

REGISTRATION REPORT

Part B

Section 8

Environmental Fate

Detailed summary of the risk assessment

Product code: GF-3969

Chemical active substances:

Rimsulfuron, 148.15 g/kg

Thifensulfuron methyl, 92.6 g/kg

Isoxadifen-ethyl, 111.1 g/kg

Central Zone

Zonal Rapporteur Member State: Poland

CORE ASSESSMENT

(authorization)

Applicant: Corteva/DuPont/DowAgroScience/Pioneer*

Submission date: February 2021

MS Finalisation date: December 2021 (initial Core Assessment)

August 2022 (final Core Assessment)

*Corteva Agriscience is new Legal Entity in most of EU countries and should be treated as an Applicant for GF-3969 registration. Information about Applicant for each country is provided in dRR Part A.

This document is the property of the applicant and contains confidential and trade secret information. Except as required by law, this document should not be, partially or fully (i) photocopied or released in any form to any outside party without the prior written consent of the applicant or its affiliates, or (ii) used by a registration authority to support the registration of any other product without the prior written consent of the applicant or its affiliates.

Version history

When	What
February 2021	Submission of dRR by the Applicant
December 2021	Initial zRMS assessment The report in the dRR format has been prepared by the Applicant, therefore all comments, additional evaluations and conclusions of the zRMS are presented in grey commenting boxes. Minor changes are introduced directly in the text and highlighted in grey. Not agreed or not relevant information are struck through and shaded for transparency .
August 2022	Final report (Core Assessment updated following the commenting period) Additional information/assessments included by the zRMS in the report in response to comments recieved from the cMS and the Applicant are highlighted in yellow. Information no longer relevant is struck through and shaded .

Table of Contents

8	Fate and behaviour in the environment (KCP 9)	6
8.1	Critical GAP and overall conclusions	9
8.2	Metabolites considered in the assessment.....	14
8.2.1	Rimsulfuron	14
8.2.2	Thifensulfuron methyl.....	14
8.2.3	Isoxadifen-ethyl (safener)	16
8.3	Rate of degradation in soil (KCP 9.1.1).....	17
8.3.1	Aerobic degradation in soil (KCP 9.1.1.1).....	17
8.3.1.1	Rimsulfuron and its metabolites.....	17
8.3.1.2	Thifensulfuron methyl and its metabolites.....	22
8.3.1.3	Isoxadifen-ethyl and its metabolites.....	29
8.3.2	Anaerobic degradation in soil (KCP 9.1.1.1)	31
8.3.2.1	Rimsulfuron	31
8.3.2.2	Thifensulfuron methyl.....	32
8.3.2.3	Isoxadifen-ethyl	33
8.4	Field studies (KCP 9.1.1.2)	34
8.4.1	Soil dissipation testing on a range of representative soils (KCP 9.1.1.2.1) .	41
8.4.1.1	Rimsulfuron and its metabolites.....	41
8.4.1.2	Thifensulfuron methyl and its metabolites.....	41
8.4.1.3	Isoxadifen-ethyl (safener) and its metabolites	41
8.4.2	Soil accumulation testing (KCP 9.1.1.2.2).....	41
8.5	Mobility in soil (KCP 9.1.2)	42
8.5.1	Laboratory studies (KCP 9.1.2.1)	42
8.5.1.1	Rimsulfuron and its metabolites.....	42
8.5.1.2	Thifensulfuron methyl and its metabolites.....	45
8.5.1.3	Isoxadifen-ethyl (safener) and its metabolites	48
8.5.2	Column leaching (KCP 9.1.2.1).....	49
8.5.3	Lysimeter studies (KCP 9.1.2.2).....	50
8.5.3.1	Rimsulfuron	50
8.5.3.2	Thifensulfuron methyl.....	50
8.5.3.3	Isoxadifen-ethyl (safener)	50
8.5.4	Field leaching studies (KCP 9.1.2.3)	51
8.6	Degradation in the water/sediment systems (KCP 9.2, KCP 9.2.1, KCP 9.2.2, KCP 9.2.3).....	51
8.6.1	Rimsulfuron and its metabolites.....	51
8.6.2	Thifensulfuron methyl and its metabolites.....	52
8.6.3	Isoxadifen-ethyl and its metabolites.....	52
8.7	Predicted Environmental Concentrations in soil (PEC _{soil}) (KCP 9.1.3).....	55
8.7.1	Justification for new endpoints	57
8.7.2	Active substance(s) and relevant metabolite(s).....	57
8.7.2.1	Rimsulfuron and its metabolites.....	57
8.7.2.2	Thifensulfuron methyl and its metabolites.....	63
8.7.2.3	Isoxadifen-ethyl and its metabolites.....	75
8.7.2.4	PEC _{soil} of GF-3969.....	78
8.8	Predicted Environmental Concentrations in groundwater (PEC _{gw}) (KCP 9.2.4)	79
8.8.1	Justification for new endpoints	80
8.8.1.1	Rimsulfuron	80
8.8.1.2	Thifensulfuron methyl.....	81
8.8.1.3	Isoxadifen-ethyl	82
8.8.2	Active substance(s) and relevant metabolite(s) (KCP 9.2.4.1)	82

8.8.2.1	Rimsulfuron and its metabolites.....	82
8.8.2.2	Thifensulfuron methyl and its metabolites.....	96
8.8.2.3	Isoxadifen-ethyl	104
8.9	Predicted Environmental Concentrations in surface water (PEC _{sw}) (KCP 9.2.5)	107
8.9.1	Justification for new endpoints	108
8.9.1.1	Rimsulfuron	108
8.9.1.2	Thifensulfuron methyl.....	108
8.9.1.3	Isoxadifen-ethyl	108
8.9.2	Active substance(s), relevant metabolite(s) and the formulation (KCP 9.2.5)	109
8.9.2.1	Rimsulfuron and its metabolites.....	109
8.9.2.2	Thifensulfuron methyl and its metabolites.....	134
8.9.2.3	Isoxadifen-ethyl and its metabolites.....	143
8.9.2.4	PEC _{sw/SED} of GF-3969	151
8.10	Fate and behaviour in air (KCP 9.3, KCP 9.3.1).....	152
Appendix 1	Lists of data considered in support of the evaluation	154
Appendix 2	Detailed evaluation of the new Annex II studies	157
A 2.1	Rimsulfuron	157
Appendix 3	Additional information provided by the applicant (e.g. detailed modelling data).....	158
A 3.1	Rimsulfuron	158
A 3.2	Thifensulfuron methyl PEC _{sw} /PEC _{sed}	201
A 3.3	Isoxadifen-ethyl (safener) PEC _{sw} /PEC _{sed}	214
Appendix 4	IN-J0290 study summaries	223
A 4.1	DuPont-5266	223
A 4.2	DuPont-5264	227

8 Fate and behaviour in the environment (KCP 9)

GF-3969

This document reviews the environmental fate studies and modelling for GF-3969 - a non-segregating blend water-dispersible granule (WG) formulation containing 14.82% Rimsulfuron 25SG (a water soluble granular (SG) formulation), 9.26% Thifensulfuron methyl 50SG and 11.11% Isoxadifen-ethyl, 50WG. The final blended product contains 148.15 g/kg rimsulfuron, 92.60 g/kg thifensulfuron methyl and 111.11 g/kg isoxadifen-ethyl.

For the implementation of uniform principles as referred to in Article 29(6) of Regulation (EC) No. 1107/2009, a full risk assessment according to Uniform Principles is provided which demonstrates that GF-3969 is safe for the environment.

Where appropriate, this document refers to the conclusions of the EU review of rimsulfuron and thifensulfuron methyl. This will be where the active substance data is relied upon in the risk assessment of the formulation; or when the EU review concluded that additional data/information should be considered at national re-registration.

This product was not the representative formulation for the active substance renewal of rimsulfuron or thifensulfuron methyl in Europe.

Addenda may be included containing country specific assessments for some data points. In those cases, this document should be read in conjunction with the relevant addenda.

The risk and exposure assessment provided demonstrate that the individual active substances (through an additive assessment) and the formulation are safe for the environment.

Information on the detailed composition of GF-3969 can be found in the Part C.

Rimsulfuron

Rimsulfuron was included into Annex I of Council Directive 91/414/EEC by Commission Directive 2006/39/EC of 12 April 2006.

The SANCO report for rimsulfuron (SANCO/10528/2005 rev 2, 27 January 2006) is considered to provide the relevant review information or a reference to where such information can be found.

For the implementation of the uniform principles of Annex VI, the conclusions of the review report on rimsulfuron, and in particular Appendices I and II thereof, as finalised in the Standing Committee on the Food Chain and Animal Health on 27 January 2006 shall be taken into account. In this overall assessment, Member States must pay particular attention to:

The protection of non-target plants and groundwater in vulnerable situations, risk mitigation measures should be included where appropriate.

These concerns have been addressed within the current submission.

Assessments for rimsulfuron were conducted using the EU agreed endpoints as reported in the EFSA conclusions (EFSA, 2005). In the case that the endpoints for metabolites were not available to address the issues raised in the EFSA conclusion, the endpoints from DuPont studies were used.

Rimsulfuron is under review for active substance renewal in Europe; however, the EFSA conclusion (EFSA, 2018)¹ had been published in 2018. Thus, risk assessment with the EFSA-recommended endpoints was also provided in support of registration of the proposed uses of GF-3969.

Thifensulfuron methyl

The active substance thifensulfuron methyl was included into Annex I of Directive 91/414/EEC by the Commission Directive 2001/99/EC, replaced by Regulation (EU) No. 540/211 (Nr 26), as amended by Regulation (EU) No. 2015/1885, for the implementation of Regulation (EC) No 1107/2009.

The active substance thifensulfuron methyl was reviewed in the European Union as per Commission regulation (EU) No. 1141/2010 of 07 December 2010. The renewal dossier was submitted in August 2012 to the United Kingdom and Austria acting as Rapporteur Member State and Co-Rapporteur Member State. The final Renewal Assessment Report was issued in March 2015. The approval renewal of thifensulfuron methyl was published in Regulation (EU) 2016/1424 with the date of application 1 November 2016.

The Review Report (SANTE/10150/2016) and the EFSA Conclusion on the Peer Review of the Pesticide Risk Assessment of thifensulfuron methyl (EFSA Journal 2015; 13(7):4201) are considered to provide the relevant review information or a reference to where such information can be found.

The critical EU agreed endpoints for thifensulfuron methyl are presented in the EFSA (European Food Safety Authority) conclusion on the peer review of the pesticide risk assessment of the active substance thifensulfuron methyl, which was published in the EFSA Journal 2015;13(7):4201. EU agreed endpoints and endpoints used in the risk assessments considered relevant in assessing the fate of thifensulfuron methyl and its metabolites are summarized in this document.

For the implementation of the uniform principles, as referred to in Article 29(6) of Regulation (EC) No 1107/2009, the conclusions of the review report on thifensulfuron methyl, and in particular Appendices I and II thereof, shall be taken into account.

In this overall assessment Member States shall pay particular attention to:

- the protection of groundwater;
- the protection of non-target plants and aquatic organisms.

Conditions of use shall include risk mitigation measures and the obligation to monitor the groundwater, where appropriate.

These concerns have been addressed within the current submission.

Isoxadifen-ethyl

Isoxadifen-ethyl as crop safener is not considered as an active substance, and consequently has not been subject to review on EU level for inclusion into Annex I of Directive 91/414/EEC or Regulation (EC) No 1107/2009. The fate and behaviour of the safener isoxadifen-ethyl in the environment has been reviewed at Member State level by Germany (2002)². The evaluation performed by Germany resulted in an evaluation report including a standard List of Endpoints. All exposure and risk assessments presented in this dRR are based on these country-agreed endpoints, if not otherwise stated.

(In some cases, data e.g. required as input parameters for exposure models had been submitted and evaluated in the context of PEC calculations but had not been presented in the List of Endpoints.

¹ EFSA (European Food Safety Authority), 2018. Conclusion on the peer review of the pesticide risk assessment of the active substance rimsulfuron. EFSA Journal 2018;16(5):5258, 31 pp. doi:10.2903/j.efsa.2018.5258

² Summary of the German national evaluation of the safener isoxadifen-ethyl, 14 August 2002, RMS: Germany. BCS document ID: M-263999-01-1 – see Part B, Section 0 – Core Assessment, Point 0.1.3 (Regulatory history of the active(s))

Accordingly, also these endpoints are considered as country agreed and used for exposure modelling presented in this dRR. Respective reports where the derivation of these parameters is described may be re-submitted on request).

No additional studies are considered in this dRR.

Risk envelope assessment for isoxadifen-ethyl

Due to its biological profile, the safener isoxadifen-ethyl is used exclusively in the target crops maize, poppy and flax. Application is typically made at early post-emergence development stage (BBCH 00-19) via spray treatment and with one or two applications per season. For the formulation of GF-3969, a maximum use rate of 15 g a.s./ha is used in the exposure assessment.

zRMS comments:

Evaluation was based on the active substance data as provided in the respective EFSA reports. Since rimsulfuron was not renewed yet, the list of endpoints reported in EFSA Scientific Report (2005) 45 is relevant for the exposure assessment. Nevertheless, in case new and not peer-reviewed active substance data were considered by the Applicant, the conclusions taken during the renewal process and endpoints reported in EFSA Journal 2018;16(5):5258 were consulted by the zRMS in order to avoid generation of additional endpoints on the basis of the studies which were already evaluated and concluded at the EU level.

Thifensulfuron methyl is currently owned by FMC Corporation and a LoA has been issued indicating that the thifensulfuron methyl studies, data summaries and assessments owned and submitted by FMC or its affiliates may be referred to in the course of evaluation of GF-3969. It has to be, however, noted that the access is granted only to Corteva Agriscience Poland Sp. z o.o. and for this reason separate LoA has to be presented in case other subsidiary of Corteva Agriscience is applying for authorisation of GF-3969 in particular Member States.

As indicated by the Applicant above, GF-3969 contains safener, isoxadifen-ethyl, for which the exposure and risk assessment should be performed in a similar way as it is done for active compounds.

The data on behaviour of isoxadifen-ethyl in the environment were evaluated at the national level by Germany (in 2002) and during zonal evaluations performed by Greece (in 2016). It should be, however, noted that according to Regulation (EC) No 1107/2009, data for safener should be evaluated in line with requirements relevant for active substances in order to generate EU agreed endpoints. Such evaluation is, however, outside the scope of the product registration process and should be carried out at the EU level in order to derive uniform endpoints that may be used in evaluations performed for various formulations. As no EU agreed endpoints for isoxadifen-ethyl exist, no separate exposure assessment has been performed for the safener by the zRMS. Instead, for purposes of authorisation of GF-3969, it was assumed that the exposure calculated for the formulated product covers potential exposure of non-target species to isoxadifen-ethyl. Respective exposure assessment based on the data for isoxadifen-ethyl will be performed once EU agreed endpoints, derived in line with indications of current guidance documents, are available (these derived in 2002 are obsolete and would require complete re-evaluation, being outside the scope of the zonal assessment). It should be noted that this approach has been already accepted in the course of zonal evaluations of some formulations owned by the same Applicant (GF-3337 and GF-3313, both finalised in 2018).

Nevertheless, data provided by the Applicant for isoxadifen-ethyl have been retained for informative purposes with font colour changed to grey in order to easily distinguish validated from non-validated data.

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 product/ha a) max. rate per appl. b) max. total rate per crop/season	g a.s./ha ^a a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min/max			
Zonal uses														
2-13	Zonal GAP envelope for CEU countries	Maize (ZEAMX) (silage & grain)	F	Annual monocotyledonous weeds (TTTMS), Annual dicotyledonous weeds (TTTDS), Perennial grass weeds (GGGPE)	Hydraulic sprayer overall	BBCH 11 to BBCH 18 Spring March-July	a) 1 b) 1	n.a. ^b	a) 0.135 b) 0.135	a) 32.5 (20 + 12.5) b) 32.5 (20 + 12.5)	100 / 400	n.a.	Safener: formulated product contains 111.1 g/kg isoxadifen-ethyl (max. 15 g/ha) Adjuvant: application with max. 0.2% DPX-KG691 or vegetable oil	A
15- 27	Zonal GAP envelope for CEU countries	Maize (ZEAMX) (silage & grain)	F	Annual monocotyledonous weeds (TTTMS), Annual dicotyledonous weeds (TTTDS), Perennial grass weeds (GGGPE)	Hydraulic sprayer overall	BBCH 11 to BBCH 18 Spring March-July	a) 2 b) 2 (split application, see column 14 for details)	7	a) 0.135 b) 0.135	a) 32.5 (20 + 12.5) b) 32.5 (20 + 12.5)	100 / 400	n.a.	Safener: formulated product contains 111.1 g/kg isoxadifen- ethyl (max. 15 g/ha) Adjuvant: application with max. 0.2% DPX-KG691 or vegetable oil Split application possible without exceeding the total maximum of 135 g product/ha: 2 x 67.5 g product/ha for uses No 16, 17, 18, 20, 22, 23, 24, 25, 26, 27 85 + 50 g product/ha for uses No 15, 19, 21	A

- * 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
a Dose expressed as total g active substance (g rimsulfuron + g thifensulfuron methyl).
b n.a. = not applicable

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

zRMS comments:

Initially, the GAP table including detailed information on pests in particular cMS has been provided by the Applicant. However, pests are of no relevance for the evaluation performed in area of environmental fate and behaviour and GAP table was thus shortened to provide critical GAP, which was considered in the exposure assessment covering intended uses of GF-3969 in all concerned Member States. For detailed GAP for particular cMS, please refer to the Core Assessment, Part B, Section 0, where the use No indicated in column 1 were taken from.

Table 8.1-2: Assessed (critical) uses during approval of rimsulfuron concerning the Section Environmental Fate (EFSA, 2005)

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Use- No.	Member state(s)	Crop and/or situation (crop destination/ purpose of crop)	F, Fn, Fpn G, Gn, Gpn or I	Pests or Group of pests controlled (additionally: developmental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g safener/ synergist per ha
					Method/ Kind	Timing/ Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	kg or L product/ha a) max. rate per appl. b) max. total rate per crop/season	g or kg a.s./ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min/max		
n.a.	EU	Corn/Maize (ZEAMX), field and silage	F	Annual and perennial monocotyledonous weeds (TTMS), Annual and perennial dicotyledonous weeds (TTDS)	Broadcast, ground directed spraying	BBCH 11-18	a) 1 b) 1	n.a.	a) 0.33 b) 0.33	a) 27.5 b) 27.5	100 / 400	n.a.	NA

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

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Use- No.	Member state(s)	Crop and/or situation (crop destination/ purpose of crop)	F, Fn, Fpn G, Gn, Gpn or I *	Pests or Group of pests controlled (additionally: developmental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g safener/ synergist per ha
					Method/ Kind	Timing/ Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	kg or L product/ha a) max. rate per appl. b) max. total rate per crop/season	g or kg a.s./ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min/max		
n.a.	EU countries (Annex I renewal)	Maize	F	Broadleaf weeds	Tractor mounted hydraulic/trailed boom sprayer, broadcast foliar application, ground directed spraying	BBCH 12- 18	1-2	7/10	-	1 x 5.6-11.25 or 5.6235+ 3.75 = 9.375 (total) or 2 x 3.75 = 7.5 (total)	150-500	n.a. except 60 (DK, SE, LI silage or feed of whole plant, cob, kernels)	With and without non- ionic surfactant (i.e., Trend 90, 0.05-0.1% v/v)

* 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

Use of thifensulfuron methyl on cereals and soybeans was also evaluated for the EU approval of thifensulfuron methyl; however, use on cereals and soybeans is not proposed for GF-3969 and so no further details are provided within this section.

Table 8.1-4: Assessed (critical) uses during approval of isoxadifen-ethyl (safener): concerning the Section Environmental Fate

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Use- No:	Member state(s)	Crop and/or situation (crop destination/ purpose of crop)	F, Fn, Fpn, G, Gn, Gpn or I*	Pests or Group of pests controlled (additionally: developmental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g-safener/-synergist per ha
					Method / Kind	Timing/ Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	kg or L product/ha a) max. rate per appl. b) max. total rate per crop/season	g a.s./ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min/max		
n.a.	EU	Maize	F	-	spray	spring	a) 1 b) 1	-	-	60	-	-	-

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

zRMS comments:

No evaluation of isoxadifen-ethyl has been performed at the EU level and for this reason no GAP could be assumed for purposes of its approval. Use pattern provided in Table 8.1-4 was most probably considered during national evaluation of isoxadifen-ethyl performed by Germany in 2002. Nevertheless, in absence of the EU agreed endpoints and conclusions taken at the EU level, information provided in Table 8.1-4 is struck through.

Table 8.1-5: Critical use pattern of GF-3969 simulated as risk envelope in this assessment

Use	Application rate (g a.s./ha)	Application method	Number of applications	Minimum application interval (days)	Application timing
Maize	20 g rimsulfuron 12.5 g thifensulfuron methyl 15 g isoxadifen-ethyl	Hydraulic sprayer overall	1 application	N/A	BBCH 11-18
Maize	10/10 g rimsulfuron 6.25/6.25 g thifensulfuron methyl 7.5/7.5 g isoxadifen-ethyl	Hydraulic sprayer overall	2 applications	7	BBCH 11-18
Maize	12.59/7.41 g rimsulfuron 7.87/4.63 g thifensulfuron methyl 9.44/5.56 g isoxadifen-ethyl	Hydraulic sprayer overall	2 applications	7	BBCH 11-18

In this assessment, concentrations of rimsulfuron and thifensulfuron methyl, the active substances contained in GF-3969, in various environmental compartments, are predicted following the proposed use pattern for GF-3969. The predicted environmental concentrations (PEC values) in soil, surface water, sediment, groundwater, and air are provided. The long-term concentrations are based on results obtained for the active substance contained in the formulation. Full details of all the proposed use patterns that will be assessed is included in Table 8.1-1.

The use patterns assessed during active substance approval of rimsulfuron and thifensulfuron methyl are provided in Table 8.1-2 and Table 8.1-3. ~~The use pattern assessed for approval of isoxadifen-ethyl (safener) is provided in Table 8.1-4.~~

The critical use pattern simulated as a risk envelope in this assessment of GF-3969 is provided in Table 8.1-5.

The impact of formulants is limited to short-term effects such as formation of stable spray dispersions or to facilitate uptake by target organisms, while their influence on long-term processes, such as degradation and distribution is negligible. Therefore, for the purposes of this risk assessment it is assumed that formulants do not influence the fate and behaviour of an active substance in the environment and are not considered further.

8.2 Metabolites considered in the assessment

The degradation products of the active substances – rimsulfuron, thifensulfuron methyl and the safener – isoxadifen-ethyl in the formulation are presented in the following sections. The rationale for determining the need to assess metabolites in the various exposure compartments is provided in the relevant point of the assessment.

8.2.1 Rimsulfuron

The degradation products of rimsulfuron considered in this assessment are listed in Table 8.2-1.

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

Metabolite	Molar weight (g/mol)	Chemical structure	Maximum observed occurrence in compartments (%)	Exposure assessment required due to
IN-70941	367.4		Soil: 54.5% aerobic Total water/sediment system: 87.2% Air: 0%	PEC _{gw} , PEC _{soil} , PEC _{sw/sed}
IN-70942	324.36		Soil: 23.5% aerobic; Total water/sediment system: Hydrolysis in water: 83.8% (pH 7) Air: 0%	PEC _{gw} , PEC _{soil} , PEC _{sw/sed}
IN-E9260	250.3		Soil: 18.9% Total water/sediment system: Photolysis in water: 16.2% Air: 0%	PEC _{gw} , PEC _{soil} , PEC _{sw/sed}
IN-J0290	155.2		Soil: 12.7% soil photolysis aerobic; Total water/sediment system: Photolysis in water: 19.1% Air: 0%	PEC _{gw} , PEC _{soil} , PEC _{sw/sed}
IN-JF999	310.33		Soil: 0% aerobic; Total water/sediment system: 24.5% Air: 0%	PEC _{sw/sed}

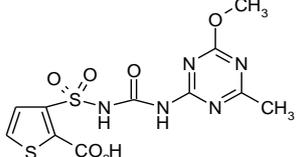
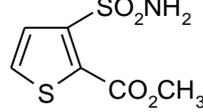
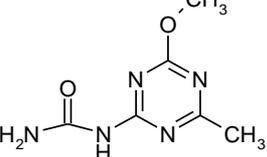
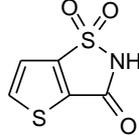
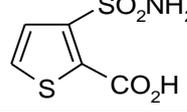
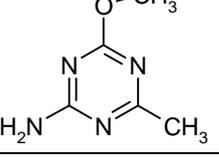
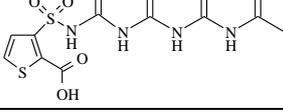
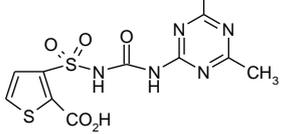
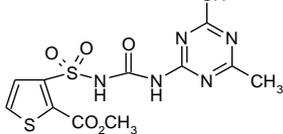
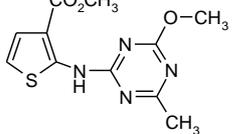
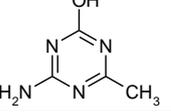
zRMS comments:

Information regarding metabolites of rimsulfuron is in general in line with EU agreed endpoints reported in EFSA Scientific Report (2005) 45. Some corrections were introduced by the zRMS so information in table above is fully in line with data reported in the list of endpoint.

8.2.2 Thifensulfuron methyl

The degradation products of thifensulfuron methyl in the various exposure compartments considered in this assessment are listed in Table 8.2-2.

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

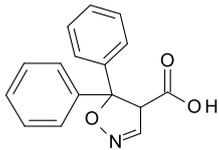
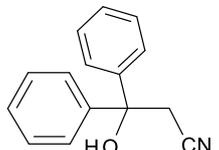
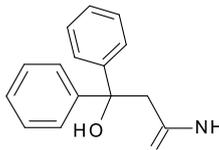
Metabolite	Molar weight (g/mol)	Chemical structure	Maximum observed occurrence in compartments (%)	Risk assessment required due to
IN-L9225	373.4		Soil: 94% aerobic Total Water/sediment system: 55% (water); 7.0% (Sediment)	PEC _{gw} , PEC _{soil} , PEC _{sw/sed}
IN-A5546	221.2		Soil: 10.5% aerobic, 27.7% photolysis Hydrolysis: 64.2% (pH 4), 7.6% (pH 7)	PEC _{gw} , PEC _{soil} , PEC _{sw/sed}
IN-V7160	183.2		Soil photolysis: 9.6% Total Water/sediment system: 25% (water); 6% (sediment)	PEC _{gw} , PEC _{soil} , PEC _{sw/sed}
IN-W8268	189.2		Soil: 29.6%	PEC _{gw} , PEC _{soil} , PEC _{sw/sed}
IN-L9223	207.2		Soil: 19% aerobic Total Water/sediment system: 39% (water); 8% (sediment)	PEC _{gw} , PEC _{soil} , PEC _{sw/sed}
IN-A4098	140.1		Soil: 18% aerobic, 32.3% photolysis Total Water/sediment system: 20.0% (water); 7.0% (sediment)	PEC _{gw} , PEC _{soil} , PEC _{sw/sed}
IN-U5F72 (2-acid-3-triuret)	378.3		Soil: 17% aerobic	PEC _{gw} , PEC _{soil} , PEC _{sw/sed}
IN-JZ789	359.3		Soil: 10% aerobic Total Water/sediment system: 21% (water); 4% (sediment)	PEC _{gw} , PEC _{sw/sed} , PEC _{soil}
IN-L9226	373.4		Soil: 18.5% aerobic Total Water/sediment system: 7.8% (water); 7.2% (sediment)	PEC _{gw} , PEC _{soil} , PEC _{sw/sed}
IN-D8858	280.3		Aqueous photolysis: 15.3%	PEC _{sw/sed}
IN-B5528	126.1		Hydrolysis: 25.3% (pH 4), not formed at pH 7	PEC _{sw/sed}

zRMS comments:

Information regarding metabolites of thifensulfuron-methyl is in general in line with EU agreed endpoints reported in EFSA Journal 2015;13(7):4201, respectively. Some corrections were introduced by the zRMS so information in table above is fully in line with data reported in the list of endpoint.

8.2.3 Isoxadifen-ethyl (safener)

Table 8.2-3: Metabolites of isoxadifen-ethyl potentially relevant for exposure assessment

Metabolite	Molar mass (g/mol)	Chemical structure	Maximum observed occurrence in compartments (%)	Exposure assessment required due to
Isoxadifen AE F129431	267.28		Soil: 92.8% (aerobic), 81.6% (anaerobic) Soil (photolysis): 90.9% Abiotic hydrolysis: 98.5% Water: 52.4-87.1% considered for modelling: 86.0% Sediment: n.d.- 26.5% considered for modelling: 25.1% Water/sediment: 93.5%	PEC _{soil} PEC _{gw} PEC _{sw/sed}
AE C637375	223.27		Soil: 6.8% (aerobic), 88.2% (anaerobic) Water: 6.3-13.6% considered for modelling: 11.8% Sediment: 15.9-37.2% considered for modelling: 33.8% Water/sediment: 40.1%	PEC _{sw/sed}
AE C642961	241.28		Soil: 3.1% (aerobic), 3.8% (anaerobic) Water: 5.7-11.2% considered for modelling: 9.2% Sediment: n.d.-17.5% considered for modelling 16.8% Water/sediment: 20.9%	PEC _{sw/sed}

zRMS comments:

No EU agreed data exist for the safener, isoxadifen-ethyl, and for this reason validation of information provided in Table 8.2-3 against EU agreed endpoints was not possible.

Nevertheless, data provided by the Applicant for isoxadifen-ethyl have been retained for informative purposes with font colour changed to grey in order to easily distinguish validated from non-validated data.

8.3 Rate of degradation in soil (KCP 9.1.1)

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

8.3.1 Aerobic degradation in soil (KCP 9.1.1.1)

8.3.1.1 Rimsulfuron and its metabolites

Agreed EU endpoints used in the evaluation: Rimsulfuron (SANCO/10528/2005 rev 2, 27 January 2006).

Table 8.3-1: Endpoints; Rate of degradation of rimsulfuron and its major metabolites in soil

Compound	Number of soils	Laboratory DT ₅₀ (experimental range) days	Laboratory DT ₅₀ (pF2 and 20°C, GEOMEAN) days
Rimsulfuron	5	5-40	22
	4	21-40	
IN-70941	3	38-615	140
IN-70942	3	101-214	94
IN-E9260	3	252-969	390
IN-J0290	—	—	1000

Endpoints used in evaluation not previously agreed: Rimsulfuron

Table 8.3-2: Endpoints; Rate of degradation of rimsulfuron and its major metabolites in soil

Compound	Number of soils	Laboratory DT ₅₀ (experimental range) days	Laboratory DT ₅₀ (corrected-GEOMEAN) days
IN-J0290	4	3-174	27

The rate of rimsulfuron degradation in soils was evaluated during the Annex I Inclusion. The evaluation of the environmental fate and behaviour presented in the EFSA conclusion (EFSA, 2005), was based on input parameters derived from studies conducted by DuPont (Table 8.3-3). Rimsulfuron degrades rapidly in laboratory soils, with a DT₅₀ range of 21-40 days and a geomean DT₅₀ value of 22 days (20°C). The EU-agreed degradation DT₅₀ of metabolites are summarised in Table 8.3-1.

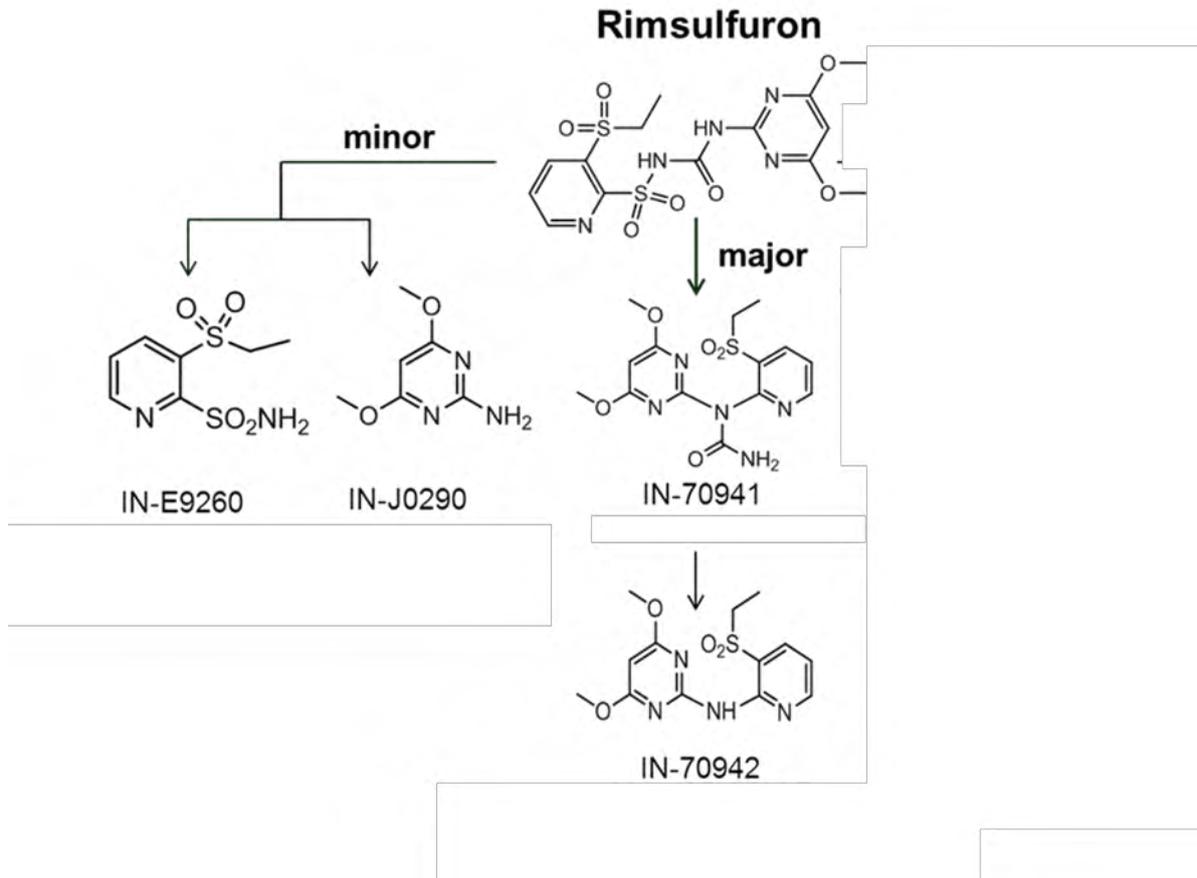
A default worst-case DT₅₀ of 1000 days for IN-J0290 was used in the EFSA conclusion (EFSA, 2005) as the degradation study for IN-J0290 was not available during the Annex I inclusion review. Thus, the DT₅₀ values of IN-J0290 were derived from the soil degradation study with IN-J0290 applied as parent (DuPont 5266), following the FOCUS kinetics guidance (DuPont 23315). The derived DT₅₀ of IN-J0290 ranges from 3 days to 174 days, with a normalised geomean of 27 days DT₅₀ (in Table 8.3-2).

