FINAL REGISTRATION REPORT

Part B

Section 8

Environmental Fate

Detailed summary of the risk assessment

Product code: FLD-HER 306 SE

Product name(s): Konik 306 SE

Chemical active substance(s):

2,4-D, 300 g/L
florasulam, 6.25 g/L

Central Zone

Zonal Rapporteur Member State: Poland

CORE ASSESSMENT

(authorization)

Applicant:

Pestila Spółka z ograniczoną odpowiedzialnością

Submission date: January 2021

MS Finalisation date: 08.2021; 11.2021

Version history

When	What
01/2021	Submission dossier from applicant
08/2021	Draft dRR evaluated by RMS
11/2021	Final Registration Report

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8 Fate and behaviour in the environment (KCP 9)

8.1 Critical GAP and overall conclusions

Table 8.1-1: Critical use pattern of the formulated product

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use-No. *	Member state(s)	Crop and/or situation (crop destination / purpose of crop)	F, Fn, Fpn G, Gn, Gpn or I **	Pests or Group of pests controlled (additionally: developmental stages of the pest or pest group)	**Application**				**Application rate**			PHI (days)	Remarks: e.g. g safener/ synergist per ha	**Conclusion**
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	kg or L product/ha a) max. rate per appl. b) max. total rate per crop/season	g or kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min/max			Groundwater
Zonal uses (field or outdoor uses, certain types of protected crops)														
1	PL	Spring wheat Spring triticale Spring barley Oat	F	Weeds (detailed information is provided in Part B Section 0 and Section 3)	spraying	Spring BBCH 12-32	1	n.a	Spring 0.4-0.6 L/ha	Spring 2.5-3.75 g florasulam 120-180 g 2,4-D	200-300 L/ha	not relevant	not relevant	
2	PL	Winter wheat Winter triticale Winter barley Rye	F	Weeds (detailed information is provided in Part B Section 0 and Section 3)	spraying	Spring BBCH 21-32	1	n.a	Spring 0.4-0.6 L/ha	Spring 2.5-3.75 g florasulam 120-180 g 2,4-D	200-300 L/ha	not relevant	not relevant	
3	PL	Maize	F	Weeds (detailed information is provided in Part B Section 0 and Section 3)	spraying	Spring BBCH 12-16	1	n.a.	Spring 0.4-0.6 L/ha	Spring 2.5-3.75 g florasulam 120-180 g 2,4-D	200-300 L/ha	not relevant	not relevant	
Interzonal uses (use as seed treatment, in greenhouses (or other closed places of plant production), as post-harvest treatment or for treatment of empty storage rooms)														
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Minor uses according to Article 51 (zonal uses)														

-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Minor uses according to Article 51 (interzonal uses)														
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* Use number(s) in accordance with the list of all intended GAPs in Part B, Section 0 should be given in column 1

** F: professional field use, Fn: non-professional field use, Fpn: professional and non-professional field use, G: professional greenhouse use, Gn: non-professional greenhouse use, Gpn: professional and non-professional greenhouse use, I: indoor application

Explanation for column 15 "Conclusion"

A	Safe use
R	Further refinement and/or risk mitigation measures required
C	To be confirmed by cMS
N	No safe use

Table 8.1-2: Assessed (critical) uses during approval of 2,4-D concerning the Section Environmental Fate

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Use-No. *	Member state(s)	Crop and/or situation (crop destination / purpose of crop)	F, Fn, Fpn G, Gn, Gpn or I **	Pests or Group of pests controlled (additionally: developmental stages of the pest or pest group)	**Application**				**Application rate**			PHI (days)	Remarks: e.g. g safener/ synergist per ha
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	g or L product/ha a) max. rate per appl. b) max. total rate per crop/season	g or kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min/max		
1	EU	Winter wheat, winter barley, winter oats, winter rye & triticale	F	Dicotyledonous weeds	Broadcast	BBCH 21-32 (Feb-May)	a) 1 b) 1	NR	NR	a) 750 b) 750	100-400	NR	NR
2	EU	Spring wheat, spring barley, spring oats & spring rye	F	Dicotyledonous weeds	Broadcast	BBCH 11-32 (March-May)	a) 1 b) 1	NR	NR	a) 750 b) 750	100-400	NR	NR
3	EU	Maize	F	Dicotyledonous weeds	Broadcast	BBCH 11-16 (April-June)	a) 1 b) 1	NR	NR	a) 750 b) 750	100-400	NR	NR

Table 8.1-3: Assessed (critical) uses during approval of florasulam concerning the Section Environmental Fate

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Use-No. *	Member state(s)	Crop and/or situation (crop destination / purpose of crop)	F, Fn, Fpn G, Gn, Gpn or I **	Pests or Group of pests controlled (additionally: developmental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g safener/ synergist per ha
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	kg or L product/ha a) max. rate per appl. b) max. total rate per crop/season	g or kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min/max		
1	EU	Winter cereals (wheat, barley, rye, triticale, oats, spelt)	F	Broad leaved weeds	Tractor mounted or self-propelled hydraulic sprayer giving overall application.	BBCH 00-29 (1st September to end of December)	a) 1 b) 1	NR	NR	a) 3.75 b) 3.75	70-400	NR	Autumn uses Max autumn rate is 3.75 g a.s./ha and the total rate per season is 6.25 g a.s./ha)
2	EU	Winter cereals (wheat, barley, rye, triticale, oats, spelt)	F	Broad leaved weeds	Tractor mounted or self-propelled hydraulic sprayer giving overall application.	BBCH 13-45 (1st January to early July)	a) 1 b) 1	NR	NR	a) 6.25 b) 6.25	70-400	NR	Spring uses
3	EU	Spring cereals (wheat, barley, rye, triticale, oats, spelt)	F	Broad leaved weeds	Tractor mounted or self-propelled hydraulic sprayer giving overall application.	BBCH 12-45 (1st February to 15th July)	a) 1 b) 1	NR	NR	a) 6.25 b) 6.25	70-400	NR	Spring uses
4	EU	Maize	F	Broad leaved weeds	Tractor mounted or self-propelled hydraulic sprayer giving overall application.	BBCH 11-20 (1st April to 30th June)	a) 1 b) 1	NR	NR	a) 5 b) 5	70-400		Spring uses
5	EU	Permanent pasture	F	Broad leaved weeds	Tractor mounted or self-propelled hydraulic sprayer giving overall application.	BBCH growth stage unspecified (15th February to 15th November)	a) 1 b) 1	NR	NR	a) 6.25 b) 6.25	70-400		Spring to Autumn uses
6	EU	New Leys (one season pasture)	F	Broad leaved weeds	Tractor mounted or self-propelled hydraulic sprayer giving overall application.	BBCH 12-39 (1st January to 31st August)	a) 1 b) 1	NR	NR	a) 6.25 b) 6.25	70-400		Spring to Summer uses

7	EU	New Leys (one season pasture)	F	Broad leaved weeds	Tractor mounted or self-propelled hydraulic sprayer giving overall application.	BBCH growth stage unspecified (1st Septem-ber to 31st December)	a) 1 b) 1	NR	NR	a) 3.75 b) 3.75	70-400		Autumn uses

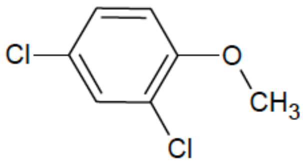
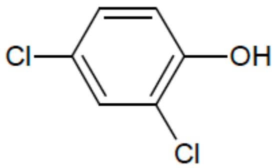
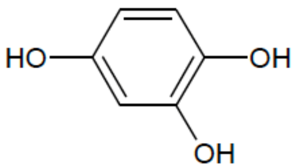
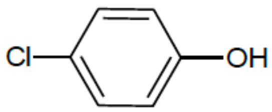
* Use number(s) in accordance with the list of all intended GAPs in Part B, Section 0 should be given in column 1

** F: professional field use, Fn: non-professional field use, Fpn: professional and non-professional field use, G: professional greenhouse use, Gn: non-professional greenhouse use, Gpn: professional and non-professional greenhouse use, I: indoor application

zRMS comments:
All comments and conclusions of the zRMS are presented in grey. Minor changes are introduced directly in the text and highlighted in grey. Not agreed or not relevant information is struck through and shaded for transparency.

8.2 Metabolites considered in the assessment

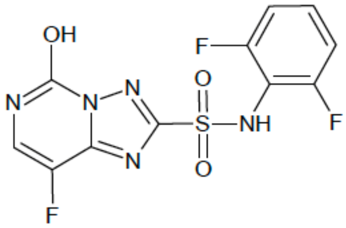
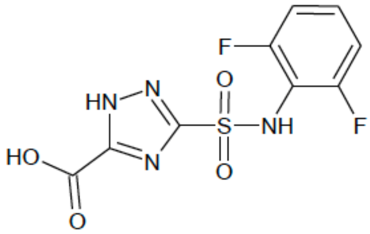
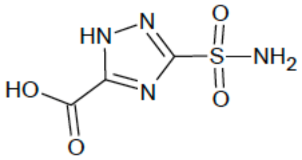
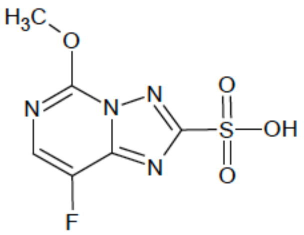
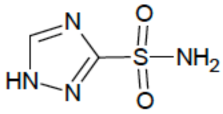
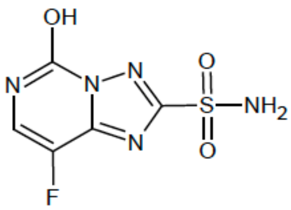
Table 8.2-1: Metabolites of 2,4-D potentially relevant for exposure assessment

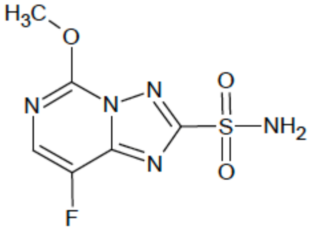
Metabolite	**Molar mass**	**Chemical structure**	**Maximum observed occurrence in compartments**	**Exposure assessment required**
2,4-DCA	177		Soil: 15% Water/sediment: 5.3%	yes
2,4-DCP	163		Soil: 8.7% Water/sediment: 32.1%	yes
1,2,4-benzenetriol	126.1		Soil: NR Water/sediment: 31.7%	yes
4-CP	128.6		Soil: 33% Water/sediment: 6.9%	yes

zRMS comments:

Metabolites of 2,4-D are in line with EU agreed endpoints as reported in EFSA Report of 2,4-D (EFSA Journal 2014;12(9):3812)

Table 8.2-2: Metabolites of florasulam potentially relevant for exposure assessment

Metabolite	Molar mass	Chemical structure	Maximum observed occurrence in compartments	Exposure assessment required
5-OH Florasulam	345.25		Soil: 71.6% Water/sediment: 99%	yes
DFP-ASTCA	304.2		Soil: 17.8% Water/sediment: 8.9%	yes
ASTCA	192.13		Soil: 40% Water/sediment: 53.8%	yes
TPSA	248.2		Soil: NR Water/sediment: 58.3%	yes
TSA	148.14		Soil: 15.9% Water/sediment: NR	yes
5-OH-ASTP	233.2		Soil: NR Water/sediment: 28.9%	yes

Metabolite	Molar mass	Chemical structure	Maximum observed occurrence in compartments	Exposure assessment required
ASTP	247.2		Soil: 0.0001% Water/sediment: 21.9%	yes

zRMS comments:

Metabolites of florasulam are in line with EU agreed endpoints as reported in EFSA Report of florasulam (EFSA Journal 2015; 13(1):3984).

8.3 Rate of degradation in soil (KCP 9.1.1)

8.3.1 Aerobic degradation in soil (KCP 9.1.1.1)

Studies on degradation in soil with the formulation were not performed, since it is possible to extrapolate from data obtained with the active substances.

8.3.1.1 2,4-D and its metabolites

Table 8.3-1: Summary of aerobic degradation rates for 2,4-D - laboratory studies

2,4-D, Laboratory studies, aerobic conditions										
Soil name	**Soil type**	**pH**	**t°C**	**MWHC %**	**DT_{50} (d)**	**DT_{90} (d)**	**DT_{50} (d) 20°C pF2/10kPa**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level Y/N Reference**
Mississippi	Silt Loam	7.4	25	- [a)]	58.9	195.6	94.6 [b)]	7.4	SFO	Y, EFSA Journal 2014; 12(9):3812
Fayette	Clay loam	6.2	20	50	58.9	195.6	5.3	6.3	SFO	Y, EFSA Journal 2014; 12(9):3812
RefSol 03-G	Clay loam	6.2	20	50	1.6	5.4	1.2	6.3	SFO	Y, EFSA Journal 2014; 12(9):3812
Site E1	Sandy loam	6.7	20	50	2.2	7.4	1.6	4.5	SFO	Y, EFSA Journal 2014; 12(9):3812
Site I2	Sandy loam	7.8	20	50	2.0	6.5	1.8	7.8	SFO	Y, EFSA Journal 2014; 12(9):3812
Geometric mean DT_{50} (n=5)							**4.4 (PECsw/sed modelling, PECgw modelling)**			
Worst case DT_{50} (n=5)							**94.6 (PECs modelling)**			
pH-dependency:							N			

a) moisture content not reported in the study summary in the RAR
b) normalized only for temperature.

Table 8.3-2: Summary of aerobic degradation rates for 2,4-DCP - laboratory studies

2,4-DCP, laboratory studies, aerobic conditions										
Soil name	**Soil type**	**pH**	**t°C**	**MWHC %**	**DT_{50} (d)**	**DT_{90} (d)**	**DT_{50} (d) 20°C pF2/10kPa**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level Y/N Reference**
Fayette	Clay loam	6.2	20	50	-	-	-	-	-	Y, EFSA Journal 2014; 12(9):3812

RefSol 03-G	Clay loam	6.2	20	50	15.5	-	11.1	6.3	HS	Y, EFSA Journal 2014; 12(9):3812
Site E1	Sandy loam	6.7	20	50	6.2	-	4.4	9.2	SFO	Y, EFSA Journal 2014; 12(9):3812
Site I2	Sandy loam	7.8	20	50	7.7	-	6.9	12.8	FOMC	Y, EFSA Journal 2014; 12(9):3812
Geometric mean (n=3)							**7.0[a)] (PECsw/sed modelling, PECgw modelling)**			
Worst case (DT_{50}) (n=3)							**14[b)] (PECs modelling)**			
pH-dependency:							N			

a) according to FOCUS (2006) the DT50 was back-calculated from DT90/3.32 of the FOMC kinetic model and should be used for modeling
b) in the EFSA conclusion, this DT_{50} value was used, although it is not listed in the aerobic soil degradation section of the list of endpoints; this is DT_{50} value from best-fit kinetic (DFOP, RAR Volume 3, Annex B.8, p. 697, 698) which are not recommended for modelling by the FOCUS kinetics guidance

Table 8.3-3: Summary of aerobic degradation rates for 2,4-DCA - laboratory studies

2,4-DCA, laboratory studies, aerobic conditions										
Soil name	**Soil type**	**pH**	**t°C**	**MWHC %**	**DT_{50} (d)**	**DT_{90} (d)**	**DT_{50} (d) 20°C pF2/10kPa**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level Y/N Reference**
Fayette	Clay loam	6.2	20	50	-	-	-	-	-	Y, EFSA Journal 2014;12(9):3812
RefSol 03-G	Clay loam	6.2	20	50	16.3	-	11.7	3.7	SFO	Y, EFSA Journal 2014;12(9):3812
Site E1	Sandy loam	6.7	20	50	13.7	-	9.8	6.3	SFO	Y, EFSA Journal 2014;12(9):3812
Site I2	Sandy loam	7.8	20	50	10.9	-	9.8	8.5	SFO	Y, EFSA Journal 2014;12(9):3812
Geometric mean DT_{50} (n=3)							**10.4 (PECsw/sed modelling, PECgw modelling)**			
Worst case DT_{50} (n=3)							**15.4[a)] (PECs modelling)**			
pH-dependency:							N			

a) in the EFSA conclusion, this DT_{50} value was used, although it is not listed in the aerobic soil degradation section of the list of endpoints; this is DT_{50} value from best-fit kinetic (DFOP, RAR Volume 3, Annex B.8, p. 697, 698) which are not recommended for modelling by the FOCUS kinetics guidance

zRMS comments:

Soil degradation data of 2,4-D are in line with EU agreed endpoints as reported in EFSA Report of 2,4-D (EFSA Journal 2014;12(9):3812)

8.3.1.2 Florasulam and its metabolites

Table 8.3-4: Summary of aerobic degradation rates for florasulam - laboratory studies

florasulam, laboratory studies, aerobic conditions										
Soil name	**Soil type**	**pH**	**t°C**	**MWHC %**	**DT_{50} (d)**	**DT_{90} (d)**	**DT_{50} (d) 20°C pF2/10kPa**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level Y/N Reference**
Andover; TP-labelling	Silt loam	7.6	20	40	1.02	3.40	0.91	4.34	SFO	Y, EFSA Journal 2015; 13(1):3984
Kenslow; TP-labelling	Silt loam	5.6	20	40	0.58	1.92	0.58	4.14	SFO	Y, EFSA Journal 2015; 13(1):3984
Marcham; TP-labelling	Sandy clay loam	7.7	20	40	2.55	8.46	2.14	13.44	SFO	Y, EFSA Journal 2015; 13(1):3984
Speyer 2.2; XDE-570, both labels	Sandy loam	7.3	20	40	0.71	5.38	1.62	7.48	Pseudo-SFO (back-calculated from FOMC)	Y, EFSA Journal 2015; 13(1):3984
Cuckney; TP-labelling	Sandy loam	6.9	25	40	0.94	3.11	1.11	3.81	SFO	Y, EFSA Journal 2015; 13(1):3984
Cuckney; TP-labelled XDE-570	Sandy loam	6.9	20	Field Capacity	2.86	9.49	2.86	15.28	SFO	Y, EFSA Journal 2015; 13(1):3984
Cuckney; TP-labelling; averaged - geomean	Sandy loam	6.9	-	-	-		1.78	-	SFO	Y, EFSA Journal 2015; 13(1):3984
Marcham; TP-labelling	Sandy clay loam	7.6	20	Field Capacity	4.29	14.24	4.29	12.78	SFO	Y, EFSA Journal 2015; 13(1):3984
Geometric mean DT_{50} (n=8)							**1.55 (PECsw/sed modelling, PECgw modelling)**			
Worst case DT_{50} (n=8)							**4.29 (PECs modelling)**			
pH-dependency:							N			

Table 8.3-5: Summary of aerobic degradation rates for 5-OH florasulam - laboratory studies

5-OH florasulam, laboratory studies, aerobic conditions											
Soil name	**Soil type**	**pH**	**t°C**	**MWHC %**	**DT_{50} (d)**	**DT_{90} (d)**	**DT_{50} (d) 20°C pF2/10kPa**	**Kinetic formation fraction ff**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level Y/N Reference**
Andover; TP-labelled XDE-570	Silt loam	7.6	20	40	7.02	23.32	6.30	0.747	5.14	SFO	Y, EFSA Journal 2015; 13(1):3984
Kenslow; TP-labelled XDE-570	Silt loam	5.6	20	40	17.69	58.76	17.69	0.828	8.15	SFO	Y, EFSA Journal 2015; 13(1):3984
Marcham; TP-labelled XDE-570	Sandy clay loam	7.7	20	40	14.56	48.36	12.22	0.717	15.52	SFO	Y, EFSA Journal 2015; 13(1):3984
Speyer 2.2; XDE-570, both labels	Sandy loam	7.3	20	40	14.44	47.97	14.44	0.863	7.70	SFO	Y, EFSA Journal 2015; 13(1):3984
Cuckney; TP- both labels	Sandy loam	6.9	25	40	12.97	43.09	15.02	0.933	16.52	SFO	Y, EFSA Journal 2015; 13(1):3984
Cuckney; TP- labelled XDE-570	Sandy loam	6.9	20	Field Capacity	24.77	82.30	24.77	1.000	21.07	SFO	Y, EFSA Journal 2015; 13(1):3984
Cuckney; TP-labelled XDE-570; averaged - geomean	Sandy loam	6.9	-	-	-	-	19.29	0.967	-	SFO	Y, EFSA Journal 2015; 13(1):3984
Marcham; TP- labelled XDE-570	Sandy clay loam	7.6	20	Field Capacity	14.24	98.63	14.24#	1.000	14.62	SFO	Y, EFSA Journal 2015; 13(1):3984
Geometric mean DT_{50} (n=8)							**14.98 (PECsw/sed modelling, PECgw modelling)**				
Worst case DT_{50} (n=8)							**29.75 (PECs modelling)**				
Arithmetic mean ff (n=8)							**0.854 (PECgw modelling)**				
pH-dependency:							N				

#) The DT50 = 14.24 was incorrectly transferred in tables B.8.1.2.1-84, -88, -89, -90, -91, -137 and -138 in the Addendum 2 (final) provided by the RMS (Poland, 2014). The correct DT50 value for metabolite 5-OH florasulam derived from the Marcham soil incubated at 20°C and Field Capacity is 29.75 days, because that is what results from the k = 0.0233 (the DT90 value is correct). The value of 29.75 days was properly reported in tables B.8.1.2.1-145 and B.8.3-1 of the same Addendum 2 (final) (Poland, 2014) and used for PECs calculations for metabolite 5-OH florasulam.

Table 8.3-6: Summary of aerobic degradation rates for DFP-ASTCA - laboratory studies

DFP-ASTCA, laboratory studies, aerobic conditions											
Soil name	**Soil type**	**pH**	**t°C**	**MWHC %**	**DT_{50} (d)**	**DT_{90} (d)**	**DT_{50} (d) 20°C pF2/10kPa**	**Kinetic formation fraction ff**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level Y/N Reference**
Andover; TP-labelled XDE-570	Silt loam	7.6	20	40	21.68	72.02	19.45	1.000 (default)	9.88	SFO, top-down	Y, EFSA Journal 2015; 13(1):3984
Kenslow; TP-labelled XDE-570	Silt loam	5.6	20	40	21.87	72.65	21.87	1.000 (default)	6.47	SFO, top-down	Y, EFSA Journal 2015; 13(1):3984
Marcham; TP-labelled XDE-570	Sandy clay loam	7.7	20	40	55.02	182.75	46.16	1.000 (default)	6.47	SFO, top-down	Y, EFSA Journal 2015; 13(1):3984
Cuckney; TP- labelled ***DFP-ASTCA***	Loamy sand	7.2	20	40	15.82	52.55	15.27	1.000 (default)	9.95	SFO	Y, EFSA Journal 2015; 13(1):3984
Marcham; TP- labelled ***DFP-ASTCA***	Sandy clay loam	7.9	20	40	4.23	14.06	4.23	1.000 (default)	7.51	SFO	Y, EFSA Journal 2015; 13(1):3984
Geometric mean DT_{50} (n=5)							**16.62 (PECsw/sed modelling, PECgw modelling)**				
Worst case DT_{50} (n=5)							**46.16 (PECs modelling)**				
Arythmetic mean ff (n=5)							**1.000 (default) (PECgw modelling)**				
pH-dependency:							N				

Table 8.3-7: Summary of aerobic degradation rates for ASTCA - laboratory studies

ASTCA, laboratory studies, aerobic conditions											
Soil name	**Soil type**	**pH**	**t°C**	**MWHC %**	**DT_{50} (d)**	**DT_{90} (d)**	**DT_{50} (d) 20°C pF2/10kPa**	**Kinetic formation fraction ff**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level Y/N Reference**
Cuckney; TP-labelled DFP-ASTCA	Loamy sand	7.2	20	40	1000 (default)	>1000 (default)	1000 (default)	-	-	SFO	Y, EFSA Journal 2015; 13(1):3984
Marcham; TP-labelled DFP-ASTCA	Sandy clay loam	7.9	20	40	214.11	711.24	214.11	0.781	4.40	SFO	Y, EFSA Journal 2015; 13(1):3984
Cuckney;	Loamy	7.2	20	40	268.45	891.76	259.05	-	4.52	SFO	Y, EFSA

ASTCA, laboratory studies, aerobic conditions											
Soil name	**Soil type**	**pH**	**t°C**	**MWHC %**	**DT_{50} (d)**	**DT_{90} (d)**	**DT_{50} (d) 20°C pF2/10kPa**	**Kinetic formation fraction ff**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level Y/N Reference**
TP-labelled ASTCA	sand										Journal 2015; 13(1):3984
Marcham; TP- labelled ASTCA	Sandy clay loam	7.9	20	40	141.18	469.00	141.18	-	7.12	SFO	Y, EFSA Journal 2015; 13(1):3984
Geometric mean DT_{50} (n=4)							**297.47 (PECsw/sed modelling, PECgw modelling)**				
Worst case DT_{50} (n=4)							**259.05 (PECs modelling)**				
Arythmetic mean ff (n=4)							**0.781 (PECgw modelling)**				
pH-dependency:							N				

Table 8.3-8: Summary of aerobic degradation rates for TSA - laboratory studies

TSA, laboratory studies, dark aerobic conditions											
Soil name	**Soil type**	**pH**	**t°C**	**MWHC %**	**DT_{50} (d)**	**DT_{90} (d)**	**DT_{50} (d) 20°C pF2/10kPa**	**Kinetic formation fraction ff**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level Y/N Reference**
Calke	Sandy loam	5.4	20	20	8.11	166.91	71.44	1.000 from ASTCA 0.219 from DFP-ASTCA	2.23	DFOP	Y, EFSA Journal 2015; 13(1):3984
South Witham	Clay loam	7.1	20	25.7	10.57	155.28	94.39	1.000 from ASTCA 0.219 from DFP-ASTCA	2.11	DFOP	Y, EFSA Journal 2015; 13(1):3984
Lufa 5M	Sandy loam	7.3	20	14	230.14	764.52	171.68	1.000 from ASTCA 0.219 from DFP-ASTCA	4.44	SFO	Y, EFSA Journal 2015; 13(1):3984
RefeSol 06-A	Clay loam	6.7	20	29	46.21	153.51	42.47	1.000 from ASTCA 0.219 from DFP-ASTCA	12.87	SFO	Y, EFSA Journal 2015; 13(1):3984
Geometric mean DT_{50} (n=4)							**83.74 (PECsw/sed modelling, PECgw modelling)**				
Worst case DT_{50} (n=4)							**171.68 (PECs modelling)**				
Arythmetic mean ff (n=4)							**1.000 from ASTCA (PECgw modelling) 0.219 from DFP-ASTCA (PECgw modelling)**				
pH-dependency:							N				

zRMS comments:

Soil degradation data for florasulam and its metabolites are in line with EU agreed endpoints EFSA Report of florasulam (EFSA Journal 2015; 13(1):3984).

