.014 < 0.01 < 0.01 < 0.01 0.013 0.011	AL-730-061

BARLEY	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Germany, 1992 (Apex) spring barley	SC	0.015	0.0038	400	3	35	barley grain malt malt germs beer yeast trub spent barley	0.019 0.014 0.026 < 0.01 < 0.01 < 0.01 0.032	AL-730-061
Germany, 2004 (Barke) spring barley	SC	0.15		300	2	43	barley grain brewing malt spent grain spent hops spent yeast beer pot barley pearling dust, bran barley flour	0.33 0.15 0.25 0.06 < 0.01 < 0.01 0.04 1.62 2.14	2007/1013068 FR 01/04/40
Germany, 2004 (Ursa) spring barley	SC	0.15		300	2	41	barley grain brewing malt spent grain spent hops spent yeast beer pot barley pearling dust, bran barley flour	0.26 0.19 0.26 0.05 < 0.01 < 0.01 0.01 1.61 2.17	2007/1013068 FR 01/04/70
Germany, 2004 (Pasadena) spring barley	SC	0.15		300	2	43	barley grain brewing malt spent grain spent hops spent yeast beer pot barley pearling dust, bran barley flour	0.22 0.13 0.19 0.07 < 0.01 < 0.01 0.03 1.21 1.67	2007/1013068 FR 01/04/20
Germany, 2004 (Scarlett) spring barley	SC	0.15		300	2	43	barley grain brewing malt spent grain spent hops spent yeast beer pot barley pearling dust, bran barley flour	0.11 0.12 0.13 0.02 < 0.01 < 0.01 0.01 0.72 1.35	2007/1013068 FR 01/04/50

In four trials in Germany, Raunft *et al*. (2005, 2005/1014175) treated a grape crop with alpha-cypermethrin at an exaggerated rate of application and processed the grapes into rosé, red wine and dried raisins. For rosé wine, grapes were crushed and pressed, and the must was treated with sulphur dioxide and allowed to stand. Yeast was added to the separated must for fermentation. After fermentation the wine was filtered and stored at cellar temperature. For red wine, the initial step was stemming and crushing. The crush was treated with sulphur dioxide and heated to 70 °C before pressing. The remainder of the process was similar to that described for rosé. For the production of raisins, grapes were dried in a chamber at 45 °C and then the stalks were removed. Residue data are summarised in Table 72.

Table 72 Alpha-cypermethrin residues in grapes and processed commodities resulting from trials with alpha-cypermethrin in Germany

GRAPES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Germany, 2004 (Spätburgunder)	SC	0.075	0.008	1000	2	0 14	fruit fruit 1. pomace must, deposit yeast, deposit rosé wine 2. stalks crush pomace must, deposit yeast, deposit red wine 3. raisin stalks (raisin)	0.16 0.060 0.17 0.36 0.38 < 0.01 0.19 0.11 0.34 0.26 0.35 < 0.01 0.19 1.6	2005/1014175
Germany, 2004 (Spätburgunder)	SC	0.075	0.008	1000	2	0 14	fruit fruit 1. pomace must, deposit yeast, deposit rosé wine 2. stalks crush pomace must, deposit yeast, deposit red wine 3. raisin stalks (raisin)	0.10 0.050 0.12 0.45 0.16 < 0.01 0.12 0.080 0.23 0.26 0.33 < 0.01 0.17 0.85	2005/1014175
Germany, 2004 (Portugieser)	SC	0.075	0.008	1000	2	0 14	fruit fruit 1. pomace must, deposit yeast, deposit rosé wine 2. stalks crush pomace must, deposit yeast, deposit red wine 3. raisin stalks (raisin)	0.22 0.12 0.22 0.68 0.77 < 0.01 0.15 0.17 0.40 0.25 0.93 < 0.01 0.38 1.09	2005/1014175
Germany, 2004 (Portugieser)	SC	0.075	0.008	1000	2	0 14	fruit fruit 1. pomace must, deposit yeast, deposit rosé wine 2. stalks crush pomace must, deposit yeast, deposit red wine 3. raisin stalks (raisin)	0.11 0.050 0.16 0.64 0.50 < 0.01 0.15 0.11 0.16 0.21 0.54 < 0.01 0.17 2.3	2005/1014175

