Bayer CropScience

Document Title

Summary of the fate and behaviour in the environment Bixafen + Fluoxastrobin + Prothioconazole EC 190 (40+50+100 g/L)

Data Requirements

EU Regulation 1107/2009 & EU Regulation 284/2013 Document MCP Section 9: Fate and behaviour in the environment

According to the guidance document, SANCO 10181/2013, for preparing dossiers for the approval of a chemical active substance

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OWNERSHIP STATEMENT

Version history

Date	Data points containing amendments or additions[1] and brief description	Document identifier and version number

[1] It is suggested that applicants adopt a similar approach to showing revisions and version history as outlined in SANCO/10180/2013 Chapter 4 How to revise an Assessment Report

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CP 9 FATE AND BEHAVIOUR IN THE ENVIRONMENT

Use patterns considered in this risk assessment

Table CP 9- 1: Intended application patterns

Crop	Timing of application (range)	Number of applications	Application interval [days]	Maximum label rate per treatment [L/ha]	Application rate per treatment [g/ha]		
					BIX	FXA	PTZ
Wheat, rye, triticale*	BBCH 30-69	1–2	14-21	1.75	70	87.5	175
Barley*	BBCH 30-61	1–2	14-21	1.50	60	75	150
Oats*	BBCH 30-61	1–2	14-21	1.75	70	87.5	175

BIX = Bixafen; FXA = Fluoxastrobin; PTZ = Prothioconazole
* Use in Southern Europe

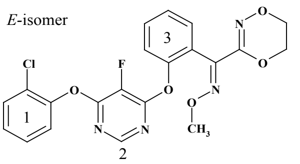
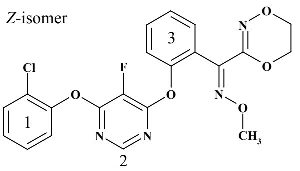
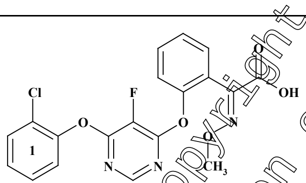
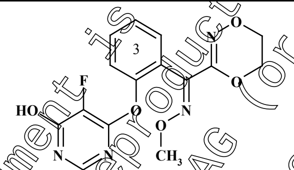
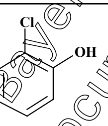
Compounds addressed in this document

In addition to the active substance fluoxastrobin, the degradation products summarised in

Table CP 9- 2 are addressed in this document as they were major in environmental fate studies.

In this paragraph the approach to the risk assessment of the Z-isomer of fluoxastrobin is specifically considered. The chemical structure of fluoxastrobin contains an oxime ether moiety. Due to the substitution pattern of that double bond E- and Z-isomers exist. The common name fluoxastrobin denotes the *E*-isomer. The Z-isomer is known to be an impurity in technical fluoxastrobin (specification limit 2 mg/kg). The Z-isomer can be formed from the E-isomer by photolytic processes exclusively. The transformation will lead to an equilibrium state in which the E-isomer is the more stable and energetically preferred isomer (ratio in aqueous solution about 10:1 = E / Z). In the environment the Z-isomer shows very similar degradation behaviour and a better soil sorption than the E-isomer. Further, the Z-isomer shows a very similar toxicological profile. A study with *Daphnia magna* performed with an increased amount of Z-Isomer (isomer ratio (E/Z) = 65/35 demonstrated an at least comparable, potentially lower ecotoxicological profile than the parent E-isomer, demonstrating that there is no further risk for the aquatic compartment (please refer to CA 8.2.4.1 M-030533-01-1). Taking this information into account, both isomers can be evaluated as sum of E+Z-isomers, providing a conservative environmental risk assessments.

Table CP 9- 2: Active substance and degradation products addressed in this document

Compound / Codes	Chemical Structure	Explanation for Consideration	Considered for
Fluoxastrobin (HEC 5725)		active substance	PEC_{soil} PEC_{gw} PEC_{sw} & PEC_{sed} As a worst case approach, the sum of both isomers (Fluoxastrobin E+Z Isomers) is considered for exposure and risk assessment
HEC 5725-Z-Isomer		photolytic metabolite	
HEC 5725-carboxylic acid (HEC7180, M40)			PEC_{soil} PEC_{gw} PEC_{sw} & PEC_{sed}
HEC 5725-E-des-chlorophenyl (HEC 7155, M48)		occurrence in - aerobic soil (>10 %) - water/sediment study (>10 % in water)	PEC_{soil} PEC_{gw} PEC_{sw} & PEC_{sed}
2-chlorophenol (M82)		occurrence in - aerobic soil (>10 %)	PEC_{soil} PEC_{gw} PEC_{sw} & PEC_{sed}

Definition of the residue for risk assessment

For details please refer to MCA 7.

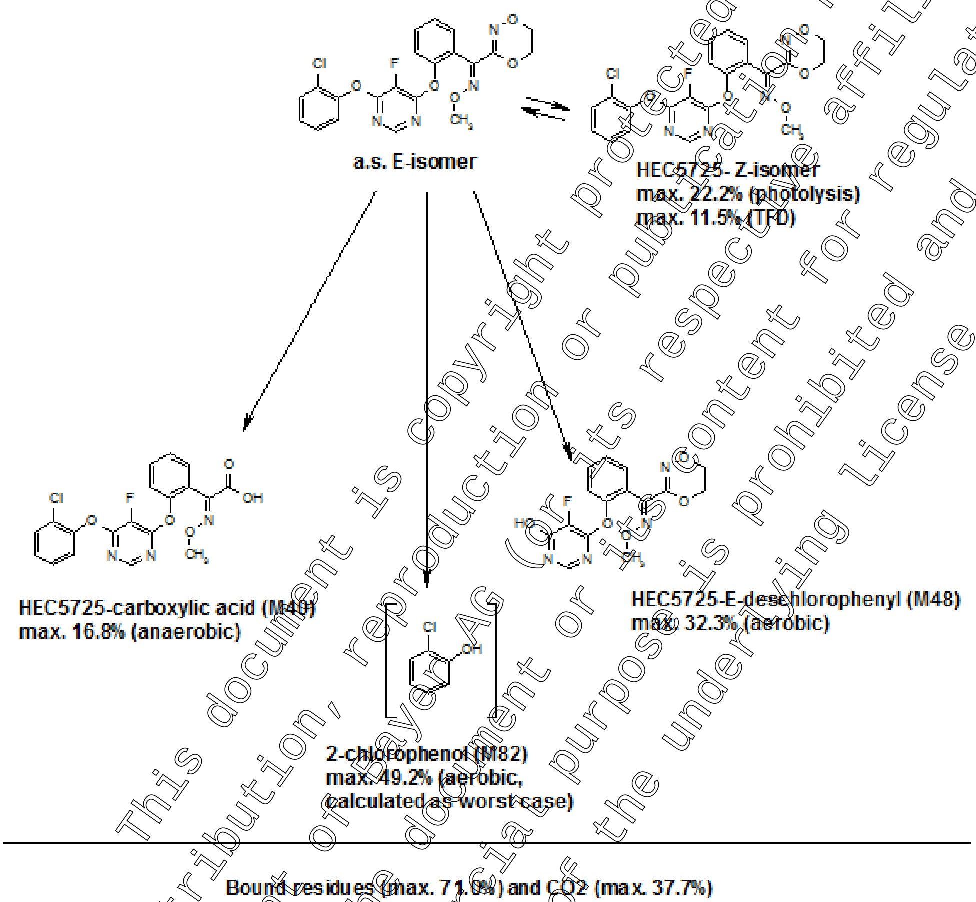
Table CP 9- 3: Definition of the residue for risk assessment

Compartment	Residue Definition for Risk Assessment
Soil	fluoxastrobin (*E*- isomer), HEC 5725 -*Z*-isomer, HEC 5725-carboxylic acid (*M40*), HEC 5725-*E*-des-chlorophenyl (*M48-E*), 2-chlorophenol (*M82*)
Groundwater	fluoxastrobin (*E*-isomer), HEC 5725-*Z*-isomer, HEC 5725-carboxylic acid (*M40*), HEC 5725-*E*-des-chlorophenyl (M48-*E*), 2-chlorophenol (M82)
Surface water	fluoxastrobin (*E*- isomer), HEC 5725-*Z*-isomer, HEC 5725-carboxylic acid (*M40*), HEC 5725-*E*-des-chlorophenyl (*M48-E*)
Sediment	fluoxastrobin (*E*- isomer), HEC 5725-*Z*-isomer
Air	none

CP 9.1 Fate and behaviour in soil

For detailed information on the fate and behaviour in soil please refer to MCA Section 7, data point 7.1.
The proposed degradation pathway of fluoxastrobin in soil is shown in Figure CP 9.1- 1.

Figure CP 9.1- 1: Proposed degradation pathway of fluoxastrobin in soil (major degradation products).



CP 9.1.1 Rate of degradation in soil

No specific studies with the formulation are required. For further information on the fate and behaviour in soil please refer to MCA Section 7, data points 7.1.1 and 7.1.2.

CP 9.1.1.1 Laboratory studies

For information on laboratory studies please refer to MCA Section 7, data point 7.1.2.1.

CP 9.1.1.2 Field studies

For information on field studies please refer to MCA Section 7, data point 7.1.2.2.

CP 9.1.1.2.1 Soil dissipation studies

For information on field dissipation studies please refer to MCA Section 7, data point 7.1.2.2.1.

CP 9.1.1.2.2 Soil accumulation studies

For information on field accumulation studies please refer to MCA Section 7, data point 7.1.2.2.2.

CP 9.1.2 Mobility in the soil

For information on mobility studies please refer to MCA Section 7, data point 7.1.4.

CP 9.1.2.1 Laboratory studies

For information on laboratory studies please refer to MCA Section 7, data point 7.1.4.1

CP 9.1.2.2 Lysimeter studies

For information on lysimeter studies please refer to MCA Section 7, data point 7.1.4.2.

CP 9.1.2.3 Field leaching studies

For information on field leaching studies please refer to MCA Section 7, data point 7.1.4.3.

CP 9.1.3 Estimation of concentrations in soil

New calculations were performed to reflect findings from new studies presented in the active substance dossier, section 7 “Fate and behaviour in the environment”. In addition these calculations considered the most recent guidance documents for exposure calculations. Calculations of predicted environmental concentrations in soil (PEC_{soil}) are presented below.

Predicted environmental concentrations in soil (PECs)

Endpoints for PEC_{soil}

For deriving the respective end points please refer to MCA Section 7, data point 7.1.

Table CP 9.1.3- 1: Key modelling input parameters for fluoxastrobin and its metabolites

Compound	Worst case DT_{50} non-normalised [days]	Maximum occurrence in soil [%]	Molar mass [g/mol]	Molar mass correction factor
Fluoxastrobin (E+Z)	DFOP: $k_{1\ fast}$ 0.01741 1/d, $k_{2\ slow}$ 0.002913 1/d, g_{fast} 0.4996 (rates equivalent to: DT_{50} fast phase 39.81 d, DT_{50} slow phase 237.9 d, g_{fast} 0.4996) (DFOP: $DT_{50\ initial}$ 86.41 d[1], $DT_{90\ initial}$ 552.8 d[1])[5]	100	458.8	1
HEC 5725-E-des-chlorophenyl	95.57[2, 5]	32.2	348.3	0.7592
HEC 5725-carboxylic acid	28.64[3, 6]	16.9	417.8	0.9106
2-chlorophenol	23[4]	49.2[7]	128.56	0.2802

[1]: worst case non-normalized field site (Thurston R812404) with worst-case DFOP $DT_{90,\ initial}$ value

[2]: worst case non-normalized apparent field decline DT_{50} value.

[3]: worst case non-normalized laboratory DT_{50} value.

[4]: worst case DT_{50} value according to the recommendations of EFSA (EFSA, 2007)

[5]: [redacted], 2015; M-534457-01-1 (see MCA 7.1.2.2.1)

[6]: [redacted], 2015; M-534569-01-1 (see MCA 7.1.2.1.2)

[7]: theoretical estimation by EFSA (EFSA, 2007)

Report:	KCP 9.1.3/01 [redacted].; [redacted]; 2015; M-537905-01-1
Title:	Fluoxastrobin (FXA) and metabolites: PECsoil EUR - Use in cereals and onions in Europe
Report No.:	EnSa-15-0541
Document No.:	M-537905-01-1
Guideline(s):	not applicable
Guideline deviation(s):	not applicable
GLP/GEP:	**no**

Methods and Materials: The predicted environmental concentrations in soil (PEC_{soil}) of fluoxastrobin and its metabolites were estimated based on a first tier approach using a Microsoft® Excel spreadsheet. A bulk density of 1.5 kg/L and a soil mixing depths of 5 cm were used as recommended by FOCUS (1996) and EU Commission (1995, 2000). The accumulation potential of fluoxastrobin after long term use was also assessed, employing the mixing depth of 20 cm for the calculation of the background concentration.
Detailed application data used for simulation of PEC_{soil} were compiled in Table CP 9.1.3- 2.

Table CP 9.1.3- 2: Application pattern used for PEC_{soil} calculations of fluoxastrobin

Individual crop	FOCUS crop used for interception	Application				Amount reaching soil per season application [g a.s./ha]
		Rate per season [g a.s./ha]	Interval [days]	Plant interception [%]	BBCH stage	
Cereals	Cereals	2 x 87.5	14	2 x 80	30-69	2 x 17.5
Cereals	Cereals	2 x 75	14	2 x 80	30-61	2 x 15.0

Substance Specific Parameters: The compound specific input parameters (endpoints for PEC_{soil} calculations) are summarized in Table CP 9.1.3- 1.

Findings: The maximum PEC_{soil} values for fluoxastrobin and its metabolites are summarised in Table CP 9.1.3- 3. The maximum, short-term and long-term PEC_{soil} values and the time weighted average values ($TWAC_{soil}$) are provided in tables 9.1.3-4 and 9.1.3-5.