8.3.2 Anaerobic degradation in soil (KCP 9.1.1.1)

Studies of anaerobic degradation in soil with the formulation were not performed, since it is possible to extrapolate from data obtained with the active substances.

8.3.2.1 2,4-D and its metabolites

Table 8.3-9: Summary of anaerobic degradation rates for 2,4-D - laboratory studies

2,4-D, laboratory studies, anaerobic conditions										
Soil name	**Soil type**	**pH**	**t°C**	**MWHC %**	**DT_{50} (d)**	**DT_{90} (d)**	**DT_{50} (d) 20°C pF2/10kPa**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level Y/N Reference**
RefeSol 03-G	Clay loam	6.9	20 ± 2	pF2	32	107	32	0.9861 (5.1 % err.)	SFO	Y, EFSA Journal 2014; 12(9):3812
Kenslow	Loam	5.8	20 ± 2	pF2	23	77	23	0.9778 (5.3 % err.)	SFO	Y, EFSA Journal 2014; 12(9):3812
Chelmorton	Silt loam	6.8	20 ± 2	pF2	38	127	38	0.9824 (3.9 % err.)	SFO	Y, EFSA Journal 2014; 12(9):3812
Longwoods	Sandy loam	8.1	20 ± 2	pF2	22	74	22	0.9031 (27.7 % err.)	SFO	Y, EFSA Journal 2014; 12(9):3812
Geometric mean/Median (n=4)							NR			
pH-dependency:							N			

8.3.2.2 Florasulam and its metabolites

Table 8.3-10: Summary of anaerobic degradation rates for florasulam - laboratory studies

florasulam, laboratory studies, dark anaerobic conditions										
Soil name	**Soil type**	**pH**	**t°C**	**MWHC %**	**DT_{50} (d)**	**DT_{90} (d)**	**DT_{50} (d) 20°C pF2/10kPa**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level Y/N Reference**
Speyer 2.2; TP-labelling	Sandy loam	7.3	20	soil:water ratio 1:2	-	-	18.49	8.66	SFO	Y, EFSA Journal 2015; 13(1):3984

Speyer 2.2; phenyl-labelling	Sandy loam	7.3	20	soil:water ratio 1:2	-	-	18.46	9.86	SFO	Y, EFSA Journal 2015; 13(1):3984
Arythmetic mean (n=2)							NR			
pH-dependency:							N			

Table 8.3-11: Summary of anaerobic degradation rates for 5-OH florasulam - laboratory studies

5-OH florasulam, laboratory studies, dark anaerobic conditions										
Soil name	**Soil type**	**pH**	**t°C**	**MWHC %**	**DT_{50} (d)**	**DT_{90} (d)**	**DT_{50} (d) 20°C pF2/10kPa**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level Y/N Reference**
Speyer 2.2; TP-labelling	Sandy loam	7.3	20	soil:water ratio 1:2	-	-	1386.29	7.75	SFO	Y, EFSA Journal 2015; 13(1):3984
Speyer 2.2; phenyl-labelling	Sandy loam	7.3	20	soil:water ratio 1:2	-	-	1083.04	11.18	SFO	Y, EFSA Journal 2015; 13(1):3984
Arythmetic mean (n=2)							NR			
pH-dependency:							N			

8.4 Field studies (KCP 9.1.1.2)

Field studies with the formulation were not performed, since it is possible to extrapolate from data obtained with the active substances.

8.4.1 Soil dissipation testing on a range of representative soils (KCP 9.1.1.2.1)

8.4.1.1 2,4-D and its metabolites

Not relevant. For 2,4-D no reliable field studies are available. No new studies has been submitted for the renewal for this active substance. According to EFSA Journal 2014; 12(9):3812 a data gap has been identified in this area. Nevertheless, laboratory DT_{50} values are below 10 days in most of tested soils except one. Accumulation of 2,4-D in soil is not expected. For modelling laboratory results were used.

8.4.1.2 Florasulam and its metabolites

For the renewal of florasulam field dissipation studies with the parent compound and metabolite 5-OH - florasulam were submitted. Their results were not reported in EFSA Journal 2015;13(1):3984 due to the low reliability of fitting. For modelling laboratory results were used.

8.4.2 Soil accumulation testing (KCP 9.1.1.2.2)

8.4.2.1 2,4-D and its metabolites

Not relevant. See point 8.4.1.1.

8.4.2.2 Florasulam and its metabolites

Not relevant. See point 8.4.1.2.

8.5 Mobility in soil (KCP 9.1.2)

Studies on mobility in soil with the formulation were not performed, since it is possible to extrapolate from data obtained with the active substances.

8.5.1 Laboratory studies (KCP 9.1.2.1)

8.5.1.1 2,4-D and its metabolites

Table 8.5-1: Summary of soil adsorption/desorption for 2,4-D

2,4-D							
Soil name	**Soil type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level Y/N Reference**
M800	Clay loam	1.3	7.1	0.55	42	0.83	Y, EFSA Journal 2014;12(9):3812 & Addendum to RAR (2014)
M801	Loamy sand	1.1	5.2	0.45	41	0.83	Y, EFSA Journal 2014;12(9):3812 & Addendum to RAR (2014)
M802	Loam	2.5	5	0.42	17	0.82	Y, EFSA Journal 2014;12(9):3812 & Addendum to RAR (2014)
M803	Silt loam	3.6	5.9	0.83	23	0.87	Y, EFSA Journal 2014;12(9):3812 & Addendum to RAR (2014)

2,4-D							
Soil name	**Soil type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level Y/N Reference**
M804	Sandy loam	1.4	7.5	0.19	14	0.81	Y, EFSA Journal 2014;12(9):3812 & Addendum to RAR (2014)
M816	Silt loam	0.9	5.9	0.21	23	0.78	Y, EFSA Journal 2014;12(9):3812 & Addendum to RAR (2014)
M822	Clay loam	4.4	7.2	0.51	12	0.9	Y, EFSA Journal 2014;12(9):3812 & Addendum to RAR (2014)
Soil I	Loamy sand	6.1	6.18	4.5	56.62	0.85	Y, EFSA Journal 2014;12(9):3812 & Addendum to RAR (2014)
Soil II	Silt loam[b]	1.7	5.56	2.42	44.85	0.59	Y, EFSA Journal 2014;12(9):3812 & Addendum to RAR (2014)
Soil III	Loamy sand[b]	1.4	4.04	4.18	126.79	0.63	Y, EFSA Journal 2014;12(9):3812 & Addendum to RAR (2014)
Soil VI	Silt[b]	1.5	5.65	3.21	50.38	0.56	Y, EFSA Journal 2014;12(9):3812 & Addendum to RAR (2014)
Soil V	Silt loam	1.6	5.33	1.25	52.6	0.83	Y, EFSA Journal 2014;12(9):3812 & Addendum to RAR (2014)
Plainfield	Sand	0.46[d]	5.6	0.357	76	0.882	Y, EFSA Journal 2014;12(9):3812 & Addendum to RAR (2014)
California	Sandy loam[b]	0.58[d]	6.7	0.167	70	0.677	Y, EFSA Journal 2014;12(9):3812 & Addendum to RAR (2014)
Mississippi	Loam	0.23[d]	7	0.281	117	0.803	Y, Addendum to RAR (2014)
Arizona	Silty clay loam	0.87[d]	7.9	0.517	59	0.816	Y, EFSA Journal 2014;12(9):3812 & Addendum to RAR (2014)
Lorraine	Rendzinac	6.8-9.5	7	3.09	30.67	0.78	Y, EFSA Journal

2,4-D							
Soil name	**Soil type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level Y/N Reference**
							2014;12(9):3812 & Addendum to RAR (2014)
Jura I	Humic Cambi-sols[c]	10.0 - 14.1	6.5 - 7.0	5.03	25.73	0.8	Y, EFSA Journal 2014;12(9):3812 & Addendum to RAR (2014)
Jura II	Mollic Cambi-sols[c]	4.5 - 9.2	6.8 - 7.8	4.99	39.42	0.72	Y, EFSA Journal 2014;12(9):3812 & Addendum to RAR (2014)
Ile de France	Calcic Cambi-sols[c]	0.9 - 1.4	7.0 - 7.5	0.54	26.09	0.78	Y, EFSA Journal 2014;12(9):3812 & Addendum to RAR (2014)
Lorraine/Jura	Dystric Cambi-sols[c]	1.4 - 2.6	4.5 - 5.4	1.19	40	0.73	Y, EFSA Journal 2014;12(9):3812 & Addendum to RAR (2014)
Lorraine	Gleyic Cambi-sols[b,c]	1.3 - 1.5	6.2 - 6.5	1.27	57.14	0.68	Y, EFSA Journal 2014;12(9):3812 & Addendum to RAR (2014)
Martinique	Vertisols[b,c]	2.0 - 2.9	5.9 - 6.3	2.44	53.06	0.61	Y, Addendum to RAR (2014)
Brazil	Ferralsols[c]	1.2 - 4.7	4.2 - 5.5	16.81	311.86	0.75	Y, Addendum to RAR (2014)
Martinique	Andosols[c]	9.2 - 10.7	4.3 - 4.4	32.55	267.33	0.8	Y, Addendum to RAR (2014)
Louisiana	Clay	2.09[d]	7.3	-[e]	58.1	0.83	Y, EFSA Journal 2014;12(9):3812 & Addendum to RAR (2014)
Chromoxerert (0-10cm)	Silty Clay	2.57[d]	7.9	0.82	31.91[g, h]	0.91	Y, EFSA Journal 2014;12(9):3812 & Addendum to RAR (2014)
Chromoxerert (10-20cm)	Clay	1.40[d]	7.8	0.37	26.46[g, h]	0.99	Y, EFSA Journal 2014;12(9):3812 & Addendum to RAR (2014)
Chromoxerert (35-40cm)	Clay[b]	1.10[d]	7.7	0.16	14.85[g, h]	1.16	Y, Addendum to RAR (2014)
Pelloxerert I (0-20cm)	Clay	0.97[d]	7.6	0.62	68.79[g, h]	0.90	Y, EFSA Journal 2014;12(9):3812 & Addendum to RAR

2,4-D							
Soil name	**Soil type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level Y/N Reference**
							(2014)
Pelloxerert I (20-40cm)	Clay	0.60[d]	7.6	0.53	88.61[g, h]	0.87	Y, Addendum to RAR (2014)
Pelloxerert I (120-150cm)	Clay	0.51[d]	7.8	0.18	35.26[g, h]	0.95	Y, Addendum to RAR (2014)
Pelloxerert II (0-10cm)	Clay	0.98[d]	7.7	0.77	78.54[g, h]	0.90	Y, EFSA Journal 2014;12(9):3812 & Addendum to RAR (2014)
Pelloxerert II (90-100cm)	Clay	0.84[d]	8.3	0.30	35.65[g, h]	1.02	Y, Addendum to RAR (2014)
Xerofluvent I (0-10 cm)	Clay loam	1.29[d]	7.7	0.77	59.79[g, h]	0.96	Y, EFSA Journal 2014;12(9):3812 & Addendum to RAR (2014)
Xerofluvent II (0-10 cm)	Sandy loam	0.71[d]	7.2	0.93	131.42[g, h]	0.90	Y, EFSA Journal 2014;12(9):3812 & Addendum to RAR (2014)
Xerofluvent II (10-20 cm)	Sandy loam	0.37[d]	6.9	0.78	382.42[g, h]	0.97	Y, EFSA Journal 2014;12(9):3812 & Addendum to RAR (2014)
Xerofluvent III (0-20 cm)	Sandy clay loam	2.73[d]	6.3	3.08	112.97[g, h]	0.88	Y, EFSA Journal 2014;12(9):3812 & Addendum to RAR (2014)
Eutrochrepts I (0-25 cm)	Loam	1.86[d]	6.5	1.43	77.03[g, h]	0.90	Y, Addendum to RAR (2014)
Eutrochrepts I (50-100 cm)	Loam	0.68[d]	6.8	1.14	167.97[g, h]	0.94	Y, Addendum to RAR (2014)
Haploxeralf (0-10 cm)	Loam	2.41[d]	6.5	1.64	68.11[g, h]	0.93	Y, EFSA Journal 2014;12(9):3812 & Addendum to RAR (2014)
Haploxeralf (10-40 cm)	Clay loam	0.47[d]	6.5	0.43	91.51[g, h]	0.96	Y, Addendum to RAR (2014)
Haploxeralf (70-100 cm)	Silty loam	0.28[d]	6.5	0.41	147.25[g, h]	0.82	Y, Addendum to RAR (2014)
Eutrochrepts II (0-25 cm)	Silty loam	2.52[d]	7.8	2.20	87.39[g, h]	0.92	Y, Addendum to RAR (2014)
Eutrochrepts II (50-85 cm)	Clay loam	0.49[d]	7.7	0.68	139.56[g, h]	0.96	Y, Addendum to RAR (2014)
no. 20[f]	soil	-	-	2.23	116.85[h]	0.95	Y, EFSA Journal

2,4-D							
Soil name	**Soil type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level Y/N Reference**
							2014;12(9):3812 & Addendum to RAR (2014)
Illinois	Silt loam	2.23	5.9	-[e]	41	0.896	Y, EFSA Journal 2014;12(9):3812 & Addendum to RAR (2014)
California	Silt loam[b]	0.22	7.5	-[e]	31	0.632	Y, Addendum to RAR (2014)
North Dakota	Loam	3.08	6.8	-[e]	35	0.930	Y, EFSA Journal 2014;12(9):3812 & Addendum to RAR (2014)
Mississippi	Clay	1.26	7	-[e]	74	0.795	Y, EFSA Journal 2014;12(9):3812 & Addendum to RAR (2014)
Median (n=35)					58.6	-	**(PECsw/sed modelling, PECgw modelling)**
Geometric mean (n=35)					-	-	
Arithmetic mean (n=35)					-	0.87	**(PECsw/sed modelling, PECgw modelling)**
pH-dependency:					N		

Table 8.5-2: Summary of soil adsorption/desorption for 2,4-DCP

2,4-DCP							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level Y/N Reference**
M800	Clay Loam	1.3	7.1	10	765	0.85	Y, EFSA Journal 2014;12(9):3812
M801	Loamy Sand	1.1	5.2	4	405	0.80	Y, EFSA Journal 2014;12(9):3812
M802	Loam	2.5	5.0	16	655	0.94	Y, EFSA Journal 2014;12(9):3812
M803	Silt Loam	3.6	5.9	25	690	0.94	Y, EFSA Journal 2014;12(9):3812
M804	Sandy Loam	1.4	7.5	3	244	0.88	Y, EFSA Journal 2014;12(9):3812
M816	Silt Loam	0.9	5.9	5	574	0.83	Y, EFSA Journal 2014;12(9):3812

2,4-DCP							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level Y/N Reference**
M822	Clay Loam	4.4	7.2	11	250	0.93	Y, EFSA Journal 2014;12(9):3812
Plainfield	Sand	0.46	5.6	-	368	0.906	Y, EFSA Journal 2014;12(9):3812
Arizona	Silty clay loam	0.87	7.9	-	374	0.739	Y, EFSA Journal 2014;12(9):3812
Median (n=9)					405	-	
Geomethric mean (n=9)					444	-	
Arithmetic mean (n=9)					-	0.868	
pH-dependency:					N		

Table 8.5-3: Summary of soil adsorption/desorption for 2,4-DCA

2,4-DCA							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level Y/N Reference**
M800	Clay Loam	1.3	7.1	18	1386	0.85	Y, EFSA Journal 2014;12(9):3812
M801	Loamy Sand	1.1	5.2	18	1630	0.93	Y, EFSA Journal 2014;12(9):3812
M802	Loam	2.5	5.0	21	841	0.93	Y, EFSA Journal 2014;12(9):3812
M803	Silt Loam	3.6	5.9	27	746	0.93	Y, EFSA Journal 2014;12(9):3812
M804	Sandy Loam	1.4	7.5	12	836	0.95	Y, EFSA Journal 2014;12(9):3812
M816	Silt Loam	0.9	5.9	10	1137	0.92	Y, EFSA Journal 2014;12(9):3812
M822	Clay Loam	4.4	7.2	27	622	0.92	Y, EFSA Journal 2014;12(9):3812
Plainfield	Sand	0.46	5.6	-	436	0.955	Y, EFSA Journal 2014;12(9):3812
California	Sandy loam	0.58	6.7	-	667	0.978	Y, EFSA Journal 2014;12(9):3812
Arizona	Silty clay loam	0.87	7.9	-	616	0.809	Y, EFSA Journal 2014;12(9):3812
Median (n=9)					791	-	
Geometric mean (n=9)					827	-	
Arithmetic mean (n=9)					-	0.917	
pH-dependency:					N		

zRMS comments:

Soil mobility data for 2,4-D and its metabolites are in line with EU agreed endpoints EFSA 2014;12(9):3812. On this basis higher Kfoc of 58.6 mL/g could be used to calculations (Addendum to the RAR).

8.5.1.2 Florasulam and its metabolites

Table 8.5-4: Summary of soil adsorption for florasulam

florasulam							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level Y/N Reference**
Kenslow	Loam	3.8	4.6	0.47	12.37	0.91	Y, EFSA Journal 2015; 13(1):3984
Fuquay (M 444)	Sand	0.64	4.7	0.35	54.69	1.00	Y, EFSA Journal 2015; 13(1):3984
RefeSol 01-A	Sandy loam	1.0	5.1	0.30	30.00	1.02	Y, EFSA Journal 2015; 13(1):3984
Calke	Sandy loam	3.6	5.4	0.30	8.33	0.95	Y, EFSA Journal 2015; 13(1):3984
Pewamo (M 445)	Clay	2.4	5.7	1.88	78.33	0.92	Y, EFSA Journal 2015; 13(1):3984
Kenslow (94/16)	Silt loam	6.8	6.1	1.47	21.62	0.94	Y, EFSA Journal 2015; 13(1):3984
Lufa 6S	Clay	1.8	6.6	0.04	2.22	1.04	Y, EFSA Journal 2015; 13(1):3984
RefeSol 06-A	Clay loam	1.9	6.7	0.08	4.21	0.94	Y, EFSA Journal 2015; 13(1):3984
Catlin (M 461)	Silty clay loam	2.2	7.0	0.89	40.45	0.88	Y, EFSA Journal 2015; 13(1):3984
South Witham	Clay loam	3.8	7.1	0.10	2.63	0.98	Y, EFSA Journal 2015; 13(1):3984
Longwoods	Sandy loam	1.5	7.2	0.03	2.00	0.89	Y, EFSA Journal 2015; 13(1):3984
Lufa 5M	Sandy loam	1.0	7.3	0.03	3.00	0.95	Y, EFSA Journal 2015; 13(1):3984
Speyer 2.2 (94/14	Sandy loam	3.9	7.3	0.13	3.33	0.96	Y, EFSA Journal 2015; 13(1):3984
Hanford (M 466)	Sandy loam	1.0	7.4	0.22	22.00	0.86	Y, EFSA Journal 2015; 13(1):3984
Median (n=14)					**10.35**	-	**PECsw/sed model-ling, PECgw model-ling**
Geometric mean (n=14)					-	-	-
Arithmetic mean (n=14)					-	**0.945**	**PECsw/sed model-**

florasulam							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level Y/N Reference**
							ling, PECgw modelling
				pH-dependency:	N		

Table 8.5-5: Summary of soil desorption for florasulam

florasulam							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level Y/N Reference**
Kenslow	Loam	3.8	4.6	0.77	20.26	0.92	Y, EFSA Journal 2015; 13(1):3984
Fuquay (M 444)	Sand	0.64	4.7	1.31	204.69	0.96	Y, EFSA Journal 2015; 13(1):3984
RefeSol 01-A	Sandy loam	1.0	5.1	0.51	51.00	1.05	Y, EFSA Journal 2015; 13(1):3984
Calke	Sandy loam	3.6	5.4	0.37	10.27	0.95	Y, EFSA Journal 2015; 13(1):3984
Pewamo (M 445)	Clay	2.4	5.7	4.25	177.08	0.89	Y, EFSA Journal 2015; 13(1):3984
Kenslow (94/16)	Silt loam	6.8	6.1	2.33	34.26	0.94	Y, EFSA Journal 2015; 13(1):3984
Lufa 6S	Clay	1.8	6.6	0.53	29.44	0.97	Y, EFSA Journal 2015; 13(1):3984
RefeSol 06-A	Clay loam	1.9	6.7	0.15	7.89	0.93	Y, EFSA Journal 2015; 13(1):3984
Catlin (M 461)	Silty clay loam	2.2	7.0	2.19	99.54	0.88	Y, EFSA Journal 2015; 13(1):3984
South Witham	Clay loam	3.8	7.1	0.35	9.21	0.94	Y, EFSA Journal 2015; 13(1):3984
Longwoods	Sandy loam	1.5	7.2	0.10	6.67	1.08	Y, EFSA Journal 2015; 13(1):3984
Lufa 5M	Sandy loam	1.0	7.3	0.04	4.00	0.93	Y, EFSA Journal 2015; 13(1):3984
Speyer 2.2 (94/14	Sandy loam	3.9	7.3	3.94	101.03	0.64	Y, EFSA Journal 2015; 13(1):3984
Hanford (M 466)	Sandy loam	1.0	7.4	3.18	318.00	0.64	Y, EFSA Journal 2015; 13(1):3984
				pH-dependency:	N		

Table 8.5-6: Summary of soil adsorption/desorption for 5-OH florasulam

5-OH-florasulam							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level Y/N Reference**
Fuquay (M 444)	Sand	0.64	4.7	0.24	37.50	0.89	Y, EFSA Journal 2015; 13(1):3984
Calke	Sandy loam	3.6	5.4	0.29	8.06	0.83	Y, EFSA Journal 2015; 13(1):3984
Pewamo (M 445)	Clay	2.4	5.7	1.73	72.08	0.90	Y, EFSA Journal 2015; 13(1):3984
Kenslow (94/16)	Silt loam	6.8	6.1	1.55	22.79	0.90	Y, EFSA Journal 2015; 13(1):3984
RefeSol 06-A	Clay loam	1.9	6.7	0.12	6.32	0.87	Y, EFSA Journal 2015; 13(1):3984
Catlin (M 461)	Silty clay loam	2.2	7.0	0.69	31.36	0.88	Y, EFSA Journal 2015; 13(1):3984
South Witham	Clay loam	3.8	7.1	0.16	4.21	0.79	Y, EFSA Journal 2015; 13(1):3984
Lufa 5M	Sandy loam	1.0	7.3	0.06	6.00	0.86	Y, EFSA Journal 2015; 13(1):3984
Speyer 2.2 (94/14	Sandy loam	3.9	7.3	0.07	1.79	1.01	Y, EFSA Journal 2015; 13(1):3984
Hanford (M 466)	Sandy loam	1.0	7.4	0.21	21.00	0.95	Y, EFSA Journal 2015; 13(1):3984
				Median (n=10)	**14.53**	-	**PECsw/sed modelling, PECgw modelling**
				Geometric mean (n=10)	-	-	-
				Arithmetic mean (n=10)	-	**0.91**	**PECsw/sed modelling, PECgw modelling**
				pH-dependency:	N		

Table 8.5-7: Summary of soil adsorption/desorption for DFP-ASTCA

DFP-ASTCA							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level Y/N Reference**
Calke	Sandy loam	3.6	5.4	0.88	24.44	0.84	Y, EFSA Journal 2015; 13(1):3984
South Witham	Clay loam	3.8	7.1	0.63	16.58	0.80	Y, EFSA Journal 2015; 13(1):3984
Lufa 5M	Sandy loam	1.0	7.3	2.36	236.00	0.91	Y, EFSA Journal

DFP-ASTCA							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level Y/N Reference**
							2015; 13(1):3984
RefeSol 06-A	Clay loam	1.9	6.7	0.45	23.68	0.86	Y, EFSA Journal 2015; 13(1):3984
				Median (n=4)	-	-	-
				Geomethric mean (n=4)	-	-	-
				Arithmetic mean (n=4)	**75.18**	**0.85**	**PECsw/sed modelling, PECgw modelling**
				pH-dependency:	N		

Table 8.5-8: Summary of soil adsorption/desorption for ASTCA

ASTCA							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level Y/N Reference**
Calke	Sandy loam	3.6	5.4	1.34	37.22	0.91	Y, EFSA Journal 2015; 13(1):3984
South Witham	Clay loam	3.8	7.1	1.27	33.42	0.94	Y, EFSA Journal 2015; 13(1):3984
Lufa 5M	Sandy loam	1.0	7.3	2.97	297.00	0.95	Y, EFSA Journal 2015; 13(1):3984
RefeSol 06-A	Clay loam	1.9	6.7	0.98	51.58	0.94	Y, EFSA Journal 2015; 13(1):3984
				Median (n=4)	-	-	-
				Geometric mean (n=4)	-	-	-
				Arithmetic mean (n=4)	**104.81**	**0.94**	**PECsw/sed modelling, PECgw modelling**
				pH-dependency:	N		

Table 8.5-9: Summary of soil adsorption/desorption for TSA

TSA							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level Y/N Reference**
Calke	Sandy loam	3.6	5.4	0.26	7.22	0.98	Y, EFSA Journal 2015; 13(1):3984
South Witham	Clay loam	3.8	7.1	0.36	9.47	0.94	Y, EFSA Journal

TSA							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level Y/N Reference**
							2015; 13(1):3984
Lufa 5M	Sandy loam	1.0	7.3	0.64	64.00	0.87	Y, EFSA Journal 2015; 13(1):3984
RefeSol 06-A	Clay loam	1.9	6.7	0.25	13.16	0.98	Y, EFSA Journal 2015; 13(1):3984
Median (n=4)					-	-	-
Geometric mean (n=4)					-	-	-
Arithmetic mean (n=4)					**23.46**	**0.94**	**PECsw/sed modelling, PECgw modelling**
pH-dependency:					N		

Aqueous photoproducts of Florasulam – values determined theoretically using KocWin:
- for ASTP: KOC = 60.22 mL/g (PECsw/sed modeling Step 1-2);
- for 5-OH ASTP: KOC = 77.74 mL/g (PECsw/sed modeling Step 1-2);
- for TPSA: KOC = 41.52 mL/g (PECsw/sed modeling Step 1-2).

zRMS comments:

Soil mobility data for florasulam and its metabolites are in line with EU agreed endpoints EFSA Report of florasulam (EFSA Journal 2015; 13(1):3984)

8.5.2 Lysimeter studies (KCP 9.1.2.2)

8.5.2.1 2,4-D and its metabolites

Not relevant. Lysimeter studies were performed for 2,4-D and summarised in EFSA Journal 2014; 12(9):3812. The lysimeter study was performed with 750 g as/ha/year. Product was applied in 15 June to winter rye. 2,4-D as well as its metabolites were not detected in any of the analysed leachate or in the soil layers of the lysimeters at the end of the incubation period (after 2 years). Detailed results are not reported here, since potential leaching of active substances and its metabolites to groundwater after application of FLD-HER 306 SE is low and lysimeter studies are not essential. For details see point 8.8.

