FINAL REGISTRATION REPORT

Part B

Section 8

Environmental Fate

Detailed summary of the risk assessment

Product code: GLOB2007bF

Product name: Observer Pro

Chemical active substances:

Zoxamide, 67.5 g/L
Propamocarb-HCl, 450 g/L

Central Zone

Zonal Rapporteur Member State: Poland

CORE ASSESSMENT

Applicant: Globachem NV

Submission date: November 2023

Update: July 2023

MS Finalisation date: 31/10/2024

Version history

When	What
November 2023	Initial dossier submission by applicant for approval of new product
March 2024	Dossier sent for evaluation
July 2024	Applicant revision 01 to address zRMS initial comments
July 2024	zRMS finalised evaluation
October 2024	zRMS finalised evaluation after commenting period

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zRMS comments:
The text highlighted in grey was provided by the evaluator.

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	CZ, HU, IE, PL, RO, SK	Potato	F	PHYTIN	Downwards spraying	BBCH 21-79	a) 3 b) 3	7	a) 2 b) 2	a) 135 Zoxamide + 900 Propamocarb-HCl b) 405 Zoxamide + 2700 Propamocarb-HCl	150-300	7	/	

* 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 zoxamide 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	NEU, CEU, SEU	Potato	F	potato late blight *Phytophtora infestans*	broadcast with spray boom	BBCH 20-80	a) 5 b) 5	8	a) 0.75 b) 3.75	a) 0.180 b) 0.900	1000	7	-

* 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

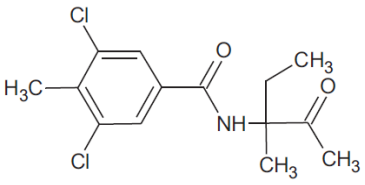
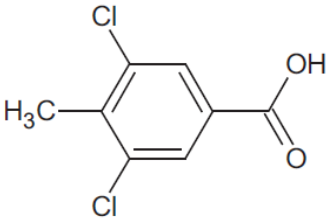
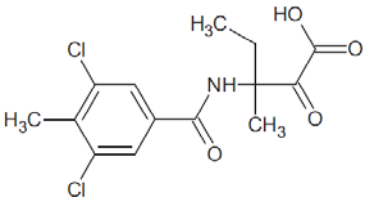
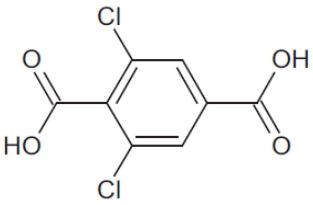
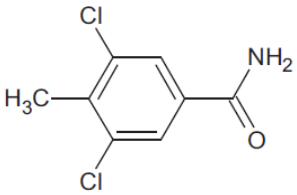
Table 8.1-3: Assessed (critical) uses during approval of propamocarb-HCl concerning the Section Environmental Fate

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	N & S	Potatoes	F	Mildew: *Phytophtora infestans*	Foliar spray	As 1st symptoms occur	6 max	Repeat each 7 days	a) 1.5 L/ha b) 9 L/ha	a) 1.083 b) 6.498	500	14	Proplant

* 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

8.2 Metabolites considered in the assessment

Table 8.2-1: Metabolites of zoxamide potentially relevant for exposure assessment

Metabolite	Molar mass	Chemical structure	Maximum observed occurence in compartements	Exposue assessment required due to
RH-127450	302.15		Soil: 15.1% Water/Sediment: 39.3%	PEC_{gw}: leaching potential to groundwater PEC_{soil}: risk for soil organisms $PEC_{sw/sed}$: risk for aquatic organisms
RH-24549	205		Soil: 33.8% Water/Sediment: 5%	PEC_{gw}: leaching potential to groundwater PEC_{soil}: risk for soil organisms $PEC_{sw/sed}$: risk for aquatic organisms
RH-163353	332.15		Soil: 15% Water/Sediment: 20.6%	PEC_{gw}: leaching potential to groundwater PEC_{soil}: risk for soil organisms $PEC_{sw/sed}$: risk for aquatic organisms
RH-141455	235.02		Soil: 8.4% Water/Sediment: 2.1%	PEC_{gw}: leaching potential to groundwater PEC_{soil}: risk for soil organisms $PEC_{sw/sed}$: risk for aquatic organisms
RH-139432	204.06		Soil: 4.9% Water/Sediment: 42.4%	$PEC_{sw/sed}$: risk for aquatic organisms

In accordance with ***EFSA Scientific Report*** **(2006) 78, 1-80, Conclusion on the peer review of propamocarb** no metabolites or degradation products were observed to form at levels greater than 10%, with the exception of CO2 (accounting for 56-66.2% AR after 120 days).

8.3 Rate of degradation in soil (KCP 9.1.1)

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

8.3.1 Aerobic degradation in soil (KCP 9.1.1.1)

8.3.1.1 Zoxamide and its metabolites

The rate of degradation in soil of zoxamide and its metabolites was evaluated during the Annex I Renewal. No additional studies have been performed.

The fate and behaviour of zoxamide and its metabolites in soil is discussed in detail in the corresponding document of the EU review dossier where the study references can be found (EFSA Journal 2017;15(9):4980).

The geometric mean DT_{50} value of laboratory aerobic topsoil values normalized to 20°C and pF2 moisture content is:
Zoxamide: 5.5 days (n= 8 values).
RH-127450: 5.2 days (n= 7 values).
RH-24549: 5.4 days (n= 5 values).
RH-163353: 10.8 days (n= 6 values).
RH-141455: 19.6 days (n= 4 values).

Table 8.3-1: Summary of aerobic degradation rates for zoxamide - laboratory studies

Soil	DT_{50} (days)	DT_{90} (days)	Temp	Model	Kinetic parameters	χ^2 error (%)	T-Corr.	Moist Corr.	DT_{50} normalised to 20°C & pF2
England silt loam 20°C 50%MWHC	3.9	13	20˚C	SFO	k: 0.1779	5.68	1.00	0.84	3.28
France loam 20°C 50%MWHC	1.99	6.62	20˚C	SFO	k: 0.3479	7.02	1.00	0.94	1.87
Italy clay loam 20°C 50%MWHC	2.37	7.87	20˚C	SFO	k: 0.2927	6.06	1.00	0.83	1.97
Germany sandy loam 20°C 50%MWHC	2.71	9.01	20˚C	SFO	k: 0.2556	4.65	1.00	0.99	2.68[1]
Germany sandy loam 20°C 100%FC	2.22	7.38	20˚C	SFO	k: 0.3119	6.72	1.00	1.00	2.22
Germany sandy loam 10°C 50%MWHC	7.29	24.2	10˚C	SFO	k: 0.0951	6.78	0.39	0.99	2.81[1]
Pennsylvania silt loam	7.75	98.1	25˚C	DFOP (persistence)	k1:0.635				

25°C 75%FC	29.5[2]	-		DFOP (modelling)	k2:0.01774 g:0.4299	9.2	1.57	0.74	34.27
Ohio loamy sand 25°C 75%FC	13.6	115	25˚C	DFOP (persistence)	k1:0.1581 k2:0.01477 g:0.4531				
	28.4	-		SFO (modelling)		13.5	1.57	0.71	31.66
Geometric mean									**5.5**

Table 8.3-2: Summary of aerobic degradation rates for RH-127450 - laboratory studies

Soil	**DT_{50} (days)**	**Temp**	**Model**	**χ^2 error (%)**	**T-Corr.**	**Moist Corr.**	**DT_{50} normalised to 20°C & pF2**	**FF***
England silt loam 20°C 50%MWHC	14.9	20˚C	SFO-SFO	9.61	1.00	0.84	12.52	0.22
France loam 20°C 50%MWHC	3.8	20˚C	SFO-SFO	8.63	1.00	0.94	3.57	0.21
Italy clay loam 20°C 50%MWHC	1.99	20˚C	SFO-SFO	20.1	1.00	0.83	1.65	0.21
Germany sandy loam 20°C 50%MWHC	6.66	20˚C	SFO-SFO	19.3	1.00	0.99	6.59[1]	0.18[1]
Germany sandy loam 20°C 100%FC	5.79	20˚C	SFO-SFO	23.9	1.00	1.00	5.79	0.19
Germany sandy loam 10°C 50%MWHC	18.7	10˚C	SFO-SFO	16.9	0.39	0.99	7.22[1]	0.17[1]
Ohio loam sand 25°C 75%FC	8.27	25°C	SFO-SFO	17.7	1.57	0.71	9.22	0.38
Geometric mean							**5.2**	**-**
Arithmetic mean							**-**	**0.24**

* formation fraction from zoxamide;
[1] values which were not used for calculation of geometric/arithmetic mean values

Table 8.3-3: Summary of aerobic degradation rates for RH-24549 - laboratory studies

Soil	**DT_{50} (days)**	**Temp**	**Model**	**χ^2 error (%)**	**T-Corr.**	**Moist Corr.**	**DT_{50} normalised to 20°C & pF2**	**FF***
France loam 20°C 50%MWHC	6.32	20˚C	SFO-SFO	23.2	1.00	0.94	5.94	0.19
Italy clay loam 20°C 50%MWHC	8.45	20˚C	SFO-SFO	24.2	1.00	0.83	7.01	0.47
Germany sandy loam 20°C 50%MWHC	5.78	20˚C	SFO-SFO	30.7	1.00	0.99	5.72[1]	0.17[1]
Germany sandy loam 20°C 100%FC	3.07	20˚C	SFO-SFO	16	1.00	1.00	3.07	0.27
Ohio loamy sand 25°C 75%FC	6.13	25˚C	SFO-SFO	16.1	1.57	0.71	6.83	0.57

Geometric mean		**5.4**	**-**
Arithmetic mean		**-**	**0.38**

* formation fraction from zoxamide;
[1] values which were not used for calculation of geometric/arithmetic mean values

Table 8.3-4: Summary of aerobic degradation rates for RH-163353 - laboratory studies

Soil	**DT_{50} (days)**	**Temp**	**Model**	**χ^2 error (%)**	**T-Corr.**	**Moist Corr.**	**DT_{50} normalised to 20°C & pF2**	**FF***
England silt loam 20°C 50%MWHC	49.7	20˚C	SFO-SFO	7.38	1.00	0.84	41.75	0.10
France loam 20°C 50%MWHC	6.65	20˚C	SFO-SFO	25.2	1.00	0.94	6.25	0.20
Italy clay loam 20°C 50%MWHC	6.4	20˚C	SFO-SFO	7.2	1.00	0.83	5.31	0.23
Germany sandy loam 20°C 50%MWHC	5.62	20˚C	SFO-SFO	17.2	1.00	0.99	5.56[1]	0.29[1]
Germany sandy loam 20°C 100%FC	9.96	20˚C	SFO-SFO	13.8	1.00	1.00	9.96	0.18
Germany sandy loam 10°C 50%MWHC	55.6	10˚C	SFO-SFO	17.5	0.39	0.99	21.47[1]	0.15[1]
Geometric mean							**10.8**	**-**
Arithmetic mean							**-**	**0.18**

* formation fraction from zoxamide;
[1] values which were not used for calculation of geometric/arithmetic mean values

Table 8.3-5: Summary of aerobic degradation rates for RH-141455 - laboratory studies

Soil	**DT_{50} (days)**	**Temp**	**Model**	**χ^2 error (%)**	**T-Corr**	**Moist Corr**	**DT_{50} normalised to 20°C & pF2**	**FF**
Germany sandy loam 20°C 50%MWHC	88.5	20˚C	SFO-SFO	18.2	1.00	0.99	87.62	1[1] (default)
Speyer 2.2	12	20˚C	SFO	6.95	1.00	1.00	12.00	-[2]
Speyer 2.3	11.1	20˚C	SFO	5.77	1.00	0.86	9.54	-[2]
Speyer 6S	31.7	20˚C	SFO	6.8	1.00	0.46	14.72	-[2]
Geometric mean							**19.6**	**-**

[1] from RH-24549 [2] study conducted with metabolite (RH-141455)

For the full datasets, reference is made to the final RAR of zoxamide, Vol. 3 CA B8.

8.3.1.2 Propamocarb-HCl

The rate of degradation in soil of propamocarb-HCl was evaluated during the Annex I Inclusion. No additional studies have been performed.

The fate and behaviour of propamocarb-HCl in soil is discussed in detail in the corresponding document of the EU review dossier where the study references can be found (EFSA, 2006).

The geometric mean DT_{50} value of laboratory aerobic topsoil values normalized to 20°C and pF2 moisture content is 13.91 days (n= 17 values).

For the full datasets, reference is made to the DAR of propamocarb-HCl, Vol. 3 B8.

8.3.2 Anaerobic degradation in soil (KCP 9.1.1.1)

Studies on anaerobic degradation in soil with the formulation were not performed since it is possible to extrapolate from data obtained for the active substances.
The fate and behaviour of zoxamide and its metabolites in soil is discussed in detail in the corresponding document of the EU renewal dossier where the study references can be found. Reference is made to the EFSA Journal 2017;15(9):4980 and the final RAR of zoxamide.
The fate and behaviour of propamocarb-HCl in soil is discussed in detail in the corresponding document of the EU review dossier where the study references can be found. Reference is made to the EFSA peer review (2006) and the DAR of propamocarb-HCl.

8.4 Field studies (KCP 9.1.1.2)

The rate of degradation in soil of zoxamide and its metabolites in field studies was evaluated during the Annex I Renewal of zoxamide. Reference is made to the Reference is made to the EFSA Journal 2017;15(9):4980 and the final RAR of zoxamide.
The rate of degradation in soil of propamocarb-HCl in field studies was evaluated during the Annex I Inclusion of propamocarb-HCl. Reference is made to the EFSA peer review (2006) and the DAR of propamocarb-HCl.

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

Studies on field dissipation rates with the formulation were not performed since it is possible to extrapolate from data obtained with the active substances. Reference is made to the EFSA Journal 2017;15(9):4980 and the final RAR of zoxamide and the EFSA peer review (2006) and the DAR of propamocarb-HCl.

8.4.2 Soil accumulation testing (KCP 9.1.1.2.2)

Soil accumulation tests were not performed since based on the ready decline of the active substances observed in the field dissipation trials, zoxamide and propamocarb HCl are not expected to accumulate in soil following normal agricultural use.

