

CYANTRANILIPROLE (263)

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EXPLANATION

Cyantraniliprole is a diamide insecticide with a mode of action (ryanodine receptor activation) similar to chlorantraniliprole and flubendiamide. It has root systemic activity with some translaminar movement and is effective against the larval stages of lepidopteran insects; and on thrips, aphids, and some other chewing and sucking insects.

Cyantraniliprole was first evaluated for toxicology and residues by JMPR in 2013 and an ADI of 0–0.03 mg/kg bw/day was established. An ARfD was deemed to be unnecessary. Residue definitions were also established:

- Definition of residue for compliance with MRL for both animal and plant commodities: *cyantraniliprole*.
- Definition of residue for estimation of dietary intake for unprocessed plant commodities: *cyantraniliprole*.
- Definition of residue for estimation of dietary intake for processed plant commodities: *sum of cyantraniliprole and IN-J9Z38, expressed as cyantraniliprole*.
- Definition of residue for estimation of dietary intake for animal commodities—*sum of cyantraniliprole, 2-[3-Bromo-1-(3-chloro-2-pyridinyl)-1H-pyrazol-5-yl]-3,4-dihydro-3,8-dimethyl-4-oxo-6-quinazolinecarbonitrile [IN-J9Z38], 2-[3-Bromo-1-(3-chloro-2-pyridinyl)-1H-pyrazol-5-yl]-1,4-dihydro-8-methyl-4-oxo-6-quinazolinecarbonitrile [IN-MLA84], 3-Bromo-1-(3-chloro-2-pyridinyl)-N-[4-cyano-2-(hydroxymethyl)-6-[(methylamino)carbonyl]phenyl]-1H-pyrazole-5-carboxamide [IN- N7B69] and 3-Bromo-1-(3-chloro-2-pyridinyl)-N-[4-cyano-2-[(hydroxymethyl)amino]carbonyl]-6-methylphenyl]-1H-pyrazole-5-carboxamide [IN-MYX98], expressed as cyantraniliprole*.
- The residue is not fat soluble.

At the 46th Session of the CCPR(2014) cyantraniliprole was scheduled for evaluation of additional use patterns by 2015 JMPR.

The Meeting received the residue data for citrus fruits, strawberries, grapes, pomegranates, olives, cucumber, squash, melons, beans, peas, soya beans, carrots, radishes, artichokes, corn, rice, tree nuts, cotton, tea, coffee and tobacco, and information on proposed/registered uses of cyantraniliprole on corresponding crops, and the processing studies of oranges, grapes, olives, and cotton. Some of these studies had been submitted to and evaluated by 2013 JMPR.

USE PATTERNS

Cyantraniliprole is registered in many countries for the control of insect pests on fruits, vegetables and cereals. Cyantraniliprole is intended for use as foliar applications in a wide range of fruit and vegetable crops, tree crops and oil seed crops. Other applications include seed treatments and pre-plant soil application. The information available to the Meeting on registered uses is summarized in the following table.

Table 1 Registered uses of cyantraniliprole

Crop	Country	Formulation		Application				PHI (days)	Remarks
		g ai./L or g ai/kg	type	Method	Rate (g ai/ha)	Water L/ha	No		
Citrus fruit (Group 002)									
Citrus	USA	200	SC	Soil application	220–438			1	Label, maximum seasonal application rate 450 g ai/ha
	USA	100	SE	Spraying	100–150	935–1400		1	Label, maximum seasonal application rate 450 g ai/ha
	Japan	100	SE	Spraying	40–140	2000–7000	3	1	Label
Berries and other small fruits (Group 004)									
Grape	India	100	OD	foliar	70	1000	3	5	Label
	Japan	100	SE	foliar	40–280	2000–7000	3	1	Label
Assorted tropical and sub-tropical fruits—inedible peel (Group 006)									
Pomegranate	India	100	OD	Spraying	75–90	1000	3	5	Label
Fruiting vegetables—Cucurbits (Group 011)									
Vegetables, cucurbit	Canada	100	SE	Foliar	25–150	100	4	1	Label
	USA	200	SC	Soil application	70–197		2	1	Label, maximum seasonal application rate 450 g ai/ha
	USA	100	SE	Spraying	50–150	93–935		1	Label, maximum seasonal application rate 450 g ai/ha
Legume Vegetables (Group 014)									
Legume (Bean, pea, soya bean)	Canada	100	SE	Spraying	25–150	100	4	1	Label, new
Pulses (Group 015)									
Legume (Bean, pea, soya bean)	Canada	100	SE	Spraying	25–150	100	4	7	Label, new
Root and Tuber Vegetables (Group 016)									
Radish	Canada	200	SC	Soil application	75–100		1	21	Label, new
	Canada	100	SE	Spraying	25–150	100	4	7	Label, new
Carrot	Canada	100	SE	Spraying	25–150	100	4	7	Label, new
	Canada	200	SC	Soil application	75–100		1	21	Label, new
Stalk and Stem Vegetables (017)									
Artichoke	Canada	100	SE	spraying	25–150	100	4	7	Label, Tuberous and corm vegetable
	USA	100	OD	Spraying	40–150	93		7	Label, Tuberous and corm vegetable, < 450 g ai/ha
	USA	200	SC	Soil application	90–197			N/A	Label, maximum seasonal application rate 450 g ai/ha
Cereal Grain (Group 020)									
Maize (field and pop)	Canada	600	FORTENZA	Seed treatment	12–24				Label, 50–100 g ai/100kg seed

Crop	Country	Formulation		Application				PHI (days)	Remarks
		g ai./L or g ai/kg	type	Method	Rate (g ai/ha)	Water L/ha	No		
Tree Nuts (Group 022)									
Tree nut Almond, pecan	Canada	100	SE	Spraying	50– 100	450	4	5	label
	US	100	OD	Spraying	60– 150	935– 1400	3	5	Label, Maximum seasonal application rate 450 g ai/ha
	US	100	SE	Spraying	60– 150	935– 1400	3	5	Label, Maximum seasonal application rate 450 g ai/ha
Oilseed (Group 023)									
Cotton	USA	100	OD	Spraying	50– 150	93– 468	3	7	Label, Maximum seasonal application rate 450 g ai/ha
	Columbia	100	OD	Spraying	50– 100		2	7	label
rapeseed and sunflower	USA	100	OD	Spraying	50– 150		3	7	Label, Maximum seasonal application rate 450 g ai/ha
	Canada	100	OD	Spraying	25– 100		4	7	Label, Maximum seasonal application rate 450 g ai/ha
Seed for Beverage and Sweets (Group 024)									
Coffee	Columbia	100	OD	Spraying	60– 175		2	7	label
Derived Products of Plant Origin (Group 066)									
Tea	Japan	100	SE	Spraying	100– 200	2000– 4000	1	7	label

RESIDUES RESULTING FROM SUPERVISED TRIALS ON CROPS

The Meeting received information on supervised field trials following foliar, drip irrigation or seed treatment applications of cyantraniliprole to the following crops: strawberries, cucumbers (greenhouse), beans, peas, soya beans, artichokes, corn, almonds, pecans and tea.

The supervised trials were documented with laboratory and field reports. Laboratory reports included method validation including procedural recoveries with spiking at residue levels similar to those occurring in samples from the supervised trials. Dates of analyses or duration of residue samples storage were also provided. Although trials included control plots, no control data are recorded in the tables unless residues in control samples exceeded the LOQ. In such cases, the residues found are noted as “c = nn mg/kg” in the Reference and Comments columns. Residue data are recorded unadjusted for recovery.

Results from replicated field plots are presented as individual values. When residues were not detected they are shown as ND. Residues and application rates have been reported as provided in the study reports, although the results from trials used for the estimation of maximum residue levels (underlined) have been rounded to two significant digits (or if close to the LOQ, rounded to one significant digit) in the Appraisal.

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

When multiple applications were made to a crop, the application rates, spray concentrations and spray volumes were not always identical from one application to the next. In

most trials, the actual treatment rates were within 10% of the listed 'target' application rates; but, if not, the actual treatment rates are listed.

The analytical methods used in the field trials were capable of analysing both cyantraniliprole and from one to seven metabolites (among them, four metabolites are considered in the residue definition). In most cases, residues of these metabolites were not detected (LOD of 0.003 mg/kg in most trials) or in some cases were reported at levels below the LOQ of 0.01 mg/kg. Where metabolite residues were present at levels above the LOQ, these values are recorded in the following tables using the abbreviations listed below:

- M1 = IN-J9Z38 2-[3-Bromo-1-(3-chloro-2-pyridinyl)-1*H*-pyrazol-5-yl]-3,4-dihydro-3,8-dimethyl-4-oxo-6-quinazolinecarbonitrile
- M2 = IN-MYX98 3-Bromo-1-(3-chloro-2-pyridinyl)-N-[4-cyano-2-[(hydroxymethyl)amino]carbonyl]-6-methylphenyl]-1*H*-pyrazole-5-carboxamide
- M3 = IN-N7B69 3-Bromo-1-(3-chloro-2-pyridinyl)-N-[4-cyano-2-(hydroxymethyl)-6-[(methylamino)carbonyl]phenyl]-1*H*-pyrazole-5-carboxamide
- M4 = IN-MLA84 2-[3-Bromo-1-(3-chloro-2-pyridinyl)-1*H*-pyrazol-5-yl]-1,4-dihydro-8-methyl-4-oxo-6-quinazolinecarbonitrile
- M5 = IN-JCZ384-[[[3-Bromo-1-(3-chloro-2-pyridinyl)-1*H*-pyrazol-5-yl]carbonyl]amino]-N'3',5-dimethyl-1,3-benzenedicarboxamide
- M6 = IN-N5M09 6-Chloro-4-methyl-1*H*-pyrido[2,1-*b*]quinazoline-2-carbonitrile
- M7 = IN-F6L99 3-Bromo-N-methyl-1*H*-pyrazole-5-carboxamide

Citrus fruits

All trials from Europe and the USA on oranges, grapefruit, lemons and mandarins submitted to the Meeting were evaluated by the 2013 Meeting.

Table 2 Residues in oranges from supervised trials in the USA following three foliar applications of cyantraniliprole, SE formulation, (data previously reviewed by the 2013 JMPR)

ORANGE Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
Clermont, FL USA, 2009 (Hamlin)	3	0.15	535	28	7	1	peel pulp whole	0.37, 0.19 0.033, 0.028 0.19, 0.11	0.28 0.03 0.15		DP-27554 Test 01
Clermont, FL USA, 2009 (Mid Sweet)	3	0.15	535	28	7	1	peel pulp whole	0.56, 0.69 0.054, 0.074 0.31, 0.38	0.63 0.064 0.35		DP-27554 Test 02
Mascotte, FL USA, 2009 (Valencia—Early)	3	0.15	535	28	7	1	peel pulp whole	0.54, 0.39 0.08, 0.092 0.31, 0.24	0.46 0.086 0.28		DP-27554 Test 03
Oviedo, FL USA, 2009 (Navel)	3	0.15	11	1400	7	1	peel pulp whole	0.36, 0.36 0.053, 0.039 0.17, 0.17	0.36 0.046 0.17		DP-27554 Test 04
Oviedo, FL USA, 2009 (Hamlin)	3	0.15	11	1400	7	1	peel pulp whole	0.27, 0.14 0.026, 0.029 0.15, 0.085	0.21 0.027 0.12		DP-27554 Test 05
Mims, FL USA, 2009 (Hamlin)	3	0.15	20	700	7	1	peel pulp whole	0.48, 0.64 0.036, 0.043 0.26, 0.35	0.56 0.04 0.3		DP-27554 Test 06

ORANGE Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
Holopaw, FL USA, 2009 (Valencia)	3	0.15	21	700	7	1	peel pulp whole	0.34, 0.47 0.041, 0.045 0.18, 0.24	0.41 0.043 0.21		DP-27554 Test 07
Chuluota, FL USA, 2009 (Hamlin)	3	0.15	11	1400	7	1	peel pulp whole	0.69, 0.7 0.081, 0.092 0.37, 0.4	0.7 0.086 0.39		DP-27554 Test 08
Alamo, TX USA, 2009 (Valencia)	3	0.15	25	610	7	1	peel pulp whole	0.86, 0.91 0.071, 0.066 0.22, 0.23	0.88 0.069 0.22		DP-27554 Test 09
Sanger, CA USA, 2009 (Fisher)	3	0.15	25	610	7	1	peel pulp whole	0.23, 0.28 0.016, 0.02 0.087, 0.11	0.25 0.018 0.098	M1 = 0.01	DP-27554 Test 10 2009/02/25
Sanger, CA USA, 2009) (Campbell)	3	0.15	25	610	7	1	peel pulp whole	0.45, 0.35 0.017, 0.01 0.14, 0.1	0.4 0.013 0.12		DP-27554 Test 14 1009/04/08
Sanger, CA USA, 2009) (Navel)	3	0.15	8	1870	7	1	peel pulp whole	0.21, 0.21 0.038, 0.035 0.1, 0.1	0.21 0.036 0.1		DP-27554 Test 25 2009/09/18
Sanger, CA USA, 2009) (Washington Navel)	3	0.15	0.01	1550	7	1	peel pulp whole	0.7, 0.64 0.019, 0.024 0.2, 0.2	0.67 0.021 0.2		DP-27554 Test 26 2009/03/16

M1: Average residues of metabolite IN-J9Z38 reported in peel

Table 3 Residues in lemons from supervised trials in the USA following three foliar applications of cyantraniliprole, SE formulation, (data previously reviewed by the 2013 JMPR)

LEMON Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
Newman, CA USA, 2009/2010 (Lisbon)	3	0.15	8	1870	7	1	peel pulp whole	0.42, 0.44 0.11, 0.11 0.21, 0.22	0.43 0.11 0.21		DP-27554 Test 19
Sanger, CA USA, 2009 (Lisbon)	3	0.15	25	610	7	1	peel pulp whole	0.3, 0.45 0.022, 0.024 0.13, 0.2	0.37 0.023 0.16		DP-27554 Test 20
Sanger, CA USA, 2009 (Frost Lisbon)	3	0.15	10	1560	7	1	peel pulp whole	0.62, 0.63 0.068, 0.057 0.31, 0.3	0.63 0.063 0.3		DP-27554 Test 21 2009/04/02
Sanger, CA USA, 2009/2010 (Eureka)	3	0.15	33	470	7	1	peel pulp whole	0.34, 0.39 0.069, 0.071 0.18, 0.2	0.36 0.07 0.19		DP-27554 Test 22 2009/01/04
Sanger, CA USA, 2009 (Lizbon 8A)	3	0.16	8	1870	7	1	peel pulp whole	0.32, 0.39 0.059, 0.066 0.14, 0.17	0.35 0.063 0.16		DP-27554 Test 23 2009/01/04
Elderwood, CA USA, 2009 (Lizbon)	3	0.15	32	470	7	1	peel pulp whole	0.24, 0.42 0.037, 0.077 0.11, 0.21	0.33 0.057 0.16		DP-27554 Test 24

Table 4 Residues in grapefruit from supervised trials in the USA following three foliar applications of cyantranilprole, 100 SE formulation, (data previously reviewed by the 2013 JMPR)

GRAPEFRUIT Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantranilprole	mean	metabolites	
Mims, FL USA, 2009 (White Marsh)	3	0.15	21	700	7	1	peel pulp whole	0.35, 0.34 0.022, 0.019 0.14, 0.14	0.35 0.021 0.14		DP-27554 Test 11
Oviedo, FL USA, 2009 (Flame)	3	0.15	11	1400	7	1	peel pulp whole	0.41, 0.43 0.028, 0.037 0.18, 0.2	0.42 0.032 0.19		DP-27554 Test 12
Holopaw, FL USA, 2009 (White)	3	0.15	10	1500	7	1	peel pulp whole	0.77, 0.67 0.043, 0.055 0.33, 0.3	0.72 0.049 0.31		DP-27554 Test 13
Alamo, TX USA, 2009 (Rio Red)	3	0.15	6	2400	7	1	peel pulp whole	0.45, 0.28 0.032, 0.019 0.11, 0.21	0.36 0.026 0.16	M1 = 0.015	DP-27554 Test 15
Elderwood, CA USA, 2009 Duncan	3	0.15	32	470	7	1	peel pulp whole	0.26, 0.18 0.035, 0.03 0.11, 0.076	0.22 0.033 0.091		DP-27554 Test 16
Sanger, CA USA, 2009 (Rio Red)	3	0.15	0.025	620	7	1	peel pulp whole	0.32, 0.29 0.02, 0.039 0.12, 0.12	0.3 0.029 0.12		DP-27554 Test 17 2009/03/11
Sanger, CA USA, 2009 (Marsh White)	3	0.15	0.01	1560	7	1	peel pulp whole	0.31, 0.34 0.012, 0.016 0.11, 0.13	0.33 0.014 0.12		DP-27554 Test 18 2009/04/02

M1: Average residues of metabolite IN-J9Z38 reported in peel

Table 5 Residues in lemons from supervised trials in the USA following soil band applications of cyantranilprole, 200 SC formulation, (data previously reviewed by the 2013 JMPR)

LEMON Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments	
	no	kg ai/ha	g ai/hL	water L/ha	water L/tree			cyantranilprole	mean	metabolites		
Sanger, CA USA, 2009/2010 (Eureka)	1	0.45	117	390	0.95	1	peel	< 0.01 ND ND			DP-27554 Test 22	
						7						
						14						
	1	7	14	1	7	14	pulp	ND ND ND				
												7
												14
	1	7	14	1	7	14	whole	< 0.01 ND ND				
												7
												14
Sanger, CA USA, 2009 (Lizbon 8A)	1	0.45	0.16	280	0.95	1	peel	ND < 0.01 ND			DP-27554 Test 23	
						7						
						14						
	1	7	14	1	7	14	pulp	ND ND ND				
												7
												14
	1	7	14	1	7	14	whole	ND < 0.01 ND				
												7
												14

LEMON Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	water L/tree			cyantranilprole	mean	metabolites	
Elderwood, CA USA, 2009 (Lizbon)	1	0.45	0.17	260	0.95	1 7 14	peel	ND			DP-27554 Test 24
								ND			
								ND			
	1	0.45	0.17	260	0.95	1 7 14	pulp	ND			
								ND			
								ND			
	1	0.45	0.17	260	0.95	1 7 14	whole	ND			
								ND			
								ND			

Table 6 Residues in oranges from supervised trials in Europe following foliar two/three applications of cyantranilprole, 100 SE formulation

ORANGE Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	No	kg ai/ha	kg ai/hL	water L/ha	RTI (days)			cyantranilprole	mean	metabolites	
Kostaki Greece, 2009 (Salustiana)	3	0.15	0.01	1500	7	-0	peel pulp whole	0.65			DP-27716 Test 01
								0.043			
								0.23			
	1	0.15	0.01	1500	7	-0	peel pulp whole	0.79			
								0.041			
								0.26			
Sicily Italy, 2009 (Tarocco)	3	0.15	0.01	1500	7	-0	peel pulp whole	0.85			DP-27716 Test 02
								0.004			
								0.2			
	1	0.15	0.01	1500	7	-0	peel pulp whole	0.9			
								0.007			
								0.23			

Table 7 Residues in mandarins from supervised trials in Europe following two/three foliar applications of cyantranilprole, 100 SE formulation, (data previously reviewed by the 2013 JMPR)

MANDARIN Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	kg ai/hL	water (L/ha)	RTI (days)			cyantranilprole	mean	metabolites	
Kostaki Greece, 2009 (Clementine)	3	0.15	0.01	1500	7	-0	peel pulp whole	1.1		M1 = 0.01	DP-27716 Test 03
								0.08			
								0.38			
	1	0.15	0.01	1500	7	-0	peel pulp whole	1.1		M1 = 0.014	
								0.2			
								0.47			

M1: Average residues of metabolite IN-J9Z38 reported in peel

*Berries and other small fruits**Strawberry*

In trials on strawberries conducted in Europe, two to four foliar applications of 0.075 kg ai/ha cyantraniliprole (OD formulation) were applied at 6–7 day intervals, using 500–800 L/ha, with adjuvant added, or 2–4 drip irrigation of 0.075 kg ai/ha cyantraniliprole (SC formulation) were applied at 7 day intervals, using 3× vol tubing, with no adjuvant added.

Samples were stored at –18 °C for up to 9 months before analysis (within 5 days of extraction) for cyantraniliprole and six metabolites using analytical method DP15736, with reported LOQs of 0.01 mg/kg. Average concurrent recoveries were 98–101% (cyantraniliprole) and 96–106% (metabolites) in samples spiked with 0.01 and 0.1 mg/kg.

