and refined oil for at least 3 months when stored at -20 °C. The results of the study indicate that residues of 2,4-D and 2,4-DCP experienced some observable degradation in cotton undelinted seed during storage of one month and three months, respectively.

Results of supervised residue trials on crops

The Meeting received supervised trial data for 2,4-D on AAD-12 cotton.

Due to the questionable storage stability of both 2,4-D and 2,4-DCP in cotton seed, it was not possible for the Meeting to evaluate the trial data.

REFERENCES

Study/Report No	Author(s)	Year	Title, source, published or not
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120430	Vespestad, D.	2014a	Magnitude of 2,4-D Residue in/on Transgenic Cotton Containing the Aryloxyalkanoate Dioxygenase-12 (aad-12) Gene - Residue and Decline Study. Report No. S12-00277. Eurofins Agrosciences Services, Inc., Forsyth, Georgia, United States. Accession No. 2022247. GLP. Unpublished.
120431	Vespestad, D.	2014b.	Magnitude of the Residue of 2,4-D in/on Transgenic Cotton Containing the Aryloxyalkanoate Dioxygenase-12 (aad-12) Gene, Processing Study. Eurofins Agrosciences Services, Inc., Forsyth, Georgia, United States. Lab Study No. S12-02208. Accession No. 2022248. GLP. Unpublished.
141060	Rampazzo, P.E., Fedatto, M.S., Goulart, R.M., Danieli, T., Ferrari, D.H.A, Cordioli, V.H., Lima, D.P.	2015	Resíduos de 2,4-D em Algodão Geneticamente Modificado com Gene para Tolerância a 2,4-D após Aplicações da Formulação GF-3073, Herbicida, Brasil, 2014-2015 (Residues of 2,4-D in Genetically Modified Cotton with Gene for Tolerance to 2,4-D after Applications of GF-3073 Formulation, Herbicide, Brazil, 2014-2015). Dow AgroSciences Industrial Ltda., Mogi Mirim, São Paulo, Brasil. Accession No. 2031908. GLP. Unpublished.
141060.01	Rampazzo, P.E.	2015	Resíduos de 2,4-DCP em Algodão Geneticamente Modificado com Gene para Tolerância a 2,4-D após Aplicações da Formulação GF-3073, Herbicida, Brasil, 2014-2015 (Residues of 2,4-DCP in Cotton Genetically Modified with Gene for Tolerance to 2,4-D after Applications of the Formulation GF-3073, Herbicide, Brazil, 2014-2015). Dow AgroSciences Industrial Ltda., Mogi Mirim, São Paulo, Brasil. Accession No. 2032516. GLP. Unpublished.
130518	Gesell, J.T., Smith, K. A.	2014	Frozen Storage Stability of Residues of 2,4-DCP in Transgenic Cotton and Its Processed Fractions Containing the Aryloxyalkanoate Dioxygenase-12 (aad-12) Gene. Dow AgroSciences LLC, Indianapolis, Indiana, United States. Accession No.2021536. GLP. Unpublished.

DIFENOCONAZOLE (224)

The first draft was prepared by Dr J Heidler, Federal Institute for Risk Assessment, Berlin, Germany

EXPLANATION

Difenoconazole was evaluated for the first time by JMPR 2007 when an acceptable daily intake (ADI) of 0–0.01 mg/kg bw and an acute reference dose (ARfD) of 0.3 mg/kg bw were established. In 2007, 2010, 2013 and 2015 the JMPR evaluated the compound for residues and recommended a number of maximum residue levels.

The definition of the residue for compliance with MRL and for dietary intake for plant commodities is parent *difenoconazole*, while for animal commodities it is defined as *sum of difenoconazole and 1-[2-chloro-4-(4-chloro-phenoxy)-phenyl]-2-(1,2,4-triazol)-1-yl-ethanol (CGA205375), expressed as difenoconazole*. The residue is fat-soluble.

The current Meeting received additional analytical methods, storage stability data for dried beans and oranges, processing data for rice, GAP information and residue trial data for uses on pome fruits (apples, pears), blueberries, strawberries, guava, dragon fruit, watermelon, chili peppers, sweet corn, pulses (beans, peas (except soya bean) and chickpeas), ginseng, globe artichoke, rice and coffee beans.

RESIDUE ANALYSIS

Analytical methods

The Meeting received new analytical methods for the determination of parent difenoconazole. In the following table an overview of these methods is presented.

Table 1 Overview of analytical methods for difenoconazole

Method	Matrix	Extraction	Clean-Up	Detection, LOQ
AG-676	High water High protein High starch	Refluxing with methanol/ conc. ammonium hydroxide (8:2 v/v)	Liquid-liquid partitioning against hexane followed by acetonitrile, SPE on silica and phenyl	GC-NPD LOQ: 0.01 mg/kg
QuEChERS method	High water	Acetonitrile/water (1/1, v/v)	Dispersive SPE with PSA	HPLC-MS/MS m/z 406→251, 406→337 LOQ: 0.005 mg/kg
REM 147.08	High protein High starch	Refluxing with methanol/ conc. ammonium hydroxide (8:2 v/v)	SPE on HLB cartridge	HPLC-MS/MS m/z 406→251 LOQ: 0.01 mg/kg
Modified Korean Food Code Method	High water Dry	Homogenization with acetone	Liquid-liquid partitioning against dichloromethane followed SPE on a silica column	HPLC-UV and HPLC-MS/MS m/z 406→251, 406→337 LOQ: 0.03 mg/kg

Plant materials

Method AG-676 (Campbell & Oakes, 2000, DIFENOCO_001)

Method AG-676 has not previously been evaluated by the JMPR. It is an updated version of AG-575B which has been previously evaluated by the JMPR.

Residues of difenoconazole were extracted from sweet corn matrices by refluxing with methanol/conc. ammonium hydroxide (8:2 v/v). The resulting extract was filtered, diluted with water and saturated sodium chloride solution and subsequently partitioned with hexane. The hexane fraction was partitioned with acetonitrile and the acetonitrile fraction was then purified using silica and phenyl

solid phase extraction (SPE). Samples were eluted from the SPE cartridge, evaporated to dryness and reconstituted in toluene prior to analysis. Difenoconazole residues were determined by GC-NPD with a validated LOQ of 0.01 mg/kg for all sweet corn matrices.

Table 2 Recovery data for method AG-676 measuring difenoconazole in sweet corn matrices using GC-NPD

Commodity	Fortification level (mg/kg)	No. of analyses (n)	Recovery (%)	Mean recovery (%)	RSD (%)
Sweet corn forage	0.01	12	89.5, 123, 121, 116, 117, 94.8, 78.8, 98.6, 71.8, 105, 93.4, 95.3	100	16.4
	0.02	1	114	114	-
	0.05	12	130, 110, 103, 123, 121, 93.2, 115, 89.2, 102, 103, 110, 115	110	11.1
Sweet corn ears	0.01	3	108, 96.2, 104	103	5.8
	0.05	9	88.9, 94.0, 111, 98.2, 121, 80.2, 123, 112, 112	104	14.2
Sweet corn stover	0.01	3	119, 92.4, 77.6	96	21.8
	0.05	9	111, 124, 115, 116, 102, 76.2, 120, 112, 93.8	108	13.9

QuEChERS (citrate) method (Noegrohati, 2016, DIFENOCO_002 and DeFrancesco, 2016, DIFENOCO_003)

Samples were shaken with acetonitrile/water (1/1, v/v) in the presence of sodium citrate, sodium hydrogen citrate sesquihydrate, magnesium sulfate and sodium chloride. After centrifugation the acetonitrile layer was purified by shaking with PSA and dried with magnesium sulfate. Samples were analysed with LC-MS/MS in positive electrospray ionization using BEH C18 column and monitoring the ion transitions m/z 406→251 and 406→337. Quantitation was done with external standards in solvent.

Table 3 Recovery data for the QuEChERS method measuring difenoconazole in dragon fruit and guava

Matrix	Fortification level (mg/kg)	n	Recovery (%)	Mean recovery (%)	RSD (%)
Dragon fruit (whole fruit)	0.005	11	105.1, 100.7, 96.2, 96.4, 87.6, 97.0	97	6
	0.01	3	108.3, 100.3, 109.4	106	5
	0.1	8	104.1, 108.6, 108.5, 99.4	105	4
	1.0	8	107.0, 103.8, 108.2, 91.8	103	7
Dragon fruit (peel)	0.005	8	97.2, 103.4, 102.5, 77.9, 103.8, 74.1	93	15
	0.01	3	91.5, 105.3, 94.3	97	8
	0.1	5	104.6, 112.2, 107.4, 90.4	104	9
	1.0	6	95.1, 91.5, 100.4, 104.0	98	4
Dragon fruit (flesh)	0.005	9	92.6, 76.1, 94.3, 88.2, 70.7, 69.0	82	14
	0.01	3	96.0, 101.9, 102.9	100	4
	0.1	5	108.0, 108.9, 109.2, 107.0	108	1
	1.0	6	100.9, 104.4, 107.2, 100.2	103	3
Guava	0.01	6	94.8, 84.1, 83.2, 108.6, 93.5, 118.9	97	14
	0.1	3	107.2, 105.7, 101.3	105	3
	1.0	3	103.3, 101.8, 99.2	101	2

Method REM 147.08 (Oakes, 2013, DIFENOCO_004

Method REM 147.08 was evaluated by the 2007 and 2010 JMPR. The validation data included; apple, broccoli, cherry, grape, leek, olive (fruit and oil), rape seed, sugar beet (root and tops with leaves), tomato (fruit and puree) and wheat grain. The method was recently evaluated by the 2015 JMPR for the determination of residues of difenoconazole in rape seed, rape seed meal and rape seed oil.

The method was also used for the determination of difenoconazole residues in pulses in the residue studies reported in this submission. Method validation data to support uses on pulses are presented in Table 4.

Table 4 Recovery data for method REM 147.08 measuring difenoconazole in pulses

Commodity (Category)	Fortification level (mg/kg)	No. of analyses (n)	Recovery (%)	Mean recovery (%)	RSD (%)
Dry pea seed	0.01	3	95, 96, 95	95	0.6
	1.0	3	91, 90, 92	91	1.1
Dry pea vines	0.01	3	94, 90, 90	91	2.5
	1.0	3	99, 102, 94	98	4.1
Dry pea hay	0.01	3	79, 88, 82	83	5.5
	1.0	3	99, 100, 97	99	1.5
Dry bean seed	0.01	3	93, 93, 95	94	1.2
	1.0	3	96, 94, 96	95	1.2

A total of five (n=5) recovery determinations should generally be made at each fortification level. Nonetheless, recovery data for pea and bean seed (and dry pea vines and pea hay) may be combined (i.e. n=6 at each level).

Modified Korean Food Code Method

Samples of green and red chili peppers were homogenized with acetone, followed of filtration of the mixture through filtered through Celite 545. The filtrate was extracted against dichloromethane + saturated NaCl solution. The organic phase was collected, evaporated to dryness and the remainder reconstituted in hexane. Further clean-up was performed on a Florisil column where analytes were eluted with acetone: n-hexane (3:7, v/v). After evaporation to dryness, the remainder was reconstituted in acetonitrile. Samples of fresh chili peppers were analysed with HPLC-UV at 230 nm using a C18 column. Dried red chili powder was analysed by LC-MS/MS in negative electrospray ionization using a C18 column and monitoring the ion transitions m/z 406→251 and 406→337. Quantitation was done with external standards in solvent.

Table 5 Recovery data for the Modified Korean Food Code Method measuring difenoconazole in chili peppers

Commodity (Category)	Fortification level (mg/kg)	No. of analyses (n)	Recovery (%)	Mean recovery (%)	RSD (%)
Fresh green chili peppers	0.03	5	84, 93, 91, 94, 90	90	4.0
	0.3	5	90, 90, 88, 93, 95	91	3.0
	1.0	5	97, 100, 101, 92, 99	98	3.6
Fresh red chili peppers	0.03	5	98, 102, 101, 103, 108	102	3.6
	0.3	5	99, 106, 96, 101, 104	101	3.9
	1.0	5	94, 95, 103, 99, 99	98	3.9
Red chili pepper powder	0.03	5	85, 92, 77, 94, 78	85	9.1
	0.3	5	89, 87, 76, 86, 95	86	7.9
	1.0	5	86, 87, 85, 82, 80	84	3.4

Stability of pesticides in stored analytical samples

Information provided for the 2007 JMPR indicated that difenoconazole residues were stable at approximately -20 °C for 2 years in matrices with high oil content (cotton seed, cotton seed meal, cotton seed oil (soya bean only 1 year)), high water content matrices (potatoes, tomatoes (banana, lettuce only 1 year)), high starch matrices (wheat grain) and wheat forage and straw. In animal tissues and milk, difenoconazole and metabolite CGA 205375 were also stable at or below -18 °C for approximately 10 months. Difenoconazole residues in ginseng and the processed products were stable for 135 days when stored at or below -20 °C (2010 JMPR).

The current Meeting received additional information on storage stability for dried beans and orange (Andrews & Fowle, 2015, DIFENOCO_005). In this preliminary report the storage stability of difenoconazole was determined over a period of 9 months.

Homogenized samples of high protein matrices (dried beans) and acidic matrices (oranges) were fortified with difenoconazole at a rate of 0.2 mg/kg and stored under deep frozen (≤ -20 °C) conditions. Samples were analysed after 0, 3, 6 and 9 month. All samples were analysed according to method REM 147.08.

Table 6 Storage stability of difenoconazole in dried beans and oranges fortified at 0.2 mg/kg

Interval Storage Time		Mean Procedural Recovery (%)[a]	Uncorrected Residue (mg/kg)	Uncorrected stability recovery (%)	Mean stability recovery (%)
Months (Nominal)	Days (Actual)				
Dry Broad Beans					
0	0	89	0.19, 0.19, 0.19	95, 95, 95	95
3	95	92	0.18, 0.16	90, 80	85
6	190	105	0.22, 0.23	110, 115	113
9	273	97	0.20, 0.21	100, 105	103
Oranges					
0	0	89	0.19, 0.19, 0.18	95, 95, 90	93
3	95	79	0.15, 0.16	75, 80	78
6	190	96	0.21, 0.21	105, 105	105
9	273	95	0.20, 0.20	100, 100	100

[a] Mean of two replicates

USE PATTERN

Difenoconazole is a systemic triazole fungicide globally registered in many countries for the control of a broad-spectrum of foliar, seed and soil-borne diseases caused by *Ascomycetes*, *Basidiomycetes* and *Deuteromycetes*. In the following table, GAP information on all crops supported with residue trial data are summarized.

Table 7 List of uses of difenoconazole

Crop/ Commodity	Country	Formulation		Application				PHI (days)
		Active substance content	Type	Method	Rate	Water volume	No or Seasonal max.	
Pome fruits (apple and pear)	USA	87 g/L (0.73 lb/gal)	EW	Foliar spray	77 g ai/ha	468 L/ha	5 (seasonal max. 385 g ai/ha)	14
The gap is considered as a combined pre- and post-harvest treatment		247 g/L (2.06 lb/gal)	FS	Dip/drench (post-harvest)	31 g ai/hL (16 fl oz/100 gal water)	-	1	0
				Spray (post-harvest)	1.3 g ai/tonne fruit (16 fl oz/200 000 lb fruit)	-	1	0
Blueberries	Canada	86 g/L	EC	Foliar spray	127 g ai/ha	200 L/ha	4 (seasonal max. 508 g ai/ha)	1
Strawberries	USA [a]	249 g/L (2.08 lb/gal)	EC	Foliar spray	127.5 g ai/ha	94-140 L/ha	4 (seasonal max. 510 g ai/ha)	0
Guava	Egypt	125 g/L	SC	Foliar spray (mist)	62.5 g ai/ha	1000 L/ha	3	10
Pitaya (dragon fruit)	Indonesia	125 g/L	SC	Foliar spray (mist)	50 g ai/ha	800 L/ha	3	7

Crop/ Commodity	Country	Formulation		Application				PHI (days)
		Active substance content	Type	Method	Rate	Water volume	No or Seasonal max.	
Watermelon	Brazil	125 g/L	SC	Foliar spray	38-50 g ai/ha	400-600 L/ha	6	3
Chili Peppers	Korea	40 g/L	SC	Foliar spray	80 g ai/ha	2000 L/ha	4	2
Sweet corn (Corn-on-the-cob) (kernels plus cob with husk removed)	USA	92 g/L (0.77 lb/gal)	FS	Seed treatment	120-300 g ai/tonne seed (2-5 fl oz/100 lb seed)	-	1	n/a (seed treatment)
Pulses (beans, peas (except soya bean) and chickpeas)	USA [a]	249 g/L (2.08 lb/gal)	EC	Foliar spray	127.5 g ai/ha	94-140 L/ha	4 (seasonal max. 510 g ai/ha)	14
Ginseng	USA [a]	249 g/L (2.08 lb/gal)	EC	Foliar spray	127.5 g ai/ha	94-140 L/ha	4 (seasonal max. 510 g ai/ha)	0
Globe artichoke	USA [a]	249 g/L (2.08 lb/gal)	EC	Foliar spray	127.5 g ai/ha	94-1871 L/ha	4 (seasonal max. 510 g ai/ha)	3
Rice	USA [a]	249 g/L (2.08 lb/gal)	EC	Foliar spray	137 g ai/ha	140 L/ha	2 (seasonal max. 274 g ai/ha)	35
Coffee beans	Brazil	125 g/L	SC	Foliar spray	38-50 g ai/ha	400 L/ha	3	30

[a] Rotational crop label restrictions: 0 days PBI: Artichoke, Globe 0 days; Bean and Pea, Dried Shelled Subgroup 6C; Berry, Bushberry Subgroup 13-07B; Berry, Low Growing Subgroup 13-07G, except Cranberry; Brassica (Cole) leafy vegetables; Bulb vegetables; Carrots; Chickpeas; Cucurbit vegetables; Fruiting vegetables; Ginseng; Pepper, Potatoes; Rice; Soybeans; Strawberry; Sugar beets; Tomatoes and tomatillos; Tuberous and corm vegetable subgroup 1C. 30 days PBI: Cereals (wheat, barley, triticale, oats and rye); Root and Tuber Vegetables Crop Group 1 (except Carrot, Sugar Beet, and Tuberous Corm Vegetable Subgroup 1C) Sweet corn. 60 days PBI: All other crops intended for food and feed

RESIDUES RESULTING FROM SUPERVISED TRIALS ON CROPS

Residue levels were reported as measured. Application rates were always reported as difenoconazole equivalents. When residues were not detected they are shown as below the LOQ, e.g., < 0.01 mg/kg. Application rates, spray concentrations and mean residue results have generally been rounded to the even with two significant figures. HR and STMR values from the trials conducted according to maximum GAP have been used for the estimation of maximum residue levels. These results are underlined.

Laboratory reports included method validation including batch recoveries with spiking at residue levels similar to those occurring in samples from the supervised trials. Dates of analyses or duration of residue sample storage were also provided. Field reports provided data on the sprayers used and their calibration, plot size, residue sample size and sampling date. Although trials included control plots, no control data are recorded in the tables except where residues in control samples exceeded the LOQ. Residue data are recorded unadjusted for % recovery.