Table CP 9.1.3- 3: Maximum PEC_{soil} of fluoxastrobin and its metabolites for the uses assessed

	Fluoxastrobin (E+Z)	HEC 5725-E-des-chlorophenyl	HEC 5725-carboxylic acid	2-chlorophenol
Use Pattern	**PEC_{soil} [mg/kg]**	**PEC_{soil} [mg/kg]**	**PEC_{soil} [mg/kg]**	**PEC_{soil} [mg/kg]**
Cereals 2x87.5 g a.s./ha, 14 days, 2x80%	0.044	0.011	0.006	0.005
Cereals 2x75 g a.s./ha, 14 days, 2x80%	0.037	0.009	0.005	0.005

Table CP 9.1.3- 4: Cereals, 2 × 87.5 g a.s./ha: PEC_{soil} (actual) of fluoxastrobin and its metabolites

		Cereals 2 x 87.5 g a.s./ha, 14 days app. interval, 2 × 80% interception			
		Fluoxastrobin (E+Z)	HEC 5725-E-des-chlorophenyl	HEC 5725-carboxylic acid	2-chlorophenol
	Time [days]	PEC_{soil} [mg/kg]	PEC_{soil} [mg/kg]	PEC_{soil} [mg/kg]	PEC_{soil} [mg/kg]
Initial	0	0.044	0.011	0.006	0.005
Short term	1	0.043	0.011	0.006	0.005
	2	0.043	0.011	0.006	0.005
	4	0.042	0.011	0.006	0.005
Long term	7	0.041	0.010	0.005	0.004
	14	0.038	0.010	0.004	0.003
	21	0.036	0.009	0.004	0.003
	28	0.034	0.009	0.003	0.002
	42	0.030	0.008	0.002	0.002
	50	0.028	0.008	0.002	0.001
	100	0.021	0.005	<0.001	<0.001

Table CP 9.1.3- 5: Cereals, 2 × 87.5 g a.s./ha: $TWAC_{soil}$ of fluoxastrobin and its metabolites

		Cereals 2 x 87.5 g a.s./ha, 14 days app. interval, 2 × 80% interception			
		Fluoxastrobin (E+Z)	HEC 5725-E-des-chlorophenyl	HEC 5725-carboxylic acid	2-chlorophenol
	Time [days]	$TWAC_{soil}$ [mg/kg]	$TWAC_{soil}$ [mg/kg]	$TWAC_{soil}$ [mg/kg]	$TWAC_{soil}$ [mg/kg]
Initial	0	---	---	---	---
Short term	1	0.043	0.011	0.006	0.005
	2	0.043	0.011	0.006	0.005
	4	0.043	0.011	0.006	0.005
Long term	7	0.042	0.011	0.006	0.005
	14	0.041	0.010	0.005	0.004
	21	0.040	0.010	0.005	0.004
	28	0.038	0.010	0.004	0.004
	42	0.036	0.009	0.004	0.003
	50	0.035	0.009	0.004	0.003
	100	0.030	0.008	0.002	0.002

Table CP 9.1.3- 6: Cereals, 2 × 75 g a.s./ha: PEC_{soil} (actual) of fluoxastrobin and its metabolites

		Cereals 2 x 75 g a.s./ha, 14 days app. interval, 2 × 80% interception			
		Fluoxastrobin (E+Z)	HEC 5725-E-des-chlorophenyl	HEC 5725-carboxylic acid	2-chlorophenol
	Time [days]	PEC_{soil} [mg/kg]	PEC_{soil} [mg/kg]	PEC_{soil} [mg/kg]	PEC_{soil} [mg/kg]
Initial	0	0.037	0.009	0.005	0.005
Short term	1	0.037	0.009	0.005	0.004
	2	0.037	0.009	0.005	0.004
	4	0.036	0.009	0.005	0.004
Long term	7	0.035	0.009	0.004	0.004
	14	0.033	0.008	0.004	0.003
	21	0.031	0.008	0.003	0.002
	28	0.029	0.008	0.003	0.002
	42	0.026	0.007	0.002	0.001
	50	0.024	0.006	0.002	0.001
	100	0.018	0.005	<0.001	<0.001

Table CP 9.1.3-7: Cereals, 2 × 75 g a.s./ha: $TWAC_{soil}$ of fluoxastrobin and its metabolites

		Cereals 2 x 75 g a.s./ha, 14 days app. interval, 2 × 80% interception			
		Fluoxastrobin (E+Z)	HEC 5725-E-des-chlorophenyl	HEC 5725-carboxylic acid	2-chlorophenol
	Time [days]	$TWAC_{soil}$ [mg/kg]	$TWAC_{soil}$ [mg/kg]	$TWAC_{soil}$ [mg/kg]	$TWAC_{soil}$ [mg/kg]
Initial	0	---	---	---	---
Short term	1	0.037	0.009	0.005	0.004
	2	0.037	0.009	0.005	0.004
	4	0.037	0.009	0.005	0.004
Long term	7	0.036	0.009	0.005	0.004
	14	0.035	0.009	0.004	0.004
	21	0.034	0.009	0.004	0.003
	28	0.033	0.008	0.004	0.003
	42	0.031	0.008	0.003	0.003
	50	0.030	0.008	0.003	0.002
	100	0.025	0.007	0.002	0.001

Potential accumulation in soil:

The accumulation potential after long term use was also assessed. The results for a standard-mixing depth of 20 cm for an arable crop with tillage are presented in Table CP 9.1.3- 8.

Table CP 9.1.3- 8: PEC_{soil} of fluoxastrobin taking the effect of accumulation into account (mixing depth of 20 cm)

Use Pattern	PEC_{soil}	Fluoxastrobin (E+Z) [mg/kg]
Cereals 2x87.5 g a.s./ha, 14 days, 2x80%	plateau	0.003
	total*	0.047
Cereals 2x75 g a.s./ha, 14 days, 2x80%	plateau	0.003
	total*	0.040

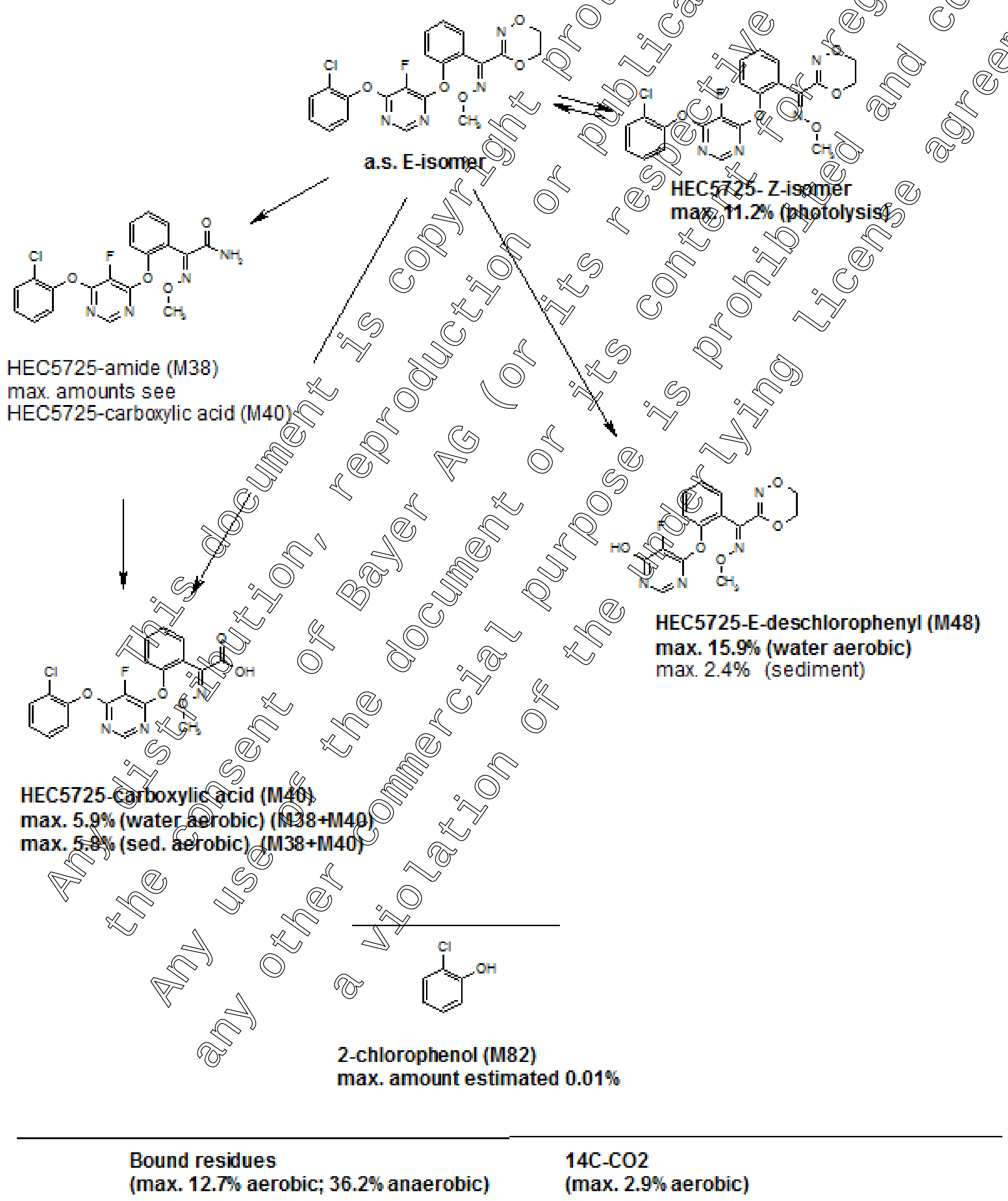
* total = plateau (background concentration after multi-year use) + max. PEC_{soil}

CP 9.2 Fate and behaviour in water and sediment

The proposed degradation pathway of fluoxastrobin in water and sediment is shown in Figure CP 9.2-1.

For information on the fate and behaviour in water and sediment please refer to MCA Section 7, data point 7.2.

Figure CP 9.2- 1: Proposed bio-degradation pathway of fluoxastrobin in water and sediment (major degradation products)



CP 9.2.1 Aerobic mineralisation in surface water

For information on aerobic mineralisation in surface water studies please refer to MCA Section 7, data point 7.2.2.2.

CP 9.2.2 Water/sediment study

For information on water/sediment studies please refer to MCA Section 7, data point 7.2.2.3.

CP 9.2.3 Irradiated water/sediment study

For information on irradiated water/sediment studies please refer to MCA Section 7, data point 7.2.2.4.

CP 9.2.4 Estimation of concentrations in groundwater

Calculations were performed, to reflect findings from new studies presented in the active substance dossier, section 7 "Fate and behaviour in the environment". In addition these calculations consider the most recent guidance documents for exposure calculations.
Calculations of predicted environmental concentrations in groundwater (PEC_{gw}) are presented below.

PEC_{gw} modelling approach

The predicted environmental concentrations in groundwater (PEC_{gw}) for the active substance were calculated using the simulation models FOCUS PEARL and FOCUS PELMO following the recommendations of the FOCUS working group on groundwater scenarios. Further, *where a crop of interest is defined for Chateaudun* scenario, FOCUS MACRO simulations were performed (EFSA Guidance Document, 2014[1]).
The leaching calculations were run over 26 years, as proposed for pesticides which may be applied every year. The first six years are a 'warm up' period; only the last 20 years were considered for the assessment of the leaching potential. The 80th percentile of the mean annual groundwater concentrations in the percolate at 1 m depth under a treated plantation were evaluated and were taken as the relevant PEC_{GW} values. In respect to the assessment of a potential groundwater contamination this shallow depth reflects a worst case. The effective long-term groundwater concentrations will be even lower due to dilution in the upper groundwater layer.
Crop interception will reduce the amount of a compound reaching the soil and therefore this has been taken into account depending on the growth stage at application. The interception rates follow the EFSA Guidance Document (2014)[1] recommendations (Table CP 9.2.4- 1).

[1] EFSA (2014): EFSA Guidance Document for evaluating laboratory and field dissipation studies to obtain DegT50 values of active substances of plant protection products and transformation products of these active substances in soil. EFSA Journal 2014;12(5):3662.

Table CP 9.2.4- 1: EFSA (2014) groundwater crop interception values

Crop	Crop stage Interception [%]						
	Bare – emergence	Leaf development	Stem elongation		Flowering		Senescence Ripening
	BBCH						
	00 - 09	10 - 19	20 - 29	30 - 39	40 - 69	70 - 89	90 - 99
Winter cereals	0	0	20 (tillering)	80 (elong.)	90	80	80
Spring cereals	0	0	20 (tillering)	80 (elong.)	90	80	80

Endpoints for PEC$_{gw}$

For deriving the respective endpoints please refer to MCA Section 7, data point 7.1.

Table CP 9.2.4- 2: Key modelling input parameters for fluoxastrobin and its metabolites

Compound	$DT_{50\ soil}$ [days]	Koc [mL/g]	Kom [mL/g]	FREUNDLICH[2] exponent 1/n
Fluoxastrobin (E+Z)	38.89	752.0	436.2	0.8584
HEC 5725-E-des-chlorophenyl	56.7	19.3 [1)]	11.2 [1)]	0.9367 [2)]
HEC 5725-carboxylic acid	17.01	56.4	32.8	0.9043
2-chlorophenol	23.0	104.7	60.7	0.8520

1) geomean of neutral pH cluster
2) Arithm. mean of neutral pH cluster
CP 9.2.4.1Calculation of concentrations in groundwater

CP 9.2.4.1 Calculation of concentrations in groundwater

Predicted environmental concentrations in groundwater (PEC$_{GW}$)

PEC$_{gw}$ values for the use in cereals – FOCUS PEARL and PELMO

Report: KCP 9.2.4.1/01 [redacted] B; [redacted]; 2015; M-537900-01-1
Title: Fluoxastrobin (FXA) and metabolites: PECgw FOCUS PEARL, PELMO EUR - Use in cereals in Europe
Report No.: Ensa-15-0545
Document No.: M-537900-01-1
Guideline(s): not applicable
Guideline deviation(s): not applicable
GLP/GEP: no

The predicted environmental concentrations in groundwater (PEC$_{gw}$) for fluoxastrobin and its metabolites were calculated using the simulation model FOCUS PEARL (version 4.4.4) and FOCUS PELMO (version 5.5.3). Crop interception was taken into account according to the BBCH growth stage, as recommended by EFSA (EFSA (2014), FOCUS (2014)). The absolute dates for applications based on BBCH codes given in the GAP were determined using AppDate2 (Klein (2010)), a German regulatory tool for estimating application dates and crop interception.

Typically, a leaching assessment is carried out considering aerobic conditions as a common agricultural situation. Therefore, observed mayor aerobic metabolites were taken into account, implementing their amounts and behaviour as observed under aerobic conditions.

However, in anaerobic soil, a further fast degrading mayor metabolite, HEC5725-carboxylic acid (HEC7180, M40), was identified (16.9 % at day 120), which did not occur under aerobic conditions. Based on these observations, a conservative anaerobic leaching assessment was carried out for this metabolite, respectively.

Anaerobic leaching scenario:

Under common agricultural situations in Europe, considering e.g. climatic conditions or slope of fields, it is obviously unrealistic, that a total treated agricultural field or area turns anaerobic, each year after application and lasting for a long time period, as typically considered for aerobic leaching assessments. Such conditions would make farming effectively impossible.
Therefore, 2 more realistic, but still very conservative scenarios have been considered here:

Scenario 1: Anaerobic conditions may occur regularly in plane fields or cropping areas, when rain water remains in small sinks and furrows with low permeability. In this case, only a relatively small percentage of the total cropped area or field would be affected.