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 Zoxamide and its metabolites

Table 8.5-1: Summary of soil adsorption/desorption for zoxamide

Zoxamide							
Soil name	**Soil type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
Huntsburg, Ohio, USA	Loam	1.27	7.2	10.35	815	0.896	Y/ EFSA Journal 2017;15(9):4980
Concord, Ohio, USA	Silty clay loam	1.77	4.8	25.33	1431	0.963	Y/ EFSA Journal 2017;15(9):4980
Madison, Ohio, USA	Sandy loam	1.1	6.7	15.23	1385	0.953	Y/ EFSA Journal 2017;15(9):4980
Newtown, Pennsylvania, USA	Silty loam	1.04	6.8	12.44	1196	1.067	Y/ EFSA Journal 2017;15(9):4980
Mean / Geometric mean					1207/1179	0.970	

Table 8.5-2: Summary of soil adsorption/desorption for RH-127450

RH-127450							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
Borstel/Germany	Loamy sand	1.05	6.1	12.14	1156	-	Y/ EFSA Journal 2017;15(9):4980
Egerkingen/ Switzerland	Clay	2.82	5.0	11.4	404	0.603	Y/ EFSA Journal 2017;15(9):4980
Vetroz/Switzerland	Silt loam	4.05	7.3	18.12	447	0.448	Y/ EFSA Journal 2017;15(9):4980
Mean / Geometric mean					669/593	0.9*	

* no reliable mean value of 1/n could be achieved therefore a value of 0.9 is considered appropriate for the modelling

Table 8.5-3: Summary of soil adsorption/desorption for RH-24549

RH-24549							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
Iowa/USA	Sandy loam	1.3	5.2	4.0	307.43	0.791	Y/ EFSA Journal 2017;15(9):4980
Illinois/USA	Silty clay loam	2.4	7.3	3.6	150.16	0.833	Y/ EFSA Journal 2017;15(9):4980
Ohio/USA	Silt loam	2.0	7.6	1.8	90.55**	0.811	Y/ EFSA Journal 2017;15(9):4980
Mean / Geometric mean					-*	-*	

*adsorption of RH-24549 is pH dependent **the worst case Kfoc is considered appropriate for modelling

Table 8.5-4: Summary of soil adsorption/desorption for RH-163353

RH-163353							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
Borstel/Germany	Loamy sand	1.22	6.1	0.6	50*	1.0*	Y/ EFSA Journal 2017;15(9):4980
Egerkingen/ Switzerland	Clay	3.17	5.4	2.4	75	0.833	Y/ EFSA Journal 2017;15(9):4980
Vetroz/Switzerland	Silt loam	4.79	7.2	3.8	79	0.844	Y/ EFSA Journal 2017;15(9):4980
Mean / Geometric mean					68/67	0.892	

*Koc derived from a K_d from the screening study therefore a default 1/n value of 1.0 is assumed

Table 8.5-5: Summary of soil adsorption/desorption for RH-141455

RH-141455							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kd (mL/g)**	**Koc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
Speyer 2.2	loamy sand	1.87	5.5	0.06	3.1*	1.0*	Y/ EFSA Journal 2017;15(9):4980
Speyer 2.3	sandy loam	0.94	6.8	0.03	3.3*	1.0*	Y/ EFSA Journal

RH-141455							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kd (mL/g)**	**Koc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
							2017;15(9):4980
Speyer 6S	clay	1.64	7.1	0.03	2.1*	1.0*	Y/ EFSA Journal 2017;15(9):4980
				Mean / Geometric mean	2.8/2.8	1.0	

*Koc derived from a Kd from the screening study therefore a default 1/n value of 1.0 is assumed

8.5.2 Propamocarb-HCl and its metabolites

Table 8.5-6: Summary of soil adsorption/desorption for propamocarb-HCl

propamocarb-HCl							
Soil name	**Soil type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
Minnesota	Clay loam	3.15	5.80	77.2	2451	0.77	Y/ EFSA Scientific Report (2006) 78, 1-80
Sarotti	Loamy silt	1.30	7.38	2.63	202	0.90	Y/ EFSA Scientific Report (2006) 78, 1-80
Abington	Loamy sand	1.86	7.4	2.49	134	0.90	Y/ EFSA Scientific Report (2006) 78, 1-80
Borstel	Silty sand	1.04	5.81	1.29	124	0.84	Y/ EFSA Scientific Report (2006) 78, 1-80
Ptungstadt	Loamy clay	1.57	6.4	9.70	618	0.87	Y/ EFSA Scientific Report (2006) 78, 1-80
German 2.1	Sand	0.48	6.0	0.671	140	0.926	Y/ EFSA Scientific Report (2006) 78, 1-80
German 2.2	Loamy sand	2.06	6.0	0.849	41	0.910	Y/ EFSA Scientific Report (2006) 78, 1-80

propamocarb-HCl							
Soil name	**Soil type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
Schering 170	Sandy loam	1.45	5.2	5.200	359	0.822	Y/ EFSA Scientific Report (2006) 78, 1-80
Speyer 2.2	Loamy sand	2.26	6.1	1.28	56.63	0.925	Y/ EFSA Scientific Report (2006) 78, 1-80
Cranfield 249	Sandy clay loam	3.48	6.5	6.26	179.88	0.854	Y/ EFSA Scientific Report (2006) 78, 1-80
Midwest 1	Sandy loam	1.05	5.7	13.82	1321.22	0.827	Y/ EFSA Scientific Report (2006) 78, 1-80
Midwest 2	Loamy sand	0.58	5.9	4.64	800	0.862	Y/ EFSA Scientific Report (2006) 78, 1-80
Geometric mean (n=12)					**263.649**		
Arithmetic mean (n=12)						**0.867**	
pH-dependency					No		

8.5.3 Column leaching (KCP 9.1.2.1)

Zoxamide:
A 3-day aged column leaching study, performed in one sandy loam soil with 59.1% sand content and relatively low %oc content (pH 7.4, 1.2 %oc) showed 68.6-74.4 %AR in the top 0-5 cm layer and only 1.8-2.3 %AR in the leachate. Zoxamide and major metabolite RH-127450 were only detectable in the 0-5 and 0-10 cm layers respectively. Results indicate a slightly greater potential for leaching of metabolites RH-24549 and RH-163353, however levels were <10% AR in the 0-5 cm layer and non-detectable in the 20-30cm layers.
Due to the short half lives of zoxamide and major soil metabolites RH-24549, RH-127450 and RH-163353, and the low to moderate mobility through soil, it is considered highly unlikely that these compounds will leach to groundwater.

The mobility of propamocarb hydrochloride was further investigated in soil column leaching studies. The comparative leaching of [$_{14}$C]-propamocarb hydrochloride in acidic (pH 5.6) and alkali (pH 8.1) soils was investigated in two loamy sand soils. Results indicated that whilst the active ingredient is slightly more mobile in alkali soils (more than 80% AR remaining in the top 15 cm of the soil column and less than 0.3%

AR in the leachate) than in acidic soils (more than 90% AR remaining in the top 5 cm of the soil column and less than 0.05% AR in the leachate), it is not readily leached in either soil type.
Aged (23 and 12 days) residues of [$_{14}$C]-propamocarb were relatively immobile (< 1% AR in leachates) in 30-cm columns of two sandy loam soils. Most of the soil associated activity (27.9 to 44.5% AR) was recovered in the top 6 cm of the column. Some downward movement of activity was observed down to 18 cm in both soils (< 6.1%AR and <10.9% AR in the section 12-18 cm of the column).

8.5.4 Lysimeter studies (KCP 9.1.2.2)

Lysimeter studies were not required neither for zoxamide (EFSA Journal 2017;15(9):4980) nor for propamocarb-HCl (EFSA Scientific Report (2006) 78, 1-80).

8.5.5 Field leaching studies (KCP 9.1.2.3)

Field leaching studies were not required neither for zoxamide (EFSA Journal 2017;15(9):4980) nor for propamocarb-HCl (EFSA Scientific Report (2006) 78, 1-80).

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 substances.

The rate of degradation in water/sediment of zoxamide and its metabolites was evaluated during the Annex I Inclusion. No additional studies have been performed.
The first order DT_{50} values of in the water phase and in the whole system were calculated to be (geometric mean of 2 values):
Zoxamide: $DT_{50whole\_system}$ = 6.4 days.
RH-127450: $DT_{50whole\_system}$ = 237 days.

Parent	Max in sediment 30.2% AR at day 7 (pond, 10°C). At 20°C max in sediment 23.1% AR at day 7 (pond).									
Water / sediment system	pH water phase	pH sed	T. °C	DT_{50}-DT_{90} whole sys.	x^2 err	DT_{50}-DT_{90} water	x^2 err	DT_{50}-DT_{90} sed	x^2 err	Method of calculation
River	8.39	7.4	20	6.4/21.1	5.921	FOCUS P-II calculations not performed				FOCUS SFO
Pond	8.09	7.0	20	6.3/20.9	6.044					FOCUS SFO
River	8.34	7.4	10	10.4/34.7	2.59					FOCUS SFO
Pond	8.12	7.0	10	19.4/64.6	3.424					FOCUS SFO

Mean (of 20°C systems)	6.4/-	

RH-127450	Max in water 17.1% AR at day 28 (river, 10°C), max in sediment 23.1 % AR at day 56 (river, 10°C) and max in total system 39.3% AR at day 56 (river, 10°C). At 20°C max in water 12.8% AR at day 14 (river), max in sediment 22.1% AR at day 56 (pond) and max in total system 30.0% AR at day 28 (river).									
Water / sediment system	pH water phase	pH sed	T. °C	DT_{50}-DT_{90} whole sys.	x^2 err	DT_{50}-DT_{90} water	x^2 err	DT_{50}-DT_{90} sed	x^2 err	Method of calculation
River	8.39	7.4	20	148.4/493.1	16.271	FOCUS P-II calculations not performed				FOCUS SFO
Pond	8.09	7.0	20	326.1/1083	7.265					FOCUS SFO
River	8.34	7.4	10	-	-					FOCUS SFO
Pond	8.12	7.0	10	123/408.7	20.12					FOCUS SFO
Mean (of 20°C systems)				237/-	Formation fraction 0.24 to 0.33 from parent					

Other metabolites detected at >10% AR:
RH-163353 – max in water 15.8% AR at day 28 (river, 20°C), max in sediment 13.8% AR at day 106 (pond, 10°C) and max in total system 28.0% AR at day 106 (river, 10°C). At 20°C max in sediment 7.4% AR at day 106 (river) and max in total system 20.6% AR at day 56 (river).
For the full datasets, reference is made to the final RAR of zoxamide, Vol. 3 CA B8.

The rate of degradation in water/sediment of propamocarb-HCl was evaluated during the Annex I Inclusion. No additional studies have been performed.
The first order DT_{50} values of propamocarb hydrochloride in the water phase and in the whole system were calculated to be (geometric mean of 2 values): $DT_{50water}$ = 12.2 days, $DT_{50sediment}$ = 24.5 days, and $DT_{50whole\_system}$ = 18.3 days.
For the full datasets, reference is made to the DAR of propamocarb-HCl, Vol. 3 B8.

8.7 Predicted Environmental Concentrations in soil (PEC_{soil}) (KCP 9.1.3)

zRMS Comments:	Calculations of PEC_S for active substances, their metabolites and formulation used for potatoes were submitted. The used endpoints for both active substances DT_{50}s were agreed at the EU level. The PECs assessment was conducted with the Excell calculator tool. In PECs assessment the single and multiple applications were taken into consideration. The maximum PEC_S values for active substances and their metabolites are presented in

following table:

Crop	Potatoes	
Compound	PECs ini	PECs accum
	mg/kg	
Zoxamide	0.1481	nr
RH-127450	0.0219	nr
RH-24549	0.0279	nr
RH-163353	0.0291	nr
RH-141455	0.0120	nr
Propamocarb-HCl	1.3901	nr
Formulation	1.1721	nr

nr – not relevant

These values will be used in further risk assessment.

8.7.1 Justification for new endpoints

No other endpoints than the ones agreed during the EU Review were used for the calculation of predicted environmental concentrations in soil.

8.7.2 Active substance(s) and relevant metabolite(s)

Table 8.7-1: Input parameters related to application for PEC_{soil} calculations

Use No.	1
Crop	Potatoes
Application rate (g as/ha)	zoxamide: 135 g/ha propamocarb-HCl: 900 g/ha
Number of applications/interval	3/7
Crop interception (%)	60%*
Depth of soil layer (relevant for plateau concentration) (cm)	5 cm
Soil bulk density (g/cm3)	1.5
Models/tools used for calculation	Excel**

*Crop interception values are taken from the " Generic Guidance for Tier 1 FOCUS Ground Water Assessments Version2.2".
**Formulas used in Excel:

PECs, ini = [A * (1-fint)]/(100 * d * bd)
where:
A = application rate
fint = fraction intercepted by plant cover
d = depth of the soil
bd = bulk soil density (g/cm^3)

The actual PECs at specific times (t) are calculated with the formulas below:

SFO kinetics	DFOP kinetics
$PECs, actual = PECs,ini * e^{-k.t}$ where: $k = ln(2)/DT_{50}$ t: time period The maximum ('moving window') time weighted average (TWA) PEC values are found by calculating a set of TWA PECs over a time window that is moved along the time axis. The average PEC within a day is calculated by: $PECtwa = PECs,ini * (1 - e^{-k*t})/(k*t)$	$PECs, actual = PECs,ini * g * e-k1.t + PECs,ini * (1-g) * e-k2.t$ where: g = fraction applied to compartment 1 $k1 = ln(2)/DT_{50}$ compartment 1 $k2= ln(2)/DT_{50}$ compartment 2 t: time period The maximum ('moving window') time weighted average (TWA) PEC values are found by calculating a set of TWA PECs over a time window that is moved along the time axis. The average PEC within a day is calculated by: $PECtwa = PECs,ini * g * (1 - e^{-k1*t})/(k1*t) + PECs,ini * (1-g) * (1 - e^{-k2*t})/(k2*t)$

Table 8.7-2: Input parameter for active substance(s) and relevant metabolite(s) for PEC_{soil} calculation

Compound	Molecular weight (g/mol)	Max. occurrence (%)	DT50 (days)	Value in accordance to EU endpoint y/n/ Reference
Zoxamide	336.65	-	13.6 DFOP (k1=0.1581, k2=0.01477, g=0.4531)	Y/ EFSA Journal 2017;15(9):4980
RH-127450	302.15	15.1	14.9 SFO	Y/ EFSA Journal 2017;15(9):4980
RH-24549	205	33.8	8.45 SFO	Y/ EFSA Journal 2017;15(9):4980
RH-163353	332.15	15	49.7 SFO	Y/ EFSA Journal 2017;15(9):4980
RH-141455	235.02	8.4	88.5 SFO	Y/ EFSA Journal 2017;15(9):4980
Propamocarb-HCl	224.7	-	136 (max. laboratory) SFO	Y/ EFSA Scientific Report (2006) 78, 1-80

8.7.2.1 Zoxamide and its metabolites

Table 8.7-3: PEC_{soil} for zoxamide on potato

PEC_{soil} (mg/kg)	Potato			
	Single application		Multiple applications	
	Actual	TWA	Actual	TWA

Initial		0.0720	-	0.1481	-
Short term	24h	0.0667	0.0693	0.1424	0.1371
	2d	0.0620	0.0668	0.1373	0.1275
	4d	0.0545	0.0624	0.1284	0.1120
Long term	7d	0.0463	0.0571	0.1175	0.0952
	14d	0.0356	0.0487	0.1001	0.0732
	21d	0.0301	0.0433	0.0891	0.0618
	28d	0.0264	0.0395	0.0813	0.0544
	50d	0.0188	0.0320	0.0657	0.0387
	100d	0.0090	0.0226	0.0466	0.0185

PEC_{soil} of metabolites

Table 8.7-4: PEC_{soil} for RH-127450 on potato

PEC_{soil} (mg/kg)		potato			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.0098	-	0.0219	-
Short term	24h	0.0093	0.0096	0.0209	0.0214
	2d	0.0089	0.0094	0.0200	0.0209
	4d	0.0081	0.0089	0.0182	0.0200
Long term	7d	0.0071	0.0084	0.0158	0.0187
	14d	0.0051	0.0072	0.0114	0.0161
	21d	0.0037	0.0062	0.0082	0.0140
	28d	0.0027	0.0055	0.0060	0.0122
	50d	0.0010	0.0038	0.0021	0.0085
	100d	0.0001	0.0021	0.0002	0.0047