Table 8 Residues in protected strawberries from supervised trials in EU following four foliar applications of cyantraniliprole, 100 OD formulation

Strawberry Location Country, year (variety)	Application					DAT (days)	Matri x	Residues (mg/kg)			Referenc e & Commen ts
	n o	kg ai/ha	g ai/h L	water L/ ha	RTI (days)			cyantranilipr ole	mea n	metabolites	
Horst-Meterik, Limburg, Netherlands, 2011 (Elsanta)	4	0.075	9.38	800	7	1	matur e fruit	0.16		0.004(J9Z38)	DP29223 Test 01
Wellerlooi, Limburg, Netherlands, 2011 (Elsanta)	4	0.075	9.38	800	7	–0 0 1 3 5	matur e fruit	0.19 0.22 0.22 0.23 0.19		0.012 0.007(J9Z38) 0.012(J9Z38) 0.010(J9Z38)	DP29223 Test 02
Svoronos, Central Macedonia, Greece, 2011 (Kamaroza)	4	0.075	9.38	800	7	1	matur e fruit	0.26		0.011(J9Z38)	DP29223 Test 03
Contrada Spinagallo, Siracusa, Sicily, 2011 (Carmela)	4	0.075	9.38	800	7	1	matur e fruit	0.23		0.009(J9Z38)	DP29223 Test 04
La Rive Haute, Aquitaine, South France, 2011 (Darselect)	4	0.075	9.38	800	7	1	matur e fruit	0.050			DP29223 Test 05
Pact, Rhone-Alpes, South France, 2011 (Darselect)	4	0.075	9.38	800	7	–0 0 1 3 5	matur e fruit	0.086 0.14 0.13 0.089 0.080		0.008(J9Z38) 0.008(J9Z38) 0.008(J9Z38) 0.005(J9Z38) 0.005(J9Z38)	DP29223 Test 06

Strawberry Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/h L	water L/ ha	RTI (days)			cyantraniliprole	mean	metabolites	
Bonares, Andalucia, South Spain, 2011 (Candongga)	4	0.075	9.38	800	7	-0 0 1 3 5	mature fruit	0.12 0.14 0.13 0.10 0.10		0.009(J9Z38) 0.006(J9Z38) 0.005(J9Z38) 0.006(J9Z38) 0.005(J9Z38)	DP29223 Test 07
Puerto Serrano, Andalucia, South Spain, 2011 (Camarosa)	4	0.075	9.38	800	7	-0 0 1 3 5	mature fruit	0.076 0.16 0.17 0.16 0.088		0.007(J9Z38) 0.010(J9Z38) 0.010(J9Z38) 0.012(J9Z38) 0.004(J9Z38)	DP29223 Test 08
Lucena del Puerto, Andalucia, South Spain, 2011 (Splendor)	4	0.075	9.38	800	7	-0 0 1 3 5	mature fruit	0.10 0.17 0.13 0.14 0.12		0.010(J9Z38) 0.009(J9Z38) 0.007(J9Z38) 0.009(J9Z38) 0.007(J9Z38)	DP29223 Test 09

Table 9 Residues in field strawberries from supervised trials in EU following two foliar applications of cyantraniliprole, 100 OD formulation

Strawberry Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
Leisnig Saxony, Germany, 2011 (Sonata)	2	0.075	30.84	15.42	8	1	mature fruit	0.10			DP29223 Test 10
Gerpinnes, Hainaut, Belgium, 2011 (Darselect)	2	0.075	9.38	800	7	1	mature fruit	0.054			DP29223 Test 11
Beugny, Nord-Pas de Calais, North France, 2011 (Darselect)	2	0.075	9.38	800	7	-0 0 1 3 5	mature fruit	0.027 0.071 0.040 0.030 0.033			DP29223 Test 12

Cyantraniliprole

Dairsie, Fife, UK North, 2011 (Elsanta)	2	0.075	13.63	560	7	-0 0 1 3 5	mature fruit	0.020 0.049 0.043 0.037 0.034			DP29223 Test 13
Leisnig Saxony, Germany, 2012 (Sonata)	2	0.075	15.44	500	7	1	mature fruit	0.045			DP29223 Test 15
Mortemer, Picardie, North France, 2012 (Darselect)	2	0.075	9.38	800	6	1	mature fruit	0.12		0.005(J9Z38)	DP29223 Test 16
Marbais, Brabant Wallon, Belgium, 2012 (Sonata)	2	0.075	9.37	770	7	-0 0 1 3 5	mature fruit	0.021 0.082 0.045 0.051 0.030		0.004(J9Z38)	DP29223 Test 17
Fotheringhay, Cambs, UK South, 2012 (Elsanta)	2	0.075	9.38	800	8	-0 0 1 3 5	mature fruit	0.035 0.071 0.051 0.054 0.043		0.003(J9Z38) 0.004(J9Z38)	DP29223 Test 18

Table 10 Residues in protected strawberries from supervised trials in EU following four drip irrigations of cyantraniliprole, 200 SC formulation

Strawberry Location Country, year (variety)	Application					DA T (day s)	Matr ix	Residues (mg/kg)			Referen ce & Comme nts
	n o	kg ai/h a	g ai/h L	water L/ ha	RTI (day s)			cyantranilip role	mea n	metabolites	
Wellerlooi, Limburg, Netherlands, 2012 (Elsanta)	4	0.07 5	3.7 5	2000	7	-0 0 1 5 10	matu re fruit	0.004 ND 0.005 0.003 0.004		< 0.003	DP3408 5 Test 01
Horst-Meterik, Limburg, Netherlands, 2012 (Lambada)	4	0.07 5	3.7 5	2000	7	-0 0 1 5 10	matu re fruit	< 0.003 < 0.003 < 0.003 < 0.003 < 0.003			DP3408 5 Test 02
Pact, Rhone-Alpes, South France, 2012 (Darselect)	4	0.07 5	3.7 5	2000	7	-0 0 1 5 10	matu re fruit	< 0.003 < 0.003 < 0.003 < 0.003 < 0.003			DP3408 5 Test 03
Svoronos, Pieria, Central Macedonia, Greece, 2012 (Kamaroza)	4	0.07 5	3.7 5	2000	7	-0 0 1 5 10	matu re fruit	0.006 0.007 0.007 0.006 0.006		0.003(J9Z38)	DP3408 5 Test 04
Lucena del Puerto, Andaluca, Spain, 2012 (Splendor)	4	0.07 5	3.7 5	2000	7	-0 0 1 5 10	matu re fruit	0.025 0.029 0.030 0.025 0.022		0.012(J9Z38) 0.013(J9Z38) 0.012(J9Z38)0.009(J 9Z38) 0.008(J9Z38)	DP3408 5 Test 05

Table 11 Residues in field strawberries from supervised trials in EU following two drip irrigations of cyantraniliprole, 200 SC formulation

Strawberry Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
Gembloux, Namur, Belgium, 2012 (Elsanta)	2	0.075	3.75	2000	7	-0 0 1 5 10	mature fruit	< 0.003 0.004 0.004 < 0.003 < 0.003			DP34085 Test 06
Beugny, Nord-Pas de Calais, North France, 2012 (Darselect)	2	0.075	3.75	2000	7	-0 0 1 5 10	mature fruit	< 0.003 0.012 0.003 < 0.003 < 0.003			DP34085 Test 07
Goch-Kessel, Nordrhein- Westfalen, Germany, 2012 (Sonata)	2	0.075	3.75	2000	7	-0 0 1 5 10	mature fruit	< 0.003 0.011 0.017 0.004 < 0.003			DP34085 Test 08
Fotheringhay, Cambridgeshire, UK South, 2012 (Elsanta)	2	0.075	3.75	2000	7	-0 0 1 5 10	mature fruit	< 0.003 < 0.003 < 0.003 < 0.003 < 0.003			DP34085 Test 09
Tattenhall, Cheshire, UK South, 2012 (Flamenco)	2	0.075	3.75	2000	7	-0 0 1 5 10	mature fruit	< 0.003 < 0.003 < 0.003 < 0.003 < 0.003			DP34085 Test 10

Pomegranate

Table 12 Residues in pomegranates from supervised trials in India following foliar two to five applications of cyantraniliprole, 100 OD formulation, (data previously reviewed by the 2013 Jmpr)

POMEGRANATE Location Country, year (variety)	Application					DAT (days)	Cyantraniliprole residues (mg/kg)				Reference & Comments
	No	kg ai/ha	g ai/hL	water L/ha	RTI (days)		Rind (parent)	Rind M1	Seed	Juice	
Raichur India, 2011	2	0.075	12.5-19	400- 600	10	0 1 3 5	0.05 0.03 0.006 < 0.003	0.03	< 0.003 < 0.003 < 0.003 < 0.003	< 0.003 < 0.003 < 0.003 < 0.003	IIBAT- 1104829 Trial 1
Raichur India, 2011	2	0.09	15-23	400- 600	10	0 1 3 5	0.07 0.03 0.008 < 0.003	M1=0.035	< 0.003 < 0.003 < 0.003 < 0.003	< 0.003 < 0.003 < 0.003 < 0.003	IIBAT- 1104829 Trial 1
Raichur India, 2011	2	0.18	30-45	400- 600	10	0 1 3 5	0.14 0.07 0.01 < 0.003	M1=0.065	< 0.003 < 0.003 < 0.003 < 0.003	< 0.003 < 0.003 < 0.003 < 0.003	IIBAT- 1104829 Trial 1
Rahuri India, 2011	5	0.075	15	500	10	0 1 3 5	0.07 0.05 0.01 < 0.003	M1=0.02	< 0.003 < 0.003 < 0.003 < 0.003	< 0.003 < 0.003 < 0.003 < 0.003	IIBAT- 1104829 Trial 2

POMEGRANATE Location Country, year (variety)	Application					DAT (days)	Cyantraniliprole residues (mg/kg)				Reference & Comments
	No	kg ai/ha	g ai/hL	water L/ha	RTI (days)		Rind (parent)	Rind M1	Seed	Juice	
Rahuri India, 2011	5	0.09	18	500	10	0	0.08	M1=0.03	< 0.003	< 0.003	IIBAT- 1104829 Trial 2
						1	0.06		< 0.003	< 0.003	
						3	0.01		< 0.003	< 0.003	
						5	< 0.003		< 0.003	< 0.003	
Rahuri India, 2011	5	0.18	36	500	10	0	0.17	M1 = 0.05 M1 = 0.02	< 0.003	< 0.003	IIBAT- 1104829 Trial 2
						1	0.12		< 0.003	< 0.003	
						3	0.03		< 0.003	< 0.003	
						5	< 0.003		< 0.003	< 0.003	
Medhak India, 2011	3	0.075	7.5	1000	10	0	0.04	M1 = 0.02	< 0.003	< 0.003	IIBAT- 1104829 Trial 3
						1	0.03		< 0.003	< 0.003	
						3	0.005		< 0.003	< 0.003	
						5	< 0.003		< 0.003	< 0.003	
Medhak India, 2011	3	0.09	9	1000	10	0	0.05	M1 = 0.02	< 0.003	< 0.003	IIBAT- 1104829 Trial 3
						1	0.02		< 0.003	< 0.003	
						3	0.006		< 0.003	< 0.003	
						5	< 0.003		< 0.003	< 0.003	
Medhak India, 2011	3	0.18	18	1000	10	0	0.09	M1 = 0.04	< 0.003	< 0.003	IIBAT- 1104829 Trial 3
						1	0.04		< 0.003	< 0.003	
						3	0.009		< 0.003	< 0.003	
						5	< 0.003		< 0.003	< 0.003	
Trichy India 2011	5	0.075	12.5	600	10	0	0.06		< 0.003	< 0.003	IIBAT- 1104829 Trial 4
						1	0.03		< 0.003	< 0.003	
						3	0.01		< 0.003	< 0.003	
						5	< 0.003		< 0.003	< 0.003	
Trichy India 2011	5	0.09	15	600	10	0	0.08		< 0.003	< 0.003	IIBAT- 1104829 Trial 4
						1	0.03		< 0.003	< 0.003	
						3	0.01		< 0.003	< 0.003	
						5	< 0.003		< 0.003	< 0.003	
Trichy India 2011	5	0.18	30	600	10	0	0.16	M1 = 0.02 M1 = 0.01	< 0.003	< 0.003	IIBAT- 1104829 Trial 4
						1	0.06		< 0.003	< 0.003	
						3	0.03		< 0.003	< 0.003	
						5	< 0.003		< 0.003	< 0.003	

M1: Residues of metabolite IN-J9Z38

Cucurbit vegetables

Cucumber

In trials conducted in North America on greenhouse cucumbers, three foliar applications of 0.15 kg ai/ha cyantraniliprole (SE formulation) were applied at 5 day intervals, using 300–1200 L/ha with adjuvant added.

Duplicate samples were stored at –20 °C for up to 11 months before analysis of whole fruit or pulp and peel for cyantraniliprole and six metabolites using an adaptation of method DP-15736, with reported LOQs of 0.01 mg/kg. Average concurrent recoveries were 92–98% (cyantraniliprole) and 86–114% (metabolites) in samples spiked with 0.01, 0.1, 0.2 and 0.6 mg/kg.

Table 13 Residues in greenhouse cucumber from supervised trials in North America following three foliar applications of cyantraniliprole, 100 SE formulation

Cucumber Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
Parlier, CA, USA 2010 (Manar F1)	3	0.15	40.0	400	5–6	0	mature fruit	0.20, 0.19	0.19	< 0.01(J9Z38) < 0.01(MLA84) < 0.01(MYX98) < 0.01(N7B69) < 0.01(JCZ38) < 0.01(K7H19)	IR4 Study No.10313 Test CA67
Citra, FLA, USA 2010 (Jawell)	3	0.15	50	300	4–5	0	mature fruit	0.33, 0.32	0.33	< 0.01(J9Z38) < 0.01(MLA84) < 0.01(MYX98) < 0.01(N7B69) < 0.01(JCZ38) < 0.01(K7H19)	IR4 Study No.10313 Test FL14
Salisbury, MD, USA 2010 (Danito)	3	0.15	32	460	4	0	mature fruit	0.039, 0.047	0.043	< 0.01(J9Z38) < 0.01(MLA84) < 0.01(MYX98) < 0.01(N7B69) < 0.01(JCZ38) < 0.01(K7H19)	IR4 Study No.10313 Test MD10
Raleigh, NC, USA 2010 (Jawell)	3	0.15	36	430	5	0	mature fruit	0.18, 0.18	0.18	< 0.01(J9Z38) < 0.01(MLA84) < 0.01(MYX98) < 0.01(N7B69) < 0.01(JCZ38) < 0.01(K7H19)	IR4 Study No.10313 Test NC12
Harrow, ON, Canada, 2010 (Camaro)	3	0.15	13	1200	5	0	mature fruit	0.027, 0.036	0.032	< 0.01(J9Z38) < 0.01(MLA84) < 0.01(MYX98) < 0.01(N7B69) < 0.01(JCZ38) < 0.01(K7H19)	IR4 Study No.10313 Test ON12

*Legume vegetables (Group 014)**Pea—Europe*

In trials conducted in Europe on peas (without pods, fresh) in the field, two applications of 0.075 kg ai/ha cyantraniliprole (WG formulation) were applied 7 days interval, using 200–1000 L spray mix/ha with added surfactants.

Samples of pods (with seeds) and foliage (leaves and stems) were stored at –18 °C for up to 10 months before extraction and analysis for cyantraniliprole and six metabolites (same day of extraction) using method DP15736, with reported LOQs of 0.01 mg/kg. Average concurrent recoveries were 81–104% (cyantraniliprole) and 80–101% (metabolites) in samples spiked with 0.01, 0.1, 0.2, 1.0, 3.4 mg/kg and also 5 mg/kg cyantraniliprole.

Table 14 Residues in field peas without pods(fresh) from supervised trials in Europe following two foliar applications of cyantranilprole, 400 g/kg WG formulation

Peas without pods(fresh) Location Country, year (variety)	Application				DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments	
	n	kg ai/ha	g ai/hL	Water L/ha			RTI (days)	cyantranilprole	mean		metabolites
Market Weighton, East Yorkshire, United Kingdom, 2011 (Fresh)	2	0.075		200– 1000	7	0 1 3(NCH) 7 14	Peas	0.11 0.09 0.05 0.05 0.01			Syngenta TK005719 4 Test 01
Driffield, East Yorkshire, United Kingdom, 2011 (Fresh)	2	0.075			7	0 1 3(NCH) 7 14	Peas	0.38 0.13 0.08 0.04 0.02		0.01(J9Z38) 0.02(J9Z38)0.01 (J9Z38)0.02(J9Z 38) 0.02(J9Z38)	Syngenta TK005719 4 Test 02
Sulniac, Bretagne, N. France, 2011 (Fresh)	2	0.075			7	0 1 3(NCH) 7 14	Peas	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01			Syngenta TK005719 4 Test 03
Oinville Saint Liphard, Eure et Loire, N. France, 2011 (Fresh)	2	0.075			7	0 1 3(NCH) 7 14	Peas	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01			Syngenta TK005719 4 Test 04
Behagnies, 62121, N. France, 2012 (Fresh)	2	0.075			7	1 3(NCH) 6	Peas	0.02 < 0.01 < 0.01			Syngenta TK011297 1 Test 05
Mulfingen, 74673, Germany, 2012 (Fresh)	2	0.075			7	1 3(NCH) 7	Peas	< 0.01 < 0.01 < 0.01			Syngenta TK011297 1 Test 06
Bretzfeld- Schwabbach, 74626, Germany, 2012 (Fresh)	2	0.075			7	1 3(NCH) 7	Peas	< 0.01 < 0.01 < 0.01			Syngenta TK011297 1 Test 07
Cagnicourt, 62182, N. France, 2012 (Fresh)	2	0.075			7	1 3(NCH) 7	Peas	0.06 0.04 0.02			Syngenta TK011297 1 Test 08
Houeilles, Lot et Garonne, Aquitaine, S France, 2011 (Fresh)	2	0.075			7	0 1 2(NCH) 7 14	Peas	0.03 0.04 0.04 0.02 0.02			Syngenta TK005719 3 Test 09

Peas without pods(fresh) Location Country, year (variety)	Application				DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	n o	kg ai/ha	g ai/hL	Water L/ha			RTI (days)	cyantraniliprole	mean	
Elne, Pyrenees Orientales, Elne, S France, 2011 (Fresh)	2	0.075			0 1 2(NCH) 6 14	Peas	0.61 0.51 0.05 0.03 0.01			Syngenta TK005719 3 Test 10
Granarolo, Emilia Romagna, Bologna, Italy, 2011 (Fresh)	2	0.075			0 1 3(NCH) 6 14	Peas	0.07 < 0.01 < 0.01 < 0.01 < 0.01			Syngenta TK005719 3 Test 11
Villar de Chinchilla, Albacete, Spain, 2011 (Fresh)	2	0.075			0 1 3(NCH) 6 14	Peas	0.02 0.02 < 0.01 < 0.01 0.01			Syngenta TK005719 3 Test 12
Montpouilla n, 47200, S France, 2012 (Fresh)	2	0.075			1 3(NCH)	Peas	< 0.01 < 0.01			Syngenta TK011298 5 Test 13
Saint Agnet, 40800, S. France, 2012 (Fresh)	2	0.075			1 3(NCH) 7	Peas	< 0.01 0.01 < 0.01			Syngenta TK011298 5 Test 14
La Gineta, 02110, Spain, 2012 (Fresh)	2	0.075			1 3(NCH) 7	Peas	< 0.01 < 0.01 < 0.01			Syngenta TK011298 5 Test 15
Papiano Marsciano, 06055, Italy, 2012 (Fresh)	2	0.075			1 3(NCH) 7	Peas	< 0.01 0.01 0.01			Syngenta TK011298 5 Test 16

Bean/Pea—North America

In trials conducted in Northern America on bean/peas (edible-podded, succulent shelled, dry shelled) in the field, three foliar applications of 0.15 kg ai/ha cyantraniliprole (SE/OD formulation) were applied at 5 day intervals, using 200–500 L spray mix/ha with added surfactants.

Samples of pods (with seeds) and foliage (leaves and stems) were stored at –20 °C for up to 14 months before extraction and analysis for cyantraniliprole and six metabolites using method DP15736, with reported LOQs of 0.01 mg/kg. Average concurrent recoveries were 81–104% (cyantraniliprole) and 75–102% (metabolites) in samples spiked with 0.01, 0.1, 1.0, 2.0, and 4.0 mg/kg cyantraniliprole.

Table 15 Residues in beans with pod (edible-podded bean) from supervised trials in the USA following three foliar applications of cyantraniliprole, 100 SE formulation

Bean with pod Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			Growth stage	cyantraniliprole	mean	
Germansville, PA, USA, 2011 (Savannah)	3	0.15	50	300	5	1	seed	0.41 0.46	0.43	0.016 (J9Z38) 0.007(MLA84)	DP 31668 Test 01 100 SE
Athens, GA, USA, 2011 (Blue Lake 274)	3	0.15	64	235	5	1	seed	0.42 0.30	0.36	0.013 (J9Z38) 0.006(MLA84)	DP 31668 Test 02 100 SE
Oviedo, FL, USA, 2011 (Provider Snap Bean)	3	0.15	54	280	5	1	seed	0.76 0.70	0.73	0.044 (J9Z38) 0.006(MLA84)	DP 31668 Test 03 100 SE
Geneva, MN, USA, 2011 (Top Crop)	3	0.15	80	190	4	1	seed	0.11 0.11	0.11	0.011 (J9Z38) 0.005(MLA84)	DP 31668 Test 04 100 SE
Northwood, ND, USA, 2011 (Top Crop)	3	0.15	54	280	4-5	1	seed	0.29 0.28	0.29	0.021 (J9Z38)	DP 31668 Test 05 100 SE
Richland, IA, USA, 2011 (Top Crop)	3	0.15	68	215	5	1	seed	0.21 0.25	0.23	0.016 (J9Z38)	DP 31668 Test 06 100 SE
Ephrata, WA, USA, 2011 (OSU 5630)	3	0.15	54	281	5	1	seed	0.10 0.11	0.11	0.009 (J9Z38)	DP 31668 Test 07 100 SE

Table 16 Residues in bean without pod (succulent shelled beans) from supervised trials in the USA following three foliar applications of cyantraniliprole, 100 SE formulation

Beans without pod Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
Kerman, CA, USA, 2011 (Blue Lake 274)	3	0.15	55	280	5	1	seed	0.019 0.028	0.023		DP 31668 Test 31 100 SE
Payette, ID, USA, 2011 (Fordhook 242)	3	0.15	65	234	5-6	1	seed	0.010 0.008	0.009		DP 31668 Test 32 100 SE
Payette, ID, USA, 2011 (Fordhook 242)	3	0.15	64	235	4-6	1	seed	0.050 0.065	0.057	0.006 (J9Z38)	DP 31668 Test 33 100 SE

Table 17 Residues in pea with pod (edible-podded peas) from supervised trials in the USA following three foliar applications of cyantraniliprole, 100 SE and 100 OD formulation

Peas with pod Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
Lenexa, KS, USA, 2011 (Melting Mammoth Sugar)	3	0.15	75	200	4-5	1	seed	0.81 0.72	0.76	0.009 (J9Z38) 0.007(MLA84)	DP 31668 Test 08 100 SE
								0.77 0.81	0.79	0.008 (J9Z38) 0.005(MLA84)	DP 31668 Test 08 100 OD
Geneva, MN, USA, 2011 (Cascadia)	3	0.15	78	190	4	1	seed	0.53	0.53	0.012 (J9Z38)	DP 31668 Test 09 100 SE
								0.63 0.58	0.61	0.013 (J9Z38)	DP 31668 Test 09 100 OD
Northwood, ND, USA, 2011 (Maestro)	3	0.15	54	280	5	1	seed	0.70 0.71	0.70	0.016 (J9Z38) 0.004(MLA84)	DP 31668 Test 10 100 SE
								0.83 0.74	0.78	0.014 (J9Z38)	DP 31668 Test 10 100 OD
Ephrata, WA, USA, 2011 (Sugar Bro)	3	0.15	53	281	5	1	seed	0.25 0.26	0.25		DP 31668 Test 11 100 SE
								0.29 0.30	0.29		DP 31668 Test 11 100 OD

Table 18 Residues in pea without pod (succulent shelled pea) from supervised trials in the USA following foliar applications of cyantraniliprole, 100 SE formulation

Pea without pod Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
Germansville, PA, USA, 2011 (Strike)	3	0.15	65	234	5	1	seed	0.071 0.094	0.082	0.007 (J9Z38)	DP 31668 Test 12 100 SE
Geneva, MN, USA, 2011 (Green Arrow)	3	0.15	80	200	4-6	1	seed	0.052 0.040	0.046	0.006 (J9Z38)	DP 31668 Test 13 100 SE
Gardner, ND, USA, 2011 (Knight Peas)	3	0.15	65	234	4-5	1	seed	0.066 0.064	0.065	0.011 (J9Z38)	DP 31668 Test 14 100 SE
Marysville, OH, USA, 2011 (Knight Peas)	3	0.15	77	195	6	1	seed	0.020 0.018	0.019		DP 31668 Test 15 100 SE

Pea without pod Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
Richland, IA, USA, 2011 (Laxton's Progress #9)	3	0.15	95	160	4-6	1	seed	0.099 0.10	0.10		DP 31668 Test 16 100 SE
Mt. Hood- Parkdale, OR, USA, 2011 (Progress #9)	3	0.15	65	236	5	1	seed	0.082 0.069	0.076		DP 31668 Test 17 100 SE

Soya bean

In trials conducted in Northern America on soya beans (edible-podded, succulent shelled, dry shelled) in the field, three foliar applications of 0.15 kg ai/ha cyantraniliprole (OD formulation) were applied at 5 day intervals, using 150–300 L spray mix/ha with added surfactants, and 0.04–0.08 g ai/ha of seed treatment

Table 19 Residues in soya beans from supervised trials in the USA following three foliar applications of cyantraniliprole, 100 OD formulation

Soya beans Location Country, year (variety)	Application						DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	Growth stage	RTI (days)			cyantraniliprole	mean	metabolites	
Frenchtown, NJ USA, 2011 (Pioneer 93M14)	3	0.15	50	304	R5 R5 R5-R6	4-6	6	Immature Seed	0.035 0.036	0.035	0.009(J9Z38) 0.005(MLA84)	DP29956 Trial 01 100 OD
Athens, GA, USA, 2011 (Pioneer 95Y20))	3	0.15	48	314	R5-R6 R5-R6 R6	5	7	Immature Seed	0.047 0.038	0.042		DP29956 Trial 02 100 OD
Blackville, SC, USA, 2011 (Pioneer 95Y20)	3	0.15	72	209	R5 R5 R6	5	7	Immature Seed	0.018 0.019	0.019		DP29956 Trial 03 100 OD
Ellendale, MN, USA, 2011 (92Y30)	3	0.15	80	192	R5 R5.5 R6	4-6	7	Immature Seed	0.038 0.033	0.036	0.008(J9Z38)	DP29956 Trial 07 100 OD
Gardner, ND, USA, 2011 (NK Seeds: Variety S02- M9)	3	0.15	64	234	R5 R5 R5	5	7	Immature Seed	0.12 0.16	0.14	0.006(J9Z38)	DP29956 Trial 08 100 OD