Scenario 2: Anaerobic conditions on larger scale may occur due to flooding along rivers. Typically, this flooding will not occur regularly or each year, only with large time intervals in between.

The following assumptions have been made to address these two scenarios. Partly, additional safety factors are applied to address uncertainties in the estimation.

Here, it is implicitly included that anaerobic conditions occur more or less immediately after application (1 day later) and that anaerobic conditions are as strict as simulated in the lab. In reality, it may take considerable time after ponding until anaerobic conditions occur, because the remaining oxygen in soil and water has to be consumed by microbes first. Further on, in the lab studies anaerobic conditions are ensured by ventilating the samples with nitrogen. Such conditions will not appear in reality.

Therefore, it has to be noted, that the described assumptions and scenarios are highly conservative.

Table CP 9.2.4.1- 1: Assumptions used for anaerobic leaching scenarios

Scenario	Assumption	Safety factor	actually used
1	not more than 10 % area of an agricultural field becomes anaerobic, every year shortly after application	1	**application rate** reduced to **10 %**, applied **every year** (application rate 100 %, applied every year, PEC_{gw} divided by 10)
2	Calculation base for dimension of levees, dykes and flood plains along rivers are 100-year-floodings. Hence, ponding on larger areas can be assumed to occur in average every 100 years.	10	**application rate 100 %**, applied **every 10 years**
both	Farmer will not apply on saturated and ponded fields. Therefore, it is assumed, that parent compound degrades 1 day under aerobic conditions before anaerobic conditions occur.		degradation time for parent before anaerobic = 1 day
both	Anaerobic conditions usually will not last for longer than 1 week. Maximum occurrence of metabolite might not yet be reached at this time.		maximum occurrence in anaerobic soil of M40 = 16.9% (found after 120 d)
both	After an anaerobic period, normal aerobic agricultural conditions may dominate in soil again. Thus, aerobic degradation of the anaerobic metabolite is assessed.		Aerobic lab DT_{50} of 17.01 d (M40)

<u>Pseudo application of anaerobic metabolite:</u>

The anaerobic metabolite is assumed to be applied directly to the soil by pseudo application. Hence, no "pathway"-calculation was done in which the parent is applied. This is considered the only plausible but conservative way to account for the anaerobic formation (expressed by the maximum occurrence) and the aerobic degradation of the anaerobic metabolite. Applying the aerobic pathway for groundwater calculations may disregard the formation under anaerobic conditions.

Detailed application data used for simulation of PEC_{gw} for all compounds were compiled in Table CP 9.2.4.1- 2.

Table CP 9.2.4.1- 2: Application pattern used for PEC_{gw} calculations

Individual crop	FOCUS crop used for interception	Application					Amount reaching soil per season application [g a.s./ha]
		Rate per season [g a.s. /ha]	Interval [days]	Plant interception [%]	BBCH stage		
Winter & spring cereals, GAP	-	2 × 87.5	14	-	30-69		-
Spring cereals 1, simulation	Spring cereals	2 × 87.5	14	2 × 80	30-69		2 × 17.5
Spring cereals 2, simulation[2]	Spring cereals	2 × 13.23[1]	14	2 × 80	30-69		2 × 2.65[1]
Winter cereals 1, simulation	Winter cereals	2 × 87.5	14	2 × 80	30-69		2 × 17.5
Winter cereals 2, simulation[2]	Winter cereals	2 × 13.23[1]	14	2 × 80	30-69		2 × 2.65[1]
Winter & spring cereals, GAP	-	2 × 75.0	14	-	30-61		-
Spring cereals 3, simulation	Spring cereals	2 × 75.0	14	2 × 80	30-61		2 × 15.0
Spring cereals 4, simulation[2]	Spring cereals	2 × 11.34[1]	14	2 × 80	30-61		2 × 2.27[1]
Winter cereals 3, simulation	Winter cereals	2 × 75.0	14	2 × 80	30-61		2 × 15.0
Winter cereals 4, simulation[2]	Winter cereals	2 × 11.34[1]	14	2 × 80	30-61		2 × 2.27[1]

[1] Pseudo application [g metabolite /ha]

[2] Pseudo application pattern for anaerobic metabolite HEC 5725-carboxylic acid: parent rate – 1 d degradation, corrected for molar masses and maximum occurrence in anaerobic soil (= 100% metabolite rate)

For cereal applications, absolute dates were derived for the simulation runs. All application dates are summarised in the table below.

Table CP 9.2.4.1- 3: Application dates and related information for fluoxastrobin as used for the simulation runs

Individual crop	Spring cereals 1 – 4	Winter cereals 1 – 4
Repeat Interval for App. Events	Every Year	Every Year
Application Technique	Spray	Spray
Absolute / Relative to	Absolute	Absolute
Scenario	1st App. Date (Julian day) Offset	1st App. Date (Julian day) Offset
Chateaudun	10 Apr (100) -	21 Apr (111) -
Hamburg	28 Apr (118) -	19 Apr (109) -
Jokioinen	05 Jun (156) -	25 May (145) -
Kremsmuenster	28 Apr (118) -	19 Apr (109) -
Okehampton	22 Apr (112) -	15 Apr (105) -
Piacenza	- - -	10 Apr (100) -
Porto	16 Apr (106) -	30 Mar (89) -
Sevilla	- - -	06 Jan (6) -
Thiva	- - -	02 Mar (61) -

Substance specific and model related input parameters for FOCUS PEARL & PELMO PEC_{gw} calculations are summarised in Table CP 9.2.4.1- 4. Degradation pathway related parameters are given in Table CP 9.2.4.1- 5.

Table CP 9.2.4.1- 4: Compound input parameters for fluoxastrobin and its metabolites

Parameter	Unit	Fluoxastrobin (E+Z)	HEC 5725-E-des-chlorophenyl	HEC 5725-carboxylic acid	2-chlorophenol
Common					
Molar Mass	[g/mol]	458.8	348.3	417.8	128.56 (264.8[1])
Solubility	[mg/L]	2.292	9600	244 000	23 000
Vapour Pressure	[Pa]	5.63E-10	6.00E-05	7.00E-04	1.44E+02
Freundlich Exponent		0.8584	0.9367	0.9043	0.8520
Plant Uptake Factor		0.0	0.0	0.0	0.0
Walker Exponent		0.7	0.7	0.7	0.7
PEARL Parameters					
Substance Code		FXA	E-des	Carb	Chlph
DT_{50}	[days]	38.89	56.7	17.01	23.0
Molar Activ. Energy	[kJ/mol]	65.4	65.4	65.4	65.4
K_{om}	[mL/g]	436.2	11.2	32.8	60.7
K_f	[mL/g]	-	-	-	-
PELMO Parameters					
Substance Code		AS	A1	AS	B1
Rate Constant	[1/day]	0.01782	0.01222	0.04075	0.03014
Q_{10}		2.58	2.58	2.58	2.58
K_{oc}	[mL/g]	752.0	19.3	56.4	104.7

1) PELMO parameters: An auxiliary molar mass of 2-chlorophenol is introduced, to compensate for the low split degradation rate and to ensure the correct mass flux.

Table CP 9.2.4.1- 5: Degradation pathway related parameters for fluoxastrobin and its metabolites

Degradation fraction from → to (FOCUS PEARL)	1 FXA -> Chlph 0.5145 FXA -> E-des
Degradation rate from → to (FOCUS PELMO)	0.00917 Active Substance -> A1 0.00865 Active Substance -> B1 0.01222 A1 -> <BR/CO2 0.03014 B1 -> <BR/CO2

Findings: PEC_{GW} were evaluated as the 80[th] percentile of the mean annual leachate concentration at 1 m soil depth. FOCUS PEARL and PELMO PEC_{gw} results for fluoxastrobin and its metabolites after application to winter and spring cereals are given in Table CP 9.2.4.1- 6.

Table CP 9.2.4.1- 6: Spring cereals: FOCUS PEARL & PELMO PEC$_{gw}$ results of fluoxastrobin and its metabolites

Use Pattern	**Spring cereals 1 & 2, 2 × 87.5 g a.s./ha, 2 × 80% interception, 14 d interval**			
	Fluoxastrobin (E+Z)	**HEC 5725-E-des-chlorophenyl**	**2-chlorophenol**	**HEC 5725-carboxylic acid[1)]**
FOCUS PEARL	**PEC$_{gw}$ [µg/L]**	**PEC$_{gw}$ [µg/L]**	**PEC$_{gw}$ [µg/L]**	**PEC$_{gw}$ [µg/L]**
Chateaudun	<0.001	0.617	<0.001	<0.001
Hamburg	<0.001	1.734	<0.001	<0.001
Jokioinen	<0.001	1.287	<0.001	<0.001
Kremsmuenster	<0.001	0.950	<0.001	<0.001
Okehampton	<0.001	0.953	<0.001	<0.001
Porto	<0.001	0.648	<0.001	<0.001
FOCUS PELMO	**PEC$_{gw}$ [µg/L]**	**PEC$_{gw}$ [µg/L]**	**PEC$_{gw}$ [µg/L]**	**PEC$_{gw}$ [µg/L]**
Chateaudun	<0.001	0.509	<0.001	<0.001
Hamburg	<0.001	1.387	<0.001	<0.001
Jokioinen	<0.001	1.250	<0.001	<0.001
Kremsmuenster	<0.001	0.956	<0.001	<0.001
Okehampton	<0.001	0.915	<0.001	<0.001
Porto	<0.001	0.622	<0.001	<0.001

1) Pseudo application pattern for the anaerobic metabolite HEC 5725-carboxylic acid (Scenario 1).

Table CP 9.2.4.1- 7: Spring cereals: FOCUS PEARL & PELMO PEC$_{gw}$ results of fluoxastrobin and its metabolites

Use Pattern	**Spring cereals 3 & 4, 2 × 75 g a.s./ha, 2 × 80% interception, 14 d interval**			
	Fluoxastrobin (E+Z)	**HEC 5725-E-des-chlorophenyl**	**2-chlorophenol**	**HEC 5725-carboxylic acid[1)]**
FOCUS PEARL	**PEC$_{gw}$ [µg/L]**	**PEC$_{gw}$ [µg/L]**	**PEC$_{gw}$ [µg/L]**	**PEC$_{gw}$ [µg/L]**
Chateaudun	<0.001	0.524	<0.001	<0.001
Hamburg	<0.001	1.472	<0.001	<0.001
Jokioinen	<0.001	1.090	<0.001	<0.001
Kremsmuenster	<0.001	0.808	<0.001	<0.001
Okehampton	<0.001	0.810	<0.001	<0.001
Porto	<0.001	0.550	<0.001	<0.001
FOCUS PELMO	**PEC$_{gw}$ [µg/L]**	**PEC$_{gw}$ [µg/L]**	**PEC$_{gw}$ [µg/L]**	**PEC$_{gw}$ [µg/L]**
Chateaudun	<0.001	0.432	<0.001	<0.001
Hamburg	<0.001	1.179	<0.001	<0.001
Jokioinen	<0.001	1.060	<0.001	<0.001
Kremsmuenster	<0.001	0.814	<0.001	<0.001
Okehampton	<0.001	0.780	<0.001	<0.001
Porto	<0.001	0.530	<0.001	<0.001

1) Pseudo application pattern for the anaerobic metabolite HEC 5725-carboxylic acid (Scenario 1).

Table CP 9.2.4.1- 8: Winter cereals: FOCUS PEARL & PELMO PEC_{gw} results of fluoxastrobin and its metabolites

Use Pattern	Winter cereals 1 & 2, 2 × 87.5 g a.s./ha, 2 × 80% interception, 14 d interval			
	Fluoxastrobin (E+Z)	HEC 5725-E-des-chlorophenyl	2-chlorophenol	HEC 5725-carboxylic acid[1)]
FOCUS PEARL	PEC_{gw} [µg/L]	PEC_{gw} [µg/L]	PEC_{gw} [µg/L]	PEC_{gw} [µg/L]
Chateaudun	<0.001	0.682	<0.001	<0.001
Hamburg	<0.001	1.401	<0.001	<0.001
Jokioinen	<0.001	1.499	<0.001	<0.001
Kremsmuenster	<0.001	0.884	<0.001	<0.001
Okehampton	<0.001	0.899	<0.001	<0.001
Piacenza	<0.001	0.565	<0.001	<0.001
Porto	<0.001	0.547	<0.001	<0.001
Sevilla	<0.001	0.159	<0.001	<0.001
Thiva	<0.001	0.470	<0.001	<0.001
FOCUS PELMO	PEC_{gw} [µg/L]	PEC_{gw} [µg/L]	PEC_{gw} [µg/L]	PEC_{gw} [µg/L]
Chateaudun	<0.001	0.607	<0.001	<0.001
Hamburg	<0.001	1.451	<0.001	<0.001
Jokioinen	<0.001	1.543	<0.001	<0.001
Kremsmuenster	<0.001	0.981	<0.001	<0.001
Okehampton	<0.001	0.935	<0.001	<0.001
Piacenza	<0.001	0.732	<0.001	<0.001
Porto	<0.001	0.636	<0.001	<0.001
Sevilla	<0.001	0.183	<0.001	<0.001
Thiva	<0.001	0.285	<0.001	<0.001

1) Pseudo application pattern for the anaerobic metabolite HEC 5725-carboxylic acid (Scenario 1).

Table CP 9.2.4.1- 9: Winter cereals: FOCUS PEARL & PELMO PEC_{gw} results of fluoxastrobin and its metabolites

Use Pattern	Winter cereals 3 & 4, 2 × 75 g a.s./ha, 2 × 80% interception, 14 d interval			
	Fluoxastrobin (E+Z)	HEC 5725-E-des-chlorophenyl	2-chlorophenol	HEC 5725-carboxylic acid[1)]
FOCUS PEARL	PEC_{gw} [µg/L]	PEC_{gw} [µg/L]	PEC_{gw} [µg/L]	PEC_{gw} [µg/L]
Chateaudun	<0.001	0.579	<0.001	<0.001
Hamburg	<0.001	1.192	<0.001	<0.001
Jokioinen	<0.001	1.268	<0.001	<0.001
Kremsmuenster	<0.001	0.752	<0.001	<0.001
Okehampton	<0.001	0.766	<0.001	<0.001
Piacenza	<0.001	0.480	<0.001	<0.001
Porto	<0.001	0.466	<0.001	<0.001
Sevilla	<0.001	0.136	<0.001	<0.001
Thiva	<0.001	0.399	<0.001	<0.001

Use Pattern	Winter cereals 3 & 4, 2 × 75 g a.s./ha, 2 × 80% interception, 14 d interval			
	Fluoxastrobin (E+Z)	HEC 5725-E-des-chlorophenyl	2-chlorophenol	HEC 5725-carboxylic acid 1)
FOCUS PELMO	PEC_{gw} [µg/L]	PEC_{gw} [µg/L]	PEC_{gw} [µg/L]	PEC_{gw} [µg/L]
Chateaudun	<0.001	0.515	<0.001	<0.001
Hamburg	<0.001	1.232	<0.001	<0.001
Jokioinen	<0.001	1.304	<0.001	<0.001
Kremsmuenster	<0.001	0.836	<0.001	<0.001
Okehampton	<0.001	0.797	<0.001	<0.001
Piacenza	<0.001	0.622	<0.001	<0.001
Porto	<0.001	0.541	<0.001	<0.001
Sevilla	<0.001	0.154	<0.001	<0.001
Thiva	<0.001	0.242	<0.001	<0.001

1) Pseudo application pattern for the anaerobic metabolite HEC 5725-carboxylic acid (Scenario 1).

