Sulfoxaflor (252)

The first draft was prepared by Ms Monique Thomas, Pest Management Regulatory Agency, Canada

EXPLANATION

Sulfoxaflor, a sulfoximine insecticide, was first evaluated by the JMPR in 2011 for residues and toxicology where an ADI and ARfD of 0–0.05 mg/kg bw and 0.3 mg/kg bw, respectively, were established. A residue definition of *sulfoxaflor* was established for both compliance and dietary risk assessment in plant and animal commodities.

The residue is not fat-soluble.

The latest residue review was done in 2016.

It was scheduled at the Forty-ninth Session of the CCPR for the evaluation of additional uses by the 2018 JMPR.

For the current Meeting, new GAPs and supervised residue trials on mango, green beans, rice were provided. The current Meeting was also requested to revisit the supervised trials in maize, sorghum, sweet corn, rice and tree nuts, which were previously provided to the 2016 Meeting.

USE PATTERN

Information on registered uses made available to this Meeting is shown in Table 1.

Table 1 Registered uses of sulfoxaflor on mango, green beans, maize, rice, sorghum, sweet corn and tree nuts

Crop	Country	Formulation type (sulfoxaflor guarantee)	Application					PHI (days)
			Method	Rate (g ai/ha)	No	Re-treatment Interval (days)	Max Rate/year (g ai/ha)	
Mango	Taiwan, Province of China	240 g/L, SC	Foliar	N/S	2	7	79-106	14
Succulent, Edible Podded, and Dry Beans	USA	240 g/L, SC 500 g/kg, WG	Foliar	26-80	4	14	298	7
Rice	China	240 g/L, SC	Foliar	50-66	1	N/A	66	14
	Columbia	240 g/L, SC	Foliar	48	1	NA	48	14
	India	240 g/L SC	Foliar	90	2	15	180	15
	Indonesia	500 g/kg, WG	Foliar	75 - 100	4	7-14	400	10
	Malaysia	500 g/kg, WG	Foliar	75	4	7	300	10
	Thailand	500 g/kg, WG	Foliar	75-113	N/S	N/S	N/S	N/S
Sorghum, maize	Canada	240 g/L, SC	Foliar	18-36	2	7	72	7 (Forage)14 (Grain, Stover)
Sweet corn	Canada	240 g/L, SC	Foliar	18-36	2	7	72	7 (Grain, Forage) 14 (Stover)
Tree Nuts	USA	240 g/L, SC 500 g/kg, WG	Foliar	101	4	7	298	7

N/S: Not specified

N/A: Not applicable

RESIDUES RESULTING FROM SUPERVISED TRIALS ON CROPS

In the trials, the average value from replicate trials or duplicate samples is reported, while the individual values are shown in parenthesis. Results have not been corrected for concurrent method recoveries unless indicated.

Unless otherwise specified, residues of sulfoxaflor in all tested commodities including animal feeds were determined using the LC-MS/MS analytical method 091031. The limit of quantitation (LOQ) was 0.01 ppm and 0.003 ppm.

Where results from separate plots with similar characteristics such as location, year of trials and treatment schedules were reported, results are listed for each plot and separated by a dashed line. However, in these cases, the higher residue was used for calculation purposes.

All samples, collected from each of the supervised field trials, were kept under frozen storage up to a maximum of 467 days from the date of sampling to analysis. Previously conducted storage stability studies of sulfoxaflor, reviewed by the 2011 JMPR, have shown acceptable freezer stability for up to 680 days (in a wide variety of commodity categories).

The Meeting received new information on supervised field trials involving foliar applications of sulfoxaflor to the following crops:

Group	Commodity	Country	Table
Assorted tropical fruits with inedible peel	Mango	Taiwan Province of China	2
Legume vegetables	Beans with pods	Germany, Greece, Hungary, Italy, Poland and Spain	3
Cereal grains	Maize	USA	4
	Rice Cereals	USA	5
		Philippines	6
		Australia	7
		Malaysia	8
		Argentina and Brazil	9
		China	10
		India	11
	Sorghum	USA	12
	Sweet corn	USA	13
Tree nuts	Almonds	USA	14
	Pecans	USA	15
Animal feeds	Straw, Fodder and Forage of Cereals		
	Maize forage and fodder	USA	16
	Rice straw	USA	17
		Philippines	18
		Australia	19
		Brazil	20
		China	21
		India	22
	Sorghum forage and fodder	USA	23
	Sweet corn forage and fodder	USA	24
	Almond hulls	USA	25

Mango

A total of three supervised trials on mangoes were conducted in Taiwan Province of China during the 2015 growing season (Ching-Ching, 2015, Report 0513G13RGT30) using a soluble concentrate formulation, containing 240 g sulfoxaflor/L. One treatment group

received applications with a dilution factor of 3,600 (0.067 g ai/hL); the other treatment group received applications with a dilution factor of 1,200 (0.20 g ai/hL).

Triplicate samples of treated mangoes were collected from three sub areas of each plot at 0, 3, 7, 12, 21, and 28 days after application (DAA) and consisted of 12 fruits, except for day 21 and 28 samples from two sites, due to excessive fruit drop.

Table 2 Sulfoxaflor residues in pitted mango from supervised trials conducted in Taiwan Province of China

Location Year Trial ID (variety)	Application					DALA	Sulfoxaflor Residues mg/kg
	Form	Rate (g ai/ha)	No.	Re-treatment Interval (days)	Max/ year (g ai/ha)	days	
Taiwan Province of China GAP	240 g/L, SC	N/S	2	7	79-106	14	
Xinying Taiwan Province of China 2015 T3777 (Aiwen)	240 g/L, SC	44.7 45.8	2	- 7	90.5	0 3 7 14 21 28	0.06 (0.05, 0.05, 0.07) 0.03 (0.01, 0.04, 0.04) 0.04 (0.03, 0.04, 0.04) 0.03 (0.02, 0.03, 0.04) 0.03 (0.02, 0.02, 0.04) 0.01 (0.01, 0.02, 0.01)
		124.1 121.5	2	- 7	245.6	0 3 7 14 21 28	0.18 (0.17, 0.16, 0.20) 0.14 (0.08, 0.13, 0.20) 0.13 (0.10, 0.14, 0.16) 0.11 (0.09, 0.10, 0.14) 0.11 (0.08, 0.12, 0.14) 0.09 (0.06, 0.08, 0.13)
Nanhua Taiwan Province of China 2015 T3779 (Aiwen)	240 g/L, SC	59.8 61.9	2	- 7	121.7	0 3 7 14 21 28	0.07 (0.07. 0.07. 0.08) 0.06 (0.07, 0.06, 0.05) 0.04 (0.03, 0.06, 0.04) 0.04 (0.03, 0.03, 0.05) 0.03 (0.03, 0.02, 0.03) 0.02 (0.03, 0.01, 0.03)
		188.2 185.5	2	- 7	373.7	0 3 7 14 21 28	0.28 (0.29, 0.29 0.27) 0.24 (0.24, 0.28, 0.19) 0.22 (0.22, 0.22, 0.21) 0.16 (0.17, 0.18, 0.13) 0.13 (0.12, 0.14, 0.12) 0.12 (0.10, 0.16, 0.09)
Yujing Taiwan Province of China 2015 T3778 (Aiwen)	240 g/L, SC	40.6 42.4	2	- 7	83.0	0 3 6 14 21 28	0.06 (0.06, 0.08, 0.04) 0.04 (0.04, 0.04, 0.04) 0.04 (0.04, 0.04, 0.03) 0.05 (0.06, 0.05, 0.03) 0.04 (0.04, 0.05, 0.04) 0.04 (0.04, 0.05, 0.04)
		121.6 124.3	2	- 7	245.9	0 3 6 14 21 28	0.28 (0.29, 0.29, 0.27) 0.24 (0.24, 0.28, 0.19) 0.22 (0.22, 0.22, 0.21) 0.16 (0.17, 0.18, 0.13) 0.13 (0.12, 0.10, 0.16) 0.09*

* Triplicate samples could not be collected due to fruit dropping.

Legume vegetables

Beans with pods

Residue trial data on green beans were first evaluated by JMPR in 2011. At the time no maximum residue level proposal was made for due to the absence of an approved GAP.

Six supervised field trials were conducted in the European countries on beans with pods during the 2008-2010 growing season using a soluble concentrate formulation, containing 240 g sulfoxaflor/L (Rawle, 2010, CEMS-3975). Four foliar applications were made, 7 days apart, at a nominal rate of 100 g ai/ha, in spray volumes of 281-524 L/ha. An adjuvant was included within the tank mixture at each application.

Beans with pods were harvested 7 days following the last application. In addition, at four sites, samples were collected at 1, 3, 7, 10 and 14 ± 1days after the last application in order to determine the decline of sulfoxaflor residues. A minimum of 0.5 kg of whole pod sample was collected at each interval.

Table 3 Sulfoxaflor residues in beans with pods from supervised trials conducted in Europe

Location Year Trial ID (variety)	Application					DALA	Sulfoxaflor Residues
	Form	Rate (g ai/ha)	No.	Re-treatment Interval (days)	Max/ year (g ai/ha)	days	mg/kg
USA GAP	240 g/L SC 500 g/kg WG	26-80	4	14	298	7	
Budrio, Italy 2008 CEMS-3975A (Vesuvio)	240 g/L, SC	98 102 102 101	4	- 7 7 7	403	1 3 7 10 14	0.77 (0.72, 0.82) 1.17 (1.38, 0.95) 1.94 (1.86, 2.02) 1.80 (1.88, 1.73) 1.90 (2.25, 1.55)
Paralimni, Greece 2008 CEMS-3975B (Roco)	240 g/L, SC	99 101 97 99	4	- 7 7 7	396	7	0.12 (0.15, 0.08)
Szabadegy, Hungary 2008 CEMS-3975C (Rocco)	240 g/L, SC	105 102 98 105	4	- 7 7 7	410	1 3 7 10 15	0.30 (0.27, 0.32) 0.17 (0.16, 0.17) 0.07 (0.06, 0.08) 0.06 (0.04, 0.07) 0.04 (0.05, 0.04)
Brzoza, Poland 2008 CEMS-3975D (Unidor)	240 g/L, SC	105 101 98 105	4	- 7 7 7	408	7	0.08 (0.12, 0.03)
Eberdinger, Germany 2010 CEMS-4710A (Balsas)	240 g/L, SC	94 107 101 116	4	- 7 7 7	418	1 3 7 9 14	0.30 (0.20, 0.40) 0.38 (0.37, 0.39) 0.31 (0.38, 0.23) 0.28 (0.20, 0.37) 0.14 (0.18, 0.11)
Rincon de Soto, Spain 2010 CEMS-4710B (Moncayo)	240 g/L, SC	102 100 102 104	4	7 8 8 8	408	1 3 7 10 14	0.07 (0.09, 0.05) 0.07 (0.07, 0.06) 0.03 (0.03, 0.02) 0.02 (0.02, 0.02) 0.02 (0.03, <0.01)

Cereal grains

Maize

Residue trial data on maize were first evaluated by JMPR in 2016. At the time no maximum residue level proposal was made for maize grain due to the absence of an approved GAP. The data evaluated by JMPR in 2016 will be re-assessed at the current Meeting.

Fifteen supervised field trials, four of which were decline trials, were conducted in the USA on maize during the 2012 growing season (Korpalski, S., 2013). Treated plots each received two foliar applications of a water-dispersible granule formulation containing sulfoxaflor at a nominal concentration of 50% (w/w), at the target rate of 50 g ai/ha, re-treatment intervals of 7 days. An adjuvant was added to each tank mix.

Grain samples were collected 13-15 days after the last application. For the decline trials, samples were also collected at 7-8 (or 12), 20-22 and 27-29 days after the last application.

Table 4 Sulfoxaflor residues in maize grain from supervised trials in the USA

Location Year Trial ID (variety)	Application					DALA	Sulfoxaflor Residues, mg/kg
	Form	g ai/ha	No.	Re-treatment interval (days)	Max/ year g ai/ha	days	
Canada GAP	240 g/L SC	18-36	2	7	72	14	
Alton, NY, USA,	500 g/kg, WG	50	2	-	100	15	<0.01

Location Year Trial ID (variety)	Application					DALA	Sulfoxaflor Residues, mg/kg
	Form	g ai/ha	No.	Re-treatment interval (days)	Max/ year g ai/ha	days	
2012 120426.01 (HL 20932)		50		13			(<0.01, <0.01)
Jeffersonville, GA, USA, 2012 120426.02 (P1814HR)	500 g/kg, WG	50 50	2	- 14	100	12	<0.01 (<0.01, <0.01)
						15	<0.01 (<0.01, <0.01)
						22	<0.01 (<0.01, <0.01)
						29	<0.01 (<0.01, <0.01)
Enid, OK, USA, 2012 120426.03 (DKC 65-19)	500 g/kg, WG	49 51	2	- 14	100	14	No sample collected
Leonard, MO, USA, 2012 120426.04 (Pioneer P1395R)	500 g/kg, WG	50 51	2	- 14	101	14	<0.01 (<0.01, <0.01)
York, NE, USA, 2012 120426.05 (Pioneer P1151HR)	500 g/kg, WG	50 50	2	- 14	100	14	<0.01 (<0.01, <0.01)
Northwood, ND, USA, 2012 120426.06 (8066846 DKC 33-54)	500 g/kg, WG	50 50	2	- 14	100	14	0.01 (0.01, 0.01)
Richland, IA, USA, 2012 120426.07 (Pioneer P1360HR)	500 g/kg, WG	50 50	2	- 13	100	14	<0.01 (<0.01, <0.01)
Stafford, KS, USA, 2012 120426.08 (P1151HR)	500 g/kg, WG	49 49	2	- 14	98	14	<0.01 (<0.01, <0.01)
Monticello, IL, USA, 2012 120426.09 (Becks 5442VTS)	500 g/kg, WG	49 50	2	- 14	99	14	<0.01 (<0.01, <0.01)
Seymour, IL, USA, 2012 120426.10 (Phoenix 5385A3)	500 g/kg, WG	49 50	2	- 14	99	7	<0.01 (<0.01, <0.01)
						14	<0.01 (<0.01, <0.01)
						20	<0.01 (<0.01, <0.01)
						28	<0.01 (<0.01, <0.01)
Cherry Grove, MN, USA, 2012 120426.11 (DKC 45-51 R1B)	500 g/kg, WG	50 51	2	- 14	101	14	<0.01 (<0.01, <0.01)
Lime Springs, IA, USA, 2012 120426.12 (DKC 45-51 R1B/ A102588)	500 g/kg, WG	50 51	2	- 14	101	7	0.01 (<0.01, 0.02)
						14	0.01 (<0.01, 0.01)
						21	<0.01 (<0.01, <0.01)

Location Year Trial ID (variety)	Application					DALA	Sulfoxaflor Residues, mg/kg
	Form	g ai/ha	No.	Re-treatment interval (days)	Max/ year g ai/ha	days	
						28	<0.01 (<0.01, <0.01)
Bagley, IA, USA, 2012 120426.13 (P1395XR)	500 g/kg, WG	50 51	2	- 14	101	15	<0.01 (<0.01, <0.01)
Fisk, MO, USA, 2012 120426.14 (Pioneer P1948)	500 g/kg, WG	49 50	2	- 15	99	13	<0.01 (<0.01, <0.01)
East Bernard, TX, USA, 2012 120426.15 (DKC 66-96)	500 g/kg, WG	50 53	2	- 15	103	8	<0.01 (<0.01, <0.01)
						15	<0.01 (<0.01, <0.01)
						22	<0.01 (<0.01, <0.01)
						27	<0.01 (<0.01, <0.01)

Rice

Supervised residue trials conducted on rice in the USA were first evaluated by JMPR in 2016. At the time no maximum residue level proposal was made for rice grain due to the absence of an approved GAP. The USA data together with the data submitted at the current Meeting were evaluated.

