PICOXYSTROBIN (258)

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EXPLANATION

Picoxystrobin was evaluated by JMPR for the first time for both toxicology and residues in 2012, when an ADI of 0–0.09 mg/kg bw/day and an ARfD of 0.09 mg/kg bw were established. The 2012 JMPR proposed a residue definition for enforcement of picoxystrobin and estimated a number of maximum residue levels. However, the 2012 JMPR was unable to conclude on the toxicological relevance of two metabolites IN-H8612 and IN-QGU64 (2-(2-formylphenyl)-2-oxoacetic acid) identified in plant metabolism studies, for which IEDIs were above the threshold of toxicological concern of 0.15 µg/person/day for compounds with alerts for genotoxicity. As a result, it was not possible to propose a residue definition for dietary risk assessment or calculate dietary intakes, and maximum residue levels were not recommended.

The 2013 JMPR received additional toxicological data for IN-H8612 (a mouse micronucleus study) which showed no evidence of genotoxicity. Conservative estimates for chronic and acute exposure to IN-H8612 were both below the relevant TTC values for Cramer class III compounds with no evidence of genotoxicity. The 2013 JMPR concluded that there was no concern for dietary exposure to IN-H8612. However, no new toxicological data were submitted for IN-QGU64 as the compound was unable to be synthesised in sufficient amounts. Although the sponsor argued that levels in soya beans were likely to be extremely low, the Meeting concluded that genotoxicity data or additional residues information would be required to allow further evaluation of IN-QGU64.

During the 2016 JMPR, the FAO panel received a new metabolism study for picoxystrobin in soya bean intended to address the concerns regarding IN-QGU64.

A preliminary evaluation of the new study by the 2016 JMPR indicated that the metabolic pathway for picoxystrobin in soya beans is broadly similar to that observed in the earlier study. Metabolites identified in the new soya bean study were mostly also identified in the plant metabolism studies provided to the 2012 JMPR (for wheat, canola, soya bean and rotational crops).

IN-QGU64 was not identified in the new soya bean study. The 2016 JMPR noted that IN-H8612 was a significant metabolite in soya bean matrices in the new study, particularly mature seed. Further, IN-H8612 is a structural isomer of IN-QGU64, and in chromatography conducted for the new metabolism study, IN-H8612 was reported as eluting as two peaks.

The 2016 JMPR concluded that further information was required on the possible interconversion of IN-H8612 and IN-QGU64, possibly through ring-chain tautomerism.

Further information was made available by the Sponsor after the 2016 JMPR, including metabolism studies for potatoes and tomatoes, and details of further attempts to synthesise IN-QGU64 (only small amounts of the lithium salt were able to be prepared).

At the forty-ninth CCPR, picoxystrobin was again scheduled for consideration by the JMPR at the current Meeting.

The soya bean metabolism study provided to the 2016 JMPR, the newly available potato and tomato metabolism studies, and contemporary information on the GAPs are evaluated here. Plant metabolism studies in wheat and canola, plus the soybean metabolism study submitted to the 2012 JMPR, environmental fate, rotational cropping, animal metabolism, analytical methods, storage stability, supervised field trials, processing studies and animal feeding studies were evaluated by the 2012 JMPR and the reader is referred to the 2012 evaluation of picoxystrobin.

The supervised residue trial data tables from the 2012 evaluation are reproduced here for clarity to enable the reader to determine which trials were used for MRL estimation.

IDENTITY

Common name: Picoxystrobin

Chemical names

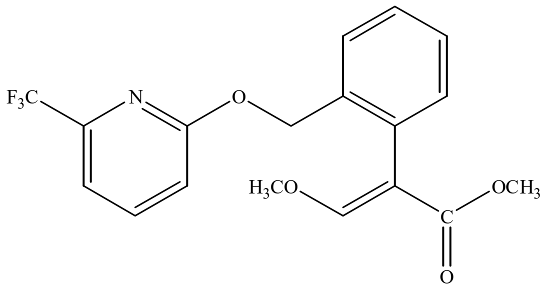
IUPAC: Methyl (*E*)-3-methoxy-2-[2-(6-trifluoromethyl-2-pyridyloxymethyl)-phenyl]acrylate

CAS: Methyl (*E*)-(α)-(methoxymethylene)-2-[[[6-(trifluoromethyl)-2-pyridinyl]oxy]methyl]benzeneacetate

CAS number: 117428-22-5

Synonyms: ZA 1963, DPX-YT669

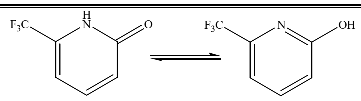
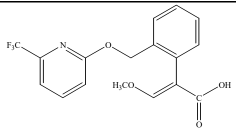
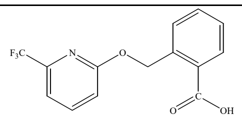
Structural formula:

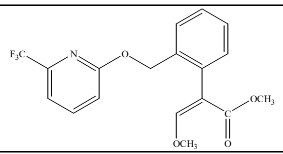
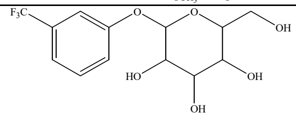
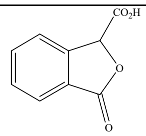
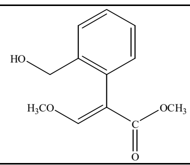
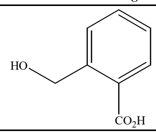
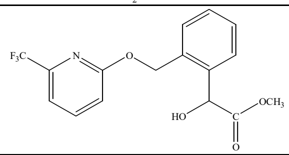
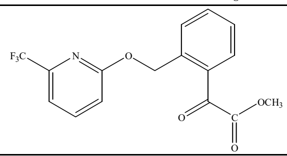
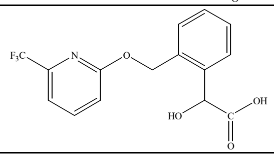
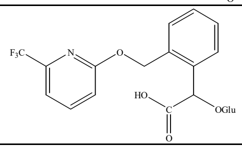
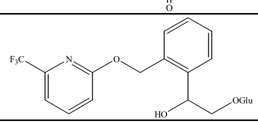
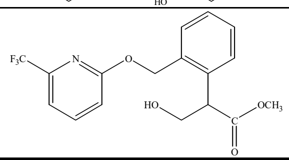


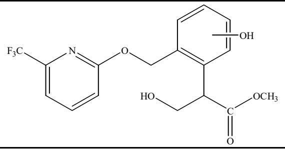
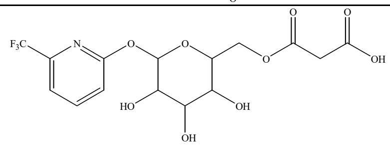
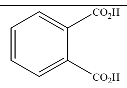
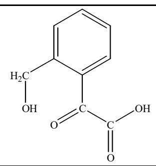
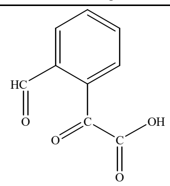
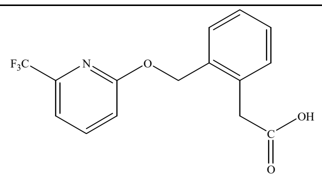
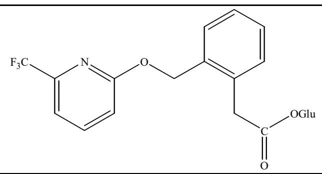
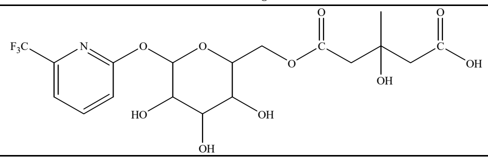
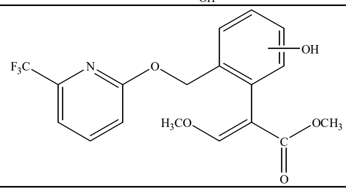
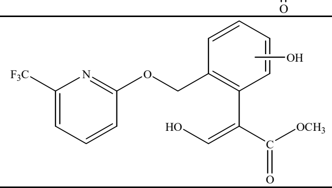
Molecular formula: $C_{18}H_{16}F_3NO_4$

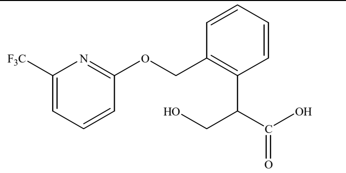
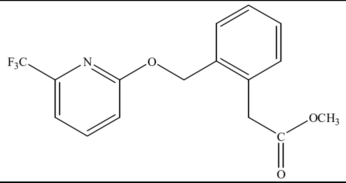
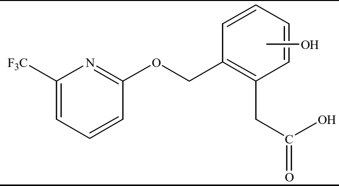
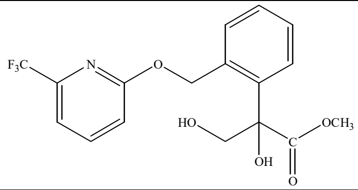
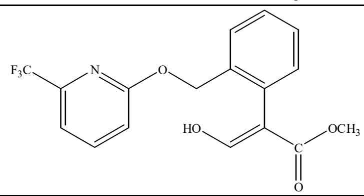
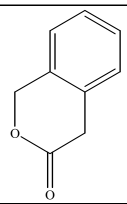
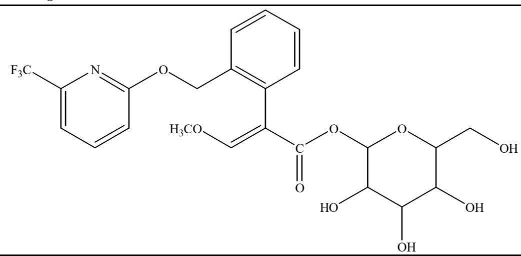
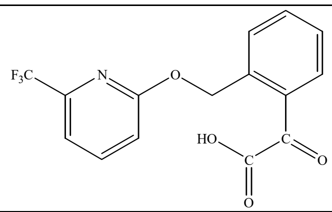
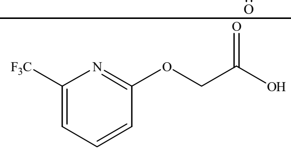
Molecular weight: 367.3

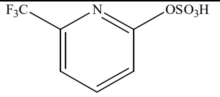
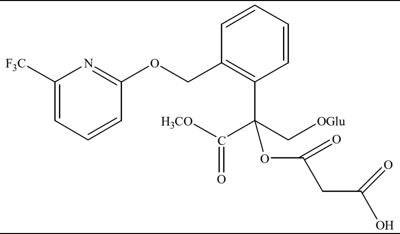
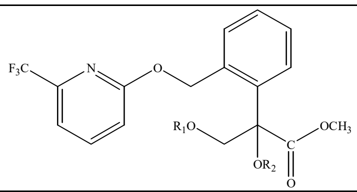
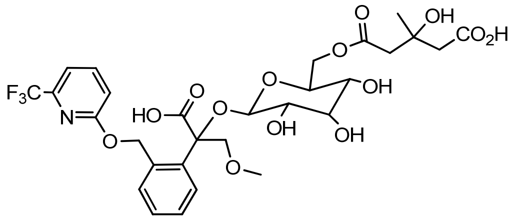
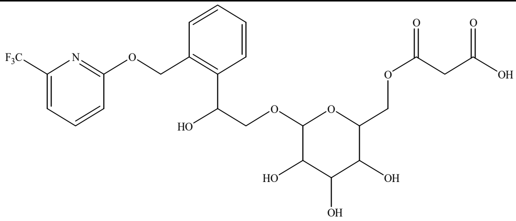
Table 1 Metabolites and degradation products of picoxystrobin

Code	Chemical name	Structure	Metabolite origin
IN-QDK50, R403814, Metabolite 3	6-(Trifluoromethyl)-1*H*-pyridin-2-one		Oilseed rape, wheat, potato, hen, rat, soil, rotational crops (wheat, lettuce, carrot)
IN-QDY62, R403092, metabolite 2	(*E*)-3-Methoxy-2-[2-(6-trifluoromethyl-2-pyridyloxymethyl)-phenyl]acrylic acid		Oilseed rape, wheat, potato, tomato, hen, goat, rat, soil, rotational crops (wheat, carrot)
IN-QDY63, R408509, Metabolite 8	2-[2-(6-Trifluoromethyl-2-pyridyloxymethyl)] benzoic acid		Oilseed rape, wheat, soya bean, potato, tomato, goat, rat, soil,

Code	Chemical name	Structure	Metabolite origin
			rotational crops (carrots)
IN-QCD12 , R407782, metabolite 4, Z-isomer of picoxystrobin	Methyl (*Z*)-3-methoxy-2-[2-(6-trifluoromethyl-2-pyridyloxymethyl)-phenyl]acrylate		Oilseed rape, soybean, tomato, wheat
IN-QGS45, R409465, metabolite 11	2-Glucosyl-6-(trifluoromethyl)pyridine		Oilseed rape, wheat, tomato, rotational crops (wheat, lettuce, carrot)
IN-H8612, R135305, metabolite 24	1,3-Dihydro-3-oxoisobenzofuran-1-carboxylic acid		Wheat, soya bean, tomato, potato, rotational crops (wheat)
IN-QDY60, R233331, metabolite 9	Methyl (*E*)-3-methoxy-2-(2-hydroxymethylphenyl)acrylate		Wheat, goat
IN-10975, R277643, metabolite 21	2-Hydroxymethylbenzoic acid		Wheat
IN-QGS44, R410101, metabolite 12	Methyl 2-hydroxy-2-[2-(6-trifluoromethyl-2-pyridyloxymethyl)phenyl] acetate		Wheat, rat
IN-QGU66, R407748, metabolite 13	Methyl 2-oxo-2-[2-(6-trifluoromethyl-2-pyridyloxymethyl)phenyl] acetate		Wheat, goat, rat, potato
IN-QGS46, R410639, metabolite 14	2-Hydroxy-2-[2-(6-trifluoromethyl-2-pyridyloxymethyl)phenyl] acetic acid		Wheat, soya bean, goat, rat
IN-QGS46-glucoside, R410639 glucoside	2-Glucosyl-2-[2-(6-trifluoromethyl-2-pyridyloxymethyl)phenyl] acetic acid		Soya bean, tomato, potato
IN-QGS46-decarboxy glucoside, R410639-decarboxy glucoside	2-[2-(2-Glucosyl-1-hydroxyethyl)phenylmethoxy] -6-(trifluoromethyl)pyridine		Soya bean
IN-QGU69, R290445, metabolite 32	Methyl 3-hydroxy-2-[2-(6-trifluoromethyl-2-pyridyloxymethyl)-phenyl]propionate		Wheat, goat, rat

Code	Chemical name	Structure	Metabolite origin
Hydroxy-IN-QGU69, R290446, metabolite 33	Methyl 3-hydroxy-2-[n-hydroxy-2-(6-trifluoromethyl-2-pyridyloxymethyl)-phenyl]propionate		Wheat
IN-QGU72, R415833, metabolite 20	2-Malonylglucosyl-6-trifluoromethylpyridine		Wheat, rotational crops (wheat, lettuce, carrot)
IN-K2122, R001731, metabolite 15	Phthalic acid		Wheat, soya bean, tomato, potato
PAG3, R730529	2-(2-Hydroxymethylphenyl)-2-oxoacetic acid		Wheat
IN-QGU64	2-(2-Formylphenyl)-2-oxoacetic acid		Soya bean
IN-QFA35, R408631, metabolite 7	2-[2-(6-Trifluoromethyl-2-pyridyloxymethyl)phenyl] acetic acid		Projected soya bean intermediate, rotational crops (wheat, carrots), hen, goat, rat
IN-QFA35 glucoside	Glucosyl 2-[2-(6-trifluoromethyl-2-pyridyloxymethyl)phenyl] acetate		Soya bean
IN-QGU73, R414535, metabolite 29	Mixture of isomers, where n = 3, 4 or 6 2-{n-(3-Hydroxy-3-methylglutaryl)glucosyl}-6-trifluoromethylpyridine		Soya bean, rotational crops (carrots)
R290447, metabolite 34	Methyl (*E*)-3-methoxy-2-[n-hydroxy-2-(6-trifluoromethyl-2-pyridyloxymethyl)-phenyl]acrylate		Goat
R290450, metabolite 37	Methyl (*E*)-3-hydroxy-2-[n-hydroxy-2-(6-trifluoromethyl-2-pyridyloxymethyl)-phenyl]acrylate		Goat

Code	Chemical name	Structure	Metabolite origin
R290463, metabolite 50	3-Hydroxy-2-[2-(6-trifluoromethyl-2-pyridyloxymethyl)-phenyl]propionic acid		Goat, rat
IN-QCD09, R404843, metabolite 10	Methyl 2-[2-(6-trifluoromethyl-2-pyridyloxymethyl)-phenyl]acetate		Potato, hen, goat, rat
R290449, metabolite 36	2-[n-Hydroxy-2-(6-trifluoromethyl-2-pyridyloxymethyl)-phenyl]acetic acid		Goat
IN-QGU70, R290461, metabolite 48	Methyl 2,3-dihydroxy-2-[2-(6-trifluoromethyl-2-pyridyloxymethyl)-phenyl]propionate		Soya bean, potato, goat, rat
R290458, metabolite 45	Methyl (*E*)-3-hydroxy-2-[2-(6-trifluoromethyl-2-pyridyloxymethyl)-phenyl]acrylate		Projected intermediate for wheat and goat, rat
IN-S7529, R206576, metabolite 18	Tetrahydro-2-benzopyran-3-one		Goat, rat
IN-QGY55	Glucosyl (*E*)-3-methoxy-2-[2-(6-trifluoromethyl-2-pyridyloxymethyl)-phenyl]acrylate (glucosyl-IN-QDY62)		Rotational crops (wheat, lettuce, carrot)
R416021, metabolite 31	(*E*)-2-Oxo-2-[2-(6-trifluoromethyl-2-pyridyloxymethyl)-phenyl]acetic acid		Soil, rat
IN-U3E08, R409665, metabolite 30	2-(6-Trifluoromethyl-2-pyridyloxy)acetic acid		Soil, rotational crops (wheat, lettuce, carrot)

Code	Chemical name	Structure	Metabolite origin
PYST2, R290452	6-Trifluoromethyl-2-pyridylsulfuric acid		Rotational crops (wheat), rat
IN-QGU70 (R290461) malonyl glucose conjugate	Methyl 3-glucosyl-2-malonyl-2-[2-(6-trifluoromethyl-2-pyridyloxymethyl)-phenyl]propionate		Soya bean
IN-QGU70 (R290461) glucosides, R_1 = H, R_2 = glucose, or R_1 = glucose, R_2 = H	Mixture of glucose conjugates of methyl 2,3-dihydroxy-2-[2-(6-trifluoromethyl-2-pyridyloxymethyl)-phenyl]propionate		Soya bean
Hydroxy IN-QDY62 3-hydroxymethylglutaryl glucoside	Hydroxymethyl glutaryl glucoside conjugate of 3-methoxy-2-hydroxy-2-[2-(6-trifluoromethyl-2-pyridyloxymethyl)-phenyl]propionic acid		Potato
Malonyl glucose conjugate of decarboxylated IN-QGS46	2-Hydroxy-2-[2-(6-trifluoromethyl-2-pyridyloxymethyl)phenyl ethyl] glucosyl hydrogen malonate		Soya bean

Plant metabolism

Soya bean

A metabolism study was conducted for picoxystrobin in soya beans (Wen, 2016). Soya bean plants (variety Williams 82) were grown outdoors in containers which were covered overnight and during rainfall.

Plots were treated with 3×220 g ai/ha foliar applications of either ^{14}C-3-pyridyl-picoxystrobin (pyridyl label) or ^{14}C-U-phenyl-picoxystrobin (phenyl label) co-formulated with ^{13}C-phenyl labelled picoxystrobin and unlabelled material in a suspension concentrate (SC) formulation. The first application was made at full flowering (BBCH 65–67), the second 9 days later, and the third during advanced ripening (BBCH 85 onwards, 49 days after the second application). The application rates and timings approximated the US and Canadian GAPs for soya bean.

Forage samples were collected immediately after the first application (0 DAA1), and 7 and 19 days after the second application (7 DAA2 and 19 DAA2). At 49 days after the second application (49 DAA2, immediately before the final application) forage and immature pods with seeds were collected, then a final collection of mature seeds, pods without seeds and straw (the last was not analysed) was made 14 days after the third application (14 DAA3).

Table 2 Total radioactive residues in soya bean matrices (determined as the sum of extractable and unextractable radioactivity)

Sample	TRRs (mg eq./kg)	
	Phenyl label	Pyridyl label
0DAA1 forage	6.057	6.475
7DAA2 forage	6.084	8.811
19DAA2 forage	4.053	4.263
49DAA2 forage	1.973	4.893
49DAA2 immature pods	0.178	0.177
14DAA3 pods	10.795	3.19
14DAA3 mature seeds	0.782	0.076

Total radioactive residues in soybean forage were comparable for both labels immediately after the first application, at 6.06–6.48 mg eq/kg. TRR levels were similar at 7 days after the second application, at 6.08 mg eq/kg for the phenyl label and 8.81 mg eq/kg for the pyridyl label. A decline was noted for the phenyl forage, to 4.05 mg eq/kg at 19 days after, and to 1.97 mg eq.kg at 49 days after, the second application. Residues for the pyridyl label in forage were relatively constant between 19 and 49 days, after 4.26–4.89 mg eq/kg. Very similar levels were noted for the two labels in immature pods at 49 days after the second application (0.18 mg eq/kg). At 14 days after the third application, residues in both mature pods and seeds were significantly higher for the phenyl label (10.8 and 0.78 mg eq/kg respectively) than for the pyridyl label (3.19 and 0.076 mg eq/kg).

Samples were extracted 4–6× with 90:10 v/v acetonitrile/water and residues in the post-extraction solids (PES) determined by combustion and liquid scintillation counting (LSC). Solvent extracts were pooled for analysis of radioactive residues by LSC, and then filtered and concentrated prior to analysis. Concentrated extracts were analysed by HPLC with UV and radiodetection for metabolite profiling with available reference standards. Extracts were cleaned up by solid phase extraction (C18 followed by HLB cartridges) prior to analysis by LC-MS/MS for identification of metabolites. Exhaustive extraction of the PES from 49DAA2 forage and 14DAA3 mature seeds for both radiolabels was conducted using enzymatic (α-amylase, pH 7, 50 ºC, 72 hours, followed by amylglucosidase/cellulase, pH 5, 50 ºC, 64 hours), dilute base (0.1 M NaOH, 60 ºC, 6 hours), and dilute acid (1 M HCl, 60 ºC, 7 hours) hydrolysis. These extracts were analysed by LSC, and by HPLC and LC-MS/MS where sufficient radioactivity was present.

Table 3 Extractability of residues from ^{14}C-Phenyl label matrices

Extraction system/ component	Extractability (%TRR)						
	0DAA1 forage	7DAA2 forage	19DAA2 forage	49DAA2 forage	49DAA2 immature pods and seeds	14DAA3 mature empty pods	14DAA3 mature seeds
Acetonitrile/ water solvent	99.4	95.9	93.3	86.0	86.9	81.9	90.4
Amylase	-	-	-	2.4	-	-	3.2
Amyloglucosidase/ cellulase	-	-	-	2.0	-	-	2.6
0.1 M NaOH	-	-	-	1.9	-	-	0.8
1 M HCl	-	-	-	0.4	-	-	0.4
PES	0.6	4.1	6.7	7.4	13.1	18.1	2.4
TRR (sum of extractable and unextracted)	100	100	100	100	100	100	100

Table 4 Extractability of residues from ^{14}C-3-Pyridyl label matrices

Extraction system/ component	Extractability (%TRR)						
	0DAA1 forage	7DAA2 forage	19DAA2 forage	49DAA2 forage	49DAA2 immature pods and seeds	14DAA3 mature empty pods	14DAA3 mature seeds
Acetonitrile/ water solvent	98.9	96.7	95.3	90.4	89.0	93.0	80.1
Amylase	-	-	-	0.8	-	-	5.2
Amyloglucosidase/ cellulase	-	-	-	0.9	-	-	3.1
0.1 M NaOH	-	-	-	1.4	-	-	2.2
1 M HCl	-	-	-	0.3	-	-	1.5
PES	1.1	3.3	4.7	6.2	11.0	7.0	7.9
TRR (sum of extractable and unextracted)	100	100	100	100	100	100	100

Extractability of residues was generally high, with 86.0–99.4 (phenyl label) and 90.4–98.9% (pyridyl label) of TRR released from forage samples. A gradual decline in extractability was noted between 0 DAA1 and 49 DAA2 as residues were metabolised. A further 5.7% (phenyl label) and 3.4% (pyridyl label) of TRR was released from the 49 DAA2 forage samples using enzymatic, base, and acid digestions. In immature pods and seed samples, 86.9% TRR (phenyl label) and 89.0% TRR (pyridyl label) could be extracted using acetonitrile/water. In mature seed at 14 days after the final application, 90.4% of TRR could be extracted for the phenyl label with acetonitrile/water, with a further 7.0% releasable by the harsher techniques, while for the pyridyl label seed, 80.1% could be extracted with solvent and a further 12% by stronger techniques indicating that residues were more tightly bound for the mature pyridyl label seed, as well as being present at lower levels than for the phenyl label.

Table 5 Identification of residues in ^{14}C-phenyl label forage matrices

Component	0DAA1 forage		7DAA2 forage		19DAA2 forage		49 DAA2 forage	
	mg eq.kg	%TRR	mg eq.kg	%TRR	mg eq.kg	%TRR	mg eq.kg	%TRR
Solvent extraction								
IN-K2122	ND	ND	0.043	0.70	0.062	1.54	0.042	2.11
IN-H8612	ND	ND	0.142	2.33	0.114	2.81	0.119	6.01
IN-QGS46 glucoside	ND	ND	0.070	1.16	0.012	0.30	0.153	7.74
IN-QGS46 glucoside isomer	ND	ND	0.045	0.73	0.131	3.23	ND	ND
IN-QGS46	ND	ND	ND	ND	0.091	2.25	0.075	3.80
IN-QDY60	ND	ND	ND	ND	ND	ND	0.023	1.14
IN-QGU70 malonyl glucoside	ND	ND	ND	ND	0.095	2.33	0.137	6.94
IN-QGU70 malonyl glucoside isomer	ND	ND	0.113	1.86	0.116	2.86	ND	ND
IN-QDY63	ND	ND	0.053	0.88	0.068	1.69	0.102	5.17
IN-QFA35	ND	ND	0.045	0.74	0.055	1.37	0.074	3.76
IN-QGU70 homocysteine conjugate	ND	ND	ND	ND	0.026	0.65	0.041	2.08
IN-QGU70 glucoside	ND	ND	ND	ND	0.016	0.39	0.044	2.21
IN-QDY62	ND	ND	0.045	0.73	0.033	0.82	0.035	1.78
IN-QGU70	ND	ND	0.047	0.77	0.045	1.12	0.040	2.04
IN-QGS44	ND	ND	0.121	1.99	0.070	1.73	0.036	1.82
IN-QCD12	0.169	2.79	0.284	4.67	0.189	4.66	0.063	3.20
Picoxystrobin	5.488	90.61	4.858	79.85	2.187	53.94	0.447	22.6
Total unknowns	-	-	-	-	0.357[a]	8.81	0.216[b]	10.95
Total identified/ characterised	5.657	93.4	5.865	96.4	3.669	90.51	1.646	83.4

Component	0DAA1 forage		7DAA2 forage		19DAA2 forage		49 DAA2 forage	
	mg eq.kg	%TRR	mg eq.kg	%TRR	mg eq.kg	%TRR	mg eq.kg	%TRR
Losses/gains	0.361	6.0	-0.029	-0.5	0.109	2.7	0.051	2.6
Total extracted by solvent	6.018	99.4	5.837	95.9	3.780	93.3	1.697	86.0
Exhaustive extractions								
Enzyme extraction								
IN-K2122	-	-	-	-	-	-	0.002	0.09
IN-H8612	-	-	-	-	-	-	0.010	0.49
IN-QGS46 glucoside	-	-	-	-	-	-	0.003	0.17
IN-QGS46 glucoside isomer	-	-	-	-	-	-	0.003	0.13
IN-QGU70 malonyl glucoside	-	-	-	-	-	-	0.004	0.18
IN-QGU70	-	-	-	-	-	-	0.002	0.09
Total unknowns	-	-	-	-	-	-	0.050[c]	2.55
Total identified/ characterised	-	-	-	-	-	-	0.073	3.7
Losses/gains	-	-	-	-	-	-	0.013	0.7
Enzyme digest, total extracted	NT	NT	NT	NT	NT	NT	0.086	4.4
Base extraction								
IN-H8612	-	-	-	-	-	-	0.004	0.18
IN-QGS46 glucoside isomer	-	-	-	-	-	-	0.002	0.08
IN-QGS46	-	-	-	-	-	-	0.007	0.38
IN-QGU70	-	-	-	-	-	-	0.001	0.06
Total unknowns	-	-	-	-	-	-	0.014[d]	0.75
Total identified/ characterised	-	-	-	-	-	-	0.029	1.5
Losses/gains	-	-	-	-	-	-	0.008	0.4
Base digest (total extracted)	NT	NT	NT	NT	NT	NT	0.037	1.9
Acid digest (total extracted)	NT	NT	NT	NT	NT	NT	0.007	0.4
Baseline (total across extracts)	0	0	0	0	0.002	0.05	0.001	0.03
Overall total identified/ characterised	5.657	93.4	5.865	96.4	3.671	90.6	1.755	89.0
Overall losses/gains on processing	0.361	6.0	-0.029	-0.5	0.109	2.7	0.072	3.6
Overall total extracted	6.018	99.4	5.837	95.9	3.780	93.3	1.827	92.6
PES	0.039	0.6	0.247	4.1	0.273	6.7	0.147	7.4
TRR	6.057	100	6.084	100	4.053	100	1.973	1.973

[a] 31 low level components, one at RT 51.33 minutes comprising 0.055 mg eq/kg (1.35% TRR), all others individually comprising < 0.05 mg eq/kg (1.23% TRR).

[b] 26 low level components individually comprising < 0.05 mg eq/kg (2.53% TRR).

[c] 6 components ranging from 0.002-0.020 mg eq/kg (0.12-1.03% TRR), 11 low level components individually comprising < 0.001 mg eq/kg (0.05% TRR).

[d] 34 components ranging from < 0.001-0.003 mg eq/kg (< 0.05-0.16% TRR).

ND = not detected. NT = not tested/not performed.

Table 6 Identification of residues in ^{14}C-3-pyridyl label forage matrices

Component	0DAA1 forage		7DAA2 forage		19DAA2 forage		49 DAA2 forage	
	mg eq.kg	%TRR	mg eq.kg	%TRR	mg eq.kg	%TRR	mg eq.kg	%TRR
Solvent extraction								
IN-QGS46 glucoside	-	-	0.124	1.41	0.060	1.41	0.089	1.83
IN-QGS46 glucoside isomer	-	-	0.069	0.79	0.210	4.92	0.379	7.74
IN-QGS46	-	-	-	-	0.119	2.78	0.337	6.88

Component	0DAA1 forage		7DAA2 forage		19DAA2 forage		49 DAA2 forage	
	mg eq.kg	%TRR	mg eq.kg	%TRR	mg eq.kg	%TRR	mg eq.kg	%TRR
IN-QGU70 malonyl glucoside	-	-	-	-	0.101	2.36	0.316	6.45
IN-QGU70 malonyl glucoside isomer	-	-	0.243	2.76	0.117	2.75	-	-
IN-QDY63	-	-	-	-	0.096	2.26	0.234	4.78
IN-QFA35	-	-	-	-	0.068	1.59	0.142	2.91
IN-QGU70 homocysteine conjugate	-	-	-	-	0.020	0.48	0.066	1.35
IN-QGU70 glucoside	-	-	-	-	0.015	0.35	0.061	1.26
IN-QDY62	-	-	-	-	0.047	1.10	0.064	1.31
IN-QGU70	-	-	-	-	0.050	1.18	0.080	1.63
IN-QGS44	-	-	0.116	1.31	0.095	2.22	0.106	2.16
IN-QCD12	0.128	1.97	0.345	3.92	0.185	4.35	0.205	4.20
Picoxystrobin	5.679	87.70	7.542	85.60	2.802	65.72	1.890	38.63
Total unknowns	-	-	0.129[a]	1.47	0.238[b]	5.58	0.419[c]	8.55
Total identified/ characterised	5.806	89.7	8.569	97.2	4.249	99.7	4.392	89.8
Losses/gains	0.596	9.2	-0.047	-0.5	-0.187	-4.4	0.035	0.6
Total extracted by solvent	6.403	98.9	8.522	96.7	4.062	95.3	4.427	90.4
Enzyme extraction								
IN-QGS46 glucoside	NT	NT	NT	NT	NT	NT	0.001	0.03
IN-QGS46 glucoside isomer	NT	NT	NT	NT	NT	NT	0.003	0.06
IN-QDK50	NT	NT	NT	NT	NT	NT	0.008	0.16
IN-QGS46	NT	NT	NT	NT	NT	NT	0.007	0.15
IN-QFA35	NT	NT	NT	NT	NT	NT	0.004	0.07
IN-QGU70	NT	NT	NT	NT	NT	NT	0.004	0.08
IN-QGS44	NT	NT	NT	NT	NT	NT	0.002	0.05
Total unknowns	NT	NT	NT	NT	NT	NT	0.031[d]	0.66
Total identified/ characterised	NT	NT	NT	NT	NT	NT	0.062	1.3
Losses/gains	NT	NT	NT	NT	NT	NT	0.021	0.4
Enzyme extraction (total)	NT	NT	NT	NT	NT	NT	0.081	1.7
Base extraction								
IN-QGS46 glucoside	NT	NT	NT	NT	NT	NT	0.006	0.13
IN-QGS46 glucoside isomer	NT	NT	NT	NT	NT	NT	0.001	0.02
IN-QDK50	NT	NT	NT	NT	NT	NT	0.001	0.02
IN-QGS46	NT	NT	NT	NT	NT	NT	0.021	0.43
IN-QGU70 malonyl glucoside	NT	NT	NT	NT	NT	NT	0.003	0.05
IN-QDY62	NT	NT	NT	NT	NT	NT	0.002	0.03
IN-QGU70	NT	NT	NT	NT	NT	NT	0.002	0.04
IN-QCD12	NT	NT	NT	NT	NT	NT	0.001	0.02
Picoxystrobin	NT	NT	NT	NT	NT	NT	0.004	0.07
Total unknowns	NT	NT	NT	NT	NT	NT	0.015[e]	0.30
Total identified/ characterised	NT	NT	NT	NT	NT	NT	0.056	1.1
Losses/gains	NT	NT	NT	NT	NT	NT	0.012	0.3
Base extraction (total)	NT	NT	NT	NT	NT	NT	0.068	1.4
Acid extraction (total)	NT	NT	NT	NT	NT	NT	0.015	0.3
Baseline (total across extracts)	0	0	0	0	0.026	0.62	0.006	0.13
Overall total identified/ characterised	5.806	89.7	8.569	97.3	4.249	99.7	4.525[f]	92.5
Overall losses/gains on processing	0.596	9.2	-0.047	-0.5	-0.187	-4.4	0.066	1.3
Overall total extracted	6.403	98.9	8.522	96.7	4.062	95.3	4.591	93.8
PES	0.073	1.1	0.289	3.3	0.201	4.7	0.302	6.2

Component	0DAA1 forage		7DAA2 forage		19DAA2 forage		49 DAA2 forage	
	mg eq.kg	%TRR	mg eq.kg	%TRR	mg eq.kg	%TRR	mg eq.kg	%TRR
TRR	6.475	100	8.811	100	4.263	100	4.893	100

[a] Consisting of two components, at 0.066 mg eq/kg (0.75% TRR) and 0.063 mg eq/kg (0.72% TRR).

