FINAL REGISTRATION REPORT

Part B

Section 8

Environmental Fate

Detailed summary of the risk assessment

Product code: SHA 5500 A

Product name(s): ASSET ~~ZUXION~~

Chemical active substance:

Acetamiprid, 200 g/kg

Central Zone

Zonal Rapporteur Member State: Poland

CORE ASSESSMENT

Applicant: Sharda Cropchem España S.L.

Submission date: April 2020

MS Finalisation date: 10.2020; update13.12.2020

07.2021

Version history

When	What
April.2020	Submission dosier by Applicant
November 2020	Applicant update
December 2020	Assessment by RMS
May 2021	The product name was corrected (ASSET instead of Zuxion)
July 2021	Corrected by RMS

zRMS comments:

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

Table of Contents

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	CEU	**Oilseed Rape**	F	Pollen Beetle (*Meligethes aeneus)*	Foliar spray	At pest presence. Before BBCH 69	a) 1 b) 1	NA	a) 0.2 b) 0.2	a) 0.04 b) 0.04	200-600	28	-	A
2	CEU	**Pome fruits**	F	Aphids	Foliar spray	At pest presence, Before BBCH 59 and from BBCH 69	a) 1***-2 b) 1***-2	14	a) 0.18***-0.25 b) 0.36***-0.5	a) 0.36***-0.05 b) 0.72***-0.10	900-1000	14	-	A

* 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

***Due to comments on efficacy section about possible reduction of rate additional calculations are presented

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 Acetamiprid 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: develop-mental 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	SP, IT, GR	Citrus	F	Aphids and citrus leaf miner	Foliar spray	Spring and summer	a) 2 b) 2	30	-	a) 0.1 b) 0.2	600/1000	-	-
2	UK, NL, FR, SP, IT, GR	Pome fruit	F	Aphids	Foliar spray	BBCH 81-87	a) 2 b) 2	20	-	a) 0.075 b) 0.15	500/1500	14	-
3	FR, IT, SP, GR	Peach-nectarine	F	Aphids	Foliar spray	BBCH 81-87	a) 2 b) 2	20	-	a) 0.075 b) 0.15	500/1500	14	-
4	FR, IT, SP	Cherries	F	Aphids	Foliar spray	BBCH 81-87	a) 1 b) 1	-	-	a) 0.075 b) 0.15	500/1500	14	-
5	FR, IT, SP	Plum	F	Aphids	Foliar spray	BBCH 81-87	a) 2 b) 2	20	-	a) 0.05 b) 0.1	600-1000	14	-
6	FR, NL, IT, SP, GR	Tomato	F	Aphids and white fly	Foliar spray	BBCH 81-89	a) 2 b) 2	20	-	a) 0.09 b) 0.18	600-1200	7	-
7	FR, NL, IT, SP, GR	Tomato	G	Aphids and white fly	Foliar spray	BBCH 81-89	a) 2 b) 2	20	-	a) 0.09 b) 0.18	1000-2000	3	-
8	FR, SP, IT, GR	Pepper	F	Aphids and white fly	Foliar spray	BBCH 81-89	a) 2 b) 2	20	-	a) 0.09 b) 0.18	600-1200	7	-
9	FR, SP, IT, GR	Pepper	G	Aphids and white fly	Foliar spray	BBCH 81-89	a) 2 b) 2	20	-	a) 0.09 b) 0.18	1000-2000	3	-
10	FR, NL, IT, SP, GR	Aubergines	F	Aphids and white fly	Foliar spray	BBCH 81-89	a) 2 b) 2	20	-	a) 0.09 b) 0.18	600-1200	7	-
11	FR, NL, IT, SP, GR	Aubergines	G	Aphids and white fly	Foliar spray	BBCH 81-89	a) 2 b) 2	20	-	a) 0.09 b) 0.18	1000-2000	3	-
12	IT, SP, GR	Cotton	F	Aphids and white fly	Foliar spray	When 60-80% squares are open	a) 2 b) 2	20	-	a) 0.055 b) 0.11	500-700	14	-

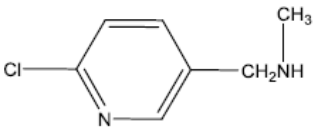
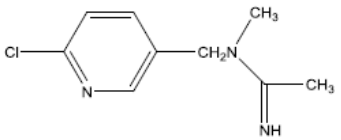
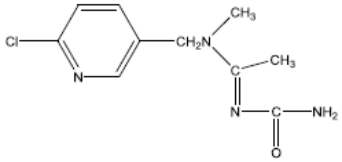
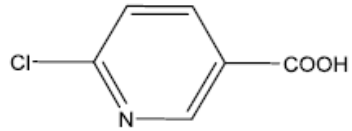
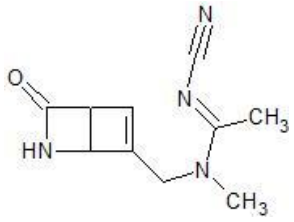
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Use-No. *	Member state(s)	Crop and/or situation (crop destination / purpose of crop)	F, Fn, Fpn G, Gn, Gpn or I **	Pests or Group of pests controlled (additionally: develop-mental stages of the pest or pest group)	**Application**				**Application rate**			PHI (days)	Remarks: 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		
13	IT, SP, GR	Tobacco	F	Aphids and white fly	Foliar spray	12-14 leaves stage	a) 2 b) 2	20	-	a) 0.075 b) 0.15	600-1000	14	-

* 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 Acetamiprid potentially relevant for exposure assessment

Metabolite	Molar mass	Chemical structure	Maximum observed occurence in compartments	Exposure assessment required due to
IM-1-4	156.61		Soil: 72% Water: 12.33% (81.55%*) Sediment: 30.71%	PEC_{gw}: leaching potential to groundwater PEC_{soil}: not covered by EU assessment $PEC_{sw/sed}$: not covered by EU assessment
IM-1-5	197.66		Soils: 20~~.02~~%	PEC_{gw}: leaching potential to groundwater PEC_{soil}: not covered by EU assessment
IM-1-2	240.69		Soils: 55% Water: 10.96% Sediment: 3.93	PEC_{gw}: leaching potential to groundwater PEC_{soil}: not covered by EU assessment $PEC_{sw/sed}$: not covered by EU assessment
IC-0	157.55		Soils: 11.3% Water: 26.15% Sediment: 5.61%	PEC_{soil}: not covered by EU assessment PEC_{gw}: leaching potential to groundwater $PEC_{sw/sed}$: not covered by EU assessment
IB-1-1	204.23		Total system: 35%	$PEC_{sw/sed}$: not covered by EU assessment

***From aerobic mineralisation study**

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)

Triggering endpoints

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

Acetamiprid, Laboratory studies, aerobic conditions								
Soil type	**pH (water)**	**t.oC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Collombey Loamy sand, Morgenroth 1997	7.6	20	50% pF2.5	1.4	4.7	7.7	SFO	EFSA Journal 2016;14(11): 4610
Clay loam Burr 1997	7.4	20	45	k1:0.00806 k2:0.1628 g: 0.155 5.4	54.5	6.9	DFOP	
Clay loam Burr 1997	7.4	10	45	k1:0.1057 k2:0.0065 g: 0.8686 7.9	49.3	3.7	DFOP	
Sandy loam Burr 1997	5.6	20	45	α:1.744 β:5.212 2.5	14.3	4.6	FOMC	
Silty clay Burr 1997	7.9-85	20	45	0.8	2.8	9.5	SFO	
Sandy loam Simmonds 2002	8.0	20	45	1.1	5.2	8.4	FOMC	
Clay Simmonds 2002	7.7	20	45	1.1	3.8	9.3	SFO	
Clay loam Simmonds 2002	7.9	20	45	1	3.3	8.4	SFO	

Modelling endpoints

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

Acetamiprid, Laboratory studies, aerobic conditions									
Soil type	**pH (water)**	**t.oC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**DT50 (d) 20°C pF2/10kPa[a)]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Collombey Loamy sand, Morgenroth 1997	7.6	20	50% pF2.5	1.4	4.7	1.2	7.7	SFO	EFSA Journal 2016;14(11): 4610
Clay loam Burr 1997	7.4		45	4.7	15.8	4.7	11.8		
Sandy loam Burr 1997	5.6			2.5	8.3	2.5	8.8		
Silty clay Burr 1997	7.9-85			0.8	2.8	0.8	9.5		
Sandy loam Simmonds 2002	8.0			1.1	3.7	1.1	9.9		
Clay Simmonds 2002	7.7			1.1	3.8	1.1	9.7		
Clay loam Simmonds 2002	7.9			1	3.2	1	8.6		
Geomean (n=7)						1.45			
pH-dependency: y/n						n			

[a)]Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7

Triggering endpoints

Table 8.3-3: Summary of aerobic degradation rates for IM-1-2 laboratory studies

IM-1-2, Dark aerobic conditions Metabolite dosed or the precursor from which the f.f. was derived was acetamiprid									
Soil type	**pH (water)**	**t.oC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**DT50 (d) 20°C pF2/10kPa**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Sandy loam Simmonds 2002	8.0	20	45	1.9	6.3		9.6	SFO[b)]	EFSA Journal 2016;14(11): 4610
Clay Simmonds 2002	7.7			1.9	6.3		13.0	SFO	
Clay loam Simmonds 2002	7.9			1.6	5.3		12.3	SFO	

[b)] Parent fitted with FOMC model

Table 8.3-4: Summary of aerobic degradation rates for IM-1-4 laboratory studies

IM-1-4, Dark aerobic conditions Metabolite dosed or the precursor from which the f.f. was derived was IM-1-2									
Soil type	**pH (water)**	**t.oC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**DT50 (d) 20°C pF2/10kPa**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Collombey loamy sand, Morgenroth, 1997	7.6	20	50, pF 2.5	46.2	154		22.8	SFO	EFSA Journal 2016;14(11): 4610
Clay loam Burr, 1997	7.4		45	142	473		8.7	SFO[a)]	
Clay loam 10ºC Burr, 1997	7.4	10		171	569		5.3	SFO[b)]	
Sandy loam, Burr 1997	5.6	20		146	483		6.2	SFO	
Silty Clay loam Burr, 1997	7.9-8.5			3.7	12.3		9.1		
Sandy loam Simmonds 2002	8.0			4.2	14		22		
Clay Simmonds 2002	7.7			2.3	7.8		18.1		
Clay loam Simmonds 2002	7.9			3	10		14.9		

a) Parent kinetics DFOP
b) Parent kinetics FOMC

Table 8.3-5: Summary of aerobic degradation rates for IC-0 laboratory studies

IC-0, Dark aerobic conditions Metabolite dosed or the precursor from which the f.f. was derived was IM-1-4									
Soil type	**pH (water)**	**t.oC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**DT50 (d) 20°C pF2/10kPa**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Silty Clay loam Burr, 1997	7.9-8.5	20	45	3.6	11.8		32.6	SFO	EFSA Journal 2016;14(11): 4610
Sandy loam Simmonds 2002	8.0			1.2	4.1		4.3	SFO[a)]	
Clay Simmonds 2002	7.7			2.7	8.9		11.6	SFO	
Clay loam Simmonds 2002	7.9			1.8	6.0		10.0		
Sandy loam Lowden, 1997	6.7			3.1	10.1		10		
Silty Clay loam Lowden, 19978.0	7.8			2.4	8.0		9.1		
Clay loam Lowden, 1997	7.2			5.6	18.5		9.8		

a) Parent kinetics FOMC

Table 8.3-6: Summary of aerobic degradation rates for IM-1-5 laboratory studies

IM-1-5, Dark aerobic conditions Metabolite dosed or the precursor from which the f.f. was derived was acetamiprid									
Soil type	**pH (water)**	**t.oC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**DT50 (d) 20°C pF2/10kPa**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Silty Clay loam Burr, 1997	7.9-8.5	20	45	319	1059		5.1	SFO	EFSA Journal 2016;14(11): 4610
Sandy loam Simmonds 2002	8.0			-	-		-		
Clay Simmonds 2002	7.7			-	-		-		
Clay loam Simmonds 2002	7.9			486	1614		10.3		
Loam (France) Jewkes 2014	7.5		78.4, pF2 moisture	663	2203		4.7		
Loam (Hungary) Jewkes 2014	7.8		60.7, pF2 moisture	420	1395		3.5		
Sandy Clay Loam Jewkes 2014	7.6		66.4, pF2 moisture	378	1254		2.8		

Modelling endpoints

Table 8.3-7: Summary of aerobic degradation rates for IM-1-2 laboratory studies

IM-1-2, Dark aerobic conditions Metabolite dosed or the precursor from which the f.f. was derived was acetamiprid										
Soil type	**pH (water)**	**t.oC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f. f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa[a)]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Sandy loam Simmonds 2002	8.0	20	45	1.6	5.3	0.97	1.6	9.6	SFO	EFSA Journal 2016;14(11): 4610
Clay Simmonds 2002	7.7			1.9	6.3	0.68	1.9	13.0		
Clay loam Simmonds 2002	7.9			1.6	5.3	0.66	1.6	12.3		
Geomean (n=3)							1.7	-	-	
pH dependency							n	-	-	