Twelve supervised field trials, including two decline trials, were conducted in the USA during the 2013 growing season (Csinos, 2014, Report 130510). Three foliar applications of a water-dispersible granule formulation containing sulfoxaflor were made at a nominal concentration of 50% (w/w), 6 to 7 days apart, at a target rate of 100 g ai/ha. An adjuvant was included within the tank mixture at each application.

Rice grain samples were collected 13-16 days after the last application. In the two decline trials, samples of grain were also collected 0, 7, 21 and 28 days after last application. Samples of grain weighed a minimum of 1 kg.

Table 5 Sulfoxaflor residues in rice grain (paddy rice) from supervised trials conducted in the USA (JMPR 2016)

Location Year Trial ID (variety)	Application					DALA	Sulfoxaflor Residues mg/kg
	Form	g ai/ha	No.	Re-treatment Interval (days)	Max/ year g ai/ha	days	
Pollard, AR, USA, 2013 S13-02221-01 (CL111)	500 g/kg, WG	101 101 101	3	- 7 7	303	14	2.09 (1.74, 2.45)
Malden, MO, USA, 2013 S13-02221-02 (CL-111)	500 g/kg, WG	99 101 102	3	- 7 7	302	16	1.82 (1.67, 1.97)
Morrow, LA, USA, 2013 S13-02221-03 (Cheniere)	500 g/kg, WG	100 103 100	3	- 7 7	303	14	0.86 (0.52, 1.19)
Cheneyville, LA, USA, 2013 S13-02221-04(CL151)	500 g/kg, WG	109 105 105	3	- 7 7	319	0	2.62 (2.45, 2.78)
						6	1.70 (1.41, 1.97)
						15	1.59 (1.80, 1.37)
						21	1.36 (1.41, 1.31)
						27	1.14 (1.10, 1.17)
Heth, AR, USA, 2013 S13-02221-05	500 g/kg, WG	98 99	3	- 7	295	13	0.47 (0.36, 0.58)

Location Year Trial ID (variety)	Application					DALA	Sulfoxaflor Residues mg/kg
	Form	g ai/ha	No.	Re-treatment Interval (days)	Max/ year g ai/ha	days	
(Jupiter)		98		7			
W. Memphis, AR, USA, 2013 S13-02221-06 (CL151)	500 g/kg, WG	98 98 98	3	- 7 8	294	0	2.75 (2.71, 2.79)
						7	1.17 (1.19, 1.15)
						14	0.62 (0.58, 0.65)
						21	0.58 (0.59, 0.57)
						28	0.62 (0.51, 0.74)
Washington, LA, USA, 2013 S13-02221-07 (CL-161)	500 g/kg, WG	100 102 98	3	- 7 7	300	14	0.18 (0.16, 0.20)
Fisk, MO, USA, 2013 S13-02221-08 (CL-111)	500 g/kg, WG	102 102 102	3	- 7 6	306	14	1.64 (1.89, 1.38)
E. Bernard, TX, USA, 2013 S13-02221-09 (Chenieve)	500 g/kg, WG	98 98 99	3	- 7 8	295	14	1.46 (1.82, 1.09)
E. Bernard, TX, USA, 2013 S13-02221-10 (Presidio)	500 g/kg, WG	98 98 98	3	- 7 8	294	13	1.86 (1.83, 1.88)
Yuba City, CA, USA, 2013 S13-02221-11 (101A)	500 g/kg, WG	98 97 98	3	- 7 7	293	14	2.25 (1.61, 2.89)
Woodland, CA, USA. 2013 S13-02221-12 (M206)	500 g/kg, WG	97 97 97	3	- 7 7	291	14	1.68 (2.05, 1.31)

Four supervised field trials were conducted in the Philippines on rice during the 2009 growing season (Litzow, 2011, Report 090044). At each trial location, two plots were treated. One plot received four foliar applications, each at a nominal rate of 96 g ai/ha, of a soluble concentrate formulation containing sulfoxaflor at a nominal concentration of 22% (w/w). The second plot received four foliar applications, each at a nominal rate of 100 g ai/ha, of a water-dispersible granule formulation containing sulfoxaflor at a nominal concentration of 50% (w/w).

Applications were made 7 days apart for both treatment groups. In trial PH-03, an adjuvant was applied at 0.1% v/v to the plot treated with the WDG formulation. All applications were made as a high-volume (1000 L/ha) broadcast foliar spray over the top of the crop canopy.

Single composite samples of husked rice grain, each weighing 1.5 kg, were collected 10 days after the last application. Varieties of rice were not specified.

Table 6 Sulfoxaflor residues in paddy rice grain from supervised trials conducted in the Philippines

Location Year Trial ID	Application					DALA	Sulfoxaflor Residues, mg/kg
	Form	g ai/ha	No.	Re-treatment Interval (days)	Max/ year g ai/ha	(days)	
Indonesia GAP	500 g/kg, WG	75-100	4	7	400	10	
Pagdugue Dumangas Iloilo, Philippines, 2009 PHI-01	240 g/L, SC	96 96 96 96	4	- 7 7 7	384	10	0.73

Location Year Trial ID	Application					DALA	Sulfoxaflor Residues, mg/kg
	Form	g ai/ha	No.	Re-treatment Interval (days)	Max/ year g ai/ha	(days)	
	500 g/kg, WG	100 100 100 100	4	- 7 7 7	400	10	2.2
Acuit, Barotac Nuevo, Iloilo, Philippines, 2009 PHI-02	240 g/L, SC	96 96 96 96	4	- 7 7 7	384	10	1.7
	500 g/kg, WG	100 100 100 100	4	- 7 7 7	400	10	3.8
Sta Arcadia, Cabanatuan City, Philippines, 2009 PHI-03	240 g/L, SC	96 96 96 96	4	- 7 7 7	384	10	0.95
	500 g/kg, WG	100 100 100 100	4	- 7 7 7	400	10	1.2
Maligaya, Munoz, Nueva Ecija, Philippines, 2009 PHI-04	240 g/L, SC	96 96 96 96	4	- 7 7 7	384	10	0.90
	500 g/kg, WG	100 100 100 100	4	- 7 7 7	400	10	0.96

Four supervised field trials were conducted in Australia on rice crops during the 2009 growing season (Litzow, 2010, Report 090037). The trials were conducted with each treated plot receiving four foliar applications, 6-8 days apart, at a nominal rate of 96 g ai/ha, of a soluble concentrate formulation containing sulfoxaflor at a nominal concentration of 22% (w/w). Applications were made as a horizontal broadcast spray over the top of the crop canopy. An adjuvant was included in all spray mixtures at 0.01% v/v.

Duplicate composite samples of rice grain weighing at least 1 kg, were collected at 10-11 days after the last application, while single composite samples of rice grain were collected at 0, 7, 14, and 21 days after last application.

Table 7 Sulfoxaflor residues in paddy rice grain from supervised trials conducted in Australia

Location Year Trial ID (variety)	Application					DALA	Sulfoxaflor Residues, mg/kg
	Form	g ai/ha	No.	Re-treatment Interval (days)	Max/ year g ai/ha	days	
Indonesia GAP	500 g/kg, WG	75-100	4	7	400	10	
Jerilderie, New South Wales, Australia, 2009 090079[1] (Jarrah)	240 g/L, SC	96 96 95 96	4	- 7 7 7	383	0 7 11 14 21	2.8 1.4 1.6 (1.5, 1.6) 1.7 1.1

Location Year Trial ID (variety)	Application					DALA	Sulfoxaflor Residues, mg/kg
	Form	g ai/ha	No.	Re-treatment Interval (days)	Max/ year g ai/ha	days	
Jerilderie, New South Wales, Australia, 2009 090080[1] (Quest)	240 g/L, SC	99 99 99 97	4	- 7 7 7	394	0 7 11 14 21	2.8 1.1 0.98 (0.95, 1.0) 0.93 1.0
Murrami, New South Wales, Australia, 2009 09008[1] (Longi)	240 g/L, SC	99 93 97 100	4	- 7 7 7	389	0 7 10 14 21	5.1 2.9 3.2 (3.2, 3.2) 4.0 2.2
Narrandera, New South Wales, Australia, 2009 090082 (Amaroo)	240 g/L, SC	99 100 98 94	4	- 7 7 7	391	0 7 10 14 21	3.3 3.2 2.4 (2.5, 2.2) 2.2 2.1

[a] Treatment dates were 2 weeks apart between sites, rendering the trials independent

One supervised field trial was conducted in Malaysia on rice during the 2014 growing season (Jasmi, 2014, Report 140766). Three treated plots received four foliar applications, 7 days apart, each at a nominal rate of 75 g ai/ha, of a water-dispersible granule formulation containing sulfoxaflor at a nominal concentration of 500 g/kg.

Samples of paddy rice, each weighing about 300 g, were collected at 0, 3, 10, and 12 days after the last application. Rice grain samples harvested 12 DAA were further prepared into semi-polished and polished white rice.

Table 8 Sulfoxaflor residues in rice from supervised trials conducted in Malaysia

Location Year Trial ID (variety)	Application					DALA	Portion analysed	Sulfoxaflor Residues, mg/kg
	Form	g ai/ha	No.	Re-treatment Interval (days)	Max/ year g ai/ha	days		
Malaysia GAP	500 g/kg, WG	75	4	7	300	10		
Tanjung Karang, Kuala Selangor, Malaysia, 2014 140766	500 g/kg, WG	75 75 75 75	4	- 7 7 7	300	0 3 10 12	Paddy rice	3.04 (3.04, 3.01, 3.08) 0.83 (0.87, 0.78) 0.86 (0.86, 0.89, 0.82) 0.78 (0.87, 0.78, 0.69)
						12	Semi-polished white rice	0.11 (0.11, 0.11, 0.12)
						12	Polished white rice	0.10 (0.10, 0.10, 0.11)

Seven supervised field trials were conducted in Argentina (2) and Brazil (5) on rice crops during the 2011-2013 growing seasons (Fedatto, 2014, Report 120014; Castanho, 2012, Report 110832R1). The Argentina trials were conducted with each treated plot receiving one foliar application at a nominal rate of 40 g ai/ha, while for the Brazil trials, each plot received two foliar applications made 9-22 days apart, each at a nominal rate of 30 g ai/ha. All trials were conducted using a suspension emulsion formulation containing nominal concentrations of sulfoxaflor at 100g ai/L and lambda-cyhalothrin at 150 g ai/L.

For the Argentina trials, individual samples of paddy rice and husked rice, were collected at 0 and 15 days after application. For the Brazil trials, duplicate composite samples of husked rice, each weighing at least 1 kg, were collected 21 days after the last application with additional samples collected at 7, 14, 28, and 35 days after the last application for two of these trials.

Table 9 Sulfoxaflor residues in rice from supervised trials conducted in Argentina and Brazil

Location Year Trial ID (variety)	Application				DALA	Portion analysed	Sulfoxaflor Residues, mg/kg
	Form	g ai/ha	No.	Max/ year g ai/ha	days		
Columbia GAP	240 g/L, SC	48	1	48	14		
San Salvador, Argentina, 2013 120014 ARG1 (Guri)	100 g/L, SE	39	1	39	0 15	Paddy rice	1.25 0.20
					0 15	Husked rice	0.02 0.01
Esquina, Argentina, 2013 120014 ARG2 (Yerua)	100 g/L, SE	40	1	40	0 15	Paddy rice	1.19 0.27
					0 15	Husked rice	0.02 0.01
Uberlândia, MG, Brazil, 2012 110832R1 MG1 (Sertaneja)	100 g/L, SE	30 31	2	61	7 14 21 28 35	Husked rice	0.15 (0.29. 0.01) 0.08 (0.14, 0.01) 0.04 (0.06, 0.01) 0.10 (0.18, 0.01) 0.02 (0.02, 0.01)
Candelária, RS, Brazil, 2012 110832R1 RS1 (CL422)	100 g/L, SE	30 30	2	60	7 14 21 28 35	Husked rice	0.42 (0.82, 0.01) 0.31 (0.60, 0.01) 0.18 (0.33, 0.02) 0.18 (0.33, 0.02) 0.19 (0.37, 0.01)
Jaboticabal, SP, Brazil, 2012 110832R1 SP1 (Sertaneja)	100 g/L, SE	30 30	2	60	21	Husked rice	0.09 (0.16, 0.02)
Erebango, RS, Brazil, 2012 110832R1 RS2 (Querência)	100 g/L, SE	34 32	2	66	21	Husked rice	0.13 (0.23, 0.02)
Santa Cruz do Sul, RS, Brazil, 2012 110832R1 RS3 (Querência)	100 g/L, SE	30 31	2	61	21	Husked rice	0.03 (0.05, 0.01)

Six supervised field trials were conducted in China on rice during the 2010-2011 growing seasons (Zhen, 2011, Report 2011006009). Each trial consisted of either1, 2 or 3 applications at 91 g ai/ha (nominal) or 1, 2 or 3 applications at 137 g ai/ha. Applications were made at 7-day intervals using a soluble concentrate formulation containing sulfoxaflor at a nominal concentration of 22% (w/w).

Triplicate samples of husked rice grain, weighing a minimum of 100g, were collected at 7, 10, and 14 days after the last application. Samples were analysed for residues of sulfoxaflor using the validated LC-MS/MS method DAS-AM-G-09-19. The LOQ was reported to be 0.01 mg/kg.

