

Appendix to:

EFSA (European Food Safety Authority), 2020. Conclusion on the peer review of the pesticide risk assessment of the active substance sulfoxaflor in light of confirmatory data submitted. EFSA Journal 2020;18(4):6056, 23 pp. doi:10.2903/j.efsa.2020.6056

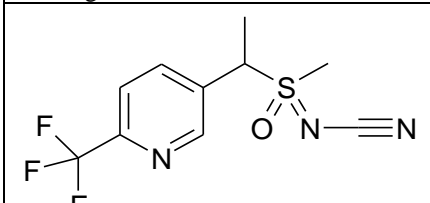
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## Appendix A – List of end points for the active substance and the representative formulation – confirmatory data on bees

### Identity, Physical and Chemical Properties, Details of Uses, Further Information

Active substance (ISO Common Name) ‡	Sulfoxaflor
Function ( <i>e.g.</i> fungicide)	Insecticide
Rapporteur Member State	Ireland (MRL/Import tolerance proposal, CLH, Residues data, Toxicology & Metabolism, Coordination)
Co-rapporteur Member State	France (Identity, Application data, Phys.Chem, Methods of Analysis & Efficacy) Czech Republic (Eco-tox) Poland (E-Fate & Behaviour)

### Identity (Annex IIA, point 1)

Chemical name (IUPAC) ‡	[methyl(oxo){1-[6-(trifluoromethyl)-3-pyridyl]ethyl}-λ <sup>6</sup> -sulfanylidene]cyanamide
Chemical name (CA) ‡	<i>N</i> -[methyloxido[1-[6-(trifluoromethyl)-3-pyridinyl]ethyl]-λ <sup>4</sup> -sulfanylidene]cyanamide
CIPAC No ‡	820
CAS No ‡	946578-00-3
EC No (EINECS or ELINCS) ‡	Not available
FAO Specification (including year of publication) ‡	No FAO specification available
Minimum purity of the active substance as manufactured ‡	950g/kg The ratio of diastereoisomers 1 and 2 is typically in the range of 40:60 to 60:40, but can vary due to epimerisation.
Identity of relevant impurities (of toxicological, ecotoxicological and/or environmental concern) in the active substance as manufactured	There are no impurities which are considered to be of toxicological, ecotoxicological and/or environmental concern.
Molecular formula ‡	C <sub>10</sub> H <sub>10</sub> F <sub>3</sub> N <sub>3</sub> O S
Molar mass ‡	277.3 g/mol
Structural formula ‡	

## Physical and chemical properties (Annex IIA, point 2)

Melting point (state purity) ‡	112 °C (99.7 %)
Boiling point (state purity) ‡	No boiling point before decomposition
Temperature of decomposition (state purity)	167.7 °C (99.7 %)
Appearance (state purity) ‡	White powder with sharp odour (99.7 %)
	Off-white powder with a sharp odour (95.6 %)
Vapour pressure (state temperature, state purity) ‡	$1.4 \cdot 10^{-6}$ Pa (20 °C, 99.7 %)
Henry's law constant ‡	At 20°C:
	Unbuffered: $5.77 \cdot 10^{-7}$ Pa.m <sup>3</sup> /mol
	pH 5: $2.81 \cdot 10^{-7}$ Pa.m <sup>3</sup> /mol
	pH 7: $6.83 \cdot 10^{-7}$ Pa.m <sup>3</sup> /mol pH 9: $7.05 \cdot 10^{-7}$ Pa.m <sup>3</sup> /mol
Solubility in water (state temperature, state purity and pH) ‡	At 20°C (99.7 %):
	pH 5: 1380 mg/L
	pH 7: 568 mg/L
	pH 9: 551 mg/L Purified water: 6703 mg/L
Solubility in organic solvents ‡ (state temperature, state purity)	At 20°C (95.6 %)
	heptane: 0.242 mg/L
	xylene: 0.743 g/L
	1,2-dichloro ethane: 39.6 g/L
	methanol: 93.1 g/L
	acetone: 217 g/L
	ethyl acetate: 95.2 g/L octanol: 1.66 g/L
Surface tension ‡ (state concentration and temperature, state purity)	57.5 mN/m (90 % saturated solution, 20°C, 95.6 %)
	At 20°C (99.7%) pH 5: Log Pow= 0.806 pH 7: Log Pow= 0.802 pH 9: Log Pow= 0.799
Dissociation constant (state purity) ‡	Not determinable (99.7%)
	Sulfoxaflor has no measurable ionisation constant within environmental relevant pH ranges (pH 2 to 10).
UV/VIS absorption (max.) incl. $\epsilon$ ‡ (state purity, pH)	At 25°C (99.7%)
	Neutral: $\lambda_{\max}$ 192, 211 and 260 nm
	$\epsilon$ (M <sup>-1</sup> × cm <sup>-1</sup> ): 10200, 8000, 3100
	Acidic: $\lambda_{\max}$ 210 and 260 nm
	$\epsilon$ (M <sup>-1</sup> × cm <sup>-1</sup> ): 7800, 3100
	Basic: $\lambda_{\max}$ 218 and 260 nm
$\epsilon$ (M <sup>-1</sup> × cm <sup>-1</sup> ): 5900, 3100 No absorption peak after 290 nm	
Flammability ‡ (state purity)	Not flammable (95.6 %)

Explosive properties ‡ (state purity)

Not explosive (95.6 %)
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Oxidising properties ‡ (state purity)

Not oxidising (95.6 %)
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Summary of representative uses evaluated, for which this conclusion covers all human and environmental risks

Crop and/or situation	Member State or Country	Product Name	F G or	Pests or Group of pests controlled	Formulation		Application				Application rate per treatment			PHI (days)	Remarks
					Type	Conc. of a.s.	Method Kind	Growth stage & season	Number min max	Interval between apps. (min)	kg a.s./hL min max	water (L/ha) min max	kg a.s. /ha min max		
(a)			(b)	(c)	(d-f)	(i)	(f-h)	(j)	(k)				(l)	(m)	
Fruiting vegetable – Tomato, Cherry tomato	EU	GF-2626	F	Aphids	SC	120 g/L	Broadcast foliar	BBCH 20 – 39 BBCH 40 - 89 Apr - Nov	1	N/A	0.0048 – 0.0016	500 - 1500	0.024	≥1	
Fruiting vegetable - Tomato, Cherry tomato	EU	GF-2626	G	Aphids	SC	120 g/L	Broadcast foliar	BBCH 20 – 39 BBCH 40 - 89 through the year	1	N/A	0.0048 – 0.0016	500 - 1500	0.024	≥1	
Fruiting vegetable - Pepper (Bell and non Bell)	EU	GF-2626	F	Aphids	SC	120 g/L	Broadcast foliar	BBCH 20 – 39 BBCH 40 - 89 Apr - Nov	1	N/A	0.0048 – 0.0016	500 - 1500	0.024	≥1	
Fruiting vegetable - Pepper (Bell and non Bell)	EU	GF-2626	G	Aphids	SC	120 g/L	Broadcast foliar	BBCH 20 – 39 BBCH 40 - 89 through the year	1	N/A	0.0048 – 0.0016	500 - 1500	0.024	≥1	