8.5.2.2 Florasulam and its metabolites

Not relevant. Lysimeter studies were performed for 2,4-D and florasulam and are summarised in EFSA Journal 2014; 12(9):3812 and EFSA Journal 2015; 13(1):3984, respectively. Results are not reported here, since potential leaching of active substances and its metabolites to groundwater after application of FLD-HER 306 SE is low and lysimeter studies are not essential. For details see point 8.8.

8.5.3 Field leaching studies (KCP 9.1.2.3)

8.5.3.1 2,4-D and its metabolites

Not relevant. No studies submitted.

8.5.3.2 Florasulam and its metabolites

Not relevant. No studies submitted.

8.6 Degradation in the water/sediment systems (KCP 9.2, KCP 9.2.1, KCP 9.2.2, KCP 9.2.3)

Studies on degradation in water/sediment systems with the formulation were not performed, since it is possible to extrapolate from data obtained with the active substance.

8.6.1 2,4-D and its metabolites

Table 8.6-1: Summary of degradation in water/sediment of 2,4-D

2,4-D distribution (max. water 100% after 0 days and max. sediment 24.7% after 7 days)									
Water/sediment system	**pH water/ sed.**	**DegT50 whole syst. (d)**	**DegT90 whole syst. (d)**	**DissT50 water (d)**	**DissT90 water (d)**	**DissT50 sed. (d)**	**DissT90 sed. (d)**	**Kinetic, Fit**	**Evaluated on EU level y/n/ Reference**
Pond system (loamy sand)	6.5 / 6.4	18	60	12.6	41.9	9.8	32.6	SFO	EFSA Journal 2014;12(9):3812
Pond system (silt loam)	8.3 / 7.8	6.4	21.1	4.7	15.7	-	-	SFO	EFSA Journal 2014;12(9):3812
Pond system (silty clay loam)	6.9 / 7.8	29 DT_{50norm} = 52	96.3	-	-	-	-	SFO	EFSA Journal 2014;12(9):3812
Geometric mean (n=3)		**18.16**	-	7.7	-	9.8	-	-	-

Table 8.6-2: Summary of degradation in water/sediment of 2,4-DCP

2,4-D distribution (max. water 2.6% after 26 days and max. sediment 31.8% after 13 days)									
Water/sediment system	**pH water/ sed.**	**DegT50 whole syst. (d)**	**DegT90 whole syst. (d)**	**DissT50 water (d)**	**DissT90 water (d)**	**DissT50 sed. (d)**	**DissT90 sed. (d)**	**Kinetic, Fit**	**Evaluated on EU level y/n/ Reference**
Pond system (loamy sand)	6.5 / 6.4	1000[a b]	-	-	-	197.2	654.7	SFO	EFSA Journal 2014;12(9):3812
Pond system (silt loam)	8.3 / 7.8	10.8[c]	-	-	-	11	36.6	FOMC	EFSA Journal 2014;12(9):3812
Geometric mean (n=2)		**103.9**	-	7.7	-	46.6	-	-	

[a] No acceptable fit could be derived.
[b] Default value
[c] According to FOCUS (2006) the DT_{50} was back-calculated from DT_{90}/3.32 of the FOMC kinetic model and should be used for modelling.

Table 8.6-3: Summary of observed 2,4-D metabolites

2,4-DCP	Max. in water/sediment 32.1% (calculated in the kinetic evaluation water/sediment study)	Y, EFSA Journal 2014;12(9):3812
2,4-DCA	Max. in water/sediment 5.3% (calculated in the kinetic evaluation water/sediment study)	Y, EFSA Journal 2014;12(9):3812
2-CP	Max. in water/sediment 6.9%	Y, EFSA Journal 2014;12(9):3812
1,2,4-benzenetriol	Max. in water/sediment 31.7 % (photolytic degradation)	Y, EFSA Journal 2014;12(9):3812

8.6.2 Florasulam and its metabolites

Table 8.6-4: Summary of degradation in water/sediment of florasulam

Water/sediment system	pH water/sed.	DegT50 whole syst. (d)	DegT90 whole syst. (d)	Kinetic, Fit	DissT50 water (d)	DissT90 water (d)	Kinetic, Fit	DissT50 sed. (d)	Kinetic, Fit	Evaluated on EU level y/n/ Reference
Sandy loam sediment system; [^{14}C]-phenyl Florasulam	7.6/5.4	6.74	22.38	SFO	-	-	-	-	-	Y, EFSA Journal 2015; 13(1):3984
Sandy loam sediment system; [^{14}C]-phenyl Florasulam	7.6/5.4	11.29	37.49	SFO	-	-	-	-	-	Y, EFSA Journal 2015; 13(1):3984
Clay loam sediment system; [^{14}C]-phenyl Florasulam	6.6/5.9	26.89	89.34	SFO	-	-	-	-	-	Y, EFSA Journal 2015; 13(1):3984
Clay loam sediment system; [^{14}C]-TP Florasulam	6.6/5.9	24.42	81.13	SFO	-	-	-	-	-	Y, EFSA Journal 2015; 13(1):3984
Calwich Abbey Lake water/ sediment sys-	7.9/7.3	8.25	27.41	SFO	-	-	-	-	-	Y, EFSA Journal 2015;

Water/sediment system	pH water/ sed.	DegT50 whole syst. (d)	DegT90 whole syst. (d)	Kinetic, Fit	DissT50 water (d)	DissT90 water (d)	Kinetic, Fit	DissT50 sed. (d)	Kinetic, Fit	Evaluated on EU level y/n/ Reference
tem; [14C]-phenyl Florasulam										13(1):3984
Calwich Abbey Lake water/ sediment system; [14C]-TP Florasulam	7.9/7.3	9.89	32.85	SFO	-	-	-	-	-	Y, EFSA Journal 2015; 13(1):3984
Swiss Lake water/ sediment system; [14C]-phenyl Florasulam	6.7/5.2	25.05	89.19	SFO	-	-	-	-	-	Y, EFSA Journal 2015; 13(1):3984
Swiss Lake water/ sediment system; [14C]-TP Florasulam	6.7/5.2	25.49	84.66	SFO	-	-	-	-	-	Y, EFSA Journal 2015; 13(1):3984
Geometric mean (n=8)		**15.03**	50.36	-	-	-	-	-	-	-

Table 8.6-5: Summary of observed florasulam metabolites

5-OH Florasulam Water/sediment system	Max. in water/sediment 99% after 60d	Y, EFSA Journal 2015; 13(1):3984
DFP-ASTCA Water/sediment system	Max. in water/sediment 8.9% after 7d	Y, EFSA Journal 2015; 13(1):3984
ASTCA Water/sediment system	Max. in water/sediment 53.8% after 30d	Y, EFSA Journal 2015; 13(1):3984
TPSA Water/sediment system	Max. in water/sediment 58.3% after 100d	Y, EFSA Journal 2015; 13(1):3984
ASTP Water/sediment system	Max. in water/sediment 21.9% after 16d	Y, EFSA Journal 2015; 13(1):3984
5-OH ASTP Water/sediment system	Max. in water/sediment 28.9% after 7d	Y, EFSA Journal 2015; 13(1):3984

8.7 Predicted Environmental Concentrations in soil (PECs) (KCP 9.1.3)

8.7.1 Justification for new endpoints

Not relevant. No new endpoints were submitted.

8.7.2 Active substances and relevant metabolites

PECs modeling was performed with ESCAPE v. 2 and simple equations included in FOCUS soil persistence document issued in 1997. Since algorithm of modeling in both tools differ, slightly different results were obtained. For further risk assessment worst case PECs values were used. Input parameters related to application and active substances/metabolites data for PECs calculation are summarized below. ESCAPE outputs are included in Appendix 3 (KCP 9.1.3).

According to EFSA Journal 2014; 12(9):3812 data gap was identified for 4-CP in case of anaerobic conditions. It is highly unlikely that anaerobic conditions would occur even during early summer application of 2,4-D to cereals and maize, hence PECs modeling for 4-CP was not performed.

Table 8.7-1: Input parameters related to application for PEC_s calculations

Use No.	1, 2, 3
Crop	spring cereals, winter cereals, maize
Application rate (g as/ha)	2,4-D: 180 florasulam: 3.75
Number of applications / intervals	1 / NR
Crop interception (%)	0% (worst case)
Depth of soil layer (relevant for plateau concentration) (cm)	5 cm

Table 8.7-2: Input parameter for active substances and relevant metabolites for PEC_s calculation

Compound	Molecular weight (g/mol)	Max. occurrence (%)	Formation fraction (%)	DT_{50} (days)	Value in accordance to EU endpoint Y/N Reference
2,4-D	221	-	-	94.6 d (SFO, max. lab. study)	Y, EFSA Journal 2014; 12(9):3812
2,4-DCP	163	8.7	100 from 2,4-D	14 d (DFOP, max. lab. study)	Y, EFSA Journal 2014; 12(9):3812
2,4-DCA	177	15	100 from 2,4-DCP	15.4 d (DFOP, max. lab. study)	Y, EFSA Journal 2014; 12(9):3812
florasulam	359.29	-	-	4.29 d (SFO, max. lab. study)	Y, EFSA Journal 2015; 13(1):3984
5-OH florasulam	345.25	71.6	100 from florasulam	29.75 d (SFO, max. lab. study)	Y, EFSA Journal 2015; 13(1):3984
DFP-ASTCA	304.2	17.8	85.4 from 5-OH-florasulam	46.16 d (SFO, max. lab. study)	Y, EFSA Journal 2015; 13(1):3984
ASTCA	192.13	40.0	66.7 from florasulam*	259.05 d (SFO, max. lab. study)	Y, EFSA Journal 2015; 13(1):3984
TSA	148.14	15.9	100 from ASTCA	171.68 d (SFO, max. lab. study)	Y, EFSA Journal 2015; 13(1):3984

* obtained by multiplying of 85.4% (formation fraction of 5OH-florasulam from florasulam) and 78.1% (formation fraction of ASTCA from 5OH-florasulam)

8.7.2.1 2,4-D and its metabolites

Table 8.7-3: PEC_s for 2,4-D applied on spring cereals, winter cereals and maize

PECs (mg/kg)		spring cereals, winter cereals, maize (single application/year)			
		FOCUS persistent document		ESCAPE v.2	
		Actual	TWA	Actual	TWA
Initial		0.240	-	0.240	-
Short term	24h	0.238	0.239	0.238	0.239
	2d	0.235	0.238	0.237	0.238
	4d	0.230	0.235	0.233	0.237
Long term	7d	0.223	0.231	0.228	0.234
	14d	0.207	0.223	0.217	0.228
	21d	0.193	0.216	0.206	0.222
	28d	0.179	0.208	0.196	0.217
	50d	0.143	0.187	0.166	0.201
	100d	0.085	0.149	0.115	0.170
Plateau		0.258		NR	
Background concentration (5 cm) after 10 years		0.018		0.018	
$PEC_{accumulation}$ (PEC_{act} +$PEC_{background}$)		0.258		0.258	

PEC_s of metabolites

Table 8.7-4: PEC_s for 2,4-DCP on spring cereals, winter cereals and maize

PECs (mg/kg)		spring cereals, winter cereals, maize (single application/year)			
		FOCUS persistent document		ESCAPE v.2	
		Actual	TWA	Actual	TWA
Initial		0.015	-	**0.019**	-
Short term	24h	0.015	0.015	0.019	0.019
	2d	0.014	0.015	0.019	0.019
	4d	0.013	0.014	0.019	0.019
Long term	7d	0.011	0.013	0.019	0.019
	14d	0.008	0.011	0.019	0.019
	21d	0.005	0.010	0.018	0.019
	28d	0.004	0.008	0.018	0.019
	50d	0.001	0.006	0.015	0.019
	100d	0.000	0.003	0.011	0.017
Plateau		0.015		NR	

Background concentration (5 cm) after 10 years	<0.001	0.002
$PEC_{accumulation}$ (PEC_{act} +$PEC_{background}$)	0.015	0.021

Table 8.7-5: PECₛ for 2,4-DCA on spring cereals, winter cereals and maize

PECs (mg/kg)		spring cereals, winter cereals, maize (single application/year)			
		FOCUS persistent document		ESCAPE v.2	
		Actual	TWA	Actual	TWA
Initial		0.029	-	0.021	-
Short term	24h	0.028	0.028	0.021	0.021
	2d	0.026	0.028	0.021	0.021
	4d	0.024	0.026	0.021	0.021
Long term	7d	0.021	0.025	0.021	0.021
	14d	0.015	0.021	0.020	0.021
	21d	0.011	0.019	0.020	0.021
	28d	0.008	0.016	0.020	0.021
	50d	0.003	0.011	0.017	0.020
	100d	0.000	0.006	0.012	0.019
Plateau		0.029		NR	
Background concentration (5 cm) after 10 years		<0.001		0.002	
$PEC_{accumulation}$ (PEC_{act} +$PEC_{background}$)		0.029		0.023	

8.7.2.2 Florasulam and its metabolites

Table 8.7-6: PECₛ for florasulam applied on spring and winter cereals

PECs (mg/kg)		cereals, winter cereals, maize (single application/year)			
		FOCUS persistent document		ESCAPE v.2	
		Actual	TWA	Actual	TWA
Initial		0.0050	-	0.0050	-
Short term	24h	0.0043	0.0046	0.0043	0.0046
	2d	0.0036	0.0043	0.0036	0.0043
	4d	0.0026	0.0037	0.0026	0.0037
Long term	7d	0.0016	0.0030	0.0016	0.0030
	14d	0.0005	0.0020	0.0005	0.0020
	21d	0.0002	0.0014	0.0002	0.0014
	28d	0.0001	0.0011	0.0001	0.0011
	50d	0.0000	0.0006	<0.0001	0.0006
	100d	0.0000	0.0003	<0.0001	0.0003

Plateau	0.0050	NR
Background concentration (5 cm) after 10 years	<0.0001	<0.0001
$PEC_{accumulation}$ (PEC_{act} + $PEC_{background}$)	0.0050	0.0050

PECs of metabolites

Table 8.7-7: PECs for 5-OH-florasulam on spring and winter cereals

PECs (mg/kg)		spring cereals, winter cereals, maize (single application/year)			
		FOCUS persistent document		ESCAPE v.2	
		Actual	TWA	Actual	TWA
Initial		0.0034	-	0.0020	-
Short term	24h	0.0034	0.0034	0.0020	0.0020
	2d	0.0033	0.0034	0.0019	0.0020
	4d	0.0031	0.0033	0.0019	0.0020
Long term	7d	0.0029	0.0032	0.0019	0.0019
	14d	0.0025	0.0029	0.0019	0.0019
	21d	0.0021	0.0027	0.0019	0.0019
	28d	0.0018	0.0025	0.0018	0.0019
	50d	0.0011	0.0020	0.0017	0.0019
	100d	0.0003	0.0013	0.0015	0.0018
Plateau		0.0034		NR	
Background concentration (5 cm) after 10 years		<0.0001		0.0012	
$PEC_{accumulation}$ (PEC_{act} + $PEC_{background}$)		0.0034		0.0032	

Table 8.7-8: PEC_s for DFP-ASTCA on spring and winter cereals

PECs (mg/kg)		spring cereals, winter cereals, maize (single application/year)			
		FOCUS persistent document		ESCAPE v.2	
		Actual	TWA	Actual	TWA
Initial		0.0008	-	0.0005	-
Short term	24h	0.0007	0.0007	0.0005	0.0005
	2d	0.0007	0.0007	0.0005	0.0005
	4d	0.0007	0.0007	0.0005	0.0005
Long term	7d	0.0007	0.0007	0.0005	0.0005
	14d	0.0006	0.0007	0.0005	0.0005
	21d	0.0005	0.0006	0.0005	0.0005
	28d	0.0005	0.0006	0.0005	0.0005
	50d	0.0004	0.0005	0.0005	0.0005

	100d	0.0002	0.0004	0.0005	0.0005
Plateau		0.0008		NR	
Background concentration (5 cm) after 10 years		<0.0001		0.0007	
$PEC_{accumulation}$ (PEC_{act} + $PEC_{background}$)		0.0008		0.0012	

Table 8.7-9: PEC$_s$ for ASTCA on spring and winter cereals

PECs (mg/kg)		spring cereals, winter cereals, maize (single application/year)			
		FOCUS persistent document		ESCAPE v.2	
		Actual	TWA	Actual	TWA
Initial		0.0011	-	0.0017	-
Short term	24h	0.0011	0.0011	0.0017	0.0017
	2d	0.0011	0.0011	0.0017	0.0017
	4d	0.0011	0.0011	0.0017	0.0017
Long term	7d	0.0010	0.0011	0.0017	0.0017
	14d	0.0010	0.0010	0.0016	0.0017
	21d	0.0010	0.0010	0.0016	0.0017
	28d	0.0010	0.0010	0.0016	0.0016
	50d	0.0009	0.0010	0.0015	0.0016
	100d	0.0008	0.0009	0.0013	0.0015
Plateau		0.0017		NR	
Background concentration (5 cm) after 10 years		0.0006		0.0010	
$PEC_{accumulation}$ (PEC_{act} + $PEC_{background}$)		0.0017		0.0027	

Table 8.7-10: PEC$_s$ for TSA on spring and winter cereals

PECs (mg/kg)		spring cereals, winter cereals, maize (single application/year)			
		FOCUS persistent document		ESCAPE v.2	
		Actual	TWA	Actual	TWA
Initial		0.0003	-	0.0004	-
Short term	24h	0.0003	0.0003	0.0004	0.0004
	2d	0.0003	0.0003	0.0004	0.0004
	4d	0.0003	0.0003	0.0004	0.0004
Long term	7d	0.0003	0.0003	0.0004	0.0004
	14d	0.0003	0.0003	0.0004	0.0004
	21d	0.0003	0.0003	0.0004	0.0004
	28d	0.0003	0.0003	0.0004	0.0004
	50d	0.0003	0.0003	0.0004	0.0004

	100d	0.0002	0.0003	0.0004	0.0004
Plateau		0.0004		NR	
Background concentration (5 cm) after 10 years		0.0001		0.0006	
$PEC_{accumulation}$ (PEC_{act} + $PEC_{background}$)		0.0004		0.0010	

8.7.2.3 PEC$_s$ of formulation

PECs for formulation was obtained from PECs for 2,4-D taking into account content of active substance and density of the formulation FLD-HER 306 EC. TWA PECs, $_{background}$ PECs and accumulation PECs are not relevant for formulation.

Table 8.7-11: PEC$_s$ for FLD-HER 306 SE on spring cereals, winter cereals and maize

Active substance/ preparation	Application rate (g/ha)	$PECs_{,act}$ (mg/kg)	$PECs_{,twa}$21 d (mg/kg)	Tillage depth (cm)	$PECs_{,background}$ (mg/kg)	$PECs_{,accu}$ = $PECs_{,act}$ + $PECs_{,background}$ (mg/kg)
2,4-D	180	0.240	0.222	5cm	0.018	0.258
florasulam	3.75	0.0050	0.0014	5cm	<0.0001	0.005
FLD-HER 306 SE	638*	0.851	NR	NR	NR	NR

* application rate calculated on the basis of density 1.0641 g/ml (see dRR Part B 0,1-4)

zRMS comments:
The PECs calculations have been accepted.
The input parameters used in calculation was established in the EU review of florasulam (EFSA Journal 2015; 13(1):3984) and of 2,4-D (EFSA Journal 2014;12(9):3812).
Interception has been appropriate to the proposed BBCH of crops (EFSA guidance was published, (2014;12(5):3662).
The calculations of PECs cover proposed uses in GAP.
The results of PECs calculation are presented below in table 8.7.3 – 8.7.5

Following PECs values will be used to risk assessment

Product/active substance	PEC_{soil} (mg/kg dw)
2,4-D	0.258
2,4-DCA	0.029
2,4-DCP	0.021
florasulam	0.0050
5-OH-florasulam	0.0034
DFP-ASTCA	0.0012
ASTCA	0.0027
TSA	0.0010
FLD-HER 306 SE	0.8510

The results initial PEC soil of the active substances and tits metabolites in soil are appropriate to be used for the subsequent risk assessment.

8.8 Predicted Environmental Concentrations in groundwater (PEC_{gw}) (KCP 9.2.4)

8.8.1 Justification for new endpoints

Not relevant. No new endpoints were submitted.

8.8.2 Active substance(s) and relevant metabolite(s) (KCP 9.2.4.1)

PECgw for active substances and their metabolites after application to cereals and maize were calculated with PELMO 5.5.3 and PEARL 4.4.4 for FOCUS groundwater scenarios that may be relevant for central Europe i.e. Châteaudun, Hamburg, Jokioinen, Kremsmünster and Okehampton. Other scenarios were not taken into account since are not relevant. Application timing for each crop/scenario was settled with AppDate 3.06. Input parameters related to application and active substances/metabolites data for PECgw calculation are summarized below.