Rimsulfuron degraded in soils *via* two mechanisms: (a) The contraction of the sulfonylurea bridge, and (b) cleavage of the sulfonylurea bridge. The contraction of the sulfonylurea bridge to form IN-70941 and IN-70942 is the primary degradation pathway in aerobic soils. Cleavage of the sulfonylurea bridge was observed to be a secondary mode of degradation and results in the formation of IN-E9260.

The degradation of rimsulfuron to metabolite IN-J0290 was significant only in soil photolysis study and thus simulated as a separate pathway. The minor pathway that leads to the formation of metabolite IN-T5831 was not considered in the assessment.

The proposed degradation pathway of rimsulfuron in soil and formation fractions as proposed in the EFSA conclusion are shown in Figure 8.3-1. Note that the formation fraction of IN-J0290 was not available in the EFSA conclusion report (EFSA, 2005) and thus re-calculated from soil photolysis study (DuPont-23315).

Figure 8.3-1: Proposed pathway of rimsulfuron in soil



The DegT_{50} values of rimsulfuron and metabolites as reported in the EFSA conclusion (EFSA, 2005) are summarised in Table 8.3-3 through Table 8.3-6. In the current assessment, the degradation endpoints as derived in the EFSA conclusion were used in exposure assessment, except for the metabolite IN-J0290. For IN-J0290, DT_{50} values derived from the DuPont study, instead of a default DT_{50} of 1000 days in the EFSA conclusion, were used and provided in Table 8.3-7.

Table 8.3-3: Summary of aerobic degradation rates of rimsulfuron in soils in the EFSA Conclusion (EFSA, 2005)

Soil	Label	pH	Incubation temp.	% MWHC	DT ₅₀ (days)	DT ₉₀ (days)	Normalized DegT ₅₀ (20°C, pF2 days)	r ²	Method of calculation
Sandy loam	—	6.7	25°C	75.0	21.3 (34 ^a at 20°C)	—	34	0.87/0.94	1 st order linear
Loamy sand	—	5.6	20°C	40.0	30	—	30	0.977	1 st order linear
Sandy loam	—	6.7	20°C	40.0	40	—	40	0.927	1 st order linear
Loamy sand	—	7.0	20°C	40.0	25	—	25	0.977	1 st order linear
Loamy sand	—	7.0	20°C	60.0	5	—	5	0.982	1 st order linear
Geometric mean							22		

a The Q10 of 2.58 was used in temperature normalization.

Table 8.3-4: Summary of aerobic degradation rates of rimsulfuron metabolite IN-70941 in soils in the EFSA Conclusion (EFSA, 2005)

Soil	Label	pH	Incubation temp.	% MWHC	DT ₅₀ (days)	DT ₉₀ (days)	Normalized DegT ₅₀ (20°C, pF2 days)	r ²	Method of calculation
Sandy loam	—	5.4	20°C	40-50%	359	—	263	0.913	1 st order linear
Clay	—	7.9	20°C	40-50%	38	—	23	0.982	1 st order linear
Sandy loam	—	5.8	20°C	40-50%	615	—	450	0.722	1 st order linear
Geometric mean							140		

Table 8.3-5: Summary of aerobic degradation rates of rimsulfuron metabolite IN-70942 in soils in the EFSA Conclusion (EFSA, 2005)

Soil	Label	pH	Incubation temp.	% MWHC	DT ₅₀ (days)	DT ₉₀ (days)	Normalized DegT ₅₀ (20°C, pF2 days)	r ²	Method of calculation
Sandy loam	—	5.4	20°C	40-50%	214	—	156	0.928	1 st order linear
Clay	—	7.9	20°C	40-50%	101	—	62	0.831	1 st order linear
Sandy loam	—	5.8	20°C	40-50%	116	—	85	0.956	1 st order linear
Geometric mean					136		94		

Table 8.3-6: Summary of aerobic degradation rates of rimsulfuron metabolite IN-E9260 in soils in the EFSA Conclusion (EFSA, 2005)

Soil	Label	pH	Incubation temp.	% MWHC	DT ₅₀ (days)	DT ₉₀ (days)	Normalized DegT ₅₀ (20°C, pF2 days)	r ²	Method of calculation
Sandy loam	—	5.4	20°C	40-50%	744	—	544	0.814	1 st order linear
Clay	—	7.9	20°C	40-50%	252	—	154	0.710	1 st order linear
Sandy loam	—	5.8	20°C	40-50%	969	—	709	0.337	1 st order linear
Geometric mean							390		

In order to be consistent with the EFSA conclusion (EFSA, 2005), the EU-agreed endpoints were used in risk assessment, except for metabolite IN-J0290. A summary of degradation half-lives and kinetic model used for IN-J0290 degradation in soils is given in Table 8.3-7. The kinetic fits for IN-J0290 degradation in soils are illustrated in Figure 8.3-2.

The geometric mean DT₅₀ of 27 days for IN-J0290, instead of a default DT₅₀ of 1000 days in the EFSA conclusion report (EFSA, 2005), was used in the exposure assessment.

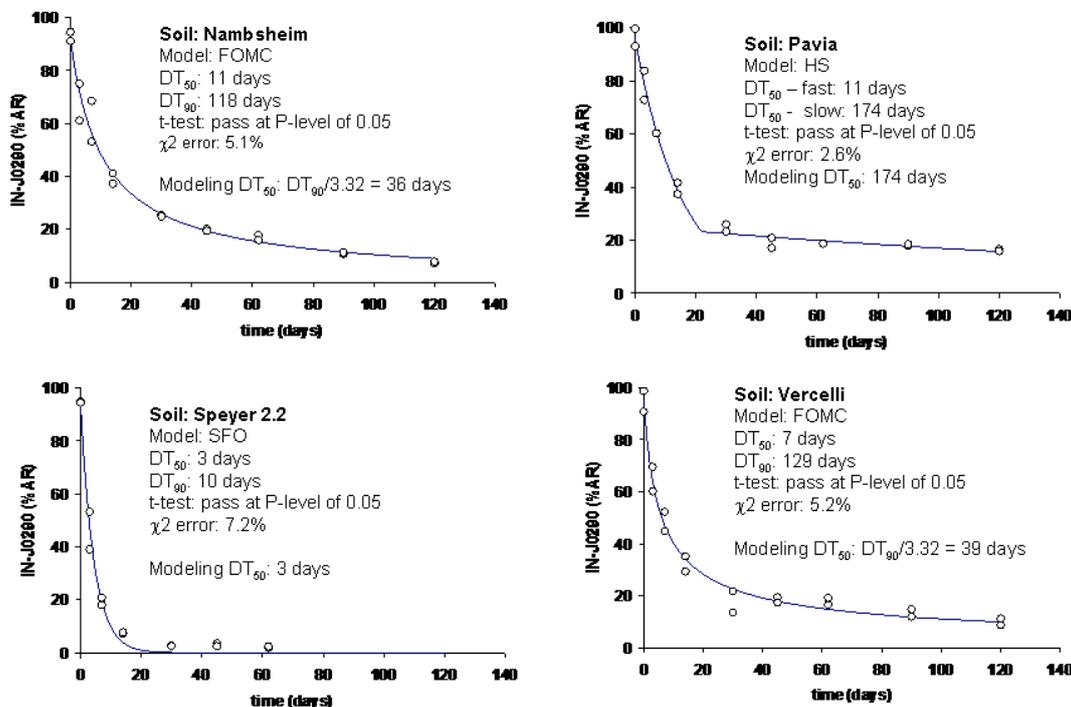
Table 8.3-7: Summary of aerobic degradation rates of rimsulfuron metabolite IN-J0290 in aerobic laboratory soils

Reference ^a	Soil	Endpoints for PEC _{soil} and persistence triggers					Modelling endpoints PEC _{gw} and PEC _{sw}		
		Temp. (°C)	Reported-DegT ₅₀ (days)	Reported-DegT ₉₀ (days)	DegT ₅₀ at 20°C (days)	Kinetic model	Reported-DegT ₅₀ (days)	At 20°C, pF2 (days)	Kinetic model
Shaw, 2002, DuPont 5266 ^b	Nambsheim, sandy loam/ F	20	11	118	11	FOMC	36	32	FOMC
	Pavia, loamy sand/ Italy	20	11	146	11	HS	174	174	HS
	Speyer 2.2., sandy loam/ D	20	3	10	3	SFO	3	3	SFO
	Vercelli, silt loam/ Italy	20	7	142	7	DFOP	39	32	FOMC
Worst case =				146	11	HS	Geometric mean = 27 d		

^a—The kinetic calculation is provided in DuPont 23315 (see Appendix 3).

^b—Summarised in DuPont Nicosulfuron EU Dossier, Annex IIA, Document M II, Section 5, DuPont 12636 EU, Revision No. 1. Study summary included in Appendix 4 in this document for completeness. IN-J0290 is degradation metabolite for Rimsulfuron and Nicosulfuron active substances.

Figure 8.3.2: Kinetic fits for derivation of modelling DT₅₀ of IN-J0290 in soils (DuPont 23315)



zRMS comments:

Soil degradation data for rimsulfuron and its metabolites presented in Tables 8.3-1 and 8.3-3 to 8.3-6 are in general line with EU agreed endpoints reported in EFSA Scientific Report (2005) 45 with some minor corrections.

In absence of the EU agreed DT₅₀ for metabolite IN-J0290 in EFSA Scientific Report (2005) 45, the Applicant proposed to derive DT₅₀ from the study by Shaw (2002), not available during the first EU review of rimsulfuron. Although in general new active substance data should not be generated at the zonal level, the zRMS agrees that they may be considered when in the course of the EU review worst case default values were used. It is, however, noted that at the time of preparation of the dRR for GF-3969, the rimsulfuron LoEP from the EU renewal process was already available with modelling soil DT₅₀ of 45.2 days reported for metabolite IN-J0290 and based on results of study by Shaw (2002) and other parent and metabolite dosed studies. In addition to that it is noted that the study by Shaw (2002) was already evaluated in the course of the EU review of flupyr sulfuron finalised in 2014, with EU agreed modelling DT₅₀ of 27.7 days reported in EFSA Journal 2014;12(11):3881. Taking this into account it may be concluded that the EU agreed degradation data for metabolite IN-J0290 were available and should have been used in the exposure assessment for IN-J0290 following application of GF-3969 without need for generation of additional endpoints at the zonal level. Table below was taken from the RAR for rimsulfuron (version of December 2017 updated in October 2021 with additional information in area of field dissipation studies) and presents the results of the study by Shaw (2002) as agreed in the course of the EU review of flupyr sulfuron.

Location	Soil	DT ₅₀ normalised [days]	DT ₅₀ / DT ₉₀ [days]	Method of calculation
Nambenheim	Sandy loam	30.8	8.9 / 116	FOMC DT ₉₀ /3.32
Pavia	Loamy sand	173.3	9.7 / 231.3	HSK2
Speyer 2.2	Sandy loam	3.6	2.5 / 12	FOMC DT ₉₀ /3.32
Vercelli	Silt loam	30.6	6 / 122.3	FOMC DT ₉₀ /3.32
Geometric mean		27.7		

Since the study by Shaw (2002) was already evaluated during EU review of flupyr-sulfuron and rimsulfuron with respective kinetic assessment performed and agreed at the EU level, neither the study itself nor its kinetic evaluation by Huber (2007) were validated by the zRMS and data reported for IN-J0290 in tables and text above is thus struck through and shaded. For endpoints considered in the exposure assessment for this metabolite, please refer to respective points of this document below.

8.3.1.2 Thifensulfuron methyl and its metabolites

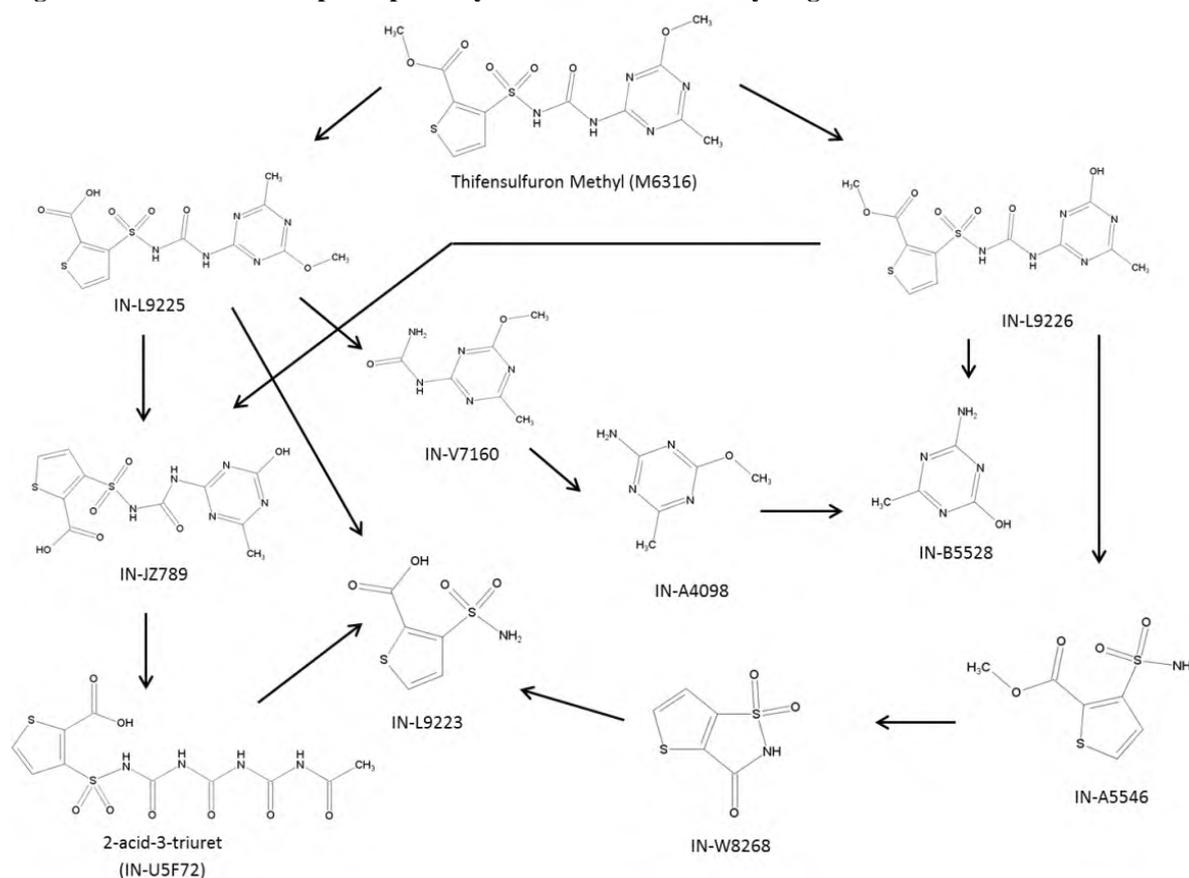
Route of degradation of thifensulfuron methyl was studied from four soils from Task Force study (Simmonds, 2012a, summarized in the Thifensulfuron methyl RAR, Volume 3, Annex B.8, March 2015). Figure 8.3-3 illustrates the proposed degradation pathways of thifensulfuron methyl in soil. Degradation of parent thifensulfuron methyl under aerobic soil conditions was very rapid, with DT_{50} values typically less than 3 days under study conditions.

In summary, the following reactions are believed to be involved in thifensulfuron methyl degradation in soils:

- deesterification of thifensulfuron methyl to form IN-L9225
- demethylation of IN-L9225 to form IN-JZ789
- *O*-demethylation of thifensulfuron methyl to form IN-L9226
- hydrolysis of IN-L9225 to form IN-L9223 and IN-A4098
- hydrolysis of IN-L9225 to form IN-V7160
- hydrolysis of IN-L9226 to form IN-A5546 and IN-B5528
- deesterification and cyclization of IN-A5546 to form IN-W8268
- further mineralisation to CO_2 and formation of bound residues

Figure 8.3-3 illustrates the proposed degradation pathways of thifensulfuron methyl in soils.

Figure 8.3-3: Proposed pathway of thifensulfuron methyl degradation in soil



[Triazine-2-¹⁴C]- and [thiophene-2-¹⁴C]-radio-labelled forms of thifensulfuron methyl were used to evaluate the fate of the active substance and its metabolites in Task Force study (Simmonds, 2012a). Kinetic fits were performed by the RMS (see Thifensulfuron methyl RAR, Volume 3, Annex B.8, March 2015). The proposed triazine-labelled and thiophene-labelled degradation pathways of thifensulfuron methyl are presented in Figure 8.3-4.

The EU agreed degradation rates of thifensulfuron methyl and its metabolites and the formation fractions used in current assessment (for groundwater risk assessment) are summarized from Table 8.3-8 to Table 8.3-17. All reports are summarized in the Thifensulfuron methyl RAR, Volume 3, Annex B.8, March 2015.

Figure 8.3-4: Triazine-labelled and thiophene-labelled degradation pathways of thifensulfuron methyl

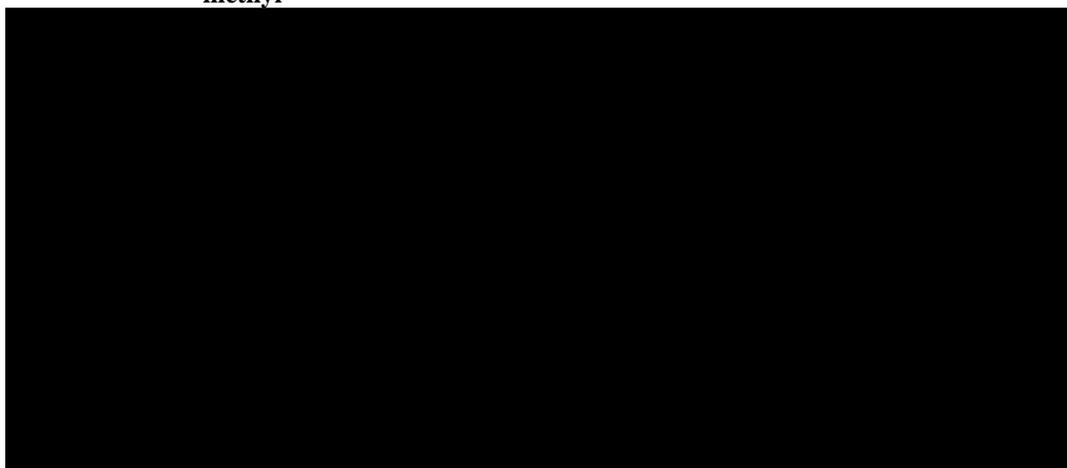


Table 8.3-8: Summary of aerobic degradation rates for thifensulfuron methyl - laboratory studies

Thifensulfuron methyl, Laboratory studies, aerobic conditions										
Soil name	Soil type (texture)	pH	T°C	MWHC %	DT ₅₀ (d)	DT ₉₀ (d)	DT ₅₀ (d) 20°C pF2/10kPa ^a	Chi ² (%)	Kinetic model	Evaluated on EU level y/n/ Reference
Speyer 2.2	loamy sand	5.7	22	40	1.7	5.7	2.0	3	SFO	Y, EFSA 2015
Speyer 2.3	loamy sand	7.0	22	40	2.6	8.6	3.1	4	SFO	Y, EFSA 2015
Longwood	sandy loam	7.5	20	pF 2 -2.5	0.99	3.29	0.99	3.74 ^b	SFO	Y, EFSA 2015
Farditch	loam	6.5	20	pF 2 -2.5	1.12	3.72	1.12	6.78 ^b	SFO	Y, EFSA 2015
Lockington	sandy clay	5.5	20	pF 2 -2.5	1.23	4.09	1.23	10.0 ^b	SFO	Y, EFSA 2015
Kenslow	loam	5.5	20	pF 2 -2.5	0.85	2.82	0.85	5.66 ^b	SFO	Y, EFSA 2015
Geometric mean (n=6)							1.39			
pH-dependency: y/n							n			

a DT₅₀ values only corrected for temperature since soil moisture estimated to be greater than pF2 based on measured MWHC from original study report and default values for pF2 from FOCUS groundwater report

b Worst-case figure from the 2 radiolabels

Table 8.3-9: Summary of aerobic degradation rates for IN-L9225 - laboratory studies

IN-L9225, Laboratory studies, aerobic conditions											
Soil name	Soil type	pH	T°C	MWHC %	DT ₅₀ (d)	DT ₉₀ (d)	f.f.* k _{dp} /k _r	DT ₅₀ (d) 20°C pF2/10kPa	Chi ² (%)	Kinetic model	Evaluated on EU level y/n/ Reference
Drummer	silty clay loam	5.9	20	40	42.5	141.2	-	34.9	11	SFO	Y, EFSA 2015
Glenville	sandy loam	7.3	20	40	20.6	68.5	-	17.2	9	SFO	Y, EFSA 2015
GrossUmstadt	silt loam	7.5	20	40	154.4	513	-	119.9	5	SFO	Y, EFSA 2015
Longwoods thiophene	-	7.3	20	pF2	74.4	247.2	1.00	74.4	8.87	SFO	Y, EFSA 2015
Longwoods triazine	-	7.3	20	pF2	85.1	282.7	0.95	85.1	8.22	SFO	Y, EFSA 2015
Farditch thiophene	-	5.9	20	pF2	20.7	68.8	0.97	20.7	10.9	SFO	Y, EFSA 2015
Farditch triazine	-	5.9	20	pF2	25.4	84.4	0.98	25.4	12.0	SFO	Y, EFSA 2015
Lockington thiophene	-	5.5	20	pF2	17.5	58.1	1.00	17.5	11.2	SFO	Y, EFSA 2015
Lockington triazine	-	5.5	20	pF2	20.3	67.4	0.94	20.3	10.0	SFO	Y, EFSA 2015
Kenslow thiophene	-	5.1	20	pF2	14.4	47.8	0.93	14.4	13.5	SFO	Y, EFSA 2015
Kenslow triazine	-	5.1	20	pF2	15.4	51.2	0.84	15.4	5.55	SFO	Y, EFSA 2015
Geometric mean (n=11)								32.3			
pH-dependency: y/n								n			

* From parent thifensulfuron methyl

Table 8.3-10: Summary of aerobic degradation rates for IN-L9226 - laboratory studies

IN-L9226, Laboratory studies, aerobic conditions											
Soil name	Soil type	pH	T°C	MWHC %	DT ₅₀ (d)	DT ₉₀ (d)	f.f. k _{dp} /k _r	DT ₅₀ (d) 20°C pF2/10kPa	Chi ² (%)	Kinetic model	Evaluated on EU level y/n/ Reference
Drummer	silty clay loam	5.9	20	40	2.0	6.6		1.6	5	SFO	Y, EFSA 2015
Glenville	sandy loam	7.3	20	40	2.9	9.6		2.4	13	SFO	Y, EFSA 2015
Gross-Umstadt	silt loam	7.5	20	40	0.9	3.0		0.7	3	SFO	Y, EFSA 2015
LUFA 2.2	loamy sand	5.5 (CaCl ₂)	20	45	0.6	2.0		0.6	18.5	SFO	Y, EFSA 2015
LUFA 2.3	sandy loam	6.8 (CaCl ₂)	20	45	0.3	1.0		0.27	7.6	SFO	Y, EFSA 2015
LUFA 6S	clay	7.1 (CaCl ₂)	20	45	3.3	11.0		1.63	12.5	SFO	Y, EFSA 2015
Geometric mean (n=6)								0.95			
pH-dependency: y/n								n			

Table 8.3-11: Summary of aerobic degradation rates for IN-JZ789 - laboratory studies

IN-JZ789, Laboratory studies, aerobic conditions											
Soil name	Soil type (x)	pH	T°C	MWHC %	DT ₅₀ (d)	DT ₉₀ (d)	f.f.* k _{dp} /k _r	DT ₅₀ (d) 20°C pF2/10kPa	Chi ² (%)	Kinetic model	Evaluated on EU level y/n/ Reference
Longwoods thiophene	-	7.3	20	pF2	362	1203	0.36	362	49.8	SFO	Y, EFSA 2015
Longwoods triazine	-	7.3	20	pF2	51.5	171	0.58	51.5	57.7	SFO	Y, EFSA 2015
Farditch thiophene	-	5.9	20	pF2	128	425	0.17	128	37.0	SFO	Y, EFSA 2015
Farditch triazine	-	5.9	20	pF2	1000	3322	0.14	1000	37.5	SFO	Y, EFSA 2015
Lockington thiophene	-	5.5	20	pF2	39.5	131	0.19	39.5	47.3	SFO	Y, EFSA 2015
Lockington triazine	-	5.5	20	pF2	8.06	26.8	0.41	8.06	73.8	SFO	Y, EFSA 2015
Kenslow thiophene	-	5.1	20	pF2	1000	3322	0.11	1000	43.6	SFO	Y, EFSA 2015
Kenslow triazine	-	5.1	20	pF2	1000	3322	0.09	1000	69.6	SFO	Y, EFSA 2015
Geometric mean (n=8)								60.0			
pH-dependency: y/n								n			

* from IN-L9225

Table 8.3-12: Summary of aerobic degradation rates for 2-Acid-3triuret (IN-U5F72) - laboratory studies

2-Acid-3triuret, Laboratory studies, aerobic conditions											
Soil name	Soil type	pH	T°C	MWHC %	DT ₅₀ (d)	DT ₉₀ (d)	f.f.* k _{ap} /k _r	DT ₅₀ (d) 20°C pF2/10kPa	Chi ² (%)	Kinetic model	Evaluated on EU level y/n/ Reference
Longwoods thiophene	-	7.3	20	pF2	122	405	0.53	122	61.1	SFO	Y, EFSA 2015
Longwoods triazine	-	7.3	20	pF2	57.9	192	0.32	57.9	43.6	SFO	Y, EFSA 2015
Farditch thiophene	-	5.9	20	pF2	46.1	153	0.25	46.1	34.3	SFO	Y, EFSA 2015
Farditch triazine	-	5.9	20	pF2	74.4	247	0.19	74.4	39.4	SFO	Y, EFSA 2015
Lockington thiophene	-	5.5	20	pF2	38.4	128	0.18	38.4	35.8	SFO	Y, EFSA 2015
Lockington triazine	-	5.5	20	pF2	115	382	0.09	115	36.3	SFO	Y, EFSA 2015
Kenslow thiophene	-	5.1	20	pF2	57.0	189	0.15	57.0	48.1	SFO	Y, EFSA 2015
Kenslow triazine	-	5.1	20	pF2	132	439	0.07	132	53.0	SFO	Y, EFSA 2015
Geometric mean (n=8)								73.0			
pH-dependency: y/n								n			

* from IN-JZ789

Table 8.3-13: Summary of aerobic degradation rates for IN-L9223 - laboratory studies

IN-L9223, Laboratory studies, aerobic conditions											
Soil name	Soil type	pH	T°C	MWHC %	DT ₅₀ (d)	DT ₉₀ (d)	f.f.* k _{ap} /k _r	DT ₅₀ (d) 20°C pF2/10kPa	Chi ² (%)	Kinetic model	Evaluated on EU level y/n/ Reference
Longwoods thiophene (parent route study)	-	7.3	20	pF2	>1000	>3322	0.34	>1000	39.2	SFO	Y, EFSA 2015
Farditch thiophene (parent route study)	-	5.9	20	pF2	107	355	0.29	107	27.7	SFO	Y, EFSA 2015
Lockington thiophene (parent route study)	-	5.5	20	pF2	194	644	0.29	194	29.1	SFO	Y, EFSA 2015
Kenslow thiophene (parent route study)	-	5.1	20	pF2	272	904	0.28	272	23.9	SFO	Y, EFSA 2015
Geometric mean (excluding <1000 value; n=3)								178			
pH-dependency: y/n								n			

* from IN-L9225

Table 8.3-14: Summary of aerobic degradation rates for IN-A4098 a.k.a. triazine amine a.k.a. 2-amino-4-methoxy-6-methyl-triazin a.k.a. 4-methoxy-6-methyl-1,3,5triazin-2-amine a.k.a. CGA 150829 a.k.a. AE F059411 a.k.a. BCS-CN85650 - laboratory studies

Soil name	Soil type	pH	T°C	MWHC %	DT ₅₀ (d)	DT ₉₀ (d)	f.f. k _{dp} /k _f	DT ₅₀ (d) 20°C pF2/10kPa	Chi ² (%)	Kinetic model	Evaluated on EU level y/n/ Reference
Keyport	silt loam	4.3	25	70% FC	208	691	-	254	6.2	SFO	Y, EFSA 2015
Honville	loamy silt	6.7 (H ₂ O)	20	40	260.1 ^c	864	-	201.6	3.0	HS (DT ₅₀ calculated from slow phase)	Y, EFSA 2015
Gartenacker	Loam	6.9 (CaCl ₂)	20	pF2	102.2	340	-	102.2	3.5	SFO	Y, EFSA 2015
18 Acres	sandy clay loam	5.0 (CaCl ₂)	20	pF2	249.4	828	-	249.4	3.2	SFO	Y, EFSA 2015
Krone	silt loam	4.9 (CaCl ₂)	20	pF2	190.8	634	-	190.8	3.7	SFO	Y, EFSA 2015
Soil 2.2	loamy sand	5.7 (H ₂ O)	20	45	67.3	224	-	67.3	5.68	SFO	Y, EFSA 2015
Soil 3A	sandy loam	7.3 (H ₂ O)	20	45	188.4	626	-	175.7	5.64	SFO	Y, EFSA 2015
Soil 6S	clay loam	7.1 (H ₂ O)	20	45	333.2	1107	-	230.1	1.00	SFO	Y, EFSA 2015
Arrow	sandy loam	5.7	20	50	44.7 ^d	97	-	22.5	14	HS (DT ₅₀ calculated from slow phase)	Y, EFSA 2015
Speyer 2.1	sand	5.5	20	pF2	112.5	374	-	112.5	2.9	SFO	Y, EFSA 2015
Soil 115	clay loam	8.6	20	pF2	175.2	582	-	175.2	3.1	SFO	Y, EFSA 2015
Soil 243	sandy loam	5.6	20	pF2	96.4	320.2	-	96.4	6.2	SFO	Y, EFSA 2015
Longwoods triazine (parent route study)	-	7.3	20	pF2	1000	3322	0.02 ^a / 0.13 ^b	1000	26.6	SFO	Y, EFSA 2015
Farditch triazine (parent route study)	-	5.9	20	pF2	118	392	0.02 ^a / 0.14 ^b	118	27.2	SFO	Y, EFSA 2015
Lockington triazine (parent route study)	-	5.5	20	pF2	562	1867	0.06 / 0.10 ^b	562	21.5	SFO	Y, EFSA 2015
Kenslow triazine (parent route study)	-	5.1	20	pF2	208	691	0.08 ^a / 0.17 ^b	208	8.59	SFO	Y, EFSA 2015
Geometric mean (n=16)									167.9		
pH-dependency: y/n									n		

a thifensulfuron methyl

b IN-L9225

c K1= 0.01772, K2= 0.00266, Tb = 25.9

d K1= 0, fixed lag phase, K2= 0.03082, Tb = 22.25 d)

Table 8.3-15: Summary of aerobic degradation rates for IN-A5546 - laboratory studies

IN-A5546, Laboratory studies, aerobic conditions											
Soil name	Soil type	pH	T°C	MWHC %	DT ₅₀ (d) ^a	DT ₉₀ (d)	f.f. k _{ap} /k _r	DT ₅₀ (d) 20°C pF2/10kPa	Chi ² (%)	Kinetic model	Evaluated on EU level y/n/ Reference
Sassafras	-	5.3	20	pF2	<3 d	-	-	-	-	-	Y, EFSA 2015
Tama	-	6.1	20	pF2	<3 d	-	-	-	-	-	Y, EFSA 2015
Lleida	-	7.9	20	pF2	<3 d	-	-	-	-	-	Y, EFSA 2015
Speyer 2.2	-	6.3	20	pF2	<3 d	-	-	-	-	-	Y, EFSA 2015
Nambsheim	-	7.7	20	pF2	<3 d	-	-	-	-	-	Y, EFSA 2015
Geometric mean/Median (n=5)									-		
pH-dependency: y/n									-		

a DT₅₀ figure of 3d was used as a conservative figure for FOCUS modelling. This was because the first sample point after 0 was 3 days, and IN-A5546 was not observed at the 3 d sampling time. DT₉₀ <10 d.