Table 10 Sulfoxaflor residues in husked rice from supervised trials conducted in China

Location Year Trial ID (variety)	Application				DALA	Sulfoxaflor Residues, mg/kg
	Form	g ai/ha	No.	Max/ year g ai/ha	Days	
China GAP	240 g/L, SC	50-66	1	66	14	
Beijing, China, 2010 2011006009 L-2	240 g/L, SC	91 91	2	182	7 10 14	0.20 (0.20, 0.20. 0.19) 0.17 (0.18, 0.16, 0.17) 0.13 (0.13, 0.12, 0.13)
Beijing, China, 2010 2011006009 L-3	240 g/L, SC	91 91 91	3	273	7 10 14	0.29 (0.30, 0.30, 0.28) 0.29 (0.30,0.29. 0.29) 0.28 (0.27, 0.28, 0.27)
Beijing, China, 2010 2011006009 H-2	240 g/L, SC	137 137	2	273	7 10 14	0.35 (0.36, 0.35, 0.35) 0.34 (0.34, 0.35, 0.34) 0.27 (0.27, 0.28, 0.27)

Location Year Trial ID (variety)	Application				DALA	Sulfoxaflor Residues, mg/kg
	Form	g ai/ha	No.	Max/ year g ai/ha	Days	
Beijing, China, 2010 2011006009 H-3	240 g/L, SC	137 137 137	3	411	7 10 14	0.54 (0.54, 0.54, 0.53) 0.52 (0.52, 0.51, 0.52) 0.44 (0.45, 0.44, 0.44)
Zhejiang, China, 2010 2011006009 L-2	240 g/L, SC	91 91	2	182	7 10 14	0.21 (0.21 0.21, 0.22) 0.24 (0.23, 0.25, 0.24) 0.13 (0.14, 0.13, 0.13)
Zhejiang, China, 2010 2011006009 L-3	240 g/L, SC	91 91 91	3	273	7 10 14	0.53 (0.54, 0.52, 0.53) 0.34 (0.34, 0.34, 0.34) 0.28 (0.29, 0.27, 0.27)
Zhejiang, China, 2010 2011006009 H-2	240 g/L, SC	137 137	2	273	7 10 14	0.60 (061, 0.60, 0.60) 0.38 (0.39, 0.38, 0.38) 0.31 (0.32, 0.30, 0.31)
Zhejiang, China, 2010 2011006009 H-3	240 g/L, SC	137 137 137	3	411	7 10 14	0.69 (0.69, 0.70, 0.69) 0.57 (0.57, 0.57, 0.56) 0.47 (0.48, 0.47, 0.47)
Anhui, China, 2010 2011006009 L-2	240 g/L, SC	91 91	2	182	7 10 14	0.55 (0.54, 0.55, 0.55) 0.36 (0.36, 0.35, 0.37) 0.13 (0.14, 0.12, 0.12)
Anhui, China, 2010 2011006009 L-3	240 g/L, SC	91 91 91	3	273	7 10 14	0.65 (0.35, 0.65, 0.66) 0.47 (0.47, 0.45, 0.48) 0.28 (0.28, 0.29, 0.28)
Anhui, China, 2010 2011006009 H-2	240 g/L, SC	137 137	2	273	7 10 14	0.66 (0.66, 0.65, 0.66) 0.40 (0.40, 0.39, 0.40) 0.34 (0.34, 0.34, 0.34)
Anhui, China, 2010 2011006009 H-3	240 g/L, SC	137 137 137	3	411	7 10 14	0.76 (0.77, 0.76, 0.76) 0.61 (0.61, 0.62, 0.61) 0.52 (0.53, 0.52, 0.52)
Beijing, China, 2011 2011006009 L-1	240 g/L, SC	91	1	91	7 10 14	0.08 (0.08, 0.08, 0.08) 0.03 (0.04, 0.03, 0.03) 0.03 (0.03, 0.03, 0.02)
Beijing, China, 2011 2011006009 L-2	240 g/L, SC	91 91	2	182	7 10 14	0.22 (0.22, 0.22, 0.22) 0.13 (0.13, 0.12, 0.14) 0.03 (0.04, 0.03, 0.03)
Beijing, China, 2011 2011006009 H-1	240 g/L, SC	137	1	137	7 10 14	0.18 (0.18, 0.18, 0.18) 0.16 (0.17, 0.16, 0.16) 0.05 (0.06, 0.06, 0.04)
Beijing, China, 2011 2011006009 H-2	240 g/L, SC	137 137	2	273	7 10 14	0.37 (0.38, 0.36, 0.38) 0.17 (0.18, 0.16, 0.17) 0.09 (0.10, 0.09 0.09)
Zhejiang, China, 2011 2011006009 L-1	240 g/L, SC	91	1	91	7 10 14	0.03 (0.03, 0.04, 0.03) 0.03 (0.03, 0.03, 0.03) 0.02 (0.02, 0.02, 0.02)
Zhejiang, China, 2011 2011006009 L-2	240 g/L, SC	91 91	2	182	7 10 14	0.09 (0.09, 0.09, 0.09) 0.08 (0.08, 0.08, 0.07) 0.04 (0.04, 0.04, 0.04)
Zhejiang, China, 2011 2011006009 H-1	240 g/L, SC	137	1	137	7 10 14	0.08 (0.08, 0.08, 0.08) 0.04 (0.04, 0.04, 0.04) 0.03 (0.03, 0.03, 0.03)
Zhejiang, China, 2011 2011006009 H-2	240 g/L, SC	137 137	2	273	7 10 14	0.11 (0.11, 0.11, 0.10) 0.08 (0.08, 0.09, 0.08) 0.07 (0.08, 0.08, 0.07)
Anhui, China, 2011 2011006009 L-1	240 g/L, SC	91	1	91	7 10 14	0.06 (0.05, 0.06, 0.06) 0.04 (0.05, 0.04, 0.04) 0.02 (0.02, 0.02, 0.03)
Anhui, China, 2011 2011006009 L-2	240 g/L, SC	91 91	2	182	7 10 14	0.10 (0.10, 0.10, 0.11) 0.04 (0.04, 0.03, 0.04) 0.02 (0.02, 0.02, 0.02)
Anhui, China, 2011 2011006009 H-1	240 g/L, SC	137	1	136.5	7 10 14	0.10 (0.09, 0.10, 0.10) 0.05 (0.05, 0.06, 0.05) 0.02 (0.02, 0.02, 0.02)

Location Year Trial ID (variety)	Application				DALA	Sulfoxaflor Residues, mg/kg
	Form	g ai/ha	No.	Max/ year g ai/ha	Days	
Anhui, China, 2011 2011006009 H-2	240 g/L, SC	137 137	2	273	7 10 14	0.11 (0.11, 0.10, 0.11) 0.05 (0.05, 0.04, 0.04) 0.04 (0.04, 0.04, 0.04)

Four supervised field trials were conducted in India on rice during the 2011 growing season (Srirgiriraju, 2012, Report 2024402). Each trial consisted of two treatment groups. One treatment group received two applications at a nominal rate of 105 g ai/ha (one trial received 3 applications). The second treatment group received 2 applications at 210 g ai/ha (one trial received 3 applications). Applications were made at 10 to 40-day intervals using a soluble concentrate formulation containing sulfoxaflor at a nominal concentration of 22% (w/w). Triplicate samples of rice grain were collected at 14 to 45 days after the last application.

Residues of sulfoxaflor in rice grain were determined using a modified LC-MS/MS QuEChERS method (not further specified), for which the LOQ was reported to be 0.01 mg/kg.

Table 11 Sulfoxaflor residues in husked rice from supervised trials conducted in India

Location Year Trial ID (variety)	Application				DALA	Sulfoxaflor Residues, mg/kg
	Form	g ai/ha	No.	Max/ year g ai/ha	days	
Indian GAP	240 g/L, SC	90	2	180	15	
Bidhan Chandra Krishi Viswavidyalaya, Mohanpur, India, 2011, 2024402 LocI (Khitish)	240 g/L, SC	105 105	2	210	28	<0.01 (<0.01, <0.01, <0.01)
	240 g/L, SC	210 210	2	420	28	<0.01 (<0.01, <0.01, <0.01)
G.B.Pant University of Agriculture & Technology, Pantnagar, India, 2011, 2024402 LocII (Pusa-1121)	240 g/L, SC	105 105 105	3	315	29	<0.01 (<0.01, <0.01, <0.01)
	240 g/L, SC	210 210 210	3	630	29	<0.01 (<0.01, <0.01, <0.01)
Tamil Nadu Agricultural University, Madurai, India, 2011, 2024402 LocIII (BPT-5204)	240 g/L, SC	105 105	2	210	14	<0.01 (<0.01, <0.01, <0.01)
	240 g/L, SC	210 210	2	420	14	<0.01 (<0.01, <0.01, <0.01)
Anand Agricultural University, Anand, India, 2011, 2024402 LocIV (GR-4)	240 g/L, SC	105 105	2	210	45	<0.01 (<0.01, <0.01, <0.01)
	240 g/L, SC	210 210	2	420	45	<0.01 (<0.01, <0.01, <0.01)

Sorghum grain

Residue trial data on sorghum were first evaluated by JMPR in 2016. At the time no maximum residue level proposal was made for sorghum grain as trials were not conducted according to the critical GAP. The data evaluated by JMPR in 2016 was re-assessed at the current Meeting.

Nine supervised field trials, two of which were residue decline trials, were conducted in the USA on sorghum grain during the 2012 growing season (Korpalski, 2013). Each treated plot received two foliar applications of a water-dispersible granule

formulation containing sulfoxaflor at a nominal concentration of 50% (w/w), at a target rate of 50 g ai/ha and retreatment interval of 7 days. An adjuvant was included within the tank mixture at each application.

Grain samples were collected 13-14 days after the last application. At decline trials, additional samples were collected at 7, 21 and 28 days after application.

Table 12 Sulfoxaflor residues in sorghum grain from supervised trials in the USA

Location Year Trial ID (variety)	Application					DALA	Sulfoxaflor Residues, mg/kg
	Form	g ai/ha	No.	Re-treatment Interval (days)	Max/ year g ai/ha	days	
Canada GAP	240 g/L SC	18-36	2	7	72	14	
Neelyville, MO, USA, 2012 120427.01 (DK553-67)	500 g/kg, WG	49 49	2	- 13	98	13	0.04 (0.04, 0.03)
Richland, IA, USA, 2012 120427.02 (Pioneer 84G62)	500 g/kg, WG	50 50	2	- 14	100	14	0.04 (0.04, 0.04)
Cherry Grove, MN, USA, 2012 120427.03 (Not reported)	500 g/kg, WG	50 50	2	- 14	100	14	0.04 (0.04, 0.04)
Seymour, IL, USA, 2012 120427.04 (Wildlife)	500 g/kg, WG	49 49	2	- 14	98	7	0.09 (0.09, 0.09)
						14	0.05 (0.05, 0.05)
						21	0.03 (0.03, 0.03)
						28	0.03 (0.03, 0.02)
Hinton, OK, USA, 2012 120427.05 (SR25835)	500 g/kg, WG	49 52	2	- 13	101	14	0.02 (0.02, 0.02)
East Bernard, TX, USA, 2012 120427.06 (SR06-MH5001)	500 g/kg, WG	50 51	2	- 14	101	7	0.12 (0.10, 0.14)
						14	0.14 (0.13, 0.15)
						21	0.11 (0.10, 0.13)
						28	0.09 (0.09, 0.10)
Carrington, ND, USA, 2012 120427.07 (Not reported)	500 g/kg,WG	50 50	2	- 14	100	13	0.08 (0.07, 0.08)
Dill City, OK, USA, 2012 120427.08 (SR25835)	500 g/kg, WG	51 51	2	- 14	102	14	0.03 (0.03, 0.03)
Larned, KS, USA, 2012 120427.09 (84G62)	500 g/kg, WG	49 49	2	- 13	98	14	0.15 (0.15, 0.15)

Sweet corn (Corn-on-the cob) kernels plus cob with husks removed (K+CWHR)

Residue trial data on sweet corn were first evaluated by JMPR in 2016. At the time no maximum residue level proposal was made for sweet corn (corn-on-the-cob) (kernels plus cobs with husks removed) due to the absence of an approved GAP. The data evaluated by JMPR in 2016 was re-assessed at the current Meeting.

Nine supervised field trials, of which two were residue decline trials, were conducted in the USA on sweet corn crops during the 2012 growing season (Korpalski, 2015). Treated plots received two foliar applications of a water-dispersible granule formulation containing sulfoxaflor at a nominal concentration of 50% (w/w), at the nominal rate of 50 g ai/ha, for a total seasonal rate of 100 g ai/ha. The test substance was applied at 21 and 7 days before harvest. Application spray volumes ranged from 193 to 282 L/ha. An adjuvant was added to each tank mix.

At all trials, samples of kernels plus cob with husks removed (K+CWHR) were collected 7 days after the last application. For the decline trials, samples were also collected at 0, 14, 21, and 28 days after the last application.

Table 13 Sulfoxaflor residues in kernels plus cob with husks removed (K+CWHR) from supervised trials in the USA

Location Year Trial ID (variety)	Application					DALA	Sulfoxaflor Residues, mg/kg
	Form	g ai/ha	No.	Re-treatment Interval (days)	Max/ year g ai/ha	days	
Canada GAP	240 g/L SC	18-36	2	7	72	7	
Alton, NY, USA, 2012 120425.01 (Spring Treat)	500 g/kg, WG	50 50	2	- 14	100	8	<0.01 (<0.01, <0.01)
Jeffersonville, GA, USA, 2012 120425.02 (Sweet G-90)	500 g/kg, WG	50 50	2	- 14	100	7	<0.01 (<0.01, <0.01)
Zellwood, FL, USA, 2012 120425.03 (Awesome)	500 g/kg, WG	50 50	2	- 14	100	7	<0.01 (<0.01, <0.01)
Richland, IA, USA, 2012 120425.04 (Incredible)	500 g/kg, WG	50 51	2	- 14	101	7	<0.01 (<0.01, <0.01)
Lime Springs, IA, USA, 2012 120425.05 (Incredible R/M)	500 g/kg, WG	50 51	2	- 14	101	7	<0.01 (<0.01, <0.01)
Seymour, IL, USA, 2012 120425.06 (Gold Nugget)	500 g/kg, WG	50 50	2	- 14	100	0	<0.01 (<0.01, <0.01)
						7	<0.01 (<0.01, <0.01)
						14	<0.01 (<0.01, <0.01)
						21	<0.01 (<0.01, <0.01)
						28	<0.01 (<0.01, <0.01)
Sanger, CA, USA, 2012 120425.07 (Jubilee)	500 g/kg, WG	49 50	2	- 14	99	0	<0.01 (<0.01, <0.01)
						7	<0.01 (<0.01, <0.01)
						14	<0.01 (<0.01, <0.01)
						21	<0.01 (<0.01, <0.01)
						28	<0.01 (<0.01, <0.01)
Payette, ID, USA, 2012 120425.08	500 g/kg, WG	51 51	2	- 14	102	7	<0.01 (<0.01, <0.01)

Location Year Trial ID (variety)	Application					DALA	Sulfoxaflor Residues, mg/kg
	Form	g ai/ha	No.	Re-treatment Interval (days)	Max/ year g ai/ha	days	
(Ambrosia)							
Hillsboro, OR, USA, 2012 120425.09 (Jubilee Super-sweet)	500 g/kg, WG	50 50	2	- 14	100	7	<0.01 (<0.01, <0.01)

Tree Nuts

Residue trial data on tree nuts were first evaluated by JMPR in 2014 and 2016. At the time no maximum residue level proposal was made for tree nuts as the supervised trials were not conducted in accordance with the critical GAP (2014) or there was no GAP made available to the Meeting (2016). The data evaluated by JMPR in 2016 was re-assessed at the current Meeting.