Crop and/or situation (a)	Member State or Country	Product Name	F G or (b)	Pests or Group of pests controlled (c)	Formulation		Application				Application rate per treatment			PHI (days) (l)	Remarks (m)
					Type (d-f)	Conc. of a.s. (i)	Method Kind (f-h)	Growth stage & season (j)	Number min max (k)	Interval between apps. (min)	kg a.s./hL min max	water (L/ha) min max	kg a.s. /ha min max		
Fruiting vegetable - Aubergine	EU	GF-2626	F	Aphids	SC	120 g/L	Broadcast foliar	BBCH 20 – 39 BBCH 40 - 89 Apr - Nov	1	N/A	0.0048 – 0.0016	500 - 1500	0.024	≥1	
Fruiting vegetable - Aubergine	EU	GF-2626	G	Aphids	SC	120 g/L	Broadcast foliar	BBCH 20 – 39 BBCH 40 - 89 through the year	1	N/A	0.0048 – 0.0016	500 - 1500	0.024	≥1	
Cucurbit - Cucumber	EU	GF-2626	F	Aphids	SC	120 g/L	Broadcast foliar	BBCH 20 – 39 BBCH 40 - 89 Apr - Nov	1	N/A	0.0048 – 0.0016	500 - 1500	0.024	≥1	
Cucurbit - Cucumber	EU	GF-2626	G	Aphids	SC	120 g/L	Broadcast foliar	BBCH 20 – 39 BBCH 40 - 89 through the year	1	N/A	0.0048 – 0.0016	500 - 1500	0.024	≥1	
Cucurbit - Melon, Water melon	EU	GF-2626	F	Aphids	SC	120 g/L	Broadcast foliar	BBCH 20 – 39 BBCH 40 - 89 Apr - Nov	1	N/A	0.0048 – 0.0016	500 - 1500	0.024	≥1	

Crop and/or situation (a)	Member State or Country	Product Name	F G or (b)	Pests or Group of pests controlled (c)	Formulation		Application				Application rate per treatment			PHI (days) (l)	Remarks (m)
					Type (d-f)	Conc. of a.s. (i)	Method Kind (f-h)	Growth stage & season (j)	Number min max (k)	Interval between apps. (min)	kg a.s./hL min max	water (L/ha) min max	kg a.s. /ha min max		
Cucurbit – Melon, Water melon	EU	GF-2626	G	Aphids	SC	120 g/L	Broadcast foliar	BBCH 20 – 39 BBCH 40 - 89 through the year	1	N/A	0.0048 – 0.0016	500 - 1500	0.024	≥1	
Cucurbit – Courgette	EU	GF-2626	F	Aphids	SC	120 g/L	Broadcast foliar	BBCH 20 – 39 BBCH 40 - 89 Apr - Nov	1	N/A	0.0048 – 0.0016	500 - 1500	0.024	≥1	
Cucurbit – Courgette	EU	GF-2626	G	Aphids	SC	120 g/L	Broadcast foliar	BBCH 20 – 39 BBCH 40 - 89 through the year	1	N/A	0.0048 – 0.0016	500 - 1500	0.024	≥1	
Cereals – Wheat (spring and winter)	EU	GF-2372	F	Aphids	WG	500 g/kg	Broadcast foliar	BBCH 40 89 April - July	1	N/A	0.016 – 0.006	150 - 400	0.024	21	
Cereals – Rye (spring and winter)	EU	GF-2372	F	Aphids	WG	500 g/kg	Broadcast foliar	BBCH 40 89 April - July	1	N/A	0.016 – 0.006	150 - 400	0.024	21	
Cereals – Barley (spring and winter)	EU	GF-2372	F	Aphids	WG	500 g/kg	Broadcast foliar	BBCH 40 89 April - July	1	N/A	0.016 – 0.006	150 - 400	0.024	21	

Crop and/or situation	Member State or Country	Product Name	F G or I	Pests or Group of pests controlled	Formulation		Application				Application rate per treatment			PHI (days)	Remarks
					Type	Conc. of a.s.	Method Kind	Growth stage & season	Number min max	Interval between apps. (min)	kg a.s./hL min max	water (L/ha) min max	kg a.s. /ha min max		
(a)			(b)	(c)	(d-f)	(i)	(f-h)	(j)	(k)				(l)	(m)	
Cereals – Oats (spring and winter)	EU	GF-2372	F	Aphids	WG	500 g/kg	Broadcast foliar	BBCH 40 - 89 April - July	1	N/A	0.016 – 0.006	150 - 400	0.024	21	
Cereals – Triticale (spring and winter)	EU	GF-2372	F	Aphids	WG	500 g/kg	Broadcast foliar	BBCH 40 - 89 April - July	1	N/A	0.016 – 0.006	150 - 400	0.024	21	
Cotton	EU	GF-2372	F	Aphids	WG	500 g/kg	Broadcast foliar	BBCH 20 – 39 BBCH 40 - 89 May - Sept	1	N/A	0.006 – 0.004	400 - 600	0.024	14	

Remarks:	<p>(a) For crops the EU and Codex classifications (both) should be used.</p> <p>(b) Outdoor or field use (F), glasshouse application (G) or indoor application (I)</p> <p>(c) e.g. biting and sucking insects, soil borne insects, foliar fungi, weeds</p> <p>(d) e.g. wettable powder (WP), emulsifiable concentrate (EC), granule (GR)</p> <p>(e) GIFAP Codes - GIFAP Technical Monograph No. 2, 1989</p> <p>(f) All abbreviations must be explained</p>	<p>(g) Method, e.g. high volume spraying, low volume spraying, spreading, dusting, drench</p> <p>(h) Kind, e.g. overall, broadcast, aerial spraying, row, individual plant, between the plants</p> <p>(i) g/kg or g/l</p> <p>(j) Growth stage at last treatment, including where relevant information on season at time of application</p> <p>(k) The minimum and maximum number of applications possible under practical conditions must be given</p> <p>(l) PHI - Pre-harvest interval</p> <p>(m) Remarks may include: Extent of use/ economic importance/restrictions (e.g. feeding/grazing)/minimal intervals between applications. Indicate uses not yet authorised.</p>
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### Effects on honeybees and bumble bees (Annex IIA, point 8.3.1, Annex IIIA, point 10.4)

#### Laboratory tests:

Test substance	Acute oral toxicity (LD <sub>50</sub> µg/bee)	Acute contact toxicity (LD <sub>50</sub> µg/bee)
a.s.	0.146 (48-h)	0.379 (72-h)
GF-2626	0.539 prep. (48-h) 0.065 a.s.	2.356 prep. (48-h) 0.283 a.s.
GF-2372	0.153 prep. (48-h) 0.075 a.s.	0.448 prep. (48-h) 0.224 a.s.
GF-2032 (Bumble bee)	0.123 prep. (72-h) 0.027 a.s.	34.336 prep. (72-h) 7.554 a.s.
GF-2626 (Bumble bee)	1.27 prep. (48-h) 0.15 a.s.	197 prep. (96-h) 23.3 a.s.
X11719474	>100 (96-h)	-
X11519540	>91.2 (48-h)	-
X11579457	45.7 (48-h)	-
X11721061	>103.5 (48-h)	-

#### Additional laboratory tests:

Test species	Test substance	Time scale/type of endpoint	Endpoint	Toxicity
Honey bee	Sulfoxaflor	Chronic	10 d chronic adult toxicity (LDD <sub>50</sub> ) (LC <sub>50</sub> ) (NOEC)	>0.0115 µg a.s./bee/day >500 µg a.s./kg diet 500 µg a.s./kg diet
Honey bee	Sulfoxaflor	Chronic, repeated exposure	Oral larval toxicity (NOED) (NOEC)	0.200 µg a.s./larva/dev. period 1.30 mg a.s./L

#### Semi-field tests:

Test substance (location)	Study treatments	Findings
GF-2626 (Germany)	Pre-flower without bees 1) 48 g a.s./ha  Evening application after bee flight 1) 24 g a.s./ha 2) 48 g a.s./ha  Daytime application during	Negative effects on adult mortality: in evening application 24 g a.s./ha on day 0, in evening application 48 g a.s./ha on day 0-1, in daytime application on day 0-1. Negative effects on foraging activity: in evening application 48 g a.s./ha on day 0-2, in daytime application on day 0-1. Negative effects on bee brood cannot be excluded.



	bee flight 1) 24 g a.s./ha	
GF-2626 (Germany)	Pre-flower without bees 1) 48 g a.s./ha  Evening application after bee flight 1) 24 g a.s./ha  Daytime application during bee flight 1) 24 g a.s./ha	Negative effects on adult mortality: in evening application on day 0, in daytime application on day 0-1. Negative effects on foraging activity: in daytime application on day 0-1. Negative effects on bee brood cannot be excluded.
GF-2626 (Germany)	Daytime application during bee flight 1) 4 g a.s./ha 2) 8 g a.s./ha 3) 24 g a.s./ha	No apparent effects on mortality, flight intensity and behaviour at test rates 4 and 8 g a.s./ha. Some transient effects on mortality, flight intensity and behaviour at test rate 24 g a.s./ha.