Difenoconazole – supervised residue trials

Commodity	Indoor/Outdoor	Treatment	Countries	Table
Pome fruit	Outdoor	Pre-harvest: Foliar spay	USA	Table 8
		Post-harvest: Dip/drench/spray		Table 9
Blueberries	Outdoor	Foliar spray	Canada	Table 10

Commodity	Indoor/Outdoor	Treatment	Countries	Table
Strawberries	Outdoor	Foliar spray	USA	Table 11
Guava	Outdoor	Foliar spray	Egypt	Table 12
Dragon fruit	Outdoor	Foliar spray	Indonesia	Table 13
Watermelon	Outdoor	Foliar spray	Brasil	Table 14
Chili peppers	Indoors	Foliar spray	Korea	Table 15
Sweet corn	Outdoor	Seed treatment	USA	Table 16
Pulses	Outdoor	Foliar spray	USA	Table 17 Table 18 Table 19
Ginseng	Outdoor	Foliar spray	USA	Table 20
Artichoke	Outdoor	Foliar spray	USA	Table 21
Rice	Outdoor	Foliar spray	USA	Table 23
Coffee	Outdoor	Foliar spray	Brazil	Table 24
Pea vines	Outdoor	Foliar spray	USA	Table 25
Pea hay	Outdoor	Foliar spray	USA	Table 26
Corn forage with and without ears	Outdoor	Seed treatment	USA	Table 27 Table 28
Corn stover	Outdoor	Seed treatment	USA	Table 29
Rice straw	Outdoor	Foliar spray	USA	Table 31

Pome fruits (apples and pears)

A total of nine supervised residue trials were conducted on apples (five trials) and pears (four trials) in the USA in 2012 (Csinos & Riley, 2013, DIFENOCO_006). The treated plots received five pre-harvest foliar applications of difenoconazole at a nominal rate of 76 g ai/ha with a 7 day interval between applications. Approximately 14 days after the final application, commercially acceptable fruit were harvested for use in the subsequent post-harvest treatments. The post-harvest test substance containing difenoconazole and fludioxonil (A20171A) was applied according to the intended GAP as a dip/drench or spray application at a nominal rate of 30 g ai/hL (dip/drench) or 1.3 g ai/tonne fruit (spray). It should be noted that there was no untreated control plot.

Residues of difenoconazole were determined using method REM 147.08 with a limit of quantification at 0.01 mg/kg. In apples and pears, overall mean procedural recoveries at 0.01, 0.1 and 3.0 mg/kg were 103%, RSD=3.4% (n=12) and 104%, RSD=4.1% (n=10), respectively.

Table 8 Residues of difenoconazole in apples following combined foliar pre-harvest treatment (cGAP 5 × 76 g ai/ha; 14 day PHI) and post-harvest dip/drench/spray treatment (dip/drench: 1×31 g ai/hL or spray: 1×1.3 g ai/tonne, 0 day PHI)

Location, Year (variety)	Treatment method	Application Rate	Growth Stage at Application	DALT	Crop Part	Residue Found (mg/kg) Difenoconazole [a]	Report/Trial No., Reference Storage period
USA North Rose, NY 2012 (Cortland)	Pre-harvest foliar spraying, 5×76 g ai/ha, harvest 14 DALT plus following post-harvest treatments						Study: TK0000656 Trial: TK0000656-01 Csinos & Riley, 2013, DIFENOCO_006 Max. frozen storage: 5 month
	Dip	30.11 g ai/hL	BBCH 87	0	Fruit	1.1 [1.0, 1.2]	
	Drench	30.14 g ai/hL	BBCH 87	0	Fruit	1.2 [1.2, 1.1]	
	Spray	1.27 g ai/tonne fruit	BBCH 87	0	Fruit	1.4 [1.4, 1.4]	
	Dip &	30.11 g	BBCH 87	0	Fruit	2.3 [2.4, 2.1]	

Location, Year (variety)	Treatment method	Application Rate	Growth Stage at Application	DALT	Crop Part	Residue Found (mg/kg) Difenoconazole [a]	Report/Trial No., Reference Storage period
	spray	ai/hL 1.27 g ai/tonne fruit					
USA Alton, NY 2012 (Granny Smith)	Pre-harvest foliar spraying, 5×76 g ai/ha, harvest 14 DALT plus following post-harvest treatments						Study: TK0000656 Trial: TK0000656-02 Csinos & Riley, 2013, DIFENOCO_006 Max. frozen storage: 4 month
	Dip	30.14 g ai/hL	BBCH 87	0	Fruit	1.1 [1.4, 0.88]	
	Drench	30.14 g ai/hL	BBCH 87	0	Fruit	2.6 [2.6, 2.6]	
	Spray	1.25 g ai/tonne fruit	BBCH 87	0	Fruit	0.63 [0.64, 0.62]	
	Dip & spray	30.14 g ai/hL 1.25 g ai/tonne fruit	BBCH 87	0	Fruit	1.1 [1.3, 0.9]	
USA Marengo, IL 2012 (Red Chief)	Pre-harvest foliar spraying, 5×76 g ai/ha, harvest 14 DALT plus following post-harvest treatments						Study: TK0000656 Trial: TK0000656-03 Csinos & Riley, 2013, DIFENOCO_006 Max. frozen storage: 5 month
	Dip	30.14 g ai/hL	BBCH 89	0	Fruit	0.85 [0.88, 0.81]	
	Drench	30.14 g ai/hL	BBCH 89	0	Fruit	1.1 [1.2, 0.96]	
	Spray	1.28 g ai/tonne fruit	BBCH 89	0	Fruit	0.56 [0.61, 0.51]	
	Dip & spray	30.14 g ai/hL 1.28 g ai/tonne fruit	BBCH 89	0	Fruit	1.4 [1.4, 1.3]	
USA Ephrata, WA 2012 (Red Delicious)	Pre-harvest foliar spraying, 5×76 g ai/ha, harvest 14 DALT plus following post-harvest treatments						Study: TK0000656 Trial: TK0000656-04 Csinos & Riley, 2013, DIFENOCO_006 Max. frozen storage: 5 month
	Dip	30.05 g ai/hL	BBCH 89	0	Fruit	0.93 [0.81, 1.1]	
	Drench	30.53 g ai/hL	BBCH 89	0	Fruit	0.86 [0.84, 0.88]	
	Spray	1.22 g ai/tonne fruit	BBCH 89	0	Fruit	0.59 [0.47, 0.70]	
	Dip & spray	30.05 g ai/hL 1.22 g ai/tonne fruit	BBCH 89	0	Fruit	1.2 [1.2, 1.3]	
USA Weiser, ID 2012 (Early Spur Rome)	Pre-harvest foliar spraying, 5×76 g ai/ha, harvest 14 DALT plus following post-harvest treatments						Study: TK0000656 Trial: TK0000656-05 Csinos & Riley, 2013, DIFENOCO_006 Max. frozen storage: 5 month
	Dip	30.20 g ai/hL	BBCH 89	0	Fruit	0.59 [0.58, 0.60]	
	Drench	31.79 g ai/hL	BBCH 89	0	Fruit	0.56 [0.62, 0.50]	
	Spray	1.26 g ai/tonne fruit	BBCH 89	0	Fruit	0.78 [0.72, 0.84]	
	Dip & spray	30.20 g ai/hL 1.26 g ai/tonne fruit	BBCH 89	0	Fruit	1.2 [1.1, 1.2]	

[a] Mean of replicate trial samples [individual values]

Table 9 Residues of difenoconazole in pears following combined foliar pre-harvest treatment (cGAP 5×76 g ai/ha; 14 day PHI) and post-harvest dip/drench/spray treatment

Location, Year (variety)	Treatment method	Application Rate	Growth Stage at Application	DALT	Crop Part	Residue Found (mg/kg) Difenoconazole	Report/Trial No., Reference Storage period
USA Madera, CA 2012 (Asian)	Pre-harvest foliar spraying, 5×76 g ai/ha, harvest 14 DALT plus following post-harvest treatments						Study: TK0000656 Trial: TK0000656-06 Csinos & Riley, 2013, DIFENOCO_006 Max. frozen storage: 5 month
	Dip	30.20 g ai/hL	BBCH 87	0	Fruit	1.0 [1.0, 0.97]	
	Drench	30.20 g ai/hL	BBCH 87	0	Fruit	1.3 [1.4, 1.2]	
	Spray	1.26 g ai/tonne fruit	BBCH 87	0	Fruit	0.39 [0.40, 0.38]	

Location, Year (variety)	Treatment method	Application Rate	Growth Stage at Application	DALT	Crop Part	Residue Found (mg/kg) Difenoconazole	Report/Trial No., Reference Storage period
	Dip & spray	30.20 g ai/hL 1.26 g ai/tonne fruit	BBCH 87	0	Fruit	1.5 [1.5, 1.6]	
USA Madera, CA 2012 (Asian, Ho Sai)	Pre-harvest foliar spraying, 5×76 g ai/ha, harvest 14 DALT plus following post-harvest treatments						Study: TK0000656 Trial: TK0000656-07 Csinos & Riley, 2013, DIFENOCO_006 Max. frozen storage: 5 month
	Dip	29.90 g ai/hL	BBCH 89	0	Fruit	1.1 [1.1, 1.1]	
	Drench	29.41 g ai/hL	BBCH 89	0	Fruit	1.1 [1.1, 1.2]	
	Spray	1.27 g ai/tonne fruit	BBCH 89	0	Fruit	0.66 [0.71, 0.61]	
	Dip & spray	29.90 g ai/hL 1.27 g ai/tonne fruit	BBCH 89	0	Fruit	1.6 [1.6, 1.6]	
USA Ephrata, WA 2012 (Concorde)	Pre-harvest foliar spraying, 5×76 g ai/ha, harvest 14 DALT plus following post-harvest treatments						Study: TK0000656 Trial: TK0000656-08 Csinos & Riley, 2013, DIFENOCO_006 Max. frozen storage: 4 month
	Dip	30.05 g ai/hL	BBCH 89	0	Fruit	0.90 [1.0, 0.78]	
	Drench	30.53 g ai/hL	BBCH 89	0	Fruit	0.85 [0.82, 0.89]	
	Spray	1.22 g ai/tonne fruit	BBCH 89	0	Fruit	0.60 [0.61, 0.58]	
	Dip & spray	30.05 g ai/hL 1.22 g ai/tonne fruit	BBCH 89	0	Fruit	0.99 [0.87, 1.1]	
USA Payette, ID 2012 (Bartlett)	Pre-harvest foliar spraying, 5×76 g ai/ha, harvest 14 DALT plus following post-harvest treatments						Study: TK0000656 Trial: TK0000656-09 Csinos & Riley, 2013, DIFENOCO_006 Max. frozen storage: 6 month
	Dip	29.90 g ai/hL	BBCH 87	0	Fruit	0.66 [0.72, 0.59]	
	Drench	31.79 g ai/hL	BBCH 87	0	Fruit	0.76 [0.83, 0.70]	
	Spray	1.27 g ai/tonne fruit	BBCH 87	0	Fruit	1.1 [1.2, 1.1]	
	Dip & spray	29.90 g ai/hL 1.27 g ai/tonne fruit	BBCH 87	0	Fruit	1.3 [1.3, 1.3]	

[a] Mean of replicate trial samples [individual values]

Blueberries

A total of eleven supervised residue trials were conducted on blueberries in Canada (eight trials) and the USA (three trials) in 2012 (Sagan, 2014, DIFENOCO_007). Blueberries received four foliar applications of difenoconazole at a nominal rate of 127 g ai/ha with a 6–9 day interval between applications and 1 day PHI. Samples of blueberries were collected 1 day after treatment for harvest trials (nine trials), and 1, 3–4, 8–9 and 12–13 days after treatment for decline trials (two trials).

Residues of difenoconazole were determined using method REM 147.08 with a limit of quantification at 0.01 mg/kg. Overall mean procedural recoveries in blueberries spiked with difenoconazole at 0.01, 0.1 and 2.5 mg/kg were 101%, RSD=6.4% (n=13). Metabolites 1,2,4-triazole, triazole alanine and triazole acetic acid were analysed according to Meth-160, Revision #2 which was evaluated by the 2013 JMPR. Recoveries of metabolites 1,2,4-triazole, triazole alanine and triazole acetic acid spiked at 0.01 and 0.1 mg/kg were 79%, RSD=5.9% (n=6), 111%, RSD=9.9% (n=6) and 108%, RSD=7.5% (n=6), respectively.

Table 10 Residues of difenoconazole in blueberries following foliar treatment (cGAP 4×127 g ai/ha; 1 day PHI)

Location, Year (variety)	Treatment method	Application rate (g ai/ha)	Growth stage at final application	DALT	Crop part	Residue found (mg/kg)				Report/Trial No., Reference Storage period
						Difeno-conazole[a]	1,2,4-T	TA	TAA	
Canada York, PE 2012 (Wild lowbush)	Foliar spray	120 120 130 140	BBCH 87	1 4 9 12	Fruit	1.2 [1.1, 1.2] 0.89 0.66 0.51	< 0.01	< 0.01	< 0.01	Study: TK0095740 Trial: T162-Decline Sagan, 2014, DIFENOCO_007 Max. frozen storage: 6 month (parent); 9 month (metabolites)
Canada Mount Stewart, PE 2012 (Wild lowbush)	Foliar spray	130 120 130 130	BBCH 87	1	Fruit	1.0 [0.82, 1.2]	< 0.01	< 0.01	< 0.01	Study: TK0095740 Trial: T163 Plot 2 & 3 Sagan, 2014, DIFENOCO_007 Max. frozen storage: 6 month (parent); 9 month (metabolites)
	Foliar spray	470 480 490 530	BBCH 87	1	Fruit	0.99 [1.2, 0.78]	NA	NA	NA	
Canada Clyde River, NS 2012 (Lowbush)	Foliar spray	4×130	BBCH 89	1	Fruit	1.4 [1.4, 1.3]	< 0.01	< 0.01	< 0.01	Study: TK0095740 Trial: T164 Sagan, 2014, DIFENOCO_007 Max. frozen storage: 6 month (parent); 10 month (metabolites)
Canada New Tusket, NS 2012 (Lowbush)	Foliar spray	4×130	BBCH 89	1	Fruit	1.9 [1.6, 2.2]	< 0.01	< 0.01	< 0.01	Study: TK0095740 Trial: T165 Sagan, 2014, DIFENOCO_007 Max. frozen storage: 6 month (parent); 9 month (metabolites)
USA Kinston, NC 2012 (Blue Haven)	Foliar spray	130 130 130 120	BBCH 89	1	Fruit	0.84 [1.0, 0.67]	< 0.01	< 0.01	< 0.01	Study: TK0095740 Trial: T166 Sagan, 2014, DIFENOCO_007 Max. frozen storage: 8 month (parent); 11 month (metabolites)
USA New Hope, PA 2012 (Bluecrop)	Foliar spray	140 130 140 130	BBCH 89	1	Fruit	1.0 [1.0, 1.0]	< 0.01	< 0.01	< 0.01	Study: TK0095740 Trial: T167 Sagan, 2014, DIFENOCO_007 Max. frozen storage: 7 month (parent); 11 month (metabolites)
USA Chula, GA	Foliar spray	130 120	BBCH 79	1	Fruit	0.65 [0.72, 0.57]	< 0.01	0.041	< 0.01	Study: TK0095740

Location, Year (variety)	Treatment method	Application rate (g ai/ha)	Growth stage at final application	DALT	Crop part	Residue found (mg/kg)				Report/Trial No., Reference Storage period
						Difeno-conazole[a]	1,2,4-T	TA	TAA	
2012 (Brightwell)		130 130								Trial: T168 Sagan, 2014, DIFENOCO_007 Max. frozen storage: 8 month (parent); 12 month (metabolites)
Canada Ste-Madeleine, QC 2012 (Patriot)	Foliar spray	4×130	BBCH 89	1	Fruit	0.40 [0.36, 0.44]	< 0.01	0.016	< 0.01	Study: TK0095740 Trial: T169 Plot 2 & 3 Sagan, 2014, DIFENOCO_007 Max. frozen storage: 7 month (parent); 10 month (metabolites)
	Foliar spray	480 480 460 460	BBCH 89	1	Fruit	0.28 [0.26, 0.30]	NA	NA	NA	
Canada Ste-Madeleine, QC 2012 (Bluetta)	Foliar spray	4×130	BBCH 89	1	Fruit	0.67	< 0.01	0.030	< 0.01	Study: TK0095740 Trial: T170 Sagan, 2014, DIFENOCO_007 Max. frozen storage: 7 month (parent); 10 month (metabolites)
Canada Cathcart, ON 2012 (Blueray)	Foliar spray	130 130 120 130	BBCH 89	1	Fruit	0.33 [0.35, 0.30]	< 0.01	0.011	< 0.01	Study: TK0095740 Trial: T171 Plot 2 & 3 Sagan, 2014, DIFENOCO_007 Max. frozen storage: 7 month (parent); 10 month (metabolites)
	Foliar spray	480 520 510 520	BBCH 89	1	Fruit	0.18 [0.17, 0.19]	NA	NA	NA	
Canada Abbotsford, BC 2012 (Elliot)	Foliar spray	4×130	BBCH 89	1 3 8 13	Fruit	1.7 [2.2, 1.2] 1.2 0.72 0.51	NA	NA	NA	Study: TK0095740 Trial: T172-Decline Sagan, 2014, DIFENOCO_007 Max. frozen storage: 6 month

NA: not analysed

[a] Mean of replicate field samples [individual values]

1,2,4-T: 1,2,4-triazole

TA: Triazole-alanine

TAA: Triazole-acetic acid

The meeting noted that two trials (T169 and T170) were conducted at the same location and time. Hence, here only the higher residue of both trials was considered.

Strawberries

A total of nine supervised residue trials were conducted on strawberries in the USA in 2008/09 (Hamilton, 2009, DIFENOCO_008). Strawberries received four foliar applications of difenoconazole at a nominal rate of 127.5 g ai/ha with a 7 day interval between applications and 0 day PHI. Samples

of strawberry fruits were collected at normal commercial harvest immediately before (7 days after third application) and after the last application (-0 and 0 days) from the harvest trials, and at -0, 0, 1, 3 and 5 days in the decline trial.

Residues of difenoconazole were determined using method REM 147.08 with a limit of quantification at 0.01 mg/kg. Overall mean procedural recoveries in strawberries spiked with difenoconazole at 0.01, 0.05, 1 and 2 mg/kg were 98%, RSD=13% (n=17). Metabolites 1,2,4-triazole, triazole alanine and triazole acetic acid were analysed according to Meth-160, Revision #2 which was evaluated by the 2013 JMPR. Recoveries of metabolites 1,2,4-triazole, triazole alanine and triazole acetic acid spiked at 0.01, 0.02 (triazole alanine only), 0.2 (triazole alanine only), 0.10 and 0.50 mg/kg were 88%, RSD=7.9% (n=18), 93%, RSD=7.6% (n=18) and 103%, RSD=6.3% (n=18), respectively.