Table 8.8-1: Input parameters related to application for PEC_{gw} calculations

Use No.	1	2	3
Crop	spring cereals	winter cereals	maize
Application rate (g as/ha)	2,4-D: 180 florasulam: 3.75	2,4-D: 180 florasulam: 3.75	2,4-D: 180 florasulam: 3.75
Number of applications/interval (d)	1 / NA	1 / NA	1 / NA
Relative application date	7 days after emergence	NR, see Table 8.8-2	7 days after emergence
Crop interception (%)	0 (BBCH 10-19)	0 (BBCH 10-19)	25 (BBCH 10-19)
Frequency of application	annual	annual	annual
Models used for calculation	FOCUS PEARL 4.4.4 FOCUS PELMO 5.5.3		

Table 8.8-2: Application dates used for groundwater risk assessment

Crop	Scenario	Application dates (absolute)
Winter cereals, application rate: 0.6 L/ha	Châteaudun	06.04.2002 (BBCH 21) AppDate 3.06
	Hamburg	25.04.2002 (BBCH 21) AppDate 3.06
	Jokioinen	05.05.2002 (BBCH 21) AppDate 3.06
	Kremsmünster	15.04.2002 (BBCH 21) AppDate 3.06
	Okehampton	12.04.2002 (BBCH 21) AppDate 3.06

8.8.2.1 2,4-D and its metabolites

Table 8.8-3: Input parameters related to 2,4-D and its metabolites for PEC_{gw} calculations

Compound	2,4-D	2,4-DCP	2,4-DCA	4-CP	Value in accordance with EU endpoint y/n/ Reference*
Molecular weight (g/mol)	221	163	177	128.6	EFSA Journal 2014;12(9):3812
Water solubility at 20°C (mg/l)	24300	4870	96.3	27100 (literature data*)	EFSA Journal 2014;12(9):3812
Saturated vapour pressure at 20°C (Pa):	$9.9 \cdot 10^{-6}$	0 (worst case, default)	0 (worst case, default)	0 (worst case, default)	EFSA Journal 2014;12(9):3812
DT_{50} in soil (d)	4.4 (geomean, normalisation to 10 kPa or pF2, 20 °C with Q_{10} of 2.58, n =5)	7.0 (geomean, normalisation to 10 kPa or pF2, 20 °C with Q_{10} of 2.58, n =3)	10.4 (geomean, normalisation to 10 kPa or pF2, 20 °C with Q_{10} of 2.58, n =3)	4.4 (4-CP is well known of rapid soil degradation so value for active substance was used)	EFSA Journal 2014;12(9):3812
K_{foc} (mL/g)/K_{fom}	58.6 / 33.99 (median, n=42)	512 / 296.98 (arithmetic mean, n=7)	1028 / 596.29 (arithmetic mean, n=7)	70 / 40.60 (worst case of literature data**)	EFSA Journal 2014;12(9):3812
1/n	0.87 (arithmetic mean, n=42)	0.88 (arithmetic mean, n=7) EFSA 214	0.92 (arithmetic mean, n=7) EFSA 214	0.9 (default)	EFSA Journal 2014;12(9):3812
Plant uptake factor (PUF/TSCF)	0	0	0	0	EFSA Journal 2014;12(9):3812
Formation fraction	-	1 from 2,4-D	1 from 2,4-DCP	1 from 2,4-D	EFSA Journal 2014;12(9):3812

* https://en.wikipedia.org/wiki/4-Chlorophenol
** https://pubchem.ncbi.nlm.nih.gov/compound/4-Chlorophenol & https://sitem.herts.ac.uk/aeru/footprint/es/Reports/2690.htm

Table 8.8-4: PEC_{gw} for 2,4-D and metabolites on spring cereals, winter cereals and maize (with FOCUS PEARL 4.4.4/PELMO 5.5.3)

Crop	Scenario	80th Percentile PEC_{gw} at 1 m Soil Depth (µg/L)			
		2,4-D	2,4-DCP	2,4-DCA	4-CP
PELMO 5.5.3					
Spring cereals,	Châteaudun	0.000	0.000	0.000	0.000
	Hamburg	0.000	0.000	0.000	0.000

application rate: 0.6 L/ha	Jokioinen	0.000	0.000	0.000	0.000
	Kremsmünster	0.000	0.000	0.000	0.000
	Okehampton	0.000	0.000	0.000	0.000
Winter cereals, application rate: 0.6 L/ha	Châteaudun	0.000	0.000	0.000	0.000
	Hamburg	0.000	0.000	0.000	0.000
	Jokioinen	0.000	0.000	0.000	0.000
	Kremsmünster	0.000	0.000	0.000	0.000
	Okehampton	0.000	0.000	0.000	0.000
Maize, application rate: 0.6 L/ha	Châteaudun	0.000	0.000	0.000	0.000
	Hamburg	0.000	0.000	0.000	0.000
	Kremsmünster	0.000	0.000	0.000	0.000
	Okehampton	0.000	0.000	0.000	0.000
PEARL 4.4.4					
Spring cereals, application rate: 0.6 L/ha	Châteaudun	0.000	0.000	0.000	0.000
	Hamburg	0.000	0.000	0.000	0.000
	Jokioinen	0.000	0.000	0.000	0.000
	Kremsmünster	0.000	0.000	0.000	0.000
	Okehampton	0.000	0.000	0.000	0.000
Winter cereals, application rate: 0.6 L/ha	Châteaudun	0.000	0.000	0.000	0.000
	Hamburg	0.000	0.000	0.000	0.000
	Jokioinen	0.000	0.000	0.000	0.000
	Kremsmünster	0.000	0.000	0.000	0.000
	Okehampton	0.000	0.000	0.000	0.000
Maize, application rate: 0.6 L/ha	Châteaudun	0.000	0.000	0.000	0.000
	Hamburg	0.000	0.000	0.000	0.000
	Kremsmünster	0.000	0.000	0.000	0.000
	Okehampton	0.000	0.000	0.000	0.000

The PEC_{gw} for 2,4-D and its metabolites 2,4-DCP, 2,4-DCA and 4-CP were below the trigger value of 0.1 µg/L for all scenarios.

8.8.2.2 Florasulam and its metabolites

Table 8.8-5: Input parameters related to florasulam and its metabolites for PEC_{gw} calculations

Compound	**florasulam**	**5-OH-florasulam**	**DFP-ASTCA**	**ASTCA**	**TSA**	**Value in accordance with EU endpoint y/n/ Reference***
Molecular weight (g/mol)	359.29	345.25	304.2	192.13	148.14	Y, EFSA Journal 2015; 13(1):3984
Water solubility at 20º (mg/L):	6360	354	87400	250000	10900	Y, EFSA Journal 2015; 13(1):3984
Saturated vapour pressure at 20º (Pa):	$1.0 \cdot 10^{-6}$	$2.7 \cdot 10^{-6}$	$3.0 \cdot 10^{-6}$	$2.0 \cdot 10^{-6}$	$1.0 \cdot 10^{-4}$	Y, EFSA Journal 2015; 13(1):3984
DT_{50} in soil (d)	1.55 (geomean, normalisation to 10 kPa or pF2, 20 °C with Q_{10} of 2.58, n =8)	14.98 (geomean, normalisation to 10 kPa or pF2, 20 °C with Q_{10} of 2.58, n =8)	16.62 (geomean, normalisation to 10 kPa or pF2, 20 °C with Q_{10} of 2.58, n =5)	297.47 (geomean, normalisation to 10 kPa or pF2, 20 °C with Q_{10} of 2.58, n =4)	83.47 (geomean, normalisation to 10 kPa or pF2, 20 °C with Q_{10} of 2.58, n =4)	Y, EFSA Journal 2015; 13(1):3984
K_{foc} (mL/g)/K_{fom}	10.35/6.00 (median, n=14)	14.53/8.43 (median, n=10)	75.18/43.61 (arithmetic mean, n=4)	104.81/60.79 (arithmetic mean, n=4)	23.46/13.61 (arithmetic mean, n=4)	Y, EFSA Journal 2015; 13(1):3984
1/n	0.945 (arithmetic mean, n=14)	0.91 (arithmetic mean, n=10)	0.85 (arithmetic mean, n=4)	0.94 (arithmetic mean, n=4)	0.94 (arithmetic mean, n=4)	Y, EFSA Journal 2015; 13(1):3984
Plant uptake factor (PUF/TSCF)	0	0	0	0	0	Y, EFSA Journal 2015; 13(1):3984
Formation fraction	NR	0.854 from florasulam	1.000 from 5-OH-florasulam	0.781 from DFP-ASTCA	0.219 from DFP-ASTCA 1.000 from ASTCA	Y, EFSA Journal 2015; 13(1):3984

0Table 8.8-6: PEC$_{gw}$ for florasulam and metabolites on spring cereals, winter cereals and maize (with FOCUS PEARL 4.4.4/PELMO 5.5.3)

Crop	Scenario	80th Percentile PEC$_{gw}$ at 1 m Soil Depth (µg/L)				
		florasulam	5-OH-florasulam	DFP-ASTCA	ASTCA	TSA
PELMO 5.5.3						
Spring cereals, application rate: 0.6 L/ha	Châteaudun	0.000	0.000	0.000	0.031	0.054
	Hamburg	0.000	0.000	0.000	0.051	**0.105**
	Jokioinen	0.000	0.000	0.000	0.023	0.077
	Kremsmünster	0.000	0.000	0.000	0.062	**0.110**
	Okehampton	0.000	0.000	0.000	0.060	**0.101**
Winter cereals, application rate: 0.6 L/ha	Châteaudun	0.000	0.000	0.000	0.039	0.067
	Hamburg	0.000	0.000	0.000	0.058	**0.121**
	Jokioinen	0.000	0.000	0.000	0.023	0.085
	Kremsmünster	0.000	0.001	0.000	0.073	**0.119**
	Okehampton	0.000	0.001	0.000	0.076	**0.116**
Maize, application rate: 0.6 L/ha	Châteaudun	0.000	0.000	0.000	0.059	**0.107**
	Hamburg	0.000	0.000	0.000	0.046	0.094
	Kremsmünster	0.000	0.001	0.000	0.053	0.094
	Okehampton	0.000	0.002	0.000	0.065	0.099
PEARL 4.4.4						
Spring cereals, application rate: 0.6 L/ha	Châteaudun	0.000	0.001	0.000	**0.155**	**0.140**
	Hamburg	0.000	0.011	0.003	**0.248**	**0.238**
	Jokioinen	0.000	0.006	0.001	**0.153**	**0.169**
	Kremsmünster	0.000	0.010	0.003	**0.187**	**0.136**
	Okehampton	0.000	0.010	0.002	**0.164**	**0.104**
Winter cereals, application rate: 0.6 L/ha	Châteaudun	0.000	0.001	0.000	**0.173**	**0.167**
	Hamburg	0.000	0.011	0.003	**0.203**	**0.191**
	Jokioinen	0.000	0.007	0.001	**0.166**	**0.205**
	Kremsmünster	0.000	0.010	0.003	**0.166**	**0.118**
	Okehampton	0.000	0.014	0.004	**0.159**	**0.103**
Maize, application rate: 0.6 L/ha	Châteaudun	0.000	0.003	0.000	**0.126**	**0.111**
	Hamburg	0.000	0.008	0.002	**0.150**	**0.151**
	Kremsmünster	0.000	0.005	0.001	**0.117**	0.091
	Okehampton	0.000	0.010	0.002	**0.117**	0.077

The PEC$_{gw}$ for florasulam and its metabolites 5-OH-florasulam and DFP-ASTCA were below the trigger value of 0.1 µg/L for all scenarios. PEC$_{gw}$ for the metabolites ASTCA and TSA were above 0.1 µg/L but these metabolites are of no toxicological concern so it may be therefore concluded that the threshold of concern 0.75 µg/L is not exceeded.

zRMS comments:

Generally, the evaluator agrees with the groundwater modeling carried out by Applicant.
The input parameters used in calculation was established in the EU review of florasulam (EFSA Journal 2015; 13(1):3984) and of 2,4-D (EFSA Journal 2014;12(9):3812).
Interception has been appropriate to the proposed BBCH of crops (EFSA guidance was published, (2014;12(5):3662).
In simulations PUF value of 0 was assumed for all compounds, in line with recommendations of the most recent version of the FOCUS Groundwater Guidance. The geomean of the DT_{50} a values were used in modelling.

The results of the leaching models PEARL 4.4.4 (and PELMO 5.5.3 for maize) show that when used according to the intended use in cereals and maize florasulam and 2,4-D and their metabolites leach in acceptable amounts to groundwater in every European scenario, since all PEC_{GW} were found to be under the limit of 0.1 µg/L.
The PEC_{gw} for florasulam and its metabolites 5-OH-florasulam and DFP-ASTCA were below the trigger value of 0.1 µg/L for all scenarios. PEC_{gw} for the metabolites ASTCA and TSA were above 0.1 µg/L but these metabolites are of no toxicological concern so it may be therefore concluded that the threshold of concern 0.75 µg/L is not exceeded (see B10).
The PEC_{gw} for 2,4-D and its metabolites 2,4-DCP, 2,4-DCA and 4-CP were below the trigger value of 0.1 µg/L for all scenarios.

Nevertheless, additional simulations may be required by the sMS that do not accept calculations performed using FOCUS models.

8.9 Predicted Environmental Concentrations in surface water (PEC_{sw}) (KCP 9.2.5)

8.9.1 Justification for new endpoints

Not relevant. No new endpoints were submitted.

8.9.2 Active substances, relevant metabolites and the formulation (KCP 9.2.5)

PECsw for active substances and their metabolites after application to cereals and maize were calculated with FOCUS STEPS 1-2 v3.2, FOCUS SWASH v5.3, FOCUS PRZM v4.3.1, FOCUS MACRO v5.5.4, FOCUS TOXWA v5.5.3, SWAN v.5.0.1 for surface water scenarios that may be relevant for central Europe i.e. D1, D2, D3, D4, R1. Other scenarios were not taken into account since are not relevant. Application timing for each crop/scenario was settled with AppDate 3.06. Input parameters related to application and active substances/metabolites data for PECsw calculation are summarized below.

In order to evaluate PECsw of active substance 2,4-D and its metabolites, input values recommended in EFSA Journal 2014;12(9):3812 report and RAR Addendum 2014 were taken into account. In the EFSA Journal 2014;12(9):3812 data gap concerning 4-CP (from soil, anaerobic conditions) and 1,2,4-benzenetriol (photolysis metabolite). It is highly unlikely that anaerobic conditions would occur even during early summer application of 2,4-D to cereals and maize. However, ecotoxicological endpoints in Part B9 are available and allows risk assessment, PECsw values for 4-CP and 1,2,4-benenetriol, were calculated with default input values.

Table 8.9-1: Input parameters related to application for $PEC_{SW/SED}$ calculations

Use No.	1	2	3
Crop	spring cereals	winter cereals	maize
Application rate (g as/ha)	2,4-D: 180 florasulam: 3.75	2,4-D: 180 florasulam: 3.75	2,4-D: 180 florasulam: 3.75
Number of applications/interval (d)	1 / NA	1 / NA	1 / NA
Application window	March-May	March-May	March-May
Application method	ground spray	ground spray	ground spray
CAM (Chemical application method)	CAM2 (application foliar linear)	CAM2 (application foliar linear)	CAM2 (application foliar linear)
Soil depth (cm)	4	4	4
Models used for calculation	FOCUS STEPS 1-2 v3.2, FOCUS SWASH v5.3, FOCUS PRZM v4.3.1, FOCUS MACRO v5.5.4, FOCUS TOXWA v5.5.3, SWAN v.5.0.1		

Table 8.9-2: FOCUS Step 3&4 scenario related input parameters for $PEC_{sw/sed}$ calculations for the application of FLD-HER 306 SE

Crop	Scenario	Application window used in modelling
Spring cereals, application rate: 0.6 L/ha	D1	08.05.2001 (Julian day 128) – 07.06.2001 (Julian day 158) (BBCH 12) AppDate 3.06
	D3	05.04.2001 (Julian day 95) – 05.05.2001 (Julian day 125) (BBCH 12) AppDate 3.06
	D4	29.04.2001 (Julian day 119) – 29.05.2001 (Julian day 149) (BBCH 12) AppDate 3.06
	D5	18.03.2001 (Julian day 77) – 17.04.2001 (Julian day 107) (BBCH 12) AppDate 3.06
Winter cereals, application rate: 0.6 L/ha	D1	16.03.2002 (Julian day 75) – 15.04.2002 (Julian day 105) (BBCH 21) AppDate 3.06
	D2	26.03.2002 (Julian day 85) – 25.04.2002 (Julian day 115) (BBCH 21) AppDate 3.06
	D3	07.04.2002 (Julian day 97) – 07.05.2002 (Julian day 127) (BBCH 21) AppDate 3.06
	D4	09.03.2002 (Julian day 68) – 08.04.2002 (Julian day 98) (BBCH 21) AppDate 3.06
	D5	06.03.2002 (Julian day 65) – 05.04.2002 (Julian day 95) (BBCH 21) AppDate 3.06
	R1	15.04.2002 (Julian day 105) – 15.05.2002 (Julian day 135) (BBCH 21) AppDate 3.06
Maize, application rate: 0.6 L/ha	D3	12.05.2001 (Julian day 132) – 11.06.2001 (Julian day 162) (BBCH 12) AppDate 3.06
	D4	18.05.2001 (Julian day 138) – 17.06.2001 (Julian day 168) (BBCH 12) AppDate 3.06
	D5	15.05.2001 (Julian day 135) – 14.06.2001 (Julian day 165) (BBCH 12) AppDate 3.06
	R1	10.05.2001 (Julian day 130) – 09.06.2001 (Julian day 160) (BBCH 12) AppDate 3.06

8.9.2.1 2,4-D and its metabolites

Table 8.9-3: Input parameters related to 2,4-D and metabolites for $PEC_{sw/sed}$ calculations STEP 1, 2, 3 and 4

Compound	2,4-D	2,4-DCP	2,4-DCA	2-CP	1,2,4-benzenetriol	Value in accordance to EU endpoint y/n/ Reference
Molecular weight (g/mol)	221	163	177	128.6	126.1	Y, EFSA Journal 2014; 12(9):3812
Saturated vapour pressure at 20°C (Pa)	not required for Step 1+2/ $9.9 \cdot 10^{-6}$	not required for Step 1	not required for Step 1	not required for Step 1	NR	Y, EFSA Journal 2014; 12(9):3812
Water solubility at 20°C (mg/L)	24300	4870	96.3	27100 (literature data*)	NR	Y, EFSA Journal 2014; 12(9):3812
Diffusion coefficient in water (m^2/d)	not required for Step 1+2/ 4.3×10^{-5}	not required for Step 1	not required for Step 1	not required for Step 1	NR	Y, EFSA Journal 2014; 12(9):3812
Diffusion coefficient in air (m^2/d)	not required for Step 1+2/ 0.43	not required for Step 1	not required for Step 1	not required for Step 1	NR	Y, EFSA Journal 2014; 12(9):3812
K_{foc} / K_{fom}(mL/g)	58.6 / 33.99 (median, n=42)	512 (arithmetic mean, n=7)	1028 (arithmetic mean, n=7)	70 (worst case of literature data**)	NR	Y, EFSA Journal 2014; 12(9):3812
Freundlich Exponent 1/n	not required for Step 1+2/ 0.87 (arithmetic mean, n=42)	not required for Step 1	not required for Step 1	not required for Step 1	NR	Y, EFSA Journal 2014; 12(9):3812
Plant Uptake	not required for Step 1+2/ 0	not required for Step 1	not required for Step 1	not required for Step 1	NR	Y, EFSA Journal 2014; 12(9):3812
Wash-Off factor from Crop (1/mm)	not required for Step 1+2/ 0.05 (MACRO)	not required for Step 1	not required for Step 1	not required for Step 1	NR	Y, EFSA Journal 2014; 12(9):3812

Compound	2,4-D	2,4-DCP	2,4-DCA	2-CP	1,2,4-benzenetriol	Value in accordance to EU endpoint y/n/ Reference
	0.50 (PRZM)					
$DT_{50,soil}$ (d)	4.4 (geomean, normalisation to 10 kPa or pF2, 20 °C with Q_{10} of 2.58, n =5)	not required for Step 1	not required for Step 1	not required for Step 1	NR	Y, EFSA Journal 2014; 12(9):3812
$DT_{50,water}$ (d)	18.16 (geomean in total system, n =3) used in: Step 2	not required for Step 1	not required for Step 1	not required for Step 1	NR	Y, EFSA Journal 2014; 12(9):3812
$DT_{50,sed}$ (d)	18.16 (geomean in total system, n =3) used in: Step 2 1000 (worst case default) used in: Step 3	not required for Step 1	not required for Step 1	not required for Step 1	NR	Y, EFSA Journal 2014; 12(9):3812
$DT_{50,whole\ system}$ (d)	18.16 (geomean in total system, n =3)	103.9 (geomean in total system, n =2)	1000 (worst case default)	1000 (worst case default)	NR	Y, EFSA Journal 2014; 12(9):3812
Maximum occurrence observed (% molar basis with respect to the parent)	-	Soil: 8.7% Water/sediment: 32.1%	Soil: 15% Water/sediment: 5.3%	Soil: 33% Water/sediment: 6.9%	Soil: NR Water/sediment: 31.7%	Y, EFSA Journal 2014; 12(9):3812

* https://en.wikipedia.org/wiki/4-Chlorophenol
** https://pubchem.ncbi.nlm.nih.gov/compound/4-Chlorophenol & https://sitem.herts.ac.uk/aeru/footprint/es/Reports/2690.htm

$PEC_{sw/sed}$

Table 8.9-4: FOCUS Step 1, 2 and 3 PEC_{sw} and PEC_{sed} for 2,4-D following single application of FLD-HER 306 SE to spring cereals, winter cereals and maize

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)*	Dominant entry route	21d- $PEC_{sw,twa}$ (µg/L)**	Max PEC_{sed} (µg/kg)*
Spring cereals, application rate: 0.6 L/ha					
Step 1	---	57.3071	runoff/drainage	NR	32.6119
Step 2 Northern Europe	March-May	7.2778	runoff/drainage	NR	4.0867
Step 3	---	---	---	---	---
D1	ditch	1.161	drainage	NR	0.3967
D1	stream	0.9272	drainage	NR	0.06319
D3	ditch	1.140	drainage	NR	0.2253
D4	pond	0.03936	drainage	NR	0.04149
D4	stream	0.8757	drainage	NR	0.02732
D5	pond	0.03936	drainage	NR	0.04457
D5	stream	0.9062	drainage	NR	0.02160
Step 4 - 5m buffer zone		---	---	---	---
D1	ditch	0.3251	drainage	NR	0.1399
D1	stream	0.3443	drainage	NR	0.03794
D3	ditch	0.3090	drainage	NR	0.06585
D4	pond	0.03405	drainage	NR	0.03621
D4	stream	0.3198	drainage	NR	0.01022
D5	pond	0.03405	drainage	NR	0.03889
D5	stream	0.3309	drainage	NR	0.007959
Winter cereals, application rate: 0.6 L/ha					
Step 1	---	57.3071	runoff/erosion	NR	32.6119
Step 2 Northern Europe	March-May	7.2778	runoff/erosion	NR	4.0867
Step 3	---	---	---	---	---
D1	ditch	8.630	drainage	NR	6.336
D1	stream	5.411	drainage	NR	3.564
D2	ditch	15.28	drainage	NR	5.167
D2	stream	9.819	drainage	NR	2.917

D3	ditch	1.139	drainage	NR	0.2228
D4	pond	0.03935	drainage	NR	0.04923
D4	stream	0.8430	drainage	NR	0.02082
D5	pond	0.03936	drainage	NR	0.04497
D5	stream	0.9011	drainage	NR	0.02098
R1	pond	0.04400	runoff/erosion	NR	0.06058
R1	stream	0.9838	runoff/erosion	NR	0.1636
Step 4 - 5m buffer zone		---	---	---	---
D1	ditch	8.630	drainage	NR	6.315
D1	stream	5.411	drainage	NR	3.563
D2	ditch	15.28	drainage	NR	5.082
D2	stream	9.819	drainage	NR	2.915
D3	ditch	0.3089	drainage	NR	0.06512
D4	pond	0.03404	drainage	NR	0.04295
D4	stream	0.3079	drainage	NR	0.007712
D5	pond	0.03405	drainage	NR	0.03924
D5	stream	0.3291	drainage	NR	0.007730
R1	pond	0.04115	drainage	NR	0.05581
R1	stream	0.9838	drainage	NR	0.1594
Step 4 - 5m vegetated buffer zone			---	---	---
R1	pond	0.03405	runoff/erosion	NR	0.03631
R1	stream	0.2744	runoff/erosion	NR	0.02522
Maize, application rate: 0.6 L/ha					
Step 1	---	57.3071	runoff/drainage	NR	32.6119
Step 2 Northern Europe	March-May	5.7960	runoff/drainage	NR	3.2509
Step 3	---	---	---	---	---
D3	ditch	0.9446	drainage	NR	0.2069
D4	pond	0.03814	drainage	NR	0.03602
D4	stream	0.8087	drainage	NR	0.04147
D5	pond	0.03814	drainage	NR	0.03472
D5	stream	0.8439	drainage	NR	0.03340
R1	pond	0.08658	runoff/erosion	NR	0.09045
R1	stream	1.815	drainage	NR	0.2775
Step 4 - 5m buffer zone		---	---	---	---
D3	ditch	0.3096	drainage	NR	0.07232
D4	pond	0.03407	drainage	NR	0.03239
D4	stream	0.3404	drainage	NR	0.01793

D5	pond	0.03407	drainage	NR	0.03122
D5	stream	0.3552	drainage	NR	0.01431
R1	pond	0.08354	drainage	NR	0.08691
R1	stream	1.815	drainage	NR	0.2753
Step 4 - 5m vegetated buffer zone			---	---	---
D3	ditch	0.3096	drainage	NR	0.07232
D4	pond	0.03407	drainage	NR	0.03239
D4	stream	0.3404	drainage	NR	0.01793
D5	pond	0.03407	drainage	NR	0.03122
D5	stream	0.3552	drainage	NR	0.01431
R1	pond	0.03405	drainage	NR	0.03688
R1	stream	0.2702	drainage	NR	0.01894