## Newly submitted higher tier studies:

Test substance	Type of the test Location Study treatments	Findings
GF-2626	<b>Tunnel test OECD 75</b> Germany Evening application after bee flight 1) 24 g a.s./ha 2) 48 g a.s./ha	No significant negative effects, except for increased mortality of worker bees on the day after application, decreased foraging activity during three days after application and effect on the behaviour of honeybees, mainly shortly after application. The brood termination assessment is not considered reliable.
GF-2626	<b>Colony feeding study</b> Germany Sulfoxaflor applied via feeding solution at the following nominal concentrations: <ul style="list-style-type: none"> <li>• 0.02 mg a.s./kg in T1</li> <li>• 0.10 mg a.s./kg in T2</li> <li>• 0.50 mg a.s./kg in T3</li> <li>• 2.0 mg a.s./kg in T4</li> <li>• 4.0 mg a.s./kg in T5</li> </ul>	No treatment related adverse effects at concentrations up to 0.5 mg a.s./kg diet However, the reliability of the brood endpoint is lowered, i.e. the NOEC covers rather only colony strength, and mortality in front of the hive.
GF-2626	<b>Guttation study</b> Germany Summer oil seed rape plants, treated with 48 g a.s./ha under field conditions	No test item-related adverse effects on mortality, flight intensity, behaviour and honeybee brood development. Some uncertainty is connected with the third evaluation of colony size. No honeybees on oil seed rape plants, on the soil surface or taking up guttation liquid were observed before start of flowering. No sulfoxaflor residues detected in pollen and

		nectar from comb samples and in worker jelly sample. The maximum sulfoxaflor residue in guttation fluid on 0DAE was 0.837 mg a.s./L and decreased rapidly during next days.
GF-2372	<b>Succeeding crop study</b> Germany To determine sulfoxaflor residue levels in nectar and pollen (collected by forager bees) from spring oil seed rape after one application of sulfoxaflor before its sowing under confined semi-field conditions 48 g a.s./ha	No residues of sulfoxaflor were detected in nectar and pollen samples
GF-2626	<b>Bumblebee greenhouse study</b> Spain Tomato plants, without bumble bees present at time of spraying 24 g a.s./ha/mCH equivalent to 25.7 g a.s./ha	No adverse effect on the pollination activity of bumblebees

### Hazard quotients for honey bees (Annex IIIA, point 10.4)

#### Crop and application rate

Test substance	Route	Hazard quotient	Annex VI Trigger
a.s.	contact	63	50
a.s.	oral	164	50
GF-2626	contact	85	50
GF-2626	oral	369	50
GF-2372	contact	107	50
GF-2372	oral	320	50
X11719474	oral	< 0.24	50
X11519540	oral	< 0.26	50
X11579457	oral	0.53	50
X11721061	oral	< 0.23	50

### Risk assessment according to EFSA (2013) - Screening and Tier1 risk assessments

#### Risk assessment for honeybees

##### Exposure to puddle water

Predicted environmental concentration in puddle water (PEC<sub>puddle</sub>) based on the concentrations of sulfoxaflor in the runoff water of the FOCUS SW R1-R4 scenarios simulated with FOCUS PRZM3 model. Data in the relevant \*.p2t files of the simulations evaluated in the EFSA conclusion of 2014 were processed (i.e. calculations based on the model outputs of the simulated runoff volume and runoff flux) to derive the PEC<sub>puddle</sub>.

Sulfoxaflor input parameters	Molecular weight (g/mol): 277.27 Water solubility (mg/L): 673 K <sub>Foc</sub> (L/kg): 35 DT50 soil (d): 0.078 days (Lab. In accordance with FOCUS SFO)
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	DT50 water/sediment system (d): 57.08 (geomean of two systems; SFO kinetics) DT50 water (d): 57.08 (geomean of two systems; whole system value; SFO kinetics); DT50 sediment (d): 68.63 (geomean of two systems; value determined using top-down approach from the maximum recorded in sediment; SFO kinetics);
Parmaters used in FOCUSsw step 3	Version control no.'s of FOCUS software: SWASH 3.1 shell Vapour pressure: 1.4 E-5 Pa (T = 20°C); Water solubility (mg/L): 673 (T = 20°C) K <sub>Foc</sub> : 35 mL/g 1/n: 0.96
Application rate	Number of applications: 1 Interval (d): not applicable – single application Application rate(s): 24 g as/ha Application window for calculations at STEP 3: <ul style="list-style-type: none"> <li>- Winter cereals and spring cereals: 01/04 – 05/05 for all scenarios</li> <li>- Fruiting vegetables: 01/03 – 31/03 for all scenarios</li> </ul> Cotton: no FOCUS runoff scenarios available

## 1) Winter cereals

Scenario	Application date	PEC in puddle water from runoff [µg/L]
		<i>Derived from p2t PRZM file</i>
<i>R1 pond</i>	26. 04. 1984	1.25E-11 (07. 05. 1984)
		4.82E-20 (14. 05. 1984)
<i>R1 stream</i>	26. 04. 1984	1.25E-11 (07. 05. 1984)
		4.82E-20 (14. 05. 1984)
<i>R3 stream</i>	04. 04. 1980	0.00
<i>R4 stream</i>	09. 05. 1984	1.02E-17 (15. 05. 1984)

**Conclusion:** The worst-case PEC puddle water concentration, to be used in the assessment is **1.25E-11 µg/L** (R1 scenarios)

## 2) Spring cereals

Scenario	Application date	PEC in puddle water from runoff [µg/L]
		<i>Derived from p2t PRZM file</i>
<i>R4 stream</i>	04. 05. 1984	2.17E-17 (15. 05. 1984)

**Conclusion:** The worst-case PEC puddle water concentration, to be used in the assessment is **2.17E-17 µg/L**.

## 3) Fruiting vegetables

Scenario	Application date	PEC in puddle water from runoff [µg/L]
		<i>Derived from p2t PRZM file</i>
<i>R2 stream</i>	01. 03. 1980	0.00
<i>R3 stream</i>	01. 03. 1980	7.49E-07 (08. 03. 1980)
		2.43E-15 (15. 03. 1977)
		1.49E-16 (16. 03. 1977)
<i>R4 stream</i>	05. 03. 1984	4.93E-09 (16. 03. 1984)
		3.31E-10 (17. 03. 1984)
		1.12E-20 (25. 03. 1984)

**Conclusion:** The worst-case PEC puddle water concentration, to be used in the assessment is **7.49E-07 µg/L** (scenario R3 stream).