Table 8.7-5: PEC_{soil} for RH-24549 on potato

PEC_{soil} (mg/kg)		potato			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.0148	-	0.0279	-
Short term	24h	0.0137	0.0142	0.0257	0.0268
	2d	0.0126	0.0137	0.0236	0.0257
	4d	0.0107	0.0126	0.0201	0.0238
Long term	7d	0.0084	0.0113	0.0157	0.0212
	14d	0.0047	0.0088	0.0088	0.0166

	21d	0.0026	0.0071	0.0050	0.0133
	28d	0.0015	0.0058	0.0028	0.0109
	50d	0.0002	0.0036	0.0005	0.0067
	100d	0.0000	0.0018	0.0000	0.0034

Table 8.7-6: PEC_{soil} for RH-163353 on potato

PEC_{soil} (mg/kg)		potato			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.0107	-	0.0291	-
Short term	24h	0.0105	0.0106	0.0287	0.0289
	2d	0.0104	0.0105	0.0283	0.0287
	4d	0.0101	0.0104	0.0275	0.0283
Long term	7d	0.0097	0.0102	0.0264	0.0277
	14d	0.0088	0.0097	0.0239	0.0264
	21d	0.0080	0.0092	0.0217	0.0252
	28d	0.0072	0.0088	0.0197	0.0241
	50d	0.0053	0.0077	0.0145	0.0209
	100d	0.0026	0.0057	0.0072	0.0157

Table 8.7-7: PEC_{soil} for RH-141455 on potato

PEC_{soil} (mg/kg)		potato			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.0042	-	0.0120	-
Short term	24h	0.0042	0.0042	0.0119	0.0120
	2d	0.0042	0.0042	0.0118	0.0119
	4d	0.0041	0.0042	0.0116	0.0118
Long term	7d	0.0040	0.0041	0.0114	0.0117
	14d	0.0038	0.0040	0.0108	0.0114
	21d	0.0036	0.0039	0.0102	0.0111
	28d	0.0034	0.0038	0.0096	0.0108
	50d	0.0029	0.0035	0.0081	0.0099
	100d	0.0019	0.0029	0.0055	0.0083

8.7.2.2 Propamocarb-HCl and its metabolites

Table 8.7-8: PEC_{soil} for propamocarb-HCl on potato

PEC_{soil} (mg/kg)		Potato			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.4800	-	1.3901	-
Short term	24h	0.4776	0.4788	1.3831	1.3866
	2d	0.4751	0.4776	1.3760	1.3831
	4d	0.4703	0.4751	1.3621	1.3760
Long term	7d	0.4632	0.4715	1.3414	1.3656
	14d	0.4469	0.4633	1.2944	1.3417
	21d	0.4313	0.4552	1.2490	1.3183
	28d	0.4162	0.4473	1.2052	1.2955
	50d	0.3720	0.4237	1.0774	1.2271
	100d	0.2883	0.3761	0.8350	1.0891

8.7.2.3 PEC_{soil} of GLOB2007bF

Table 8.7-9: PEC_{soil} for GLOB2007bF on potato

Active substance/ preparation	Application rate (g/ha)	PEC_{act} (mg/kg)	Tillage depth (cm)
GLOB2007bF	2197.6*	1.1721	5

*considering product density of 1.0988

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

zRMS Comments:	The submitted PECgw assessment was accepted. The application dates were accepted, the early and late applications were taken into consideration. The recommended FOCUS models were used: FOCUS PELMO and FOCUS PEARL. The uptake factor PUF of 0 was considered. **Zoxamide**. All used endpoints were agreed at the EU level, The arithmetic and geometric mean of Kfoc was used in PECgw assessment as it is recommended (LoEP, 2017 and EFSA, 2014, respectively); the geometric mean represents a worse case. The maximum PECgw values for active substance and their metabolites, except RH-141455, were below the trigger value of 0.1 µg/L. For RH-141455, the max PECgw value of 2.921 µg/L (Hamburg scenario, early application) was assessed, and its relevance will

	be discussed in Section 10. The Jokioinen scenario with max PECgw of 4.652 µg/L is not relevant for Central Zone and was not considered. **Propamocarb-HCl**. All used endpoints were agreed at the EU level, The arithmetic and geometric mean of Kfoc was used in PECgw assessment as it is recommended (LoEP, 2006 and EFSA, 2014, respectively); the geometric mean represents a worse case. The maximum PECgw values for active substance were below the trigger value of 0.1 µg/L.

8.8.1 Justification for new endpoints

No other endpoints than the ones agreed during the EU Review were used for the calculation of predicted environmental concentrations in ground water.

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

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

Use No.	1
Crop	Potato
Application rate (g as/ha)	Zoxamide: 135 g/ha Propamocarb-HCl: 900 g/ha
Number of applications/interval (d)	3/7d
Relative application date	First set: 1st application: At BBCH21 2nd application: 7 days after the 1st 3rd application: 14 days after the 1st Second set: 1st application: 14 days before BBCH79 2nd application: 7 days before BBCH79 3rd application: At BBCH79
Crop interception (%)	First set: 60% Second set: 85%
Frequency of application	annual
Models used for calculation	FOCUS PELMO 6.6.4, FOCUS PEARL 5.5.5

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

Crop	Scenario	Application dates (absolute)			Respective Julian day		
		1st	2nd	3rd	1st	2nd	3rd
Potato set 1 (early)	Châteaudun	13-May	20-May	27-May	133	140	147
	Hamburg	30-May	06-Jun	13-Jun	150	157	164
	Jokioinen	29-Jun	06-Jul	13-Jul	180	187	194

Crop	Scenario	Application dates (absolute)			Respective Julian day		
		1st	2nd	3rd	1st	2nd	3rd
	Kremsmünster	30-May	06-Jun	13-Jun	150	157	164
	Okehampton	22-May	29-May	05-Jun	142	149	156
	Piacenza	02-May	09-May	16-May	122	129	136
	Porto	06-Apr	13-Apr	20-Apr	96	103	110
	Sevilla	17-Feb	24-Feb	03-Mar	48	55	62
	Thiva	18-Mar	25-Mar	01-Apr	77	84	91
Potato set 2 (late)	Châteaudun	20-Jul	27-Jul	03-Aug	201	208	215
	Hamburg	11-Aug	18-Aug	25-Aug	223	230	237
	Jokioinen	01-Sep	08-Sep	15-Sep	244	251	258
	Kremsmünster	11-Aug	18-Aug	25-Aug	223	230	237
	Okehampton	31-Jul	07-Aug	14-Aug	212	219	226
	Piacenza	21-Jul	28-Jul	04-Aug	202	209	216
	Porto	26-May	02-Jun	09-Jun	146	153	160
	Sevilla	25-Apr	02-May	09-May	115	122	129
	Thiva	13-Jun	20-Jun	27-Jun	164	171	178

8.8.2.1 Zoxamide and its metabolites

Table 8.8-3: Input parameters related to active substance zoxamide and its metabolites for PEC_{gw} calculations

Compound	Zoxamide	RH- 127450	RH-24549	RH- 163353	RH-141455	Value in accordance with EU endpoint y/n/ Reference*
Molecular weight (g/mol)	336.65	302.15	205	332.15	235.02	Y/ EFSA Journal 2017;15(9):4980
Water solubility (mg/L) at 20°C:	0.681	1000	1000	1000	1000	Y/ EFSA Journal 2017;15(9):4980
Saturated vapour pressure (Pa) at 25°C :	$<1.3\times10^{-5}$	0	0	0	0	Y/ EFSA Journal 2017;15(9):4980

Compound	Zoxamide	RH- 127450	RH-24549	RH- 163353	RH-141455	Value in accordance with EU endpoint y/n/ Reference*
Henry's Law constant ($Pa/m^3/mol^{-1}$) (20 to 25°C)	$<6.59\times10^{-3}$	0	0	0	0	Y/ EFSA Journal 2017;15(9):4980
Henry's Law constant ($Pa/m^3/mol^{-1}$) (30 to 35°C)	$<1.318\times10^{-2}$	0	0	0	0	Calculated automatically by PELMO
DT_{50} in soil (d)	5.5	5.2	5.4	10.8	19.6	Y/ EFSA Journal 2017;15(9):4980
K_{foc} (mL/g)/K_{fom}	1207/700	669/388	90.5/52.5	68/39	2.8/1.6	Y/ EFSA Journal 2017;15(9):4980
K_{foc} (mL/g)/K_{fom} *	1179/684	593/344	90.5/52.5	67/39	2.8/1.6	N/ EFSA Journal 2017;15(9):4980 (Geometric mean used in accordance with EFSA Journal 2014;12(5):3662)
1/n	0.969	0.9	0.811	0.892	1	Y/ EFSA Journal 2017;15(9):4980
Plant uptake factor	0	0	0	0	0	Y/ EFSA Journal 2017;15(9):4980
Formation fraction	-	0.24 (from zoxamide)	0.38 (from zoxamide)	0.18 (from zoxamide)	1 (from RH-24549)	Y/ EFSA Journal 2017;15(9):4980

*Dataset used as an alternative to address MS where EU agreed endpoints are not accepted.

Table 8.8-4: PEC_{gw} for zoxamide and its metabolites on potato (with FOCUS PEARL 5.5.5) - using the EU agreed endpoints

Crop	Scenario	80th Percentile PEC_{gw} at 1 m Soil Depth (µg/L)				
		zoxamide	RH-127450	RH-24549	RH-163353	RH-141455
potato early (from BBCH21)	Châteaudun	<0.001	<0.001	<0.001	<0.001	0.888
	Hamburg	<0.001	<0.001	<0.001	<0.001	2.921
	Jokioinen	<0.001	<0.001	<0.001	<0.001	4.652
	Kremsmünster	<0.001	<0.001	<0.001	<0.001	1.304
	Okehampton	<0.001	<0.001	<0.001	<0.001	1.230
	Piacenza	<0.001	<0.001	<0.001	<0.001	0.358
	Porto	<0.001	<0.001	<0.001	<0.001	0.172
	Sevilla	<0.001	<0.001	<0.001	<0.001	0.032
	Thiva	<0.001	<0.001	<0.001	<0.001	0.194
potato late (till BBCH79)	Châteaudun	<0.001	<0.001	<0.001	<0.001	0.383
	Hamburg	<0.001	<0.001	<0.001	<0.001	2.104
	Jokioinen	<0.001	<0.001	<0.001	<0.001	1.977
	Kremsmünster	<0.001	<0.001	<0.001	<0.001	0.829
	Okehampton	<0.001	<0.001	<0.001	<0.001	0.909
	Piacenza	<0.001	<0.001	<0.001	<0.001	0.372
	Porto	<0.001	<0.001	<0.001	<0.001	0.048
	Sevilla	<0.001	<0.001	<0.001	<0.001	0.011
	Thiva	<0.001	<0.001	<0.001	<0.001	0.071

Table 8.8-5: PEC_{gw} for zoxamide and its metabolites on potato (with FOCUS PELMO 6.6.4) - using the EU agreed endpoints

Crop	Scenario	80th Percentile PEC_{gw} at 1 m Soil Depth (µg/L)				
		zoxamide	RH-127450	RH-24549	RH-163353	RH-141455
potato early (from BBCH21)	Châteaudun	<0.001	<0.001	<0.001	<0.001	0.745
	Hamburg	<0.001	<0.001	<0.001	<0.001	1.856
	Jokioinen	<0.001	<0.001	<0.001	<0.001	4.384
	Kremsmünster	<0.001	<0.001	<0.001	<0.001	1.328
	Okehampton	<0.001	<0.001	<0.001	<0.001	1.259
	Piacenza	<0.001	<0.001	<0.001	<0.001	0.397
	Porto	<0.001	<0.001	<0.001	<0.001	0.302
	Sevilla	<0.001	<0.001	<0.001	<0.001	0.070
	Thiva	<0.001	<0.001	<0.001	<0.001	0.182

potato late (till BBCH79)	Châteaudun	<0.001	<0.001	<0.001	<0.001	<0.001
	Hamburg	<0.001	<0.001	<0.001	<0.001	1.583
	Jokioinen	<0.001	<0.001	<0.001	<0.001	2.037
	Kremsmünster	<0.001	<0.001	<0.001	<0.001	0.966
	Okehampton	<0.001	<0.001	<0.001	<0.001	0.900
	Piacenza	<0.001	<0.001	<0.001	<0.001	0.343
	Porto	<0.001	<0.001	<0.001	<0.001	0.156
	Sevilla	<0.001	<0.001	<0.001	<0.001	0.021
	Thiva	<0.001	<0.001	<0.001	<0.001	0.047

Table 8.8-6: PEC_{gw} for zoxamide and its metabolites on potato (with FOCUS PEARL 5.5.5) - using the geomean Koc

Crop	Scenario	80th Percentile PEC_{gw} at 1 m Soil Depth (µg/L)				
		zoxamide	RH-127450	RH-24549	RH-163353	RH-141455
potato early (from BBCH21)	Châteaudun	<0.001	<0.001	<0.001	<0.001	0.888
	Hamburg	<0.001	<0.001	<0.001	<0.001	2.921
	Jokioinen	<0.001	<0.001	<0.001	<0.001	4.652
	Kremsmünster	<0.001	<0.001	<0.001	<0.001	1.304
	Okehampton	<0.001	<0.001	<0.001	<0.001	1.230
	Piacenza	<0.001	<0.001	<0.001	<0.001	0.358
	Porto	<0.001	<0.001	<0.001	<0.001	0.172
	Sevilla	<0.001	<0.001	<0.001	<0.001	0.032
	Thiva	<0.001	<0.001	<0.001	<0.001	0.195
potato late (till BBCH79)	Châteaudun	<0.001	<0.001	<0.001	<0.001	0.383
	Hamburg	<0.001	<0.001	<0.001	<0.001	2.104
	Jokioinen	<0.001	<0.001	<0.001	<0.001	1.977
	Kremsmünster	<0.001	<0.001	<0.001	<0.001	0.829
	Okehampton	<0.001	<0.001	<0.001	<0.001	0.909
	Piacenza	<0.001	<0.001	<0.001	<0.001	0.372
	Porto	<0.001	<0.001	<0.001	<0.001	0.048
	Sevilla	<0.001	<0.001	<0.001	<0.001	0.011
	Thiva	<0.001	<0.001	<0.001	<0.001	0.071

Table 8.8-7: PEC_{gw} for zoxamide and its metabolites on potato (with FOCUS PELMO 6.6.4) - using the geomean Koc

Crop	Scenario	80th Percentile PEC_{gw} at 1 m Soil Depth (µg/L)				
		zoxamide	RH-127450	RH-24549	RH-163353	RH-141455
potato early (from BBCH21)	Châteaudun	<0.001	<0.001	<0.001	<0.001	0.745
	Hamburg	<0.001	<0.001	<0.001	<0.001	1.854
	Jokioinen	<0.001	<0.001	<0.001	<0.001	4.381
	Kremsmünster	<0.001	<0.001	<0.001	<0.001	1.327
	Okehampton	<0.001	<0.001	<0.001	<0.001	1.258
	Piacenza	<0.001	<0.001	<0.001	<0.001	0.397
	Porto	<0.001	<0.001	<0.001	<0.001	0.302
	Sevilla	<0.001	<0.001	<0.001	<0.001	0.07
	Thiva	<0.001	<0.001	<0.001	<0.001	0.182
potato late (till BBCH79)	Châteaudun	<0.001	<0.001	<0.001	<0.001	<0.001
	Hamburg	<0.001	<0.001	<0.001	<0.001	1.582
	Jokioinen	<0.001	<0.001	<0.001	<0.001	2.037
	Kremsmünster	<0.001	<0.001	<0.001	<0.001	0.966
	Okehampton	<0.001	<0.001	<0.001	<0.001	0.900
	Piacenza	<0.001	<0.001	<0.001	<0.001	0.343
	Porto	<0.001	<0.001	<0.001	<0.001	0.156
	Sevilla	<0.001	<0.001	<0.001	<0.001	0.020
	Thiva	<0.001	<0.001	<0.001	<0.001	0.047