Table 8.3-16: Summary of aerobic degradation rates for IN-V7160 - laboratory studies

IN-V7160, Laboratory studies, aerobic conditions											
Soil name	Soil type	pH (CaCl ₂)	T°C	MWHC %	DT ₅₀ (d)	DT ₉₀ (d)	f.f. k _{ap} /k _r	DT ₅₀ (d) 20°C pF2/10kPa	Chi ² (%)	Kinetic model	Evaluated on EU level y/n/ Reference
Mattapex	sandy loam	4.35	20	40 of 0 Bar	9.8	33	-	9.0	11	SFO	Y, EFSA 2015
Lleida	silty clay	7.50	20	40 of 0 Bar	6.6	22	-	5.6	5	SFO	Y, EFSA 2015
Nambsheim	sandy loam	7.01	20	40 of 0 Bar	3.3	11	-	3.3	2	SFO	Y, EFSA 2015
Goch	silt loam	5.13	20	40 of 0 Bar	16.1 ^a	204.1	-	71.6 (based on slow phase rate constant)	3	DFO P	Y, EFSA 2015
Suchozebry	sandy loam	5.04	20	40 of 0 Bar	24.8 ^b	542.8	-	231 (based on slow phase rate constant)	2	DFO P	Y, EFSA 2015
Geometric mean (n=5)									19.4		
pH-dependency: y/n									n		

a M0 = 95.3; K1 = 0.008; K2 = 0.175; g = 0.5

b M0 = 94.2; K1 = 0.003; K2 = 0.097; g = 0.5

Table 8.3-17: Summary of aerobic degradation rates for IN-W8268 - laboratory studies

IN-W8268, Laboratory studies, aerobic conditions											
Soil name	Soil type	pH (H ₂ O)	T°C	MWHC %	DT ₅₀ (d)	DT ₉₀ (d)	f.f. k _{ap} /k _r	DT ₅₀ (d) 20°C pF2/10kPa	Chi ² (%)	Kinetic model	Evaluated on EU level y/n/ Reference
Drummer	silty clay loam	7.7	20	40-50	59.0	196		59.0	2	SFO	Y, EFSA 2015
Glenville	sandy loam	5.7	20	40-50	64.2	213.3		61.1	4	SFO	Y, EFSA 2015
Gross Umstadt	silt loam	7.8	20	40-50	48.1	159.8		43.5	4	SFO	Y, EFSA 2015
LUFA 2.2	loamy sand	5.5 (CaCl ₂)	20	45	2.6	8.6		2.6	14	SFO	Y, EFSA 2015
LUFA 2.3	sandy loam	6.8 (CaCl ₂)	20	45	9.7	32.2		8.6	7.8	SFO	Y, EFSA 2015
LUFA 6S	clay	7.1 (CaCl ₂)	20	45	24.5	81.4		12.1	8.9	SFO	Y, EFSA 2015
Geometric mean (n=6)								18.7			
pH-dependency: y/n								n			

zRMS comments:

Soil degradation data for thifensulfuron methyl and its metabolites presented in Tables 8.3-8 to 8.3-17 are in line with EU agreed endpoints reported in EFSA Journal 2015;13(7):4201.

8.3.1.3 Isoxadifen-ethyl and its metabolites

The fate and behaviour of the **safener isoxadifen-ethyl** in the environment has been reviewed at Member State level by Germany (2002)³. The evaluation performed by Germany resulted in an evaluation report including a standard List of Endpoints. All exposure and risk assessments presented in this dRR are based on the country (Germany) agreed endpoints, if not otherwise stated.

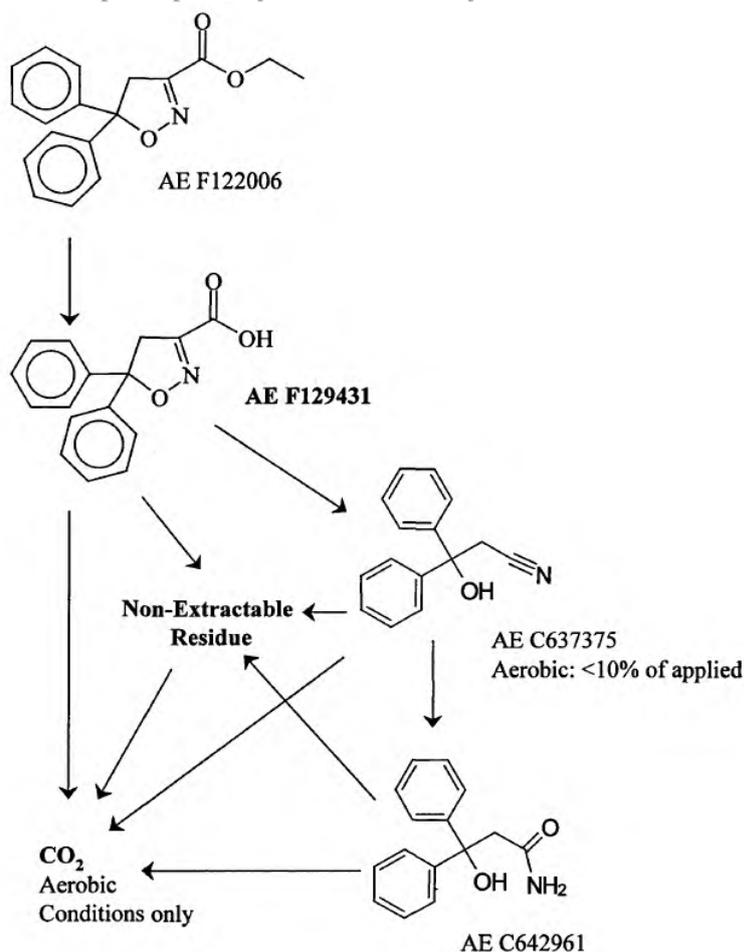
In some cases, data e.g. required as input parameters for exposure models had been submitted and evaluated in the context of PEC calculations, but had not been presented in the List of Endpoints. Accordingly, also these endpoints are considered as country agreed and used for exposure modelling presented in this dRR. Respective reports where the derivation of these parameters is described may be re-submitted on request.

No additional studies are considered in this dRR. The list of endpoints and exposure assessment are provided by Bayer Crop Protection.

Under aerobic conditions, degradation of isoxadifen-ethyl resulted in the formation of metabolite isoxadifen (AE F129431, maximum 92.8%). No metabolites were observed specific for the conditions of soil photolysis. The degradation pathway of isoxadifen-ethyl in aerobic soil is summarised in the figure below.

³ Summary of the German national evaluation of the safener isoxadifen-ethyl, 14 August 2002, RMS: Germany. BCS document ID: M-263999-01-1 – see Part B, Section 0 – Core Assessment, Point 0.1.3 (Regulatory history of the active(s))

Figure 8.3-5: Proposed pathway of isoxadifen-ethyl in soil



The aerobic degradation of isoxadifen-ethyl has been evaluated, full details of studies and their data are provided in the respective national reference by Germany (2002); agreed endpoints as presented were taken from Germany (2002); no additional studies are considered in this dRR.

Triggering and modelling endpoints were not specified in the national reference by Germany (2002).

Table 8.3-18: Summary of rate of aerobic degradation of isoxadifen-ethyl in the laboratory

Isoxadifen-ethyl, Laboratory studies, aerobic conditions										
Soil name	Soil type (USDA)	pH (CaCl ₂)	t.°C	MWHC %	DT ₅₀ (d) *	DT ₉₀ (d) *	DT ₅₀ (d) 20°C pF2/10kPa	Chi ² (%)	Kinetic model	Evaluated on EU level y/n/ Reference
Munster-phenyl	sandy loam	4.9	20	40	1.31	4.35	0.9	n.a.	SFO	Evaluation from Germany (2002)
Orainville-phenyl	clay loam	7.4	20	40	1.13	3.75	0.7	n.a.	SFO	Evaluation from Germany (2002)
Chantepie-phenyl	clay loam	6.3	20	40	0.59	1.96	0.4	n.a.	SFO	Evaluation from Germany (2002)
Illinois phenyl	sandy loam	6.5	25	75**	0.10	0.33	0.1	n.a.	SFO	Evaluation from Germany (2002)
Geometric mean/Median (n=4)							0.4 / n.c.			
pH-dependency: y/n							no			

* trigger endpoint;

** 0.33 bar moisture;

n.a. = not available since evaluation performed prior to availability of KinGUI or related software

Table 8.3-19: Summary of aerobic degradation rates for metabolite isoxadifen (AE F129431) in the laboratory

Isoxadifen (AE F129431), Laboratory studies, aerobic conditions										
Soil name	Soil type (USDA)	pH (CaCl ₂)	t. °C	MWHC %	DT ₅₀ (d) * (Formation from parent)	DT ₉₀ (d) *	DT ₅₀ (d) 20°C pF2/10kPa	Chi ² (%)	Kinetic model	Evaluated on EU level y/n/ Reference
Munster-phenyl	sandy loam	4.9	20	40	11.38 (1.0)	37.8	7.7	n.a.	SFO	Evaluation from Germany (2002)
Orainville-phenyl	clay loam	7.4	20	40	3.17 (1.0)	10.5	1.9	n.a.	SFO	Evaluation from Germany (2002)
Chantepie-phenyl	clay loam	6.3	20	40	4.30 (1.0)	14.3	2.6	n.a.	SFO	Evaluation from Germany (2002)
Illinois phenyl	sandy loam	6.5	25	75**	6.36 (1.0) [6.5***]	21.1	7.1	n.a.	SFO	Evaluation from Germany (2002)
Geometric mean/Median (n=4)							4.1 (n.c.)			
pH-dependency: y/n							no			

* trigger endpoint;

** 0.33 bar moisture;

*** []:DT₅₀ following evaluation from maximum in assessment by Germany;

n.a. = not available since evaluation performed prior to availability of KinGUI or related software

zRMS comments:

First of all it should be pointed out that no EU agreed endpoints exist for isoxadifen-ethyl and for this reason endpoints considered in the zonal evaluation of formulation containing this compound should be derived in line with indications of the most up-to-date versions of the guidance documents, valid at the time of dRR submission. Since the time of the national evaluation performed by Germany in 2002 majority of guidance documents were updated and for this reason endpoints provided by the Applicant above do not adhere to the current standards and cannot be thus considered to be fully reliable and relevant for purposes of the exposure assessment following uses of GF-3969.

Derivation of respective endpoints would require full re-evaluation of the whole data package for isoxadifen-ethyl, which is, however, outside the scope of the zonal evaluation, since endpoints for safeners should be derived in the course of the EU review process.

Taking all this into account, validation of information provided above against EU agreed endpoints was not possible while re-evaluation of the whole dataset for the safener is outside the scope of the zonal evaluation.

Nevertheless, data provided by the Applicant for isoxadifen-ethyl have been retained for informative purposes with font colour changed to grey in order to easily distinguish validated from non-validated data.

8.3.2 Anaerobic degradation in soil (KCP 9.1.1.1)

8.3.2.1 Rimsulfuron

The fate and behaviour of rimsulfuron in anaerobic soil is discussed in detail in the EFSA conclusion (EFSA, 2005). Endpoints from DuPont studies were summarised in the EFSA Conclusion Report (EFSA, 2005) and presented in Table 8.3-20.

Table 8.3-20: Summary of anaerobic degradation rates of rimsulfuron in soil

Soil	Experimental conditions	pH	Incubation temp.	% MWHC	DT ₅₀ (days)	DT ₉₀ (days)	NER (%)	CO ₂ (%)	r ²	Method of calculation	Reference ^a
Sassafras sandy loam, U.S.A.	Anaerobic	6.7	25°C	75 ^b	18	60	17.6-25.2	0.3-1.5	0.990	Linear first order	EFSA, 2005 AMR 1217-88

a Report is summarised in the EFSA Conclusion Report (EFSA, 2005)

b FOCUS = field capacity at 1/3 bar.

zRMS comments:

Anaerobic soil degradation data for rimsulfuron presented in Table 8.3-20 are line with EU agreed endpoints reported in EFSA Scientific Report (2005) 45.

8.3.2.2 Thifensulfuron methyl

The degradation of thifensulfuron methyl under anaerobic conditions was investigated using compounds with ¹⁴C-labeled triazine rings in AMR 1349-88 (Hawkins *et al.*, 1991) and both ¹⁴C-labeled triazine and thiophene rings in WB/10/005 [CHA Doc. No. 244 TIM] by the Task Force (Simmonds, 2011a). Under anaerobic conditions, metabolite IN-B5528 was found at higher levels compared to the aerobic study (max. 8.1% AR at the study end). Since maintenance of anaerobic conditions for such prolonged periods is not considered likely in typical agricultural soils and relevant agronomic conditions for product use, this metabolite is not considered to be of relevance for the environmental exposure assessment in soil and has not been considered further (EFSA conclusion, 2015). The bound residue formed at the end of experimental period (100 days) was 18.7% in the thiophene label and 23.0% in the triazine label (Simmonds, 2011a). There was no evidence for mineralisation of thifensulfuron methyl under anaerobic conditions in both studies. The studies are summarised in the Thifensulfuron methyl RAR, Volume 3, Annex B.8, March 2015.

Table 8.3-21: Summary of anaerobic degradation rates of thifensulfuron methyl in soils

Thifensulfuron methyl, laboratory studies, anaerobic conditions							
Soil type	pH	T°C	DT ₅₀ (d)	DT ₉₀ (d)	Chi ² (%)	Kinetic model	Evaluated on EU level y/n/ Reference
Keyport Silt loam	7.2	25	~5.0	16.6	-	-	Y, EFSA (2015)
Farditch thiophene (complete dataset)	6.0	20	0.6	4.5	1.5	Hockey-stick	Y, EFSA (2015)
Farditch triazine (complete dataset)	6.0	20	0.7	8.8	3.9	Hockey-stick (slow phase)	Y, EFSA (2015)
Farditch thiophene (anaerobic slow phase HS)	6.0	20	15.4	51.2	-	Hockey-stick (slow phase)	Y, EFSA (2015)
Farditch triazine (anaerobic slow phase HS)	6.0	20	4.7	15.6	-	Hockey-stick (slow phase)	Y, EFSA (2015)

zRMS comments:

Anaerobic soil degradation data for thifensulfuron methyl presented in Table 8.3-21 are in line with EU agreed endpoints reported in EFSA Journal 2015;13(7):4201.

8.3.2.3 Isoxadifen-ethyl

The anaerobic degradation of isoxadifen-ethyl had been evaluated, full details of studies and their data are provided in the respective evaluation report by Germany (2002); agreed endpoints as presented were taken from Germany (2002); no additional studies are considered in this dRR.

Degradation in soil under anaerobic conditions resulted in the same profile of metabolites formed as observed under aerobic conditions. Degradation thus followed in principle the same pathways as under aerobic conditions.

Table 8.3-22: Summary of anaerobic degradation rates of isoxadifen-ethyl in the laboratory

Isoxadifen-ethyl, Laboratory studies, anaerobic conditions										
Soil name	Soil type (USDA)	pH (Water)	t.°C	MWHC %	DT ₅₀ (d)	DT ₉₀ (d)	DT ₅₀ (d) 20°C pF2/10kPa	St. (r ²)	Kinetic model	Evaluated on EU level y/n/ Reference
Munster	sandy loam	4.9	20	flooded	0.02	0.08	0.02	n.a.	SFO	Evaluation from Germany (2002)
Geometric mean/Median (n=1)							n.a.			
pH-dependency: y/n							-			

n.a. = not applicable;

Table 8.3-23: Summary of anaerobic degradation rates of isoxadifen (AE F129431) in the laboratory

Isoxadifen (AE F129431), Laboratory studies, anaerobic conditions										
Soil name	Soil type (USDA)	pH (Water)	t.°C	MWHC %	DT ₅₀ (d)	DT ₉₀ (d)	DT ₅₀ (d) 20°C pF2/10kPa	St. (r ²)	Kinetic model	Evaluated on EU level y/n/ Reference
Munster	sandy loam	4.9	20	flooded	13.9	46.1	13.9	n.a.	SFO	Evaluation from Germany (2002)
Geometric mean/Median (n=1)							n.a.			
pH-dependency: y/n							-			

n.a. = not applicable;

Table 8.3-24: Summary of anaerobic degradation rates of AE C637375 in the laboratory

AE C637375, Laboratory studies, anaerobic conditions										
Soil name	Soil type (USDA)	pH (Water)	t.°C	MWHC %	DT ₅₀ (d)	DT ₉₀ (d)	DT ₅₀ (d) 20°C pF2/10kPa	St. (r ²)	Kinetic model	Evaluated on EU level y/n/ Reference
Munster	sandy loam	4.9	20	flooded	321	1066	321	n.a.	SFO	Evaluation from Germany (2002)
Geometric mean/Median (n=1)							n.a.			
pH-dependency: y/n							-			

n.a. = not applicable;

zRMS comments:

First of all it should be pointed out that no EU agreed endpoints exist for isoxadifen-ethyl and for this reason endpoints considered in the zonal evaluation of formulation containing this compound should be derived in line with indications of the most up-to-date versions of the guidance documents, valid at the time of dRR submission. Since the time of the national evaluation performed by Germany in 2002 majority of guidance documents were updated and for this reason endpoints provided by the Applicant above do not adhere to the current standards and cannot be thus considered to be fully reliable and relevant for purposes of the exposure assessment following uses of GF-3969.

Derivation of respective endpoints would require full re-evaluation of the whole data package for isoxadifen-ethyl, which is, however, outside the scope of the zonal evaluation, since endpoints for safeners should be derived in the course of the EU review process.

Taking all this into account, validation of information provided above against EU agreed endpoints was not possible, while re-evaluation of the whole dataset for the safener is outside the scope of the zonal evaluation.

Nevertheless, data provided by the Applicant for isoxadifen-ethyl have been retained for informative purposes with font colour changed to grey in order to easily distinguish validated from non-validated data.

8.4 Field studies (KCP 9.1.1.2)

Studies on field dissipation rates with the formulation were not performed, since it is possible to extrapolate from data obtained with the active substance.

Rimsulfuron

The field dissipation rates of rimsulfuron were evaluated during the Annex I Inclusion in 2005. Under field conditions DT_{50} values of rimsulfuron ranged from 5.6 to 17.7 days. The degradation rates of metabolites were also calculated from parent kinetic fitting. The DT_{50} values for IN-70941 ranged from 58-1100 days, and the DT_{50} values for IN-E9260 ranged from 22 to 294 days. The field DT_{50} values of rimsulfuron and its major metabolites IN-70941 and IN-E9260 were calculated using the linear first order kinetics and summarised in the EFSA conclusion report.

The estimated degradation rates used in the evaluation (SANCO/10528/2005 rev 2, 27 January 2006) are represented in Table 8.4-1 to Table 8.4-3.

Two additional field dissipation studies (DuPont-34236 and DuPont-34237) were conducted in 2015. A total of five field dissipation studies (plus three legacy studies – DuPont-3802, DuPont-3884, and DuPont-3885) were normalized and analysed to generate the modelling endpoints, following the latest FOCUS guidance (2014). The details of kinetics analyses are provided in DuPont-41984. The normalized (20°C and pF2) geomean $DegT_{50}$ is 5.8 days, as summarized in Table 8.4-4.

During the recent active substance review for rimsulfuron (EFSA, 2018), a total of 7 field dissipation studies were evaluated and accepted for exposure modelling. Due to the significant difference in geomean $DegT_{50}$ values between laboratory studies and field dissipation studies, the normalized geomean $DegT_{50}$ of 6.7 days was proposed by RMS as tier 1 degradation endpoint for exposure modelling of rimsulfuron (EFSA, 2018), as summarized in Table 8.4-4.

The degradation rates of rimsulfuron metabolites in soils were also derived via kinetic pathway fits with normalized datasets, from the 3 legacy DuPont field dissipation studies, 2 new DuPont studies with 20 mm irrigation immediately after application, and 2 task force studies with sand as a cover after application, as summarized in

The degradation rates of rimsulfuron metabolites, such as IN-E9260, from the field dissipation studies are significantly lower than those derived from laboratory studies, as illustrated in Table 8.4-5, Table 8.4-6, and Table 8.4-7. This justifies use of the field-derived degradation endpoints to refine exposure assessment for metabolites such as IN-E9260.

Table 8.4-1: Endpoints: Rates of degradation from field dissipation studies of rimsulfuron in soils (EFSA, 2005)

Soil	C ¹⁴ labelled structure	pH	% OC	DT ₅₀ (days)	DT ₉₀ (days)	r ²	Method of calculation
Greenv (MS, USA)	Pyridine	7.0	0.75	7.9	26.2	0.88	Linear SFO
	Pyrimidine	7.0	0.75	9.6	31.9	0.96	
Madera (CA, USA)	Pyridine	7.7	0.7	8	26.6	0.99	Linear SFO
	Pyrimidine	7.7	0.7	8.2	27.2	0.99	
Rochelle (IL, USA)	Pyridine	7.8	2.61	15.9	52.8	0.94	Linear SFO
	Pyrimidine	7.8	2.61	17.7	58.8	0.94	
Palafolls (ES)	—	6.7	0.8	5.6	18.6	0.95	Linear SFO
Lindenh (DE)	—	6.5	1.1	10	33.2	0.94	Linear SFO
Middlf (DK)	—	6.6	1.1	14	46.5	0.95	Linear SFO
Range				5.6-17.7	18.6-58.8		
Median				9.6	31.9		
Geomean				10.1	33.6		

Table 8.4-2: Endpoints: Rates of degradation from field dissipation studies of rimsulfuron metabolite IN-70941 in soils (EFSA 2005)

Soil	C ¹⁴ labelled structure	pH	% OC	DT ₅₀ (days)	DT ₉₀ (days)	r ²	Method of calculation
Palafolls (ES)	—	6.7	0.8	435	—	0.95	Non-linear SFO
Lindenh (DE)	—	6.5	1.1	62	—	0.94	Non-linear SFO
Middlf (DK)	—	6.6	1.1	1100	—	0.95	Non-linear SFO
Range				62-1100			
Median				435			
Geomean				309.6			

Table 8.4-3: Endpoints: Rates of degradation from field dissipation studies of rimsulfuron metabolite IN-E9260 in soils (EFSA 2005)

Soil	C ¹⁴ labelled structure	pH	% OC	DT ₅₀ (days)	DT ₉₀ (days)	r ²	Method of calculation
Palafolls (ES)	—	6.7	0.8	294	—	0.96	Non-linear SFO
Lindenh (DE)	—	6.5	1.1	25	—	0.97	Non-linear SFO
Middlf (DK)	—	6.6	1.1	82	—	0.98	Non-linear SFO
Range				25-294			
Median				82			
Geomean				84.5			

Table 8.4-4: Summary of modelling endpoints for rimsulfuron derived from field dissipation studies from the EFSA conclusion (EFSA 2018)

Studies	Parent	Aerobic conditions								
	Soil type	Location	pH (H ₂ O)	Depth (cm)	DT ₅₀ (d) actual	DT ₉₀ (d) actual	Method of calculation	St. (χ^2)	DT ₅₀ (d) Normalized	Method of calculation
DuPont-34236	Silt Loam (bare soil)	France	6.5	90	11.7	51.3	FOMC	9	8.1	FOMC
DuPont-34237	Clay Loam (bare soil)	Italy	5.8	90	5.4	18	SFO	7	3.8	SFO
DuPont-3802	Medium Clayey Silt (bare soil)	Germany	6.7	90	8.4	46.8	DFOP	12	8.4	DFOP
DuPont-3885	Loamy Sand (bare soil)	Denmark	7	90	13.8	45.9	SFO	12	6.2	SFO
DuPont-3884	Silty Sand (bare soil)	Spain	6.5	90	3.5	23.3	DFOP	8	4.0	DFOP
<i>Geometric mean (if not pH dependent) (n=5)</i>									<i>5.8^b</i>	
Finger, 2015; RAR, 2017 ^a	Loam – Clay Loam	Germany	4.47	100	4.94	16.4	SFO	11	3.33	SFO
	Silty Clay	Bulgaria	7	100	3.73	18.4	FMOG	9.34	7.03	SFO
Worst case DegT₅₀ (n=7)					13.8					
Geometric mean (if not pH dependent) (n=7)									6.7^b	
pH dependence, No										

^a RAR, 2017. Renewal Assessment Report for Review of Annex I Inclusion of Rimsulfuron. Annex B: RMS summary and evaluation of the data and information. Annex B.8 - Environmental fate and behaviour. Notifier - DuPont de Nemours (Deutschland) GmbH. Rapporteur Member State: Slovenia; Co-Rapporteur Member State: Finland. Republic of Slovenia Ministry of Agriculture, Forestry, and Food. January 2017.

^b ~~Khanijo and Huang, 2015; DuPont 41948. The geomean DegT₅₀ of five field dissipation studies conducted by the applicant and used as Tier 2 refined endpoints for those in the 2005 EFSA conclusion.~~

Table 8.4.5: Modelling Degradation Rates and Endpoints for Rimsulfuron Metabolites as Derived from Pathway Fits Kinetics with Normalized Datasets of field dissipation studies (Rimsulfuron: RAR – Volume 3, Annex B.8, 2017)

Compounds	Field Sites	France (DuPont-34236) ^{d,f}	Italy (DuPont-34237) ^{d,f}	Germany (DuPont-3802) ^{c,f}	Demark (DuPont-3885) ^{c,f}	Spain (DuPont-3884) ^{c,f}	Germany (Task Force) ^{e,f}	Bulgaria (Task Force) ^{e,f}	Selected Modelling endpoints
	Models	FOMC-SFO	SFO-SFO	DFOP-SFO	SFO-SFO	DFOP-SFO	SFO-SFO	SFO-SFO	
Rimsulfuron	DT ₅₀ (days)	5.3	3.8	3.6	7	2.5	3.33	6.98	6.7 ^a
	χ ² error(%)	9	12	19	13	18	-	-	
IN-70941	DT ₅₀ (days)	131.4	49.5	50.2	126.8	121.1	337	55.2	99.0 (Geomean) 0.53 (average)
	formation fraction	0.35	0.36	0.43	0.76	0.30	0.84	0.69	
	χ ² error(%)	16	19	10	23	14	-	-	
IN-70942	DT ₅₀ (days)	41.4	14.8	12.5	13.2	38.2	46.9	108	29.5 (Geomean) 1.0
	formation fraction	1	1	1	1	1.0	1.0	0.99	
	χ ² error(%)	28	21	26	18	8	-	-	
IN-E9260	DT ₅₀ (days)	35.8	57.3	24.4	41.1	129.4	107	106	60.7 (Geomean) 0.09 (average)
	formation fraction	0.04	0.03	0.1	0.1	0.1	0.16	0.1	
	χ ² error(%)	22	25	15	36	22	-	-	
IN-J0290	DT ₅₀ (days)	100.4	42.7				106	147	90.4 (Geomean) 0.08 ^b
	formation fraction	0.04	0.03				0.16	0.07	
	χ ² error(%)	21	13				-	-	

a Degradation endpoints of parent rimsulfuron was derived with the parent dataset set.

b The formation fraction of IN-J0290 is roughly equal to that of IN-E9260 as they both result from cleavage of SU bridge.

c DuPont legacy studies without irrigation and sand as cover after application;

d DuPont new studies conducted with 20 mm irrigation immediately after application;

e The field studies were conducted with sand as cover after application by Task Force (Rimsulfuron: RAR- Volume 3, Annex B.8. Environmental Fate and Behavior, January 2017).

f RAR, 2017. Renewal Assessment Report for Review of Annex I Inclusion of Rimsulfuron. Annex B: RMS summary and evaluation of the data and information. Annex B.8 - Environmental fate and behaviour. Notifier - DuPont de Nemours (Deutschland) GmbH. Rapporteur Member State: Slovenia; Co-Rapporteur Member State: Finland. Republic of Slovenia Ministry of Agriculture, Forestry, and Food. January 2017.

Table 8.4-6: Summary of modelling endpoints for IN-E9260 derived from laboratory and field degradation studies from the EFSA conclusion (EFSA 2018)

Soil type	pH (H ₂ O)	t. °C / % MWHC	DT ₅₀ /DT ₉₀ (d)	f. f. kf/ kdp	DT ₅₀ (d) 20°C pF2/10kPa	St. (χ ²)	Method of calculation
Lyngre Sandy loam	5.4	20 / 13	680.4	-	532	1	SFO
Handorf Sandy loam	5.8	20 / 15	861.7	-	730	3	SFO
San Pietro en Sero Clay	7.9	20 / 34	246.7	-	193	5	SFO
Sassafras Sandy loam	6.7	25 / 6.1	1346.1	0.2	976.7	10	DFOP-SFO
Geometric mean (if not pH dependent)					519.9		
Arithmetic mean					0.2		
pH dependence, No							

Table 8.4-7: Comparison of laboratory derived DegT₅₀ values of the rimsulfuron metabolite IN-E9260 with those from the field dissipation studies following the 2014 EFSA guidance, with EFSA DegT₅₀ Selector

Calculations	Laboratory studies							
	Cont. No.	DegT50 values		logarithmic DegT50 values	deviation from mean μ	squared deviation from mean μ		
	i	A x _i	D l _i = ln(x _i)=	G d _i =(l _i -μ _{lab})=	H d _i ² =			
1	x ₁ =	532.0	l ₁ =	6.277	d ₁ =	0.023	d ₁ ² =	0.0005
2	x ₂ =	730.0	l ₂ =	6.593	d ₂ =	0.339	d ₂ ² =	0.1149
3	x ₃ =	193.0	l ₃ =	5.263	d ₃ =	-0.991	d ₃ ² =	0.9830
4	x ₄ =	976.7	l ₄ =	6.884	d ₄ =	0.630	d ₄ ² =	0.3970
5	x ₅ =		l ₅ =		d ₅ =		d ₅ ² =	
6	x ₆ =		l ₆ =		d ₆ =		d ₆ ² =	
7	x ₇ =		l ₇ =		d ₇ =		d ₇ ² =	
8	x ₈ =		l ₈ =		d ₈ =		d ₈ ² =	
9	x ₉ =		l ₉ =		d ₉ =		d ₉ ² =	
10	x ₁₀ =		l ₁₀ =		d ₁₀ =		d ₁₀ ² =	
11	x ₁₁ =		l ₁₁ =		d ₁₁ =		d ₁₁ ² =	
12	x ₁₂ =		l ₁₂ =		d ₁₂ =		d ₁₂ ² =	
13	x ₁₃ =		l ₁₃ =		d ₁₃ =		d ₁₃ ² =	
14	x ₁₄ =		l ₁₄ =		d ₁₄ =		d ₁₄ ² =	
15	x ₁₅ =		l ₁₅ =		d ₁₅ =		d ₁₅ ² =	
16	x ₁₆ =		l ₁₆ =		d ₁₆ =		d ₁₆ ² =	
17	x ₁₇ =		l ₁₇ =		d ₁₇ =		d ₁₇ ² =	
18	x ₁₈ =		l ₁₈ =		d ₁₈ =		d ₁₈ ² =	
19	x ₁₉ =		l ₁₉ =		d ₁₉ =		d ₁₉ ² =	
20	x ₂₀ =		l ₂₀ =		d ₂₀ =		d ₂₀ ² =	
21	x ₂₁ =		l ₂₁ =		d ₂₁ =		d ₂₁ ² =	
22	x ₂₂ =		l ₂₂ =		d ₂₂ =		d ₂₂ ² =	
23	x ₂₃ =		l ₂₃ =		d ₂₃ =		d ₂₃ ² =	
24	x ₂₄ =		l ₂₄ =		d ₂₄ =		d ₂₄ ² =	
25	x ₂₅ =		l ₂₅ =		d ₂₅ =		d ₂₅ ² =	
Number of studies	B N=		4					
Degrees of freedom	C df_{lab} = N-		3					
Sum over all studies			E L= Σ_i l_i =		25.017		I D²= Σ_i d_i² =	
Mean of logarithmic values			F μ_{lab}= L/N =		6.254			
Variance of logarithmic values							J σ_{lab}²= D²/df_{lab} =	
Standard deviation of logarithmic values							σ_{lab}=	
							0.4984	
							0.7060	

Calculations	Field studies							
	Cont. No.	DegT50 values		logarithmic DegT50 values	deviation from mean μ	squared deviation from mean μ		
	j	$K z_j$	$N k_j = \ln(x_j) =$	$Q c_j = (l_j - \mu_{fld}) =$	$R c_j^2 =$			
1	$x_1 =$	35.8	$k_1 =$	3.578	$c_1 =$	-0.527	$c_1^2 =$	0.2779
2	$x_2 =$	57.3	$k_2 =$	4.048	$c_2 =$	-0.057	$c_2^2 =$	0.0032
3	$x_3 =$	24.4	$k_3 =$	3.195	$c_3 =$	-0.911	$c_3^2 =$	0.8291
4	$x_4 =$	41.1	$k_4 =$	3.716	$c_4 =$	-0.389	$c_4^2 =$	0.1514
5	$x_5 =$	129.4	$k_5 =$	4.863	$c_5 =$	0.758	$c_5^2 =$	0.5742
6	$x_6 =$	107	$k_6 =$	4.673	$c_6 =$	0.568	$c_6^2 =$	0.3223
7	$x_7 =$	106	$k_7 =$	4.663	$c_7 =$	0.558	$c_7^2 =$	0.3117
8	$x_8 =$		$k_8 =$		$c_8 =$		$c_8^2 =$	
9	$x_9 =$		$k_9 =$		$c_9 =$		$c_9^2 =$	
10	$x_{10} =$		$k_{10} =$		$c_{10} =$		$c_{10}^2 =$	
11	$x_{11} =$		$k_{11} =$		$c_{11} =$		$c_{11}^2 =$	
12	$x_{12} =$		$k_{12} =$		$c_{12} =$		$c_{12}^2 =$	
13	$x_{13} =$		$k_{13} =$		$c_{13} =$		$c_{13}^2 =$	
14	$x_{14} =$		$k_{14} =$		$c_{14} =$		$c_{14}^2 =$	
15	$x_{15} =$		$k_{15} =$		$c_{15} =$		$c_{15}^2 =$	
16	$x_{16} =$		$k_{16} =$		$c_{16} =$		$c_{16}^2 =$	
17	$x_{17} =$		$k_{17} =$		$c_{17} =$		$c_{17}^2 =$	
18	$x_{18} =$		$k_{18} =$		$c_{18} =$		$c_{18}^2 =$	
19	$x_{19} =$		$k_{19} =$		$c_{19} =$		$c_{19}^2 =$	
20	$x_{20} =$		$k_{20} =$		$c_{20} =$		$c_{20}^2 =$	
21	$x_{21} =$		$k_{21} =$		$c_{21} =$		$c_{21}^2 =$	
22	$x_{22} =$		$k_{22} =$		$c_{22} =$		$c_{22}^2 =$	
23	$x_{23} =$		$k_{23} =$		$c_{23} =$		$c_{23}^2 =$	
24	$x_{24} =$		$k_{24} =$		$c_{24} =$		$c_{24}^2 =$	
25	$x_{25} =$		$k_{25} =$		$c_{25} =$		$c_{25}^2 =$	
Number of studies		$L M =$		7				
Degrees of freedom		$M df_{fld} =$		6				
Sum over all studies				$O K = \sum_j k_j =$	28.736	$S C^2 = \sum_j c_j^2 =$		2.4699
Mean of logarithmic values				$P \mu_{fld} = K/M =$	4.105			
Variance of logarithmic values						$T \sigma_{fld}^2 = C^2/df_{fld} =$		0.4116
Standard deviation of logarithmic values						$\sigma_{fld} =$		0.6416
Comparison between laboratory and field studies								
Sum of degrees of freedom						$U df = df_{lab} + df_{fld} =$		9
Sum of reciprocal sample sizes				$V h = (1/N) + (1/M) =$	0.3929			
Difference				$W A = \mu_{lab} - \mu_{fld} =$	2.149			
Sum of squared deviations						$X B = D^2 + C^2 =$		3.9652
Combined variance of logarithmic values						$Y \sigma^2 = B/df =$		0.4406
Standard deviation of the difference between the means						$Z s = \sqrt{h \cdot \sigma^2} =$		0.4160
Statistic of Student's t-test						$AA t = A/s =$		5.1655
Significance level of the test α (as given in the procedure)						$AB \alpha =$		25%
Upper $1-\alpha$ quantile of t-distribution with df degrees of freedom						$AC t_{df, 1-\alpha} =$		0.7027
AD Is Student's t-statistic t larger than the t-quantile $t_{df, 1-\alpha}$?								
YES		→ Test confirms that field studies show shorter DegT50 than laboratory studies				→ Observations do not contradict the hypothesis that field studies show equal DegT50 than laboratory studies		

zRMS comments:

Field degradation data for rimsulfuron and its metabolites presented in Tables 8.4-1 to 8.4-3 are line with EU agreed endpoints reported in EFSA Scientific Report (2005) 45, while data presented in Table 8.4-4 are line with EU agreed endpoints reported in EFSA Journal 2018;16(5):5258.