Pulses

Dry Bean/Pea

Table 20 Residues in bean, dry (dry shelled bean) from supervised trials in the USA following three foliar applications of cyantraniliprole, 100 SE and 100 OD formulations

Bean, Dry Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
Northwood, ND, USA, 2011 (Ensign - ADM)	3	0.15	54	281	6-4	7	seed	0.004 0.004	0.004		DP 31668 Test 18 100 OD
Carrington, ND, USA, 2011 (Ensign)	3	0.15	54	281	5-6	7	seed	< 0.003 0.005	0.003		DP 31668 Test 19 100 OD
Larned, KS, USA, 2011 (Poncho Pinto)	3	0.15	73	205	5	8	seed	0.039 0.056	0.048		DP 31668 Test 20 100 OD
Jerome, ID, USA, 2011 (Small Reds)	3	0.15	61	220	6-4	8	seed	0.009 0.009	0.009		DP 31668 Test 21 100 OD
Jerome, ID, USA, 2011 (Seminis SNO-112-0490-N14)	3	0.15	75	205	4-5	7	seed	0.050 0.048	0.049		DP 31668 Test 22 100 OD
Marysville, OH, USA, 2011 (Espada)	3	0.15	75	200	5	7	seed	< 0.003, < 0.003	< 0.003		DP 31668 Test 23 100 SE
							seed	< 0.003 < 0.003	< 0.003		DP 31668 Test 23 100 OD
Lenexa, KS, USA, 2011 (Pinkeye-Purple Hull) Lenex	3	0.15	70	215	4-5	7	seed	0.005 0.007	0.006	0.004 (J9Z38)	DP 31668 Test 24 100 SE
					4-5	7	seed	0.004 0.004	0.004	0.005 (J9Z38)	DP 31668 Test 24 100 OD
Stafford, KS, USA, 2011 (Cow Pea)	3	0.15	70	210	5	7	seed	0.24 0.19	0.22	0.06 (J9Z38)	DP 31668 Test 25 100 SE
							seed	0.085 0.13	0.11	0.030 (J9Z38)	DP 31668 Test 25 100 OD
York, NE, USA, 2011 (California Blackeye #5)	3	0.15	80	190	5	8	seed	0.060 0.056	0.058	0.007 (J9Z38)	DP 31668 Test 26 100 SE
					5	8	seed	0.072 0.10	0.088	0.009 (J9Z38)	DP 31668 Test 26 100 OD

Table 21. Residues in beans, dry (dry shelled beans) from supervised trials in the USA following three foliar applications of cyantraniliprole, 100 OD formulation

Beans, dry Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
Kerman, CA, USA, 2011 (Blue Lake 274)	3	0.15	55	280	5	7	seed	0.022 0.019	0.021		DP 31668 Test 31 100 OD
Payette, ID, USA, 2011 (Fordhook 242)	3	0.15	65	234	5-6	8	seed	< 0.003 0.004	< 0.003		DP 31668 Test 32 100 OD
Payette, ID, USA, 2011 (Fordhook 242)	3	0.15	64	235	4-5	6	seed	0.018 0.011	0.015		DP 31668 Test 33 100 OD

Table 22 Residues in pea, dry (dry shelled pea) from supervised trials in the USA following three foliar applications of cyantraniliprole, 100 SE and 100 OD formulations

Pea, Dry Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
Payette, ID, USA, 2011 (Austrian Winter)	3	0.15	65	235	4-6	0	Seed	0.48 0.50	0.49	0.012(J9Z38)	DP 31668 Test 27 100 OD
					4-6	1		0.31 0.80	0.56	0.009 (J9Z38)	DP 31668 Test 27 100 OD
					4-6	3		0.29 0.42	0.35	0.019(J9Z38)	DP 31668 Test 27 100 OD
					4-6	5		1.4 0.46	0.93	0.014 (J9Z38) 0.004(MYX98)	DP 31668 Test 27 100 OD
					4-6	7		0.34 0.67	0.51	0.006 (J9Z38)	DP 31668 Test 27 100 OD
Jerome, ID, USA, 2011 (Austrian)	3	0.15	75	200	4-5	0	Seed	0.14 0.13	0.13		DP 31668 Test 28 100 OD
					4-5	1		0.13 0.11	0.12		DP 31668 Test 28 100 OD
					4-5	4		0.10 0.12	0.11		DP 31668 Test 28 100 OD
					4-5	5		0.063 0.080	0.071		DP 31668 Test 28 100 OD
					4-5	7		0.073 0.081	0.077		DP 31668 Test 28 100 OD

Pea, Dry Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
Ephrata, WA, USA, 2011 (Austrian Winter)	3	0.15	53	281	5	7	Seed	0.017 0.020	0.019		DP 31668 Test 29 100 OD
Jerome, ID, USA, 2011 (Austrian Winter)	3	0.15	75	200	6	7	Seed	0.083 0.088	0.086		DP 31668 Test 30 100 OD

Soya bean, dry

Table 23 Residues in soya beans from supervised trials in the USA following three foliar applications of cyantraniliprole, 100 OD formulation

Soya beans Location Country, year (variety)	Application						DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	Growth stage	RTI (days)			cyantraniliprole	mean	metabolites	
Frenchtown, NJ USA, 2011 (Pioneer 93M14)	3	0.15	55	281	R7 R8 R8	5	7	Mature Seed	0.026 0.028	0.027		DP29956 Trial 01 100 OD
Athens, GA, USA, 2011 (Pioneer 95Y20)	3	0.15	49	315	R6-R7 R6-R7 R7-R8	5	7	Mature Seed	0.26 0.23	0.25	0.027(J9Z38)	DP29956 Trial 02 100 OD
Blackville, SC, USA, 2011 (Pioneer 95Y20)	3	0.15	74	205	R7 R7 R8	5-6	8	Mature Seed	0.009 0.014	0.011		DP29956 Trial 03 100 OD
Cheneyville, LA, USA, 2011 (Pioneer 95Y20)	3	0.15	63	246	BBCH80- 81 BBCH85 BBCH88- 89	4-5	7	Mature Seed	0.021 0.041	0.031		DP29956 Trial 04 100 OD
Fisk, MO, USA, 2011 (95Y50)	3	0.15	80	188	BBCH87 BBCH89 BBCH89	5	6	Mature Seed	0.028 0.026	0.027		DP29956 Trial 05 100 OD
Pollard, AR, USA, 2011 (Pioneer 95M50)	3	0.15	80	188	BBCH87 BBCH89 BBCH89	5	6	Mature Seed	0.012 0.013	0.012		DP29956 Trial 06 100 OD
Ellendale, MN, USA, 2011 (92Y30)	3	0.15	76	202	R7 R7 R8	4-5	7	Mature Seed	0.034 0.028	0.031		DP29956 Trial 07 100 OD
Gardner, ND, USA, 2011 (NK Seeds: Variety S02- M9)	3	0.15	65	234	R6 R7 R8	5	6	Mature Seed	0.10 0.10	0.10	0.003(J9Z38)	DP29956 Trial 08 100 OD
Northwood, ND, USA, 2011 (Pioneer 90M80)	3	0.15	53	281	BBCH89 BBCH89 BBCH89	5-6	5	Mature Seed	0.015 0.019	0.017		DP29956 Trial 09 100 OD

Cyantraniliprole

Soya beans Location Country, year (variety)	Application						DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	Growth stage	RTI (days)			cyantraniliprole	mean	metabolites	
Marysville, OH, USA, 2011 (93Y70)	3	0.15	75	203	BBCH80 BBCH85 BBCH87	5	7	Mature Seed	< 0.003 < 0.003	< 0.003		DP29956 Trial 10 100 OD
Rochelle, IL, USA, 2011 (Pioneer 93Y70)	3	0.15	51	295	R7 R7-R8 R8	4-5	7	Mature Seed	0.021 0.023	0.022		DP29956 Trial 11 100 OD
Richland, IA, USA, 2011 (93Y70)	3	0.15	70	215	R7 12 PHI 7 PHI	5	7	Mature Seed	0.088 0.077	0.083		DP29956 Trial 12 100 OD
			70	215				Seed (from field site for AGF grain dust)	0.084 0.079	0.081	0.006(J9Z38)	
			70	215				Seed (from processor for AGF grain dust)	0.069 0.073	0.071		
			70	215				AGF (grain dust)	46 47	46	0.12(J9Z38) 0.13(MYX98) 0.021(JCZ38) 0.028(N7B69)	
Tipton, MO, USA, 2011 (93Y70)	3	0.15	50	291	R7 R7 R8	4-6	8	Mature Seed	0.049 0.038	0.044		DP29956 Trial 13 100 OD
Fisk, MO, USA, 2011 (95M50)	3	0.15	79	188	BBCH87 BBCH88 BBCH89	5	6	Mature Seed	0.031 0.034	0.033		DP29956 Trial 14 100 OD
Gardner, KS, USA, 2011 (93Y70)	3	0.15	69	218	BBCH79 BBCH80 BBCH86	5	7	Mature Seed	0.15 0.16	0.16		DP29956 Trial 15 100 OD
Stafford, KS, USA, 2011 (Pioneer 93Y70)	3	0.15	72	212	BBCH79 BBCH81 BBCH82	5	8	Mature Seed	0.11 0.15	0.13	0.008(J9Z38)	DP29956 Trial 16 100 OD
York, NE, USA, 2011 (93Y12)	3	0.15	78	192	R7 R8 R8	4-5	8	Mature Seed	0.021 0.024	0.023		DP29956 Trial 17 100 OD
Springfield, NE, USA, 2011 (93Y70)	3	0.15	79	193	BBCH79- 81 BBCH81 BBCH86	4-5	7	Mature Seed	0.13 0.12	0.12		DP29956 Trial 18 100 OD
Enid, OK, USA, 2011 (554-T5)	3	0.15	72	216	BBCH93 BBCH95 BBCH97	4-6	8	Mature Seed	0.14 0.15	0.15		DP29956 Trial 19 100 OD
Saginaw, MI, USA, 2012 (R54219R)	3	148	71	209	BBCH80 BBCH85 BBCH87	5-7	7	Mature Seed	0.065 0.056	0.061		DP29956 Trial 20 100 OD

Soya beans Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments	
	no	kg ai/ha	g ai/hL	water L/ha	Growth stage			RTI (days)	cyantraniliprole	mean		metabolites
Hedrick, IA, USA, 2011 (93Y70)	3	151	67	224	BBCH85 BBCH85 BBCH85	5	7	Mature Seed	0.059 0.053	0.056		DP29956 Trial 21 100 OD

Table 24 Residues in soya beans from supervised trials in the USA following seed treatment of cyantraniliprole, 625 FS formulation

Soya beans Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
Frenchtown, NJ USA, 2011 (Pioneer 93Y70)	1	0.388				161	Mature Seed	< 0.003 < 0.003	< 0.003		DP29956 Trial 01 625 FS
		0.777				161	Mature Seed	< 0.003, < 0.003	< 0.003		
Athens, GA, USA, 2011 (Pioneer 95Y20)	1	0.386				131	Mature Seed	0.006	0.006	0.006(J9Z38) 0.006(MLA84) 0.006(JCZ38) 0.006(N7B69)	DP29956 Trial 02 625 FS
Blackville, SC, USA, 2011 (Pioneer 95Y20)	1	0.386				136	Mature Seed	< 0.003 < 0.003	< 0.003		DP29956 Trial 03 625 FS
	1	0.773				136	Mature Seed	< 0.003 < 0.003	< 0.003		
Cheneyville, LA, USA, 2011 (Pioneer 95Y20)	1	0.291– 0.364				120	Mature Seed	< 0.003 < 0.003	< 0.003		DP29956 Trial 04 625 FS
	1	0.583– 0.729				120	Mature Seed	< 0.003 < 0.003	< 0.003		
Fisk, MO, USA, 2011 (95Y20)	1	0.386				131	Mature Seed	< 0.003 < 0.003	< 0.003		DP29956 Trial 05 625 FS
	1	0.773				131	Mature Seed	< 0.003 < 0.003	< 0.003		
Pollard, AR, USA, 2011 (Pioneer 95Y20)	1	0.386				117	Mature Seed	< 0.003 < 0.003	< 0.003		DP29956 Trial 06 625 FS
	1	0.773				117	Mature Seed	< 0.003 < 0.003	< 0.003		
Ellendale, MN, USA, 2011 (92Y30)	1	0.383				139	Mature Seed	< 0.003 < 0.003	< 0.003		DP29956 Trial 07 625 FS
	1	0.786				139	Mature Seed	< 0.003 < 0.003	< 0.003		
Gardner, ND, USA, 2011 (Pioneer 90M80)	1	0.403				123	Mature Seed	< 0.003, < 0.003	< 0.003		DP29956 Trial 08 625 FS
	1	0.806				123	Mature Seed	< 0.003, < 0.003	< 0.003		
Northwood, ND, USA, 2011 (Pioneer 90M80)	1	0.387				149	Mature Seed	< 0.003, < 0.003	< 0.003		DP29956 Trial 09 625 FS
	1	0.774				149	Mature Seed	< 0.003, < 0.003	< 0.003		
Marysville, OH, USA, 2011 (93Y70)	1	0.384				105	Mature Seed	< 0.003, < 0.003	< 0.003		DP29956 Trial 10 625 FS
	1	0.768				105	Mature	< 0.003,	< 0.003		

Soya beans Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments	
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			Seed	cyantranilprole	mean		metabolites
							Seed	< 0.003				
Rochelle, IL, USA, 2011 (Pioneer 93Y70)	1	0.386				164	Mature Seed	< 0.003, < 0.003	< 0.003		DP29956 Trial 11 625 FS	
	1	0.773				164	Mature Seed	< 0.003, < 0.003	< 0.003			
Richland, IA, USA, 2011 (93Y70)	1	0.475				136	Mature Seed	0.007 < 0.003	0.004		DP29956 Trial 12 625 FS	
Richland, IA, USA, 2011 (93Y70)	1	0.949				136	Mature Seed	< 0.003 < 0.003	< 0.003		DP29956 Trial 12 625 FS	
Tipton, MO, USA, 2011 (93Y70)	1	0.409				132	Mature Seed	< 0.003, < 0.003	< 0.003		DP29956 Trial 13 625 FS	
	1	0.817				132	Mature Seed	0.003, 0.004	0.004			
Fisk, MO, USA, 2011 (95M50)	1	0.386				117	Mature Seed	0.006, < 0.003	0.004		DP29956 Trial 14 625 FS	
	1	0.773				117	Mature Seed	< 0.003, < 0.003	< 0.003			
Gardner, KS, USA, 2011 (93Y70)	1	0.386				128	Mature Seed	< 0.003, < 0.003	< 0.003		DP29956 Trial 15 625 FS	
	1	0.771				128	Mature Seed	< 0.003, < 0.003	< 0.003			
Stafford, KS, USA, 2011 (Pioneer 93Y70)	1	0.386				124	Mature Seed	< 0.003, < 0.003	< 0.003		DP29956 Trial 16 625 FS	
	1	0.773				124	Mature Seed	< 0.003, < 0.003	< 0.003			
York, NE, USA, 2011 (93Y12)	1	0.372				133	Mature Seed	< 0.003, < 0.003	< 0.003		DP29956 Trial 17 625 FS	
	1	0.743				133	Mature Seed	< 0.003, < 0.003	< 0.003			
Springfield, NE, USA, 2011 (93Y70)	1	0.392				147	Mature Seed	< 0.003, < 0.003	< 0.003		DP29956 Trial 18 625 FS	
	1	0.783				147	Mature Seed	< 0.003, < 0.003	< 0.003			
Enid, OK, USA, 2011 (93Y20)	1	0.378				167	Mature Seed	< 0.003, < 0.003	< 0.003		DP29956 Trial 19 625 FS	
	1	0.755				167	Mature Seed	< 0.003, < 0.003	< 0.003			
Hedrick, IA, USA, 2011 (93Y70)	1	0.387				120	Mature Seed	< 0.003, < 0.003	< 0.003		DP29956 Trial 21 625 FS	
Hedrick, IA, USA, 2011 (93Y70)	1	0.773				120	Mature Seed	< 0.003, < 0.003	< 0.003		DP29956 Trial 21 625 FS	

Stalk and stem vegetables

Artichoke

In trials conducted on artichokes in Europe, two foliar applications of 0.05 kg ai/ha cyantranilprole (OD formulation) were applied at 10–13 day intervals, using 800–1000 L/ha with no adjuvant.

Samples of artichoke were stored at -20°C for up to 12 months before extraction and analysis for cyantraniliprole and six metabolites using method DP-15736, with reported LOQs of 0.01 mg/kg. Average concurrent recoveries were 97–108% (cyantraniliprole) and 83–106% (metabolites) in samples spiked with 0.01, 0.1 and 0.2 mg/kg.

Table 25 Residues in artichokes (stem vegetables) from supervised trials in Southern Europe following two foliar applications of cyantraniliprole, 100 OD formulation

Artichokes Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
Kato Souli, Central Greece Greece,2011 (Wild artichoke)	2	0.05	5	1000	11	7	Mature flower heads	0.033			DP29224 Test 01
Bussana, Liguria Italy,2011 (Spinosa)	2	0.05	5	1000	10	-0 0 1 3 7	Mature flower heads	0.05 0.14 0.086 0.076 0.038			DP29224 Test 02
Ventas de Zafarraya, Andalucia, South Spain,2011 (Blanca de Tudela)	2	0.05	5	1000	10	-0 0 1 3 7	Mature flower heads	0.009 0.11 0.044 0.041 0.019			DP29224 Test 03
Bastia D'Albenga, Liguria, Italy, 2012 (Spinoso)	2	0.05	5	1000	13	-0 0 1 3 7	Mature flower heads	0.004 0.092 0.054 0.046 0.050			DP29224 Test 05
Aguadulce, Andalucía, South Spain 2012 (Blanca de Tudela)	2	0.05	5.01	1000	10	7	Mature flower heads	0.016			DP29224 Test 06

Cereals

Maize

In twenty-three trials conducted on field or pop maize in the USA, seed treatment of 0.5 mg ai/seed of cyantraniliprole (FS formulation) or seed treatment of 0.5 mg ai/seed plus two foliar applications of 0.15 kg ai/ha of cyantraniliprole(WG formulation) were applied, with adjuvants added in foliar applications.

Samples were stored at -20°C up to 16 month until analysed for cyantraniliprole and the metabolite using analysis method DP-15736. The reported LOQs for cyantraniliprole were 0.01 mg/kg. Average concurrent recoveries were 79–94% (cyantraniliprole) and 73–97% (metabolites) in samples spiked with 0.01, 0.1, 1.0, 5, 14–80 mg/kg.

Table 26 Residues in field maize from supervised trials in the USA following seed treatment of cyantraniliprole, FS formulation

Field Maize Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	mg ai seed	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
North Rose, NY USA, 2011 (101 RM)	1	0.04	0.5				Grain	< 0.010, < 0.010	< 0.010		TK0029740- REG Test 01
Seven Springs, NC USA, 2011 (114 RM)	1	0.05	0.5				Grain	< 0.010, < 0.010	< 0.010		TK0029740- REG Test 02
Wyoming, IL USA, 2011 (109 RM))	1	0.048	0.5				Grain	< 0.010, < 0.010	< 0.010		TK0029740- REG Test 03
Carlyle, IL USA, 2011 (109 RM)	1	0.04	0.5				Grain	< 0.010, < 0.010	< 0.010		TK0029740- REG Test04
Fitchburg, WI USA, 2011 (94 RM)	1	0.041	0.5				Grain	< 0.010, < 0.010	< 0.010		TK0029740- REG Test05
Rice, MN USA, 2011 (94 RM)	1	0.043	0.5				Grain	< 0.010, < 0.010	< 0.010		TK0029740- REG Tesst 06
Stafford, KS USA, 2011 (105 RM)	1	0.04	0.5				Grain	< 0.010, < 0.010	< 0.010		TK0029740- REG Test 07
Campbell, MN USA, 2011 (94 RM)	1	0.043	0.5				Grain	< 0.010, < 0.010	< 0.010		TK0029740- REG Test08
TestTK0029740- 09 Seymour, IL USA, 2011 (114 RM)	1	0.041	0.5				Grain	< 0.010, < 0.010	< 0.010		TK0029740- REG Test 09
Perley, MN USA, 2011 (85 RM)	1	0.037	0.5				Grain	< 0.010, < 0.010	< 0.010		TK0029740- REG Test 10
Geneva, MN USA, 2011 (94 RM)	1	0.04	0.5				Grain	< 0.010, < 0.010	< 0.010		TK0029740- REG Test 11
Northwood, KS USA, 2011 (85 RM)	1	0.037	0.5				Grain	< 0.010, < 0.010	< 0.010		TK0029740- REG Test12
TStafford, KS USA, 2011 (109 RM5)	1	0.039	0.5				Grain	< 0.010, < 0.010	< 0.010		TK0029740- REG Test 13
McVile, ND USA, 2011 (85 RM)	1	0.037	0.5				Grain	< 0.010, < 0.010	< 0.010		TK0029740- REG Test14
Jefferson, IA USA, 2011 (114 RM)	1	0.043	0.5				Grain	< 0.010, < 0.010	< 0.010		TK0029740- REG Test 15
York, NE USA, 2011 (114 RM)	1	0.04	0.5				Grain	< 0.010, < 0.010	< 0.010		TK0029740- REG Test16
Fitchburg, WI USA, 2011 (94 RM)	1	0.039	0.5				Grain	< 0.010, < 0.010	< 0.010		TK0029740- REG Test 17

Field Maize Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	mg ai seed	water L/ha	RTI (days)			cyantranilprole	mean	metabolites	
Richland, IA USA,2011 (109 RM)	1	0.044	0.5				Grain	< 0.010, < 0.010	< 0.010		TK0029740-REG Test 18
Bagley, IA /USA,2011 (114 RM)	1	0.039	0.5				Grain	< 0.010, < 0.010	< 0.010		TK0029740-REG Test 19
Wall, TX USA,2011 (114 RM)	1	0.041					Grain	< 0.010, < 0.010	< 0.010		TK0029740-REG Test20
York, NE, USA,2011 (Hybrid A3035)	1	0.045					Grain	< 0.010, < 0.010	< 0.010		TK0029740-REG Test 21
Geneva, MN USA,2011 (Hybrid A3035)	1	0.048					Grain	< 0.010, < 0.010	< 0.010		TK0029740-REG Test22
Gardner, ND USA,2011 (Hybrid A3035)	1	0.052					Grain	< 0.010, < 0.010	< 0.010		TK0029740-REG Test 23

Table 27 Residues in field maize from supervised trials in the USA following one seed treatment, FS formulation, plus two foliar applications of cyantranilprole, WG formulation