Table 11 Residues of difenoconazole in strawberries following foliar treatment (cGAP 4×127.5 g ai/ha; 0 day PHI)

Location, Year (variety)	Treatment method	Application rate (g ai/ha)	Growth stage at final appl.	DALT	Crop Part	Residue found (mg/kg)[a]				Report/Trial No., Reference Storage period
						Difeno-conazole	1,2,4-T	TA	TAA	
USA Penn Yan, NY 2008 (Honeoye)	Foliar spray	4×130 (0.12-0.13% NIS)	BBCH 89	-0 0	Fruit	0.28 [0.31, 0.25] <u>0.65</u> [0.64,0.66]	< 0.01 [2×< 0.01] < 0.01 [2×< 0.01]	0.02 [2× 0.02] CTR:0.02 0.03 [2× 0.03] CTR:0.02	< 0.01 [2×< 0.01] < 0.01 [2×< 0.01]	Study: T002401-07 Trial: E03NY078481 Hamilton, 2009, DIFENOCO_008 Max. frozen storage: 1 month
USA Seven Springs, NC 2008 (Camarosa)	Foliar spray	4×130 (0.12% NIS)	BBCH 85	-0 0	Fruit	0.20 [0.20, 0.19] <u>0.41</u> [0.38, 0.43]	< 0.01 [2×< 0.01] < 0.01 [2× < 0.01]	0.02 [2× 0.02] 0.02 [0.01, 0.02]	< 0.01 [2×< 0.01] < 0.01 [2× < 0.01]	Study: T002401-07 Trial: E10NC078482 Hamilton, 2009, DIFENOCO_008 Max. frozen storage: 1 month
USA Wimauma, FL 2008 (Treasures)	Foliar spray	4×130 (0.12% NIS)	ripe fruit	-0 0	Fruit	0.16 [0.13, 0.18] <u>0.19</u> [0.19, 0.19]	< 0.01 [2×< 0.01] < 0.01 [2× < 0.01]	0.05 [2× 0.05] 0.05 [0.04, 0.05]	< 0.01 [2×< 0.01] < 0.01 [2× < 0.01]	Study: T002401-07 Trial: E16FL078483 Hamilton, 2009, DIFENOCO_008 Max. frozen storage: 4 month
USA Fertile, MN 2008 (Mesabi)	Foliar spray	130 130 130 140 (0.13% NIS)	BBCH 88	-0 0	Fruit	0.17 [0.14, 0.20] <u>0.43</u> [0.49, 0.36]	< 0.01 [2×< 0.01] < 0.01 [2× < 0.01]	0.01 [2×0.01] < 0.01 [2×< 0.01]	< 0.01 [2×< 0.01] < 0.01 [2×< 0.01]	Study: T002401-07 Trial: C12MN078484 Hamilton, 2009, DIFENOCO_008 Max. frozen storage: 7 month
USA Santa Maria, CA 2008 (Albion)	Foliar spray	4×130 (0.12% NIS)	BBCH 89	-0 0 1 3 5	Fruit	0.23 [0.22, 0.24] 0.48 [0.41, 0.55] <u>0.63</u> 0.47 0.42	< 0.01 [2× < 0.01] < 0.01 [2×< 0.01] < 0.01 < 0.01 < 0.01	0.07 [2× 0.07] CTR:0.02 0.08 [0.08, 0.07] CTR:0.02 0.07 CTR:0.02 0.09 CTR:0.03 0.09 CTR:0.03	0.01 [2× 0.01] < 0.01 [2×< 0.01] 0.01 0.02 0.02	Study: T002401-07 Trial: W30CA078485 Hamilton, 2009, DIFENOCO_008 Max. frozen storage: 3 month

Location, Year (variety)	Treatment method	Application rate (g ai/ha)	Growth stage at final appl.	DALT	Crop Part	Residue found (mg/kg)[a]				Report/Trial No., Reference Storage period
						Difeno-conazole	1,2,4-T	TA	TAA	
USA Madera, CA 2008 (Seascape)	Foliar spray	4×130 (0.12% NIS)	BBCH 79	-0 0	Fruit	0.29 [0.26, 0.31] 0.65 [0.72, 0.58]	< 0.01 [2× < 0.01] < 0.01 [2×< 0.01]	0.04 [0.04, 0.03] 0.03 [0.02, 0.04] CTR:0.01	< 0.01 [2× < 0.01] < 0.01 [2×< 0.01]	Study: T002401-07 Trial: W29CA078486 Hamilton, 2009, DIFENOCO_008 Max. frozen storage: 2 month
USA Madera, CA 2008 (Chandler)	Foliar spray	4×130 (0.12% NIS)	BBCH 79	-0 0	Fruit	0.57 [0.54, 0.59] 1.2 [1.2, 1.2]	< 0.01 [2×< 0.01] < 0.01 [2×< 0.01]	0.05 [0.04, 0.05] 0.05 [0.06, 0.03]	< 0.01 [2×< 0.01] < 0.01 [2×< 0.01]	Study: T002401-07 Trial: W29CA078487 Hamilton, 2009, DIFENOCO_008 Max. frozen storage: 8 month
USA Mount Vernon, WA 2008 (Puget Reiiance)	Foliar spray	130 120 130 130 (0.13% NIS)	ripe fruit	-0 0	Fruit	0.11 [0.13, 0.09] 0.07 [0.07, 0.07]	< 0.01 [2×< 0.01] < 0.01 [2×< 0.01]	< 0.01 [2×< 0.01] < 0.01 [2×< 0.01]	< 0.01 [2×< 0.01] < 0.01 [2×< 0.01]	Study: T002401-07 Trial: W19WA078488 Hamilton, 2009, DIFENOCO_008 Max. frozen storage: 7 month
USA Guadalupe, CA 2009 (Albion)	Foliar spray	4×130 (0.12% NIS)	BBCH 75	-0 0	Fruit	0.24 [0.23, 0.25] 0.37 [0.35, 0.39]	< 0.01 [2× < 0.01] < 0.01 [2×< 0.01]	0.09 [0.09, 0.08] CTR:0.03 0.08 [0.07, 0.08] CTR:0.03	0.03 [0.02, 0.03] 0.02 [0.02, 0.02]	Study: T002401-07 Trial: W33CA098489 Hamilton, 2009, DIFENOCO_008 Max. frozen storage: 1 month

NIS = non-ionic surfactant, e.g. Silwet or Kinetic

CTR = Untreated control

[a] Mean of replicate field samples [individual values]

1,2,4-T: 1,2,4-triazole

TA: Triazole-alanine

TAA: Triazole-acetic acid

The meeting noted that two trials (W29CA078486 and W29CA078487) were conducted at the same location and time. Hence, here only the higher residue of both trials was considered.

Guava

A total of six supervised residue trials were conducted on guava in Egypt in 2015 (DeFrancesco, 2016, DIFENOCO_003). Guava received three foliar applications of difenoconazole at a nominal rate of 62.5 g ai/ha with a 6–8 day interval between applications and 7 day PHI. Samples of guava fruit were collected at normal commercial harvest, 6–8 days after the last application from harvest trials, and at 0, 3, 7, 10 and 14 days in the decline trial.

Residues of difenoconazole were determined using QuEChERS citrate method with a limit of quantification at 0.01 mg/kg. Overall mean procedural recoveries in guava spiked with difenoconazole at 0.01 and 0.1 mg/kg were 96%, RSD=16% (n=8).

Table 12 Residues of difenoconazole in guava fruit following foliar treatment (cGAP 3 × 62.5 g ai/ha; 10 day PHI)

Location, Year (variety)	Treatment method	Application rate (g ai/ha)	Growth stage at final application	DALT	Crop part	Residue Found (mg/kg) Difenoconazole[a]	Report/Trial No., Reference Storage period
Egypt Moshtohor 2015 (Etmany)	Foliar spray	3×63	Fruiting	7	Fruit	0.053 [0.046, 0.059]	Study: 11605.15-EGR01 Trial: 11605.15-EG01 DeFrancesco, 2016, DIFENOCO_003 Max. frozen storage: 13 month
Egypt Qalama 2015 (Ghoneimy)	Egypt	3×63	Fruiting	0 3 7 10 14	Fruit Fruit Fruit Fruit Fruit	0.11 [0.081, 0.13] 0.040 [0.040, 0.039] 0.023 [0.018, 0.028] 0.033 [0.027, 0.038] 0.024 [0.021, 0.026]	Study: 11605.15-EGR01 Trial: 11605.15-EG02 DeFrancesco, 2016, DIFENOCO_003 Max. frozen storage: 13 month
Egypt Salheia 2015 (Etmany)	Egypt	3×63	Fruiting	7	Fruit	0.077 [0.095, 0.059]	Study: 11605.15-EGR01 Trial: 11605.15-EG03 DeFrancesco, 2016, DIFENOCO_003 Max. frozen storage: 12 month
Egypt Arab-Al Khanka 2015 (Balady)	Egypt	3×63	Fruiting	6	Fruit	0.013 [0.010, 0.016]	Study: 11605.15-EGR01 Trial: 11605.15-EG04 DeFrancesco, 2016, DIFENOCO_003 Max. frozen storage: 8 month
Egypt Nawa 2015 (Etmany)	Egypt	3×63	Fruiting	8	Fruit	0.018 [0.018, 0.017]	Study: 11605.15-EGR01 Trial: 11605.15-EG05 DeFrancesco, 2016, DIFENOCO_003 Max. frozen storage: 8 month
Egypt Manzala 2015 (Banaty)	Egypt	3×63	Fruiting	8	Fruit	0.034 [0.014, 0.054]	Study: 11605.15-EGR01 Trial: 11605.15-EG06 DeFrancesco, 2016, DIFENOCO_003 Max. frozen storage: 8 month

[a] Mean of replicate field samples [individual values]

Pitaya (dragon fruit)

A total of seven supervised residue trials were conducted on pitaya (dragon fruit) in Indonesia and Vietnam in 2014/15 (Noegrohati, 2016, DIFENOCO_002). Dragon fruits received three exaggerated foliar applications of difenoconazole at a nominal rate of 94 g ai/ha with a 9–11 day interval between applications. Samples of dragon fruit were collected at normal commercial harvest, 7 days after the last application from harvest trials, and at 0, 1, 3, 10 and 14 days in the decline trial. As trials were overdosed compared to the critical GAP, residue levels were scaled accordingly using the principle of proportionality.

Residues of difenoconazole were determined using QuEChERS citrate method with a limit of quantification at 0.01 mg/kg. Overall mean procedural recoveries in dragon fruit (whole fruit), peel and flesh spiked with difenoconazole at 0.005, 0.1 and 0.1 mg/kg were 82%, RSD=14% (n=13), 98%, RSD=8% (n=4) and 85%, RSD=19% (n=7), respectively. Procedural recoveries for peel samples from trial 10993.14-ID02 (analysed June 2015) were not considered as they were unacceptably low. Consequently, residues in these samples cannot be considered reliable.

Table 13 Residues of difenoconazole in dragon fruit (whole fruit) following foliar treatment (cGAP 3 × 50 g ai/ha; 7 day PHI)

Location, Year (variety)	Treatment method	Application rate (g ai/ha)	Growth stage at final application	DALT	Crop part	Residue found (mg/kg) Difenoconazole [a]	Scaled residue (*)	Report/Trial No., Reference Storage period
Indonesia Sragen, Central Java 2015 (Red dragon fruit)	Foliar spray	92 95 97	Fruiting	-0 0 1 7	Fruit Fruit Fruit Fruit	0.078 0.21 0.15 0.060	0.041 0.11 0.080 0.032	Study: 10993 Trial: 10993.14-ID01 Plot 1 & 2 Noegrohati, 2016, DIFENOCO_002 Max. frozen storage: 3 month
		98 92 92	Fruiting	-0 0 1 7	Fruit Fruit Fruit Fruit	0.14 0.21 0.19 0.064	0.075 0.11 0.10 0.034	
Indonesia Kulon Progo 2015 (Red dragon fruit)	Foliar spray	3×94	Fruiting	-1 0 1 3 7 10 14	Fruit Fruit Fruit Fruit Fruit Fruit Fruit	0.056 0.17 0.10 0.060 0.022 0.014 <LOQ	0.030 0.091 0.055 0.032 0.012 0.007 <LOQ	Study: 10993 Trial: 10993.14-ID02 Plot 1 & 2 Noegrohati, 2016, DIFENOCO_002 Max. frozen storage: 3 month
		3×95	Fruiting	-1 0 1 3 7 10 14	Fruit Fruit Fruit Fruit Fruit Fruit Fruit	0.040 0.14 0.053 0.048 0.019 0.017 <LOQ	0.021 0.075 0.028 0.025 0.010 0.009 <LOQ	
				-1 0 1 3 7 10 14	Peel Peel Peel Peel Peel Peel Peel	0.095 0.29 0.072 0.095 0.042 0.054 0.006	- - - - - - -	
				-1 0 1 3 7 10 14	Flesh Flesh Flesh Flesh Flesh Flesh Flesh	<LOQ 0.016 0.005 <LOQ <LOQ <LOQ <LOQ	- - - - - - -	
Indonesia Mojokerto, East Java 2015 (Red dragon fruit)	Foliar spray	94 97 96	Fruiting	-0 0 1 7	Fruit Fruit Fruit Fruit	0.021 0.14 0.090 0.071	0.011 0.071 0.047 0.037	Study: 10993 Trial: 10993.14-ID03 Plot 1 & 2 Noegrohati, 2016, DIFENOCO_002 Max. frozen storage: 4 month
		97 94 94	Fruiting	-0 0 1 7	Fruit Fruit Fruit Fruit	0.012 0.27 0.12 0.035	0.006 0.14 0.065 0.018	
Indonesia Bogor, West Java 2015 (Red dragon fruit)	Foliar spray	95 94 94	Fruiting	-1 0 1 3 7 10 14	Fruit Fruit Fruit Fruit Fruit Fruit Fruit	0.057 0.18 0.074 0.11 0.039 0.052 0.005	0.030 0.095 0.039 0.057 0.021 0.028 0.003	Study: 10993 Trial: 10993.14-ID04 Plot 1 & 2 Noegrohati, 2016, DIFENOCO_002 Max. frozen storage: <1 month
		99 92 94	Fruiting	-1 0 1 3 7 10 14	Fruit Fruit Fruit Fruit Fruit Fruit Fruit	0.042 0.31 0.15 0.083 0.045 0.051 0.037	0.022 0.16 0.081 0.044 0.024 0.027 0.019	

Location, Year (variety)	Treatment method	Application rate (g ai/ha)	Growth stage at final application	DALT	Crop part	Residue found (mg/kg) Difenoconazole [a]	Scaled residue (*)	Report/Trial No., Reference Storage period
				-1	Peel	0.080	-	
				0	Peel	0.76	-	
				1	Peel	0.36	-	
				3	Peel	0.24	-	
				7	Peel	0.12	-	
				10	Peel	0.11	-	
				14	Peel	0.070	-	
				-1	Flesh	<LOQ	-	
				0	Flesh	0.021	-	
				1	Flesh	<LOQ	-	
				3	Flesh	0.007	-	
				7	Flesh	<LOQ	-	
				10	Flesh	<LOQ	-	
				14	Flesh	<LOQ	-	
Indonesia Lampung, South Sumatera 2014 (Red dragon fruit)	Foliar spray	99 95 96	Fruiting	-0	Fruit	0.12	0.060	Study: 10993 Trial: 10993.14-ID05 Plot 1 & 2 Noegrohati, 2016, DIFENOCO_002 Max. frozen storage: <1 month
				0	Fruit	0.34	0.18	
				1	Fruit	0.29	0.15	
				7	Fruit	0.10	0.052	
		100 102 114	Fruiting	-0	Fruit	0.059	0.028	
				0	Fruit	0.31	0.15	
				1	Fruit	0.18	0.085	
				7	Fruit	0.073	0.035	
Indonesia Malang, East Java 2015 (Red dragon fruit)	Foliar spray	91 93 93	Fruiting	-0	Fruit	0.017	0.009	Study: 10993 Trial: 10993.14-ID06 Plot 1 & 2 Noegrohati, 2016, DIFENOCO_002 Max. frozen storage: 4 month
				0	Fruit	0.10	0.056	
				1	Fruit	0.10	0.054	
				7	Fruit	0.026	0.014	
		91 98 97	Fruiting	-0	Fruit	0.015	0.008	
				0	Fruit	0.12	0.063	
				1	Fruit	0.095	0.050	
				7	Fruit	0.030	0.016	
Vietnam Ham Thuan Nam, Binh Thuan 2014 (White dragon fruit)	Foliar spray	93 95 96	Fruiting	-1	Fruit Fruit	0.11 [0.099, 0.11]	0.055	Study: 10993 Trial: 10993.14-VN1 Noegrohati, 2016, DIFENOCO_002 Max. frozen storage: 6 month
				0	Fruit	0.54 [0.52, 0.56]	0.29	
				1	Fruit	0.52 [0.53, 0.50]	0.27	
				7		0.15 [0.14, 0.16]	0.080	

(*): Scaled residue endpoints based on calculated scaling factors between 0.47-0.54. Scaling factor = intended GAP rate (50 g ai/ha) ÷ trials GAP rate (91-114 g ai/ha). **N.B.** Scaling **only** applies to residue levels ≥0.01 mg/kg (≥LOQ).

[a] Mean of replicate field sample [individual values]

Watermelon

A total of four supervised residue trials were conducted on watermelon in Brazil in 2005 (Casagrande, 2006, DIFENOCO_009). Watermelons received six exaggerated foliar applications of difenoconazole at a nominal rate of 75 g ai/ha with a 7 day interval between applications. Samples of whole watermelon were collected 0, 1, 2, 3 and 5 days after treatment. As trials were overdosed compared to the critical GAP (6× 50 g ai/ha), residue levels were scaled accordingly using the principle of proportionality.

Residues of difenoconazole were determined using method POPIT MET.033 with a limit of quantification at 0.01 mg/kg. The method has been evaluated by the 2015 JMPR. Mean procedural recoveries in watermelon spiked with difenoconazole at 0.01 and 0.1 were 105%, RSD=4% (n=7) and 107%, RSD=5% (n=6), respectively.

Table 14 Residues of difenoconazole in watermelon following foliar treatment (cGAP 6 × 50 g ai/ha; 3 days PHI)

Location, Year (variety)	Treatment method	Application rate (g ai/ha)	Growth stage at final application	DALT	Crop part	Residue found (mg/kg) Difenoconazole	Scaled residue (*)	Report/Trial No., Reference Storage period
Brasil Uberlandia, MG 2005 (Mickylee)	Foliar spray	6×75	BBCH 83	0 1 2 3 5	Whole fruit	< 0.01 < 0.01 0.02 <u>0.02</u> < 0.01	< 0.01 < 0.01 0.01 <u>0.01</u> < 0.01	Study: M04025 Trial: M04025-JJB Casagrande, 2006, DIFENOCO_009 Max. frozen storage: 14 month
Brasil Piracicaba, SP 2005 (Top Gun)	Foliar spray	6×75	BBCH 706	0 1 2 3 5	Whole fruit	0.03 0.02 0.02 <u>0.02</u> < 0.01	0.02 0.01 0.01 <u>0.01</u> < 0.01	Study: M04025 Trial: M04025-LZF1 Casagrande, 2006, DIFENOCO_009 Max. frozen storage: 10 month
Brasil Araçoiaba da Serra, SP 2005 (Rubi)	Foliar spray	6×75	BBCH 82	0 1 2 3 5	Whole fruit	0.02 0.01 < 0.01 <u>< 0.01</u> < 0.01	0.01 < 0.01 < 0.01 <u>< 0.01</u> < 0.01	Study: M04025 Trial: M04025-LZF2 Casagrande, 2006, DIFENOCO_009 Max. frozen storage: 8 month
Brasil Anhembi, SP 2005 (Top Gun)	Foliar spray	6×75	BBCH 83	0 1 2 3 5	Whole fruit	0.03 0.04 < 0.01 <u>< 0.01</u> < 0.01	0.02 0.03 < 0.01 <u>< 0.01</u> < 0.01	Study: M04025 Trial: M04025-LZF3 Casagrande, 2006, DIFENOCO_009 Max. frozen storage: 16 month

(*): Scaled residue endpoints based on a calculated scaling factor of 0.67. Scaling factor = intended GAP rate (50 g ai/ha) ÷ trials/GAP rate (75 g ai/ha). N.B. Scaling only applies to residue levels ≥0.01 mg/kg (≥LOQ).

Chili Peppers

A total of six supervised residue trials (three decline trials with green chili peppers; and three harvest trials with red chili peppers which were also used for processing) were conducted indoors in the Republic of Korea in 2015 (Chai, 2015, DIFENOCO_016). Chili peppers received four foliar applications of difenoconazole at a nominal rate of 80 g ai/ha with a 10 day interval between applications and 2 day PHI. Samples of the green chili peppers were collected at 0, 1, 3, 5, 7, 10 and 14 days after the last application, while the red chili peppers were harvested at 2 days after the last treatment.