Information from DuPont field dissipation studies presented in Table 8.4-5 is in line with the information provided in the RAR of December 2017 (updated in October 2021 with additional information in area of field dissipation studies). It should be, however, noted that during the Pesticides Peer Review Meeting TC 155 it was concluded that the metabolites endpoints from DuPont studies are not fully reliable since *it is very likely that the removal of the residues before 10 mm of rainfall would prevent any reliable kinetic fitting of the metabolites in the later*. For this reason it was concluded that the DuPont field dissipation studies provided reliable endpoints for the parent compound only.

With regard to the field dissipation studies performed by the rimsulfuron Task Force in Germany and Bulgaria, in both, RAR and the LoEP (2018), different values than these provided by the Applicant in Table 8.4-5 are reported. Hence endpoints provided by the Applicant from these studies could not be confirmed.

Overall, based on the decision of the expert meeting, the results of the field dissipation studies were considered acceptable for Tier 2 groundwater modelling performed for the parent compound only, while for metabolites results of the laboratory studies were considered. The same conclusion is applicable for this zonal evaluation of GF-3969.

It should be noted that the discussion on relevance of the metabolites data from the field dissipation studies performed by DuPont have been recently re-opened with the updated RAR made available in January 2021. Nevertheless, as this discussion is ongoing at the EU level, the conclusions of consideration of the field dissipation data as provided in EFSA Journal 2018;16(5):5258 remain valid until new conclusion is issued at the EU level.

Information being not in line with the EU agreed endpoints has been struck through in Table 8.4-5.

It is noted that in the summary of modelling endpoints for metabolite IN-E9260 provided in Table 8.4-6 only degradation data obtained in laboratory studies were considered and for this reason the table title was modified by the zRMS. The comparison of the field and laboratory degradation data performed by the Applicant for this compound in Table 8.4-7 was struck through since this exercise has been already performed at the EU level and it was concluded that field dissipation data for this compound should not be included in calculation of the geometric mean DT₅₀ used for modelling purposes (see EFSA Journal 2018;16(5):5258) and no field dissipation data are provided in Table 8.4-6.

Thifensulfuron methyl

The four field dissipation studies were conducted, and evaluated in Thifensulfuron methyl RAR-Volume 3, Annex B.8. Environmental Fate and Behavior from March 2015, but not considered for exposure assessment by the RMS.

zRMS comments:

No field dissipation data are reported in EFSA Journal 2015;13(7):4201 as being not necessary for the regulatory exposure assessment.

Isoxadifen-ethyl

Field dissipation studies are not required with isoxadifen-ethyl since laboratory DT₅₀ values for studies conducted at 20°C were less than 60 days.

zRMS comments:

Since the laboratory degradation data for isoxadifen-ethyl are outdated and would require full re-evaluation in line with the current standards (being outside the scope of the zonal assessment) it cannot be confirmed whether field dissipation data for the safener would be required or not.

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

Studies on field dissipation rates with the formulation were not performed, since it is possible to extrapolate from data obtained with the active substance.

8.4.1.1 Rimsulfuron and its metabolites

Three field dissipation studies were performed in Europe – Middelfart, Denmark; Lindenholtzhausen, Germany, and Palafolls, Spain. In addition, three field dissipation studies were also conducted in USA. These field dissipation studies were evaluated in the EFSA conclusion. The DT₅₀ of rimsulfuron under field conditions ranges from 5.6 to 17.7 days (EFSA, 2005).

Four additional field dissipation studies in France, Italy, Germany, and Bulgaria were conducted and evaluated in the recent active substance review (EFSA, 2018).

zRMS comments:

Please, refer to point 8.4 above.

8.4.1.2 Thifensulfuron methyl and its metabolites

No field studies were relied upon for the regulatory assessment.

zRMS comments:

Please, refer to point 8.4 above.

8.4.1.3 Isoxadifen-ethyl (safener) and its metabolites

Owing to the fast degradation of isoxadifen-ethyl in soil under conditions of the laboratory, no need for investigation *via* field dissipation studies is indicated.

zRMS comments:

Please, refer to point 8.4 above.

8.4.2 Soil accumulation testing (KCP 9.1.1.2.2)

Rimsulfuron

Soil accumulation studies were not carried out with rimsulfuron since the average DT₉₀ was much less than one year. The measured DT₅₀ in laboratory studies and calculated PEC_{soil} values indicate no potential for accumulation of rimsulfuron after applications in maize.

Thifensulfuron methyl

None of the values of the DT₉₀ in aerobic soil exceed 1 year. Consequently, no calculation of accumulation in soil for any of the compounds observed in aerobic soil is considered necessary.

Isoxadifen-ethyl (safener)

None of the values of the DT₉₀ in aerobic soil exceed 1 year. Consequently, no calculation of accumulation in soil for any of the compounds observed in aerobic soil is considered necessary.

zRMS comments:

No soil accumulation studies were performed with rimsulfuron and thifensulfuron-methyl for purposes of the EU review. Potential for accumulation of both active compounds and their metabolites has been considered by the zRMS in the course of the soil exposure assessment (see point 8.7 below).

With regard to isoxadifen-methyl, the need for consideration of the accumulation potential in soil cannot be confirmed or excluded since the soil degradation data are outdated and would require full re-evaluation in line with the current standards (being outside the scope of the zonal assessment).

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.

8.5.1 Laboratory studies (KCP 9.1.2.1)

8.5.1.1 Rimsulfuron and its metabolites

The mobility of rimsulfuron and its metabolites in soils was tested previously (*via* column leaching and aged residue leaching studies) by DuPont and evaluated for the Annex I inclusion of rimsulfuron. The results of column leaching and aged residue leaching studies evaluated by EFSA are presented in Table 8.5-1.

Table 8.5-1: Endpoints: Mobility of rimsulfuron in soil

Endpoints	Rimsulfuron	IN-70942	IN-70941	IN-E9260
Column leaching	<u>Soil 1</u>			
	Speyer 2.1 (Sand) 0.7% OC, pH 6.1			
	Leachates: 97.9% (Pyridine) 70.7% (Pyrimidine)			
	Pyridine			
	50.70%	27.50%	5.70%	1.6-3.5%
	Pyrimidine			
	60.40%	6.40%	0.90%	—
	<u>Soil 2</u>			
	Speyer 2.2 (Loamy sand) 2.3% OC, pH 6.3			
	Leachates: 89.6% (Pyridine) 57.3% (Pyrimidine)			
	Pyridine			
	49.90%	6.90%	2.80%	—
	Pyrimidine			
	45.10%	6.10%	2.60%	—
	<u>Soil 3</u>			
	Speyer 2.3 (Sandy loam) 1.3% OC, pH 6.7			
	Leachates: 76.0% (Pyridine) 62.0% (Pyrimidine)			
	Pyridine			
	5.80%	3.00%	60.80%	—
	Pyrimidine			
Not detected	Not detected	59.80%	—	
<u>Soil 4</u>				
Sassafras (Sandy loam) 1.3% OC, pH 6.2				
Leachates: 89.5% (Pyridine) 79.5% (Pyrimidine)				
Pyridine				
61.30%	11.80%	11.40%	—	
Pyrimidine				
54.00%	10.30%	14.10%	—	
Aged residues leaching	<u>Soil 1</u>			
	Speyer 2.1 (Sand) 0.7% OC, pH 6.1			

Endpoints	Rimsulfuron	IN-70942	IN-70941	IN-E9260
Lysimeter/field leaching studies	30 days aging (20°C, 40% MWHC, dark)			
	Leachates: 41.7% (Pyridine) 29.1% (Pyrimidine)			
	Pyridine			
	5.70%	16.20%	11.60%	7.20%
	Pyrimidine			
	3.00%	7.40%	18.70%	not detected
Lysimeter/field leaching studies	No data provided, not required			

Summary

The mobility in soil of rimsulfuron was evaluated during the Annex I Inclusion. Additional data were not required as a result of the review. However, the review by the EPCO experts (EFSA, 2005) suggests that the sorption of the metabolites IN-70941 and IN-E9260 appear to display a correlation with clay content. It is recommended in the EFSA conclusion report that the mean of sorption values for these two metabolites in sandy soils (excluding clay soils) should be used to represent the worst-case sorption scenarios in the FOCUS sandy soils. This recommendation was taken into consideration in deriving the sorption values for IN-70941 and IN-E9260.

The EU-agreed sorption values (K_{foc} and $1/n$) in the EFSA conclusion report are provided in Table 8.5-2 to Table 8.5-5.

In the EFSA conclusion, for the metabolite IN-J0290, the K_{foc} of 34 was calculated from the log K_{ow} value of 0.9514 (EFSA, 2005), and used with a default $1/n$ value of 1.0. In this assessment, the average K_{foc} value of 458 L/kg and $1/n$ of 0.80 as experimentally determined by DuPont and were used in the assessment. The K_{foc} and $1/n$ values in four soils are provided in Table 8.5-6.

Table 8.5-2: K_{foc} and $1/n$ (Freundlich exponent) values for rimsulfuron in different sets of soils

Soil	K_f	pH (-)	OM (%)	K_{foc} (L kg ⁻¹)	$1/n$ (-)	Reference ^a
Cecil, sandy loam/USA	0.23	6.5	2.1	19	0.9	AMR 1204-88
Fargo, clay loam/USA	1.36	7.7	4.3	54	0.97	AMR 1204-88
Sassafras sandy loam/USA	0.35 0.32	6.3	1	50	1.22	AMR 1204-88
Flanagan silt loam/USA	1.57	5.4	4.3	63	0.99	AMR 1204-88
Range				19-63	0.9-1.22	
Median				52	0.98	
Arithmetic Mean				47	1.02	

a Report is summarized in EFSA Conclusion Report, 2005.

Table 8.5-3: K_{foc} and $1/n$ (Freundlich exponent) values for IN-70941 in different sets of soils

Soil	OC (%)	pH (-)	Clay (%)	Sand (%)	K_r (L kg ⁻¹)	K_{foc} (L kg ⁻¹)	$1/n$ (-)	References ^a
Lynge, sandy loam/DK	1.2	5.4	8.4	69.2	0.47	39	0.96	DuPont-3507
San Pietro, clay/IT	1.6	7.9	50.4	11.2	1.85	116	0.94	DuPont-3507
Handorf, sandy loam/DE	1.1	5.8	4.4	69.2	0.37	34	0.92	DuPont-3507
Frederica, sandy loam/USA	0.5	6.3	10.4	65.2	0.27	54	0.92	DuPont-3507
Range						34-116	0.92-0.96	
Median						47	0.93	
Arithmetic Mean Average						61	0.94	
Value used in modelling run, average for sandy loam soils						42	0.93	

a Report is summarized in EFSA Conclusion Report, 2005.

Table 8.5-4: K_{foc} and 1/n (Freundlich exponent) values for IN-70942 in different sets of soils

Soil	OC (%)	pH (-)	Clay (%)	Sand (%)	K_r (L kg ⁻¹)	K_{foc} (L kg ⁻¹)	1/n (-)	Reference ^a
Lynge, sandy loam/DK	1.2	5.4	8.4	69.2	2.68	223	0.84	DuPont-3508
San Pietro, clay/IT	1.6	7.9	50.4	11.2	3.12	195	0.85	DuPont-3508
Handorf, sandy Loam/DE	1.1	5.8	4.4	69.2	1.59	145	0.84	DuPont-3508
Frederica, sandy loam/US	0.5	6.3	10.4	65.2	1.07	214	0.85	DuPont-3508
Range						145-223	0.84-0.85	
Median						204.5	0.845	
Arithmetic Mean						194	0.85	

a Report is summarized in EFSA Conclusion Report, 2005.

Table 8.5-5: K_{foc} and 1/n (Freundlich exponent) values for IN-E9260 in different sets of soils

Soil	OC (%)	pH (-)	Clay (%)	Sand (%)	K_r (L kg ⁻¹)	K_{foc} (L kg ⁻¹)	1/n (-)	References ^a
Lynge sandy loam/DK	1.2	5.4	8.4	69.2	0.27	23	1.08	DuPont-3506
San Pietro, clay/IT	1.6	7.9	50.4	11.2	1.37	86	0.96	DuPont-3506
Handorf, sandy loam/DE	1.1	5.8	4.4	69.2	0.18	16	0.99	DuPont-3506
Frederica, sandy loam/USA	0.5	6.3	10.4	65.2	0.17	34	0.93	DuPont-3506
Range						16-86	0.93-1.08	
Median						28.5	0.98	
Arithmetic Mean						40	0.99	
Value used in modelling run						24	1	
Average for sandy loam soils								

a Report is summarized in EFSA Conclusion Report, 2005.

Table 8.5-6: K_{foc} and 1/n (Freundlich exponent) values for IN-J0290 in different sets of soils

Soil	OC (%)	pH (-)	K_r (L kg ⁻¹)	K_{fom} (L kg ⁻¹)	K_{foc} (L kg ⁻¹)	1/n (-)	Reference ^a
Speyer 2.2/DE, loamy sand	2.1	6.4	1.22	34	58	0.85	DuPont-5264
Pavia/IT, loamy sand	0.5	5.2	2.26	262	452	0.81	DuPont-5264
Drummer/USA, silt loam	3.1	5.5	45.3	847	1460	0.71	DuPont-5264
Nambsheim/FR, sandy loam	0.7	7.8	0.86	71	123	0.79	DuPont-5264
Vercelli/IT, silt loam	1.2	5.8	2.35	114	196	0.82	DuPont-5264
Range				34-847	58-1460	0.71-0.85	
Median				114	196	0.81	
Mean				266	458	0.80	

a Report was not reviewed in EFSA Conclusion Report, 2005. Summarised in DuPont Nicosulfuron EU Dossier, Annex IIA, Document M-II, Section 5, DuPont-12636 EU, Revision No. 1. Study summary included in Appendix 4 in this document for completeness. IN-J0290 is degradation metabolite for Rimsulfuron and Nicosulfuron active substances.

zRMS comments:

Soil mobility data for rimsulfuron and its metabolites presented in Tables 8.5-1 to 8.5-5 are in line with EU agreed endpoints reported in EFSA Scientific Report (2005) 45 with some minor corrections. The arithmetic mean K_{foc} values were calculated on the basis of the EU agreed data and are confirmed to be correct.

No soil sorption data for metabolite IN-J0290 are available in EFSA Scientific Report (2005) 45 and values reported in Table 8.5-6 originate from the new study provided by the Applicant. It is, however, noted that this study has been evaluated in the course of the EU review of several active substances (e.g. flupyrsulfuron-methyl, bensulfuron, azimsulfuron) as well as during the EU renewal of rimsulfuron. Information provided in Table 8.5-6 is in line with values reported in the summary of the study by Aikens (2001, Doc. No DuPont-5264) presented in rimsulfuron RAR (Vol. 3CA, B.8 of October 2021) as well as in the rimsulfuron LoEP of 2018. Taking this into account information provided in Table 8.5-6 is confirmed and may be considered in the exposure assessment.

It should be noted that in the course of the EU renewal of rimsulfuron also other soil sorption data were available for IN-J0290 resulting with arithmetic and geometric mean K_{foc} of 991.4 and 275.8 mL/g, respectively and arithmetic mean 1/n of 0.76. Nevertheless, input parameters considered in the exposure assessment for GF-3969 are discussed in respective points below, so no further discussion is presented in this particular point.

8.5.1.2 Thifensulfuron methyl and its metabolites

The adsorption coefficients (K_{foc}) of thifensulfuron methyl and its soil metabolites were derived from EFSA (2015). The K_{foc} and $1/n$ from the EFSA conclusion (EFSA, 2015) are summarised in Table 8.5-7 to Table 8.5-16.

Table 8.5-7: Summary of soil adsorption/desorption for thifensulfuron methyl

Thifensulfuron methyl							
Soil name	Soil type	OC (%)	pH (-)	K_r (mL/g)	K_{foc} (mL/g)	1/n (-)	Evaluated on EU level y/n/ Reference
Sassafras	-	0.81	4.8	0.6660	82	0.9023	Y, EFSA (2015)
Lleida	-	1.74	7.6	0.1551	9	0.9826	Y, EFSA (2015)
Drummer	-	2.96	5.7	2.5468	86	0.8211	Y, EFSA (2015)
Gross-Umstadt	-	1.39	6.6	0.2679	19	0.9599	Y, EFSA (2015)
Nambsheim	-	2.03	7.3	0.2164	11	0.8389	Y, EFSA (2015)
Long woods	-	1.3	7.3	0.08	6.0	0.967	Y, EFSA (2015)
Farditch	-	3.5	5.9	0.22	6.2	0.952	Y, EFSA (2015)
Kenslow	-	3.9	5.1	0.33	8.4	0.949	Y, EFSA (2015)
Lockington	-	2.8	5.5	0.09	3.1	1.012	Y, EFSA (2015)
Median (n=9)					9.0 ^a		Y, EFSA (2015)
Arithmetic mean (n=9)					25.6	0.932	
pH-dependency y/n					n		

a The median K_{foc} was selected for exposure assessment in the EFSA conclusion (EFSA, 2015).

Table 8.5-8: Summary of soil adsorption/desorption for IN-L9225

IN-L9225							
Soil Name	Soil Type	OC (%)	pH (-)	K_r (mL/g)	K_{foc} (mL/g)	1/n (-)	Evaluated on EU level y/n/ Reference
Arrow	sandy loam	2.3	5.7	0.30	13.1	0.74	Y, EFSA (2015)
Gross-Umstadt	silt loam	1.2	7.7	0.083	6.9	0.62	Y, EFSA (2015)
Mattapex	silt loam	2.6	6.4	0.350	13.5	0.76	Y, EFSA (2015)
LUFA 2.2	loamy sand	1.87	5.5 (CaCl ₂)	0.435	23 ^b	-	Y, EFSA (2015)
LUFA 2.3	sandy loam	0.94	6.8 (CaCl ₂)	0.318	34 ^b	-	Y, EFSA (2015)
LUFA 6S	clay	1.64	7.1 (CaCl ₂)	0.481	29 ^b	-	Y, EFSA (2015)
Arithmetic mean (n=6)					19.9	0.850^a	
pH-dependency y/n					n		

a In deriving an arithmetic mean, a default $1/n$ value of 1.0 was assumed for the three soils where no Freundlich isotherm was determined because a single concentration had been tested.

b As only one concentration was tested this value is a K_{oc} not K_{foc}

Table 8.5-9: Summary of soil adsorption/desorption for IN-L9226

IN-L9226							
Soil Name	Soil Type	OC (%)	pH (-)	K_r (mL/g)	K_{foc} (mL/g)	1/n (-)	Evaluated on EU level y/n/ Reference
Arrow	sandy loam	2.3	5.7	0.8	34	0.8	Y, EFSA (2015)
Gross-Umstadt	silt loam	1.2	7.7	2.4	199	0.81	Y, EFSA (2015)
Mattapex	silt loam	2.6	6.4	2.6	99	0.79	Y, EFSA (2015)
LUFA 2.2	loamy san	1.87	5.5 (CaCl ₂)	1.605	86 ^b	-	Y, EFSA (2015)
LUFA 2.3	sandy loam	0.94	6.8 (CaCl ₂)	1.886	201 ^b	-	Y, EFSA (2015)
LUFA 6S	clay	1.64	7.1 (CaCl ₂)	2.193	134 ^b	-	Y, EFSA (2015)
Arithmetic mean (n=6)					126	0.900^a	
pH-dependency y/n					n		

a in deriving an arithmetic mean, a default $1/n$ value of 1.0 was assumed for the three soils where no Freundlich isotherm was determined because a single concentration had been tested.

b As only one concentration was tested this value is a K_{oc} not K_{foc}

Table 8.5-10: Summary of soil adsorption/desorption for IN-A5546

IN-A5546							
Soil Name	Soil Type	OC (%)	pH (-)	K _r (mL/g)	K _{foc} (mL/g)	1/n (-)	Evaluated on EU level y/n/ Reference
Sassafras	-	0.81	4.8	0.2720	34	0.8767	Y, EFSA (2015)
Drummer	-	2.96	5.7	2.5107	85	0.9004	Y, EFSA (2015)
Gross-Umstadt	-	1.28	6.8	0.3643	28	0.9521	Y, EFSA (2015)
Arithmetic mean (n=3)					49	0.91	
pH-dependency y/n					n		

Table 8.5-11: Summary of soil adsorption/desorption for IN-V7160

IN-V7160							
Soil Name	Soil Type	OC (%)	pH (-)	K _r (mL/g)	K _{foc} (mL/g)	1/n (-)	Evaluated on EU level y/n/ Reference
Stark County (Tama)	-	3.1	6.3	5.97	194	0.9297	Y, EFSA (2015)
Kent County (Sassafras #16)	-	1.4	6.3	0.969	69.4	0.9021	Y, EFSA (2015)
Lleida	-	1.8	7.5	1.51	84.0	0.9364	Y, EFSA (2015)
Nambsheim	-	1.6	7.0	0.908	57.9	0.9290	Y, EFSA (2015)
Suchozobry	-	0.76	5.0	1.24	164	0.8686	Y, EFSA (2015)
Arithmetic mean (n=5)					113.9	0.913	
pH-dependency y/n					n		

Table 8.5-12: Summary of soil adsorption/desorption for IN-W8268

IN-W8268							
Soil Name	Soil Type	OC (%)	pH (-)	K _r (mL/g)	K _{foc} (mL/g)	1/n (-)	Evaluated on EU level y/n/ Reference
Arrow	sandy loam	2.3	5.7	0.10	3.6	1.10	Y, EFSA (2015)
Gross-Umstadt	silt loam	1.2	7.7	0.05	4.0	1.68	Y, EFSA (2015)
Mattapex	silt loam	2.6	6.4	0.10	2.6	1.17	Y, EFSA (2015)
LUFA 2.2	loamy sand	1.87	5.5 (CaCl ₂)	0.1652	9 ^b	-	Y, EFSA (2015)
LUFA 2.3	sandy loam	0.94	6.8 (CaCl ₂)	0.0947	10 ^b	-	Y, EFSA (2015)
LUFA 6S	clay	1.64	7.1 (CaCl ₂)	0.2536	15 ^b	-	Y, EFSA (2015)
Arithmetic mean (n=6)					7.4	1.160^a	
pH-dependency y/n					n		

a in deriving an arithmetic mean, a default 1/n value of 1.0 was assumed for the three soils where no Freundlich isotherm was determined because a single concentration had been tested.

b As only one concentration was tested this value is a K_{oc} not K_{foc}

Table 8.5-13: Summary of soil adsorption/desorption for IN-L9223

IN-L9223							
Soil Name	Soil Type	OC (%)	pH (-)	K _r (mL/g)	K _{foc} (mL/g)	1/n (-)	Evaluated on EU level y/n/ Reference
Drummer	silt loam	3.2	6.4	0.2595	8	0.9232	Y, EFSA (2015)
Longwood	sandy loam	1.3	7.9 (H ₂ O)	0.03	2.03	1.4090	Y, EFSA (2015)
Chelmorton	clay loam	3.3	7.3 (H ₂ O)	0.11	3.27	1.0931	Y, EFSA (2015)
Lockington	clay loam	2.5	6.5 (H ₂ O)	0.07	2.97	1.204	Y, EFSA (2015)
Arithmetic mean (n=4)					4.07	1.157	
pH-dependency y/n					n		

Table 8.5-14: Summary of soil adsorption/desorption for IN-A4098

IN-A4098							
Soil Name	Soil Type	OC (%)	pH (-)	K _r (mL/g)	K _{foc} (mL/g)	1/n (-)	Evaluated on EU level y/n/ Reference
Gross-Umstadt	Silt loam	1.2	7.7	0.2	18.8	1.05	Y, EFSA (2015)
Arrow	Sandy loam	2.3	5.7	0.7	29.7	0.94	Y, EFSA (2015)
Mattapex	Silt loam	2.6	6.4	0.4	16.7	0.96	Y, EFSA (2015)
Matapeake	-	1.1	5.3	2.36	214.2	0.841	Y, EFSA (2015)
Sassafras	-	0.46	6.3	0.621	133.8	0.784	Y, EFSA (2015)
Drummer	-	3.02	5.7	6.80	225.5	0.841	Y, EFSA (2015)
Myaka	-	0.58	6.2	0.264	45.52	0.873	Y, EFSA (2015)
Honville (Chateadun)	-	0.91	6.7	1.57	172	0.8351	Y, EFSA (2015)
Agricultural sand	-	0.35	7.9	0.2326	66.5	0.8702	Y, EFSA (2015)
-	Sandy loam	0.99	7.8	0.57	58.2	0.9024	Y, EFSA (2015)
-	Silt loam	1.74	6.5	0.9612	55.2	0.8474	Y, EFSA (2015)
-	Silty clay	0.70	6.9	1.201	171.6	0.8230	Y, EFSA (2015)
SLS	-	2.08	7.0	0.44	21.3	0.873	Y, EFSA (2015)
LS2.2	-	1.95	6.0	0.30	15.4	0.909	Y, EFSA (2015)
SLV	-	0.43	6.0	0.32	74.4	0.840	Y, EFSA (2015)
Laacher Hof Wurmweise	Loam	1.8	5.3	1.321	73.4	0.9183	Y, EFSA (2015)
Hoefchen Am Hohenseh 4a	Silt loam	2.4	6.6	0.481	20.0	0.9755	Y, EFSA (2015)
Les Cayades	Clay loam	0.9	7.6	0.561	62.3	0.917	Y, EFSA (2015)
Guadalupe	Sandy Loam	0.7	6.7	0.675	96.5	0.9498	Y, EFSA (2015)
Springfield	Silt loam	1.7	6.6	3.147	185.1	0.9021	Y, EFSA (2015)
2.2	Silty sand	1.97	5.4	0.3728	18.92	0.640	Y, EFSA (2015)
3A	Sandy loam	2.42	7.3	0.4350	17.97	0.759	Y, EFSA (2015)
6S	Clay loam	1.84	6.9	0.0543	2.95	1.422	Y, EFSA (2015)
Speyer 2.1	-	0.56	6.0	0.2025	36	0.92	Y, EFSA (2015)
Standard soil no. 115	-	1.7	7.4	0.6255	37	0.89	Y, EFSA (2015)
Standard soil no. 164	-	3.0	6.5	0.645	22	0.92	Y, EFSA (2015)
Standard soil no. 243	-	1.1	4.3	0.337	31	0.91	Y, EFSA (2015)
Median (n=27)					45.5	0.900	
pH-dependency y/n					n		

Table 8.5-15: Summary of soil adsorption/desorption for IN-JZ789

IN-JZ789							
Soil Name	Soil Type	OC (%)	pH (-)	K _r (mL/g)	K _{foc} (mL/g)	1/n (-)	Evaluated on EU level y/n/ Reference
Drummer	clay loam	3.3	5.9	0.89	26.95	-	Y, EFSA (2015)
Gross-Umstadt	loam	1.2	6.4	0.17	13.96	-	Y, EFSA (2015)
Nambsheim	sandy loam	1.3	7.2	0.18	13.61	-	Y, EFSA (2015)
Lleida	clay	2.0	7.8	0.47	23.27	-	Y, EFSA (2015)
Sassafras	sandy loam	1.6	4.7	0.24	15.18	-	Y, EFSA (2015)
LUFA 2.2	loamy sand	1.87	5.5	0.759	41	-	Y, EFSA (2015)
LUFA 2.3	sandy loam	0.94	6.8	0.546	58	-	Y, EFSA (2015)
LUFA 6S	clay	1.64	7.1	0.901	57	-	Y, EFSA (2015)
Arithmetic mean (n=8)					31.1	1.000^a	
pH-dependency y/n					n		

a The UK RMS considered it appropriate since no attempt to measure the Freundlich isotherm was attempted, to use a default 1/n of 1.0.

Table 8.5-16: Summary of soil adsorption/desorption for IN-U5F72 (2-acid-3-triuret)

IN-U5F72 (2-acid-3-triuret)							
Soil Name	Soil Type	OC (%)	pH (-)	K _r (mL/g)	K _{foc} (mL/g)	1/n (-)	Evaluated on EU level y/n/ Reference
LUFA 2.2	Loamy sand	1.77	5.5	4.130	230	-	Y, EFSA (2015)
LUFA 2.3	Sandy loam	0.94	6.8	5.285	562	-	Y, EFSA (2015)
LUFA 2.4	Loam	2.26	7.2	17.620	780	-	Y, EFSA (2015)
Arithmetic mean (n=3)					524	1.000^a	
pH-dependency y/n					n		

a The UK RMS considered it appropriate since no attempt to measure the Freundlich isotherm was attempted, to use a default 1/n of 1.0.

zRMS comments:

Soil mobility data for thifensulfuron-methyl and its metabolites presented in Tables 8.5-7 to 8.5-16 are in line with EU agreed endpoints reported in EFSA Journal 2015;13(7):4201.

8.5.1.3 Isoxadifen-ethyl (safener) and its metabolites

The soil adsorption/desorption of isoxadifen-ethyl and its metabolites has been evaluated by Germany (2002); no additional studies are considered in this dRR.

Due to the fast degradation of isoxadifen-ethyl in soil and water the adsorption coefficient could not be determined using the batch equilibrium method. Instead, an adsorption constant was calculated from the octanol/water partition coefficient (log P) after Briggs. The empirical relationship between measured log P and adsorption K_{OM} values for non-ionised compounds is as follows:
log K_{OM} = 0.52 * (log P) + 0.65 with K_{OM} = K_{oc} * 1.72.

Table 8.5-17: Summary of soil adsorption data for the safener isoxadifen-ethyl

Isoxadifen-ethyl							
Soil name	Soil type	OC (%)	pH (CaCl ₂)	K _r (mL/g)	K _{foc} (mL/g)	1/n (-)	Evaluated on EU level y/n/ Reference
-	-	-	-	-	727*	1.0**	Evaluation from Germany (2002)
Estimated value (n=1)					727	1.0	
pH-dependency y/n					no		

* Value for adsorption to soil of 727 mL/g derived from logarithm of distribution coefficient octanol/water, i.e. value of log Pow = 3.8;

** Default value according to FOCUS

Table 8.5-18: Summary of soil adsorption data for metabolite isoxadifen (AE F129431)

Isoxadifen (AE F129431)							
Soil Name	Soil Type	OC (%)	pH (CaCl ₂)	K _r (mL/g)	K _{foc} (mL/g)	1/n (-)	Evaluated on EU level y/n/ Reference
Texas (EFS-4)	sandy clay loam	0.75	6.5	0.51	68	0.83	Evaluation from Germany (2002)
Minnesota (EFS-5)	clay loam	3.12	7.0	2.62	84	0.81	Evaluation from Germany (2002)
Illinois (EFS-6)	sandy loam	2.78	7.2	1.99	72	0.82	Evaluation from Germany (2002)
North Carolina (EFS-8)	sand	0.49	5.0	0.86	176	0.85	Evaluation from Germany (2002)
Arithmetic mean (n=4)					-	0.83	
Geometric mean (n = 4)					92	-	
pH-dependency y/n					no		

Table 8.5-19: Summary of soil adsorption data for metabolite AE C637375

AE C637375							
Soil Name	Soil Type	OC (%)	pH (CaCl ₂)	K _r (mL/g)	K _{foc} (mL/g)	1/n (-)	Evaluated on EU level y/n/ Reference
Shuttleworth (EFS-24)	sand	0.81	6.4	0.72	88	1.01	Evaluation from Germany (2002)
Orainville (EFS-38)	clay loam	1.99	7.4	1.59	80	0.91	Evaluation from Germany (2002)
Pikeville (EFS-54)	loam	2.07	4.5	3.04	147	0.97	Evaluation from Germany (2002)
Lamberton (EFS-68)	loam	3.3	6.7	5.20	158	0.88	Evaluation from Germany (2002)
Arithmetic mean (n=4)					-	0.94	
Geometric mean (n = 4)					113	-	
pH-dependency y/n					no		

zRMS comments:

No EU agreed data exist for the safener, isoxadifen-ethyl, and for this reason validation of information provided above against EU agreed endpoints was not possible.