Field Maize Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	mg ai seed	water L/ha	RTI (days)			cyantranilprole	mean	metabolites	
North Rose, NY, USA, 2011, (101 RM)	1 + 2	0.04 + 0.15	0.5	2–200		14	Grain	< 0.010, < 0.010	< 0.010		TK0029740-REG Test 01
Seven Springs, NC, USA,2011 (114 RM)	1 + 2	0.05 + 0.15	0.5	2–200		14	Grain	< 0.010, < 0.010	< 0.010		TK0029740-REG Test 02
Wyoming, IL USA,2011 (109 RM)	1 + 2	0.048 + 0.15	0.5	2–200		14	Grain	< 0.010, < 0.010	< 0.010		TK0029740-REG Test 03
Carlyle, IL USA,2011 (109 RM)	1 + 2	0.04 + 0.15	0.5	2–200		14	Grain	< 0.010, < 0.010	< 0.010		TK0029740-REG Test04
Fitchburg, WI USA,2011 (94 RM)	1 + 2	0.041 + 0.15	0.5	2–200		14	Grain	< 0.010, < 0.010	< 0.010		TK0029740-REG Test05
Rice, MN USA,2011 (94 RM)	1 + 2	0.043 + 0.15	0.5	2–200		14	Grain	< 0.010, < 0.010	< 0.010		TK0029740-REG Tesst 06
Stafford, KS USA,2011 (105 RM)	1 + 2	0.04 + 0.15	0.5	2–200		14	Grain	< 0.010, < 0.010	< 0.010		TK0029740-REG Test 07
Campbell, MN USA,2011 (94 RM)	1 + 2	0.043 + 0.15	0.5	2–200		14	Grain	< 0.010, < 0.010	< 0.010		TK0029740-REG Test08
Seymour, IL USA,2011 (114 RM)	1 + 2	0.041 + 0.15	0.5	2–200		14	Grain	< 0.010, < 0.010	< 0.010		TK0029740-REG Test 09

Cyantraniliprole

Field Maize Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	mg ai seed	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
Perley, MN USA,2011 (85 RM)	1 + 2	0.037 + 0.15	0.5	2–200		14	Grain	< 0.010, < 0.010	< 0.010		TK0029740- REG Test 10
Geneva, MN USA,2011 (94 RM)	1 + 2	0.04 + 0.15	0.5	2–200		14	Grain	< 0.010, < 0.010	< 0.010		TestTK0029740- REG Test 11
Northwood, KS USA,2011 (85 RM)	1 + 2	0.037 + 0.15	0.5	2–200		14	Grain	< 0.010, < 0.010	< 0.010		TK0029740- REG Test12
Stafford, KS USA,2011 (109 RM5)	1 + 2	0.039 + 0.15	0.5	2–200		14	Grain	0.02, 0.02	0.02		TK0029740- REG Test 13
McVile, ND USA,2011 (85 RM)	1 + 2	0.037 + 0.15	0.5	2–200		14	Grain	< 0.010, < 0.010	< 0.010		TK0029740- REG Test14
Jefferson, IA USA,2011 (114 RM)	1 + 2	0.043 + 0.15	0.5	2–200		14	Grain	< 0.010, < 0.010	< 0.010		TK0029740- REG Test 15
York,NE USA,2011 (114 RM)	1 + 2	0.04 + 0.15	0.5	2–200		0 7 14 21 28	Grain	< 0.010, < 0.010, < 0.010, < 0.010, < 0.010, < 0.010, < 0.010	< 0.010, < 0.010, < 0.010, < 0.010, < 0.010		TK0029740- REG Test16
Fitchburg, WI USA,2011 (94 RM)	1 + 2	0.039 + 0.15	0.5	2–200		0 7 14 21 28	Grain	< 0.010 < 0.010 < 0.010, < 0.010, < 0.010, < 0.010	< 0.010 < 0.010 < 0.010, < 0.010, < 0.010		TK0029740- REG Test 17
Richland, IA USA,2011 (109 RM)	1 + 2	0.044 + 0.15	0.5	2–200		14	Grain	< 0.010, < 0.010	< 0.010		TK0029740- REG Test 18
Bagley, IA /USA,2011 (114 RM)	1 + 2	0.039 + 0.15	0.5	2–200		14	Grain	< 0.010, < 0.010	< 0.010		TK0029740- REG Test 19
Wall, TX USA,2011 (114 RM)	1 + 2	0.041 + 0.15	0.5	2–200		14	Grain	< 0.010, < 0.010	< 0.010		TK0029740- REG Test20
York, NE, USA, 2011 (Hybrid A3035)	1 + 2	0.045 + 0.15	0.5	2–200		14	Grain	< 0.010, < 0.010	< 0.010		TK0029740- REG Test 21
Geneva, MN USA,2011 (Hybrid A3035)	1 + 2	0.048 + 0.15	0.5	2–200		14	Grain	< 0.010, < 0.010	< 0.010		TK0029740- REG Test22
Gardner, ND USA,2011 (Hybrid A3035)	1 + 2	0.052 + 0.15	0.5	2–200		14	Grain	< 0.010, < 0.010	< 0.010		TK0029740- REG Test 23

Tree nuts

Almond

Table 28 Residues in almonds from supervised trials in the USA following three foliar applications of cyantraniliprole, 100 SE formulation

ALMOND Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
Dinuba, CA, USA, 2011 (Non Pareil)	1 +	0.15	284	52	7	5	nutmeat	0.008, 0.08	0.008		DP-32057 Trial 01
	1 +		291								
	1 +		290								
Terra Bella, CA, USA, 2011 (Carmell)	1 +	0.15	32	474	7	5	nutmeat	0.011, 0.009	0.01		DP-32057 Trial 02
	1 +		32								
	1 +		34								
Strathmore, CA, USA, 2011 (Fritz)	1 +	0.15	34	444	7	4	nutmeat	0.004, 0.006	0.005		DP-32057 Trial 03
	1 +		35								
	1		34								
Sanger, CA, USA, 2011 (Non-Pareil)	1 +	0.15	32	478	7	5	nutmeat	0.013, 0.014	0.014		DP-32057 Trial 04
	1 +		34								
	1 +		32								

Table 29 Residues in almonds from supervised trials in the USA following foliar applications of cyantraniliprole, 100 OD or SE formulations,) data previously reviewed by the 2013 JMPR

ALMOND Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
Turlock, CA USA, 2009 (Butte)	3	0.15	26	580	7, 6	5	nutmeat	0.012, 0.012	0.012		DP-27446 Trial 01
Kerman, CA USA, 2009 (Non-Pareil)	3	0.15	32	470	7	5	nutmeat	0.009, 0.01	0.009		DP-27446 Trial 02
Sanger, CA USA, 2009 (Neplus)	1 +	0.15	23	650	6	5	nutmeat	0.006, 0.007	0.007		DP-27446 Trial 03
	1 +		27								
	1		540								
Sutter, CA USA, 2009 (Non-Pareil)	3	0.15	310	50	7	5	nutmeat	0.024, 0.023	0.023		DP-27446 Trial 04
Sanger, CA USA, 2009 (Neplus)	1 +	0.15	6	2400	7	5	nutmeat	0.005, 0.005	0.005		DP-27446 Trial 05
	2		12								
	1 +	0.15	6	2400	7	5	nutmeat	0.008, 0.006	0.007		DP-27446 Trial 05 [100 SE]
	2		12								
Madera, CA USA, 2009 (Non-Pareil)	3	0.15	330	50	6, 7	5	nutmeat	0.006, 0.007	0.007		DP-27446 Trial 06
	3	0.15	11	1400	6, 7	5	nutmeat	0.016, 0.019	0.018		DP-27446 Trial 06 [100 SE]

M1: Average residues of metabolite IN-J9Z38

M2: Average residues of metabolite IN-MYX98

Pecan

Table 30 Residues in pecans from supervised trials in the USA following three foliar applications of cyantraniliprole, 100 SE formulation

Pecan Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
Hawkinsville, GA, USA, 2011 (Desirable)	1 + 1 + 1 +	0.15	14	1065 1067 1087	7	5	nutmeat	0.004, 0.007	0.006		DP-32057 Trial 05
Girard, GA, USA, 2011 (Desirable)	1 + 1 + 1 +	0.15	15	998 1013 1022	8 6	4	nutmeat	0.006, 0.006	0.006		DP-32057 Trial 06
Ocilla, GA, USA, 2011 (Sumner)	1 + 1 + 1 +	0.15	14 15 14	1044 1030 1036	7 6	6	nutmeat	0.005, 0.009	0.007		DP-32057 Trial 07
Alexandria, LA, USA, 2011 (Creek)	1 + 1 + 1 +	0.15	292 308 306	51 48 49	7	4	nutmeat	0.005, 0.005	0.005		DP-32057 Trial 08
Pearsall, TX, USA, 2011 (Cheyenne)	1 + 1 + 1 +	0.15	26 24 23	593 617 644	7	5	nutmeat	< 0.003, 0.004	< 0.01		DP-32057 Trial 09
San Angelo, TX, USA, 2011 (Indian)	1 + 1 + 1 +	0.15	384 378 382	39	7	5	nutmeat	0.006, 0.008	0.007		DP-32057 Trial 10

Table 31 Residues in pecans from supervised trials in the USA following foliar three applications of cyantraniliprole, 100 OD or SE formulations, or soil (shank) injection, SC formulation, (data previously reviewed by the 2013 JMPR)

PECAN Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
Girard, GA USA, 2009 (Desirables)	3	0.15	12	1200	7	5	nutmeat	< 0.003, < 0.003	< 0.003		DP-27446 Trial 07
Union Springs, AL USA, 2009 (Stewart)	3	0.15	12	1200	7	5	nutmeat	< 0.003, < 0.003	< 0.003		DP-27446 Trial 08
Bailey, NC USA, 2009 (Stuart)	3	0.15	12	1200	7	4	nutmeat	< 0.003, < 0.003	< 0.003		DP-27446 Trial 09
Alexandria, LA USA, 2009 (Creek)	1 + 1 + 1	0.16 0.16 0.15	24 21 23	660 780 630	7	5	nutmeat	0.008, 0.010	0.009		DP-27446 Trial 10
Eagle Lake, TX USA, 2009 (Pawnee)	3	0.15	360	40	7, 8	5	nutmeat	0.006, 0.004	0.005		DP-27446 Trial 11

PECAN Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
Pearsall, TX USA, 2009 (Wichita)	3	0.15 0.14 0.15	27 24 29	570 590 530	7	5	nutmeat	< 0.003, < 0.003	< 0.003		DP-27446 Trial 12
Pearsall, TX USA, 2009 (Wichita)	1	0.46	490	90		57	nutmeat	< 0.003, < 0.003	< 0.003		DP-27446 Trial 12 [200 SC soil injection]

Oilseeds

Cotton

Table 32 Residues in cotton from supervised trials in the USA following three foliar applications of cyantraniliprole, 100 OD formulation, (data previously reviewed by the 2013 JMPR)

COTTON SEED Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
Seven Springs, NC USA, 2009 (ST 4554B2RF)	3	0.15	63	240	7	8	seed	0.011, 0.013	0.012		DP-27565 Trial 01
Cheneyville, LA USA, 2009 (Phytogen 485WRF)	3	0.15	75	200	7, 6	-0 0 5 7	seed	0.28, 0.2 0.63, 0.58 0.2, 0.14 0.17, 0.2	0.24 0.6 0.17 0.18	M1 = 0.02 M1 = 0.02 M1 = 0.02 M1 = 0.03	DP-27565 Trial 02
Fisk, MO USA, 2009 (DP 164 B2RF)	3	0.15	80	190	8	8	seed	0.023, 0.027	0.025		DP-27565 Trial 03
Newport, AR USA, 2009 (DP 164 B2RF)	3	0.15	80	190	7	7	seed	0.045, 0.025	0.035		DP-27565 Trial 04
East Bernard, TX USA, 2009 (DP0924 B2F)	3	0.15	75	200	8, 6	-0 0 1 5 7	seed	0.27, 0.33 0.94, 0.66 0.63, 0.89 0.56, 0.82 0.26, 0.26	0.3 0.8 0.76 0.69 0.26	M1 = 0.05 M1 = 0.05 M1 = 0.05 M1 = 0.07 M1 = 0.06	DP-27565 Trial 05
Larned, KS USA, 2009 (Delta Pine)	3	0.15	71	210	7	8	seed	0.27, 0.32	0.29	M1 = 0.01	DP-27565 Trial 06
Larned, KS USA, 2009 (Delta Pine)	1 + 1 + 1	0.19 0.1 0.15	109 48 72	180 210 210	146 7	8	seed	0.16, 0.14	0.15		DP-27565 Trial 06 [soil inject+ 2 foliar]
Hinton, OK USA, 2009 (FM1740B2F)	3	0.15	75	200	8, 9	9	seed gin trash	0.18, 0.13 2.6, 2.6	0.16 2.6	 M1 = 0.03 M2 = 0.01	DP-27565 Trial 07
Edmonson, TX USA, 2009 (DP 924)	3	0.15	97	160	8, 6	7	seed gin trash	0.83, 1.2 4.3, 5.7	0.99 5	 M1 = 0.02 M2 = 0.03	DP-27565 Trial 08

Cyantraniliprole

COTTON SEED Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/h a	g ai/h L	water L/h a	RTI (days)			cyantraniliprol e	mea n	metabolite s	
Levelland, TX USA, 2009 (9063 B2F)	3	0.15	63	234	7	8	seed gin trash	0.11, 0.12 3.5, 3.5	0.12 3.5	 M1 = 0.07 M2 = 0.02	DP-27565 Trial 09
Uvalde, TX USA, 2009 (DP6167 B2RF)	3	0.15	65	234	7	6	seed gin trash	0.1, 0.14 2.8, 2.6	0.12 2.7	 M1 = 0.07 M2 = 0.01	DP-27565 Trial 10
Hickman, CA USA, 2009 (Pima)	3	0.15	40	374	7	8	seed	0.2, 0.2	0.2		DP-27565 Trial 11
Madera, CA USA, 2009 (Acala Riata RR)	3	0.15	64	234	7, 6	7	seed	0.15, 0.12	0.14		DP-27565 Trial 12
Sanger, CA USA, 2009 (PHY 725 RF Acala)	3	0.15	54 37	290 400	6 8	7	seed	0.24, 0.21	0.22		DP-27565 Trial 13

M1: Average residues of metabolite IN-J9Z38

M2: Average residues of metabolite IN-MYX98

Rape seed (canola)

Table 33 Residues in oil-seed rape from supervised trials in the USA following foliar applications of cyantraniliprole, 100 OD formulation, with and without the use of cyantraniliprole-treated seed (data previously reviewed by the 2013 JMPR)

OILSEED RAPE Location Country, year (variety)	Application					DAT (days)	Matri x	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/h L	water L/h a	RTI (days)			cyantranilipro le	mea n	metabolite s	
Stephens, GA USA, 2009 (Sumner)	1 + 1 + 1	0.15 0.15 0.14	51 62 70	290 240 210	7	7	seed	0.017, 0.022	0.01 9		DP27582 Test 01
Geneva, MN USA, 2009 (Pioneer 45H21)	3	0.15	79	190	6, 7	8	seed	0.027, 0.016	0.02 1		DP27582 Test 02
St. Marc-sur Richelieu, QC CAN, 2009 (Pioneer D3150)	3	0.15	50	300	6, 9	1	seed	0.17, 0.16	0.16		DP27582 Trial 03
St. Marc-sur Richelieu, QC CAN, 2009 (Pioneer D3150)	1 + 1 + 2	0.08 + 0.07 0.15	24 50	310 300	6 9	1	seed	0.11, 0.13	0.12		DP27582 Trial 03 [with treated seed]
Carrington, ND USA, 2009 (Pioneer D3151)	3	0.15	54	280	7	7	seed	0.017, 0.017	0.01 7		DP27582 Test 04

OILSEED RAPE Location Country, year (variety)	Application					DAT (days)	Matri x	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/h L	water L/h a	RTI (days)			cyantranilipro le	mea n	metabolite s	
Carrington, ND USA, 2009 (Pioneer D3151)	1 + 1 + 2	0.08 + 0.07 0.15	25 54	280 280	7 7	7	seed	0.015, 0.016	0.01 5		DP27582 Test 04 [with treated seed]
Ephrata, WA USA, 2009 (7145 RR)	3	0.15	73	210	7	7	seed	0.087, 0.08	0.08 4	M1 = 0.01	DP27582 Test 05
Jerome, ID USA, 2009 (D3151)	2 + 1	0.15	76 80	200 190	6 8	7	seed	0.29, 0.34	0.32		DP27582 Test 06
Jerome, ID USA, 2009 (D3151)	1 + 1 + 1 + 1	0.08 + 0.07 0.15 0.16	37 74 80	200 200 190	6 8	7	seed	0.21, 0.22	0.21		DP27582 Test 06 [with treated seed]
Carberry, MB CAN, 2009 (D3151)	3	0.15	60	250	7, 6	6	seed	0.054, 0.065	0.05 9		DP27582 Test 07
Carberry, MB CAN, 2009 (D3151)	1 + 1 + 2	0.08 + 0.07 0.15	29 60	250 250	7 6	6	seed	0.029, 0.032	0.03 1		DP27582 Test 07 [with treated seed]
Justice, MB CAN, 2009 (D3151)	3	0.15	60	250	7, 6	6	seed	0.022, 0.023	0.02 2		DP27582 Test 08
Justice, MB CAN, 2009 (D3151)	1 + 1 + 2	0.08 + 0.07 0.15	29 60	250 250	7 6	6	seed	0.048, 0.047	0.04 7		DP27582 Test 08 [with treated seed]
Brandon, MB CAN, 2009 (Invigor 5030)	3	0.15	60	250	7	7	seed	0.18, 0.16	0.17		DP27582 Test 09
Alvena, SK CAN, 2009 (RR 7145)	3	0.15	75	200		7	seed	0.24, 0.3	0.27	M1 = 0.02	DP27582 Test 10
Ft. Saskatchewan, AB CAN, 2009 (Liberty 1141)	3	0.15	50	300	7, 6	7	seed	0.057, 0.066	0.06 1		DP27582 Trial 11
Ft. Saskatchewan, AB CAN, 2009 (1818 Roundup Ready)	3	0.15	50	300	7	7	seed	0.13, 0.12	0.12		DP27582 Trial 12
Lamont, AB CAN, 2009 (Invigor 8440)	3	0.15	50	300	6, 7	7	seed	0.14, 0.21	0.18		DP27582 Trial 13
Westlock, AB CAN, 2009 (Roundup Ready 1818)	3	0.15	50	300	7, 6	7	seed	0.07, 0.07	0.07	M1 = 0.01	DP27582 Trial 14
Waldheim, SK CAN, 2009 (Dekalb 7145 RR)	3	0.15	75	200	7	7	seed	0.57, 0.65	0.61	M1 = 0.02	DP27582 Trial 15

OILSEED RAPE Location Country, year (variety)	Application					DAT (days)	Matri x	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/h L	water L/h a	RTI (days)			cyantranilipro le	mea n	metabolite s	
Blaine Lake, SK CAN, 2009 (Dekalb 7145 RR)		0.15	74	200	7	7	seed	0.25, 0.33	0.29	M1 = 0.01	DP27582 Trial 16
Wakaw, SK CAN, 2009 (RR 7145)	3	0.15	75	200	7	7	seed	0.066, 0.047	0.05 7		DP27582 Trial 17

M1: Average residues of metabolite INJ9Z38

Sunflower

Table 34 Residues in sunflower seed from supervised trials in the USA following foliar applications of cyantraniliprole, 100 OD formulation, (data previously reviewed by the 2013 JMPR)

SUNFLOWER Location Country, year (variety)	Application					DAT (days)	Matri x	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/h L	water L/h a	RTI (days)			cyantranilipro le	mea n	metabolite s	
Stafford, KS USA, 2009 (Sunflower/ Pioneer 63M61)	2 + 1	0.1 5 0.1 6	71 75	210	7	7	seed	0.045, 0.082	0.06 4		DP27582 Trial 18
Atlantic, IA USA, 2009 (Sunflower/ 8007 Millborn)	3	0.1 5	80	190	7	7	seed	0.069, 0.065	0.06 7		DP27582 Trial 19
Carrington, ND USA, 2009 (Sunflower/ Pioneer)	3	0.1 5	54	280	5, 7	7	seed	0.068, 0.1	0.08 5		DP27582 Trial 20
Velda, ND USA, 2009 (Sunflower/ 8N835CL)	3	0.1 5	80	190	8, 7	7	seed	0.14, 0.15	0.14		DP27582@Trial 21
Jamestown, ND USA, 2009 (Sunflower/ IS 8048)	3	0.1 5	80	190	7	7	seed	0.03, 0.049	0.03 9		DP27582 Trial 22
Montpelier, ND USA, 2009 (Sunflower/ IS 8048)	1 + 2	0.1 6 0.1 5	83 80	190 190	7	7	seed	0.026, 0.031	0.02 8		DP27582 Trial 23
Hinton, OK USA, 2009 (Sunflower/ 8N453DM)	3	0.1 5	63	240	8, 9	5	seed	0.06, 0.059	0.05 9		DP27582 Trial 24
Brookdale, MB CAN, 2009 (Sunflower/ 6946)	3	0.1 5	60	250	7, 6	6	seed	0.36, 0.28	0.32		DP27582 Trial 25
Neepawa, MB CAN, 2009 (Sunflower/ Jaguar)	3	0.1 5	60	250	7, 6	6	seed	0.092, 0.093	0.09 2		DP27582 Trial 26

*Seeds for beverage and sweets**Coffee*

Table 35 Residues in coffee beans from supervised trials in Brazil following soil drench, SC formulation, and foliar applications of cyantraniliprole, OD formulation,) (data previously reviewed by the 2013 JMPR)

COFFEE Country, year Location (variety)	Application			RTI (days)	DAT, (days)	Portion analysed	Residues (mg/kg)		Reference & Comments	
	no	kg ai/ha	g ai/hL				water (L/ha)	cyantraniliprole		metabolites
Campinas SP Brazil, 2011	2 +	0.2 (soil) 0.175	0.5 35	0.1 L/plant 500	30	7	beans	0.02		BRI- 10/11-008 Test A
	2					14		0.01		
						28		< 0.01		
						35		< 0.01		
						45		< 0.01		
	60	< 0.003								
Campinas SP Brazil, 2011	2	0.175	35	500		7	beans	< 0.01		BRI- 10/11-008 Test A
						28		< 0.01		
Espirito Santo do Pinhal SP Brazil, 2011	2 +	0.2 (soil) 0.175	0.6 35	0.1 L/plant 500	30	7	beans	0.01		BRI- 10/11-008 Test B
	2					14		< 0.01		
						28		< 0.01		
						35		< 0.01		
Cabo Verde Brazil, 2011	2 +	0.2 (soil) 0.175	0.5 35	0.1 L/plant 500	30	7	beans	0.03		BRI- 10/11-008 Test C
	2					28		<u>0.01</u>		
Pardinho – SP Brazil, 2011	2 +	0.2 (soil) 0.175	0.6 30	0.1 L/plant 580	30	7	beans	0.02		BRI- 10/11-008 Test D
	2					28		< 0.01		
Restinga – SP Brazil, 2011	2 +	0.2 (soil) 0.175	0.2 29	0.1 L/plant 600	30	7	beans	< 0.01		BRI- 10/11-008 Test E
	2					14		< 0.01		
						28		< 0.01		
						35		< 0.01		
Monte Santo de Minas Brazil, 2011	2 +	0.2 (soil) 0.175	0.4 29	0.1 L/plant 600	30	7	beans	0.01		BRI- 10/11-008 Test F
	2					28		0.01		
Monte Santo de Minas Brazil, 2011	2	0.175	29	600		7	beans	0.02		BRI- 10/11-008 Test F
						28		<u>0.02</u>		
Indianapolis Brazil, 2011	2 +	0.2 (soil) 0.175	0.7 29	0.1 L/plant 600	30	7	beans	< 0.01		BRI- 10/11-008 Test G
	2					28		< 0.01		
						45		< 0.01		
						60		< 0.01		
Lohdrina Brazil 2011	2 +	0.2 (soil) 0.175	0.5 44	0.1 L/plant 400	30	7	beans	< 0.01		BRI- 10/11-008 Test I
	2					14		< 0.01		
						28		< 0.003		
						35		< 0.003		

Tea, green

In field trials conducted in Japan and reported by Higuchil, 2013 [Ref: DP-37521], one foliar application of 0.20 kg ai/ha cyantraniliprole (OD formulation) was applied with no adjuvant added.