Residues of difenoconazole were determined using the validated Modified Korean Food Code Method with a limit of quantification at 0.03 mg/kg. See Table 5 for recovery and precision data

Table 15 Residues of difenoconazole in chili peppers following foliar treatment (cGAP 4 × 80 g ai/ha; 2 day PHI)

Location, Year (variety)	Treatment method	Application rate (g ai/ha)	Growth stage at final application	DALT	Crop part	Residue found (mg/kg)[a] Difenoconazole	Scaled residue (*)	Report/Trial No., Reference Storage period
Republic of Korea Hoengseong, Gangwon-do 2015 (Genesis, green)	Foliar spray (indoor)	4×80	Mature fruit	0 1 3 5 7 10 14	Fruit	0.37 0.29 0.25 0.24 0.23 0.17 0.11	0.37 0.29 0.25 0.24 0.23 0.17 0.11	Study: 11605.15-EGR01 Trial: 1 Chai, 2015, DIFENOCO_016 Max. frozen storage: 2 month

Location, Year (variety)	Treatment method	Application rate (g ai/ha)	Growth stage at final application	DALT	Crop part	Residue found (mg/kg)[a] Difenoconazole	Scaled residue (*)	Report/Trial No., Reference Storage period
Republic of Korea Yecheon, Gyeongbuk 2015 (Nog-Gwang, green)	Foliar spray (indoor)	84 88 86 86	Mature fruit	0 1 3 5 7 10 14	Fruit	0.36 0.26 0.24 0.21 0.18 0.15 0.07	0.35 0.24 0.22 0.20 0.17 0.14 0.07	Study: 11605.15-EGR01 Trial: 2 Chai, 2015, DIFENOCO_016 Max. frozen storage: 2 month
Republic of Korea Pohang, Gyeongbuk 2015 (Nog-Gwang, green)	Foliar spray (indoor)	89 92 95 90	Mature fruit	0 1 3 5 7 10 14	Fruit	0.29 0.24 0.19 0.18 0.17 0.14 0.09	0.25 0.21 0.17 0.16 0.15 0.12 0.08	Study: 11605.15-EGR01 Trial: 3 Chai, 2015, DIFENOCO_016 Max. frozen storage: 2 month
Republic of Korea Hoengseong, Gangwon-do 2015 (Genesis, red)	Foliar spray (indoor)	4×80	Mature fruit	2	Fruit	0.41	0.41	Study: 11605.15-EGR01 Trial: 4 Chai, 2015, DIFENOCO_016 Max. frozen storage: 2 month
Republic of Korea Pohang, Gyeongbuk 2015 (Nog-Gwang, red)	Foliar spray (indoor)	88 90 86 89	Mature fruit	2	Fruit	0.30	0.27	Study: 11605.15-EGR01 Trial: 5 Chai, 2015, DIFENOCO_016 Max. frozen storage: 2 month
Republic of Korea Miryang, Gyeongnam 2015 (Nog-Gwang, red)	Foliar spray (indoor)	4×110	Mature fruit	2	Fruit	0.26	0.19	Study: 11605.15-EGR01 Trial: 6 Chai, 2015, DIFENOCO_016 Max. frozen storage: 2 month

[a] Mean of 4 replicate laboratory samples taken from one field sample

(*): Scaled residue endpoints based on calculated scaling factors between 0.73-0.93. Scaling factor = intended GAP rate (80 g ai/ha) ÷ trials GAP rate

The meeting noted that trials 1 and 4 and 2 and 5 were conducted at the same location and time. Hence, here only the higher residues of these trials were considered.

Sweet corn (Corn-on-the-cob) (kernels plus cob with husk removed)

A total of nine supervised residue trials were conducted on sweet corn in the USA in 1998 (Campbell & Oakes, 2000, DIFENOCO_001). Corn was treated with difenoconazole in seed treatment slurry at a nominal rate of 300 g ai/tonne seed. From the field trials performed with treated seeds, forage with and without ears, ears and stover was sampled.

Residues of difenoconazole were determined using method AG-676 with a limit of quantification at 0.01 mg/kg (Table 2). Overall mean procedural recoveries in sweet corn (forage, ears, stover) spiked with difenoconazole at 0.01 and 0.05 were 100%, RSD=15% (n=18) and 108%, RSD=12% (n=31), respectively.

Table 16 Residues of difenoconazole in sweet corn (ears) following seed treatment (cGAP 300 g ai/tonne seed)

Location, Year (variety)	Treatment method	Application rate	Growth stage at application	DAT	Crop part	Residue found (mg/kg) Difenoconazole [a]	Report/Trial No., Reference Storage period
USA Fresno County, California 1998 (Primetime)	Foliar spray	290 g ai/tonne seed	Seed treatment	78	Ears	≤ 0.01 [< 0.01, < 0.01]	Study: 158-98 Trial: 02-SR-032-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 14 month
USA Columbia County, New York 1998 (Kandy King)	Foliar spray	340 g ai/tonne seed	Seed treatment	77	Ears	≤ 0.01 [< 0.01, < 0.01]	Study: 158-98 Trial: 05-SR-004-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 5 month
USA Indian River County, Florida 1998 (Golden Cross/ Bantam Hybrid)	Foliar spray	280 g ai/tonne seed	Seed treatment	76	Ears	≤ 0.01 [< 0.01, < 0.01]	Study: 158-98 Trial: 07-SR-003-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 8 month
USA Sampson County, North Carolina 1998 (Kandy King)	Foliar spray	320 g ai/tonne seed	Seed treatment	60	Ears	≤ 0.01 [< 0.01, < 0.01]	Study: 158-98 Trial: OS-SR-615-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 6 month
USA Yakima County, Washington 1998 (Jubilee)	Foliar spray	270 g ai/tonne seed	Seed treatment	102	Ears	≤ 0.01 [< 0.01, < 0.01]	Study: 158-98 Trial: MW-SR-616-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 4 month
USA Benton County, Oregon 1998 (Primetime)	Foliar spray	280 g ai/tonne seed	Seed treatment	98	Ears	≤ 0.01 [< 0.01, < 0.01]	Study: 158-98 Trial: OW-SR-617-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 4 month
USA Walworth County, Wisconsin 1998 (Jubilee)	Foliar spray	300 g ai/tonne seed	Seed treatment	81	Ears	≤ 0.01 [< 0.01, < 0.01]	Study: 158-98 Trial: MW-SR-702-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 13 month
USA Dakota County, Minnesota 1998 (Jubilee)	Foliar spray	310 g ai/tonne seed	Seed treatment	89	Ears	≤ 0.01 [< 0.01, < 0.01]	Study: 158-98 Trial: MW-SR-805-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 12 month
USA Fayette County, Ohio 1998 (Kandy King)	Foliar spray	380 g ai/tonne seed	Seed treatment	65	Ears	≤ 0.01 [< 0.01, < 0.01]	Study: 158-98 Trial: NE-SR-205-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 5 month

[a] Mean of replicate laboratory sample from one field sample [individual values]

Pulses

A total of eighteen supervised residue trials were conducted (dry peas: five trials, dry beans: 10 trials and chickpeas: three trials) in the USA in 2008 (chickpeas trials) and 2011 (peas and beans trials) (Oakes, 2013, DIFENOCO_004, Willard & Mayer, 2009, DIFENOCO_010). Plants received four foliar applications of difenoconazole at a nominal rate of 127.5 g ai/ha with a 14±2 day interval between applications. Samples of mature peas, beans and chickpeas were collected approximately 14

days after the last application for harvest trials. Samples of pea vines and hay were collected 0 days after the second application. Additional samples of pea and bean seed were collected 0, 3, 7, 14 and 21 DALA, and pea vines and hay samples were collected 0, 3, 7 and 10 DALA to generate decline data.

Residues of difenoconazole were determined using method REM 147.08 with a limit of quantification at 0.01 mg/kg (Table 2). Overall mean procedural recoveries for difenoconazole in dried pea seed (spiked at 0.01-2 mg/kg) were 107%, RSD=6% (n=6), dry bean seed (spiked at 0.01-2 mg/kg) were 99%, RSD=12% (n=12) and chickpea seeds (spiked at 0.01-0.1 mg/kg) were 108%, (n=2). Metabolites 1,2,4-triazole, triazole alanine and triazole acetic acid were analysed according to Meth-160, which was evaluated by the 2013 JMPR.

Table 17 Residues of difenoconazole in pea seed following foliar treatment (cGAP 4 ×127.5 g ai/ha; 14 day PHI)

Location, Year (variety)	Treatment method	Application rate (g ai/ha)	Growth stage at final application	DALT	Crop part	Residue found (mg/kg)[a]				Report/Trial No., Reference Storage period
						Difeno-conazole	1,2,4-T	TA	TAA	
USA Gardner, ND 2011 (40.10)	Foliar spray	4×130	BBCH 92	15	Seed	0.016 [0.014, 0.017]	< 0.01 [2× < 0.01]	0.84 [0.84, 0.83] CTR:0.51	< 0.01 [2× < 0.01]	Study: TK0044531 Trial: TK0044531-01 Oakes, 2013, DIFENOCO_004 Max. frozen storage: 8 month (parent); 10 month (metabolites)
USA Fresno, CA 2011 (Quickpick Pinkeye Purple Pod)	Foliar spray	4×130	BBCH 89	13	Seed	0.087 [0.044, 0.13]	< 0.01 [2× < 0.01]	0.15 [0.15, 0.15] CTR:0.20	< 0.01 [2× < 0.01]	Study: TK0044531 Trial: TK0044531-02 Oakes, 2013, DIFENOCO_004 Max. frozen storage: 9 month (parent); 9 month (metabolites)
USA Jerome, ID 2011 (SNO 112-0490 N14)	Foliar spray	140 130 130 130	BBCH 79	13	Seed	0.029 [0.029, 0.028]	< 0.01 [2× < 0.01]	0.30 [0.29, 0.31] CTR:0.16	< 0.01 [2× < 0.01]	Study: TK0044531 Trial: TK0044531-03 Oakes, 2013, DIFENOCO_004 Max. frozen storage: 9 month (parent); 10 month (metabolites)
USA Jerome, ID 2011 (Latah Yellows)	Foliar spray	4×130	BBCH 85	13	Seed	< 0.01 [< 0.01, < 0.01]	< 0.01 [2× < 0.01]	0.14 [0.13, 0.15] CTR:0.13	< 0.01 [2× < 0.01]	Study: TK0044531 Trial: TK0044531-04 Oakes, 2013, DIFENOCO_004 Max. frozen storage: 9 month (parent); 11 month (metabolites)
USA Parkdale, OR	Foliar spray	4×130	BBCH 81	0 3 7	Seed	< 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01	0.18 0.14 0.19	< 0.01 < 0.01 < 0.01	Study: TK0044531 Trial:

Location, Year (variety)	Treatment method	Application rate (g ai/ha)	Growth stage at final application	DALT	Crop part	Residue found (mg/kg)[a]				Report/Trial No., Reference Storage period
						Difeno-conazole	1,2,4-T	TA	TAA	
2011 (Progress 9)				14		0.028 [0.034, 0.021]	< 0.01 [2× < 0.01]	0.029 [0.030, 0.028]	< 0.01 [2×< 0.01]	TK0044531-05 Oakes, 2013, DIFENOCO_004 Max. frozen storage: 10 month (parent); 11 month (metabolites)
				21		0.011	< 0.01	0.053 CTR:0.037	0.014	

CTR = Untreated control

[a] Mean of replicate field samples [individual values]

1,2,4-T: 1,2,4-triazole

TA: Triazole-alanine

TAA: Triazole-acetic acid

Table 18 Residues of difenoconazole in bean seed following foliar treatment (cGAP 4 × 127.5 g ai/ha; 14 day PHI)

Location, Year (variety)	Treatment method	Application rate (g ai/ha)	Growth stage at final application	DALT	Crop part	Residue found (mg/kg)				Report/Trial No., Reference Storage period
						Difeno-conazole	1,2,4-T	TA	TAA	
USA Richland, IA 2011 (Dwarf Hort. Taylor)	Foliar spray	4×130	BBCH 84	0 3 7 14 21	Seed	0.028 0.088 0.12 0.030 [0.024, 0.036] < 0.01	< 0.01 < 0.01 < 0.01 < 0.01 [2×< 0.01] < 0.01	<0.2 <0.2 <0.2 <0.2 [2×<0.2] <0.2	< 0.01 < 0.01 < 0.01 < 0.01 [2×< 0.01] < 0.01	Study: TK0044531 Trial: TK0044531-06 Oakes, 2013, DIFENOCO_004 Max. frozen storage: 8 month (parent); 10 month (metabolites)
USA York, NE 2011 (Marquis-GT)	Foliar spray	4×130	BBCH 79	15	Seed	0.013 [0.012, 0.013]	< 0.01 [2×< 0.01]	0.82 [0.78, 0.86]	0.027 [0.026, 0.027]	Study: TK0044531 Trial: TK0044531-07 Oakes, 2013, DIFENOCO_004 Max. frozen storage: 8 month (parent); 10 month (metabolites)
USA Clarence, MO 2011 (HMS Medalist)	Foliar spray	4×130	BBCH 91	31 DAT4	Seed	0.011 [< 0.01, 0.012]	< 0.01 [2× < 0.01]	0.59 [0.58, 0.59]	0.015 [0.015, 0.014]	Study: TK0044531 Trial: TK0044531-08 Oakes, 2013, DIFENOCO_004 Max. frozen storage: 7 month (parent); 9 month (metabolites)
USA Campbell,	Foliar spray	4×130	BBCH 79	13	Seed	0.010 [0.010,	< 0.01 [2×	0.35 [0.35,	< 0.01 [2×	Study: TK0044531

Location, Year (variety)	Treatment method	Application rate (g ai/ha)	Growth stage at final application	DALT	Crop part	Residue found (mg/kg)				Report/Trial No., Reference Storage period
						Difeno-conazole	1,2,4-T	TA	TAA	
MN 2011 (HMS Medalist)						< 0.01]	< 0.01]	0.34]	< 0.01]	Trial: TK0044531-09 Oakes, 2013, DIFENOCO_004 Max. frozen storage: 8 month (parent); 10 month (metabolites)
USA Grand Island, NE 2011 (Marquis-GT)	Foliar spray	4×130	BBCH 81	15	Seed	< 0.01 [< 0.01, < 0.01]	< 0.01 [2× < 0.01]	0.68 [0.67, 0.68] CTR: 0.35	0.022 [0.022, 0.021]	Study: TK0044531 Trial: TK0044531-10 Oakes, 2013, DIFENOCO_004 Max. frozen storage: 8 month (parent); 10 month (metabolites)
USA Hinton, OK 2011 (Dwarf Horticulture Taylor Bean)	Foliar spray	4×130	BBCH 65	48 DAA 4	Seed	< 0.01 [< 0.01, < 0.01]	< 0.01 [2× < 0.01]	2.5 [2.5, 2.5]	0.034 [0.037, 0.031]	Study: TK0044531 Trial: TK0044531-11 Oakes, 2013, DIFENOCO_004 Max. frozen storage: 6 month (parent); 7 month (metabolites)
USA Jerome, ID 2011 (Othello Pintos)	Foliar spray	4×130	BBCH 93	18	Seed	0.012 [0.013, < 0.01]	< 0.01 [2× < 0.01]	0.29 [0.31, 0.26]	< 0.01 [2× < 0.01]	Study: TK0044531 Trial: TK0044531-12 Oakes, 2013, DIFENOCO_004 Max. frozen storage: 8 month (parent); 10 month (metabolites)
USA Sanger, CA 2011 (Fordhook 242)	Foliar spray	4×130	BBCH 82	14	Seed	< 0.01 [< 0.01, < 0.01]	< 0.01 [2× < 0.01]	0.60 [0.62, 0.59] CTR: 0.41	< 0.01 [2× < 0.01]	Study: TK0044531 Trial: TK0044531-13 Oakes, 2013, DIFENOCO_004 Max. frozen storage: 9 month (parent); 10 month (metabolites)
USA Jerome, ID 2011 (Small	Foliar spray	4×130	BBCH 93	14	Seed	< 0.01 [< 0.01, < 0.01]	< 0.01 [2× < 0.01]	0.43 [0.43, 0.42]	< 0.01 [2× < 0.01]	Study: TK0044531 Trial: TK0044531-14

Location, Year (variety)	Treatment method	Application rate (g ai/ha)	Growth stage at final application	DALT	Crop part	Residue found (mg/kg)				Report/Trial No., Reference Storage period
						Difeno-conazole	1,2,4-T	TA	TAA	
Red)										Oakes, 2013, DIFENOCO_004 Max. frozen storage: 8 month (parent); 10 month (metabolites)
USA Clarence, MO 2011 (HMS Medalist)	Foliar spray	4×130	BBCH 95	14	Seed	0.011 [< 0.01, 0.012]	< 0.01 [2× < 0.01]	0.44 [0.44, 0.44]	< 0.01 [2× < 0.01]	Study: TK0044531 Trial: TK0044531-16 Oakes, 2013, DIFENOCO_004 Max. frozen storage: 8 month (parent); 8 month (metabolites)

CTR = Untreated control

[a] Mean of replicate field samples [individual values]

1,2,4-T: 1,2,4-triazole

TA: Triazole-alanine

TAA: Triazole-acetic acid

Table 19 Residues of difenoconazole in chickpeas following foliar treatment (cGAP 4 × 127.5 g ai/ha; 14 day PHI)

Location, Year (variety)	Treatment method	Application rate (g ai/ha)	Growth stage at final application	DALT	Crop part	Residue Found (mg/kg)[a]				Report/Trial No., Reference Storage period
						Difeno-conazole	1,2,4-T	TA	TAA	
USA Madera, CA 2008 (UC-8537)	Foliar spray	4×130	BBCH 77	14	Seed	0.031 [0.032, 0.030]	< 0.01 [2× < 0.01]	0.39 [0.39, 0.38] CTR:0.027	< 0.01 [2× < 0.01]	Study: T004254-07 Trial: W29CA081201 Willard & Mayer, 2009, DIFENOCO_010 Max. frozen storage: 6 month (parent); 5 month (metabolites)
USA Parkdale, OR 2008 (Sierra)	Foliar spray	4×130	Pods fully mature	14	Seed	< 0.01 [< 0.01, < 0.01]	< 0.01 [2× < 0.01]	0.19 [0.17, 0.20] CTR:0.033	< 0.01 [2× < 0.01]	Study: T004254-07 Trial: W22OR081202 Willard & Mayer, 2009, DIFENOCO_010 Max. frozen storage: 5 month (parent); 4 month (metabolites)
USA Hermiston, OR 2008 (Sierra)	Foliar spray	4×130	BBCH 93	14	Seed	< 0.01 [< 0.01, < 0.01]	< 0.01 [2× < 0.01]	0.12 [0.12, 0.12] CTR:0.024	< 0.01 [2× < 0.01]	Study: T004254-07 Trial: W21OR081203 Willard & Mayer, 2009,

Location, Year (variety)	Treatment method	Application rate (g ai/ha)	Growth stage at final application	DALT	Crop part	Residue Found (mg/kg)[a]				Report/Trial No., Reference Storage period
						Difeno-conazole	1,2,4-T	TA	TAA	
										DIFENOCO_010 Max. frozen storage: 5 month (parent); 5 month (metabolites)

CTR = Untreated control

[a] Mean of replicate field samples [individual values]

1,2,4-T: 1,2,4-triazole

TA: Triazole-alanine

TAA: Triazole-acetic acid

The meeting noted that two trials (TK0044531-08 and TK0044531-11) had unacceptable long PHIs and were not considered. Also, some trials (TK0044531-03 and TK0044531-04; TK0044531-12 and TK0044531-14) were conducted at the same location and time. Hence, here only the higher residue of both trials was considered.

Ginseng

A total of four supervised residue trials were conducted on ginseng in the USA in 2010. (Corley, 2012, DIFENOCO_011). Ginseng received four foliar applications of difenoconazole at a nominal rate of 127.5 g ai/ha with a 6–8 day interval between applications. Samples of ginseng (dried root) were collected 0 DALA (harvest trials) and 0, 6, 14 and 21 DALA (decline trial).

Residues of difenoconazole were determined using method REM 147.08 with a limit of quantification at 0.01 mg/kg. Overall mean procedural recoveries in ginseng spiked with difenoconazole at 0.01, 0.1, 0.5 and 1.0 mg/kg were 93%, RSD=16% (n=7), 93% (n=1), 102% (n=1) and 109% (n=1). Metabolites 1,2,4-triazole, triazole alanine and triazole acetic acid were analysed according to Meth-160, Revision #2 which was evaluated by the 2013 JMPR. Recoveries of metabolites spiked at 0.01 and 0.1 mg/kg were 86%, RSD=7% (n=6), 77%, RSD=3% (n=3) for 1,2,4-triazole, 101%, RSD=9% (n=6), 103%, RSD=22% (n=3) for triazole alanine and 92%, RSD=7% (n=6), 82%, RSD=14% (n=3) triazole acetic acid.