In four trials in Spain, Schulz (2007, 2007/1009604) treated an olive crop with alpha-cypermethrin at an exaggerated rate of application and processed the olives into crude and refined oil and fermented olives. Olives were first cleaned and then washed with tap water. Olives were crushed and pressed in a pilot plant. The press cake was dried in a vacuum dryer at up to 62 °C for 1–1.5 hours and extracted with hexane. The extraction residue constituted the oil meal. Crude oil was refined through processes of hydration, desliming, neutralization, washing, drying, bleaching and deodorization. Residue data are summarised in Table 73.

Table 73 Alpha-cypermethrin residues in olives and processed commodities resulting from trials with alpha-cypermethrin in Greece and Spain

OLIVES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Spain, 2004 (Picual)	SC	0.075	0.0075	1000	2	0 6	olives olives 1. press cake oil meal crude oil refined olive oil 2. fermented olives	0.48 0.56 0.75 0.05 3.72 3.42 0.61	2007/1009604
Spain, 2004 (Lechin)	SC	0.075	0.0075	1000	2	0 6	olives olives 1. press cake oil meal crude oil refined olive oil 2. fermented olives	0.37 0.42 0.83 0.05 3.55 3.04 0.46	2007/1009604
Spain, 2004 (Hojiblanca)	SC	0.075	0.0075	1000	2	0 7	olives olives 1. press cake oil meal crude oil refined olive oil 2. fermented olives	0.25 0.12 0.40 0.03 2.09 1.52 0.24	2007/1009604
Spain, 2004 (Hojiblanca)	SC	0.075	0.0075	1000	2	0 7	olives olives 1. press cake oil meal crude oil refined olive oil 2. fermented olives	0.15 0.12 0.30 0.01 1.67 1.11 0.19	2007/1009604
Greece, 1998 (Hondrolia)	SC	0.021	0.030	70	6	0– 0+ 15 28 42 56	olives (oil)	0.035 (0.194) 0.079 (0.220) 0.063 (0.171) 0.045 (0.182) 0.043 (0.107) 0.063 (0.158)	AL-714-002
Greece, 1998 (Koroneiki)	SC	0.038	0.030	125	6	0– 0+ 15 28 42 56	olives (oil)	0.126 (0.363) 0.215 (0.668) 0.097 (0.850) 0.099 (0.413) 0.040 (0.318) 0.117 (0.075)	AL-714-002

OLIVES	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Greece, 1999 (Hondrolia)	SC	0.030	0.003	1000	6	0– 0+ 14 28 42 56	olives (oil)[a]	< 0.05 (0.07) < 0.05 (0.42) < 0.05 (0.58) < 0.05 (0.79) < 0.05 (0.34) 0.11 (0.24)	AL-714-001

[a] Data from this trial were not used for calculating a processing factor.

Table 74 Alpha-cypermethrin residues in cabbages, gherkins, tomatoes, oilseed rape and oil palm and processed commodities resulting from trials with alpha-cypermethrin in Italy, Germany, Netherlands, France and Malaysia