As described for scenario 1, 100 % of the potential pseudo application rate of anaerobic HEC 5725-carboxylic acid was applied, each year. All PEC_{gw} values for all groundwater scenarios and application periods resulted already in concentrations ≤ 0.001 µg/L, also without a division by 10. Therefore, a further simulation according Scenario 2, every 10 years, was not carried out anymore, as it is already covered with the first simulation.

Conclusion: There are no concerns for groundwater from the use of fluoxastrobin in accordance with the use pattern for the representative formulation.

The concentration of the metabolite HEC5725-E-des-chlorophenyl (M48) was predicted to reach groundwater at concentrations exceeding 0.1 µg/L. However, the relevance of this metabolite was assessed and the metabolite is non-relevant in groundwater (see Document N4).

PEC$_{gw}$ values for the use in cereals – FOCUS MACRO

As recommended by FOCUS (2014), PEC$_{gw}$ were calculated in addition with MACRO 5.5.3, as the Châteaudun scenario has been defined for cereals.

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Title:	Fluoxastrobin (FXA) and metabolites: PECgw FOCUS MACRO 5.5.3 EUR - Use in cereals and onions in Europe
Report No.:	Ensa-15-0546
Document No.:	M-537903-01-1
Guideline(s):	not applicable
Guideline deviation(s):	not applicable
GLP/GEP:	**no**

The predicted environmental concentrations in groundwater (PEC$_{gw}$) for fluoxastrobin and its metabolites were calculated using the simulation model FOCUS MACRO (version 5.5.3) to simulate macro pore flow for drained soils for Châteaudun scenario. Crop interception was taken into account according to the BBCH growth stage, as recommended by EFSA (EFSA (2014), FOCUS (2014)). The absolute dates for applications based on BBCH codes given in the GAP were determined using AppDate2 ([redacted](2015)), a German regulatory tool for estimating application dates and crop interception.

Typically, a leaching assessment is carried out considering aerobic conditions as a common agricultural situation. Therefore, observed mayor aerobic metabolites were taken into account, implementing their amounts and behaviour as observed under aerobic conditions.
However, in anaerobic soil, a further fast degrading mayor metabolite, HEC5725-carboxylic acid (HEC7180, M40), was identified (16.9 % at day 120), which did not occur under aerobic conditions. Based on these observations, a conservative anaerobic leaching assessment was carried out for this metabolite, respectively.

<u>Anaerobic leaching scenario:</u>

Under common agricultural situations in Europe, considering e.g. climatic conditions or slope of fields, it is obviously unrealistic, that a total treated agricultural field or area turns anaerobic, each year after application and lasting for a long time period, as typically considered for aerobic leaching assessments. Such conditions would make farming effectively impossible.
Therefore, 2 more realistic, but still very conservative scenarios have been considered here:

Scenario 1: Anaerobic conditions may occur <u>regularly</u> in plane fields or cropping areas, when rain water remains in <u>small sinks</u> and <u>furrows</u> with low permeability. In this case, only a relatively small percentage of the total cropped area or field would be affected.

Scenario 2: Anaerobic conditions on <u>larger scale</u> may occur due to flooding along rivers. Typically, this flooding will not occur regularly or each year, only with <u>large time intervals</u> in between.

The following assumptions have been made to address these two scenarios. Partly, additional safety factors are applied to address uncertainties in the estimation.

Here, it is implicitly included that anaerobic conditions occur more or less immediately after application (1 day later) and that anaerobic conditions are as strict as simulated in the lab. In reality, it may take considerable time after ponding until anaerobic conditions occur, because the remaining oxygen in soil and water has to be consumed by microbes first. Further on, in the lab studies anaerobic conditions are ensured by ventilating the samples with nitrogen. Such conditions will not appear in reality.

Therefore, it has to be noted, that the described assumptions and scenarios are highly conservative.

Table CP 9.2.4.1- 10: Assumptions used for anaerobic leaching scenarios

Scenario	Assumption	Safety factor	actually used
1	not more than 10 % area of an agricultural field becomes anaerobic, every year shortly after application	1	**application rate** reduced to **10 %**, applied **every year** (application rate 100 %, applied every year, PEC_{gw} divided by 10)
2	Calculation base for dimension of levees, dykes and flood plains along rivers are 100-year-floodings. Hence, ponding on larger areas can be assumed to occur in average every 100 years.	10	**application rate 100 %**, applied **every 10 years**
both	Farmer will not apply on saturated and ponded fields. Therefore, it is assumed, that parent compound degrades 1 day under aerobic conditions before anaerobic conditions occur.		degradation time for parent before anaerobic = 1 day
both	Anaerobic conditions usually will not last for longer than 1 week. Maximum occurrence of metabolite might not yet be reached at this time.		maximum occurrence in anaerobic soil of M40 = 16.9% (found after 120 d)
both	After an anaerobic period, normal aerobic agricultural conditions may dominate in soil again. Thus, aerobic degradation of the anaerobic metabolite is assessed.		Aerobic lab DT_{50} of 17.01 d (M40)

Pseudo application of anaerobic metabolite:

The anaerobic metabolite is assumed to be applied directly to the soil by pseudo application. Hence, no "pathway"-calculation was done in which the parent is applied. This is considered the only plausible but conservative way to account for the anaerobic formation (expressed by the maximum occurrence) and the aerobic degradation of the anaerobic metabolite. Applying the aerobic pathway for groundwater calculations may disregard the formation under anaerobic conditions.

Detailed application data used for simulation of PEC_{gw} for all compounds were compiled in Table CP 9.2.4.1- 11.

Table CP 9.2.4.1- 11: Application pattern used for PEC_{gw} calculations

Individual crop	FOCUS crop used for interception	Application				Amount reaching soil per season application
		Rate per season [g a.s. /ha]	Interval [days]	Plant interception [%]	BBCH stage	[g a.s./ha]
Winter & spring cereals, GAP	-	2 × 87.5	14	-	30-69	-
Spring cereals 1, simulation	Spring cereals	2 × 87.5	14	2 × 80	30-69	2 × 17.5
Spring cereals 2, simulation[2]	Spring cereals	2 × 13.23 [1]	14	2 × 80	30-69	2 × 2.65 [1]
Winter cereals 1, simulation	Winter cereals	2 × 87.5	14	2 × 80	30-69	2 × 17.5
Winter cereals 2, simulation[2]	Winter cereals	2 × 13.23[1]	14	2 × 80	30-69	2 × 2.65 [1]
Winter & spring cereals, GAP	-	1 × 87.5	-	-	30-69	-
Spring cereals 3, simulation	Spring cereals	1 × 87.5	-	1 × 80	30-69	1 × 17.5
Spring cereals 4, simulation[2]	Spring cereals	1 × 13.23[1]	-	1 × 80	30-69	1 × 2.65 [1]
Winter cereals 3, simulation	Winter cereals	1 × 87.5	-	1 × 80	30-69	1 × 17.5
Winter cereals 4, simulation[2]	Winter cereals	1 × 13.23[1]	-	1 × 80	30-69	1 × 2.65 [1]

1) Pseudo application [g metabolite /ha]
2) Pseudo application pattern for anaerobic metabolite HEC 5725-carboxylic acid: parent rate – 1 d degradation, corrected for molar masses and maximum occurrence in anaerobic soil (= 100% metabolite rate)

For cereal applications, absolute dates were derived for the simulation runs. All application dates are summarised in the table below.

Table CP 9.2.4.1- 12: Application dates and related information for fluoxastrobin as used for the simulation runs

Individual crop	Spring cereals	Winter cereals
Repeat Interval for App. Events	Every Year	Every Year
Application Technique	Spray	Spray
Absolute / Relative to	Absolute	Absolute
Scenario	1st App. Date (Julian day)	1st App. Date (Julian day)
Chateaudun	10 Apr (100)	21 Apr (111)

Substance specific and model related input parameters for FOCUS MACRO PEC_{gw} calculations are summarised in Table CP 9.2.4.1- 13.

Table CP 9.2.4.1- 13: Compound input parameters for fluoxastrobin and its metabolites

Parameter	Unit	Fluoxastrobin (E+Z)	HEC 5725-E-des-chlorophenyl	HEC 5725-carboxylic acid	2-chlorophenol
Common					
Molar Mass	[g/mol]	458.8	348.3	417.8	128.56
Solubility	[mg/L]	2.292	9600	244 000	23 000
Vapour Pressure	[Pa]	5.63E-10	6.0E-05	7.00E-04	144
Freundlich Exponent		0.8584	0.9367	0.9043	0.8520
Plant Uptake Factor		0	0	0	0
Walker Exponent		0.49 [1)]	0.49 [1)]	0.49 [1)]	0.49 [1)]
DT_{50}	[days]	38.89	56.7	17.01	23
Formation fraction		-	0.5145	-	1
MACRO Parameters					
K_{oc}	[mL/g]	752.0	19.3	56.4	104.7
Q_{10}		2.58 [2)]	2.58 [2)]	2.58 [2)]	2.58 [2)]
Canopy dgradation half-life	[d]	10	10	10	10
Metabolite conversion factor (*fconvert*)[3)]		-	0.3906	- [4)]	0.2802

1) as proposed for MACRO 5.5.3
2) corresponding parameter in MACRO: tresp = 0.0948
3) metabolite formation in MACRO is based on molar masses M and formation fraction: fconvert = M_{metab} / M_{parent} * formation fraction
4) not available, as no formation fraction available, pseudo application used in MACRO

Findings: PEC_{GW} were evaluated as the 80[th] percentile of the mean annual leachate concentration at 1 m soil depth. FOCUS MACRO PEC_{gw} results for fluoxastrobin and its metabolites after application to winter and spring cereals are given in the table below.

Table CP 9.2.4.1- 14: FOCUS MACRO PEC_{gw} results of fluoxastrobin and its metabolites at Chateaudun

Scenario	Fluoxastrobin (E+Z)	HEC 5725-E-des-chlorophenyl	2-chlorophenol	HEC 5725-carboxylic acid[1)]
	PEC_{gw} [µg/L]	PEC_{gw} [µg/L]	PEC_{gw} [µg/L]	PEC_{gw} [µg/L]
Spring cereals 2 × 87.5 g a.s./ha	<0.001	0.542	<0.001	<0.001
Winter cereals 2 × 87.5 g a.s./ha	<0.001	0.619	<0.001	<0.001
Spring cereals 1 × 87.5 g a.s./ha	<0.001	0.257	<0.001	<0.001
Winter cereals 1 × 87.5 g a.s./ha	<0.001	0.294	<0.001	<0.001

1) Pseudo application pattern for the anaerobic metabolite HEC 5725-carboxylic acid (Scenario 1).

As described for scenario 1, 100 % of the potential pseudo application rate of anaerobic HEC 5725-carboxylic acid was applied, each year. All PEC_{gw} values for all groundwater scenarios and application periods resulted already in concentrations < 0.001 µg/L, also without a division by 10. Therefore, a further simulation according Scenario 2, every 10 years, was not carried out anymore, as it is already covered with the first simulation.

Conclusion: There are no concerns for groundwater from the use of fluoxastrobin in accordance with the use pattern for the representative formulation.

The concentration of the metabolite HEC5725-E-des-chlorophenyl (M48) was predicted to reach groundwater at concentrations exceeding 0.1 µg/L. However, the relevance of this metabolite was assessed and the metabolite is non-relevant in groundwater (see Document N4).

CP 9.2.4.2 Additional field tests

No additional field studies were performed or required due to low PEC_{gw} values calculated (see CP 9.2.4.1).

CP 9.2.5 Estimation of concentrations in surface water and sediment

New calculations were performed, to reflect findings from new studies presented in the active substance dossier, section 7 "Fate and behaviour in the environment". In addition these calculations consider the most recent guidance documents for exposure calculations. Calculations of predicted environmental concentrations are presented below.

Predicted environmental concentrations in water (PEC_{SW}) and sediment (PEC_{sed})

Endpoints for surface water (PEC_{SW}) and sediment (PEC_{sed})

For deriving the respective end points please refer to MCA Section 7, data point 7.2.

Table CP 9.2.5- 1: Key modelling input parameters for fluoxastrobin and its metabolites at Steps 1-2 level PEC calculations

Parameter	Unit	Fluoxastrobin (E+Z)	HEC 5725 -E-des-chlorophenyl	HEC 5725 -carboxylic acid	2-chlorophenol
Molar Mass	g/mol	458.8	348.3	417.8	128.56
Water Solubility	mg/L	2.292	9600	244000	23000
Koc	mL/g	752	19.3	56.4	104.7
Degradation					
Soil	days	38.89	56.7	17.01	23
Total System	days	238.4	1000*	67.89	1000*
Water	days	238.4	1000*	67.89	1000*
Sediment	days	1000*	1000*	67.89	1000*
Max Occurrence					
Water / Sediment	%	100	18.3	10.6	0.01
Soil	%	100	32.2	16.9	49.2

* Default value used

Table CP 9.2.5- 2: Additional modelling input parameters for fluoxastrobin at steps 3/4 level PEC calculations

Parameter	Unit	Fluoxastrobin (E+Z)
General Parameters		
Molar Mass	g/mol	458.8
Water Solubility	mg/L	2.292
Vapour Pressure	Pa	5.6E-10
Plant Uptake Factor		0.0
Wash-Off Factor PRZM	1/cm	0.5
Wash-Off Factor MACRO	1/mm	0.05
Sorption		
Koc	mL/g	752
Freundlich Exponent		0.8584
Degradation		
Soil	days	38.89
Water	days	238.4
Sediment	days	1000
Walker Exponent		0.7 (PRZM), 0.49 (MACRO)
Effect of Temperature		
Activation Energy	J/mol	65 400
Exponent	1/K	0.095
Q10		2.58

Report:	KCP 9.2.5/01 [redacted],; [redacted]; 2015; M-537907-01-1
Title:	Fluoxastrobin (FXA) and metabolites: PECsw, sed FOCUS EUR - Use in cereals and onions in Europe
Report No.:	Ensa-15-0571
Document No.:	M-537907-01-1
Guideline(s):	not applicable
Guideline deviation(s):	not applicable
GLP/GEP:	**no**

Materials and Methods: Predicted environmental concentrations in surface water and sediment (PEC_{sw} and PEC_{sed}) of fluoxastrobin and its metabolites have been calculated for the use in winter and spring cereals in Europe. All relevant entry routes of a compound into surface water (combination of spray drift and runoff/erosion or drain flow) were considered in these calculations.