Table 20 Residues of difenoconazole in ginseng following foliar treatment (cGAP 4 × 127.5 g ai/ha; 0 day PHI)

Location, Year (variety)	Treatment method	Application rate (g ai/ha)	Growth stage at final application	DALT	Crop part	Residue found (mg/kg)[a]				Report/Trial No., Reference Storage period
						Difeno-conazole	1,2,4-T	TA	TAA	
USA Radar Rd., Marathon County, WI 2010 (American Ginseng)	Foliar spray	4×130	Fruiting	0	Dried root	0.17 [0.17, 0.16]	< 0.01 [2×< 0.01]	0.89 [0.085, 0.093]	< 0.01 [2×< 0.01]	Study: IR-4 PR No. 10446 Trial: MI38 Corley, 2012, DIFENOCO_011 Max. frozen storage: 2 month (parent and (metabolites)
				6		0.33 [0.40, 0.26]	0.016 [0.016, < 0.01]	0.10 [0.11, 0.098]	< 0.01 [2×< 0.01]	
				14		0.17 [0.09, 0.26]	< 0.01 [2×< 0.01]	0.58 [0.11, 0.099]	< 0.01 [2×< 0.01]	
				21		0.39 [0.42, 0.36]	0.017 [0.017, < 0.01] CTL: 0.013	0.94 [0.095, 0.092] CTL: 0.15	< 0.01 [2×< 0.01]	
USA Junction Rd. Wausau, WI 2010 (American Ginseng)	Foliar spray	4×130	Fruiting	0	Dried root	0.21 [0.20, 0.22]	< 0.01 [2× < 0.01]	0.022 [0.022, 0.022] CTR: 0.012 [0.010, 0.014]	< 0.01 [2× < 0.01]	Study: IR-4 PR No. 10446 Trial: MI39 Corley, 2012, DIFENOCO_011 Max. frozen storage: 2 month (parent and

Location, Year (variety)	Treatment method	Application rate (g ai/ha)	Growth stage at final application	DALT	Crop part	Residue found (mg/kg)[a]				Report/Trial No., Reference Storage period
						Difeno-conazole	1,2,4-T	TA	TAA	
										(metabolites)
USA Killdeer Rd. & County Hwy. M, Marathon County, WI 2010 (American Ginseng)	Foliar spray	130 120 130 120	Fruiting	0	Dried root	0.06 [0.05, 0.07]	0.026 [0.025, 0.027] CTR: 0.013	0.053[0.053, 0.053] CTR: 0.038	< 0.01 [2× < 0.01]	Study: IR-4 PR No. 10446 Trial: MI40 Corley, 2012, DIFENOCO_011 Max. frozen storage: 2 month (parent and (metabolites)
USA Hwy. A and 11th St., 5 miles West of Little Chicago, WI 2010 (American Ginseng)	Foliar spray	130 120 130 130	Fruiting	0	Dried root	0.15 [0.10, 0.20]	< 0.01 [2× < 0.01]	0.045 [0.043, 0.046] CTR: 0.023	< 0.01 [2× < 0.01]	Study: IR-4 PR No. 10446 Trial: MI41 Corley, 2012, DIFENOCO_011 Max. frozen storage: 2 month (parent and (metabolites)

CTR = Untreated control

[a] Mean of replicate field samples [individual values]

1,2,4-T: 1,2,4-triazole

TA: Triazole-alanine

TAA: Triazole-acetic acid

Globe Artichoke

A total of four supervised residue trials were conducted on globe artichoke in the USA in 2010 (Corley, 2012, DIFENOCO_012). Artichokes received four foliar applications of difenoconazole at a nominal rate of 127.5 g ai/ha with a 12-16 day interval between applications. A single trial (CA117) received a total of five applications instead of the intended four applications.

Residues of difenoconazole were determined using method REM 147.08 with a limit of quantification at 0.01 mg/kg. Overall mean procedural recoveries in artichoke spiked with difenoconazole at 0.01, 0.1 and 1.0 mg/kg were 99%, RSD=2% (n=4), 97% (n=2) and 98% (n=1). Metabolites 1,2,4-triazole, triazole alanine and triazole acetic acid were analysed according to Meth-160, Revision #2 which was evaluated by the 2013 JMPR. Recoveries for 1,2,4-triazole spiked at 0.01-0.1 mg/kg were 101%, RSD=6% (n=5), for triazole alanine spiked at 0.02-0.5 were 100%, RSD=10% (n=6) and for triazole acetic acid spiked at 0.02-0.2 mg/kg were 100%, RSD=6% (n=5).

Table 21 Residues of difenoconazole in artichoke following foliar treatment (cGAP 4 × 127.5 g ai/ha; 3 day PHI)

Location, Year (variety)	Treatment method	Application rate (g ai/ha)	Growth stage at final application	DALT	Crop part	Residue Found (mg/kg)[a]				Report/Trial No., Reference Storage period
						Difeno-conazole	1,2,4-T	TA	TAA	
USA Hilltop Ranch, Castroville, CA 2010 (Green Globe)	Foliar spray	4×130	Producing	3	Mature flower buds	0.57 [0.49, 0.64]	< 0.01 [2× < 0.01]	0.20 [0.23, 0.18] CTR: 0.10	< 0.02 [2× < 0.02]	Study: IR-4 PR No. 10387, Trial: CA114, Lot 2, Corley, 2012, DIFENOCO_012 Max. frozen storage: 2 month (parent); 3 month (metabolites)
USA Armstrong Ranch, Marina, CA 2010 (Green Globe)	Foliar spray	4×130	Producing	3	Mature flower buds	0.52 [0.50, 0.54]	< 0.01 [2× < 0.01]	0.10 [0.10, 0.10] CTR: 0.025	< 0.02 [2× < 0.02]	Study: IR-4 PR No. 10387, Trial: CA115, Lot 1, Corley, 2012, DIFENOCO_012 Max. frozen storage: 1 month

Location, Year (variety)	Treatment method	Application rate (g ai/ha)	Growth stage at final application	DALT	Crop part	Residue Found (mg/kg)[a]				Report/Trial No., Reference Storage period
						Difeno-conazole	1,2,4-T	TA	TAA	
										(parent); 2 month (metabolites)
USA Molera Ranch, Castroville, CA 2010 (Green Globe)	Foliar spray	4×130	Producing	3	Mature flower buds	0.49 [0.37, 0.61]	< 0.01 [2× < 0.01]	0.086 [0.085, 0.087] CTR: 0.045	< 0.02 [2× < 0.02]	Study: IR-4 PR No. 10387, Trial: CA116, Lot 8, Corley, 2012, DIFENOCO_012 Max. frozen storage: 1 month (parent); 3 month (metabolites)
USA Beach Road Ranch, Watsonville, CA 2010 (F1 1860)	Foliar spray	140 130 140 140 140	Producing	3	Mature flower buds	0.30 [0.31, 0.29]	< 0.01 [2× < 0.01]	0.13 [0.13, 0.14] CTR: 0.11	< 0.02 [2× < 0.02]	Study: IR-4 PR No. 10387, Trial: CA117, Lot 6, Corley, 2012, DIFENOCO_012 Max. frozen storage: 1 month (parent); 3 month (metabolites)

CTR = Untreated control

[a] Mean of replicate field samples [individual values]

1,2,4-T: 1,2,4-triazole

TA: Triazole-alanine

TAA: Triazole-acetic acid

Rice

A total of seventeen supervised residue trials were conducted on rice in the USA in 2013/14 (Salzman, 2015, DIFENOCO_013). Rice received two foliar applications of difenoconazole at a nominal rate of 137 g ai/ha with a 14 day interval between applications. Samples of rice grain were collected at normal commercial harvest (26–32 days after the last application) from the harvest trials, and at 20, 25, 31–32 and 35 days in decline trials.

Residues of difenoconazole were determined using method REM 147.08 with a limit of quantification at 0.01 mg/kg. Metabolites 1,2,4-triazole, triazole alanine and triazole acetic acid were analysed according to Meth-160, Revision #2 which was evaluated by the 2013 JMPR. Procedural recoveries are presented in Table 22.

Table 22 Procedural recovery data for difenoconazole and metabolites in rice grain

Analyte	Range of fortification (mg/kg)	No. of analyses (n)	Range of recoveries (%)	Mean recovery (%)	RSD (%)
Rice grain					
Difenoconazole	0.01-8.0	28	79–114	97	8
1,2,4-triazole	0.01-0.5	23	79-122	99	10
Triazole alanine	0.02-0.5	23	79-121	95	15
Triazole acetic acid	0.02-5.0	23	75-110	101	7

Table 23 Residues of difenoconazole in rice grain following foliar treatment (cGAP 2 × 137 g ai/ha; 35 day PHI)

Location, Year (variety)	Treatment method	Application rate (g ai/ha)	Growth stage at final application	DALT	Crop part	Residue found (mg/kg)[a]				Report/Trial No., Reference Storage period
						Difeno-conazole	1,2,4-T	TA	TAA	
USA Heth AR 2013 (Jupiter)	Foliar spray (EC)	2×140	BBCH 75	27	Grain	0.37 [0.34, 0.40]	< 0.01 [2× < 0.01]	0.039 [0.039, 0.040] CTR: 0.024	0.072 [0.073, 0.071] CTR: 0.038	Study: TK0126925 Trial: TK0126925-01, Salzman, 2015, DIFENOCO_013 Max. frozen storage: 15 month (parent and metabolites)
	Foliar spray (SC)	2×140	BBCH 75	27	Grain	0.51 [0.58, 0.44]	< 0.01 [2× < 0.01]	0.045 [0.041, 0.048] CTR: 0.024	0.076 [0.073, 0.078] CTR: 0.038	
USA Morrow, LA 2013 (CL 111)	Foliar spray (EC)	2×140	BBCH 54	32	Grain	0.040 [0.031, 0.050]	< 0.01 [2× < 0.01]	0.078 [0.079, 0.076] CTR: 0.034	0.074 [0.072, 0.076] CTR: 0.040	Study: TK0126925 Trial: TK0126925-02 Salzman, 2015, DIFENOCO_013 Max. frozen storage: 15 month (parent and metabolites)
	Foliar spray (SC)	2×140	BBCH 54	32	Grain	0.042 [0.046, 0.038]	< 0.01 [2× < 0.01]	0.078 [0.078, 0.079] CTR: 0.034	0.068 [0.067, 0.068] CTR: 0.040	
USA Pollard, AR 2013 (CL 111)	Foliar spray (EC)	2×140	BBCH 85	29	Grain	1.3 [1.4, 1.3]	< 0.01 [2× < 0.01]	0.047 [0.047, 0.046] CTR: 0.013	0.049 [0.049, 0.049] CTR: 0.022	Study: TK0126925 Trial: TK0126925-03 Salzman, 2015, DIFENOCO_013 Max. frozen storage: 15 month (parent and metabolites)
	Foliar spray (SC)	2×140	BBCH 85	29	Grain	1.4 [1.4, 1.5]	< 0.01 [2× < 0.01]	0.050 [0.048, 0.053] CTR: 0.013	0.056 [0.052, 0.059] CTR: 0.022	
USA Branch, LA 2013 (RT-745)	Foliar spray (EC)	2×140	BBCH 75	28	Grain	1.5 [1.3, 1.6]	< 0.01 [2× < 0.01]	0.067 [0.062, 0.072] CTR: 0.015	0.12 [0.12, 0.12] CTR: 0.024	Study: TK0126925 Trial: TK0126925-04 Salzman, 2015, DIFENOCO_013 Max. frozen storage: 15 month (parent and metabolites)
	Foliar spray (SC)	2×140	BBCH 75	28	Grain	1.3 [1.4, 1.2]	< 0.01 [2× < 0.01]	0.047 [0.049, 0.046] CTR: 0.015	0.084 [0.077, 0.092] CTR: 0.024	
USA Greenville, MS 2013 (CL 152)	Foliar spray (EC)	2×140	BBCH 61	28	Grain	0.42 [0.44, 0.41]	< 0.01 [2× < 0.01]	0.054 [0.052, 0.056] CTR: 0.031	0.043 [0.042, 0.044] CTR: 0.035	Study: TK0126925 Trial: TK0126925-05 Salzman, 2015, DIFENOCO_013 Max. frozen storage: 14 month (parent and metabolites)
	Foliar spray (SC)	2×140	BBCH 61	28	Grain	0.46 [0.53, 0.40]	< 0.01 [2× < 0.01]	0.064 [0.054, 0.075] CTR: 0.031	0.062 [0.057, 0.068] CTR: 0.022	
USA Proctor, AR 2013 (Wells)	Foliar spray (EC)	2×140	BBCH 71	27	Grain	0.60 [0.54, 0.66]	< 0.01 [2× < 0.01]	0.12 [0.11, 0.12] CTR: 0.047	0.11 [0.12, 0.092] CTR: 0.069	Study: TK0126925 Trial: TK0126925-06 Salzman, 2015, DIFENOCO_013 Max. frozen storage: 15 month (parent and metabolites)
	Foliar spray (SC)	2×140	BBCH 71	27	Grain	0.72 [0.70, 0.73]	< 0.01 [2× < 0.01]	0.18 [0.18, 0.17] CTR: 0.047	0.19 [0.19, 0.20] CTR: 0.069	
USA Opelousas, LA 2013 (CL 161)	Foliar spray (EC)	2×140	BBCH 75	28	Grain	0.94 [0.98, 0.91]	< 0.01 [2× < 0.01]	0.059 [0.063, 0.056] CTR: 0.060	0.084 [0.077, 0.090] CTR: 0.099	Study: TK0126925 Trial: TK0126925-07 Salzman, 2015, DIFENOCO_013 Max. frozen storage: 14

Location, Year (variety)	Treatment method	Application rate (g ai/ha)	Growth stage at final application	DALT	Crop part	Residue found (mg/kg)[a]				Report/Trial No., Reference Storage period
						Difeno-conazole	1,2,4-T	TA	TAA	
	Foliar spray (SC)	2×140	BBCH 75	28	Grain	1.0 [1.0, 1.0]	< 0.01 [2× < 0.01]	0.063 [0.059, 0.068] CTR: 0.060	0.074 [0.071, 0.076] CTR: 0.099	month (parent and metabolites)
USA Cheneyville, LA 2013 (Cheniere)	Foliar spray (EC)	2×140	BBCH 85	20 25 29 32 35	Grain	1.2 1.4 1.0 [1.0, 1.1] 0.97 1.2	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01	0.028 0.029 0.019 [0.022, 0.017] 0.019 0.022	0.026 0.030 0.027 [0.027, 0.027] 0.029 0.032	Study: TK0126925 Trial: TK0126925-08 Salzman, 2015, DIFENOCO_013 Max. frozen storage: 14 month (parent and metabolites)
	Foliar spray (SC)	2×140	BBCH 85	20 25 29 32 35	Grain	1.0 1.2 1.1 [1.1, 1.1] 1.1 1.1	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01	0.024 0.028 0.016 [0.017, 0.016] 0.016 0.020	0.032 0.029 0.026 [0.027, 0.026] 0.031 0.035	
USA Campbell, MO 2013 (CL 111)	Foliar spray (EC)	2×140	BBCH 85	20 25 28 31 35	Grain	1.3 1.1 1.0 [1.0, 1.0] 0.95 0.99	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01	0.12 0.13 0.14 [0.14, 0.13] 0.13 0.098	0.058 0.072 0.067 [0.078, 0.055] 0.062 0.066	Study: TK0126925 Trial: TK0126925-09 Salzman, 2015, DIFENOCO_013 Max. frozen storage: 14 month (parent and metabolites)
	Foliar spray (SC)	2×140	BBCH 85	20 25 28 31 35	Grain	0.92 1.1 1. [1.1, 0.98] 1.0 1.0	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01	0.13 0.14 0.12 [0.11, 0.14] 0.082 0.11 CTR: 0.032	0.057 0.060 0.059 [0.058, 0.060] 0.060 0.061 CTR: 0.025	
USA Proctor, AR 2013 (CL 151)	Foliar spray (EC)	2×140	BBCH 73	28	Grain	0.43 [0.43, 0.43]	< 0.01 [2× < 0.01]	0.049 [0.047, 0.050] CTR: 0.033	0.048 [0.049, 0.047] CTR: 0.033	Study: TK0126925 Trial: TK0126925-10 Salzman, 2015, DIFENOCO_013 Max. frozen storage: 14 month (parent and metabolites)
	Foliar spray (SC)	2×140	BBCH 73	28	Grain	0.42 [0.46, 0.40]	< 0.01 [2× < 0.01]	0.097 [0.093, 0.101] CTR: 0.033	0.078 [0.080, 0.075] CTR: 0.033	
USA Washington, LA 2013 (CL 161)	Foliar spray (EC)	2×140	BBCH 73	27	Grain	0.57 [0.55, 0.60]	< 0.01 [2× < 0.01]	0.12 [0.12, 0.12] CTR: 0.038	0.074 [0.080, 0.069] CTR: 0.026	Study: TK0126925 Trial: TK0126925-11 Salzman, 2015, DIFENOCO_013 Max. frozen storage: 14 month (parent and metabolites)
	Foliar spray (SC)	2×140	BBCH 73	27	Grain	0.33 [0.33, 0.34]	< 0.01 [2× < 0.01]	0.13 [0.13, 0.13] CTR: 0.038	0.066 [0.063, 0.069] CTR: 0.026	
USA Fisk, MO 2013 (CL 111)	Foliar spray (EC)	2×140	BBCH 85	31	Grain	1.3 [1.3, 1.2]	< 0.01 [2× < 0.01]	0.074 [0.072, 0.076] CTR: 0.034	0.081 [0.075, 0.087] CTR: 0.046	Study: TK0126925 Trial: TK0126925-12 Salzman, 2015, DIFENOCO_013 Max. frozen storage: 14 month (parent and metabolites)
	Foliar spray (SC)	2×140	BBCH 85	31	Grain	1.0 [0.84, 1.2]	< 0.01 [2× < 0.01]	0.074 [0.074, 0.074] CTR: 0.034	0.077 [0.079, 0.074] CTR: 0.046	
USA East Bernard, TX 2013 (Presidio)	Foliar spray (EC)	2×140	BBCH 85	27	Grain	1.8 [1.7, 1.8]	< 0.01 [2× < 0.01]	0.046 [0.046, 0.046] CTR: 0.043	0.062 [0.062, 0.062] CTR: 0.054	Study: TK0126925 Trial: TK0126925-13 Salzman, 2015, DIFENOCO_013 Max. frozen storage: 15

Location, Year (variety)	Treatment method	Application rate (g ai/ha)	Growth stage at final application	DALT	Crop part	Residue found (mg/kg)[a]				Report/Trial No., Reference Storage period
						Difeno-conazole	1,2,4-T	TA	TAA	
	Foliar spray (SC)	2×140	BBCH 85	27	Grain	2.1 [1.9, 2.4]	< 0.01 [2× < 0.01]	0.041 [0.038, 0.044] CTR: 0.043	0.063 [0.066, 0.059] CTR: 0.054	month (parent and metabolites)
USA East Bernard, TX 2013 (Presidio)	Foliar spray (EC)	140 130	BBCH 85	27	Grain	1.7 [1. 8, 1.6]	< 0.01 [2× < 0.01]	0.034 [0.033, 0.034] CTR: 0.044	0.048 [0.049, 0.047] CTR: 0.049	Study: TK0126925 Trial: TK0126925-14 Salzman, 2015, DIFENOCO_013 Max. frozen storage: 14 month (parent and metabolites)
	Foliar spray (SC)	140 130	BBCH 85	27	Grain	1.6 [1.2, 2.0]	< 0.01 [2× < 0.01]	0.040 [0.040, 0.041] CTR: 0.044	0.058 [0.054, 0.061] CTR: 0.049	
USA Porterville, CA 2013 (Koshihikari)	Foliar spray (EC)	2×140	BBCH 87	26	Grain	2.1 [2.0, 2.2]	< 0.01 [2× < 0.01]	0.010 [< 0.01, 0.010]	0.024 [0.024, 0.024]	Study: TK0126925 Trial: TK0126925-15 Salzman, 2015, DIFENOCO_013 Max. frozen storage: 13 month (parent and metabolites)
	Foliar spray (SC)	2×140	BBCH 87	26	Grain	4.3 [4.4, 4.1]	< 0.01 [2× < 0.01]	< 0.01 [2× < 0.01]	0.025 [0.022, 0.029]	
USA Maxwell, CA 2013 (M205)	Foliar spray (EC)	2×140	BBCH 73	28	Grain	6.2 [5.9, 5.6, 6.2, 7.0]	< 0.01 [2× < 0.01]	0.019 [0.020, 0.019]	< 0.02 [2× < 0.02]	Study: TK0126925 Trial: TK0126925-16 Salzman, 2015, DIFENOCO_013 Max. frozen storage: 15 month (parent and metabolites)
	Foliar spray (SC)	2×140	BBCH 73	28	Grain	4.3 [4.2, 4.3]	< 0.01 [2× < 0.01]	0.011 [0.011, < 0.01]	< 0.02 [2× < 0.02]	
USA East Bernard, TX 2014 (Presidio)	Foliar spray (EC)	130 140	BBCH 77	28	Grain	0.98 [1.0, 0.94]	< 0.01 [2× < 0.01]	0.10 [0.090, 0.11] CTR: 0.044	0.11 [0.097, 0.12] CTR: 0.055	Study: TK0126925 Trial: TK0126925-17 Salzman, 2015, DIFENOCO_013 Max. frozen storage: 2 month (parent); 3 month (metabolites)
	Foliar spray (SC)	130 140	BBCH 77	28	Grain	0.90 [1.2, 0.75]	< 0.01 [2× < 0.01]	0.072 [0.076, 0.067] CTR: 0.044	0.058 [0.058, 0.058] CTR: 0.055	

CTR = Untreated control

[a] Mean of replicate field samples [individual values]

1,2,4-T: 1,2,4-triazole

TA: Triazole-alanine

TAA: Triazole-acetic acid

The meeting noted that trials TK0126925-6 and TK0126925-10 as well as trials TK0126925-13 and TK0126925-14 were conducted at the same location and time. Hence, here only the higher residues of these trials were considered.