Metabolites of 2,4-D

Table 8.9-5: FOCUS Step 1 PEC_{sw} and PEC_{sed} for 2,4-DCP following single application to spring cereals, winter cereals and maize

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)*	Dominant entry route	21d - $PEC_{sw,twa}$ (µg/L)**	Max PEC_{sed} (µg/kg)*
Spring cereals, application rate: 0.6 L/ha					
Step 1	---	11.1221	runoff/drainage	NR	54.9387
Winter cereals, application rate: 0.6 L/ha					
Step 1	---	11.1221	runoff/drainage	NR	54.9387
Maize, application rate: 0.6 L/ha					
Step 1	---	11.1221	runoff/drainage	NR	54.9387

Table 8.9-6: FOCUS Step 1 PEC_{sw} and PEC_{sed} for 2,4-DCA following single application to spring cereals, winter cereals and maize

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)*	Dominant entry route	21d- $PEC_{sw,twa}$ (µg/L)**	Max PEC_{sed} (µg/kg)*
Spring cereals, application rate: 0.6 L/ha					
Step 1	---	4.1852	runoff/drainage	NR	42.3010
Winter cereals, application rate: 0.6 L/ha					
Step 1	---	4.1852	runoff/drainage	NR	42.3010
Maize, application rate: 0.6 L/ha					
Step 1	---	4.1852	runoff/drainage	NR	42.3010

Table 8.9-7: FOCUS Step 1 PEC_{sw} and PEC_{sed} for 4-CP following single application to spring cereals, winter cereals and maize

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)*	Dominant entry route	21d- $PEC_{sw,twa}$ (µg/L)**	Max PEC_{sed} (µg/kg)*
Spring cereals, application rate: 0.6 L/ha					
Step 1	---	6.0368	runoff/drainage	NR	59.7030
Winter cereals, application rate: 0.6 L/ha					
Step 1	---	6.0368	runoff/drainage	NR	59.7030
Maize, application rate: 0.6 L/ha					
Step 1	---	6.0368	runoff/drainage	NR	59.7030

Table 8.9-8: FOCUS Step 1 PEC_{sw} and PEC_{sed} for 1,2,4-benzenetriol following single application to spring cereals, winter cereals and maize

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)*	Dominant entry route	21d- $PEC_{sw,twa}$ (µg/L)**	Max PEC_{sed} (µg/kg)*
Spring cereals, application rate: 0.6 L/ha					
Step 1	---	10.3651*	runoff/drainage	NR	5.8985*
Step 2 Northern Europe	March-May	1.3163*	runoff/drainage	NR	0.7392*
Step 3	---	---	---	---	---
D1	ditch	0.2100	drainage	NR	0.0718
D1	stream	0.1677	drainage	NR	0.0114
D3	ditch	0.2062	drainage	NR	0.0408
D4	pond	0.0071	drainage	NR	0.0075
D4	stream	0.1584	drainage	NR	0.0049
D5	pond	0.0071	drainage	NR	0.0081
D5	stream	0.1639	drainage	NR	0.0039
Step 4 - 5m buffer zone		---	---	---	---
D1	ditch	0.0588	drainage	NR	0.0253
D1	stream	0.0623	drainage	NR	0.0069
D3	ditch	0.0559	drainage	NR	0.0119
D4	pond	0.0062	drainage	NR	0.0065
D4	stream	0.0578	drainage	NR	0.0018
D5	pond	0.0062	drainage	NR	0.0070

D5	stream	0.0598	drainage	NR	0.0014
Winter cereals, application rate: 0.6 L/ha					
Step 1	---	10.3651*	runoff/drainage	NR	5.8985*
Step 2 Northern Europe	March-May	1.3163*	runoff/drainage	NR	0.7392*
Step 3	---	---	---	---	---
D1	ditch	1.5609	drainage	NR	1.1460
D1	stream	0.9787	drainage	NR	0.6446
D2	ditch	2.7637	drainage	NR	0.9346
D2	stream	1.7760	drainage	NR	0.5276
D3	ditch	0.2060	drainage	NR	0.0403
D4	pond	0.0071	drainage	NR	0.0089
D4	stream	0.1525	drainage	NR	0.0038
D5	pond	0.0071	drainage	NR	0.0081
D5	stream	0.1630	drainage	NR	0.0038
R1	pond	0.0080	runoff/erosion	NR	0.0110
R1	stream	0.1779	runoff/erosion	NR	0.0296
Step 4 - 5m buffer zone					
D1	ditch	1.5609	drainage	NR	1.1422
D1	stream	0.9787	drainage	NR	0.6444
D2	ditch	2.7637	drainage	NR	0.9192
D2	stream	1.7760	drainage	NR	0.5272
D3	ditch	0.0559	drainage	NR	0.0118
D4	pond	0.0062	drainage	NR	0.0078
D4	stream	0.0557	drainage	NR	0.0014
D5	pond	0.0062	drainage	NR	0.0071
D5	stream	0.0595	drainage	NR	0.0014
R1	pond	0.0074	drainage	NR	0.0101
R1	stream	0.1779	drainage	NR	0.0288
Step 4 - 5m vegetated buffer zone					
R1	pond	0.0062	drainage	NR	0.0066
R1	stream	0.0496	drainage	NR	0.0046
Maize, application rate: 0.6 L/ha					
Step 1	---	10.3651*	runoff/drainage	NR	5.8985*
Step 2 Northern Europe	March-May	1.0483*			0.5880*
Step 3	---	---	---	---	---
D3	ditch	0.1708	drainage	NR	0.0374

D4	pond	0.0069	drainage	NR	0.0065
D4	stream	0.1463	drainage	NR	0.0075
D5	pond	0.0069	drainage	NR	0.0063
D5	stream	0.1526	drainage	NR	0.0060
R1	pond	0.0157	runoff/erosion	NR	0.0164
R1	stream	0.3283	drainage	NR	0.0502
Step 4 - 5m buffer zone		---	---	---	---
D3	ditch	0.0560	drainage	NR	0.0131
D4	pond	0.0062	drainage	NR	0.0059
D4	stream	0.0616	drainage	NR	0.0032
D5	pond	0.0062	drainage	NR	0.0056
D5	stream	0.0642	drainage	NR	0.0026
R1	pond	0.0151	drainage	NR	0.0157
R1	stream	0.3283	drainage	NR	0.0498
Step 4 - 5m vegetated buffer zone			---	---	---
R1	pond	0.0062	drainage	NR	0.0067
R1	stream	0.0489	drainage	NR	0.0034

*PEC_{SW} for the metabolite 1,2,4-benzenetriol were calculated based on the maximum PEC_{SW} / PEC_{sed} of the parent, molar mass ratio and the maximum occurrence of the metabolite in surface water.

8.9.2.2 Florasulam and its metabolites

Table 8.9-9: Input parameters related to florasulam and metabolites for $PEC_{sw/sed}$ calculations STEP 1, 2 and 3

Compound	florasulam	5-OH-florasulam	DFP-ASTCA	ASTCA	TSA	TPSA	ASTP	5-OH ASTP	Value in accordance to EU endpoint y/n/ Reference
Molecular weight (g/mol)	359.29	345.25	304.2	192.13	148.14	248.2	247.2	233.2	Y, EFSA Journal 2015; 13(1):3984
Saturated vapour pressure (Pa)	not required for Step 1+2/ $1.0 \cdot 10^{-6}$	not required for Step 1+2	not required for Step 1	not required for Step 1+2	not required for Step 1	not required for Step 1	not required for Step 1	not required for Step 1	Y, EFSA Journal 2015; 13(1):3984
Water solubility (mg/L)	6360	354	87400	250000	10900	1000 (default)	1000 (default)	1000 (default)	Y, EFSA Journal 2015; 13(1):3984
Diffusion coefficient in water (m²/d)	not required for Step 1+2/ 4.3×10^{-5}	not required for Step 1	not required for Step 1	not required for Step 1+2	not required for Step 1	not required for Step 1	not required for Step 1	not required for Step 1	Y, EFSA Journal 2015; 13(1):3984
Diffusion coefficient in air (m²/d)	not required for Step 1+2 /0.43	not required for Step 1	not required for Step 1	not required for Step 1+2	not required for Step 1	not required for Step 1	not required for Step 1	not required for Step 1	Y, EFSA Journal 2015; 13(1):3984
K_{foc} / K_{foc} (mL/g)	10.35 / 6.00 (median, n = 14)	14.53 (median, n = 10)	75.18 (arithmetic mean, n = 4)	104.81 (arithmetic mean, n = 4)	23.46 (arithmetic mean, n = 4)	41.52 (calculated by KocWin)	60.22 (calculated by KocWin)	77.74 (calculated by KocWin)	Y, EFSA Journal 2015; 13(1):3984
Freundlich Exponent 1/n	not required for Step 1+2/ 0.945 (arithmetic mean, n	not required for Step 1	not required for Step 1	not required for Step 1+2	not required for Step 1	not required for Step 1	not required for Step 1	not required for Step 1	Y, EFSA Journal 2015; 13(1):3984

Compound	florasulam	5-OH-florasulam	DFP-ASTCA	ASTCA	TSA	TPSA	ASTP	5-OH ASTP	Value in accordance to EU endpoint y/n/ Reference
	= 14)								
Plant Uptake	not required for Step 1+2 /0	not required for Step 1	not required for Step 1	not required for Step 1+2	not required for Step 1	not required for Step 1	not required for Step 1	not required for Step 1	Y, EFSA Journal 2015; 13(1):3984
Wash-Off factor from Crop (1/mm)	not required for Step 1+2/ 0.05 (MACRO) 0.50 (PRZM)	not required for Step 1	not required for Step 1	not required for Step 1+2	not required for Step 1	not required for Step 1	not required for Step 1	not required for Step 1	Y, EFSA Journal 2015; 13(1):3984
$DT_{50,soil}$ (d)	1.55 (geomean, normalisation to 10 kPa or pF2, 20 °C with Q_{10} of 2.58, n =8)	not required for Step 1	not required for Step 1	297.47 (geomean, normalisation to 10 kPa or pF2, 20 °C with Q_{10} of 2.58, n =4)	not required for Step 1	not required for Step 1	not required for Step 1	not required for Step 1	Y, EFSA Journal 2015; 13(1):3984
$DT_{50,water}$ (d)	15.3 (geomean, n=8)	not required for Step 1	not required for Step 1	1000 (worst case default)	not required for Step 1	not required for Step 1	not required for Step 1	not required for Step 1	Y, EFSA Journal 2015; 13(1):3984
$DT_{50,sed}$ (d)	15.3 (geomean, n=8)	not required for Step 1	not required for Step 1	1000 (worst case default)	not required for Step 1	not required for Step 1	not required for Step 1	not required for Step 1	Y, EFSA Journal 2015; 13(1):3984
$DT_{50,whole\ system}$ (d)	15.3 (geomean, n=8)	1000 (worst case default)	1000 (worst case default)	1000 (worst case default)	1000 (worst case default)	1000 (worst case default)	1000 (worst case default)	1000 (worst case default)	Y, EFSA Journal 2015; 13(1):3984
Maximum occurrence observed (% molar basis with respect to the par-	-	Soil: 71.6% Water: 99% Sediment:	Soil: 17.8% Water: 8.9% Sediment:	Soil: 40% Water: 53.8% Sediment:	Soil: 15.9% Water: 0.0001%	Soil: 0.0001% Water: 58.3% Sediment:	Soil: 0.0001% Water: 21.9% Sediment:	Soil: 0.0001% Water: 28.9% Sediment:	Y, EFSA Journal 2015; 13(1):3984

Compound	florasulam	5-OH-florasulam	DFP-ASTCA	ASTCA	TSA	TPSA	ASTP	5-OH ASTP	Value in accordance to EU endpoint y/n/ Reference
ent)		99% Total system: 99%	8.9% Total system: 8.9%	53.8% Total system: 53.8%	Sediment: 0.0001% Total system: 0.0001%	58.3% Total system: 58.3%	21.9% Total system: 21.9%	28.9% Total system: 28.9%	

$PEC_{sw/sed}$

Table 8.9-10: FOCUS Step 1, 2 and 3 PEC_{sw} and PEC_{sed} for florasulam following single application of FLD-HER 306 SE to spring cereals, winter cereals and maize

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)*	Dominant entry route	21 d- $PEC_{sw,twa}$ (µg/L)**	Max PEC_{sed} (µg/kg)*
Spring cereals, application rate: 0.6 L/ha					
Step 1	---	1.2675	---	NR	0.1276
Step 2 Northern Europe	March-May	0.0697		NR	0.0069
Step 3	---	---	---	---	---
D1	ditch	0.03131	drainage	NR	0.01164
D1	stream	0.02076	drainage	NR	0.006409
D3	ditch	0.02375	drainage	NR	0.002106
D4	pond	0.000820	drainage	NR	0.000315
D4	stream	0.01824	drainage	NR	0.000375
D5	pond	0.000820	drainage	NR	0.000345
D5	stream	0.01888	drainage	NR	0.000324
Winter cereals, application rate: 0.6 L/ha					
Step 1	---	1.2675	---	NR	0.1276
Step 2 Northern Europe	March-May	0.0697		NR	0.0069
Step 3	---	---	---	---	---
D1	ditch	0.2635	drainage	NR	0.07396
D1	stream	0.1651	drainage	NR	0.04329
D2	ditch	0.3202	drainage	NR	0.05054
D2	stream	0.2263	drainage	NR	0.02735
D3	ditch	0.02374	drainage	NR	0.002083
D4	pond	0.000820	drainage	NR	0.000375
D4	stream	0.01756	drainage	NR	0.000314
D5	pond	0.000820	drainage	NR	0.000343
D5	stream	0.01877	drainage	NR	0.000313
R1	pond	0.000820	runoff/erosion	NR	0.000370
R1	stream	0.01876	runoff/erosion	NR	0.007733

Maize					
Step 1	---	1.2675	---	NR	0.1276
Step 2 Northern Europe	March-May	0.0594		NR	0.0059
Step 3	---	---	---	---	---
D3	ditch	0.01968	drainage	NR	0.001912
D4	pond	0.000795	drainage	NR	0.000272
D4	stream	0.01685	drainage	NR	0.000495
D5	pond	0.000795	drainage	NR	0.000262
D5	stream	0.01758	drainage	NR	0.000390
R1	pond	0.000894	runoff/erosion	NR	0.000401
R1	stream	0.03195	runoff/erosion	NR	0.001948

Metabolites of florasulam

Table 8.9-11: FOCUS Step 1 PEC_{sw} and PEC_{sed} for 5-OH-florasulam following single application to spring cereals, winter cereals and maize

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)*	Dominant entry route	21d - $PEC_{sw,twa}$ (µg/L)**	Max PEC_{sed} (µg/kg)*
Spring cereals, application rate: 0.6 L/ha					
Step 1	---	2.0430	runoff/drainage	NR	0.2921
Winter cereals, application rate: 0.6 L/ha					
Step 1	---	2.0430	runoff/drainage	NR	0.2921
Maize, application rate: 0.6 L/ha					
Step 1	---	2.0430	runoff/drainage	NR	0.2921

Table 8.9-12: FOCUS Step 1 PEC_{sw} and PEC_{sed} for DFP-ASTCA following single application to spring and winter cereals

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)*	Dominant entry route	21d - $PEC_{sw,twa}$ (µg/L)**	Max PEC_{sed} (µg/kg)*
Spring cereals, application rate: 0.6 L/ha					
Step 1	---	0.2594	runoff/drainage	NR	0.1931
Winter cereals, application rate: 0.6 L/ha					
Step 1	---	0.2594	runoff/drainage	NR	0.1931

Maize, application rate: 0.6 L/ha					
Step 1	---	0.2594	runoff/drainage	NR	0.1931

Table 8.9-13: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} for ASTCA following single application to spring and winter cereals

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)*	Dominant entry route	21d - $PEC_{sw,twa}$ (µg/L)**	Max PEC_{sed} (µg/kg)*
Spring cereals, application rate: 0.6 L/ha					
Step 1	---	0.5600	runoff/drainage	NR	0.5766
Step 2 Northern Europe	---	0.0661	---	NR	0.0688
Winter cereals, application rate: 0.6 L/ha					
Step 1	---	0.5600	runoff/drainage	NR	0.5766
Step 2 Northern Europe	---	0.0661	---	NR	0.0688
Maize, application rate: 0.6 L/ha					
Step 1	---	0.5600	runoff/drainage	NR	0.5766
Step 2 Northern Europe	---	0.0518	---	NR	0.0539

Table 8.9-14: FOCUS Step 1 PEC_{sw} and PEC_{sed} for TSA following single application to spring and winter cereals

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)*	Dominant entry route	21d - $PEC_{sw,twa}$ (µg/L)**	Max PEC_{sed} (µg/kg)*
Spring cereals, application rate: 0.6 L/ha					
Step 1	---	0.0795	runoff/drainage	NR	0.0186
Winter cereals, application rate: 0.6 L/ha					
Step 1	---	0.0795	runoff/drainage	NR	0.0186
Maize, application rate: 0.6 L/ha					
Step 1	---	0.0795	runoff/drainage	NR	0.0186

Table 8.9-15: FOCUS Step 1 PEC_{sw} and PEC_{sed} for TPSA following single application to spring and winter cereals

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)*	Dominant entry route	21d - $PEC_{sw,twa}$ (µg/L)**	Max PEC_{sed} (µg/kg)*
Spring cereals, application rate: 0.6 L/ha					
Step 1	---	0.4909	runoff/drainage	NR	0.1981
Winter cereals, application rate: 0.6 L/ha					
Step 1	---	0.4909	runoff/drainage	NR	0.1981
Maize, application rate: 0.6 L/ha					
Step 1	---	0.4909	runoff/drainage	NR	0.1981

Table 8.9-16: FOCUS Step 1 PEC_{sw} and PEC_{sed} for ASTP following single application to spring and winter cereals

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)*	Dominant entry route	21d - $PEC_{sw,twa}$ (µg/L)**	Max PEC_{sed} (µg/kg)*
Spring cereals, application rate: 0.6 L/ha					
Step 1	---	0.1795	runoff/drainage	NR	0.1050
Winter cereals, application rate: 0.6 L/ha					
Step 1	---	0.1795	runoff/drainage	NR	0.1050
Maize, application rate: 0.6 L/ha					
Step 1	---	0.1795	runoff/drainage	NR	0.1050

Table 8.9-17: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} for 5-OH ASTP following single application to spring and winter cereals

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)*	Dominant entry route	21d - $PEC_{sw,twa}$ (µg/L)**	Max PEC_{sed} (µg/kg)*
Spring cereals, application rate: 0.6 L/ha					
Step 1	---	0.2189	runoff/drainage	NR	0.1652
Winter cereals, application rate: 0.6 L/ha					
Step 1	---	0.2189	runoff/drainage	NR	0.1652
Maize, application rate: 0.6 L/ha					
Step 1	---	0.2189	runoff/drainage	NR	0.1652

8.9.2.3 PEC$_{sw/sed}$ of formulation

FLD-HER 306 SE is formulation containing two active substance that quite quickly dissipate is soil and water hence PECsw for formulation was calculated using Drift Calculator (embedded in SWASH v5.3). Results of modelling are included in table below. Drift Calculator outputs are included in Appendix 3 (KCP 9.2.5).

Table 8.9-18: PEC$_{sw}$ for FLD-HER 306 SE on spring cereals, winter cereals and maize

Waterbody	Application rate (g/ha)	Buffer zone (m)	PEC$_{sw}$ (µg/L)
Spring cereals, application rate: 0.6 L/ha			
ditch	638*	NR	4.0989
pond	638*	NR	0.1398
stream	638*	NR	3.0419
Winter cereals, application rate: 0.6 L/ha			
ditch	638*	NR	4.0989
pond	638*	NR	0.1398
stream	638*	NR	3.0419
Maize, application rate: 0.6 L/ha			
ditch	638*	NR	3.3890
pond	638*	NR	0.1354
stream	638*	NR	2.6397

* application rate calculated on the basis of density 1.0641 g/ml (see dRR Part B 0,1-4)

zRMS comments:

Evaluator agrees with modelling carried out by Applicant.

Predicted concentrations of 2,4-D, florasulam and their metabolites in surface water were calculated by the Applicant at Steps 1to 3 on the basis input parameters for florasulam and its metabolites EFSA Journal 2015;13(1):3984. Input parameters for 2,4-D were in general in line with endpoints reported in EFSA Journal 2014;12(9):3812. PECsw/sed was calculated for 2,4-D at Step 4.

Nevertheless, additional simulations may be required by the sMS that do not accept calculations performed using FOCUS models.

PL: The calculations were performed for all relevant scenarios for Polish: D3, D4, R1.
PECsw/sed for scenario R1to spring cereals was covered by winter cereals.

8.10 Fate and behaviour in air (KCP 9.3, KCP 9.3.1)

8.10.1.1 2,4-D and its metabolites

Table 8.10-1 Summary of atmospheric degradation and behaviour

Compound	2,4-D
Direct photolysis in air	NR
Quantum yield of direct phototransformation	NR
Photochemical oxidative degradation in air	DT_{50} : 1.6 days (assuming $1.5 \cdot 10^{6}$ OH radicles cm^{3})
Volatilisation	Vapour pressure (Pa): $9.9 \cdot 10^{-6}$ (20°C) Henry's Law Constant ($Pa \cdot m^3/mol$): $4.0 \cdot 10^{-6}$ (20°C) From plant surfaces (BBA guideline): no data From soil surfaces (BBA guideline): negligible after 15 days
Metabolites	NR

The vapour pressure at 20 °C of the 2,4-D is < 10^{-5} Pa. Hence the 2,4-D is regarded as non-volatile. Therefore, exposure of adjacent surface waters and terrestrial ecosystems by the 2,4-D due to volatilization with subsequent deposition is not expected to occur. Additionally, DT_{50} value in the atmosphere is below 2 days indicating that it would not be persistent in air.

8.10.1.2 Florasulam and its metabolites

Table 8.10-2 Summary of atmospheric degradation and behaviour

Compound	florasulam
Direct photolysis in air	NR
Quantum yield of direct phototransformation	NR
Photochemical oxidative degradation in air	DT_{50} :1.706 days derived by the Atkinson model (version 1.92). OH (12-h) concentration assumed = $1.6 \cdot 10^{-6}$
Volatilisation	Vapour pressure (Pa): 1.0×10^{-5} (25°C) Henry's Law Constant ($Pa \cdot m^3/mol$): $3.29 \cdot 10^{-5}$ (pH 5) (20°C) $4.35 \cdot 10^{-7}$ (pH 7) (20°C) $2.94 \cdot 10^{-8}$ (pH 9) (20°C)C From plant surfaces (BBA guideline): 1.7% after 24 hours From soil surfaces (BBA guideline): negligible after 24 hours
Metabolites	No data.

The vapour pressure at 25 °C of the florasulam is < 10^{-5} Pa. Hence the florasulam is regarded as non-volatile. Therefore, exposure of adjacent surface waters and terrestrial ecosystems by the florasulam due to volatilization with subsequent deposition is not expected to occur. Additionally, DT_{50} value in the atmosphere is below 2 days indicating that it would not be persistent in air.

Appendix 1 Lists of data considered in support of the evaluation

List of data submitted by the applicant and relied on

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 9.2.4.1/01	Tabor E	2020	FLD-HER 306 SE Calculation of predicted environmental concentrations of 2,4-D and florasulam in groundwater using the FOCUS groundwater scenarios (FOCUS PEARL, FOCUS PELMO) Company Report No: EST/4/2020 Source: ESTICON Tabor Sp.j., Poland GLP: no Published: no	N	Pestila*
KCP 9.2.5/01	Tabor E	2020	FLD-HER 306 SE Calculation of Predicted Environmental Concentrations of 2,4-S and florasulam in surface water using the FOCUS scenarios (Steps 1, 2, 3 and 4) Company Report No: EST/5/2020 Source: ESTICON Tabor Sp.j., Poland GLP: no Published: no	N	Pestila*

* Pestila Spółka z ograniczoną odpowiedzialnością

List of data submitted or referred to by the applicant and relied on, but already evaluated at EU peer review

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
-	-	-	-	-	-

List of data submitted by the applicant and not relied on

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
-	-	-	-	-	-

List of data relied on not submitted by the applicant but necessary for evaluation

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
-	-	-	-	-	-

Appendix 2 Detailed evaluation of the new Annex II studies

Not relevant.