Samples of raw tea leaves were processed within one day, the processed tea samples were stored at –20 °C up to 2 months until analysis for cyantraniliprole and the metabolite using method DP-15736, with reported LOQs of 0.04 mg/kg. Average concurrent recoveries were 73–88% cyantraniliprole and 82–88% IN-J9Z38 in samples spiked with 0.04, 2.0 and 25 mg/kg.

Table 36 Residues in tea from supervised trials in Japan following a single foliar application of cyantraniliprole, OD formulation

Tea, green Country, year Location (variety)	Application				RTI (days)	DAT, (days)	Commodity or Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water (L/ha)				cyantraniliprole	mean	metabolites	
Kochi, Japan 2010 (Yabukita)	1	0.2	5	4000		7	Processed leaves	20.4, 20.7	20.6	0.73(J9Z38)	DP-37521 Test 1
						14		1.07, 1.05	1.06	0.21 (J9Z38) 0.07(NXX70)	
						21		< 0.04, < 0.04	< 0.04		
Miyazaki, Japan 2010 (Fuushun)	1	0.2	5	4000		7	Processed leaves	4.19, 4.18	4.19	0.74(J9Z38) 0.11(NXX70)	DP-37521 Test 2-
						14		1.91, 1.81	1.86	0.47(J9Z38) 0.23(NXX70)	
						21		< 0.04, < 0.04	< 0.04		

Animal feed*Pea remaining plant and empty pod*

Table 37 Residues in field remaining plant and empty pod of peas (fresh) from supervised trials in Europe following two foliar applications of cyantraniliprole, 400 g/kg WG formulation

Peas remaining plant and empty pod Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
Market Weighton, East Yorkshire, United Kingdom, 2011 (Fresh)	2	0.075		200-1000	7	0	Remaining Plant and Empty Pod	2.98			Syngenta TK0057194 Test 01
						1		2.76			
						3(NCH)		2.34			
						7		2.98			
Driffield, East Yorkshire, United Kingdom, 2011 (Fresh)	2	0.075			7	0	Remaining Plant and Empty Pods	2.55		0.01(J9Z38) 0.02 (J9Z38) 0.01 (J9Z38) 0.02 (J9Z38) 0.02 (J9Z38)	Syngenta TK0057194 Test 02
						1		1.93			
						3(NCH)		1.85			
						7		1.01			
Sulniac, Bretagne, N. France, 2011 (Fresh)	2	0.075			7	0	Remaining Plant and Empty Pods	0.54		0.02 (J9Z38) 0.03 (J9Z38) 0.04 (J9Z38) 0.04 (J9Z38) 0.01 (MLA84) 0.08 (J9Z38) 0.01 (MLA84)	Syngenta TK0057194 Test 03
						1		0.08			
						3(NCH)		0.14			
						7		0.07			
Oinville Saint Liphard, Eure et Loire, N. France, 2011 (Fresh)	2	0.075			7	0	Remaining Plant and Empty Pods	2		0.02 (J9Z38) 0.03 (J9Z38) 0.04 (J9Z38) 0.04 (J9Z38) 0.01 (MLA84) 0.08 (J9Z38) 0.01 (MLA84)	Syngenta TK0057194 Test 04
						1		2.03			
						3(NCH)		1.96			
						7		1.88			
						14		0.97			

Peas remaining plant and empty pod Location Country, year (variety)	Application				DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha RTI (days)			cyantraniliprole	mean	metabolites	
Behagnies, 62121, N. France, 2012 (Fresh)	2	0.075		7	1 3(NCH) 6	Remaining Plant and Empty Pod	2.14 1.15 0.98		0.02 (J9Z38) 0.04 (J9Z38) 0.05 (J9Z38)	Syngenta TK0112971 Test 05
Mulfingen, 74673, Germany, 2012 (Fresh)	2	0.075		7	1 1 3(NCH) 7	Remaining Plant and Empty Pods	1.66 1.33 0.72		0.02 (J9Z38) 0.02 (J9Z38) 0.03 (J9Z38)	Syngenta TK0112971 Test 06
Bretzfeld- Schwabbach, 74626, Germany, 2012 (Fresh)	2	0.075		7	1 3(NCH) 7	Remaining Plant and Empty Pods	0.67 0.5 0.09		0.01 (J9Z38) 0.02 (J9Z38)	Syngenta TK0112971 Test 07
Cagnicourt, 62182, N. France, 2012 (Fresh)	2	0.075		7	1 3(NCH) 7	Remaining Plant and Empty Pods	1.75 1.8 0.93		0.03 (J9Z38) 0.03 (J9Z38) 0.06 (J9Z38)	Syngenta TK0112971 Test 08
Houeilles, Lot et Garonne, Aquitaine, S France, 2011 (Fresh)	2	0.075		7	0 1 2(NCH) 7 14	Remaining Plant and Empty Pods	.92 1.43 1.24 1.89 1.15		0.01 (J9Z38) 0.05 (J9Z38)	Syngenta TK0057193 Test 09
Elne, Pyrenees Orientales, Elne, S France, 2011 (Fresh)	2	0.075		7	0 1 2(NCH) 6 14	Remaining Plant and Empty Pods	3.98 3.48 2.69 2.2 2.31		0.01 (J9Z38) 0.01 (J9Z38) 0.01 (J9Z38) 0.04 (J9Z38) 0.09 (J9Z38)	Syngenta TK0057193 Test 10
Granarolo, Emilia Romagna, Bologna, Italy, 2011 (Fresh)	2	0.075		7	0 1 3(NCH) 6 14	Remaining Plant and Empty Pods	0.72 0.15 0.1 0.11 0.08			Syngenta TK0057193 Test 11
Villar de Chinchilla, Albacete, Spain, 2011 (Fresh)	2	0.075		7	0 1 3(NCH) 6 14	Remaining Plant and Empty Pods	3.83 3.2 1.53 2.65 3.15		0.05 (J9Z38) 0.01 (J9Z38) 0.03 (J9Z38) 0.04 (J9Z38)	Syngenta TK0057193 Test 12
Montpouillan, 47200, S France, 2012 (Fresh)	2	0.075		7	1 3(NCH)	Remaining Plant and Empty Pods	0.83 0.89		0.02 (J9Z38) 0.03 (J9Z38)	Syngenta TK0112985 Test 13
Saint Agnet, 40800, S. France, 2012 (Fresh)	2	0.075		7	1 3(NCH) 7	Remaining Plant and Empty Pods	0.45 0.15 0.08			Syngenta TK0112985 Test 14

Cyantranilprole

Peas remaining plant and empty pod Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantranilprole	mean	metabolites	
La Gineta, 02110, Spain, 2012 (Fresh)	2	0.075			7	1 3(NCH) 7	Remaining Plant and Empty Pods	0.37 0.15 0.17		0.02 (J9Z38) 0.01 (J9Z38)	Syngenta TK0112985 Test 15
Papiano Marsciano, 06055, Italy, 2012 (Fresh)	2	0.075			7	1 3(NCH) 7	Remaining Plant and Empty Pods	1.46 1.41 1.46		0.03 (J9Z38) 0.03 (J9Z38) 0.06 (J9Z38)	Syngenta TK0112985 Test 16

Bean, forage and hay

Table 38 Residues in bean forage and hay (dry shelled bean) from supervised trials in the USA following three foliar applications of cyantranilprole, 100 SE and 100 OD formulation

Bean forage and hay Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantranilprole	mean	metabolites	
Marysville, OH, USA, 2011 (Espada)	3	0.15	75	200	5	7	Forage	0.96 0.74	0.85	0.051 (J9Z38) 0.013(MLA84) 0.003(MYX98)	DP 31668 Test 23 100 SE
							Forage	1.1 1.6	1.4	0.079 (J9Z38) 0.022(MLA84) 0.005(MYX98) 0.004(JCZ38)	DP 31668 Test 23 100 OD
							Hay	2.1 2.6	2.4	0.20 (J9Z38) 0.053(MLA84) 0.014(MYX98) 0.010(JCZ38) 0.005(N7B69)	DP 31668 Test 23 100 SE
							Hay	2.1 3.4	2.8	0.23 (J9Z38) 0.073(MLA84) 0.013(MYX98) 0.013(JCZ38) 0.005(N7B69)	DP 31668 Test 23 100 OD
Lenexa, KS, USA, 2011 (Pinkeye-Purple Hull) Lenex	3	0.15	70	215	5	6	Forage	3.0 3.0	3.0	0.18 (J9Z38) 0.010(MLA84) 0.010(MYX98) 0.012(JCZ38) 0.005(N7B69)	DP 31668 Test 24 100 SE
							Forage	2.3 2.2	2.3	0.24 (J9Z38) 0.014(MLA84) 0.008(MYX98) 0.015(JCZ38) 0.004(N7B69)	DP 31668 Test 24 100 OD
							Hay	9.8 9.7	9.8	0.76 (J9Z38) 0.037(MLA84) 0.042(MYX98) 0.040(JCZ38) 0.015(N7B69)	DP 31668 Test 24 100 SE

Bean forage and hay Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
					5	6	Hay	6.2 6.1	6.2	0.85 (J9Z38) 0.050(MLA84) 0.028(MYX98) 0.038(JCZ38) 0.011(N7B69)	DP 31668 Test 24 100 OD
Stafford, KS, USA, 2011 (Cow Pea)	3	0.15	70	210	5	7	Forage	1.1 1.5	1.3	0.20 (J9Z38) 0.009(MLA84) 0.004(MYX98) 0.010(JCZ38)	DP 31668 Test 25 100 SE
							Forage	0.53 0.51	0.52	0.19 (J9Z38) 0.010(MLA84) 0.009(JCZ38)	DP 31668 Test 25 100 OD
							Hay	3.0 2.5	2.8	0.49 (J9Z38) 0.023(MLA84) 0.014(MYX98) 0.025(JCZ38) 0.006(N7B69)	DP 31668 Test 25 100 SE
							Hay	1.4 1.2	1.3	0.43 (J9Z38) 0.021(MLA84) 0.004(MYX98) 0.021(JCZ38) 0.004(N7B69)	DP 31668 Test 25 100 OD
York, NE, USA, 2011 (California Blackeye #5)	3	0.15	80	190	4-5	7	Forage	0.78 0.78	0.78	0.24 (J9Z38) 0.013(MLA84) 0.007(JCZ38)	DP 31668 Test 26 100 SE
							Forage	0.88 0.39	0.64	0.19 (J9Z38) 0.012(MLA84) 0.005(JCZ38)	DP 31668 Test 26 100 OD
							Hay	2.6 3.6	3.1	0.90 (J9Z38) 0.064(MLA84) 0.013(MYX98) 0.036(JCZ38) 0.011(N7B69)	DP 31668 Test 26 100 SE
							Hay	3.7 2.4	3.0	0.88 (J9Z38) 0.062(MLA84) 0.011(MYX98) 0.032(JCZ38) 0.010(N7B69)	DP 31668 Test 26 100 OD

Table 39 Residues in pea vine and hay (dry shelled pea) from supervised trials in the USA following three foliar applications of cyantraniliprole, 100 SE and 100 OD formulation

Pea vine and hay Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
Payette, ID, USA, 2011 (Austrian Winter)	3	0.15	65	235							
					5	0	Vine	9.1 8.9	9.0	0.15 (J9Z38) 0.045(MLA84) 0.017(MYX98) 0.013(JCZ38) 0.005(N7B69)	DP 31668 Test 27 100 OD

Cyantraniliprole

Pea vine and hay Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
					5	1		8.3 9.5	8.9	0.10 (J9Z38) 0.048(MLA84) 0.019(MYX98) 0.014(JCZ38) 0.006(N7B69)	DP 31668 Test 27 100 OD
					5	3		8.3 8.5	8.4	0.14(J9Z38) 0.059(MLA84) 0.022(MYX98) 0.017(JCZ38) 0.006(N7B69)	DP 31668 Test 27 100 OD
					5	5		8.6 8.6	8.6	0.14 (J9Z38) 0.065(MLA84) 0.024(MYX98) 0.019(JCZ38) 0.006(N7B69)	DP 31668 Test 27 100 OD
					5	7		8.2 8.7	8.5	0.12 (J9Z38) 0.060(MLA84) 0.028(MYX98) 0.020(JCZ38) 0.008(N7B69)	DP 31668 Test 27 100 OD
					5	0		29 34	31	1.7 (J9Z38) 0.22(MLA84) 0.077(MYX98) 0.049(JCZ38) 0.025(N7B69)	DP 31668 Test 27 100 OD
					5	1		28 34	31	1.7 (J9Z38) 0.24(MLA84) 0.090(MYX98) 0.050(JCZ38) 0.027(N7B69)	DP 31668 Test 27 100 OD
					5	3		24 25	24	1.3(J9Z38) 0.23(MLA84) 0.075(MYX98) 0.051(JCZ38) 0.023(N7B69)	DP 31668 Test 27 100 OD
					5	5		27 26	26	1.5 (J9Z38) 0.26(MLA84) 0.090(MYX98) 0.057(JCZ38) 0.027(N7B69)	DP 31668 Test 27 100 OD
					5	7		16 20	18	1.0 (J9Z38) 0.22(MLA84) 0.072(MYX98) 0.050(JCZ38) 0.021(N7B69)	DP 31668 Test 27 100 OD
					5	0		29 34	31	1.7 (J9Z38) 0.22(MLA84) 0.077(MYX98) 0.049(JCZ38) 0.025(N7B69)	DP 31668 Test 27 100 OD
Jerome, ID, USA, 2011 (Austrian)	3	0.15	75	200			Vine				
					4-6	0		3.5 3.6	3.5	0.060(J9Z38) 0.033(MLA84) 0.004(MYX98) 0.007(JCZ38)	DP 31668 Test 28 100 OD
					4-6	1		4.3 3.6	3.9	0.061(J9Z38) 0.041(MLA84) 0.007(MYX98) 0.010(JCZ38) 0.004(N7B69)	DP 31668 Test 28 100 OD

Pea vine and hay Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments	
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites		
					4-6	4		1.4 1.5	1.4	0.063(J9Z38) 0.042(MLA84) 0.004(MYX98) 0.009(JCZ38)	DP 31668 Test 28 100 OD	
					4-6	5		1.3 1.5	1.4	0.086 (J9Z38) 0.051(MLA84) 0.011(JCZ38) 0.003(N7B69)	DP 31668 Test 28 100 OD	
					4-6	7		1.2 1.2	1.2	0.065 (J9Z38) 0.048(MLA84) 0.003(MYX98) 0.012(JCZ38)	DP 31668 Test 28 100 OD	
					4-6	0		Hay	35 33	34	0.59 (J9Z38) 0.49(MLA84) 0.045(MYX98) 0.076(JCZ38) 0.017(N7B69)	DP 31668 Test 28 100 OD
					4-6	1		32 34	33	0.64 (J9Z38) 0.49(MLA84) 0.070(MYX98) 0.079(JCZ38) 0.021(N7B69)	DP 31668 Test 28 100 OD	
					4-6	4		9.2 9.9	9.5	0.74 (J9Z38) 0.43(MLA84) 0.032(MYX98) 0.073(JCZ38) 0.013(N7B69)	DP 31668 Test 28 100 OD	
					4-6	5		11 7.3	9.2	0.76 (J9Z38) 0.47 (MLA84) 0.033(MYX98) 0.081(JCZ38) 0.014(N7B69)	DP 31668 Test 28 100 OD	
					4-6	7		12 8.4	10	0.91 (J9Z38) 0.43(MLA84) 0.030(MYX98) 0.074(JCZ38) 0.015(N7B69)	DP 31668 Test 28 100 OD	
Ephrata, WA, USA, 2011 (Austrian Winter)	3	0.15	53	281	5	7	Vine	0.72 0.65	0.69	0.023(J9Z38) 0.028(MLA84) 0.011(JCZ38)	DP 31668 Test 29 100 OD	
							Hay	1.8 1.9	1.9	0.24 (J9Z38) 0.17(MLA84) 0.009(MYX98) 0.039(JCZ38) 0.005(N7B69)	DP 31668 Test 29 100 OD	
Jerome, ID, USA, 2011 (Austrian Winter)	3	0.15	75	200	4-5	7	Vine	1.6 1.2	1.4	0.13 (J9Z38) 0.059(MLA84) 0.004(MYX98) 0.012(JCZ38)	DP 31668 Test 30 100 OD	
					4-5	7	Hay	4.8 4.5	4.7	0.42 (J9Z38) 0.23(MLA84) 0.020(MYX98) 0.045(JCZ38)	DP 31668 Test 30 100 OD	

Soya bean forage and hay

Table 40 Residues in forage and hay of soya beans from supervised trials in the USA following three foliar applications of cyantraniliprole, 100 OD formulation

Soya bean forage and hay Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments	
	no	kg ai/ha	g ai/hL	water L/ha	Growth stage			RTI (days)	cyantraniliprole	mean		metabolites
Frenchtown, NJ USA, 2011 (Pioneer 93M14)	3	0.15	56	281	V5-V6 V5-R1 R1-R2	5	7	Forage	1.2 1.2	1.2	0.16(J9Z38) 0.17(MLA84) 0.004(MYX98) 0.005(JCZ38)	DP29956 Trial 01 100 OD
			56	281	V5-V6 V5-R1 R1-R2	5	7	Hay	6.3 5.9	6.1	1.0(J9Z38) 0.88(MLA84) 0.017(MYX98) 0.027(JCZ38) 0.010(N7B69)	
Athens, GA, USA, 2011 (Pioneer 95Y20)	3	0.15	48	313	R1 R2 R2	5	7	Forage	2.0 2.1	2.1	0.14(J9Z38) 0.071(MLA84) 0.012(MYX98) 0.006(JCZ38)	DP29956 Trial 02 100 OD
			48	313	R1 R2 R2	5	7	Hay	6.1 6.6	6.3	0.39(J9Z38) 0.21(MLA84) 0.040(MYX98) 0.021(JCZ38) 0.011(N7B69)	
Cheneyville, LA, USA, 2011 (Pioneer 95Y20)	3	0.15	98	152	BBCH61-62 BBCH63-64 BBCH64-65	5-6	7	Forage	3.0 2.7	2.9	0.16(J9Z38) 0.097(MLA84) 0.009MYX98) 0.008(JCZ38)	DP29956 Trial 04 100 OD
			98	152	BBCH61-62 BBCH63-64 BBCH64-65	5	7	Hay	8.3 7.3	7.8	0.87(J9Z38) 0.37(MLA84) 0.036(MYX98) 0.023(JCZ38) 0.009(N7B69)	
Fisk, MO, USA, 2011 (95Y50)	3	0.15	79	188	BBCH61/R1 BBCH67-69 BBCH69	4-5	7	Forage	2.7 2.9	2.8	0.21(J9Z38) 0.082(MLA84) 0.009(MYX98) 0.005(JCZ38)	DP29956 Trial 05 100 OD
			79	188	BBCH61/R1 BBCH67-69 BBCH69	4-5	7	Hay	8.6 10	9.4	0.83(J9Z38) 0.35(MLA84) 0.030(MYX98) 0.021(JCZ38) 0.010(N7B69)	
Pollard, AR, USA, 2011 (Pioneer 95M50)	3	0.15	80	193	V5-R1 R1-R2 R2	4-5	7	Forage	3.1 3.1	3.1	0.29(J9Z38) 0.15(MLA84) 0.010(MYX98) 0.014(JCZ38) 0.004(N7B69)	DP29956 Trial 06 100 OD
			80	193	V5-R1 R1-R2 R2	4-5	7	Hay	13 15	14	1.3(J9Z38) 0.61(MLA84) 0.056(MYX98) 0.056(JCZ38) 0.030(N7B69)	
Ellendale, MN, USA, 2011 (92Y30)	3	0.15	80	193	V5-R1 R1-R2 R2	4-5	7	Forage	3.1 3.1	3.1	0.29(J9Z38) 0.15(MLA84) 0.010(MYX98) 0.014(JCZ38) 0.004(N7B69)	DP29956 Trial 07 100 OD

Soya bean forage and hay Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments	
	no	kg ai/ha	g ai/hL	water L/ha	Growth stage			RTI (days)	cyantranilprole	mean		metabolites
			80	193	V5-R1 R1-R2 R2	4-5	7	Hay	13 15	14	1.3(J9Z38) 0.61(MLA84) 0.056(MYX98) 0.056(JCZ38) 0.030(N7B69)	
Gardner, ND, USA, 2011 (NK Seeds: Variety S02-M9)	3	0.15	66	234	BBCH51 BBCH60 BBCH64	4-5	7	Forage	1.9 1.9	1.9	0.13(J9Z38) 0.14(MLA84) 0.007(MYX98) 0.019(JCZ38)	DP29956 Trial 08 100 OD
			66	234	BBCH51 BBCH60 BBCH64	4-5	7	Hay	8.9 8.3	8.6	0.63(J9Z38) 0.50(MLA84) 0.035(MYX98) 0.067(JCZ38) 0.037(N7B69)	
Northwood, ND, USA, 2011 (Pioneer 90M80)	3	0.15	53	281	R3 R3 R3	5-6	6	Forage	4.5 5.0	4.8	0.094(J9Z38) 0.11(MLA84) 0.020(MYX98) 0.026(JCZ38) 0.010(N7B69)	DP29956 Trial 09 100 OD
			53	281	R3 R3 R3	5-6	6	Hay	19 20	20	0.26(J9Z38) 0.31(MLA84) 0.067(MYX98) 0.069(JCZ38) 0.029(N7B69)	
Marysville, OH, USA, 2011 (93Y70)	3	0.15	75	202	BBCH60 BBCH62 BBCH65	5	7	Forage	0.27 0.19	0.23	0.018(J9Z38) 0.031(MLA84)	DP29956 Trial 10 100 OD
			75	202	BBCH60 BBCH62 BBCH65	5	7	Hay	1.1 1.1	1.1	0.077(J9Z38) 0.17(MLA84) 0.003(MYX98) 0.011(JCZ38)	
Rochelle, IL, USA, 2011 (Pioneer 93Y70)	3	0.15	52	288	R1 R1 R2	4-6	7	Forage	0.29 0.36	0.33	0.040(J9Z38) 0.086(MLA84) 0.005(JCZ38)	DP29956 Trial 11 100 OD
			52	288	R1 R1 R2	4-6	67	Hay	1.3 1.1	1.2	0.17(J9Z38) 0.32(MLA84) 0.005(MYX98) 0.017(JCZ38) 0.008(N7B69)	
Richland, IA, USA, 2011 (93Y70)	3	0.15	73	206	BBCH63 BBCH65 BBCH67	5	7	Forage	2.6 3.4	3.0	0.22(J9Z38) 0.10(MLA84) 0.014(MYX98) 0.013(JCZ38) 0.005(N7B69)	DP29956 Trial 12 100 OD
			73	206	BBCH63 BBCH65 BBCH67	5	7	Hay	4.8 7.1	5.9	0.44(J9Z38) 0.22(MLA84) 0.028(MYX98) 0.022(JCZ38) 0.016(N7B69)	
Tipton, MO, USA, 2011 (93Y70)	3	0.15	53	290	R1 R1 R2	4-5	8	Forage	1.4 1.2	1.3	0.069(J9Z38) 0.063(MLA84) 0.005(MYX98) 0.007(JCZ38)	DP29956 Trial 13 100 OD
			53	290	R1 R1 R2	4-5	8	Hay	4.0 3.6	3.8	0.32(J9Z38) 0.22(MLA84) 0.014(MYX98) 0.018(JCZ38) 0.007(N7B69)	