Nevertheless, data provided by the Applicant for isoxadifen-ethyl have been retained for informative purposes with font colour changed to grey in order to easily distinguish validated from non-validated data.

8.5.2 Column leaching (KCP 9.1.2.1)

GF-3969

GF-3969 is not designed as a slow release formulation and there are no formulation specific properties or formulation ingredients used that could be expected to affect the mobility of the active substances rimsulfuron and thifensulfuron methyl in soil when formulated as GF-3969. Therefore, data generated with the active substances are considered to be applicable to the formulation and GF-3969 was not specifically tested for soil mobility.

Rimsulfuron

Discussion of the soil mobility of rimsulfuron (soil adsorption/desorption and aged soil column leaching) can be found in the corresponding document of the EU review dossier where the study references can be found in the EFSA conclusion (EFSA, 2005). Rimsulfuron and its major soil degradates demonstrated low to moderate adsorption to soil under laboratory conditions.

Thifensulfuron methyl

Discussion of the soil mobility of thifensulfuron methyl (soil adsorption/desorption and aged soil column leaching) can be found in the corresponding document of the EU review dossier where the study references can be found in the EFSA conclusion (EFSA, 2015). Thifensulfuron methyl and its major soil degradates demonstrated low to moderate adsorption to soil under laboratory conditions.

Isoxadifen-ethyl (safener)

Discussion of the soil mobility of isoxadifen-ethyl (soil adsorption/desorption) can be found in the sections above. Isoxadifen-ethyl and its major soil degradates demonstrated low to moderate adsorption to soil under laboratory conditions.

zRMS comments:

Respective information on results of column leaching studies performed with rimsulfuron may be found in EFSA Scientific Report (2005) 45. Since these data were not considered in evaluation of the groundwater

exposure to rimsulfuron and its metabolites following application of GF-3969 in the Central Zone, they are not presented here.

According to information provided in EFSA Journal 2015;13(7):4201, no reliable data from column leaching studies were available for thifensulfuron-methyl. Nevertheless, the leaching potential of this compound and its metabolites following application of GF-3969 in the Central Zone has been sufficiently addressed in the performed groundwater modelling presented in point 8.8.

No EU agreed data exist for the safener, isoxadifen-ethyl, and for this reason validation of information provided above against EU agreed endpoints was not possible.

8.5.3 Lysimeter studies (KCP 9.1.2.2)

8.5.3.1 Rimsulfuron

A lysimeter study was not required with rimsulfuron. Data from the adsorption/desorption studies, the aerobic soil degradation studies, and PEC calculations have clearly demonstrated that there is no reasonable expectation of any leaching of rimsulfuron into groundwater under normal use conditions. The safe use of rimsulfuron in the EU was demonstrated in modelling done in support of the various proposed uses.

zRMS comments:

Lysimeter studies were not required in the course of the EU review of rimsulfuron and are also not required for purposes of the zonal assessment of GF-3969. The leaching potential of this compound and its metabolites following application of GF-3969 in the Central Zone has been sufficiently addressed in the performed groundwater modelling presented in point 8.8.

8.5.3.2 Thifensulfuron methyl

A lysimeter study was not required with thifensulfuron methyl. Data from the adsorption/desorption studies, the aerobic soil degradation studies, and PEC calculations have clearly demonstrated that there is no reasonable expectation of any leaching of thifensulfuron methyl into groundwater under normal use conditions. The safe use of thifensulfuron methyl in the EU was demonstrated in modelling done in support of the various proposed uses.

zRMS comments:

According to information provided in EFSA Journal 2015;13(7):4201, no reliable data from lysimeter studies were available for thifensulfuron-methyl. Nevertheless, the leaching potential of this compound and its metabolites following application of GF-3969 in the Central Zone has been sufficiently addressed in the performed groundwater modelling presented in point 8.8.

8.5.3.3 Isoxadifen-ethyl (safener)

Considering the GAP and the fast degradation of isoxadifen-ethyl and its residues in soil no conduct of lysimeter studies was indicated as outlined in the evaluation report by Germany (2002). No additional studies are considered in this dRR.

zRMS comments:

No EU agreed data exist for the safener, isoxadifen-ethyl, and for this reason validation of information provided above against EU agreed endpoints was not possible.

8.5.4 Field leaching studies (KCP 9.1.2.3)

A study was not required since the data from the adsorption/desorption studies, the aerobic soil degradation studies, and modelling done in support of the proposed use have clearly demonstrated that there is no reasonable expectation of any movement of rimsulfuron or thifensulfuron methyl into groundwater under normal use conditions. Field leaching studies for isoxadifen-ethyl or its metabolites were not considered necessary as sufficient information can be derived from the existing data; no additional studies are considered in this dRR.

zRMS comments:

The leaching potential of rimsulfuron, thifensulfuron-methyl and their metabolites following application of GF-3969 in the Central Zone has been sufficiently addressed in the performed groundwater modelling presented in point 8.8.

No EU agreed data exist for the safener, isoxadifen-ethyl, and for this reason validation of information provided above against EU agreed endpoints was not possible.

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

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

8.6.1 Rimsulfuron and its metabolites

A summary of degradation of rimsulfuron in water/sediment is presented in Table 8.6-1 and for metabolites is presented in Table 8.6-2.

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

Water/sediment system	pH water/ sed.	DegT ₅₀ whole syst. (d)	DegT ₉₀ whole syst. (d)	DissT ₅₀ water (d)	DissT ₉₀ water (d)	DissT ₅₀ sed. (d)	Evaluated on EU level y/n/Reference
Blackiston Wildlife Refuge system	4.3	1	3	1	3	1	Yes (EFSA, 2005)
Mills Lawn Stream system	6.7	11	35 55	7	26	11	Yes (EFSA, 2005)
Worst-case (n = 2)		11		7		11	

Table 8.6-2: Summary of observed rimsulfuron metabolites

Compounds	Maximum occurrences	Evaluated on EU level y/n/Reference
IN-70941 Water/sediment system	Max. in water/sediment 87.2% after 7 d (natural water system, Pyridine and pyrimidine label)	Yes (EFSA, 2005)
IN-70942 Water/sediment system	Max. in water/sediment 77.9% 83.8% after 14 d (natural water system, Pyrimidine label)	Yes (EFSA, 2005)
IN-E9260 Water/sediment system	Max. in water/sediment < 6% 16.2% after 7 d (natural water system, Pyridine label)	Yes (EFSA, 2005)
IN-JF999 Water/sediment system	Max. in water/sediment 24.5% (natural water system, Pyridine and pyrimidine label)	Yes (EFSA, 2005)

zRMS comments:

Information on degradation of rimsulfuron and its metabolites in water/sediment systems presented in Tables 8.6-1 and 8.6-2 above is in general in line with EU agreed endpoints reported in EFSA Scientific Report (2005) 45 with some minor corrections. **Additional information on metabolite IN-JF999 has been added in Table 8.6-2.**

8.6.2 Thifensulfuron methyl and its metabolites

Table 8.6-3: Summary of degradation in water/sediment of thifensulfuron methyl

Thifensulfuron methyl Distribution (max. water >99% at 0 d; max. sediment 1.08% after 31 d)										
Water/sediment system	pH water/sed.	DegT ₅₀ whole syst. (d)	DegT ₉₀ whole syst. (d)	Kinetic, Fit	DissT ₅₀ water (d)	DissT ₉₀ water (d)	Kinetic, Fit	DissT ₅₀ sed. (d)	Kinetic, Fit	Evaluated on EU level y/n/ Reference
Town park pond	7.8/7.2	18.2	-	SFO	18.2	-	SFO	1000	-	Y, (EFSA, 2015)
Red Oak stream	7.6/7.1	26.1	-	SFO	26.1	-	SFO	1000	-	Y, (EFSA, 2015)
Swiss lake	7.4/6.0	32.3	-	SFO	32.0 32.3	-	SFO	1000	-	Y, (EFSA, 2015)
Calwich abbey lake	8.3/7.4	17.6	-	SFO	17.3	-	SFO	1000	-	Y, (EFSA, 2015)
Geometric mean (n=4)		22.8								

Table 8.6-4: Summary of observed metabolites

Compounds	Maximum occurrences	Evaluated on EU level y/n/ Reference
All metabolites	PEC _{sw} /PEC _{sed} modeling with the worst-case assumptions: Max in water: 100% Max in sediment: 100%	y (EFSA, 2015)
IN-L9226	Max in water: 7.8% Max in sediment: 7.2%	y (EFSA, 2015)
IN-JZ789	Max in water: 21% after 125 days Max in sediment: 4%	y (EFSA, 2015)
IN-L9223	Max in water: 39% after 182 days Max in sediment: 8%	y (EFSA, 2015)
IN-V7160	Max in water: 25% after 182 days Max in sediment: 6%	y (EFSA, 2015)
IN-A4098	Max in water: 20% Max in sediment: 7%	y (EFSA, 2015)
IN-L9225	Max in water: 55% Max in sediment: 7%	y (EFSA, 2015)

zRMS comments:

Information on degradation of thifensulfuron-methyl and its metabolites presented in Tables 8.6-3 and 8.6-4 are in general line with EU agreed endpoints reported in EFSA Journal 2015;13(7):4201 with some minor correction.

8.6.3 Isoxadifen-ethyl and its metabolites

The degradation of isoxadifen-ethyl in water/sediment systems has been evaluated, results of these studies are provided in the respective evaluation report by Germany (2002); no additional studies are considered in this dRR.

Table 8.6-5: Summary of degradation in water/sediment of isoxadifen-ethyl

Isoxadifen-ethyl Distribution: maximum in sediment 0.5% after 1 d										
Water/sediment system	pH water/ sed.	DegT ₅₀ whole syst. (d)	DegT ₉₀ whole syst. (d)	Kinetic, Fit	DissT ₅₀ water (d)	DissT ₉₀ water (d)	Kinetic, Fit	DissT ₅₀ sed. (d)	Kinetic, Fit	Evaluated on EU level y/n/ Reference
Hoechst	7.6 (7.5) / 7.4 (7.5) ^a	0.2	0.6	SFO	0.2	0.8	SFO	n.c.	-	Evaluation from Germany (2002)
North Carolina	6.1 / 4.7 ^a	1.5	5.0	SFO	1.2	4.2	SFO	n.c.	-	Evaluation from Germany (2002)
Geometric mean (n=2)		0.6	1.7		0.5	1.8		n.c.		

^a all values measured in CaCl₂; () values for second batch of sediment; n.c. = not calculated

Table 8.6-6: Summary of degradation in water/sediment of metabolite isoxadifen (AE F129431)

Isoxadifen (AE F129431): max. 93.5% total system (1 d), 86.0% water (1 d), 25.1% sediment (6 d) Formation fraction from parent active substance in total systems: n.c.										
Water/sediment system	pH water/ sed.	DegT ₅₀ whole syst. (d)	DegT ₉₀ whole syst. (d)	Kinetic, Fit	DissT ₅₀ water (d)	DissT ₉₀ water (d)	Kinetic, Fit	DissT ₅₀ sed. (d)	Kinetic, Fit	Evaluated on EU level y/n/ Reference
Hoechst	7.6 (7.5) / 7.4 (7.5) ^a	38	127	SFO	20	84	SFO	n.c.	-	Evaluation from Germany (2002)
North Carolina	6.1 / 4.7 ^a	21	72	SFO	12	41	SFO	n.c.	-	Evaluation from Germany (2002)
Geometric mean (n=2)		28	96		15	59		n.c.		

^a measured in CaCl₂;
n.c. = not calculated

Table 8.6-7: Summary of degradation in water/sediment of metabolite AE C637375

AE C637375: max. 40.1% total system (61 d), 11.8% water (62 d), 33.8% sediment (61 d) Formation fraction from parent active substance in total systems: n.c.										
Water/sediment system	pH water/ sed.	DegT ₅₀ whole syst. (d)	DegT ₉₀ whole syst. (d)	Kinetic, Fit	DissT ₅₀ water (d)	DissT ₉₀ water (d)	Kinetic, Fit	DissT ₅₀ sed. (d)	Kinetic, Fit	Evaluated on EU level y/n/ Reference
Hoechst	7.6 (7.5) / 7.4 (7.5) ^a	29	97	SFO	28	97	SFO	n.c.	-	Evaluation from Germany (2002)
North Carolina	6.1 / 4.7 ^a	56	184	SFO	0.8	25	-*	n.c.	-	Evaluation from Germany (2002)
Geometric mean (n=2)		40	134		4.7	49		n.c.		

^a measured in CaCl₂; * = not specified; n.c. = not calculated

Table 8.6-8: Summary of degradation in water/sediment of metabolite AE C642961

AE C642961: max. 20.9% total system (91 d), 9.2% water (120 d), 16.8% sediment (132 d) Formation fraction from parent active substance in total systems: n.c.										
Water/sediment system	pH water/sed.	DegT ₅₀ whole syst. (d)	DegT ₉₀ whole syst. (d)	Kinetic, Fit	DissT ₅₀ water (d)	DissT ₉₀ water (d)	Kinetic, Fit	DissT ₅₀ sed. (d)	Kinetic, Fit	Evaluated on EU level y/n/ Reference
Hoechst	7.6 (7.5) / 7.4 (7.5) ^a	37	124	SFO	15	49	SFO	n.c.	-	Evaluation from Germany (2002)
North Carolina	6.1 / 4.7 a	131	434	SFO	15	49	SFO	n.c.	-	Evaluation from Germany (2002)
Geometric mean (n=2)		70	232		15	49		n.c.		

a measured in CaCl₂ ; n.c. = not calculated

Table 8.6-9: Summary of observed metabolites

Isoxadifen (AE F129431) Water/sediment system	Max. in water/sediment: 93.5% after 1 d (Hoechst) Max. in water: 52.4-87.1% used for modelling: 86.0% after 1 d (Hoechst) Max. in sediment: n.d.-26.5% used for modelling: 25.1% after 6 d (North Carolina)	Evaluation from Germany (2002)
AE C637375 Water/sediment system	Max. in water/sediment: 40.1% after 61 d (North Carolina) Max. in water: 6.3-13.8% used for modelling: 11.8% after 62 d (Hoechst) Max. in sediment: 15.9-37.2% used for modelling: 33.8% after 61 d (North Carolina)	Evaluation from Germany (2002)
AE C642961 Water/sediment system	Max. in water/sediment: 20.9% after 91 d (Hoenniger) Max. in water: 5.7-11.2% used for modelling: 9.2% after 120 d (Hoenniger) Max. in sediment: n.d.-17.5% used for modelling: 16.8% after 132 d (Hoenniger)	Evaluation from Germany (2002)

zRMS comments:

No EU agreed data exist for the safener, isoxadifen-ethyl, and for this reason validation of information provided above against EU agreed endpoints was not possible.

Nevertheless, data provided by the Applicant for isoxadifen-ethyl have been retained for informative purposes with font colour changed to grey in order to easily distinguish validated from non-validated data.

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

GF-3969 is applied to maize at a maximum rate of 20 g a.s./ha of rimsulfuron, 12.5 g a.s./ha of thifensulfuron methyl, and 15 g a.s./ha of isoxadifen-ethyl which are protective for assessing the risk associated with application of GF-3969 on maize. Input parameters related to application for PEC_{soil} calculations are presented in Table 8.7-1.

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

Use No.	All uses intended in the Central Zone †
Crop	Maize, BBCH 11-18
Application rate (g a.s./ha)	Rimsulfuron: 20 g a.s./ha Thifensulfuron methyl: 12.5 g a.s./ha Isoxadifen-ethyl: 15 g a.s./ha
Number of applications/interval	1
Crop interception (%)	25
Soil bulk density (g/cm ³)	1.5
Depth of soil layer (relevant for plateau concentration) (cm)	5 cm (no tillage/tillage)

The predicted environmental concentration in soil (PEC_{soil}) of active substance and its major soil metabolites were calculated as a function of time following applications to maize in the European Union in compliance with guidance documents published by the FOCUS Work Groups on Soil (1996) and Degradation Kinetics (2006).

For parent compound, the initial concentration in soils after a single application was calculated using the following equation with an assumed soil mixing depth of 5 cm and a soil bulk density of 1.5 g/cm³:

$$PEC_{soil,i} = \frac{A}{(100 \cdot depth \cdot bd)} = \frac{A}{750} \quad \text{[Equation 1]}$$

where:

PEC_{soil, i} = Predicted environmental concentration in soil, initial (mg/kg)

A = application rate g/ha

depth = depth of soil mixing zone (5 cm)

bd = bulk density (1.5 g/cm³)

The initial PEC_{soil} values for metabolites were calculated using the same equation as for parent compound. However, the application rates of metabolites were calculated using the following equation:

$$A_{metabolite} = A_{parent} \cdot AR_{max} \cdot (MW_{metabolite}/MW_{parent}) \quad \text{[Equation 2]}$$

where:

A_{metabolite} = Equivalent application rate for the metabolite

A_{parent} = Application rate for the parent compound

AR_{max} = Maximum occurrence of metabolite observed (%AR)

MW_{metabolite} = Molecular weight of metabolite

MW_{parent} = Molecular weight of parent compound

The concentration of parent compound or metabolites in soils as a function of time t over a period of 20 years after a single application is simulated using the following simple first-order equation (SFO) [Equation 4] with the selected persistence DT_{50} .

$$PEC_{soil,t} = PEC_{soil,i} \times e^{-kt} \quad \text{[Equation 3]}$$

where:

$PEC_{soil,t}$ = Predicted environmental concentration in soil at time t after a single application (mg/kg)
 k = single first-order degradation rate (1/day)

The concentration of parent compound and metabolites in soils as accumulated over a period of 20 years is calculated by summing up the contribution of y number of previous applications at time t :

$$PEC_{soil,t,y} = \sum_{n=1}^y PEC_{soil,t-(n-1) \times 365 \text{ (days / yr)}} \quad y = (\text{int}(t / 365) + 1) \quad \text{[Equation 4]}$$

where:

$PEC_{soil,t,y}$ = PEC_{soil} after y years of applications at time t (mg/kg)
 y = the number of years of application at time t (days)
 int = the integer of t (365 days)

The maximum of $PEC_{soil,t,y}$ over a period of 20 years is reported as the plateau or peak concentration ($PEC_{soil,plateau}$) after the last application. The actual PEC_{soil} after the peak concentration for parent compound or metabolites is estimated using [Equation 6].

$$PEC_{soil,actual,t} = PEC_{soil,plateau} \times e^{-kt} \quad \text{[Equation 5]}$$

where: k = single first-order degradation rate (1/day)

The time-weighted-average (TWA) concentration profile for parent and metabolites is calculated from the $PEC_{soil,t,y}$, by using a moving time-frame approach for a certain time interval of ecotoxicological significance (e.g., 24 hr, 2, 4, 7, 14, 21, 28, 50, and 100 days). The maximum of TWA $PEC_{soil,t,y}$ is reported as TWA PEC_{soil} for a specific time interval.

These calculations are implemented in a Microsoft Excel spreadsheet, and available upon request.

zRMS comments:

The application pattern considered in soil exposure assessment and presented in Table 8.7-1 is in line with the critical Central Zone GAP and it is thus agreed by the zRMS. It is noted that assumed single application at 20+12.5 g rimsulfuron and thifensulfuron-methyl, respectively, covers also split application of the product indicated in the GAP table.

Assumed crop interception is in line with the most recent version of the FOCUS Groundwater Guidance (2014) and is relevant for the maize growth stages at which GF-3969 is intended to be applied.

The methods used by the Applicant are in line with current approach for calculation of the soil exposure at the EU and Central Zone level.

Some minor corrections were introduced by the zRMS in Table 8.7-1 for clarity.

8.7.1 Justification for new endpoints

The PEC_{soil} of the metabolite IN-J0290 was not calculated in the EFSA conclusion on rimsulfuron (EFSA, 2005). However, the metabolite of rimsulfuron IN-J0290 was observed at a level of 12.7% AR in soil photolysis study. Thus, the maximum occurrence of 12.7% as observed from soil photolysis study was used in the simulation. The PEC_{soil} was estimated with degradation rates derived from the study conducted by DuPont (DuPont-5266).

zRMS comments:

The peak occurrence of the rimsulfuron metabolite IN-J0290 in soil is agreed by the zRMS. Considered value is in line with maximum formation observed in the soil photolysis study reported in EFSA Scientific Report (2005) 45.

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

8.7.2.1 Rimsulfuron and its metabolites

The PEC_{soil} of rimsulfuron and metabolites were calculated at the application rate of 20 g a.s./ha of rimsulfuron, which is protective for assessing the risk associated with application of GF-3969 on maize.

Predicted environmental concentrations in soil (PEC_{soil}) of rimsulfuron and its soil metabolites (IN-70941, IN-70942, IN-E9260, and IN-J0290) were calculated for single annual application to maize at the rate of 20 g a.s./ha, with 25% interception in the European Union (EU). The methods for calculating PEC_{soil} values were based upon recommendations of the FOCUS Soils Group (FOCUS, 1996), EU (2000), and FOCUS Kinetics (FOCUS, 2006; 2014a).

The PEC_{soil} was calculated assuming a mixing depth of 5 cm in soils with a bulk density of 1.5 g cm⁻³, at the application rate of 20 g a.s./ha of rimsulfuron, which is protective for assessing the risk associated with application of GF-3969 on maize. For the soil metabolites IN-70941, IN-70942, IN-E9260, and IN-J0290, a PEC_{soil,plateau} expressed as background concentration resulting from long-term use was calculated.

PEC_{soil} calculations for rimsulfuron and soil metabolites IN-70941, IN-70942, IN-E9260 were performed using the DegT₅₀ values recommended in the EFSA conclusion report (EFSA, 2005). For the soil metabolite IN-J0290 the worst-case values from the laboratory studies from study DuPont-5266 (normalised for 20°C) were used for the calculations.

The summary of the PEC_{soil} input parameters for rimsulfuron is presented in Table 8.7-2.

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

Compound	Molecular weight (g/mol)	Max. occurrence (%)	Application rate (g a.s./ha) ^b	DT ₅₀ (days)	Value in accordance to EU endpoint y/n/ Reference
Rimsulfuron	431.5	-	20.0	9.8 (SFO)	y (EFSA, 2005)
IN-70941	367.4	54.5	9.3	615 (SFO)	y (EFSA, 2005)
IN-70942	324.4	23.5	3.5 ³⁻⁶	214 (SFO)	y (EFSA, 2005)
IN-E9260	250.2	18.9	2.2 ²⁻⁴	969 (SFO)	y (EFSA, 2005)
IN-J0290	155.2	12.7	0.9	245 (SFO) 11 ^a (HS)	y (EFSA, 2018) n (DuPont-5266 ^c)

^a—The DegT₅₀ of 11 days describes the fast phase in the Hockey Stick model and DegT₅₀ for the slow phase is 174 days (tb=21.924).

^b The application rate of metabolites = parent rate × MW_{metabolite}/MW_{parent} × Max. Occurrence (%).

^c—Summarised in DuPont Nicosulfuron EU Dossier, Annex IIA, Document M II, Section 5, DuPont 12636 EU, Revision

No. 1. Study summary included in Appendix 4 in this document for completeness. IN J0290 is degradation metabolite for Rimsulfuron and Nicosulfuron active substances.

Results:

Results of the maximum initial and plateau PEC_{soil} values for rimsulfuron and all relevant soil metabolites are summarised in Table 8.7-3.

Table 8.7-3: PEC_{soil} for rimsulfuron on maize

PEC _{soil} (mg/kg)		Maize (20 g a.s./ha × (100%-25%))	
		Single application (25% interception)	
		Actual	TWA
Initial		0.020	-
Peak	0	0.020	
Short term	24 h	0.019	0.020
	2 d	0.017	0.020
	4 d	0.015	0.019
Long term	7 d	0.012	0.017
	14 d	0.007	0.014
	21 d	0.005	0.011
	28 d	0.003	0.009
	50 d	0.001	0.006
	100 d	0.000	0.003
Plateau concentration (5 cm) after year 20		0.000	-
PEC _{accumulation} (PEC _{act} + PEC _{soil plateau})		0.020	-

The peak concentration of rimsulfuron in soils was calculated to be 0.020 mg/kg. The peak concentrations are summarised in Table 8.7-3 for rimsulfuron.

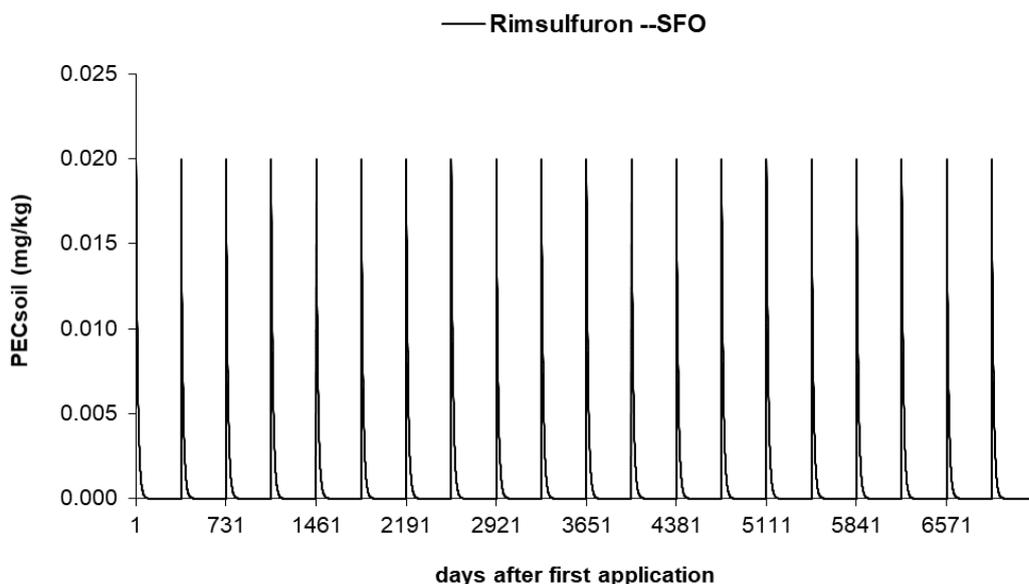


Figure 8.7-1 PEC_{soil} concentrations of rimsulfuron after long-term applications of 20 g a.s./ha, 25% interception

In Figure 8.7-1 the PEC_{soil} as a function of time over 20 years is illustrated. A plateau PEC_{soil} was 0.0 due to short DegT₅₀ of rimsulfuron.

PEC_{soil} metabolites

The longest half-life of metabolites was used to simulate degradation. In addition, the **maximum occurrence** formation fractions of metabolites as recommended in the EFSA conclusion (EFSA, 2005) was used in the simulation.

The peak concentrations and time-weighted average concentrations are summarised in Table 8.7-4 and Table 8.7-7 for metabolites.

Table 8.7-4: PEC_{soil} for rimsulfuron metabolite IN-70491 on maize with 2005 EFSA endpoint.

PEC _{soil} (mg/kg)		Maize (9.3 g a.s./ha × (100%-25%))	
		Single application (25% interception)	
		Actual	TWA
Initial		0.0093	-
Peak	0	0.0276	
Short-term	24 h	0.0275	0.0276
	2 d	0.0275	0.0276
	4 d	0.0274	0.0275
Long-term	7 d	0.0274	0.0275
	14 d	0.0274	0.0274
	21 d	0.0269	0.0273
	28 d	0.0267	0.0272
	50 d	0.0261	0.0268
	100 d	0.0246	0.0261
Plateau concentration (5 cm) after year 20		0.0182	-
PEC _{accumulation} (PEC _{initial} + PEC _{soil plateau})		0.0276	-

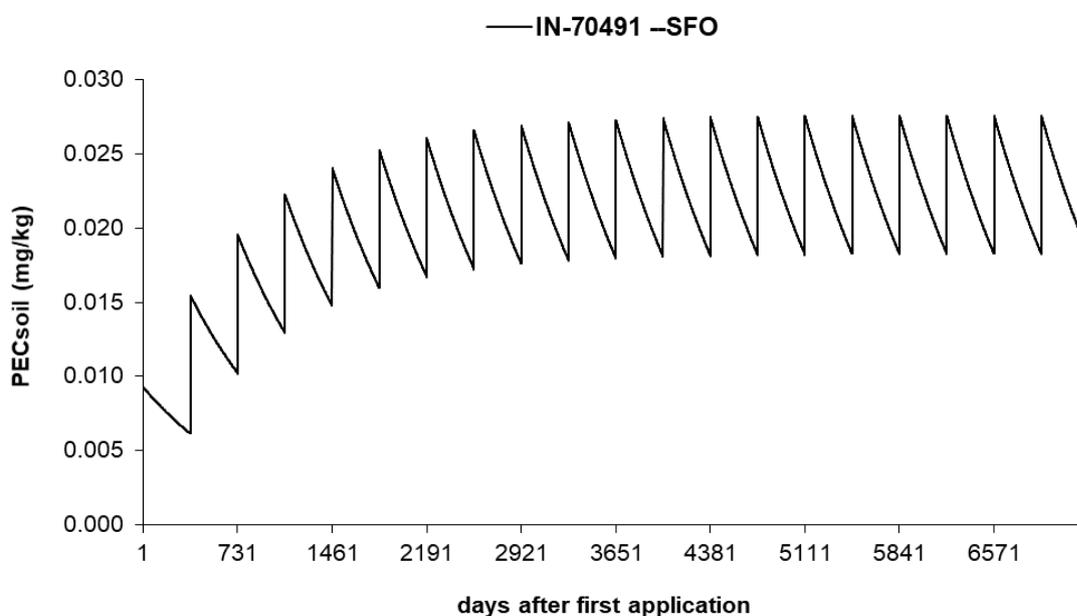


Figure 8.7-2 Long-term PEC_{soil} of IN-70941 with 2005 EFSA endpoints

Table 8.7-5: PEC_{soil} for rimsulfuron metabolite IN-70492 on maize with 2005 EFSA endpoints

PEC _{soil} (mg/kg)		Maize (3.6 g a.s./ha × (100%-25%))	
		Single application (25% interception)	
		Actual	TWA
Initial		0.0035	-
Peak	0	0.0052	
Short-term	24 h	0.0052	0.0052
	2 d	0.0052	0.0052
	4 d	0.0051	0.0052
Long-term	7 d	0.0051	0.0051
	14 d	0.0050	0.0051
	21 d	0.0049	0.0050
	28 d	0.0047	0.0050
	50 d	0.0044	0.0048
	100 d	0.0038	0.0044
Plateau concentration (5 cm) after year 20		0.0017	-
PEC _{accumulation} (PEC _{initial} + PEC _{soil plateau})		0.0052	-

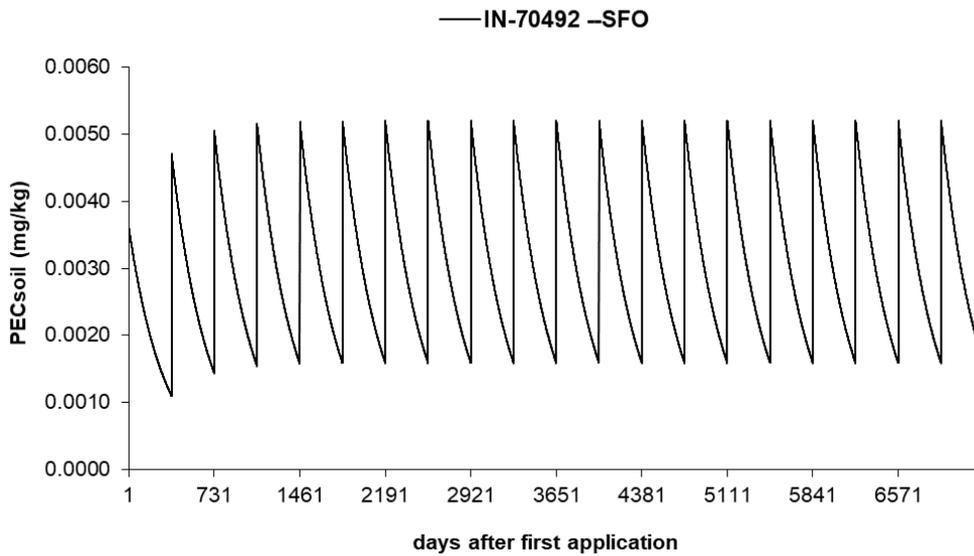


Figure 8.7-3 Long-term PEC_{soil} of IN-70942 with 2005 EFSA endpoints

Table 8.7-6: PEC_{soil} for rimsulfuron metabolite IN-E9260 on maize with 2005 EFSA endpoints

PEC _{soil} (mg/kg)		Maize (2.1 g a.s./ha × (100%-25%))	
		Single application (25% interception)	
		Actual	TWA
Initial		0.0022	-
Peak	0	0.0091	-
Short-term	24 h	0.0091	0.0091
	2 d	0.0091	0.0091
	4 d	0.0091	0.0091
Long-term	7 d	0.0090	0.0091
	14 d	0.0090	0.0091
	21 d	0.0090	0.0090
	28 d	0.0089	0.0090
	50 d	0.0088	0.0089
	100 d	0.0085	0.0088
Plateau concentration (5 cm after year 20)		0.0070	-
PEC _{accumulation} (PEC _{initial} + PEC _{soil plateau})		0.0091	-