Almond

Five supervised trials in established almond orchards were carried out in the USA during the 2014 growing season (Best, 2015, Report 140318). The treated plots each received three applications of a soluble concentrate formulation containing 240 g/L of sulfoxaflor, at the nominal rate of 100 g ai/ha at weekly intervals. Spray volumes were targeted at 935–3741 L/ha and a commercial adjuvant typically used for insecticide applications to almonds was included at recommended rates.

Samples of whole almond nuts were collected at maturity, 6-7 days after the last application. In addition, samples were collected at 0, 2, 7, 13 and 21 days after application from the decline trial plot. After harvesting, the almonds were processed by separating hulls then shelling the nut to remove the nutmeats.

Table 14 Sulfoxaflor residues in almond nutmeat from supervised trials conducted in the USA

Location Year Trial ID (variety)	Application					DALA	Sulfoxaflor Residues mg/kg
	Form	g ai/ha	No.	Re-treatment Interval (days)	Max/ year g ai/ha	days	
USA GAP	240 g/L, SC 500 g/kg, WG	101	4	7	298	7	
Sanger, CA, USA, 2014 S14-01598-01 (Padre)	240 g/L, SC	101 100 100	3	- 7 7	302	7	<0.01 (<0.01, <0.01)
Zamora, CA, USA, 2014 S14-01598-02 (Butte)	240 g/L, SC	101 101 101	3	- 7 7	304	6	<0.01 (<0.01, <0.01)
Strathmore, CA, USA, 2014 S14-01598-03 (Fritz)	240 g/L, SC	101 102 102	3	- 7 7	305	7	<0.01 (<0.01, <0.01)
Arbuckle, CA, USA, 2014 S14-01598-04 (Winters)	240 g/L, SC	100 103 101	3	- 7 7	305	6	<0.01 (<0.01, <0.01)
Winters, CA, USA, 2014 S14-01598-05 (Butte)	240 g/L, SC	101 100 101	3	- 7 7	302	0	<0.01 (<0.01, <0.01)
						2	<0.01 (<0.01, <0.01)
						7	<0.01 (<0.01, <0.01)
						13	<0.01 (<0.01, <0.01)
						21	<0.01 (<0.01, <0.01)

Pecans

Five supervised trials on pecans were carried out in the USA during the 2014 growing season, in a similar manner as the trials on almonds (Best, 2015, Report 140319). Each treated plot received three foliar applications of a soluble concentrate formulation containing 240 g/L of sulfoxaflor, at the nominal rate of 100 g ai/ha at weekly intervals. Spray volumes were 935–3741 L/ha and a commercial adjuvant typically used for insecticide applications to pecans was included in the tank mixes at recommended rates.

Samples of pecan nuts were collected at maturity, 7 to 8 days after the last application. In addition, samples were collected from the decline trial at 0, 3, 7, 14 and 22 days after the last application. After harvesting, pecans were processed by shelling the nut to remove the nutmeats.

Table 15 Sulfoxaflor residues in pecans from supervised trials conducted in the USA

Location Year Trial ID (variety)	Application					DALA	Sulfoxaflor Residues mg/kg
	Form	g ai/ha	No.	Re-treatment Interval (days)	Max/ year g ai/ha	days	
USA GAP	240 g/L, SC 500 g/kg, WG	101	4	7	298	7	
Dublin, GA, USA, 2014 S14-01608-01 (Desirable)	240 g/L, SC	108 100 104	3	- 7 6	314	8	0.02 (0.02, 0.02)
Cordele, GA, USA, 2014 S14-01608-02 (Desirable)	240 g/L, SC	100 98 98	3	- 7 7	297	0	<0.01 (<0.01, <0.01)
						3	<0.01 (<0.01, <0.01)
						7	<0.01 (<0.01, <0.01)
						14	<0.01 (<0.01, <0.01)
						22	<0.01 (<0.01, <0.01)
Port Barre, LA, USA, 2014 S14-01608-03 (Cuddo)	240 g/L, SC	110 106 108	3	- 7 7	324	7	<0.01 (<0.01, <0.01)
Pearsall, TX, USA, 2014 S14-01608-04 (Cheyenne)	240 g/L, SC	100 101 98	3	- 7 7	300	7	<0.01 (<0.01, <0.01)
Lubbock, TX, USA, 2014 S14-01608-05 (Western Schley)	240 g/L, SC	98 99 99	3	- 7 7	296	7	<0.01 (<0.01, <0.01)

Animal feeds

Residue trials on maize, rice, sorghum, sweet corn and almonds resulted in residues in forage and stover/straw as well as almond hulls, all of which are animal feed commodities.

Residue trial data on maize, rice (USA), sorghum, sweet corn and almonds were evaluated by JMPR in 2016. At the time no maximum residue level proposal was made as trials were not conducted in accordance with GAP or there was no GAP made available to the Meeting. The data evaluated by JMPR in 2016 was re-assessed at the current Meeting.

Straw, Fodder and Forage of Cereals

Maize forage and stover

Fifteen supervised field trials, four of which were decline trials, were conducted in the USA on maize during the 2012 growing season (Korpalski, 2013). Treated plots each received two foliar applications of a water-dispersible granule formulation containing sulfoxaflor at a nominal concentration of 50% (w/w), at the target rate of 50 g ai/ha, and re-treatment intervals of 13-16 days. Spray volumes ranged from 188 to 281 L/ha. An adjuvant was added to each tank mix.

Forage samples were collected at 6-8 days after the last test application as well as at 14-15, 21, and 28-29 days after application for decline trials. Stover samples were cut 13-15 days after application and also at 7-8 (or 12), 20-22 and 27-29 DALA for decline trials. After cutting, stover was dried if necessary to reach target estimated moisture content below 20%.

Table 16 Sulfoxaflor residues in maize forage and stover from supervised trials in the USA

Location Year Trial ID (variety)	Application					DALA	Portion analysed	Sulfoxaflor Residues,[a] mg/kg
	Form	g ai/ha	No.	Re-treatment Interval (days)	Max/ year g ai/ha	days		
Canada GAP	240 g/L SC	18-36	2	7	72	7 14	Forage Stover	
Alton, NY, USA, 2012 120426.01 (HL 20932)	500 g/kg, WG	50 50	2	- 13	100	7	Forage	0.10 (0.10, 0.10)
						15	Stover	0.22 (0.21, 0.22)
Jeffersonville, GA, USA, 2012 120426.02 (P1814HR)	500 g/kg, WG	50 50	2	- 14	100	8	Forage	0.03 (0.04, 0.02)
						14	Forage	0.01 (0.02, 0.01)
						21	Forage	<0.01 (<0.01, <0.01)
						29	Forage	<0.01 (<0.01, <0.01)
						12	Stover	0.02 (0.02, 0.02)
						15	Stover	0.02 (0.02, 0.02)
						22	Stover	<0.01 (<0.01, 0.01)
						29	Stover	<0.01 (<0.01, <0.01)
Enid, OK, USA, 2012 120426.03 (DKC 65-19)	500 g/kg, WG	49 51	2	- 14	100	7	Forage	0.35 (0.39, 0.30)
						14	Stover	0.09 (0.09, 0.09)
Leonard, MO, USA, 2012 120426.04 (Pioneer P1395R)	500 g/kg, WG	50 51	2	- 14	101	7	Forage	0.15 (0.15, 0.15)
						14	Stover	0.43 (0.39, 0.47)
York, NE, USA, 2012 120426.05 (Pioneer P1151HR)	500 g/kg, WG	50 50	2	- 14	100	7	Forage	0.08 (0.08, 0.07)
						14	Stover	0.24 (0.26, 0.22)
Northwood, ND, USA, 2012 120426.06 (8066846 DKC 33-54)	500 g/kg, WG	50 50	2	- 14	100	7	Forage	0.08 (0.10, 0.06)
						14	Stover	0.20 (0.18, 0.22)
Richland, IA, USA, 2012 120426.07 (Pioneer P1360HR)	500 g/kg, WG	50 51	2	- 13	101	7	Forage	0.09 (0.09, 0.09)
						14	Stover	0.54 (0.39, 0.68)
Stafford, KS, USA, 2012 120426.08 (P1151HR)	500 g/kg, WG	49 50	2	- 14	99	7	Forage	0.05 (0.05, 0.05)
						14	Stover	0.11 (0.12, 0.10)
Monticello, IL, USA, 2012 120426.09 (Becks 5442VTS)	500 g/kg, WG	50 50	2	- 14	100	7	Forage	0.13 (0.13, 0.13)
						14	Stover	0.23 (0.22, 0.23)
Seymour, IL, USA, 2012 120426.10	500 g/kg, WG	50 50	2	- 14	100	7	Forage	0.11 (0.09, 0.13)
						14	Forage	0.04

Location Year Trial ID (variety)	Application					DALA	Portion analysed	Sulfoxaflor Residues,[1] mg/kg
	Form	g ai/ha	No.	Re-treatment Interval (days)	Max/ year g ai/ha	days		
(Phoenix 5385A3)								(0.03, 0.04)
						21	Forage	0.01 (0.01, 0.01)
						28	Forage	<0.01 (<0.01, 0.01)
						7	Stover	0.46 (0.48, 0.44)
						14	Stover	0.15 (0.16, 0.14)
						20	Stover	0.15 (0.17, 0.13)
						28	Stover	0.08 (0.10, 0.07)
Cherry Grove, MN, USA, 2012 120426.11 (DKC 45-51 R1B)	500 g/kg, WG	50 51	2	- 14	101	7	Forage	0.11 (0.12, 0.09)
						14	Stover	0.23 (0.23, 0.23)
Lime Springs, IA, USA, 2012 120426.12 (DKC 45-51 R1B/ A102588)	500 g/kg, WG	51 52	2	- 14	103	7	Forage	0.12 (0.11, 0.12)
						15	Forage	0.04 (0.04, 0.04)
						21	Forage	0.04 (0.04, 0.04)
						28	Forage	0.04 (0.02, 0.05)
						7	Stover	0.84 (0.72, 0.95)
						14	Stover	0.31 (0.30, 0.32)
						21	Stover	0.18 (0.20, 0.15)
						28	Stover	0.11 (0.10, 0.11)
Bagley, IA, USA, 2012 120426.13 (P1395XR)	500 g/kg, WG	50 51	2	- 14	101	7	Forage	0.11 (0.12, 0.09)
						15	Stover	0.06 (0.08, 0.04)
Fisk, MO, USA, 2012 120426.14 (Pioneer P1948)	500 g/kg, WG	49 50	2	- 15	99	7	Forage	0.22 (0.23, 0.21)
						13	Stover	0.18 (0.17, 0.19)
East Bernard, TX, USA, 2012 120426.15 (DKC 66-96)	500 g/kg, WG	50 53	2	- 15	104	7	Forage	0.31 (0.34, 0.28)
						15	Forage	0.25 (0.19, 0.30)
						21	Forage	0.12 (0.13, 0.11)
						29	Forage	0.10 (0.09, 0.10)
						8	Stover	0.55 (0.59, 0.50)
						15	Stover	0.41 (0.31, 0.51)
						22	Stover	0.31 (0.28, 0.33)
						27	Stover	0.29 (0.30, 0.27)

Rice straw

Twelve supervised field trials, including two decline trials, were conducted in the USA on rice crops during the 2013 growing season (Csinos, 2014, Report 130510). Three foliar applications of a water-dispersible granule formulation containing sulfoxaflor were made at a nominal concentration of 50% (w/w), 6 to 7 days apart, at a target rate of 100 g ai/ha. An adjuvant was included within the tank mixture at each application.

Rice straw samples were collected at 13-16 days after the last application. In the two decline trials, samples of straw were collected at approximately 0, 7, 21 and 28 days after last application. Samples of grain weighed a minimum of 0.5 kg.

Table 17 Sulfoxaflor residues in rice straw from supervised trials conducted in the USA

Location, Year Trial ID (variety)	Application					DALA	Sulfoxaflor
	Form	g ai/ha	No.	Re-treatment Interval (days)	Max/ year g ai/ha	days	Residues mg/kg
Pollard, AR, USA, 2013 S13-02221-01 (CL-111)	500 g/kg, WG	101 101 101	3	- 7 6	303	14	0.73 (0.81, 0.64)
Malden, MO, USA, 2013 S13-02221-02 (CL-111)	500 g/kg, WG	99 101 102	3	- 7 7	302	16	0.36 (0.34, 0.38)
Morrow, LA, USA, 2013 S13-02221-03 (Cheniere)	500 g/kg, WG	100 103 100	3	- 7 7	303	14	0.50 (0.47, 0.53)
Cheneyville, LA, USA, 2013 S13-02221-04 (CL-151)	500 g/kg, WG	109 105 105	3	- 7 7	319	0	3.09 (2.86, 3.31)
						6	2.03 (2.14, 1.92)
						15	0.93 (0.87, 0.99)
						21	0.69 (0.69, 0.69)
						27	0.68 (0.65, 0.71)
Heth, AR, USA, 2013 S13-02221-05 (Jupiter)	500 g/kg, WG	98 99 98	3	- 7 7	295	13	0.62 (0.71, 0.52)
W. Memphis, AR, USA, 2013 S13-02221-06 (CL-151)	500 g/kg, WG	98 98 98	3	- 7 8	295	0	1.38 (1.33, 1.42)
						7	1.08 (1.03, 1.13)
						14	0.07 (0.07, 0.07)
						21	0.06 (0.06, 0.06)
						28	0.03 (0.03, 0.03)
Washington, LA, USA, 2013 S13-02221-07 (CL-161)	500 g/kg, WG	100 102 98	3	- 7 7	300	14	0.17 (0.13, 0.20)
Fisk, MO, USA, 2013 S13-02221-08 (CL-111)	500 g/kg, WG	102 102 102	3	- 7 6	306	14	0.53 (0.52, 0.53)
E. Bernard, TX, USA, 2013 S13-02221-09 (Chenieve)	500 g/kg, WG	98 98 99	3	- 7 8	295	14	0.36 (0.42, 0.29)
E. Bernard, TX, USA, 2013 S13-02221-10 (Presidio)	500 g/kg, WG	98 98 98	3	- 7 8	294	13	1.09 (1.06, 1.12)
Yuba City, CA, USA, 2013 S13-02221-11 (101-A)	500 g/kg, WG	98 97 98	3	- 7 7	293	14	1.51 (1.54, 1.48)
Woodland, CA, USA. 2013 S13-02221-12 (M-206)	500 g/kg, WG	97 97 97	3	- 7 7	291	14	3.57 (4.01, 3.13)

Four supervised field trials were conducted in the Philippines on rice during the 2009 growing season (Litzow, 2011, Report 090044). At each trial location, two plots were treated. One plot received four foliar applications, each at a nominal rate of 96 g ai/ha, of a soluble concentrate formulation containing sulfoxaflor at a nominal concentration of 22% (w/w). The second plot received four foliar applications, each at a nominal rate of 100 g ai/ha, of a water-dispersible granule formulation containing sulfoxaflor at a nominal concentration of 50% (w/w).