[a)] Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7

Table 8.3-8: Summary of aerobic degradation rates for IM-1-4 laboratory studies

IM-1-4, Dark aerobic conditions Metabolite dosed or the precursor from which the f.f. was derived was IM-1-2										
Soil type	**pH (water)**	**t.oC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f. f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa[a)]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Collombey loamy sand, Morgenroth, 1997	7.6	20	50, pF 2.5	46.2	154	0.56	40.0	22.8	SFO	EFSA Journal 2016;14(11): 4610
Clay loam Burr, 1997	7.4		45	169	560	0.61	169	10.5		
Sandy loam, Burr 1997	5.6			166	552.8	0.75	166	6.7		
Silty Clay loam Burr, 1997	7.9-8.5			3.7	12.3	1	3.7	9.1		
Sandy loam Simmonds 2002	8.0	20		4.8	16.1	0.44	4.8	22.3		
Clay Simmonds 2002	7.7			2.3	7.8	0.97	2.3	18.1		
Clay loam Simmonds 2002	7.9			3	10	0.71	3.0	14.9		
						Geomean (n=7)	14.6	-	-	
						pH dependency:	n	-	-	

[a)] Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7

Table 8.3-8: Summary of aerobic degradation rates for IC-0 laboratory studies

IC-0, Dark aerobic conditions Metabolite dosed or the precursor from which the f.f. was derived was IM-1-4										
Soil type	**pH (water)**	**t.oC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f. f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa[a)]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Silty Clay loam Burr, 1997	7.9-8.5	20	45	3.6	11.8	0.3	3.6	32.6	SFO	EFSA Journal 2016;14(11): 4610
Sandy loam Simmonds 2002	8.0			1.4	4.6	1	1.4	5.1		
Clay Simmonds 2002	7.7			2.7	8.9	0.39	2.7	11.6		
Clay loam Simmonds 2002	7.9			1.8	6.0	1	1.8	11.9		
Sandy loam Lowden, 1997	6.7			3.1	10.1	-	3.1	10		
Silty Clay loam Lowden, 19978.0	7.8			2.4	8.0	-	2.4	9.1		
Clay loam Lowden, 1997	7.2			5.6	18.5	-	5.6	9.8		
						Geomean (n=7)	2.7	-	-	

IC-0, Dark aerobic conditions Metabolite dosed or the precursor from which the f.f. was derived was IM-1-4										
Soil type	**pH (water)**	**t.oC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f. f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa[a)]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
						pH dependency:	n	-	-	

[a)] Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7

Table 8.3-9: Summary of aerobic degradation rates for IM-1-5 laboratory studies

IM-1-5, Dark aerobic conditions Metabolite dosed or the precursor from which the f.f. was derived was acetamiprid										
Soil type	**pH (water)**	**t.oC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f. f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa[a)]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Silty Clay loam Burr, 1997	7.9-8.5	20	45	319	1059	0.21	319	5.1	SFO	EFSA Journal 2016;14(11): 4610
Sandy loam Simmonds 2002	8.0			-	-	0.16[b)]	1000[c)]	-		
Clay Simmonds 2002	7.7			-	-	0.12[b)]	1000[c)]	-		
Clay loam Simmonds 2002	7.9			486	1614	0.12	486	10.3		
Loam (France) Jewkes 2014	7.5		78.4, pF2 moisture	663	2203	-	559	4.7		
Loam (Hungary) Jewkes 2014	7.8		60.7, pF2 moisture	420	1395	-	296	3.5		
Sandy Clay Loam Jewkes 2014	7.6		66.4, pF2 moisture	378	1254	-	284	2.8		
Geomean (n=7)							495	-	-	
pH dependency							n	-	-	

[a)] Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7
[b)] formation fraction based on maximum fraction of occurrence (persistent metabolite)
[c)] default DT50 value used as no decline of IM-1-5 was observed for this soil

8.3.2 Anaerobic degradation in soil (KCP 9.1.1.1)

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

Acetamiprid, Laboratory studies, aerobic conditions									
Soil type	**pH (water)**	**t.oC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**DT50 (d) 20°C pF2/10kPa** [a)]	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Loam	7.4	20	100	69.0	410.6	69.0	4.7	FOMC α:1.591 β:126.319	EFSA Journal 2016;14(11): 4610

[a)] Normalised using a Q10 of 2.58

8.4 Field studies (KCP 9.1.1.2)

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

Triggering endpoints

Table 8.4-1: Summary of aerobic degradation rates for Acetamiprid - field studies: Triggering endpoints

Acetamiprid, Field studies – Triggering endpoints									
Soil type	**Location**	**pH**	**Depth (cm)**	**DissT50 (d) actual**	**DT90 (d) actual**	**St. (x^2)**	**DT50 (d) Norm[c)]**	**Method of calculation**	**Evaluated on EU level y/n/ Reference**
Clay loam Wicks 1999	Italy	8.9[a)]	0-30	0.4	19.8	14.1		DFOP k1:4.122808 k2:0.071185 g: 0.589717	EFSA Journal 2016;14(11): 4610
Sandy loam Wicks 1999	UK	5.9[a)]		3.7	22.7	19.5		FOMC α:1.544681 β:6.600352	
Silty clay loam Wicks 1999	France	8.7[a)]		9.6	31.3	16.4		SFO	
Sandy loam Wicks 1999	Spain	7.0[a)]		0.7	11.2	11.4		FOMC α:0.67159 β:0.374289	
Loam Kellner 2012a	Spain	7.45[b)]	0-50	12.96	43.06	28.1		SFO	
Loam Kellner 2012b	Southern France	7.36[b)]		2.26	7.52	13.0		SFO	

Acetamiprid, Field studies – Triggering endpoints									
Soil type	**Location**	**pH**	**Depth (cm)**	**DissT50 (d) actual**	**DT90 (d) actual**	**St. (x^2)**	**DT50 (d) Norm[c)]**	**Method of calculation**	**Evaluated on EU level y/n/ Reference**
Loam Kellner 2012c	Northern France	7.49[b)]		2.24	7.43	12.1		SFO	
Loam Figer 2013c	Hungary	8.06[b)]		2.14	15.32	25.9		FOMC α: and β:values not reported	
pH dependency: n									

[a)] Measured in 1 M KCl
[b)] Measured in 0.01 M $CaCl_2$

Table 8.4-2: Field study, metabolite maximum occurrence

Metabolite formation	**Aerobic conditions, metabolite max. formation proportion of maximum measured parent.**						
Soil type (indicate if bare or cropped soil was used).	**Location (country or USA state).**		**pH**	**Depth (cm)**	**IM-1-4**	**IM-1-2**	**IM-1-5**
Clay loam Wicks 1999	Italy		8.9 a)	0 – 10	50% after 28d	39% after 4d	Not analysed
Sandy loam Wicks 1999	United Kingdom		5.9 a)	0 – 10	50% after 30d	< 3.9% after 2-7d	Not analysed
Silty clay loam Wicks 1999	France		8.7 a)	0 – 10	73% after 28d	18% after 2d	Not analysed
Sandy loam Wicks 1999	Spain		7 a)	0 – 10	55% after 31d	9% after 2d	Not analysed
Loam Kellner 2012a	Spain		7.45 b)	0 - 10	Not analysed	Not analysed	60% after 28d
Loam Kellner 2012b	Southern France		7.36 b)	0 – 10	Not analysed	Not analysed	25% after 29d
Loam Kellner 2012c	Northern France		7.49 b)	0 – 10	Not analysed	Not analysed	45% after 7d
Loam Finger 2013	Hungary		8.06 b)	0 - 10	Not analysed	Not analysed	24% after 169d
pH dependence: No							

a) Measured in 1 M KCl
b) Measured in 0.01 M CaCl

8.4.2 Soil accumulation testing (KCP 9.1.1.2.2)

Studies Not required – plateau concentration of persistent metabolites obtained by modelling.

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 substance.

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

Acetamiprid							
Soil name	**Soil type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
-	Sand	0.43	5.7	0.60	138.39	0.842	y/SANCO/1392/2001 DAR acetamiprid EFSA Journal 2016;14(11): 4610
-	Loamy sand	1.04	7.6	1.35	129.98	0.825	
-	Sandy loam	1.57	7.1	1.12	71.09	0.893	
-	Silt loam	1.39	7.7	1.69	121.81	0.835	
-	Silt loam	4.39	7.1	3.13	71.38	0.907	
Geometric mean (n=5)					102.1	-	
Arithmetic mean (n=5)					106.5	0.860	
pH-dependency y/n					n		

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

IM-1-4							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
I	Sand*	0.43	5.7	2.1	488	0.597	y/SANCO/1392/2001 DAR acetamiprid EFSA Journal 2016;14(11): 4610
II	Loamy sand	1.04	7.6	2.24	223	0.714	
III	Sandy loam	1.57	7.1	2.16	138	0.712	
IV	Silt loam	1.39	7.7	2.67	192	0.816	
V	Silt loam	4.39	7.1	5.79	132	0.813	
Geometric mean (n=4)					167.1	-	
Arithmetic mean (n=4)					171	0.764	
pH-dependency y/n					n		

***Sand soil was excluded during the previous evaluation due to low 1/n value**

Table 8.5-3: Summary of soil adsorption/desorption for IC-0

IC-0							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
I	Loamy sand I	0.43	5.7	0.643	258	0.967	y/SANCO/1392/2001 DAR acetamiprid EFSA Journal 2016;14(11): 4610
II	Loamy sand II	2.54	7.6	1.027	70	1.007	
III	Silt loam	0.76	7.1	0.569	129	0.971	
IV	Clay	2.05	7.7	0.833	70	0.894	
V	Clay loam	1.41	7.1	0.690	84	0.926	
	Pond sediment*	4.32	-	2.121	85	0.867	

IC-0							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
				Geometric mean (n=5)	106.5	-	
				Arithmetic mean (n=5)	-	0.953	
				pH-dependency y/n	n		

***Sediment excluded during the previous evaluation**

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

IM-1-2							
Soil Name	**Soil Type**	**OC (%)**	**pH ($CaCl_2$)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
-	Clay Loam	2.3	7.6	0.45	19	0.886	y/SANCO/1392/2001 DAR acetamiprid EFSA Journal 2016;14(11): 4610
-	Sandy Loam	1.3	7.5	0.27	21	0.856	
-	Clay Loam	3.8	6.1	3.6	95	0.944	
-	Sandy Loam	0.2	7.4	0.16	80	0.944	
				Geometric mean (n=4)	41.7	-	
				Arithmetic mean (n=4)	-	0.903	
				pH-dependency y/n	n		

Table 8.5-5: Summary of soil adsorption/desorption for IM-1-5

IM-1-2						
Soil Type	**OC (%)**	**pH ($CaCl_2$)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
Spain (Canals)	3.3	7.6	5.70	173	0.8788	EFSA Journal 2016;14(11): 4610
S France (Meauzac)	1.14	7.6	4.89	429	0.9030	
Hungary	2.03	7.8	7.58	374	0.8454	
N France (Meistratzheim)	2.04	8.3	6.60	324	0.9176	
			Geometric mean (n=4)	307.9	-	
			Arithmetic mean (n=4)	-	0.886	
			pH-dependency y/n	n		

8.5.1 Column leaching (KCP 9.1.2.1)

Data from DAR of Acetamiprid

Aged residues leaching	Guideline: BBA Test Guideline Teil IV, 4-2 Aged for (d): 2 d Time period (d): 4 d Precipitation (mm): 100 mm Leachate: 0.3-1.3% total radioactivity in leachate Leachate: 0.06% acetamiprid, 0.84% IM-1-4, 88.9- 93.7% total radioactivity retained by the soil (the majority of radioactivity was detected in the four upper soil layers) **Calcareous soils** Two soils : EU sandy loam (pH: 8.4), US sandy loam (pH: 8.7) Aged for (d) : 64 d Leaching period: 20 d Precipitation (cm) : 50.8 cm (equivalent to 1038 ml) Major metabolites during aging period: IC-0 : 33.5% (day 28) IM-1-2 : 27.3% (day 7) IM-1-4 : 11.7% (day 14) IM-1-5 : 8.8% (day 64) Mean DT_{50} values: Parent : 2.7 days, IM-1-2: 2.4 days, IM-1-4 : 11.9 d, IC-0 : 33.7 d, IM-1-5 : 122 d Leaching phase: EU soil , Segment 1: 0-6 cm, total 4.5% of A.R.(3.9% associated with IM-1-5) EU soil , Segment 2 : 6-12 cm, total 1.7% of A.R.(mostly associated with IM-1-5) US soil , Segment 1: 0-6 cm, total 5.3% of A.R.(1.9% associated with IM-1-5) No significant quantities of radioactivity found in subsequent segments. Leachate: EU soil : total 5% of A.R. (associated with IC-0), US soil : total 19.3% of A.R. (associated with IC-0)

8.5.2 Lysimeter studies (KCP 9.1.2.2)

Not required / not relevant.