[b] Consisting of 24 minor components, none of which accounted for >0.05 mg eq/kg (1.17% TRR).

[c] Consisting of three components at 0.075 mg eq/kg (1.54% TRR), 0.061 mg eq/kg (1.24%), and 0.059 mg eq/kg (1.20% TRR), plus 17 minor components, none of which accounted for >0.05 mg eq.kg (1.02%).

[d] Consisting of seven components ranging from 0.002-0.010 mg eq/kg (0.04-0.20% TRR), plus 7 very minor components, none of which exceeded 0.001 mg eq/kg (0.02% TRR).

[e] Consisting of 5 minor components, ranging from 0.001-0.004 mg eq/kg (0.02-0.07% TRR), plus 24 very minor components none of which exceeded 0.001 mg eq/kg (0.02% TRR).

[f] Including acid extract which was not chromatographed.

Table 7 Identification of residues in ^{14}C-phenyl label forage seed and pods matrices

Component	49DAA2 immature seeds and pods		14DAA3 mature pods without seeds		14DAA3 mature seeds	
	mg eq.kg	%TRR	mg eq.kg	%TRR	mg eq.kg	%TRR
Solvent extract						
IN-K2122	0.047	26.67	0.135	1.25	0.386	49.34
IN-H8612	0.019	10.86	0.630	5.84	0.138	17.67
IN-QGS46 glucoside	0.001	0.56	-	-	-	-
IN-QGS46 glucoside isomer	0.008	4.47	-	-	0.009	1.19
IN-QGS46	0.003	1.95	0.112	1.04	0.011	1.35
IN-QDY60	0.007	3.96	0.157	1.46	-	-
IN-QGU70 malonyl glucoside	0.007	3.69	-	-	0.004	0.49
IN-QGU70 malonyl glucoside isomer	0.004	2.12	-	-	0.009	1.16
IN-QDY63	0.004	2.43	0.449	4.16	0.002	0.30
IN-QFA35	0.003	1.50	-	-	-	-
IN-QGU70 homocysteine conjugate	0.001	0.37	-	-	0.001	0.07
IN-QGU70 glucoside	0.0003	0.20	-	-	0.003	0.42
IN-QDY62	0.002	1.07	0.059	0.54	0.003	0.41
IN-QGU70	0.001	0.62	0.056	0.52	0.001	0.19
IN-QGS44	0.002	0.95	0.242	2.24	0.002	0.31
IN-QCD12	0.004	2.47	0.596	5.52	0.004	0.50
Picoxystrobin	0.024	13.47	6.104	56.55	0.037	4.79
Total unknowns	0.009 [a]	5.33	0.065 [b]	0.61	0.088 [c]	11.21
Total identified/characterised	0.149	83.9	8.605	79.7	0.711	90.9
Losses/gains	0.005	3.0	0.239	2.2	-0.004	-0.5
Solvent extraction (total extracted)	0.154	86.9	8.845	81.9	0.707	90.4
Exhaustive extractions						
Enzyme extraction						
IN-K2122	-	-	-	-	0.006	0.75
IN-H8612	-	-	-	-	0.018	2.33
Total unknowns	-	-	-	-	0.015 [d]	2.04
Total identified/ characterised	-	-	-	-	0.041	5.2
Losses/gains	-	-	-	-	0.005	0.7
Enzyme extraction (total)	NT	NT	NT	NT	0.046	5.9
Base extraction (total)	NT	NT	NT	NT	0.007	0.8
Acid extraction (total)	NT	NT	NT	NT	0.003	0.4
Overall total identified/ characterised	0.149	83.9	8.605	79.7	0.762	97.4
Baseline (total across extracts)	0.002	1.21	-	-	0.012	1.6
Overall losses/gains	0.005	3.0	0.239	2.2	0.002	0.3
Overall total extracted	0.154	86.9	8.845	81.9	0.764	97.6
PES	0.023	13.1	1.950	18.1	0.018	2.4
TRR	0.178	100	10.795	100	0.782	100

[a] Consisting of 6 low level components.

[b] A single component.

[c] 22 low level components, each individually accounting for < 0.03 mg eq/kg (3.84% TRR).

[d] Four components ranging from 0.001-0.004 mg eq/kg (0.16-0.56% TRR) plus 9 low level components, each individually accounting for < 0.001 mg eq/kg (0.13% TRR).

Table 8 Identification of residues in ^{14}C-3-pyridyl label forage seed and pods matrices

Component	49DAA2 immature seeds and pods		14DAA3 mature pods without seeds		14DAA3 mature seeds	
	mg eq.kg	%TRR	mg eq.kg	%TRR	mg eq.kg	%TRR
Solvent extraction						
IN-QGS46 glucoside	0.004	2.48	0.035	1.08	-	-
IN-QGS46 glucoside isomer	0.009	5.26	-	-	0.003	4.47
IN-QDK50	0.003	1.83	0.018	0.55	0.002	2.40
IN-QGS46	0.005	2.85	0.037	1.15	0.002	2.76
IN-QGU70 malonyl glucoside	0.009	5.06	-	-	0.001	1.87
IN-QGU70 malonyl glucoside isomer	0.011	6.37	-	-	0.002	3.23
IN-QDY63	0.007	4.21	0.140	4.39	0.002	2.49
IN-QFA35	0.003	1.58	-	-	0.001	0.72
IN-QGU70 homocysteine conjugate	-	-	-	-	0.003	3.58
IN-QGU70 glucoside	-	-	-	-	0.002	2.06
IN-QDY62	0.003	1.56	0.028	0.88	0.003	3.50
IN-QGU70	0.001	0.54	-	-	0.001	0.79
IN-QGS44	0.002	1.30	0.095	2.99	0.001	0.73
IN-QCD12	0.003	1.69	0.132	4.14	0.001	1.41
Picoxystrobin	0.042	24.33	2.374	74.4	0.016	21.2
Total unknowns	0.020[a]	11.16	0.171[b]	5.36	0.015[c]	19.7
Total identified and characterised	0.124	70.2	3.029	95.0	0.054	70.9
Baseline	0.010	5.5	-	-	0.009	11.5
Total chromatographed	0.134	75.7	3.029	95.0	0.062	82.4
Losses/gains	0.024	13.3	-0.064	-2.0	-0.002	-2.3
Total solvent extracted	0.157	89.0	2.965	93.0	0.060	80.1
Enzyme extraction (total)	NT	NT	NT	NT	0.006	8.3
Base extraction (total)	NT	NT	NT	NT	0.002	2.2
Acid extraction (total)	NT	NT	NT	NT	0.001	1.5
Overall total identified and characterised	0.124	70.2	3.029	95.0	0.063	82.9
Baseline	0.010	5.5	-	-	0.009	11.5
Overall losses/gains	0.024	13.3	-0.064	-2.0	-0.002	-2.3
Overall total extracted	0.157	89.0	2.965	93.0	0.070	92.1
PES	0.019	11.0	0.225	7.0	0.006	7.9
TRR	0.177	100	3.190	100	0.076	100

[a] Consists of five low level components, each individually comprising < 0.01 mg eq/kg (5.66% TRR).

[b] Consists of two components at 0.147 mg eq/kg (4.61% TRR) and 0.024 mg eq/kg (0.75% TRR).

[c] Consists of 6 low level components, each individually comprising < 0.01 mg eq/kg (13% TRR).

NT = not tested/not performed.

Samples were processed (homogenised), extract, and subjected to the first HPLC analyses within 3 months of collection. Second fractions of 19 DAA2 and 49 DAA2 forage, and 14 DAA3 seed were extracted and analysed within 6–11 months of sample collection. No significant differences in the metabolite profile were evident between samples stored for the shorter and longer intervals.

As expected, no metabolism had taken place when the 0DAA1 forage samples were collected, with 87.7–90.6% of the residue consisting of parent, and the only other component being picoxystrobin isomer (IN-QCD12), which is likely to be present as a manufacturing impurity, at 2.0–2.8% TRR.

Thereafter, metabolism of picoxystrobin in soybeans was much more extensive.

In pyridyl label forage, parent compound was the most significant component at all sampling intervals, decreasing from 7.54 mg eq/kg (85.6% TRR) at 7DAA2 to 1.89 mg eq/kg (38.7% TRR) at 49 DAA2. No other individual component exceeded 10% of the TRR, although some components did after summation of conjugates. The most significant components in pyridyl forage after parent, including the base and enzyme extractions for the 49 DAA2 sample, were IN-QGS46, which together with its two glucoside conjugates comprised 0.193–0.844 mg eq/kg (2.2–17.3% TRR), IN-QGU70 and its conjugates (malonyl glucosides, glucoside and homocysteine), which together comprised 0.243–0.53 mg eq/kg (2.8–10.9% TRR), and IN-QCD12 at 0.185–0.345 mg eq/kg (3.9–4.4% TRR). Levels of these metabolites generally increased with time.

A similar pattern was observed for pyridyl label immature pods with seeds (49 DAA2), mature pods without seeds, and mature seeds (both collected 14 DAA3). Parent compound comprised 0.042 mg eq/kg (24.3% TRR), 2.37 mg eq/kg (74.4% TRR), and 0.016 mg eq/kg (21.2% TRR) in immature pods with seeds, mature pods, and mature seeds respectively. In immature pods with seeds, no individual component other than parent exceeded 10% TRR, and only one component, IN-QGU70 malonyl glucoside isomer exceeded 0.01 mg eq/kg, at 0.011 mg eq/kg. Summing IN-QGS46 and its glucoside conjugates, IN-QGS46 comprised 0.018 mg eq/kg (10.6% TRR) in immature pods and seeds, while IN-QGU70 plus conjugates comprised 0.021 mg eq/kg (12.0% TRR). In mature pods without seeds, IN-QGS46 plus conjugates comprised 0.072 mg eq/kg (2.2% TRR), IN-QCD12 comprised 0.13 mg eq/kg (4.1% TRR), IN-QDY63 comprised 0.14 mg eq/kg (4.4% TRR), while IN-QGU70 was not found. In the most significant food component, mature seed, no individual component besides parent was observed at ≥ 10% TRR or ≥ 0.01 mg eq/kg. IN-QGS46 plus conjugates were present at 0.005 mg eq/kg (7.2% TRR), while IN-QGU70 plus conjugates comprised 0.009 mg eq/kg (11.5% TRR).

In phenyl label forage, parent was again the most significant component, decreasing from 4.858 mg eq/kg (79.9%) to 0.447 mg eq/kg (22.6% TRR) between 7DAA2 and 49DAA2. IN-QGS46 and conjugates were again a notable component, at a total of 0.115–0.243 mg eq/kg (1.9–12.3% TRR), as were IN-QGU70 and conjugates at 0.113–0.298 mg eq/kg (1.9–13.6% TRR). The phenyl-label-specific components phthalic acid and IN-H8612 were present at 0.043–0.062 mg eq/kg (0.7–2.2% TRR) and 0.114–0.142 mg eq/kg (2.3–6.7% TRR).

In phenyl label seed matrices, parent was a major component in immature seeds with pods (0.024 mg eq/kg, 13.5% TRR), and mature pods (6.1 mg eq/kg, 56.6% TRR), but was only a minor component in mature seed (0.037 mg eq/kg, 4.8% TRR). The phenyl-label specific metabolites phthalic acid and IN-H8612 were major components in mature seed, at 0.392 mg eq/kg (50.1% TRR), and 0.156 mg eq/kg (20.0% TRR), including the amounts yielded by the enzyme extraction. After summation of conjugates, IN-QGS46 comprised 0.02 mg eq/kg (2.5% TRR), and IN-QGU70 comprised 0.018 mg eq/kg (2.3% TRR) in mature seed. No other components exceeded 10% TRR or 0.01 mg eq/kg even with conjugate summation. In immature pods and seeds a similar pattern was observed, with phthalic acid the largest component at 0.047 mg eq/kg (26.7% TRR), IN-H8612 observed at 0.019 mg eq/kg (10.9% TRR), the sum of IN-QGS46 and conjugates at 0.011 mg eq/kg (6.9% TRR), and sum of IN-QGU70 and conjugates at 0.013 mg eq/kg (7.0% TRR). Given the higher overall levels of residue in mature pods without seeds, a number of components were present at levels well above 0.01 mg eq/kg, although none exceeded 10% TRR. The most significant were IN-H8612 (0.63 mg eq/kg, 5.8% TRR), IN-QCD12 (0.596 mg eq/kg, 5.5% TRR), and IN-QDY63 (0.449 mg eq/kg, 4.2% TRR).

The metabolic pathways observed in the later soybean study were generally similar to those in the first (see figure 1), and included:

- Oxidative cleavage of the ether linkage to yield 6-(trifluoromethyl)-1H-pyridin-2-one (IN-QDK50) and methyl (*E*)-2-(2-hydroxymethylphenyl)-3-methoxyacrylate (IN-QDY60), which is then further oxidised and cleaved to phthalic acid or cleavage and internally transesterified to give IN-H8612;

- Hydroxylation at the 2 or 2 and 3 positions to yield IN-QGS46 or IN-QGU70 respectively, with subsequent conjugation with malonic acid, glucose and cysteine;
- Oxidative cleavage of the entire methacrylate moiety to yield IN-QDY63; and
- Isomerisation to the Z-isomer of picoxystrobin (IN-QCD12).

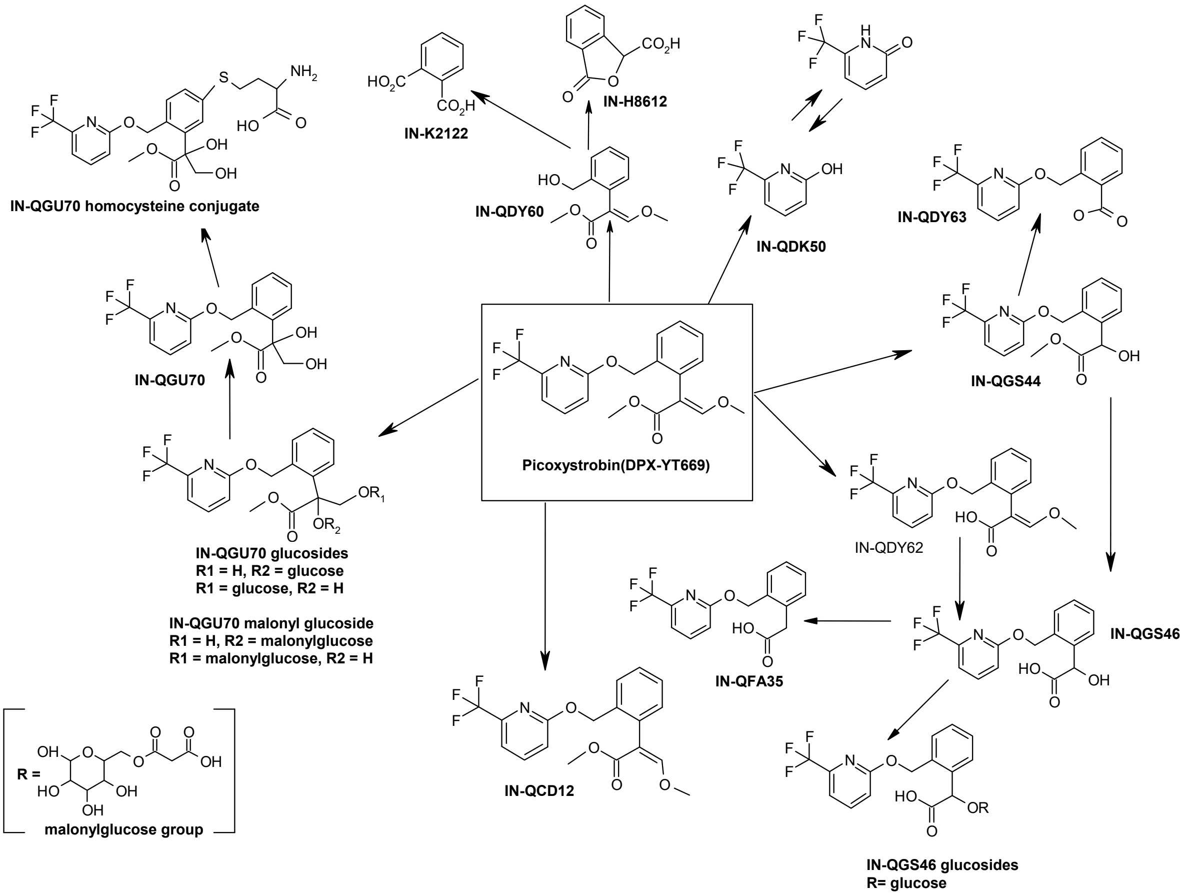


Figure 1 Metabolism of picoxystrobin in soya beans (Wen, 2016)

Tomato

In this study (Shaffer, 2011), tomatoes (variety Florida 47) were grown outdoors in containers set into the ground. The plots were fenced to keep off browsing animals and rain covers were used to control the amount of water the plants received.

Three foliar applications at 333 g ai/ha of either ^{14}C-3-pyridyl-picoxystrobin (pyridyl label) or ^{14}C-U-phenyl-picoxystrobin (phenyl label), formulated with the inert ingredients for a 250 g/L picoxystrobin SC formulation and 0.125% v/v of a non-ionic surfactant, were made using a hand-held sprayer at 7-day intervals close to harvest maturity (applications were between BBCH 62–64 and 71–73).

Fruit and leaves were sampled at intervals of 1, 7 and 14 days after the last application (DALA), with stems additionally being sampled at 14 DALA. At each interval, samples were collected from both the pyridyl and phenyl label plots, and from an untreated control plot.

All samples except stems were rinsed with acetonitrile/water (9:1 v/v) on the day of collection then frozen. Samples were homogenised while frozen in the presence of dry ice and the total radioactive residues measured. Homogenised samples were then extracted three times with 9:1 v/v acetonitrile/water (50 mL per 10 gram leaf sample or 20 gram fruit or stem sample). An exhaustive extraction of the post-extraction solids (PES) for pyridyl- and phenyl-label leaf samples collected at 14 DALA, using enzymatic hydrolysis (amylase (2×3 day incubations at 37 °C) followed by amyloglucosidase/cellulose (3 days at 37 °C)), alkaline hydrolysis (0.1N NaOH, 1 day at 60 °C), and acid hydrolysis (1N HCl, 1 day at 60 °C).

Homogenised samples of plant matrices pre- and post-extraction were measured for total radioactivity by combustion and LSC of the liberated $^{14}CO_2$. Sample rinses and combined solvent extracts were analysed using liquid scintillation counting (LSC), and HPLC with UV and in-line radiodetection, and fraction collection followed by LSC of fractions, and LC-MS/MS. Reference standards were employed in both the HPLC and LC-MS/MS analyses to aid in identification of metabolites. Additional extractions of large samples of 7 DALA phenyl label fruit, and 14 DALA pyridyl- and phenyl-label leaves were conducted for metabolite isolation, and the extracts concentrated and cleaned up by a series of solid phase extractions, with eluate fractions of interest being analysed by LC-MS/MS.

All samples were extracted within 2 months of collection, and were analysed within 4 months of collection, with the exception of the 14 DALA pyridyl label fruit which was analysed within 6 months of collection. Periodic re-extractions and re-analyses of extracts throughout the analytical phase showed no significant changes in the metabolite profile from the earlier extractions and analyses.

Table 9 Total radioactive residues in tomato matrices (determined as the sum of extractable and unextractable radioactivity)

Sample	TRRs (mg eq./kg)	
	Phenyl label	Pyridyl label
1 DALA fruit	1.14	0.69
7 DALA fruit	0.80	0.51
14 DALA fruit	0.68	0.59
1 DALA leaves	31.5	24.7
7 DALA leaves	32.2	25.1
14 DALA leaves	37.2	38.5
14 DALA stems	2.84	3.19

Total radioactive residues were generally slightly lower for the pyridyl label than for the phenyl label samples. Levels in fruit declined from 1.14 to 0.68 mg eq/kg and 0.69 to 0.59 mg eq/kg from 1 to 14 DALA for the phenyl and pyridyl labels respectively, while for leaves, increases were recorded from 31.5 to 37.2 mg eq/kg and 24.7 to 38.5 mg eq/kg for the phenyl and pyridyl labels respectively.

Table 10 Extractability of residues from ^{14}C-Phenyl label matrices

Extraction system/ component	Extractability (%TRR)						
	1 DALA fruit	7 DALA fruit	14 DALA fruit	1 DALA leaves	7 DALA leaves	14 DALA leaves	14 DALA leaves
Acetonitrile/ water solvent rinse	66.4	30.4	29.6	56.3	43.3	30.2	-
Acetonitrile/ water solvent extract	31.7	66.9	68.5	39.9	51.3	62.2	92.0
Solvent PES	1.9	2.7	1.9	3.8	5.4	7.6	8.0
Amylase	-	-	-	-	-	3.3	-
Amyloglucosidase/ cellulase	-	-	-	-	-	0.4	-
0.1 M NaOH	-	-	-	-	-	1.6	-
1 M HCl	-	-	-	-	-	0.4	-
PES (after exhaustive extraction)	-	-	-	-	-	1.9	-
TRR (sum of extractable and unextracted)	100	100	100	100	100	100	100

Table 11 Extractability of residues from ^{14}C-Pyridyl label matrices

Extraction system/ component	Extractability (%TRR)						
	1 DALA fruit	7 DALA fruit	14 DALA fruit	1 DALA leaves	7 DALA leaves	14 DALA leaves	14 DALA leaves
Acetonitrile/ water solvent rinse	65.6	56.6	48.2	47.6	47.7	29.8	-
Acetonitrile/ water solvent extract	32.3	40.7	48.0	49.4	47.1	64.4	94.5
Solvent PES	2.0	2.7	3.8	3.0	5.2	5.9	5.5
Amylase	-	-	-	-	-	2.1	-
Amyloglucosidase/ cellulase	-	-	-	-	-	0.2	-
0.1 M NaOH	-	-	-	-	-	1.5	-
1 M HCl	-	-	-	-	-	0.2	-
PES (after exhaustive extraction)	-	-	-	-	-	1.8	-
TRR (sum of extractable and unextracted)	100	100	100	100	100	100	100

Extractability of residues using acetonitrile/water was high, with the rinses and extracts together containing over 90% of the TRR for all samples. Exhaustive extraction using enzymatic, alkaline and acid hydrolysis removed a further 5.7% and 4.1% of the TRR from 14 DALA leaf samples for the phenyl and pyridyl labels respectively.

Table 12 Identification of residues in phenyl label fruit matrices (residues of individual components are the sum of the amounts found in the solvent rinses and extracts)

Component	1 DALA fruit		7 DALA fruit		14 DALA fruit	
	mg eq.kg	%TRR	mg eq.kg	%TRR	mg eq.kg	%TRR
Solvent extracted (rinse plus extract)	98.1	1.12	97.3	0.78	98.1	0.67
Picoxystrobin	63.2	0.72	35.6	0.29	30.1	0.20
IN-K2122 (phthalic acid)	7.3	0.08	29.0	0.23	20.2	0.14
IN-H8612	7.5	0.09	10.4	0.08	27.5	0.19
IN-QGS46 glucoside	2.7	0.03	4.6	0.04	4.4	0.03
IN-QDY63	0.9	0.01	1.4	0.01	0.6	< 0.01
IN-QDY62	< 0.1	< 0.01	ND	ND	ND	ND
IN-QCD12	2.6	0.03	2.2	0.02	1.4	0.01
Unknowns	1.9	0.16	14.1	0.11	13.9	0.09
PES	1.9	0.02	2.7	0.02	1.9	0.01
TRR	100	1.14	100	0.80	100	0.68

No individual unknown component in fruit was greater than 3% TRR or 0.03 mg eq/kg.

Table 13 Identification of residues in phenyl label leaf and stem matrices (residues of individual components are the sum of the amounts found in the solvent rinses and extracts)

Component	1 DALA leaves		7 DALA leaves		14 DALA leaves		14 DALA stems	
	mg eq.kg	%TRR	mg eq.kg	%TRR	mg eq.kg	%TRR	mg eq.kg	%TRR
Solvent extracted (rinse plus extract)	96.3	30.3	94.6	30.5	92.4	34.4	92.0	2.61
Picoxystrobin	76.5	24.1	70.3	22.6	66.0	24.6	49.9	1.41
IN-K2122 (phthalic acid)	2.1	0.67	2.8	0.89	2.3	0.85	20.4	0.58
IN-H8612	0.5	0.15	0.6	0.18	0.3	0.12	1.3	0.04
IN-QGS46 glucoside	1.6	0.49	2.8	0.90	3.2	1.19	5.5	0.16
IN-QDY63	1.5	0.48	1.1	0.37	2.1	0.77	2.1	0.06
IN-QDY62	ND	ND	ND	ND	0.3	0.12	0.5	0.01

Component	1 DALA leaves		7 DALA leaves		14 DALA leaves		14 DALA stems	
	mg eq.kg	%TRR	mg eq.kg	%TRR	mg eq.kg	%TRR	mg eq.kg	%TRR
IN-QCD12	2.0	0.62	2.0	0.66	2.1	0.75	2.1	0.06
Unknowns	12.0	3.80	15.1	4.85	16.2	6.02	10.2	0.29
PES	3.8	1.18	5.4	1.73	7.6	2.81	8.0	0.23
TRR	100	31.5	100	32.2	100	37.2	100	2.84

Table 14 Identification of residues in pyridyl label fruit matrices (residues of individual components are the sum of the amounts found in the solvent rinses and extracts)

Component	1 DALA fruit		7 DALA fruit		14 DALA fruit	
	mg eq.kg	%TRR	mg eq.kg	%TRR	mg eq.kg	%TRR
Solvent extracted (rinse plus extract)	97.8	0.67	97.3	0.50	96.2	0.57
Picoxystrobin	80.3	0.56	67.2	0.34	62.2	0.37
IN-QGS45	1.4	0.01	1.8	0.01	1.9	0.01
IN-QGS46 glucoside	4.1	0.03	7.0	0.04	6.0	0.04
IN-QDY63	1.0	0.01	3.1	0.02	2.6	0.02
IN-QDY62	0.4	< 0.01	ND	ND	ND	ND
IN-QCD12	3.0	0.02	3.4	0.02	3.7	0.03
Unknowns	7.7	0.05	14.8	0.08	19.9	0.11
PES	2.0	0.01	2.7	0.01	3.8	0.02
TRR	100	0.69	100	0.51	100	0.59

No individual unknown component in fruit was greater than 4% TRR or 0.03 mg eq/kg.

Table 15 Identification of residues in pyridyl label leaf and stem matrices (residues of individual components are the sum of the amounts found in the solvent rinses and extracts)

Component	1 DALA leaves		7 DALA leaves		14 DALA leaves		14 DALA stems	
	mg eq.kg	%TRR	mg eq.kg	%TRR	mg eq.kg	%TRR	mg eq.kg	%TRR
Solvent extracted (rinse plus extract)	97.0	24.0	94.8	23.8	94.2	36.3	94.5	3.02
Picoxystrobin	79.4	19.7	74.1	18.5	71.1	27.4	68.4	2.18
IN-QGS45	2.4	0.59	3.3	0.83	1.1	0.43	1.1	0.03
IN-QGS46 glucoside	2.2	0.54	2.9	0.72	3.5	1.4	5.4	0.17
IN-QDY63	2.9	0.71	1.7	0.42	2.5	0.95	2.4	0.08
IN-QDY62	0.2	0.04	ND	ND	0.4	0.16	0.7	0.02
IN-QCD12	1.5	0.36	2.0	0.49	2.2	0.86	3.2	0.10
Unknowns	8.5	2.1	11.0	2.8	13.1	5.1	13.3	0.43
PES	3.0	0.74	5.2	1.3	5.9	2.3	5.5	0.18
TRR	100	24.7	100	25.1	100	38.5	100	3.19

Picoxystrobin parent compound was the largest residue component in all matrices.

In phenyl label fruit, parent declined from 0.72 to 0.20 mg eq/kg (63.2% to 30.1% TRR) from 1 to 14 DALA, while in pyridyl label fruit, parent declined from 0.56 to 0.37 mg eq/kg (80.3% to 62.2% TRR) between 1 and 14 DALA. The only other major components of the residue in fruit were the phenyl label specific metabolites phthalic acid and IN-H8612. In phenyl label fruit, phthalic acid ranged from 0.08–0.23 mg eq/kg (7.3–29% TRR), while IN-H8612 ranged from 0.08–0.19 mg eq/kg (7.5–27.5% TRR). The only pyridyl label specific metabolite detected in any matrix was IN-QGS45, at 0.01 mg eq/kg (1.4–1.9% TRR). Other metabolites in fruit (common to both labels) included IN-QGS46 glucoside (0.03–0.04 mg eq/kg, 2.7–7.0% TRR), IN-QDY63 (< 0.01-0.02 mg eq/kg, 0.6–3.1% TRR), IN-QDY62 (ND-< 0.01 mg eq/kg, 0–0.4% TRR), and IN-QCD12 (0.01–0.03 mg eq/kg, 1.4–3.7% TRR).

Metabolism in leaves and stems was less extensive than in fruit, with parent compound comprising a greater proportion of the residue. In leaves, parent ranged from 22.7–24.6 mg eq/kg (66.0–76.5% TRR) for the phenyl label, and 18.5–27.4 mg eq/kg (71.1–79.4% TRR) for the pyridyl label. In stems, parent was 1.4 mg eq/kg (49.9% TRR) for the phenyl label and 2.2 mg eq/kg (68.4%

TRR) for the pyridyl label. All of the residue components observed in fruit were also found in leaves and stems, but at lower proportions, with only one matrix, phenyl label stems containing a component other than parent at >10% TRR (phthalic acid at 0.58 mg eq/kg, or 20.4% TRR).