Applications were made 7 days apart for both treatment groups. For trial PH-03, an adjuvant was applied at 0.1% v/v to the plot treated with the WDG formulation. All applications were made as a high-volume (1000 L/ha) broadcast foliar spray over the top of the crop canopy.

Single composite samples of rice straw, weighing 1.5 kg, were collected at 10 days after the last application. Varieties of rice were not specified.

Table 18 Sulfoxaflor residues in rice straw from supervised trials in the Philippines

Location, Year Trial ID (variety)	Application					DALA	Sulfoxaflor Residues [a], mg/kg
	Form	g ai/ha	No.	Re-treatment Interval (days)	Max/ year g ai/ha	(days)	
Indonesia GAP	500 g/kg, WG	75-100	4	7	400	10	
Pagdugue Dumangas Iloilo, Philippines, 2009 090044 PHI-01	240 g/L, SC	96 96 96 96	4	- 7 7 7	384	10	0.09
	500 g/kg, WG	100 100 100 100	4	- 7 7 7	400	10	0.22
Acuit, Barotac Nuevo, Iloilo, Philippines, 2009 090044 PHI-02	240 g/L, SC	96 96 96 96	4	- 7 7 7	384	10	0.47
	500 g/kg, WG	100 100 100 100	4	- 7 7 7	400	10	1.3
Sta Arcadia, Cabanatuan City, Philippines, 2009 090044 PHI-03	240 g/L, SC	96 96 96 96	4	- 7 7 7	384	10	0.10
	500 g/kg, WG	100 100 100 100	4	- 7 7 7	400	10	0.08
Maligaya, Munoz, Nueva Ecija, Philippines, 2009 090044 PHI-04	240 g/L, SC	96 96 96 96	4	- 7 7 7	384	10	0.05
	500 g/kg, WG	100 100 100 100	4	- 7 7 7	400	10	0.07

[a] Residues in straw expressed on as received basis

Four supervised field trials were conducted in Australia on rice crops during the 2009 growing season (Litzow, 2010, Report 090037). The trials were conducted with each treated plot receiving four foliar applications, 6-8 days apart, each at a nominal rate of 96 g ai/ha, of a soluble concentrate formulation containing sulfoxaflor at a nominal concentration of 22% (w/w). Applications were made as a horizontal broadcast spray over the top of the crop canopy. An adjuvant was included in all spray mixtures at 0.01% v/v.

Duplicate composite samples of rice straw weighing at least 1 kg, were collected at 10-11 days after the last application.

Table 19 Sulfoxaflor residues in rice straw from supervised trials conducted in Australia

Location, Year Trial ID (variety)	Application					DALA	Sulfoxaflor Residues [b], mg/kg
	Form	g ai/ha	No.	Re-treatment Interval (days)	Max/ year g ai/ha	days	
Indonesia GAP	500 g/kg, WG	75-100	4	7	400	10	
Jerilderie, New South Wales, Australia, 2009 090079 [a] (Jarrah)	240 g/L, SC	96 96 95 96	4	- 7 7 7	383	11	4.9 (5.2, 4.5)
Jerilderie, New South Wales, Australia, 2009 090080 (Quest)[1]	240 g/L, SC	99 99 99 97	4	- 7 7 7	394	11	1.7 (1.9, 1.5)
Murrami, New South Wales, Australia, 2009 090081 (Longi)	240 g/L, SC	99 93 97 100	4	- 7 7 7	389	10	10.4 (9.7, 11.0)
Narrandera, New South Wales, Australia, 2009 090082 (Amaroo)	240 g/L, SC	99 100 98 94	4	- 7 7 7	391	10	5.7 (5.2, 6.1)

[a] Treatment dates were 2 weeks apart between sites, rendering the trials independent

[b] Residues in straw expressed on as received basis

Five supervised field trials were conducted in Brazil on rice crops during the 2012 growing season (Castanho, 2012, Report 110832R1). Each plot received two foliar applications, 9-22 days apart, at a nominal rate of 30 g ai/ha/application. All trials were conducted using a suspension emulsion formulation containing concentrations of sulfoxaflor at 100 g ai/L and lambda-cyhalothrin at 150 g ai/L.

Samples of rice straw, each weighing at least 1 kg, were collected 21 days after the last application. Additional samples were collected at 7, 14, 28, and 35 days after treatment to assess residue decline.

Table 20 Sulfoxaflor residues in rice straw from supervised trials conducted in Brazil

Location Year Trial ID (variety)	Application				DALA	Sulfoxaflor Residues, mg/kg
	Form	g ai/ha	No.	Max/ year g ai/ha	days	
Columbia GAP	240 g/L, SC	48	1	48	14	
Uberlândia, MG, Brazil, 2012 110832R1 MG1 (Sertaneja)	100 g/L, SE	30 31	2	61	7 14 21 28 35	0.31 0.17 0.04 0.04 0.01
Candelária, RS, Brazil, 2012 110832R1 RS1 (CL422)	100 g/L, SE	30 30	2	60	7 14 21 28 35	1.17 0.68 0.33 0.28 0.21
Jaboticabal, SP, Brazil, 2012 110832R1 SP1 (Sertaneja)	100 g/L, SE	30 30	2	60	21	0.04
Erebango, RS, Brazil, 2012	100 g/L, SE	34 32	2	66	21	0.01

Location Year Trial ID (variety)	Application				DALA	Sulfoxaflor Residues, mg/kg
	Form	g ai/ha	No.	Max/ year g ai/ha	days	
110832R1 RS2 (Querência)						
Santa Cruz do Sul, RS, Brazil, 2012 110832R1 RS3 (Querência)	100 g/L, SE	30 31	2	61	21	0.02

Six supervised field trials were conducted in China on rice during the 2010-2011 growing seasons (Zhen, 2011, Report 2011006009). Each trial consisted of either 1 application at 91 g ai/ha (nominal), 2 applications at 91 g ai/ha (nominal), 3 applications at 91 g ai/ha (nominal), 1 application at 137 g ai/ha, 2 applications at 137 g ai/ha (nominal), or 3 applications at 137 g ai/ha (nominal). Applications were made at 7-day intervals using a soluble concentrate formulation containing sulfoxaflor at a nominal concentration of 22% (w/w).

Three replicate samples of rice plant, cut immediately above the soil surface, each weighing at least 1 kg, were collected 7, 10, and 14 days after the last application. Samples were analysed for residues of sulfoxaflor using the validated LC-MS/MS method DAS-AM-G-09-19. The LOQ was reported to be 0.021 mg/kg.

Table 21 Sulfoxaflor residues in rice plant and hulls from supervised trials conducted in China

Location, Year Trial ID (variety)	Application				DALA	Sulfoxaflor Residues, mg/kg	
	Form	g ai/ha	No.	Max/ year g ai/ha	days		
China GAP	240 g/L, SC	50-66	1	66	14	Plant	Hulls
Beijing, China, 2010 2011006009 L-2	240 g/L, SC	91 91	2	182	7 10 14	0.14 (0.13, 0.14, 0.13) 0.10 (0.10, 0.10, 0.10) 0.04 (0.03, 0.04, 0.04)	4.26 (4.26, 4.27, 4.25) 2.78 (2.78, 2.82, 2.74) 1.30 (1.33, 1.32, 1.26)
Beijing, China, 2010 2011006009 L-3	240 g/L, SC	91 91 91	3	273	7 10 14	0.09 (0.08, 0.10, 0.10) 0.06 (0.05, 0.06, 0.06) 0.05 (0.04, 0.05, 0.05)	5.89 (5.96, 5.89, 5.92) 3.73 (3.80, 3.71, 3.68) 2.91 (2.97, 2.92, 2.83)
Beijing, China, 2010 2011006009 H-2	240 g/L, SC	137 137	2	273	7 10 14	0.11 (0.11, 0.10, 0.11) 0.09 (0.09, 0.09, 0.09) 0.06 (0.05, 0.06, 0.06)	4.67 (4.79, 4.49, 4.72) 3.61 (3.89, 3.03, 3.91) 2.64 (2.96, 2.89, 2.06)
Beijing, China, 2010 2011006009 H-3	240 g/L, SC	137 137 137	3	411	7 10 14	0.12 (0.12, 0.11, 0.12) 0.10 (0.10, 0.10, 0.10) 0.07 (0.07, 0.07, 0.07)	5.36 (5.55, 5.14, 5.40) 4.16 (4.15, 4.20, 4.12) 3.59 (3.12, 3.77, 3.89)
Zhejiang, China, 2010 2011006009 L-2	240 g/L, SC	91 91	2	182	7 10 14	0.16 (0.16, 0.16, 0.16) 0.11 (0.11, 0.11, 0.12) 0.06 (0.06, 0.06, 0.06)	3.72 (3.73, 3.72, 3.72) 2.21 (2.21, 2.20, 2.21) 1.00 (1.01, 1.00, 1.00)
Zhejiang, China, 2010 2011006009 L-3	240 g/L, SC	91 91 91	3	273	7 10 14	0.23 (0.22, 0.23, 0.23) 0.15 (0.17, 0.15, 0.16) 0.06 (0.06, 0.06, 0.06)	5.37 (5.37, 5.36, 5.39) 3.11 (3.12, 3.11, 3.11) 2.44 (2.43, 2.45, 2.45)
Zhejiang, China, 2010 2011006009 H-2	240 g/L, SC	137 137	2	273	7 10 14	0.25 (0.25, 0.26, 0.25) 0.16 (0.16, 0.16, 0.16) 0.14 (0.14, 0.13, 0.14)	4.15 (4.12, 4.21, 4.11) 3.16 (3.22, 3.13, 3.12) 1.80 (1.77, 1.83, 1.79)
Zhejiang, China, 2010 2011006009 H-3	240 g/L, SC	137 137 137	3	411	7 10 14	0.39 (0.40, 0.38, 0.39) 0.27 (0.26, 0.28, 0.27) 0.15 (0.14, 0.15, 0.15)	5.78 (5.88, 5.76, 5.70) 3.85 (3.84, 3.85, 3.85) 2.27 (2.29, 2.23, 2.28)
Anhui, China, 2010 2011006009 L-2	240 g/L, SC	91 91	2	182	7 10 14	0.18 (0.18, 0.17, 0.17) 0.13 (0.13, 0.14, 0.14) 0.06 (0.06, 0.06, 0.06)	450 (4.59, 4.44, 4.46) 2.86 (2.92, 2.89, 2.76) 2.09 (2.02. 2.12. 2.12)
Anhui, China, 2010 2011006009 L-3	240 g/L, SC	91 91 91	3	273	7 10 14	0.38 (0.38, 0.40, 0.38) 0.22 (0.22. 0.21. 0.22) 0.07 (0.07, 0.08, 0.07)	5.19 (5.91, 5.89, 5.76) 4.21 (4.16, 4.25, 4.21) 3.36 (3.33, 3.33, 3.42)
Anhui, China, 2010 2011006009 H-2	240 g/L, SC	137 137	2	273	7 10 14	0.42 (0.41, 0.43, 0.42) 0.26 (0.27, 0.25, 0.25) 0.20 (0.21, 0.20, 0.20)	4.99 (5.02,4.96, 4.99) 4.13 (4.12, 4.16, 4.11) 3.50 (3.45, 3.54, 3.51)
Anhui, China, 2010 2011006009 H-3	240 g/L, SC	137 137 137	3	411	7 10 14	0.56 (0.56, 0.57, 0.55) 0.51 (0.50, 0.51, 0.51) 0.21 (0.22, 0.20, 0.21)	6.31 (6.28, 6.36, 6.30) 5.79 (5.77, 5.79, 5.81) 4.50 (4.54, 4.43, 4.52)