CROP	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
CABBAGE									
Italy, 2000 (Famosa)	WG	0.10	0.010	960	1	7 7	cabbages—field sample cabbages—processor cooked cabbage sauerkraut	0.57 1.00 < 0.05 < 0.05	AL-721-044
Italy, 2000 (Famosa)	WG	0.10	0.010	960	3	7 7	cabbages—field sample cabbages—processor cooked cabbage sauerkraut	0.90 1.33 < 0.05 < 0.05	AL-721-044
Germany, 2001 (Krautmann)	WG	0.10		600	3	7 7	cabbage heads sauerkraut cabbage heads cooked cabbage	< 0.05 < 0.05 < 0.05 < 0.05	2002/1004078 G01N063R
Germany, 2001 (Megatonn)	WG	0.10		600	3	7 7	cabbage heads sauerkraut cabbage heads cooked cabbage	< 0.05 < 0.05 < 0.05 < 0.05	2002/1004078 G01N064R
Germany, 2001 (Custello)	WG	0.10		600	3	7 7	cabbage heads sauerkraut cabbage heads cooked cabbage	< 0.05 < 0.05 < 0.05 < 0.05	2002/1004078 G01N065R
GHERKINS									
Germany, 2004 (Serena F1) greenhouse	SC	0.075	0.017	400	2	0 8	gherkins gherkins washed gherkins canned gherkins	0.06 0.02 0.01 0.02	2007/1011647
Germany, 2004 (Serena F1) greenhouse	SC	0.075	0.019	400	2	0 8	gherkins gherkins washed gherkins canned gherkins	0.01 0.02 0.01 0.02	2007/1011647
Netherlands, 2004 (Harmonie) greenhouse	SC	0.075	0.018	400	2	0 8	gherkins gherkins washed gherkins canned gherkins	0.07 0.04 < 0.01 0.02	2007/1011647

CROP	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Netherlands, 2004 (Harmonie) greenhouse	SC	0.075	0.018	400	2	0 8	gherkins gherkins washed gherkins canned gherkins	0.07 0.02 0.01 0.01	2007/1011647
TOMATO									
Germany, 2004 (Clothilde) greenhouse	SC	0.075	0.019	400	2	0 7	tomatoes tomatoes washed tomatoes peeled tomatoes tomato peel canned tomatoes tomato juice tomato purée tomato paste	0.07 0.04 0.06 < 0.01 0.39 < 0.01 0.01 0.02 0.04	2006/1021295
Germany, 2004 (Clothilde) greenhouse	SC	0.075	0.019	400	2	0 7	tomatoes tomatoes washed tomatoes peeled tomatoes tomato peel canned tomatoes tomato juice tomato purée tomato paste	0.10 0.06 0.06 < 0.01 1.1 < 0.01 0.02 0.03 0.11	2006/1021295
Netherlands, 2004 (Cedrico) greenhouse	SC	0.075	0.019	400	2	0 7	tomatoes tomatoes washed tomatoes peeled tomatoes tomato peel canned tomatoes tomato juice tomato purée tomato paste	0.08 0.06 0.07 < 0.01 0.93 < 0.01 0.02 0.04 0.06	2006/1021295
Netherlands, 2004 (Cedrico) greenhouse	SC	0.075	0.019	400	2	0 7	tomatoes tomatoes washed tomatoes peeled tomatoes tomato peel canned tomatoes tomato juice tomato purée tomato paste	0.08 0.09 0.04 < 0.01 1.58 < 0.01 0.02 0.03 0.10	2006/1021295
OILSEED RAPE									
France, 2001 (Elite)	WG	0.10	0.033	300	2	50	rape seed pressed cake crude rape seed oil refined rape seed oil	0.07 < 0.05 0.11 0.09	AL-750-042
France, 2001 (Cheyenne)	WG	0.11	0.033	330	2	49	rape seed pressed cake crude rape seed oil refined rape seed oil	0.16 < 0.05 0.13 0.16	AL-750-042
OIL PALM									
Malaysia, 1991	EC	0.0045			1	0 3 8 15 29	kernel oil, mesocarp oil	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	AL-750-020

CROP	Application					PHI	Commodity	Alpha-cypermethrin	Ref
country, year (variety)	Form	kg ai/ha	kg ai/hL	water (L/ha)	no.	days		mg/kg	
Malaysia, 1991	EC	0.0090			1	0 3 8 15 29	kernel oil, mesocarp oil	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	AL-750-020

Table 75 Summary of processing factors for cypermethrin residues. The factors are calculated from the data recorded in tables in this section