8.5.3 Field leaching studies (KCP 9.1.2.3)

Not required / not relevant.

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

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

Table 8.6-1: Summary of degradation in water/sediment of Acetamiprid

Acetamiprid Distribution (max. water 101.42% after 0 d. Max. sed. 39.05% after 14 days)											
Water/sediment system	**pH water**	**pH sed**	**T°C**	**DT_{50}/DT_{90} whole syst. (d)**	**St. (χ^2)**	**DT_{50}/DT_{90} water**	**St. (χ^2)**	**DT_{50}/DT_{90} sed**	**St. (χ^2)**	**Kinetic, Fit**	**Evaluated on EU level y/n/ Reference**
Manningtree	6.37/5.9	n.r.	20	23.1	7.6	3.6	8.3	n.c.	-	SFO/DFOP	EFSA Journal 2016;14(11): 4610
Ongar	7.58/7.3			31.6	6.7	5.8	5.9	n.c.	-		
Geometric mean (n=2)				27							

a) Normalised using a Q10 of 2.58

Table 8.6-2: Summary of observed metabolites

IM 1-2 Water/sediment system	Distribution (max in water10.96 % after7 d. Max. sed 3.93 % after14 d). Max in total system 13.4 % after 7 days	EFSA Journal 2016;14(11): 4610
IM 1-4 Water/sediment system	Distribution (max in water12.33 % after30 d. Max. sed 30.71 % after30 d). Max in total system 43 % after 30 days; Max 81.5% in aerobic mineralisation study	
IC-0 Water/sediment system	Distribution (max in water26.15 % after62 d. Max. sed. 5.61 % after100 d). Max in total system 29.5 % after 62 days	

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

8.7.1 Justification for new endpoints

No deviation from the EU agreed endpoints.

8.7.2 Active substance and relevant metabolites

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

Use No.	1	**2***	**2****
Crop	Oilseed Rape	**Pome fruits**	**Pome fruits**
Application rate (g as/ha)	40	**50**	**36**
Number of applications/interval	1	**2/14**	**2/14**
Crop interception (%)	80	**60/60**	**60/60**
Depth of soil layer (relevant for plateau concentration) (cm)	20 cm	**5 cm**	**5 cm**

*__In bold__: scenario considered as a representative worst case, and thus considered for the assessment.
****Due to comments on efficacy section about possible reduction of rate additional calculations are presented**

Table 8.7-2: Input parameter for active substance and relevant metabolites for PEC_{soil} calculation

Compound	Molecular weight (g/mol)	Max. occurrence (%)	DT50 (days)	Value in accordance to EU endpoint y/n/ Reference
Acetamprid	222.68	-	12.96 d (Maximum from field dissipation studies)	EFSA Journal 2016;14(11): 4610
IM-1-4	156.61	72	146 d (Maximum from lab studies)	
IM-1-5	197.66	20	1000 d (Maximum from lab studies)	
IM-1-2	240.69	55	1.9 d (Maximum form lab studies)	
IC-0	157.55	11.3	5.6 d (Maximum from lab studies)	

Table 8.7-3: PEC_{soil} for Acetamiprid on pome fruits

PEC_{soil} (mg/kg)		Pome fruits			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.027	-	**0.039**	-
Short term	24h	0.025	0.026	0.037	0.038
	2d	0.024	0.025	0.035	0.037
	4d	0.022	0.024	0.032	0.035
Long term	7d	0.018	0.022	0.027	0.033
	14d	0.013	0.019	0.019	0.028
	21d	0.009	0.016	0.013	0.024
	28d	0.006	0.014	0.009	0.020
	50d	0.002	0.009	0.003	0.014
	100d	<0.001	0.005	<0.001	0.007
Plateau concentration (5 cm) after year		-	-	-	-
$PEC_{accumulation}$ (PEC_{act} +$PEC_{soil\ plateau}$)		-	-	-	-

Table 8.7-4: PEC_{soil} for Acetamiprid on pome fruits (2 x 36 g as/ha)

PEC_{soil} (mg/kg)		Pome fruits			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.019	-	0.028	-
Short term	24h	0.018	0.019	0.027	0.028
	2d	0.017	0.018	0.025	0.027

	4d	0.016	0.017	0.023	0.025
Long term	7d	0.013	0.016	0.019	0.024
	14d	0.009	0.014	0.013	0.020
	21d	0.006	0.012	0.009	0.017
	28d	0.004	0.010	0.006	0.015
	50d	0.001	0.007	0.002	0.010
	100d	<0.001	0.004	<0.001	0.005
Plateau concentration (5 cm) after year		-	-	-	-
$PEC_{accumulation}$ (PEC_{act} +$PEC_{soil\ plateau}$)		-	-	-	-

PEC_{soil} of metabolites

PEC_{soil} values for the metabolites were determined as for the parent with an application rate corrected taking into account the molecular weights (MW) and the maximum occurrence of the metabolite in soil as following:

Application $rate_{metabolite}$ = ($MW_{metabolite}$/ MW_{parent}) x (% maximum occurrence/100) x application $rate_{parent}$

The corresponding application rates for each metabolite are summarized in the table below.

Table 8.7-4: Corrected application rates for the metabolites

Metabolite	Application rate of the parent (g/ha)	MW_{parent}	$MW_{metabolite}$	Maximum occurrence in soil (%)	Corrected application rate (g/ha)
IM-1-4	50	222.68	156.61	72	25.32
IM-1-5			197.66	20	8.88
IM-1-2			240.69	55	29.72
IC-0			157.55	11.3	4.00

The results of PEC_{soil} calculations are presented in the tables below:

Table 8.7-5: PEC_{soil} for IM-1-4 on pome fruits

PEC_{soil} (mg/kg)		Pome fruits			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.014	-	0.026	-
Short term	24h	0.013	0.013	0.026	0.026
	2d	0.013	0.013	0.026	0.026
	4d	0.013	0.013	0.026	0.026
Long term	7d	0.013	0.013	0.025	0.026

	14d	0.013	0.013	0.024	0.025
	21d	0.012	0.013	0.024	0.025
	28d	0.012	0.013	0.023	0.024
	50d	0.011	0.012	0.021	0.023
	100d	0.008	0.011	0.016	0.021
Plateau concentration (5 cm) after year 7			-	0.006	-
$PEC_{accumulation}$ (PEC_{act} +$PEC_{soil\ plateau}$)			-	**0.032**	-

Table 8.7-6: PEC_{soil} for IM-1-5 on pome fruits

PEC_{soil} (mg/kg)		Pome fruits			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.005	-	0.009	-
Short term	24h	0.005	0.005	0.009	0.009
	2d	0.005	0.005	0.009	0.009
	4d	0.005	0.005	0.009	0.009
Long term	7d	0.005	0.005	0.009	0.009
	14d	0.005	0.005	0.009	0.009
	21d	0.005	0.005	0.009	0.009
	28d	0.005	0.005	0.009	0.009
	50d	0.005	0.005	0.009	0.009
	100d	0.004	0.005	0.009	0.009
Plateau concentration (5 cm) after year 47			-	0.033	-
$PEC_{accumulation}$ (PEC_{act} +$PEC_{soil\ plateau}$)			-	**0.042**	-

Table 8.7-7: PEC_{soil} for IM-1-2 on pome fruits

PEC_{soil} (mg/kg)		Pome fruits			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.016	-	**0.016**	-
Short term	24h	0.011	0.013	0.011	0.013
	2d	0.008	0.001	0.008	0.011
	4d	0.004	0.008	0.004	0.008
Long term	7d	0.001	0.006	0.001	0.006
	14d	<0.001	0.003	<0.001	0.003
	21d	<0.001	0.002	<0.001	0.002
	28d	<0.001	0.002	<0.001	0.002

	50d	<0.001	0.001	<0.001	0.001
	100d	<0.001	<0.001	<0.001	<0.001
Plateau concentration (5 cm) after year		-	-	-	-
$PEC_{accumulation}$ (PEC_{act} +$PEC_{soil\ plateau}$)		-	-	-	-

Table 8.7-8: PEC_{soil} for IC-0 on pome fruits

PEC_{soil} (mg/kg)		Pome fruits			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.002	-	**0.003**	-
Short term	24h	0.002	0.002	0.002	0.002
	2d	0.002	0.002	0.002	0.002
	4d	0.001	0.002	0.002	0.002
Long term	7d	0.001	0.001	0.001	0.002
	14d	<0.001	0.001	<0.001	0.001
	21d	<0.001	0.001	<0.001	0.001
	28d	<0.001	0.001	<0.001	0.001
	50d	<0.001	<0.001	<0.001	<0.001
	100d	<0.001	<0.001	<0.001	<0.001
Plateau concentration (5 cm) after year		-	-	-	-
$PEC_{accumulation}$ (PEC_{act} +$PEC_{soil\ plateau}$)		-	-	-	-

8.7.2.1 PEC_{soil} of ASSET ~~ZUXION~~

Table 8.7-9: PEC_{soil} for ASSET ~~ZUXION~~

Preparation/Active substance		**Application rate (g/ha)**	**% Interception**	**PEC_{act} (mg/kg)**	**Tillage depth (cm)**
ASSET ~~ZUXION~~ /Acetamiprid	Pome fruits	1 x 250	60	0.133	5
		2 x 250		0.267	
		1 x 180		0.096	
		2 x 180		0.192	
	OSR	1 x 200	80	0.053	20

Table 8.7-10: PEC_{soil} for ASSET ~~ZUXION~~

zRMS comments:

The submitted calculations has been accepted. The calculations cover proposed uses in GAP.
Soil parameters used for the calculations have been considered at the EU level (EFSA Journal 2016;14(11): 4610). The crop interception assumed in calculations is in line with the most recent version of the FOCUS Groundwater Guidance of 2014.

The following PECs values will be used in further risk assessment.

- 0.039 mg/kg for Acetamiprid
- 0.032 mg/kg for the metabolite IM-1-4
- 0.042 mg/kg for the metabolite IM-1-5
- 0.016 mg/kg for the metabolite IM-1-2
- 0.003 mg/kg for the metabolite IC-0
- Max : 0.267 mg/kg for formulation SHA 5500 A.

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

8.8.1 Justification for new endpoints

No deviation from the EU agreed endpoints.

8.8.2 Active substance and relevant metabolites (KCP 9.2.4.1)

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

Use No.	1	2	2*
Crop	Oilseed Rape	Pome fruits	Pome fruits
Application rate (g as/ha)	40	50	36
Number of applications/interval (d)	1	2/14	2/14
Crop interception (%)	80	60	60
Frequency of application	Annual	Annual	Annual
Models used for calculation	FOCUS PEARL v4.4.4, FOCUS PELMO v5.5.3, MACRO v5.5.4		

***Due to comments on efficacy section about possible reduction of rate additional calculations are presented**

It should be noted that as recommended in the Generic Guidance for Tier 1 FOCUS Ground Water Assessments (FOCUS 2011), a corrected application rate is calculated taking into account the interception by the crop canopy. Therefore, the substance is applied directly to the ground in the models, thus avoiding the internal interception routines in the models. The corrected application rates are 20 g as/ha for pome fruits applications and 8 g as/ha for oilseed rape applications.