Location, Year Trial ID (variety)	Application				DALA	Sulfoxaflor Residues, mg/kg	
	Form	g ai/ha	No.	Max/ year g ai/ha	days		
Beijing, China, 2011 2011006009 L-1	240 g/L, SC	91	1	91	7 10 14	0.16 (0.15, 0.16, 0.16) 0.10 (0.10, 0.09, 0.10) 0.05 (0.05, 0.04, 0.05)	2.38 (2.41, 2.39, 2.34) 2.16 (2.16, 2.17, 2.16) 1.23 (1.25, 1.21, 1.24)
Beijing, China, 2011 2011006009 L-2	240 g/L, SC	91 91	2	182	7 10 14	0.17 (0.16, 0.17, 0.16) 0.11 (0.11, 0.10, 0.10) 0.08 (0.08, 0.08, 0.09)	2.62 (2.67, 2.61, 2.59) 2.25 (2.33, 2.21, 2.20) 2.02 (2.07, 1.99, 2.00)
Beijing, China, 2011 2011006009 H-1	240 g/L, SC	137	1	137	7 10 14	0.21 (0.22, 0.21, 0.21) 0.12 (0.12, 0.12, 0.12) 0.08 (0.08, 0.08, 0.08)	3.22 (3.18, 3.22, 3.26) 1.99 (2.01, 1.99, 1.98) 1.80 (1.85, 1.75, 1.81)
Beijing, China, 2011 2011006009 H-2	240 g/L, SC	137 137	2	273	7 10 14	0.27 (0.27, 0.27, 0.27) 0.18 (0.17, 0.18, 0.18) 0.13 (0.13, 0.13, 0.13)	3.82 (3.81, 3.79, 3.85) 2.81 (2.80, 2.82, 2.82) 2.60 (2.56, 2.63, 2.61)
Zhejiang, China, 2011 2011006009 L-1	240 g/L, SC	91	1	91	7 10 14	0.09 (0.09, 0.10, 0.09) 0.05 (0.05, 0.06, 0.05) 0.05 (0.04, 0.05, 0.05)	1.21 (1.22, 1.20, 1.20) 1.07 (1.10, 1.04, 1.10) 0.91 (0.90, 0.91, 0.91)
Zhejiang, China, 2011 2011006009 L-2	240 g/L, SC	91 91	2	182	7 10 14	0.15 (0.15, 0.14, 0.15) 0.07 (0.07, 0.08, 0.08) 0.06 (0.06, 0.06, 0.06)	2.36 (2.37, 2.36, 2.36) 1.42 (2.10, 2.08, 0.08) 1.87 (1.87, 1.87, 1.86)
Zhejiang, China, 2011 2011006009 H-1	240 g/L, SC	137	1	137	7 10 14	0.10 (0.10, 0.10, 0.10) 0.05 (0.05, 0.06, 0.05) 0.05 (0.05, 0.05, 0.05)	2.29 (2.28, 2.30, 2.28) 1.38 (1.38, 1.38, 1.37) 1.05 (1.06, 1.04, 1.06)
Zhejiang, China, 2011 2011006009 H-2	240 g/L, SC	137 137	2	273	7 10 14	0.16 (0.16, 0.15, 0.16) 0.15 (0.15, 0.15, 0.15) 0.13 (0.13, 0.14, 0.14)	2.49 (2.49, 2.50, 2.49) 1.99 (2.00, 1.99, 1.99) 1.36 (1.37, 1.36, 1.36)
Anhui, China, 2011 2011006009 L-1	240 g/L, SC	91	1	91	7 10 14	0.11 (0.12, 0.11, 0.10) 0.04 (0.04, 0.04, 0.04) 0.04 (0.05, 0.04, 0.05)	2.35 (2.48, 2.42, 2.16) 2.19 (2.18, 2.19, 2.19) 0.82 (0.82, 0.82, 0.82)
Anhui, China, 2011 2011006009 L-2	240 g/L SC	91 91	2	182	7 10 14	0.11 (0.11, 0.12, 0.11) 0.09 (0.10, 0.09, 0.09) 0.06 (0.06, 0.06, 0.06)	3.35 (3.39, 3.43, 3.24) 2.75 (2.78, 2.74, 2.74) 1.44 (1.60, 1.36, 1.36)
Anhui, China, 2011 2011006009 H-1	240 g/L, SC	137	1	136.5	7 10 14	0.12 (0.12, 0.12, 0.12) 0.08 (0.08, 0.08, 0.08) 0.03 (0.03, 0.04, 0.03)	3.54 (3.52, 3.58, 3.51) 1.78 (1.78, 1.75, 1.80) 1.26 (1.26, 1.26, 1.26)
Anhui, China, 2011 2011006009 H-2	240 g/L, SC	137 137	2	273	7 10 14	0.22 (0.22, 0.21, 0.22) 0.13 (0.14, 0.12, 0.14) 0.11 (0.11, 0.10, 0.12)	3.82 (3.83, 3.82, 3.82) 2.76 (2.78, 2.72, 2.77) 2.08 (2.01, 2.11, 2.12)

Four supervised field trials were conducted in India on rice during the 2011 growing season (Srirgiriraju *et al*., 2012, Report 2024402). Each trial consisted of two treatment groups. One treatment group received two applications at a nominal rate of 105 g ai/ha (one trial received 3 applications). The second treatment group received 2 applications at 210 g ai/ha (one trial received 3 applications). Applications were made at 10 to 40-day intervals using a soluble concentrate formulation containing sulfoxaflor at a nominal concentration of 22% (w/w). Triplicate samples of rice straw were collected at 14 to 45 days after the last application.

Residues of sulfoxaflor in rice straw were determined using a modified LC-MS/MS QuEChERS method (not further specified), for which the LOQ was reported to be 0.01 mg/kg.

Samples were stored frozen a maximum of 10 days prior to analysis.

Table 22 Sulfoxaflor residues in rice straw from supervised trials conducted in India

Location, Year Trial ID (variety)	Application				DALA	Sulfoxaflor Residues, mg/kg
	Form	g ai/ha	No.	Max/ year g ai/ha	days	
Indian GAP	240 g/L, SC	90	2	180	15	
Bidhan Chandra Krishi Viswavidyalaya, Mohanpur, India, 2011, 2024402 LocI (Khitish)	240 g/L, SC	105 105	2	210	28	<0.01 (<0.01, <0.01, <0.01)
	240 g/L, SC	210 210	2	420	28	<0.01 (<0.01, <0.01, <0.01)
G.B.Pant University of	240 g/L, SC	105	3	315	29	<0.01 (<0.01, <0.01, <0.01)

Location, Year Trial ID (variety)	Application				DALA	Sulfoxaflor Residues, mg/kg
	Form	g ai/ha	No.	Max/ year g ai/ha	days	
Agriculture & Technology, Pantnagar, India, 2011, 2024402 LocII (Pusa-1121)		105 105				
	240 g/L, SC	210 210	3	630	29	<0.01 (<0.01, <0.01, <0.01)
Tamil Nadu Agricultural University, Madurai, India, 2011, 2024402 LocIII (BPT-5204)	240 g/L, SC	105 105	2	210	14	<0.01 (<0.01, <0.01, <0.01)
	240 g/L, SC	210 210	2	420	14	<0.01 (<0.01, <0.01, <0.01)
Anand Agricultural University, Anand, India, 2011, 2024402 LocIV (GR-4)	240 g/L, SC	105 105	2	210	45	<0.01 (<0.01, <0.01, <0.01)
	240 g/L, SC	210 210	2	420	45	<0.01 (<0.01, <0.01, <0.01)

Sorghum forage and fodder

Residue trial data on sorghum were first evaluated by JMPR in 2016. No proposal was established for sorghum fodder due to the absence of an approved GAP. The data evaluated by JMPR in 2016 was re-assessed at the current Meeting.

Nine supervised field trials, two of which were residue decline trials, were conducted in the USA on sorghum during the 2012 growing season (Korpalski, 2013). Each treated plot received two foliar applications of a water-dispersible granule formulation containing sulfoxaflor at a nominal concentration of 50% (w/w), at a target rate of 50 g ai/ha and retreatment intervals of 13-15 days. An adjuvant was included within the tank mixture at each application.

Forage was harvested 6-8 days following the last application. For the decline trials, additional samples were collected at 3 (or 4), 14 and 21 days after application. Stover was cut 13-14 DALA with additional samples cut at 7, 21 and 28 days after application to assess residue decline. After cutting, stover was field dried or dried under shelter, after an estimated moisture content of 10 to 20% was reached (from 1 to 8 days of drying) and then sampled.. An adjuvant was included within the tank mixture at each application.

Table 23 Sulfoxaflor residues in sorghum forage and stover from supervised trials in the USA

Location Year Trial ID (variety)		Application				DALA	Portion analysed	Sulfoxaflor Residues mg/kg
	Form	g ai/ha	No.	Re-treatment Interval (days)	Max/ year g ai/ha	days		
Canada GAP	240 g/L, SC	18-36	2	7	72	7 14	Forage Stover	
Neelyville, MO, USA, 2012 120427.01 (DK553-67)	500 g/kg, WG	49 49	2	- 13	98	8	Forage	0.08 (0.09, 0.07)
						13	Stover	0.10 (0.09, 0.11)
Richland, IA, USA, 2012 120427.02 (Pioneer 84G62)	500 g/kg, WG	50 50	2	- 14	100	7	Forage	0.09 (0.08, 0.09)
						14	Stover	0.20 (0.25, 0.14)
Cherry Grove, MN, USA 120427.03 (Not reported)	500 g/kg, WG	50 50	2	- 14	100	7	Forage	0.08 (0.08, 0.08)
						14	Stover	0.27 (0.22, 0.32)
Seymour, IL, USA, 2012 120427.04 (Wildlife)	500 g/kg, WG	49 49	2	- 14	98	3	Forage	0.15 (0.16, 0.13)
						7	Forage	0.03 (0.03, 0.03)
						14	Forage	0.01 (0.01, 0.01)

Location Year Trial ID (variety)	Form	Application g ai/ha	No.	Re-treatment Interval (days)	Max/ year g ai/ha	DALA days	Portion analysed	Sulfoxaflor Residues mg/kg
						21	Forage	<0.01 (<0.01, <0.01)
						7	Stover	0.09 (0.09, 0.10)
						14	Stover	0.05 (0.05, 0.04)
						21	Stover	0.02 (0.02, 0.01)
						28	Stover	<0.01 (<0.01, <0.01)
Hinton, OK, USA, 2012 120427.05 (SR25835)	500 g/kg, WG	49 52	2	- 13	101	7	Forage	0.07 (0.07, 0.06)
						14	Stover	0.04 (0.04, 0.03)
East Bernard, TX, USA, 2012 120427.06 (SR06-MH5001)	500 g/kg, WG	50 51	2	- 14	102	4	Forage	0.28 (0.27, 0.29)
						8	Forage	0.13 (0.13, 0.12)
						14	Forage	0.07 (0.07, 0.06)
						21	Forage	0.06 (0.06, 0.05)
						7	Stover	0.47 (0.47, 0.46)
						14	Stover	0.29 (0.29, 0.29)
						21	Stover	0.28 (0.28, 0.28)
						28	Stover	0.14 (0.15, 0.12)
Carrington, ND, USA, 2012 120427.07 (Not reported)	500 g/kg, WG	50 50	2	- 14	100	8	Forage	0.02 (0.02, 0.02)
						13	Stover	0.60 (0.73, 0.47)
Dill City, OK, USA, 2012 120427.08 (SR25835)	500 g/kg, WG	51 51	2	- 14	102	6	Forage	0.20 (0.19, 0.20)
						14	Stover	0.16 (0.14, 0.18)
Larned, KS, USA, 2012 120427.09 (84G62)	500 g/kg, WG	49 49	2	- 13	98	7	Forage	0.16 (0.15, 0.17)
						14	Stover	0.28 (0.26, 0.30)

Sweet corn forage and stover

Nine supervised field trials, of which two were residue decline trials, were conducted in the USA on sweet corn crops during the 2012 growing season (Korpalski, 2015). Treated plots received two foliar applications of a water-dispersible granule formulation containing sulfoxaflor at a nominal concentration of 50% (w/w), at the nominal rate of 50 g ai/ha, for a total seasonal rate of 100 g ai/ha. The test substance was applied at 21 and 7 days before harvest. An adjuvant was added to each tank mix.

At all trials, sweet corn forage samples were collected 7-8 days following the last application, while stover was cut 7-8 days after the last application and field dried or dried under shelter for 5 to 30 days before collection. At two decline trials, four additional samples were collected at 0, 14, 21, and 28 days after the last application.

Table 24 Sulfoxaflor residues in sweet corn forage and stover from supervised trials in the USA

Location Year Trial ID (variety)	Application					DALA	Portion analysed	Sulfoxaflor Residues, mg/kg
	Form	g ai/ha	No.	Re-treatment Interval (days)	Max/ year g ai/ha	days		
Canada GAP	240 g/L SC	18-36	2	7	72	7 14	Forage Stover	
Alton, NY, USA, 2012 120425.01 (Spring Treat)	500 g/kg WG	50 50	2	- 14	100	8	Forage	0.09 (0.08, 0.09)
						14	Stover	0.16 (0.14, 0.18)
Jeffersonville, GA, USA, 2012 120425.02 (G-90)	500 g/kg WG	50 50	2	- 14	100	7	Forage	0.05 (0.05, 0.06)
							Stover	0.09 (0.09, 0.10)
Zellwood, FL, USA, 2012 120425.03 (Awesome)	500 g/kg WG	50 50	2	- 14	100	7	Forage	0.08 (0.08, 0.07)
						14	Stover	0.23 (0.10, 0.35)
Richland, IA, USA, 2012 120425.04 (Incredible)	500 g/kg WG	50 51	2	- 14	101	7	Forage	0.23 (0.19, 0.26)
						14	Stover	0.06 (0.06, 0.06)
Lime Springs, IA, USA, 2012 120425.05 (Incredible R/M)	500 g/kg WG	50 51	2	- 14	101	7	Forage	0.14 (0.12, 0.15)
						14	Stover	0.15 (0.14, 0.15)
Seymour, IL, USA, 2012 120425.06 (Gold Nugget)	500 g/kg WG	50 50	2	- 14	100	0	Forage	0.72 (0.44, 1.00)
						7	Forage	0.06 (<0.01, 0.11)
						14	Forage	0.02 (0.02, 0.02)
						21	Forage	<0.01 (<0.01, <0.01)
						28	Forage	<0.01 (<0.01, <0.01)
						0	Stover	2.53 (2.40, 2.65)
						7	Stover	0.22 (0.26, 0.17)
						14	Stover	0.05 (0.04, 0.06)
						21	Stover	0.01 (<0.01, 0.01)
						28	Stover	<0.01 (<0.01, <0.01)
Sanger, CA, USA, 2012 120425.07 (Jubilee)	500 g/kg WG	49 50	2	- 14	99	0	Forage	0.66 (0.71, 0.61)
						7	Forage	0.24 (0.24, 0.24)
						14	Forage	0.07 (0.07, 0.07)
						21	Forage	0.05 (0.05, 0.04)
						28	Forage	0.06 (0.06, 0.06)
						0	Stover	0.81 (0.74, 0.87)
						7	Stover	0.36 (0.33, 0.38)
						14	Stover	0.13

Location Year Trial ID (variety)	Application					DALA	Portion analysed	Sulfoxaflor Residues, mg/kg
	Form	g ai/ha	No.	Re-treatment Interval (days)	Max/ year g ai/ha	days		
								(0.15, 0.12)
						21	Stover	0.16 (0.13, 0.20)
						28	Stover	0.11 (0.10, 0.12)
Payette, ID, USA, 2012 120425.08 (Ambrosia)	500 g/kg WG	51 51	2	- 14	102	7	Forage	0.37 (0.32, 0.41)
						14	Stover	0.45 (0.40, 0.51)
Hillsboro, OR, USA, 2012 120425.09 (Jubilee Super-sweet)	500 g/kg WG	50 50	2	- 13	100	7	Forage	0.14 (0.15, 0.14)
						14	Stover	0.17 (0.17, 0.18)

Almond hulls

Five supervised trials in established almond orchards were carried out in the USA during the 2014 growing season (Best, 2015, Report 140318). The treated plots each received three applications of a soluble concentrate formulation containing 240 g/L of sulfoxaflor, at the nominal rate of 100 g ai/ha at weekly intervals. Spray volumes were 935 – 3741 L/ha and a commercial adjuvant typically used for insecticide applications to almonds was included at recommended rates.