## 4) Cotton

No FOCUS SW R scenarios for cotton available

Risk assessment for honeybees from contact and oral dietary exposure for fruiting vegetable at 24 g a.s./ha x 1, BBCH 20-89

Species	Test substance	Scenario	Risk quotient	HQ/ETR	Trigger
Screening level assessment					
<i>Apis mellifera</i>	a.s.	Not relevant	HQcontact	<b>63.3</b>	42
<i>Apis mellifera</i>	GF-2626	Not relevant	HQcontact	<b>84.8</b>	42
<i>Apis mellifera</i>	a.s.	Not relevant	ETRacute adult oral	<b>1.25</b>	0.2
<i>Apis mellifera</i>	GF-2626	Not relevant	ETRacute adult oral	<b>2.81</b>	0.2
<i>Apis mellifera</i>	a.s.	Not relevant	ETRchronic adult oral	<b>15.86</b>	0.03
<i>Apis mellifera</i>	a.s.	Not relevant	ETR larva oral	<b>0.53</b>	0.2
Tier 1 level assessment - contact exposure – BBCH <50					
<i>Apis mellifera</i>	a.s.	treated crop	HQcontact	0.0	42
<i>Apis mellifera</i>	GF-2626	treated crop	HQcontact	0.0	42
<i>Apis mellifera</i>	a.s.	weeds	HQcontact	<b>63.3</b>	42
<i>Apis mellifera</i>	GF-2626	weeds	HQcontact	<b>84.8</b>	42
<i>Apis mellifera</i>	a.s.	field margin	HQcontact	1.8	42
<i>Apis mellifera</i>	GF-2626	field margin	HQcontact	2.4	42
Tier 1 level assessment - contact exposure – BBCH ≥50					
<i>Apis mellifera</i>	a.s.	treated crop	HQcontact	<b>63.3</b>	42
<i>Apis mellifera</i>	GF-2626	treated crop	HQcontact	<b>84.8</b>	42
<i>Apis mellifera</i>	a.s.	weeds	HQcontact	19.0	42
<i>Apis mellifera</i>	GF-2626	weeds	HQcontact	25.4	42
<i>Apis mellifera</i>	a.s.	field margin	HQcontact	1.8	42
<i>Apis mellifera</i>	GF-2626	field margin	HQcontact	2.4	42
Tier 1 level assessment - oral exposure – BBCH 10-49 (worst case*)					
<i>Apis mellifera</i>	a.s.	treated crop	ETRacute adult oral	<b>1.25</b>	0.2
<i>Apis mellifera</i>	GF-2626	treated crop	ETRacute adult oral	<b>2.81</b>	0.2
<i>Apis mellifera</i>	a.s.	weeds	ETRacute adult oral	<b>0.61</b>	0.2
<i>Apis mellifera</i>	GF-2626	weeds	ETRacute adult oral	<b>1.37</b>	0.2
<i>Apis mellifera</i>	a.s.	field margin	ETRacute adult oral	0.01	0.2
<i>Apis mellifera</i>	GF-2626	field margin	ETRacute adult oral	0.01	0.2
<i>Apis mellifera</i>	a.s.	adjacent crop	ETRacute adult oral	0.00	0.2
<i>Apis mellifera</i>	GF-2626	adjacent crop	ETRacute adult oral	0.01	0.2
<i>Apis mellifera</i>	a.s.	succeeding crop	ETRacute adult oral	0.12	0.2
<i>Apis mellifera</i>	GF-2626	succeeding crop	ETRacute adult oral	<b>0.26</b>	0.2
<i>Apis mellifera</i>	a.s.	treated crop	ETRchronic	<b>8.715</b>	0.03

<i>Apis mellifera</i>	a.s.	weeds	adult oral ETRchronic adult oral	<b>4.358</b>	0.03
<i>Apis mellifera</i>	a.s.	field margin	ETRchronic adult oral	<b>0.040</b>	0.03
<i>Apis mellifera</i>	a.s.	adjacent crop	ETRchronic adult oral	0.029	0.03
<i>Apis mellifera</i>	a.s.	succeeding crop	ETRchronic adult oral	<b>0.811</b>	0.03
<i>Apis mellifera</i>	a.s.	treated crop	ETR larva oral	<b>0.45</b>	0.2
<i>Apis mellifera</i>	a.s.	weeds	ETR larva oral	<b>0.22</b>	0.2
<i>Apis mellifera</i>	a.s.	field margin	ETR larva oral	0.00	0.2
<i>Apis mellifera</i>	a.s.	adjacent crop	ETR larva oral	0.00	0.2
<i>Apis mellifera</i>	a.s.	succeeding crop	ETR larva oral	0.04	0.2
Tier 1 level assessment – oral exposure – BBCH 50-69					
<i>Apis mellifera</i>	a.s.	treated crop	ETRacute adult oral	<b>1.25</b>	0.2
<i>Apis mellifera</i>	GF-2626	treated crop	ETRacute adult oral	<b>2.81</b>	0.2
<i>Apis mellifera</i>	a.s.	weeds	ETRacute adult oral	0.18	0.2
<i>Apis mellifera</i>	GF-2626	weeds	ETRacute adult oral	<b>0.41</b>	0.2
<i>Apis mellifera</i>	a.s.	field margin	ETRacute adult oral	0.01	0.2
<i>Apis mellifera</i>	GF-2626	field margin	ETRacute adult oral	0.01	0.2
<i>Apis mellifera</i>	a.s.	adjacent crop	ETRacute adult oral	0.00	0.2
<i>Apis mellifera</i>	GF-2626	adjacent crop	ETRacute adult oral	0.01	0.2
<i>Apis mellifera</i>	a.s.	succeeding crop	ETRacute adult oral	0.12	0.2
<i>Apis mellifera</i>	GF-2626	succeeding crop	ETRacute adult oral	<b>0.26</b>	0.2
<i>Apis mellifera</i>	a.s.	treated crop	ETRchronic adult oral	<b>8.715</b>	0.03
<i>Apis mellifera</i>	a.s.	weeds	ETRchronic adult oral	<b>1.307</b>	0.03
<i>Apis mellifera</i>	a.s.	field margin	ETRchronic adult oral	<b>0.040</b>	0.03
<i>Apis mellifera</i>	a.s.	adjacent crop	ETRchronic adult oral	0.029	0.03
<i>Apis mellifera</i>	a.s.	succeeding crop	ETRchronic adult oral	<b>0.811</b>	0.03
<i>Apis mellifera</i>	a.s.	treated crop	ETR larva oral	<b>0.45</b>	0.2
<i>Apis mellifera</i>	a.s.	weeds	ETR larva oral	0.07	0.2
<i>Apis mellifera</i>	a.s.	field margin	ETR larva oral	0.00	0.2
<i>Apis mellifera</i>	a.s.	adjacent crop	ETR larva oral	0.00	0.2
<i>Apis mellifera</i>	a.s.	succeeding crop	ETR larva oral	0.04	0.2
Tier 1 level assessment – oral exposure – BBCH ≥70					
<i>Apis mellifera</i>	a.s.	treated crop	ETRacute adult oral	0.00	0.2

<i>Apis mellifera</i>	GF-2626	treated crop	ETRacute adult oral	0.00	0.2
<i>Apis mellifera</i>	a.s.	weeds	ETRacute adult oral	0.18	0.2
<i>Apis mellifera</i>	GF-2626	weeds	ETRacute adult oral	<b>0.41</b>	0.2
<i>Apis mellifera</i>	a.s.	field margin	ETRacute adult oral	0.01	0.2
<i>Apis mellifera</i>	GF-2626	field margin	ETRacute adult oral	0.01	0.2
<i>Apis mellifera</i>	a.s.	adjacent crop	ETRacute adult oral	0.00	0.2
<i>Apis mellifera</i>	GF-2626	adjacent crop	ETRacute adult oral	0.01	0.2
<i>Apis mellifera</i>	a.s.	succeeding crop	ETRacute adult oral	0.12	0.2
<i>Apis mellifera</i>	GF-2626	succeeding crop	ETRacute adult oral	<b>0.26</b>	0.2
<i>Apis mellifera</i>	a.s.	treated crop	ETRchronic adult oral	0.00	0.03
<i>Apis mellifera</i>	a.s.	weeds	ETRchronic adult oral	<b>1.307</b>	0.03
<i>Apis mellifera</i>	a.s.	field margin	ETRchronic adult oral	<b>0.040</b>	0.03
<i>Apis mellifera</i>	a.s.	adjacent crop	ETRchronic adult oral	0.029	0.03
<i>Apis mellifera</i>	a.s.	succeeding crop	ETRchronic adult oral	<b>0.811</b>	0.03
<i>Apis mellifera</i>	a.s.	treated crop	ETR larva oral	0.00	0.2
<i>Apis mellifera</i>	a.s.	weeds	ETR larva oral	0.07	0.2
<i>Apis mellifera</i>	a.s.	field margin	ETR larva oral	0.00	0.2
<i>Apis mellifera</i>	a.s.	adjacent crop	ETR larva oral	0.00	0.2
<i>Apis mellifera</i>	a.s.	succeeding crop	ETR larva oral	0.04	0.2