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

Scenario	Application dates (absolute)		
	WOSR	SOSR	Apple
Châteaudun	22/09	-	03/04
Hamburg	17/09	-	18/04
Jokioinen	-	01/06	11/05
Kremsmünster	17/09	-	18/04
Okehampton	29/08	11/04	28/03
Piacenza	20/10	-	03/04
Porto	03/11	09/04	19/03
Sevilla	-	-	18/03
Thiva	-	-	19/03

***First application according to AppDate 3.06 (28 June 2019)**

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

Compound	Acetamiprid	IM-1-4	IM-1-5	IM-1-2	IC-0	Value in accordance with EU endpoint y/n/ Reference*
Molecular weight (g/mol)	226.68	156.61	197.66	240.69	157.55	EFSA Journal 2016;14(11): 4610
Water solubility (mg/l, 25°C):	2950 @ pH 7 2450@20ºC*	1000 @ 20ºC (default)				
Saturated vapour pressure (Pa, 20°C):	$1x10^{-6}$	0 (default)				
DT_{50} in soil (d)	1.45 (lab studies geomean, 20ºC, Q10 2.58, pF2, n =7)	14.6 (lab studies geomean, 20ºC, Q10 2.58, pF2, n = 7)	495 (lab studies geomean, 20ºC, Q10 2.58, pF2, n = 7)	1.7 (lab studies geomean, 20ºC, Q10 2.58, pF2, n = 3)	2.7 (lab studies geomean, 20ºC, Q10 2.58, pF2, n = 7)	
K_{foc}/K_{fom} (mL/g)	102.1/59.2 geomean, n = 5)	167.1/96.9 (geomean, n = 5)	307.9/178.6 (geomean, n = 4)	41.7/24.2 (geomean, n = 4)	106.5/61.8 (geomean, n = 5)	
1/n	0.86 (arithmetic mean, n = 5)	0.764 (arithmetic mean, n = 4)	0.886 (arithmetic mean, n = 4)	0.903 (arithmetic mean, n = 4)	0.953 (arithmetic mean, n = 5)	

Compound	Acetamiprid	IM-1-4	IM-1-5	IM-1-2	IC-0	Value in accordance with EU endpoint y/n/ Reference*
Plant uptake factor	0		0.5	0		
Formation fraction	-	0.74 from IM-1-2	0.15 from parent	0.77 from parent	0.67 from IM-1-4	

***Calculated by German UBA Eva 3.0 Excel spread sheet and used in PELMO calculations**

Table 8.8-4: PEC_{gw} for Acetamiprid and metabolites on winter oilseed rape with FOCUS PELMO 5.5.3 and PEARL 4.4.4

Crop	Scenario	80th Percentile PEC_{gw} at 1 m Soil Depth (µg/L)									
		Acetamiprid		IM-1-4		IM-1-5		IM-1-2		IC-0	
		PELMO	PEARL	PELMO	PEARL	PELMO	PEARL	PELMO	PEARL	PELMO	PEARL
Winter OSR	Châteaudun	<0.001	<0.001	<0.001	<0.001	0.001	0.003	<0.001	<0.001	<0.001	<0.001
	Hamburg	<0.001	<0.001	<0.001	<0.001	0.015	0.016	<0.001	<0.001	<0.001	<0.001
	Kremsmünster	<0.001	<0.001	<0.001	<0.001	0.012	0.011	<0.001	<0.001	<0.001	<0.001
	Okehampton	<0.001	<0.001	<0.001	<0.001	0.018	0.017	<0.001	<0.001	<0.001	<0.001
	Piacenza	0.004	<0.001	0.001	<0.001	0.013	0.009	0.002	<0.001	<0.001	<0.001
	Porto	0.006	<0.001	<0.001	<0.001	0.015	0.009	0.001	<0.001	<0.001	<0.001

Table 8.8-5: PEC_{gw} for Acetamiprid and metabolites on summer oilseed rape with FOCUS PELMO 5.5.3 and PEARL 4.4.4

Crop	Scenario	80th Percentile PEC_{gw} at 1 m Soil Depth (µg/L)									
		Acetamiprid		IM-1-4		IM-1-5		IM-1-2		IC-0	
		PELMO	PEARL	PELMO	PEARL	PELMO	PEARL	PELMO	PEARL	PELMO	PEARL
Summer OSR	Jokioinen	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Okehampton	<0.001	<0.001	<0.001	<0.001	0.019	0.015	<0.001	<0.001	<0.001	<0.001
	Porto	<0.001	<0.001	<0.001	<0.001	0.010	0.008	<0.001	<0.001	<0.001	<0.001

Table 8.8-6: PEC_{gw} for Acetamiprid and metabolites on Apple with FOCUS PELMO 5.5.3 and PEARL 4.4.4

Crop	Scenario	80th Percentile PEC_{gw} at 1 m Soil Depth (µg/L)									
		Acetamiprid		IM-1-4		IM-1-5		IM-1-2		IC-0	
		PELMO	PEARL	PELMO	PEARL	PELMO	PEARL	PELMO	PEARL	PELMO	PEARL
Apple	Châteaudun	<0.001	<0.001	<0.001	<0.001	**0.158**	**0.143**	<0.001	<0.001	<0.001	<0.001
	Hamburg	<0.001	<0.001	<0.001	<0.001	**0.137**	**0.152**	<0.001	<0.001	<0.001	<0.001
	Jokioinen	<0.001	<0.001	0.001	<0.001	0.032	0.001	<0.001	<0.001	0.004	<0.001

	Kremsmünster	0.001	<0.001	<0.001	<0.001	**0.136**	**0.110**	<0.001	<0.001	<0.001	<0.001
	Okehampton	0.003	<0.001	<0.001	<0.001	**0.205**	**0.131**	0.001	<0.001	0.001	<0.001
	Piacenza	0.005	<0.001	0.002	<0.001	**0.143**	**0.115**	0.001	<0.001	<0.001	<0.001
	Porto	0.007	<0.001	<0.001	<0.001	0.092	0.074	<0.001	<0.001	<0.001	<0.001
	Sevilla	0.012	<0.001	<0.001	<0.001	0.079	0.097	0.002	<0.001	0.001	<0.001
	Thiva	<0.001	<0.001	<0.001	<0.001	0.098	**0.128**	<0.001	<0.001	<0.001	<0.001

Table 8.8-7: PEC$_{gw}$ for Acetamiprid and metabolites after single application on Apple with FOCUS PELMO 5.5.3 and PEARL 4.4.4

Crop	Scenario	80th Percentile PEC$_{gw}$ at 1 m Soil Depth (µg/L)									
		Acetamiprid		IM-1-4		IM-1-5		IM-1-2		IC-0	
		PELMO	PEARL	PELMO	PEARL	PELMO	PEARL	PELMO	PEARL	PELMO	PEARL
Apple	Châteaudun	<0.001	<0.001	<0.001	<0.001	**0.070**	**0.060**	<0.001	<0.001	<0.001	<0.001
	Hamburg	<0.001	<0.001	<0.001	<0.001	**0.056**	**0.064**	<0.001	<0.001	<0.001	<0.001
	Kremsmünster	0.001	<0.001	<0.001	<0.001	**0.057**	**0.045**	<0.001	<0.001	<0.001	<0.001
	Okehampton	0.002	<0.001	<0.001	<0.001	**0.101**	**0.056**	<0.001	<0.001	0.001	<0.001
	Piacenza	0.004	<0.001	0.001	<0.001	**0.066**	**0.048**	0.001	<0.001	<0.001	<0.001
	Thiva	-	<0.001	-	<0.001	-	**0.054**	-	<0.001	-	<0.001

FOCUS MACRO calculations have been done only for metabolite IM-1-5 in apple crop due to its concentration is greater than 0.1 µg/L. Results are given below.

Table 8.8-8: PEC$_{gw}$ for Acetamiprid and metabolites on Apple with FOCUS MACRO 5.5.4

Crop	Scenario	80th Percentile PEC$_{gw}$ at 1 m Soil Depth (µg/L)	
		Acetamiprid	IM-1-5
		MACRO	MACRO
Apple	Châteaudun	<0.001	0.042

According to the models Acetamiprid and its non-relevant metabolites IM-1-2, IM-1-4 and IC-0 showed PECgw values far below 0.1 µg/L for all uses and models. Only the metabolite IM-1-5 showed PECgw values greater than trigger of 0.1 µg/L in several scenarios for apple in PELMO and PEARL models. However in MACRO model the PECgw was below 0.1 µg/L. The PECgw maximum was 0.205 µg/L in PELMO Hamburg scenario.

Considerations must be taken since IM-1-5 metabolite only appears in calcareous soils with pH (water) > 8 and none of the FOCUS scenarios has pH greater than 8, only Châteaudun has pH = 8. Therefore, the FOCUS models are not suitable to assess the ground water concentration of this metabolite. Furthermore, the metabolite IM-1-5 was found only in the top 10 cm in the field studies and not detected in the leaching studies.

Due to comments on efficacy section about possible reduction of rate additional calculations are presented for Pome fruits, two applications at 36 g as/ha instead of 50 g as/ha have been calculated. The results are given below.

Table 8.8-8: PEC$_{gw}$ for Acetamiprid and metabolites on Apple with FOCUS PELMO 5.5.3 and PEARL 4.4.4 (2 x 36 g as/ha)

Crop	Scenario	80th Percentile PEC$_{gw}$ at 1 m Soil Depth (µg/L)									
		Acetamiprid		IM-1-4		IM-1-5		IM-1-2		IC-0	
		PELMO	PEARL	PELMO	PEARL	PELMO	PEARL	PELMO	PEARL	PELMO	PEARL
Apple	Châteaudun	<0.001	<0.001	<0.001	<0.001	0.083	0.097	<0.001	<0.001	<0.001	<0.001
	Hamburg	<0.001	<0.001	<0.001	<0.001	0.075	**0.103**	<0.001	<0.001	<0.001	<0.001
	Jokioinen	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Kremsmünster	<0.001	<0.001	<0.001	<0.001	0.061	0.073	<0.001	<0.001	<0.001	<0.001
	Okehampton	<0.001	<0.001	<0.001	<0.001	0.089	0.090	<0.001	<0.001	<0.001	<0.001
	Piacenza	<0.001	<0.001	<0.001	<0.001	0.076	0.078	<0.001	<0.001	<0.001	<0.001
	Porto	<0.001	<0.001	<0.001	<0.001	0.049	0.051	<0.001	<0.001	<0.001	<0.001
	Sevilla	<0.001	<0.001	<0.001	<0.001	0.021	0.065	<0.001	<0.001	<0.001	<0.001
	Thiva	<0.001	<0.001	<0.001	<0.001	0.056	0.087	<0.001	<0.001	<0.001	<0.001

PECgw values far below 0.1 µg/L only the metabolite IM-1-5 showed PECgw a value greater than trigger of 0.1 µg/L in Hamburg PEARL model 0.103 µg/L. However as explained above considerations must be taken since IM-1-5 metabolite only appears in calcareous soils with pH (water) > 8 and none of the FOCUS scenarios has pH greater than 8, only Châteaudun has pH = 8 and Hamburg has a pH of 6.5. Therefore, under realistic conditions this metabolite will never be found in Hamburg scenario. Furthermore, the metabolite IM-1-5 was found only in the top 10 cm in the field studies and not detected in the leaching studies.

zRMS comments:

The PECgw calculations for acetamiprid and its metabolites have been accepted. The parameters used for the calculations have been considered at the EU level (EFSA Journal 2016;14(11): 4610). The calculations cover proposed uses in GAP. The crop interception assumed in calculations is in line with the most recent version of the FOCUS Groundwater Guidance of 2014. In simulations PUF value of 0 was assumed for all compounds except IM-1-5 for which the PUF 0.5 was used in accordance with EFSA.

Based on FOCUS PEARL and PELMO and MACRO simulations values of PECgw for acetamiprid and its metabolites are far below the threshold concentration of 0.1 µg/L for all scenarios and crops. Only the PECgw of metabolite IM-1-5 exceeded 0.1 µg/L in some scenarios and some crops, however they all were <0.75 µg/L. The metabolite IM-1-5 occurred only in the soils stated to be calcareous. However, for uses on pome fruits for two applications at 36 g as/ha instead of 50 g as/ha the results were <0.1 µg/L.

In opinion zRMS no unacceptable risk for groundwater was identified.
However, mitigation measures has to be considered at National Level: to protect groundwater do not apply in calcareous soils on pome/stone fruits (SPe 2).

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

8.9.1 Justification for new endpoints

No deviation from the EU agreed endpoints.