Cyantraniliprole

Soya bean forage and hay Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments	
	no	kg ai/ha	g ai/hL	water L/ha	Growth stage			RTI (days)	cyantraniliprole	mean		metabolites
Fisk, MO, USA, 2011 (95M50)	3	0.15	80	187	BBCH61 BBCH65 BBCH67-69	5-6	8	Forage	10 11	11	0.14(J9Z38) 0.12(MLA84) 0.046(MYX98) 0.019(JCZ38) 0.010(N7B69)	DP29956 Trial 14 100 OD
			80	187	BBCH61 BBCH65 BBCH67-69	5-6	8	Hay	35 25	30	0.37(J9Z38) 0.34(MLA84) 0.14(MYX98) 0.052(JCZ38) 0.030(N7B69)	
Gardner, KS, USA, 2011 (93Y70)	3	0.15	70	217	BBCH61 BBCH62 BBCH64	5	7	Forage	6.2 7.2	6.7	0.047(J9Z38) 0.072(MLA84) 0.038(MYX98) 0.014(JCZ38) 0.007(N7B69)	DP29956 Trial 15 100 OD
			70	217	BBCH61 BBCH62 BBCH64	5	7	Hay	29 27	28	0.54(J9Z38) 0.24(MLA84) 0.14(MYX98) 0.042(JCZ38) 0.033(N7B69)	
Stafford, KS, USA, 2011 (Pioneer 93Y70)	3	0.15	74	209	BBCH60 BBCH64 BBCH65	4-5	6	Forage	4.8 5.9	5.3	0.26(J9Z38) 0.18(MLA84) 0.021(MYX98) 0.025(JCZ38) 0.007(N7B69)	DP29956 Trial 16 100 OD
			74	209	BBCH60 BBCH64 BBCH65	4-5	6	Hay	20 21	20	0.32(J9Z38) 0.57(MLA84) 0.074(MYX98) 0.073(JCZ38) 0.022(N7B69)	
York, NE, USA, 2011 (93Y12)	3	0.15	81	188	BBCH51 R1 R2	5-6	7	Forage	3.3 3.0	3.2	0.33(J9Z38) 0.30(MLA84) 0.009(MYX98) 0.016(JCZ38) 0.003(N7B69)	DP29956 Trial 17 100 OD
			81	188	BBCH51 R1 R2	5-6	7	Hay	14 14	14	1.0(J9Z38) 1.3(MLA84) 0.036(MYX98) 0.060(JCZ38) 0.015(N7B69)	
Springfield, NE, USA, 2011 (93Y70)	3	0.15	76	192	R1 R1 R1	4-5	6	Forage	7.4 5.5	6.4	0.39(J9Z38) 0.26(MLA84) 0.020(MYX98) 0.018(JCZ38) 0.006(N7B69)	DP29956 Trial 18 100 OD
			76	192	R1 R1 R1	4-5	6	Hay	21 20	21	1.4(J9Z38) 0.76(MLA84) 0.058(MYX98) 0.044(JCZ38) 0.026(N7B69)	

Table 41 Residues in soya bean forage and hay from supervised trials in the USA following seed treatment of cyantraniliprole, 625 FS formulation

Soya bean forage and hay Location Country, year (variety)	Application				DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha			RTI (days)	cyantraniliprole	mean	
Frenchtown, NJ USA, 2011 (Pioneer 93Y70)	1	0.388			64	Forage	< 0.003, 0.004	< 0.003		DP29956 Trial 01 625 FS
					64	Hay	0.014, 0.012	0.013	0.004(J9Z38) 0.006(MLA84)	
		0.777			64	Forage	0.005, 0.004	0.005		
					64	Hay	0.025 0.02	0.022	0.007(J9Z38) 0.010(MLA84)	
Athens, GA, USA, 2011 (Pioneer 95Y20)	1	0.386			75	Forage	< 0.003, < 0.003	< 0.003		DP29956 Trial 02 625 FS
					75	Hay	0.007, 0.004	0.006		
		0.773			75	Forage	0.004, < 0.003	< 0.003		
					75	Hay	0.007, 0.007	0.007		
Cheneyville, LA, USA, 2011 (Pioneer 95Y20)	1	0.291–			61	Forage	0.003, 0.003	0.003		DP29956 Trial 04 625 FS
	1	0.364			61	Hay	0.013, 0.010	0.012	0.005(MLA84)	
	1	0.583–			61	Forage	0.006, 0.008	0.007		
	1	0.729			61	Hay	0.026, 0.019	0.023	0.006(J9Z38) 0.010(MLA84)	
Fisk, MO, USA, 2011 (95Y20)	1	0.386			59	Forage	0.007, 0.008	0.007		DP29956 Trial 05 625 FS
	1				59	Hay	0.026, 0.031	0.028	0.004(J9Z38) 0.007(MLA84)	
	1	0.773			59	Forage	0.015, 0.012	0.013		
	1				59	Hay	0.062, 0.050	0.056	0.007(J9Z38) 0.016(MLA84)	
Ellendale, MN, USA, 2011 (92Y30)	1	0.383			62	Forage	< 0.003, < 0.003	< 0.003		DP29956 Trial 07 625 FS
	1				62	Hay	0.004, 0.004	0.004		
	1	0.786			62	Forage	< 0.003, < 0.003	< 0.003		
	1				62	Hay	0.011, 0.010	0.010		
Gardner, ND, USA, 2011 (Pioneer 90M80)	1	0.403			63	Forage	< 0.003, < 0.003	< 0.003		DP29956 Trial 08 625 FS
	1				63	Hay	0.007, 0.008	0.008		
	1	0.806			63	Forage	0.006, 0.004	0.005		
	1				63	Hay	0.014, 0.014	0.014		
Northwood, ND, USA, 2011 (Pioneer 90M80)	1	0.387			95	Forage	< 0.003, < 0.003	< 0.003		DP29956 Trial 09 625 FS
	1				95	Hay	0.004, 0.004	0.004		
	1	0.774			95	Forage	< 0.003, < 0.003	< 0.003		
	1				95	Hay	0.007, 0.007	0.007		
Marysville, OH, USA, 2011 (93Y70)	1	0.384			72	Forage	< 0.003, < 0.003	< 0.003		DP29956 Trial 10 625 FS
	1				72	Hay	0.008, 0.008	0.008		
	1	0.768			105	Mature Seed	< 0.003, < 0.003	< 0.003		
	1				72	Forage	< 0.003, < 0.003	< 0.003		
1				72	Hay	0.010, 0.010	0.010			
Rochelle, IL, USA, 2011	1	0.386			73	Forage	< 0.003, < 0.003	< 0.003		DP29956 Trial 11

Cyantraniliprole

Soya bean forage and hay Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
(Pioneer 93Y70)	1					73	Hay	0.006, 0.006	0.006		625 FS
	1	0.773				73	Forage	< 0.003, < 0.003	< 0.003		
	1					73	Hay	0.012, 0.010	0.011	0.004(J9Z38)	
Tipton, MO, USA, 2011 (93Y70)	1	0.409				80	Forage	0.005, 0.004	0.005		DP29956 Trial 13 625 FS
	1					80	Hay	0.012, 0.011	0.012	0.005(MLA84) 0.005(JCZ38)	
	1	0.817				80	Forage	0.009, 0.010	0.010		
	1					80	Hay	0.017, 0.019	0.018	0.004(J9Z38) 0.006(JCZ38)	
Fisk, MO, USA, 2011 (95M50)	1	0.386				56	Forage	0.008, 0.009	0.009		DP29956 Trial 14 625 FS
	1					56	Hay	0.024 0.020	0.022	0.005(MLA84)	
	1	0.773				56	Forage	0.006, 0.011	0.009		
	1					56	Hay	0.030, 0.031	0.031	0.004(J9Z38) 0.010(MLA8)	
Gardner, KS, USA, 2011 (93Y70)	1	0.386				60	Forage	< 0.003, 0.054	0.028		DP29956 Trial 15 625 FS
	1					60	Hay	0.008, < 0.003	0.005		
	1	0.771				60	Forage	< 0.003, < 0.003	< 0.003		
	1					60	Hay	0.004, < 0.003	< 0.003		
Stafford, KS, USA, 2011 (Pioneer 93Y70)	1	0.386				56	Forage	0.009, 0.011	0.010		DP29956 Trial 16 625 FS
	1					56	Hay	0.034, 0.037	0.036	0.013(MLA84) 0.004(JCZ38)	
	1	0.773				56	Forage	0.018, 0.022	0.020	0.007(MLA84)	
	1					56	Hay	0.061 0.057,	0.059	0.005(J9Z38) 0.022(MLA84) 0.007(JCZ38)	
York, NE, USA, 2011 (93Y12)	1	0.372				53	Forage	0.004, < 0.003	< 0.003		DP29956 Trial 17 625 FS
	1					53	Hay	0.008, 0.009	0.008		
	1	0.743				53	Forage	0.003, 0.003	0.003		
	1					53	Hay	0.013, 0.012	0.012	0.003(MLA84)	
Springfield, NE, USA, 2011 (93Y70)	1	0.392				72	Forage	< 0.003, < 0.003	< 0.003		DP29956 Trial 18 625 FS
	1					72	Hay	0.004, 0.005	0.005		
	1	0.783				72	Forage	< 0.003, < 0.003	< 0.003		
	1					72	Hay	0.005, 0.005	0.005		

Maize

Table 42 Residues in field maize forage and stover from supervised trials in the USA following seed treatment of cyantraniliprole, FS formulation

Maize forage and hay Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	mg ai seed	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
North Rose, NY USA, 2011 (101 RM)	1	0.04	0.5				Forage	< 0.010, < 0.010	< 0.010		TK0029740- REG Test 01
							Stover	< 0.010, < 0.010	< 0.010		

Maize forage and hay Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	mg ai seed	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
Seven Springs, NC USA,2011 (114 RM)	1	0.05	0.5				Forage	< 0.010, 0.0113	0.06		TK0029740- REG Test 02
							Stover	< 0.010, < 0.010	< 0.010		
Wyoming, IL USA,2011 (109 RM))	1	0.048	0.5				Forage	< 0.010, < 0.010	< 0.010		TK0029740- REG Test 03
							Stover	< 0.010, < 0.010	< 0.010		
Carlyle, IL USA,2011 (109 RM)	1	0.04	0.5				Forage	0.0158, 0.0165	0.018		TK0029740- REG Test04
							Stover	< 0.010, < 0.010	< 0.010		
Fitchburg, WI USA,2011 (94 RM)	1	0.041	0.5				Forage	< 0.010, < 0.010	< 0.010		TK0029740- REG Test05
							Stover	< 0.010, < 0.010	< 0.010		
Rice, MN USA,2011 (94 RM)	1	0.043	0.5				Forage	0.0135, 0.0130	0.013		TK0029740- REG Tesst 06
							Stover	< 0.010, < 0.010	< 0.010		
Stafford, KS USA,2011 (105 RM)	1	0.04	0.5				Forage	0.0262, 0.0266	0.026		TK0029740- REG Test 07
							Stover	< 0.010, < 0.010	< 0.010		
Campbell, MN USA,2011 (94 RM)	1	0.043	0.5				Forage	< 0.010, < 0.010	< 0.010		TK0029740- REG Test08
							Stover	< 0.010, < 0.010	< 0.010		
Seymour, IL USA,2011 (114 RM)	1	0.041	0.5				Forage	< 0.010, < 0.010	< 0.010		TK0029740- REG Test 09
							Stover	< 0.010, < 0.010	< 0.010		
Perley, MN USA,2011 (85 RM)	1	0.037	0.5				Forage	0.0203, 0.0222	0.021		TK0029740- REG Test 10
							Stover	< 0.010, < 0.010	< 0.010		
Geneva, MN USA,2011 (94 RM)	1	0.04	0.5				Forage	< 0.010, < 0.010	< 0.010		TK0029740- REG Test 11
							Stover	< 0.010, < 0.010	< 0.010		
Northwood, KS USA,2011 (85 RM)	1	0.037	0.5				Forage	< 0.010, < 0.010	< 0.010		TK0029740- REG Test12
							Stover	< 0.010, < 0.010	< 0.010		
Stafford, KS USA,2011 (109 RM5)	1	0.039	0.5				Forage	0.0122, 0.0112	0.0117		TK0029740- REG Test 13
							Stover	< 0.010, < 0.010	< 0.010		
McVile, ND USA,2011 (85 RM)	1	0.037	0.5				Forage	< 0.010, < 0.010	< 0.010		TK0029740- REG Test14
							Stover	< 0.010, < 0.010	< 0.010		
Jefferson, IA USA,2011 (114 RM)	1	0.043	0.5				Forage	< 0.010, < 0.010	< 0.010		TK0029740- REG Test 15
							Stover	< 0.010, < 0.010	< 0.010		

Maize forage and hay Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	mg ai seed	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
York, NE USA, 2011 (114 RM)	1	0.04	0.5				Forage	< 0.010, < 0.010	< 0.010		TK0029740- REG Test16
							Stover	< 0.010, < 0.010	< 0.010		
Fitchburg, WI USA, 2011 (94 RM)	1	0.039	0.5				Forage	0.0202, 0.0269	0.024		TK0029740- REG Test 17
							Stover	< 0.010, < 0.010	< 0.010		
Richland, IA USA, 2011 (109 RM)	1	0.044	0.5				Forage	< 0.010, < 0.010	< 0.010		TK0029740- REG Test 18
							Stover	< 0.010, < 0.010	< 0.010		
Bagley, IA /USA, 2011 (114 RM)	1	0.039	0.5				Forage	0.0161, 0.0180	0.0170		TK0029740- REG Test 19
							Stover	< 0.010, 0.0131	< 0.010		
Wall, TX USA, 2011 (114 RM)	1	0.041					Forage	0.0147, < 0.010	< 0.010		TK0029740- REG Test20
							Stover	< 0.010, < 0.010	< 0.010		
York, NE, USA, 2011 (Hybrid A3035)	1	0.045					Forage	< 0.010, < 0.010	< 0.010		TK0029740- REG Test 21
							Stover	< 0.010, < 0.010	< 0.010		
Geneva, MN USA, 2011 (Hybrid A3035)	1	0.048					Forage	< 0.010, < 0.010	< 0.010		TK0029740- REG Test22
							Stover	< 0.010, < 0.010	< 0.010		
Gardner, ND USA, 2011 (Hybrid A3035)	1	0.052					Forage	< 0.010, < 0.010	< 0.010		TK0029740- REG Test 23
							Stover	< 0.010, < 0.010	< 0.010		

Table 43 Residues in field maize forage and stover from supervised trials in the USA following one seed treatment, FS formulation, plus two foliar applications of cyantraniliprole, WG formulation

Maize forage and hay Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments	
	no	kg ai/ha	mg ai seed	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites		
North Rose, NY, USA, 2011 (101 RM)	1 + 2	0.04 + 0.15	0.5	2-200			1	Forage	3.6, 3.62	3.61	0.02(J9Z38)	TestTK0029740- REG Test 01
							14	Stover	0.75, 0.91	0.83	0.16(J9Z38)	
Seven Springs, NCUSA, 2011 (114 RM)	1 + 2	0.05 + 0.15	0.5	2-200			1	Forage	6.5, 5.78	6.14	0.02(J9Z38)	TK0029740- REG Test 02
							14	Stover	0.57, 0.54	0.56	0.07(J9Z38)	
Wyoming, IL USA, 2011 (109 RM))	1 + 2	0.048 + 0.15	0.5	2-200			1	Forage	4.84, 4.87	4.86	0.02(J9Z38) 0.01(MYX98)	TK0029740- REG Test 03
							14	Stover	3.75, 2.79	3.27	0.03(J9Z38) 0.01(MYX98)	

Maize forage and hay Location Country, year (variety)	Application				DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments	
	no	kg ai/ha	mg ai seed	water L/ha			RTI (days)	cyantraniliprole	mean		metabolites
Carlyle, IL USA,2011 (109 RM)	1 + 2	0.04 + 0.15	0.5	2-200		1	Forage	7.0, 7.57	7.29	0.01(J9Z38) 0.02(MYX98)	TK0029740- REG Test04
						14	Stover	4.38, 5.46	4.92	0.07(J9Z38) 0.03(MYX98) 0.01(N7B69)	
Fitchburg, WI USA,2011 (94 RM)	1 + 2	0.041 + 0.15	0.5	2-200		1	Forage	4.67, 4.51	4.59	0.02(J9Z38)	TK0029740- REG Test05
						14	Stover	< 0.010, < 0.010	< 0.010	0.04(J9Z38)	
Rice, MN USA,2011 (94 RM)	1 + 2	0.043 + 0.15	0.5	2-200		1	Forage	1.99, 1.32	1.67	0.03(J9Z38)	TK0029740- REG Tesst 06
						14	Stover	5.72, 8.44	7.08	0.03(J9Z38) 0.04(MYX98) 0.01(N7B69)	
Stafford, KS USA,2011 (105 RM)	1 + 2	0.04 + 0.15	0.5	2-200		1	Forage	4.43, 4.19	4.31	0.01(J9Z38) 0.02(MYX98)	TK0029740- REG Test 07
						14	Stover	< 0.010, < 0.010	< 0.010	0.01(J9Z38)	
Campbell, MN USA,2011 (94 RM)	1 + 2	0.043 + 0.15	0.5	2-200		1	Forage	4.64, 4.41	4.53	0.02(J9Z38) 0.02(MYX98)	TK0029740- REG Test08
						14	Stover	2.48, 3.10	2.97	0.02(J9Z38) 0.01(MYX98)	
TestTK0029740- 09 Seymour, IL USA,2011 (114 RM)	1 + 2	0.041 + 0.15	0.5	2-200		1	Forage	3.12, 3.63	3.37	0.01(J9Z38) 0.01(MYX98)	TK0029740- REG Test 09
						14	Stover	3.60, 3.62	3.61	0.03(J9Z38)	
Perley, MN USA,2011 (85 RM)	1 + 2	0.037 + 0.15	0.5	2-200		1	Forage	6.35, 4.36	5.36	0.02(J9Z38) 0.03(MYX98)	TK0029740- REG Test 10
						14	Stover	7.44, 9.64	8.54	0.01(J9Z38)	
Geneva, MN USA,2011 (94 RM)	1 + 2	0.04 + 0.15	0.5	2-200		1	Forage	0.69, 0.66	0.68	0.01(J9Z38)	TestTK0029740- REG Test 11
						14	Stover	9.49, 9.17	9.33	0.04(J9Z38) 0.01(MYX98)	
Northwood, KS USA,2011 (85 RM)	1 + 2	0.037 + 0.15	0.5	2-200		1	Forage	6.57, 5.10	5.84	0.02(J9Z38) 0.01(MYX98)	TK0029740- REG Test12
						14	Stover	8.70, 16.2	12.45	0.03(J9Z38) 0.04(MYX98) 0.01(N7B69)	
TestTK0029740- 13 Stafford, KS USA,2011 (109 RM5)	1 + 2	0.039 + 0.15	0.5	2-200		1	Forage	7.58, 8.75	8.17	0.02(J9Z38) 0.02(MYX98)	TK0029740- REG Test 13
						14	Stover	1.47, 1.38	1.43	0.01(J9Z38)	
McVile, ND USA,2011 (85 RM)	1 + 2	0.037 + 0.15	0.5	2-200		1	Forage	0.46, 0.35	0.41		TK0029740- REG Test14
						14	Stover	2.70, 2.0	2.35	0.01(J9Z38) 0.01(MYX98)	
Jefferson, IA USA,2011 (114 RM)	1 + 2	0.043 + 0.15	0.5	2-200		1	Forage	8.44, 12.4	10.42	0.03(J9Z38) 0.02(MYX98)	TK0029740- REG Test 15
						14	Stover	2.51, 1.85	2.18	0.01(J9Z38) 0.01(MYX98)	
York,NE USA,2011 (114 RM)	1 + 2	0.04 + 0.15	0.5	2-200		1 3 7	Forage	0.33, 0.37 0.08 0.02	0.35 0.08 0.02	0.01(J9Z38) 0.01(J9Z38)	TK0029740- REG Test16

Maize forage and hay Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	mg ai seed	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
						0 7 14 21 28	Stover	8.93 3.92 3.41, 3.02 3.2 0.32	8.93 3.92 3.22 3.20 0.32	0.01(J9Z38) 0.01(J9Z38) 0.03(J9Z38) 0.03(J9Z38)	
Fitchburg, WI USA,2011 (94 RM)	1 + 2	0.039 + 0.15	0.5	2-200		1 3 3 7	Forage	2.21, 4.06 1.76 0.33	03.14 1.76 0.33	0.02(J9Z38) 0.04(J9Z38) 0.01(MYX98) 0.02(J9Z38)	TK0029740- REG Test 17
						0 7 14 21 28	Stover	3.87 6.19 4.88, 6.90 6.76 4.14	3.87 6.19 5.89 6.76 4.14	0.01(J9Z38) 0.03(J9Z38) 0.03(J9Z38) 0.05(J9Z38) 0.05(J9Z38)	
Richland, IA USA,2011 (109 RM)	1 + 2	0.044 + 0.15	0.5	2-200		1 14	Forage Stover	5.17, 4.49 3.64, 2.47	4.83 3.06	0.03(J9Z38) 0.03(J9Z38)	TK0029740- REG Test 18
Bagley, IA /USA,2011 (114 RM)	1 + 2	0.039 + 0.15	0.5	2-200		1 14	Forage Stover	5.75, 8.81 < 0.010, < 0.01	7.19 < 0.01	0.04(J9Z38) 0.01(MYX98) 0.02(J9Z38) 0.02(MYX98)	TK0029740- REG Test 19
Wall, TX USA,2011 (114 RM)	1 + 2	0.041 + 0.15	0.5	2-200		1 14	Forage Stover	1.17, 0.86 2.43, 4.11	1.02 3.27	0.01(J9Z38) 0.03(J9Z38) 0.03(MYX98)	TK0029740- REG Test20
York, NE, USA, 2011 (Hybrid A3035)	1 + 2	0.045 + 0.15	0.5	2-200		14	Stover	1.44, 2.24	1.84	0.21(J9Z38) 0.01(MYX98)	TK0029740- REG Test 21
Geneva, MN USA,2011 (Hybrid A3035)	1 + 2	0.048 + 0.15	0.5	2-200		14	Stover	3.13, 2.55	2.84	0.11(J9Z38) 0.02(MYX98)	TK0029740- REG Test22
Gardner, ND USA,2011 (Hybrid A3035)	1 + 2	0.052 + 0.15	0.5	2-200		14	Stover	0.82, 1.15	0.99	0.11(J9Z38)	TK0029740- REG Test 23

Almond hulls

Table 44 Residues in almond hulls from supervised trials in the USA following three foliar applications of cyantraniliprole, 100 SE formulation

ALMOND hull Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
Dinuba, CA, USA, 2011) (Non Pareil)	1 + 1 + 1 +	0.15	284 291 290	52	7	5	hull				0.68, 0.77
Terra Bella, CA, USA, 2011 (Carmell)	1 + 1 + 1 +	0.15	32 32 34	474 477 439	7	5	hull	1.4, 1.4	1.4	M1 = 0.01	DP-32057 Trial 02
Strathmore, CA, USA, 2011 (Fritz)	1 + 1 + 1	0.15	34 35 34	444 443 440	7	4	hull	1.1, 0.72	0.93		DP-32057 Trial 03