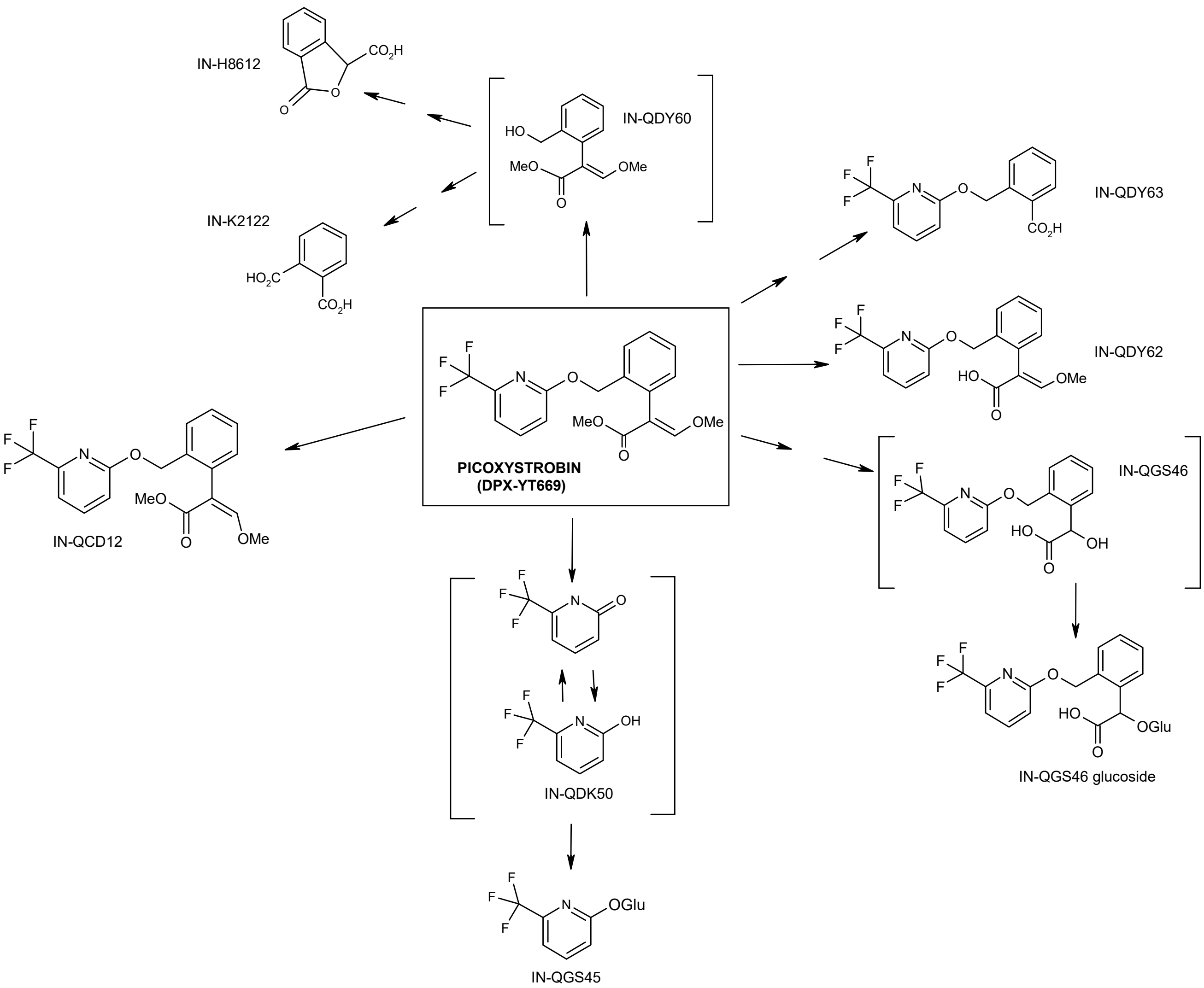


Figure 2 Metabolism of picoxystrobin in tomatoes

Metabolic pathways in tomato plants include:

- Hydrolysis of the methyl ester to give IN-QDY62;
- Oxidative demethylation of the methoxyacrylate moiety to give IN-QGS46 with subsequent glucose conjugation, and oxidative dealkylation to yield the substituted benzoic acid metabolite IN-QDY63;
- Cleavage of the ether linkage to yield the pyridyl label specific metabolite IN-QGS45, and IN-QDY60, which undergoes further extensive metabolism to yield the terminal metabolites phthalic acid and IN-H8612;
- Isomerisation to give the Z-isomer.

Potato

In this metabolism study (Hall, 2016), potatoes (variety *Russet Norkotah*) were grown in containers in a greenhouse.

Plots of potatoes were treated with either ^{14}C-3-pyridyl picoxstrobin (pyridyl label) or ^{14}C-U-phenyl-picoxstrobin (phenyl label), co-formulated with ^{13}C-2-phenyl-picoxystrobin, formulation blank (for a 250 SC formulation), and a non-ionic surfactant (sufficient to give ~0.25% v/v in the spray solution). Three applications were made, the first an in-furrow soil application immediately prior to planting at a target rate of 440 g ai/ha, and the second and third as foliar applications using a hand-held pressurised sprayer at target rates of 220 and 440 g ai/ha respectively and made 8 and 3 days before final harvest respectively (growth stages BBCH 95/49 and 97/49 respectively, or 99 and 104 days after the first application and planting).

Whole potato plants were collected from both treated plots and from an untreated control plot immediately before the first foliar application and 3 days after the last application (3 DALA), and at both intervals, the samples were separated into tubers and foliage. Foliage samples were chopped into smaller pieces, bagged, weighed and frozen, and tuber samples were removed from the soil, washed with water, blotted dry, cut into small pieces, bagged, weighed and frozen.

Frozen samples were homogenised in the presence of dry ice and returned to the freezer. Levels of total radioactivity in each sample fraction were measured by combustion and liquid scintillation counting (LSC) of the liberated $^{14}CO_2$. Samples were then extracted by homogenising with three 100 mL aliquots of acetonitrile water (4:1 v/v); sample sizes varied with larger samples being used for fractions with lower levels of total radioactivity. The sample extracts were separated from the solid residue by centrifuging and the three supernatants combined for further analysis (extract 1). The radioactive residues in the combined extracts were determined by LSC, and then a fourth and a fifth extraction of the samples was performed using the same solvent, and the extracts separately radioassayed (extracts 2 and 3). Finally, the samples were extracted with two aliquots of 1:3 v/v acetonitrile/water, and the supernatants combined and radioassayed (extract 4). The remaining residues in the post-extraction solids were determined by combustion and LSC. For the tuber extracts, and the earlier sample foliage extracts, extract 1 was cleaned up by solid phase extraction (C18 cartridges) prior to concentration and analysis, while for the final harvest foliage samples, extracts 1 and 2 were combined, cleaned up by C18 SPE, and then analysed.

Sample extracts were analysed using HPLC with in-line UV and radiodetection, and fraction collection with LSC of fractions. Metabolites were identified and quantified with the aid of available reference standards, with LC-MS additionally being used to confirm metabolite identification. Some metabolite fractions were purified by preparative HPLC using the same method as that used for quantification to enable further analysis by LC-MS. One of the conjugates in tubers was acid hydrolysed and the hydrolysate analysed by LC-MS to confirm the identification.

Initial acetonitrile/water extractions and analyses of tuber samples were undertaken within 1 month of sample collection. Further extractions and analyses were undertaken at 4.5 months (pyridyl label) and 7.9 months (phenyl label) after sample collection. No significant changes in the metabolite profile were observed between these analyses. Foliage samples were first extracted 6 months after collection and no significant changes were observed between the initial and final analyses.

Table 16 Total radioactive residues in potato matrices (determined as the sum of extractable and unextractable radioactivity)

Sample	TRRs (mg eq./kg)	
	Phenyl label	Pyridyl label
Initial harvest tubers	0.039	0.13
Final harvest tubers	0.027	0.12
Initial harvest foliage	0.12	0.44
Final harvest foliage	42.3	42.0

Total radioactive residues in tubers were significantly higher for the pyridyl label than for the phenyl label, as were residues in pyridyl label initial harvest foliage compared with the phenyl label. This was due to some pyridyl label specific soil metabolites being absorbed by the potato plants. By contrast, residues in final harvest foliage, which is expected to largely contain residues from the foliar applications, were very similar for the two labels.

Table 17 Extractability of residues from ^{14}C-phenyl label potato matrices

Extraction system/ component	Extractability (%TRR)			
	Initial tubers	Final tubers	Initial foliage	Final foliage
Acetonitrile/ water extracts	85.5	86.6	95.1	99.0
PES	14.5	13.4	4.9	1.0
TRR (sum of extractable and unextracted)	100	100	100	100

Table 18 Extractability of residues from ^{14}C-pyridyl label potato matrices

Extraction system/ component	Extractability (%TRR)			
	Initial tubers	Final tubers	Initial foliage	Final foliage
Acetonitrile/ water extracts	96.9	96.0	95.7	99.0
PES	3.1	4.0	4.3	1.0
TRR (sum of extractable and unextracted)	100	100	100	100

Around 86% of the TRR was extracted from phenyl label tubers, while a higher proportion (96–97% of TRR) was extracted from pyridyl label tubers, reflecting the pyridyl label specific metabolites absorbed from the soil being less tightly bound to the matrix. The proportion of extracted residues was very high for foliage, at 95.1–95.7% TRR for the initial harvest and 99.0% TRR for the final harvest.

Table 19 Identification of residues in phenyl label potato matrices

Component	Initial tubers		Final tubers		Initial foliage		Final foliage	
	mg eq.kg	%TRR	mg eq.kg	%TRR	mg eq.kg	%TRR	mg eq.kg	%TRR
Extract 1							Extract 1 + Extract 2	
IN-H8612	0.001	1.8	0.001	3.2	< 0.001	0.2	-	-
IN-K2122 (phthalic acid)	< 0.001	0.4	< 0.001	1.0	< 0.001	0.2	-	-
IN-QGS46 glucoside	-	-	-	-	0.017	13.4	0.568	1.3
IN-QGS46 glucoside isomer	-	-	-	-	0.019	15.2	0.210	0.5
IN-QGU70 homocysteine conjugate	-	-	-	-	-	-	0.202	0.5
Hydroxy IN-QDY62 HMG glucoside	0.010	25.5	0.006	23.3	0.028	23.1	0.136	0.3
IN-QGU70 glucoside	0.002	3.9	0.001	5.1	0.005	3.8	0.070	0.2
IN-QGU70 malonyl glucoside	-	-	-	-	0.010	7.9	0.097	0.2
IN-QGU70 acid	0.001	3.3	0.001	1.9	-	-	0.093	0.2
IN-QGS46	0.001	1.4	0.001	2.0	0.003	2.5	0.179	0.4
IN-QGU66	-	-	-	-	< 0.001	0.3	0.358	0.8
IN-QDY62	0.001	3.5	0.001	3.8	-	-	0.510	1.2
IN-QGS44	-	-	-	-	-	-	0.175	0.4
IN-QDY63	< 0.001	1.0	0.001	2.0	< 0.001	0.3	0.327	0.8
Picoxystrobin	0.007	18.2	0.003	12.8	0.003	2.4	35.9	84.9
IN-QCD09	< 0.001	0.9	-	-	-	-	0.078	0.2
Unidentified components	0.005[a]	16.1	0.004[b]	20.1	0.028[c]	23.5	-	-
Losses	0.001	2.2	0.001	4.8	-	-	4.17	4.6
Total extract 1 or extract 1 + extract 2	0.032	82.0	0.023	83.8	0.115	93.2	41.0	96.9
Extract 2	< 0.001	0.6	< 0.001	0.5	0.001	1.0	-	-
Extract 3	< 0.001	1.1	< 0.001	0.2	< 0.001	0.3	0.60	1.4
Extract 4	0.001	1.8	0.001	2.0	0.001	0.7	0.32	0.8
Total extracted	0.033	85.5	0.023	86.6	0.117	95.1	41.9	99.0
PES	0.006	14.5	0.004	13.4	0.006	4.9	0.40	1.0
TRR	0.039	100	0.027	100	0.123	100	42.3	100

[a] 9 low level components individually comprising NMT 0.003 mg eq/kg (7.0% TRR).

[b] 11 low level components individually comprising NMT 0.001 mg eq/kg (4.8% TRR).

[c] 12 low level components individually comprising NMT 0.005 mg eq/kg (4.1% TRR).

Table 20 Identification of residues in pyridyl label potato matrices

Component	Initial tubers		Final tubers		Initial foliage		Final foliage	
	mg eq.kg	%TRR	mg eq.kg	%TRR	mg eq.kg	%TRR	mg eq.kg	%TRR
Extract 1							Extract 1 + Extract 2	
IN-QDK50	0.072	54.5	0.068	56.1	0.143	32.8	0.094	0.2
IN-QGS46 glucoside	-	-	-	-	0.002	0.4	1.21	2.9
IN-QGS46 glucoside isomer	-	-	-	-	0.001	0.3	0.15	0.4
IN-QGU70 homocysteine conjugate	-	-	-	-	0.013	2.9	0.31	0.7
Hydroxy IN-QDY62 HMG glucoside	0.009	6.7	0.010	8.6	0.065	14.8	0.23	0.5
IN-QGU70 malonyl glucoside	-	-	-	-	-	-	0.28	0.7
IN-U3E08	0.011	8.0	0.006	5.1	0.035	8.0	-	-
IN-QGU70 acid	0.001	1.1	0.002	1.5	0.019	4.3	0.32	0.8
IN-QGS46	0.001	0.6	-	-	0.007	1.7	0.34	0.8
IN-QGU70	-	-	-	-	-	-	0.18	0.4
IN-QGU66	-	-	-	-	0.002	0.4	0.62	1.5
IN-QDY62	0.001	0.7	0.002	1.5	0.007	1.6	1.42	3.4
IN-QGS44	-	-	-	-	-	-	1.27	3.0
IN-QDY63	< 0.001	0.3	-	-	0.002	0.4	0.11	0.3
Picoxystrobin	0.008	6.0	0.006	4.6	0.003	0.6	34.0	81.0
Unidentified components	0.010[a]	7.3	0.012[b]	10.2	0.098[c]	22.4	0.60[d]	1.4
Losses	0.007	5.1	0.007	5.5	0.009	2.1	-	-
Total extract 1 or extract 1 + extract 2	0.127	96.1	0.115	95.1	0.408	93.3	41.1	97.8
Extract 2	< 0.001	0.3	< 0.001	0.3	0.004	1.0	-	-
Extract 3	< 0.001	0.1	< 0.001	0.1	0.001	0.3	0.35	0.8
Extract 4	0.001	0.4	0.001	0.4	0.005	1.1	0.16	0.4
Total extracted	0.128	96.9	0.116	96.0	0.418	95.7	41.6	99.0
PES	0.004	3.1	0.005	4.0	0.019	4.3	0.42	1.0
TRR	0.132	100	0.121	100	0.437	100	42.0	100

[a] 7 low level components individually comprising NMT 0.004 mg eq/kg (2.7% TRR).

[b] 4 low level components individually comprising NMT 0.005 mg eq/kg (4.4% TRR).

[c] 9 low level components individually comprising NMT 0.040 mg eq/kg (9.1% TRR).

[d] 4 low level components individually comprising NMT 0.197 mg eq/kg (0.5% TRR).

Metabolism of picoxystrobin in potatoes was extensive.

In phenyl label tubers, total residues were relatively low, at 0.027–0.039 mg eq/kg. Only two components exceeded 10% of TRR and/or 0.01 mg eq/kg, parent picoxystrobin at 0.003-0.007 mg eq/kg (12.8–18.2% TRR), and hydroxyl IN-QDY62 HMG (3-hydroxymethylglutaryl) glucoside, at 0.006–0.010 mg eq/kg (23.3–25.5% TRR). Other components found in phenyl label tubers at < 0.001–0.002 mg eq/kg (0.4–5.1% TRR) included the phenyl label specific metabolites IN-H8612 and IN-K2122 (phthalic acid), IN-QGU70 acid, and the glucoside and malonyl glucoside conjugates of IN-QDY70, IN-QGS46, IN-QDY62, IN-QDY63, and IN-QCD09.

In early harvest phenyl label forage, parent was a minor component at 0.003 mg eq/kg (2.4% TRR), with hydroxy IN-QDY62 HMG glucoside (0.028 mg eq/kg, 23.1% TRR), and IN-QGS46 glucoside isomers at 0.017 mg eq/kg, 13.4% TRR and 0.019 mg eq/kg, 15.2% TRR as the major components. Smaller amounts of other metabolites, IN-H8612, phthalic acid, IN-QGU70 glucoside and malonyl glucoside, IN-QGS46, IN-QGU66, and IN-QDY63 were observed at < 0.001–0.010 mg eq/kg (0.3–7.9% TRR). In final harvest foliage, parent comprised by far the majority of the residue at 35.9 mg eq/kg (84.9% TRR), as a result of the foliar applications close to harvest, which had not been extensively metabolised. Other metabolites in the final harvest phenyl label foliage were largely the same as those in the earlier harvest foliage, and ranged from 0.078–0.568 mg eq/kg (0.2–1.3% TRR).

Higher total residues were observed in pyridyl label tubers, reflecting the absorption of pyridyl label specific metabolites from the soil. The major component of the residue in pyridyl label tubers was the specific metabolite IN-QDK50, at 0.068–0.072 mg eq/kg (54.5–56.1% TRR). The next most significant component was unique to potatoes, another pyridyl label specific component, IN-U3E08 (2-(6-trifluoromethyl)pyridin-2-yloxyacetic acid), at 0.006–0.011 mg eq/kg (5.1–8.0% TRR). Hydroxy IN-QDY62 HMG glucoside was present at 0.009–0.010 mg eq/kg (6.7–8.6% TRR). Parent was a relatively minor component at 0.006–0.008 mg eq/kg (4.6–6.0% TRR). Other minor components present at < 0.001–0.002 mg eq/kg (0.3–1.5% TRR) included IN-QGU70 acid, IN-QGS46, IN-QDY62 and IN-QDY63.

The metabolite profile in early harvest pyridyl label foliage resembled that for tubers, with IN-QDK50, hydroxy IN-QDY62 HMG glucoside, and IN-U3E08 as the largest components (0.143 mg eq/kg, 32.1% TRR, 0.065 mg eq/kg, 14.8% TRR, and 0.035 mg eq/kg, 8.0% TRR respectively). Other components included IN-QDY70 acid at 0.019 mg eq/kg (4.3% TRR), IN-QDY70 homocysteine at 0.013 mg eq/kg (2.9% TRR), and parent at 0.003 mg eq/kg (0.6% TRR). For the final harvest foliage for the pyridyl label, a similar pattern to the phenyl label final foliage, with parent comprising by far the largest component at 34.0 mg eq/kg (81.0% TRR), with other metabolites observed being largely the same as those in the early harvest foliage.

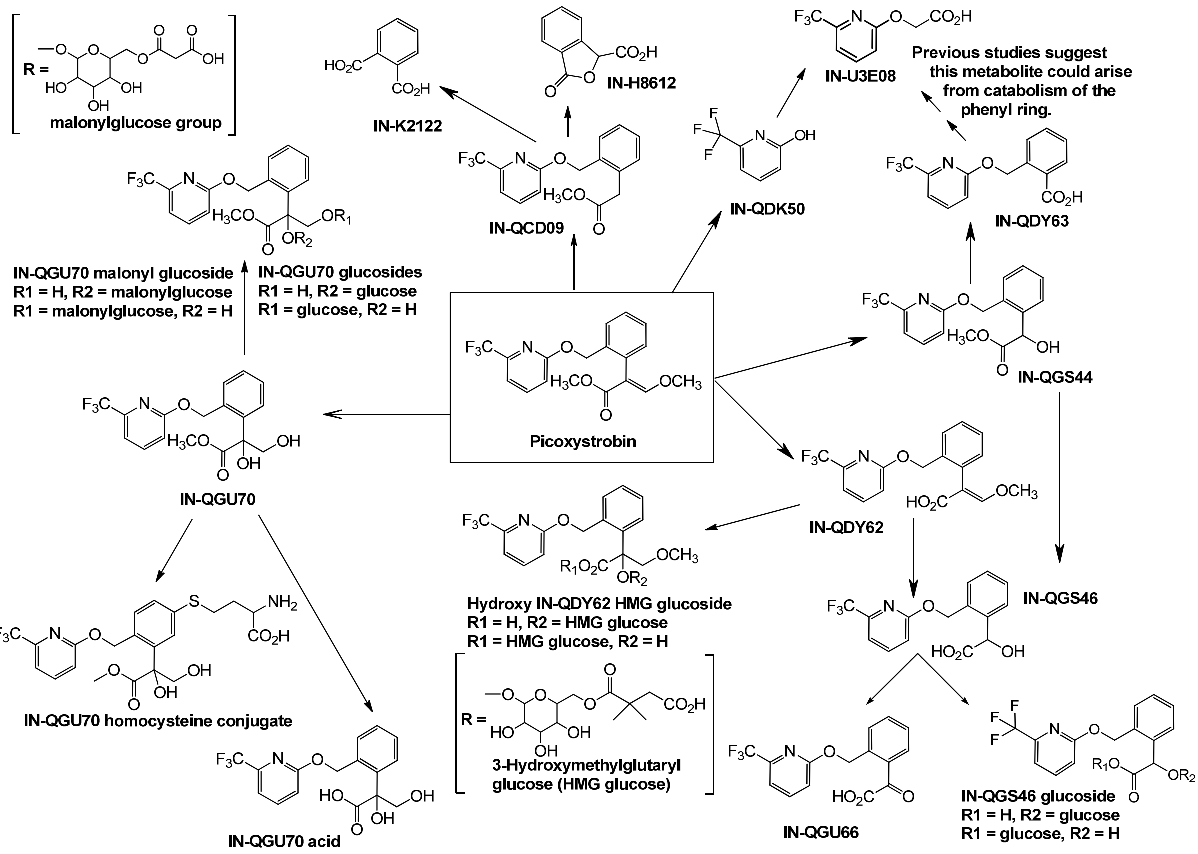


Figure 3 Metabolism of picoxystrobin in potatoes

The metabolic pathways for picoxstrobin in potatoes include:

- Cleavage of the ether linkage with subsequent dealkylation to yield the phenyl label metabolites IN-H8612 and phthalic acid, and the pyridyl label metabolites IN-QDK50 and IN-U3E08, although the latter two may also be absorbed from soil in significant quantities;
- Demethylation and hydroxylation to give IN-QGU70, with subsequent conjugation with malonic acid, glucose, and cysteine;
- Hydrolysis of the methyl ester to give IN-QDY62, with further dealkylation to IN-QGS46, which is then conjugated with glucose; and
- Oxidative cleavage of the methoxyacrylate moiety, leading to IN-QDY63.

USE PATTERN

Picoxystrobin is registered for use on cereals (barley, oats, rye, triticale and wheat) in a large number of countries in northern and southern Europe, Canada, the USA, Argentina, New Zealand, South Africa and Zambia, on oilseed rape (canola) in Canada, the USA the Czech Republic, Slovakia, the UK and Ireland, pulses in Canada and the USA, sweetcorn in France, the USA and Canada, maize in Canada and the USA, and soya beans in the USA, Canada, Brazil, Bolivia and Argentina for control of various fungal diseases including leaf rust, stripe rust, powdery mildew, net blotch, scald and speckled leaf blotch. Labels were received by the 2012 JMPR for Canada and a large number of countries in Europe, along with proposed labels for the USA, which are now approved.

All trials submitted to the 2012 were conducted in the USA and Canada against USA and Canadian GAPs. The relevant US and Canadian GAPs are summarised in the table below.

Table 21 Registered use patterns for picoxystrobin in the USA and Canada

Crop	Country	Application				PHI (days), or latest growth stage at application
		Method	Rate (g ai/ha)	Volume (L/ha)	No.	
Cereal grains						
Barley	Canada	Foliar: ground or aerial application	220	110 (ground) 50 (air)	3	45 (grain) 14 (hay)
					1	7 (forage)
	USA	Foliar: ground, aerial or chemigation	220	Not specified	3	Not required, apply no later than the beginning of flowering. 7 (forage) 14 (hay)
Oat	Canada	Foliar: ground or aerial application	220	110 (ground) 50 (air)	3	45 (grain) 14 (hay)
					1	7 (forage)
	USA	Foliar: ground, aerial or chemigation	220	Not specified	3	Not required, apply no later than the beginning of flowering (grain) 7 (forage) 14 (hay)
Rye	Canada	Foliar: ground or aerial application	220	110 (ground) 50 (air)	3	45 (grain) 14 (hay)
					1	7 (forage)
	USA	Foliar: ground, aerial or chemigation	220	Not specified	3	Not required, apply no later than the beginning of flowering (grain) 7 (forage) 14 (hay)
Triticale	Canada	Foliar: ground or aerial application	220	110 (ground) 50 (air)	3	45 (grain) 14 (hay)
					1	7 (forage)
	USA	Foliar: ground, aerial or chemigation	220	Not specified	3	Not required, apply no later than the beginning of flowering (grain)

Crop	Country	Application				PHI (days), or latest growth stage at application
		Method	Rate (g ai/ha)	Volume (L/ha)	No.	
						7 (forage) 14 (hay)
		Foliar: ground, aerial or chemigation	100	Not specified	1	45 (grain) 21 (forage and hay)
Wheat	Canada	Foliar: ground or aerial application	220	110 (ground) 50 (air)	3	45 (grain) 14 (hay)
					1	7 (forage)
	USA	Foliar: ground, aerial or chemigation	220	Not specified	3	Not required, apply no later than the beginning of flowering (grain) 7 (forage) 14 (hay)
		Foliar: ground, aerial or chemigation	100	Not specified	1	45 (grain) 21 (forage and hay)
Pulses/oilseeds						
Soya beans	Canada	Foliar: ground or aerial application	220	110 (ground) 50 (air)	3	14 (seed)
					1	14 (forage and hay)
	USA	Foliar: ground, aerial or chemigation	220	Not specified	3	14 (seed)
			220	Not specified	1	14 (forage and hay)
		Foliar: ground, aerial or chemigation	100	Not specified	2	30 (seed)
			100	Not specified	1	14 (forage and hay)
Oilseeds						
Oilseed rape	Canada	Foliar: ground or aerial application	220	110 (ground) 50 (air)	2	28 (seed)
			300		1	
	USA	Foliar: ground, aerial or chemigation	220	Not specified	2	28 (seed)
Pulses						
Legumes, dry	Canada	Foliar: ground or aerial application	220	110 (ground) 50 (air)	2	14 (seed) 0 (vines and hay)
Legume vegetables: dried shelled beans, peas	USA	Foliar: ground, aerial or chemigation	220	Not specified	2	14 (seed) 0 (vines and hay)
Corn/maize						
Corn, field	Canada	Foliar: ground or aerial application	220	110 (ground) 50 (air)	3	7 (grain or ear) 0 (forage)
Corn, pop	Canada	Foliar: ground or aerial application	220	110 (ground) 50 (air)	3	7 (grain or ear) 0 (forage)
Corn, sweet	Canada	Foliar: ground or aerial application	220	110 (ground) 50 (air)	4	7 (grain or ear) 0 (forage)
Corn, field	USA	Foliar: ground, aerial or chemigation	220	Not specified	3	7 (grain or ear) 0 (forage
			100	Not specified	1	30 (grain) 21 (silage)
Corn, pop	USA	Foliar: ground, aerial or chemigation	220	Not specified	3	7 (grain or ear) 0 (forage
Corn, sweet	USA	Foliar: ground, aerial or chemigation	220	Not specified	3	7 (grain or ear) 0 (forage

RESULTS OF SUPERVISED RESIDUE TRIALS ON CROPS

Results from residue trials in sweetcorn, pulses (dry beans, dry peas and soya beans), cereals (wheat, barley and maize), and canola were provided to the 2012 JMPR. These trials were evaluated for the 2012 JMPR. The results of the trials are reproduced below.

Crop group	Commodity	Table
Pulses	Soya beans	22
	Peas (dry)	23
	Beans (dry)	24
Cereals	Sweet corn	25
	Wheat	26
	Barley	27
	Maize	28
Oilseeds	Oilseed rape	29
Animal feeds	Sweet corn forage	30
	Soya bean forage	31
	Soya bean hay	32
	Pea vines	33
	Pea hay	34
	Wheat forage	35
	Wheat hay	36
	Wheat straw	37
	Barley hay	38
	Barley straw	39
	Maize forage	40
	Maize stover	41

Pulses

Table 22 Results of residue trials conducted with picoxystrobin (250 g/L SC) in soya bean in the USA and Canada in 2008 and 2009 (study number 24861)

Location, Trial No., Year (Variety)	Application				Sample	DAT[b]	Residues (mg/kg)[c]			
	No.	Growth stage	g ai/ha[a]	L/ha			Parent	IN-QDY62	IN-QDY63	IN-QDK50
Blackville, SC, USA Trial 01, 2008 (Asgrow, H7242 RR)	3	63 95 97	224 224 224	150 148 146	Seed	15	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Seven Springs, NC, USA, Trial 02, 2008 (DKB-64-51)	3	(R1)61 (R6)79 (R7)81	217 219 216	156 143 147	Seed	14	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Cheneyville, LA, USA Trial 03, 2008 (DG 33B52)	3	(R1)61 98 99	219 247 252	149 147 131	Seed	14	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)	< 0.01 (< 0.01, < 0.01)
Fisk, MO, USA Trial 04, 2008 (Armor 47G7)	3	R1-2/61-65 81	223 221 224	187 187 187	Seed	14	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)	< 0.01 (< 0.01, < 0.01)

Location, Trial No., Year (Variety)	Application				Sample	DAT[b]	Residues (mg/kg)[c]			
	No.	Growth stage	g ai/ha[a]	L/ha			Parent	IN-QDY62	IN-QDY63	IN-QDK50
		85								
Richland, IA, USA Trial 05, 2008 (93M11)	3	(R1)61 79 80	213 213 224	150 142 144	Seed	14	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Trial 15, 2008 (Pioneer 93M11)	3	(R1)61 (R7)81 (R7)81	221 224 224	141 163 165	Seed	14	0.011 (0.012, 0.010)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
					Process seed	14	0.010	ND	ND	ND
					AGF	14	1.9 c0.018	0.12	0.20	0.048
Branchton, ON, Canada Trial 06, 2008 (Mirra)	3	(R1)61 81 85-88	213 221 229	150 150 150	Seed	14	0.031 (0.024, 0.037)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Paris, ON, Canada Trial 07, 2008 (DK-27-07)	3	(R1)61 85 96-97	224 228 224	150 150 150	Seed	14	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Paynesville, MN, USA Trial 08, 2009 (AGO0501 Asgow)	3	(R1)61 73-79 73-79	214 216 217	143 142 142	Seed	14	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Geneva, MN, USA Trial 09, 2008 (Pioneer 91M80)	3	(R1)61 (R6-7)79-81 (R7)81	222 221 220	145 162 163	Seed	14	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Lenexa, KS, USA Trial 10, 2008 (395NRR)	3	(R1)61 77 79	221 224 221	135 138 138	Seed	14	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Rochelle, IL, USA Trial 11, 2008 (Pioneer 92M61)	3	(R1)61 79 81	224 224 223	46 46 46	Seed	14	0.039 (0.032, 0.045)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Britton, SD, USA Trial 12, 2008 (Pioneer 90M80 Roundup Ready)	3	(R1)61 (R6-7)79-81 (R7-8)81-89	224 224 224	187 187 187	Seed	14	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Springfield, NE, USA Trial 13, 2008 (MW GR3631)	3	(R1)61 79 79	224 223 224	132 134 133	Seed	14	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Carlyle, IL, USA Trial 14, 2008 (NK 37-N4)	3	(R1)61 (R6-7)79-81 (R7)81	213 213 220	148 183 126	Seed	17	0.012 (0.011, 0.013)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
					Process seed	17	< 0.01	ND	ND	ND
					AGF	17	3.2 c0.005	0.015	0.098	0.024
LaPlata, MO, USA Trial 16, 2008 (Asgrow AG3802)	3	(R1)61 (R7)81 (R7-8)81-89	222 222 219	163 190 191	Seed	14	0.010 (0.010, < 0.01)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Fisk, MO, USA Trial 17, 2009 (54-17 RR/STS)	3	61 81 84	220 221 224	187 187 187	Seed	13	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Dudley, MO, USA Trial 18, 2009 (Jake)	3	61 81 84	221 225 218	187 187 187	Seed	13	0.019 (0.015, 0.023)	ND (ND, ND)	< 0.01 (ND, < 0.01)	ND (ND, ND)
Tipton, MO, USA Trial 19, 2009 (48-24 Mor Soy)	3	(R1)61 (R7)81 (R7)81	220 222 224	272 281 281	Seed	14	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)

Location, Trial No., Year (Variety)	Application				Sample	DAT[b]	Residues (mg/kg)[c]			
	No.	Growth stage	g ai/ha[a]	L/ha			Parent	IN-QDY62	IN-QDY63	IN-QDK50
Gardner, KS, USA Trial 20, 2009 (Fontanelle 407NRS)	3	60 81 83	220 217 217	138 138 133	Seed	13	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Springfield, NE, USA Trial 21, 2009 (NC+2A98)	3	60 81 83	213 220 213	129 131 130	Seed	13	0.035 (0.036, 0.034)	< 0.01 (ND, < 0.01)	ND (ND, ND)	< 0.01 (ND, < 0.01)

ND = not detected (< 0.003 mg/kg).

[a] Individual application rates shown.

[b] DAT = Days After Treatment.

[c] Mean result shown, with individual results for analyses of duplicate samples from the same plot in brackets.

Table 23 Results of residue trials conducted with picoxystrobin (250 g/L SC) in peas (dry) in the USA and Canada in 2008 (study number 24863)

Location Trial, Year	Application				Sample	DAT[b]	Residues (mg/kg)[c]			
	No.	BBCH stage	g ai/ha[a]	L/ha			Parent	IN-QDY62	IN-QDY63	IN-QDK50
Geneva, MN, USA Trial 01, 2008 (Midas)	2	81 85	220 220	165 157	Seed	14	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Parkdale, OR, USA Trial 02, 2008 (Green Arrow)	2	69-73 79-85	224 225	193 190	Seed	14	0.025 (0.019, 0.031)	< 0.01 (ND, < 0.01)	ND (ND, ND)	0.037 (0.032, 0.042) c0.020
Payette, ID, USA Trial 03, 2008 (Austrian Winter)	2	74 79	221 219	187 187	Seed	14	0.016 (0.012, 0.020)	ND (ND, ND)	ND (ND, ND)	0.013 (0.011, 0.014)
Jerome, ID, USA Trial 04, 2008 (Pendleton)	2	79 81	224 224	186 183	Seed	14	0.013 (0.014, 0.011)	ND (ND, ND)	ND (ND, ND)	0.011 (0.011, 0.011)
Filer, ID, USA Trial 05, 2008 (Early Resistant Perfection)	2	78 79	226 225	168 168	Seed	14	0.016 (0.015, 0.016)	ND (ND, ND)	ND (ND, ND)	0.020 (0.019, 0.020)
Madras, OR, USA Trial 06, 2008 (K2)	2	79 81	228 221	191 186	Seed	14	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Ephrata, WA, Trial 07, 2008 (Kalamo)	2	81-82 88	225 223	188 186	Seed	14	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)	< 0.01 (< 0.01, < 0.01)
Innisfail, AB, Canada Trial 08, 2008 (SW Cheri)	2	79-81 85-86	223 221	150 151	Seed	14	0.033 (0.028, 0.037)	ND (ND, ND)	ND (ND, ND)	< 0.01 (< 0.01, < 0.01)
Rosthern, SK, Canada Trial 09, 2008 (CDC Bronco)	2	75-77 77-82	223 222	204 203	Seed	14	0.010 (0.010, 0.010)	ND (ND, ND)	ND (ND, ND)	< 0.01 (< 0.01, < 0.01)
Waldheim, SK, Canada Trial 10, 2008 (Bronco)	2	84-85 87-88	220 217	150 150	Seed	14	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)	< 0.01 (ND, < 0.01)
Fort Saskatchewan, AB, Canada Trial 11, 2008 (Cooper)	2	74 80-81	222 226	180 180	Seed	14	0.012 (0.011, 0.013)	ND (ND, ND)	ND (ND, ND)	< 0.01 (< 0.01, < 0.01)

ND = not detected (< 0.003 mg/kg).