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

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

Use No.	1	2	2*
Crop	Oilseed Rape	Pome fruits	Pome fruits
Application rate (g as/ha)	40	50	36
Number of applications/interval (d)	1	2/14	2/14
Application window	March-May (Winter OSR) June-September (Summer OSR)	March-May (Early application) June-September (Late application)	March-May (Early application) June-September (Late application)
Application method	Foliar spray	Airblast	Airblast
CAM (Chemical application method)	CAM 2		
Soil depth (cm)	Water body: 30cm, Sediment: 5cm		
Models used for calculation	FOCUS STEPS 1-2 v3.2, FOCUS SWASH v5.3, FOCUS PRZM v4.3.1, FOCUS MACRO v5.5.4, FOCUS TOXWA v5.5.3, SWAN v 5.0.0		

***Due to comments on efficacy section about possible reduction of rate additional calculations are presented**

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

Scenario	Application window used in modelling*			
	WOSR	**SOSR**	**Apple Early** BBCH 11	**Apple Late** BBCH 69
D1	-	31/05	-	-
D2	30/09	-	-	-
D3	17/09	27/04	18/04	29/06
D4	18/09	14/05	23/04	03/07
D5	05/10	03/04	03/04	30/05
R1	19/09	25/04	18/04	29/06
R2	-	-	19/03	28/07

Scenario	Application window used in modelling*			
	WOSR	**SOSR**	**Apple Early** BBCH 11	**Apple Late** BBCH 69
R3	20/10	-	03/04	30/05
R4	-	-	18/03	29/05

***First application according to AppDate 3.06 (28 June 2019)**

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

Compound	**Acetamiprid**	**IM-1-2**	**IM-1-4**	**IC-0**	**IM-1-5**	**IB-1-1**	**Value in accord-ance to EU end-point y/n/ Reference**
Molecular weight (g/mol)	226.68	240.69	156.61	157.55	197.66	204.23	EFSA Journal 2016;14(11): 4610
Saturated vapour pressure (Pa)	$1x10^{-6}$ @20ºC	not required for Step 1+2					
Water solubility (mg/L)	2950 @ 25ºC and pH 7	1000 (default)					
Diffusion coefficient in water (m^2/d)	4.3×10^{-5}	not required for Step 1+2					default
Diffusion coefficient in air (m^2/d)	0.43	not required for Step 1+2					default
K_{foc}/K_{om} (mL/g)	102.1/59.2 geomean, n = 5)	41.7/24.2 (geomean, n = 4)	167.1/96.9 (geomean, n = 5)	106.5/61.8 (geomean, n = 5)	307.9/178.6 (geomean, n = 4)	0 (default)	EFSA Journal 2016;14(11): 4610
Freundlich Exponent 1/n	0.860 (arithmetic mean, n = 5)	not required for Step 1+2					
Plant Uptake	0	not required for Step 1+2					Default
Wash-Off factor from Crop (1/mm)	0.05 (MACRO) 0.50 (PRZM)	not required for Step 1+2					
$DT_{50,soil}$ (d)	1.45 (lab studies geomean, 20ºC, Q10 2.58, pF2, n =7)	1.7 (lab studies geomean, 20ºC, Q10 2.58, pF2, n = 3)	14.6 (lab studies geomean, 20ºC, Q10 2.58, pF2, n = 7)	2.7 (lab studies geomean, 20ºC, Q10 2.58, pF2, n = 7)	495 (lab studies geomean, 20ºC, Q10 2.58, pF2, n = 7)	1000 (default)	EFSA Journal 2016;14(11): 4610
$DT_{50,water}$ (d)	27 (geomean, n=2)	1000 (default)					
$DT_{50,sed}$ (d)	1000 (default)	1000 (default)					
$DT_{50,whole\ system}$ (d)	27 (geomean, n=2)	1000 (default)					

Compound	**Acetamiprid**	**IM-1-2**	**IM-1-4**	**IC-0**	**IM-1-5**	**IB-1-1**	**Value in accord-ance to EU end-point y/n/ Reference**
Maximum occurrence observed (% molar basis with respect to the parent)	Sediment: 39.05	Soil: 55 Water: 10.96 Sediment:3.93 Total system: 13.4	Soil: 72 Water: 12.3 Sediment:30.7 Total system: 81.5	Soil:11.3 Water: 26.15 Sediment:5.61 Total system:29.5	Soil:20 Water: - Sediment:- Total system:0.00001 (default)	Soil:0.00001 (default) Water: - Sediment:- Total system:35	
Formation fraction in soil:	-	0.77 from parent	0.74 from IM-1-2	0.67 from IM-1-4	0.15 from parent	-	

$PEC_{sw/sed}$

Table 8.9-4: FOCUS Step 1, 2 and 3 PEC_{sw} and PEC_{sed} for Acetamiprid following single application of ASSET ~~ZUXION~~ to winter oilseed rape

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	21 d- $PEC_{sw,twa}$ (µg/L)	Max PEC_{sed} (µg/kg)
Step 1		12.10	Runoff/Drainage	9.32	12.00
Step 2					
Northern Europe	June-Sept	0.41	Spray-drift	0.32	0.41
Southern Europe	June-Sept	0.51		0.40	0.51
Step 3					
D2	ditch	0.257	Spray-drift Drainage	0.103	0.282
D2	stream	0.229		0.090	0.252
D3	ditch	0.255		0.023	0.102
D4	pond	0.009		0.007	0.021
D4	stream	0.219		0.003	0.033
D5	pond	0.009		0.007	0.021
D5	stream	0.237		0.004	0.042
R1	pond	0.009	Spray-drift Runoff/erosion	0.007	0.019
R1	stream	0.168		0.002	0.020
R3	stream	0.320		0.018	0.107

Table 8.9-5: FOCUS Step 1, 2 and 3 PEC_{sw} and PEC_{sed} for Acetamiprid following single application of ASSET ~~ZUXION~~ to summer oilseed rape

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	21 d- $PEC_{sw,twa}$ (µg/L)	Max PEC_{sed} (µg/kg)
Step 1		12.10	Runoff/Drainage	9.32	12.00
Step 2					
Northern Europe	March-May	0.41	Spray-drift	0.32	0.41
Southern Europe	March-May	0.46		0.36	0.46
Step 3					
D1	ditch	0.257	Spray-drift Drainage	0.187	0.340
D1	stream	0.224		0.010	0.068
D3	ditch	0.254		0.015	0.082
D4	pond	0.009		0.007	0.018

Scenario **FOCUS**	**Waterbody**	**Max PEC$_{sw}$ (µg/L)**	**Dominant entry route**	**21 d- PEC$_{sw,twa}$ (µg/L)**	**Max PEC$_{sed}$ (µg/kg)**
D4	stream	0.208		0.001	0.013
D5	pond	0.009		0.007	0.020
D5	stream	0.201		<0.001	0.005
R1	pond	0.009	Spray-drift Runoff/erosion	0.007	0.019
R1	stream	0.167		0.001	0.018

Table 8.9-6: FOCUS Step 1, 2 and 3 PEC$_{sw}$ and PEC$_{sed}$ for Acetamiprid following single/ multiple applications of ASSET ~~ZUXION~~ to pome/stone fruits – early application

Scenario **FOCUS**	**Waterbody**	**Max PEC$_{sw}$ (µg/L)**	**Dominant entry route**	**21 d- PEC$_{sw,twa}$ (µg/L)**	**Max PEC$_{sed}$ (µg/kg)**
Step 1		19.54/39.07	Runoff/Drainage	14.66/29.33	18.86/37.72
Step 2					
Northern Europe	March-May	4.87/7.05	Spray-drift	3.68/5.40	4.33/6.33
Southern Europe	March-May	4.87/7.05		3.92/5.64	4.68/6.69
Step 3					
D3	ditch	3.884/3.343	Spray-drift Drainage	0.212/0.382	1.030/1.153
D4	pond	0.236/0.318		0.195/0.256	0.423/0.671
D4	stream	3.742/3.380		0.010/0.017	0.143/0.227
D5	pond	0.236/0.367		0.196/0.308	0.431/0.712
D5	stream	3.852/3.582		0.007/0.022	0.105/0.211
R1	pond	0.236/0.359	Spray-drift Runoff/erosion	0.189/0.289	0.393/0.649
R1	stream	3.140/2.681		0.025/0.038	0.295/0.253
R2	stream	4.160/3.557		0.017/0.015	0.213/0.201
R3	stream	4.443/3.793		0.070/0.118	0.619/0.607
R4	stream	3.159/2.697		0.034/0.029	0.332/0.309

Table 8.9-7: FOCUS Step 1, 2 and 3 PEC$_{sw}$ and PEC$_{sed}$ for Acetamiprid following single/ multiple applications of ASSET ~~ZUXION~~ to pome/stone fruits – late application

Scenario **FOCUS**	**Waterbody**	**Max PEC$_{sw}$ (µg/L)**	**Dominant entry route**	**21 d- PEC$_{sw,twa}$ (µg/L)**	**Max PEC$_{sed}$ (µg/kg)**
Step 1		17.29/34.58	Runoff/Drainage	13.13/26.26	16.89/33.79
Step 2					
Northern	June-Sept	2.62/3.35	Spray-drift	1.96/2.55	2.30/2.99

Scenario **FOCUS**	**Waterbody**	**Max PEC$_{sw}$ (µg/L)**	**Dominant entry route**	**21 d- PEC$_{sw,twa}$ (µg/L)**	**Max PEC$_{sed}$ (µg/kg)**
Europe					
Southern Europe	June-Sept	2.62/3.35		2.01/2.61	2.37/3.07
Step 3					
D3	ditch	1.838/1.458	Spray-drift Drainage	0.161/0.157	0.642/0.690
D4	pond	0.082/0.116		0.062/0.090	0.133/0.216
D4	stream	1.842/1.477		0.024/0.040	0.242/0.230
D5	pond	0.082/0.118		0.065/0.094	0.141/0.225
D5	stream	1.990/1.594		0.037/0.058	0.322/0.300
R1	pond	0.082/0.124	Spray-drift Runoff/erosion	0.065/0.093	0.140/0.217
R1	stream	1.411/1.130		0.020/0.030	0.160/0.129
R2	stream	1.892/1.515		0.010/0.015	0.123/0.111
R3	stream	1.989/1.593		0.036/0.057	0.316/0.294
R4	stream	1.379/1.130		0.008/0.023	0.102/0.138

Due to comments on efficacy section about possible reduction of rate additional calculations are presented the new rate is 36 g as/ha instead of 50 g as/ha maintaining the number of applications and the interval between them. Only steps 3 & 4 have been calculated.

Table 8.9-8: FOCUS Step 3 PEC$_{sw}$ and PEC$_{sed}$ for Acetamiprid following single/ multiple applications of ASSET ~~ZUXION~~ to pome/stone fruits – early application (2 x 36 g as/ha)

Scenario **FOCUS**	**Waterbody**	**Max PEC$_{sw}$ (µg/L)**	**Dominant entry route**	**21 d- PEC$_{sw,twa}$ (µg/L)**	**Max PEC$_{sed}$ (µg/kg)**
D3	ditch	2.796/2.407	Spray-drift Drainage	0.153/0.275	0.757/0.848
D4	pond	0.170/0.229		0.140/0.184	0.311/0.494
D4	stream	2.694/2.434		0.007/0.012	0.103/0.165
D5	pond	0.170/0.264		0.141/0.222	0.317/0.524
D5	stream	2.774/2.579		0.005/0.016	0.076/0.153
R1	pond	0.170/0.258	Spray-drift Runoff/erosion	0.136/0.208	0.289/0.477
R1	stream	2.261/1.930		0.018/0.027	0.215/0.184
R2	stream	2.995/2.561		0.012/0.011	0.155/0.146
R3	stream	3.199/2.731		0.050/0.085	0.453/0.444
R4	stream	2.274/1.942		0.024/0.021	0.242/0.225

Table 8.9-9: FOCUS Step 3 PEC_{sw} and PEC_{sed} for Acetamiprid following single/ multiple applications of ASSET ~~ZUXION~~ to pome/stone fruits – late application (2 x 36 g as/ha)

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	21 d- $PEC_{sw,twa}$ (µg/L)	Max PEC_{sed} (µg/kg)
D3	ditch	1.323/1.050	Spray-drift Drainage	0.116/0.113	0.472/0.507
D4	pond	0.059/0.084		0.045/0.064	0.098/0.159
D4	stream	1.326/1.064		0.017/0.028	0.177/0.169
D5	pond	0.059/0.085		0.046/0.068	0.104/0.166
D5	stream	1.433/1.148		0.026/0.042	0.235/0.220
R1	pond	0.059/0.089	Spray-drift Runoff/erosion	0.047/0.067	0.103/0.160
R1	stream	1.016/0.814		0.015/0.021	0.116/0.094
R2	stream	1.362/1.091		0.007/0.011	0.090/0.081
R3	stream	1.432/1.147		0.026/0.041	0.231/0.215
R4	stream	0.993/0.814		0.006/0.016	0.074/0.101

FOCUS Step 4

Table 8.9-10: Global maximum PEC_{sw} values for Acetamiprid, following single application of ASSET ~~ZUXION~~ to winter oil seed rape according to the Central EU zone GAP according to surface water Step 4

PEC_{sw} (µg/L)	Scenario	STEP 4 Acetamiprid					
Nozzle reduction	Vegetative strip (m)	None				10	20
	No spray buffer (m)	5	10	15	20	10	20
None	D2 ditch	0.070	0.044	0.044	-	-	-
50 %		0.044	0.044	-	-	-	-
75 %		0.044	-	-	-	-	-
90%		-	-	-	-	-	-
None	D2 stream	0.083	0.044	0.030	0.028	-	-
50 %		0.042	0.028	0.028	-	-	-
75 %		0.030	0.028	-	-	-	-
90%		0.028	-	-	-	-	-
None	D3 ditch	0.069	0.037	0.025	0.019	-	-
50 %		0.035	0.018	0.013	-	-	-
75 %		0.017	-	-	-	-	-
90%		-	-	-	-	-	-
None	D4 stream	0.080	0.042	0.029	0.022	-	-