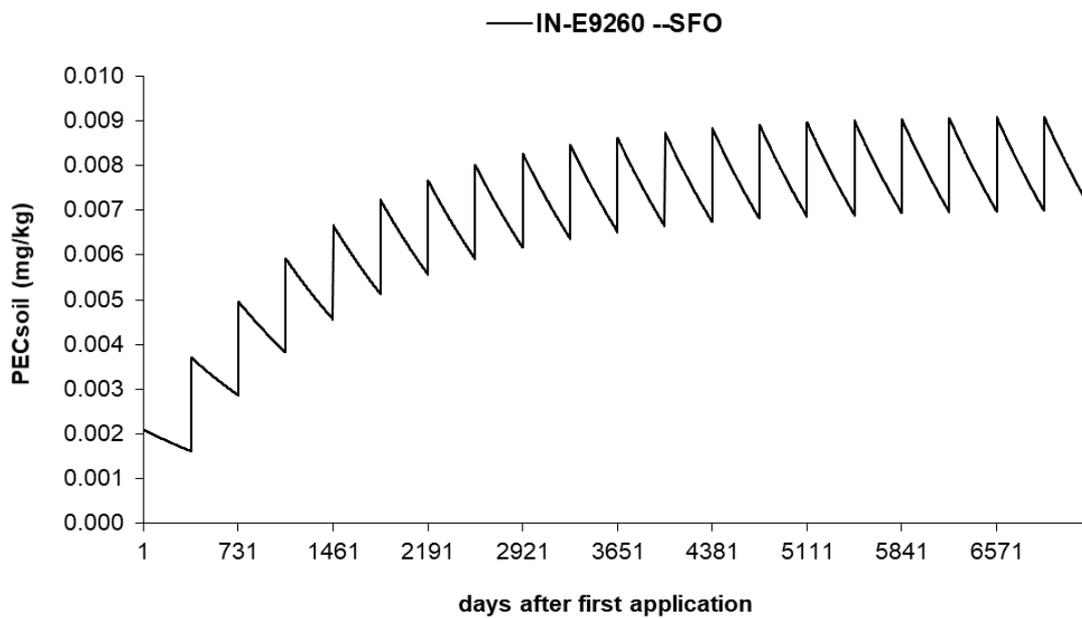


Figure 8.7-4 Long-term PEC_{soil} of IN-E9260 with 2005 EFSA endpoints

Table 8.7-7: PEC_{soil} for rimsulfuron metabolite IN-J0290 on maize with 2005 EFSA endpoints

PEC _{soil} (mg/kg)		Maize (0.9 g a.s./ha × (100%-25%))	
		Single application (25% interception)	
		Actual	TWA
Initial		0.0009	-
Peak	0	0.0010	0.0009
Short-term	24 h	0.0008	0.0009
	2 d	0.0008	0.0009
	4 d	0.0007	0.0008
Long-term	7 d	0.0006	0.0008
	14 d	0.0004	0.0006
	21 d	0.0002	0.0005
	28 d	0.0002	0.0004
	50 d	0.0000	0.0003
	100 d	0.0000	0.0001
Plateau concentration (5 cm after year 20)		0.0001	0.0000
PEC _{accumulation} (PEC _{act} + PEC _{soil plateau})		0.0010	0.0009

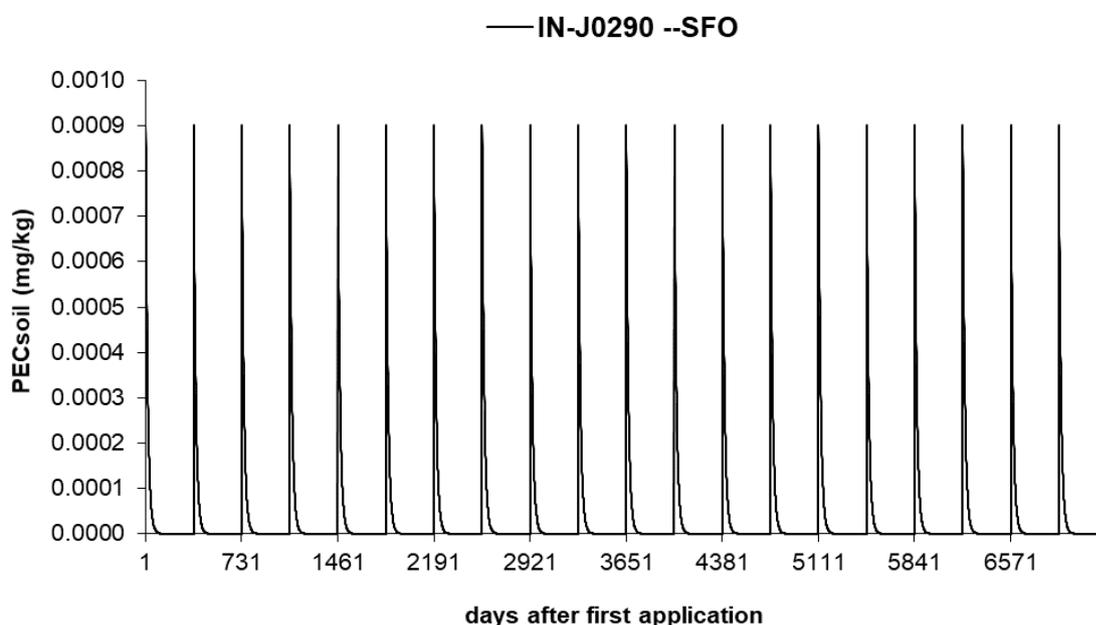


Figure 8.7-5 Long-term PEC_{soil} of IN-J0290 with 2018 2005 EFSA endpoints

The peak concentrations and time-weighted average concentrations are summarised in Table 8.7-4 and Table 8.7-7 for metabolites.

Conclusions

The PEC_{soil} for rimsulfuron and its metabolites were calculated according to the FOCUS guidelines. Predicted concentrations in soil at a rate of 20 g a.s./ha indicate that neither rimsulfuron, nor its metabolites are likely to accumulate in soils to such an extent that regulatory acceptable concentrations are exceeded if the product is used in compliance with label recommendations in EU.

Figure 8.7-2 to Figure 8.7-5 the PEC_{soil} as a function of time over 20 years is illustrated. A plateau PEC_{soil} was reached within 20 years for rimsulfuron and all metabolites.

zRMS comments:

Input parameters for rimsulfuron and its metabolites presented in Table 8.7-2 are in line with EU agreed endpoints reported in EFSA Scientific Report (2005) 45 with exception of the DT₅₀ value for metabolite IN-J0290, for which degradation data are not available from the first EU review of rimsulfuron.

The Applicant proposed to use the fast phase DT₅₀ (HS) originating from the study submitted in nicosulfuron renewal dossier. It is, however, noted that the new LoEP for rimsulfuron from the renewal process is available (EFSA Journal 2018;16(5):5258, where all relevant degradation data for metabolite IN-J0290 were considered resulting with DT₅₀ of 245 days (SFO) recommended for purposes of the soil exposure assessment. In absence of respective endpoint in the current LoEP, in opinion of the zRMS this newly EU agreed and peer-reviewed value should be used for PEC_{SOIL} calculations in order to avoid generation of additional endpoints at the zonal level. Respective corrections were thus made by the zRMS in Table 8.7-2.

The Applicant is also reminded that in case of bi-phasic degradation, slow-phase DT₅₀ should be considered in soil exposure assessment in order to cover worst case situation.

Calculation of the pseudo-application rates for metabolites is in general agreed by the zRMS with some minor corrections.

The Applicants' calculations were independently validated by the zRMS using ESCAPE ver. 2 and agreed input parameters. For rimsulfuron the same PEC_{SOIL} values were obtained. Accumulation of the parent compound in soil is not expected due to rapid degradation.

For metabolites the same initial PEC_{SOIL} values were derived by the zRMS with exception of metabolite IN-E9260 for which PEC_{SOIL,INI} was slightly higher. Respective correction was made in Table 8.7-6 above, however it is not expected that this would have any impact on the soil risk assessment.

PEC_{SOIL,ACCU} values obtained by the zRMS were lower comparing to these calculated by the Applicant with exception of metabolite IN-J0290 for which PEC_{SOIL,ACCU} value calculated by the zRMS was slightly higher. Respective corrections were made in Table 8.7-7 above, however it is not expected that they would have any impact on the soil risk assessment.

The short- and long-term as well as TWA PEC_{SOIL} values calculated for rimsulfuron and its metabolites were not validated by the zRMS as being not necessary for the risk assessment purposes due to log Pow of all compounds being <3 and thus not triggering evaluation of the bioaccumulation potential. Not validated value have been struck through in tables above.

8.7.2.2 Thifensulfuron methyl and its metabolites

Following the EFSA conclusion (2015), predicted environmental concentrations in soil (PEC_{soil}) of thifensulfuron methyl and its soil metabolites (IN-L9225, IN-L9223, IN-U5F72, IN-JZ789, IN-A5546, IN-V7160, IN-L9226 and IN-W8268) were calculated using a simplified approach for single annual application to maize at the rate of 12.5 g a.s./ha with 0% interception to provide a worst-case assessment.

This calculation is based on the assumptions:

- 1) A single maximum application of 12.5 g a.s./ha;
- 2) 0.0% foliar interception;
- 3) A soil mixing depth of 5 cm and a bulk density of 1.5 g/cm³.

Due to the low toxicities of thifensulfuron and its metabolites, the PEC_{soil} of 0.017 mg/kg (calculated as the initial PEC_{soil} for parent compound) can be applied as tier 1 for both parent compound and all its metabolites, except for IN-A4098.

For IN-A4098, the PEC_{soil} is estimated to be 0.002 by the equation of 0.017 mg/kg × 140.1 (MW for IN-A4098)/387.4 (MW for thifensulfuron) × 32.3% (maximum occurrence).

Table 8.7-8: The PEC_{soil} of thifensulfuron methyl and its metabolites using the simplified approach as recommended in the EFSA conclusion (EFSA, 2015)

Compounds	12.5 g a.s./ha 0% Interception
	Maximum PEC _{soil} (mg/kg)
Thifensulfuron methyl and all metabolites except for IN-A4098	0.017 ^a
IN-A4098	0.002^b

a For parent compound, PEC_{soil} is estimated by the equation of 12.5 g a.s./ha/750 = 0.017 mg/kg;

~~b For IN-A4098, PEC_{soil} = 0.017 mg/kg × 140.1 (MW)/387.4 (MW) × 32.3% (maximum occurrence).~~

The PEC_{soil} for thifensulfuron methyl and its metabolites were also calculated according to the FOCUS guidelines, with the longest non-normalized DegT₅₀ values from the EFSA conclusion (2015). Predicted concentrations in soil at a rate of 12.5 g a.s./ha indicate that the PEC_{soil} estimated by the simple approach is protective of all metabolites, except for IN-A4098.

For IN-A4098, the PEC_{soil} of 0.002 mg/kg estimated by the simple approach is lower than the PEC_{soil} of 0.0067 mg/kg estimated by following the FOCUS guidance (FOCUS, 1996). Thus, the PEC_{soil} of 0.0067 mg/kg should be used for risk assessment.

Based on the toxicity endpoints, neither thifensulfuron methyl, nor its metabolites are likely to accumulate in soils to such an extent that regulatory acceptable concentrations are exceeded if the product is used in compliance with label recommendations in EU.

Table 8.7-9: Input parameters used in PEC_{soil} calculation for thifensulfuron methyl and its metabolites

Compound	Molecular weight (g/mol)	Max. occurrence (%)	Application rate (g a.s./ha) ^a	DT ₅₀ (days) ^b	Value in accordance to EU endpoint y/n/ Reference
Thifensulfuron methyl	387.4	-	12.5	3.1	y (EFSA, 2015)
IN-L9225	373.4	94	11.3	154.4	y (EFSA, 2015)
IN-L9223	207.2	19	1.3	272	y (EFSA, 2015)
IN-A4098	140.1	32.3	1.5	1000	y (EFSA, 2015)
IN-U5F72	378.3	17	2.1	132	y (EFSA, 2015)
IN-JZ789	359.3	9.7	1.1	1000	y (EFSA, 2015)
IN-A5546	221.2	27.7	2.0	3	y (EFSA, 2015)
IN-V7160	183.2	9.6	0.6	231	y (EFSA, 2015)
IN-L9226	373.4	18.5	2.2	3.3	y (EFSA, 2015)
IN-W8268	189.2	29.6	1.8	64.2	y (EFSA, 2015)

a The application rate of metabolites = parent rate × MW_{metabolite}/MW_{parent} × Max. Occurrence (%).

b The longest DegT₅₀ values from the laboratory studies (EFSA, 2015).

Table 8.7-10: PEC_{soil} for thifensulfuron methyl on maize

PEC _{soil} (mg/kg)		Maize (12.5 g a.s./ha × (100%-25%))	
		Single application	
		Actual	TWA
Initial		0.013	-
Peak	0	0.013	
Short term	24h	0.010	0.013
	2d	0.008	0.013
	4d	0.005	0.010
Long term	7d	0.003	0.008
	14d	0.001	0.005
	21d	0.000	0.003
	28d	0.000	0.002
	50d	0.000	0.001
	100d	0.000	0.001
Plateau concentration (5 cm) after year 20		0.000	-
PEC _{accumulation} (PEC _{act} + PEC _{soil} plateau)		0.013	-

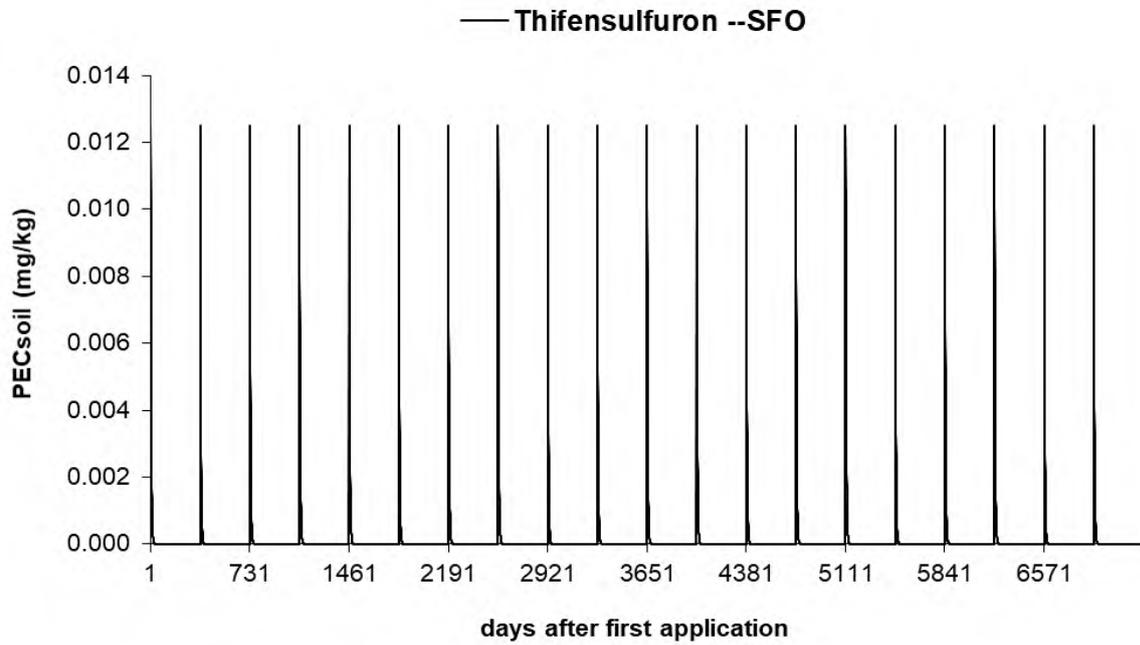


Figure 8.7-6 Long-term PEC_{soil} of thifensulfuron methyl

PEC_{soil} of metabolites

Table 8.7-11: PEC_{soil} for IN-L9225 on maize

PEC _{soil} (mg/kg)		Maize (11.3 g a.s./ha × (100%-25%))	
		Single application	
		Actual	TWA
Initial		0.011	-
Peak	0	0.014	-
Short term	24h	0.014	0.014
	2d	0.014	0.014
	4d	0.014	0.014
Long term	7d	0.014	0.014
	14d	0.013	0.014
	21d	0.013	0.013
	28d	0.012	0.013
	50d	0.011	0.013
	100d	0.009	0.011
Plateau concentration (5 cm) after year 20		0.003	-
PEC _{accumulation} (PEC _{initial} + PEC _{soil plateau})		0.014	-

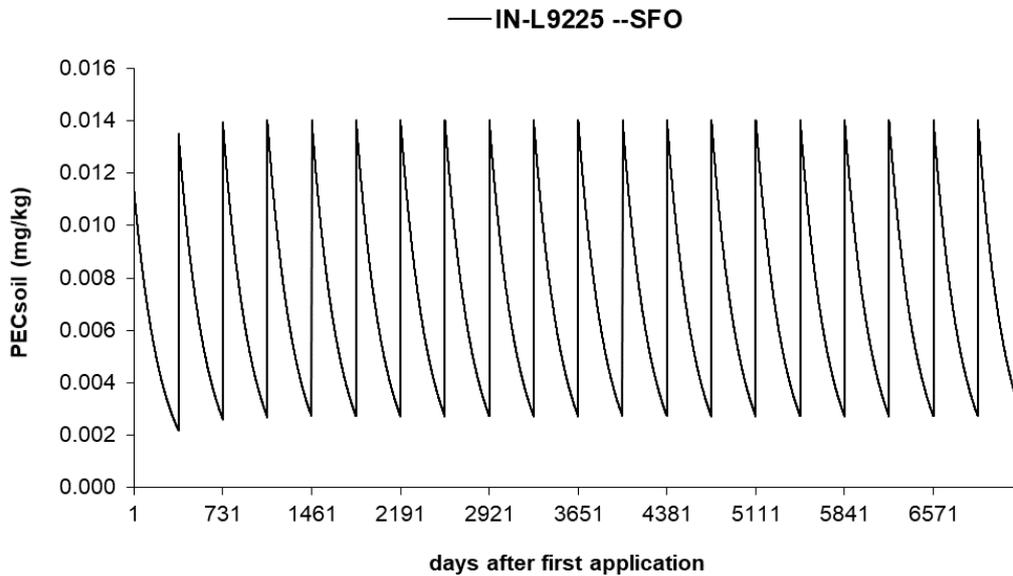


Figure 8.7-7 Long-term PEC_{soil} of IN-L9225

Table 8.7-12: PEC_{soil} for IN-L9223 on maize

PEC _{soil} (mg/kg)		Maize (1.3 g a.s./ha × (100%-25%))	
		Single application	
		Actual	TWA
Initial		0.0013	-
Peak	0	0.0021	
Short term	24h	0.0021	0.0021
	2d	0.0021	0.0021
	4d	0.0021	0.0021
Long term	7d	0.0021	0.0021
	14d	0.0021	0.0021
	21d	0.0020	0.0021
	28d	0.0020	0.0021
	50d	0.0019	0.0020
	100d	0.0017	0.0019
Plateau concentration (5 cm) after year 20		0.0008	-
PEC _{accumulation} (PEC _{act} + PEC _{soil plateau})		0.0021	-

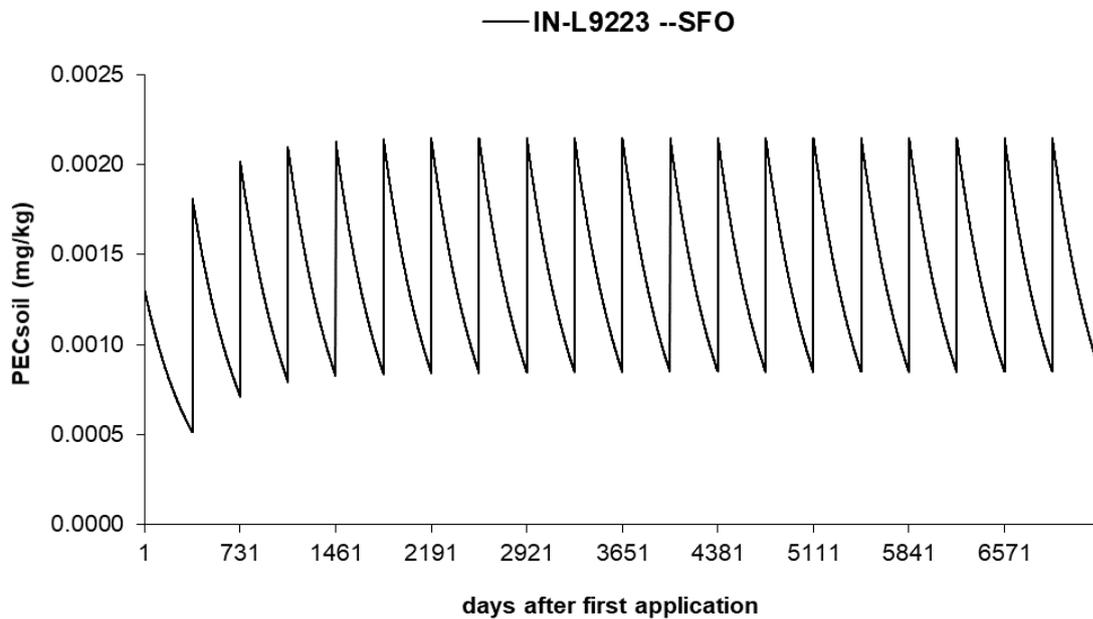


Figure 8.7-8 Long-term PEC_{soil} of IN-L9223

Table 8.7-13: PEC_{soil} for IN-A4098 on maize

PEC _{soil} (mg/kg)		Maize (1.5 g a.s./ha (100%-25%))	
		Single application	
		Actual	TWA
Initial		0.0015	-
Peak	0	0.0067	-
Short term	24h	0.0067	0.0067
	2d	0.0067	0.0067
	4d	0.0066	0.0067
Long term	7d	0.0066	0.0067
	14d	0.0066	0.0066
	21d	0.0066	0.0066
	28d	0.0065	0.0066
	50d	0.0064	0.0066
	100d	0.0062	0.0064
Plateau concentration (5 cm) after year 20		0.0052	-
PEC _{accumulation} (PEC _{act} + PEC _{soil plateau})		0.0067	-

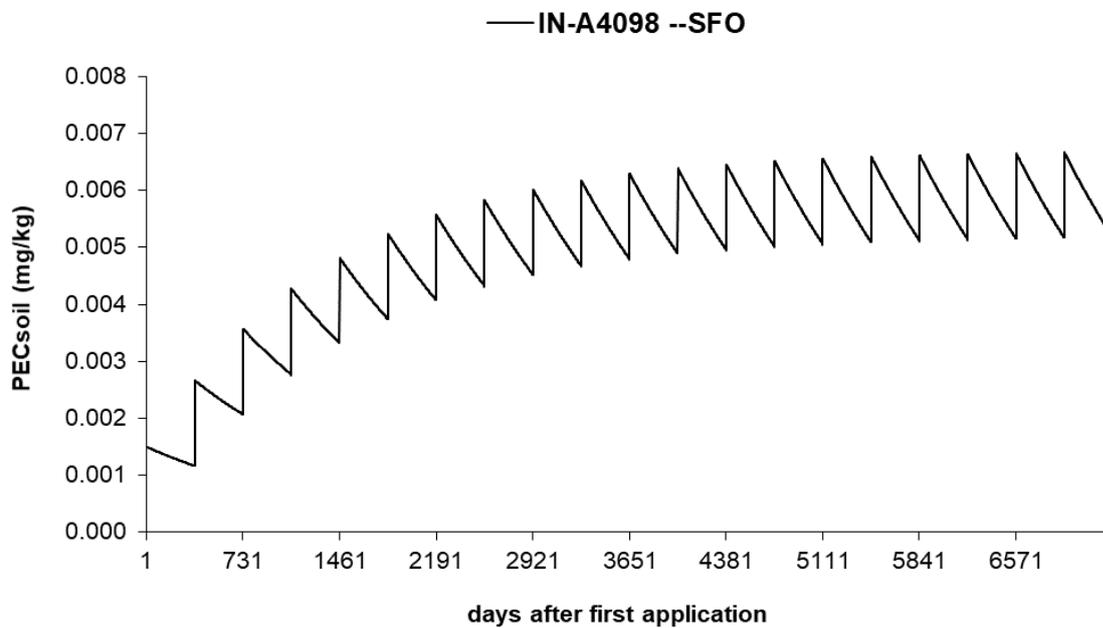


Figure 8.7-9 Long-term PEC_{soil} of IN-A4098

Table 8.7-14: PEC_{soil} for IN-U5F72 on maize

PEC _{soil} (mg/kg)		Maize (2.1 g a.s./ha (100%-25%))	
		Single application	
		Actual	TWA
Initial		0.0021	-
Peak	0	0.0025	
Short term	24h	0.0024	0.0025
	2d	0.0024	0.0025
	4d	0.0024	0.0024
Long term	7d	0.0024	0.0024
	14d	0.0023	0.0024
	21d	0.0022	0.0023
	28d	0.0021	0.0023
	50d	0.0019	0.0022
	100d	0.0015	0.0019
Plateau concentration (5 cm) after year 20		0.0004	-
PEC _{accumulation} (PEC _{act} + PEC _{soil plateau})		0.0025	-

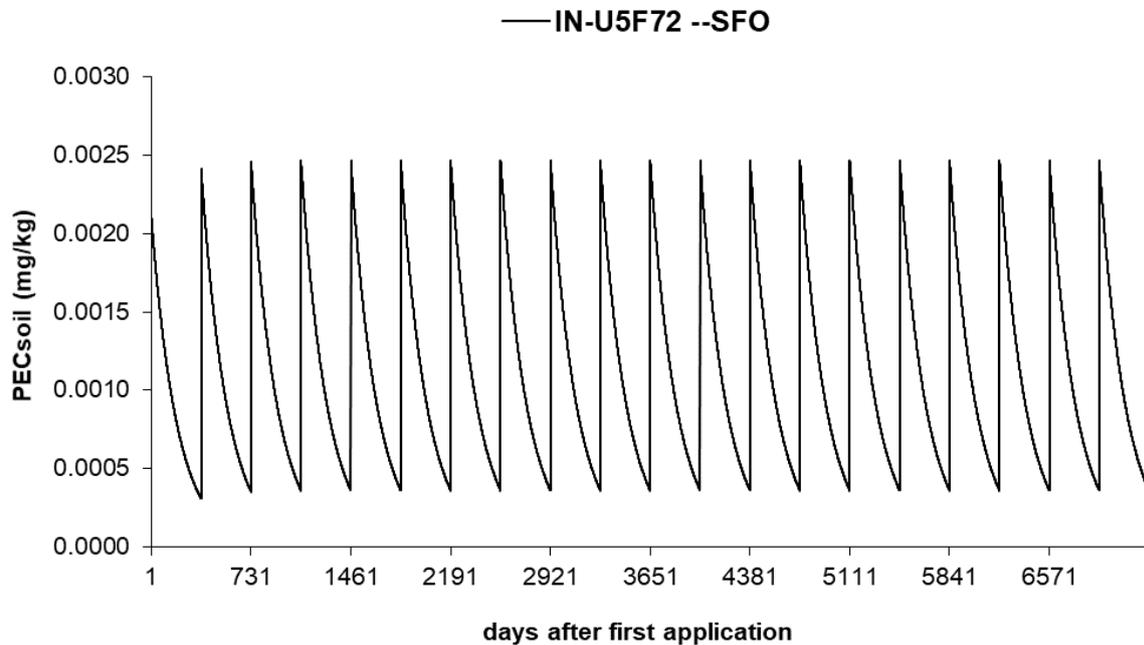


Figure 8.7-10 Long-term PEC_{soil} of IN-U5F72

Table 8.7-15: PEC_{soil} for IN-JZ789 on maize

PEC _{soil} (mg/kg)		Maize (1.1 g a.s./ha (100%-25%))	
		Single application	
		Actual	TWA
Initial		0.0011	-
Peak	0	0.0049	-
Short term	24h	0.0049	0.0049
	2d	0.0049	0.0049
	4d	0.0049	0.0049
Long term	7d	0.0049	0.0049
	14d	0.0048	0.0049
	21d	0.0048	0.0049
	28d	0.0048	0.0048
	50d	0.0047	0.0048
	100d	0.0046	0.0047
Plateau concentration (5cm) after year 20		0.0038	-
PEC _{accumulation} (PEC _{initial} + PEC _{soil plateau})		0.0049	-

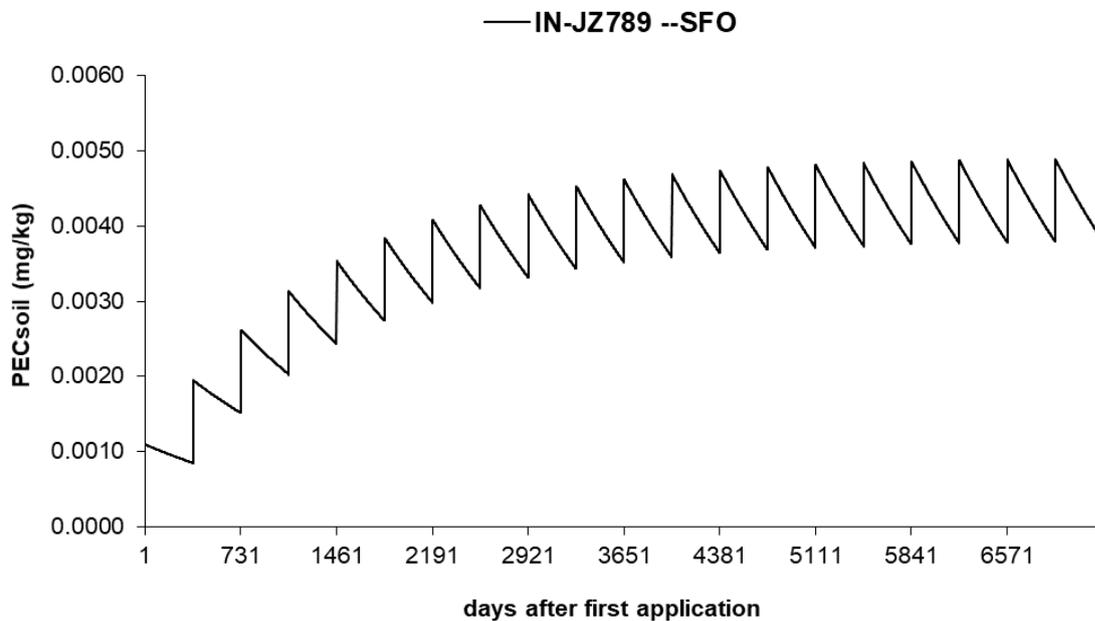


Figure 8.7-11 Long-term PEC_{soil} of IN-JZ789

Table 8.7-16: PEC_{soil} for IN-A5546 on maize

PEC _{soil} (mg/kg)		Maize (2.0 g a.s./ha (100%-25%))	
		Single application	
		Actual	TWA
Initial		0.0020	-
Peak	0	0.0020	
Short term	24h	0.0016	0.0020
	2d	0.0013	0.0020
	4d	0.0008	0.0016
Long term	7d	0.0004	0.0012
	14d	0.0001	0.0007
	21d	0.0000	0.0005
	28d	0.0000	0.0004
	50d	0.0000	0.0002
	100d	0.0000	0.0001
Plateau concentration (5 cm) after year 20		0.0000	-
PEC _{accumulation} (PEC _{initial} +PEC _{soil plateau})		0.0020	-

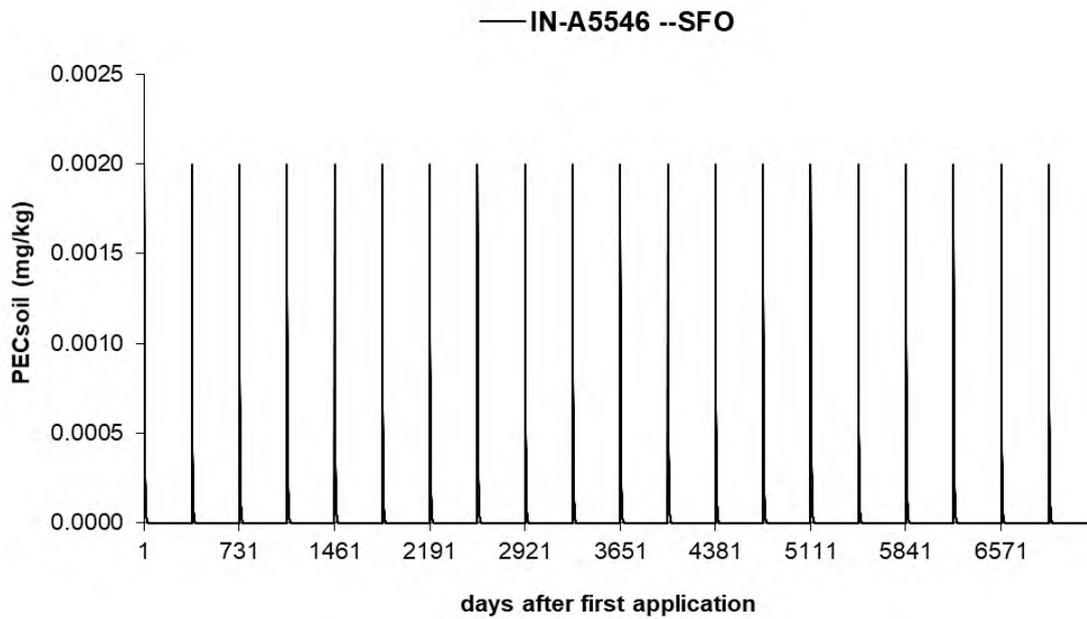


Figure 8.7-12 Long-term PEC_{soil} of IN-A5546

Table 8.7-17: PEC_{soil} for IN-V7160 on maize

PEC _{soil} (mg/kg)		Maize (0.6 g a.s./ha (100%-25%))	
		Single application	
		Actual	TWA
Initial		0.0006	-
Peak	0	0.0009	-
Short term	24h	0.0009	0.0009
	2d	0.0009	0.0009
	4d	0.0009	0.0009
Long term	7d	0.0009	0.0009
	14d	0.0009	0.0009
	21d	0.0008	0.0009
	28d	0.0008	0.0009
	50d	0.0008	0.0008
	100d	0.0007	0.0008
Plateau concentration (5 cm) after year 20		0.0003	-
PEC _{accumulation} (PEC _{act} + PEC _{soil plateau})		0.0009	-