[a] Individual application rates shown.

[b] DAT = Days After Treatment.

[c] Mean result shown, with individual results for analyses of duplicate samples from the same plot in brackets.

Table 24 Results of residue trials conducted with picoxystrobin (250 g/L SC) in beans (dry) in the USA and Canada in 2008 (study number 24863)

Location Trial, Year (Variety)	Application				Sample	DAT[b]	Residues (mg/kg)[c]			
	No.	BBCH stage	g ai/ha[a]	L/ha			Parent	IN-QDY62	IN-QDY63	IN-QDK50
Portage la Prairie, MB, Canada Trial 12, 2008 (Envoy)	2	84 85	215 217	187 187	Seed	14	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Oakville, MB, Canada Trial 13, 2008 (Envoy)	2	82 85	215 217	187 187	Seed	15	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Paynesville, MN, USA Trial 14, 2008 (Black Turtle)	2	83 87	214 216	143 143	Seed	14	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Wyoming, IL, USA Trial 15, 2008 (Pinto)	2	R7(81) R7(81)	224 224	159 165	Seed	14	0.038 (0.035, 0.040)	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)
Delavan, WI, USA Trial 16, 2008 (Pinto)	2		221 221	178 178	Seed	14	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Eldridge, ND, USA Trial 17, 2008 (Navigator)	2	80 85	223 223	187 187	Seed	14	0.011 (0.011, < 0.01)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Taber, AB, Canada Trial 18, 2008 (Black)	2	75-79 77-78	223 222	152 151	Seed	14	0.011 (< 0.01, 0.012)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Larned, KS, USA Trial 19, 2008 (Pinto Field)	2	72 77	224 226	168 168	Seed	14	0.016 (0.015, 0.016)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Jerome, ID, USA Trial 20, 2008 (Othello Pinto)	2	74 78	222 225	192 194	Seed	14	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)	< 0.01 (< 0.01, ND)
Live Oak, CA, USA Trial 21, 2008 (Canario)	2	75 79	220 217	141 141	Seed	14	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Parkdale, OR, USA Trial 22, 2008 (Blue Lake 91)	2	75 79	221 223	187 191	Seed	14	0.038 (0.042, 0.033)	ND (ND, ND)	0.022 (0.025, 0.019)	ND (ND, ND)

ND = not detected (< 0.003 mg/kg).

[a] Individual application rates shown.

[b] DAT = Days After Treatment.

[c] Mean result shown, with individual results for analyses of duplicate samples from the same plot in brackets.

Cereals

Table 25 Results of residue trials conducted with picoxystrobin (250 g/L SC) in sweet corn in the USA and Canada in 2008 (study number 25881)

Location	Application				Sample	DAT[b]	Residues (mg/kg)[c]			
Trial no., Year (Variety)	No.	Growth stage	g ai/ha[a]	L/ha			Parent	IN-QDY62	IN-QDY63	IN-QDK50
Germansville, PA, USA Trial 01, 2008 (Triple Sweet HYB)	4	Early tassel Pollen shed R2 blister Early milk	222 223 220 217	398 398 398 421	Cobs plus kernel with husk removed	7	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Blackville, SC, USA Trial 02, 2008 (Silver Queen)	4	59 65 73 75	219 224 221 220	177 179 179 193	Cobs plus kernel with husk removed	6	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Oviedo, FL, USA Trial 03, 2008 (Honey 'n' Pearl)	4	51 59 73 75	229 224 224 226	281 281 281 281	Cobs plus kernel with husk removed	7	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Branchton, ON, Canada Trial 04, 2008 (Ambrosia)	4	R1 R1 R2 R2	248 232 213 213	200 200 200 200	Cobs plus kernel with husk removed	7	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Conklin, MI, USA Trial 05, 2008 (Temptation)	4	59 65 71 75	222 223 224 223	204 202 200 201	Cobs plus kernel with husk removed	7	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Paynesville, MN, USA Trial 06, 2009 (Jubilee)	4	71 72 73 75	216 216 217 215	143 142 143 143	Cobs plus kernel with husk removed	7	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Richland, IA, USA Trial 07, 2008 (Iochief)	4	R1 R2 R3 R4	224 224 224 213	162 147 161 159	Cobs plus kernel with husk removed	7	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Taber, AB, Canada Trial 08, 2008 (Northern Supper Sweet)	4	69-74 75-79 83-85 83-85	216 217 222 231	150 152 152 154	Cobs plus kernel with husk removed	9	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Woodland, CA, USA Trial 09, 2008 (Silver Queen)	4	V15 VT R1 Milk	220 221 222 221	187 187 188 187	Cobs plus kernel with husk removed	7	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Madras, OR, USA Trial 10, 2008 (Jubilee)	4	63 67 71 75	223 225 221 225	192 194 190 194	Cobs plus kernel with husk removed	7	< 0.01 (< 0.01, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Forest Grove, OR, USA Trial 11, 2008 (Serendipity)	4	Kernel filling Kernels 70% Kernel final size Harvest maturity	212 223 213 217	209 187 189 186	Cobs plus kernel with husk removed	7	ND (ND, ND)	ND (ND, ND)	< 0.01 (ND, < 0.01)	ND (ND, ND)

ND = not detected (< 0.003 mg/kg).

[a] Individual application rates shown.

[b] DAT = Days After Treatment.

[c] Mean result shown, with individual results for analyses of duplicate samples from the same plot in brackets.

Table 26 Results of residue trials conducted with picoxystrobin (250 g/L SC) in wheat in the USA and Canada in 2008 and 2009 (study 24860)

Location	Application				Sample	DAT[b]	Residues (mg/kg)[c]			
Trial no., Year (Variety)	No.	BBCH stage	g ai/ha[a]	L/ha			Parent	IN-QDK50	IN-QDY62	IN-QDY63
Seven Springs, NC, USA Trial 01, 2008 (Coker 9478)	3	39 57-58 69-71	217 231 220	135 208 195	Grain	47	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	< 0.01 (ND, < 0.01)	ND (ND, ND)
Fisk, MO, USA Trial 02, 2008 (Coker 9663)	3	39 45-47 69	222 223 222	187 187 187	Grain	35	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Elm Creek, MB, Canada Trial 03, 2008 (AC Barrie)	3	30-31 32 55	231 230 224	200 200 200	Grain	47	< 0.01 (< 0.01, < 0.01)	< 0.01 (ND, < 0.01)	ND (ND, ND)	ND (ND, ND)
Richland, IA, USA Trial 04, 2008 (Wilcross 07GV6S-753)	3	30-31 59 65-69	223 213 224	153 178 184	Grain	45	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	< 0.01 (< 0.01, ND)	ND (ND, ND)
Lenexa, KS, USA Trial 05, 2008 (Overly)	3	30-31 32-37 59	224 225 224	144 145 144	Grain	45	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Hinton, OK, USA Trial 06, 2008 (Jagger)	3	39 61 75	222 220 231	125 133 139	Grain	45	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Carrington, ND, USA Trial 07, 2008 (Kelby)	3	30-31 45 71	226 228 224	140 140 139	Grain	45	< 0.01 (ND, < 0.01)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Taber, AB, Canada Trial 08, 2008 (AC Barrie)	3	30 61 71-73	231 230 216	154 154 146	Grain	46	0.022 (0.026, 0.018)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
New Rockford, ND, USA Trial 09, 2008 (Kelby)	3	30-31 32 65	221 216 217	141 140 140	Grain	46	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Eldridge, ND, USA Trial 10, 2008 (Glynn)	3	30-31 37 59	224 224 224	141 182 172	Grain	45	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Dundurn, SK, Canada Trial 11, 2008 (Lillian)	3	31 52-59 69-73	225 222 222	200 200 200	Grain	45	0.019 (0.017, 0.020)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Hanley, SK, Canada Trial 12, 2008 (Lillian)	3	31 51-55 65-69	220 223 224	200 200 200	Grain	45	0.013 (0.016, ND) c0.014	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Cordell, OK, USA Trial 13, 2008 (Jagger)	3	51 65 83	217 223 222	72 70 82	Grain	40	0.028 (0.027, 0.029)	< 0.01 (ND, < 0.01)	ND (ND, ND)	ND (ND, ND)
Levelland, TX, USA Trial 14, 2009 (TAM 105)	3	6-8 in. 10 in. 51-59	230 228 226	140 140 140	Grain	45	0.013 (0.016, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Olton, TX, USA Trial 15, 2008 (Dumas)	3	37 43-51 65-69	224 223 230	157 157 157	Grain	45	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Larned, KS, USA Trial 16, 2008 (Jagger)	3	30-31 37 61	224 213 224	168 168 168	Grain	44	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Ephrata, WA, USA Trial 17, 2008 (Dark northern spring)	3	30-31 47-49 57-58	225 226 224	187 189 187	Grain	47	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)

Location Trial no., Year (Variety)	Application No.	BBCH stage	g ai/ha[a]	L/ha	Sample	DAT[b]	Residues (mg/kg)[c] Parent	IN-QDK50	IN-QDY62	IN-QDY63
Minto, MB, Canada Trial 18, 2008 (Superb)	3	31-32 37-41 57-59	224 226 224	158 162 160	Grain	51	< 0.01 (ND, < 0.01)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Boissevain, MB, Canada Trial 19, 2008 (Strongfield (durum))	3	31-32 34-37 41-55	229 228 224	164 163 159	Grain	58	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Rosthern, SK, Canada Trial 20, 2008 (AC Lillian)	3	31 37-39 59-69	227 224 226	203 199 201	Grain	56	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Hepburn, SK, Canada Trial 21, 2008 (AC Lillian)	3	31 37-41 59-69	223 224 229	199 199 203	Grain	54	0.010 (0.010, < 0.01)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Fort Saskatchewan, AB, Canada Trial 22, 2008 (AC Foremost)	3	31 45-54 69	222 224 224	180 180 180	Grain	45	0.010 (0.010, 0.010)	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)
Trial 23, 2008 (AC Foremost)	3	31 45-52 69	222 224 224	180 180 180	Grain	45	0.010 (0.010, < 0.01)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Alvena, SK, Canada Trial 24, 2008 (Lillian)	3	31 56-59 69-71	223 223 225	200 200 200	Grain	45	0.014 (0.016, 0.012)	< 0.01 (< 0.01, ND)	ND (ND, ND)	ND (ND, ND)
Waldheim, SK, Canada Trial 25, 2008 (Lillian)	3	31 55-59 69-71	223 222 224	200 200 200	Grain	45	0.025 (0.021, 0.028)	< 0.01 (< 0.01, ND)	ND (ND, ND)	ND (ND, ND)
Northwood, ND, USA Trial 46, 2008 (Kelby)	3	30-31 49 71	214 219 217	184 188 187	Grain	45	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)

[a] Individual application rates reported, together with the seasonal rate (underlined).

[b] DAT = Days After Treatment.

[c] Mean result shown, with individual results for analyses of duplicate samples from the same plot in brackets.

Table 27 Results of residue trials conducted with picoxystrobin (250 g/L SC) in barley in the USA and Canada in 2008 and 2009 (study 24860)

Location Trial no., Year (Variety)	Application No.	BBCH stage	g ai/ha[a]	L/ha	Sample	DAT[b]	Residues (mg/kg)[c] Parent	IN-QDK50	IN-QDY62	IN-QDY63
Germansville, PA, USA, Trial 26, 2008 (NP)	3	30-31 39 51	233 230 231	291 288 289	Grain	45	0.047 (0.044, 0.049)	ND (ND, ND)	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)
Richland, IA, USA Trial 27, 2008 (Robust)	3	30-31 32 59	222 228 219	139 170 159	Grain	45	0.022 (0.024, 0.019)	ND (ND, ND)	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)
Delavan, WI, USA Trial 28, 2008 (Kewaunee)	3	30-31 32 55	225 223 224	164 154 161	Grain	46	0.014 (0.014, 0.013)	< 0.01 (< 0.01, < 0.01)	< 0.01 (ND, < 0.01)	ND (ND, ND)
Frederick, SD, USA Trial 29, 2008 (Robust)	3	30-31 37 65-71	224 224 224	94 94 94	Grain	45	0.028 (0.031, 0.024)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)

Location Trial no., Year (Variety)	Application				Sample	DAT[b]	Residues (mg/kg)[c]			
	No.	BBCH stage	g ai/ha[a]	L/ha			Parent	IN-QDK50	IN-QDY62	IN-QDY63
Carrington, ND, USA Trial 30, 2008 (Tradition)	3	30-31 32 65	221 216 217	139 141 140	Grain	45	<u>0.028</u> (0.027, 0.028)	ND (ND, ND)	ND (ND, ND)	< 0.01 (< 0.01, < 0.01)
Eldridge, ND, USA Trial 31, 2008 (Tradition)	3	30-31 37 59	222 224 221	140 140 140	Grain	45	<u>0.016</u> (0.017, 0.014)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Velva, ND, USA Trial 32, 2008 (Legacy)	3	30-31 32 47-49	223 224 229	138 139 141	Grain	45	<u>ND</u> (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Jerome, ID, USA Trial 33, 2008 (Harrington)	3	32 39 71	224 224 230	143 164 161	Grain	45	<u>0.016</u> (0.017, 0.015)	< 0.01 (< 0.01, ND)	ND (ND, ND)	ND (ND, ND)
Live Oak, CA, USA Trial 34, 2008 (UC-937)	3	37-39 49 59	225 224 225	188 187 186	Grain	77	0.012 (0.011, 0.012)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Madras, OR, USA Trial 35, 2008 (Bellford)	3	32 53 83-85	234 233 222	199 192 190	Grain	47	<u>0.087</u> (0.076, 0.098) c0.005	< 0.01 (< 0.01, < 0.01)	< 0.01 (< 0.01, < 0.01)	0.015 (0.015, 0.014)
Minto, MB, Canada Trial 36, 2008 (Conion)	3	31-32 33-37 49-58	220 229 231	157 163 206	Grain	47	<u>ND</u> (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Boissevain, MB, Canada Trial 37, 2008 (Copelan)	3	31-33 33-37 43-54	224 222 225	160 159 201	Grain	57	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Rosthern, SK, Canada Trial 38, 2008 (AC Metcalfe)	3	31 37 59	230 221 225	205 197 201	Grain	53	<u>0.011</u> (0.011, 0.011)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Hepburn, SK, Canada Trial 39, 2008 (AC Metcalfe)	3	31 39 59	226 220 222	200 196 198	Grain	47	<u>< 0.01</u> (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Innisfail, AB, Canada Trial 40, 2008 (Metcalfe)	3	33-36 39-47 55-59	224 215 224	250 250 250	Grain	58	0.010 (< 0.01, 0.010)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Fort Saskatchewan, AB, Canada Trial 41, 2008 (Bold)	3	31 45-52 60-61	228 222 224	180 180 180	Grain	45	<u>0.017</u> (0.020, 0.014)	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)
Trial 42, 2008 (Bold)	3	31 55-59 59-60	224 220 235	178 180 180	Grain	45	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Lamont, AB, Canada Trial 43, 2008 (Bold)	3	31 47-51 72	222 223 223	180 180 180	Grain	45	<u>0.029</u> (0.029, 0.028)	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)
Alvena, SK, Canada Trial 44, 2008 (Legacy)	3	31 56-59 69-75	223 223 223	200 200 200	Grain	45	<u>0.12</u> (0.15, 0.082)	< 0.01 (< 0.01, < 0.01)	< 0.01 (< 0.01, < 0.01)	0.011 (0.012, < 0.01)
Waldheim, SK, Canada Trial 45, 2008 (Legacy)	3	31 55-59 71-73	223 222 217	200 200 200	Grain	45	<u>0.22</u> (0.21, 0.23)	< 0.01 (< 0.01, < 0.01)	< 0.01 (< 0.01, < 0.01)	0.019 (0.018, 0.019)
Northwood, ND, USA Trial 47, 2008 (Tradition)	3	30-31 32 59	221 216 221	190 186 188	Grain	44	<u>< 0.01</u> (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)	< 0.01 (< 0.01, ND)

[a] Individual application rates reported, together with the seasonal rate (underlined).

[b] DAT = Days After Treatment.

[c] Mean result shown, with individual results for analyses of duplicate samples from the same plot in brackets.

Table 28 Results of residue trials conducted with picoxystrobin (250 g/L SC) in maize in the USA and Canada in 2008 (study number 24864)

Location Trial no., Year (variety)	Application				Sample	DAT[b]	Residues (mg/kg)[c]			
	No.	BBCH stage	g ai/ha[a]	L/ha			Parent	IN-QDY62	IN-QDY63	IN-QDK50
Germansville, PA, USA Trial 01, 2008 (TA 3892)	3	Early R1 89 89 89	226 226 223	330 433 428	Grain	7	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Blackville, SC, USA Trial 02, 2008 (OK 69-72)	3	65 89 89	224 224 224	186 181 185	Grain	7	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Paris, ON, Canada Trial 03, 2008 (DeKalb 50-20)	3	R1 R5 R5-R6	215 228 217	200 200 200	Grain	7	< 0.01 (ND, < 0.01)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Branchton, ON, Canada Trial 04, 2008 (Pioneer 38A59)	3	R1 R5 R5-R6	213 213 213	200 200 200	Grain	7	0.011 (< 0.01, 0.012)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Richland, IA, USA Trial 05, 2008 (Middle Koop 5513)	3	R1 R6 R6	213 224 224	167 162 165	Grain	6	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
					Process grain	6	0.012 (0.010, 0.014)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
					AGF	6	0.15 (0.14, 0.16) c0.008	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)
Wyoming, IL, USA Trial 06, 2008 (DKC60-18)	3	R1 R6 R6	224 224 224	193 188 186	Grain	7	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Paynesville, MN, USA Trial 08, 2009 (DKC35)	3	R1 R6 R6	215 217 215	143 142 143	Grain	7	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Gardner, ND, USA Trial 09, 2008 (2K145)	3	R4 R5 R6	223 221 223	159 159 159	Grain	7	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Lenexa, KS, USA Trial 10, 2008 (08HYBBIO8REM)	3	R1 87 87	220 221 220	134 135 137	Grain	7	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Delavan, WI, USA Trial 11, 2008 (DKC51-39)	3	R1 R5.5 R5.75	220 221 219	196 199 201	Grain	7	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Springfield, NE, USA Trial 12, 2008 (NK N38-04)	3	R1 87 89	224 224 220	130 132 132	Grain	7	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Tipton, MO, USA Trial 13, 2008 (DeKalb DKC6423)	3	R1 R5 R5	224 224 224	262 256 259	Grain	7	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Carlyle, IL, USA Trial 14, 2008 (Burrus 616 XLR)	3	R1 R6 R6	225 222 216	150 162 172	Grain	7	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
					Process grain	7	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
					AGF	7	0.17	0.26	< 0.01	ND

Location Trial no., Year (variety)	Application No.	BBCH stage	g ai/ha[a]	L/ha	Sample	DAT[b]	Residues (mg/kg)[c] Parent	IN-QDY62	IN-QDY63	IN-QDK50
							(0.18, 0.13) c0.003	(0.27, 0.25)	(< 0.01, < 0.01)	(ND, ND)
La Plata, MO, USA Trial 15, 2008 (LG 2540)	3	R1 R6 R6	221 221 223	159 195 191	Grain	7	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Hinton, OK, USA Trial 16, 2008 (DKC51-45)	3	75 87 89	222 224 219	178 189 190	Grain	7	< 0.01 (< 0.01, < 0.01)	< 0.01 (< 0.01, ND)	ND (ND, ND)	ND (ND, ND)

ND = not detected (< 0.003 mg/kg).

[a] Individual application rates shown, together with seasonal rate (underlined).

[b] DAT = Days After Treatment.

[c] Mean result shown, with individual results for analyses of duplicate samples from the same plot in brackets.

Oilseeds

Table 29 Results of residue trials conducted with picoxystrobin (250 g/L SC) in oilseed rape in the USA and Canada in 2008 (study number 24862)

Location Trial no., Year (Variety)	Application No.	Growth stage	g ai/ha[a]	L/ha	Sample	DAT[b]	Residues (mg/kg)[c] Parent	IN-QDY62	IN-QDY63	IN-QDK50
Montezuma, GA, USA Trial 01, 2008 (Flint)	2	Pod fill Pod fill	225 224	218 193	Seed	21	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Conklin, MI, USA Trial 02, 2008 (Dekalb DKL72-55)	2	79 80	223 222	204 203	Seed	19	0.018 (0.015, 0.021)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Perley, MN, USA Trial 04, 2008 (Patriot)	2	69 76	222 233	140 140	Seed	22	0.016 (0.013, 0.018)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Sykeston, ND, USA Trial 05, 2008 (45H26)	2	62 65	220 219	187 187	Seed	21	0.043 (0.045, 0.040)	0.010 (0.010, < 0.01)	< 0.01 (< 0.01, < 0.01)	0.014 (0.016, 0.011)
Taber, AB, Canada Trial 06, 2008 (75-45RR)	2	78-80 80-82	214 234	213 220	Seed	20	< 0.01 (0.004, 0.005)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Jerome, ID, USA Trial 07, 2008 (Phoenix)	2	79 82	225 224	199 188	Pod and seed	-0	0.044 (0.052, 0.036)	ND (ND, ND)	ND (ND, ND)	0.027 (0.028, 0.026)
						+0	4.5 (4.9, 4.1)	ND (ND, ND)	< 0.01 (< 0.01, ND)	0.028 (0.026, 0.030)
						7	0.90 (0.80, 1.0)	ND (ND, ND)	0.032 (0.025, 0.039)	0.062 (0.065, 0.058)
						14	0.31 (0.27, 0.34)	ND (ND, ND)	0.019 (0.020, 0.017)	0.062 (0.054, 0.069)
					Seed	21	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)	< 0.01 (ND, < 0.01)
						28	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Madras, OR, USA Trial 08, 2008	2	79 83	229 232	192 196	Seed	21	0.021 (0.024,	ND (ND,	ND (ND, ND)	ND (ND, ND)

Location Trial no., Year (Variety)	Application				Sample	DAT[b]	Residues (mg/kg)[c]			
	No.	Growth stage	g ai/ha[a]	L/ha			Parent	IN-QDY62	IN-QDY63	IN-QDK50
(Cracker Jack)							0.018)	ND)		
Ephrata, WA, USA Trial 09, 2008 (71-45RR)	2	65-69 72-74	226 226	188 190	Seed	21	0.011 (0.011, 0.011)	ND (ND, ND)	ND (ND, ND)	< 0.01 (< 0.01, < 0.01)
Minto, MB, Canada Trial 10, 2008 (5030)	2	69-75 79	222 226	159 162	Pod and seed	-0	0.016 (0.016, 0.015)	ND (ND, ND)	ND (ND, ND)	0.011 (0.012, 0.010)
						+0	3.5 (3.3, 3.6)	ND (ND, ND)	ND (ND, ND)	0.014 (0.014, 0.014)
						7	0.088 (0.087, 0.089)	ND (ND, ND)	ND (ND, ND)	0.019 (0.019, 0.018)
						15	0.044 (0.044, 0.044)	ND (ND, ND)	ND (ND, ND)	0.017 (0.016, 0.017)
					Seed	21	0.013 (0.012, 0.014)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
						28	0.012 (0.012, 0.011)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Rosthern, SK, Canada Trial 11, 2008 (SP Banner)	2	69-75 74-77	227 232	202 207	Seed	21	0.039 (0.041, 0.036)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Hepburn, SK, Canada Trial 12, 2008 (46A76)	2	69-74 73-77	228 231	203 206	Seed	21	0.023 (0.021, 0.025)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Innisfail, AB, Canada Trial 13, 2008 (33-95)	2	69-75 79-80	220 217	250 250	Seed	21	0.032 (0.031, 0.032)	ND (ND, ND)	ND (ND, ND)	< 0.01 (< 0.01, < 0.01)
Innisfail, AB, Canada Trial 14, 2008 (7145)	2	81-83 83-85	234 222	300 300	Seed	21	0.045 (0.045, 0.045)	ND (ND, ND)	ND (ND, ND)	< 0.01 (ND, < 0.01)
Alvena, SK, Canada Trial 15, 2008 (Pioneer 45H72)	2	75-79 80-81	222 223	150 150	Seed	21	0.043 (0.041, 0.044)	ND (ND, ND)	ND (ND, ND)	< 0.01 (< 0.01, < 0.01)
Waldheim, SK, Canada Trial 16, 2008 (Pioneer 45H72)	2	80 81-82	225 228	150 150	Seed	21	0.047 (0.035, 0.059)	ND (ND, ND)	ND (ND, ND)	< 0.01 (ND, < 0.01)
Lamont, AB, Canada Trial 17, 2008 (45H72)	2	72 78	224 224	180 180	Seed	21	0.022 (0.024, 0.019)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Fort Saskatchewan, AB, Canada Trial 18, 2008 (45H73)	2	66 71-72	224 223	250 250	Seed	26	0.031 (0.029, 0.033)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Trial 19, 2008 (Pioneer 45H72)	2	69 70	222 224	250 250	Seed	28	0.014 (0.014, 0.013)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)

ND = not detected (< 0.003 mg/kg).

[a] Individual application rates shown, together with seasonal rate (underlined).

[b] DAT = Days After Treatment.

[c] Mean result shown, with individual results for analyses of duplicate samples from the same plot in brackets.

Animal feeds

Table 30 Results of residue trials conducted with picoxystrobin (250 g/L SC) in sweet corn forage in the USA and Canada in 2008 (study number 25881)

Location, Trial no., Year (Variety)	Application				Sample [%water]	DAT[b]	Residues (mg/kg)[c]				
	No.	Growth stage	g ai/ha[a]	L/ha			Parent		IN-QDY62	IN-QDY63	IN-QDK50
							FW[d]	DW[e]			
Germansville, PA, USA Trial 01, 2008 (Triple Sweet HYB)	4	Early tassel Pollen shed R2 blister Early milk	222 223 220 217	398 398 398 421	Forage [83]	7	0.80 (0.63, 0.96)	4.7 (3.7, 5.6)	0.016 (0.016, 0.015)	< 0.01 (< 0.01, < 0.01)	0.31 (0.28, 0.34)
Blackville, SC, USA Trial 02, 2008 (Silver Queen)	4	59 65 73 75	219 224 221 220	177 179 179 193	Forage [80]	6	0.32 (0.29, 0.35)	1.7 (1.5, 1.8)	0.024 (0.022, 0.026)	< 0.01 (< 0.01, < 0.01)	0.083 (0.083, 0.082)
Oviedo, FL, USA Trial 03, 2008 (Honey 'n' Pearl)	4	51 59 73 75	229 224 224 226	281 281 281 281	Forage [85]	7	0.53 (0.68, 0.37) c0.019	3.5 (4.5, 2.5)	0.046 (0.051, 0.040)	< 0.01 (< 0.01, < 0.01)	0.17 (0.16, 0.18)
Branchton, ON, Canada Trial 04, 2008 (Ambrosia)	4	R1 R1 R2 R2	248 232 213 213	200 200 200 200	Forage [82]	-0	0.20 (0.21, 0.19)	1.2 (1.2, 1.1)	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	0.069 (0.079, 0.059)
						+0	1.5 (1.4, 1.6)	<u>8.4</u> (7.8, 8.9)	0.013 (0.010, 0.015)	ND (ND, ND)	0.076 (0.080, 0.071)
						1	0.65 (0.63, 0.67)	3.6 (3.5, 3.7)	0.017 (0.013, 0.021)	< 0.01 (< 0.01, < 0.01)	0.077 (0.071, 0.083)
						4	0.25 (0.24, 0.25)	1.4 (1.3, 1.4)	0.010 (< 0.01, 0.010)	< 0.01 (< 0.01, < 0.01)	0.081 (0.078, 0.083)
						7	0.19 (0.20, 0.18)	1.1 (1.1, 1.0)	0.012 (0.011, 0.013)	< 0.01 (< 0.01, < 0.01)	0.080 (0.082, 0.077)
Conklin, MI, USA Trial 05, 2008 (Temptation)	4	59 65 71 75	222 223 224 223	204 202 200 201	Forage [84]	-0	0.68 (0.41, 0.95)	4.3 (2.6, 5.9)	0.014 (0.006, 0.021)	0.011 (< 0.01, 0.012)	0.061 (0.046, 0.076)
						+0	2.5 (2.1, 2.9)	16 (13, 18)	0.019 (0.017, 0.021)	0.010 (< 0.01, 0.010)	0.067 (0.065, 0.068)
						1	2.6 (3.0, 2.2)	<u>17</u> (19, 14)	0.020 (0.023, 0.016)	0.013 (0.014, 0.011)	0.076 (0.084, 0.067)
						4	2.0 (1.5, 2.4)	12 (9.4, 15)	0.023 (0.020, 0.025)	0.018 (0.016, 0.019)	0.077 (0.075, 0.079)
						7	1.5 (1.5, 1.5)	9.4 (9.4, 9.4)	0.023 (0.024, 0.021)	0.021 (0.021, 0.021)	0.089 (0.091, 0.087)
Paynesville, MN, USA Trial 06, 2009 (Jubilee)	4	71 72 73 75	216 216 217 215	143 142 143 143	Forage [78]	7	ND (ND, ND)		ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Richland, IA, USA Trial 07, 2008 (Iochief)	4	R1 R2 R3 R4	224 224 224 213	162 147 161 159	Forage [82]	7	0.24 (0.26, 0.22)	1.3 (1.4, 1.2)	0.074 (0.080, 0.068)	0.014 (0.015, 0.013)	0.078 (0.086, 0.070)
Taber, AB, Canada	4	69-74	216	150	Forage	9	0.89	4.9	0.038	< 0.01	0.090

Location, Trial no., Year (Variety)	Application				Sample [%water]	DAT[b]	Residues (mg/kg)[c]				
	No.	Growth stage	g ai/ha[a]	L/ha			Parent		IN-QDY62	IN-QDY63	IN-QDK50
							FW[d]	DW[e]			
Trial 08, 2008 (Northern Supper Sweet)		75-79 83-85 83-85	217 222 231	152 152 154	[82]		(0.96, 0.81)	(5.3) (4.5)	(0.039, 0.037)	(< 0.01, < 0.01)	(0.11, 0.070)
Woodland, CA, USA Trial 09, 2008 (Silver Queen)	4	V15 VT R1 Milk	220 221 222 221	187 187 188 187	Forage [84]	7	1.3 (0.87, 1.8)	8.2 (5.4, 11)	ND (ND, ND)	0.018 (0.014, 0.022)	0.10 (0.081, 0.12)
Madras, OR, USA Trial 10, 2008 (Jubilee)	4	63 67 71 75	223 225 221 225	192 194 190 194	Forage [80]	7	2.2 (2.2, 2.2)	11 (11, 11)	< 0.01 (ND, < 0.01)	0.035 (0.034, 0.035)	0.12 (0.12, 0.11)
Forest Grove, OR, USA Trial 11, 2008 (Serendipity)	4	Kernel filling Kernels 70% Kernel final size Harvest maturity	212 223 213 217	209 187 189 186	Forage [82]	7	0.12 (0.16, 0.086)	0.74 (0.89, 0.48)	< 0.01 (< 0.01, < 0.01)	< 0.01 (< 0.01, ND)	0.020 (0.022, 0.017)

ND = not detected (< 0.003 mg/kg).

[a] Individual application rates shown.

[b] DAT = Days After Treatment.

[c] Mean result shown, with individual results for analyses of duplicate samples from the same plot in brackets.

[d] Fresh weight.

[e] Dry weight.