PEC_{sw} (µg/L)	**Scenario**	**STEP 4 Acetamiprid**					
Nozzle reduction	Vegetative strip (m)	None				10	20
	No spray buffer (m)	5	10	15	20	10	20
50 %		0.040	0.021	0.015	-	-	-
75 %		0.020	-	-	-	-	-
90%		-	-	-	-	-	-
None	D5 stream	0.086	0.046	0.031	0.024	-	-
50 %		0.043	0.0229	0.016	0.012	-	-
75 %		0.022	-	-	-	-	-
90%		-	-	-	-	-	-
None	R1 stream	0.061	0.032	0.022	0.017	-	-
50 %		0.031	0.016	0.011	-	-	-
75 %		0.015	-	-	-	-	-
90%		-	-	-	-	-	-
None	R3 stream	0.320	-	-	-	0.083	0.0236
50 %		-	-	-	-	-	-
75 %		-	-	-	-	-	-
90%		-	-	-	-	-	-

Table 8.9-11: Global maximum PEC_{sw} values for Acetamiprid, following single application of ASSET ~~ZUXION~~ to summer oil seed rape according to the Central EU zone GAP according to surface water Step 4

PEC_{sw} (µg/L)	**Scenario**	**STEP 4 Acetamiprid**			
Nozzle reduction	Vegetative strip (m)	None			
	No spray buffer (m)	5	10	15	20
None	D1 ditch	0.070	0.037	0.025	0.019
50 %		0.035	0.019	0.013	-
75 %		0.018	-	-	-
None	D1 stream	0.082	0.043	0.030	0.0226
50 %		0.041	0.022	0.015	-
75 %		0.021	-	-	-
None	D3 ditch	0.069	0.036	0.025	0.020
50 %		0.034	0.018	0.012	-
75 %		0.017	-	-	-
None	D4 stream	0.076	0.040	0.027	0.021

PEC_{sw} (µg/L)	**Scenario**	**STEP 4 Acetamiprid**			
Nozzle reduction	Vegetative strip (m)	None			
	No spray buffer (m)	5	10	15	20
50 %		0.038	0.020	0.014	-
75 %		0.019	-	-	-
None	D5 stream	0.074	0.039	0.027	0.020
50 %		0.037	0.020	0.013	-
75 %		0.018	-	-	-
None	R1 stream	0.061	0.032	0.022	-
50 %		0.031	0.016	-	-
75 %		0.015	-	-	-

FOCUS Step 4

Table 8.9-12 8: Global maximum PEC_{sw} values for Acetamiprid, following single/multiple application(s) of ASSET ~~ZUXION~~ to pome/stone fruits – early application according to the central EU zone GAP according to surface water Step 4

PEC_{sw} (µg/L)	**Scenario**	**STEP 4 Acetamiprid**				
Nozzle reduction	Vegetative strip (m)	None				
	No spray buffer (m)	5	10	15	20	30
None	D3 ditch	3.051/2.577	1.874/1.523	0.843/0.836	0.429/0.394	0.164/0.136
50 %		1.526/1.289	0.937/0.761	0.422/0.418	0.214/0.197	-/-
75 %		0.763/0.644	0.468/0.381	0.211/0.209	-/-	-/-
90 %		0.305/0.258	0.187/0.152	-/-	-/-	-/-
None	D4 stream	3.216/2.870	1.974/1.695	0.888/0.931	0.451/0.439	0.173/0.151
50 %		1.608/1.435	0.987/0.848	0.444/0.465	0.226/0.219	-/-
75 %		0.804/0.717	0.494/0.424	0.222/0.233	-/-	-/-
90 %		0.322/0.287	0.197/0.170	-/-	-/-	-/-
None	D5 stream	3.311/3.041	2.032/1.797	0.914/0.986	0.465/0.465	0.178/0.160
50 %		1.655/1.521	1.016/0.898	0.457/0.493	0.232/0.233	-/-
75 %		0.827/0.760	0.508/0.449	0.229/0.247	-/-	-/-
90 %		0.331/0.304	0.203/0.180	-/-	-/-	-/-
None	R1 stream	2.699/2.276	1.657/1.345	0.745/0.738	0.379/0.348	0.145/0.120
50 %		1.349/1.138	0.828/0.672	0.373/0.369	0.189/-	-/-
75 %		0.674/0.569	0.414/0.336	0.186/-	-/-	-/-

PEC_{sw} (µg/L)	**Scenario**	**STEP 4 Acetamiprid**				
Nozzle reduction	Vegetative strip (m)	None				
	No spray buffer (m)	5	10	15	20	30
90 %		0.270/0.228	0.166/-	-/-	-/-	-/-
None	R2 stream	3.575/3.019	2.195/1.784	0.988/0.979	0.502/0.462	0.192/0.159
50 %		1.787/1.510	1.097/0.892	0.494/0.490	0.251/0.231	-/-
75 %		0.893/0.755	0.549/0.446	0.247/0.245	-/-	-/-
90 %		0.358/0.302	0.220/0.178	-/-	-/-	-/-
None	R3 stream	3.818/3.220	2.344/1.902	1.055/1.044	0.536/0.492	0.205/0.169
50 %		1.908/1.610	1.172/0.951	0.527/0.522	0.268/0.246	-/-
75 %		0.954/0.805	0.586/0.476	0.264/0.261	-/-	-/-
90 %		0.382/0.322	0.234/0.190	-/-	-/-	-/-
None	R4 stream	2.715/2.289	1.666/1.353	0.750/0.743	0.381/0.350	0.146/0.120
50 %		1.357/1.145	0.833/0.676	0.375/0.371	0.191/-	-/-
75 %		0.678/0.572	0.417/0.338	0.187/-	-/-	-/-
90 %		0.272/0.229	0.167/-	-/-	-/-	-/-

Table 8.9-13 8: Global maximum PEC_{sw} values for Acetamiprid, following single/multiple application(s) of ASSET ~~ZUXION~~ to pome/stone fruits – late application according to the central EU zone GAP according to surface water Step 4

PEC_{sw} (µg/L)	**Scenario**	**STEP 4 Acetamiprid**			
Nozzle reduction	Vegetative strip (m)	None			
	No spray buffer (m)	5	10	15*	20
None	D3 ditch	1.240/1.014	0.554/0.487	0.280/0.239	-/-
50 %		0.620/0.507	0.277/0.244	-/-	-/-
75 %		0.310/0.254	-/-	-/-	-/-
90 %		-/-	-/-	-/-	-/-
None	D4 stream	1.437/1.176	0.642/0.565	0.324/0.276	-/-
50 %		0.719/0.588	0.321/0.282	-/-	-/-
75 %		0.359/0.294	-/-	-/-	-/-
90 %		-/-	-/-	-/-	-/-
None	D5 stream	1.553/1.268	0.694/0.609	0.351/0.298	-/-
50 %		0.777/0.634	0.347/0.305	-/-	-/-
75 %		0.388/0.317	-/-	-/-	-/-
90 %		0.155/-	-/-	-/-	-/-

PEC_{sw} (µg/L)	**Scenario**	**STEP 4 Acetamiprid**			
Nozzle reduction	Vegetative strip (m)	None			
	No spray buffer (m)	5	10	15*	20
None	R1 stream	1.101/0.899	0.492/0.432	0.249/0.242	-/-
50 %		0.551/0.450	0.246/0.242	-/-	-/-
75 %		0.275/0.242	-/-	-/-	-/-
90 %		-/-	-/-	-/-	-/-
None	R2 stream	1.476/1.205	0.660/0.579	0.333/0.283	-/-
50 %		0.738/0.603	0.330/0.289	-/-	-/-
75 %		0.369/0.301	-/-	-/-	-/-
90 %		-/-	-/-	-/-	-/-
None	R3 stream	1.552/1.268	0.694/0.609	0.350/0.298	-/-
50 %		0.776/0.634	0.347/0.304	-/-	-/-
75 %		0.388/0.317	-/-	-/-	-/-
90 %		0.155/-	-/-	-/-	-/-
None	R4 stream	1.077/0.899	0.481/0.432	0.243/0.274	-/-
50 %		0.538/0.450	0.241/0.274	-/-	-/-
75 %		0.269/0.274	-/-	-/-	-/-
90 %		-/-	-/-	-/-	-/-

Table 8.9-14: Global maximum PEC_{sw} values for Acetamiprid, following <u>single/multiple</u> applications of ASSET ~~ZUXION~~ to pome/stone fruits – early application (2 x 36 g as/ha) according to the central EU zone GAP according to surface water Step 4

PEC_{sw} (µg/L)	**Sce-nario**	**STEP 4 Acetamiprid**										
Nozzle reduction	Vegetative strip (m)	None							20			
	No spray buffer (m)	5	10	15	20	30	40	50	20	30	40	50
None	D3 ditch	-/-	-/-	-/-	0.309/0.	0.118/0.0	0.059/0.0	0.034/0.	-/-	-/-	-/-	-/-
50 %		-/-	-/-	-/-	0.154/0.	0.059/0.0	0.030/0.0	0.017/0.	-/-	-/-	-/-	-/-
75 %		-/-	-/-	-/-	0.077/0.	0.029/0.0	0.015/-	-/-	-/-	-/-	-/-	-/-
90 %		-/-	-/-	-/-	0.031/0.	0.012/0.0	-/-	-/-	-/-	-/-	-/-	-/-
95 %		-/-	-/-	-/-	0.015/0.	-/-	-/-	-/-	-/-	-/-	-/-	-/-
None	D4	0.191/0.	0.105/0.	0.055/0.	0.034/0.	0.016/0.0	-/-	-/-	-/-	-/-	-/-	-/-

PECsw (µg/L)	**Sce-nario**	**STEP 4 Acetamiprid**										
Nozzle reduction	Vegetative strip (m)	None							20			
	No spray buffer (m)	5	10	15	20	30	40	50	20	30	40	50
50 %	pond	0.096/0.	0.052/0.	0.028/0.	0.017/0.	-/-	-/-	-/-	-/-	-/-	-/-	-/-
75 %		0.048/0.	0.026/0.	0.014/0.	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
90 %		0.019/0.	0.010/0.	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
95 %		-/0.013	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
None	D4 stream	-/-	-/-	-/-	0.325/0.	0.124/0.1	0.063/0.0	0.037/0.	-/-	-/-	-/-	-/-
50 %		-/-	-/-	-/-	0.163/0.	0.062/0.0	0.031/0.0	0.018/0.	-/-	-/-	-/-	-/-
75 %		-/-	-/-	-/-	0.081/0.	0.031/0.0	0.017/0.0	-/-	-/-	-/-	-/-	-/-
90 %		-/-	-/-	-/-	0.033/0.	0.012/0.0	-/-	-/-	-/-	-/-	-/-	-/-
95 %		-/-	-/-	-/-	0.016/0.	-/-	-/-	-/-	-/-	-/-	-/-	-/-
None	D5 pond	0.191/0.	0.105/0.	0.055/0.	0.034/0.	0.016/0.0	-/-	-/-	-/-	-/-	-/-	-/-
50 %		0.096//0.	0.052/0.	0.028/0.	0.017/0.	-/-	-/-	-/-	-/-	-/-	-/-	-/-
75 %		0.048/0.	0.026/0.	0.014/0.	-/0.013	-/-	-/-	-/-	-/-	-/-	-/-	-/-
90 %		0.019/0.	0.010/0.	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
95 %		-/0.015	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
None	D5 stream	-/-	-/-	-/-	0.335/0.	0.128/0.1	0.064/0.0	0.038/0.	-/-	-/-	-/-	-/-
50 %		-/-	-/-	-/-	0.167/0.	0.064/0.0	0.032/0.0	0.019/0.	-/-	-/-	-/-	-/-
75 %		-/-	-/-	-/-	0.084/0.	0.032/0.0	0.016/0.0	-/-	-/-	-/-	-/-	-/-
90 %		-/-	-/-	-/-	0.033/0.	0.013/0.0	-/-	-/-	-/-	-/-	-/-	-/-
95 %		-/-	-/-	-/-	0.017/0.	-/-	-/-	-/-	-/-	-/-	-/-	-/-
None	R1 pond	0.191/0.	0.105/0.	0.055/0.	0.034/0.	0.016/0.0	-/-	-/-	-/-	-/-	-/-	-/-
50 %		0.096/0.	0.052/0.	0.028/0.	0.017/0.	-/-	-/-	-/-	-/-	-/-	-/-	-/-
75 %		0.048/0.	0.026/0.	0.014/0.	-/0.012	-/-	-/-	-/-	-/-	-/-	-/-	-/-
90 %		0.019/0.	0.010/0.	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
95 %		-/0.014	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
None	R1 stream	-/-	-/-	-/-	0.273/0.	0.104/0.0	0.053/0.0	0.031/0.	-/0.251	-/0.086	-/0.040	-/0.022
50 %		-/-	-/-	-/-	0.136/0.	0.052/0.0	0.026/0.0	0.015/-	-/0.125	-/0.043	-/0.020	-/-
75 %		-/-	-/-	-/-	0.068/0.	0.026/0.0	0.013/-	-/-	-/0.063	-/0.022	-/-	-/-
90 %		-/-	-/-	-/-	0.027/0.	0.010/0.0	-/-	-/-	-/0.025	-/-	-/-	-/-
95 %		-/-	-/-	-/-	0.014/0.	-/-	-/-	-/-	-/0.013	-/-	-/-	-/-
None	R2 stream	-/-	-/-	-/-	0.361/0.	0.138/0.1	0.070/0.0	0.041/0.	-/-	-/-	-/-	-/-
50 %		-/-	-/-	-/-	0.181/0.	0.069/0.0	0.035/0.0	0.020/0.	-/-	-/-	-/-	-/-
75 %		-/-	-/-	-/-	0.090/0.	0.035/0.0	0.017/0.0	-/-	-/-	-/-	-/-	-/-