Raw agricultural commodity (RAC)	Processed commodity	Calculated processing factors.	Median or best estimate
Barley	beer	< 0.17, < 0.5, < 0.03, < 0.04, < 0.04, < 0.09	< 0.03
Cabbage	sauerkraut	< 0.05, < 0.04	< 0.05
Gherkins	canned gherkins	0.5, 0.5, 1.0, 1.0	0.75
Grapes	pomace	1.8, 2.4, 2.8, 3.2, 3.2, 3.3, 4.6, 5.7	3.2
Grapes	raisins	3.2, 3.4, 3.2, 3.4	3.3
Grapes	wine	< 0.17, < 0.17, < 0.2, < 0.2, < 0.08, < 0.08, < 0.2, < 0.2	< 0.08
Olives	oil meal	0.08, 0.09, 0.12, 0.25	0.11
Olives	olive oil, crude	3.3, 4.6, 6.6, 8.5, 17.4, 13.9,	7.5
Olives	olive oil, refined	6.1, 7.2, 9.3, 12.7	8.2
Olives	olives, fermented	1.1, 1.1, 1.6, 2.0	1.3
Rape seed	crude rape seed oil	0.81, 1.6	1.6
Rape seed	refined rape seed oil	1.0, 1.3	1.2
Tomato	canned tomatoes	< 0.11, < 0.16, < 0.16, < 0.25	< 0.11
Tomato	tomato juice	0.22, 0.25, 0.33, 0.33	0.29
Tomato	tomato paste	1.0, 1.0, 1.1, 1.8	1.1
Tomato	tomato purée	0.33, 0.5, 0.5, 0.7	0.5

RESIDUES IN ANIMAL COMMODITIES

Farm animal feeding studies

The meeting received a lactating dairy cow feeding study and a laying hen feeding study, which provided information on likely residues resulting in animal commodities, milk and eggs from alpha-cypermethrin residues in the animal diet.

Lactating dairy cows

Groups of three lactating Holstein dairy cows (animals weighing 550–745 kg and 570–760 kg on days 1 and 29 respectively) were dosed once daily via gelatin capsule with alpha-cypermethrin at nominal 4 ppm (1×), 12 ppm (3×) and 40 ppm (10×) in the dry-weight diet, equivalent to doses of 77, 231 and 769 mg alpha-cypermethrin per animal, or 0.14, 0.42 and 1.4 mg/kg bw for 28 consecutive days (Horton, 2001, AL-705-006). Animals consumed approximately 32–53 kg feed each per day and produced approximately 20–32 kg milk per animal per day (means for each animal through the test period). The animal ration consisted of 37% corn silage, 28% alfalfa hay and 35% Pennfield Top Producer Flakes (18% crude protein); the ration contained an average 53% dry matter.

Milk was collected on 14 occasions for analysis. On days 29 within 24 hours of the final dose, the animals were slaughtered for tissue collection. Tissues collected for analysis were liver, kidney, omental fat and muscle. Residue data are summarised in Table 76.

Residues appeared in the fat but not in the other tissues. The transfer factor between residue levels in the fat and the dose (expressed as feed concentration) was similar for the three dosing levels. Residue levels in milk quickly reached a plateau level, within two or three days. Again, the transfer factor between residue levels in the milk and the dose (expressed as feed concentration) was similar for the two dosing levels where residues were measurable. No information was available on the residue levels in milk fat.

Table 76 Alpha-cypermethrin residues in milk and tissues of lactating Holstein dairy cows (three per group), dosed once daily via gelatin capsule with alpha-cypermethrin at the equivalent of 4 ppm (1×), 12 ppm (3×) and 40 ppm (10×) in the diet, for 28 consecutive days (Horton, 2001, AL-705-006)