8.8.2.2 Propamocarb-HCl

Table 8.8-8: Input parameters related to active substance propamocarb-HCl for PEC_{gw} calculations

Compound	Propamocarb-HCl	Value in accordance with EU endpoint y/n/ Reference*
Molecular weight (g/mol)	224.7	Y EFSA Scientific Report (2006) 78, 1-80
Water solubility (g/L) at 20°C:	between 89.1 and 93.8 % w/w at pH 7 (20ºC) which equals 892-935 g/L. Value 935 g/L used for conservative leaching assessment.	Y EFSA Scientific Report (2006) 78, 1-80
Water solubility (g/L) at 30°C:	1870	Calculation (value at 20°C x 2)

Compound	Propamocarb-HCl	Value in accordance with EU endpoint y/n/ Reference*
Saturated vapour pressure (Pa):	8.1 x 10^{-5} Pa at 25ºC Recalculation using EVA 3.0 rev2h: 4.21 x 10^{-5} Pa at 20°C 16.84 x 10^{-5} Pa at 30°C	Y EFSA Scientific Report (2006) 78, 1-80
Henry's Law constant (Pa/m^3/mol^{-1}) temperature 1 (25°C)	3.54 × 10^{-7} (25 ºC)	Y/EFSA Scientific Report (2006) 78, 1-80
Henry's Law constant (Pa/m^3/mol^{-1}) temperature 2 (35°C)	7.08 × 10^{-7} (35 ºC)	Calculated automatically by PELMO
DT_{50} in soil (d)	13.91	Y EFSA Scientific Report (2006) 78, 1-80 (geometric mean DT_{50} value of laboratory aerobic topsoil values normalised to 20 °C and pF2 moisture content [n= 17 values])
K_{foc} (mL/g)	535.56	Y EFSA Scientific Report (2006) 78, 1-80
K_{foc} (mL/g) *	263.65	N EFSA Scientific Report (2006) 78, 1-80 (geomean Kfoc value from 12 soils, in accordance to EFSA Journal 2014;12(5):3662)
1/n	0.867	Y EFSA Scientific Report (2006) 78, 1-80
Plant uptake factor	0	Default
Formation fraction	Not applicable	

*Dataset used as an alternative to address MS where EU agreed endpoints are not accepted.

Table 8.8-9: PEC_{gw} for propamocarb-HCl on potato (with FOCUS PEARL 5.5.5)*

Crop	Scenario	80th Percentile PEC_{gw} at 1 m Soil Depth (µg/L)
		Propamocarb-HCl
potato early (from BBCH21)	Châteaudun	<0.001
	Hamburg	<0.001
	Jokioinen	<0.001
	Kremsmünster	<0.001
	Okehampton	<0.001
	Piacenza	<0.001
	Porto	<0.001
	Sevilla	<0.001
	Thiva	<0.001
potato	Châteaudun	<0.001

late (till BBCH79)	Hamburg	<0.001
	Jokioinen	<0.001
	Kremsmünster	<0.001
	Okehampton	<0.001
	Piacenza	<0.001
	Porto	<0.001
	Sevilla	<0.001
	Thiva	<0.001

*Results are identical either using the EU agreed Koc or the geomean Koc.

Table 8.8-10: PEC_{gw} for propamocarb-HCl on potato (with FOCUS PELMO 6.6.4)*

Crop	Scenario	80th Percentile PEC_{gw} at 1 m Soil Depth (µg/L)
		Propamocarb-HCl
potato early (from BBCH21)	Châteaudun	<0.001
	Hamburg	<0.001
	Jokioinen	<0.001
	Kremsmünster	<0.001
	Okehampton	<0.001
	Piacenza	<0.001
	Porto	<0.001
	Sevilla	<0.001
	Thiva	<0.001
potato late (till BBCH79)	Châteaudun	<0.001
	Hamburg	<0.001
	Jokioinen	<0.001
	Kremsmünster	<0.001
	Okehampton	<0.001
	Piacenza	<0.001
	Porto	<0.001
	Sevilla	<0.001
	Thiva	<0.001

*Results are identical either using the EU agreed Koc or the geomean Koc.

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

zRMS Comments:

The PECsw/sed assessment for active substances and their metabolites was accepted. STEP 1 & 2 and STEP 3 and Step4 were used for PECsw and PECsed assessment.

Most of used endpoints for active substances and their metabolites were agreed at the EU level. In the list of endpoints for active substances and its metabolites for Kfoc the only arithmetic mean is available, but for calculations of PECsw for active substances and its metabolites the geometric Kfoc values were used. This approach was accepted as it represents a worse case.
The application dates are accepted.

Zoxamide:
The Applicant submitted calculations PECsw/sed carried out using for the STEP 1 & 2 for a threefold application to potatoes for active substance and their metabolites.

The Applicant submitted calculations PECsw/sed for the STEP 3 for two scenarios Set 1 and Set 2 for single and multiple applications and for early and late application; all results are presented in Table 8.9-6 and 8.9-7.

In Step 4 mitigation measures were proposed. The max PECsw for Central Zone considering D3, D4, D5, R1 and R3 scenarios and geometric mean of Kfoc are presented in the tables below:

		Mitigation measure early		**Mitigation measure late**	
Zoxamide (3 x 135 g/ha)	Lanscape mitigation measures	15 m VFS + 15 m NSS	0.2693 R3 stream	10 m VFS + 10 m NSS	0.3368 R1 stream
	VFSmod	5 m VFS + 5 m NSS	0.2075 R1 stream	5 m VFS + 5 m NSS	0.2079 R3 stream

The application rate of 1 x 130 g a.s./ha (Table 8.9-14) was not considered as a lower application rate was used (in GAP Table the application rate of 135 g.s./ha is proposed) and only single, not multiple application was taken for PECsw assessment.

In Step 2, the North Europe scenario was taken into account as representative for Central Europe. The max PECsw for metabolites (based on multiple application) are presented in the table below:

Crop	**RH-127450**	**RH-24549**	**RH-163353**	**RH-141455**	**RH-139432**
Potato	Max PEC_{SW} (µg/L) Step 1				
	38.1234	28.5736	44.2860	9.9136	39.1536
	Max PECsed (µg/L)				
	218.3	25.7707	29.1644	0.2761	3.8196
	Max PEC_{SW} (µg/L) Step 2, NE				
	3.5065	2.3139	4.9482	1.5608	4.4046
	Max PECsed (µg/L)				

	20.2007	2.0913	3.3035	0.0437	0.4398

Propamocarb-HCl:
The Applicant submitted calculations PECsw/sed carried out using for the STEP 1 & 2 for a threefold application to potatoes and geometric mean of Kfoc:

Crop	Application rate g/ha	Step	Max PECsw (µg/L)	Max PECsed (µg/kg)
Potato	**3 x 900**	1	690.7	1760
		2	110.1	281.6

Formulation. The PECsw for the formulation GLOB2106cF submitted by the Applicant for single application of 2 product/ha, equivalent to 2197.6 g prod./ha in potatoes was accepted.

Cropping scenario	FOCUS scenario	Max. PECsw (µg/L)
Potatoes	Ditch	11.6734
	Pond	0.4662
	Stream	9.0925 10.911*

the 20% contribution from the upstream catchment

The relevant mitigation measure will be recommended in ecotoxicological section.

8.9.1 Justification for new endpoints

No other endpoints than the ones agreed during the EU Review were used for the calculation of predicted environmental concentrations in surface water.

8.9.2 Active substance(s), relevant metabolite(s) and the formulation (KCP 9.2.5)

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

Plant protection product	GLOB2007bF
Use No.	1
Crop	Potato
Application rate (kg as/ha)	zoxamide: 0.135 kg/ha propamocarb-HCl: 0.9 kg/ha
Number of applications/interval (d)	3 / 7d
Application window (STEP 1-2)	Oct-Feb March-May June-Sep

Application method	Ground spray
CAM (Chemical application method)	CAM2 (foliar)
Soil depth (cm)	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 v5.0.1

Table 8.9-2: FOCUS Step 3 Scenario related input parameters for $PEC_{sw/sed}$ calculations for the application of GLOB2007bF

Crop	Scenario	Application window used in modelling*		Respective Julian dates	
		start	end	start	end
Potato (early)	D3 Ditch	30-May	13-Jul	150	194
	D4 Pond/Stream	17-Jun	31-Jul	168	212
	D6 Ditch (1st)	24-Apr	07-Jun	114	158
	D6 Ditch (2nd)	21-Aug	04-Oct	233	277
	R1 Pond/Stream	20-May	03-Jul	140	184
	R2 Stream	06-Apr	20-May	96	140
	R3 Stream	24-Apr	07-Jun	114	158
Potato (early) single application	D3 Ditch	30-May	29-Jun	150	180
	D4 Pond/Stream	17-Jun	17-Jul	168	198
	D6 Ditch (1st)	24-Apr	24-May	114	144
	D6 Ditch (2nd)	21-Aug	20-Sep	233	263
	R1 Pond/Stream	20-May	19-Jun	140	170
	R2 Stream	06-Apr	06-May	96	126
	R3 Stream	24-Apr	24-May	114	144
Potato (late)	D3 Ditch	12-Jul	25-Aug	193	237
	D4 Pond/Stream	29-Jul	11-Sep	210	254
	D6 Ditch (1st)	15-May	28-Jun	135	179
	D6 Ditch (2nd)	21-Sep	04-Nov	264	308
	R1 Pond/Stream	29-Jun	12-Aug	180	224
	R2 Stream	26-Apr	09-Jun	116	160
	R3 Stream	15-Jun	29-Jul	166	210
Potato (late) single application	D3 Ditch	26-Jul	25-Aug	207	237
	D4 Pond/Stream	12-Aug	11-Sep	224	254
	D6 Ditch (1st)	29-May	28-Jun	149	179
	D6 Ditch (2nd)	05-Oct	04-Nov	278	308
	R1 Pond/Stream	13-Jul	12-Aug	194	224
	R2 Stream	10-May	09-Jun	130	160
	R3 Stream	29-Jun	29-Jul	180	210

*Corresponding BBCH stages from AppDate v 3.06 tool. Window proposed in AppDate starting at at BBCH 21 for “early” set (+44d) and finishing at BBCH 79 for “late” set (and starting 44 d before).

8.9.2.1 Zoxamide and its metabolites

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

Compound	Zoxamide	RH-127450	RH-24549	RH-163353	RH-141455	RH-139432	Value in accordance to EU endpoint y/n/ Reference
Molecular weight (g/mol)	336.65	302.15	205	332.15	235.02	204.06	Y/ EFSA Journal 2017;15(9) :4980
Saturated vapour pressure (Pa)	1.3 x10^{-5}	0	0	0	0	0	Y/ EFSA Journal 2017;15(9):4980
Water solubility (mg/L)	0.681	1000	1000	1000	1000	1000	Y/ EFSA Journal 2017;15(9):4980
Diffusion coefficient in water (m^2/d)	not required for Step 1+2/ 4.3 x 10^{-5}						default
Diffusion coefficient in air (m^2/d)	not required for Step 1+2/ 0.43						default
Kfoc (mL/g)/Kfom	1207/700	669/388	90.55/52.5	68/39	2.8/1.6	10	Y/ EFSA Journal 2017;15(9):4980
Kfoc (mL/g)/Kfom *	1179/684	593/344	90.5/52.5	67/39	2.8/1.6	10	N/ EFSA Journal 2017;15(9):4980 (Geometric mean used in accordance with EFSA Journal 2014;12(5):3662)
Freundlich Exponent 1/n	0.969	0.9 (default)	0.811	0.892	1	1	Y/ EFSA Journal 2017;15(9):4980
Plant Uptake	not required for Step 1+2/ 0 for step 3+4 (when performed)						default

Compound	Zoxamide	RH-127450	RH-24549	RH-163353	RH-141455	RH-139432	Value in accordance to EU endpoint y/n/ Reference
Wash-Off factor from Crop (1/mm)	not required for Step 1+2/ 0.05 (MACRO) 0.50 (PRZM)						default
$DT_{50,soil}$ (d)	5.5	5.2	5.4	10.8	19.6	1000	Y/ EFSA Journal 2017;15(9):4980
$DT_{50,water}$ (d)	(step3-4) set 1: 1000 set 2: 6.4	Set 1: 1000 Set 2: 237	1000	1000	1000	1000	Y/ EFSA Journal 2017;15(9):4980
$DT_{50,sed}$ (d)	(step 3-4) set 1: 6.4 set 2: 1000	Set 1: 237 Set 2: 1000	1000	1000	1000	1000	Y/ EFSA Journal 2017;15(9):4980
$DT_{50,whole\ system}$ (d)	6.4	237	1000	1000	1000	1000	Y/ EFSA Journal 2017;15(9):4980
Maximum occurrence observed (% molar basis with respect to the parent)	-	Soil: 15.1 Total system: 39.3	Soil:33.8 Total system: 5	Soil:15 Total system: 20.6	Soil:8.4 Total system: 2.1	Soil:4.9 Total system: 42.4	Y/ EFSA Journal 2017;15(9):4980
Formation fraction / precursor (Step 3):	-	Soil: 0.24 Water: 0.38 Sediment: 1	Soil: 0.38 Water: 1 Sediment: 1	Soil: 0.18 Water: 1 Sediment: 1	Soil: 1 (default) Water: 1 Sediment: 1	Soil: 1 (default) Water: 1 Sediment: 1	Y/ EFSA Journal 2017;15(9):4980

*Dataset used as an alternative to address MS where EU agreed endpoints are not accepted.