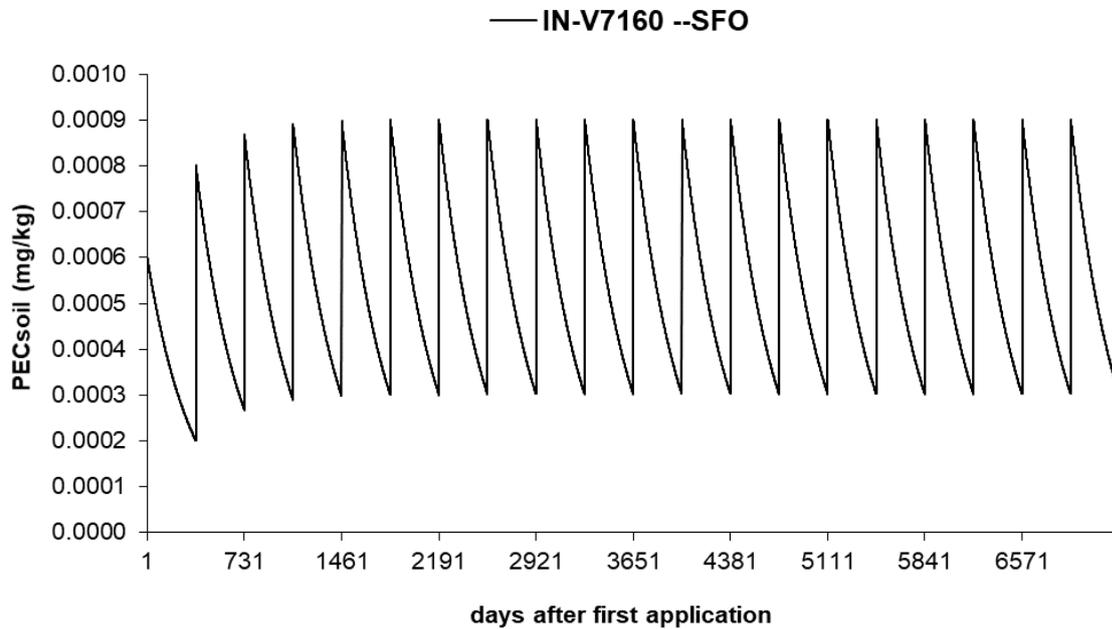


Figure 8.7-13 Long-term PEC_{soil} of IN-V7160

Table 8.7-18: PEC_{soil} for IN-L9226 on maize

PEC _{soil} (mg/kg)		Maize (2.2 g a.s./ha (100%-25%))	
		Single application	
		Actual	TWA
Initial		0.0022	-
Peak	0	0.0022	
Short term	24h	0.0018	0.0022
	2d	0.0014	0.0022
	4d	0.0009	0.0018
Long term	7d	0.0005	0.0014
	14d	0.0001	0.0008
	21d	0.0000	0.0006
	28d	0.0000	0.0004
	50d	0.0000	0.0002
	100d	0.0000	0.0001
Plateau concentration (5 cm) after year 20		0.0000	-
PEC _{accumulation} (PEC _{act} + PEC _{soil plateau})		0.0022	-

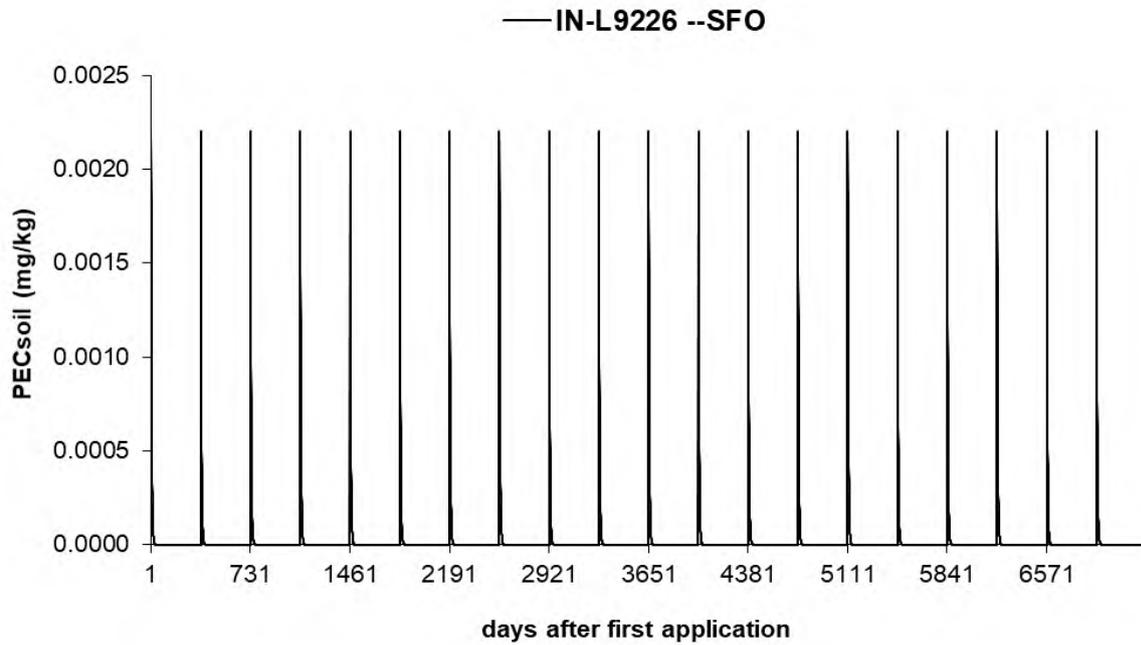


Figure 8.7-14 Long-term PEC_{soil} of IN-L9226

Table 8.7-19: PEC_{soil} for IN-W8268 on maize

PEC _{soil} (mg/kg)		Maize (1.8 g a.s./ha (100%-25%))	
		Single application	
		Actual	TWA
Initial		0.0018	-
Peak	0	0.0018	-
Short term	24h	0.0018	0.0018
	2d	0.0018	0.0018
	4d	0.0018	0.0018
Long term	7d	0.0017	0.0018
	14d	0.0016	0.0017
	21d	0.0015	0.0017
	28d	0.0014	0.0016
	50d	0.0011	0.0014
	100d	0.0006	0.0011
Plateau concentration (5 cm) after year 20		0.0000	-
PEC _{accumulation} (PEC _{initial} + PEC _{soil plateau})		0.0018	-

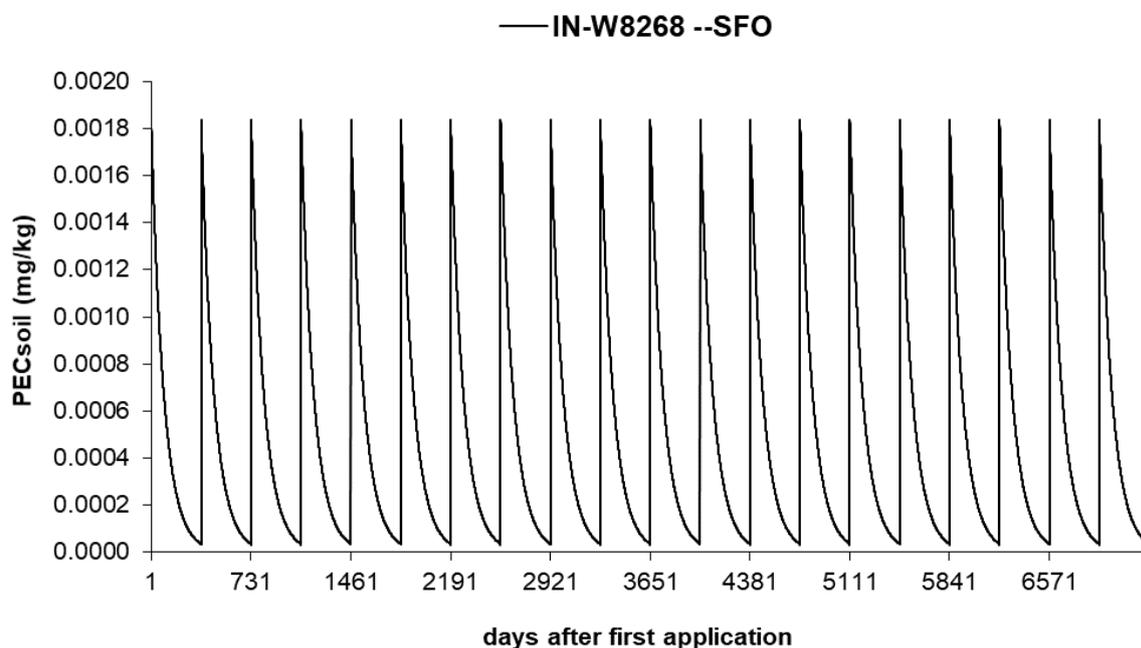


Figure 8.7-15 Long-term PEC_{soil} of IN-W8268

Conclusions

The PEC_{soil} for thifensulfuron methyl and its metabolites were calculated according to the FOCUS guidelines. Predicted concentrations in soil at a rate of 12.5 g a.s./ha indicate that neither parent compound nor its metabolites are likely to accumulate in soils to such an extent that regulatory acceptable concentrations are exceeded if the product is used in compliance with label recommendations in EU.

From Figure 8.7-6 to Figure 8.7-15, the PEC_{soil} as a function of time over 20 years is illustrated. A plateau PEC_{soil} was reached within 20 years for thifensulfuron methyl and all metabolites.

zRMS comments:

Input parameters for thifensulfuron-methyl and its metabolites presented in Table 8.7-9 are in line with EU agreed parameters reported in EFSA Journal 2015;13(7):4201.

Calculation of the pseudo-application rates for metabolites is agreed by the zRMS.

The simplified approach considered by the Applicant in calculation of the worst case PEC_{SOIL} to be used in the soil risk assessment for thifensulfuron-methyl and its metabolites (see Table 8.7-8) is fully in line with approach presented in EFSA Journal 2015;13(7):4201. The PEC_{SOIL} of 0.017 mg/kg dws is confirmed.

In addition to thifensulfuron-methyl soil exposure calculated using simplified approach, the Applicant calculated also separate PEC_{SOIL} for metabolite IN-A4098, since further soil exposure calculation was deemed necessary for this compound due to unacceptable risk to soil organisms concluded when the thifensulfuron-methyl PEC_{SOIL} was taken into account in TER calculations for IN-A4098. The derived PEC_{SOIL} is agreed, however the soil exposure calculated using the FOCUS methods should be used in the risk assessment as being higher than this simplified PEC_{SOIL}.

The soil exposure calculated by the Applicant using FOCUS methodology has been independently validated by the zRMS using ESCAPE ver. 2 for input parameters indicated in Table 8.7-9. Initial PEC_{SOIL} values obtained by the zRMS were the same as these derived by the Applicant, while PEC_{SOIL,ACCU} were lower than these calculated by the Applicant. All PEC_{SOIL,INI} and PEC_{SOIL,ACCU} calculated using FOCUS approach were lower than the simplified PEC_{SOIL} of 0.017 mg/kg dws and for this reason the simplified PEC_{SOIL} may be used in the risk assessment for the parent and all metabolites, where relevant.

The short- and long-term as well as TWA PEC_{SOIL} values calculated for thifensulfuron-methyl and its metabolites were not validated by the zRMS as being not necessary for the risk assessment purposes due to log Pow of all compounds being <3 and thus not triggering evaluation of the bioaccumulation potential. Not validated value have been struck through in tables above.

8.7.2.3 Isoxadifen-ethyl and its metabolites

Table 8.7-20: Input parameters related to application for PEC_{soil} calculations

Use No.	1
Crop	Safener isoxadifen-ethyl: risk envelope approach – maize with 25% foliar interception
Application rate (g a.s./ha)	Safener isoxadifen-ethyl: risk envelope approach – 15 g a.s./ha
Number of applications/interval	1 / -
Crop interception (%)	Safener isoxadifen-ethyl: risk envelope approach –25%
Soil bulk density (g/cm ³)	1.5
Depth of soil layer (relevant for plateau concentration) (cm)	5 cm (no tillage)

Table 8.7-21: Input parameter for isoxadifen-ethyl and relevant metabolite for PEC_{soil} calculation

Compound	Molecular weight (g/mol)	Max. occurrence (%)	Application rate (g a.s./ha) ^a	DT50 (days)	Value in accordance to EU endpoint y/n/ Reference
Isoxadifen-ethyl	295.4	100	15	1.31 (SFO; maximum, lab., normalized, n=4)	Y/ Evaluation from Germany (2002)
AE F129431	267.3	92.8	12.6	11.38 d (SFO; maximum, lab., normalized, n=4)	Y/ Evaluation from Germany (2002)

^a The application rate of metabolites = parent rate × MW_{metabolite}/MW_{parent} × Max. Occurrence (%).

Table 8.7-22: PEC_{soil} for isoxadifen-ethyl (safener)

PEC _{soil} (mg/kg)		Maize 15.0 g a.s./ha × (100%-25%)	
		Single application	
		Actual	TWA
Initial		0.015	-
Peak		0.015	-
Short term	24h	0.009	0.015
	2d	0.005	0.015
	4d	0.002	0.010
Long term	7d	0.000	0.006
	14d	0.000	0.003
	21d	0.000	0.002
	28d	0.000	0.001
	50d	0.000	0.001
	100d	0.000	0.000
Plateau concentration (5 cm) after year 20		0.000	-
PEC _{accumulation} (PEC _{initial} + PEC _{soil plateau})		0.015	-

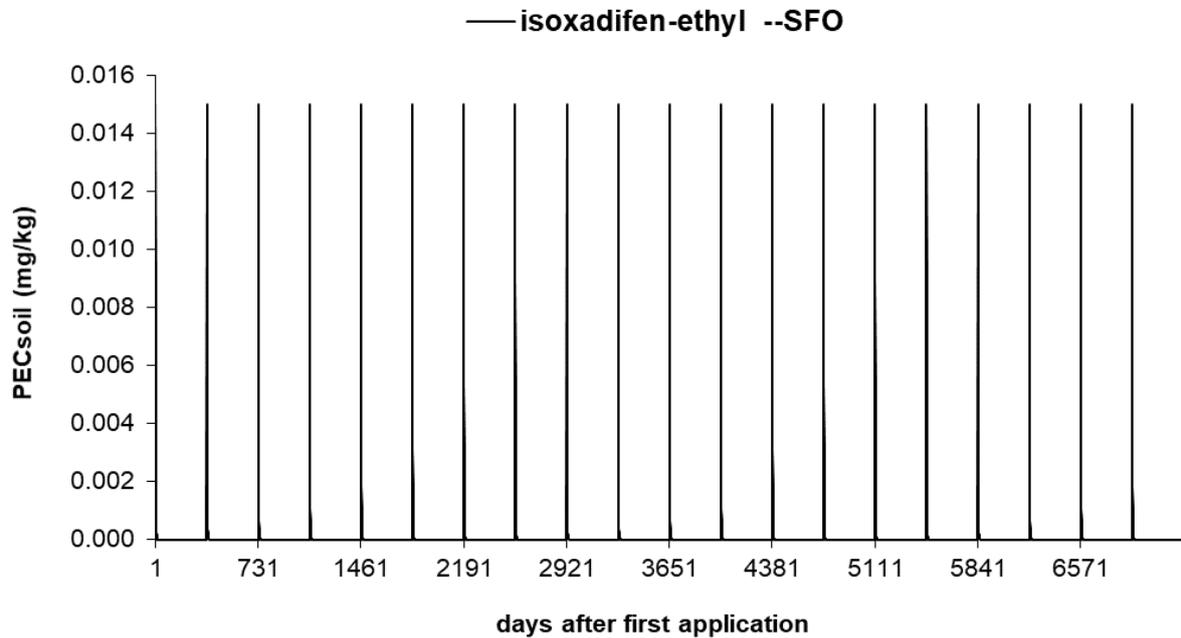


Figure 8.7-16 Long-term PEC_{soil} of isoxadifen-ethyl

PEC_{soil} of metabolites

Table 8.7-23: PEC_{soil} for AE F129431

PEC _{soil} (mg/kg)		Maize (12.6 g a.s./ha × (100%-25%))	
		Single application	
		Actual	TWA
Initial		0.013	-
Peak	0	0.013	
Short term	24h	0.012	0.013
	2d	0.011	0.013
	4d	0.010	0.012
Long term	7d	0.008	0.011
	14d	0.005	0.009
	21d	0.004	0.008
	28d	0.002	0.006
	50d	0.001	0.004
	100d	0.000	0.002
Plateau concentration (5 cm) after year 20		0.000	-
PEC _{accumulation} (PEC _{act} + PEC _{soil plateau})		0.013	-

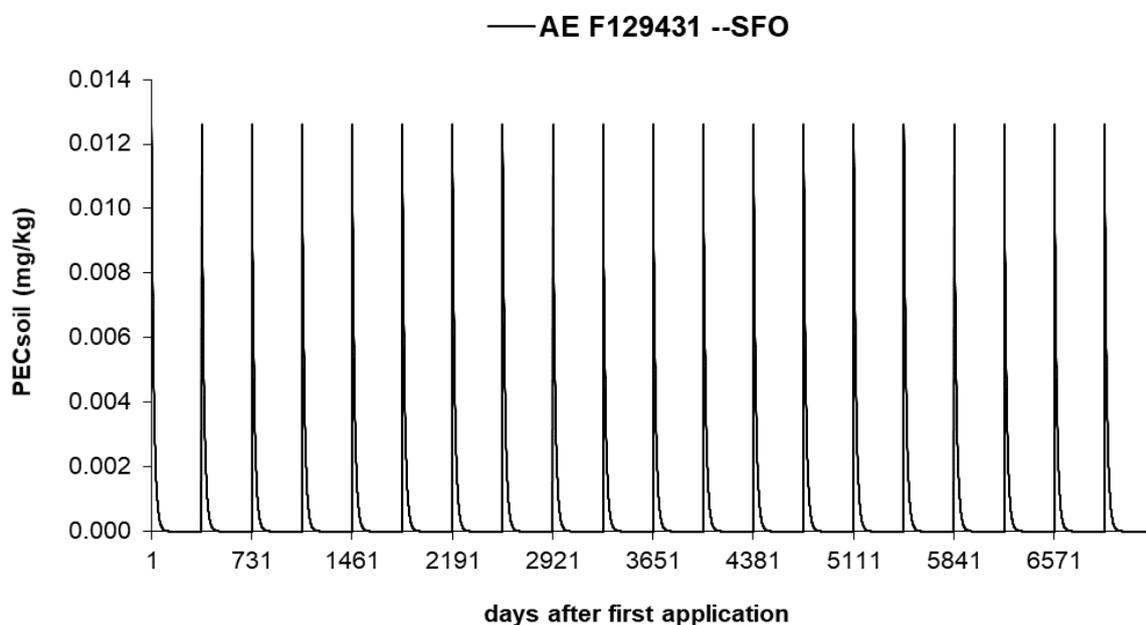


Figure 8.7-17 Long-term PEC_{soil} of AE F129431

zRMS comments:

No EU agreed data exist for the safener, isoxadifen-ethyl and for this reason validation of input parameters considered in the soil exposure assessment presented above against EU agreed endpoints was not possible.

It is noted that values used by the Applicant originate from the national evaluation performed by Germany in 2002. However, since the time of this evaluation majority of guidance documents were updated and endpoints considered by the Applicant in above calculations do not adhere to the current standards and cannot be thus considered to be fully reliable and relevant for purposes of the exposure assessment following uses of GF-3969. Derivation of respective endpoints would require full re-evaluation of the whole data package for isoxadifen-ethyl, which is, however, outside the scope of the zonal evaluation, since endpoints for safeners should be derived in the course of the EU review process.

Taking this into account, validation of soil exposure calculated for isoxadifen-ethyl was not possible and calculations provided above have been retained for informative purposes only with font colour changed to grey in order to easily distinguish validated from non-validated data.

For purposes of the soil risk assessment from application of GF-3969 it is assumed that the soil exposure to the formulated product calculated in point 8.7.2.4 below covers also exposure to the safener. It should be noted that this approach has been already accepted in the course of zonal evaluations of some formulations owned by the same Applicant (GF-3337 and GF-3313, both finalised in 2018).

8.7.2.4 PEC_{soil} of GF-3969

GF-3969 consists of active substances and co-formulants. It will not remain intact in soil after application due to breakdown of its individual components. Therefore, only an initial formulation PEC_{soil} for a single application was calculated since applications would not be cumulative, and time-aged values (actual and TWA) are not appropriate. The initial PEC_{soil} (mg/kg) after application was calculated as follows:

$$\text{Initial } PEC_{soil} = \frac{A}{100 \times d \times \rho}$$

where: A = effective application rate after adjusting for 25% crop interception; first application only (g product/ha)
 d = depth of soil layer (5 cm)
 ρ = soil bulk density (1.5 g/mL)

The maximum PEC_{soil} value for active substances of GF-3969 application in maize is presented in Table 8.7-24.

Table 8.7-24: PEC_{soil} for GF-3969 on maize

Formulation	Application rate (g Product /ha)	Effective application rate (g Product/ha) ^a	PEC_{soil} (mg/kg)
GF-3969	135	101.25	0.135

a The effective application rate = product application rate × (100%-25% foliar interception).

zRMS comments:

PEC_{soil} value calculated by the Applicant for the formulated product is agreed by the zRMS and may be used in the risk assessment for soil organisms.

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

GF-3969 is applied to maize at a maximum rate of 20 g a.s./ha of rimsulfuron and 12.5 g a.s./ha thifensulfuron methyl, which is protective for assessing the risk associated with application of GF-3969 on maize. GF-3969 was not the representative formulation evaluated for Annex I inclusion of rimsulfuron or thifensulfuron methyl.

Input parameters related to the application of GF-3969 to maize are presented in Table 8.8-1.

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

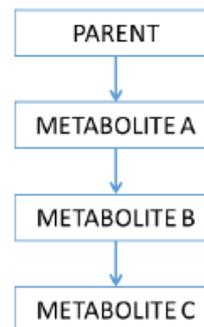
Use No.	All uses intended in the Central Zone 1; 14
Crop	Maize, BBCH 11-18
Application rate (g a.s./ha)	20 g a.s./ha rimsulfuron 12.5 g a.s./ha thifensulfuron methyl 15 g a.s./ha isoxadifen-ethyl 12.59 + 7.41 g a.s./ha rimsulfuron 7.87 + 4.63 g a.s./ha thifensulfuron methyl 9.44 + 5.56 g a.s./ha isoxadifen-ethyl 2 × 10 g a.s./ha rimsulfuron 2 × 6.25 g a.s./ha thifensulfuron methyl 2 × 7.5 g a.s./ha isoxadifen-ethyl
Number of applications/interval (d)	1
Relative application date	Emergence + 10 d
Crop interception (%)	25
Net soil deposit (g a.s./ha)	Rimsulfuron: 15 g a.s./ha Thifensulfuron methyl: 9.375 g a.s./ha Isoxadifen-ethyl: 11.25 g a.s./ha
Frequency of application	annual
Models used for calculation	FOCUS PEARL v4.4.4, FOCUS PELMO v5.5.3, FOCUS MACRO v5.5.4

FOCUS MACRO 5.5.4 can only handle one parent compound and one metabolite in a single simulation. Hence, separate simulations are conducted for each metabolite following EU guidance. Simulating the formation of a metabolite from the parent is straightforward and only requires the additional compound properties and conversion factor for the metabolite (example A below). However, if the degradation pathway includes a chain of degradation where a metabolite is formed from another metabolite, the PEC_{gw} for the metabolite of concern is simulated by using its precursor metabolite as “parent”. In such cases, the applied dose in MACRO needs to be adjusted to represent the occurrence of the precursor metabolite in soil (examples B and C below). Note that the results obtained for the precursor metabolite designated as “parent” in each separate run was not be used.

Figure 8.8-1: Approach used for simulating metabolites using FOCUS MACRO 5.5.4

A. PARENT → METABOLITE A	
Applied dose	Dose parent x (1-i)
Conversion factor	$ff_{met\ A} \times (MW_{met\ A} / MW_{par})$
Use results from	Parent and metabolite A
B. METABOLITE A → METABOLITE B	
Applied dose	Dose parent x (1-i) x $ff_{met\ A} \times (MW_{met\ A} / MW_{par})$
Conversion factor	$ff_{met\ B} \times (MW_{met\ B} / MW_{met\ A})$
Use results from	Only metabolite B
C. METABOLITE B → METABOLITE C	
Applied dose	Dose parent x (1-i) x $ff_{met\ A} \times ff_{met\ B} \times (MW_{met\ B} / MW_{par})$
Conversion factor	$ff_{met\ C} \times (MW_{met\ C} / MW_{met\ B})$
Use results from	Only metabolite C

ff = formation fraction, Mw = molecular weight, met = metabolite, par = parent, i = plant interception



zRMS comments:

The application pattern considered in the groundwater exposure assessment presented in Table 8.8-1 is in line with the critical Central Zone GAP. Assumed crop interception is in line with the most recent version of the FOCUS Groundwater Guidance (2014) and is adequate for maize at the BBCH 11-18 stage.

Assumed application dates correspond with the intended application timing and are agreed by the zRMS.

The approach taken in MACRO simulations and depicted on Figure 8.8-1 is agreed by the zRMS.

8.8.1 Justification for new endpoints

8.8.1.1 Rimsulfuron

Two sets of modelling endpoints for rimsulfuron were used in the assessment – the EU-agreed endpoints in the 2005 and those in the 2018 EFSA conclusions.

The 2005 EFSA Endpoints

At **Tier 1**, the EU agreed endpoints for rimsulfuron and its metabolites in the EFSA conclusion (2005) were used in the simulation, except for the modelling endpoints for the metabolite IN-J0290. For IN-J0290, the experimentally-determined DegT₅₀ values and sorption parameters from the DuPont studies were used to replace the default worst-case values in the EFSA conclusion, as summarized in Table 8.3-7.

At **Tier 2**, the three legacy field dissipation studies (DuPont 3802, DuPont 3884, and DuPont 3885) evaluated in the EFSA conclusion (2005) and two additional field dissipation studies conducted in 2015 (DuPont 34236 and DuPont 34237) were normalized to 20°C and pF2 and then kinetically analysed to estimate the degradation rates (DuPont 41984). These studies were evaluated and accepted in the 2018 EFSA conclusion, as summarized in Table 8.4-4. The geomean DegT₅₀ of 5.8 days for rimsulfuron was used to refine leaching risk of rimsulfuron at Tier 2.

The 2018 EFSA Endpoints

At **Tier 1**, the EU agreed endpoints for rimsulfuron and its metabolites in the EFSA conclusion (2018) were used in the simulation.

At **Tier 2**, the degradation rates of metabolites in soil were derived via kinetic pathway fits from a total

~~of 7 field dissipation studies (five studies by DuPont and two studies by the Task Force Rimsulfuron (Finger, 2017), as summarized in Table 8.4.5. The field-derived DegT₅₀ and formation fractions of metabolites were used to refine leaching risk assessment of metabolites at Tier 2, particularly for the metabolite IN-E9260.~~

zRMS comments:

Assessment based on endpoints from EFSA (2005)

At Tier 1 input parameters as reported in EFSA Scientific Report (2005) 45 were used by the Applicant for rimsulfuron and its metabolites with exception of metabolite IN-J0290, for which values originating from new degradation and soil sorption studies were considered instead of worst case default values used during the first EU review of rimsulfuron.

In general, the Tier 1 groundwater modelling should be performed with consideration of the EU agreed parameters (including the worst case defaults, if used at the EU level) and simulations based on new active substance/metabolite data should be performed in addition to these carried out with EU agreed inputs and not instead of them. Nevertheless, new studies with IN-J0290 considered by the Applicant were already peer-reviewed and accepted at the EU level during renewal processes of several sulfonylurea herbicides and their results were confirmed. For this reason it was decided by the zRMS to accept their consideration in Tier 1 groundwater modelling. However, for future submissions the Applicant is kindly reminded that modelling based on new active substance/metabolite data should be performed in addition to modelling based on EU agreed endpoints.

In order to validate the Tier 2 modelling performed by the Applicant, evaluation of the additional field studies would be required. However, all these studies were already peer-reviewed at the EU level in the course of the renewal processes of several sulfonylurea herbicides (including rimsulfuron) and their results considered in derivation of the modelling endpoints. The zRMS is thus of the opinion that evaluation of the field dissipation studies submitted by the Applicant would lead to generation of additional endpoints, while respective endpoints are already available from the EU renewal process of rimsulfuron. For this reason the Tier 1 modelling performed with consideration of the EFSA (2018) endpoints may be considered as higher tier modelling and is deemed sufficient to address the leaching potential of rimsulfuron.

Assessment based on endpoints from EFSA (2018)

Consideration of endpoints reported in EFSA Journal 2018;16(5):52858 in groundwater modelling is agreed by the zRMS since based on the Tier 1 modelling performed with consideration of input parameters available in EFSA (2005) unacceptable leaching of the active compound was indicated and additional modelling based on new active substance data would be required anyway. In opinion of the zRMS consideration of input parameters recently agreed at the EU level is more appropriate than generation of additional dataset for the active substance and metabolites at the zonal level.

It should be, however, noted that at Tier 2 the field dissipation data were considered by the Applicant also for metabolites, while according to conclusions taken during the Pesticides Peer Review Meeting TC 155 the results of the field studies were not sufficiently reliable to derive input parameters for metabolites. For this reason Tier 2 modelling provided by the Applicant is not agreed by the zRMS.

It should be noted that the discussion on relevance of the metabolites data from the field dissipation studies performed by DuPont has been recently re-opened with the updated RAR made available in January 2021. Nevertheless, as this discussion is ongoing at the EU level, the conclusions of consideration of the field dissipation data as provided in EFSA Journal 2018;16(5):5258 remain valid until new conclusion is issued at the EU level. For more details regarding field dissipation studies for rimsulfuron and their assessment during the EU renewal process, please refer to point 8.4 of this document.

The information not agreed or not validated by the zRMS has been struck through in the text above.

8.8.1.2 Thifensulfuron methyl

The EU agreed endpoints for thifensulfuron methyl and its metabolites were used in the simulation.

8.8.1.3 Isoxadifen-ethyl

The EU agreed endpoints for isoxadifen-ethyl and its metabolites were not available; the endpoints evaluated by UBA (Germany, 2002) were used in exposure assessment.

zRMS comments:

No EU agreed data exist for the safener, isoxadifen-ethyl and for this reason validation of input parameters considered in the groundwater exposure assessment against EU agreed endpoints was not possible.

It is noted that values used by the Applicant originate from the national evaluation performed by Germany in 2002. However, since the time of this evaluation majority of guidance documents were updated and endpoints considered by the Applicant in performed simulations do not adhere to the current standards and cannot be thus considered to be fully reliable and relevant for purposes of the exposure assessment following uses of GF-3969. Derivation of respective endpoints would require full re-evaluation of the whole data package for isoxadifen-methyl, which is, however, outside the scope of the zonal evaluation, since endpoints for safeners should be derived in the course of the EU review process.

Taking this into account, validation of groundwater exposure calculated for isoxadifen-ethyl was not possible and performed modelling has been retained for informative purposes only with font colour changed to grey in order to easily distinguish validated from non-validated data.

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

8.8.2.1 Rimsulfuron and its metabolites

Assessment with the 2005 EFSA Endpoints (DuPont-51201)

Predicted environmental concentrations in groundwater (PEC_{gw}) of rimsulfuron and its soil metabolites (IN-70941, IN-70942, IN-E9260, and IN-J0290) were simulated in order to support authorisation of formulated products containing rimsulfuron in the European Union. The simulations were conducted using the EU-agreed endpoints in the 2005 EFSA conclusion at Tier 1 ~~and refined endpoints at Tier 2.~~

The application scenarios of rimsulfuron for the use on maize are simulated as summarized in Table 8.8-2.

The predicted environmental concentrations in groundwater (PEC_{GW}) were assessed using a tiered approach. At Tier 1, the endpoints from the 2005 EFSA conclusion (EFSA, 2005) and the geomean lab-derived $DegT_{50}$ of **22** days for rimsulfuron were used. However, the $DegT_{50}$ of rimsulfuron and metabolites were re-normalized with Q_{10} of 2.58. The plant uptake factor of 0.0 was also used for rimsulfuron and all its metabolites.

All physico-chemical input parameters (e.g. $DegT_{50}$, K_{FOC} , $1/n$, formation fractions, etc.) for rimsulfuron and its metabolites, except IN-J0290, were selected as recommended in the EFSA conclusion (EFSA, 2005). For metabolite IN-J0290, the degradation half-life ($DegT_{50}$) and adsorption coefficient (K_{FOC} and $1/n$) derived from the studies were used, instead of the default DT_{50} of 1000 days and calculated K_{FOC} recommended in the EFSA conclusion (EFSA, 2005).