#### hRisk assessment for honeybees from consumption of contaminated water

Species	Test substance	Risk quotient	ETR	Trigger
Risk assessment from exposure to residues in guttation fluid (water solubility = 673 mg/L)				
<i>Apis mellifera</i>	a.s.	ETRacute adult oral	<b>52.55</b>	0.2
<i>Apis mellifera</i>	a.s.	ETRchronic adult oral	<b>360.3</b>	0.03
<i>Apis mellifera</i>	a.s.	ETRacute larva oral	<b>268.93</b>	0.2
Risk assessment from exposure to residues in puddle water (FOCUS Step 3-R3 stream PECrunoff 7.49E-07 µg/L)				
<i>Apis mellifera</i>	a.s.	ETRacute adult oral	0.00	0.2
<i>Apis mellifera</i>	a.s.	ETRchronic adult oral	0.000	0.03
<i>Apis mellifera</i>	a.s.	ETRacute larva oral	0.00	0.2
Risk assessment from exposure to residues in surface water (FOCUS Step 1 PECsw of 0.0079 mg/L)				
<i>Apis mellifera</i>	a.s.	ETRacute adult oral	0.00	0.2
<i>Apis mellifera</i>	a.s.	ETRchronic adult oral	0.008	0.03
<i>Apis mellifera</i>	a.s.	ETRacute larva oral	0.00	0.2

\* the ETR values for the treated crop were calculated considering crop attractive for pollen and nectar. However, some vegetable crops are attractive only for its pollen (tomato, eggplant). The ETR values indicated here should be considered as worst case for those crops (i.e. they were lower but some of them would still indicate a high risk).

Risk assessment for honeybees from contact and oral dietary exposure for cereals at 24 g a.s./ha x 1, BBCH 40-89

Species	Test substance	Scenario	Risk quotient	HQ/ETR	Trigger
Screening level assessment					
<i>Apis mellifera</i>	a.s.	Not relevant	HQcontact	<b>63.3</b>	42
<i>Apis mellifera</i>	GF-2372	Not relevant	HQcontact	<b>107.1</b>	42
<i>Apis mellifera</i>	a.s.	Not relevant	ETRacute adult oral	<b>1.25</b>	0.2
<i>Apis mellifera</i>	GF-2372	Not relevant	ETRacute adult oral	<b>2.43</b>	0.2
<i>Apis mellifera</i>	a.s.	Not relevant	ETRchronic adult oral	<b>15.86</b>	0.03
<i>Apis mellifera</i>	a.s.	Not relevant	ETR larva oral	<b>0.53</b>	0.2
Tier 1 level assessment - contact exposure – BBCH $\geq$ 40					
<i>Apis mellifera</i>	a.s.	treated crop	HQcontact	<b>63.3</b>	42
<i>Apis mellifera</i>	GF-2372	treated crop	HQcontact	<b>107.1</b>	42
<i>Apis mellifera</i>	a.s.	weeds	HQcontact	19.0	42
<i>Apis mellifera</i>	GF-2372	weeds	HQcontact	32.1	42
<i>Apis mellifera</i>	a.s.	field margin	HQcontact	1.8	42
<i>Apis mellifera</i>	GF-2372	field margin	HQcontact	3.0	42
Tier 1 level assessment - oral exposure – BBCH 40-69					
<i>Apis mellifera</i>	a.s.	treated crop	ETRacute adult oral	0.15	0.2
<i>Apis mellifera</i>	GF-2372	treated crop	ETRacute adult oral	<b>0.29</b>	0.2
<i>Apis mellifera</i>	a.s.	weeds	ETRacute adult oral	0.18	0.2
<i>Apis mellifera</i>	GF-2372	weeds	ETRacute adult oral	<b>0.36</b>	0.2
<i>Apis mellifera</i>	a.s.	field margin	ETRacute adult oral	0.01	0.2
<i>Apis mellifera</i>	GF-2372	field margin	ETRacute adult oral	0.01	0.2
<i>Apis mellifera</i>	a.s.	adjacent crop	ETRacute adult oral	0.00	0.2
<i>Apis mellifera</i>	GF-2372	adjacent crop	ETRacute adult oral	0.01	0.2
<i>Apis mellifera</i>	a.s.	succeeding crop	ETRacute adult oral	0.12	0.2
<i>Apis mellifera</i>	GF-2372	succeeding crop	ETRacute adult oral	<b>0.22</b>	0.2
<i>Apis mellifera</i>	a.s.	treated crop	ETRchronic adult oral	<b>1.382</b>	0.03
<i>Apis mellifera</i>	a.s.	weeds	ETRchronic adult oral	<b>1.307</b>	0.03
<i>Apis mellifera</i>	a.s.	field margin	ETRchronic adult oral	<b>0.040</b>	0.03
<i>Apis mellifera</i>	a.s.	adjacent crop	ETRchronic adult oral	0.029	0.03
<i>Apis mellifera</i>	a.s.	succeeding crop	ETRchronic adult oral	<b>0.811</b>	0.03
<i>Apis mellifera</i>	a.s.	treated crop	ETR larva oral	0.02	0.2



<i>Apis mellifera</i>	a.s.	weeds	ETR larva oral	0.07	0.2
<i>Apis mellifera</i>	a.s.	field margin	ETR larva oral	0.00	0.2
<i>Apis mellifera</i>	a.s.	adjacent crop	ETR larva oral	0.00	0.2
<i>Apis mellifera</i>	a.s.	succeeding crop	ETR larva oral	0.04	0.2
Tier 1 level assessment – oral exposure – BBCH $\geq$ 70					
<i>Apis mellifera</i>	a.s.	treated crop	ETRacute adult oral	0.00	0.2
<i>Apis mellifera</i>	GF-2372	treated crop	ETRacute adult oral	0.00	0.2
<i>Apis mellifera</i>	a.s.	weeds	ETRacute adult oral	0.18	0.2
<i>Apis mellifera</i>	GF-2372	weeds	ETRacute adult oral	<b>0.36</b>	0.2
<i>Apis mellifera</i>	a.s.	field margin	ETRacute adult oral	0.01	0.2
<i>Apis mellifera</i>	GF-2372	field margin	ETRacute adult oral	0.01	0.2
<i>Apis mellifera</i>	a.s.	adjacent crop	ETRacute adult oral	0.00	0.2
<i>Apis mellifera</i>	GF-2372	adjacent crop	ETRacute adult oral	0.01	0.2
<i>Apis mellifera</i>	a.s.	succeeding crop	ETRacute adult oral	0.12	0.2
<i>Apis mellifera</i>	GF-2372	succeeding crop	ETRacute adult oral	<b>0.22</b>	0.2
<i>Apis mellifera</i>	a.s.	treated crop	ETRchronic adult oral	0.00	0.03
<i>Apis mellifera</i>	a.s.	weeds	ETRchronic adult oral	<b>1.307</b>	0.03
<i>Apis mellifera</i>	a.s.	field margin	ETRchronic adult oral	<b>0.040</b>	0.03
<i>Apis mellifera</i>	a.s.	adjacent crop	ETRchronic adult oral	0.029	0.03
<i>Apis mellifera</i>	a.s.	succeeding crop	ETRchronic adult oral	<b>0.811</b>	0.03
<i>Apis mellifera</i>	a.s.	treated crop	ETR larva oral	0.00	0.2
<i>Apis mellifera</i>	a.s.	weeds	ETR larva oral	0.07	0.2
<i>Apis mellifera</i>	a.s.	field margin	ETR larva oral	0.00	0.2
<i>Apis mellifera</i>	a.s.	adjacent crop	ETR larva oral	0.00	0.2
<i>Apis mellifera</i>	a.s.	succeeding crop	ETR larva oral	0.04	0.2