Samples of whole almond nuts were collected at maturity, 6-7 days after the last application. In addition, samples were collected at 0, 2, 13 and 21 days after application to assess residue decline. After harvesting, the almonds were processed by separating the hulls from the nut.

Table 25 Sulfoxaflor residues in almond hulls from supervised trials conducted in the USA

Location, Year Trial ID (variety)	Application					DALA	Sulfoxaflor Residues mg/kg
	Form	g ai/ha	No.	Re-treatment Interval (days)	Max/ year g ai/ha	days	
USA GAP	240 g/L, SC 500 g/kg, WG	101	4	7	298	7	
Sanger, CA, USA, 2014 S14-01598-01 (Padre)	240 g/L, SC	101 100 100	3	- 7 7	302	7	0.54 (0.54, 0.54)
Zamora, CA, USA, 2014 S14-01598-02 (Butte)	240 g/L, SC	101 101 101	3	- 7 7	304	6	1.69 (1.65, 1.73)
Strathmore, CA, USA, 2014 S14-01598-03 (Fritz)	240 g/L, SC	101 102 102	3	- 7 7	305	7	0.72 (0.82, 0.62)
Arbuckle, CA, USA, 2014 S14-01598-04 (Winters)	240 g/L, SC	100 103 101	3	- 7 7	305	6	1.71 (1.74, 1.67)
Winters, CA, USA, 2014 S14-01598-05 (Butte)	240 g/L, SC	101 100 101	3	- 7 7	302	0	0.70 (0.78, 0.63)
						2	0.61 (0.67, 0.55)
						7	0.33 (0.28, 0.38)
						14	0.76 (0.74, 0.78)
						21	0.46 (0.53, 0.38)

Processing Studies

Processing studies were conducted on rice. In all studies, sulfoxaflor was applied at exaggerated rates, compared with those of the crop field trials, and bulk RAC samples were harvested at shorter PHIs. Processing procedures simulated commercial practices.

Rice

In one supervised field trial conducted in the USA in 2013, sulfoxaflor, formulated as a 500 g/kg WG formulation, was applied three times as foliar applications to rice plants at a nominal rate of 500 g ai/ha/application resulting in a total seasonal rate of 1500 g ai/ha (Csinos, 2014, Report 130510). Paddy rice grain RAC samples were harvested 16 days after the last application and processed.

Treated rough rice samples, collected from the bulk rice grain samples at initiation of processing, were dried in an industrial oven and then cleaned by aspiration and screening. After cleaning, each cleaned rice sample was divided into two portions, one of which was parboiled by steeping in water at 60-70°C, pressure cooked and then dried. Samples of the parboiled rice were then collected and stored frozen. Parboiled rice was then milled.

Parboiled and non-parboiled rice were milled similarly. Using a rice mill, rice hulls were removed from the cleaned rough rice by rubber rolls rotating in opposite directions at different speeds. Hulls were separated from the remaining "brown rice" by aspiration. The same equipment was then used to separate rice bran from the white rice by friction. Bran was removed from white rice by injection of air into the milling chamber, and then screened to remove broken pieces of brown rice, white rice or hulls. White rice was subject to dry milling to produce rice flour samples.

Sulfoxaflor residues in rice grain and the processed commodities were determined using the validated LC-MS/MS analytical method 091031.

All samples were stored for a maximum duration of 182 days.

Table 26 Residues of sulfoxaflor in rice processed commodities

	Sulfoxaflor Residues (mg/kg)	
Paddy Rice Grain (RAC)[1]	4.08	-
Rice matrices from dry milling	Sulfoxaflor Residues (mg/kg)	Sulfoxaflor Processing Factors
Cleaned Paddy Rice Grain [a]	5.63	1.4
Hulls	24.2 (23.1, 25.2)	5.9
Brown Rice	0.81 (0.80, 0.83)	0.20
Bran	3.01 (2.98, 3.03)	0.74
Polished Rice	0.56 (0.51, 0.60)	0.14
Flour	0.41 (0.28, 0.29)	0.10
Rice matrices from parboiled rice	Sulfoxaflor Residues (mg/kg)	Sulfoxaflor Processing Factors
Parboiled Rice	5.35 (4.71, 5.98)	1.3
Hulls	9.70 (9.40, 10.0)	2.4
Brown Rice	3.23 (3.17, 3.29)	0.79
Bran	4.44 (4.10, 4.77)	1.1
Polished Rice	3.50 (3.34, 3.66)	0.86
Flour	3.01 (2.99, 3.03)	0.74
	Rice matrix	Mean Processing Factor
	Cleaned Grain	1.4
	Parboiled Rice	1.3
	Hulls	4.2
	Brown Rice	0.50
	Bran	0.92
	Polished Rice	0.50
	Flour	0.42

[a] Only the mean of the duplicate treated samples was reported

In one supervised field trial conducted in Australia in 2009, sulfoxaflor, formulated as a 240 g/L SC formulation, was applied four times, at weekly intervals, as foliar applications to rice plants at a nominal exaggerated rate of 288 g ai/h/application resulting in a total seasonal rate of 1152 g ai/ha (Litzow, 2010, Report 090043). Paddy rice samples were harvested 10 days after the last application and processed.

The bulk samples of grain were dried, tempered, mixed and cleaned. These grain samples were then hulled, milled, and ground to produce the hulled rice, hulls, polished rice, bran, and flour samples. Samples of the prepared grain were also soaked, pressure cooked, dried, tempered, hulled, and milled to produce the parboiled rice samples. All samples were a minimum of 1 kg, except the hull and bran samples which were a minimum of 0.25 kg and the flour samples, which were a minimum of 0.5 kg.

Sulfoxaflor residues in grain, hulled rice, hulls, polished rice and parboiled rice samples were analysed for residues of sulfoxaflor using the validated LC-MS/MS analytical method 091031.

All samples were stored for a maximum duration of 75 days.

Table 27 Residues of sulfoxaflor in rice processed commodities

Rice matrices from dry milling	Sulfoxaflor Residues (mg/kg)	Sulfoxaflor Processing Factors
Paddy Rice Grain/ (RAC)	7.7	-
Paddy Rice Grain (dried, mixed, cleaned)	10.3	1.3
Parboiled Rice	2.4	0.3
Hulls	34.6	4.5
Brown Rice	0.81	0.10
Bran	6.1	0.79
Polished Rice	0.09	0.01
Flour	0.11	0.01

APPRAISAL

Sulfoxaflor, a sulfoximine insecticide, was first evaluated by the JMPR in 2011 for residues and toxicology where an ADI and ARfD of 0–0.05 mg/kg bw and 0.3 mg/kg bw respectively were established A residue definition of *sulfoxaflor* was established for both compliance and dietary risk assessment in plant and animal commodities.

The residue is not fat soluble.

The latest residue review was done in 2016.

It was scheduled at the Forty-ninth Session of the CCPR for the evaluation of additional new uses at the 2018 JMPR.

For the current Meeting, new GAPs and supervised residue trials on mango, green beans and rice were provided. The current Meeting was also requested to revisit the supervised trials in maize, sorghum, sweet corn, rice and tree nuts, which were previously provided to the 2016 Meeting.

Methods of analysis

Unless otherwise specified, residues of sulfoxaflor in all tested commodities including animal feeds were determined using the LC-MS/MS analytical method 091031, previously reviewed by the 2011 JMPR. The limit of quantitation (LOQ) of the method was 0.01 ppm.

Stability of residues in stored analytical samples

All samples, collected from each of the supervised field trials, were kept under frozen storage up to a maximum of 467 days from the date of sampling to analysis. Previously conducted storage stability studies of sulfoxaflor and reviewed by the 2011 JMPR, have shown acceptable freezer stability for up to 680 days (in a wide variety of crops).

Results of supervised residue trials on crops

Mango

In Taiwan, Province of China, the critical GAP for sulfoxaflor in mango is a maximum of 2 applications, at 7-day re-treatment intervals with a PHI of 14 days. Individual application rates are not specified. The maximum seasonal rate is 106 g ai/ha.

A total of three independent trials were conducted in Taiwan, Province of China, during the 2015 growing season. Sulfoxaflor residues, in ranked order, were 0.03, 0.04 and 0.05 mg/kg.

The Meeting considered three trials insufficient to estimate a maximum residue level for the use of sulfoxaflor in mango.

Legume vegetables

Beans with pods

The critical GAP for sulfoxaflor is in the USA on Succulent, Edible Podded, and Dry Beans, where the rate is 80 g ai/ha, a maximum of 4 applications, a minimum re-treatment interval of 14 days and a PHI of 7 days. The maximum seasonal rate is 298 g ai/ha

As none of the trials matched the critical GAP, the Meeting could not estimate a maximum residue level.

Cereal grains

Data from trials on maize, rice (USA), sorghum and sweet corn, provided to the 2016 JMPR were reconsidered at the current Meeting as the 2016 JMPR could not estimate maximum residue levels for these crops as no GAP was provided to the Meeting or trials were not conducted according to GAP.

Maize

The new critical GAP is in Canada and allows 2 applications at 36 g ai/ha, a 7-day re-treatment interval, seasonal maximum of 72 g ai/ha and 14-day PHI.

The trials were conducted in the USA during the 2012 growing season. Two foliar applications of a water-dispersible granule formulation containing sulfoxaflor were made at a target rate of 50 g ai/ha and a re-treatment interval of 7 days. Maize grain samples were harvested 13–15 days after the final application.

The Meeting agreed to utilise the proportionality approach to estimate residues matching critical GAP. Unscaled sulfoxaflor residues for maize grain, in ranked order, were < 0.01 (12) and 0.01 mg/kg. Using a scaling factors of 1.4, scaled residues are: < 0.007 (12) and 0.007 (2) mg/kg.

The Meeting estimated a maximum residue level and STMR of 0.01(*) mg/kg and 0.007 (2) mg/kg, respectively, for maize.

Rice

In addition to the trials conducted on rice in the USA, provided to the 2016 JMPR, supervised residue trials conducted in Argentina,, Australia, Brazil, China, India, Malaysia and the Philippines were made available to the current Meeting.

The new critical GAP for sulfoxaflor on rice is in Indonesia allows for 4 applications at 100 g ai/ha, a 7-day re-treatment interval, 400 g ai/ha/season, and a 10-day PHI.

In eight independent trials, conducted in the Philippines and Australia, approximating the critical GAP, residues found of sulfoxaflor in paddy rice in ranked order were (n = 8): 0.96, 1.00, 1.2, 1.7, 2.2, 2.4, 3.8 and 4.0 mg/kg.

The Meeting estimated a maximum residue level and STMR of 7 mg/kg, 1.95 mg/kg, respectively for rice.

Sorghum

The new critical GAP for sorghum is in Canada and allows for 2 applications at 36 g ai/ha, a 7-day re-treatment interval, 72 g ai/ha/season and a 14-day PHI.

The trials were conducted in the USA in 2012 where two foliar applications of a water-dispersible granule formulation containing sulfoxaflor were made at a target rate of 50 g ai/ha and a re-treatment intervals of 7 days. Sorghum grain samples were harvested 13–15 days after the last application.

The Meeting agreed to utilise the proportionality approach to estimate residues matching critical GAP. Unscaled sulfoxaflor residues in sorghum grain were 0.02, 0.03, 0.04 (3), 0.05, 0.08, 0.14 and 0.15 mg/kg. Using a scaling factor of 1.4, the scaled residues in ranked order were: 0.01, 0.02, 0.03(3), 0.04, 0.06, 0.10 and 0.11 mg/kg.

The Meeting estimated a maximum residue level and STMR of 0.2 mg/kg and 0.03 mg/kg, respectively for sorghum.

Sweet corn (corn-on-the-cob) (kernels plus cobs with husks removed)

The new critical GAP for sweet corn is in Canada and allows for 2 applications at 36 g ai/ha, a 7-day re-treatment interval, 72 g ai/ha/season, and a 7-day PHI.

The trials were conducted in the USA in 2012 where two foliar applications of a water-dispersible granule formulation containing sulfoxaflor were made at a target rate of 50 g ai/ha and re-treatment intervals of 7 days. Unscaled sulfoxaflor residues in sweet corn (kernels plus cobs with husks removed) were harvested 7–8 days after the last application were all (n = 9) < 0.01 mg/kg.

As all residues were below the LOQ, following treatments at exaggerated rates, the Meeting estimated a maximum residue level and STMR of 0.01(*) mg/kg and 0 mg/kg, respectively for sweet corn (corn on the cob) (kernels plus cobs with husks removed).

Tree nuts

Almonds and Pecans

Data from ten independent trials on tree nuts (almonds (5) and pecans (5)) were resubmitted. The 2016 JMPR did not estimate a maximum residue level as no GAP had not been provided.

The new critical GAP is in the USA which comprises 4 × 101 g ai/ha, a re-treatment interval of 7 days and a PHI of 7 days. The maximum seasonal rate is 298 g ai/ha.

In five independent trials conducted in the USA on almonds and approximating critical GAP (3 × 100 g ai/ha, 6–7 day PHI) residues in almond nutmeat were (n = 5): < 0.01 mg/kg.

In five independent trials conducted in the USA on pecans and approximating critical GAP (3 × 100 g ai/ha; 7–8 day PHI) residues were (n = 5): < 0.01 (4) and 0.02 mg/kg.

The critical GAP in the USA is for tree nuts and a group maximum residue level recommendation may be possible based on the data for almonds and pecans. As the median residues were equivalent for both datasets, the Meeting agreed to combine the residue trial data to estimate a maximum residue level for the tree nuts crop group.

Based on the combined residue data set (< 0.01 (9) and 0.02 mg/kg), the Meeting estimated a maximum residue level, HR and STMR of 0.03, 0.02 and 0.01 mg/kg, respectively, for the tree nuts group.

Animal feeds

Data from trials on maize, rice (USA), sorghum and sweet corn, provided to the 2016 JMPR were reconsidered at the current Meeting as the 2016 JMPR could not estimate residue levels for these feed crops (forage, stover, straw (rice only)) as no GAP was provided to the Meeting or trials were not conducted in accordance with GAP.

Straw, fodder and forage of cereal grains

Maize forage

The new critical GAP for maize is in Canada; and allows for 2 applications at 36 g ai/ha, a 7-day re-treatment interval, a seasonal maximum of 72 g ai/ha with a 7-day PHI.

The trials were conducted in the USA during the 2012 growing season where two foliar applications of a water-dispersible granule formulation containing sulfoxaflor were made at a target rate of 50 g ai/ha and a re-treatment interval of 7 days. Maize forage samples were harvested 7–8 days after the last application.