Tissue, matrix	Alpha-cypermethrin, mg/kg					
	4 ppm in diet		12 ppm in diet		40 ppm in diet	
Kidney	< 0.05 (3)		< 0.05 (3)		< 0.05 (3)	
Liver	< 0.05 (3)		< 0.05 (3)		< 0.05 (3)	
Muscle	< 0.05 (3)		< 0.05 (3)		< 0.05 (3)	
Fat, omental	< 0.05 0.058 0.064		0.16 0.14 0.18		0.89 0.42 1.01	
	mean	max	mean[a]	max	mean	max
Milk, day 1	< 0.01	< 0.01	< 0.01	< 0.01	0.029	0.035
Milk, day 2	< 0.01	< 0.01	0.015	0.019	0.055	0.062
Milk, day 3	< 0.01	< 0.01	0.017	0.025	0.077	0.083
Milk, day 6	< 0.01	< 0.01	0.014	0.020	0.063	0.080
Milk, day 8	< 0.01	< 0.01	0.012	0.014	0.063	0.070
Milk, day 10	< 0.01	< 0.01	0.016	0.017	0.070	0.079
Milk, day 13	< 0.01	< 0.01	0.018	0.019	0.066	0.084
Milk, day 15	< 0.01	< 0.01	0.018	0.019	0.064	0.100
Milk, day 17	< 0.01	< 0.01	0.014	0.021	0.075	0.094
Milk, day 20	< 0.01	< 0.01	0.015	0.018	0.058	0.070
Milk, day 22	< 0.01	< 0.01	0.016	0.022	0.035	0.061
Milk, day 24	< 0.01	< 0.01	0.018	0.024	0.066	0.097
Milk, day 27	< 0.01	< 0.01	0.014	0.016	0.058	0.082

[a] Residues <LOQ (< 0.01 mg/kg) are assumed as 0.01 mg/kg for calculation of the means.

Laying hens

Three groups of laying hens (12, 12 and 20 birds per group, weighing approximately 1.5 kg/bird) were dosed (0.076, 0.38 and 0.76 mg ai/kg bw) once daily via gelatin capsule with alpha-cypermethrin at the intended equivalent of 1.2 ppm, (1×), 6.1 ppm (5×) and 12 ppm (10×) in the diet for 28 consecutive days (Fletcher, 2001, AL-440-018). Actual equivalent dietary concentrations were:1.6 ppm, 7.2 ppm and 15 ppm (17 and 18 ppm for the birds slaughtered 7 and 14 days after the final dose).

Eggs were collected approximately three times per week. Most of the birds were slaughtered within 24 hours of the final doses. Tissues collected for analysis were muscle, abdominal fat and liver. Birds consumed approximately 100 g (dry weight) feed each per day. Two hens from the 10× treatment were slaughtered seven days after the final doses and two were slaughtered 14 days after the final doses. Residues data for alpha-cypermethrin and metabolites are summarised in Table 77.

Table 77 Alpha-cypermethrin residues in eggs and tissues of laying hens (12, 12 and 20 per group), dosed once daily via gelatin capsule with alpha-cypermethrin at the equivalent of 1.6 ppm (1×), 7.2 ppm (5×) and 15–18 ppm (10×) in the diet for 28 consecutive days (Fletcher, 2001, AL-440-018)

Tissue, matrix	Cypermethrin residues, mg/kg				
	1.6 ppm (1×)	7.2 ppm (5×)	15 ppm (10×)		
			28 days	+ 7 days	+ 14 days
Liver	na	na	< 0.05 (3)	na	na
Muscle	na	na	< 0.05 (3)	na	na
Abdominal fat	< 0.05 (3)	0.086 0.088 0.082	0.21 0.26 0.24	0.088	0.092
Whole eggs, day 1	< 0.01 (3)	< 0.01 (3)	< 0.01 (5)		
Whole eggs, day 3	< 0.01 (3)	< 0.01 (3)	< 0.01 (5)		
Whole eggs, day 6	< 0.01 (3)	< 0.01 (3)	0.016 0.023 0.014 0.012 0.013		
Whole eggs, day 9	< 0.01 (3)	0.011 < 0.01 (2)	0.017 0.021 0.022 < 0.01 0.013		
Whole eggs, day 12	< 0.01 (3)	0.011 < 0.01 (2)	0.018 0.018 0.020 < 0.01 0.028		
Whole eggs, day 15	< 0.01 (3)	0.011 < 0.01 (2)	0.022 0.021 0.023 0.012 0.027		
Whole eggs, day 18	< 0.01 (3)	0.011 0.010 < 0.01	0.015 0.021 0.023 0.011 0.024		
Whole eggs, day 21	na	< 0.01 (3)	0.021 0.027 0.021 0.020 0.024		
Whole eggs, day 24	< 0.01 (3)	< 0.01 (3)	0.021 0.035 0.023 0.023 0.021		
Whole eggs, day 28	na	0.11 0.11 0.13	0.025 0.028 0.021 0.019 0.022		
Whole eggs, day 35			< 0.01		
Whole eggs, day 42					< 0.01