Appendix 3 Additional information provided by the applicant (e.g. detailed modelling data)

KCP 9.1.3 – PECs modelling by ESCAPE

E S C A P E
Estimation of Soil Concentrations After PEsticide Applications

developed by Michael Klein

Program version: 2.0 (26 November 2019)
Date of this simulation: 02.08.2020, 21:03:33
Calculation problem: Programcheck

PROGRAM SETTINGS

Calculation mode: Residues from different applications are considered separately over one year
Application mode: Single annual application pattern (calculation period 1 year)

SCENARIO DATA USED IN THE CALCULATION

Name of the scenario:	FLD-HER 306 SE 24D
Name of the soil:	Borstel
Soil density (kg/L):	1.5
Soil depth (cm):	5
Tillage depth (cm)*:	5
Organic carbon content (%):	1.5
Field capacity (Vol%):	29.2
Wilting point (Vol%):	6.4

Climatic conditions: 20 °C constant
(* for calculation of background concentrations)

APPLICATION PATTERN USED IN THE CALCULATION

Crop rotation: every year

Application date:	1 Mar
Application rate (g/ha):	180
Crop interception (%):	0

COMPOUNDS CONSIDERED IN THE CALCULATION

Metabolism scheme: Active compound and a sequence of two metabolites

Compound	Molecular mass(g/mol)	Formation (%)	
24D	221		
24DCP	163	512	100
24DCA	177	1028	100

DEGRADATION KINETICS PARAMETERS CONSIDERED FOR THE CALCULATION

Soil study: soil study 1

Metabolism scheme: Active compound and a sequence of two metabolites

Kinetics for 24D:	Single First order (SFO)
DT50 (d):	94.6
Rate constant (1/d):	0.0073
Q10-factor:	2.58
Walker-exponent:	0.7
Ref. temperature (°C):	20

Kinetics for 24DCP:	Single First order (SFO)
DT50 (d):	14
Rate constant (1/d):	0.0495
Q10-factor:	2.58
Walker-exponent:	0.7
Ref. temperature (°C):	20

Kinetics for 24DCA:	Single First order (SFO)
DT50 (d):	15.4
Rate constant (1/d):	0.045
Q10-factor:	2.58
Walker-exponent:	0.7
Ref. temperature (°C):	20

RESULTS OF THE CALCULATION

Metabolism scheme: Active compound and a sequence of two metabolites

RESULTS FOR: 24D

Calculations over one year

Maximum annual total soil concentration for 24D over 5 cm(mg/kg): 0.2400 occurring on day 0

Calculated time dependent total soil concentrations over 5 cm for 24D after one year (mg/kg)

Time(d)	PECact*	PECtwa	Begin TWAframe(d)	End TWAframe(d)
1	0.2382	0.2391	0	1
2	0.2365	0.2383	0	2
4	0.2331	0.2365	0	4
7	0.2280	0.2340	0	7
14	0.2166	0.2281	0	14
21	0.2058	0.2224	0	21
28	0.1955	0.2170	0	28
42	0.1764	0.2066	0	42
50	0.1664	0.2009	0	50
100	0.1153	0.1701	0	100

(* PECact values are related to the time after the first application)

Calculation of background concentrations after many years

Final Background concentration in total soil for 24D over 5 cm(mg/kg): 0.0178**

(** according to the estimation 100% of the final plateau was reached after 10 years without crop rotation)

Reduction factor to account for crop rotation: 1

Final Background concentration in total soil including crop rotation(mg/kg): 0.0178

Calculations of concentrations considering accumulation after many years of application

Maximum total soil concentration for 24D over 5 cm considering accumulation* (mg/kg) 0.2578
(* a tillage depth of 5 cm was considered for calculating the background concentration)

Calculated time dependent total soil concentrations over 5 cm for 24D(mg/kg) considering accumulation*

Time(d)	PECact**	PECtwa	Begin TWAframe(d)	End TWAframe(d)
1	0.2560	0.2569	0	1
2	0.2543	0.2560	0	2
4	0.2508	0.2543	0	4
7	0.2458	0.2517	0	7
14	0.2344	0.2459	0	14
21	0.2235	0.2402	0	21
28	0.2133	0.2348	0	28
42	0.1942	0.2244	0	42
50	0.1842	0.2187	0	50
100	0.1331	0.1879	0	100

(* a tillage depth of 5 cm was considered for calculating the background concentration)
(** PECact values are related to the time after the first application)

RESULTS FOR: 24DCP

Calculations over one year

Maximum annual total soil concentration for 24DCP over 5 cm(mg/kg): 0.0193 occurring on day 45^
(^ This is 10.88 % of the theoretical maximum concentration of the metabolite)

Calculated time dependent total soil concentrations over 5 cm for 24DCP after one year (mg/kg)

Time(d)	PECact*	PECtwa	Begin TWAframe(d)	End TWAframe(d)
1	0.0193	0.0193	45	46
2	0.0193	0.0193	44	46
4	0.0192	0.0193	43	47
7	0.0191	0.0193	42	49
14	0.0188	0.0192	39	53
21	0.0182	0.0191	36	57
28	0.0176	0.0190	33	61
42	0.0162	0.0188	28	70
50	0.0154	0.0186	26	76
100	0.0109	0.0170	15	115

(* PECact values are related to the time after the maximum concentration)

Calculation of background concentrations after many years

Final Background concentration in total soil for 24DCP over 5 cm(mg/kg): 0.0017**

(** according to the estimation 100% of the final plateau was reached after 10 years without crop rotation)

Reduction factor to account for crop rotation: 1

Final Background concentration in total soil including crop rotation(mg/kg): 0.0017

Calculations of concentrations considering accumulation after many years of application

Maximum total soil concentration for 24DCP over 5 cm considering accumulation* (mg/kg) 0.0210
(* a tillage depth of 5 cm was considered for calculating the background concentration)

Calculated time dependent total soil concentrations over 5 cm for 24DCP(mg/kg) considering accumulation*

Time(d)	PECact**	PECtwa	Begin TWAframe(d)	End TWAframe(d)
1	0.0210	0.0210	45	46
2	0.0209	0.0210	44	46
4	0.0209	0.0209	43	47
7	0.0208	0.0209	42	49
14	0.0204	0.0209	39	53
21	0.0199	0.0208	36	57
28	0.0193	0.0207	33	61
42	0.0179	0.0205	28	70
50	0.0171	0.0203	26	76
100	0.0126	0.0187	15	115

(* a tillage depth of 5 cm was considered for calculating the background concentration)
(** PECact values are related to the time after the maximum concentration)'

RESULTS FOR: 24DCA

Calculations over one year

Maximum annual total soil concentration for 24DCA over 5 cm(mg/kg): 0.0207 occurring on day 76^
(^ This is 10.76 % of the theoretical maximum concentration of the metabolite)

Calculated time dependent total soil concentrations over 5 cm for 24DCA after one year (mg/kg)

Time(d)	PECact*	PECtwa	Begin TWAframe(d)	End TWAframe(d)
1	0.0207	0.0207	76	77
2	0.0207	0.0207	75	77
4	0.0206	0.0207	74	78
7	0.0206	0.0207	73	80
14	0.0203	0.0206	70	84
21	0.0198	0.0206	66	87
28	0.0193	0.0205	63	91
42	0.0180	0.0203	58	100
50	0.0172	0.0202	55	105
100	0.0123	0.0189	40	140

(* PECact values are related to the time after the maximum concentration)

Calculation of background concentrations after many years

Final Background concentration in total soil for 24DCA over 5 cm(mg/kg): 0.0019**

(** according to the estimation 100% of the final plateau was reached after 10 years without crop rotation)

Reduction factor to account for crop rotation: 1

Final Background concentration in total soil including crop rotation(mg/kg): 0.0019

Calculations of concentrations considering accumulation after many years of application

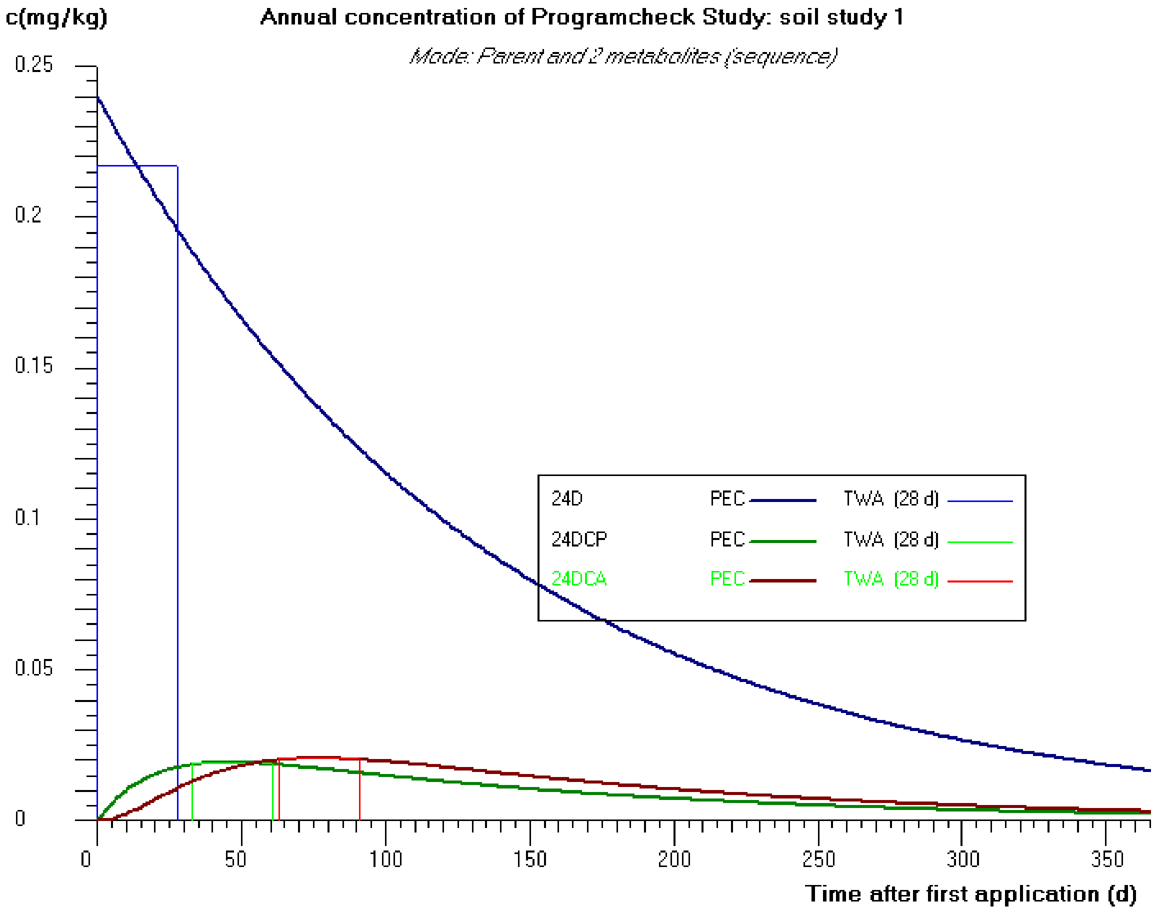
Maximum total soil concentration for 24DCA over 5 cm considering accumulation* (mg/kg) 0.0226
(* a tillage depth of 5 cm was considered for calculating the background concentration)

Calculated time dependent total soil concentrations over 5 cm for 24DCA(mg/kg) considering accumulation*

Time(d)	PECact**	PECtwa	Begin TWAframe(d)	End TWAframe(d)
1	0.0226	0.0226	76	77
2	0.0226	0.0226	75	77
4	0.0226	0.0226	74	78
7	0.0225	0.0226	73	80
14	0.0222	0.0226	70	84
21	0.0217	0.0225	66	87
28	0.0212	0.0224	63	91
42	0.0199	0.0222	58	100
50	0.0191	0.0221	55	105
100	0.0142	0.0208	40	140

(* a tillage depth of 5 cm was considered for calculating the background concentration)
(** PECact values are related to the time after the maximum concentration)'

GRAPHIC REPRESENTATION OF THE CALCULATION


c(mg/kg)
Annual concentration of Programcheck Study: soil study 1
Mode: Parent and 2 metabolites (sequence)
0.25
0.2
0.15
0.1
0.05
0
24D PEC TWA (28 d)
24DCP PEC TWA (28 d)
24DCA PEC TWA (28 d)
0
50
100
150
200
250
300
350
Time after first application (d)

E S C A P E

Estimation of Soil Concentrations After PEsticide Applications

developed by Michael Klein

Program version: 2.0 (26 November 2019)
Date of this simulation: 02.08.2020, 21:42:27
Calculation problem: Programcheck

PROGRAM SETTINGS

Calculation mode: Residues from different applications are considered separately over one year
Application mode: Single annual application pattern (calculation period 1 year)

SCENARIO DATA USED IN THE CALCULATION

Name of the scenario:	FLD-HER 306 SE florasulam
Name of the soil:	Borstel
Soil density (kg/L):	1.5
Soil depth (cm):	5
Tillage depth (cm)*:	5
Organic carbon content (%):	1.5
Field capacity (Vol%):	29.2
Wilting point (Vol%):	6.4

Climatic conditions: 20 °C constant
(* for calculation of background concentrations)

APPLICATION PATTERN USED IN THE CALCULATION

Crop rotation: every year

Application date: 1 Mar
Application rate (g/ha): 3.75
Crop interception (%): 0

COMPOUNDS CONSIDERED IN THE CALCULATION

Metabolism scheme: Active compound and a sequence of two metabolites

Compound	Molecular mass(g/mol)	Formation (%)	
florasulam	359.29		
5OH-florasulam	345.25	14.53	85.4
DFP-ASTCA	304.2	75.18	100

DEGRADATION KINETICS PARAMETERS CONSIDERED FOR THE CALCULATION

Soil study: soil study 1

Metabolism scheme: Active compound and a sequence of two metabolites

Kinetics for florasulam:	Single First order (SFO)
DT50 (d):	4.29
Rate constant (1/d):	0.1616
Q10-factor:	2.58
Walker-exponent:	0.7
Ref. temperature (°C):	20

Kinetics for 5OH-florasulam:	Single First order (SFO)
DT50 (d):	29.75
Rate constant (1/d):	0.0233
Q10-factor:	2.58
Walker-exponent:	0.7
Ref. temperature (°C):	20

Kinetics for DFP-ASTCA:	Single First order (SFO)
DT50 (d):	46.16
Rate constant (1/d):	0.015
Q10-factor:	2.58
Walker-exponent:	0.7
Ref. temperature (°C):	20

RESULTS OF THE CALCULATION

Metabolism scheme: Active compound and a sequence of two metabolites

RESULTS FOR: florasulam

Calculations over one year

Maximum annual total soil concentration for florasulam over 5 cm(mg/kg): 0.0050 occurring on day 0

Calculated time dependent total soil concentrations over 5 cm for florasulam after one year (mg/kg)

Time(d)	PECact*	PECtwa	Begin TWAframe(d)	End TWAframe(d)
1	0.0043	0.0046	0	1
2	0.0036	0.0043	0	2
4	0.0026	0.0037	0	4
7	0.0016	0.0030	0	7
14	0.0005	0.0020	0	14
21	0.0002	0.0014	0	21
28	0.0001	0.0011	0	28
42	<0.0001	0.0007	0	42
50	<0.0001	0.0006	0	50
100	<0.0001	0.0003	0	100

(* PECact values are related to the time after the first application)

Calculation of background concentrations after many years

Final Background concentration in total soil for florasulam over 5 cm(mg/kg): <0.0001**

(** according to the estimation 100% of the final plateau was reached after 10 years without crop rotation)

Reduction factor to account for crop rotation: 1

Final Background concentration in total soil including crop rotation(mg/kg): <0.0001

Calculations of concentrations considering accumulation after many years of application

Maximum total soil concentration for florasulam over 5 cm considering accumulation* (mg/kg) 0.0050
(* a tillage depth of 5 cm was considered for calculating the background concentration)

Calculated time dependent total soil concentrations over 5 cm for florasulam(mg/kg) considering accumulation*

Time(d)	PECact**	PECtwa	Begin TWAframe(d)	End TWAframe(d)
1	0.0043	0.0046	0	1
2	0.0036	0.0043	0	2
4	0.0026	0.0037	0	4
7	0.0016	0.0030	0	7
14	0.0005	0.0020	0	14
21	0.0002	0.0014	0	21
28	0.0001	0.0011	0	28
42	<0.0001	0.0007	0	42
50	<0.0001	0.0006	0	50
100	<0.0001	0.0003	0	100

(* a tillage depth of 5 cm was considered for calculating the background concentration)
(** PECact values are related to the time after the first application)

RESULTS FOR: 5OH-florasulam

Calculations over one year

Maximum annual total soil concentration for 5OH-florasulam over 5 cm(mg/kg): 0.0020 occurring on day 26^
(^ This is 40.62 % of the theoretical maximum concentration of the metabolite)

Calculated time dependent total soil concentrations over 5 cm for 5OH-florasulam after one year (mg/kg)

Time(d)	PECact*	PECtwa	Begin TWAframe(d)	End TWAframe(d)
1	0.0020	0.0020	25	26
2	0.0019	0.0020	25	27
4	0.0019	0.0020	24	28
7	0.0019	0.0019	23	30
14	0.0019	0.0019	20	34
21	0.0019	0.0019	18	39
28	0.0018	0.0019	16	44
42	0.0018	0.0019	14	56
50	0.0017	0.0019	13	63
100	0.0015	0.0018	9	109

(* PECact values are related to the time after the maximum concentration)

Calculation of background concentrations after many years

Final Background concentration in total soil for 5OH-florasulam over 5 cm(mg/kg): 0.0012**

(** according to the estimation 100% of the final plateau was reached after 10 years without crop rotation)

Reduction factor to account for crop rotation: 1

Final Background concentration in total soil including crop rotation(mg/kg): 0.0012

Calculations of concentrations considering accumulation after many years of application

Maximum total soil concentration for 5OH-florasulam over 5 cm considering accumulation* (mg/kg) 0.0032
(* a tillage depth of 5 cm was considered for calculating the background concentration)

Calculated time dependent total soil concentrations over 5 cm for 5OH-florasulam(mg/kg) considering accumulation*

Time(d)	PECact**	PECtwa	Begin TWAframe(d)	End TWAframe(d)
1	0.0032	0.0032	25	26
2	0.0032	0.0032	25	27
4	0.0031	0.0032	24	28
7	0.0031	0.0032	23	30
14	0.0031	0.0031	20	34
21	0.0031	0.0031	18	39
28	0.0030	0.0031	16	44
42	0.0030	0.0031	14	56
50	0.0029	0.0031	13	63
100	0.0027	0.0030	9	109

(* a tillage depth of 5 cm was considered for calculating the background concentration)
(** PECact values are related to the time after the maximum concentration)'

RESULTS FOR: DFP-ASTCA

Calculations over one year

Maximum annual total soil concentration for DFP-ASTCA over 5 cm(mg/kg): 0.0005 occurring on day 309^
(^ This is 11.25 % of the theoretical maximum concentration of the metabolite)

Calculated time dependent total soil concentrations over 5 cm for DFP-ASTCA after one year (mg/kg)

Time(d)	PECact*	PECtwa	Begin TWAframe(d)	End TWAframe(d)
1	0.0005	0.0005	307	308
2	0.0005	0.0005	307	309
4	0.0005	0.0005	307	311
7	0.0005	0.0005	305	312
14	0.0005	0.0005	302	316
21	0.0005	0.0005	299	320
28	0.0005	0.0005	295	323

42	0.0005	0.0005	288	330
50	0.0005	0.0005	285	335
100	0.0005	0.0005	262	362

(* PECact values are related to the time after the maximum concentration)

Calculation of background concentrations after many years

Final Background concentration in total soil for DFP-ASTCA over 5 cm(mg/kg):
0.0007**

(** according to the estimation 100% of the final plateau was reached after 10 years without crop rotation)

Reduction factor to account for crop rotation: 1

Final Background concentration in total soil including crop rotation(mg/kg): 0.0007

Calculations of concentrations considering accumulation after many years of application

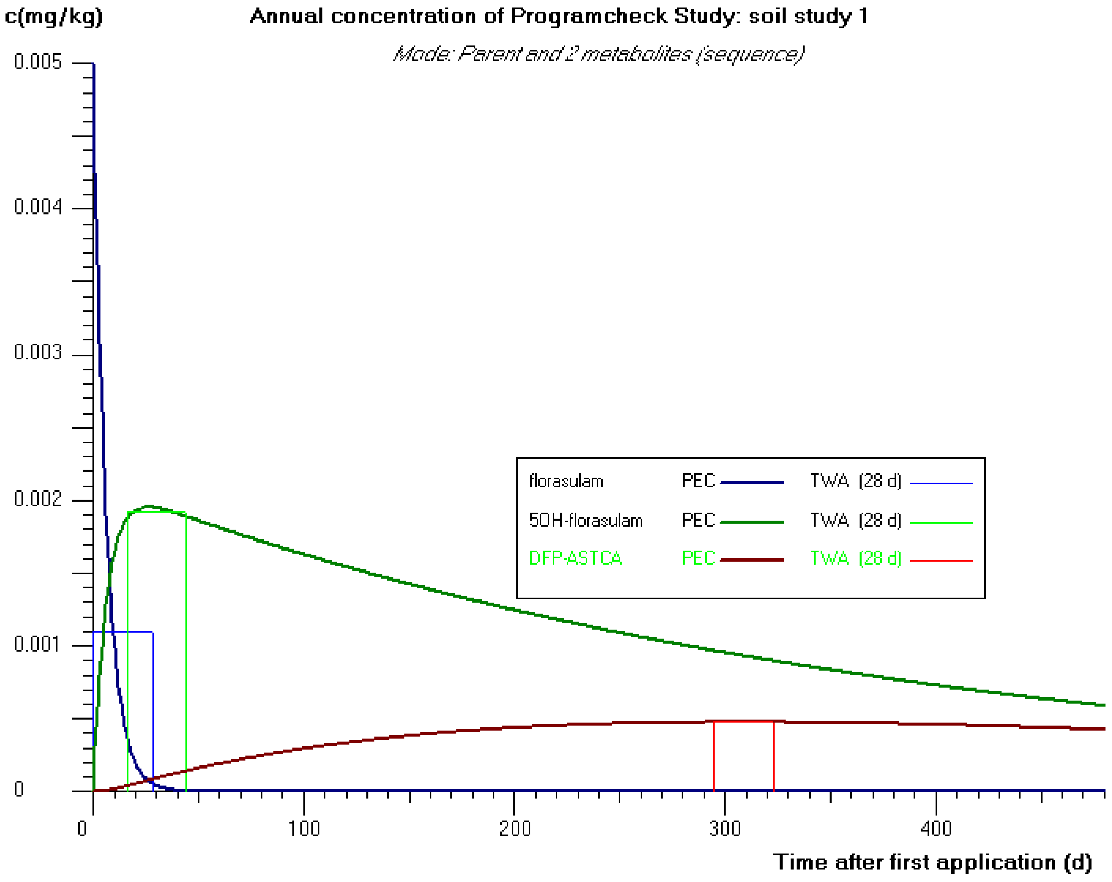
Maximum total soil concentration for DFP-ASTCA over 5 cm considering accumulation* (mg/kg)
0.0012
(* a tillage depth of 5 cm was considered for calculating the background concentration)

Calculated time dependent total soil concentrations over 5 cm for DFP-ASTCA(mg/kg) considering accumulation*

Time(d)	PECact**	PECtwa	Begin TWAframe(d)	End TWAframe(d)
1	0.0012	0.0012	307	308
2	0.0012	0.0012	307	309
4	0.0012	0.0012	307	311
7	0.0012	0.0012	305	312
14	0.0012	0.0012	302	316
21	0.0012	0.0012	299	320
28	0.0012	0.0012	295	323
42	0.0012	0.0012	288	330
50	0.0012	0.0012	285	335
100	0.0011	0.0012	262	362

(* a tillage depth of 5 cm was considered for calculating the background concentration)
(** PECact values are related to the time after the maximum concentration)'

GRAPHIC REPRESENTATION OF THE CALCULATION


c(mg/kg)
Annual concentration of Programcheck Study: soil study 1
Mode: Parent and 2 metabolites (sequence)
0.005
0.004
0.003
0.002
0.001
0
florasulam PEC TWA (28 d)
5OH-florasulam PEC TWA (28 d)
DFP-ASTCA PEC TWA (28 d)
0
100
200
300
400
Time after first application (d)

E S C A P E
Estimation of Soil Concentrations After PEsticide Applications

developed by Michael Klein

Program version: 2.0 (26 November 2019)
Date of this simulation: 02.08.2020, 21:58:19
Calculation problem: Programcheck

PROGRAM SETTINGS

Calculation mode: Residues from different applications are considered separately over one year
Application mode: Single annual application pattern (calculation period 1 year)

SCENARIO DATA USED IN THE CALCULATION

Name of the scenario:	FLD-HER 306 SE florasulam
Name of the soil:	Borstel
Soil density (kg/L):	1.5
Soil depth (cm):	5
Tillage depth (cm)*:	5
Organic carbon content (%):	1.5
Field capacity (Vol%):	29.2
Wilting point (Vol%):	6.4

Climatic conditions: 20 °C constant
(* for calculation of background concentrations)

APPLICATION PATTERN USED IN THE CALCULATION

Crop rotation: every year

Application date:	1 Mar
Application rate (g/ha):	3.75
Crop interception (%):	0

COMPOUNDS CONSIDERED IN THE CALCULATION

Metabolism scheme: Active compound and a sequence of two metabolites

Compound	Molecular mass(g/mol)	Formation (%)		
florasulam	359.29			
ASTCA	192.13	104.81		66.7
TSA	148.14	23.46	100	

DEGRADATION KINETICS PARAMETERS CONSIDERED FOR THE CALCULATION

Soil study: soil study 1

Metabolism scheme:	Active compound and a sequence of two metabolites
Kinetics for florasulam:	Single First order (SFO)
DT50 (d):	4.29
Rate constant (1/d):	0.1616
Q10-factor:	2.58
Walker-exponent:	0.7
Ref. temperature (°C):	20
Kinetics for ASTCA:	Single First order (SFO)
DT50 (d):	259.05
Rate constant (1/d):	0.0027
Q10-factor:	2.58
Walker-exponent:	0.7
Ref. temperature (°C):	20
Kinetics for TSA:	Single First order (SFO)
DT50 (d):	171.68
Rate constant (1/d):	0.004
Q10-factor:	2.58
Walker-exponent:	0.7
Ref. temperature (°C):	20