Coffee

A total of four supervised residue trials were conducted on coffee beans in Brazil in 2010 (Casallanovo, 2011, DIFENOCO_014). Trials M10103-JJB1 and M10103-JJB2 each received an initial application of 13 g ai/ha followed by four applications of 38 g ai/ha. Trial M10103-AMA received an initial application of 13 g ai/ha which was topped up with an additional 25 g ai/ha two days later, followed by four applications of 38 g ai/ha. Trial M10103-LZF received five applications

of 38 g ai/ha. Samples of coffee (green beans) were collected 21, 28 and 32/35 DALA. After harvest, the coffee beans were dried, followed by mechanical separation of leaves and dust.

Residues of difenoconazole were determined using the validated analytical method POPIT MET.033 with a limit of quantification at 0.01 mg/kg. The method has been evaluated by the 2015 JMPR. Mean method validation recoveries in coffee spiked with difenoconazole at 0.01 and 0.1 were 90%, RSD=4% (n=7) and 84%, RSD=5% (n=5), respectively. Procedural recoveries, spiked with difenoconazole at 0.1 mg/kg were 81% (n=2).

Table 24 Residues of difenoconazole in coffee following foliar treatment (cGAP: 3 × 50 g ai/ha; 30 day PHI)

Location, Year (variety)	Treatment method	Application rate (g ai/ha)	Growth stage at final application	PHI (days)	Crop part	Residue found (mg/kg) Difenoconazole	Report/Trial No., Reference Storage period
Brasil Espirito Santo do Dourado - MG 2010 (Mundo Novo)	Foliar spray	5×38	BBCH 83	21 28 32	Green beans	< 0.01 < 0.01 < 0.01	Study: M10103 Trial: M10103-LZF Casallanovo, 2011, DIFENOCO_014 Max. frozen storage: 2 month
Brasil Bandeirantes - PR 2010 (IPA-11)	Foliar spray	13 + 25 38 38 38	BBCH 81	21 28 35	Green beans	< 0.01 < 0.01 < 0.01 CTL: 0.02	Study: M10103 Trial: M10103-AMA Casallanovo, 2011, DIFENOCO_014 Max. frozen storage: 3 month
Brasil Monte Carmela - MG 2010 (Mundo Novo)	Foliar spray	13 38 38 38 38	BBCH 85	21 28 35	Green beans	< 0.01 < 0.01 < 0.01	Study: M10103 Trial: M10103-JJB1 Casallanovo, 2011, DIFENOCO_014 Max. frozen storage: 3 month
Brasil Indianópolis - MG 2010 (Mundo Novo)	Foliar spray	13 38 38 38 38	BBCH 85	21 28 35	Green beans	< 0.01 < 0.01 < 0.01	Study: M10103 Trial: M10103-JJB2 Casallanovo, 2011, DIFENOCO_014 Max. frozen storage: 3 month

CTR = Untreated control

Pea vines

Residues of difenoconazole were determined using method REM 147.08 with a limit of quantification at 0.01 mg/kg (Table 2). Overall mean procedural recoveries for difenoconazole in pea vines (spiked at 0.01-7 mg/kg) were 87%, RSD=6% (n=5), Metabolites 1,2,4-triazole, triazole alanine and triazole acetic acid were analysed according to Meth-160, which was evaluated by the 2013 JMPR.

Table 25 Residues of difenoconazole in pea vines following foliar treatment (cGAP 4 × 127.5 g ai/ha; 14 day PHI)

Location, Year (variety)	Treatment method	Application rate (g ai/ha)	Growth stage after 2nd application	DALT	Crop part	Residue found (mg/kg)[a]				Report/Trial No., Reference Storage period
						Difeno-conazole	1,2,4-T	TA	TAA	
USA Gardner, ND 2011 (40.10)	Foliar spray	2×130	BBCH 66	0 days after 2 nd appl.	Pea vines	4.3 [3.4, 5.2]	< 0.01 [2× < 0.01]	0.20 [0.19, 0.20] CTR:0.14	< 0.01 [2× < 0.01]	Study: TK0044531 Trial: TK0044531-01 Oakes, 2013, DIFENOCO_004 Max. frozen storage: 9 month (parent); 11 month (metabolites)
USA Fresno, CA 2011 (Quickpick	Foliar spray	2×130	BBCH 85	0 days after 2 nd appl.	Pea vines	3.7 [4.2, 3.2]	< 0.01 [2× < 0.01]	0.020 [0.023, 0.016] CTR:0.024	< 0.01 [2× < 0.01]	Study: TK0044531 Trial: TK0044531-02 Oakes, 2013,

Location, Year (variety)	Treatment method	Application rate (g ai/ha)	Growth stage after 2nd application	DALT	Crop part	Residue found (mg/kg)[a]				Report/Trial No., Reference Storage period
						Difeno-conazole	1,2,4-T	TA	TAA	
Pinkeye Purple Pod)										DIFENOCO_004 Max. frozen storage: 8 month (parent); 10 month (metabolites)
USA Jerome, ID 2011 (SNO 112-0490 N14)	Foliar spray	140 130	BBCH 65	0 days after 2 nd appl.	Pea vines	3.0 [3.1, 2.9]	< 0.01 [2× < 0.01]	0.027 [0.027, 0.027] CTR:0.017	< 0.01 [2× < 0.01]	Study: TK0044531 Trial: TK0044531-03 Oakes, 2013, DIFENOCO_004 Max. frozen storage: 10 month (parent); 12 month (metabolites)
USA Jerome, ID 2011 (Latah Yellows)	Foliar spray	2×130	BBCH 65	0 days after 2 nd appl.	Pea vines	1.5 [1.8, 1.2]	< 0.01 [2× < 0.01]	0.33 [0.35, 0.30] CTR:0.031	< 0.01 [2× < 0.01]	Study: TK0044531 Trial: TK0044531-04 Oakes, 2013, DIFENOCO_004 Max. frozen storage: 12 month (parent); 12 month (metabolites)
USA Parkdale, OR 2011 (Progress 9)	Foliar spray	2×130	BBCH 58	0 3 7 10 days after 2 nd appl.	Pea vines	4.9 [4.4, 5.3] 2.6 0.92 1.1	< 0.01 [2× < 0.01] < 0.01 < 0.01 < 0.01	0.026 [0.016, 0.036] 0.022 0.026 0.067	< 0.01 [2× < 0.01] < 0.01 < 0.01 < 0.01	Study: TK0044531 Trial: TK0044531-05 Oakes, 2013, DIFENOCO_004 Max. frozen storage: 11 month (parent); 12 month (metabolites)

CTR = Untreated control

[a] Mean of replicate field samples [individual values]

1,2,4-T: 1,2,4-triazole

TA: Triazole-alanine

TAA: Triazole-acetic acid

Pea hay

Residues of difenoconazole were determined using method REM 147.08 with a limit of quantification at 0.01 mg/kg (Table 2). Overall mean procedural recoveries for difenoconazole in pea hay (spiked at 0.01-15 mg/kg) were 84%, RSD=9% (n=7). Metabolites 1,2,4-triazole, triazole alanine and triazole acetic acid were analysed according to Meth-160, which was evaluated by the 2013 JMPR.

Table 26 Residues of difenoconazole in pea hay following foliar treatment (cGAP 4 × 127.5 g ai/ha; 14 day PHI)

Location, Year (variety)	Treatment method	Application rate (g ai/ha)	Growth stage after 2nd application	DALT	Crop part	Residue found (mg/kg)[a]				Report/Trial No., Reference Storage period
						Difeno-conazole	1,2,4-T	TA	TAA	
USA Gardner, ND 2011 (40.10)	Foliar spray	2×130	BBCH 66	0 days after 2 nd appl.	Pea hay	10 [11, 9.0]	< 0.01 [2× < 0.01]	0.21 [0.21, 0.21] CTR:0.12	0.054 [0.054, 0.054] CTR:0.016	Study: TK0044531 Trial: TK0044531-01 Oakes, 2013, DIFENOCO_004 Max. frozen storage: 11 month (parent); 11 month (metabolites)
USA Fresno, CA 2011 (Quickpick Pinkeye Purple Pod)	Foliar spray	2×130	BBCH 85	0 days after 2 nd appl.	Pea hay	4.5 [4.0, 4.9]	< 0.01 [2× < 0.01]	0.029 [0.034, 0.023] CTR:0.040	0.014 [0.013, 0.014]	Study: TK0044531 Trial: TK0044531-02 Oakes, 2013, DIFENOCO_004 Max. frozen storage: 9 month (parent); 10

Location, Year (variety)	Treatment method	Application rate (g ai/ha)	Growth stage after 2nd application	DALT	Crop part	Residue found (mg/kg)[a]				Report/Trial No., Reference Storage period
						Difeno-conazole	1,2,4-T	TA	TAA	
										month (metabolites)
USA Jerome, ID 2011 (SNO 112-0490 N14)	Foliar spray	140 130	BBCH 65	0 days after 2 nd appl.	Pea hay	13 [12, 13]	< 0.01 [2× < 0.01]	0.15 [0.15, 0.15] CTR:0.12	0.021 [0.017, 0.025] CTR:0.013	Study: TK0044531 Trial: TK0044531-03 Oakes, 2013, DIFENOCO_004 Max. frozen storage: 10 month (parent); 11 month (metabolites)
USA Jerome, ID 2011 (Latah Yellows)	Foliar spray	2×130	BBCH 65	0 days after 2 nd appl.	Pea hay	9.4 [8.9, 9.9]	< 0.01 [2× < 0.01]	0.15 [0.14, 0.15] CTR:0.13	0.024 [0.018, 0.030] CTR:0.030	Study: TK0044531 Trial: TK0044531-04 Oakes, 2013, DIFENOCO_004 Max. frozen storage: 10 month (parent); 12 month (metabolites)
USA Parkdale, OR 2011 (Progress 9)	Foliar spray	2×130	BBCH 58	0 3 7 10 days after 2 nd appl.	Pea hay	17 [17, 17] 12 2.4 4.0	< 0.01 [2× < 0.01] < 0.01 < 0.01 < 0.01	0.102 [0.11, 0.094] 0.14 0.11 0.22 CTR:0.023	0.014 [0.015, 0.012] 0.021 0.018 0.018	Study: TK0044531 Trial: TK0044531-05 Oakes, 2013, DIFENOCO_004 Max. frozen storage: 12 month (parent); 12 month (metabolites)

CTR = Untreated control

[a] Mean of replicate field samples [individual values]

1,2,4-T: 1,2,4-triazole

TA: Triazole-alanine

TAA: Triazole-acetic acid

Sweet corn forage with and without ears

Residues of difenoconazole (Campbell & Oakes, 2000, DIFENOCO_001) in sweet corn (forage with and without ears) were determined using method AG-676 with a limit of quantification at 0.01 mg/kg (Table 27–28). Overall mean procedural recoveries in sweet corn (forage, ears, stover) spiked with difenoconazole at 0.01 and 0.05 were 100%, RSD=15% (n=18) and 108%, RSD=12% (n=31), respectively.

Table 27 Residues of difenoconazole in sweet corn (forage with ears) following seed treatment (cGAP 300 g ai/tonne seed)

Location, Year (variety)	Treatment method	Application rate	DAT	Crop part	Residue found (mg/kg) Difenoconazole [a]	Report/Trial No., Reference Storage period
USA Fresno County, California 1998 (Primetime)	Seed treatment	290 g ai/tonne seed	60	Forage with ears	<u>< 0.01</u> [< 0.01, < 0.01]	Study: 158-98 Trial: 02-SR-032-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 14 month
USA Columbia County, New York 1998 (Kandy King)	Seed treatment	340 g ai/tonne seed	62	Forage with ears	<u>< 0.01</u> [< 0.01, < 0.01]	Study: 158-98 Trial: 05-SR-004-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 6 month
USA Indian River County, Florida	Seed treatment	280 g ai/tonne seed	38 45 52	Forage with ears	<u>< 0.01</u> [< 0.01, < 0.01] < 0.01 [< 0.01,	Study: 158-98 Trial: 07-SR-003-98 Campbell & Oakes, 2000,

Location, Year (variety)	Treatment method	Application rate	DAT	Crop part	Residue found (mg/kg) Difenoconazole [a]	Report/Trial No., Reference Storage period
1998 (Golden Cross/ Bantam Hybrid)			59 66		< 0.01] < 0.01 [< 0.01, < 0.01] < 0.01 [< 0.01, < 0.01] < 0.01 [< 0.01, < 0.01]	DIFENOCO_001 Max. frozen storage: 9 month
USA Sampson County, North Carolina 1998 (Kandy King)	Seed treatment	320 g ai/tonne seed	60	Forage with ears	< 0.01 [< 0.01, < 0.01]	Study: 158-98 Trial: OS-SR-615-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 6 month
USA Yakima County, Washington 1998 (Jubilee)	Seed treatment	270 g ai/tonne seed	60	Forage with ears	< 0.01 [< 0.01, < 0.01]	Study: 158-98 Trial: MW-SR-616-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 5 month
USA Benton County, Oregon 1998 (Primetime)	Seed treatment	280 g ai/tonne seed	56	Forage with ears	< 0.01 [< 0.01, < 0.01]	Study: 158-98 Trial: OW-SR-617-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 6 month
USA Walworth County, Wisconsin 1998 (Jubilee)	Seed treatment	300 g ai/tonne seed	39 46 53 60 67	Forage with ears	< 0.01 [< 0.01, < 0.01] < 0.01 [< 0.01, < 0.01] < 0.01 [< 0.01, < 0.01] < 0.01 [< 0.01, < 0.01] < 0.01 [< 0.01, < 0.01]	Study: 158-98 Trial: MW-SR-702-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 15 month
USA Dakota County, Minnesota 1998 (Jubilee)	Seed treatment	310 g ai/tonne seed	62	Forage with ears	< 0.01 [< 0.01, < 0.01]	Study: 158-98 Trial: MW-SR-805-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 13 month
USA Fayette County, Ohio 1998 (Kandy King)	Seed treatment	380 g ai/tonne seed	59	Forage with ears	< 0.01 [< 0.01, < 0.01]	Study: 158-98 Trial: NE-SR-205-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 4 month

[a] Mean of replicate laboratory sample from one field sample [individual values]

Table 28 Residues of difenoconazole in sweet corn (forage without ears) following seed treatment (cGAP 300 g ai/tonne seed)

Location, Year (variety)	Treatment method	Application rate	DAT (days)	Crop part	Residue found (mg/kg) Difenoconazole [a]	Report/Trial No., Reference Storage period
USA Fresno County, California 1998 (Primetime)	Seed treatment	290 g ai/tonne seed	78	Forage without ears	< 0.01 [< 0.01, < 0.01]	Study: 158-98 Trial: 02-SR-032-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 14 month

Location, Year (variety)	Treatment method	Application rate	DAT (days)	Crop part	Residue found (mg/kg) Difenoconazole [a]	Report/Trial No., Reference Storage period
USA Columbia County, New York 1998 (Kandy King)	Seed treatment	340 g ai/tonne seed	77	Forage without ears	≤ 0.01 [< 0.01, < 0.01]	Study: 158-98 Trial: 05-SR-004-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 13 month
USA Indian River County, Florida 1998 (Golden Cross/ Bantam Hybrid)	Seed treatment	280 g ai/tonne seed	76	Forage without ears	≤ 0.01 [< 0.01, < 0.01]	Study: 158-98 Trial: 07-SR-003-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 8 month
USA Sampson County, North Carolina 1998 (Kandy King)	Seed treatment	320 g ai/tonne seed	60	Forage without ears	≤ 0.01 [< 0.01, < 0.01]	Study: 158-98 Trial: OS-SR-615-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 6 month
USA Yakima County, Washington 1998 (Jubilee)	Seed treatment	270 g ai/tonne seed	102	Forage without ears	≤ 0.01 [< 0.01, < 0.01]	Study: 158-98 Trial: MW-SR-616-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 4 month
USA Benton County, Oregon 1998 (Primetime)	Seed treatment	280 g ai/tonne seed	98	Forage without ears	≤ 0.01 [< 0.01, < 0.01]	Study: 158-98 Trial: OW-SR-617-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 4 month
USA Walworth County, Wisconsin 1998 (Jubilee)	Seed treatment	300 g ai/tonne seed	81	Forage without ears	≤ 0.01 [< 0.01, < 0.01]	Study: 158-98 Trial: MW-SR-702-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 14 month
USA Dakota County, Minnesota 1998 (Jubilee)	Seed treatment	310 g ai/tonne seed	89	Forage without ears	≤ 0.01 [< 0.01, < 0.01]	Study: 158-98 Trial: MW-SR-805-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 12 month
USA Fayette County, Ohio 1998 (Kandy King)	Seed treatment	380 g ai/tonne seed	65	Forage without ears	≤ 0.01 [< 0.01, < 0.01]	Study: 158-98 Trial: NE-SR-205-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 13 month

[a] Mean of replicate laboratory sample from one field sample [individual values]

Sweet corn fodder (stover)

Residues of difenoconazole (Campbell & Oakes, 2000, DIFENOCO_001) in corn stover were determined using method AG-676 with a limit of quantification at 0.01 mg/kg (Table 29). Overall mean procedural recoveries in sweet corn (forage, ears, stover) spiked with difenoconazole at 0.01 and 0.05 were 100%, RSD=15% (n=18) and 108%, RSD=12% (n=31), respectively.

Table 29 Residues of difenoconazole in sweet corn (stover) following seed treatment (cGAP 300 g ai/tonne seed)

Location, Year (variety)	Treatment method	Application rate	DAT	Crop part	Residue found (mg/kg) Difenoconazole [a]	Report/Trial No., Reference Storage period
USA Fresno County, California 1998 (Primetime)	Seed treatment	290 g ai/tonne seed	151	Stover	≤ 0.01 [< 0.01, < 0.01]	Study: 158-98 Trial: 02-SR-032-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 12 month
USA Columbia County, New York 1998 (Kandy King)	Seed treatment	340 g ai/tonne seed	119	Stover	≤ 0.01 [< 0.01, < 0.01]	Study: 158-98 Trial: 05-SR-004-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 4 month
USA Indian River County, Florida 1998 (Golden Cross/ Bantam Hybrid)	Seed treatment	280 g ai/tonne seed	80	Stover	≤ 0.01 [< 0.01, < 0.01]	Study: 158-98 Trial: 07-SR-003-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 8 month
USA Sampson County, North Carolina 1998 (Kandy King)	Seed treatment	320 g ai/tonne seed	60	Stover	≤ 0.01 [< 0.01, < 0.01]	Study: 158-98 Trial: OS-SR-615-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 5 month
USA Yakima County, Washington 1998 (Jubilee)	Seed treatment	270 g ai/tonne seed	141	Stover	≤ 0.01 [< 0.01, < 0.01]	Study: 158-98 Trial: MW-SR-616-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 3 month
USA Benton County, Oregon 1998 (Primetime)	Seed treatment	280 g ai/tonne seed	131	Stover	≤ 0.01 [< 0.01, < 0.01]	Study: 158-98 Trial: OW-SR-617-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 3 month
USA Walworth County, Wisconsin 1998 (Jubilee)	Seed treatment	300 g ai/tonne seed	118	Stover	≤ 0.01 [< 0.01, < 0.01]	Study: 158-98 Trial: MW-SR-702-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 12 month
USA Dakota County, Minnesota 1998 (Jubilee)	Seed treatment	310 g ai/tonne seed	112	Stover	≤ 0.01 [< 0.01, < 0.01]	Study: 158-98 Trial: MW-SR-805-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 11 month
USA Fayette County, Ohio 1998 (Kandy King)	Seed treatment	380 g ai/tonne seed	82	Stover	≤ 0.01 [< 0.01, < 0.01]	Study: 158-98 Trial: NE-SR-205-98 Campbell & Oakes, 2000, DIFENOCO_001 Max. frozen storage: 11 month

[a] Mean of replicate laboratory sample from one field sample [individual values]

Rice straw

Residues of difenoconazole were determined using method REM 147.08 with a limit of quantification at 0.01 mg/kg. Metabolites 1,2,4-triazole, triazole alanine and triazole acetic acid were analysed according to Meth-160, Revision #2 which was evaluated by the 2013 JMPR. Procedural recoveries are presented in Table 22.