At FOCUS Step 2 the application period was set to March to May and the use in Northern and Southern Europe was considered. Details of the application pattern used in the Step 2 calculations are summarised in Table CP 9.2.5- 3.

Table CP 9.2.5- 3: Application pattern used for $PEC_{sw,sed}$ calculations at FOCUS Steps 1&2

Crop	Rate [g a.s./ha]	Interval [days]	BBCH stage	FOCUS crop (crop group)	Season	Crop cover
Cereals, GAP	2 × 87.5	14	30-69	-	-	-
Cereals (winter), simulation 1	2 × 87.5	14	30-69	Winter cereals	Mar. - May	Intermediate crop cover 20 %
Cereals (spring), simulation 2	2 × 87.5	14	30-69	Spring cereals	Mar. - May	Intermediate crop cover 20 %
Cereals, GAP	2 × 75.0	14	30-61	-	-	-
Cereals (winter), simulation 1	2 × 75.0	14	30-61	Winter cereals	Mar. - May	Intermediate crop cover 20 %
Cereals (spring), simulation 2	2 × 75.0	14	30-61	Spring cereals	Mar. - May	Intermediate crop cover 20 %

In FOCUS Step 3, the application date for each scenario is determined by the Pesticide Application Timer (PAT), which is part of the FOCUS SW Scenarios. The user may only define an application time window. Absolute application dates for the crop simulation runs were estimated using a German regulatory tool AppDate 2[2]. Details of the parameters used in the Step 3 calculations are summarised in Table CP 9.2.5- 4.

[2] [redacted] 2015: Computer programme: "AppDate: Estimation of application dates based on crop development." (v.2.0b.).

Table CP 9.2.5- 4: Application dates of fluoxastrobin for the FOCUS Step 3 calculations

Parameter	Winter cereals	Spring cereals
PAT start date rel./absolute	Absolute	Absolute
Appl. method (appl. type)	ground spray (CAM 2)	ground spray (CAM 2)
No of appl.	2	2
PAT window range	44	44
Appl. interval	14	14
Application Details	PAT Start Date	PAT Start Date
D1	20/04/02	27/05/01
D2	23/05/02	---
D3	02/07/02	28/04/01
D4	21/04/02	18/05/01
D5	15/03/02	09/04/01
D6, 1st	02/03/02	---
D6, 2nd	---	---
R1	20/04/02	---
R2	---	---
R3	10/04/02	---
R4	15/03/02	09/04/01

Compound input parameters for the Steps 1&2 simulation runs are summarised in Table CP 9.2.5- 1 and for the Steps 3&4 simulation runs in Table CP 9.2.5- 2.

Findings: Steps 1&2: The maximum PEC_{sw} and PEC_{sed} values for fluoxastrobin and its metabolites at Steps 1&2 are summarised in Table CP 9.2.5- 5.

Table CP 9.2.5- 5: Maximum PEC_{sw} and PEC_{sed} values for fluoxastrobin and its metabolites at Steps 1&2

Use pattern	Scenario	Fluoxastrobin (E+Z)		HEC 5725 -E-des-chlorophenyl		HEC 5725 -carboxylic acid		2-chlorophenol	
		PEC_{sw} [µg/L]	PEC_{sed} [µg/kg]	PEC_{sw} [µg/L]	PEC_{sed} [µg/kg]	PEC_{sw} [µg/L]	PEC_{sed} [µg/kg]	PEC_{sw} [µg/L]	PEC_{sed} [µg/kg]
Cereals, 2 x 87.5 g/ha	Step 1	30.74	219.04	20.96	4.01	11.35	6.35	13.74	7.67
	Step 2								
	N-EU Multi	4.69	34.23	3.03	0.58	1.34	0.75	1.70	0.95
	S-EU Multi	8.55	63.24	5.89	1.14	2.61	1.46	3.28	1.83
	N-EU Single	2.65	19.30	1.67	0.32	0.82	0.46	1.03	0.57
	S-EU Single	4.82	35.61	3.24	0.62	1.61	0.90	1.99	1.11
Cereals, 2 x 75 g/ha	Step 1	26.35	187.75	17.97	3.44	9.73	5.45	11.78	6.57
	Step 2								
	N-EU Multi	4.02	29.34	2.60	0.50	1.15	0.64	1.46	0.81
	S-EU Multi	7.33	54.21	5.05	0.97	2.24	1.25	2.81	1.57
	N-EU Single	2.27	16.54	1.43	0.28	0.71	0.39	0.88	0.49
	S-EU Single	4.13	30.52	2.77	0.53	1.38	0.77	1.70	0.95

Step 3: The maximum PEC_{sw} , PEC_{sed} values and time weighted average concentrations at Day 7 of fluoxastrobin for relevant FOCUS Step 3 scenarios are given in the following tables.

Table CP 9.2.5- 6: Winter cereals: Maximum PEC_{sw}, PEC_{sed} and $TWAC_{SW}$-7 values for fluoxastrobin at Step 3

Use pattern	Fluoxastrobin (E+Z)					
	Cereals (winter), 1 and 2 × 87.5 g a.s./ha					
	Single application			Multiple applications		
FOCUS scenario	PEC_{sw} [µg/L]	$TWAC_{sw}$-7 [µg/L]	PEC_{sed} [µg/kg]	PEC_{sw} [µg/L]	$TWAC_{sw}$-7 [µg/L]	PEC_{sed} [µg/kg]
D1 (ditch)	0.600	0.467	1.827	0.598	0.498	2.972
D1 (stream)	0.498	0.049	0.651	0.457	0.113	1.368
D2 (ditch)	0.592	0.394	1.428	0.636	0.453	2.558
D2 (stream)	0.481	0.039	0.375	0.465	0.206	1.222
D3 (ditch)	0.555	0.116	0.412	0.486	0.116	0.518
D4 (pond)	0.019	0.017	0.148	0.025	0.023	0.254
D4 (stream)	0.426	0.005	0.018	0.399	0.010	0.040
D5 (pond)	0.019	0.018	0.149	0.028	0.026	0.243
D5 (stream)	0.442	0.002	0.013	0.422	0.006	0.035
D6 (ditch)	0.553	0.086	0.328	0.486	0.205	0.613
R1 (pond)	0.043	0.040	0.408	0.113	0.107	0.984
R1 (stream)	0.365	0.039	0.321	0.908	0.113	0.917
R3 (stream)	0.515	0.061	0.746	0.731	0.100	0.844
R4 (stream)	0.449	0.124	0.498	0.950	0.271	1.148

Table CP 9.2.5- 7: Spring cereals: Maximum PEC_{sw}, PEC_{sed} and $TWAC_{SW}$-7 values for fluoxastrobine at Step 3

Use pattern	Fluoxastrobin (E+Z)					
	Cereals (spring), 1 and 2 × 87.5 g a.s./ha					
	Single application			Multiple applications		
FOCUS scenario	PEC_{sw} [µg/L]	$TWAC_{sw}$-7 [µg/L]	PEC_{sed} [µg/kg]	PEC_{sw} [µg/L]	$TWAC_{sw}$-7 [µg/L]	PEC_{sed} [µg/kg]
D1 (ditch)	0.583	0.473	2.218	0.810	0.692	3.925
D1 (stream)	0.490	0.063	0.817	0.424	0.146	1.679
D3 (ditch)	0.554	0.090	0.346	0.485	0.082	0.413
D4 (pond)	0.019	0.017	0.150	0.027	0.025	0.258
D4 (stream)	0.453	0.006	0.031	0.404	0.012	0.054
D5 (pond)	0.019	0.018	0.148	0.027	0.025	0.241
D5 (stream)	0.465	0.004	0.020	0.418	0.005	0.031
R4 (stream)	0.607	0.187	0.974	1.211	0.273	1.450

Table CP 9.2.5- 8: Winter cereals: Maximum PEC_{sw}, PEC_{sed} and $TWAC_{SW}$-7 values for fluoxastrobin at Step 3

Use pattern	Fluoxastrobin (E+Z) Cereals (winter), 1 and 2 × 75.0 g a.s./ha					
	Single application			Multiple applications		
FOCUS scenario	PEC_{sw} [µg/L]	$TWAC_{sw}$-7 [µg/L]	PEC_{sed} [µg/kg]	PEC_{sw} [µg/L]	$TWAC_{sw}$-7 [µg/L]	PEC_{sed} [µg/kg]
D1 (ditch)	0.510	0.396	1.540	0.509	0.423	2.480
D1 (stream)	0.425	0.039	0.523	0.389	0.090	1.131
D2 (ditch)	0.501	0.332	1.189	0.538	0.380	2.112
D2 (stream)	0.410	0.030	0.305	0.394	0.172	0.997
D3 (ditch)	0.476	0.099	0.355	0.417	0.100	0.447
D4 (pond)	0.016	0.015	0.126	0.021	0.020	0.216
D4 (stream)	0.365	0.004	0.015	0.342	0.008	0.034
D5 (pond)	0.016	0.015	0.128	0.024	0.022	0.209
D5 (stream)	0.379	0.002	0.011	0.362	0.005	0.030
D6 (ditch)	0.474	0.073	0.282	0.417	0.176	0.530
R1 (pond)	0.036	0.034	0.350	0.096	0.091	0.843
R1 (stream)	0.313	0.033	0.278	0.763	0.095	0.793
R3 (stream)	0.442	0.051	0.641	0.615	0.084	0.726
R4 (stream)	0.379	0.105	0.429	0.801	0.230	0.989

Table CP 9.2.5- 9: Spring cereals: Maximum PEC_{sw}, PEC_{sed} and $TWAC_{SW}$-7 values for fluoxastrobin at Step 3

Use pattern	Fluoxastrobin (E+Z) Cereals (spring), 1 and 2 × 75.0 g a.s./ha					
	Single application			Multiple applications		
FOCUS scenario	PEC_{sw} [µg/L]	$TWAC_{sw}$-7 [µg/L]	PEC_{sed} [µg/kg]	PEC_{sw} [µg/L]	$TWAC_{sw}$-7 [µg/L]	PEC_{sed} [µg/kg]
D1 (ditch)	0.497	0.403	1.881	0.692	0.590	3.346
D1 (stream)	0.420	0.054	0.664	0.364	0.113	1.395
D3 (ditch)	0.475	0.077	0.298	0.416	0.070	0.356
D4 (pond)	0.016	0.015	0.128	0.023	0.022	0.219
D4 (stream)	0.388	0.005	0.027	0.347	0.010	0.046
D5 (pond)	0.017	0.015	0.128	0.023	0.021	0.207
D5 (stream)	0.399	0.003	0.017	0.358	0.004	0.027
R4 (stream)	0.511	0.158	0.839	1.023	0.231	1.245

Step 4: The maximum PEC_{sw} and PEC_{sed} values and time weighted average concentrations at Day 7 of fluoxastrobin for relevant FOCUS Step 4 scenarios are given in the following tables.

Table CP 9.2.5- 10: Winter cereals: Maximum PEC_{sw} values for fluoxastrobin at Step 4 after single and multiple applications

		Fluoxastrobin (E+Z)							
		Cereals (winter), 1 and 2 × 87.5 g a.s./ha							
		Single application				Multiple applications			
Buffer Width & Type	Scenario	PEC_{sw} [µg/L]) Drift Reduction				PEC_{sw} [µg/L] Drift Reduction			
		0%	50%	75%	90%	0%	50%	75%	90%
5m SD	D1 (ditch)	0.192	0.116	0.085	0.085	0.214	0.198	0.198	0.198
	D1 (stream)	0.195	0.108	0.065	0.053	0.190	0.124	0.124	0.124
	D2 (ditch)	0.220	0.220	0.220	0.220	0.485	0.485	0.485	0.485
	D2 (stream)	0.184	0.139	0.139	0.139	0.310	0.310	0.310	0.310
	D3 (ditch)	0.150	0.075	0.038	0.015	0.126	0.063	0.032	0.013
	D4 (pond)	0.017	0.008	0.005	0.005	0.021	0.013	0.011	0.011
	D4 (stream)	0.156	0.078	0.039	0.020	0.141	0.071	0.042	0.042
	D5 (pond)	0.017	0.008	0.004	0.002	0.024	0.012	0.006	0.003
	D5 (stream)	0.162	0.081	0.040	0.016	0.149	0.075	0.037	0.015
	D6 (ditch)	0.150	0.075	0.038	0.015	0.126	0.063	0.032	0.017
	R1 (pond)	0.041	0.038	0.036	0.035	0.111	0.104	0.101	0.099
	R1 (stream)	0.313	0.313	0.313	0.313	0.908	0.908	0.908	0.908
	R3 (stream)	0.438	0.438	0.438	0.438	0.731	0.731	0.731	0.731
	R4 (stream)	0.449	0.449	0.449	0.449	0.950	0.950	0.950	0.950
10m SD &RO	D1 (ditch)	0.121	0.085	0.085	0.085	0.198	0.198	0.198	0.198
	D1 (stream)	0.113	0.067	0.053	0.053	0.124	0.124	0.124	0.124
	D2 (ditch)	0.220	0.220	0.220	0.220	0.485	0.485	0.485	0.485
	D2 (stream)	0.139	0.139	0.139	0.139	0.310	0.310	0.310	0.310
	D3 (ditch)	0.080	0.040	0.020	0.008	0.066	0.033	0.016	0.007
	D4 (pond)	0.012	0.006	0.005	0.005	0.015	0.012	0.011	0.010
	D4 (stream)	0.083	0.041	0.021	0.020	0.073	0.042	0.042	0.042
	D5 (pond)	0.012	0.006	0.003	0.001	0.017	0.009	0.005	0.002
	D5 (stream)	0.086	0.043	0.021	0.009	0.077	0.039	0.019	0.010
	D6 (ditch)	0.079	0.040	0.020	0.008	0.066	0.033	0.017	0.017
	R1 (pond)	0.019	0.016	0.015	0.014	0.049	0.044	0.042	0.040
	R1 (stream)	0.142	0.142	0.142	0.142	0.412	0.412	0.412	0.412
	R3 (stream)	0.200	0.200	0.200	0.200	0.329	0.329	0.329	0.329
	R4 (stream)	0.203	0.203	0.203	0.203	0.429	0.429	0.429	0.429
20m SD & RO	D1 (ditch)	0.085	0.085	0.085	0.085	0.198	0.198	0.198	0.198
	D1 (stream)	0.069	0.053	0.053	0.053	0.124	0.124	0.124	0.124
	D2 (ditch)	0.220	0.220	0.220	0.220	0.485	0.485	0.485	0.485
	D2 (stream)	0.139	0.139	0.139	0.139	0.310	0.310	0.310	0.310
	D3 (ditch)	0.042	0.021	0.010	0.004	0.033	0.017	0.008	0.003
	D4 (pond)	0.008	0.005	0.005	0.005	0.012	0.011	0.011	0.010
	D4 (stream)	0.043	0.021	0.020	0.020	0.042	0.042	0.042	0.042
	D5 (pond)	0.008	0.004	0.002	0.001	0.011	0.006	0.003	0.002
	D5 (stream)	0.044	0.022	0.011	0.004	0.039	0.020	0.010	0.010
	D6 (ditch)	0.041	0.021	0.010	0.008	0.033	0.017	0.017	0.017
	R1 (pond)	0.011	0.009	0.008	0.007	0.026	0.023	0.021	0.020
	R1 (stream)	0.074	0.074	0.074	0.074	0.216	0.216	0.216	0.216
	R3 (stream)	0.105	0.105	0.105	0.105	0.172	0.172	0.172	0.172
	R4 (stream)	0.106	0.106	0.106	0.106	0.224	0.224	0.224	0.224