$PEC_{sw/sed}$

Table 8.9-4: FOCUS Step 1, 2 and 3 PEC_{sw} and PEC_{sed} for zoxamide following a single application of GLOB2007bF to potato - using the EU agreed endpoints

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
Step 1	---	**18.4873**	runoff/drainage	12.4801	7.0094	208.1566
Step 2						

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
Northern Europe	March-May	**1.4308**	runoff	0.9532	0.535	15.6931
	June-Sept	**1.4308**	runoff	0.9532	0.535	15.6931
	Oct-Feb	**2.9934**	runoff	2.0497	1.152	34.5535
Southern Europe	March-May	**2.4726**	runoff	1.6842	0.9464	28.2667
	June-Sept	**1.9517**	runoff	1.3187	0.7407	21.9799
	Oct-Feb	**2.4726**	runoff	1.6842	0.9464	28.2667
Step 3 (early)						
Set 1						
D3	ditch	**0.7069**	Drift	0.1045	0.03498	0.338
D4	pond	0.02855	Drift	0.02618	0.02335	0.0579
D4	stream	**0.5522**	Drift	0.003133	0.001045	0.01663
D6	ditch	**0.699**	Drift	0.04609	0.01539	0.1864
D6	ditch	**0.6936**	Drift	0.03006	0.01003	0.1288
R1	pond	0.05828	Run-off	0.05452	0.04896	0.1326
R1	stream	**0.5313**	Run-off	0.06333	0.02591	0.6817
R2	stream	**0.6475**	Drift	0.0103	0.007331	0.09612
R3	stream	**0.6902**	Drift	0.03417	0.0117	0.1513
Set 2						
D3	ditch	**0.7069**	Drift	0.09941	0.03343	0.342
D4	pond	0.02855	Drift	0.02139	0.01353	0.05072
D4	stream	**0.5522**	Drift	0.003129	0.001043	0.01667
D6	ditch	**0.699**	Drift	0.04529	0.01516	0.1883
D6	ditch	**0.6936**	Drift	0.02914	0.009749	0.1315
R1	pond	0.04746	Run-off	0.03631	0.02609	0.1182
R1	stream	**0.5308**	Run-off	0.06327	0.02588	0.712
R2	stream	**0.6475**	Drift	0.01029	0.00732	0.1161
R3	stream	**0.6902**	Drift	0.03389	0.01161	0.1521
Step 3 (late)						
Set 1						
D3	ditch	**0.7072**	Drift	0.1109	0.03713	0.3466
D4	pond	0.02854	Drift	0.02609	0.02339	0.06492
D4	stream	**0.5315**	Drift	0.002471	0.000824	0.01314
D6	ditch	**0.7025**	Drift	0.06083	0.02031	0.2257
D6	ditch	**0.7072**	Drift	0.1154	0.03871	0.3607
R1	pond	0.05129	Run-off	0.04783	0.04279	0.1094

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
R1	stream	**0.6144**	Run-off	0.05902	0.01973	0.5161
R2	stream	**0.6577**	Drift	0.01273	0.007561	0.5028
R3	stream	**0.6916**	Drift	0.09933	0.03907	0.7378
Set 2						
D3	ditch	**0.7072**	Drift	0.1042	0.03509	0.3512
D4	pond	0.02854	Drift	0.02066	0.01377	0.05005
D4	stream	**0.5315**	Drift	0.002468	0.000823	0.01318
D6	ditch	**0.7025**	Drift	0.05799	0.01946	0.2301
D6	ditch	**0.7072**	Drift	0.1089	0.03675	0.3651
R1	pond	0.04261	Run-off	0.03141	0.02239	0.09541
R1	stream	**0.6137**	Run-off	0.05883	0.01971	0.5363
R2	stream	**0.6577**	Drift	0.01276	0.007548	0.5278
R3	stream	**0.6916**	Drift	0.09759	0.03872	0.83

Values in **bold** exceed the trigger of 0.348 µg/L

Table 8.9-5: FOCUS Step 3 PEC_{sw} and PEC_{sed} for zoxamide following multiple applications of GLOB2007bF to potato - using the EU agreed endpoints

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
Step 1	---	**55.4620**	runoff/drainage	37.4403	21.0281	624.4699
Step 2						
Northern Europe	March-May	**2.1328**	runoff/drainage	1.4339	0.8052	23.7972
	June-Sept	**2.1328**	runoff/drainage	1.4339	0.8052	23.7972
	Oct-Feb	**4.6098**	runoff/drainage	3.172	1.7832	53.6941
Southern Europe	March-May	**3.7841**	runoff/drainage	2.5926	1.4572	43.7285
	June-Sept	**2.9585**	runoff/drainage	2.0133	1.1312	33.7628
	Oct-Feb	**3.7841**	runoff/drainage	2.5926	1.4572	43.7285
Step 3 (early)						
Set 1						
D3	ditch	**0.5139**	Drift	0.07883	0.052	0.2782
D4	pond	0.05267	Drift	0.04917	0.04359	0.115
D4	stream	**0.4128**	Drift	0.002919	0.002526	0.01731
D6	ditch	**0.5119**	Drift	0.05264	0.02554	0.1999
D6	ditch	**0.5079**	Drift	0.03309	0.01916	0.14

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
R1	pond	0.09206	Drift	0.08644	0.07851	0.2106
R1	stream	**0.7032**	Run-off	0.09415	0.03508	0.8344
R2	stream	**0.4759**	Drift	0.04433	0.02606	0.404
R3	stream	**0.7574**	Run-off	0.09395	0.0518	0.3967
Set 2						
D3	ditch	**0.5142**	Drift	0.0744	0.04944	0.3699
D4	pond	0.03696	Drift	0.02693	0.02181	0.09551
D4	stream	**0.4128**	Drift	0.002914	0.002522	0.0188
D6	ditch	**0.5119**	Drift	0.05064	0.0248	0.2384
D6	ditch	**0.5079**	Drift	0.03203	0.01866	0.1761
R1	pond	0.06533	Drift	0.05336	0.03598	0.1845
R1	stream	**0.7026**	Run-off	0.094	0.03497	0.8795
R2	stream	**0.476**	Drift	0.04427	0.02603	0.4721
R3	stream	**0.7562**	Run-off	0.09335	0.05134	0.5331
Step 3 (late)						
Set 1						
D3	ditch	**0.5146**	Drift	0.09584	0.06079	0.3028
D4	pond	0.05265	Drift	0.04961	0.0453	0.1377
D4	stream	**0.4265**	Drift	0.00399	0.00288	0.02409
D6	ditch	**0.5118**	Drift	0.05267	0.04686	0.2
D6	ditch	**0.5141**	Drift	0.0833	0.06072	0.2949
R1	pond	0.1558	Run-off	0.147	0.1413	0.3781
R1	stream	**0.7277**	Run-off	0.1249	0.06701	1.42
R2	stream	**0.4758**	Drift	0.03456	0.01872	0.6821
R3	stream	**0.6643**	Run-off	0.1123	0.0893	0.9933
Set 2						
D3	ditch	**0.515**	Drift	0.08936	0.057	0.4025
D4	pond	0.03877	Drift	0.03079	0.02483	0.1078
D4	stream	**0.4265**	Drift	0.003983	0.002875	0.02633
D6	ditch	**0.5118**	Drift	0.05061	0.04505	0.2491
D6	ditch	**0.5145**	Drift	0.07891	0.05763	0.3615
R1	pond	0.1152	Drift	0.09425	0.07108	0.3201
R1	stream	**0.7269**	Run-off	0.1245	0.06687	1.688
R2	stream	**0.4758**	Drift	0.0345	0.01871	0.8487
R3	stream	**0.6632**	Run-off	0.1113	0.08873	1.849

Values in **bold** exceed the trigger of 0.348 µg/L

Table 8.9-6: FOCUS Step 1, 2 and 3 PEC_{sw} and PEC_{sed} for zoxamide following a single application of GLOB2007bF to potato - using the geomean Koc

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
Step 1	---	**18.7377**	runoff/drainage	12.6600	7.1107	206.2792
Step 2						
Northern Europe	March-May	**1.4506**	runoff	0.9670	0.5428	15.5445
	June-Sept	**1.4506**	runoff	0.9670	0.5428	15.5445
	Oct-Feb	**3.0359**	runoff	2.0794	1.1687	34.2348
Southern Europe	March-May	**2.5075**	runoff	1.7086	0.9601	28.0047
	June-Sept	**1.9791**	runoff	1.3378	0.7514	21.7746
	Oct-Feb	**2.5075**	runoff	1.7086	0.9601	28.0047
Step 3 (early)						
Set 1						
D3	ditch	**0.707**	Drift	0.1046	0.03499	0.336
D4	pond	0.02855	Drift	0.0262	0.02338	0.05737
D4	stream	**0.5522**	Drift	0.003133	0.001045	0.01662
D6	ditch	**0.699**	Drift	0.0461	0.01539	0.1856
D6	ditch	**0.6936**	Drift	0.03007	0.01003	0.1284
R1	pond	0.05905	Run-off	0.05526	0.04965	0.1327
R1	stream	**0.5427**	Run-off	0.06469	0.02636	0.6808
R2	stream	**0.6475**	Drift	0.01054	0.007439	0.09666
R3	stream	**0.6903**	Drift	0.03417	0.01171	0.1508
Set 2						
D3	ditch	**0.707**	Drift	0.09943	0.03343	0.3399
D4	pond	0.02855	Drift	0.0214	0.01354	0.05018
D4	stream	**0.5522**	Drift	0.003129	0.001043	0.01666
D6	ditch	**0.699**	Drift	0.0453	0.01516	0.1875
D6	ditch	**0.6936**	Drift	0.02915	0.009749	0.1311
R1	pond	0.0482	Run-off	0.03687	0.02638	0.1181
R1	stream	**0.5422**	Run-off	0.06463	0.02633	0.7109
R2	stream	**0.6475**	Drift	0.01053	0.007428	0.116
R3	stream	**0.6903**	Drift	0.03389	0.01162	0.1516
Step 3 (late)						
Set 1						

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
D3	ditch	**0.7073**	Drift	0.111	0.03714	0.3445
D4	pond	0.02854	Drift	0.02611	0.02342	0.06433
D4	stream	**0.5315**	Drift	0.002471	0.000824	0.01313
D6	ditch	**0.7025**	Drift	0.06084	0.02032	0.2247
D6	ditch	**0.7072**	Drift	0.1154	0.03872	0.3585
R1	pond	0.05187	Run-off	0.04839	0.04331	0.1094
R1	stream	**0.6276**	Run-off	0.06005	0.02008	0.5161
R2	stream	**0.6577**	Drift	0.01301	0.007653	0.4979
R3	stream	**0.6916**	Drift	0.1007	0.03964	0.7355
Set 2						
D3	ditch	**0.7073**	Drift	0.1042	0.03509	0.349
D4	pond	0.02854	Drift	0.02067	0.01378	0.04952
D4	stream	**0.5315**	Drift	0.002468	0.000823	0.01317
D6	ditch	**0.7025**	Drift	0.05799	0.01946	0.229
D6	ditch	**0.7072**	Drift	0.1089	0.03676	0.3627
R1	pond	0.04318	Run-off	0.03183	0.02262	0.09523
R1	stream	**0.6269**	Run-off	0.05986	0.02005	0.5361
R2	stream	**0.6577**	Drift	0.01303	0.00764	0.5226
R3	stream	**0.6916**	Drift	0.09894	0.03928	0.8271

Values in **bold** exceed the trigger of 0.348 µg/L

Table 8.9-7: FOCUS Step 3 PEC_{sw} and PEC_{sed} for zoxamide following multiple applications of GLOB2007bF to potato - using the geomean Koc

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
Step 1	---	**56.2130**	drainage/runoff	37.9799	21.3320	618.8375
Step 2						
Northern Europe	March-May	**2.1626**	drainage/runoff	1.4546	0.8169	23.5738
	June-Sept	**2.1626**	drainage/runoff	1.4546	0.8169	23.5738
	Oct-Feb	**4.6755**	drainage/runoff	3.2180	1.8091	53.2010
Southern Europe	March-May	**3.8379**	drainage/runoff	2.6302	1.4783	43.3253
	June-Sept	**3.0002**	drainage/runoff	2.0424	1.1476	33.4495
	Oct-Feb	**3.8379**	drainage/runoff	2.6302	1.4783	43.3253
Step 3 (early)						

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
Set 1						
D3	ditch	**0.5139**	Drift	0.07886	0.05201	0.2764
D4	pond	0.05271	Drift	0.04923	0.04367	0.114
D4	stream	**0.4128**	Drift	0.002919	0.002526	0.01727
D6	ditch	**0.5119**	Drift	0.05265	0.02555	0.1989
D6	ditch	**0.5079**	Drift	0.03309	0.01917	0.1394
R1	pond	0.09303	Drift	0.08739	0.07944	0.2104
R1	stream	**0.7179**	Run-off	0.0959	0.03575	0.8327
R2	stream	**0.4759**	Drift	0.04516	0.02655	0.4051
R3	stream	**0.7734**	Run-off	0.09592	0.05253	0.3998
Set 2						
D3	ditch	**0.5142**	Drift	0.07442	0.04944	0.3669
D4	pond	0.03698	Drift	0.02695	0.02183	0.09449
D4	stream	**0.4129**	Drift	0.002914	0.002522	0.01872
D6	ditch	**0.512**	Drift	0.05065	0.0248	0.2369
D6	ditch	**0.5079**	Drift	0.03203	0.01866	0.175
R1	pond	0.06609	Drift	0.05409	0.03644	0.184
R1	stream	**0.7172**	Run-off	0.09574	0.03564	0.8775
R2	stream	**0.476**	Drift	0.0451	0.02653	0.4729
R3	stream	**0.7722**	Run-off	0.0953	0.05206	0.5311
Step 3 (late)						
Set 1						
D3	ditch	**0.5147**	Drift	0.09588	0.06081	0.3008
D4	pond	0.0527	Drift	0.04967	0.04538	0.1366
D4	stream	**0.4265**	Drift	0.00399	0.00288	0.02403
D6	ditch	**0.5118**	Drift	0.05268	0.04687	0.1989
D6	ditch	**0.5141**	Drift	0.08332	0.06073	0.293
R1	pond	0.1583	Run-off	0.1493	0.1435	0.3796
R1	stream	**0.7422**	Run-off	0.1274	0.06822	1.396
R2	stream	**0.4758**	Drift	0.03518	0.01904	0.6739
R3	stream	**0.6781**	Run-off	0.1141	0.09081	0.9886
Set 2						
D3	ditch	**0.515**	Drift	0.08938	0.05701	0.3992
D4	pond	0.03879	Drift	0.03081	0.02485	0.1067
D4	stream	**0.4265**	Drift	0.003983	0.002876	0.02624

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
D6	ditch	**0.5118**	Drift	0.05061	0.04506	0.2473
D6	ditch	**0.5145**	Drift	0.07893	0.05764	0.3587
R1	pond	0.1168	Drift	0.09568	0.07217	0.32
R1	stream	**0.7414**	Run-off	0.127	0.06807	1.661
R2	stream	**0.4758**	Drift	0.03512	0.01902	0.8389
R3	stream	**0.677**	Run-off	0.113	0.09022	1.834

Values in **bold** exceed the trigger of 0.348 µg/L

Max. PECsw in Step 3 obtained with set 1 were either higher (up to 0.0406 µg/L [or 0.0415 µg/L when geomean Koc is used], R1 pond, late, multiple applications) or equal to those obtained with set 2 for the vast majority of scenarios. For four scenarios where max. PECsw obtained with set 2 were higher than those obtained with set 1 (multiple applications, early: D3, R2, multiple applications, late: D3, D6), the difference is negligible (up to 0.0004 µg/L). Therefore, Step 4 calculations were performed with set 1 only.

FOCUS Step 4

The fractional reductions were derived from the FOCUS Landscape and Mitigation Group (FOCUS, 2007) and are presented in the following table.
In addition, FOCUS Step 4 calculations were conducted for the relevant runoff scenarios, considering possible mitigation with vegetated filter strips (VFSMOD) in order to calculate more realistic PEC_{SW} values. In contrast to the solely buffer-width based FOCUS L&M approach (FOCUS 2007), VFSMOD accounts for the key drivers of the runoff reduction mechanism (Munoz-Carpena *et al.*, 2010), such as physical site properties soil, vegetation, rainstorm characteristics and the resulting hydrological response, as well as the distribution of pesticide between the sorbed and dissolved phases.