ALMOND hull Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
Sanger, CA, USA, 2011 (Non-Pareil)	1 + 1 + 1 +	0.15	32	478	7	5	hull	1.6, 2.2	1.9		DP-32057 Trial 04

Table 45 Residues in almonds hull from supervised trials in the USA following foliar applications of cyantraniliprole, 100 OD or SE formulations, (data previously reviewed by the 2013 JMPR)

ALMOND hull Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
Turlock, CA USA, 2009 (Butte)	3	0.15	26	580	7, 6	5	hull	4.5, 4.6	4.6	M1 = 0.03 M2 = 0.01	DP-27446 Trial 01
Kerman, CA USA, 2009 (Non-Pareil)	3	0.15	32	470	7	5	hull	2.0, 1.7	1.9	M1 = 0.01	DP-27446 Trial 02
Sanger, CA USA, 2009 (Neplus)	1 + 1 + 1	0.15	23	650	6	5	hull	0.78, 0.98	0.88		DP-27446 Trial 03
Sutter, CA USA, 2009 (Non-Pareil)	3	0.15	310	50	7	5	hull	3.0, 2.8	2.9	M1 = 0.02	DP-27446 Trial 04
Sanger, CA USA, 2009 (Neplus)	1 + 2	0.15 0.15	6 12	2400 1300	7 8	5	hull	1.2, 1.4	1.3	M1 = 0.01	DP-27446 Trial 05
	1 + 2	0.15 0.15	6 12	2400 1300	7 8	5	hull	2.3, 2.7	2.5	M1 = 0.01	DP-27446 Trial 05 [100 SE]
Madera, CA USA, 2009 (Non-Pareil)	3	0.15	330	50	6, 7	5	hull	0.88, 0.94	0.91		DP-27446 Trial 06
	3	0.15	11	1400	6, 7	5	hull	3.7, 3.5	3.6	M1 = 0.04	DP-27446 Trial 06 [100 SE]

M1: Average residues of metabolite IN-J9Z38

M2: Average residues of metabolite IN-MYX98

Cotton, gin trash

Table 46 Residues in cotton, gin trash from supervised trials in the USA following three foliar applications of cyantraniliprole, 100 OD formulation, (data previously reviewed by the 2013 JMPR)

COTTON, gin trash Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
Hinton, OK USA, 2009 (FM1740B2F)	3	0.15	75	200	8, 9	9	gin trash	2.6, 2.6	2.6	M1 = 0.03 M2 = 0.01	DP-27565 Trial 07
Edmonson, TX USA, 2009 (DP 924)	3	0.15	97	160	8, 6	7	gin trash	4.3, 5.7	5	M1 = 0.02 M2 = 0.03	DP-27565 Trial 08

COTTON, gin trash Location Country, year (variety)	Application					DAT (days)	Matrix	Residues (mg/kg)			Reference & Comments
	no	kg ai/ha	g ai/hL	water L/ha	RTI (days)			cyantraniliprole	mean	metabolites	
Levelland, TX USA, 2009 (9063 B2F)	3	0.15	63	234	7	8	gin trash	3.5, 3.5	3.5	M1 = 0.07 M2 = 0.02	DP-27565 Trial 09
Uvalde, TX USA, 2009 (DP6167 B2RF)	3	0.15	65	234	7	6	gin trash	2.8, 2.6	2.7	M1 = 0.07 M2 = 0.01	DP-27565 Trial 10

M1: Average residues of metabolite IN-J9Z38

M2: Average residues of metabolite IN-MYX98

Fate of residues in storage and processing

Maize (corn)

In two field trials on maize conducted in the USA and reported by Thomas J. Mäyer, 2013 [Ref: TK0029740], plots were treated with one seed treatment of 0.5 mg ai/seed (FS formulation) plus two late season foliar applications at an exaggerated rate of 0.75 kg ai/ha (5×) cyantraniliprole (WG formulation) with added surfactant; samples were taken 14 day before harvest for processing.

Bulk samples were composited and shipped at ambient temperature directly to the processing facility where samples were processed into aspirated grain fraction, meal, flour, grits, refined oil (dry and wet milling) and starch.

Table 47 Residues in fresh and processed maize from supervised trials in North America following three foliar applications of cyantraniliprole, 100 OD formulation

Maize Study ID	Matrix	Cyantraniliprole	IN-J9Z38	Total		Other metabolites (mg/kg)					
		mg/kg	mg/kg	mg/kg	PF	M2	M3	M4	M5	M6	M7
TK0029740 Trial 18	Grain	0.08	< 0.01	0.09							
	AGF	15.9	0.07	15.97	177.4	0.05	0.01			N/A	N/A
	Meal	0.03	< 0.01	0.04	0.44						
	Flour	0.02	< 0.01	0.03	0.33						
	Grits	0.01	< 0.01	0.02	0.22						
	Oil—dry	< 0.01	< 0.01	< 0.02	< 0.22						
	Oil—wet	< 0.01	< 0.01	< 0.02	< 0.22				0.03		
Starch	< 0.01	< 0.01	< 0.02	< 0.22							
TK0029740 Trial 19	Grain	0.08	< 0.01	0.09							
	AGF	15.7	0.05	15.75	175	0.07	0.02			N/A	N/A
	Meal	0.01	< 0.01	0.02	0.22						
	Flour	0.01	< 0.01	0.02	0.22						
	Grits	< 0.01	< 0.01	< 0.02	< 0.22						
	Oil—dry	< 0.01	< 0.01	< 0.02	< 0.22						
	Oil—wet	< 0.01	0.03	0.04	0.44						
Starch	< 0.01	< 0.01	< 0.02	< 0.22							

AGF: Aspirated Grain Fraction, N/A: Not Applicable

M2: Residues of metabolite IN-MYX98

M3: Residues of metabolite IN-N7B69

M4: Residues of metabolite IN-MLA84

M5: Residues of metabolite IN-JCZ38

M6: Residues of metabolite IN-N5M09

M7: Residues of metabolite IN-F6L99

For calculation purposes, where the residue in the processed commodity was below the LOQ, a value of 0.01 mg/kg was used. Where residues of IN-J9Z38 are below the LOQ in the RAC, a value of 0.01 has been used to calculate 'total' residues.

Cotton seed

Table 48 Residues in raw and processed cotton seed from supervised trials in the USA following three foliar applications of cyantranilprole, 100 OD formulation, (data previously reviewed by the 2013 JMPR)

COTTON SEED Study ID	Matrix	Cyantranilprole	IN-J9Z38	Total		Other metabolites (mg/kg)					
		mg/kg	mg/kg	mg/kg	PF	M2	M3	M4	M5	M6	M7
DP-27565 Trial 4	cottonseed	<u>0.52</u>	< 0.01	<u>0.53</u>						< 0.003	< 0.003
	raw oil (solvent extr)	0.02	< 0.01	0.03	0.06					< 0.003	< 0.003
	refined oil (solvent extr)	< 0.003	0.02	0.02	0.04						
	meal (solvent extr)	0.05	< 0.003	0.05	0.09						
	hulls	0.17	< 0.01	0.18	0.34						
	raw oil (cold press)	0.16	< 0.003	0.16	0.3						
	refined oil (cold press)	< 0.003	0.02	0.02	0.04						
	meal (cold press)	0.06	< 0.003	0.06	0.11						
DP-27565 Trial 10	cottonseed	<u>0.71</u>	0.02	<u>0.73</u>						< 0.003	< 0.003
	raw oil (solvent extr)	0.017	0.016	0.03	0.04					< 0.01	< 0.01
	refined oil (solvent extr)	< 0.003	0.02	0.02	0.03						
	meal (solvent extr)	0.01	< 0.01	< 0.02	< 0.03						
	hulls	0.25	0.02	0.27	0.37						
DP-27565 Trial 13	cottonseed	<u>1.6</u>	0.01	<u>1.6</u>						< 0.003	< 0.003
	raw oil (solvent extr)	0.05	0.07	0.12	0.08					< 0.003	< 0.003
	refined oil (solvent extr)	< 0.003	0.08	0.08	0.05						
	meal (solvent extr)	0.06	0.02	0.08	0.05						
	hulls	0.42	< 0.01	< 0.43	< 0.27						
	raw oil (cold press)	0.34	< 0.01	< 0.34	< 0.21						
	refined oil (cold press)	< 0.003	0.07	0.07	0.04						
	meal (cold press)	0.11	< 0.003	0.11	0.07						

M2: Residues of metabolite IN-MYX98

M3: Residues of metabolite IN-N7B69

M4: Residues of metabolite IN-MLA84

M5: Residues of metabolite IN-JCZ38

M6: Residues of metabolite IN-N5M09

M7: Residues of metabolite IN-F6L99

For calculation purposes, where the residue in the processed commodity was reported as ND (< LOD), a value of 0.003 mg/kg was used and where residues were above the LOD but below the LOQ, a value of 0.01 mg/kg was used. In both cases, the PF was expressed as “less than” (e.g. < 0.01). Where residues of IN-J9Z38 are below the LOQ in the RAC, a value of 0.01 has been used to calculate ‘total’ residues.

Table 49 Summary of processing factors for cyantranilprole and cyantranilprole + IN-J9Z38

RAC	Matrix	Cyantranilprole ^a		Cyantranilprole + IN-J9Z38 ^b	
		Calculated processing factors	PF Median	Calculated processing factors	PF median
Corn	Grain				
	AGF			175, 177.4	176
	Meal			0.22, 0.44	0.33
	Flour			0.22, 0.33	0.27
	Grits			< 0.22, 0.22	0.22
	Oil—dry			< 0.22, < 0.22	< 0.22
	Oil—wet			0.44, < 0.22	0.33
	Starch			< 0.22, < 0.22	< 0.22
Cottonseed	Seed				
	raw oil (solvent extr)	0.04, 0.02, 0.03	0.03	0.06, 0.04, 0.08	0.06
	refined oil (solvent extr)	< 0.006, < 0.005, < 0.002	< 0.005	0.04, 0.03, 0.05	0.04
	meal (solvent extr)	0.1, 0.01, 0.04	0.04	0.09, < 0.03, 0.05	0.05
	Hulls	0.33, 0.35, 0.29	0.33	0.34, 0.37, < 0.27	0.34
	raw oil (cold press)	0.31, 0.21	0.26	0.3, < 0.21	0.25
	refined oil (cold press)	< 0.01, < 0.002	< 0.006	0.04, 0.04	0.04
	meal (cold press)	0.12, 0.07	0.1	0.11, 0.07	0.09

AGF: Aspirated Grain Fraction

^a Each value represents a separate study where residues were above the LOQ in the RAC. The factor is the ratio of the cyantraniliprole residues in the processed item divided by the residue of cyantraniliprole in the RAC.

^b Each value represents a separate study where residues were above the LOQ in the RAC. The factor is the ratio of the combined cyantraniliprole plus IN-J9Z38 metabolite residues in the processed item divided by the residue of cyantraniliprole in the RAC.

APPRAISAL

Cyantraniliprole is a diamide insecticide with a mode of action (ryanodine receptor activation) similar to chlorantraniliprole and flubendiamide, with foliar and systemic activity. It is effective against the larval stages of lepidopteran insects and also on thrips, aphids and other chewing and sucking insects.

Cyantraniliprole was initially evaluated for toxicology and residues by JMPR in 2013 and a ADI of 0–0.03mg/kg bw/day was established. An ARfD was deemed to be unnecessary. The residue definitions were also established:

Definition of residue for compliance with MRL for both animal and plant commodities: cyantraniliprole.

Definition of residue for estimation of dietary intake for unprocessed plant commodities: cyantraniliprole.

Definition of residue for estimation of dietary intake for processed plant commodities: sum of cyantraniliprole and IN-J9Z38, expressed as cyantraniliprole.

Definition of residue for estimation of dietary intake for animal commodities:

sum of cyantraniliprole, 2-[3-Bromo-1-(3-chloro-2-pyridinyl)-1H-pyrazol-5-yl]-3,4-dihydro-3,8-dimethyl-4-oxo-6-quinazolinecarbonitrile [IN-J9Z38], 2-[3-Bromo-1-(3-chloro-2-pyridinyl)-1H-pyrazol-5-yl]-1,4-dihydro-8-methyl-4-oxo-6-quinazolinecarbonitrile [IN-MLA84], 3-Bromo-1-(3-chloro-2-pyridinyl)-N-[4-cyano-2-(hydroxymethyl)-6-[(methylamino)carbonyl]phenyl]-1H-pyrazole-5-carboxamide [IN-N7B69] and 3-Bromo-1-(3-chloro-2-pyridinyl)-N-[4-cyano-2-[(hydroxymethyl)amino]carbonyl]-6-methylphenyl]-1H-pyrazole-5-carboxamide [IN-MYX98], expressed as cyantraniliprole.

The residue is not fat soluble.

At the Forty-sixth Session of the CCPR(2014), cyantraniliprole was scheduled for evaluation of additional use patterns by 2015 JMPR.

The Meeting received supervised residue trial data for foliar and soil applications of cyantraniliprole on a range of fruit and vegetable crops, cereals, tree nuts and tea, and information on registered uses of cyantraniliprole on corresponding crops. The processing studies on corn were also submitted to the Meeting.

Methods of analysis

The analytical methods were previously evaluated (2013 Meeting). The same methods were used in the trials submitted to the current Meeting, and are considered valid for the commodities evaluated.

Stability of residues in stored analytical samples

The stability of residues of cyantraniliprole and metabolites in stored samples was covered by the freezer stability studies evaluated by the 2013 JMPR, and is considered adequate for the trials submitted to the current Meeting.

Results of Supervised residue trials on crops

The Meeting received the residue trials for strawberry, greenhouse cucumber, bean, pea, soya bean, artichoke, maize, and tea.

Where residues have been reported as not detected (ND), i.e., <LOD, the values have been considered as <LOQ (< 0.01 mg/kg) for the purposes of MRL setting. If a higher residue level was observed at a longer PHI than the GAP, the higher value has been used in MRL setting.

The Meeting noted that GAP has been authorised for the use of cyantraniliprole and the product labels were available from Canada, Columbia, India, Japan, Vietnam and USA.

Citrus fruits

The critical GAP for cyantraniliprole on citrus fruits is in USA: 3 foliar applications of 0.15 kg ai/ha with a total of 0.45 kg ai/ha/season, applied at least 7 days intervals with a PHI of 1 day. The 2013 Meeting received the supervised residue trials for cyantraniliprole on citrus fruit (orange, lemon, grapefruit and mandarin). The current Meeting evaluated the data against the GAP for citrus fruits from the USA. Cyantraniliprole was also registered for soil application in citrus, however, the residue trials with soil application showed that the soil application did not contribute significant residues in citrus fruits.

Orange

In trials conducted in USA and Europe matching the USA GAP (with 3 applications of 0.15 kg ai/ha, PHI of 1 day), cyantraniliprole residues in whole fruit were: 0.1(2), 0.12, 0.17, 0.2, 0.21, 0.22, 0.23, 0.26, 0.28, 0.3, 0.35 and 0.39 mg/kg (n=13). The cyantraniliprole residues in pulp were: 0.01, 0.013, 0.018, 0.021, 0.036, 0.04, 0.041, 0.043, 0.046, 0.064, 0.069, and 0.086(2) mg/kg (n=13).

Lemon

In trials conducted in USA matching the USA GAP (with 3 applications of 0.15 kg ai/ha, PHI of 1 day), cyantraniliprole residues in whole fruit were: 0.16(2), 0.19, **0.21 and 0.3 mg/kg** (n=5). Cyantraniliprole residues in pulp were: 0.023, 0.057, 0.063, 0.07 and 0.11 mg/kg (n=5).

Grapefruit

In trials conducted in USA matching the USA GAP (with 3 applications of 0.15 kg ai/ha, PHI of 1 day), cyantraniliprole residues in whole fruit were: 0.091, 0.12(2), 0.14, 0.16, 0.19, and **0.31 mg/kg** (n=7). Cyantraniliprole residues in pulp were: 0.014, 0.021, 0.026, 0.029, 0.032, 0.033 and 0.049 mg/kg (n=7).

Mandarins

In trials conducted in Europe matching the USA GAP (with 3 applications of 0.15 kg ai/ha, PHI of 1 day), cyantraniliprole residues in whole fruit were: 0.47 **mg/kg** (n=1). Cyantraniliprole residues in pulp were: 0.2 mg/kg (n=1).

The Meeting noted that the GAP in USA was for citrus and the medians of the data sets for oranges, lemons, grapefruits and mandarins differed by less than 5-fold, and agreed to consider a group maximum residue level. In deciding on the data set to use for estimating a group maximum residue level (the Kruskal-Wallis H-test indicated that the residue populations for oranges, lemons, grapefruits and mandarins were not different) it was agreed to combine the results to give a data set of: 0.091, 0.1(2), 0.12(3), 0.14, 0.16(3), 0.17, 0.19(2), 0.2, 0.21(2), 0.22, 0.23, 0.26, 0.28, 0.3(2), 0.31, 0.35, 0.39 and 0.47 mg/kg (n=26) to recommend a maximum residue level for the citrus fruit group. It was agreed to combine the results in pulp to give a data set of: 0.01, 0.013, 0.014, 0.018, 0.021(2), 0.023, 0.026, 0.029, 0.032, 0.033, 0.036, 0.04, 0.041, 0.043, 0.046, 0.049, 0.057, 0.063, 0.064, 0.069, 0.07, 0.086(2), 0.11 and 0.2 mg/kg (n=26).

The Meeting estimated an STMR of 0.041 mg/kg and an HR of 0.2 mg/kg based on residues in pulp, and recommended a group maximum residue level of 0.7 mg/kg for cyantraniliprole on citrus fruit. The Meeting estimated an STMR of 0.20 mg/kg in orange fruit for calculation of STMR-P.

Pomegranate

The approved GAP for cyantraniliprole on pomegranate is available from India, up to 3 foliar applications of 0.09 kg ai/ha, applied at least 7-10 day intervals with a PHI of 5 days. The assessment was undertaken using the supervised residue trials for cyantraniliprole on pomegranate received by the 2013 Meeting. The current Meeting evaluated the data against the new GAP for pomegranate from India.

In one trial conducted on pomegranate in India matching the Indian GAP cyantraniliprole residues in rind, seed and juice were < 0.01 mg/kg (n=1). In other trials conducted in four locations in India with 2, 3, 5 applications at rate of 0.075-0.18 kg ai/ha and PHI of 5 days, the cyantraniliprole residues in rind, seed and juice were all < 0.01 mg/kg (n=11).

The Meeting noted that since different times and rates of application resulted in the same residues in pomegranate, the Meeting agreed to combine the data together to estimate a maximum residue level of 0.01* mg/kg, and an STMR of 0.01 mg/kg.

Fruiting vegetables, Cucurbits

The critical GAP for cyantraniliprole on cucurbit vegetables is in Canada, up to 4 foliar applications of 0.15 kg ai/ha, applied at least 5–7 day intervals with a PHI of 1 day.

The new trials conducted on protected cucumber in North America (with 3 applications of 0.15 kg ai/ha, a PHI of 0 day) did not match the critical GAP. The meeting confirmed the previous recommendation.

Legume vegetables

The critical GAP for cyantraniliprole on legume vegetables in Canada is up to 4 foliar applications of 0.15 kg ai/ha, applied at least 5 day intervals with a PHI of 1 day for succulent seed. The 2013 Meeting received the supervised residue trials for cyantraniliprole on bean and pea from Europe. The current Meeting received new trials on bean, pea and soya bean, and evaluated all trials available to the Meeting against the new GAP for legume vegetables from Canada.

Pea with pod

In trials conducted on pea with pod (edible-podded peas) in USA matching the Canadian GAP (4 foliar applications of 0.15kg ai/ha, 1 day PHI), cyantraniliprole residues in pea with pod were: 0.29, 0.61, 0.78 and 0.79 mg/kg (n=4).

The Meeting estimated an STMR of 0.7mg/kg, and the maximum residue level of 2.0 mg/kg for cyantraniliprole in pea with pod.

Pea without pod

In trials conducted on pea without pod (succulent shelled pea) in USA matching the Canadian GAP (4 foliar applications of 0.15 kg ai/ha, 1 day PHI), cyantraniliprole residues in seed of pea without pod were: 0.019, 0.046, 0.065, 0.076, 0.082 and 0.10 mg/kg (n=6).

The Meeting estimated an STMR of 0.07 mg/kg, and maximum residue level of 0.3 mg/kg in pea without pod.

Bean with pod

In trials conducted on bean with pod (edible-podded beans) in USA matching the Canadian GAP (4 foliar applications of 0.15kg ai/ha, PHI of 1 day), cyantraniliprole residues in bean were: 0.11, 0.11, 0.23, 0.29, 0.36, 0.43, and 0.73 mg/kg (n=7).

The Meeting estimated an STMR of 0.29 mg/kg and recommended the maximum residue level of 1.5 mg/kg for cyantraniliprole in bean with pod.

Bean without pod

In trials conducted on bean without pod (succulent shelled beans) in the USA matching the Canadian GAP (4 foliar applications at 0.15kg ai/ha, PHI of 1 day), cyantraniliprole residues in seed of succulent shelled bean were: 0.01, 0.023 and 0.057 mg/kg (n=3).

Since three trials were insufficient to estimate the STMR and maximum residue level, the Meeting agreed to extrapolate the STMR and maximum residue level from pea without pods. The Meeting estimated an STMR of 0.07 mg/kg, and a maximum residue level of 0.3 mg/kg in bean without pod.

Soya bean, immature seed

In trials conducted on soya bean in the USA matching Canadian GAP (4 applications at 0.15 kg ai/ha, PHI of 1 day). The cyantraniliprole residues in immature seed were: 0.019, 0.035, 0.036, 0.042 and 0.14 mg/kg (n=5)

The Meeting estimated an STMR of 0.036 mg/kg and recommended the maximum residue level of 0.3 mg/kg for cyantraniliprole in soya bean, immature seed.

Pulses

The critical GAP for cyantraniliprole on pulses in Canada is up to 4 foliar applications of 0.15 kg ai/ha, applied at 5 day intervals with a PHI of 7 days.

Beans (dry)

In new trials conducted on bean, dry (dry shelled beans) in USA matching the Canadian GAP (4 foliar applications of 0.15kg ai/ha, PHI of 7 day), cyantraniliprole residues in bean, dry were: < 0.01, < 0.01, < 0.01, < 0.01, < 0.01, 0.01, 0.015, 0.021, 0.048, 0.049, 0.088 and 0.22 mg/kg (n=12).

The Meeting estimated a STMR of 0.01 mg/kg and recommended the maximum residue level of 0.3 mg/kg for cyantraniliprole in bean (dry).

Peas (dry)

In new trials conducted on pea, dry (dry shelled peas) in the USA matching Canadian GAP (4 foliar applications of 0.15kg ai/ha, PHI of 7 day), cyantraniliprole residues in peas (dry) were: 0.019, 0.077, 0.086 and 0.51 mg/kg (n=4).

The Meeting agreed that four trials were insufficient for the estimation of a STMR and maximum residue level recommendation.

Soya bean (dry)

In new trials, conducted on soya bean in the USA, matching the Canadian GAP (4 applications of 0.15 kg ai/ha, PHI of 7 days), cyantraniliprole residues in soya bean (dry) were: < 0.01, 0.011, 0.012, 0.017, 0.022, 0.023, 0.027, 0.027, 0.031, 0.031, 0.033, 0.044, 0.056, 0.061, 0.083, 0.1, 0.12, 0.13, 0.15, 0.16 and 0.25 mg/kg (n=21).