The Meeting agreed to utilise the proportionality approach to estimate residues matching critical GAP. Unscaled sulfoxaflor residues for maize forage were (n = 15): 0.03, 0.05, 0.08 (2), 0.09, 0.11 (3), 0.12, 0.13, 0.15, 0.22, 0.31 and 0.35 mg/kg. Using a scaling factor of 1.4, residues were (n = 15): 0.02, 0.04, 0.06 (3), 0.07, 0.08 (3), 0.09(2), 0.11, 0.16, 0.22 and 0.25 mg/kg.

The Meeting estimated a highest residue of 0.25 mg/kg and a median residue of 0.08 mg/kg for maize forage

Sorghum forage

The new critical GAP for sorghum is in Canada and allows for 2 applications at 36 g ai/ha, a 7-day re-treatment interval, a seasonal maximum of 72 g ai/ha and a 14-day PHI.

The trials were conducted in the USA in 2012 where two foliar applications of a water-dispersible granule formulation containing sulfoxaflor were made at a target rate of 50 g ai/ha and a re-treatment interval of 7 days. Sorghum forage samples were harvested 6–8 days after the last application.

The Meeting agreed to utilise the proportionality approach to estimate residues at critical GAP. Unscaled sulfoxaflor residues for sorghum forage were (n = 9): 0.02, 0.03, 0.07, 0.08 (2), 0.09, 0.13, 0.16 and 0.20 mg/kg. Using a scaling factor of 1.4, the scaled residues in ranked order were (n = 9): 0.01, 0.02, 0.05, 0.06 (3), 0.10, 0.12 and 0.14 mg/kg.

The Meeting estimated a highest residue of 0.14 mg/kg and a median residue of 0.06 mg/kg for sorghum forage (green).

Corn forage (Sweet)

The new critical GAP for sweet corn is in Canada and allows for 2 applications at 36 g ai/ha, a 7-day re-treatment interval, 72 g ai/ha/season, and a 7-day PHI.

The trials were conducted in the USA in 2012 where two foliar applications of a water-dispersible granule formulation containing sulfoxaflor were made at a target rate of 50 g ai/ha and re-treatment intervals of 7 days. Sweet corn forage samples were harvested 7-8 days after the last application.

The Meeting agreed to utilise the proportionality approach to estimate residues matching cGAP. Unscaled sulfoxaflor residues for sweet corn forage were 0.05, 0.06, 0.08, 0.09, 0.14 (2), 0.23, 0.24 and 0.37 mg/kg. Using a scaling factor of 1.4, residues in ranked order are 0.04 (2), 0.06(2), 0.10(2), 0.16, 0.17 and 0.26 mg/kg.

The Meeting estimated a highest residue of 0.26 mg/kg and median residue of 0.10 mg/kg for corn forage.

Maize fodder (dry)

The critical GAP is in Canada; 2 applications at 36 g ai/ha, 7-day re-treatment interval, 72 g ai/ha/season and 14-day PHI.

The trials were conducted in the USA during the 2012 growing season where two foliar applications of a water-dispersible granule formulation containing sulfoxaflor were made at a target rate of 50 g ai/ha and a re-treatment interval of 7 days. Maize stover samples were harvested 13–15 days after the last application.

The Meeting agreed to utilise the proportionality approach to estimate residues at critical GAP. Unscaled sulfoxaflor residues for maize stover were (n = 15): 0.02, 0.06, 0.09, 0.11, 0.15, 0.18, 0.20, 0.22, 0.23 (2), 0.24, 0.31, 0.40, 0.43 and 0.54 mg/kg. Using scaling factors of 1.4, residues, in ranked order, were (n = 15): 0.01, 0.04, 0.06, 0.08, 0.11, 0.13, 0.14, 0.16 (3), 0.17, 0.22, 0.28, 0.31 and 0.38 mg/kg.

The Meeting estimated a maximum residue level of 0.6 mg/kg, a highest residue of 0.38 mg/kg and a median residue of 0.16 mg/kg for maize fodder (dry).

Rice straw and fodder (dry)

In addition to the trials conducted on rice in the USA, provided to the 2016 JMPR, new supervised residue trials on rice conducted in Argentina, Australia, Brazil, China, India, Malaysia and the Philippines were made available to the current Meeting.

The new critical GAP for sulfoxaflor on rice is in Indonesia and allows for 4 applications at 100 g ai/ha, a 7-day re-treatment interval, 400 g ai/ha/season, with a 10-day PHI.

In eight independent trials, conducted in Australia and the Philippines, approximating the critical GAP, residues found of sulfoxaflor in rice straw (as received) were (n = 8): 0.07, 0.10, 0.22, 1.3, 1.7, 4.9, 5.7 and 10.4 mg/kg.

The Meeting estimated a maximum residue level, highest residue and median residue of 20, 10.4 and 1.5 mg/kg, respectively for rice straw and fodder (dry).

Sorghum straw and fodder (dry)

The new GAP for sulfoxaflor on sorghum is in Canada and allows for 2 applications at 36 g ai/ha, a 7-day re-treatment interval, 72 g ai/ha/season, with a 14-day PHI.

The trials were conducted in the USA in 2012 where two foliar applications of a water-dispersible granule formulation containing sulfoxaflor were made at a target rate of 50 g ai/ha and a re-treatment intervals of 7 days. Sorghum stover samples were harvested 13–15 days after the last application.

The Meeting agreed to utilise the proportionality approach to estimate residues matching critical GAP. Unscaled sulfoxaflor residues in sorghum stover were (n = 9): 0.04, 0.05, 0.10, 0.16, 0.20, 0.27, 0.28, 0.29 and 0.60 mg/kg. Using a scaling factor of 1.4, the scaled residues in ranked order were: 0.03, 0.04, 0.07, 0.11, 0.14, 0.19, 0.20, 0.21 and 0.43 mg/kg.

The Meeting estimated a maximum residue level of 0.7 mg/kg, a highest residue of 0.43 mg/kg and a median residue of 0.14 mg/kg for sorghum straw and fodder (dry).

Almond hulls

Data from five independent trials on almonds were resubmitted. The 2016 JMPR did not estimate a maximum residue level as no GAP was provided to the Meeting. The new critical GAP is in the USA and allows for a maximum of 4 applications at up to 101 g ai/ha, with a re-treatment interval of 7 days and a PHI of 7 days. The maximum seasonal rate is 298 g ai/ha

In five independent trials conducted in the USA on almonds and approximating critical GAP (3 × 100 g ai/ha, 6–7 day PHI), residues in almond hulls, in ranked order, were (n = 5): 0.33, 0.54, 0.72, 1.69 and 1.71 mg/kg.

The Meeting estimated a median residue of 0.72 mg/kg for almond hulls.

Fate of residues during processing

Processing

The Meeting received information on the fate of sulfoxaflor residues during the processing of rice. Processing factors calculated for the processed commodities of paddy rice are shown in the table below. Processing factors, best estimates and STMR-Ps were calculated.

Rice

Commodity	Calculated Processing Factors	Best Estimate	RAC STMR	STMR-P, mg/kg
Parboiled Rice	0.3, 1.3	0.8 (mean)	1.95	1.6
Hulls	2.4, 4.5, 5.9	4.5 (median)		8.8
Brown Rice	0.10, 0.20, 0.79	0.20 (median)		0.39
Bran	0.74, 0.79, 1.1	0.79 (median)		1.5
Polished Rice	0.01, 0.14, 0.86	0.14 (median)		0.27
Flour	0.01, 0.10, 0.74	0.10 (median)		0.20

Based on the processing factors of 0.20 estimated for husked (brown) rice and 0.14 estimated for polished rice and applying this to the maximum residue level of 7 mg/kg for rice grain, the Meeting estimated maximum residue levels of 1.5 mg/kg for rice, husked and 1 mg/kg for rice, polished.

Estimated dietary burdens of farm animals

Dietary burdens were calculated for beef cattle, dairy cattle, broilers and laying poultry based on feed items evaluated by the JMPR. The dietary burdens, estimated using the OECD diets listed in Appendix IX of the 2016 edition of the FAO manual, are presented in Annex 6 and summarised below.

	Livestock dietary burden, sulfoxaflor							
	US/Canada		EU		Australia		Japan	
	Max	Mean	Max	Mean	Max	Mean	Max	Mean
Beef cattle	1.3	0.85	3.5	1.4	8.8[a]	2.6	6.4	0.95
Dairy Cattle	2.1	1.4	4.0	1.9	6.9[b]	4.0[c]	3.1	0.51
Poultry, broiler	0.50	0.50	0.10	0.08	1.2	1.2	0.04	0.04
Poultry, layer	0.50	0.50	1.1	0.45	1.15[d]	1.15	0.04	0.04

[a] Suitable for maximum residue level estimate for meat, fat and edible offal of mammals

[b] Suitable for maximum residue level estimate for milk

[c] Suitable for STMR estimate for milk, meat, fat and edible offal of mammals

[d] Suitable for maximum residue level and STMR estimates for eggs, meat, fat and edible offal

Animal commodities residue level estimation

Anticipated residues resulting from the dietary burdens and based on the feeding studies are summarised below:

Sulfoxaflor feeding study	Feed level for milk residues (ppm)	Residues in milk (mg/kg)	Feed level for tissue residues (ppm)	Residues (mg/kg)			
				Muscle	Liver	Kidney	Fat
maximum residue level estimation – Beef and Dairy Cattle							
Feeding Study	6.8	0.288	6.8	0.311	0.758	0.566	0.139
	35.0	1.679	35.0	1.691	4.03	2.422	0.915
Dietary burden and anticipated residues	6.9	0.293	8.8	0.390	0.952	0.676	0.185
STMR estimation – Beef and Dairy Cattle							
Feeding Study	2.4	0.090	2.4	0.105	0.283	0.184	0.039
	6.8	0.243	6.8	0.271	0.744	0.461	0.099
Dietary burden and anticipated residues	4.0	0.143	4.0	0.162	0.442	0.280	0.060

Sulfoxaflor feeding study	Feed level for egg residues (ppm)	Residues in egg (mg/kg)	Feed level for tissue residues (ppm)	Residues (mg/kg)		
				Muscle	Liver	Fat
maximum residue level and STMR Estimations - Poultry						
Feeding Study	0.76	0.06	0.76	0.42	0.15	0.01
	2.10	0.10	2.10	1.09	0.23	0.05
Dietary burden and anticipated residues	1.2	0.07	1.2	0.64	0.18	0.02

The Meeting estimated maximum residue levels of 0.3 mg/kg for milks, 0.2 mg/kg for mammalian fat (except milk fats), 0.4 mg/kg for meat (from mammals other than marine mammals) and 1 mg/kg for edible offal (mammalian) based on liver residue. These recommended maximum residue levels replaces the Meeting's previous recommendations of 0.2 mg/kg for milks, 0.1 mg/kg for mammalian fat (except milk fats), 0.3 mg/kg for meat (from mammals other than marine mammals) and 0.6 mg/kg for edible offal (mammalian). The estimated STMRs and HRs are 0.14 mg/kg, 0.06 mg/kg and 0.19 mg/kg for fat, 0.16 mg/kg and 0.39 mg/kg for muscle, 0.44 mg/kg and 0.95 mg/kg for edible offal (mammalian), based on liver.

For poultry, the Meeting recommends a maximum residue level of 0.7 mg/kg for poultry meat to replace its previous recommendation of 0.1 mg/kg. The Meeting estimated STMRs and HRs of 0.07 mg/kg and 0.07 mg/kg for eggs, 0.02 mg/kg and 0.02 mg/kg for poultry fat, 0.18 mg/kg and 0.18 mg/kg for edible offal (poultry) and 0.64 mg/kg and 0.64 mg/kg for meat of poultry.

RECOMMENDATIONS

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

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

The residue is not fat–soluble.

CCN	Commodity Name	Recommended maximum residue level, mg/kg		STMR or STMR-P, mg/kg	HR or HR-P, mg/kg
		New	Previous		
MO 0105	Edible offal (Mammalian)	1	0.6	Liver: 0.44 Kidney: 0.28	Liver: 0.95 Kidney: 0.68
GC 0645	Maize	0.01*	-	0.007	-
AS 0645	Maize fodder (dry)	0.6	-	Median: 0.16 (as)	Highest: 0.38 (as)
MF 0100	Mammalian fats	0.2	0.1	0.06	0.19
MM 0095	Meat (mammalian except marine mammals)	0.4	0.3	0.16 muscle 0.06 fat	0.39 muscle 0.19 fat
ML 0106	Milks	0.3	0.2	0.14	-
PM 0110	Poultry meat	0.7	0.1	0.64	0.64
GC 0649	Rice	7	-	1.95	-
CM 1205	Rice, polished	1	-	0.27	-
CM 0649	Rice, husked	1.5	-	0.39	-
AS 0649	Rice straw and fodder (dry)	20	-	Median: 1.5 (as)	Highest: 10.4 (as)
GC 0651	Sorghum	0.2	-	0.03	-
AS 0651	Sorghum straw and fodder (dry)	0.7	-	Median: 0.14 (as)	Highest: 0.43 (as)
GC 0447	Sweet corn (corn-on-the-cob) (kernels plus cobs with husks removed)	0.01*	-	0	-
TN 0085	Tree nuts, Group of	0.03	-	0.01	0.02
PE 0112	Eggs			0.07	0.07
PO 0111	Poultry edible offal			0.18	0.18
PF 0111	Poultry fats			0.02	0.02
	Rice, flour			0.20	

For calculating animal dietary burdens

CCN	Commodity Name	Median Residues, mg/kg	Highest Residues, mg/kg
AF 0645	Maize forage	0.08	0.25
AF 0651	Sorghum forage (green)	0.06	0.14
	Sweet corn forage	0.10	0.26
AM 0660	Almond hulls	0.76	
CM 1207	Rice hulls	8.8	

DIETARY RISK ASSESSMENT

Long-term dietary exposure

The ADI for sulfoxaflor is 0–0.05 mg/kg bw. The International Estimated Daily Intakes (IEDIs) for sulfoxaflor were estimated for the 17 GEMS/Food Consumption Cluster Diets using the STMR or STMR-P values estimated by the JMPR. The results are shown in Annex 3 of the 2018 JMPR Report. The IEDIs ranged from 2–9% of the maximum ADI.

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

Acute dietary exposure

The ARfD for sulfoxaflor is 0.3 mg/kg bw. The International Estimate of Short Term Intakes (IESTIs) for sulfoxaflor were calculated for the food commodities and their processed commodities for which HRs/HR-Ps or STMRs/STMR-Ps were estimated by the present Meeting and for which consumption data were available. The results are shown in Annex 4 of the 2018 JMPR Report. The IESTIs varied from 0–20% of the ARfD for children and 0–10% for the general population.

The Meeting concluded that acute dietary exposure to residues of sulfoxaflor from uses considered by the present Meeting is unlikely to present a public health concern.

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