* SD and RO denote spray drift and runoff buffer

Table CP 9.2.5- 11: Winter cereals: TWAC$_{sw}$-7 for fluoxastrobin at Step 4 after single and multiple applications

		Fluoxastrobin (E+Z)							
		Cereals (winter), 1 and 2 × 87.5 g a.s./ha							
		Single application				Multiple applications			
Buffer Width & Type	**Scenario**	TWAC$_{sw}$-7 [µg/L] Drift Reduction				TWAC$_{sw}$-7 [µg/L] Drift Reduction			
		0%	**50%**	**75%**	**90%**	**0%**	**50%**	**75%**	**90%**
5m SD	D1 (ditch)	0.153	0.095	0.079	0.079	0.182	0.181	0.181	0.181
	D1 (stream)	0.049	0.049	0.049	0.049	0.113	0.113	0.113	0.113
	D2 (ditch)	0.128	0.079	0.077	0.077	0.194	0.194	0.194	0.194
	D2 (stream)	0.035	0.035	0.035	0.035	0.101	0.101	0.101	0.101
	D3 (ditch)	0.031	0.016	0.008	0.003	0.030	0.015	0.007	0.003
	D4 (pond)	0.015	0.007	0.005	0.004	0.020	0.012	0.010	0.010
	D4 (stream)	0.005	0.005	0.005	0.005	0.010	0.010	0.010	0.010
	D5 (pond)	0.015	0.008	0.004	0.002	0.023	0.011	0.006	0.003
	D5 (stream)	0.001	0.000	0.000	0.000	0.002	0.001	0.001	0.001
	D6 (ditch)	0.023	0.012	0.006	0.002	0.053	0.026	0.013	0.005
	R1 (pond)	0.039	0.035	0.034	0.033	0.105	0.099	0.096	0.094
	R1 (stream)	0.039	0.039	0.039	0.039	0.113	0.113	0.113	0.113
	R3 (stream)	0.061	0.061	0.061	0.061	0.100	0.100	0.100	0.100
	R4 (stream)	0.124	0.124	0.124	0.124	0.271	0.271	0.271	0.271
10m SD &RO	D1 (ditch)	0.099	0.079	0.079	0.079	0.181	0.181	0.181	0.181
	D1 (stream)	0.049	0.049	0.049	0.049	0.113	0.113	0.113	0.113
	D2 (ditch)	0.082	0.077	0.077	0.077	0.194	0.194	0.194	0.194
	D2 (stream)	0.035	0.035	0.035	0.035	0.101	0.101	0.101	0.101
	D3 (ditch)	0.017	0.008	0.004	0.002	0.016	0.008	0.004	0.002
	D4 (pond)	0.011	0.005	0.005	0.004	0.014	0.011	0.010	0.010
	D4 (stream)	0.005	0.005	0.005	0.005	0.010	0.010	0.010	0.010
	D5 (pond)	0.011	0.005	0.003	0.001	0.016	0.008	0.004	0.002
	D5 (stream)	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001
	D6 (ditch)	0.012	0.006	0.003	0.001	0.027	0.014	0.007	0.003
	R1 (pond)	0.018	0.015	0.014	0.013	0.046	0.042	0.039	0.038
	R1 (stream)	0.018	0.018	0.018	0.018	0.051	0.051	0.051	0.051
	R3 (stream)	0.028	0.028	0.028	0.028	0.045	0.045	0.045	0.045
	R4 (stream)	0.056	0.056	0.056	0.056	0.123	0.123	0.123	0.123
20m SD & RO	D1 (ditch)	0.079	0.079	0.079	0.079	0.181	0.181	0.181	0.181
	D1 (stream)	0.049	0.049	0.049	0.049	0.113	0.113	0.113	0.113
	D2 (ditch)	0.077	0.077	0.077	0.077	0.194	0.194	0.194	0.194
	D2 (stream)	0.035	0.035	0.035	0.035	0.101	0.101	0.101	0.101
	D3 (ditch)	0.009	0.004	0.002	0.001	0.008	0.004	0.002	0.001
	D4 (pond)	0.007	0.005	0.004	0.004	0.011	0.010	0.010	0.009
	D4 (stream)	0.005	0.005	0.005	0.005	0.010	0.010	0.010	0.010
	D5 (pond)	0.007	0.004	0.002	0.001	0.011	0.006	0.003	0.001
	D5 (stream)	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001
	D6 (ditch)	0.006	0.003	0.002	0.001	0.014	0.007	0.003	0.002
	R1 (pond)	0.010	0.008	0.007	0.007	0.025	0.022	0.020	0.019
	R1 (stream)	0.009	0.009	0.009	0.009	0.027	0.027	0.027	0.027
	R3 (stream)	0.015	0.015	0.015	0.015	0.023	0.023	0.023	0.023
	R4 (stream)	0.029	0.029	0.029	0.029	0.065	0.065	0.065	0.065

* SD and RO denote spray drift and runoff buffer

Table CP 9.2.5- 12: Winter cereals: Maximum PEC_{sed} values for fluoxastrobin at Step 4 after single and multiple applications

		Fluoxastrobin (E+Z)							
		Cereals (winter), 1 and 2 × 87.5 g a.s./ha							
		Single application				Multiple applications			
Buffer Width & Type	Scenario	PEC_{sed} [µg/kg]) Drift Reduction				PEC_{sed} [µg/kg] Drift Reduction			
		0%	50%	75%	90%	0%	50%	75%	90%
5m SD	D1 (ditch)	1.192	1.161	1.145	1.136	2.526	2.447	2.407	2.383
	D1 (stream)	0.649	0.648	0.648	0.648	1.361	1.359	1.358	1.358
	D2 (ditch)	0.778	0.742	0.724	0.713	1.699	1.608	1.579	1.561
	D2 (stream)	0.372	0.372	0.371	0.371	0.857	0.843	0.836	0.832
	D3 (ditch)	0.117	0.060	0.031	0.013	0.143	0.074	0.038	0.016
	D4 (pond)	0.132	0.081	0.056	0.041	0.227	0.146	0.105	0.082
	D4 (stream)	0.017	0.017	0.017	0.017	0.038	0.037	0.037	0.036
	D5 (pond)	0.130	0.069	0.037	0.017	0.212	0.113	0.063	0.033
	D5 (stream)	0.005	0.003	0.001	0.001	0.013	0.007	0.004	0.003
	D6 (ditch)	0.093	0.048	0.025	0.011	0.171	0.089	0.046	0.020
	R1 (pond)	0.395	0.352	0.331	0.318	0.962	0.897	0.864	0.844
	R1 (stream)	0.316	0.315	0.314	0.313	0.907	0.905	0.903	0.903
	R3 (stream)	0.719	0.711	0.707	0.704	0.820	0.813	0.809	0.807
	R4 (stream)	0.494	0.492	0.492	0.491	1.138	1.135	1.134	1.133
10m SD &RO	D1 (ditch)	1.163	1.146	1.138	1.133	2.450	2.408	2.387	2.375
	D1 (stream)	0.648	0.648	0.648	0.648	1.359	1.358	1.358	1.357
	D2 (ditch)	0.744	0.725	0.716	0.710	1.611	1.580	1.565	1.555
	D2 (stream)	0.372	0.371	0.371	0.371	0.844	0.837	0.833	0.831
	D3 (ditch)	0.063	0.032	0.017	0.007	0.077	0.040	0.020	0.009
	D4 (pond)	0.103	0.067	0.049	0.038	0.181	0.123	0.094	0.077
	D4 (stream)	0.017	0.017	0.017	0.017	0.037	0.037	0.036	0.036
	D5 (pond)	0.096	0.051	0.028	0.013	0.155	0.084	0.047	0.027
	D5 (stream)	0.003	0.001	0.001	0.001	0.007	0.004	0.003	0.003
	D6 (ditch)	0.050	0.026	0.014	0.006	0.092	0.048	0.025	0.011
	R1 (pond)	0.197	0.165	0.149	0.139	0.455	0.405	0.380	0.364
	R1 (stream)	0.107	0.106	0.106	0.106	0.297	0.295	0.295	0.294
	R3 (stream)	0.201	0.197	0.194	0.193	0.264	0.261	0.259	0.257
	R4 (stream)	0.215	0.214	0.214	0.214	0.471	0.469	0.468	0.468
20m SD & RO	D1 (ditch)	1.147	1.138	1.134	1.131	2.409	2.388	2.377	2.371
	D1 (stream)	0.648	0.648	0.648	0.648	1.358	1.358	1.358	1.357
	D2 (ditch)	0.726	0.716	0.711	0.708	1.580	1.565	1.557	1.552
	D2 (stream)	0.371	0.371	0.371	0.371	0.837	0.833	0.831	0.830
	D3 (ditch)	0.034	0.017	0.009	0.004	0.040	0.021	0.011	0.004
	D4 (pond)	0.080	0.055	0.043	0.036	0.141	0.103	0.085	0.074
	D4 (stream)	0.017	0.017	0.017	0.017	0.037	0.036	0.036	0.036
	D5 (pond)	0.066	0.036	0.020	0.010	0.107	0.059	0.036	0.023
	D5 (stream)	0.002	0.001	0.001	0.001	0.004	0.003	0.003	0.003
	D6 (ditch)	0.027	0.014	0.008	0.004	0.049	0.026	0.014	0.010
	R1 (pond)	0.115	0.092	0.080	0.074	0.254	0.220	0.202	0.192
	R1 (stream)	0.054	0.053	0.053	0.053	0.147	0.147	0.146	0.146
	R3 (stream)	0.095	0.092	0.091	0.090	0.130	0.128	0.127	0.126
	R4 (stream)	0.114	0.114	0.114	0.113	0.247	0.247	0.246	0.246

* SD and RO denote spray drift and runoff buffer

Table CP 9.2.5- 13: Spring cereals: Maximum PEC$_{sw}$ values for fluoxastrobin at Step 4 after single and multiple applications

		Fluoxastrobin (E+Z)							
		Cereals (spring), 1 and 2 × 87.5 g a.s./ha							
		Single application				Multiple applications			
Buffer Width & Type	Scenario	PEC$_{sw}$ [µg/L]) Drift Reduction				PEC$_{sw}$ [µg/L] Drift Reduction			
		0%	50%	75%	90%	0%	50%	75%	90%
5m SD	D1 (ditch)	0.174	0.103	0.103	0.103	0.250	0.250	0.250	0.250
	D1 (stream)	0.180	0.090	0.064	0.064	0.157	0.157	0.157	0.157
	D3 (ditch)	0.150	0.075	0.038	0.015	0.126	0.063	0.031	0.013
	D4 (pond)	0.017	0.008	0.006	0.005	0.023	0.014	0.013	0.012
	D4 (stream)	0.166	0.083	0.041	0.022	0.143	0.071	0.044	0.044
	D5 (pond)	0.017	0.008	0.004	0.002	0.023	0.012	0.006	0.003
	D5 (stream)	0.170	0.085	0.043	0.017	0.148	0.074	0.037	0.015
	R4 (stream)	0.607	0.607	0.607	0.607	1.211	1.211	1.211	1.211
10m SD &RO	D1 (ditch)	0.103	0.103	0.103	0.103	0.250	0.250	0.250	0.250
	D1 (stream)	0.095	0.064	0.064	0.064	0.157	0.157	0.157	0.157
	D3 (ditch)	0.080	0.040	0.020	0.008	0.066	0.033	0.016	0.007
	D4 (pond)	0.012	0.006	0.006	0.005	0.017	0.013	0.012	0.012
	D4 (stream)	0.088	0.044	0.022	0.022	0.074	0.044	0.044	0.044
	D5 (pond)	0.012	0.006	0.003	0.001	0.016	0.008	0.004	0.002
	D5 (stream)	0.090	0.045	0.023	0.009	0.077	0.038	0.019	0.010
	R4 (stream)	0.276	0.276	0.276	0.276	0.544	0.544	0.544	0.544
20m SD & RO	D1 (ditch)	0.103	0.103	0.103	0.103	0.250	0.250	0.250	0.250
	D1 (stream)	0.064	0.064	0.064	0.064	0.157	0.157	0.157	0.157
	D3 (ditch)	0.041	0.021	0.010	0.004	0.033	0.017	0.008	0.003
	D4 (pond)	0.008	0.006	0.006	0.005	0.014	0.013	0.012	0.012
	D4 (stream)	0.046	0.023	0.022	0.022	0.044	0.044	0.044	0.044
	D5 (pond)	0.008	0.004	0.002	0.001	0.011	0.006	0.003	0.001
	D5 (stream)	0.047	0.023	0.012	0.005	0.039	0.020	0.010	0.010
	R4 (stream)	0.145	0.145	0.145	0.145	0.284	0.284	0.284	0.284

* SD and RO denote spray drift and runoff buffer

Table CP 9.2.5- 14: Spring cereals: $TWAC_{sw}$-7 for fluoxastrobin at Step 4 after single and multiple applications