PECsw (µg/L)	**Sce-nario**	**STEP 4 Acetamiprid**										
Nozzle reduction	Vegetative strip (m)	None							20			
	No spray buffer (m)	5	10	15	20	30	40	50	20	30	40	50
90 %		-/-	-/-	-/-	0.036/0.	0.014/0.0	-/-	-/-	-/-	-/-	-/-	-/-
95 %		-/-	-/-	-/-	0.018/0.	-/	-/-	-/-	-/-	-/-	-/-	-/-
None	R3 stream	-/-	-/-	-/-	0.386/0.	0.148/0.1	0.074/0.0	0.044/0.	0.386/0.	0.148/0.	0.074/0.	0.044/0.
50 %		-/-	-/-	-/-	0.193/0.	0.074/0.0	0.037/0.0	0.025/0.	0.192/0.	0.074/0.	0.037/0.	0.022/0.
75 %		-/-	-/-	-/-	0.096/0.	0.037/0.0	0.025/0.0	-/-	0.096/0.	0.037/0.	0.019/0.	-/-
90 %		-/-	-/-	-/-	0.039/0.	0.025/0.0	-/-	-/-	0.039/0.	0.015/0.	-/-	-/-
95 %		-/-	-/-	-/-	0.025/0.	0.025/0.0	-/-	-/-	0.019/0.	-/-	-/-	-/-
None	R4 stream	-/-	-/-	-/-	0.274/0.	0.105/0.0	0.079/0.0	0.079/0.	0.274/0.	0.105/0.	0.053/0.	0.031/0.
50 %		-/-	-/-	-/-	0.137/0.	0.079/0.0	0.079/0.0	-/-	0.137/0.	0.052/0.	0.026/0.	0.017/-
75 %		-/-	-/-	-/-	0.079/0.	0.079/0.0	-/-	-/-	0.069/0.	0.026/0.	0.017/-	-/-
90 %		-/-	-/-	-/-	0.079/0.	-/-	-/-	-/-	0.027/0.	0.017/-	-/-	-/-
95 %		-/-	-/-	-/-	-/-	-/-	-/-	-/-	0.017/0.	-/-	-/-	-/-

Table 8.9-15: Global maximum PEC_{sw} values for Acetamiprid, following single/multiple applications of ASSET ~~ZUXION~~ to pome/stone fruits – late application (2 x 36 gas/ha) according to the central EU zone GAP according to surface water Step 4

PECsw (µg/L)	**Sce-nario**	STEP 4 Acetamiprid											
Nozzle reduction	Vegetative strip (m)	None							10	20			
	No spray buffer (m)	5	10	15	20	30	40	50	10	20	30	40	50
None	D3 ditch	-/-	0.399/0.	0.202/0.	0.123/0.	0.061/0.	0.037/0.	0.025/0.	-/-	-/-	-/-	-/-	-/-
50 %		-/-	0.200/0.	0.101/0.	0.062/0.	0.031/0.	0.019/0.	0.013/-	-/-	-/-	-/-	-/-	-/-
75 %		-/-	0.100/0.	0.050/0.	0.031/0.	0.015/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
90 %		-/-	0.040/0.	0.020/0.	0.013/0.	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
95 %		-/-	0.020/0.	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-

PECsw (µg/L)	**Sce-nario**	STEP 4 Acetamiprid											
Nozzle reduction	Vegetative strip (m)	None							10	20			
	No spray buffer (m)	5	10	15	20	30	40	50	10	20	30	40	50
None	D4 pond	0.068/0.	0.038/0.	0.024/0.	0.017/0.	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
50 %		0.034/0.	0.019/0.	0.012/0.	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
75 %		0.017/0.	-/0.013	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
90 %		-/0.009	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
95 %		-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
None	D4 stream	-/-	0.462/0.	0.234/0.	0.142/0.	0.071/0.	0.043/0.	0.029/0.	-/-	-/-	-/-	-/-	-/-
50 %		-/-	0.231/0.	0.117/0.	0.071/0.	0.035/0.	0.022/0.	0.015/-	-/-	-/-	-/-	-/-	-/-
75 %		-/-	0.116/0.	0.058/0.	0.036/0.	0.018/0.	-/-	-/-	-/-	-/-	-/-	-/-	-/-
90 %		-/-	0.046/0.	0.023/0.	0.014/0.	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
95 %		-/-	0.023/0.	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
None	D5 pond	0.068/0.	0.038/0.	0.024/0.	0.017/0.	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
50 %		0.034/0.	0.019/0.	0.012/0.	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
75 %		0.017/0.	-/0.013	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
90 %		-/0.010	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
95 %		-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
None	D5 stream	-/-	0.500/0.	0.252/0.	0.154/0.	0.077/0.	0.047/0.	0.032/0.	-/-	-/-	-/-	-/-	-/-
50 %		-/-	0.250/0.	0.126/0.	0.077/0.	0.038/0.	0.023/0.	0.016/-	-/-	-/-	-/-	-/-	-/-
75 %		-/-	0.125/0.	0.063/0.	0.039/0.	0.019/0.	-/-	-/-	-/-	-/-	-/-	-/-	-/-
90 %		-/-	0.050/0.	0.025/0.	0.015/0.	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
95 %		-/-	0.025/0.	0.013/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
None	R1 pond	0.068/0.	0.038/0.	0.025/0.	0.020/0.	-/0.019	-/-	-/-	-/-	-/-	-/-	-/-	-/-
50 %		0.034/0.	0.022/0.	0.017/0.	-/0.018	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
75 %		0.020/0.	-/0.020	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
90 %		-/0.017	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
95 %		-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
None	R1 stream	-/-	0.354/0.	0.179/0.	0.122/0.	-/-	-/-	-/-	0.354/0.	0.109/0.	0.054/0.	0.033/0.	0.02
50 %		-/-	0.178/0.	0.122/0.	-/-	-/-	-/-	-/-	0.177/0.	0.055/0.	0.027/0.	0.016/-	-/-
75 %		-/-	0.122/0.	-/-	-/-	-/-	-/-	-/-	0.089/0.	0.027/0.	0.014	-/-	-/-
90 %		-/-	0.122/-	-/-	-/-	-/-	-/-	-/-	0.035/0.	0.011/-	-/-	-/-	-/-
95 %			-/-	-/-	-/-	-/-	-/-	-/-	0.018/0.	-/-	-/-	-/-	-/-
None	R2 stream	-/-	0.475/0.	0.240/0.	0.147/0.	0.073/0.	0.044/0.	0.030/0.	-/-	-/-	-/-	-/-	-/-
50 %		-/-	0.238/0.	0.120/0.	0.073/0.	0.036/0.	0.022/0.	0.015/-	-/-	-/-	-/-	-/-	-/-

PECsw (µg/L)	**Scenario**	STEP 4 Acetamiprid											
Nozzle reduction	Vegetative strip (m)	None							10	20			
	No spray buffer (m)	5	10	15	20	30	40	50	10	20	30	40	50
75 %		-/-	0.119/0.	0.060/0.	0.037/0.	0.018/0.	-/-	-/-	-/-	-/-	-/-	-/-	-/-
90 %		-/-	0.048/0.	0.024/0.	0.015/0.	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
95 %		-/-	0.024/0.	0.012/0.	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
None	R3 stream	-/-	0.475/0.	0.240/0.	0.154/0.	0.077/0.	0.047/0.	0.032/0.	-/-	-/-	-/-	-/-	-/-
50 %		-/-	0.238/0.	0.126/0.	0.077/0.	0.038/0.	0.023/0.	0.016/-	-/-	-/-	-/-	-/-	-/-
75 %		-/-	0.125/0.	0.063/0.	0.039/0.	0.019/0.	-/-	-/-	-/-	-/-	-/-	-/-	-/-
90 %		-/-	0.050/0.	0.025/0.	0.015/0.	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
95 %		-/-	0.025/0.	0.013/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
None	R4 stream	-/-	0.346/0.	0.175/0.	0.107/0.	0.053/-	0.032/-	0.022/-	-/0.311	-/0.088	-/0.041	-/0.023	-/-
50 %		-/-	0.173/0.	0.087/0.	0.053/-	0.027/-	0.018/-	-/-	-/0.155	-/0.044	-/0.020	-/-	-/-
75 %		-/-	0.087/0.	0.044/-	0.027/-	0.018/-	-/-	-/-	-/0.078	-/0.022	-/-	-/-	-/-
90 %		-/-	0.035/-	0.018/-	0.018/-	-/-	-/-	-/-	-/0.031	-/-	-/-	-/-	-/-
95 %		-/-	0.018/-	-/-	-/-	-/-	-/-	-/-	-/0.016	-/-	-/-	-/-	-/-

Metabolites of Acetamiprid

Table 8.9-9: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} for IM-1-2 following single application of ASSET ~~ZUXION~~ to winter oilseed rape

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	21 d- $PEC_{sw,twa}$ (µg/L)	Max PEC_{sed} (µg/kg)
Step 1		9.23	Runoff/Drainage	9.16	3.84
Step 2					
Northern Europe	June-Sept	0.26	Spray-drift	0.25	0.11
Southern Europe	June-Sept	0.36		0.35	0.15

Table 8.9-17 ~~1~~: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} for IM -1-2 following single application of ASSET ~~ZUXION~~ to summer oilseed rape

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	21 d- $PEC_{sw,twa}$ (µg/L)	Max PEC_{sed} (µg/kg)
Step 1		9.23	Runoff/Drainage	9.16	3.84
Step 2					
Northern Europe	March-May	0.26	Spray-drift	0.25	0.11
Southern Europe	March-May	0.46		0.46	0.19

Table 8.9-18 ~~2~~ FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} for IM-1-2 following single/multiple applications of ASSET ~~ZUXION~~ to apple early application (worst case)

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	21 d- $PEC_{sw,twa}$ (µg/L)	Max PEC_{sed} (µg/kg)
Step 1		12.16/24.32	Runoff/Drainage	12.04/24.07	5.05/10.10
Step 2					
Northern Europe	March-May	1.01/1.50	Spray-drift	0.99/1.47	0.42/0.62
Southern Europe	March-May	1.35/1.84		1.33/1.81	0.56/0.76

Table 8.9-19 ~~3:~~ FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} for IM-1-4 following single application of ASSET ~~ZUXION~~ to winter oilseed rape

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	21 d- $PEC_{sw,twa}$ (µg/L)	Max PEC_{sed} (µg/kg)
Step 1		11.77	Runoff/Drainage	11.65	19.59
Step 2					
Northern Europe	June-Sept	0.83	Spray-drift	0.81	1.36
Southern Europe	June-Sept	1.15		1.13	1.90

Table 8.9-20 ~~4:~~ FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} for IM-1-4 following single application of ASSET ~~ZUXION~~ to summer oilseed rape

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	21 d- $PEC_{sw,twa}$ (µg/L)	Max PEC_{sed} (µg/kg)
Step 1		11.77	Runoff/Drainage	11.65	19.59
Step 2					
Northern Europe	March-May	0.83	Spray-drift	0.81	1.36
Southern Europe	March-May	1.47		1.45	2.44

Table 8.9-21 ~~5:~~ FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} for IM-1-4 following single/ multiple applications of ASSET ~~ZUXION~~ to apple early application (worst case)

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	21 d- $PEC_{sw,twa}$ (µg/L)	Max PEC_{sed} (µg/kg)
Step 1		17.19/34.39	Runoff/Drainage	16.59/33.17	27.88/55.76
Step 2					
Northern Europe	March-May	3.46/5.68	Spray-drift	3.29/5.40	5.53/9.07
Southern Europe	March-May	4.54/7.22		4.36/6.93	7.33/11.64

Table 8.9-22 ~~6:~~ FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} for IC-0 following single application of ASSET ~~ZUXION~~ to winter oilseed rape

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	21 d- $PEC_{sw,twa}$ (µg/L)	Max PEC_{sed} (µg/kg)
Step 1		3.39	Runoff/Drainage	3.35	3.59
Step 2					