Table 31 Results of residue trials conducted with picoxystrobin (250 g/L SC) in soya bean forage in the USA and Canada in 2008 and 2009 (study number 24861)

Location, Trial no., Year (Variety)	Application				Sample [water %]	DAT[a]	Residues (mg/kg)[b]				
	No.	Growth stage	g ai/ha	L/ha			Parent		IN-QDY62	IN-QDY63	IN-QDK50
							FW[c]	DW[d]			
Blackville, SC, USA Trial 01, 2008 (Asgrow, H7242 RR)	1	63	224	150	Forage [79]	14	0.19 (0.19, 0.18)	0.88 (0.90, 0.86)	ND (ND, ND)	< 0.01 (< 0.01, < 0.01)	0.055 (0.057, 0.052)
Seven Springs, NC, USA Trial 02, 2008 (DKB-64-51)	1	61	217	140	Forage [78]	14	0.13 (0.13, 0.12)	0.57 (0.59, 0.55)	< 0.01 (< 0.01, < 0.01)	0.010 (0.010, 0.010)	0.037 (0.039, 0.035)
Cheneyville, LA, USA Trial 03, 2008 (DG 33B52)	1	61	219	149	Forage [76]	14	0.19 (0.15, 0.23)	0.80 (0.63, 0.96)	< 0.01 (< 0.01, < 0.01)	0.012 (0.012, 0.012)	0.040 (0.040, 0.039)
Fisk, MO, USA Trial 04, 2008 (Armor 47G7)	1	61-65	223	119	Forage [76]	14	0.34 (0.31, 0.37)	1.4 (1.3, 1.5)	0.010 (< 0.01, 0.010)	0.011 (0.010, 0.011)	0.080 (0.078, 0.081)
Richland, IA, USA Trial 05, 2008 (93M11)	1	61	213	150	Forage [83]	0	13 (14, 12)	77 (71, 82)	ND (ND, ND)	ND (ND, ND)	0.022 (0.022, 0.021)
						3	5.2 (5.2, 5.3) c0.003	31 (31, 31)	< 0.01 (< 0.01, ND)	0.064 (0.067, 0.06)	0.064 (0.067, 0.06)
						7	0.79 (0.65, 0.92)	4.6 (3.8, 5.4)	ND (ND, ND)	0.011 (0.010, 0.012)	0.052 (0.049, 0.055)
						10	0.36 (0.35, 0.36)	2.1 (2.1, 2.1)	ND (ND, ND)	< 0.01 (< 0.01, < 0.01)	0.031 (0.034, 0.027)
						14	0.20 (0.23, 0.17)	1.2 (1.4, 1.0)	ND (ND, ND)	ND (ND, ND)	0.031 (0.037, 0.025)
Trial 15, 2008 (Pioneer 93M11)	1	61	221	141	Forage [80]	14	0.30 (0.25,	1.6 (1.3,	< 0.01 (< 0.01,	< 0.01 (ND, < 0.01)	0.040 (0.034,

Location, Trial no., Year (Variety)	Application				Sample [water %]	DAT[a]	Residues (mg/kg)[b]				
	No.	Growth stage	g ai/ha	L/ha			Parent		IN-QDY62	IN-QDY63	IN-QDK50
							FW[c]	DW[d]			
							0.35)	1.8)	< 0.01)		0.046)
Branchton, ON, Canada Trial 06, 2008 (Mirra)	1	61	213	150	Forage [84]	0	20 (21, 19)	125 (130, 120)	ND (ND, ND)	ND (ND, ND)	0.013 (0.013, 0.013)
						3	0.97 (1.0, 0.94)	6.1 (6.3, 5.9)	< 0.01 (ND, < 0.01)	< 0.01(0.009, 0.009)	0.024 (0.027, 0.021)
						7	0.33 (0.24, 0.42)	2.1 (1.5, 2.6)	ND (ND, ND)	< 0.01 (< 0.01, < 0.01)	0.021 (0.016, 0.026)
						10	0.26 (0.20, 0.31)	1.6 (1.3, 1.9)	ND (ND, ND)	< 0.01 (< 0.01, < 0.01)	0.026 (0.023, 0.028)
						14	0.15 (0.12, 0.17)	0.93 (0.75, 1.1)	ND (ND, ND)	< 0.01 (ND, < 0.01)	0.021 (0.020, 0.022)
Paris, ON, Canada Trial 07, 2008 (DK-27-07)	1	61	224	150	Forage [83]	14	0.50 (0.51, 0.48)	2.9 (3.0, 2.8)	ND (ND, ND)	ND (ND, ND)	0.047 (0.048, 0.046)
Paynesville, MN, USA Trial 08, 2009 (AGO0501 Asgow)	1	61	214	143	Forage [76]	14	ND (ND, ND)		ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Geneva, MN, USA Trial 09, 2008 (Pioneer 91M80)	1	61	222	145	Forage [86]	13	0.27 (0.28, 0.26)	2.0 (2.0, 1.9)	ND (ND, ND)	ND (ND, ND)	0.047 (0.057, 0.037)
Lenexa, KS, USA Trial 10, 2008 (395NRR)	1	61	221	135	Forage [77]	14	0.43 (0.40, 0.46)	1.9 (1.7, 2.0)	ND (ND, ND)	0.015 (0.015, 0.014)	0.054 (0.053, 0.055)
Rochelle, IL, USA Trial 11, 2008 (Pioneer 92M61)	1	61	224	46	Forage [84]	14	0.34 (0.34, 0.33)	2.1 (2.1, 2.1)	ND (ND, ND)	< 0.01 (< 0.01, < 0.01)	0.047 (0.047, 0.047)
Britton, SD, USA Trial 12, 2008 (Pioneer 90M80 Roundup Ready)	1	61	224	187	Forage [78]	14	0.13 (0.12, 0.13)	0.57 (0.55, 0.59)	ND (ND, ND)	ND (ND, ND)	0.025 (0.025, 0.025)
Springfield, NE, USA Trial 13, 2008 (MW GR3631)	1	61	224	132	Forage [82]	14	0.37 (0.38, 0.35)	2.0 (2.1, 1.9)	ND (ND, ND)	< 0.01 (< 0.01, < 0.01)	0.11 (0.10, 0.12)
Carlyle, IL, USA Trial 14, 2008 (NK 37-N4)	1	61	213	148	Forage [81]	14	0.31 (0.35, 0.26)	1.6 (1.8, 1,4)	< 0.01 (< 0.01, < 0.01)	0.011 (0.012, 0.010)	0.095 (0.098, 0.091)
LaPlata, MO, USA Trial 16, 2008 (Asgrow AG3802)	1	61	222	163	Forage [79]	14	0.052 (0.060, 0.044)	0.25 (0.29, 0.21)	ND (ND, ND)	ND (ND, ND)	0.019 (0.018, 0.020)
Fisk, MO, USA Trial 17, 2009 (54-17 RR/STS)	1	61	220	187	Forage [81]	15	0.16 (0.16, 0.16)	0.84 (0.84, 0.84)	< 0.01 (< 0.01, < 0.01)	0.011 (0.011, 0.010)	0.081 (0.079, 0.083)
Dudley, MO, USA Trial 18, 2009 (Jake)	1	61	221	187	Forage [78]	14	0.10 (0.11, 0.093)	0.46 (0.50, 0.42)	ND (ND, ND)	< 0.01 (< 0.01, < 0.01)	0.027 (0.027, 0.027)
Tipton, MO, USA Trial 19, 2009 (48-24 Mor Soy)	1	61	220	272	Forage [82]	21	0.11 (0.075, 0.14)	0.60 (0.42, 0.78)	ND (ND, ND)	< 0.01 (< 0.01, < 0.01)	0.064 (0.043, 0.084)
Gardner, KS, USA Trial 20, 2009 (Fontanelle 407NRS)	1	60	220	138	Forage [78]	14	0.76 (0.72, 0.80)	3.5 (3.3, 3.6)	< 0.01 (< 0.01, < 0.01)	< 0.01 (< 0.01, < 0.01)	0.060 (0.062, 0.058)
Springfield, NE, USA Trial 21, 2009 (NC+2A98)	1	60	213	129	Forage [82]	14	0.29 (0.26, 0.32)	1.6 (1.4, 1.8)	< 0.01 (< 0.01, ND)	< 0.01 (< 0.01, < 0.01)	0.069 (0.058, 0.079)

ND = not detected (< 0.003 mg/kg).

[a] DAT = Days After Treatment.

[b] Mean result shown, with individual results for analyses of duplicate samples from the same plot in brackets.

[c] Fresh weight.

[d] Dry weight.

Table 32 Results of residue trials conducted with picoxystrobin (250 g/L SC) in soya bean hay in the USA and Canada in 2008 and 2009 (study number 24861)

Location, Trial no., Year (Variety)	Application				Sample [water %]	DAT[a]	Residues (mg/kg)[b]				
	No.	Growth stage	g ai/ha	L/ha			Parent		IN-QDY62	IN-QDY63	IN-QDK50
							FW[c]	DW[d]			
Blackville, SC, USA Trial 01, 2008 (Asgrow, H7242 RR)	1	63	224	150	Hay [51]	14 + 6	0.25 (0.22, 0.28)	0.51 (0.45, 0.57)	0.15 (0.13, 0.16)	0.072 (0.061, 0.083) c0.005	0.015 (0.014, 0.016)
Seven Springs, NC, USA Trial 02, 2008 (DKB-64-51)	1	61	217	140	Hay [39]	14 + 2	0.30 (0.31, 0.29)	0.50 (0.51, 0.48)	0.017 (0.013, 0.02)	0.036 (0.035, 0.036)	0.078 (0.075, 0.080)
Cheneyville, LA, USA Trial 03, 2008 (DG 33B52)	1	61	219	149	Hay [23]	14 + 4	0.40 (0.46, 0.33)	0.52 (0.60, 0.43)	0.028 (0.028, 0.027)	0.057 (0.054, 0.059)	0.077 (0.077, 0.077)
Fisk, MO, USA Trial 04, 2008 (Armor 47G7)	1	61-65	223	119	Hay [31]	14 + 10	0.85 (0.92, 0.78)	1.2 (1.3, 1.1)	0.45 (0.43, 0.47)	0.18 (0.17, 0.19)	0.12 (0.11, 0.12)
Richland, IA, USA Trial 05, 2008 (93M11)	1	61	213	150	Hay [17]	0 + 5	58 (60, 56)	70 (72, 67)	0.034 (0.033, 0.034)	0.83 (0.87, 0.78)	0.079 (0.077, 0.081)
						3 + 5	23 (21, 24)) c0.006	27 (25, 29)	0.054 (0.052, 0.056)	0.81 (0.87, 0.75)	0.098 (0.10, 0.096)
						7 + 5	3.1 (2.9, 3.3)	3.8 (3.5, 4.0)	0.026 (0.022, 0.030)	0.10 (0.082, 0.12)	0.12 (0.11, 0.12)
						10 + 3	1.8 (1.8, 1.7)	2.1 (2.2, 2.0)	0.015 (0.015, 0.014)	0.041 (0.040, 0.041)	0.12 (0.12, 0.11)
						14 + 3	0.80 (0.73, 0.87)	0.94 (0.88, 1.0)	0.010 (< 0.01, 0.010)	0.019 (0.018, 0.019)	0.085 (0.083, 0.086)
Trial 15, 2008 (Pioneer 93M11)	1	61	221	141	Hay [17]	14 + 5	1.3 (1.4 , 1.2) c0.003	1.6 (1.7, 1.4)	0.076 (0.065, 0.087)	0.026 (0.025, 0.026)	0.084 (0.085, 0.082)
Branchton, ON, Canada Trial 06, 2008 (Mirra)	1	61	213	150	Hay [27]	0 + 14	59 (51 , 66)	80 (70, 90)	0.086 (0.075, 0.097)	0.47 (0.42, 0.52)	0.048 (0.043, 0.052)
						3 + 11	3.3 (3.6, 2.9) c0.007	4.5 (4.9, 4.0)	0.16 (0.10, 0.21)	0.13 (0.14, 0.12) c0.004	0.042 (0.031, 0.052)
						7 + 7	1.4 (1.2, 1.6)	1.9 (1.6, 2.2)	0.024 (0.025, 0.022)	0.040 (0.037, 0.043)	0.039 (0.035, 0.042)
						10 + 14	1.3 (1.4, 1.1)	1.7 (1.9, 1.5)	0.035 (0.037, 0.032)	0.049 (0.056, 0.041) c0.005	0.035 (0.038, 0.031)
						14 + 10	0.54 (0.63, 0.44)	0.73 (0.86, 0.60)	0.015 (0.014, 0.016)	0.025 (0.023, 0.027)	0.034 (0.031, 0.036)
Paris, ON, Canada Trial 07, 2008 (DK-27-07)	1	61	224	150	Hay [31]	14 + 17	1.6 (1.6, 1.6)	2.3 (2.3, 2.3)	0.16 (0.17, 0.15)	0.12 (0.11, 0.12)	0.053 (0.054, 0.052)
Paynesville, MN, USA Trial 08, 2009 (AGO0501 Asgow)	1	61	214	143	Hay [22]	14 + 3	ND (ND, ND)		ND (ND, ND)	ND (ND, ND)	ND (ND, ND)

Location, Trial no., Year (Variety)	Application				Sample [water %]	DAT[a]	Residues (mg/kg)[b]				
	No.	Growth stage	g ai/ha	L/ha			Parent		IN-QDY62	IN-QDY63	IN-QDK50
							FW[c]	DW[d]			
Geneva, MN, USA Trial 09, 2008 (Pioneer 91M80)	1	61	222	145	Hay [47]	13 + 3	1.1 (1.1, 1.1)	2.1 (2.1, 2.1)	0.010 (ND, 0.020)	0.020 (0.020, 0.019)	0.095 (0.097, 0.093)
Lenexa, KS, USA Trial 10, 2008 (395NRR)	1	61	221	135	Hay [24]	14 + 3	1.3 (1.1, 1.5)	1.7 (1.4, 2.0)	< 0.01 (< 0.01, < 0.01)	0.048 (0.043, 0.053)	0.084 (0.080, 0.087)
Rochelle, IL, USA Trial 11, 2008 (Pioneer 92M61)	1	61	224	46	Hay [32]	14 + 2	1.1 (1.2, 0.90) c0.003	1.6 (1.8, 1.3)	0.014 (0.012, 0.015)	0.020 (0.022, 0.018)	0.10 (0.12, 0.088)
Britton, SD, USA Trial 12, 2008 (Pioneer 90M80 Roundup Ready)	1	61	224	187	Hay [28]	14 + 5	0.43 (0.50, 0.35)	0.59 (0.69, 0.49)	0.019 (0.021, 0.016)	0.020 (0.023, 0.017)	0.034 (0.032, 0.035)
Springfield, NE, USA Trial 13, 2008 (MW GR3631)	1	61	224	132	Hay [29]	14 + 5	1.3 (1.3, 1.3)	1.8 (1.8, 1.8)	0.013 (0.012, 0.014)	0.051 (0.050, 0.052)	0.24 (0.23, 0.24)
Carlyle, IL, USA Trial 14, 2008 (NK 37-N4)	1	61	213	148	Hay [53]	14 + 4	0.80 (0.81, 0.79)	1.7 (1.7, 1.7)	0.025 (0.027, 0.023)	0.042 (0.040, 0.043)	0.13 (0.12, 0.13)
LaPlata, MO, USA Trial 16, 2008 (Asgrow AG3802)	1	61	222	163	Hay [17]	14 + 5	0.11 (0.098, 0.13)	0.14 (0.12, 0.16)	0.021 (0.020, 0.022)	0.014 (0.011, 0.016)	0.034 (0.030, 0.038)
Fisk, MO, USA Trial 17, 2009 (54-17 RR/STS)	1	61	220	187	Hay [20]	15 + 8	0.66 (0.82, 0.49)	0.81 (1.0, 0.61)	0.033 (0.036, 0.030)	0.075 (0.084, 0.066)	0.12 (0.12, 0.11)
Dudley, MO, USA Trial 18, 2009 (Jake)	1	61	221	187	Hay [20]	14 + 9	0.31 (0.30, 0.32)	0.39 (0.38, 0.40)	0.012 (0.013, 0.011)	0.028 (0.027, 0.029)	0.038 (0.040, 0.035)
Tipton, MO, USA Trial 19, 2009 (48-24 Mor Soy)	1	61	220	272	Hay [46]	21 + 3	0.22 (0.25, 0.19)	0.41 (0.46, 0.35)	< 0.01 (0.008, 0.005)	0.016 (0.018, 0.013)	0.044 (0.049, 0.039)
Gardner, KS, USA Trial 20, 2009 (Fontanelle 407NRS)	1	60	220	138	Hay [29]	14 + 3	1.9 (1.9, 1.9)	2.7 (2.7, 2.7)	0.034 (0.036, 0.031)	0.035 (0.037, 0.032)	0.098 (0.095, 0.10)
Springfield, NE, USA Trial 21, 2009 (NC+2A98)	1	60	213	129	Hay [44]	14 + 3	1.1 (1.2, 0.98)	2.0 (2.1, 1.8)	0.015 (0.016, 0.013)	0.032 (0.034, 0.029)	0.10 (0.11, 0.097)

ND = not detected (< 0.003 mg/kg).

[a] DAT = Days After Treatment. The first number reported is the interval between application and harvest, the second is the field drying interval (between harvest and sampling).

[b] Mean result shown, with individual results for analyses of duplicate samples from the same plot in brackets.

[c] Fresh weight.

[d] Dry weight.

Table 33 Results of residue trials conducted with picoxystrobin (250 g/L SC) in pea vines in the USA and Canada in 2008 (study number 24863)

Location Trial no., Year (variety)	Application				Sample [water %]	DAT[b]	Residues (mg/kg)[c]				
	No.	BBCH stage	g ai/ha[a]	L/ha			Parent		IN-QDY62	IN-QDY63	IN-QDK50
							FW[d]	DW[e]			
Parkdale, OR, USA Trial 02, 2008 (Green Arrow)	2	65 71	229 226	183 183	Vines [87]	-0	0.42 (0.48, 0.36)	3.3 (3.7, 2.8)	ND (ND, ND)	< 0.01 (< 0.01, < 0.01)	0.13 (0.15, 0.11)
						+0	7.2 (7.2 , 7.2)	55 (55, 55)	< 0.01 (ND, < 0.01)	< 0.01 (< 0.01, < 0.01)	0.15 (0.16, 0.14)
						3	3.9	30	ND	0.014	0.26

Location Trial no., Year (variety)	Application				Sample [water %]	DAT[b]	Residues (mg/kg)[c]				
	No.	BBCH stage	g ai/ha[a]	L/ha			Parent		IN- QDY62	IN- QDY63	IN- QDK50
							FW[d]	DW[e]			
							(3.6, 4.1)	(28, 32)	(ND, ND)	(0.011, 0.016)	(0.26, 0.26)
						7	0.61 (0.66 , 0.56)	4.7 (5.1, 4.3)	ND (ND, ND)	0.011 (0.011, < 0.01)	0.18 (0.18, 0.17)
						10	0.28 (0.29 , 0.26)	2.1 (2.2, 2.0)	ND (ND, ND)	< 0.01 (< 0.01, < 0.01)	0.16 (0.17, 0.14)
						14	0.17 (0.18, 0.16)	1.3 (1.4, 1.2)	ND (ND, ND)	ND (ND, ND)	0.13 (0.14, 0.11)
Payette, ID, USA Trial 03, 2008 (Austrian Winter)	2	74 79	221 219	187 187	Vines [73]	0	9.4 (11, 7.7)	35 (41, 29)	0.044 (0.042, 0.046)	0.026 (0.026, 0.025)	0.34 (0.32, 0.35)
Jerome, ID, USA Trial 04, 2008 (Pendleton)	2	79 81	224 224	186 183	Vines [75]	0	4.8 (5.2, 4.3)	19 (21, 17)	< 0.01 (< 0.01, < 0.01)	0.016 (0.015, 0.016)	0.073 (0.073, 0.072)
Madras, OR, USA Trial 06, 2008 (K2)	2	79 81	228 221	191 186	Vines [75]	0	3.4 (4.0 , 2.7)	14 (16, 11)	< 0.01 (< 0.01, < 0.01)	< 0.01 (0.006, 0.004)	0.072 (0.076, 0.067)
Ephrata, WA, 2008 Trial 07, 2008 (Kalamo)	2	81-82 88	225 223	188 186	Vines [16]	0	8.0 (8.4, 7.5)	9.5 (10, 8.9)	0.032 (0.022, 0.042)	0.033 (0.034, 0.032)	0.049 (0.042, 0.055)
Waldheim, SK, Canada Trial 10, 2008 (Bronco)	2	71-74 74-75	219 220	150 150	Vines [84]	-0	0.69 (0.64 , 0.74)	4.3 (4.0, 4.6)	< 0.01 (< 0.01, < 0.01)	< 0.01 (< 0.01, < 0.01)	0.087 (0.082, 0.092)
						+0	3.5 (3.7, 3.3)	22 (23, 21)	< 0.01 (< 0.01, ND)	< 0.01 (< 0.01, < 0.01)	0.088 (0.087, 0.089)
						3	3.0 (3.0, 3.0)	19 (19, 19)	< 0.01 (< 0.01, < 0.01)	0.013 (0.012, 0.013)	0.13 (0.13, 0.13)
						7	2.0 (2.0), 1.9)	13 (13, 12)	0.012 (0.013, < 0.01)	0.016 (0.015, 0.017)	0.14 (0.15, 0.13)
						10	2.0 (1.9, 2.1)	13 (12, 13)	0.011 (< 0.01, 0.011)	0.016 (0.014, 0.017)	0.18 (0.17, 0.19)
						14	1.4 (1.5 , 1.3)	8.8 (9.4, 8.1)	< 0.01 (< 0.01, < 0.01)	0.016 (0.015, 0.016)	0.16 (0.15, 0.17)

ND = not detected (< 0.003 mg/kg).

[a] Individual application rates shown.

[b] DAT = Days After Treatment.

[c] Mean result shown, with individual results for analyses of duplicate samples from the same plot in brackets.

[d] Fresh weight.

[e] Dry weight.

Table 34 Results of residue trials conducted with picoxystrobin (250 g/L SC) in pea hay in the USA and Canada in 2008 (study number 24863)

Location Trial no., Year (variety)	Application				Sample [water %]	DAT[b]	Residues (mg/kg)[c]				
	No.	BBCH stage	g ai/ha[a]	L/ha			Parent FW[d]	Parent DW[e]	IN-QDY62	IN-QDY63	IN-QDK50
Parkdale, OR, USA Trial 02, 2008 (Green Arrow)	2	65 71	229 226	183 183	Hay [64]	-0 + 3	0.90 (0.83 , 0.96)	2.5 (2.3, 2.7)	ND (ND, ND)	0.20 (0.18, 0.21)	0.090 (0.089, 0.091)
						+0 + 3	23 (28 , 18) c0.005	64 (78, 50)	0.017 (0.016, 0.017)	0.19 (0.20, 0.17)	0.24 (0.27, 0.20)
						3 + 4	7.0 (6.2 , 7.8)	20 (17, 22)	0.018 (0.017, 0.019)	0.055 (0.048, 0.062)	0.23 (0.21, 0.24)
						7 + 3	0.77 (0.91 , 0.63)	2.2 (2.5, 1.8)	ND (ND, ND)	0.017 (0.022, 0.012)	0.20 (0.21, 0.19)
						10 + 4	1.5 (1.5 , 1.5)	4.2 (4.2, 4.2)	0.024 (0.034, 0.013)	0.039 (0.034, 0.043)	0.33 (0.37, 0.28)
						14 + 4	0.54 (0.58 , 0.50)	1.5 (1.6, 1.4)	< 0.01 (ND, < 0.01)	0.021 (0.019, 0.022)	0.25 (0.26, 0.24)
Payette, ID, USA Trial 03, 2008 (Austrian Winter)	2	74 79	221 219	187 187	Hay [17]	0 + 4	12 (13, 10) c0.007	14 (16, 12)	0.13 (0.15, 0.11)	0.18 (0.18, 0.17)	0.89 (0.88, 0.89)
Jerome, ID, USA Trial 04, 2008 (Pendleton)	2	79 81	224 224	186 183	Hay [14]	0 + 11	9.2 (11, 7.3)	11 (13, 8.5)	0.011 (0.011, 0.011)	0.18 (0.20, 0.15)	0.20 (0.19, 0.21)
Madras, OR, USA Trial 06, 2008 (K2)	2	79 81	228 221	191 186	Hay [19]	0 + 6	3.4 (3.1 , 3.6) c0.007	4.1 (3.8, 4.4)	0.021 (0.018, 0.024)	0.086 (0.083, 0.088)	0.17 (0.16, 0.17)
Ephrata, WA, 2008 Trial 07, 2008 (Kalamo)	2	81-82 88	225 223	188 186	Hay [11]	0 + 2	6.3 (6.5 , 6.1)	7.1 (7.3, 6.9)	0.034 (0.026, 0.041)	0.060 (0.062, 0.058)	0.062 (0.066, 0.057)
Waldheim, SK, Canada Trial 10, 2008 (Bronco)	2	71-74 74-75	219 220	150 150	Hay [46]	-0 + 7	1.9 (2.0 , 1.8)	3.5 (3.7, 3.3)	0.015 (< 0.01, 0.019)	0.017 (0.017, 0.017)	0.10 (0.098, 0.11)
						+0 + 7	9.3 (9.6, 9.0)	18 (18, 17)	0.019 (0.018, 0.019)	0.038 (0.041, 0.035)	0.18 (0.19, 0.16)
						3 + 6	7.7 (7.9 , 7.5)	15 (15, 14)	< 0.01 (< 0.01, < 0.01)	0.023 (0.024, 0.021)	0.12 (0.12, 0.11)
						7 + 6	5.0 (5.6), 4.3)	9.0 (10, 8.0)	0.035 (0.028, 0.041)	0.028, 0.020	0.16 (0.16, 0.15)
						10 + 4	4.2 (4.3 , 4.1)	7.8 (8.0, 7.6)	0.015 (0.011, 0.018)	0.027 (0.025, 0.028)	0.16 (0.16, 0.15)
						14 + 6	3.6 (3.5 , 3.7) c0.003	6.7 (6.5, 6.9)	0.028 (0.017, 0.038)	0.048 (0.042, 0.054)	0.18 (0.17, 0.18)

ND = not detected (< 0.003 mg/kg).

[a] Individual application rates shown.

[b] DAT = Days After Treatment. The first number reported is the interval between application and harvest, the second is the field drying interval (between harvest and sampling).

[c] Mean result shown, with individual results for analyses of duplicate samples from the same plot in brackets.

[d] Fresh weight.

[e] Dry weight.

Table 35 Results of residue trials conducted with picoxystrobin (250 g/L SC) in wheat forage in the USA and Canada in 2008 and 2009 (study number 24860)

Location Trial no., Year (Variety)	Application				Sample [water %]	DAT[b]	Residues (mg/kg)[c]				
	No.	Growth stage	g ai/ha[a]	L/ha			Parent FW[d]	Parent DW[e]	IN-QDK50	IN-QDY62	IN-QDY63
Seven Springs, NC, USA Trial 01, 2008 (Coker 9478)	1	39	217	135	Forage [75.35]	7	0.93 (0.92 , 0.93)	3.8 (3.7, 3.8)	0.010 (0.010, < 0.01)	ND (ND, ND)	< 0.01 (< 0.01, < 0.01)
Fisk, MO, USA Trial 02, 2008 (Coker 9663)	1	39	222	187	Forage [79.02]	7	2.3 (2.4, 2.2)	11 (11, 10)	0.035 (0.037, 0.032)	ND (ND, ND)	0.016 (0.018, 0.013)
Elm Creek, MB, Canada Trial 03, 2008 (AC Barrie)	1	30-31	231	200	Forage [83.05]	7	0.32 (0.33, 0.31)	1.9 (1.9, 1.8)	0.035 (0.033, 0.037)	ND (ND, ND)	< 0.01 (ND, < 0.01)
Richland, IA, USA Trial 04, 2008 (Wilcross 07GV6S-753)	1	30-31	223	153	Forage [84.14]	7	1.0 (0.91, 1.1)	6.3 (5.7, 6.9)	0.031 (0.028, 0.033)	ND (ND, ND)	< 0.01 (< 0.01, < 0.01)
Lenexa, KS, USA Trial 05, 2008 (Overly)	1	30-31	224	144	Forage [80.88]	7	0.68 (0.68 , 0.68)	3.6 (3.6, 3.6)	0.011 (0.011, < 0.01)	ND (ND, ND)	0.011 (0.011, < 0.01)
Hinton, OK, USA Trial 06, 2008 (Jagger)	1	39	222	125	Forage [66.72]	7	1.3 (1.3, 1.3)	3.9 (3.9, 3.9)	0.011 (0.011, 0.010)	ND (ND, ND)	< 0.01 (< 0.01, < 0.01)
Carrington, ND, USA Trial 07, 2008 (Kelby)	1	30-31	226	140	Forage [85.87]	-0	ND (ND, ND)		ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
						+0	16 (16, 15)	110 (110, 110)	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)
						3	2.2 (2.2, 2.1)	16 (16, 15)	0.025 (0.024, 0.026)	ND (ND, ND)	0.013 (0.012, 0.013)
						7	0.65 (0.67, 0.62)	4.6 (4.8, 4.4)	0.010 (< 0.01, 0.010)	ND (ND, ND)	ND (ND, ND)
						10	0.29 (0.24 0.33)	2.1 (1.7, 2.4)	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)
Taber, AB, Canada Trial 08, 2008 (AC Barrie)	1	30	231	154	Forage [77.31]	9	0.36 (0.41, 0.30)	1.6 (1.8, 1.3)	0.010 (0.010, 0.010)	ND (ND, ND)	ND (ND, ND)
New Rockford, ND, USA Trial 09, 2008 (Kelby)	1	30-31	221	141	Forage [84.73]	7	0.17 (0.17, 0.16)	1.1 (1.1, 1.1)	< 0.01 (< 0.01, < 0.01)	(ND, ND)	ND (ND, ND)
Eldridge, ND, USA Trial 10, 2008 (Glynn)	1	30-31	224	141	Forage [85.63]	7	4.5 (4.4, 4.5)	31 (31, 31)	0.030 (0.028, 0.032)	ND (ND, ND)	< 0.01 (< 0.01, < 0.01)
Dundurn, SK, Canada Trial 11, 2008 (Lillian)	1	31	225	200	Forage [77.96]	7	0.38 (0.39, 0.36)	1.7 (1.8, 1.6)	0.017 (0.018, 0.016)	ND (ND, ND)	ND (ND, ND)
Hanley, SK, Canada Trial 12, 2008 (Lillian)	1	31	220	200	Forage [81.64]	7	0.40 0.40, 0.39)	2.2 (2.2, 2.1)	0.013 (0.012, 0.014)	ND (ND, ND)	< 0.01 (< 0.01, ND)

Location Trial no., Year (Variety)	Application				Sample [water %]	DAT[b]	Residues (mg/kg)[c]				
	No.	Growth stage	g ai/ha[a]	L/ha			Parent		IN-QDK50	IN-QDY62	IN-QDY63
							FW[d]	DW[e]			
Cordell, OK, USA Trial 13, 2008 (Jagger)	1	51	217	72	Forage [68.61]	6	3.0 (3.4, 2.6)	9.7 (11, 8.3)	0.021 (0.024, 0.018)	ND (ND, ND)	0.011 (0.011, < 0.01)
Levelland, TX, USA Trial 14, 2009 (TAM 105)	1	6-8 in.	230	140	Forage [69.57]	8	3.5 (3.6, 3.3)	12 (12, 11)	0.029 (0.028, 0.030)	ND (ND, ND)	0.038 (0.037, 0.039)
Olton, TX, USA Trial 15, 2008 (Dumas)	1	37	224	157	Forage [72.99]	7	2.3 (2.1, 2.4)	8.9 (7.8, 10)	0.018 (0.016, 0.019)	ND (ND, ND)	0.046 (0.045, 0.046)
Larned, KS, USA Trial 16, 2008 (Jagger)	1	30-31	224	168	Forage [79.58]	7	2.3 (2.3, 2.2)	11 (11, 11)	0.017 (0.017, 0.017)	ND (ND, ND)	0.011 (0.011, 0.011)
Ephrata, WA, USA Trial 17, 2008 (Dark northern spring)	1	30-31	225	187	Forage [79.10]	7	0.48 (0.49 , 0.46)	2.3 (2.3, 2.2)	0.010 (0.010, 0.010)	ND (ND, ND)	0.017 (0.017, 0.017)
Minto, MB, Canada Trial 18, 2008 (Superb)	1	31-32	224	158	Forage [85.25]	-0	ND (ND, ND)		ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
						+0	17 (17, 17)	120 (120, 120)	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)
						3	2.6 (2.2, 3.0)	18 (15, 20)	0.029 (0.028, 0.029)	ND (ND, ND)	< 0.01 (< 0.01, < 0.01)
						7	0.67 (0.61, 0.73)	4.5 (4.1, 4.9)	0.015 (0.014, 0.015)	ND (ND, ND)	ND (ND, ND)
Boissevain, MB, Canada Trial 19, 2008 (Strongfield (durum))	1	31-32	229	164	Forage [81.20]	7	1.4 (1.4, 1.4)	7.4 (7.4, 7.4)	0.016 (0.014, 0.017)	ND (ND, ND)	0.011 (< 0.01, 0.011)
Rosthern, SK, Canada Trial 20, 2008 (AC Lillian)	1	31	227	203	Forage [85.66]	7	0.51 (0.50, 0.52)	3.6 (3.5, 3.6)	0.012 (0.010, 0.013)	ND (ND, ND)	ND (ND, ND)
Hepburn, SK, Canada Trial 21, 2008 (AC Lillian)	1	31	223	199	Forage [82.45]	7	0.65 (0.64, 0.66)	3.7 (3.6, 3.8)	0.013 (0.013, 0.012)	ND (ND, ND)	ND (ND, ND)
Fort Saskatchewan, AB, Canada Trial 22, 2008 (AC Foremost)	1	31	222	180	Forage [81.53]	7	1.3 (1.3 , 1.3)	7.0 (7.0, 7.0)	0.013 (0.013, 0.012)	ND (ND, ND)	0.012 (0.012, 0.012)
Trial 23, 2008 (AC Foremost)	1	31	222	180	Forage [79.94]	8	0.70 (0.70, 0.70)	3.5 (3.5, 3.5)	0.012 (0.012, 0.011)	ND (ND, ND)	0.010 (0.010, 0.010)
Alvena, SK, Canada Trial 24, 2008 (Lillian)	1	31	223	200	Forage [77.11]	7	1.5 (1.3, 1.6)	6.4 (5.7, 7.0)	0.023 (0.023, 0.023)	ND (ND, ND)	< 0.01 (< 0.01, < 0.01)
Waldheim, SK, Canada Trial 25, 2008 (Lillian)	1	31	223	200	Forage [78.22]	7	1.0 (1.1, 0.99) c0.005	4.8 (5.1, 4.5)	0.020 (0.021, 0.018)	ND (ND, ND)	< 0.01 (< 0.01, < 0.01)
Northwood, ND, USA Trial 46, 2008 (Kelby)	1	30-31	214	184	Forage [81.31]	9	0.23 (1.2), 0.26 (1.4)	1.3 (1.2, 1.4)	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)

ND = not detected (< 0.003 mg/kg).