Table 8.9-8: Fractional reduction in run-off and erosion volumes and fluxes as a function of the bufferzone used during the STEP 4 refinements

Bufferzone	Fractional reduction in			
	Run-off volume	Run-off flux	Erosion volume	Erosion flux
5 meters*	40%	40%	40%	40%
10 meters	60%	60%	85%	85%
15 meters **	70%	70%	90%	90%
20 meters	80%	80%	95%	95%

* values taken from EXPOSIT 3.02

** average between 10 and 20 meters

Furthermore, according to the FOCUS AIR report (2008) an additional input to surface water from dry deposition was considered when spray drift mitigation of surface water exposure was required. The size of this input is determined using the EVA 3.2 model. Zoxamide has a vapour pressure of $<1.3 \times 10^{-5}$ Pa at 20°C which is marginally above the threshold of 1×10^{-5} Pa for substances applied to plants. EVA uses vapour pressure classes to determine the percentage volatilising/depositing over 24hrs. This also takes into account percentage crop cover anticipated since volatilisation from bare soil is less than from plant surfaces. Amount deposited reduces with distance from the treated area.

The amount of zoxamide considered to be evenly deposited over 24h led to the following input in SWAN, by distance from the treated area:

Potato, early (60% interception):
1m 0.0003 mg m^{-2} h^{-1}
5m 0.00024 mg m^{-2} h^{-1}
10m 0.00018 mg m^{-2} h^{-1}
15m 0.00012 mg m^{-2} h^{-1}
20m 0.00006 mg m^{-2} h^{-1}

Potato, late (85% interception):
1m 0.00043 mg m^{-2} h^{-1}
5m 0.00034 mg m^{-2} h^{-1}
10m 0.00026 mg m^{-2} h^{-1}
15m 0.00017 mg m^{-2} h^{-1}
20m 0.00009 mg m^{-2} h^{-1}

Table 8.9-9: Global maximum PEC_{sw} values for zoxamide, following a single application of GLOB2007bF to potato (early) according to the central EU zone GAP according to surface water Step 4 - using the EU agreed endpoints

PEC_{sw} (µg/L)	**Scenario**	**STEP 4 Zoxamide**					
Nozzle reduction	Vegetative strip (m)	None	None	None	5	10	5 VFSMOD
	No spray buffer (m)	1	5	10	5	10	5
None	D3 ditch	-	0.2317	0.1229	-	-	-
50%		**0.4274**	0.1158	0.06143	-	-	-
75%		0.2137	0.05791	0.03084	-	-	-
90%		0.08547	0.02691	0.01668	-	-	-
None	D4 pond	-	0.02741	0.01979	-	-	-
50%		0.02479	0.01509	0.01094	-	-	-
75%		0.01413	0.008933	0.006508	-	-	-
90%		0.007735	0.005239	0.003853	-	-	-
None	D4 stream	-	0.2332	0.1239	-	-	-
50%		**0.4297**	0.117	0.06219	-	-	-
75%		0.2153	0.05886	0.03137	-	-	-
90%		0.08667	0.02398	0.01288	-	-	-
None	D6 ditch	-	0.2291	0.1215	-	-	-
50%		**0.4226**	0.1145	0.06074	-	-	-
75%		0.2113	0.05726	0.03037	-	-	-
90%		0.08451	0.02291	0.0125	-	-	-
None	D6 ditch	-	0.2291	0.1215	-	-	-
50%		**0.4226**	0.1145	0.06074	-	-	-
75%		0.2113	0.05726	0.03037	-	-	-

90%		0.08451	0.02291	0.0125	-	-	-
None	R1 pond	-	0.05812	0.05157	0.04447	0.03102	-
50%		0.05586	0.04752	0.04396	0.03382	0.02334	-
75%		0.0467	0.04223	0.04016	0.02851	0.01951	-
90%		0.0412	0.03906	0.03788	0.02532	0.01721	-
None	R1 stream	-	**0.5313**	**0.5313**	0.3465	0.2415	-
50%		**0.5313**	**0.5313**	**0.5313**	0.3465	0.2415	-
75%		**0.5313**	**0.5313**	**0.5313**	0.3465	0.2415	-
90%		**0.5313**	**0.5313**	**0.5313**	0.3465	0.2415	-
None	R2 stream	-	0.2743	0.1459	0.2743	0.1459	-
50%		**0.505**	0.1454	0.1454	0.138	0.07357	-
75%		0.2536	0.1454	0.1454	0.09378	0.06495	-
90%		0.1454	0.1454	0.1454	0.09378	0.06495	-
None	R3 stream	-	0.2909	0.1544	0.2909	0.1544	-
50%		**0.5364**	0.1457	0.1303	0.1457	0.07762	-
75%		0.2684	0.1303	0.1303	0.08452	0.05888	-
90%		0.1303	0.1303	0.1303	0.08452	0.05888	-

Table 8.9-10: Global maximum PEC_{sw} values for zoxamide, following multiple applications of GLOB2007bF to potato (early) according to the central EU zone GAP according to surface water Step 4 - using the EU agreed endpoints

PEC_{sw} (µg/L)	**Scenario**	**STEP 4 Zoxamide**					
Nozzle reduction	Vegetative strip (m)	None	None	None	5	10	5 VFSMOD
	No spray buffer (m)	1	5	10	5	10	5
None	D3 ditch	-	0.165	0.08652	-	-	-
50%		0.3118	0.08251	0.04326	-	-	-
75%		0.1559	0.04157	0.02362	-	-	-
90%		0.06236	0.02273	0.01504	-	-	-
None	D4 pond	-	0.05312	0.03817	-	-	-
50%		0.04941	0.03021	0.02182	-	-	-
75%		0.02927	0.01875	0.01365	-	-	-
90%		0.01719	0.01189	0.008748	-	-	-
None	D4 stream	-	0.172	0.09037	-	-	-
50%		0.3243	0.08645	0.04553	-	-	-
75%		0.1628	0.04369	0.02312	-	-	-
90%		0.06582	0.01803	0.009665	-	-	-
None	D6 ditch	-	0.1644	0.08617	-	-	-
50%		0.3106	0.08218	0.04309	-	-	-
75%		0.1553	0.04109	0.02204	-	-	-

90%		0.06211	0.01937	0.01186	-	-	-
None	D6 ditch	-	0.1644	0.08617	-	-	-
50%		0.3106	0.08218	0.04309	-	-	-
75%		0.1553	0.04109	0.02204	-	-	-
90%		0.06211	0.01937	0.01186	-	-	-
None	R1 pond	-	0.09177	0.07786	0.07505	0.05266	-
50%		0.08831	0.07043	0.06262	0.05366	0.03737	-
75%		0.06955	0.05977	0.05501	0.04297	0.02973	-
90%		0.05831	0.05337	0.05118	0.03656	0.02515	-
None	R1 stream	-	**0.7032**	**0.7032**	**0.4587**	0.3197	0.148
50%		**0.7032**	**0.7032**	**0.7032**	**0.4587**	0.3197	0.07495
75%		**0.7032**	**0.7032**	**0.7032**	**0.4587**	0.3197	0.03864
90%		**0.7032**	**0.7032**	**0.7032**	**0.4587**	0.3197	0.02072
None	R2 stream	-	**0.4198**	**0.4198**	0.2704	0.1871	-
50%		**0.4198**	**0.4198**	**0.4198**	0.2704	0.1871	-
75%		**0.4198**	**0.4198**	**0.4198**	0.2704	0.1871	-
90%		**0.4198**	**0.4198**	**0.4198**	0.2704	0.1871	-
None	R3 stream	-	**0.7574**	**0.7574**	**0.4938**	0.3436	0.2075
50%		**0.7574**	**0.7574**	**0.7574**	**0.4938**	0.3436	0.1043
75%		**0.7574**	**0.7574**	**0.7574**	**0.4938**	0.3436	0.05345
90%		**0.7574**	**0.7574**	**0.7574**	**0.4938**	0.3436	0.04508

Table 8.9-11: Global maximum PEC_{sw} values for zoxamide, following a single application of GLOB2007bF to potato (late) according to the central EU zone GAP according to surface water Step 4 - using the EU agreed endpoints

PEC_{sw} (µg/L)	**Scenario**	**STEP 4 Zoxamide**					
Nozzle reduction	Vegetative strip (m)	None	None	None	5	10	5 VFSMOD
	No spray buffer (m)	1	5	10	5	10	5
None	D3 ditch	-	0.2318	0.1229	-	-	-
50%		**0.4276**	0.1159	0.06145	-	-	-
75%		0.2138	0.05859	0.03388	-	-	-
90%		0.08551	0.03242	0.02189	-	-	-
None	D4 pond	-	0.02853	0.02069	-	-	-
50%		0.02626	0.01622	0.01185	-	-	-
75%		0.01562	0.01008	0.007425	-	-	-
90%		0.009229	0.00639	0.004774	-	-	-
None	D4 stream	-	0.2246	0.1193	-	-	-
50%		**0.4138**	0.1127	0.05996	-	-	-
75%		0.2074	0.05677	0.0303	-	-	-

90%		0.08359	0.0232	0.0125	-	-	-
None	D6 ditch	-	0.2302	0.1221	-	-	-
50%		**0.4247**	0.1151	0.06104	-	-	-
75%		0.2124	0.05755	0.03052	-	-	-
90%		0.08494	0.02554	0.01545	-	-	-
None	D6 ditch	-	0.2302	0.1221	-	-	-
50%		**0.4247**	0.1151	0.06104	-	-	-
75%		0.2124	0.05755	0.03052	-	-	-
90%		0.08494	0.02554	0.01545	-	-	-
None	R1 pond	-	0.05216	0.04503	0.0418	0.02942	-
50%		0.05009	0.04095	0.03698	0.03055	0.02133	-
75%		0.0404	0.03536	0.03295	0.02494	0.01729	-
90%		0.03458	0.032	0.03054	0.02157	0.01486	-
None	R1 stream	-	**0.6144**	**0.6144**	**0.4003**	0.2788	0.2065
50%		**0.6144**	**0.6144**	**0.6144**	**0.4003**	0.2788	0.1046
75%		**0.6144**	**0.6144**	**0.6144**	**0.4003**	0.2788	0.05364
90%		**0.6144**	**0.6144**	**0.6144**	**0.4003**	0.2788	0.02307
None	R2 stream	-	0.2797	0.149	0.2797	0.149	-
50%		**0.5142**	0.1412	0.0819	0.1412	0.07553	-
75%		0.2589	0.0819	0.0819	0.072	0.03883	-
90%		0.1056	0.0819	0.0819	0.05346	0.03729	-
None	R3 stream	-	**0.4894**	**0.4894**	0.3197	0.2232	-
50%		**0.5375**	**0.4894**	**0.4894**	0.3197	0.2232	-
75%		**0.4894**	**0.4894**	**0.4894**	0.3197	0.2232	-
90%		**0.4894**	**0.4894**	**0.4894**	0.3197	0.2232	-

Table 8.9-12: Global maximum PEC_{sw} values for zoxamide, following multiple applications of GLOB2007bF to potato (late) according to the central EU zone GAP according to surface water Step 4 - using the EU agreed endpoints

PEC_{sw} (µg/L)	**Scenario**	**STEP 4 Zoxamide**					
Nozzle reduction	Vegetative strip (m)	None	None	None	5	10	5 VFSMOD
	No spray buffer (m)	1	5	10	5	10	5
None	D3 ditch	-	0.1653	0.08665	-	-	-
50%		0.3123	0.08263	0.04543	-	-	-
75%		0.1561	0.04768	0.02976	-	-	-
90%		0.06794	0.03159	0.02169	-	-	-
None	D4 pond	-	0.05632	0.04072	-	-	-
50%		0.05351	0.03334	0.02432	-	-	-
75%		0.03332	0.02186	0.01613	-	-	-

90%		0.02121	0.01498	0.01122	-	-	-
None	D4 stream	-	0.1784	0.09392	-	-	-
50%		0.336	0.09003	0.04759	-	-	-
75%		0.1691	0.04585	0.02444	-	-	-
90%		0.06891	0.01934	0.01464	-	-	-
None	D6 ditch	-	0.1643	0.08617	-	-	-
50%		0.3106	0.08217	0.04308	-	-	-
75%		0.1553	0.04198	0.0239	-	-	-
90%		0.0621	0.02251	0.01484	-	-	-
None	D6 ditch	-	0.1643	0.08617	-	-	-
50%		0.3106	0.08217	0.04308	-	-	-
75%		0.1553	0.04198	0.0239	-	-	-
90%		0.0621	0.02251	0.01484	-	-	-
None	R1 pond	-	0.1586	0.1494	0.1127	0.07818	-
50%		0.157	0.1451	0.1397	0.09595	0.06552	-
75%		0.145	0.1383	0.1349	0.08909	0.0606	-
90%		0.1379	0.1342	0.132	0.08498	0.05765	-
None	R1 stream	-	**0.7277**	**0.7277**	**0.474**	0.3303	0.1488
50%		**0.7277**	**0.7277**	**0.7277**	**0.474**	0.3303	0.1263
75%		**0.7277**	**0.7277**	**0.7277**	**0.474**	0.3303	0.1263
90%		**0.7277**	**0.7277**	**0.7277**	**0.474**	0.3303	0.1263
None	R2 stream	-	0.3092	0.3092	0.1999	0.1378	-
50%		**0.376**	0.3092	0.3092	0.1992	0.1378	-
75%		0.3092	0.3092	0.3092	0.1992	0.1378	-
90%		0.3092	0.3092	0.3092	0.1992	0.1378	-
None	R3 stream	-	**0.6643**	**0.6643**	**0.4341**	0.3028	0.2079
50%		**0.6643**	**0.6643**	**0.6643**	**0.4341**	0.3028	0.1056
75%		**0.6643**	**0.6643**	**0.6643**	**0.4341**	0.3028	0.1044
90%		**0.6643**	**0.6643**	**0.6643**	**0.4341**	0.3028	0.1044

Table 8.9-13: Global maximum PEC_{sw} values for zoxamide, following a single application of GLOB2007bF to potato (early) according to the central EU zone GAP according to surface water Step 4 - using the geomean Koc

PEC_{sw} (µg/L)	**Scenario**	**STEP 4 Zoxamide**		
Nozzle reduction	Vegetative strip (m) (R scenarios only)	10	15	5 VFSMOD
	No spray buffer (m)	10	15	5
None	D3 ditch	0.1229	-	0.2317
None	D4 pond	0.01979	-	0.02741
None	D4 stream	0.1239	-	0.2332

None	D6 ditch	0.1215	-	0.2291
None	D6 ditch	0.1206	-	0.2273
None	R1 pond	0.03134	-	0.02747
None	R1 stream	0.2467	-	0.2073
None	R2 stream	0.1459	-	0.2743
None	R3 stream	0.1544	-	0.2909

Table 8.9-14: Global maximum PEC_{sw} values for zoxamide, following multiple applications of GLOB2007bF to potato (early) according to the central EU zone GAP according to surface water Step 4 - using the geomean Koc

PEC_{sw} (µg/L)	**Scenario**	**STEP 4 Zoxamide**			~~1×130 g a.s/ha*~~
Nozzle reduction	Vegetative strip (m) (R scenarios only)	10	15	5 VFSMOD	~~10~~
	No spray buffer (m)	10	15	5	~~10~~
None	D3 ditch	0.08652	0.05868	0.165	~~0.0833~~
None	D4 pond	0.03821	0.02959	0.05317	~~0.03698~~
None	D4 stream	0.09037	0.06129	0.172	~~0.08705~~
None	D6 ditch	0.08618	0.05844	0.1644	~~0.08297~~
None	D6 ditch	0.0855	0.05799	0.1631	~~0.08297~~
None	R1 pond	0.05307	0.04071	0.05084	~~0.05126~~
None	R1 stream	0.3264	0.2505	0.148	~~0.314~~
None	R2 stream	0.1912	0.1462	0.199	~~0.184~~
None	R3 stream	**0.3512**	0.2693	0.2075	~~0.3377~~