The meeting estimated an STMR of 0.033 mg/kg and recommended the maximum residue level of 0.4 mg/kg for cyantraniliprole in soya bean (dry).

Artichoke

The GAP for cyantraniliprole on artichoke in Canada is up to 4 foliar applications of 0.025–0.15 kg ai/ha with a total of 0.45 kg ai/ha/season, applied at least 5–7 day intervals with a PHI of 7 days.

The new trials conducted on artichoke in Europe (2 foliar applications of 0.05kg/ha) did not match the Canadian GAP.

Maize

The GAP for cyantraniliprole on maize is available from Canada, for seed treatment at 0.012–0.024 kg ai/ha (up to 0.25 mg ai/ seed, or 100 g ai/100 kg seeds).

There were no trials matching the Canadian GAP, however, the Meeting noted that in 23 trials conducted on maize in North America, seed treatment of 0.5 mg ai/ seed, i.e., 2× GAP rate, the residues of cyantraniliprole in maize grain were all < 0.01 mg/kg. The Meeting agreed to estimate a STMR of 0 mg/kg and recommend a maximum residue level of 0.01 mg/kg for cyantraniliprole in maize grain.

Tree nuts

The critical GAP for cyantraniliprole on tree nuts is from the USA, 3 foliar applications of 0.15 kg ai/ha, with a seasonal total of 0.45 kg ai/ha, applied at 7 day intervals with a PHI of 5 days. The Meeting received four new trials on almond and six new trials on pecan. In addition, the 2013 Meeting received supervised residue trials for cyantraniliprole on almond (6) and pecan (6). The current Meeting evaluated all available trials together against the GAP of the USA.

Almond

In trials conducted on almonds in the USA, matching US GAP (3 foliar application of 0.15 kg ai/ha, 0.45 kg ai/ha/season, PHI of 5 days), cyantraniliprole residues in nutmeat were < 0.01 (5), 0.01, 0.012, 0.014, 0.018 and 0.023 mg/kg (n=10).

Pecan

In trials conducted on pecans in the USA, matching US GAP (3 foliar application of 0.15 kg ai/ha, 0.45 kg ai/ha/season, PHI of 5 days), cyantraniliprole residues in nutmeat were all < 0.01 mg/kg (n=12).

The Meeting noted that the GAP in the USA was for tree nuts and the medians of the data sets for almond and pecan differed by less than 5-fold and agreed to consider a group maximum residue level. In deciding on the data set to use for estimating a group maximum residue level (the Kruskal-Wallis H-test indicated that the residue populations for almond and pecan were not different) it was agreed to combine the results to give a data set of: < 0.01(16), 0.01(2), 0.012, 0.014, 0.018 and 0.023 mg/kg (n=22) to recommend a maximum residue level for the tree nut group.

The Meeting estimated an STMR of 0.01 mg/kg, and recommended a group maximum residue level of 0.04 mg/kg for cyantraniliprole on tree nuts.

Oilseeds

The 2013 Meeting received supervised residue trials for cyantraniliprole on cotton, rapeseed and sunflower. The current Meeting evaluated the data against the GAP of the USA.

Cotton

The critical GAP for cyantraniliprole on cotton in the USA is for up to 3 foliar applications of 0.15 kg ai/ha with a total of 0.45 kg ai/ha/season, applied at 7 day intervals with a PHI of 7 days.

In trials conducted on cotton in the USA matching GAP, cyantraniliprole residues in cotton seed were: 0.012, 0.025, 0.035, 0.12, 0.12, 0.14, 0.16, 0.18, 0.2, 0.22, 0.26, 0.29 and 0.99 mg/kg (n=13).

The Meeting estimated an STMR of 0.16 mg/kg, and recommended the maximum residue level of 1.5 mg/kg for cyantraniliprole in cotton seed.

Rape seed (canola)

The critical GAP for cyantraniliprole on rape seed (canola) in the USA is up to 3 foliar applications of 0.15 kg ai/ha with a total of 0.45 kg ai/ha/season, applied at 7 day intervals with a PHI of 7 days.

In trials conducted on canola in the USA matching GAP, cyantraniliprole residues in rapeseed were: 0.019, 0.021, 0.022, 0.05, 0.059, 0.061, 0.07, 0.07, 0.084, 0.12, 0.17, 0.18, 0.27, 0.29, 0.32 and 0.61 mg/kg (n=16).

The Meeting estimated the maximum residue level of 0.8 mg/kg and an STMR of 0.077 mg/kg for cyantraniliprole in rapeseed.

Sunflower

The critical GAP for cyantraniliprole on sunflower in the USA is for up to 3 foliar applications of 0.15 kg ai/ha with a total of 0.45 kg ai/ha/season, applied at 7 day intervals with a PHI of 7 days.

In trials conducted on sunflower in the USA matching the USA GAP, cyantraniliprole residues in sunflower seed were: 0.028, 0.039, 0.059, 0.064, 0.067, 0.085, 0.092, 0.14 and 0.32 mg/kg (n=9).

The Meeting estimated the maximum residue level of 0.5 mg/kg and a STMR of 0.067 mg/kg for cyantraniliprole in sunflower.

*Seed for beverages and sweets**Coffee*

The 2013 Meeting received supervised residue trials for cyantraniliprole on coffee. The current Meeting evaluated the data against the new GAP from Columbia.

The new approved GAP for cyantraniliprole on coffee from Columbia is for up to 2 foliar application of 2.5–3.5 g ai/5 litres/100 trees, equivalent to 0.06–0.175 kg ai/ha with a total of 0.3 kg ai/ha/season, with a PHI of 7 days.

In two Brazilian trials matching the Columbian GAP, cyantraniliprole residues in green coffee beans were: < 0.01 and 0.02 mg/kg.

The Meeting noted that in a further eight trials from Brazil involved 2 foliar applications that matched the Columbian GAP but in which two soil drenches (0.01–0.06 g ai/100 mL/plant to achieve the equivalent of 0.2 kg ai/ha/treatment) were also applied 90 and 120 days before harvest, cyantraniliprole residues in green bean were: < 0.01 (3), 0.01(2), 0.02, 0.02, and 0.03 mg/kg (n=8).

The Meeting agreed that since the early season soil drench treatments did not appear to contribute to the final residue in coffee beans, the data from these two sets of results could be combined, giving a data set of: < 0.01(4), 0.01(2), 0.02(3) and 0.03 mg/kg (n=10).

The Meeting estimated a STMR of 0.01 mg/kg, and recommended a maximum residue level of 0.05 mg/kg for cyantraniliprole on coffee bean, with the withdrawal of the previous maximum residue level recommendation of 0.03 mg/kg.

Tea, green, dry

The approved GAP for cyantraniliprole on tea is from Japan, with 1 foliar application of 0.1–0.2 kg ai/ha and a PHI of 7 days.

In trials conducted in Japan matching the Japanese GAP, cyantraniliprole residues in tea, green(dry) were 4.19 and 20.6 mg/kg (n=2). The Meeting agreed that two trials were insufficient for the estimation of a STMR and a maximum residue level recommendation.

Animal feed

Bean forage and bean hay

The 2013 Meeting received supervised residue trials for cyantraniliprole on beans from Europe. The current Meeting received new trials on beans from the USA, and evaluated all available trials against the new GAP for pulses from Canada.

In new trials conducted on bean forage and hay (dry shelled beans) in the USA, matching the Canadian GAP (3 foliar applications of 0.15kg ai/ha, PHI of 7 day), cyantraniliprole residues in bean forage (dry matter) were: 6.3, 7.6, 11.6, and 16.9 mg/kg (n=4); cyantraniliprole residues in bean hay (dry matter) were: 5.2, 7.7, 9.2 and 19.1 mg/kg (n=4).

The Meeting estimated a median residue of 9.6 mg/kg and a highest residue of 16.9 mg/kg for cyantraniliprole in bean forage (dry matter) for the calculation of livestock dietary burdens.

The Meeting estimated a median residue of 8.5 mg/kg and a high residue of 19.1 mg/kg for cyantraniliprole in bean hay (dry matter), and recommended a maximum residue level of 40 mg/kg (DM).

Pea vine and pea hay

The 2013 Meeting received supervised residue trials for cyantraniliprole on peas from Europe. The current Meeting received new trials on peas from the USA, and evaluated all available trials against the new GAP for pulses from Canada.

In new trials conducted on pea vine and hay in USA matching the Canadian GAP (3 foliar applications of 0.15kg ai/ha, 7 day PHI), cyantraniliprole residues in pea vine (dry matter basis) were: 4.1, 6.6, 11.4 and 47.1 mg/kg (n=4); cyantraniliprole residues in pea hay (dry matter) were: 3.5, 6.6, 12.8 and 28.5 mg/kg (n=4).

The Meeting estimated a median residue of 9.0 mg/kg and a highest residue of 47.1 mg/kg (DM) for cyantraniliprole in pea vine (dry matter) for calculation of livestock dietary burdens.

The Meeting estimated a median residue of 9.7 mg/kg and a highest residue of 28.5 mg/kg for cyantraniliprole in pea hay, and recommended a maximum residue level of 60 mg/kg (DM) for cyantraniliprole in pea hay,

Soya bean forage and hay

The Meeting received new trials conducted on soya bean forage and hay from the USA, matching Canadian GAP (3 applications of 0.15 kg ai/ha, PHI of 7 days).

The cyantraniliprole residues in soya bean forage, on dry matter basis, were: 1.2, 2.7, 4.5, 4.9, 6.1, 12.0, 12.5, 14.2, 16.9, 17.8, 21.6, 27.1, 27.2, 30.6, 39.5 and 45.3 mg/kg (n=16).

The cyantraniliprole residues in soya bean hay in dry matter were: 1.6, 2.5, 6.0, 10.0, 10.8, 10.9, 13.1, 13.2, 14.3, 22.5, 27.3, 28.4, 28.9, 32.8, 42.7 and 46.4 mg/kg (n=16)

The Meeting estimated a median residue of 15.5 mg/kg and a highest residue of 45.3 mg/kg for cyantraniliprole in soya bean forage (dry matter) for calculation of animal dietary burdens.

The Meeting estimated a median residue of 13.7 mg/kg and a highest residue of 46.4 mg/kg for cyantraniliprole in soya bean hay (dry matter), and recommended a maximum residue level of 80 mg/kg (DM) for cyantraniliprole in soya bean hay.

Almond hull

The 2013 Meeting received supervised residue trials for cyantraniliprole on almond hulls. The current Meeting evaluated the data against the new GAP from the USA.

In trials conducted on almonds hulls in the USA, matching US GAP (3 foliar application of 0.15 kg ai/ha, 0.45 kg ai/ha/season, PHI of 5 days), cyantraniliprole residues in almond hulls were: 0.72, 0.88, 0.93, 1.4, 1.9, 1.9, 2.5, 2.9, 3.6 and 4.6 mg/kg (n=10).

The Meeting estimated a mean residue of 1.9 mg/kg, a highest residue of 4.6 mg/kg on almond hulls for the purpose of estimating livestock dietary burdens.

Cotton gin trash

The 2013 Meeting received supervised residue trials for cyantraniliprole on cotton gin trash. The current Meeting evaluated the data against the GAP of the USA (3 applications of 0.15 kg ai/ha, with interval of 7 days and a PHI of 7 days).

In trials conducted on cotton in the USA, matching US GAP, residues in cotton gin trash were: 2.6, 2.7, 3.5 and 5 mg/kg (n=4)

The Meeting estimated the median residue of 3.1 mg/kg and the highest residue of 5 mg/kg in cotton gin trash for estimating livestock dietary burden.

Fate of residues during processing

The Meeting received processing studies on cyantraniliprole residues in maize, cottonseed and oranges. The Meeting agreed that for commodities not being considered for maximum residue levels at this Meeting, the relevant processing studies would not be reviewed and processing factors would not be estimated. Estimated processing factors and STMR-Ps for the commodities considered at this Meeting are summarized below.

Summary of processing factors and STMR-P for cyantraniliprole+IN-J9Z38

RAC	Commodity	Cyantraniliprole+IN-J9Z38 ^a		RAC STMR (mg/kg) ^b	STMP-P (mg/kg) ^d
		Calculated processing factors	PF best estimate		
Maize	Grain			0.01	
	Asp gr fn ^f	175, 177.4	176		1.76
	Meal	0.22, 0.44	0.33		0.0033
	Flour	0.22, 0.33	0.27		0.0027
	Grits	<0.22, 0.22	0.22		0.0022
	Oil-dry	<0.22, <0.22	<0.22		<0.0022
	Oil-wet	0.44, <0.22	0.33		0.0033
	Starch	<0.22, <0.22	<0.22		<0.0022
Cottonseed ^c	RAC: seed			0.16	
	raw oil (solvent extr)		0.06		0.0096
	refined oil (solvent extr)		0.04		0.0064
	meal (solvent extr)		0.05		0.008
	hulls		0.34		0.054
	raw oil (cold press)		0.25		0.04
	refined oil (cold press)		0.04		0.0064
	meal (cold press)		0.09		0.014
Orange ^(c)	RAC: fruit			0.20	
	juice		<0.03		<0.006
	wet pulp		0.24		0.048
	dry pulp		<0.33		0.066
	meal		0.47		0.094
	molasses		0.59		0.12
	marmalade		<0.06		0.012
	oil		8.5		1.7
	canned		<0.03		<0.006
Orange	Oil	2.3, 8.2, 6.2 ^e	6.2 ^e		

^a Each PF value represents a separate study where residues were above the LOQ in the RAC. The factor is the ratio of the combined cyantraniliprole plus IN-J9Z38 metabolite residues in the processed item divided by the residue of cyantraniliprole in the RAC.

^b Residues in the RAC is cyantraniliprole.

^c The processing factor was estimated in 2013 JMPR, the STMR-P was calculated in this Meeting.

^d Residues in processed commodities is cyantraniliprole plus IN-J9Z38

^e The processing factor based on residues of cyantraniliprole only for estimation of maximum residue level.

^f Aspirated grain fraction

The Meeting noted that in the studies available, cyantraniliprole residues did not concentrate in food commodities during processing except for orange oil. The Meeting estimated a maximum level of 4.5 (0.7×6.2) mg/kg for citrus oil, the processing factor was based on residues of parent only.

Residues in animal commodities

Farm animal dietary burden

The dietary burdens were estimated using the OECD diets listed in Appendix IX of the 2009 edition of FAO Manual. Potential cattle feed items include: pea, soya bean, cotton gin trash, maize and potatoes (including by-products). Dietary burden calculations for beef cattle, dairy cattle, broilers and laying poultry are presented Annex 6 to the Report and are summarized below.

Estimated maximum and mean dietary burden of farm animal (ppm of dry matter diet)

	Animal dietary burden, cyantraniliprole							
	US-Canada		EU		Australia		Japan	
	max	mean	max	mean	max	mean	max	mean
Beef cattle	0.69	0.37	12.6	3.38	46.8 ^a	15.59 ^c	0.14	0.009
Dairy cattle	9.86	3.42	14	3.82	35.95 ^b	12.05 ^d	0.29	0.024
Poultry-broiler	0.00	0.00	0.05	0.02	0.00	0.00	0.00	0.00
Poultry-layer	0.00	0.00	4.71 ^{e, g}	1.56 ^{f, h}	0.00	0.00	0.00	0.00

^a Highest maximum beef or dairy cattle dietary burden suitable for MRL estimates for mammalian meat

^b Highest maximum dairy cattle dietary burden suitable for MRL estimates for mammalian milk

^c Highest mean beef or dairy cattle dietary burden suitable for STMR estimates for mammalian meat

^d Highest mean dairy cattle dietary burden suitable for STMR estimates for mammalian milk

^e Highest maximum poultry dietary burden suitable for MRL estimates for poultry tissues

^f Highest mean poultry dietary burden suitable for STMR estimates for poultry tissues

^g Highest maximum poultry dietary burden suitable for MRL estimates for poultry eggs

^h Highest mean poultry dietary burden suitable for STMR estimates for poultry eggs

Animal commodity maximum residue level

For beef and dairy cattle, the calculated maximum dietary burden suitable for estimating maximum residue levels in mammalian tissues and milk are 47 ppm and 36 ppm dry weight of feed, and the calculated mean dietary burdens suitable for estimating STMRs in mammalian tissues and in milk are 16 ppm and 12 ppm dry weight of feed respectively. The residue levels of cyantraniliprole and metabolites included in the residue definition in milk and tissue were calculated by estimation based on 10ppm, 30ppm and 100ppm feeding level in the feeding studies.

Cyantraniliprole feeding study	Feed level, ppm, for		Residue ^a , mg/kg				
	Tissue residue	Milk residue	Milk	Muscle	Liver	Kidney	Fat
<i>MRL, beef or dairy cattle</i>							
Feeding study ^b	30	30	0.445	0.11	0.936	0.427	0.27
	100	100	1.109	0.373	2.3	1.351	1.03
Dietary burden and high residue	47	36	0.50	0.17	1.26	0.65	0.45
<i>STMR, beef or dairy cattle</i>							
Feeding study ^c	10	10	0.11	0.026	0.246	0.128	0.065
	30	30	0.445	0.081	0.722	0.356	0.202
Dietary burden mean residue estimate	16	12	0.21	0.041	0.38	0.19	0.10

^a Residue values used in estimating STMR are the sum of cyantraniliprole and metabolites IN-N7B69, IN-J9Z38, IN-MLA84 and IN-MYX98

^b high residues for tissues and mean residues for milk

^c mean residues for tissues and mean residues for milk

Residues of cyantraniliprole expected in cattle milk and tissues for use in estimating maximum residue levels are: 0.45 mg/kg (fat), 0.17 mg/kg (muscle), 1.26 mg/kg (liver) and 0.65 mg/kg (kidney) and the mean residue for milk is 0.50 mg/kg.

The Meeting estimated maximum residue levels of 0.2 mg/kg for cyantraniliprole in meat (from mammals other than marine mammals), 1.5 mg/kg for edible offal (mammalian), 0.5 mg/kg for mammalian fat and 0.6 mg/kg for milks. The Meeting estimated STMRs (parent plus metabolites) for dietary intake estimation are 0.041 mg/kg for meat, 0.38 mg/kg for edible offal, 0.1 mg/kg for fat and 0.21 mg/kg for milk. The previous recommendations should be replaced.

For poultry, noting that in some countries, laying hens may also be consumed; the calculated maximum dietary burden suitable for estimating maximum residue levels in poultry tissues and eggs is 4.7 ppm and the calculated mean dietary burden suitable for estimating STMRs in poultry tissues and in eggs is 1.6 ppm. The residue levels of cyantraniliprole and metabolites included in the residue definition in eggs and tissue were calculated by estimation based on 3.0 ppm and 10 ppm feeding level, or extrapolation below the 3.0 ppm feeding level in the feeding studies.

Residues in kidney and liver at the expected dietary burden

	Feed level, ppm, for		Residue ^a , mg/kg			
	Tissues residues	Eggs residues	Eggs	Muscle	Liver	Fat
<i>Highest residue level, hens</i>						
Feeding study ^b	3	3	0.151	0.009	0.098	0.014
	10	10	0.32	0.028	0.225	0.084
Calculated burden	4.7	4.7	0.13	0.014	0.13	0.031
<i>STMR, hens</i>						
Feeding study ^c	3	3	0.082	0.0075	0.0617	0.0159
Calculated burden	1.6	1.6	0.0426	0.0039	0.0321	0.0083

^a Residue values used in estimating STMR are the sum of cyantraniliprole and metabolites IN-N7B69, IN-J9Z38, IN-MLA84 and IN-MYX98

^b high residues for tissues and mean residues for egg

^c mean residues for tissues and mean residues for egg

Residues of cyantraniliprole expected in poultry egg and tissues for use in estimating maximum residue levels are: 0.031 mg/kg (fat), 0.014mg/kg (muscle), and 0.13mg/kg (liver) and the mean residue for egg is 0.13 mg/kg.

The Meeting estimated maximum residue levels of 0.02 mg/kg for cyantraniliprole in poultry meat, 0.15 mg/kg for poultry offal, 0.04 mg/kg for poultry fat and 0.15 mg/kg for eggs. The Meeting estimated STMRs (parent plus metabolites) for dietary intake estimation are 0.004 mg/kg for meat, 0.032 mg/kg for edible offal, 0.008 mg/kg for fat and 0.043 mg/kg for egg. The Meeting withdrew its previous recommendations.

RECOMMENDATIONS

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

CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
		New	Previous		
VP 0526	Common bean (pods and/or immature seeds)	1.5		0.29	
VP 0062	Beans, shelled	0.3		0.07	
VD 0071	Bean(dry)	0.3		0.01	
AL 0061	Bean fodder	40(DM) ^a		8.5(DM)	19.1(DM)
FC 0001	Citrus	0.7		0.041	

CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
		New	Previous		
OR 0001	Citrus oil, edible	4.5			
SB 0716	Coffee beans	0.05	0.03	0.01	
SO 0691	Cotton, seed	1.5		0.16	
MO 0105	Edible offal(Mammalian)	1.5	0.05	0.38	
PE 0112	Eggs	0.15	0.015	0.0426	
GC 0645	Maize	0.01		0	
MM 0069	Mammalian fat (except milk fats)	0.5	0.01	0.1	
MM 0095	Meat (from mammals other than marine mammals)	0.2	0.01	0.041	
ML 0106	Milks	0.6	0.02	0.21	
VP 0063	Peas (pods and succulent = immature seeds)	2.0		0.7	
VP 0063	Peas, shelled (succulent seeds)	0.3		0.07	
AL 0072	Pea hay or pea fodder (dry)	60(DM)		9.7(DM)	28.5(DM)
FI 0355	Pomegranate	0.01 ^a		0.01	
PO 0111	Poultry, edible offal of	0.15	0.01	0.0321	
PF 0111	Poultry fat	0.04	0.01	0.0083	
PM 0110	Poultry meat	0.02	0.01	0.0039	
SO 0495	Rape seed	0.8		0.077	
VP 0541	Soya bean, immature seed	0.3		0.036	
VD 4521	Soya bean (dry)	0.4		0.033	
AL 0541	Soya bean fodder	80(DM)		13.7(DM)	46.4(DM)
SO 0702	Sunflower seed	0.5		0.067	
TN 0085	Tree nuts	0.04		0.01	
AN 0660	Almond hulls			1.9	4.6
AL 1030	Bean forage (green)			9.6(DM)	16.9(DM)
AB 0001	Citrus pulp, dry			0.066	
OR 0691	Cotton seed meal(cold press)			0.014	
AB 1204	Cotton gin trash			3.1	5.0
AL 0528	Pea vines (green)			9.0(DM)	47.1(DM)
AL 1265	Soya bean, forage (green)			15.5(DM)	45.3(DM)

^a DM – Dry matter

DIETARY RISK ASSESSMENT

Long-term intake

The International Estimated Daily Intake (IEDI) for cyantraniliprole was calculated for the food commodities for which STMRs or HRs were estimated and for which consumption data were available. The results are shown in Annex 3 to the 2015 Report.

The International Estimated Daily Intakes of cyantraniliprole for the 17 GEMS/Food regional diets, based on estimated STMRs were 2–20% of the maximum ADI of 0.03 mg/kg bw. The Meeting concluded that the long-term intake of residues of cyantraniliprole from uses that have been considered by the JMPR is unlikely to present a public health concern.

Short-term intake

The 2013 JMPR decided that an ARfD was unnecessary and concluded that the short-term intake of cyantraniliprole residues is unlikely to present a public health concern.

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