[a] Individual application rates shown.

[b] DAT = Days After Treatment.

[c] Mean result shown, with individual results for analyses of duplicate samples from the same plot in brackets.

[d] Fresh weight.

[e] Dry weight.

Table 36 Results of residue trials conducted with picoxystrobin (250 g/L SC) in wheat hay in the USA and Canada in 2008 and 2009 (study number 24860)

Location Trial no., Year (Variety)	Application				Sample [water %]	DAT[b]	Residues (mg/kg)[c]				
	No.	Growth stage	g ai/ha[a]	L/ha			Parent		IN-QDK50	IN-QDY62	IN-QDY63
							FW[d]	DW[e]			
Seven Springs, NC, USA Trial 01, 2008 (Coker 9478)	3	39 57-58 69-71	217 231 220	135 208 195	Hay [38.77]	14 + 2	0.37 (0.40, 0.34)	0.61 (0.65, 0.56)	0.054 (0.053, 0.054)	0.033 (0.035, 0.030)	0.012 (0.012, 0.011)
Fisk, MO, USA Trial 02, 2008 (Coker 9663)	3	39 45-47 69	222 223 222	187 187 187	Hay [13.65]	14 + 8	0.70 (0.69, 0.70)	0.81 (0.80, 0.81)	0.081 (0.082, 0.080)	0.016 (0.015, 0.018)	0.013 (0.013, 0.013)
Elm Creek, MB, Canada Trial 03, 2008 (AC Barrie)	3	30-31 32 55	231 230 224	200 200 200	Hay [41.91]	14 + 2	0.52 (0.55, 0.49)	0.90 (0.95, 0.84)	0.075 (0.083, 0.067)	0.078 (0.090, 0.065)	0.023 (0.024, 0.021) c0.008
Richland, IA, USA Trial 04, 2008 (Wilcross 07GV6S-753)	3	30-31 59 65-69	223 213 224	153 178 184	Hay [22.60]	14 + 6	0.39 (0.42, 0.35)	0.51 (0.55, 0.46)	0.082 (0.075, 0.088)	0.13 (0.15, 0.11)	0.085 (0.091, 0.078)
Lenexa, KS, USA Trial 05, 2008 (Overly)	3	30-31 32-37 59	224 225 224	144 145 144	Hay [32.13]	14 + 4	0.28 (0.28, 0.28)	0.41 (0.41, 0.41)	0.083 (0.079, 0.086) c0.079	0.026 (0.023, 0.028)	0.011 (0.011, 0.011)
Hinton, OK, USA Trial 06, 2008 (Jagger)	3	39 61 75	222 220 231	125 133 139	Hay [31.89]	15 + 1	0.46 (0.35 , 0.57)	0.68 (0.51, 0.84)	0.040 (0.041, 0.038)	< 0.01 (< 0.01, < 0.01)	0.011 (< 0.01, 0.012)
Carrington, ND, USA Trial 07, 2008 (Kelby)	3	30-31 45 71	226 228 224	140 140 139	Hay [41.45]	-0 + 7	1.0 (1.1 , 0.99)	1.8 (1.9, 1.7)	0.027 (0.027, 0.026)	< 0.01 (< 0.01, ND)	0.022 (0.022, 0.022)
						+0	12 (12, 11)	20 (21, 19)	0.039 (0.041, 0.037)	< 0.01 (< 0.01, ND)	0.039 (0.038, 0.039) c0.004
						3 + 8	6.6 (6.0, 7.2)	11 (10, 12)	0.036 (0.038, 0.034)	< 0.01 (< 0.01, < 0.01)	0.019 (0.020, 0.018)
						7 + 4	5.4 (6.4, 4.3)	9.2 (11, 7.4)	0.050 (0.052, 0.048)	0.012 (0.012, 0.012)	0.028 (0.030, 0.025)
						14 + 4	0.98 (0.86, 1.1)	1.7 (1.5, 1.9)	0.11 (0.11, 0.10)	0.025 (0.028, 0.021)	0.016 (0.016, 0.016)
Taber, AB, Canada Trial 08, 2008 (AC Barrie)	3	30 61 71-73	231 230 216	154 154 146	Hay [43.94]	14 + 1	2.2 (2.3, 2.1)	4.0 (4.1, 3.8)	0.015 (0.057, 0.057)	0.015 (0.015, 0.015)	0.016 (0.013, 0.018)
New Rockford, ND, USA Trial 09, 2008 (Kelby)	3 (7, 14)	30-31 32 65	221 216 217	141 140 140	Hay [31.23]	14 + 6	0.76 (0.76, 0.75)	1.1 (1.1, 1.1)	0.046 (0.047, 0.044)	0.024 (0.024, 0.023)	0.022 (0.022, 0.021)
Eldridge, ND, USA Trial 10, 2008 (Glynn)	3	30-31 37 59	224 224 224	141 182 172	Hay [27.99]	16 + 5	0.14 (0.14, 0.14)	0.19 (0.19, 0.19)	0.23 (0.23, 0.23)	0.046 (0.043, 0.049)	0.013 (0.012, 0.013)
Dundurn, SK, Canada Trial 11, 2008 (Lillian)	3	31 52-59 69-73	225 222 222	200 200 200	Hay [12.43]	14 + 13	2.1 (2.2, 1.9)	2.4 (2.5, 2.2)	0.082 (0.077, 0.087)	0.013 (0.012, 0.013)	0.049 (0.045, 0.052)

Location Trial no., Year (Variety)	Application				Sample [water %]	DAT[b]	Residues (mg/kg)[c]				
	No.	Growth stage	g ai/ha[a]	L/ha			Parent		IN- QDK50	IN- QDY62	IN- QDY63
							FW[d]	DW[e]			
Hanley, SK, Canada Trial 12, 2008 (Lillian)	3	31 51-55 65-69	220 223 224 667	200 200 200	Hay [14.13]	14 + 13	1.6 (1.5, 1.6)	1.8 (1.7, 1.9)	0.13 (0.11, 0.14)	0.061 (0.042, 0.079)	0.062 (0.050, 0.074)
Cordell, OK, USA Trial 13, 2008 (Jagger)	3	51 65 83	217 223 222	72 70 82	Hay [9.29]	17 + 0	2.5 (2.8, 2.2)	2.8 (3.1, 2.4)	0.13 (0.13, 0.12)	0.052 (0.055, 0.049)	0.085 (0.092, 0.078)
Levelland, TX, USA Trial 14, 2009 (TAM 105)	3	6-8 in. 10 in. 51-59	230 228 226	140 140 140	Hay [18.21]	16 + 6	2.8 (3.1, 2.4)	3.4 (3.8, 2.9)	0.20 (0.15, 0.25)	0.097 (0.043, 0.15)	0.080 (0.087, 0.073) c0.014
Olton, TX, USA Trial 15, 2008 (Dumas)	3	37 43-51 65-69	224 223 230	157 157 157	Hay [28.39]	14 + 3	0.76 (0.81, 0.70)	1.0 (1.1, 0.98)	0.073 (0.074, 0.071)	ND (ND, ND)	0.061 (0.063, 0.058) c0.012
Larned, KS, USA Trial 16, 2008 (Jagger)	3	30-31 37 61	224 213 224 661	168 168 168	Hay [37.82]	14 + 1	0.30 (0.29 , 0.30)	0.48 (0.47, 0.48)	0.051 (0.051, 0.050)	0.029 (0.025, 0.032)	0.011 (0.010, 0.012) c0.005
Ephrata, WA, USA Trial 17, 2008 (Dark northern spring)	3	30-31 47-49 57-58	225 226 224	187 189 187	Hay [14.13]	14 + 12	0.21 (0.21 , 0.21)	0.24 (0.24, 0.24)	0.063 (0.063, 0.063)	ND (ND, ND)	0.015 (0.014, 0.015) c0.005
Minto, MB, Canada Trial 18, 2008 (Superb)	3	31-32 37-41 57-59	224 226 224	158 162 160	Hay [21.85]	-0 + 10	3.8 (3.6, 3.9)	4.8 (4.6, 5.0)	0.047 (0.042, 0.051)	0.033 (0.033, 0.032)	0.042 (0.043, 0.040)
						+0 + 10	27 (27, 26) c0.003	34 (35, 33)	0.075 (0.077, 0.073)	0.14 (0.13, 0.15)	0.065 (0.068, 0.062) c0.004
						3 + 7	15 (15, 14)	19 (19, 18)	0.073 (0.075, 0.071)	0.090 (0.094, 0.086)	0.036 (0.039, 0.033)
						7 + 9	3.5 (3.3, 3.7) c0.003	4.5 (4.2, 4.7)	0.044 (0.045, 0.043)	0.029 (0.032, 0.026)	0.022 (0.027, 0.017) c0.005
						14 + 9	2.0 (1.9, 2.0)	2.5 (2.4, 2.6)	0.067 (0.065, 0.068)	0.023 (0.026, 0.020)	0.021 (0.021, 0.020)
Boissevain, MB, Canada Trial 19, 2008 (Strongfield (durum))	3	31-32 34-37 41-55	229 228 224	164 163 159	Hay [31.16]	14 + 7	0.96 (0.91, 1.0)	1.4 (1.3, 1.5)	0.049 (0.045, 0.052)	0.019 (0.015, 0.022)	ND (ND, ND)
Rosthern, SK, Canada Trial 20, 2008 (AC Lillian)	3	31 37-39 59-69	227 224 226	203 199 201	Hay [19.30]	14 + 12	0.86 (0.81, 0.91) c0.004	1.1 (1.0, 1.1)	0.16 (0.12, 0.19)	0.092 (0.10, 0.083)	0.019 (0.021, 0.016)
Hepburn, SK, Canada Trial 21, 2008 (AC Lillian)	3	31 37-41 59-69	223 224 229	199 199 203	Hay [19.31]	14 + 11	0.58 (0.67, 0.49)	0.72 (0.83, 0.61)	0.078 (0.083, 0.073)	< 0.01 (< 0.01, < 0.01)	< 0.01 (< 0.01, < 0.01)
Fort Saskatchewan, AB, Canada Trial 22, 2008 (AC Foremost)	3	31 45-54 69	222 224 224	180 180 180	Hay [17.22]	14 + 20	0.64 (0.65, 0.63)	0.78 (0.79, 0.76)	0.12 (0.11, 0.12)	0.19 (0.19, 0.19)	0.033 (0.033, 0.032)
Trial 23, 2008 (AC Foremost)	3	31 45-52 69	222 224 224 670	180 180 180	Hay [17.77]	14 + 20	0.43 (0.50, 0.36)	0.53 (0.61, 0.44)	0.048 (0.050, 0.045)	0.13 (0.14, 0.12)	0.027 (0.028, 0.026)

Location Trial no., Year (Variety)	Application				Sample [water %]	DAT[b]	Residues (mg/kg)[c]				
	No.	Growth stage	g ai/ha[a]	L/ha			Parent FW[d]	Parent DW[e]	IN-QDK50	IN-QDY62	IN-QDY63
Alvena, SK, Canada Trial 24, 2008 (Lillian)	3	31 56-59 69-71	223 223 225	200 200 200	Hay [11.32]	14 + 13	1.3 (1.4, 1.2)	1.5 (1.6, 1.4)	0.091 (0.094, 0.087)	0.16 (0.14, 0.17)	0.036 (0.036, 0.036)
Waldheim, SK, Canada Trial 25, 2008 (Lillian)	3	31 55-59 69-71	223 222 224	200 200 200	Hay [13.96]	14 + 13	3.1 (2.7, 3.4)	3.6 (3.1, 4.0)	0.079 (0.064, 0.093)	0.058 (0.045, 0.070)	0.042 (0.032, 0.051)
Northwood, ND, USA Trial 46, 2008 (Kelby)	3	30-31 49 71	214 219 217	184 188 187	Hay [23.68]	14 + 7	0.14 (0.15, 0.12)	0.18 (0.20, 0.16)	0.058 (0.064, 0.051)	0.14 (0.14, 0.13)	0.022 (0.022, 0.022)

ND = not detected (< 0.003 mg/kg).

[a] Individual application rates shown.

[b] DAT = Days After Treatment. The first number reported is the interval between application and harvest, the second is the field drying interval (between harvest and sampling).

[c] Mean result shown, with individual results for analyses of duplicate samples from the same plot in brackets.

[d] Fresh weight.

[e] Dry weight.

Table 37 Results of residue trials conducted with picoxystrobin (250 g/L SC) in wheat straw in the USA and Canada in 2008 and 2009 (study number 24860)

Location Trial no., Year (Variety)	Application				Sample [water %]	DAT[b]	Residues (mg/kg)[c]				
	No.	Growth stage	g ai/ha[a]	L/ha			Parent FW[d]	Parent DW[e]	IN-QDK50	IN-QDY62	IN-QDY63
Seven Springs, NC, USA Trial 01, 2008 (Coker 9478)	3	39 57-58 69-71	217 231 220	135 208 195	Straw [11.84]	47	0.087 (0.093, 0.081)	0.10 (0.11, 0.092)	0.033 (0.035, 0.031)	0.093 (0.090, 0.095)	0.031 (0.033, 0.029)
Fisk, MO, USA Trial 02, 2008 (Coker 9663)	3	39 45-47 69	222 223 222	187 187 187	Straw [12.73]	35	0.25 (0.26, 0.24)	0.29 (0.30, 0.28)	0.18 (0.17, 0.18)	0.16 (0.17, 0.14)	0.040 (0.041, 0.038)
Elm Creek, MB, Canada Trial 03, 2008 (AC Barrie)	3	30-31 32 55	231 230 224	200 200 200	Straw [38.10]	47	0.021 (0.026, 0.015)	0.033 (0.042, 0.024)	0.055 (0.062, 0.047)	0.032 (0.039, 0.024)	< 0.01 (< 0.01, < 0.01)
Richland, IA, USA Trial 04, 2008 (Wilcross 07GV6S- 753)	3	30-31 59 65-69	223 213 224	153 178 184	Straw [20.42]	45	0.018 (0.015, 0.020)	0.022 (0.019, 0.025)	0.023 (0.034, 0.012)	0.066 (0.066, 0.066)	0.012 (0.011, 0.012)
Lenexa, KS, USA Trial 05, 2008 (Overly)	3	30-31 32-37 59	224 225 224	144 145 144	Straw [21.40]	45	0.013 (0.013, 0.013)	0.016 (0.016, 0.016)	0.056 (0.056, 0.055)	0.062 (0.063, 0.061)	0.026 (0.026, 0.025)
Hinton, OK, USA Trial 06, 2008 (Jagger)	3	39 61 75	222 220 231	125 133 139	Straw [11.17]	45	0.29 (0.27 , 0.30)	0.32 (0.30, 0.34)	0.032 (0.031, 0.033)	0.12 (0.13, 0.11)	0.028 (0.027, 0.029)
Carrington, ND, USA Trial 07, 2008 (Kelby)	3	30-31 45 71	226 228 224	140 140 139	Straw [13.40]	45	1.5 (1.6, 1.4)	1.7 (1.8, 1.6)	0.052 (0.052, 0.052)	0.21 (0.20, 0.22)	0.049 (0.050, 0.047)
Taber, AB, Canada Trial 08, 2008 (AC Barrie)	3	30 61 71-73	231 230 216	154 154 146	Straw [25.60]	45	0.46 (0.57, 0.34)	0.62 (0.77, 0.46)	0.039 (0.041, 0.037)	0.042 (0.060, 0.024)	0.014 (0.019, 0.009)
New Rockford, ND, USA Trial 09, 2008 (Kelby)	3 (7, 14)	30-31 32 65	221 216 217	141 140 140	Straw [19.96]	46	0.12 (0.12 , 0.12)	0.15 (0.15, 0.15)	0.012 (0.013, 0.011)	0.10 (0.11, 0.099)	0.020 (0.020, 0.019)
Eldridge, ND, USA Trial 10, 2008 (Glynn)	3	30-31 37 59	224 224 224	141 182 172	Straw [26.23]	45	0.017 0.012, 0.021)	0.022 (0.016, 0.028)	0.15 (0.15, 0.15)	0.031 (0.027, 0.035)	0.013 (0.012, 0.013)

Location Trial no., Year (Variety)	Application				Sample [water %]	DAT[b]	Residues (mg/kg)[c]				
	No.	Growth stage	g ai/ha[a]	L/ha			Parent		IN-QDK50	IN-QDY62	IN-QDY63
							FW[d]	DW[e]			
Dundurn, SK, Canada Trial 11, 2008 (Lillian)	3	31 52-59 69-73	225 222 222	200 200 200	Straw [13.19]	45	0.42 (0.47, 0.37)	0.49 (0.54, 0.43)	0.083 (0.078, 0.087)	0.032 (0.034, 0.029)	0.023 (0.026, 0.019)
Hanley, SK, Canada Trial 12, 2008 (Lillian)	3	31 51-55 65-69	220 223 224	200 200 200	Straw [15.58]	45	0.42 (0.31, 0.52)	0.50 (0.37, 0.62)	0.071 (0.084, 0.058)	0.049 (0.038, 0.060)	0.025 (0.020, 0.029)
Cordell, OK, USA Trial 13, 2008 (Jagger)	3	51 65 83	217 223 222	72 70 82	Straw [9.75]	40	1.1 (1.0, 1.1)	1.2 (1.1, 1.2)	0.091 (0.083, 0.099)	0.12 (0.12, 0.11)	0.069 (0.065, 0.072)
Levelland, TX, USA Trial 14, 2009 (TAM 105)	3	6-8 in. 10 in. 51-59	230 228 226	140 140 140	Straw [9.80]	45	1.0 (0.95 , 1.1)	1.2 (1.1, 1.2)	0.13 (0.15, 0.11)	0.082 (0.080, 0.083)	0.069 (0.065, 0.072) c0.003
Olton, TX, USA Trial 15, 2008 (Dumas)	3	37 43-51 65-69	224 223 230	157 157 157	Straw [25.24]	45	0.21 (0.26 , 0.15)	0.28 (0.35, 0.20)	0.18 (0.19, 0.17)	0.048 (0.056, 0.039)	0.032 (0.037, 0.027)
Larned, KS, USA Trial 16, 2008 (Jagger)	3	30-31 37 61	224 213 224	168 168 168	Straw [9.28]	44	0.072 (0.070, 0.073)	0.079 (0.077, 0.080)	0.15 (0.15, 0.15)	0.12 (0.12, 0.11)	0.034 (0.034, 0.033)
Ephrata, WA, USA Trial 17, 2008 (Dark northern spring)	3	30-31 47-49 57-58	225 226 224	187 189 187	Straw [34.50]	47	0.019 (0.020, 0.018)	0.029 (0.031, 0.027)	0.64 (0.59, 0.69)	0.010 (0.009, 0.011)	< 0.01 (< 0.01, ND)
Minto, MB, Canada Trial 18, 2008 (Superb)	3	31-32 37-41 57-59	224 226 224	158 162 160	Straw [20.71]	51	< 0.01 (ND, < 0.01)	< 0.01 (ND, < 0.01)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Boissevain, MB, Canada Trial 19, 2008 (Strongfield (durum))	3	31-32 34-37 41-55	229 228 224	164 163 159	Straw [32.07]	58	0.012 (0.011, 0.012)	0.017 (0.016, 0.018)	0.037 (0.034, 0.039)	< 0.01 (0.006, 0.008)	ND (ND, ND)
Rosthern, SK, Canada Trial 20, 2008 (AC Lillian)	3	31 37-39 59-69	227 224 226	203 199 201	Straw [28.22]	56	0.080 (0.077, 0.082 c0.003	0.11 (0.11, 0.11)	0.039 (0.040, 0.037)	0.025 (0.025, 0.025)	0.016 (0.016, 0.016) c0.007
Hepburn, SK, Canada Trial 21, 2008 (AC Lillian)	3	31 37-41 59-69	223 224 229	199 199 203	Straw [32.27]	54	0.068 (0.062, 0.073)	0.10 (0.092, 0.11)	0.044 (0.046, 0.041)	0.010 (< 0.01, 0.010)	< 0.01 (< 0.01, < 0.01)
Fort Saskatchewan, AB, Canada Trial 22, 2008 (AC Foremost)	3	31 45-54 69	222 224 224	180 180 180	Straw [14.79]	45	0.23 (0.26 , 0.19)	0.25 (0.30. 20)	0.11 (0.11, 0.10)	0.12 (0.15, 0.092)	0.031 (0.039, 0.023)
Trial 23, 2008 (AC Foremost)	3	31 45-52 69	222 224 224 670	180 180 180	Straw [15.49]	45	0.30 (0.34 , 0.26)	0.36 (0.40, 0.31)	0.075 (0.085, 0.065)	0.089 (0.10, 0.078)	0.038 (0.046, 0.029)
Alvena, SK, Canada Trial 24, 2008 (Lillian)	3	31 56-59 69-71	223 223 225	200 200 200	Straw [28.42]	45	0.37 (0.39, 0.35)	0.52 (0.54, 0.49)	0.079 (0.076, 0.081)	0.048 (0.054, 0.042)	0.020 (0.020, 0.019)
Waldheim, SK, Canada Trial 25, 2008 (Lillian)	3	31 55-59 69-71	223 222 224	200 200 200	Straw [20.81]	45	0.67 (0.85, 0.48)	0.86 (1.1, 0.61)	0.052 (0.049, 0.055)	0.043 (0.053, 0.032)	0.023 (0.028, 0.018)
Northwood, ND, USA Trial 46, 2008 (Kelby)	3	30-31 49 71	214 219 217	184 188 187	Straw [14.11]	45	0.037 (0.037, 0.037)	0.043 (0.043, 0.043)	0.043 (0.045, 0.041)	0.074 (0.075, 0.072)	0.023 (0.023, 0.023)

ND = not detected (< 0.003 mg/kg).

[a] Individual application rates shown.

[b] DAT = Days After Treatment.

[c] Mean result shown, with individual results for analyses of duplicate samples from the same plot in brackets.

[d] Fresh weight.

[e] Dry weight.

Table 38 Results of residue trials conducted with picoxystrobin (250 g/L SC) in barley hay in the USA and Canada in 2008 and 2009 (study number 24860)

Location Trial no., Year (Variety)	Application				Sample [water %]	DAT[b]	Residues (mg/kg)[c]				
	No.	Growth stage	g ai/ha[a]	L/ha			Parent		IN-QDK50	IN-QDY62	IN-QDY63
							FW[d]	DW[e]			
Germansville, PA, USA Trial 26, 2008 (NP)	3	30-31 39 51	233 230 231	291 288 289	Hay [22.40]	14 + 3	0.61 (0.61, 0.60)	<u>0.78</u> (0.79, 0.77)	0.23 (0.21, 0.24)	0.28 (0.26, 0.29)	0.077 (0.073, 0.080)
Richland, IA, USA Trial 27, 2008 (Robust)	3	30-31 32 59	222 228 219	139 170 159	Hay [36.56]	14 + 2	0.21 (0.22, 0.20)	<u>0.34</u> (0.35, 0.32)	0.13 (0.14, 0.12)	0.031 (0.031, 0.030)	0.011 (0.011, 0.011)
Delavan, WI, USA Trial 28, 2008 (Kewaunee)	3	30-31 32 55	225 223 224	164 154 161	Hay [37.82]	14 + 4	0.20 (0.23 , 0.16)	<u>0.32</u> (0.37, 0.26)	0.13 (0.16, 0.098)	0.011 (0.014, 0.008)	< 0.01 (0.006, 0.005)
Frederick, SD, USA Trial 29, 2008 (Robust)	3	30-31 37 65-71	224 224 224	94 94 94	Hay [32.59]	14 + 3	1.2 (1.2, 1.1)	<u>1.7</u> (1.8, 1.6)	0.19 (0.19, 0.18)	0.073 (0.072, 0.073)	0.045 (0.047, 0.042)
Carrington, ND, USA Trial 30, 2008 (Tradition)	3	30-31 32 65	221 216 217	139 141 140	Hay [33.60]	14 + 3	1.6 (1.6, 1.5)	<u>2.4</u> (2.4, 2.3)	0.062 (0.065, 0.058)	0.010 (0.012, 0.007)	0.016 (0.018, 0.013)
Eldridge, ND, USA Trial 31, 2008 (Tradition)	3	30-31 37 59	222 224 221	140 140 140	Hay [18.68]	16 + 5	0.16 (0.16, 0.16)	<u>0.20</u> (0.20, 0.20)	0.15 (0.16, 0.14)	0.017 (0.019, 0.014)	< 0.01 (0.005, 0.004)
Velva, ND, USA Trial 32, 2008 (Legacy)	3	30-31 32 47-49	223 224 229	138 139 141	Hay [37.47]	14 + 2	1.0 (1.1, 0.92)	<u>1.7</u> (1.8, 1.5)	0.082 (0.079, 0.084)	< 0.01 (0.004, 0.004)	0.012 (0.013, 0.011)
Jerome, ID, USA Trial 33, 2008 (Harrington)	3	32 39 71	224 224 230	143 164 161	Hay [13.03]	14 + 9	0.33 (0.31, 0.35)	<u>0.38</u> (0.35, 0.40)	0.074 (0.070, 0.077)	ND (ND, ND)	0.017 (0.016, 0.018)
Live Oak, CA, USA Trial 34, 2008 (UC-937)	3	37-39 49 59	225 224 225	188 187 186	Hay [33.47]	14 + 5	3.7 (3.0, 4.3)	<u>5.5</u> (4.5, 6.5)	0.12 (0.10, 0.13)	< 0.01 (< 0.01, < 0.01)	0.071 (0.060, 0.082)
Madras, OR, USA Trial 35, 2008 (Bellford)	3	32 53 83-85	234 233 222	199 192 190	Hay [14.78]	14 + 6	0.75 (0.61, 0.88)	<u>0.86</u> (0.72, 1.0)	0.044 (0.044, 0.044)	0.034 (0.033, 0.035)	0.070 (0.062, 0.078)
Minto, MB, Canada Trial 36, 2008 (Conion)	3	31-32 33-37 49-58	220 229 231	157 163 206	Hay [27.72]	11 + 7	0.90 (0.91, 0.88)	<u>1.3</u> (1.3, 1.2)	0.12 (0.11, 0.12)	0.013 (0.011, 0.014)	0.013 (0.013, 0.013)
Boissevain, MB, Canada Trial 37, 2008 (Copelan)	3	31-33 33-37 43-54	224 222 225	160 159 201	Hay [8.19]	14 + 10	2.1 (2.0, 2.2) c0.008	<u>2.3</u> (2.2, 2.4)	0.20 (0.21, 0.18)	0.10 (0.10, 0.10)	0.065 (0.064, 0.066)
Rosthern, SK, Canada Trial 38, 2008 (AC Metcalfe)	3	31 37 59	230 221 225	205 197 201	Hay [15.31]	14 + 11	0.56 (0.58, 0.53)	<u>0.66</u> (0.68, 0.63)	0.15 (0.15, 0.14)	0.025 (0.026, 0.023)	0.012 (0.012, 0.012)
Hepburn, SK, Canada Trial 39, 2008 (AC Metcalfe)	3	31 39 59	226 220 222	200 196 198	Hay [16.33]	14 + 18	0.33 (0.31, 0.34)	<u>0.39</u> (0.37, 0.41)	0.079 (0.075, 0.082)	< 0.01 (< 0.01, < 0.01)	0.012 (0.011, 0.012)
Innisfail, AB, Canada Trial 40, 2008 (Metcalfe)	3	33-36 39-47 55-59	224 215 224	250 250 250	Hay [32.72]	9 + 6	1.8 (1.7, 1.8)	2.6 (2.5, 2.7)	0.069 (0.063, 0.075)	0.039 (0.040, 0.037)	0.033 (0.033, 0.032)

Location Trial no., Year (Variety)	Application				Sample [water %]	DAT[b]	Residues (mg/kg)[c]				
	No.	Growth stage	g ai/ha[a]	L/ha			Parent		IN-QDK50	IN-QDY62	IN-QDY63
							FW[d]	DW[e]			
Fort Saskatchewan, AB, Canada Trial 41, 2008 (Bold)	3	31 45-52 60-61	228 222 224	180 180 180	Hay [15.95]	14 + 26	0.46 (0.41, 0.51)	0.55 (0.49, 0.61)	0.13 (0.10, 0.15)	0.24 (0.21, 0.26)	0.053 (0.049, 0.056)
Trial 42, 2008 (Bold)	3	31 55-59 59-60	224 220 235	178 180 180	Hay [13.79]	14 + 26	0.28 (0.28, 0.27)	0.32 (0.32, 0.31)	0.058 (0.056, 0.060)	0.19 (0.18, 0.20)	0.031 (0.031, 0.031)
Lamont, AB, Canada Trial 43, 2008 (Bold)	3	31 47-51 72	222 223 223	180 180 180	Hay [20.71]	13 + 31	0.37 (0.39, 0.34)	0.46 (0.49, 0.43)	0.11 (0.12, 0.092)	0.17 (0.18, 0.16)	0.050 (0.051, 0.049)
Alvena, SK, Canada Trial 44, 2008 (Legacy)	3	31 56-59 69-75	223 223 223	200 200 200	Hay [12.79]	14 + 13	1.2 (0.90, 1.5)	1.4 (1.0, 1.7)	0.22 (0.17, 0.26)	0.33 (0.19, 0.47)	0.064 (0.035, 0.092)
Waldheim, SK, Canada Trial 45, 2008 (Legacy)	3	31 55-59 71-73	223 222 217	200 200 200	Hay [13.12]	14 + 13	3.1 (2.8, 3.3)	3.5 (3.2, 3.8)	0.10 (0.091, 0.11)	0.10 (0.055, 0.14)	0.076 (0.072, 0.080)
Northwood, ND, USA Trial 47, 2008 (Tradition)	3	30-31 32 59	221 216 221	190 186 188	Hay [27.76]	14 + 5	0.63 (0.68, 0.57)	0.77 (0.94, 0.79)	0.15 (0.15, 0.14)	0.015 (0.014, 0.015)	< 0.01 (< 0.01, < 0.01)

ND = not detected (< 0.003 mg/kg).

[a] Individual application rates shown.

[b] DAT = Days After Treatment. The first number reported is the interval between application and harvest, the second is the field drying interval (between harvest and sampling.

[c] Mean result shown, with individual results for analyses of duplicate samples from the same plot in brackets.

[d] Fresh weight.

[e] Dry weight.