*additionally run in order to demonstrate a safe use at 10m VFS when R3 scenario is relevant

Table 8.9-15: Global maximum PEC_{sw} values for zoxamide, following a single application of GLOB2007bF to potato (late) according to the central EU zone GAP according to surface water Step 4 - using the geomean Koc

PEC_{sw} (µg/L)	**Scenario**	**STEP 4 Zoxamide**		
Nozzle reduction	Vegetative strip (m) (R scenarios only)	10	15	5 VFSMOD
	No spray buffer (m)	10	15	5
None	D3 ditch	0.1229	-	0.2318
None	D4 pond	0.02069	-	0.02853
None	D4 stream	0.1193	-	0.2246
None	D6 ditch	0.1221	-	0.2303
None	D6 ditch	0.1229	-	0.2318
None	R1 pond	0.02967	-	0.02862

None	R1 stream	0.2848	-	0.2065
None	R2 stream	0.149	-	0.2797
None	R3 stream	0.228	-	0.2915

Table 8.9-16: Global maximum PEC_{sw} values for zoxamide, following multiple applications of GLOB2007bF to potato (late) according to the central EU zone GAP according to surface water Step 4 - using the geomean Koc

PEC_{sw} (µg/L)	Scenario	STEP 4 Zoxamide		
Nozzle reduction	Vegetative strip (m) (R scenarios only)	10	15	5 VFSMOD
	No spray buffer (m)	10	15	5
None	D3 ditch	0.08665	-	0.1653
None	D4 pond	0.04076	-	0.05637
None	D4 stream	0.09392	-	0.1784
None	D6 ditch	0.08617	-	0.1644
None	D6 ditch	0.1852	-	0.1852
None	R1 pond	0.0791	-	0.06745
None	R1 stream	0.3368	-	0.1488
None	R2 stream	0.1409	-	0.1999
None	R3 stream	0.3092	-	0.2079

Metabolites of zoxamide

Table 8.9-17: FOCUS Step 1-2 PEC_{sw} and PEC_{sed} for RH-127450 following a single application of GLOB2007bF to potato - using the EU agreed endpoints

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
Step 1	---	12.0507	runoff/drainage	11.7385	11.4927	77.6892
Step 2						
Northern Europe	March-May	0.9674	drift	0.9183	0.8978	6.1678
	June-Sept	0.9674	drift	0.9183	0.8978	6.1678
	Oct-Feb	2.0112	runoff	1.9515	1.9103	13.1306
Southern	March-May	1.6633	runoff	1.6071	1.5728	10.8097

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
Europe	June-Sept	1.3153	runoff	1.2627	1.2353	8.4888
	Oct-Feb	1.6633	runoff	1.6071	1.5728	10.8097

* single applications should be marked.
** twa-time as required by ecotox

Table 8.9-18: FOCUS Step 1-2 PEC_{sw} and PEC_{sed} for RH-127450 following multiple applications of GLOB2007bF to potato - using the EU agreed endpoints

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
Step 1	---	36.1520	runoff/drainage	35.2156	34.4781	233.0675
Step 2						
Northern Europe	March-May	1.6815	runoff/drainage	1.5798	1.5438	10.6021
	June-Sept	1.6815	runoff/drainage	1.5798	1.5438	10.6021
	Oct-Feb	3.3256	runoff/drainage	3.2072	3.1384	21.569
Southern Europe	March-May	2.7775	runoff/drainage	2.6648	2.6069	17.9134
	June-Sept	2.2295	runoff/drainage	2.1223	2.0753	14.2577
	Oct-Feb	2.7775	runoff/drainage	2.6648	2.6069	17.9134

* single applications should be marked.
** twa-time as required by ecotox

Table 8.9-19: FOCUS Step 1-2 PEC_{sw} and PEC_{sed} for RH-24549 following a single application of GLOB2007bF to potato - using the EU agreed endpoints

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
Step 1	---	9.5245	runoff/drainage	9.4977	9.4516	8.5902
Step 2						
Northern Europe	March-May	0.6033	runoff	0.6007	0.5977	0.5448
	June-Sept	0.6033	runoff	0.6007	0.5977	0.5448
	Oct-Feb	1.4559	runoff	1.4512	1.4441	1.3163
Southern Europe	March-May	1.1717	runoff	1.1677	1.162	1.0591
	June-Sept	0.8875	runoff	0.8842	0.8799	0.8019
	Oct-Feb	1.1717	runoff	1.1677	1.162	1.0591

* single applications should be marked.
** twa-time as required by ecotox

Table 8.9-20: FOCUS Step 1-2 PEC_{sw} and PEC_{sed} for RH-24549 following multiple applications of GLOB2007bF to potato - using the EU agreed endpoints

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
Step 1	---	28.5736	runoff/drainage	28.4931	28.3548	25.7707
Step 2						
Northern Europe	March-May	0.9714	runoff/drainage	0.9665	0.9617	0.8765
	June-Sept	0.9714	runoff/drainage	0.9665	0.9617	0.8765
	Oct-Feb	2.3139	runoff/drainage	2.3057	2.2944	2.0913
Southern Europe	March-May	1.8664	runoff/drainage	1.8593	1.8502	1.6863
	June-Sept	1.4189	runoff/drainage	1.4129	1.4059	1.2814
	Oct-Feb	1.8664	runoff/drainage	1.8593	1.8502	1.6863

* single applications should be marked.
** twa-time as required by ecotox

Table 8.9-21: FOCUS Step 1-2 PEC_{sw} and PEC_{sed} for RH-163353 following a single application of GLOB2007bF to potato - using the EU agreed endpoints

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
Step 1	---	14.7443	runoff/drainage	14.6891	14.6172	9.8545
Step 2						
Northern Europe	March-May	1.2162	runoff	1.2072	1.201	0.822
	June-Sept	1.2162	runoff	1.2072	1.201	0.822
	Oct-Feb	2.6845	runoff	2.672	2.6587	1.8198
Southern Europe	March-May	2.1951	runoff	2.1837	2.1728	1.4872
	June-Sept	1.7056	runoff	1.6954	1.6869	1.1546
	Oct-Feb	2.1951	runoff	2.1837	2.1728	1.4872

Table 8.9-22: FOCUS Step 1-2 PEC_{sw} and PEC_{sed} for RH-163353 following multiple applications of GLOB2007bF to potato - using the EU agreed endpoints

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
Step 1	---	44.2328	runoff/drainage	44.0674	43.8515	29.5635
Step 2						
Northern Europe	March-May	2.2888	runoff/drainage	2.2699	2.2582	1.5455
	June-Sept	2.2888	runoff/drainage	2.2699	2.2582	1.5455

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
	Oct-Feb	4.9424	runoff/drainage	4.9171	4.8926	3.3487
Southern Europe	March-May	4.0578	runoff/drainage	4.0347	4.0145	2.7476
	June-Sept	3.1733	runoff/drainage	3.1523	3.1364	2.1466
	Oct-Feb	4.0578	runoff/drainage	4.0347	4.0145	2.7476

* single applications should be marked.
** twa-time as required by ecotox

Table 8.9-23: FOCUS Step 1-2 PEC_{sw} and PEC_{sed} for RH-141455 following a single application of GLOB2007bF to potato - using the EU agreed endpoints

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
Step 1	---	3.3045	runoff/drainage	3.2965	3.2805	0.0920
Step 2						
Northern Europe	March-May	0.286	runoff	0.2853	0.2839	0.008
	June-Sept	0.286	runoff	0.2853	0.2839	0.008
	Oct-Feb	0.6879	runoff	0.6862	0.6829	0.0192
Southern Europe	March-May	0.554	runoff	0.5526	0.5499	0.0155
	June-Sept	0.42	runoff	0.419	0.4169	0.0118
	Oct-Feb	0.554	runoff	0.5526	0.5499	0.0155

* single applications should be marked.
** twa-time as required by ecotox

Table 8.9-24: FOCUS Step 1-2 PEC_{sw} and PEC_{sed} for RH-141455 following multiple applications of GLOB2007bF to potato - using the EU agreed endpoints

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
Step 1	---	9.9136	runoff/drainage	9.8894	9.8416	0.2761
Step 2						
Northern Europe	March-May	0.6481	runoff/drainage	0.6465	0.6434	0.0181
	June-Sept	0.6481	runoff/drainage	0.6465	0.6434	0.0181
	Oct-Feb	1.5608	runoff/drainage	1.5569	1.5494	0.0437
Southern Europe	March-May	1.2565	runoff/drainage	1.2535	1.2474	0.0352
	June-Sept	0.9523	runoff/drainage	0.95	0.9454	0.0266
	Oct-Feb	1.2565	runoff/drainage	1.2535	1.2474	0.0352

* single applications should be marked.

** twa-time as required by ecotox

Table 8.9-25: FOCUS Step 1-2 PEC_{sw} and PEC_{sed} for RH-139432 following a single application of GLOB2007bF to potato - using the EU agreed endpoints

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
Step 1	---	13.0512	runoff/drainage	13.0157	12.9526	1.2732
Step 2						
Northern Europe	March-May	1.1363	drift	1.1323	1.1268	0.1134
	June-Sept	1.1363	drift	1.1323	1.1268	0.1134
	Oct-Feb	2.3677	runoff	2.3607	2.3493	0.2365
Southern Europe	March-May	1.9573	drift	1.9513	1.9418	0.1955
	June-Sept	1.5468	drift	1.5418	1.5343	0.1544
	Oct-Feb	1.9573	drift	1.9513	1.9418	0.1955

* single applications should be marked.
** twa-time as required by ecotox

Table 8.9-26: FOCUS Step 1-2 PEC_{sw} and PEC_{sed} for RH-139432 following multiple applications of GLOB2007bF to potato - using the EU agreed endpoints

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
Step 1	---	39.1536	runoff/drainage	39.0471	38.8578	3.8196
Step 2						
Northern Europe	March-May	2.1763	runoff/drainage	2.1682	2.1576	0.2172
	June-Sept	2.1763	runoff/drainage	2.1682	2.1576	0.2172
	Oct-Feb	4.4046	runoff/drainage	4.3911	4.3697	0.4398
Southern Europe	March-May	3.6618	runoff/drainage	3.6501	3.6323	0.3656
	June-Sept	2.919	runoff/drainage	2.9092	2.895	0.2914
	Oct-Feb	3.6618	runoff/drainage	3.6501	3.6323	0.3656

* single applications should be marked.
** twa-time as required by ecotox

Table 8.9-27: FOCUS Step 1-2 PEC_{sw} and PEC_{sed} for RH-127450 following a single application of GLOB2007bF to potato - using the geomean Koc

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
Step 1	---	12.7078	runoff/drainage	12.4010	12.1425	72.7604
Step 2						
Northern Europe	March-May	1.0188	drift	0.9700	0.9486	5.7765
	June-Sept	1.0188	drift	0.9700	0.9486	5.7765
	Oct-Feb	2.1217	runoff	2.0617	2.0183	12.2976
Southern Europe	March-May	1.7540	runoff	1.6978	1.6617	10.1239
	June-Sept	1.3864	runoff	1.3339	1.3051	7.9502
	Oct-Feb	1.7540	runoff	1.6978	1.6617	10.1239

* single applications should be marked.
** twa-time as required by ecotox

Table 8.9-28: FOCUS Step 1-2 PEC_{sw} and PEC_{sed} for RH-127450 following multiple applications of GLOB2007bF to potato - using the geomean Koc

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
Step 1	---	38.1234	runoff/drainage	37.2031	36.4275	218.2813
Step 2						
Northern Europe	March-May	1.7694	drainage/runoff	1.6687	1.6310	9.9295
	June-Sept	1.7694	drainage/runoff	1.6687	1.6310	9.9295
	Oct-Feb	3.5065	drainage/runoff	3.3882	3.3158	20.2007
Southern Europe	March-May	2.9275	drainage/runoff	2.8150	2.7542	16.7769
	June-Sept	2.3484	drainage/runoff	2.2419	2.1926	13.3532
	Oct-Feb	2.9275	drainage/runoff	2.8150	2.7542	16.7769

* single applications should be marked.
** twa-time as required by ecotox

Table 8.9-29: FOCUS Step 1-2 PEC_{sw} and PEC_{sed} for RH-24549 following a single application of GLOB2007bF to potato - using the geomean Koc

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
Step 1	---	9.5245	runoff/drainage	9.4977	9.4516	8.5902
Step 2						
Northern	March-May	0.6033	runoff	0.6007	0.5977	0.5448

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
Europe	June-Sept	0.6033	runoff	0.6007	0.5977	0.5448
	Oct-Feb	1.4559	runoff	1.4512	1.4441	1.3163
Southern Europe	March-May	1.1717	runoff	1.1677	1.1620	1.0591
	June-Sept	0.8875	runoff	0.8842	0.8799	0.8019
	Oct-Feb	1.1717	runoff	1.1677	1.1620	1.0591

* single applications should be marked.
** twa-time as required by ecotox

Table 8.9-30: FOCUS Step 1-2 PEC_{sw} and PEC_{sed} for RH-24549 following multiple applications of GLOB2007bF to potato - using the geomean Koc

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
Step 1	---	28.5736	runoff/drainage	28.4931	28.3548	25.7707
Step 2						
Northern Europe	March-May	0.9714	drainage/runoff	0.9665	0.9617	0.8765
	June-Sept	0.9714	drainage/runoff	0.9665	0.9617	0.8765
	Oct-Feb	2.3139	drainage/runoff	2.3057	2.2944	2.0913
Southern Europe	March-May	1.8664	drainage/runoff	1.8593	1.8502	1.6863
	June-Sept	1.4189	drainage/runoff	1.4129	1.4059	1.2814
	Oct-Feb	1.8664	drainage/runoff	1.8593	1.8502	1.6863

* single applications should be marked.
** twa-time as required by ecotox

Table 8.9-31: FOCUS Step 1-2 PEC_{sw} and PEC_{sed} for RH-163353 following a single application of GLOB2007bF to potato - using the geomean Koc

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
Step 1	---	14.7620	runoff/drainage	14.7071	14.6350	9.7215
Step 2						
Northern Europe	March-May	1.2176	runoff	1.2086	1.2025	0.8109
	June-Sept	1.2176	runoff	1.2086	1.2025	0.8109
	Oct-Feb	2.6877	runoff	2.6752	2.6620	1.7952
Southern Europe	March-May	2.1977	runoff	2.1864	2.1755	1.4671
	June-Sept	1.7076	runoff	1.6975	1.6890	1.1390
	Oct-Feb	2.1977	runoff	2.1864	2.1755	1.4671

Table 8.9-32: FOCUS Step 1-2 PEC_{sw} and PEC_{sed} for RH-163353 following multiple applications of GLOB2007bF to potato - using the geomean Koc