## Risk assessment for honeybees from consumption of contaminated water

Species	Test substance	Risk quotient	ETR	Trigger
Risk assessment from exposure to residues in guttation fluid (water solubility = 673 mg/L)				
<i>Apis mellifera</i>	a.s.	ETRacute adult oral	<b>52.55</b>	0.2
<i>Apis mellifera</i>	a.s.	ETRchronic adult oral	<b>360.3</b>	0.03
<i>Apis mellifera</i>	a.s.	ETRacute larva oral	<b>268.93</b>	0.2
Risk assessment from exposure to residues in puddle water (FOCUS Step 3-R1 pound/stream PECrunoff 1.25E-11 $\mu$ g/L)				
<i>Apis mellifera</i>	a.s.	ETRacute adult oral	0.00	0.2
<i>Apis mellifera</i>	a.s.	ETRchronic adult oral	0.000	0.03
<i>Apis mellifera</i>	a.s.	ETRacute larva oral	0.00	0.2

## Risk assessment from exposure to residues in surface water (FOCUS Step 1 PECsw of 0.0079 mg/L)



Species	Test substance	Risk quotient	ETR	Trigger
<i>Apis mellifera</i>	a.s.	ETRacute adult oral	0.00	0.2
<i>Apis mellifera</i>	GF-2372	ETRacute adult oral	0.00	0.2
<i>Apis mellifera</i>	a.s.	ETRchronic adult oral	0.008	0.03
<i>Apis mellifera</i>	a.s.	ETRacute larva oral	0.00	0.2

Risk assessment for honeybees from contact and oral dietary exposure for cotton at 24 g a.s./ha x 1, BBCH 20-89

Species	Test substance	Scenario	Risk quotient	HQ/ETR	Trigger
Screening level assessment					
<i>Apis mellifera</i>	a.s.	Not relevant	HQcontact	<b>63.3</b>	42
<i>Apis mellifera</i>	GF-2372	Not relevant	HQcontact	<b>107.1</b>	42
<i>Apis mellifera</i>	a.s.	Not relevant	ETRacute adult oral	<b>1.25</b>	0.2
<i>Apis mellifera</i>	GF-2372	Not relevant	ETRacute adult oral	<b>2.43</b>	0.2
<i>Apis mellifera</i>	a.s.	Not relevant	ETRchronic adult oral	<b>15.86</b>	0.03
<i>Apis mellifera</i>	a.s.	Not relevant	ETR larva oral	<b>0.53</b>	0.2
Tier 1 level assessment - contact exposure – BBCH <50					
<i>Apis mellifera</i>	a.s.	treated crop	HQcontact	0.0	42
<i>Apis mellifera</i>	GF-2372	treated crop	HQcontact	0.0	42
<i>Apis mellifera</i>	a.s.	weeds	HQcontact	<b>63.3</b>	42
<i>Apis mellifera</i>	GF-2372	weeds	HQcontact	<b>107.1</b>	42
<i>Apis mellifera</i>	a.s.	field margin	HQcontact	1.8	42
<i>Apis mellifera</i>	GF-2372	field margin	HQcontact	3.0	42
Tier 1 level assessment - contact exposure – BBCH ≥50					
<i>Apis mellifera</i>	a.s.	treated crop	HQcontact	<b>63.3</b>	42
<i>Apis mellifera</i>	GF-2372	treated crop	HQcontact	<b>107.1</b>	42
<i>Apis mellifera</i>	a.s.	weeds	HQcontact	15.8	42
<i>Apis mellifera</i>	GF-2372	weeds	HQcontact	26.8	42
<i>Apis mellifera</i>	a.s.	field margin	HQcontact	1.8	42
<i>Apis mellifera</i>	GF-2372	field margin	HQcontact	3.0	42
Tier 1 level assessment - oral exposure – BBCH 10-49					
<i>Apis mellifera</i>	a.s.	treated crop	ETRacute adult oral	<b>1.25</b>	0.2
<i>Apis mellifera</i>	GF-2372	treated crop	ETRacute adult oral	<b>2.43</b>	0.2
<i>Apis mellifera</i>	a.s.	weeds	ETRacute adult oral	<b>0.61</b>	0.2
<i>Apis mellifera</i>	GF-2372	weeds	ETRacute adult oral	<b>1.18</b>	0.2
<i>Apis mellifera</i>	a.s.	field margin	ETRacute adult oral	0.01	0.2
<i>Apis mellifera</i>	GF-2372	field margin	ETRacute adult oral	0.01	0.2
<i>Apis mellifera</i>	a.s.	adjacent crop	ETRacute adult oral	0.00	0.2
<i>Apis mellifera</i>	GF-2372	adjacent crop	ETRacute adult oral	0.01	0.2
<i>Apis mellifera</i>	a.s.	succeeding crop	ETRacute adult oral	0.12	0.2

<i>Apis mellifera</i>	GF-2372	succeeding crop	ETRacute adult oral	<b>0.22</b>	0.2
<i>Apis mellifera</i>	a.s.	treated crop	ETRchronic adult oral	<b>8.715</b>	0.03
<i>Apis mellifera</i>	a.s.	weeds	ETRchronic adult oral	<b>4.358</b>	0.03
<i>Apis mellifera</i>	a.s.	field margin	ETRchronic adult oral	<b>0.040</b>	0.03
<i>Apis mellifera</i>	a.s.	adjacent crop	ETRchronic adult oral	0.029	0.03
<i>Apis mellifera</i>	a.s.	succeeding crop	ETRchronic adult oral	<b>0.811</b>	0.03
<i>Apis mellifera</i>	a.s.	treated crop	ETR larva oral	<b>0.45</b>	0.2
<i>Apis mellifera</i>	a.s.	weeds	ETR larva oral	<b>0.22</b>	0.2
<i>Apis mellifera</i>	a.s.	field margin	ETR larva oral	0.00	0.2
<i>Apis mellifera</i>	a.s.	adjacent crop	ETR larva oral	0.00	0.2
<i>Apis mellifera</i>	a.s.	succeeding crop	ETR larva oral	0.04	0.2
Tier 1 level assessment – oral exposure – BBCH 50-69					
<i>Apis mellifera</i>	a.s.	treated crop	ETRacute adult oral	<b>1.25</b>	0.2
<i>Apis mellifera</i>	GF-2372	treated crop	ETRacute adult oral	<b>2.43</b>	0.2
<i>Apis mellifera</i>	a.s.	weeds	ETRacute adult oral	0.15	0.2
<i>Apis mellifera</i>	GF-2372	weeds	ETRacute adult oral	<b>0.30</b>	0.2
<i>Apis mellifera</i>	a.s.	field margin	ETRacute adult oral	0.01	0.2
<i>Apis mellifera</i>	GF-2372	field margin	ETRacute adult oral	0.01	0.2
<i>Apis mellifera</i>	a.s.	adjacent crop	ETRacute adult oral	0.00	0.2
<i>Apis mellifera</i>	GF-2372	adjacent crop	ETRacute adult oral	0.01	0.2
<i>Apis mellifera</i>	a.s.	succeeding crop	ETRacute adult oral	0.12	0.2
<i>Apis mellifera</i>	GF-2372	succeeding crop	ETRacute adult oral	<b>0.22</b>	0.2
<i>Apis mellifera</i>	a.s.	treated crop	ETRchronic adult oral	8.715	0.03
<i>Apis mellifera</i>	a.s.	weeds	ETRchronic adult oral	<b>1.089</b>	0.03
<i>Apis mellifera</i>	a.s.	field margin	ETRchronic adult oral	<b>0.040</b>	0.03
<i>Apis mellifera</i>	a.s.	adjacent crop	ETRchronic adult oral	0.029	0.03
<i>Apis mellifera</i>	a.s.	succeeding crop	ETRchronic adult oral	<b>0.811</b>	0.03
<i>Apis mellifera</i>	a.s.	treated crop	ETR larva oral	<b>0.45</b>	0.2
<i>Apis mellifera</i>	a.s.	weeds	ETR larva oral	0.06	0.2
<i>Apis mellifera</i>	a.s.	field margin	ETR larva oral	0.00	0.2
<i>Apis mellifera</i>	a.s.	adjacent crop	ETR larva oral	0.00	0.2
<i>Apis mellifera</i>	a.s.	succeeding crop	ETR larva oral	0.04	0.2