RESULTS OF THE CALCULATION

Metabolism scheme: Active compound and a sequence of two metabolites

RESULTS FOR: florasulam

Calculations over one year

Maximum annual total soil concentration for florasulam over 5 cm(mg/kg): 0.0050 occurring on day 0

Calculated time dependent total soil concentrations over 5 cm for florasulam after one year (mg/kg)

Time(d)	PECact*	PECtwa	Begin TWAframe(d)	End TWAframe(d)
1	0.0043	0.0046	0	1
2	0.0036	0.0043	0	2
4	0.0026	0.0037	0	4
7	0.0016	0.0030	0	7
14	0.0005	0.0020	0	14
21	0.0002	0.0014	0	21
28	0.0001	0.0011	0	28
42	<0.0001	0.0007	0	42
50	<0.0001	0.0006	0	50
100	<0.0001	0.0003	0	100

(* PECact values are related to the time after the first application)

Calculation of background concentrations after many years

Final Background concentration in total soil for florasulam over 5 cm(mg/kg):
<0.0001**

(** according to the estimation 100% of the final plateau was reached after 10 years without crop rotation)

Reduction factor to account for crop rotation: 1

Final Background concentration in total soil including crop rotation(mg/kg): <0.0001

Calculations of concentrations considering accumulation after many years of application

Maximum total soil concentration for florasulam over 5 cm considering accumulation* (mg/kg) 0.0050
(* a tillage depth of 5 cm was considered for calculating the background concentration)

Calculated time dependent total soil concentrations over 5 cm for florasulam(mg/kg) considering accumulation*

Time(d)	PECact**	PECtwa	Begin TWAframe(d)	End TWAframe(d)
1	0.0043	0.0046	0	1
2	0.0036	0.0043	0	2
4	0.0026	0.0037	0	4
7	0.0016	0.0030	0	7
14	0.0005	0.0020	0	14
21	0.0002	0.0014	0	21
28	0.0001	0.0011	0	28
42	<0.0001	0.0007	0	42
50	<0.0001	0.0006	0	50
100	<0.0001	0.0003	0	100

(* a tillage depth of 5 cm was considered for calculating the background concentration)
(** PECact values are related to the time after the first application)

RESULTS FOR: ASTCA

Calculations over one year

Maximum annual total soil concentration for ASTCA over 5 cm(mg/kg): 0.0017 occurring on day 26^
(^ This is 62.33 % of the theoretical maximum concentration of the metabolite)

Calculated time dependent total soil concentrations over 5 cm for ASTCA after one year (mg/kg)

Time(d)	PECact*	PECtwa	Begin TWAframe(d)	End TWAframe(d)
1	0.0017	0.0017	25	26
2	0.0017	0.0017	25	27
4	0.0017	0.0017	24	28
7	0.0017	0.0017	23	30
14	0.0016	0.0017	20	34
21	0.0016	0.0017	18	39
28	0.0016	0.0016	16	44
42	0.0015	0.0016	14	56
50	0.0015	0.0016	13	63
100	0.0013	0.0015	9	109

(* PECact values are related to the time after the maximum concentration)

Calculation of background concentrations after many years

Final Background concentration in total soil for ASTCA over 5 cm(mg/kg): 0.0010**

(** according to the estimation 100% of the final plateau was reached after 10 years without crop rotation)

Reduction factor to account for crop rotation: 1

Final Background concentration in total soil including crop rotation(mg/kg): 0.0010

Calculations of concentrations considering accumulation after many years of application

Maximum total soil concentration for ASTCA over 5 cm considering accumulation* (mg/kg) 0.0027
(* a tillage depth of 5 cm was considered for calculating the background concentration)

Calculated time dependent total soil concentrations over 5 cm for ASTCA(mg/kg) considering accumulation*

Time(d)	PECact**	PECtwa	Begin TWAframe(d)	End TWAframe(d)
1	0.0027	0.0027	25	26
2	0.0027	0.0027	25	27
4	0.0027	0.0027	24	28
7	0.0027	0.0027	23	30
14	0.0027	0.0027	20	34
21	0.0026	0.0027	18	39
28	0.0026	0.0027	16	44
42	0.0025	0.0027	14	56
50	0.0025	0.0026	13	63
100	0.0023	0.0026	9	109

(* a tillage depth of 5 cm was considered for calculating the background concentration)
(** PECact values are related to the time after the maximum concentration)'

RESULTS FOR: TSA

Calculations over one year

Maximum annual total soil concentration for TSA over 5 cm(mg/kg): 0.0004 occurring on day 309^
(^ This is 19.73 % of the theoretical maximum concentration of the metabolite)

Calculated time dependent total soil concentrations over 5 cm for TSA after one year (mg/kg)

Time(d)	PECact*	PECtwa	Begin TWAframe(d)	End TWAframe(d)
1	0.0004	0.0004	308	309
2	0.0004	0.0004	308	310
4	0.0004	0.0004	307	311
7	0.0004	0.0004	305	312
14	0.0004	0.0004	302	316
21	0.0004	0.0004	299	320
28	0.0004	0.0004	295	323
42	0.0004	0.0004	288	330
50	0.0004	0.0004	285	335
100	0.0004	0.0004	262	362

(* PECact values are related to the time after the maximum concentration)

Calculation of background concentrations after many years

Final Background concentration in total soil for TSA over 5 cm(mg/kg): 0.0006**

(** according to the estimation 100% of the final plateau was reached after 10 years without crop rotation)

Reduction factor to account for crop rotation: 1

Final Background concentration in total soil including crop rotation(mg/kg): 0.0006

Calculations of concentrations considering accumulation after many years of application

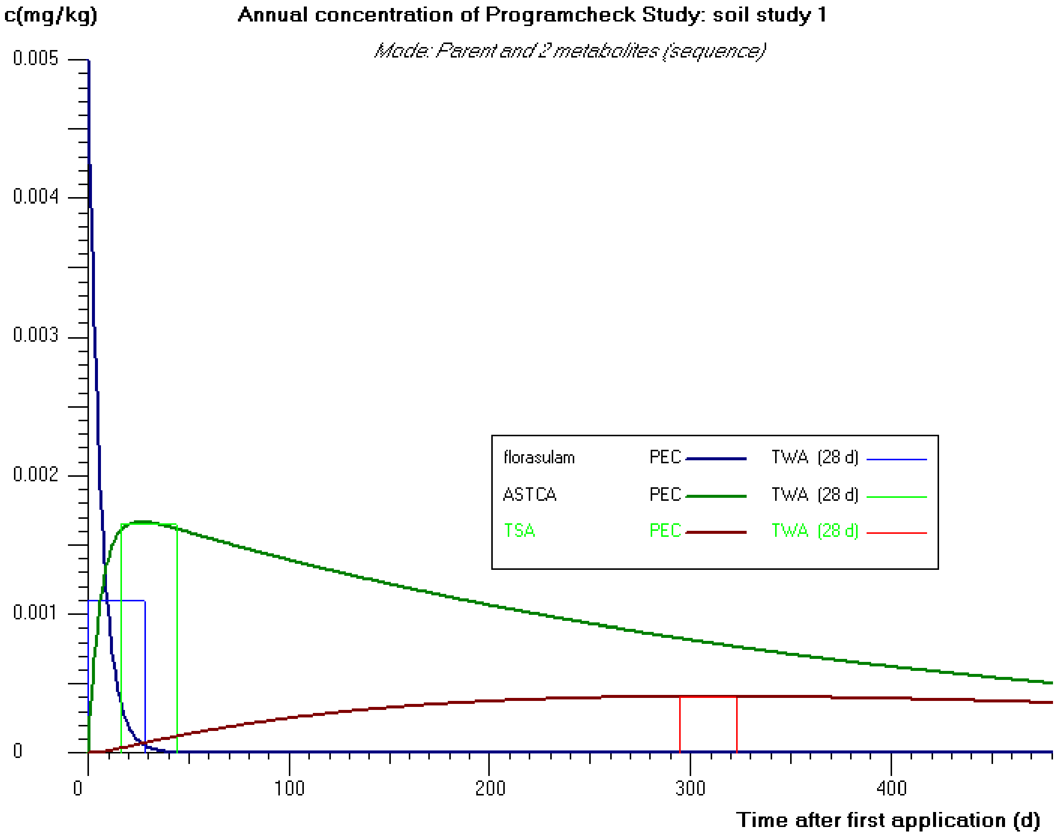
Maximum total soil concentration for TSA over 5 cm considering accumulation* (mg/kg) 0.0010
(* a tillage depth of 5 cm was considered for calculating the background concentration)

Calculated time dependent total soil concentrations over 5 cm for TSA(mg/kg) considering accumulation*

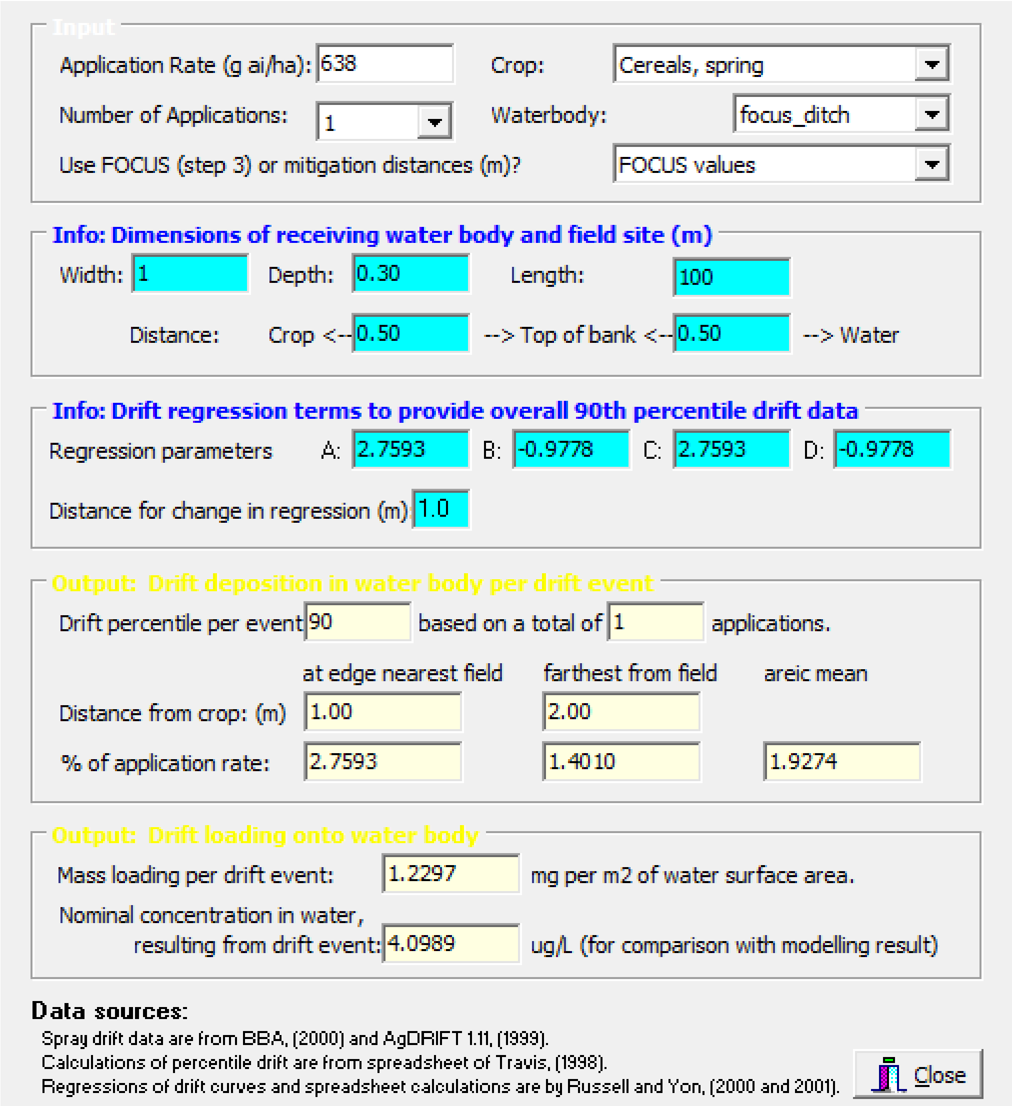
Time(d)	PECact**	PECtwa	Begin TWAframe(d)	End TWAframe(d)
1	0.0010	0.0010	308	309
2	0.0010	0.0010	308	310
4	0.0010	0.0010	307	311
7	0.0010	0.0010	305	312
14	0.0010	0.0010	302	316
21	0.0010	0.0010	299	320
28	0.0010	0.0010	295	323
42	0.0010	0.0010	288	330
50	0.0010	0.0010	285	335
100	0.0010	0.0010	262	362

(* a tillage depth of 5 cm was considered for calculating the background concentration)
(** PECact values are related to the time after the maximum concentration)'

GRAPHIC REPRESENTATION OF THE CALCULATION


c(mg/kg)
Annual concentration of Programcheck Study: soil study 1
Mode: Parent and 2 metabolites (sequence)
0.005
0.004
0.003
0.002
0.001
0
0
100
200
300
400
Time after first application (d)
florasulam PEC TWA (28 d)
ASTCA PEC TWA (28 d)
TSA PEC TWA (28 d)

KCP 9.2.5 – PECsw modelling by DriftCalculator



Input
Application Rate (g ai/ha): 638
Crop: Cereals, spring
Number of Applications: 1
Waterbody: focus_ditch
Use FOCUS (step 3) or mitigation distances (m)? FOCUS values

Info: Dimensions of receiving water body and field site (m)
Width: 1 Depth: 0.30 Length: 100
Distance: Crop <-- 0.50 --> Top of bank <-- 0.50 --> Water

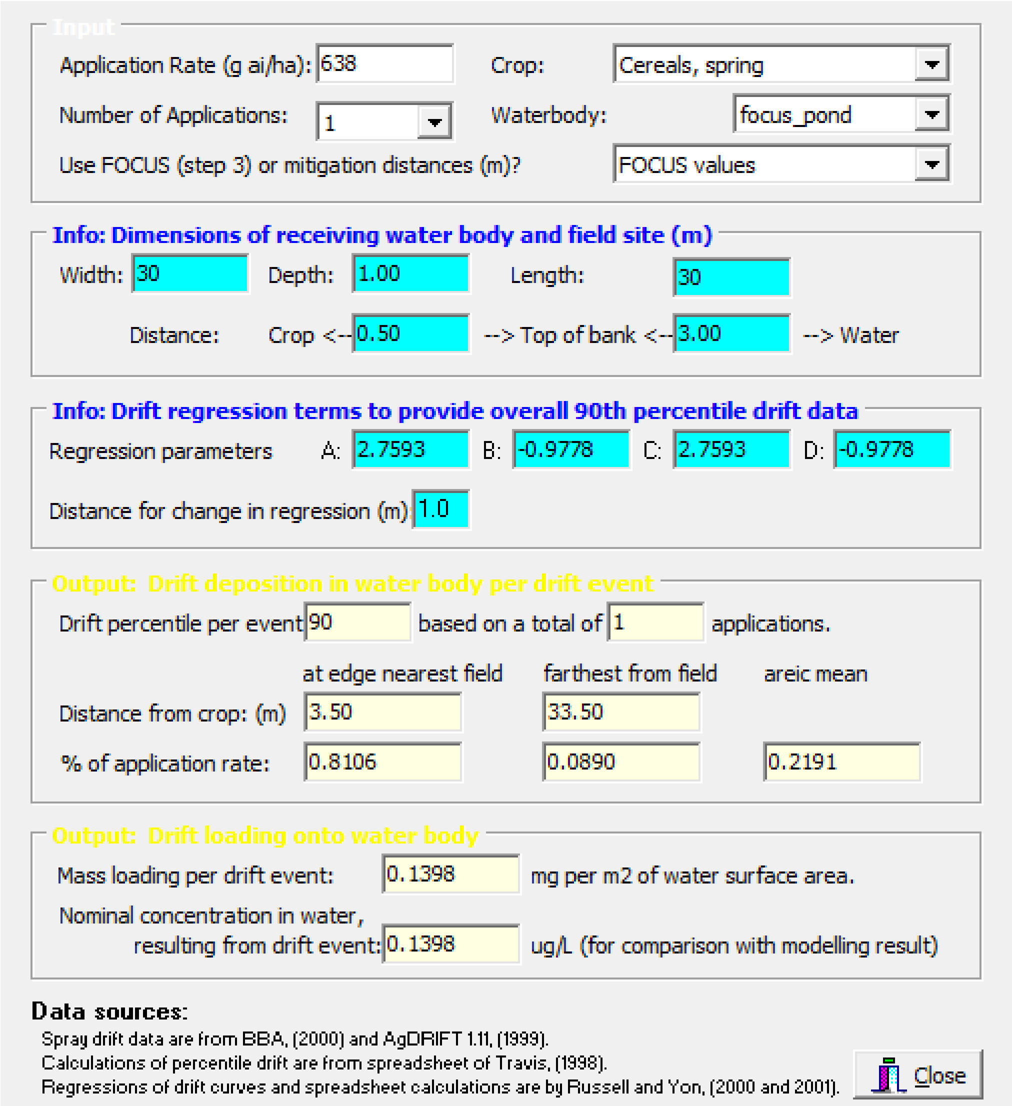
Info: Drift regression terms to provide overall 90th percentile drift data
Regression parameters A: 2.7593 B: -0.9778 C: 2.7593 D: -0.9778
Distance for change in regression (m) 1.0

Output: Drift deposition in water body per drift event
Drift percentile per event 90 based on a total of 1 applications.

	at edge nearest field	farthest from field	areic mean
Distance from crop: (m)	1.00	2.00	
% of application rate:	2.7593	1.4010	1.9274

Output: Drift loading onto water body
Mass loading per drift event: 1.2297 mg per m2 of water surface area.
Nominal concentration in water, resulting from drift event: 4.0989 ug/L (for comparison with modelling result)

Data sources:
Spray drift data are from BBA, (2000) and AgDRIFT 1.11, (1999).
Calculations of percentile drift are from spreadsheet of Travis, (1998).
Regressions of drift curves and spreadsheet calculations are by Russell and Yon, (2000 and 2001).
Close



Input

Application Rate (g ai/ha): 638 | Crop: Cereals, spring
Number of Applications: 1 | Waterbody: focus_pond
Use FOCUS (step 3) or mitigation distances (m)? FOCUS values

Info: Dimensions of receiving water body and field site (m)

Width: 30 | Depth: 1.00 | Length: 30
Distance: Crop <-- 0.50 --> Top of bank <-- 3.00 --> Water

Info: Drift regression terms to provide overall 90th percentile drift data

Regression parameters A: 2.7593 B: -0.9778 C: 2.7593 D: -0.9778
Distance for change in regression (m) 1.0

Output: Drift deposition in water body per drift event

Drift percentile per event 90 based on a total of 1 applications.

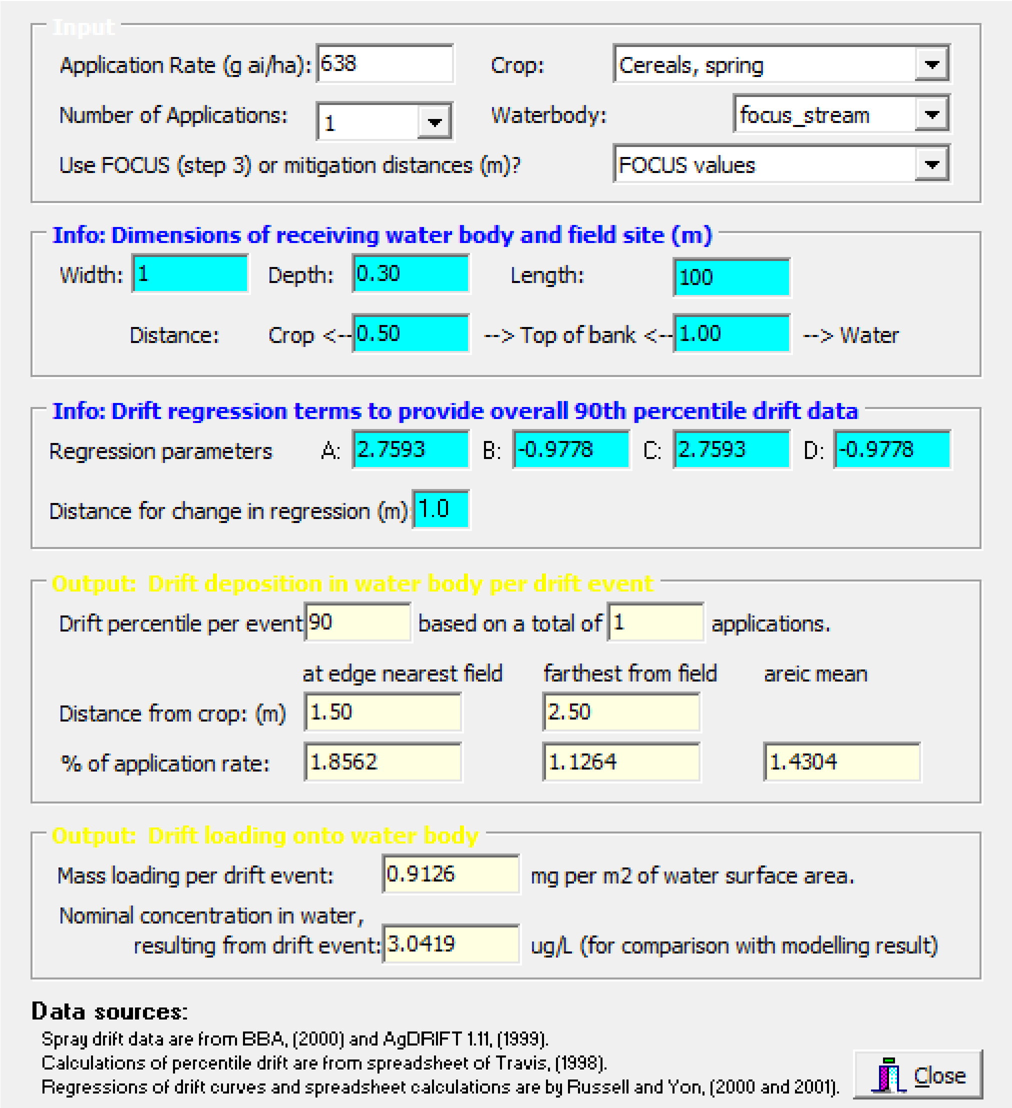
	at edge nearest field	farthest from field	areic mean
Distance from crop: (m)	3.50	33.50	
% of application rate:	0.8106	0.0890	0.2191

Output: Drift loading onto water body

Mass loading per drift event: 0.1398 mg per m2 of water surface area.
Nominal concentration in water, resulting from drift event: 0.1398 ug/L (for comparison with modelling result)

Data sources:
Spray drift data are from BBA, (2000) and AgDRIFT 1.11, (1999).
Calculations of percentile drift are from spreadsheet of Travis, (1998).
Regressions of drift curves and spreadsheet calculations are by Russell and Yon, (2000 and 2001).