Table 39 Results of residue trials conducted with picoxystrobin (250 g/L SC) in barley straw in the USA and Canada in 2008 and 2009 (study number 24860)

Location Trial no., Year (Variety)	Application				Sample [water %]	DAT[b]	Residues (mg/kg)[c]				
	No.	Growth stage	g ai/ha[a]	L/ha			Parent		IN-QDK50	IN-QDY62	IN-QDY63
							FW[d]	DW[e]			
Germansville, PA, USA Trial 26, 2008 (NP)	3	30-31 39 51	233 230 231	291 288 289	Straw [18.97]	45	0.18 (0.19, 0.16)	0.22 (0.23, 0.20)	0.098 (0.11, 0.085)	0.080 (0.077, 0.083)	0.082 (0.080, 0.083)
Richland, IA, USA Trial 27, 2008 (Robust)	3	30-31 32 59	222 228 219	139 170 159	Straw [28.72]	45	0.035 (0.041, 0.028)	0.049 (0.058, 0.039)	0.060 (0.063, 0.056)	0.031 (0.031, 0.030)	0.011 (0.012, 0.009)
Delavan, WI, USA Trial 28, 2008 (Kewaunee)	3	30-31 32 55	225 223 224	164 154 161	Straw [35.28]	46	0.033 (0.024, 0.041)	0.050 (0.037, 0.063)	0.16 (0.14, 0.17)	0.021 (0.017, 0.025)	0.011 (0.009, 0.013)
Frederick, SD, USA Trial 29, 2008 (Robust)	3	30-31 37 65-71	224 224 224	94 94 94	Straw [15.25]	45	0.11 (0.10, 0.11)	0.13 (0.12, 0.13)	0.058 (0.051, 0.065)	0.038 (0.028, 0.048)	0.014 (0.008, 0.019)
Carrington, ND, USA Trial 30, 2008 (Tradition)	3	30-31 32 65	221 216 217	139 141 140	Straw [18.90]	45	0.34 (0.36, 0.31)	0.41 (0.44, 0.38)	0.041 (0.040, 0.041)	0.054 (0.059, 0.048)	0.037 (0.039, 0.034)
Eldridge, ND, USA Trial 31, 2008 (Tradition)	3	30-31 37 59	222 224 221	140 140 140	Straw [60.81]	45	0.032 (0.031, 0.033)	0.082 (0.079, 0.084)	0.095 (0.079, 0.11)	0.014 (0.012, 0.015)	< 0.01 (0.005, 0.005)
Velva, ND, USA Trial 32, 2008 (Legacy)	3	30-31 32 47-49	223 224 229	138 139 141	Straw [17.27]	45	0.33 (0.31, 0.35)	0.40 (0.37, 0.42)	0.061 (0.051, 0.070)	0.025 (0.022, 0.028)	0.012 (0.011, 0.012)

Location Trial no., Year (Variety)	Application				Sample [water %]	DAT[b]	Residues (mg/kg)[c]				
	No.	Growth stage	g ai/ha[a]	L/ha			Parent		IN-QDK50	IN-QDY62	IN-QDY63
							FW[d]	DW[e]			
Jerome, ID, USA Trial 33, 2008 (Harrington)	3	32 39 71	224 224 230	143 164 161	Straw [11.52]	45	0.059 (0.064, 0.054)	0.066 (0.072, 0.061)	0.18 (0.17, 0.19)	0.023 (0.024, 0.022)	0.018 (0.019, 0.017)
Live Oak, CA, USA Trial 34, 2008 (UC-937)	3	37-39 49 59	225 224 225	188 187 186	Straw [20.80]	77	0.13 (0.12, 0.14)	0.17 (0.15, 0.18)	0.068 (0.067, 0.068)	0.027 (0.026, 0.027)	0.060 (0.053, 0.066)
Madras, OR, USA Trial 35, 2008 (Bellford)	3	32 53 83-85	234 233 222	199 192 190	Straw [13.81]	47	0.69 (0.68, 0.70) c0.082	0.80 (0.79, 0.81)	0.025 (0.026, 0.024) c0.004	0.014 (0.015, 0.013)	0.059 (0.058, 0.060) c0.009
Minto, MB, Canada Trial 36, 2008 (Conion)	3	31-32 33-37 49-58	220 229 231	157 163 206	Straw [60.48]	47	0.027 (0.026, 0.028)	0.069 (0.066, 0.071)	0.046 (0.044, 0.048)	0.027 (0.025, 0.029)	0.013 (0.012, 0.014)
Boissevain, MB, Canada Trial 37, 2008 (Copelan)	3	31-33 33-37 43-54	224 222 225	160 159 201	Straw [34.58]	57	0.050 (0.059, 0.040)	0.076 (0.090, 0.061)	0.062 (0.068, 0.056)	0.018 (0.020, 0.016)	< 0.01 (< 0.01, < 0.01)
Rosthern, SK, Canada Trial 38, 2008 (AC Metcalfe)	3	31 37 59	230 221 225	205 197 201	Straw [30.30]	53	0.16 (0.16, 0.15) c0.005	0.23 (0.23, 0.22)	0.060 (0.058, 0.061)	0.033 (0.031, 0.035)	0.016 (0.014, 0.017)
Hepburn, SK, Canada Trial 39, 2008 (AC Metcalfe)	3	31 39 59	226 220 222	200 196 198	Straw [25.63]	47	0.18 (0.18, 0.18)	0.24 (0.24, 0.24)	0.096 (0.097, 0.094)	0.031 (0.030, 0.031)	0.011 (0.011, 0.011)
Innisfail, AB, Canada Trial 40, 2008 (Metcalfe)	3	33-36 39-47 55-59	224 215 224	250 250 250	Straw [17.32]	58	0.20 (0.21, 0.18)	0.25 (0.25, 0.25)	0.034 (0.035, 0.033)	0.089 (0.094, 0.083)	0.032 (0.032, 0.031)
Fort Saskatchewan, AB, Canada Trial 41, 2008 (Bold)	3	31 45-52 60-61	228 222 224	180 180 180	Straw [35.80]	45	0.15 (0.16, 0.14)	0.24 (0.25, 0.22)	0.064 (0.067, 0.060)	0.063 (0.065, 0.060)	0.024 (0.027, 0.020)
Trial 42, 2008 (Bold)	3	31 55-59 59-60	224 220 235	178 180 180	Straw [32.60]	45	0.19 (0.16, 0.21)	0.28 (0.24, 0.31)	0.071 (0.074, 0.067)	0.056 (0.051, 0.061)	0.030 (0.027, 0.032)
Lamont, AB, Canada Trial 43, 2008 (Bold)	3	31 47-51 72	222 223 223	180 180 180	Straw [27.06]	45	0.26 (0.27, 0.24)	0.35 (0.37, 0.33)	0.13 (0.13, 0.12)	0.066 (0.066, 0.066)	0.029 (0.030, 0.027)
Alvena, SK, Canada Trial 44, 2008 (Legacy)	3	31 56-59 69-75	223 223 223	200 200 200	Straw [45.67]	45	0.18 (0.18 , ND) c0.27	0.33 (0.33, ND)	0.010 (0.010, ND) c0.092	0.037 (0.037, ND) c0.043	0.014 (0.014, ND) c0.020
Waldheim, SK, Canada Trial 45, 2008 (Legacy)	3	31 55-59 71-73	223 222 217	200 200 200	Straw [36.28]	45	0.74 (0.88, 0.60)	1.2 (1.4, 0.94)	0.057 (0.059, 0.055)	0.073 (0.083, 0.063)	0.048 (0.051, 0.044)
Northwood, ND, USA Trial 47, 2008 (Tradition)	3	30-31 32 59	221 216 221	190 186 188	Straw [24.39]	44	0.066 (0.072, 0.060)	0.087 (0.095, 0.079)	0.081 (0.091, 0.070)	0.018 (0.019, 0.016)	< 0.01 (< 0.01, < 0.01)

ND = not detected (< 0.003 mg/kg).

[a] Individual application rates shown.

[b] DAT = Days After Treatment.

[c] Mean result shown, with individual results for analyses of duplicate samples from the same plot in brackets.

[d] Fresh weight.

[e] Dry weight.

Table 40 Results of residue trials conducted with picoxystrobin (250 g/L SC) in maize forage in the USA and Canada in 2008 (study number 24864)

Location Trial no., Year (Variety)	Application				Sample [water %]	DAT[b]	Residues (mg/kg)[c]				
	No.	Growth stage	g ai/ha[a]	L/ha			Parent FW[d]	Parent DW[e]	IN-QDY62	IN-QDY63	IN-QDK50
Germansville, PA, USA Trial 01, 2008 (TA 3892)	3	Early R` 89 89	226 226 223	330 433 428	Forage [48]	0	6.4 (6.2, 6.6)	13 (12, 13)	0.076 (0.052, 0.099)	0.041 (0.041, 0.041)	0.040 (0.037, 0.043)
Blackville, SC, USA Trial 02, 2008 (OK 69-72)	3	65 89 89	224 224 224	186 181 185	Forage [33]	0	2.4 (2.7, 2.0) c0.003	3.5 (4.0, 3.0)	0.25 (0.31, 0.18)	0.030 (0.033, 0.026)	< 0.01 (< 0.01, < 0.01)
Paris, ON, Canada Trial 03, 2008 (DeKalb 50-20)	3	R1 R5 R5-R6	215 228 217	200 200 200	Forage [45]	0	4.7 (5.0 , 4.3) c0.004	8.5 (9.1, 7.8)	0.13 (0.13, 0.12)	0.015 (0.016, 0.014)	0.010 (0.011, < 0.01)
Branchton, ON, Canada Trial 04, 2008 (Pioneer 38A59)	3	R1 R5 R5-R6	213 213 213	200 200 200	Forage [46]	-0	0.020 (0.017 , 0.023)	0.037 (0.031, 0.043)	< 0.01 (< 0.01, ND)	ND (ND, ND)	ND (ND, ND)
						+0	2.5 (2.4, 2.6)	4.6 (4.4, 4.8)	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)	ND (ND, ND)
						1	1.1 (1.0, 1.1)	2.0 (1.9, 2.0)	0.024 (0.022, 0.025)	ND (ND, ND)	ND (ND, ND)
						3	0.84 (0.84, 0.83)	1.6 (1.6, 1.5)	0.035 (0.040, 0.029)	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)
						6	0.83 (0.77 , 0.88)	1.5 (1.4, 1.6)	0.054 (0.044, 0.064)	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)
Richland, IA, USA Trial 05, 2008 (Middle Koop 5513)	3	R1 R6 R6	213 224 224	167 162 165	Forage [38]	0	3.1 (3.4 , 2.7) c0.005	5.0 (5.5, 4.4)	0.072 (0.076, 0.067)	0.020 (0.022, 0.017)	< 0.01 (< 0.01, < 0.01)
Wyoming, IL, USA Trial 06, 2008 (DKC60-18)	3	R1 R6 R6	224 224 224	193 188 186	Forage [38]	-0	0.016 (0.019, 0.013)	0.026 (0.031, 0.021)	0.011 (0.011, 0.010)	< 0.01 (< 0.01, < 0.01)	< 0.01 (< 0.01, < 0.01)
						+0	3.9 (4.6, 3.1)	6.2 (7.4, 5.0)	0.019 (0.021, 0.016)	< 0.01 (< 0.01, < 0.01)	< 0.01 (< 0.01, ND)
						1	3.3 (3.6, 3.0)	5.3 (5.8, 4.8)	0.032 (0.030, 0.034)	< 0.01 (< 0.01, < 0.01)	< 0.01 (< 0.01, < 0.01)
						3	3.3 (3.1, 3.5)	5.3 (5.0, 5.6)	0.081 (0.065, 0.097)	0.012 (0.010, 0.013)	< 0.01 (< 0.01, < 0.01)
						7	3.3 (3.9, 2.7)	4.7 (5.5, 3.8)	0.096 (0.082, 0.11)	0.030 (0.028, 0.031)	0.016 (0.022, 0.01)
Paynesville, MN, USA Trial 08, 2009 (DKC35)	3	R1 R6 R6	215 217 215	143 142 143	Forage [41]	0	8.1 (6.1, 10)	14 (10, 17)	ND (ND, ND)	ND (ND, ND)	< 0.01 (< 0.01, < 0.01)
Gardner, ND, USA Trial 09, 2008 (2K145)	3	R4 R5 R6	223 221 223	159 159 159	Forage [66]	0	2.7 (3.4 , 2.0)	8.0 (10, 6.0)	0.053 (0.061, 0.045)	< 0.01 (< 0.01, < 0.01)	ND (ND, ND)
Lenexa, KS, USA Trial 10, 2008 (08HYBBIO8REM)	3	R1 87 87	220 221 220	134 135 137	Forage [57]	0	4.8 (4.5, 5.0)	9.7 (10, 9,4)	0.24 (0.23, 0.25)	0.093 (0.096, 0.089)	0.035 (0.033, 0.037)
Delavan, WI, USA	3	R1	220	196	Forage	0	3.0	5.7	0.12	0.028	0.011

Location Trial no., Year (Variety)	Application				Sample [water %]	DAT[b]	Residues (mg/kg)[c]				
	No.	Growth stage	g ai/ha[a]	L/ha			Parent		IN-QDY62	IN-QDY63	IN-QDK50
							FW[d]	DW[e]			
Trial 11, 2008 (DKC51-39)		R5.5 R5.75	221 219	199 201	[47]		(3.7, 2.3) c0.005	(7.0, 4.3)	(0.14, 0.092)	(0.035, 0.021)	(0.011, < 0.01)
Springfield, NE, USA Trial 12, 2008 (NK N38-04)	3	R1 87 89	224 224 220	130 132 132	Forage [50]	0	3.4 (2.9, 3.8)	6.7 (5.8, 7.6)	0.036 (0.031, 0.041)	0.012 (0.011, 0.012)	0.023 (0.022, 0.023)
Tipton, MO, USA Trial 13, 2008 (DeKalb DKC6423)	3	R1 R5 R5	224 224 224	262 256 259	Forage [63]	0	2.6 (2.7, 2.5) c0.004	7.1 (7.3, 6.8)	0.043 (0.049, 0.037)	0.010 (0.010, < 0.01)	0.025 (0.022, 0.028)
Carlyle, IL, USA Trial 14, 2008 (Burrus 616 XLR)	3	R1 R6 R6	225 222 216	150 162 172	Forage [50]	0	5.4 (4.8, 6.0)	11 (9.6, 12)	0.12 (0.093, 0.14)	0.023 (0.02, 0.027)	0.036 (0.035, 0.036)
La Plata, MO, USA Trial 15, 2009 (LG 2540)	3	R1 R6 R6	221 221 223	159 195 191	Forage [52]	0	5.7 (6.1, 5.3)	12 (13, 11)	0.20 (0.18, 0.21)	0.033 (0.034, 0.032)	0.012 (0.013, < 0.01)
Hinton, OK, USA Trial 16, 2009 (DKC51-45)	3	75 87 89	222 224 219	178 189 190	Forage [52]	0	3.0 (2.7, 3.3)	6.3 (5.6, 6.9)	0.021 (0.020, 0.022)	< 0.01 (< 0.01, < 0.01)	0.014 (< 0.01, 0.018)

ND = not detected (< 0.003 mg/kg).

[a] Individual application rates shown.

[b] DAT = Days After Treatment.

[c] Mean result shown, with individual results for analyses of duplicate samples from the same plot in brackets.

[d] Fresh weight.

[e] Dry weight.

Table 41 Results of residue trials conducted with picoxystrobin (250 g/L SC) in maize stover in the USA and Canada in 2008 (study number 24864)

Location Trial no., Year (Variety)	Application				Sample [water %]	DAT[b]	Residues (mg/kg)[c]				
	No.	Growth stage	g ai/ha[a]	L/ha			Parent		IN-QDY62	IN-QDY63	IN-QDK50
							FW[d]	DW[e]			
Germansville, PA, USA Trial 01, 2008 (TA 3892)	3	Early R` 89 89	226 226 223	330 433 428	Stover [70]	7	1.0 (1.1 , 0.97)	3.5 (3.7, 3.2)	0.21 (0.21, 0.20)	0.024 (0.024, 0.024)	0.065 (0.066, 0.064)
Blackville, SC, USA Trial 02, 2008 (OK 69-72)	3	65 89 89	224 224 224	186 181 185	Stover [43]	7	1.2 (1.1 , 1.3)	2.1 (1.9, 2.3)	1.1 (0.96, 1.2)	0.31 (0.31, 0.30)	0.011 (0.012, 0.01)
Paris, ON, Canada Trial 03, 2008 (DeKalb 50-20)	3	R1 R5 R5-R6	215 228 217	200 200 200	Stover [48]	7	4.5 (4.6, 4.3)	8.6 (8.8, 8.3)	0.72 (0.73, 0.70)	0.17 (0.17, 0.16)	0.035 (0.033, 0.036)
Branchton, ON, Canada Trial 04, 2008 (Pioneer 38A59)	3	R1 R5 R5-R6	213 213 213	200 200 200	Stover [62]	+0	6.4 (8.3, 4.4)	17 (22, 12)	0.19 (0.24, 0.14)	0.035 (0.044, 0.025)	0.035 (0.047, 0.022)
						1	6.9 (5.2, 8.5)	18 (14, 22)	0.11 (0.079, 0.15)	0.036 (0.026, 0.045)	0.047 (0.038, 0.055)
						3	1.7 (1.6, 1.7)	4.4 (4.2, 4.5)	0.079 (0.077, 0.081)	0.013 (0.014, 0.011)	0.016 (0.017, 0.014)
						7	3.1 (3.1, 3.1)	8.2 (8.2, 8.2)	0.20 (0.21, 0.19)	0.051 (0.052, 0.05)	0.025 (0.024, 0.026)
Richland, IA, USA Trial 05, 2008	3	R1 R6	213 224	167 162	Stover [41]	6	1.9 (1.5,	3.2 (2.5,	0.24 (0.22,	0.057 (0.046,	0.023 (0.018,

Location Trial no., Year (Variety)	Application				Sample [water %]	DAT[b]	Residues (mg/kg)[c]				
	No.	Growth stage	g ai/ha[a]	L/ha			Parent		IN-QDY62	IN-QDY63	IN-QDK50
							FW[d]	DW[e]			
(Middle Koop 5513)		R6	224	165			2.3) c0.004	3.9)	0.26)	0.068)	0.027)
Wyoming, IL, USA Trial 06, 2008 (DKC60-18)	3	R1 R6 R6	224 224 224	193 188 186	Stover [29]	+0	8.5 (11 , 6.0) c0.005	11 (14, 7.8)	0.13 (0.18, 0.073)	0.060 (0.076, 0.043)	0.032 (0.045, 0.019)
						1	10 (9.6, 11)	13 (12, 14)	0.15 (0.16, 0.13)	0.098 (0.11, 0.085)	0.035 (0.03, 0.04)
						3	2.9 (2.9, 2.9)	3.8 (3.8, 3.8)	0.74 (0.71, 0.77)	0.090 (0.082, 0.098)	0.021 (0.023, 0.018)
						7	6.6 (6.1, 7.0)	8.5 (7.9, 9.1)	2.0 (2.1, 1.8)	0.40 (0.43, 0.37)	0.032 (0.03, 0.033)
Paynesville, MN, USA Trial 08, 2009 (DKC35)	3	R1 R6 R6	215 217 215	143 142 143	Stover [47]	7	0.012 (0.009 ,0.015)	0.023 (0.017, 0.028)	ND (ND, ND)	ND (ND, ND)	ND (ND, ND)
Gardner, ND, USA Trial 09, 2008 (2K145)	3	R4 R5 R6	223 221 223	159 159 159	Stover [74]	7	0.57 (0.57 , 0.57) c0.003	2.2 (2.2, 2.2)	0.053 (0.055, 0.051) c0.003	0.012 (0.012, 0.012)	0.019 (0.016, 0.021)
Lenexa, KS, USA Trial 10, 2008 (08HYBBIO8REM)	3	R1 87 87	220 221 220	134 135 137	Stover [62]	7	2.2 (2.0, 2.3)	5.7 (5.3, 6.1)	0.46 (0.46, 0.46)	0.20 (0.19, 0.20)	0.028 (0.023, 0.033)
Delavan, WI, USA Trial 11, 2008 (DKC51-39)	3	R1 R5.5 R5.75	220 221 219	196 199 201	Stover [58]	7	2.5 (2.4, 2.6)	6.0 (5.7, 6.2)	0.34 (0.34, 0.33)	0.17 (0.16, 0.18)	0.023 (0.022, 0.024)
Springfield, NE, USA Trial 12, 2008 (NK N38-04)	3	R1 87 89	224 224 220	130 132 132	Stover [66]	7	1.3 (1.2, 1.3) c0.004	3.8 (3.6, 3.9)	0.16 (0.16, 0.16)	0.039 (0.039, 0.038)	0.039 (0.037, 0.04)
Tipton, MO, USA Trial 13, 2008 (DeKalb DKC6423)	3	R1 R5 R5	224 224 224	262 256 259	Stover [70]	7	0.29 (0.31 , 0.26)	0.94 (1.0, 0.87)	0.038 (0.042, 0.034)	0.011 (0.011, < 0.01)	0.063 (0.072, 0.054)
Carlyle, IL, USA Trial 14, 2008 (Burrus 616 XLR)	3	R1 R6 R6	225 222 216	150 162 172	Stover [66]	7	0.32 (0.35 , 0.29)	1.0 (1.1, 0.88)	0.11 (0.094, 0.12)	0.027 (0.028, 0.025)	0.034 (0.041, 0.026)
La Plata, MO, USA Trial 15, 2009 (LG 2540)	3	R1 R6 R6	221 221 223	159 195 191	Stover [56]	7	3.3 (3.5, 3.0)	7.4 (8.0, 6.8)	1.6 (1.7, 1.5)	0.35 (0.36, 0.34)	0.029 (0.029, 0.029)
Hinton, OK, USA Trial 16, 2009 (DKC51-45)	3	75 87 89	222 224 219	178 189 190	Stover [65]	7	2.3 (2.6, 2.0)	6.6 (7.4, 5.7)	0.083 (0.093, 0.072)	0.060 (0.069, 0.051)	0.044 (0.056, 0.032)

ND = not detected (< 0.003 mg/kg).

[a] Individual application rates shown.

[b] DAT = Days After Treatment.

[c] Mean result shown, with individual results for analyses of duplicate samples from the same plot in brackets.

[d] Fresh weight.

[e] Dry weight.

APPRAISAL

Picoxystrobin (ISO common name) is a strobilurin type fungicide for use by foliar application in a range of broadacre crops including cereals, sweet corn, soya bean, rape and pulses. At the forty-third session of the CCPR (2011), picoxystrobin was scheduled for evaluation as a new compound by the 2012 JMPR.

Data was provided to the 2012 JMPR on the metabolism of picoxystrobin in food producing animals and plants, methods of analysis, stability of residues in stored analytical samples, GAP information, supervised residue trials, processing, and animal feeding studies.

The 2012 JMPR established an ADI of 0–0.09 mg/kg bw/day and an ARfD of 0.09 mg/kg bw and recommended a residues definition for enforcement in plant and animal commodities. However, the 2012 JMPR was unable to conclude on the toxicological relevance of two plant metabolites, IN-H8612 and IN-QGU64 (2-(2-formylphenyl)-2-oxoacetic acid), both of which had structural alerts for genotoxicity. As a result, the 2012 JMPR could not recommend a residue definition for dietary risk assessment, or maximum residue levels for picoxystrobin.

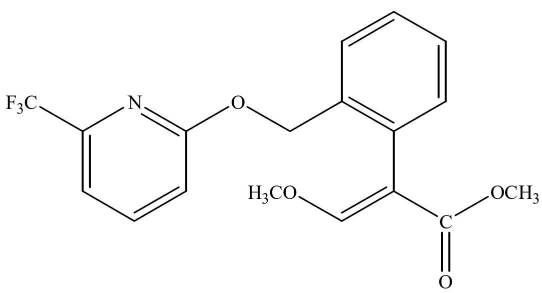
The 2013 JMPR received genotoxicity data for IN-H8612 which showed no evidence of genotoxicity. Chronic and acute exposure calculations showed that exposures were below the relevant TTC values for Cramer class III compounds with no evidence of genotoxicity and there was no concern for dietary exposure to this metabolite. However, no data was provided for IN-QGU64 as the compound could not be synthesised in sufficient amounts.

The 2016 JMPR received an additional metabolism study for soybeans during the meeting, and a preliminary evaluation indicated that that metabolic pathway was broadly similar to that observed in previously submitted plant metabolism studies in soybeans, wheat, and canola. The new study did not identify IN-QGU64 but did report IN-H8612 (a structural isomer of IN-QGU64). However the 2016 JMPR noted that in some chromatograms IN-H8612 eluted as two peaks. The 2016 JMPR concluded that there may be an interconversion between IN-H8612 and IN-QGU64 and requested further information from the Sponsor.

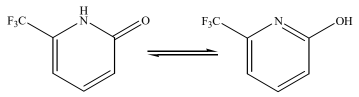
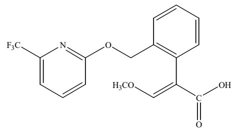
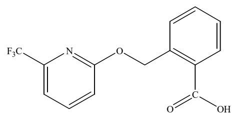
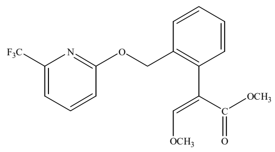
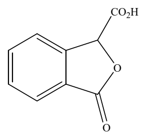
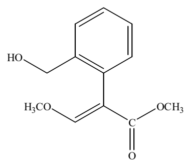
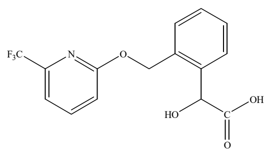
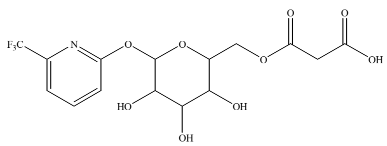
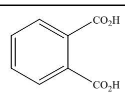
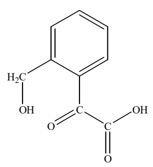
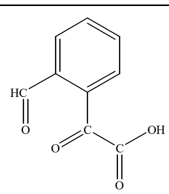
The current Meeting received further plant metabolism studies, for potatoes and tomatoes. Together with the 2016 submitted soybean study, these studies were evaluated for the current Meeting.

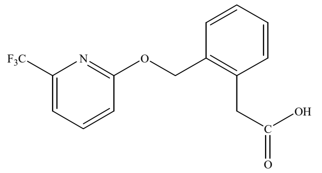
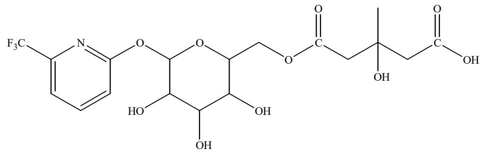
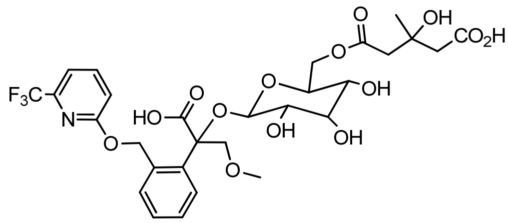
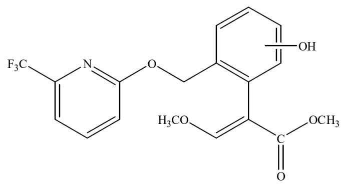
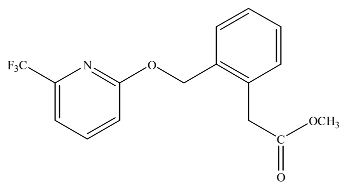
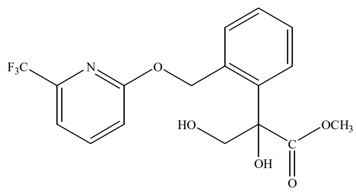
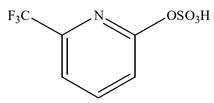
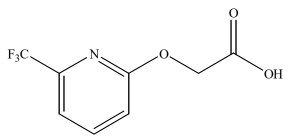
Data on animal metabolism, confined crop rotation, metabolism in plants (wheat, canola and soya bean – 2012 submitted study), environmental fate, analytical methods, storage stability, residues in processing and animal feeding were evaluated in 2012. Conclusions regarding these studies have not changed, and are not reproduced here. The reader is referred to the 2012 JMPR evaluation and appraisal.

The IUPAC name for picoxystrobin is methyl (*E*)-3-methoxy-2-[2-(6-trifluoromethyl-2-pyridyloxymethyl)-phenyl]acrylate



The following abbreviations are used for the metabolites discussed below:

Code	Chemical name	Structure
IN-QDK50	6-(Trifluoromethyl)-1*H*-pyridin-2-one	
IN-QDY62	(*E*)-3-Methoxy-2-[2-(6-trifluoromethyl-2-pyridyloxymethyl)-phenyl]acrylic acid	
IN-QDY63	2-[2-(6-Trifluoromethyl-2-pyridyloxymethyl)] benzoic acid	
IN-QCD12	Methyl (*Z*)-3-methoxy-2-[2-(6-trifluoromethyl-2-pyridyloxymethyl)-phenyl]acrylate	
IN-H8612	1,3-Dihydro-3-oxoisobenzofuran-1-carboxylic acid	
IN-QDY60	Methyl (*E*)-3-methoxy-2-(2-hydroxymethylphenyl)acrylate	
IN-QGS46	2-Hydroxy-2-[2-(6-trifluoromethyl-2-pyridyloxymethyl)phenyl] acetic acid	
IN-QGU72	2-Malonylglucosyl-6-trifluoromethylpyridine	
IN-K2122	Phthalic acid	
PAG3	2-(2-Hydroxymethylphenyl)-2-oxoacetic acid	
IN-QGU64	2-(2-Formylphenyl)-2-oxoacetic acid	

Code	Chemical name	Structure
IN-QFA35	2-[2-(6-Trifluoromethyl-2-pyridyloxymethyl)phenyl] acetic acid	
IN-QGU73	Mixture of isomers, where n=3, 4 or 6 2-{n-(3-Hydroxy-3-methylglutaryl)glucosyl}-6-trifluoromethylpyridine	
Hydroxy IN-QDY62 3-hydroxymethyl glutaryl glucoside		
R290447	Methyl (*E*)-3-methoxy-2-[n-hydroxy-2-(6-trifluoromethyl-2-pyridyloxymethyl)-phenyl]acrylate	
IN-QCD09	Methyl 2-[2-(6-trifluoromethyl-2-pyridyloxymethyl)-phenyl]acetate	
IN-QGU70, R290461	Methyl 2,3-dihydroxy-2-[2-(6-trifluoromethyl-2-pyridyloxymethyl)-phenyl]propionate	
PYST2	6-Trifluoromethyl-2-pyridylsulfuric acid	
IN-U3E08, R409665, metabolite 30	2-(6-Trifluoromethyl-2-pyridyloxy)acetic acid	

Plant metabolism

In a study in soya bean submitted to the 2016 JMPR, plants raised outdoors were treated with 3 × 220 g ai/ha foliar applications at BBCH 65–67, 9 days later, and finally at BBCH 85, 49 days after the second application (DAA2). Forage samples were collected immediately after the first application (0 DAA1), and 7 and 19 days after the second application (7 DAA2 and 19 DAA2). At 49 days after the second application (49 DAA2, immediately before the final application) forage and immature pods with seeds were collected, then a final collection of mature seeds, pods without seeds and straw (the last was not analysed) was made 14 days after the third application (14 DALA).

Total radioactive residues (TRRs) in forage ranged from 2.0–8.8 mg eq/kg, in immature pods with seeds were 0.18 mg eq/kg, in mature pods without seeds were 3.2–11 mg eq/kg, and mature seeds were 0.076–0.78 mg eq/kg. Extractability of residues from the matrices using acetonitrile/water were generally high, at 93–99% TRR for 0DAA1, 7 DAA2 and 19 DAA2 forage, 86–90% TRR for 49 DAA2 forage, 87–89% TRR 49 DAA2 immature pods plus seeds, 82–93% TRR for mature pods (without seeds), and 80–90% TRR for mature seeds. A further 3.4–6.7% TRR was released from 49 DAA2 forage using enzymatic, acid and base hydrolyses, while from mature seed, a further 7–12% TRR was released using these techniques.

Parent ranged from 0.016–0.037 mg eq/kg (4.8–21%) in mature seed. Major components of the residue in mature seed in the second soybean study were phthalic acid (0.39 mg eq/kg, 50% TRR), and IN-H8612 (0.16 mg eq/kg, 20% TRR). In forage, parent was a major component of the residue at 0.45–7.54 mg eq/kg (23–86% TRR), while the sum of IN-QGS46 and its conjugates ranged from 0.12–0.84 mg eq/kg (1.9–17% TRR) and IN-QGU70 plus conjugates ranged from 0.11–0.53 mg eq/kg (1.9–11% TRR).

The current Meeting received additional plant metabolism data in potatoes and tomatoes.

In tomatoes, outdoor grown plants were treated with 3 × 333 g ai/ha applications at 7-day intervals between BBCH 62–64 and 71–73. Fruit and leaves were sampled at 1, 7, and 14 DALA, with stems additionally being collected at 14 DALA.

TRRs in fruit ranged from 0.51–1.1 mg eq/kg, TRRs in leaves ranged from 25–38 mg eq/kg, and in stems, TRRs ranged from 2.8–3.2 mg eq/kg. Extractabilities using acetonitrile/water were high, with the combined solvent rinses and extractions releasing 96–98% TRR from fruit, 92–97% TRR from leaves, and 92–94% TRR from stems. A further 4.0–5.7% TRR was released from 14 DALA leaves using enzymatic, acid and base hydrolyses.

Parent was a major residue component in tomato fruit at 0.20–0.72 mg eq/kg (30–80% TRR), along with phthalic acid at 0.08–0.23 mg eq/kg (7.3–29% TRR) and IN-H8612 at 0.08–0.19 mg eq/kg (7.5–28% TRR). The metabolic profile in leaves and stems was similar, except metabolism occurred to a lesser extent, with parent being present at a higher percentage, and being the only major component in any of the leaf/stem matrices except phenyl label stems, in which phthalic acid was present at 20% TRR.

In potatoes, three applications were made, the first an in-furrow soil application at 440 g ai/ha on the day of planting and the second and third being made as foliar applications at 220 and 440 g ai/ha at 8 and 3 days before harvest maturity. Foliage and tubers were collected immediately before the second application and 3 days after the last application.

TRRs in potato tubers were 0.027–0.039 mg eq/kg for the phenyl label and 0.12–0.13 mg eq/kg for the pyridyl label. In the foliage collected just before the second application, TRRs ranged from 0.12–0.44 mg eq/kg, while in the final harvest forage, TRRs were 42 mg eq/kg. Solvent extractability was high, at 86–87% TRR for phenyl label tubers, 96–97% TRR for pyridyl label tubers, and 95–99% TRR for foliage.

In tubers, parent ranged from 0.003–0.008 mg eq/kg (4.6–18% TRR), while the only other major components of the residue were hydroxy IN-QDY62 3-hydroxymethylglutaryl glucoside at 0.006–0.010 mg eq/kg (6.7–26% TRR) and IN-QDK50, the pyridyl-label specific soil metabolite, at 0.068–0.072 mg eq/kg (55–56% TRR). In foliage, the metabolic pattern was similar, with parent, IN-QDK50, hydroxy IN-QDY62 3-hydroxymethylglutaryl glucoside, IN-QGS46 glucosides and another pyridyl label specific metabolite, IN-U3E08 being observed as major metabolites.

The major metabolic pathways for picoxystrobin in plants (wheat, rapeseed and soya bean evaluated for the 2012 JMPR and soya bean, potatoes and tomatoes evaluated for the current Meeting) were:

- Oxidative cleavage of the molecule at the ether bridge to yield IN-QDK50 and IN-QDY60. IN-QDK50 was subsequently conjugated with glucose and malonic or glutaric acid, while the phenacrylate cleavage product was subject to further oxidation and cleavage giving phthalic acid or IN-H8612;
- Loss of the methoxy methyl group followed by reduction of the enol, further hydroxylation of the side chain, and conjugation of the hydroxyl groups with glucose and malonic acid (IN-QGU70 and conjugates); and
- Hydrolysis of the ester, followed by oxidation and cleavage of the acrylate moiety ultimately yielding the benzoic acid metabolite IN-QDY63 or a phenyl-acetic acid metabolite (IN-QFA35), with or without glucose conjugation of the hydroxyl or carboxylic acid functionalities.

Hydroxylation of the phenyl ring was also observed in wheat, while small amounts of the *Z*-isomer of picoxystrobin (IN-QCD12) were found in soybeans, tomatoes, rape and wheat.