Tier 1 level assessment – oral exposure – BBCH $\geq$ 70					
<i>Apis mellifera</i>	a.s.	treated crop	ETRacute adult oral	0.00	0.2
<i>Apis mellifera</i>	GF-2372	treated crop	ETRacute adult oral	0.00	0.2
<i>Apis mellifera</i>	a.s.	weeds	ETRacute adult oral	0.15	0.2
<i>Apis mellifera</i>	GF-2372	weeds	ETRacute adult oral	<b>0.30</b>	0.2
<i>Apis mellifera</i>	a.s.	field margin	ETRacute adult oral	0.01	0.2
<i>Apis mellifera</i>	GF-2372	field margin	ETRacute adult oral	0.01	0.2
<i>Apis mellifera</i>	a.s.	adjacent crop	ETRacute adult oral	0.00	0.2
<i>Apis mellifera</i>	GF-2372	adjacent crop	ETRacute adult oral	0.01	0.2
<i>Apis mellifera</i>	a.s.	succeeding crop	ETRacute adult oral	0.12	0.2
<i>Apis mellifera</i>	GF-2372	succeeding crop	ETRacute adult oral	<b>0.22</b>	0.2
<i>Apis mellifera</i>	a.s.	treated crop	ETRchronic adult oral	0.00	0.03
<i>Apis mellifera</i>	a.s.	weeds	ETRchronic adult oral	<b>1.089</b>	0.03
<i>Apis mellifera</i>	a.s.	field margin	ETRchronic adult oral	<b>0.040</b>	0.03
<i>Apis mellifera</i>	a.s.	adjacent crop	ETRchronic adult oral	0.029	0.03
<i>Apis mellifera</i>	a.s.	succeeding crop	ETRchronic adult oral	<b>0.811</b>	0.03
<i>Apis mellifera</i>	a.s.	treated crop	ETR larva oral	0.00	0.2
<i>Apis mellifera</i>	a.s.	weeds	ETR larva oral	0.06	0.2
<i>Apis mellifera</i>	a.s.	field margin	ETR larva oral	0.00	0.2
<i>Apis mellifera</i>	a.s.	adjacent crop	ETR larva oral	0.00	0.2
<i>Apis mellifera</i>	a.s.	succeeding crop	ETR larva oral	0.04	0.2

## Risk assessment for honeybees from consumption of contaminated water

Species	Test substance	Risk quotient	ETR	Trigger
Risk assessment from exposure to residues in guttation fluid (water solubility = 673 mg/L)				
<i>Apis mellifera</i>	a.s.	ETRacute adult oral	<b>52.55</b>	0.2
<i>Apis mellifera</i>	a.s.	ETRchronic adult oral	<b>360.3</b>	0.03
<i>Apis mellifera</i>	a.s.	ETRacute larva oral	<b>268.93</b>	0.2
Risk assessment from exposure to residues in puddle water (no FOCUS scenario for runoff is available, therefore no PEC could be calculated)				
<i>Apis mellifera</i>	a.s.	ETRacute adult oral	n/a	0.2
<i>Apis mellifera</i>	a.s.	ETRchronic adult oral	n/a	0.03
<i>Apis mellifera</i>	a.s.	ETRacute larva oral	n/a	0.2
Risk assessment from exposure to residues in surface water (FOCUS Step 1 PEC <sub>sw</sub> of 0.0079 mg/L)				
<i>Apis mellifera</i>	a.s.	ETRacute adult oral	0.00	0.2
<i>Apis mellifera</i>	a.s.	ETRchronic adult oral	0.008	0.03
<i>Apis mellifera</i>	a.s.	ETRacute larva oral	0.00	0.2

n/a: not applicable

### Risk assessment for bumble bees

Risk assessment for bumblebees from contact and oral dietary exposure for fruiting vegetable at 24 g a.s./ha x 1, BBCH 20-89

Species	Test substance	Scenario	Risk quotient	HQ/ETR	Trigger
Screening level assessment					
<i>Bombus terrestris</i>	a.s.	Not relevant	HQcontact	1.0	7
<i>Bombus terrestris</i>	a.s.	Not relevant	ETRacute adult oral	<b>1.79</b>	0.036
Tier 1 level assessment - oral exposure – BBCH 10-49 (worst case*)					
<i>Bombus terrestris</i>	a.s.	treated crop	ETRacute adult oral	<b>1.7920</b>	0.036
<i>Bombus terrestris</i>	a.s.	weeds	ETRacute adult oral	<b>1.0400</b>	0.036
<i>Bombus terrestris</i>	a.s.	field margin	ETRacute adult oral	0.0096	0.036
<i>Bombus terrestris</i>	a.s.	adjacent crop	ETRacute adult oral	0.0059	0.036
<i>Bombus terrestris</i>	a.s.	succeeding crop	ETRacute adult oral	<b>0.1440</b>	0.036
Tier 1 level assessment – oral exposure – BBCH 50-69					
<i>Bombus terrestris</i>	a.s.	treated crop	ETRacute adult oral	<b>1.7920</b>	0.036
<i>Bombus terrestris</i>	a.s.	weeds	ETRacute adult oral	<b>0.3120</b>	0.036
<i>Bombus terrestris</i>	a.s.	field margin	ETRacute adult oral	0.0096	0.036
<i>Bombus terrestris</i>	a.s.	adjacent crop	ETRacute adult oral	0.0059	0.036
<i>Bombus terrestris</i>	a.s.	succeeding crop	ETRacute adult oral	<b>0.1440</b>	0.036
Tier 1 level assessment – oral exposure – BBCH ≥70					
<i>Bombus terrestris</i>	a.s.	treated crop	ETRacute adult oral	0.00	0.036
<i>Bombus terrestris</i>	a.s.	weeds	ETRacute adult oral	<b>0.3120</b>	0.036
<i>Bombus terrestris</i>	a.s.	field margin	ETRacute adult oral	0.0096	0.036
<i>Bombus terrestris</i>	a.s.	adjacent crop	ETRacute adult oral	0.0059	0.036
<i>Bombus terrestris</i>	a.s.	succeeding crop	ETRacute adult oral	<b>0.1440</b>	0.036

\* the ETR values for the treated crop were calculated considering crop attractive for pollen and nectar. However, some vegetable crops are attractive only for pollen (tomato, eggplant). The ETR values indicated here should be considered as worst case for those crops (i.e. they were lower but some of them would still indicate a high risk).