Close



Input

Application Rate (g ai/ha): 638 | Crop: Cereals, spring

Number of Applications: 1 | Waterbody: focus_stream

Use FOCUS (step 3) or mitigation distances (m)? FOCUS values

Info: Dimensions of receiving water body and field site (m)

Width: 1 | Depth: 0.30 | Length: 100

Distance: Crop <-- 0.50 --> Top of bank <-- 1.00 --> Water

Info: Drift regression terms to provide overall 90th percentile drift data

Regression parameters A: 2.7593 B: -0.9778 C: 2.7593 D: -0.9778

Distance for change in regression (m) 1.0

Output: Drift deposition in water body per drift event

Drift percentile per event 90 based on a total of 1 applications.

	at edge nearest field	farthest from field	areic mean
Distance from crop: (m)	1.50	2.50	
% of application rate:	1.8562	1.1264	1.4304

Output: Drift loading onto water body

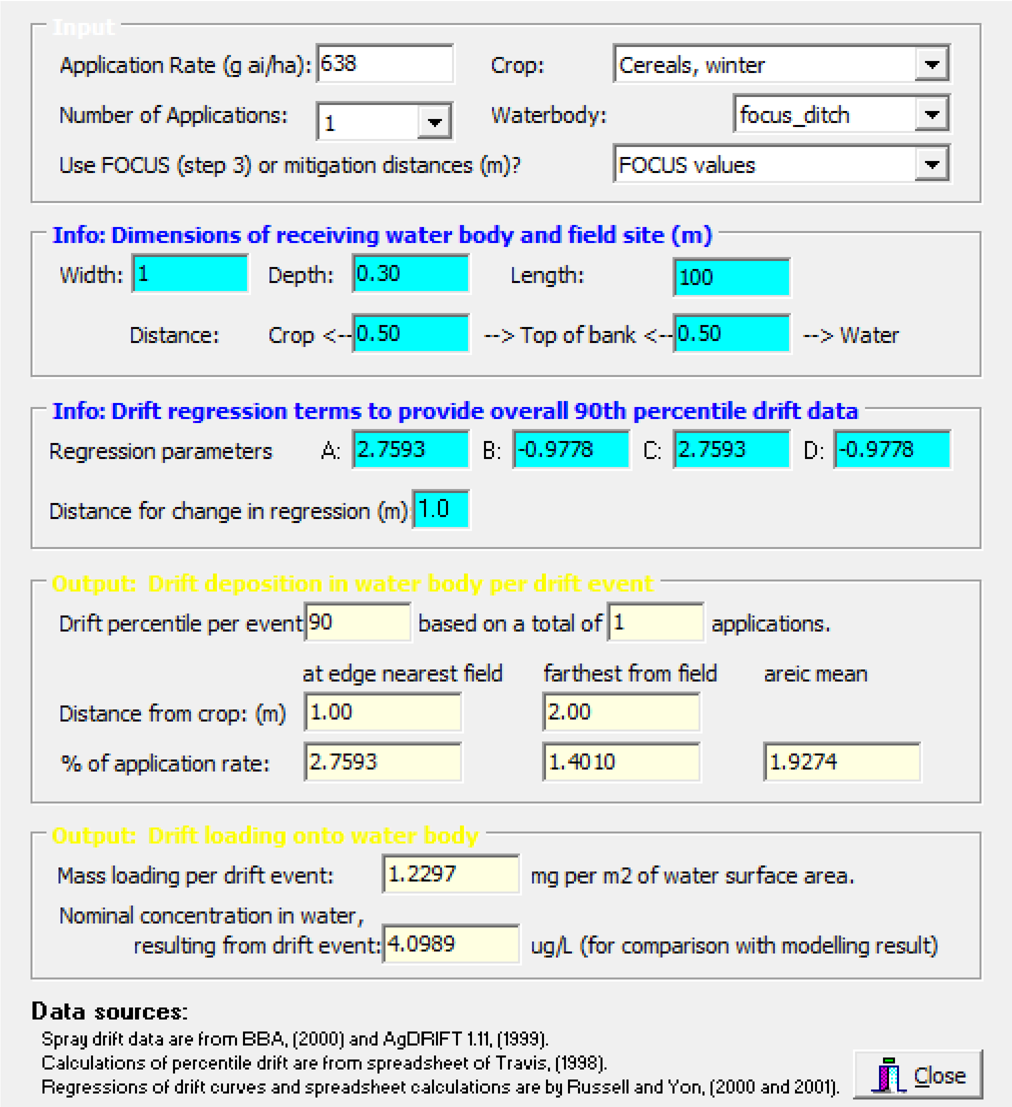
Mass loading per drift event: 0.9126 mg per m2 of water surface area.

Nominal concentration in water, resulting from drift event: 3.0419 ug/L (for comparison with modelling result)

Data sources:

Spray drift data are from BBA, (2000) and AgDRIFT 1.11, (1999).
Calculations of percentile drift are from spreadsheet of Travis, (1998).
Regressions of drift curves and spreadsheet calculations are by Russell and Yon, (2000 and 2001).

Close


Input

Application Rate (g ai/ha): 638 | Crop: Cereals, winter

Number of Applications: 1 | Waterbody: focus_ditch

Use FOCUS (step 3) or mitigation distances (m)? FOCUS values

Info: Dimensions of receiving water body and field site (m)

Width: 1 | Depth: 0.30 | Length: 100

Distance: Crop <-- 0.50 --> Top of bank <-- 0.50 --> Water

Info: Drift regression terms to provide overall 90th percentile drift data

Regression parameters A: 2.7593 B: -0.9778 C: 2.7593 D: -0.9778

Distance for change in regression (m) 1.0

Output: Drift deposition in water body per drift event

Drift percentile per event 90 based on a total of 1 applications.

	at edge nearest field	farthest from field	areic mean
Distance from crop: (m)	1.00	2.00	
% of application rate:	2.7593	1.4010	1.9274

Output: Drift loading onto water body

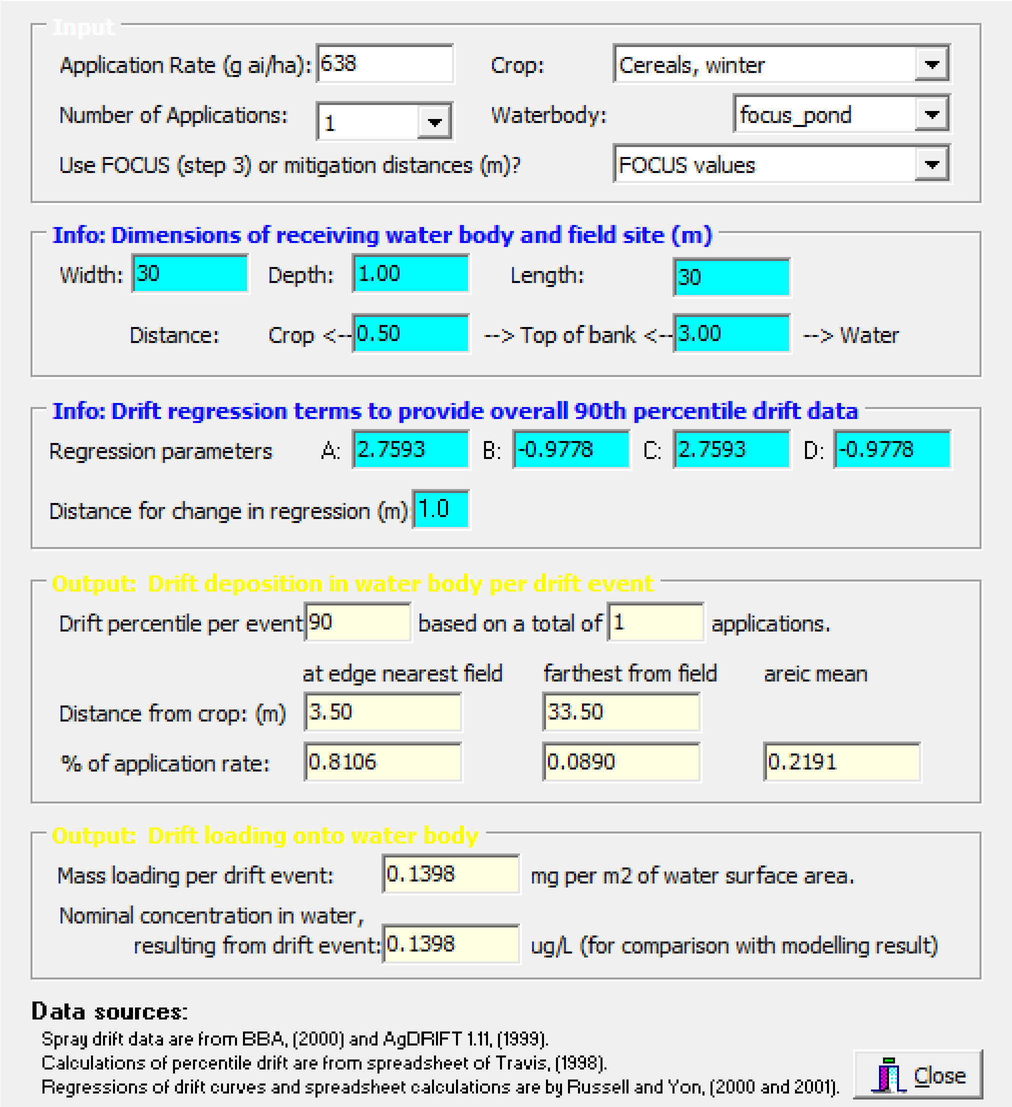
Mass loading per drift event: 1.2297 mg per m2 of water surface area.

Nominal concentration in water, resulting from drift event: 4.0989 ug/L (for comparison with modelling result)

Data sources:

Spray drift data are from BBA, (2000) and AgDRIFT 1.11, (1999).
Calculations of percentile drift are from spreadsheet of Travis, (1998).
Regressions of drift curves and spreadsheet calculations are by Russell and Yon, (2000 and 2001).

Close



Input

Application Rate (g ai/ha): 638 Crop: Cereals, winter

Number of Applications: 1 Waterbody: focus_pond

Use FOCUS (step 3) or mitigation distances (m)? FOCUS values

Info: Dimensions of receiving water body and field site (m)

Width: 30 Depth: 1.00 Length: 30

Distance: Crop <-- 0.50 --> Top of bank <-- 3.00 --> Water

Info: Drift regression terms to provide overall 90th percentile drift data

Regression parameters A: 2.7593 B: -0.9778 C: 2.7593 D: -0.9778

Distance for change in regression (m) 1.0

Output: Drift deposition in water body per drift event

Drift percentile per event 90 based on a total of 1 applications.

	at edge nearest field	farthest from field	areic mean
Distance from crop: (m)	3.50	33.50	
% of application rate:	0.8106	0.0890	0.2191

Output: Drift loading onto water body

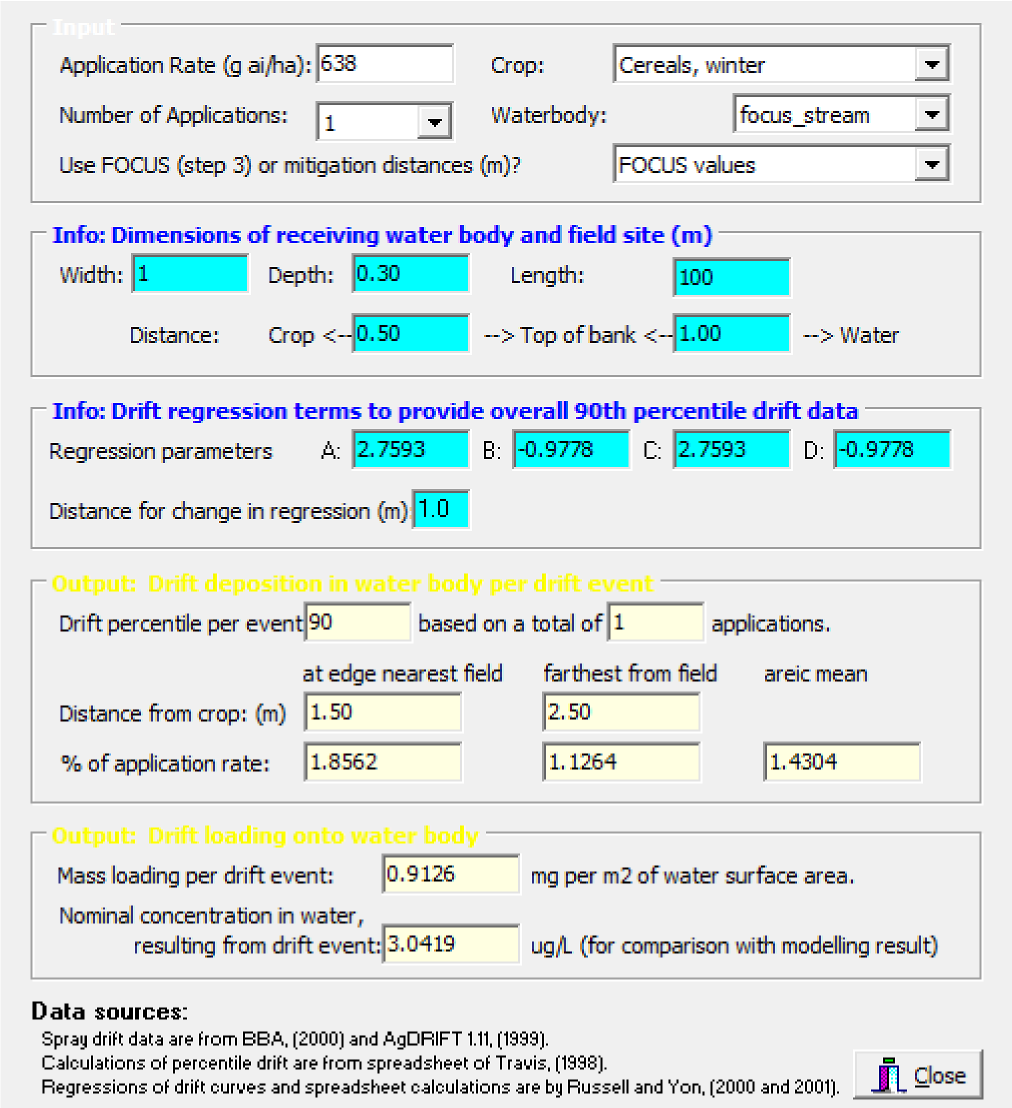
Mass loading per drift event: 0.1398 mg per m2 of water surface area.

Nominal concentration in water, resulting from drift event: 0.1398 ug/L (for comparison with modelling result)

Data sources:

Spray drift data are from BBA, (2000) and AgDRIFT 1.11, (1999).
Calculations of percentile drift are from spreadsheet of Travis, (1998).
Regressions of drift curves and spreadsheet calculations are by Russell and Yon, (2000 and 2001).

Close



Input

Application Rate (g ai/ha): 638 | Crop: Cereals, winter

Number of Applications: 1 | Waterbody: focus_stream

Use FOCUS (step 3) or mitigation distances (m)? FOCUS values

Info: Dimensions of receiving water body and field site (m)

Width: 1 | Depth: 0.30 | Length: 100

Distance: Crop <-- 0.50 --> Top of bank <-- 1.00 --> Water

Info: Drift regression terms to provide overall 90th percentile drift data

Regression parameters A: 2.7593 B: -0.9778 C: 2.7593 D: -0.9778

Distance for change in regression (m) 1.0

Output: Drift deposition in water body per drift event

Drift percentile per event 90 based on a total of 1 applications.

	at edge nearest field	farthest from field	areic mean
Distance from crop: (m)	1.50	2.50	
% of application rate:	1.8562	1.1264	1.4304

Output: Drift loading onto water body

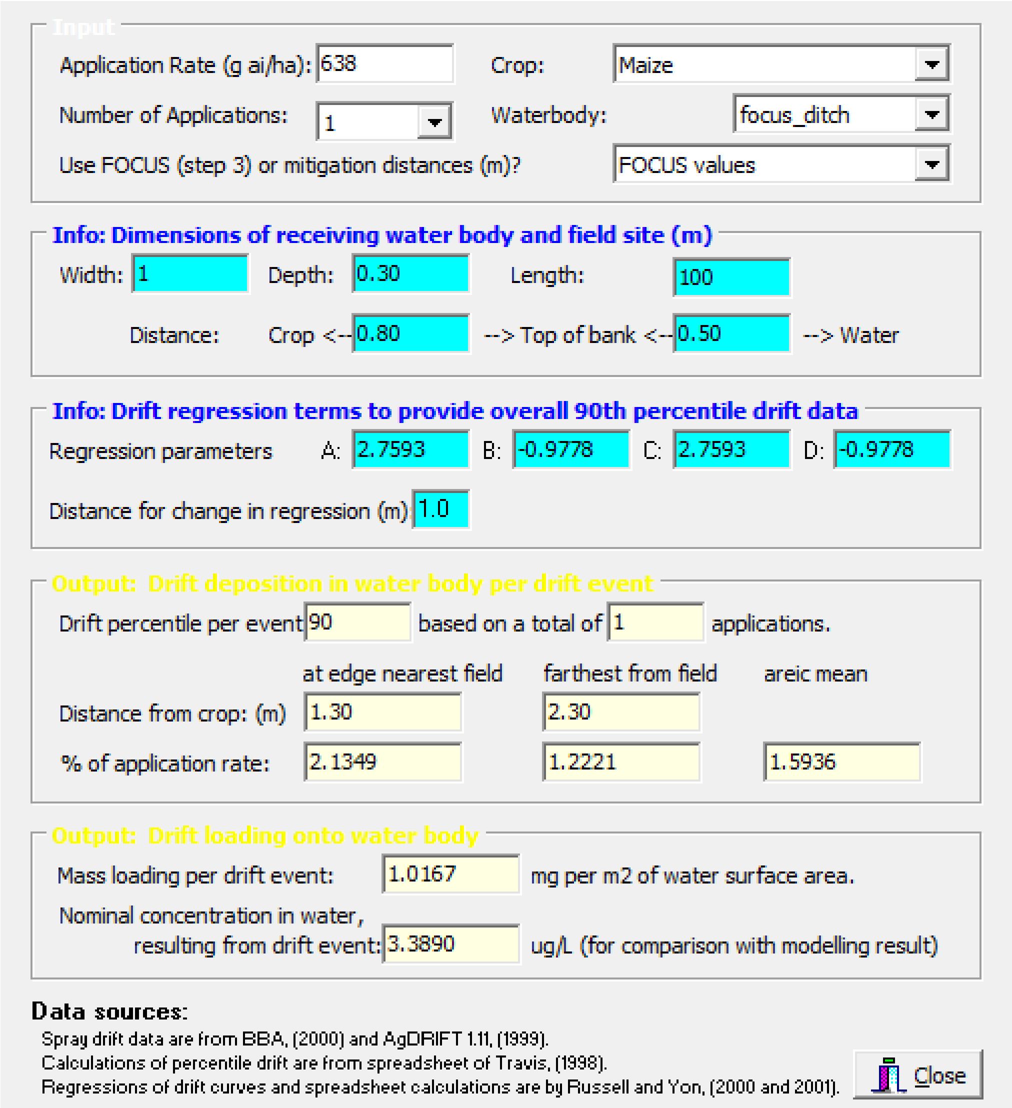
Mass loading per drift event: 0.9126 mg per m2 of water surface area.

Nominal concentration in water, resulting from drift event: 3.0419 ug/L (for comparison with modelling result)

Data sources:

Spray drift data are from BBA, (2000) and AgDRIFT 1.11, (1999).
Calculations of percentile drift are from spreadsheet of Travis, (1998).
Regressions of drift curves and spreadsheet calculations are by Russell and Yon, (2000 and 2001).

Close



Input

Application Rate (g ai/ha): 638
Crop: Maize
Number of Applications: 1
Waterbody: focus_ditch
Use FOCUS (step 3) or mitigation distances (m)? FOCUS values

Info: Dimensions of receiving water body and field site (m)

Width: 1 Depth: 0.30 Length: 100
Distance: Crop <-- 0.80 --> Top of bank <-- 0.50 --> Water

Info: Drift regression terms to provide overall 90th percentile drift data

Regression parameters A: 2.7593 B: -0.9778 C: 2.7593 D: -0.9778
Distance for change in regression (m) 1.0

Output: Drift deposition in water body per drift event

Drift percentile per event 90 based on a total of 1 applications.

	at edge nearest field	farthest from field	areic mean
Distance from crop: (m)	1.30	2.30	
% of application rate:	2.1349	1.2221	1.5936

Output: Drift loading onto water body

Mass loading per drift event: 1.0167 mg per m2 of water surface area.
Nominal concentration in water, resulting from drift event: 3.3890 ug/L (for comparison with modelling result)

Data sources:
Spray drift data are from BBA, (2000) and AgDRIFT 1.11, (1999).
Calculations of percentile drift are from spreadsheet of Travis, (1998).
Regressions of drift curves and spreadsheet calculations are by Russell and Yon, (2000 and 2001).

Close

Input

Application Rate (g ai/ha):	638	Crop:	Maize
Number of Applications:	1	Waterbody:	focus_pond
Use FOCUS (step 3) or mitigation distances (m)?			FOCUS values

Info: Dimensions of receiving water body and field site (m)

Width: 30 Depth: 1.00 Length: 30

Distance: Crop <-- 0.80 --> Top of bank <-- 3.00 --> Water

Info: Drift regression terms to provide overall 90th percentile drift data

Regression parameters A: 2.7593 B: -0.9778 C: 2.7593 D: -0.9778

Distance for change in regression (m) 1.0

Output: Drift deposition in water body per drift event

Drift percentile per event 90 based on a total of 1 applications.

	at edge nearest field	farthest from field	areic mean
Distance from crop: (m)	3.80	33.80	
% of application rate:	0.7480	0.0883	0.2122

Output: Drift loading onto water body

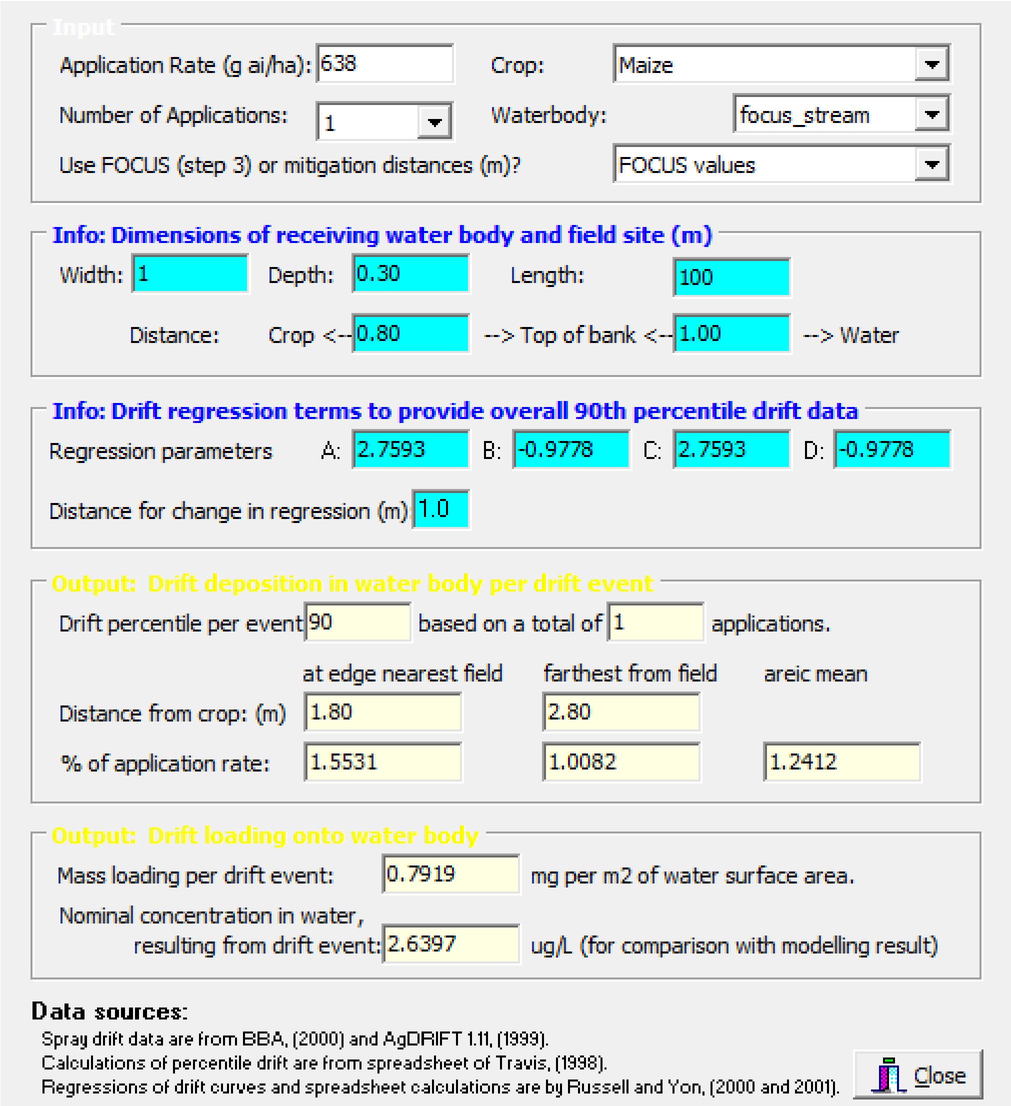
Mass loading per drift event: 0.1354 mg per m2 of water surface area.

Nominal concentration in water, resulting from drift event: 0.1354 ug/L (for comparison with modelling result)

Data sources:

Spray drift data are from BBA, (2000) and AgDRIFT 1.11, (1999).
Calculations of percentile drift are from spreadsheet of Travis, (1998).
Regressions of drift curves and spreadsheet calculations are by Russell and Yon, (2000 and 2001).

Close



Input

Application Rate (g ai/ha): 638
Crop: Maize
Number of Applications: 1
Waterbody: focus_stream
Use FOCUS (step 3) or mitigation distances (m)? FOCUS values

Info: Dimensions of receiving water body and field site (m)

Width: 1 Depth: 0.30 Length: 100

Distance: Crop <-- 0.80 --> Top of bank <-- 1.00 --> Water

Info: Drift regression terms to provide overall 90th percentile drift data

Regression parameters A: 2.7593 B: -0.9778 C: 2.7593 D: -0.9778

Distance for change in regression (m) 1.0

Output: Drift deposition in water body per drift event

Drift percentile per event 90 based on a total of 1 applications.

	at edge nearest field	farthest from field	areic mean
Distance from crop: (m)	1.80	2.80	
% of application rate:	1.5531	1.0082	1.2412

Output: Drift loading onto water body

Mass loading per drift event: 0.7919 mg per m2 of water surface area.

Nominal concentration in water, resulting from drift event: 2.6397 ug/L (for comparison with modelling result)

Data sources:

Spray drift data are from BBA, (2000) and AgDRIFT 1.11, (1999).
Calculations of percentile drift are from spreadsheet of Travis, (1998).
Regressions of drift curves and spreadsheet calculations are by Russell and Yon, (2000 and 2001).

Close