Residues of difenoconazole were determined using method REM 147.08 with a limit of quantification at 0.01 mg/kg. Metabolites 1,2,4-triazole, triazole alanine and triazole acetic acid were analysed according to Meth-160, Revision #2 which was evaluated by the 2013 JMPR. Procedural recoveries are presented in Table 30.

Table 30 Procedural recovery data for difenoconazole and metabolites in rice straw

Analyte	Range of fortification (mg/kg)	No. of analyses (n)	Range of recoveries (%)	Mean recovery (%)	RSD (%)
Difenoconazole	0.01-12.0	26	69–105	89	9
1,2,4-triazole	0.01-1.0	22	85-121	101	9
Triazole alanine	0.01-1.0	22	77-123	101	11
Triazole acetic acid	0.01-1.0	22	99-110	105	4

Table 31 Residues of difenoconazole in rice straw following foliar treatment (cGAP 2 × 137 g ai/ha; 35 day PHI)

Location, Year (variety)	Treatment method	Application rate (g ai/ha)	Growth stage at final application	DALT	Crop part	Residue found (mg/kg)[a]				Report/Trial No., Reference Storage period
						Difeno-conazole	1,2,4-T	TA	TAA	
USA Heth AR 2013 (Jupiter)	Foliar spray (EC)	2×140	BBCH 75	27	Straw	1.1 [1.1, 1.2]	< 0.01 [2× < 0.01]	< 0.01 [2× < 0.01]	0.081 [0.075, 0.087] CTR: 0.027	Study: TK0126925 Trial: TK0126925-01, Salzman, 2015, DIFENOCO_013 Max. frozen storage: 15 month (parent and metabolites)
	Foliar spray (SC)	2×140	BBCH 75	27	Straw	1.1 [1.2, 1.1]	< 0.01 [2× < 0.01]	< 0.01 [2× < 0.01]	0.072 [0.073, 0.072] CTR: 0.027	
USA Morrow, LA 2013 (CL 111)	Foliar spray (EC)	2×140	BBCH 54	32	Straw	1.2 [1.2, 1.2]	< 0.01 [2× < 0.01]	0.011 [0.011, < 0.01]	0.071 [0.072, 0.070] CTR: 0.068	Study: TK0126925 Trial: TK0126925-02 Salzman, 2015, DIFENOCO_013 Max. frozen storage: 15 month (parent and metabolites)
	Foliar spray (SC)	2×140	BBCH 54	32	Straw	1.4 [1.4, 1.5]	< 0.01 [2× < 0.01]	< 0.01 [2× < 0.01]	0.090 [0.086, 0.096] CTR: 0.068	
USA Pollard, AR 2013 (CL 111)	Foliar spray (EC)	2×140	BBCH 85	29	Straw	3.0 [2.7, 3.3]	< 0.01 [2× < 0.01]	< 0.01 [2× < 0.01]	0.052 [0.047, 0.056] CTR: 0.019	Study: TK0126925 Trial: TK0126925-03 Salzman, 2015, DIFENOCO_013 Max. frozen storage: 15 month (parent and metabolites)
	Foliar spray (SC)	2×140	BBCH 85	29	Straw	2.5 [2.9, 2.2]	< 0.01 [2× < 0.01]	< 0.01 [2× < 0.01]	0.050 [0.053, 0.047] CTR: 0.019	
USA Branch, LA 2013 (RT-745)	Foliar spray (EC)	2×140	BBCH 75	28	Straw	1.3 [1.3, 1.3]	< 0.01 [2× < 0.01]	0.099 [0.088, 0.11]	0.12 [0.12, 0.11] CTR: 0.032	Study: TK0126925 Trial: TK0126925-04 Salzman, 2015, DIFENOCO_013 Max. frozen storage: 15 month (parent and metabolites)
	Foliar spray (SC)	2×140	BBCH 75	28	Straw	0.71 [0.74, 0.69]	< 0.01 [2× < 0.01]	0.026 [0.030, 0.023]	0.061 [0.056, 0.066] CTR: 0.032	

Location, Year (variety)	Treatment method	Application rate (g ai/ha)	Growth stage at final application	DALT	Crop part	Residue found (mg/kg)[a]				Report/Trial No., Reference Storage period
						Difeno-conazole	1,2,4-T	TA	TAA	
USA Greenville, MS 2013 (CL 152)	Foliar spray (EC)	2×140	BBCH 61	28	Straw	0.81 [0.90, 0.72]	< 0.01 [2× < 0.01]	< 0.01 [2× < 0.01]	0.024 [0.022, 0.026] CTR: 0.020	Study: TK0126925 Trial: TK0126925-05 Salzman, 2015, DIFENOCO_013 Max. frozen storage: 14 month (parent and metabolites)
	Foliar spray (SC)	2×140	BBCH 61	28	Straw	0.63 [0.54, 0.71]	< 0.01 [2× < 0.01]	< 0.01 [2× < 0.01]	0.030 [0.025, 0.035] CTR: 0.020	
USA Proctor, AR 2013 (Wells)	Foliar spray (EC)	2×140	BBCH 71	27	Straw	1.7 [1.6, 1.8]	< 0.01 [2× < 0.01]	0.011 [< 0.01, 0.011]	0.091 [0.092, 0.090] CTR: 0.051	Study: TK0126925 Trial: TK0126925-06 Salzman, 2015, DIFENOCO_013 Max. frozen storage: 15 month (parent and metabolites)
	Foliar spray (SC)	2×140	BBCH 71	27	Straw	2.1 [2.2, 2.0]	< 0.01 [2× < 0.01]	0.011 [0.012, 0.011]	0.16 [0.15, 0.16] CTR: 0.051	
USA Opelousas, LA 2013 (CL 161)	Foliar spray (EC)	2×140	BBCH 75	28	Straw	1.0 [1.1, 0.92]	< 0.01 [2× < 0.01]	0.022 [0.023, 0.021] CTR: 0.029	0.087 [0.090, 0.084] CTR: 0.13	Study: TK0126925 Trial: TK0126925-07 Salzman, 2015, DIFENOCO_013 Max. frozen storage: 14 month (parent and metabolites)
	Foliar spray (SC)	2×140	BBCH 75	28	Straw	1.4 [1.3, 1.5]	< 0.01 [2× < 0.01]	0.020 [0.017, 0.022] CTR: 0.029	0.078 [0.079, 0.078] CTR: 0.13	
USA Cheneyville, LA 2013 (Cheniere)	Foliar spray (EC)	2×140	BBCH 85	20 25 29 32 35	Straw	2.3 2.4 2.2 [2.0, 2.3] 2.2 2.9	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01	< 0.01 0.01 < 0.01 [2× < 0.01] < 0.01 < 0.01	0.029 0.021 0.033 [0.036, 0.029] 0.027 0.039	Study: TK0126925 Trial: TK0126925-08 Salzman, 2015, DIFENOCO_013 Max. frozen storage: 14 month (parent and metabolites)
	Foliar spray (SC)	2×140	BBCH 85	20 25 29 32 35	Straw	2.8 2.4 3.3 [3.4, 3.3] 3.0 3.5	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01	< 0.01 < 0.01 0.011 [0.012, 0.011] < 0.01 < 0.01	0.032 0.023 0.032 [0.031, 0.026] 0.030 0.037	
USA Campbell, MO 2013 (CL 111)	Foliar spray (EC)	2×140	BBCH 85	20 25 28 31 35	Straw	2.4 2.4 1.9 [2.1, 1.7] 1.9 1.6	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01	0.011 0.010 0.012 [0.013, 0.012] 0.014 < 0.01	0.046 0.046 0.048 [0.048, 0.049] 0.055 0.053	Study: TK0126925 Trial: TK0126925-09 Salzman, 2015, DIFENOCO_013 Max. frozen storage: 14 month (parent and metabolites)
	Foliar spray (SC)	2×140	BBCH 85	20 25 28 31 35	Straw	2.4 2.7 1.8 [1.8, 1.8] 1.6 1.5	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01	< 0.01 < 0.01 0.12 [< 0.01, 0.011] < 0.01 < 0.01	0.036 0.046 0.047 [0.050, 0.044] 0.041 0.051 CTR: 0.028	
USA Proctor, AR 2013 (CL 151)	Foliar spray (EC)	2×140	BBCH 73	28	Straw	1.4 [1.4, 1.4]	< 0.01 [2× < 0.01]	< 0.01 [2× < 0.01]	0.023 [0.024, 0.023] CTR: 0.026	Study: TK0126925 Trial: TK0126925-10 Salzman, 2015,

Location, Year (variety)	Treatment method	Application rate (g ai/ha)	Growth stage at final application	DALT	Crop part	Residue found (mg/kg)[a]				Report/Trial No., Reference Storage period
						Difeno-conazole	1,2,4-T	TA	TAA	
	Foliar spray (SC)	2×140	BBCH 73	28	Straw	1.9 [1.8, 1.9]	< 0.01 [2× < 0.01]	< 0.01 [2× < 0.01]	0.038 [0.046, 0.030] CTR: 0.026	DIFENOCO_013 Max. frozen storage: 14 month (parent and metabolites)
USA Washington, LA 2013 (CL 161)	Foliar spray (EC)	2×140	BBCH 73	27	Straw	1.9 [2.2, 1.5]	< 0.01 [2× < 0.01]	0.011 [< 0.01, 0.011]	0.057 [0.056, 0.058] CTR: 0.023	Study: TK0126925 Trial: TK0126925-11 Salzman, 2015, DIFENOCO_013 Max. frozen storage: 14 month (parent and metabolites)
	Foliar spray (SC)	2×140	BBCH 73	27	Straw	1.9 [1.8, 2.0]	< 0.01 [2× < 0.01]	0.013 [0.013, < 0.01]	0.051 [0.054, 0.049] CTR: 0.023	
USA Fisk, MO 2013 (CL 111)	Foliar spray (EC)	2×140	BBCH 85	31	Straw	1.6 [1.6, 1.6]	< 0.01 [2× < 0.01]	< 0.01 [2× < 0.01]	0.073 [0.067, 0.079] CTR: 0.051	Study: TK0126925 Trial: TK0126925-12 Salzman, 2015, DIFENOCO_013 Max. frozen storage: 14 month (parent and metabolites)
	Foliar spray (SC)	2×140	BBCH 85	31	Straw	1.6 [1.5, 1.7]	< 0.01 [2× < 0.01]	< 0.01 [2× < 0.01]	0.056 [0.055, 0.057] CTR: 0.051	
USA East Bernard, TX 2013 (Presidio)	Foliar spray (EC)	2×140	BBCH 85	27	Straw	5.2 [3.9, 6.1, 5.6]	< 0.01 [2× < 0.01]	0.017 [0.015, 0.018] CTR: 0.011	0.11 [0.11, 0.10] CTR: 0.095	Study: TK0126925 Trial: TK0126925-13 Salzman, 2015, DIFENOCO_013 Max. frozen storage: 15 month (parent and metabolites)
	Foliar spray (SC)	2×140	BBCH 85	27	Straw	5.1 [5.3, 5.4, 4.6]	< 0.01 [2× < 0.01]	0.020 [0.024, 0.017] CTR: 0.011	0.10 [0.099, 0.10] CTR: 0.095	
USA East Bernard, TX 2013 (Presidio)	Foliar spray (EC)	140 130	BBCH 85	27	Straw	3.2 [3.8, 2.6]	< 0.01 [2× < 0.01]	0.012 [0.012, 0.012] CTR: 0.011	0.084 [0.089, 0.079] CTR: 0.073	Study: TK0126925 Trial: TK0126925-14 Salzman, 2015, DIFENOCO_013 Max. frozen storage: 14 month (parent and metabolites)
	Foliar spray (SC)	140 130	BBCH 85	27	Straw	2.9 [3.0, 2.9]	< 0.01 [2× < 0.01]	0.015 [0.015, 0.016] CTR: 0.011	0.10 [0.094, 0.11] CTR: 0.073	
USA Porterville, CA 2013 (Koshihikari)	Foliar spray (EC)	2×140	BBCH 87	26	Straw	6.0 [6.9, 6.4, 4.7]	0.014 [0.018, 0.011]	0.011 [0.011, < 0.01]	0.053 [0.057, 0.048]	Study: TK0126925 Trial: TK0126925-15 Salzman, 2015, DIFENOCO_013 Max. frozen storage: 13 month (parent and metabolites)
	Foliar spray (SC)	2×140	BBCH 87	26	Straw	4.4 [4.2, 4.5]	< 0.01 [2× < 0.01]	0.019 [0.024, 0.014]	0.034 [0.033, 0.035]	
USA Maxwell, CA 2013 (M205)	Foliar spray (EC)	2×140	BBCH 73	28	Straw	5.1 [5.0, 5.0, 5.4, 5.1]	< 0.01 [2× < 0.01]	< 0.01 [2× < 0.01]	0.019 [0.019, 0.019]	Study: TK0126925 Trial: TK0126925-16 Salzman, 2015, DIFENOCO_013 Max. frozen storage: 15 month (parent and metabolites)
	Foliar spray (SC)	2×140	BBCH 73	28	Straw	9.3 [8.4, 8.8, 9.9, 10.0]	< 0.01 [2× < 0.01]	< 0.01 [2× < 0.01]	0.018 [0.018, 0.019]	
USA East Bernard, TX 2014 (Presidio)	Foliar spray (EC)	130 140	BBCH 77	28	Straw	0.90 [0.41, 1.4]	< 0.01 [2× < 0.01]	0.024 [0.019, 0.029]	0.12 [0.093, 0.14] CTR: 0.057	Study: TK0126925 Trial: TK0126925-17 Salzman, 2015,

Location, Year (variety)	Treatment method	Application rate (g ai/ha)	Growth stage at final application	DALT	Crop part	Residue found (mg/kg)[a]				Report/Trial No., Reference Storage period
						Difeno-conazole	1,2,4-T	TA	TAA	
	Foliar spray (SC)	130 140	BBCH 77	28	Straw	1.5 [1.6, 1.3]	< 0.01 [2× < 0.01]	0.020 [0.022, 0.018]	0.048 [0.052, 0.045] CTR: 0.057	DIFENOCO_013 Max. frozen storage: 2 month (parent); 3 month (metabolites)

CTR = Untreated control

[a] Mean of replicate field samples [individual values]

The meeting noted that trials TK0126925-6 and TK0126925-10 as well as trials TK0126925-13 and TK0126925-14 were conducted at the same location and time. Hence, here only the higher residues of these trials were considered.

FATE OF RESIDUES IN STORAGE AND PROCESSING

Residues after processing

The Meeting received new information on the fate of difenoconazole residues during the processing in rice and chili peppers.

As a measure of the transfer of residues into processed products, a processing factor was used, which is defined as:

Processing factor = Residue in processed product (mg/kg) ÷ Residue in raw agricultural commodity (mg/kg)

If residues in the RAC were below the LOQ, no processing factor could be derived. In case of residues below the LOQ, but above the LOD in the processed product, the numeric value of the LOQ was used for the calculation. If residues in the processed product were below the LOD, the numeric value of the LOQ was used for the calculation but the PF was expressed as "less than" (e.g. < 0.5).

The transfer of residues of difenoconazole was investigated in rice from one supervised field trial conducted in Thailand (Jones, 2013, DIFENOCO_015). The trial was performed with four treatments at exaggerated rates of 600 g ai/ha and harvest at 21 DALT. Unprocessed rice grain was processed into husks, bran and polished rice using common commercial practices. All samples were analysed for difenoconazole and the triazole metabolites (1,2,4-triazole, triazole alanine and triazole acetic acid) according to method REM 147.08 and Meth-160, Revision #2, respectively.

Table 32 Summary of difenoconazole and triazole metabolite residues in rice and processed commodities

Trial Identification (City, State/Region, Country, Year)	From.	Crop/ Variety	Commodity or Matrix	Total Rate (g ai/ha)	PHI (days)	Average Residues (mg/kg) (Individual Values)	Processing Factor
Difenoconazole							
TK0046998-02 (Vapeeprathem, (Mahasarakham), Thailand,)	EC	Rice/ KMDL 105 Jasmine	Rice grain (RAC)	2400	21	45	-
			Husks			148 (145, 151)	3.3
			Bran			31 (30, 31)	0.69
			Polished Rice			0.35 (0.35, 0.35)	0.0078
1,2,4-triazole							
TK0046998-02 (Vapeeprathem, (Mahasarakham), Thailand,)	EC	Rice/ KMDL 105 Jasmine	Rice grain (RAC)	2400	21	0.011	-
			Husks			0.027 (0.027, 0.027)	2.5
			Bran			0.019 (0.017, 0.020)	1.7
			Polished Rice			< 0.01	<0.91
Triazole alanine							
TK0046998-02 (Vapeeprathem, (Mahasarakham),	EC	Rice/ KMDL 105	Rice grain (RAC)	2400	21	2.9 CTR: 0.027	-
			Husks			0.46 (0.45, 0.47)	0.16

Trial Identification (City, State/Region, Country, Year)	From.	Crop/ Variety	Commodity or Matrix	Total Rate (g ai/ha)	PHI (days)	Average Residues (mg/kg) (Individual Values)	Processing Factor
Thailand,)		Jasmine	Bran			26 (25, 26)	9.0
			Polished Rice			1.4 (1.3, 1.4)	0.48
Triazole acetic acid							
TK0046998-02 (Vapeeprathem, (Mahasarakham), Thailand,)	EC	Rice/ KMDL 105 Jasmine	Rice grain (RAC)	2400	21	0.99	-
			Husks			0.67 (0.66, 0.67)	0.68
			Bran			6.8 (6.8, 6.8)	6.7
			Polished Rice			0.94 (0.91, 0.97)	0.95

CTR = Untreated control

The transfer of residues of difenoconazole was investigated in chili peppers from three supervised field trial conducted in Korea (Chai, 2015, DIFENOCO_016).

Table 33 Summary of difenoconazole residues in chili peppers and processed commodities

Trial Identification (City, State/Region, Country, Year)	From.	Crop/ Variety	Commodity or Matrix	Total Rate (g ai/ha)	PHI (days)	Average Residues (mg/kg)[a]	Processing Factor
Korea Hoengseong, Gangwon-do 2015 (Genesis, red)	SC	Chili peppers/ Genesis, red	Fresh chili peppers	320	2	0.41	-
			Hot-air drying			1.6	4.0
			Sun drying			1.2	2.9
			Far infrared drying			1.4	3.4
Korea Pohang, Gyeongbuk 2015 (Nog-Gwang, red)	SC	Chili peppers/ Nog-Gwang, red	Fresh chili peppers	320	2	0.30	-
			Hot-air drying			1.3	4.4
			Sun drying			1.6	5.2
			Far infrared drying			1.3	5.3
Korea Miryang, Gyeongnam 2015 (Nog-Gwang, red)	SC	Chili peppers/ Nog-Gwang, red	Fresh chili peppers	320	2	0.26	-
			Hot-air drying			1.3	4.9
			Sun drying			1.4	5.5
			Far infrared drying			1.3	5.0

[a] Mean of 4 replicate laboratory samples taken from one sample

APPRAISAL

Difenoconazole was evaluated for the first time by JMPR 2007 when an acceptable daily intake (ADI) of 0–0.01 mg/kg bw and an acute reference dose (ARfD) of 0.3 mg/kg bw were established. In 2007, 2010, 2013 and 2015 the JMPR evaluated the compound for residues and recommended a number of maximum residue levels.