Risk assessment for bumblebees from contact and oral dietary exposure for cereals at 24 g a.s./ha x 1, BBCH 40-89

Species	Test substance	Scenario	Risk quotient	HQ/ETR	Trigger
Screening level assessment					
<i>Bombus terrestris</i>	a.s.	Not relevant	HQcontact	1.0	7

<i>Bombus terrestris</i>	a.s.	Not relevant	ETRacute adult oral	<b>1.79</b>	0.036
<i>Bombus terrestris</i>	a.s.	Not relevant	ETRchronic adult oral	-	0.0048
<i>Bombus terrestris</i>	a.s.	Not relevant	ETR larva oral	-	0.2
Tier 1 level assessment - oral exposure – BBCH 40-69					
<i>Bombus terrestris</i>	a.s.	treated crop	ETRacute adult oral	<b>0.3680</b>	0.036
<i>Bombus terrestris</i>	a.s.	weeds	ETRacute adult oral	<b>0.3120</b>	0.036
<i>Bombus terrestris</i>	a.s.	field margin	ETRacute adult oral	0.0096	0.036
<i>Bombus terrestris</i>	a.s.	adjacent crop	ETRacute adult oral	0.0059	0.036
<i>Bombus terrestris</i>	a.s.	succeeding crop	ETRacute adult oral	<b>0.1440</b>	0.036
Tier 1 level assessment – oral exposure – BBCH $\geq$ 70					
<i>Bombus terrestris</i>	a.s.	treated crop	ETRacute adult oral	0.00	0.036
<i>Bombus terrestris</i>	a.s.	weeds	ETRacute adult oral	<b>0.3120</b>	0.036
<i>Bombus terrestris</i>	a.s.	field margin	ETRacute adult oral	0.0096	0.036
<i>Bombus terrestris</i>	a.s.	adjacent crop	ETRacute adult oral	0.0059	0.036
<i>Bombus terrestris</i>	a.s.	succeeding crop	ETRacute adult oral	<b>0.1440</b>	0.036

Risk assessment for bumblebees from contact and oral dietary exposure for cotton at 24 g a.s./ha x 1, BBCH 20-89

Species	Test substance	Scenario	Risk quotient	HQ/ETR	Trigger
Screening level assessment					
<i>Bombus terrestris</i>	a.s.	Not relevant	HQcontact	1.0	7
<i>Bombus terrestris</i>	a.s.	Not relevant	ETRacute adult oral	<b>1.79</b>	0.036
<i>Bombus terrestris</i>	a.s.	Not relevant	ETRchronic adult oral	-	0.0048
<i>Bombus terrestris</i>	a.s.	Not relevant	ETR larva oral	-	0.2
Tier 1 level assessment - oral exposure – BBCH 10-49 (worst case)					
<i>Bombus terrestris</i>	a.s.	treated crop	ETRacute adult oral	<b>1.7920</b>	0.036
<i>Bombus terrestris</i>	a.s.	weeds	ETRacute adult oral	<b>1.0400</b>	0.036
<i>Bombus terrestris</i>	a.s.	field margin	ETRacute adult oral	0.0096	0.036
<i>Bombus terrestris</i>	a.s.	adjacent crop	ETRacute adult oral	0.0059	0.036
<i>Bombus terrestris</i>	a.s.	succeeding crop	ETRacute adult oral	<b>0.1440</b>	0.036
Tier 1 level assessment – oral exposure – BBCH 50-69					
<i>Bombus terrestris</i>	a.s.	treated crop	ETRacute adult oral	<b>1.7920</b>	0.036

<i>Bombus terrestris</i>	a.s.	weeds	ETRacute adult oral	<b>0.3120</b>	0.036
<i>Bombus terrestris</i>	a.s.	field margin	ETRacute adult oral	0.0096	0.036
<i>Bombus terrestris</i>	a.s.	adjacent crop	ETRacute adult oral	0.0059	0.036
<i>Bombus terrestris</i>	a.s.	succeeding crop	ETRacute adult oral	<b>0.1440</b>	0.036
Tier 1 level assessment – oral exposure – BBCH $\geq$ 70					
<i>Bombus terrestris</i>	a.s.	treated crop	ETRacute adult oral	0.00	0.036
<i>Bombus terrestris</i>	a.s.	weeds	ETRacute adult oral	<b>0.2600</b>	0.036
<i>Bombus terrestris</i>	a.s.	field margin	ETRacute adult oral	0.0096	0.036
<i>Bombus terrestris</i>	a.s.	adjacent crop	ETRacute adult oral	0.0059	0.036
<i>Bombus terrestris</i>	a.s.	succeeding crop	ETRacute adult oral	<b>0.1440</b>	0.036

**Risk assessment for bumble bees and solitary bees for the field margin scenario (all representative uses) considering surrogate endpoints** (derived from honey bees endpoint and extrapolation factor of 10) **and considering spray drift mitigation**

Risk quotients calculated without spray drift mitigation and with a certain spray drift mitigation efficiency (%) that results in HQ/ETR equal to or just below the respective trigger value

Species	Test substance	Scenario	Risk quotient	HQ/ETR	Trigger
Tier 1 level assessment with surrogate endpoint - oral exposure <b>without</b> spray drift mitigation					
<i>Bombus spp</i>	a.s.	field margin	ETRchronic adult oral	<b>0.815</b>	0.0048
<i>Bombus spp</i>	a.s.	field margin	ETR larva oral	<b>0.29</b>	0.2
Tier 1 level assessment with surrogate endpoint - oral exposure <b>with</b> spray drift mitigation					
<i>Bombus spp</i>	a.s.	field margin	ETRchronic adult oral with 99.5% spray drift mitigation	0.00408	0.0048
<i>Bombus spp</i>	a.s.	field margin	ETR larva oral with 30% spray drift mitigation	0.20	0.2
Tier 1 level assessment with surrogate endpoint - contact exposure <b>without</b> spray drift mitigation					
Solitary bee	a.s.	field margin	HQcontact	<b>17.7</b>	8
Solitary bee	GF-2626	field margin	HQcontact	<b>23.7</b>	8
Solitary bee	GF-2372	field margin	HQcontact	<b>30.0</b>	8
Tier 1 level assessment with surrogate endpoint - contact exposure <b>with</b> spray drift mitigation					
Solitary bee	a.s.	field margin	HQcontact with 55% spray drift mitigation	8.0	8
Solitary bee	GF-2626	field margin	HQcontact with 67% spray drift mitigation	7.8	8
Solitary bee	GF-2372	field margin	HQcontact with 74% spray drift mitigation	7.8	8
Tier 1 level assessment with surrogate endpoint - oral exposure <b>without</b> spray drift mitigation					
Solitary bee	a.s.	field margin	ETRacute adult oral	0.035	0.04
Solitary bee	GF-2626	field margin	ETRacute adult oral	<b>0.078</b>	0.04

Solitary bee	GF-2372	field margin	ETRacute adult oral	<b>0.068</b>	0.04
Solitary bee	a.s.	field margin	ETRchronic adult oral	<b>0.318</b>	0.054
Solitary bee	a.s.	field margin	ETR larva oral	<b>0.34</b>	0.2
Tier 1 level assessment with surrogate endpoint - oral exposure <b>with</b> spray drift mitigation					
Solitary bee	GF-2626	field margin	ETRacute adult oral with 49% spray drift mitigation	0.040	0.04
Solitary bee	GF-2372	field margin	ETRacute adult oral with 41% spray drift mitigation	0.040	0.04
Solitary bee	a.s.	field margin	ETRchronic adult oral with 98.4% spray drift mitigation	0.00509	0.054
Solitary bee	a.s.	field margin	ETR larva oral with 40% spray drift mitigation	0.20	0.2

### Risk assessment for metabolites of sulfoxaflor

Sulfoxaflor metabolites: Risk assessment for honeybees from acute oral dietary exposure for fruiting vegetable, cereals and cotton at 24 g a.s./ha x 1

Species	Test substance	LD50 (µg./bee)	Risk quotient	ETR	Trigger
Screening level assessment					
<i>Apis mellifera</i>	X11719474	>100	ETRacute adult oral	<0.0019 <sup>1)</sup>	0.2
<i>Apis mellifera</i>	X11519540	>91.2	ETRacute adult oral	<0.0018 <sup>2)</sup>	0.2
<i>Apis mellifera</i>	X11579457	45.7	ETRacute adult oral	0.0036 <sup>3)</sup>	0.2
<i>Apis mellifera</i>	X11721061	>103.5	ETRacute adult oral	<0.0012 <sup>4)</sup>	0.2

1) Considering molar weight of 295.3 g/mol and fraction of metabolite formed of 100%

2) Considering molar weight of 253.2 g/mol and fraction of metabolite formed of 100%

3) Considering molar weight of 252.25 g/mol and fraction of metabolite formed of 100%

4) Considering molar weight of 190.14 g/mol and fraction of metabolite formed of 100%