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
Step 1	---	44.2860	runoff/drainage	44.1213	43.9051	29.1644
Step 2						
Northern Europe	March-May	2.2914	drainage/runoff	2.2727	2.2610	1.5246
	June-Sept	2.2914	drainage/runoff	2.2727	2.2610	1.5246
	Oct-Feb	4.9482	drainage/runoff	4.9231	4.8986	3.3035
Southern Europe	March-May	4.0626	drainage/runoff	4.0396	4.0194	2.7105
	June-Sept	3.1770	drainage/runoff	3.1561	3.1402	2.1176
	Oct-Feb	4.0626	drainage/runoff	4.0396	4.0194	2.7105

* single applications should be marked.
** twa-time as required by ecotox

Table 8.9-33: FOCUS Step 1-2 PEC_{sw} and PEC_{sed} for RH-141455 following a single application of GLOB2007bF to potato - using the geomean Koc

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
Step 1	---	3.3045	runoff/drainage	3.2965	3.2805	0.0920
Step 2						
Northern Europe	March-May	0.2860	runoff	0.2853	0.2839	0.0080
	June-Sept	0.2860	runoff	0.2853	0.2839	0.0080
	Oct-Feb	0.6879	runoff	0.6862	0.6829	0.0192
Southern Europe	March-May	0.5540	runoff	0.5526	0.5499	0.0155
	June-Sept	0.4200	runoff	0.4190	0.4169	0.0118
	Oct-Feb	0.5540	runoff	0.5526	0.5499	0.0155

* single applications should be marked.
** twa-time as required by ecotox

Table 8.9-34: FOCUS Step 1-2 PEC_{sw} and PEC_{sed} for RH-141455 following multiple applications of GLOB2007bF to potato - using the geomean Koc

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
Step 1	---	9.9136	runoff/drainage	9.8894	9.8416	0.2761
Step 2						

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
Northern Europe	March-May	0.6481	drainage/runoff	0.6465	0.6434	0.0181
	June-Sept	0.6481	drainage/runoff	0.6465	0.6434	0.0181
	Oct-Feb	1.5608	drainage/runoff	1.5569	1.5494	0.0437
Southern Europe	March-May	1.2565	drainage/runoff	1.2535	1.2474	0.0352
	June-Sept	0.9523	drainage/runoff	0.9500	0.9454	0.0266
	Oct-Feb	1.2565	drainage/runoff	1.2535	1.2474	0.0352

* single applications should be marked.
** twa-time as required by ecotox

Table 8.9-35: FOCUS Step 1-2 PEC_{sw} and PEC_{sed} for RH-139432 following a single application of GLOB2007bF to potato - using the geomean Koc

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
Step 1	---	13.0512	runoff/drainage	13.0157	12.9526	1.2732
Step 2						
Northern Europe	March-May	1.1363	drift	1.1323	1.1268	0.1134
	June-Sept	1.1363	drift	1.1323	1.1268	0.1134
	Oct-Feb	2.3677	runoff	2.3607	2.3493	0.2365
Southern Europe	March-May	1.9573	drift	1.9513	1.9418	0.1955
	June-Sept	1.5468	drift	1.5418	1.5343	0.1544
	Oct-Feb	1.9573	drift	1.9513	1.9418	0.1955

* single applications should be marked.
** twa-time as required by ecotox

Table 8.9-36: FOCUS Step 1-2 PEC_{sw} and PEC_{sed} for RH-139432 following multiple applications of GLOB2007bF to potato - using the geomean Koc

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
Step 1	---	39.1536	runoff/drainage	39.0471	38.8578	3.8196
Step 2						
Northern Europe	March-May	2.1763	drainage/runoff	2.1682	2.1576	0.2172
	June-Sept	2.1763	drainage/runoff	2.1682	2.1576	0.2172
	Oct-Feb	4.4046	drainage/runoff	4.3911	4.3697	0.4398
Southern Europe	March-May	3.6618	drainage/runoff	3.6501	3.6323	0.3656
	June-Sept	2.9190	drainage/runoff	2.9092	2.8950	0.2914

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
	Oct-Feb	3.6618	drainage/runoff	3.6501	3.6323	0.3656

* single applications should be marked.
** twa-time as required by ecotox

8.9.2.2 Propamocarb-HCl and its metabolites

Table 8.9-37: Input parameters related to active substance propamocarb-HCl for $PEC_{sw/sed}$ calculations STEP 1/2

Compound	Propamocarb-HCl	Value in accordance to EU endpoint y/n/ Reference
Molecular weight (g/mol)	224.7	Y/ EFSA Scientific Report (2006) 78, 1-80
Saturated vapour pressure (Pa) / Temperature (20°C)	Not required for Step 1-2 (8.1×10^{-5} Pa at 25°C)	Y/ EFSA Scientific Report (2006) 78, 1-80
Water solubility (mg/L) / Temperature (20°C)	935000	Y/ EFSA Scientific Report (2006) 78, 1-80
K_{foc} (mL/g)	535.56	Y/ EFSA Scientific Report (2006) 78, 1-80
K_{foc} (mL/g) *	263.65 (Geometric mean, n=12)	N/ EFSA Scientific Report (2006) 78, 1-80 Geometric mean used in accordance with EFSA Journal 2014;12(5):3662
Freundlich Exponent 1/n	0.867 (Arithmetic mean)	Y/ EFSA Scientific Report (2006) 78, 1-80
Plant Uptake	0	default
$DT_{50,soil}$ (d)	13.91 (geometric mean value of laboratory aerobic topsoil values normalised to 20 °C and pF2 moisture content, Q10=2, n=17 values)	Y/ EFSA Scientific Report (2006) 78, 1-80
$DT_{50,water}$ (d)	18.3 d (whole system, geometric mean of 2 values)	Y/ EFSA Scientific Report (2006) 78, 1-80
$DT_{50,sed}$ (d)	18.3 d (whole system, geometric mean of 2 values)	Y/ EFSA Scientific Report (2006) 78, 1-80
$DT_{50,whole\ system}$ (d)	DT50 water/sediment system (d): 18.3 (geometric mean of 2 values)	Y/ EFSA Scientific Report (2006) 78, 1-80
Maximum occurrence observed (% molar basis with respect to the parent) (Step 1-2)	Not applicable	-
Formation fraction / precursor (Step 3):	Not applicable	-

*Dataset used as an alternative to address MS where EU agreed endpoints are not accepted.

Table 8.9-38: FOCUS Step 1-2 PECsw and PECsed for propamocarb-HCl following a single application of GLOB2007bF to potato - using the EU agreed endpoints

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PEC_{sed} (µg/kg)
Step 1	---	27.4947	runoff/drainage	23.7347	18.6191	140.6014
Step 2						
Northern Europe	March-May	2.8739	runoff	2.4436	1.9154	14.301
	June-Sept	2.8739	runoff	2.4436	1.9154	14.301
	Oct-Feb	6.1002	runoff	5.278	4.1409	31.3781
Southern Europe	March-May	5.0248	runoff	4.3332	3.3991	25.6185
	June-Sept	3.9493	runoff	3.3884	2.6573	19.8589
	Oct-Feb	5.0248	runoff	4.3332	3.3991	25.6185

Table 8.9-39: FOCUS Step 1-2 PECsw and PECsed for propamocarb-HCl following multiple applications of GLOB2007bF to potato - using the EU agreed endpoints

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PEC_{sed} (µg/kg)
Step 1	---	82.4841	runoff/drainage	71.2040	55.8574	421.8041
Step 2						
Northern Europe	March-May	5.9882	runoff/drainage	5.1207	4.0151	29.9837
	June-Sept	5.9882	runoff/drainage	5.1207	4.0151	29.9837
	Oct-Feb	13.0968	runoff/drainage	11.3656	8.9185	67.9098
Southern Europe	March-May	10.7272	runoff/drainage	9.284	7.284	55.2197
	June-Sept	8.3577	runoff/drainage	7.2023	5.6495	42.5296
	Oct-Feb	10.7272	runoff/drainage	9.284	7.284	55.2197

Table 8.9-40: FOCUS Step 1-2 PECsw and PECsed for propamocarb-HCl following a single application of GLOB2007bF to potato - using the geomean Koc

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PEC_{sed} (µg/kg)
Step 1	---	230.2471	runoff/drainage	200.5179	157.3716	585.2242

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
Step 2						
Northern Europe	March-May	23.9486	runoff	20.6359	16.1867	59.525
	June-Sept	23.9486	runoff	20.6359	16.1867	59.525
	Oct-Feb	51.2271	runoff	44.6004	35.0033	129.9948
Southern Europe	March-May	42.1342	runoff	36.6122	28.7311	106.0216
	June-Sept	33.0414	runoff	28.6241	22.4589	82.6072
	Oct-Feb	42.1342	runoff	36.6122	28.7311	106.0216

Table 8.9-41: FOCUS Step 1-2 PECsw and PECsed for propamocarb-HCl following multiple applications of GLOB2007bF to potato - using the geomean Koc

Scenario FOCUS	Waterbody	Max PECsw (µg/L)	Dominant entry route	7 d-PECsw,twa (µg/L)	21 d-PECsw,twa (µg/L)	Max PECsed (µg/kg)
Step 1	---	690.7413	runoff/drainage	601.5537	472.1147	1760.0000
Step 2						
Northern Europe	March-May	50.0266	runoff/drainage	43.2522	33.9329	124.8008
	June-Sept	50.0266	runoff/drainage	43.2522	33.9329	124.8008
	Oct-Feb	110.1289	runoff/drainage	96.053	75.3911	281.6026
Southern Europe	March-May	90.0948	runoff/drainage	78.4528	61.5717	228.7827
	June-Sept	70.0607	runoff/drainage	60.8525	47.7523	175.9627
	Oct-Feb	90.0948	runoff/drainage	78.4528	61.5717	228.7827

8.9.2.3 PEC_{sw} of GLOB2007bF

The PEC_{sw} of the formulation GLOB2007bF was also calculated taking one application of this product into account. The calculator tool from the FOCUS SWASH model was used for this purpose. The density of the product is 1.0988 kg/L so the application rate of the formulation is 2.1976 g/ha for 2 L/ha. These PEC_{sw} were calculated for the ditch, pond and stream scenarios. On top, to allow for the 20% spray drift contribution from the upstream catchment in the case of streams, the drift values of the calculator have been multiplied with a factor 1.2 for the stream scenario. The ditch scenario remains the worst-case in any case. The results of these calculations are provided in the table below.

Table 8.9-42: Maximum PECsw for GLOB2007bF

Cropping scenario	FOCUS scenario	FOCUS values	
		Mass loading per event (mg/m²)	Max. PECsw (µg/L)
Potato, 1 x 2.1976 g/ha	Ditch	3.5020	11.6734
	Pond	0.4662	0.4662
	Stream	2.7277	9.0925
		-	10.911*
Potato, 3 x 2.1976 g/ha	Ditch	2.5444	8.4813
	Pond	0.3276	0.3276
	Stream	1.9726	6.5755
		-	7.8906*

*taking into account the 20% contribution from the upstream catchment

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

Table 8.10-1 Summary of atmospheric degradation and behaviour

Compound	zoxamide	Propamocarb-HCl
Direct photolysis in air	Not studied - no data necessary.	Not determined – no data requested
Quantum yield of direct phototransformation	(Φ) = 0.0225 (λ > 290 nm)	Not determined in air
Photochemical oxidative degradation in air	DT_{50} of 7.5 hours (Atkinson method), assuming hydroxyl radical concentration of 1.5 x 10^6 OH/cm^3 and a 12 hour day. Rate constant for reaction with hydroxyl radicals: 17.1 x 10^{-12} cm^3/molecule-sec.	DT_{50} = 4.03 and 13.4 hours (Atkinson method)

Compound	zoxamide	Propamocarb-HCl
Volatilisation	From plant surfaces: 5.1% AR after 24 hours. From soil: 3.9% AR after 24 hours.	From plant surfaces: Propamocarb hydrochloride was found to volatilise from plant surfaces (French beans) <10.0%, this value is less than the BBA trigger value of 20.0% in volatilisation studies conducted over a 24 hour period. From soil: Volatilisation loss of Propamocarb hydrochloride is estimated to be <0.0001% of the applied amount within 24 hours after treatment (Dow method) and was found to evaporate <15.0% in volatilisation studies conducted over a 24 hour period, which is less than the BBA trigger value of 20.0%.
Metabolites	Not applicable	Not applicable.

Zoxamide:
The vapour pressure of zoxamide is 1.33 x 10^{-5} Pa at 25°C and the water solubility at 20°C is 0.68 mg/l (pH 4-9). Using these values a Henry's Law constant of <6.59 x 10^{-3} Pa/mol.m^3 was derived. These figures suggest that zoxamide is only very slightly volatile. Volatilisation of zoxamide from soil and leaf surfaces under standardised climatic conditions was investigated. Losses were very low with losses of 5.1% AR from leaf surfaces and 3.9% AR from soil after 24 hours. Concentrations of zoxamide in air will therefore be negligible.

Propamocarb-HCl:
Based on its vapour pressure (3.1 - 4.7 * 10^{-5} Pa at 20 ºC and <1.7 * 10^{-3} Pa at 25 ºC) and its Henry's Law constant (<1.7 * 10^{-8} Pa m^3 mol^{-1} at 20 ºC and 3.54 * 10^{-7} Pa m^3 mol^{-1} at 25 ºC), the volatility of propamocarb hydrochloride can be considered low. This suggestion was further supported following investigation of the volatility of propamocarb hydrochloride from soil (loss <0.001% of the applied amount, calculated with the Dow method) and leaf surfaces.
Bimolecular rate constants for atmospheric reactions with photo-generated hydroxyl radicals were calculated to be 9.54 * 10^{-11} cm^3 $molecule^{-1}$ s^{-1} and 2.878322 * 10^{-11} cm^3 $molecule^{-1}$ s^{-1} in two oxidative studies, corresponding to atmospheric DT_{50} values estimated to be 4.03 hours and 13.4 hours, respectively. All these factors suggested that levels of propamocarb hydrochloride in air following normal agricultural use of the formulated product will be low.

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
No data submitted.					

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

*Studies in the table below were generated to data match the AIR protected studies from the main notifier. The data matching package has been evaluated by the RMS Latvia and a copy was already sent to all MS.

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
KCA 7.1.2.1.2	Jensch, S.	2022	RH-141455 Determination of Adsorption/Desorption in 3 Soils, Eurofins Agroscience Services Ecochem Gmbh, Report No.: S21-09180, GLP, Unpublished	N	Globachem NV
KCA 7.1.3.1.2	Jensch, S.	2022	RH-141455 Degradation in three Soils at 20 °C in the Dark, Eurofins Agroscience Services Ecochem Gmbh, Report No.: S21-09181, GLP, Unpublished	N	Globachem NV
KCA 7.2.2.2	Maric, A.	2022	[^{14}C]Zoxamide Aerobic Mineralisation in Surface Water – OECD309, Eurofins Agroscience Services Ecochem Gmbh, Report No.: S21-09182, GLP, Unpublished	N	Globachem NV
KCA	Maric, A.	2023	Identification of Unknown Metabolites of Zoxamide after Aerobic Mineralisation in Surface Water,	N	Globachem

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
7.2.2.2			Eurofins Agroscience Services Ecochem Gmbh, Report No.: S23-102105, GLP, Unpublished		NV

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
KCP XX	Author	YYYY	Title Company Report N Source GLP/non GLP/GEP/non GEP Published/Unpublished	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
KCP XX	Author	YYYY	Title Company Report N Source GLP/non GLP/GEP/non GEP Published/Unpublished	Y/N	Owner

Appendix 2 Detailed evaluation of the new Annex II studies

No data submitted.