		Fluoxastrobin (E+Z)							
		Cereals (spring), 1 and 2 × 87.5 g a.s./ha							
		Single application				Multiple applications			
Buffer Width & Type	Scenario	$TWAC_{sw}$-7 [µg/L] Drift Reduction				$TWAC_{sw}$-7 [µg/L] Drift Reduction			
		0%	50%	75%	90%	0%	50%	75%	90%
5m SD	D1 (ditch)	0.142	0.097	0.097	0.097	0.234	0.234	0.234	0.234
	D1 (stream)	0.061	0.061	0.061	0.061	0.146	0.146	0.146	0.146
	D3 (ditch)	0.024	0.012	0.006	0.002	0.021	0.011	0.005	0.002
	D4 (pond)	0.015	0.007	0.005	0.005	0.022	0.013	0.012	0.011
	D4 (stream)	0.005	0.005	0.005	0.005	0.012	0.012	0.012	0.012
	D5 (pond)	0.015	0.008	0.004	0.002	0.021	0.011	0.006	0.002
	D5 (stream)	0.001	0.001	0.000	0.000	0.002	0.001	0.001	0.001
	R4 (stream)	0.187	0.187	0.187	0.187	0.266	0.265	0.264	0.263
10m SD &RO	D1 (ditch)	0.097	0.097	0.097	0.097	0.234	0.234	0.234	0.234
	D1 (stream)	0.061	0.061	0.061	0.061	0.146	0.146	0.146	0.146
	D3 (ditch)	0.013	0.006	0.003	0.001	0.011	0.005	0.003	0.001
	D4 (pond)	0.011	0.006	0.005	0.005	0.015	0.012	0.011	0.011
	D4 (stream)	0.005	0.005	0.005	0.005	0.012	0.012	0.012	0.012
	D5 (pond)	0.011	0.006	0.003	0.001	0.015	0.008	0.004	0.002
	D5 (stream)	0.001	0.000	0.000	0.000	0.001	0.001	0.001	0.001
	R4 (stream)	0.085	0.085	0.085	0.085	0.121	0.120	0.120	0.119
20m SD & RO	D1 (ditch)	0.097	0.097	0.097	0.097	0.234	0.234	0.234	0.234
	D1 (stream)	0.061	0.061	0.061	0.061	0.146	0.146	0.146	0.146
	D3 (ditch)	0.007	0.003	0.002	0.001	0.006	0.003	0.001	0.001
	D4 (pond)	0.007	0.005	0.005	0.005	0.013	0.012	0.011	0.011
	D4 (stream)	0.005	0.005	0.005	0.005	0.012	0.012	0.012	0.012
	D5 (pond)	0.007	0.004	0.002	0.001	0.010	0.005	0.003	0.001
	D5 (stream)	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001
	R4 (stream)	0.045	0.045	0.045	0.045	0.063	0.063	0.234	0.062

* SD and RO denote spray drift and runoff buffer

Table CP 9.2.5- 15: Spring cereals: Maximum PEC_{sed} values for fluoxastrobin at Step 4 after single and multiple applications

Buffer Width & Type	Scenario	Fluoxastrobin (E+Z)							
		Cereals (spring), 1 and 2 × 87.5 g a.s./ha							
		Single application				Multiple applications			
		PEC_{sed} [µg/kg]) Drift Reduction				PEC_{sed} [µg/kg] Drift Reduction			
		0%	50%	75%	90%	0%	50%	75%	90%
5m SD	D1 (ditch)	1.521	1.441	1.400	1.376	3.067	2.939	2.874	2.836
	D1 (stream)	0.807	0.804	0.803	0.802	1.663	1.658	1.656	1.655
	D3 (ditch)	0.098	0.050	0.025	0.010	0.113	0.058	0.030	0.012
	D4 (pond)	0.134	0.085	0.059	0.044	0.233	0.154	0.115	0.092
	D4 (stream)	0.020	0.019	0.019	0.019	0.043	0.042	0.042	0.041
	D5 (pond)	0.130	0.069	0.037	0.017	0.209	0.112	0.062	0.031
	D5 (stream)	0.008	0.004	0.002	0.001	0.011	0.006	0.003	0.003
	R4 (stream)	0.965	0.963	0.961	0.961	1.432	1.427	1.424	1.423
10m SD &RO	D1 (ditch)	1.445	1.402	1.381	1.368	2.944	2.877	2.844	2.823
	D1 (stream)	0.804	0.803	0.802	0.802	1.658	1.656	1.655	1.654
	D3 (ditch)	0.053	0.027	0.014	0.006	0.061	0.031	0.016	0.007
	D4 (pond)	0.106	0.070	0.052	0.042	0.187	0.131	0.104	0.088
	D4 (stream)	0.020	0.019	0.019	0.019	0.042	0.042	0.041	0.041
	D5 (pond)	0.095	0.051	0.028	0.014	0.153	0.083	0.047	0.026
	D5 (stream)	0.004	0.002	0.001	0.001	0.006	0.003	0.003	0.003
	R4 (stream)	0.362	0.361	0.360	0.360	0.564	0.562	0.560	0.559
20m SD & RO	D1 (ditch)	1.404	1.382	1.371	1.364	2.878	2.844	2.827	2.817
	D1 (stream)	0.803	0.802	0.802	0.802	1.656	1.655	1.654	1.654
	D3 (ditch)	0.028	0.014	0.007	0.003	0.032	0.016	0.008	0.004
	D4 (pond)	0.083	0.058	0.046	0.039	0.149	0.112	0.095	0.084
	D4 (stream)	0.019	0.019	0.019	0.019	0.042	0.041	0.041	0.041
	D5 (pond)	0.066	0.036	0.020	0.011	0.105	0.058	0.034	0.022
	D5 (stream)	0.002	0.001	0.001	0.001	0.003	0.003	0.003	0.003
	R4 (stream)	0.186	0.185	0.185	0.185	0.293	0.292	0.291	0.290

* SD and RO denote spray drift and runoff buffer

Table CP 9.2.5- 16: Winter cereals: Maximum PEC_{sw} values for fluoxastrobin at Step 4 after single and multiple applications

		Fluoxastrobin (E+Z)							
		Cereals (winter), 1 and 2 × 75.0 g a.s./ha							
		Single application				Multiple applications			
Buffer Width & Type	Scenario	PEC_{sw} [µg/L]) Drift Reduction				PEC_{sw} [µg/L] Drift Reduction			
		0%	50%	75%	90%	0%	50%	75%	90%
5m SD	D1 (ditch)	0.161	0.096	0.068	0.068	0.180	0.153	0.153	0.153
	D1 (stream)	0.165	0.091	0.053	0.043	0.161	0.098	0.096	0.096
	D2 (ditch)	0.178	0.178	0.178	0.178	0.395	0.395	0.395	0.395
	D2 (stream)	0.155	0.112	0.112	0.112	0.253	0.253	0.253	0.253
	D3 (ditch)	0.129	0.065	0.032	0.013	0.108	0.054	0.027	0.011
	D4 (pond)	0.014	0.007	0.004	0.004	0.018	0.010	0.009	0.009
	D4 (stream)	0.133	0.067	0.033	0.016	0.121	0.060	0.034	0.034
	D5 (pond)	0.014	0.007	0.004	0.002	0.021	0.011	0.005	0.002
	D5 (stream)	0.138	0.069	0.035	0.014	0.128	0.064	0.032	0.013
	D6 (ditch)	0.129	0.064	0.032	0.013	0.108	0.054	0.027	0.014
	R1 (pond)	0.035	0.032	0.030	0.029	0.094	0.088	0.085	0.084
	R1 (stream)	0.263	0.263	0.263	0.263	0.763	0.763	0.763	0.763
	R3 (stream)	0.368	0.368	0.368	0.368	0.615	0.615	0.615	0.615
	R4 (stream)	0.379	0.379	0.379	0.379	0.801	0.801	0.801	0.801
10m SD &RO	D1 (ditch)	0.100	0.068	0.068	0.068	0.153	0.153	0.153	0.153
	D1 (stream)	0.095	0.056	0.043	0.043	0.101	0.096	0.096	0.096
	D2 (ditch)	0.178	0.178	0.178	0.178	0.395	0.395	0.395	0.395
	D2 (stream)	0.112	0.112	0.112	0.112	0.253	0.253	0.253	0.253
	D3 (ditch)	0.068	0.034	0.017	0.007	0.056	0.028	0.014	0.006
	D4 (pond)	0.010	0.005	0.004	0.004	0.013	0.010	0.009	0.009
	D4 (stream)	0.071	0.035	0.018	0.016	0.063	0.034	0.034	0.034
	D5 (pond)	0.010	0.005	0.003	0.001	0.015	0.008	0.004	0.002
	D5 (stream)	0.073	0.037	0.018	0.007	0.066	0.033	0.017	0.008
	D6 (ditch)	0.068	0.034	0.017	0.007	0.056	0.028	0.014	0.014
	R1 (pond)	0.016	0.014	0.013	0.012	0.041	0.037	0.035	0.034
	R1 (stream)	0.120	0.120	0.120	0.120	0.347	0.347	0.347	0.347
	R3 (stream)	0.168	0.168	0.168	0.168	0.277	0.277	0.277	0.277
	R4 (stream)	0.171	0.171	0.171	0.171	0.362	0.362	0.362	0.362
20m SD & RO	D1 (ditch)	0.068	0.068	0.068	0.068	0.153	0.153	0.153	0.153
	D1 (stream)	0.057	0.043	0.043	0.043	0.096	0.096	0.096	0.096
	D2 (ditch)	0.178	0.178	0.178	0.178	0.395	0.395	0.395	0.395
	D2 (stream)	0.112	0.112	0.112	0.112	0.253	0.253	0.253	0.253
	D3 (ditch)	0.036	0.018	0.009	0.004	0.029	0.014	0.007	0.003
	D4 (pond)	0.007	0.004	0.004	0.004	0.010	0.009	0.009	0.008
	D4 (stream)	0.037	0.018	0.016	0.016	0.034	0.034	0.034	0.034
	D5 (pond)	0.007	0.004	0.002	0.001	0.010	0.005	0.003	0.001
	D5 (stream)	0.038	0.019	0.010	0.004	0.034	0.017	0.008	0.008
	D6 (ditch)	0.035	0.018	0.009	0.007	0.029	0.014	0.014	0.014
	R1 (pond)	0.009	0.007	0.007	0.006	0.022	0.019	0.018	0.017
	R1 (stream)	0.063	0.063	0.063	0.063	0.182	0.182	0.182	0.182
	R3 (stream)	0.088	0.088	0.088	0.088	0.144	0.144	0.144	0.144
	R4 (stream)	0.089	0.089	0.089	0.089	0.189	0.189	0.189	0.189

* SD and RO denote spray drift and runoff buffer

Table CP 9.2.5- 17: Winter cereals: $TWAC_{sw}$-7 for fluoxastrobin at Step 4 after single and multiple applications

		Fluoxastrobin (E+Z)							
		Cereals (winter), 1 and 2 × 75.0 g a.s./ha							
		Single application				Multiple applications			
Buffer Width & Type	Scenario	$TWAC_{sw}$-7 [µg/L] Drift Reduction				$TWAC_{sw}$-7 [µg/L] Drift Reduction			
		0%	50%	75%	90%	0%	50%	75%	90%
5m SD	D1 (ditch)	0.128	0.078	0.062	0.062	0.152	0.144	0.144	0.144
	D1 (stream)	0.039	0.039	0.039	0.039	0.090	0.090	0.090	0.090
	D2 (ditch)	0.105	0.063	0.059	0.059	0.149	0.149	0.149	0.149
	D2 (stream)	0.026	0.026	0.026	0.026	0.080	0.076	0.076	0.076
	D3 (ditch)	0.027	0.013	0.007	0.003	0.026	0.013	0.006	0.003
	D4 (pond)	0.013	0.006	0.004	0.004	0.017	0.009	0.008	0.008
	D4 (stream)	0.004	0.004	0.004	0.004	0.008	0.008	0.008	0.008
	D5 (pond)	0.013	0.006	0.003	0.001	0.019	0.010	0.005	0.002
	D5 (stream)	0.001	0.000	0.000	0.000	0.002	0.001	0.000	0.000
	D6 (ditch)	0.020	0.010	0.005	0.002	0.045	0.022	0.011	0.004
	R1 (pond)	0.033	0.030	0.028	0.028	0.089	0.084	0.081	0.079
	R1 (stream)	0.033	0.033	0.033	0.033	0.095	0.095	0.095	0.095
	R3 (stream)	0.051	0.051	0.051	0.051	0.084	0.084	0.084	0.084
	R4 (stream)	0.105	0.105	0.105	0.105	0.230	0.144	0.230	0.230
10m SD &RO	D1 (ditch)	0.081	0.062	0.062	0.062	0.144	0.144	0.144	0.144
	D1 (stream)	0.039	0.039	0.039	0.039	0.090	0.090	0.090	0.090
	D2 (ditch)	0.065	0.059	0.059	0.059	0.149	0.149	0.149	0.149
	D2 (stream)	0.026	0.026	0.026	0.026	0.076	0.076	0.076	0.076
	D3 (ditch)	0.014	0.007	0.004	0.001	0.013	0.007	0.003	0.001
	D4 (pond)	0.009	0.005	0.004	0.004	0.012	0.009	0.008	0.008
	D4 (stream)	0.004	0.004	0.004	0.004	0.008	0.008	0.008	0.008
	D5 (pond)	0.009	0.005	0.002	0.001	0.014	0.007	0.004	0.002
	D5 (stream)	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
	D6 (ditch)	0.010	0.005	0.003	0.001	0.023	0.012	0.006	0.002
	R1 (pond)	0.015	0.013	0.012	0.011	0.039	0.035	0.033	0.032
	R1 (stream)	0.015	0.015	0.015	0.015	0.043	0.043	0.043	0.043
	R3 (stream)	0.023	0.023	0.023	0.023	0.038	0.038	0.038	0.038
	R4 (stream)	0.048	0.048	0.048	0.048	0.105	0.105	0.105	0.105
20m SD & RO	D1 (ditch)	0.062	0.062	0.062	0.062	0.144	0.144	0.144	0.144
	D1 (stream)	0.039	0.039	0.039	0.039	0.090	0.090	0.090	0.090
	D2 (ditch)	0.059	0.059	0.059	0.059	0.149	0.149	0.149	0.149
	D2 (stream)	0.026	0.026	0.026	0.026	0.076	0.076	0.076	0.076
	D3 (ditch)	0.007	0.004	0.002	0.001	0.007	0.003	0.002	0.001
	D4 (pond)	0.006	0.004	0.004	0.003	0.009	0.008	0.008	0.008
	D4 (stream)	0.004	0.004	0.004	0.004	0.008	0.008	0.008	0.008
	D5 (pond)	0.006	0.003	0.002	0.001	0.009	0.005	0.002	0.001
	D5 (stream)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	D6 (ditch)	0.005	0.003	0.001	0.001	0.012	0.006	0.003	0.001
	R1 (pond)	0.008	0.007	0.006	0.006	0.021	0.018	0.017	0.016
	R1 (stream)	0.008	0.008	0.008	0.008	0.023	0.023	0.023	0.023
	R3 (stream)	0.012	0.012	0.012	0.012	0.020	0.020	0.020	0.020
	R4 (stream)	0.025	0.025	0.025	0.025	0.055	0.055	0.055	0.055