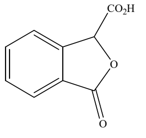
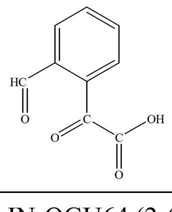
Definition of the residue

The 2012 JMPR recommended a residue definition for enforcement in plant and animal commodities of picoxystrobin, with residues being fat soluble. However, as the 2012 JMPR was unable to conclude on the toxicological relevance of two plant metabolites, IN-H8612 and IN-QGU64, a residue definition for dietary risk assessment could not be recommended.

Data provided to the 2013 JMPR together with dietary exposure calculations enabled the 2013 JMPR to conclude that there was no toxicological concern regarding IN-H8612.

With respect to IN-QGU64, the current Meeting notes that IN-QGU64 was not identified in seed in an additional metabolism study in soybeans that was provided to the 2016 JMPR. Further, IN-QGU64 was not reported in four other plant metabolism studies now available to the current Meeting, in wheat, oilseed rape, potatoes, and tomatoes. IN-H8612 is a structural isomer of IN-QGU64, and was identified in the additional soybean study, in wheat (both as a primary and a rotational crop), in tomatoes, and in potatoes. In the additional soybean study, and the metabolism studies in potatoes and tomatoes, IN-H8612 was identified with the aid of reference standards, while in the first soybean study, the structure of IN-QGU64 was proposed on the basis of mass spectral studies of a butyl ester derivative, reference standards not being available. The 2016 JMPR noted that IN-H8612 eluted as two peaks with some HPLC methods in the soya bean study provided to the 2016 JMPR. However, the current Meeting notes that IN-H8612 elutes as a single peak using other HPLC methods, indicating that the double peak is a method artefact.

Further, the Sponsor has made a number of attempts to synthesise IN-QGU64 in order to conduct toxicity tests, eventually succeeding in synthesising only small amounts of the lithium salt. This suggests that IN-QGU64 is not a stable compound.

	
IN-H8612 (1,3-dihydro-3-oxoisobenzofuran-1-carboxylic acid), C9H6O4	IN-QGU64 (2-(2-Formylphenyl)-2-oxoacetic acid), C9H6O4

On the weight of evidence the Meeting therefore concluded that in the 2006 soybean metabolism study, IN-H8612 had been incorrectly characterised as IN-QGU64.

Plant commodities

The newly submitted metabolism data for soya beans, tomatoes, and potatoes supports the conclusion of the 2012 JMPR that picoxystrobin is a suitable marker residue in plant commodities, and the previous recommendation for parent only as a residue definition for enforcement in plant commodities remains appropriate. The 2012 JMPR concluded that picoxystrobin breaks down rapidly in soil and does not accumulate in following crops.

In addition to IN-H8612 and IN-QGU64, which were identified as being of toxicological concern by the 2012 JMPR (and have now been resolved), the current Meeting noted that the toxicological aspects of a further three metabolites identified in the potato metabolism study required consideration (hydroxy IN-QDY62 3-hydroxymethylglutaryl glucoside, IN-QDK50, and IN-U3E08).

The metabolite hydroxy IN-QDY62 3-hydroxymethylglutaryl glucoside is a major metabolite in potatoes, but is a conjugate of IN-QDY62 (previously considered by the 2012 JMPR) and is not of toxicological concern.

IN-QDK50 and IN-U3E08 were observed as major metabolites in the potato metabolism study as well as in the previously considered rotational crop metabolism studies.

Genotoxicity studies for IN-QDK50 were provided to the current Meeting, and these indicated that IN-QDK50 is not genotoxic. A conservative calculation of the chronic dietary intake of IN-QDK50 (including its conjugates converted back to equivalents of unconjugated IN-QDK50) was carried out using data from field trials for crops with direct uses, expected residues in rotational crops based on the confined crop rotation study, and residues in animal commodities based on metabolism data and adjusted for expected feeding levels). The expected chronic intake of IN-QDK50 is 1.46 µg/kg bw/day, below the Threshold of Toxicological Concern (TTC) for a Cramer Class III compound (1.5 µg/kg bw/day).

The results of a Quantitative Structure-Activity Relationships (QSAR) analysis were provided for IN-U3E08, which did not indicate structural alerts for genotoxicity. A conservative calculation of the chronic dietary intake of IN-U3E08 was carried out using the expected residues in rotational crops based on the confined crop rotation study. IN-U3E08 has not been found in animal metabolism studies, and although significant levels of this metabolite were seen in the potato metabolism study, no GAPs for direct use of picoxystrobin on root vegetables have been provided to the Meeting. The expected chronic intake of IN-U3E08 is 0.2 µg/kg bw/day, below the Threshold of Toxicological Concern (TTC) for a Cramer Class III compound (1.5 µg/kg bw/day).

The conclusions regarding the metabolites considered using the TTC approach, including IN-H8612, IN-QDK50, and IN-U3E08 will need to be re-evaluated if additional use patterns are presented to the JMPR in the future.

Noting that there are no longer any outstanding plant metabolites of toxicological concern, the Meeting proposed a residue definition for dietary risk assessment in plant commodities of parent compound only.

Animal commodities

No new information regarding metabolism of picoxystrobin in animals has been provided to the JMPR since the 2012 Meeting. The conclusion of the 2012 JMPR that parent compound only is a suitable residue definition for enforcement in animal commodities, with residues being fat soluble, is supported.

Noting that the 2012 JMPR did not identify any toxicological concern regarding any of the major metabolites in food producing animals, a residue definition of parent only for dietary risk assessment in animal commodities is supported.

Residue definition for picoxystrobin in plant and animal commodities (for compliance with maximum residue levels and dietary risk assessment): *picoxystrobin.*

Picoxystrobin residue is fat soluble.

Results of supervised residue trials on crops

The 2012 JMPR received supervised trial data for application of picoxystrobin on sweet corn, peas (dry), beans (dry), soya bean (dry), wheat, barley and rape conducted in the USA and Canada.

In all trials, duplicate field samples were collected at each sampling interval and separately analysed. The mean result of the duplicate analyses were taken as the best estimate of the residue.

Pulses

Trials in peas (dry), and beans (dry) were conducted in the USA and Canada and were evaluated against the Canadian GAP for pulses except soya bean (2 × 0.22 kg ai/ha with a 14 day PHI).

Residues in pea seed from trials (n=11) at the Canadian GAP were: < 0.01 (4), 0.010, 0.012, 0.013, 0.016 (2), 0.025 and 0.033 mg/kg.

Residues in bean seed from trials (n=11) at the Canadian GAP were: < 0.01 (6), 0.011 (2), 0.016 and 0.038 (2) mg/kg.

Given the similarity of the data sets (confirmed by the Mann-Whitney U test), and the identical GAPs, the Meeting decided to combine the data sets for peas (dry) and beans (dry) for mutual support and to obtain more robust estimates of the maximum residue levels: < 0.01 (10), 0.010, 0.011 (2), 0.012, 0.013, 0.016 (3), 0.025, 0.033, and 0.038 (2) mg/kg.

The Meeting estimated a maximum residue level of 0.06 mg/kg for the subgroup of dry peas along with an STMR of 0.0105 mg/kg.

Trials were conducted in soya bean in the USA and Canada and were assessed against the critical Canadian GAP (3 × 0.22 kg ai/ha and a 14-day PHI).

Residues in soya bean (dry) from trials (n=20) at the Canadian GAP were ≤ 0.01 (13), 0.010, 0.011, 0.012, 0.019, 0.031, 0.035, and 0.039 mg/kg.

The Meeting noted that the combined dry peas and dry beans data, and the soya bean data both yield an estimation of 0.06 mg/kg for the maximum residue level despite the differing GAPs.

Therefore, the Meeting agreed that a maximum residue level for the subgroup of dry beans could be supported, and estimated a maximum residue level of 0.06 mg/kg for the subgroup of beans, together with an STMR of 0.0105 mg/kg.

Cereals

Wheat, barley, oats, rye and triticale

Trials were conducted in wheat and barley in the USA and Canada and were assessed against the critical GAP of Canada for wheat, barley, triticale, oats and rye (3 × 0.22 kg ai/ha applications, with a PHI of 45 days).

Residues in wheat grain from trials (n=23) matching Canadian GAP were ≤ 0.01 (15), 0.010 (2), 0.013, 0.014, 0.019, 0.022, 0.025, and 0.028 mg/kg.

Residues in barley grain from trials (n=17) matching the Canadian GAP were < 0.01 (4), 0.011, 0.014, 0.016 (2), 0.017, 0.022, 0.028 (2), 0.029, 0.047, 0.087, 0.12, and 0.22 mg/kg.

The Meeting estimated a maximum residue level of 0.04 mg/kg for picoxystrobin in wheat, with an STMR of 0.01 mg/kg. Given the GAPs in Canada are the same for wheat, rye and triticale and the similarity of the crops, the Meeting decided to extrapolate from the wheat residue data to estimate maximum residue levels and STMRs of 0.04 and 0.01 mg/kg respectively for rye and triticale.

The Meeting estimated a maximum residue level of 0.3 mg/kg for barley, with an STMR of 0.017 mg/kg. Given the GAPs are the same for barley and oats and the similarity of the crops, the Meeting decided to extrapolate from the barley residue data to estimate a maximum residue level and an STMR of 0.3 and 0.017 mg/kg respectively for oats.

Sweet corn

Residues in sweet corn cobs from trials (n=11) in the USA and Canada matching the critical Canadian GAP of 4 × 0.22 kg ai/ha applications and a 7-day PHI were < 0.01 (11) mg/kg.

The meeting estimated a maximum residue level of 0.01* mg/kg for picoxystrobin in sweet corn (corn-on-the-cob) (kernels plus cob with husk removed), together with an STMR of 0.01 mg/kg and an HR of 0.01 mg/kg.

Maize

Trials were conducted in maize in the USA and Canada. Residues in maize grain from trials (n=15) matching the critical Canadian GAP for maize, including field, seed and popcorn (3 × 0.22 kg ai/ha applications, and a 7-day PHI) were < 0.01 (13), 0.011, and 0.012 mg/kg.

The Meeting estimated a maximum residue level of 0.015 mg/kg for picoxystrobin in maize, together with an STMR of 0.01 mg/kg.

Noting that the GAP in Canada covered popcorn, the Meeting agreed that these values could be extrapolated to popcorn. The Meeting estimated a maximum residue level and an STMR of 0.015 and 0.01 mg/kg respectively in popcorn.

Rape seed

The GAP for oilseed rape in the USA and Canada is 2 × 0.22 kg ai/ha applications with a 28-day PHI.

Trials were conducted in oilseed rape in the USA and Canada, and were evaluated against the Canadian GAP. Residues in seed from trials (n=3) at the Canadian GAP were < 0.01, 0.012, and 0.031 mg/kg.

The Meeting concluded that there were insufficient trials at GAP to estimate a maximum residue level for oilseed rape.

Animal feedstuffs

Soya bean forage and hay

The Canadian GAP for soya bean (when forage is to be grazed or hay is to be harvested) is 1 × 0.22 kg ai/ha with a 14-day PHI.

Residue data for soya bean forage and hay were collected for the USA and Canadian soya bean residue trials.

Residues of picoxystrobin in soya bean forage from trials (n=19) matching GAP were < 0.01, 0.25, 0.46, 0.57 (2), 0.80, 0.84, 0.88, 0.93, 1.4, 1.6 (3), 1.9, 2.0 (2), 2.1, 2.9, and 3.5 mg/kg (dry weight basis).

Residues of picoxystrobin in soya bean hay from trials (n=19) matching GAP were < 0.01, 0.14, 0.39, 0.50, 0.51, 0.52, 0.59, 0.73, 0.81, 1.2, 1.6 (2), 1.7 (2), 1.8, 2.0, 2.1, 2.3, and 2.7 mg/kg (dry weight basis).

The Meeting estimated a maximum residue level of 5 mg/kg for picoxystrobin in soya bean fodder, together with a median and a highest residue of 1.2 and 2.7 mg/kg respectively.

The Meeting estimated a median and a highest residue of 1.4 and 3.5 mg/kg respectively for soya bean forage (dry weight).

Pea vines and hay

The GAP for picoxystrobin in pulses (except soya bean) in Canada is 2 × 0.22 kg ai/ha, with a 0-day PHI for vines (forage) and hay.

Data for pea vines and pea hay were collected for selected sites in the USA and Canadian pulse residue trials.

At a 0-day PHI, residues of picoxystrobin (n=6) in pea vines were 9.5, 14, 19, 22, 35 and 55 mg/kg (dry weight basis).

Residues of picoxystrobin in pea hay from trials (n=6) matching GAP were 4.1, 7.1, 11, 14, 18, and 64 mg/kg (dry weight basis).

The Meeting estimated a maximum residue level of 150 mg/kg for pea hay or pea fodder (dry), together with a median and a highest residue of 12.5 and 64 mg/kg respectively (dry weight basis).

The Meeting estimated median and highest residues for pea vines of 20.5 and 55 mg/kg respectively (dry weight basis).

Wheat, barley, oat, rye and triticale forage,

The Canadian GAP for wheat, barley, oat, rye and triticale forage is 1 × 0.22 kg ai/ha, with a 7-day PHI.

Residues of picoxystrobin in wheat forage from trials (n=25) at GAP were: 1.1, 1.3, 1.6, 1.7, 1.9, 2.2, 2.3, 3.6 (2), 3.7, 3.8, 3.9, 4.5, 4.6, 4.8, 6.3, 6.4, 7.0, 7.4, 8.9, 9.7, 11 (2), 12, and 31 mg/kg (dry weight basis).

A median and a highest residue value of 4.5 and 31 mg/kg (dry weight) respectively were estimated for wheat forage for use in livestock dietary burden calculations. The Meeting agreed that these values could be extrapolated to barley, oat, rye and triticale forage for the purposes of the livestock dietary burden calculations.

Wheat, barley, oat, rye and triticale hay and straw

The Canadian GAP for wheat, barley, oat, rye and triticale hay is 3 × 0.22 kg ai/ha, with a 14-day PHI.

The Canadian GAP for wheat, barley, rye, oat and triticale straw is 3 × 0.22 kg ai/ha, with a 45-day PHI.

Residue data for wheat hay and straw, and barley hay and straw were generated in the USA and Canada in accordance with the Canadian GAPs.

Residues of picoxystrobin in wheat hay from trials (n=25) at GAP were: 0.18, 0.19, 0.24, 0.41, 0.48, 0.51, 0.61, 0.68, 0.72, 0.78, 0.81, 0.90, 1.0, 1.1 (2), 1.4, 1.5, 1.7, 1.8, 2.4, 2.5, 2.8, 3.4, 3.6, and 4.0 mg/kg (dry weight basis).

Residues of picoxystrobin in barley hay from trials (n=19) at GAP were: 0.20, 0.32, 0.34, 0.38, 0.39, 0.46, 0.55, 0.66, 0.77, 0.78, 0.86, 1.3, 1.4, 1.7 (2), 2.3, 2.4, 3.5, and 5.5 mg/kg (dry weight basis).

Residues of picoxystrobin wheat straw from trials (n=24) at GAP were: < 0.01, 0.016, 0.022 (2), 0.029, 0.033, 0.043, 0.079, 0.10 (2), 0.11, 0.15, 0.28, 0.29, 0.32, 0.36, 0.49, 0.50, 0.52, 0.62, 0.86, 1.2 (2), and 1.7 mg/kg (dry weight basis).

Residues of picoxystrobin in barley straw from trials (n=16) were: 0.049, 0.050, 0.066, 0.069, 0.082, 0.087, 0.13, 0.22, 0.23, 0.24, 0.28, 0.35, 0.40, 0.41, 0.80, and 1.2 mg/kg (dry weight basis).

Hay and straw of different cereal grains are generally indistinguishable in trade.

The Meeting determined that the residue data sets for wheat and barley hay, and for wheat and barley straw were similar (Mann-Whitney U test).

The Meeting agreed to combine the data sets for wheat and barley hay for the purposes of estimating maximum residue levels for cereal fodders. The combined data set for wheat and barley hay is: 0.18, 0.19, 0.20, 0.24, 0.32, 0.34, 0.38, 0.39, 0.41, 0.46, 0.48, 0.51, 0.55, 0.61, 0.66, 0.68, 0.72, 0.77, 0.78 (2), 0.81, 0.86, 0.90, 1.0, 1.1 (2), 1.3, 1.4 (2), 1.5, 1.7 (3), 1.8, 2.3, 2.4 (2), 2.5, 2.8, 3.4, 3.5, 3.6, 4.0, and 5.5 mg/kg.

The Meeting agreed to combine the data sets for wheat and barley straw for the purposes of estimating median and highest residue values for cereal straws. The combined data set for wheat and barley straw is: < 0.01, 0.016, 0.022 (2), 0.029, 0.033, 0.043, 0.049, 0.050, 0.066, 0.069, 0.079, 0.082, 0.087, 0.10 (2), 0.11, 0.13, 0.15, 0.22, 0.23, 0.24, 0.28 (2), 0.29, 0.32, 0.35, 0.36, 0.40, 0.41, 0.49, 0.50, 0.52, 0.62, 0.80, 0.86, 1.2 (3), and 1.7 mg/kg.

Using the combined wheat and barley hay data set, the Meeting estimated maximum residue levels of 7 mg/kg for barley straw and fodder, dry and for wheat straw and fodder, dry, with median and highest residue values of 0.88 and 5.5 mg/kg (dry weight basis) respectively, for wheat and barley hay.

The Meeting agreed that these recommendations could be extrapolated to the other cereal crops with the same GAP in Canada and estimated maximum residue levels of 7 mg/kg for oat straw and fodder, dry, for rye straw and fodder, dry, and for triticale straw and fodder, dry, together with median and highest residue values of 0.88 and 5.5 mg/kg (dry weight basis) respectively, for oat, rye and triticale hay.

Using the combined wheat and barley straw data set, the Meeting estimated median and highest residue values of 0.225 and 1.7 mg/kg (dry weight basis) respectively, for wheat and barley straw, and agreed to extrapolate these values to oat, rye and triticale straw.

Sweet corn forage

The GAP for sweet corn in Canada is 4 × 0.22 kg ai/ha, with a 0-day grazing interval. Residue data for sweet corn forage was collected for the USA and Canadian sweet corn trials. However, most samples were collected 7 days after treatment, which is not consistent with Canadian GAP.

Residues in sweet corn forage at 0 days after treatment (DAT) were 8.4 and 17 mg/kg.

The Meeting concluded that there were insufficient data points to estimate a median or a highest residue for sweet corn forage.

Maize forage and stover

The GAP for picoxystrobin in maize in Canada is 3 × 0.22 kg ai/ha, with a 0-day PHI for grazing of forage, and a 7-day PHI for grain and stover.

Residue data for maize forage and maize stover were collected for the USA and Canadian trials.

Residues in maize forage from trials (n=15) in accordance with the Canadian GAP were: 3.5, 4.6, 5.0, 5.7, 6.2, 6.3, 6.7, 7.1, 8.0, 8.5, 9.7, 11, 12, 13, and 14 mg/kg (dry weight basis).

Residues in maize stover from trials (n=15) in accordance with the Canadian GAP were: 0.023, 0.94, 1.0, 2.1, 2.2, 3.2, 3.5, 3.8, 5.7, 6.0, 6.6, 7.4, 8.2, 8.5 and 8.6 mg/kg (dry weight basis).

A median and a highest residue value of 7.1, and 14 mg/kg (dry weight) respectively were estimated for maize forage for use in livestock dietary burden calculations.

The Meeting determined a maximum residue level of 20 mg/kg for picoxystrobin in maize fodder, together with a median and a highest residue of 3.8 and 8.6 mg/kg (dry weight) respectively.

Fate of residues during processing

Processing studies were conducted in wheat, barley, soya bean, and maize.

Processing factors in accordance with the residue definition (parent only) are tabulated below.

Raw agricultural commodity (RAC)	Processed commodity	Processing factors	Best estimate processing factor	RAC STMR (mg/kg)	RAC MRL (mg/kg)	STMR-P (mg/kg)	PF × RAC MRL, where required
Barley	Beer	< 0.05, < 0.25 (2), < 0.5	0.26	0.017	0.3	0.01	-
	Malt	0.48, < 0.5, < 0.5	0.48			0.01	-
	Spent grain	0.5, 0.81	0.66			0.011	-
Wheat	Bran	1.9, 2.1, 3.0, 3.8	2.7	0.01	0.04	0.027	0.108
	Germ	2.6, 3.8	3.2			0.032	0.128
	Wholemeal flour	1.1, 1.3	1.2			0.012	-
	Flour	0.21, 0.26	0.24			0.01	-
	Type 550 (white) flour	0.83, 1.1	0.97			0.01	-
	Patent flour	1.1, 1.2	1.2			0.012	-
	Wholemeal bread	0.45, 1.0	0.73			0.01	-
	Type 550 (white) bread	0.64, 0.67	0.66			0.01	-
	Screenings	1.7, 5.1	3.4			0.034	-
Soya bean	Refined oil (solvent extracted)	0.93, 1.0, 1.6, 2.2	1.4	0.01	0.06	0.014	0.084
	Refined oil (mechanically extracted)	3.4, 3.4	3.4			0.034	0.204
	Meal (solvent extracted)	0.03, 0.06, < 0.09, 1.1	0.32			0.01	-
	Meal (mechanically extracted)	0.36, 0.60	0.48			0.01	-
	Aspirated grain fractions	190, 320	260			2.6	-
	Hulls	2.2, 4.4, 5.1, 5.6	4.3			0.043	-
Maize	Starch	0.025, < 0.068	0.047	0.01	0.02	0.01	-
	Grits	0.34, 0.51	0.43			0.01	-
	Flour	1.0, 1.2	1.1			0.011	-
	Refined oil (wet milled)	6.4, 7.3	6.9			0.069	0.138
	Refined oil (dry milled)	3.4, 5.4	4.4			0.044	0.088
	Meal	0.77, 0.79	0.78			0.01	-
	Aspirated grain fractions	13, 17	15			0.15	

Picoxystrobin concentrated significantly in wheat bran, wheat germ, soya bean refined oil, and maize refined oil.

The Meeting therefore estimated maximum residue levels of 0.15, 0.15, 0.2, and 0.15 mg/kg for wheat bran, processed, wheat germ, soya bean oil, refined, and maize oil, edible, respectively, based on the best estimate processing factors and the raw agricultural commodity maximum residue levels.

Residues in animal commodities

Farm animal dietary burden

The Meeting estimated the dietary burden of picoxystrobin in farm animals on the basis of the OECD diets listed in Appendix IX of the FAO Manual 2016. Calculation from highest residue, STMR (some bulk commodities), and STMR-P values provides levels in feed suitable for estimating maximum residue levels, while calculation from STMR and STMR-P values for feed is suitable for estimating STMR values for animal commodities. The percentage dry matter is taken as 100% when the highest residue levels and STMRs are already expressed on a dry weight basis.

	US/Canada		EU		Australia		Japan	
	Max.	Mean	Max.	Mean	Max.	Mean	Max.	Mean
Beef cattle	2.33	1.30	31.6	10.1	64[a]	17.3[e]	0.102	0.102
Dairy cattle	18.2	5.43	32.7	9.63	54.1[b]	14.1[f]	7.93	3.63
Poultry (broiler)	0.095	0.095	0.052	0.052	0.046	0.046	0.01	0.01
Poultry (layer)	0.095	0.095	9.55[c,d]	2.81[g,h]	0.046	0.046	0.059	0.059

[a] Maximum calculated dietary burden for beef cattle, used for calculation of mammalian tissue MRLs.

[b] Maximum calculated dietary burden for dairy cattle, used for calculation of the milk MRL.

[c] Maximum calculated dietary burden for laying hens, used for calculation of egg MRL.

[d] Maximum calculated dietary burden for broiler hens, used for calculation of poultry tissue MRLs.

[e] Highest calculated mean dietary burden for beef cattle, used for calculation of mammalian tissue STMRs.

[f] Highest calculated mean dietary burden for dairy cattle, used for calculation of milk STMR.

[g] Highest calculated mean dietary burden for laying hens, used for calculation of egg STMR.

[h] Highest calculated mean dietary burden for broiler hens, used for calculation of poultry tissue STMRs.

The detailed dietary burden calculations are provided in Annex 6.

Animal commodity maximum residue levels

Mammals

The maximum dietary burdens for beef and dairy cattle are 64 and 54 ppm dry weight in feed respectively. HR and STMR values calculated by interpolation or using transfer factors for picoxystrobin in mammalian animal matrices are tabulated below.

	Feed level (ppm) for milk residues	Residues (mg/kg) in milk	Feed level (ppm) for tissue residues	Residues (mg/kg)			
				Muscle	Liver	Kidney	Fat
HR determination (beef or dairy cattle)							
Feeding study	120	< 0.01	120	< 0.01	0.017	< 0.01	0.026
	40	< 0.01	40	< 0.01	< 0.01	< 0.01	< 0.01
Dietary burden and estimate of highest residue	54	0	64	0	0.012	0	0.015
STMR determination (beef or dairy cattle)							
Feeding study	40	< 0.01	40	< 0.01	< 0.01	< 0.01	< 0.01
Dietary burden and estimate of median residue	14	0	17	0	0.01	0	0.01

Residues of picoxystrobin were not detected in milk from cattle at the two feeding levels bracketing the calculated maximum dietary burden for dairy animals. A maximum residue level of 0.01* mg/kg is therefore recommended for picoxystrobin in milk.

Residues of picoxystrobin were not detected in muscle or kidney from cattle at the two feeding levels bracketing the calculated maximum dietary burden for beef cattle. Residues were found at low levels above the LOQ in fat and liver of cattle at the next highest feeding level above the maximum dietary burden for beef cattle, and were below the LOQ for the next lowest feeding level.

Maximum residue levels of 0.02 mg/kg are therefore recommended for edible offal (mammalian), meat (from mammals other than marine mammals) (fat), and mammalian fats (except milk fats).

The mean dietary burdens for beef and dairy cattle are 17 and 14 ppm in feed respectively. Residues are not expected in milk, or muscle at these feeding levels, so STMRs for these commodities are 0 mg/kg. For offal and fat, the estimated STMRs are 0.01 mg/kg.

Poultry

The maximum dietary burdens for broiler chickens and laying hens is 9.6 ppm dry weight in feed. HR and STMR values calculated by interpolation or using transfer factors for picoxystrobin in poultry animal matrices are tabulated below.

	Feed level (ppm) for egg residues	Residues (mg/kg) in egg	Feed level (ppm) for tissue residues	Residues (mg/kg)		
				Muscle	Liver	Fat
HR determination (broiler or laying hens)						
Feeding study	15	< 0.01	15	< 0.01	< 0.01	< 0.01
Dietary burden and estimate of highest residue	9.6	0	9.5	0	0	< 0.01
STMR determination (broiler or laying hens)						
Feeding study	15	< 0.01	15	< 0.01	< 0.01	< 0.01
Dietary burden and estimate of median residue	2.8	0	2.8	0	0	0.01

Residues of picoxystrobin were not detected in the eggs, muscle or liver of hens fed at the next highest feeding level (15 ppm) above the maximum poultry dietary burden (9.5 ppm). Residues were detectable, but below the LOQ, in the fat of birds fed at 15 ppm.

MRLs of 0.01* mg/kg are therefore recommended for picoxystrobin in eggs, poultry meat, and poultry, edible offal of. An MRL of 0.01 mg/kg is recommended for picoxystrobin in poultry fats.

The mean dietary burdens for broiler chickens and laying hens are 2.8 ppm. Residues are not expected in poultry muscle, liver or eggs at this feeding level and the STMRs for poultry meat, poultry, edible offal of, and eggs are all 0 mg/kg. The STMR for poultry fats is 0.01 mg/kg.

RECOMMENDATIONS

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

Definition of the residue for compliance with the maximum residue levels and for estimation of dietary intake for animal and plant commodities: *picoxystrobin*.

Picoxystrobin residues are considered fat soluble.

CCN	Commodity name	Recommended maximum residue level, mg/kg	STMR (P), mg/kg	HR (P), mg/kg
GC 0640	Barley	0.3	0.017	
AS 0640	Barley straw and fodder, dry	7 (dw)	Hay: 0.88 (dw) Straw: 0.225 (dw)	Hay: 5.5 (dw) Straw: 1.7 (dw)
MO 0105	Edible offal (mammalian)	0.02	0.01	0.012
PE 0112	Eggs	0.01*	0	0
GC 0645	Maize	0.015	0.01	
AS 0645	Maize fodder	20 (dw)	3.8 (dw)	8.6 (dw)

CCN	Commodity name	Recommended maximum residue level, mg/kg	STMR (P), mg/kg	HR (P), mg/kg
OR 0645	Maize oil, edible	0.15	0.069	
MF 0100	Mammalian fats (except milk fats)	0.02	0.01	0.015
MM 0095	Meat (from mammals other than marine mammals) (fat)	0.02	Muscle: 0 Fat: 0.01	Muscle: 0 Fat: 0.015
ML 0106	Milks	0.01*	0	0
GC 0647	Oats	0.3	0.017	
AS 0647	Oat straw and fodder, dry	7 (dw)	Hay: 0.88 (dw) Straw: 0.225 (dw)	Hay: 5.5 (dw) Straw: 1.7 (dw)
AL 0072	Pea hay or pea fodder (dry)	150 (dw)	12.5 (dw)	64(dw)
GC 0656	Popcorn	0.015	0.01	
PO 0111	Poultry, edible offal of	0.01*	0	0
PF 0111	Poultry fats	0.01	0.01	0.01
PO 0110	Poultry meat	0.01*	0	0
GC 0650	Rye	0.04	0.01	
AS 0650	Rye straw and fodder, dry	7 (dw)	Hay: 0.88 (dw) Straw: 0.225 (dw)	Hay: 5.5 (dw) Straw: 1.7 (dw)
AL 0541	Soya bean fodder	5 (dw)	1.2 (dw)	2.7 (dw)
OR 0541	Soya bean oil, refined	0.2	0.034	
VD 2065	Subgroup of dry beans	0.06	0.0105	
VD 2066	Subgroup of dry peas	0.06	0.0105	
GC 0447	Sweet corn (corn-on-the-cob) (kernels plus cob with husk removed)	0.01*	0.01	0.01
GC 0653	Triticale	0.04	0.01	
AS 0653	Triticale straw and fodder, dry	7 (dw)	Hay: 0.88 (dw) Straw: 0.225 (dw)	Hay: 5.5 (dw) Straw: 1.7 (dw)
GC 0654	Wheat	0.04	0.01	
CF 0654	Wheat bran, processed	0.15	0.027	
CF 1210	Wheat germ	0.15	0.032	
AS 0654	Wheat straw and fodder, dry	7 (dw)	Hay: 0.88 (dw) Straw: 0.225 (dw)	Hay: 5.5 (dw) Straw: 1.7 (dw)

dw = dry weight

Animal feed commodities that do not require an MRL.

Commodity name	STMR (P), mg/kg	HR (P), mg/kg
Barley forage (dry weight basis)	4.5	31
Brewers grain (spent barley grain)	0.011	
Maize aspirated grain fractions	0.15	
Maize forage (dry weight basis)	7.1	14
Maize meal	0.01	
Oat forage (dry weight basis)	4.5	31
Pea vines (dry weight basis)	20.5	55
Rye forage (dry weight basis)	4.5	31
Soybean aspirated grain fractions	2.6	
Soybean forage (dry weight basis)	1.4	3.5
Soybean hulls	0.043	
Soybean meal	0.01	
Triticale forage (dry weight basis)	4.5	31
Wheat forage (dry weight basis)	4.5	31
Wheat screenings	0.034	

Processed food commodities that do not require an MRL

Commodity name	STMR-P, mg/kg
Barley beer	0.01
Barley malt	0.01
Wheat wholemeal flour	0.012
Wheat white flour	0.01
Wheat wholemeal bread	0.01

Commodity name	STMR-P, mg/kg
Wheat white bread	0.01
Maize starch	0.01
Maize grits (meal)	0.01
Maize flour	0.011

DIETARY RISK ASSESSMENT

Long-term intake

The 2012 JMPR established an Acceptable Daily Intake (ADI) of 0–0.09 mg/kg bw for picoxystrobin.

The International Estimated Dietary Intakes (IEDI) of picoxystrobin for the 17 GEMS/Food cluster diets, based on estimated STMRs were in the range 0–0.1% of the maximum ADI of 0.09 mg/kg bw.

The Meeting concluded that the long-term dietary exposure to residues of picoxystrobin from uses that have been considered by the 2017 JMPR is unlikely to present a public health concern. The results are shown in Annex 3 of the JMPR 2017 Report.

Short-term intake

The 2012 JMPR established an Acute Reference Dose (ARfD) of 0.09 mg/kg bw for picoxystrobin.

The International Estimated Short Term Intakes (IESTIs) for picoxystrobin were calculated for the commodities for which STMRs/STMR-Ps and HRs/HR-Ps were estimated by the current Meeting. The IESTIs represented 0–3% and 0–1% of the ARfD for the general population and for children respectively. The Meeting concluded that the short-term dietary exposure to residues of picoxystrobin from uses considered by the current Meeting was unlikely to present a public health concern. These results are shown in Annex 4 of the JMPR 2017 Report.

REFERENCES

Reference	Author	Title
Hall-2016	Hall, L.	Metabolism of ^{14}C-DPX-YT669 (Picoxystrobin) in Potatoes, 10 November 2016, Study number 81462
Shaffer-2011	Shaffer, S.	Metabolism of Picoxystrobin (^{14}C-DPX-YT669) in Tomatoes, 7 December 2011, Study number 26445
Wen-2016	Wen, L.	Metabolism of ^{14}C-DPX-YT669 (Picoxystrobin) in Soybeans, 26 July 2016, Study number 81463