The definition of the residue for compliance with MRL and for dietary intake for plant commodities is parent *difenoconazole*, while for animal commodities it is defined as *sum of difenoconazole and 1-[2-chloro-4-(4-chloro-phenoxy)-phenyl]-2-(1,2,4-triazol)-1-yl-ethanol (CGA205375), expressed as difenoconazole*. The residue is fat-soluble.

The current Meeting received additional analytical methods, storage stability data for dried beans and oranges, processing data for rice, GAP information and residue trial data for uses on pome fruits (apples, pears), blueberries, strawberries, guava, dragon fruit, watermelon, chili peppers, sweet

corn, pulses (beans, peas (except soya bean) and chickpeas), ginseng, globe artichoke, rice and coffee beans.

Methods of analysis

The Meeting received additional information on analytical methods for difenoconazole in plant matrices.

Method AG-676 employs refluxing with methanol/conc. ammonium hydroxide (8:2 v/v). Clean-up is performed by liquid-liquid partitioning against hexane followed by acetonitrile and SPE on silica and phenyl. Residues are determined by GC-NPD with a LOQ of 0.01 mg/kg.

The QuEChERS method employs shaking with acetonitrile/water (1/1, v/v) and clean-up by dispersive SPE with PSA. Residues are determined by LC-MS/MS using the ion transitions m/z 406→251, 406→337 with a LOQ of 0.005 mg/kg.

Method REM 147.08 employs refluxing with methanol/conc. ammonium hydroxide (8:2 v/v). Clean-up is performed by SPE on a HLB cartridge. Residues are determined by LC-MS/MS using the ion transition m/z 406→251 with a LOQ of 0.01 mg/kg.

The Modified Korean Food Code Method employs homogenization with acetone and clean-up by liquid-liquid partitioning against dichloromethane followed by SPE on a silica column. Residues are determined by LC-UV and LC-MS/MS using the ion transitions m/z 406→251, 406→337 with a LOQ of 0.03 mg/kg.

The Meeting concluded that the presented methods were sufficiently validated and are suitable to measure difenoconazole in plant commodities.

Stability of pesticides in stored analytical samples

Information provided for the 2007 JMPR indicated that difenoconazole residues were stable at approximately -20 °C for 2 years in matrices with high oil content, high water content matrices, high starch matrices and wheat forage and straw.

The Meeting received additional information on storage stability of difenoconazole in acidic and high protein content matrices, demonstrating a storage stability of at least 9 months.

Results of supervised residue trials on crops

Pome fruits

Difenoconazole is registered in the USA for use on pome fruit (apple and pear). The critical GAP involves five pre-harvest foliar applications at a rate of 77 g ai/ha with a 7 day interval and 14 days PHI. After harvest, subsequent post-harvest treatments using either dip or drench at 30 g ai/hL or spraying at 1.3 g ai/tonne are applied. The Meeting received supervised field trial data from the USA on apples and pears matching the cGAP.

In pome fruit (apples and pears) the ranked residues of difenoconazole following GAP treatment (±25%) were:

Dip treatment (n=9): 0.59, 0.66, 0.85, 0.90, 0.93, 1.0, 1.1(3) mg/kg.

Drench treatment (n=9): 0.56, 0.76, 0.85, 0.86, 1.1(2), 1.2, 1.3, 2.6 mg/kg.

Spray treatment (n=9) 0.39, 0.56, 0.59, 0.60, 0.63, 0.66, 0.78, 1.1, 1.4 mg/kg.

The Meeting estimated a maximum residue level of 4 (Po) mg/kg, to replace its previous recommendation of 0.8 mg/kg, a STMR of 1.1 mg/kg and a HR of 2.6 mg/kg for difenoconazole in pome fruit (based on drench treatment).

Blueberries

Difenoconazole is registered in Canada for the use on blueberries with four foliar applications at a nominal rate of 127 g ai/ha with a 6–9 day interval between applications and 1 day PHI.

In blueberries from the USA and Canada, residues of difenoconazole following GAP treatment (± 25%) were (n=10): 0.33, 0.65, 0.67, 0.84, 1.0 (2), 1.2, 1.4, 1.7, 1.9 mg/kg.

The Meeting estimated a maximum residue level of 4 mg/kg, a STMR of 1.0 mg/kg and a HR of 2.2 mg/kg (based on the highest individual sample) for difenoconazole in blueberries.

Strawberries

Difenoconazole is registered in the USA for the use on strawberries with four foliar applications at a nominal rate of 127.5 g ai/ha with a 7 day interval between applications and 0 day PHI.

In strawberries trials from the USA, residues of difenoconazole following GAP treatment (± 25%) were (n=8): 0.07, 0.19, 0.37, 0.41, 0.43, 0.63, 0.65, 1.2 mg/kg.

The Meeting estimated a maximum residue level of 2 mg/kg, a STMR of 0.42 mg/kg and a HR of 1.2 mg/kg for difenoconazole in strawberries.

Guava

Difenoconazole is registered in Egypt for the use on guava with three foliar applications at a nominal rate of 62.5 g ai/ha with a 6–8 day interval between applications and 10 days PHI.

It was noted that the trials did not match the GAP.

Pitaya (dragon fruit)

Difenoconazole is registered in Indonesia for the use on pitaya with three foliar applications at a nominal rate of 50 g ai/ha with a 9-11 day interval between applications and 7 days PHI. However, the treatment in the provided field trials was three exaggerated foliar applications of difenoconazole at a nominal rate of 94 g ai/ha.

Ranked residues in trials from Indonesia and Vietnam were (n=7): 0.022, 0.030, 0.051, 0.064, 0.071, 0.10, 0.15 mg/kg. The meeting decided that the proportionality principle could be applied in this case, as the application rate does not differ by more than five times. Therefore scaling factors of 0.47–0.54 were applied, resulting in residues of 0.012, 0.016, 0.027, 0.034, 0.037, 0.052, 0.080 mg/kg.

The Meeting estimated a maximum residue level of 0.15 mg/kg, a STMR of 0.034 mg/kg and a HR of 0.083 mg/kg (based on the highest individual analytical result) for difenoconazole in pitaya.

Watermelon

Difenoconazole is registered in Brazil for the use on watermelon with six foliar applications at a nominal rate of 50 g ai/ha with a 7 day interval between applications and 3 days PHI. However, the treatment in the provided field trials was six exaggerated foliar applications of difenoconazole at a nominal rate of 75 g ai/ha.

Ranked residues in trials from Brazil were (n=4): < 0.010(2), 0.020(2) mg/kg. The meeting decided that the proportionality principle could be applied in this case, as the application rate does not differ by more than five times. Therefore a scaling factor of 0.67 was applied to residues >LOQ, resulting in residues of < 0.010(2), 0.010(2) mg/kg.

The Meeting estimated a maximum residue level of 0.02 mg/kg, a STMR of 0.01 mg/kg and a HR of 0.01 mg/kg for difenoconazole in watermelon.

Chili peppers

Difenoconazole is registered in the Republic of Korea for the use on chili peppers with four foliar applications at a nominal rate of 80 g ai/ha with a 10 day interval between applications and 2 days PHI.

In chili peppers, residues of difenoconazole following GAP compliant treatment (± 25%) were (n=3): 0.24, 0.30, 0.41 mg/kg. The Meeting noted that the number of trials conducted according to GAP is insufficient for estimating a maximum residue level. The application rate of trial 6 was outside the ±25% tolerance range, however the meeting decided that the proportionality principle could be applied, as the application rate does not differ by more than five times. Therefore a scaling factor of 0.73–0.93 was applied to residues >LOQ, resulting in residues of: 0.19, 0.21, 0.27, 0.41 mg/kg.

The Meeting estimated a maximum residue level of 0.9 mg/kg, a STMR of 0.24 mg/kg and a HR of 0.41 mg/kg for difenoconazole in chili peppers.

In 2013 the JMPR recommended a maximum residue level of 0.6 mg/kg for fruiting vegetables other than cucurbits based on 20 trials performed with tomato, sweet pepper and chili pepper in the US. The Meeting estimated a maximum residue level for fruiting vegetables other than cucurbits (except chili peppers) of 0.6 mg/kg, to replace its previous recommendation of 0.6 mg/kg for fruiting vegetables other than cucurbits (except sweetcorn and mushrooms).

Based on experimental processing data, a processing factor of 4.5 was estimated for chili peppers dried. The Meeting estimated a STMR-P and HR-P for dried chili peppers of 1.08 mg/kg and 1.85 mg/kg, respectively. Since the previously established maximum residue level of 5 mg/kg for chili peppers dried also covers residues according to the new GAP, the Meeting agreed to maintain its previous recommendation.

Pulses

Difenoconazole is registered in the USA for the use on pulses (dry beans, dry peas (except soya bean)) and dry chickpeas with four foliar applications at a nominal rate of 127.5 g ai/ha with a 14 ± 2 day interval, between applications and 14 days PHI. Supervised residue trials from the USA were submitted on dry peas, dry bean and chick peas.

Dry beans

In dry bean, residues of difenoconazole following GAP treatment (± 25%) were (n=7): < 0.01 (2), 0.010, 0.011, 0.012, 0.013, 0.030 mg/kg.

The Meeting estimated a maximum residue level of 0.05 mg/kg and a STMR of 0.011 mg/kg for difenoconazole in the subgroup of dry beans (except soya bean).

Dry peas

In dry pea, residues of difenoconazole following GAP treatment (± 25%) were (n=4): 0.016, 0.028, 0.029, 0.087 mg/kg, while residues in chick peas were (n=3) < 0.010 (2), 0.031 mg/kg. The Meeting decided to combine the residue data for the subgroup of dry peas: (n=7) < 0.010 (2), 0.016, 0.028, 0.029, 0.031, 0.087 mg/kg.

The Meeting estimated a maximum residue level of 0.15 mg/kg and a STMR of 0.028 mg/kg for difenoconazole in the subgroup of dry peas.

Ginseng, dried

Difenoconazole is registered in the USA for the use on ginseng with four foliar applications at a nominal rate of 127.5 g ai/ha with a 6–8 day interval between applications and 0 day PHI.

In ginseng trials from the USA, residues of difenoconazole following GAP treatment (± 25%) were (n=4): 0.06, 0.15, 0.21, 0.39 mg/kg.

The Meeting estimated a maximum residue level of 0.8 mg/kg, a STMR of 0.18 mg/kg and a HR of 0.42 mg/kg (based on the highest individual analytical result) for difenoconazole in dried ginseng.

The Meeting estimated a maximum residue level for dried ginseng of 0.8 mg/kg, to replace its previous recommendation of 0.2 mg/kg.

Artichoke, globe

Difenoconazole is registered in the USA for the use on globe artichoke with four foliar applications at a nominal rate of 127.5 g ai/ha with a 12-16 day interval between applications and 3 days PHI.

In globe artichoke from trials in the USA, residues of difenoconazole following GAP treatment (± 25%) were (n=4): 0.30, 0.49, 0.52, 0.57 mg/kg.

The Meeting estimated a maximum residue level of 1.5 mg/kg, a STMR of 0.505 mg/kg and a HR of 0.64 mg/kg (based on the highest individual analytical result) for difenoconazole in globe artichoke.

Rice grain

Difenoconazole is registered in the USA for the use on rice with two foliar applications at a nominal rate of 137 g ai/ha with a 14 day interval between applications and 35 days PHI.

In rice grain trials from the USA, residues of difenoconazole following GAP treatment (± 25%) were (n=15): 0.42, 0.46, 0.51, 0.57, 0.72, 0.98, 1.0(2), 1.2, 1.3, 1.4, 1.5, 2.1, 4.3, 6.2 mg/kg.

The Meeting estimated a maximum residue level of 8 mg/kg and a STMR of 1.1 mg/kg for difenoconazole in rice grain.

Sweet corn (Corn-on-the-cob) (kernels plus cob with husk removed)

Difenoconazole is registered in the USA for the use on sweet corn as seed treatment with one application at a nominal rate of 300 g ai/tonne seed.

In sweet corn (ears) trials from the USA, residues of difenoconazole following GAP treatment (± 25%) were (n=9): < 0.01 mg/kg (9).

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

Coffee beans

Difenoconazole is registered in Brazil for the use on coffee beans with three foliar applications at a nominal rate of 50 g ai/ha with a 12–16 day interval between applications and 30 days PHI. Four independent supervised residue trials on coffee beans (green beans) from Brazil were submitted using 5×38 g ai/ha applications, totalling 190 g ai/ha compared to 150 g ai/ha from the cGAP.

The meeting concluded that the submitted trials can be accepted since they were conducted at a higher application rate than the cGAP and since residues were < 0.01 mg/kg throughout the trials.

The Meeting estimated a maximum residue level of 0.01* mg/kg and a STMR of 0.01 mg/kg for difenoconazole in coffee beans.

Animal feedstuffs

Pea vines and pea hay

Difenoconazole is registered in the USA for the use on pulses with four foliar applications at a nominal rate of 127.5 g ai/ha with a 14±2 day interval between applications and 14 days PHI. For pea vines and hay, a total of five supervised residue trials with two applications at ~130 g ai/ha and 0 days

PHI from the USA were submitted. As these trials were not in compliance with the cGAP they were not considered here.

Sweet corn forage and sweet corn fodder (stover)

Difenoconazole is registered in the USA for use on sweet corn as a seed treatment with one application at a nominal rate of 300 g ai/tonne seed. Nine independent supervised residue trials on sweet corn from the USA were submitted matching the GAP.

Residue concentrations of difenoconazole in sweet corn forage with ears were (n=9): < 0.01 (9) mg/kg.

Residue concentrations of difenoconazole in sweet corn forage without ears were (n=9): < 0.01 (9) mg/kg.

Residue concentrations of difenoconazole in sweet corn fodder (stover) were (n=9): < 0.01 (9) mg/kg as received.

The Meeting estimated a maximum residue level of 0.01* mg/kg (dry weight) for sweet corn fodder and median and highest residues of 0.01 mg/kg (as received) for difenoconazole in sweet corn forage and fodder (stover).

Rice straw

Difenoconazole is registered in the USA for the use on rice with two foliar applications at a nominal rate of 137 g ai/ha with a 14 day interval between applications and 35 days PHI.

Residue concentrations of difenoconazole in rice straw from trials in the USA were (n=14): 0.90, 1.2, 1.3, 1.5 (2), 1.7, 2.1, 2.2 (2), 3.3, 3.4, 6.1, 6.9, 10 mg/kg as received.

The Meeting estimated a maximum residue level of 17 mg/kg (DM, based on 90% DM content), a median residue of 2.15 mg/kg (as received) and a highest residue of 10 mg/kg (as received) for difenoconazole in rice straw.

Fate of residues during processing

The Meeting received new information on the fate of difenoconazole residues during processing in rice and chili peppers.

Estimated processing factors for the commodities considered at this Meeting are summarised below.

Raw commodity	Processed commodity	Individual processing factors	Mean or best estimate processing factor	STMR-P = $STMR_{RAC}$ × PF (mg/kg)	HR-P = HR_{RAC} × PF (mg/kg)
Rice grain	Hulls	3.3	3.3	3.6	-
	Bran	0.69	0.69	0.76	-
	Polished Rice	0.0078	0.0078	0.0086	-
Fresh chili peppers	Dried chili peppers	3.4, 5.0, 5.3, 4.0, 4.4, 4.9, 2.9, 5.2, 5.5	4.5	1.08	1.85

Using the estimated maximum residue level of 8 mg/kg for rice grain and applying the processing factor of 0.0078, the Meeting estimated a maximum residue level of 0.07 mg/kg for difenoconazole in polished rice.

Residues in animal commodities

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

Dietary burden calculations for beef cattle, dairy cattle, broilers and laying poultry are presented in Annex 6. The calculations were made according to the livestock diets from US-Canada,

EU, Australia and Japan in the OECD diets listed in Appendix IX of the 2016 edition of the FAO Manual.

Previous evaluations included the following potential feed items: almond hulls, apple pomace, bean forage, cabbages, carrot culls, citrus dried pulp, grape pomace, dry, bean vines, potato culls, potato process waste (wet peel), rape seed fodder, rape seed meal, soya bean seed, sugar beet leaves or tops, sunflower seed meal, wheat straw and fodder. Additional feed items from this evaluation were sweet corn forage and fodder (stover) and rice grain, straw, bran and hulls.

The estimation of residues of difenoconazole in the crops considered by the current Meeting does not impact on the previous recommendations for residues in animal commodities made by 2013 JMPR.

RECOMMENDATIONS

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

Definition of the residue (for compliance with the MRL and for estimation of dietary intake) for plant commodities: *difenoconazole.*

Definition of the residue (for compliance with the MRL and for estimation of dietary intake) for animal commodities: *sum of difenoconazole and 1-[2-chloro-4-(4-chloro-phenoxy)-phenyl]-2-(1,2,4-triazol)-1-yl-ethanol), expressed as difenoconazole.*

The residue is fat-soluble.

Maximum residue levels and dietary intake

Commodity		MRL, mg/kg		STMR or STMR-P, mg/kg	HR or highest residue, mg/kg
CCN	Name	New	Previous		
VS 0620	Artichoke, globe	1.5	-	0.505	0.64
FB 0020	Blueberries	4	-	1.0	2.2
VO 0444	Chili pepper	0.9	-	0.24	0.41
HS 0444	Chili pepper dried	5		1.08	1.85
SB 0716	Coffee beans	0.01*	-	0.01	-
VO 0050	Fruiting vegetables other than cucurbits (except sweetcorn and mushrooms)	W	0.6	-	-
DV 0604	Ginseng, dried including red ginseng	0.8	0.2	0.18	0.42
VO 0050	Group of fruiting vegetables other than cucurbits except chili peppers	0.6	-	-	-
FI 2540	Pitaya (dragon fruit)	0.15	-	0.034	0.083
FP 0009	Pome fruits	4 (Po)	0.8	1.1	2.6
GC 0649	Rice	8	-	1.1	-
CM 1205	Rice, polished	0.07	-	0.0086	-
AS 0649	Rice straw and fodder, dry	17 (dw)	-	2.15 (as)	10.0 (as)
FB 0275	Strawberries	2	-	0.42	1.2
VD 2065	Subgroup of dry beans (except soya bean)	0.05	-	0.011	-
VD 2066	Subgroup of dry peas	0.15	-	0.028	
GC 0447	Sweet corn (Corn-on-the-cob) (kernels plus cob with husk removed)	0.01*	-	0.01	0.01
AS 0447	Sweet corn fodder	0.01* (dw)	-	0.01 (as)	0.01 (as)
VC 0432	Watermelon	0.02	-	0.01	0.01

Dietary intake and feed burden only

Commodity		Median, mg/kg	Highest residue, mg/kg
CCN	Name		
CM 1206	Rice bran, unprocessed	0.76	-
CM 1207	Rice hulls	3.6	-
AF 0645	Sweet corn forage	0.01 (as)	0.01 (as)

DIETARY RISK ASSESSMENT

Long-term dietary exposure

The ADI for difenoconazole is 0–0.01 mg/kg bw. The International Estimated Daily Intakes (IEDIs) for difenoconazole were estimated for the 17 GEMS/Food Consumption Cluster Diets using the STMR or STMR-P values estimated by the previous and present JMPR. The results are shown in Annex 3 of the 2017 JMPR Report. The IEDIs ranged 9–80% of the maximum ADI.

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

Short-term dietary exposure

The ARfD for difenoconazole is 0.3 mg/kg bw. The International Estimate of Short Term Intakes (IESTIs) for difenoconazole were calculated for the food commodities for which STMRs or HRs were estimated by the present Meeting and for which consumption data were available. The results are shown in Annex 4 of the 2017 JMPR Report. The IESTIs varied from 0–60% of the ARfD for children and 0–20% for the general population.

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

REFERENCES

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