Scenario **FOCUS**	**Waterbody**	**Max PEC$_{sw}$ (µg/L)**	**Dominant entry route**	**21 d- PEC$_{sw,twa}$ (µg/L)**	**Max PEC$_{sed}$ (µg/kg)**
Northern Europe	June-Sept	0.15	Spray-drift	0.15	0.16
Southern Europe	June-Sept	0.19		0.20	0.20

Table 8.9-23 ~~7~~: FOCUS Step 1 and 2 PEC$_{sw}$ and PEC$_{sed}$ for IC-0 following single application of ASSET ~~ZUXION~~ to summer oilseed rape

Scenario **FOCUS**	**Waterbody**	**Max PEC$_{sw}$ (µg/L)**	**Dominant entry route**	**21 d- PEC$_{sw,twa}$ (µg/L)**	**Max PEC$_{sed}$ (µg/kg)**
Step 1		3.39	Runoff/Drainage	3.35	3.59
Step 2					
Northern Europe	March-May	0.15	Spray-drift	0.15	0.16
Southern Europe	March-May	0.23		0.23	0.24

Table 8.9-24 ~~8~~: FOCUS Step 1 and 2 PEC$_{sw}$ and PEC$_{sed}$ for IC-0 following single/ multiple applications of ASSET ~~ZUXION~~ to apple early application (worst case)

Scenario **FOCUS**	**Waterbody**	**Max PEC$_{sw}$ (µg/L)**	**Dominant entry route**	**21 d- PEC$_{sw,twa}$ (µg/L)**	**Max PEC$_{sed}$ (µg/kg)**
Step 1		5.14/10.27	Runoff/Drainage	4.98/9.96	5.33/10.67
Step 2					
Northern Europe	March-May	1.05/1.72	Spray-drift	1.00/1.64	1.07/1.76
Southern Europe	March-May	1.18/1.86		1.14/1.78	1.22/1.91

Table 8.9-25 ~~9~~: FOCUS Step 1 and 2 PEC$_{sw}$ and PEC$_{sed}$ for IM-1-5 following single application of ASSET ~~ZUXION~~ to winter oilseed rape

Scenario **FOCUS**	**Waterbody**	**Max PEC$_{sw}$ (µg/L)**	**Dominant entry route**	**21 d- PEC$_{sw,twa}$ (µg/L)**	**Max PEC$_{sed}$ (µg/kg)**
Step 1		1.65	Runoff/Drainage	1.64	5.08
Step 2					
Northern Europe	June-Sept	0.20	Spray-drift	0.20	0.61
Southern Europe	June-Sept	0.30		0.29	0.91

Table 8.9- 26 ~~10~~: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} for IM-1-5 following single application of ASSET ~~ZUXION~~ to summer oilseed rape

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	21 d- $PEC_{sw,twa}$ (µg/L)	Max PEC_{sed} (µg/kg)
Step 1		1.65	Runoff/Drainage	1.64	5.08
Step 2					
Northern Europe	March-May	0.20	Spray-drift	0.20	0.61
Southern Europe	March-May	0.39		0.39	1.21

Table 8.9-27 ~~11~~: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} for IM-1-5 following single/ multiple applications of ASSET ~~ZUXION~~ to apple early application (worst case)

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	21 d- $PEC_{sw,twa}$ (µg/L)	Max PEC_{sed} (µg/kg)
Step 1		2.06/4.12	Runoff/Drainage	2.05/4.09	6.34/12.69
Step 2					
Northern Europe	March-May	0.33/0.65	Spray-drift	0.33/0.64	1.01/2.00
Southern Europe	March-May	0.66/1.30		0.65/1.29	2.02/4.00

Table 8.9-28 ~~12~~: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} for IB-1-1 following single application of ASSET ~~ZUXION~~ to winter oilseed rape

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	21 d- $PEC_{sw,twa}$ (µg/L)	Max PEC_{sed} (µg/kg)
Step 1		4.32	Runoff/Drainage	4.29	<0.01
Step 2					
Northern Europe	June-Sept	0.19	Spray-drift	0.19	<0.01
Southern Europe	June-Sept	0.23		0.23	<0.01

Table 8.9-29 ~~13~~: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} for IB-1-1 following single application of ASSET ~~ZUXION~~ to summer oilseed rape

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	21 d- $PEC_{sw,twa}$ (µg/L)	Max PEC_{sed} (µg/kg)
Step 1		4.32	Runoff/Drainage	4.29	<0.01
Step 2					

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	21 d- $PEC_{sw,twa}$ (µg/L)	Max PEC_{sed} (µg/kg)
Northern Europe	March-May	0.19	Spray-drift	0.19	<0.01
Southern Europe	March-May	0.26		0.26	<0.01

Table 8.9-30 ~~14~~: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} for IB-1-1 following single/ multiple applications of ASSET ~~ZUXION~~ to apple early application (worst case)

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	21 d- $PEC_{sw,twa}$ (µg/L)	Max PEC_{sed} (µg/kg)
Step 1		6.79/13.58	Runoff/Drainage	6.74/13.48	<0.01/<0.01
Step 2					
Northern Europe	March-May	1.65/2.79	Spray-drift	1.64/2.77	<0.01/<0.01
Southern Europe	March-May	1.78/2.91		1.77/2.89	<0.01/<0.01

8.9.2.1 $PEC_{sw/sed}$ of ASSET ~~ZUXION~~

The PEC_{SW} for ASSET ~~ZUXION~~ was calculated using the following equation:

$$PEC_{SW}\,(\mu g/L) = \frac{\%Drift_{90th\,\%ile} \times Application\,rate\,(g/ha)}{Water\,depth\,(cm) \times 10}$$

The PEC_{sed} for ASSET ~~ZUXION~~ was calculated using the following equation:

$$PEC_{sed}\,(\mu g/kg\,dw) = \frac{\%Drift_{90th\,\%ile} \times Application\,rate\,(g/ha) \times \%Active\,substance\,in\,sediment}{1000 \times sediment\,density\,(g/cm^3) \times sediment\,height\,(cm)}$$

The application of ASSET ~~ZUXION~~ is 2 x 250 g/ha for pome/stone fruits and 200 g/ha for oilseed rape. The depth of the static water body was assumed to be 30 cm. The resulting maximum instantaneous PEC_{SW} value is presented in the table 8.9-31~~5~~. A DT_{50} of 27d, ~~and~~ 14d of interval and drift values from SWASH Drift calculator have been considered for single/multiple applications calculations.

Table 8.9-10: PEC_{sw} for ASSET ~~ZUXION~~ following single/multiple applications

Crop	Distance (m)	Drift (%)	Max PEC_{sw} (µg/L)
Pome/stone fruits	3	Early: 26.1192 / 22.6421	21.766 / 32.040
			15.672 / 28.352*
		Late: 13.1415/ 10.2740	10.951 / 14.538
			7.885 / 10.468*

Crop	Distance (m)	Drift (%)	Max PEC_{sw} (µg/L)
Oilseed rape	1	1.9274	1.285

***Application rate 2 x 180 g/ha**

~~Crop~~	~~Distance (m)~~	~~Drift (%)~~	~~Max PEC_{sw} (µg/L)~~
~~Pome/stone fruits~~	~~3~~	~~Early: 29.20/25.53~~	~~24.33/36.13~~
		~~Late: 15.73/12.13~~	~~13.11/17.16~~
~~Oilseed rape~~	~~1~~	~~2.77~~	~~1.85~~

~~Pome/stone fruits early application~~

			~~Nozzles reduction (%)~~		
~~Distance (m)~~	~~Drift (%)~~	~~PECsw (µg/L)~~	~~50~~	~~75~~	~~90~~
~~3~~	~~25.53~~	~~42.55~~	~~21.76~~	~~10.88~~	~~4.26~~
~~5~~	~~16.87~~	~~28.12~~	~~15.46~~	~~6.80~~	~~2.81~~
~~10~~	~~9.61~~	~~16.02~~	~~9.48~~	~~4.74~~	~~1.60~~
~~15~~	~~5.61~~	~~9.35~~	~~4.68~~	~~2.34~~	~~0.94~~
~~20~~	~~2.59~~	~~4.32~~	~~2.16~~	~~1.08~~	~~0.43~~
~~30~~	~~0.87~~	~~1.45~~	~~0.11~~	~~-~~	~~-~~
~~40~~	~~0.4~~	~~0.67~~	~~-~~	~~-~~	~~-~~
~~50~~	~~0.22~~	~~0.37~~	~~-~~	~~-~~	~~-~~

~~Oilseed rape~~

			~~Nozzles reduction (%)~~		
~~Distance (m)~~	~~Drift (%)~~	~~PECsw (µg/L)~~	~~50~~	~~75~~	~~90~~
~~1~~	~~2.77~~	~~1.85~~	~~0.92~~	~~-~~	~~-~~
~~3~~	~~0.95~~	~~0.63~~	~~-~~	~~-~~	~~-~~

The PEC_{sed} for ASSET ~~ZUXION~~ was calculated using the following equation:

$$PEC_{sed}\ (\mu g/kg dw) = \frac{\%Drift_{90th\ \%ile} \times Application\ rate\ (g/ha) \times \%Active\ substance\ in\ sediment}{1000 \times sediment\ density\ (g/cm^3) \times sediment\ height\ (cm)}$$

The application of ASSET ~~ZUXION~~ is 2 x 250 g/ha for pome/stone fruits and 200 g/ha for oilseed rape. The height of the sediment was assumed to be 5 cm and the sediment density was assumed to be 1.3 g/cm^3. A DT_{50} of 1000d, 14d of interval and drift values from SWASH Drift calculator have been considered for single/multiple applications calculations. The resulting maximum instantaneous PEC_{sed} value is presented in the table 8.9-32~~26~~.

Table 8.9-32~~11~~: PEC$_{sed}$ for ASSET ~~ZUXION~~ following single/multiple applications

Crop	Distance (m)	Drift (%)	% of Acetamiprid in sediment	Max PEC$_{sw}$ (µg/L)
Pome/stone fruits	3	Early: 26.1192 / 22.6421	39	39.179 / 67.598
				28.209 / 48.671*
		Late: 13.1415/ 10.2740		19.712 / 30.673
				14.193 / 22.085*
Oilseed rape	1	1.9274		1.285

***Application rate 2 x 180 g/ha**

Table 8.9-12: PEC$_{sed}$ for ASSET ~~ZUXION~~ following single/multiple applications

~~Crop~~	~~Distance (m)~~	~~Drift (%)~~	~~% of Acetamiprid in sediment~~	~~Max PEC$_{sed}$ (µg/kg)~~
~~Pome/stone fruits~~	~~3~~	~~Early: 29.20/25.53~~	~~39~~	~~43.80/76.20~~
		~~Late: 15.73/12.13~~		~~23.60/36.21~~
~~Oilseed rape~~	~~1~~	~~2.77~~	~~39~~	~~3.32~~

zRMS comments:

Simulations PECsw/sed were performed with consideration of the critical GAP identified for the Central Zone and covering all proposed uses. Predicted Environmental Concentrations in surface water were calculated for acetamiprid for uses on pome/stone fruits and oilseed rape using the FOCUS surface water scenarios at Step 1 & 2 and Step 3 and 4 (SWASH v5.3, FOCUS PRZM v4.3.1, FOCUS MACRO v5.5.4 and FOCUS TOXSWA v4.4.3).
The parameters used for the calculations have been considered at the EU level (EFSA Journal 2016;14(11): 4610). zRMS was calculated PECsw for ppp with mitigation measures. This PECsw was

Please note that additional evaluation in this area may be required in Member States where surface water exposure is calculated using different tools.

Risk mitigation measures assumed at Step 4 included unsprayed buffer zones and spray drift reduction. According to the *Working document of the central zone in the authorisation of plant protection products, version 1.1 (2018).*

PL national assessment:
In all mentioned crops the relevant national scenarios D3, D4 and R1 were taken into consideration and accepted.

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	Acetamiprid
Direct photolysis in air	Not studies – no data requested
Quantum yield of direct phototransformation	0.1
Photochemical oxidative degradation in air	DT_{50} (d): 0.14 derived by the Atkinson model

Volatilisation	Vapour pressure (Pa): $1x10^{-6}$ Henry's Law Constant ($Pa.m^3/mol$):$< 5.3x10^{-8}$
Metabolites	-

The vapour pressure at 20 °C of the active substance Acetamiprid is $< 10^{-6}$ Pa. Hence the active substance Acetamiprid is regarded as non-volatile. Therefore exposure of adjacent surface waters and terrestrial ecosystems by the active substance Acetamiprid due to volatilization with subsequent deposition should not be considered.

zRMS comments:

On the basis of available data no unacceptable contamination of the atmosphere is expected following application of acetamiprid according to the recommended use pattern.

Appendix 1 Lists of data considered in support of the evaluation

Not relevant.

Appendix 2 Detailed evaluation of the new Annex II studies

Not relevant. No new Annex II study.

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

All the input and output data of the used models are provided in K documents.