Direct animal treatment

In a study in South Africa, cattle (seven animals, Southern Devon Cross) were plunge dipped in a 12000 litre dip prepared from an alpha-cypermethrin SC formulation at a nominal concentration of 70 mg/L (Viljoen, 1992, AL-870-021). One animal was slaughtered on each of four intervals after dipping, i.e. 7, 14, 21 and 28 days later. Tissue samples were collected for residue analysis—muscle, kidney, liver, peri-renal fat and omental fat.

Alpha-cypermethrin residues were not detected (limit of detection 0.02 mg/kg) in any of the tissues from dipped animals slaughtered 1, 7, 14 and 21 days after treatment. In the 28-day animal, residues were present in peri-renal fat at 0.02 mg/kg, but were below the detection limit in omental fat, muscle, kidney and liver.

In a UK study, four lactating Friesian dairy cows (body weight range 429–567 kg) were topically dosed along the mid-dorsal line from upper neck to top of tail with 10 mL of a radio-labelled alpha-cypermethrin formulation (Redgrave, 1992, AL-870-020). The dose was equivalent to 150 mg ai/animal. The ^{14}C label was in the benzyl ring.

Samples of milk were collected for analysis throughout the study. One animal was slaughtered at each of 7, 14, 28 and 35 days after dosing and samples of liver, kidney, muscle, renal fat and subcutaneous fat were taken for analysis.

Concentrations of ^{14}C expressed as alpha-cypermethrin were below the limit of reliable measurement (0.01–0.03 mg/kg) in all tissue samples. A peak of radioactivity in the milk was observed at 1–2 days after treatment (highest values 0.012 and 0.014 mg/kg), but the ^{14}C concentrations expressed as alpha-cypermethrin were generally below 0.01 mg/kg.

In a second UK study, 20 cattle (Herefords and Friesian, body weight range 129–271 kg, 4–5 months old and 8–9 months old) were topically dosed along the mid-dorsal line from shoulder to tail with 10 mLl of a Pour On alpha-cypermethrin formulation (Redgrave, 1993, AL-870-022). The dose was equivalent to 150 mg ai/animal.

Animals were slaughtered 3, 7, 14, 21 and 28 days after treatment for tissue collection and residue analysis. Residue data are summarised in Table 78. The residue appears to be declining more quickly from the peri-renal fat (estimated half life 11 days) than from the subcutaneous fat (estimated half life 23 days.

Table 78 Alpha-cypermethrin residue levels in the fat of cattle topically dosed with a Pour On formulation (150 mg ai/animal) and slaughtered 3, 7, 14, 21 and 28 days after treatment for tissue collection and residue analysis (Redgrave, 1993, AL-870-022)

	Alpha-cypermethrin, mg/kg	
	Peri-renal fat	Subcutaneous fat
Day 3	0.14 0.10	0.02 0.08
Day 7	0.09 0.08	0.02 0.05
Day 14	0.09 0.07 0.08 0.10 0.05 0.02 (mean 0.07)	0.01 0.02 0.02 0.08 0.06 0.02 (mean 0.035)
Day 21	0.07 0.08 0.06 0.06 0.04 (mean 0.05)	0.02 0.02 < 0.01 0.01 0.05 0.03 (mean 0.03)
Day 28	0.02 < 0.01 < 0.01 0.04 0.02 0.01 (mean 0.02)	< 0.01 < 0.01 0.02 0.03 0.03 0.01 (mean 0.02)

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