* SD and RO denote spray drift and runoff buffer

Table CP 9.2.5- 18: Winter cereals: Maximum PEC_{sed} values for fluoxastrobin at Step 4 after single and multiple applications

		Fluoxastrobin (E+Z)							
		Cereals (winter), 1 and 2 × 75.0 g a.s./ha							
		Single application				Multiple applications			
Buffer Width & Type	Scenario	PEC_{sed} [µg/kg]) Drift Reduction				PEC_{sed} [µg/kg] Drift Reduction			
		0%	50%	75%	90%	0%	50%	75%	90%
5m SD	D1 (ditch)	0.959	0.933	0.919	0.911	2.093	2.024	1.989	1.968
	D1 (stream)	0.521	0.520	0.520	0.520	1.125	1.123	1.122	1.122
	D2 (ditch)	0.634	0.603	0.587	0.578	1.401	1.322	1.290	1.275
	D2 (stream)	0.303	0.303	0.302	0.302	0.699	0.687	0.681	0.677
	D3 (ditch)	0.101	0.052	0.026	0.011	0.124	0.064	0.033	0.014
	D4 (pond)	0.112	0.069	0.047	0.034	0.194	0.124	0.088	0.068
	D4 (stream)	0.014	0.014	0.014	0.014	0.031	0.030	0.030	0.030
	D5 (pond)	0.112	0.059	0.032	0.014	0.183	0.098	0.054	0.027
	D5 (stream)	0.004	0.002	0.001	0.001	0.011	0.006	0.003	0.002
	D6 (ditch)	0.080	0.041	0.021	0.009	0.148	0.077	0.040	0.017
	R1 (pond)	0.339	0.302	0.284	0.272	0.825	0.768	0.740	0.723
	R1 (stream)	0.274	0.272	0.272	0.271	0.785	0.783	0.782	0.781
	R3 (stream)	0.618	0.611	0.607	0.605	0.705	0.699	0.696	0.694
	R4 (stream)	0.426	0.425	0.424	0.424	0.981	0.978	0.977	0.976
10m SD &RO	D1 (ditch)	0.934	0.920	0.913	0.908	2.026	1.990	1.972	1.961
	D1 (stream)	0.520	0.520	0.520	0.520	1.123	1.122	1.122	1.122
	D2 (ditch)	0.605	0.588	0.580	0.575	1.325	1.291	1.278	1.270
	D2 (stream)	0.303	0.302	0.302	0.302	0.688	0.681	0.678	0.676
	D3 (ditch)	0.055	0.028	0.014	0.006	0.066	0.034	0.018	0.007
	D4 (pond)	0.088	0.057	0.041	0.031	0.152	0.103	0.078	0.064
	D4 (stream)	0.014	0.014	0.014	0.014	0.030	0.030	0.030	0.030
	D5 (pond)	0.082	0.044	0.024	0.011	0.133	0.072	0.040	0.023
	D5 (stream)	0.002	0.001	0.001	0.001	0.006	0.003	0.002	0.002
	D6 (ditch)	0.044	0.022	0.012	0.005	0.079	0.041	0.022	0.009
	R1 (pond)	0.169	0.141	0.127	0.119	0.390	0.346	0.325	0.312
	R1 (stream)	0.092	0.091	0.091	0.091	0.255	0.253	0.253	0.252
	R3 (stream)	0.171	0.167	0.165	0.164	0.226	0.223	0.221	0.220
	R4 (stream)	0.185	0.184	0.184	0.183	0.403	0.402	0.401	0.401
20m SD & RO	D1 (ditch)	0.920	0.913	0.909	0.907	1.991	1.973	1.963	1.958
	D1 (stream)	0.520	0.520	0.520	0.520	1.122	1.122	1.122	1.122
	D2 (ditch)	0.589	0.580	0.576	0.573	1.292	1.278	1.271	1.267
	D2 (stream)	0.302	0.302	0.302	0.302	0.681	0.678	0.676	0.675
	D3 (ditch)	0.029	0.015	0.008	0.003	0.035	0.018	0.009	0.004
	D4 (pond)	0.067	0.046	0.035	0.029	0.119	0.086	0.070	0.060
	D4 (stream)	0.014	0.014	0.014	0.014	0.030	0.030	0.030	0.030
	D5 (pond)	0.057	0.030	0.017	0.009	0.092	0.051	0.030	0.019
	D5 (stream)	0.001	0.001	0.001	0.001	0.003	0.002	0.002	0.002
	D6 (ditch)	0.023	0.012	0.007	0.004	0.042	0.022	0.012	0.008
	R1 (pond)	0.098	0.079	0.069	0.063	0.218	0.188	0.173	0.164
	R1 (stream)	0.046	0.046	0.045	0.045	0.126	0.125	0.125	0.125
	R3 (stream)	0.080	0.078	0.077	0.076	0.111	0.109	0.108	0.108
	R4 (stream)	0.098	0.098	0.097	0.097	0.212	0.211	0.211	0.210

* SD and RO denote spray drift and runoff buffer

Table CP 9.2.5- 19: Spring cereals: Maximum PEC$_{sw}$ values for fluoxastrobin at Step 4 after single and multiple applications

		Fluoxastrobin (E+Z)							
		Cereals (spring), 1 and 2 × 75.0 g a.s./ha							
		Single application				Multiple applications			
Buffer Width & Type	Scenario	PEC$_{sw}$ [µg/L]) Drift Reduction				PEC$_{sw}$ [µg/L] Drift Reduction			
		0%	50%	75%	90%	0%	50%	75%	90%
5m SD	D1 (ditch)	0.147	0.084	0.084	0.084	0.200	0.198	0.198	0.198
	D1 (stream)	0.154	0.077	0.053	0.053	0.129	0.124	0.124	0.124
	D3 (ditch)	0.129	0.064	0.032	0.013	0.108	0.054	0.027	0.011
	D4 (pond)	0.014	0.007	0.005	0.004	0.020	0.011	0.010	0.010
	D4 (stream)	0.142	0.071	0.035	0.018	0.122	0.061	0.037	0.037
	D5 (pond)	0.014	0.007	0.004	0.002	0.020	0.010	0.005	0.002
	D5 (stream)	0.146	0.073	0.036	0.015	0.126	0.063	0.032	0.013
	R4 (stream)	0.511	0.511	0.511	0.511	1.023	1.023	1.023	1.023
10m SD &RO	D1 (ditch)	0.086	0.084	0.084	0.084	0.198	0.198	0.198	0.198
	D1 (stream)	0.082	0.053	0.053	0.053	0.124	0.124	0.124	0.124
	D3 (ditch)	0.068	0.034	0.017	0.007	0.056	0.028	0.014	0.006
	D4 (pond)	0.010	0.005	0.005	0.004	0.014	0.011	0.010	0.010
	D4 (stream)	0.075	0.038	0.019	0.018	0.064	0.037	0.037	0.037
	D5 (pond)	0.010	0.005	0.003	0.001	0.014	0.007	0.004	0.002
	D5 (stream)	0.077	0.039	0.019	0.008	0.066	0.033	0.016	0.008
	R4 (stream)	0.233	0.233	0.233	0.233	0.460	0.460	0.460	0.460
20m SD & RO	D1 (ditch)	0.084	0.084	0.084	0.084	0.198	0.198	0.198	0.198
	D1 (stream)	0.053	0.053	0.053	0.053	0.124	0.124	0.124	0.124
	D3 (ditch)	0.036	0.018	0.009	0.004	0.029	0.014	0.007	0.003
	D4 (pond)	0.007	0.005	0.005	0.004	0.011	0.010	0.010	0.010
	D4 (stream)	0.039	0.020	0.018	0.018	0.037	0.037	0.037	0.037
	D5 (pond)	0.007	0.004	0.002	0.001	0.009	0.005	0.003	0.001
	D5 (stream)	0.040	0.020	0.010	0.004	0.033	0.017	0.008	0.008
	R4 (stream)	0.122	0.122	0.122	0.122	0.240	0.240	0.240	0.240

* SD and RO denote spray drift and runoff buffer

Table CP 9.2.5- 20: Spring cereals: $TWAC_{sw}$-7 for fluoxastrobin at Step 4 after single and multiple applications

		Fluoxastrobin (E+Z)							
		Cereals (spring), 1 and 2 × 75.0 g a.s./ha							
		Single application				Multiple applications			
Buffer Width & Type	Scenario	$TWAC_{sw}$-7 [µg/L] Drift Reduction				$TWAC_{sw}$-7 [µg/L] Drift Reduction			
		0%	50%	75%	90%	0%	50%	75%	90%
5m SD	D1 (ditch)	0.120	0.078	0.078	0.078	0.182	0.182	0.182	0.182
	D1 (stream)	0.049	0.049	0.049	0.049	0.113	0.113	0.113	0.113
	D3 (ditch)	0.021	0.010	0.005	0.002	0.018	0.009	0.005	0.002
	D4 (pond)	0.013	0.006	0.004	0.004	0.019	0.011	0.010	0.009
	D4 (stream)	0.004	0.004	0.004	0.004	0.010	0.010	0.010	0.010
	D5 (pond)	0.013	0.007	0.003	0.001	0.018	0.009	0.005	0.002
	D5 (stream)	0.001	0.001	0.000	0.000	0.002	0.001	0.000	0.000
	R4 (stream)	0.158	0.158	0.158	0.158	0.225	0.224	0.223	0.223
10m SD &RO	D1 (ditch)	0.078	0.078	0.078	0.078	0.182	0.182	0.182	0.182
	D1 (stream)	0.049	0.049	0.049	0.049	0.113	0.113	0.113	0.113
	D3 (ditch)	0.011	0.006	0.003	0.001	0.009	0.005	0.002	0.001
	D4 (pond)	0.009	0.005	0.004	0.004	0.013	0.010	0.009	0.009
	D4 (stream)	0.004	0.004	0.004	0.004	0.010	0.010	0.010	0.010
	D5 (pond)	0.009	0.005	0.002	0.001	0.013	0.007	0.003	0.002
	D5 (stream)	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000
	R4 (stream)	0.072	0.072	0.072	0.072	0.102	0.101	0.101	0.101
20m SD & RO	D1 (ditch)	0.078	0.078	0.078	0.078	0.182	0.182	0.182	0.182
	D1 (stream)	0.049	0.049	0.049	0.049	0.113	0.113	0.113	0.113
	D3 (ditch)	0.006	0.003	0.001	0.001	0.005	0.002	0.001	0.000
	D4 (pond)	0.006	0.004	0.004	0.004	0.010	0.010	0.009	0.009
	D4 (stream)	0.004	0.004	0.004	0.004	0.010	0.010	0.010	0.010
	D5 (pond)	0.006	0.003	0.002	0.001	0.009	0.004	0.002	0.001
	D5 (stream)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	R4 (stream)	0.038	0.038	0.038	0.038	0.053	0.053	0.053	0.053

* SD and RO denote spray drift and runoff buffer

Table CP 9.2.5- 21: Spring cereals: Maximum PEC_{sed} values for fluoxastrobin at Step 4 after single and multiple applications

		Fluoxastrobin (E+Z)							
		Cereals (spring), 1 and 2 × 75.0 g a.s./ha							
		Single application				Multiple applications			
Buffer Width & Type	Scenario	PEC_{sed} [µg/kg]) Drift Reduction				PEC_{sed} [µg/kg] Drift Reduction			
		0%	50%	75%	90%	0%	50%	75%	90%
5m SD	D1 (ditch)	1.243	1.172	1.137	1.116	2.556	2.445	2.389	2.355
	D1 (stream)	0.656	0.653	0.652	0.651	1.381	1.377	1.375	1.374
	D3 (ditch)	0.084	0.043	0.022	0.009	0.098	0.050	0.026	0.011
	D4 (pond)	0.115	0.072	0.050	0.037	0.198	0.130	0.096	0.076
	D4 (stream)	0.016	0.016	0.016	0.016	0.036	0.035	0.034	0.034
	D5 (pond)	0.112	0.059	0.032	0.015	0.181	0.096	0.053	0.026
	D5 (stream)	0.006	0.003	0.002	0.001	0.010	0.005	0.003	0.002
	R4 (stream)	0.831	0.829	0.827	0.827	1.229	1.224	1.222	1.221
10m SD &RO	D1 (ditch)	1.177	1.139	1.121	1.109	2.449	2.391	2.362	2.345
	D1 (stream)	0.653	0.652	0.651	0.651	1.377	1.375	1.374	1.374
	D3 (ditch)	0.045	0.023	0.012	0.005	0.052	0.027	0.014	0.006
	D4 (pond)	0.090	0.059	0.043	0.034	0.158	0.110	0.086	0.072
	D4 (stream)	0.016	0.016	0.016	0.016	0.035	0.034	0.034	0.034
	D5 (pond)	0.082	0.044	0.024	0.012	0.132	0.071	0.040	0.022
	D5 (stream)	0.004	0.002	0.001	0.001	0.005	0.003	0.002	0.002
	R4 (stream)	0.310	0.308	0.308	0.307	0.482	0.480	0.478	0.478
20m SD & RO	D1 (ditch)	1.141	1.121	1.112	1.106	2.392	2.363	2.348	2.339
	D1 (stream)	0.652	0.651	0.651	0.651	1.375	1.374	1.374	1.373
	D3 (ditch)	0.024	0.012	0.006	0.003	0.027	0.014	0.007	0.003
	D4 (pond)	0.070	0.049	0.038	0.032	0.125	0.093	0.078	0.069
	D4 (stream)	0.016	0.016	0.016	0.016	0.034	0.034	0.034	0.034
	D5 (pond)	0.057	0.031	0.017	0.009	0.090	0.050	0.029	0.018
	D5 (stream)	0.002	0.001	0.001	0.001	0.003	0.002	0.002	0.002
	R4 (stream)	0.159	0.158	0.158	0.158	0.250	0.249	0.248	0.248

* SD and RO denote spray drift and runoff buffer

CP 9.3 Fate and behaviour in air

For information on the fate and behaviour in air please refer to MCA Section 7, data point 7.3.

CP 9.3.1 Route and rate of degradation in air and transport via air

For information on route and rate of degradation in air and transport via air please refer to MCA Section 7, data points 7.3.1 and 7.3.2.

Due to the low volatility and short half-life in air no PEC calculations are required.

CP 9.4 Estimation of concentrations for other routes of exposure

There are no other routes of exposure if the product is used according to good agricultural practice. Therefore no further estimations are considered necessary.