~~At Tier 2, the three field dissipation studies evaluated in the 2005 EFSA conclusion and the two additional field studies were normalized to generate modeling endpoints, following the latest FOCUS kinetics guidance (DuPont 41948). The geomean field generated $DegT_{50}$ of 5.8 days is significantly shorter than the lab derived $DegT_{50}$ of 22.0 days, following the 2015 EFSA guidance, and thus was used to refine the degradation rate of rimsulfuron, as summarized in Table 8.4 4.~~

Plant uptake factors of 0.0 for rimsulfuron as well as for metabolites were used in the simulation. A Q_{10}

value of 2.58 was also used.

Input parameters for the FOCUS models PEARL and PELMO are summarised in Table 8.8-3. The degradation pathways of rimsulfuron simulated are presented in Figure 8.8-1.

Input parameters for the FOCUS MACRO are summarised in Table 8.8-4.

The simulation was conducted using the latest versions of FOCUS PEARL 4.4.4 and FOCUS PELMO 5.5.3.

Table 8.8-2: Simulated application regimes for rimsulfuron use on maize

Crop	BBCH	Application timing	Application interval (d)	Application rate (g a.s. /ha)	Interception (%)	Net soil deposit (g a.s. /ha)
Maize	11-18	Emergence + 10 days	-	1 × 20	25	1 × 15
	12-19		7 d	12.59 + 7.41	25	9.4425 + 5.5575
			7 d	2 × 10	25	2 × 7.5

Table 8.8-3: Summary of input parameters for rimsulfuron and its soil metabolites for the leaching simulation models FOCUS PEARL 4.4.4 and FOCUS PELMO 5.5.3

Compound	Rimsulfuron	IN-70941	IN-70942	IN-E9260	IN-J0290	Value in accordance with EU endpoint / Reference
Molar mass (g/mol)	431.45	367.4	324.36	250.3	155.2	Yes/EFSA, 2005
Water solubility (mg/L) (pH 7.0, 20 °C)	7300	7300	7300	7300	7300	Yes/EFSA, 2005
Saturated vapour pressure (Pa) (20 °C)	8.9×10^{-7}	8.9×10^{-7}	8.9×10^{-7}	8.9×10^{-7}	8.9×10^{-7}	Yes/EFSA, 2005
K_{foc} (L/kg)	47 (arithmetic mean, n = 4)	42 (arithmetic mean, sandy loam soils, n = 3)	194 (arithmetic mean, n = 4)	24 (arithmetic mean, sandy loam soils, n = 3)	458 ^a (arithmetic mean, n = 5)	Yes/EFSA, 2005
K_{fom} [mL g ⁻¹]	27.26	24.36	112.53	13.92	265.66	$K_{f,om} = K_{f,oc} / 1.724$
Freundlich Exponent 1/n (-)	1.02 (arithmetic mean, n = 4)	0.93 (arithmetic mean, sandy loam soils, n = 3)	0.85 (arithmetic mean, n = 4)	1.0 (arithmetic mean, sandy loam soils, n = 3)	0.8 ^a (arithmetic mean (n = 5))	Yes/EFSA, 2005
Plant uptake factor (-)	0	0	0	0	0	FOCUS default
DT _{50,soil} (d)	Tier 1 – 22 (EFSA, 2005) Tier 2 – 5.8 (DuPont 41948)	140 (Geometric mean, n = 3)	94 (Geometric mean, n = 3)	390 (Geometric mean, n = 3)	27 ^a (Geometric mean, n = 4)	Yes/EFSA, 2005 No/ DuPont-41948
Formation fraction	-	0.485 from Parent	0.883 from IN-70941	0.104 from Parent	0.280 ^b from Parent	Yes/EFSA, 2005

a For metabolite IN-J0290, the degradation half-life (DegT₅₀) (DuPont-5266) and adsorption coefficient (K_{FOC} and 1/n) (DuPont-5264) derived from the studies were used, instead of the default DT₅₀ of 1000 days and calculated K_{FOC} recommended in the EFSA conclusion.

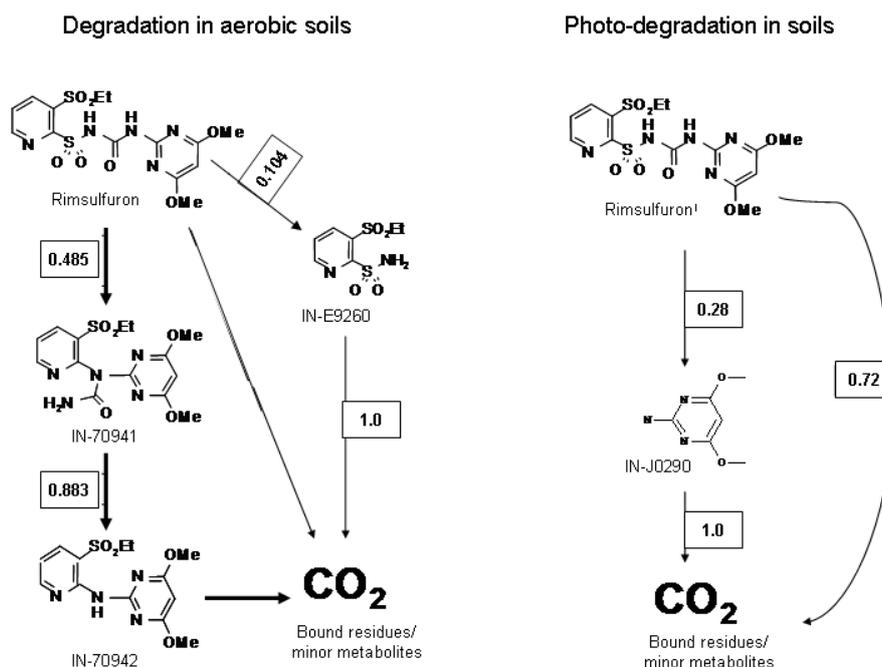
b Estimated from the soil photolysis study via kinetic pathway fits (DuPont-23315).

Table 8.8-4: Input parameters for rimsulfuron and metabolites (EFSA 2005 endpoints) used for PEC_{gw} assessment with FOCUS MACRO 5.5.4 under three GAPs

Pathway	Formation Fraction	Conversion factor*	Applied Dose* (20 g a.s. /ha)	Applied Dose* (12.59 + 7.41 g a.s. /ha)		Applied Dose* (10 + 10 g a.s. /ha)
Rimsulfuron → IN-70941	0.485	0.413	15.00	9.44	5.56	2×7.50
Rimsulfuron → IN-E9260	0.104	0.060	15.00	9.44	5.56	2×7.50
IN-70941 → IN-70942	0.883	0.780	6.19	3.90	2.30	2×3.10
Rimsulfuron → IN-J0290	0.280	0.101	15.00	9.44	5.56	2×7.50

*Calculation of Conversion factor, Applied dose and approach used for PEC_{gw} MACRO simulation available in Figure 8.8-1.

Figure 8.8-2: Pathway of rimsulfuron with formation fractions used in the simulations



Results

The overall maximum 80th percentile PEC_{gw} of rimsulfuron and its metabolites are summarized in Table 8.8-.

The overall maximum 80th percentile PEC_{gw} (0.144 µg/L) of rimsulfuron is >0.1 µg/L at Tier 1 but <0.1 µg/L at Tier 2 for all proposed uses under all ground water scenarios.

The overall maximum 80th percentile PEC_{gw} of metabolites IN-J0290 are also <0.1 µg/L in all scenarios, as predicted with both PELMO 5.5.3 and PEARL 4.4.4.

The overall maximum 80th percentile PEC_{gw} of metabolites IN-70942 are slightly >0.1 µg/L at Tier 1 but <0.1 µg/L in all scenarios at Tier 2, as predicted with both PELMO 5.5.3 and PEARL 4.4.4.

The maximum 80th percentile PEC_{gw} of the metabolites IN-E9260 exceeded the threshold value of 0.1 µg/L but were below the threshold of concern of 0.75 µg/L.

The maximum 80th percentile PEC_{gw} of the metabolites IN-70941 exceeded the threshold value of

0.1 µg/L and are also above the threshold of concern of 0.75 µg/L.

Based on results of studies of biological activity, genotoxicity and toxicity, IN-70941 and IN-E9260 can be considered as non-relevant in groundwater.

In conclusion, based on results of Tier 1 simulations rimsulfuron may ~~does not~~ pose ground water risk, if the product is applied on maize following the label instructions. The refined groundwater exposure assessment based on endpoints available in recently issued LoEP (EFSA Journal 2018;16(5):5258.

The detailed scenario-specific Tier 1 ~~and Tier 2~~ PEC_{gw} of rimsulfuron and its metabolites with PEARL 4.4.4 and PELMO 5.5.3 are provided in Table 8.8-6 to Table 8.8-9.

The detailed Tier 1 PEC_{gw} of rimsulfuron and metabolites for proposed uses with FOCUS MACRO 5.5.4 are provided in Table 8.8-10.

Table 8.8-5: PEARL, PELMO and MACRO overall maximum PEC_{gw} values of rimsulfuron and its metabolites for the proposed uses of GF-3969 on maize

FOCUS Crop	Tiers	Maximum PEC _{gw} 80 th percentile (µg/L) ^a				
		Rimsulfuron	IN-70941	IN-70942	IN-E9260	IN-J0290
PEARL 4.4.4						
Maize (20 g a.s./ha)	Tier 1 (EFSA, 2005)	0.134	1.106	0.116	0.666	0.002
	Tier 2 (Field studies)	<0.001	0.949	0.095	0.645	<0.001
Maize (2 × 10 g a.s./ha)	Tier 1 (EFSA, 2005)	0.144	1.114	0.117	0.668	0.002
	Tier 2 (Field studies)	<0.001	0.965	0.096	0.648	<0.001
Maize (12.59 + 7.41 g a.s./ha)	Tier 1 (EFSA, 2005)	0.141	1.110	0.117	0.667	0.002
	Tier 2 (Field studies)	<0.001	0.961	0.096	0.647	<0.001
Overall maximum	Tier 1	0.144	1.114	0.117	0.668	0.002
	Tier 2	<0.001	0.965	0.096	0.648	<0.001
PELMO 5.3.3						
Maize (20 g a.s./ha)	Tier 1 (EFSA, 2005)	0.117	0.942	0.086	0.495	0.001
	Tier 2 (Field studies)	<0.001	0.823	0.071	0.480	<0.001
Maize (2 × 10 g a.s./ha)	Tier 1 (EFSA, 2005)	0.125	0.955	0.086	0.494	0.001
	Tier 2 (Field studies)	<0.001	0.836	0.071	0.479	<0.001
Maize (12.59 + 7.41 g a.s./ha)	Tier 1 (EFSA, 2005)	0.122	0.951	0.086	0.494	0.001
	Tier 2 (Field studies)	<0.001	0.832	0.071	0.480	<0.001
Overall maximum	Tier 1	0.125	0.955	0.086	0.495	0.001
	Tier 2	<0.001	0.836	0.071	0.480	<0.001
MACRO 5.5.4						
Maize (20 g a.s./ha)	Tier 1 (EFSA, 2005)	0.027	0.595	0.037	0.292	<0.001
Maize (2 × 10 g a.s./ha)	Tier 1 (EFSA, 2005)	0.028	0.598	0.037	0.292	<0.001
Maize (12.59 + 7.41 g a.s./ha)	Tier 1 (EFSA, 2005)	0.028	0.597	0.037	0.292	<0.001
Overall maximum	Tier 1	0.028	0.598	0.037	0.292	<0.001

a The bolded values are the PEC_{gw} of >0.1 µg/L.

Table 8.8-6: Tier 1 PEC_{gw} for rimsulfuron and its metabolites following application on maize as predicted with PEARL 4.4.4

Crop	Scenario	80 th Percentile PEC _{gw} at 1 m Soil Depth (µg/L)				
		Rimsulfuron	IN-70941	IN-70942	IN-E9260	IN-J0290
Maize 1 × 20 g a.s./ha BBCH 11-18	Châteaudun	0.056	0.831	0.065	0.325	<0.001
	Hamburg	0.134	1.094	0.076	0.405	0.002
	Kremsmünster	0.080	0.776	0.061	0.238	<0.001
	Okehampton	0.127	0.681	0.048	0.198	<0.001
	Piacenza	0.039	0.814	0.081	0.346	<0.001
	Porto	0.020	0.415	0.020	0.154	<0.001
	Sevilla	0.003	0.393	0.026	0.401	<0.001
Thiva	0.028	1.106	0.116	0.666	<0.001	
Maize 10 + 10 g a.s./ha BBCH 11-18 7 d interval	Châteaudun	0.060	0.848	0.067	0.326	<0.001
	Hamburg	0.144	1.110	0.077	0.408	0.002
	Kremsmünster	0.085	0.772	0.060	0.234	<0.001
	Okehampton	0.125	0.679	0.048	0.198	<0.001
	Piacenza	0.046	0.787	0.081	0.340	<0.001
	Porto	0.021	0.409	0.020	0.154	<0.001
	Sevilla	0.004	0.401	0.027	0.403	<0.001
Thiva	0.031	1.114	0.117	0.668	<0.001	
Maize 12.59 + 7.41 g a.s./ha BBCH 11-18 7 d interval	Châteaudun	0.059	0.844	0.066	0.326	<0.001
	Hamburg	0.141	1.106	0.077	0.408	0.002
	Kremsmünster	0.083	0.774	0.061	0.235	<0.001
	Okehampton	0.124	0.676	0.048	0.197	<0.001
	Piacenza	0.044	0.794	0.081	0.342	<0.001
	Porto	0.021	0.411	0.020	0.154	<0.001
	Sevilla	0.004	0.399	0.027	0.402	<0.001
Thiva	0.030	1.110	0.117	0.667	<0.001	

Table 8.8-7: Tier 2 PEC_{gw} for rimsulfuron and its metabolites following application on maize as predicted with PEARL 4.4.4

Crop	Scenario	80 th Percentile PEC _{gw} at 1 m Soil Depth (µg/L)				
		Rimsulfuron	IN-70941	IN-70942	IN-E9260	IN-J0290
Maize 1 × 20 g a.s./ha BBCH 11-18	Châteaudun	<0.001	0.705	0.056	0.318	<0.001
	Hamburg	<0.001	0.949	0.068	0.400	<0.001
	Kremsmünster	<0.001	0.636	0.053	0.235	<0.001
	Okehampton	<0.001	0.611	0.044	0.196	<0.001
	Piacenza	<0.001	0.688	0.068	0.338	<0.001
	Porto	<0.001	0.362	0.017	0.150	<0.001
	Sevilla	<0.001	0.334	0.022	0.385	<0.001
Thiva	<0.001	0.926	0.095	0.645	<0.001	
Maize 10 + 10 g a.s./ha BBCH 11-18 7 d interval	Châteaudun	<0.001	0.721	0.057	0.321	<0.001
	Hamburg	<0.001	0.965	0.069	0.403	<0.001
	Kremsmünster	<0.001	0.642	0.053	0.233	<0.001
	Okehampton	<0.001	0.612	0.045	0.196	<0.001
	Piacenza	<0.001	0.669	0.068	0.331	<0.001
	Porto	<0.001	0.357	0.017	0.150	<0.001
	Sevilla	<0.001	0.341	0.023	0.388	<0.001
Thiva	<0.001	0.937	0.096	0.648	<0.001	
Maize 12.59 + 7.41 g a.s./ha BBCH 11-18 7 d interval	Châteaudun	<0.001	0.717	0.057	0.320	<0.001
	Hamburg	<0.001	0.961	0.069	0.402	<0.001
	Kremsmünster	<0.001	0.638	0.053	0.234	<0.001
	Okehampton	<0.001	0.620	0.045	0.197	<0.001
	Piacenza	<0.001	0.671	0.068	0.333	<0.001
	Porto	<0.001	0.358	0.017	0.150	<0.001
	Sevilla	<0.001	0.339	0.023	0.387	<0.001
Thiva	<0.001	0.934	0.096	0.647	<0.001	

Table 8.8-8: Tier 1 PEC_{gw} for rimsulfuron and its metabolites following application on maize as predicted with PELMO 5.5.3

Crop	Scenario	80 th Percentile PEC _{gw} at 1 m Soil Depth (µg/L)				
		Rimsulfuron	IN-70941	IN-70942	IN-E9260	IN-J0290
Maize 1 × 20 g a.s./ha BBCH 11- 18	Châteaudun	0.039	0.813	0.069	0.347	<0.001
	Hamburg	0.113	0.942	0.068	0.349	0.001
	Kremsmünster	0.089	0.798	0.064	0.270	<0.001
	Okehampton	0.117	0.660	0.045	0.187	<0.001
	Piacenza	0.054	0.643	0.053	0.198	<0.001
	Porto	0.023	0.432	0.019	0.163	<0.001
	Sevilla	0.004	0.359	0.019	0.327	<0.001
Thiva	0.019	0.935	0.086	0.495	<0.001	
Maize 10 + 10 g a.s./ha BBCH 11- 18 7 d interval	Châteaudun	0.042	0.827	0.070	0.346	<0.001
	Hamburg	0.125	0.955	0.069	0.350	0.001
	Kremsmünster	0.095	0.774	0.064	0.269	<0.001
	Okehampton	0.121	0.665	0.045	0.184	<0.001
	Piacenza	0.061	0.621	0.053	0.199	<0.001
	Porto	0.024	0.438	0.019	0.163	<0.001
	Sevilla	0.004	0.365	0.020	0.328	<0.001
Thiva	0.020	0.946	0.086	0.494	<0.001	
Maize 12.59 + 7.41 g a.s./ha BBCH 11- 18 7 d interval	Châteaudun	0.042	0.827	0.070	0.346	<0.001
	Hamburg	0.125	0.955	0.069	0.350	0.001
	Kremsmünster	0.095	0.774	0.064	0.269	<0.001
	Okehampton	0.121	0.665	0.045	0.184	<0.001
	Piacenza	0.061	0.621	0.053	0.199	<0.001
	Porto	0.024	0.438	0.019	0.163	<0.001
	Sevilla	0.004	0.365	0.020	0.328	<0.001
Thiva	0.020	0.946	0.086	0.494	<0.001	

Table 8.8-9: Tier 2 PEC_{gw} for rimsulfuron and its metabolites following application on maize as predicted with PELMO 5.5.3

Crop	Scenario	80 th Percentile PEC _{gw} at 1 m Soil Depth (µg/L)				
		Rimsulfuron	IN-70941	IN-70942	IN-E9260	IN-J0290
Maize 1 × 20 g a.s./ha BBCH 11- 18	Châteaudun	<0.001	0.695	0.058	0.338	<0.001
	Hamburg	<0.001	0.823	0.060	0.341	<0.001
	Kremsmünster	<0.001	0.69	0.055	0.267	<0.001
	Okehampton	0.001	0.594	0.041	0.185	<0.001
	Piacenza	<0.001	0.545	0.047	0.194	<0.001
	Porto	<0.001	0.377	0.016	0.158	<0.001
	Sevilla	<0.001	0.303	0.016	0.317	<0.001
Thiva	<0.001	0.789	0.071	0.480	<0.001	
Maize 10 + 10 g a.s./ha BBCH 11- 18 7 d interval	Châteaudun	<0.001	0.700	0.059	0.339	<0.001
	Hamburg	<0.001	0.836	0.061	0.342	<0.001
	Kremsmünster	<0.001	0.671	0.055	0.266	<0.001
	Okehampton	0.001	0.600	0.042	0.182	<0.001
	Piacenza	<0.001	0.533	0.047	0.195	<0.001
	Porto	<0.001	0.383	0.017	0.159	<0.001
	Sevilla	<0.001	0.308	0.016	0.318	<0.001
Thiva	<0.001	0.797	0.071	0.479	<0.001	
Maize 12.59 + 7.41 g a.s./ha BBCH 11- 18 7 d interval	Châteaudun	<0.001	0.699	0.059	0.338	<0.001
	Hamburg	<0.001	0.832	0.06	0.342	<0.001
	Kremsmünster	<0.001	0.675	0.055	0.266	<0.001
	Okehampton	0.001	0.598	0.041	0.183	<0.001
	Piacenza	<0.001	0.536	0.047	0.195	<0.001
	Porto	<0.001	0.383	0.017	0.159	<0.001
	Sevilla	<0.001	0.307	0.016	0.318	<0.001
Thiva	<0.001	0.795	0.071	0.480	<0.001	

Table 8.8-5: Tier 1 PEC_{gw} for rimsulfuron and its metabolites following application on maize as predicted with MACRO 5.5.4

Crop	Scenario	80 th Percentile PEC _{gw} at 1 m Soil Depth (µg/L)				
		Rimsulfuron	IN-70941	IN-70942	IN-E9260	IN-J0290
Maize 1 × 20 g a.s./ha BBCH 11-18	Châteaudun	0.027	0.595	0.037	0.292	<0.001
Maize 10 + 10 g a.s./ha BBCH 11-18 7 d interval	Châteaudun	0.028	0.598	0.037	0.292	<0.001
Maize 12.59 + 7.41 g a.s./ha BBCH 11-18 7 d interval	Châteaudun	0.028	0.597	0.037	0.292	<0.001

Assessment with the 2018 EFSA endpoints (EFSA, 2018) (DuPont-51202)

The predicted environmental concentrations of rimsulfuron and its soil metabolites (IN-70941, IN-70942, IN-E9260 and IN-J0290) in groundwater were simulated using the modelling endpoints in the 2018 EFSA conclusion. The study is intended to support the authorization of the formulated products containing rimsulfuron in Europe.

Rimsulfuron, an herbicide in the sulfonylurea chemical class, is intended to control broadleaf weeds in maize. Table 8.8- summarizes the proposed uses of rimsulfuron in the formulated products on maize in Europe.

The PEC_{gw} for rimsulfuron and its metabolites were estimated using a tiered approach. At **Tier 1**, the simulation was conducted using the endpoints in the EFSA conclusion (EFSA, 2018).

The geomean field DegT₅₀ of **6.7** days was used, because the field DegT₅₀ values are significantly shorter than those in the laboratory studies.

The degradation of IN-70941 in soil is considered pH-dependent. Therefore, the simulations were conducted using the geomean DegT₅₀ values of **314** days in the acidic soils (pH ≤6) and of **44.9** days in alkaline soils (pH >7), as suggested in the EFSA conclusion (2018). The plant uptake factor of 0.0 was also used for rimsulfuron and its metabolites.

The degradation pathways of rimsulfuron with formation fractions of metabolites are presented in Figure 8.8-.

All the input parameters used in the Tier 1 simulation are provided in Table 8.8-. **Input parameters for the FOCUS MACRO are summarised in Table 8.8-6**

~~At **Tier 2**, a total of 7 field dissipation studies were normalized; the kinetic pathway fits were performed to derive the degradation rates and formation fractions of metabolites, following the latest FOCUS kinetics guidance (FOCUS, 2014). The field studies and kinetics reports were reviewed and considered acceptable during the review (RAR, 2017). The degradation rates and formation fractions from the 7 field dissipation studies are summarized in Table 8.4-5.~~

~~The field-derived degradation endpoints were significantly shorter than those in the laboratory studies, and thus used to refine the PEC_{gw} of rimsulfuron metabolites, particularly IN-E9260, as shown in Table 8.4-7.~~

All the simulations were performed using the latest version of models - FOCUS PEARL 4.4.4, FOCUS PELMO 5.5.3 in accordance with the FOCUS groundwater guidance.

Table 8.8-11: Simulated application regimes for rimsulfuron use on maize

Crop	BBCH	Application timing	Application interval (d)	Application rate (g a.s./ha)	Foliar Interception (%)	Net soil deposit (g a.s./ha)
Maize	11-18	Emergence + 10 days	-	1 × 20	25	1 × 15
			7 d	12.59 + 7.41	25	9.4425 + 5.5575
			7 d	2 × 10	25	2 × 7.5

Table 8.8-12: Summary of input parameters for rimsulfuron and its soil metabolites for the leaching simulation models FOCUS PEARL 4.4.4 and FOCUS PELMO 5.5.3

Compound	Rimsulfuron	IN-70941	IN-70942	IN-E9260	IN-J0290	Value in accordance with EU endpoint / Reference
Molar mass (g/mol)	431.45	367.39	324.36	250.29	155.2	Yes/EFSA, 2018
Water solubility (mg/L) (20 °C)	7300	911	197	537	5216	Yes/EFSA, 2018
Saturated vapour pressure (Pa) (20 °C)	3.80E-11	1.96E-06	6.13E-08	4.95E-06	6.20E-02	Yes/EFSA, 2018
K_{foc} / K_{fom}^a (L/kg)	45.6 / 26.45 (geometric mean, n = 8)	42 / 24.36 ^b (geometric mean, n = 4)	192 / 111.37 (geometric mean, n = 4)	23.2 / 13.46 ^c (geometric mean, n = 4)	275.8 / 159.98 (geometric mean, n = 21 ^d)	Yes/EFSA, 2018
Freundlich Exponent 1/n (-)	0.97 (arithmetic mean, n = 8)	0.933 (arithmetic mean, n = 4)	0.845 (arithmetic mean, n = 4)	1 (worst case)	0.76 ^d (arithmetic mean, n = 21 ^d)	Yes/EFSA, 2018
Plant uptake factor (-)	0	0	0	0	0	Yes/EFSA, 2018
DT _{50,soil} (d)	6.7 (geometric mean, field, normalised, n = 7) – Tier 1 and Tier 2	Acidic soils 314 (geometric mean, lab, acidic soils, pH ≤ 6, normalisation to pF2, 20 °C with Q ₁₀ of 2.58, n = 4) for Tier 1 Alkaline soils 44.9 (geometric mean, lab, acidic soils, pH ≥ 7, normalisation to pF2, 20 °C with Q ₁₀ of 2.58, n = 5) for Tier 1 / 99.0 (geometric mean, for Tier 2)	140.1 (geometric mean, field and lab, normalised, n = 6) for Tier 1 / 29.5 (geometric mean, for Tier 2)	519.9 (geometric mean, field and lab, normalised, n = 6) for Tier 1 / 60.7 (geometric mean, for Tier 2)	45.2 (geometric mean, field and lab, normalised, n = 6) for Tier 1 / 90.4 (geometric mean, for Tier 2)	Yes/EFSA, 2018 / No/RAR, 2017
Formation fraction (-)	-	0.73 from parent (Tier 1) / 0.53 from parent (Tier 2)	1 from IN-70941 – Tier 1 and Tier 2	0.27 from parent (Tier 1) / 0.09 from parent (Tier 2)	0.27 from parent (Tier 1) / 0.08 from parent (Tier 2)	Yes/EFSA, 2018 / No/RAR, 2017

^a $K_{fom} = K_{foc}/1.724$

- b While 42 mL/g was used for the modelling presented in EFSA (2018), 53.68 mL/g is given as the geometric on page 44 in EFSA (2018).
- c While 23.2 mL/g was used for the modelling presented in EFSA (2018) as the geometric mean, the same value is given as the arithmetic mean on page 44 in EFSA (2018).
- d It is not clear which of the soils presented on page 45 in EFSA (2018) were used to calculate the modelling endpoint.

Table 8.8-6: Input parameters for rimsulfuron and metabolites (EFSA 2018 endpoints) used for PEC_{gw} assessment using FOCUS MACRO 5.5.4

Pathway	Formation Fraction	Conversion factor*	Applied Dose* (20 g a.s. /ha)	Applied Dose* (12.59 + 7.41 g a.s. /ha)		Applied Dose* (10 + 10 g a.s. /ha)
Rimsulfuron → IN-70941 (pH < 6)	0.73	0.622	15.00	9.44	5.56	2×7.50
Rimsulfuron → IN-70941 (pH > 6)	0.73	0.622	15.00	9.44	5.56	2×7.50
Rimsulfuron → IN-E9260	0.27	0.157	15.00	9.44	5.56	2×7.50
IN-70941 (pH < 6) → IN-70942	1.0	0.883	9.32	5.87	3.45	2×4.66
IN-70941 (pH > 6) → IN-70942	1.0	0.883	9.32	5.87	3.45	2×4.66
Rimsulfuron → IN-J0290	0.27	0.097	15.00	9.44	5.56	2×7.50

*Calculation of Conversion factor, Applied dose and approach used for PEC_{gw} MACRO simulation available in Figure 8.8-1.

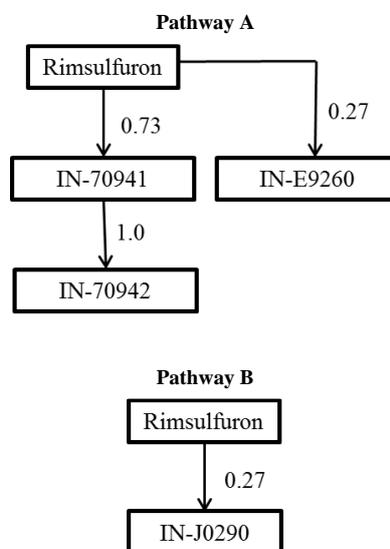


Figure 8.8-3: Pathway of rimsulfuron with formation fractions used in the Tier 1 simulations

Results

The maximum 80th percentile PEC_{gw} values of rimsulfuron and its metabolites are summarized in Table 8.8-.

The maximum PEC_{gw} of rimsulfuron was below **0.1 µg/L** for all the proposed uses of the formulated products.

~~The maximum PEC_{gw} of the metabolites was significantly lower at Tier 2 than at Tier 1.~~

The maximum PEC_{gw} (4.3 3.183 µg/L at Tier 1) for the metabolite **IN-70941** is >0.75 µg/L at Tier 1 but <0.75 µg/L at Tier 2.

The maximum PEC_{gw} of the metabolites **IN-70942** is >0.1 µg/L at Tier 1 but <0.1 µg/L at Tier 2.

The maximum PEC_{gw} of the metabolites **IN-E9260** is >0.75 µg/L at Tier 1 but <0.75 µg/L at Tier 2.

The maximum PEC_{gw} of the metabolites **IN-J0290** is <0.1 µg/L at Tier 1 and Tier 2.

Note that the Tier 2 PEC_{gw} of rimsulfuron metabolites are in general consistent with those observed in the Danish ground water monitoring program (PLAP). See the publication on PLAP rimsulfuron metabolite monitoring studies summarized in RAR, 2017⁴.

The Tier 2 maximum 80th percentile PEC_{gw} of the metabolites IN-70941 and IN-E9260 exceeded the threshold value of 0.1 µg/L, but were below the threshold of concern of 0.75 µg/L. Based on results of studies of biological activity, genotoxicity and toxicity, IN-70941 and IN-E9260 can be considered as non-relevant in groundwater.

In conclusion, rimsulfuron does not pose ground water risk, if the product is applied on maize following the label instructions.

The detailed Tier 1 and Tier 2 PEC_{gw} of rimsulfuron and metabolites for proposed uses with both PEARL 4.4.4 and PELMO 5.3.3 are provided in Table 8.8-15 to Table 8.8-18.

The detailed Tier 1 PEC_{gw} of rimsulfuron and metabolites for proposed uses with FOCUS MACRO 5.5.4 are provided in Table 8.8-19.

Table 8.8-14: Overall maximum PEC_{gw} values of rimsulfuron and its metabolites for the proposed uses of GF-3969 on maize in Europe

FOCUS Crop	Tiers	Maximum PEC_{gw} 80th percentile(µg/L) ^a				
		Rimsulfuron	IN-70941c	IN-70942c	IN-E9260	IN-J0290
PEARL 4.4.4						
Maize (20 g a.s./ha)	Tier 1 (EFSA, 2018)	<0.001	4.288	0.313	1.906	<0.001
	Tier 2 (RAR, 2017) ^d	<0.001	0.687	0.035	0.112	<0.001
Maize (2 × 10 g a.s./ha)	Tier 1 (EFSA, 2018)	<0.001	4.300	0.314	1.913	<0.001
	Tier 2 (RAR, 2017)	<0.001	0.706	0.036	0.114	<0.001
Maize (9.375 + 5.625 g a.s./ha)	Tier 1 (EFSA, 2018)	<0.001	4.296	0.313	1.911	<0.001
	Tier 2 (RAR, 2017)	<0.001	0.701	0.036	0.113	<0.001
Overall maximum	Tier 1	<0.001 ^b	4.300	0.314	1.913	<0.001
	Tier 2		0.706	0.036	0.114	<0.001
PELMO 5.3.3						
Maize (15 g a.s./ha)	Tier 1 (EFSA, 2018)	<0.001	3.148	0.248	1.427	<0.001
	Tier 2 (RAR, 2017)	<0.001	0.611	0.031	0.089	<0.001
Maize (2 × 7.5 g a.s./ha)	Tier 1 (EFSA, 2018)	<0.001	3.134	0.248	1.430	<0.001
	Tier 2 (RAR, 2017)	<0.001	0.624	0.031	0.092	<0.001
Maize (9.375 + 5.625 g a.s./ha)	Tier 1 (EFSA, 2018)	<0.001	3.137	0.248	1.429	<0.001
	Tier 2 (RAR, 2017)	<0.001	0.620	0.031	0.091	<0.001
Overall maximum	Tier 1	<0.001 ^b	3.148	0.248	1.430	<0.001
	Tier 2		0.624	0.031	0.092	<0.001
MACRO 5.5.4						
Maize (20 g a.s./ha)	Tier 1 (EFSA, 2018)	<0.001	1.844	0.097	0.821	<0.001

⁴RAR, 2017. Renewal Assessment Report for Review of Annex I Inclusion of Rimsulfuron. Annex B: RMS summary and evaluation of the data and information. Annex B.8 – Environmental fate and behaviour. Notifier – DuPont de Nemours (Deutschland) GmbH. Rapporteur Member State: Slovenia; Co Rapporteur Member State: Finland. Republic of Slovenia Ministry of Agriculture, Forestry, and Food. January 2017.

Maize (2 × 10 g a.s./ha)	Tier 1 (EFSA, 2018)	<0.001	1.843	0.096	0.823	<0.001
Maize (12.59 + 7.41 g a.s./ha)	Tier 1 (EFSA, 2018)	<0.001	1.843	0.096	0.822	<0.001
Overall maximum	Tier 1	<0.001	1.844	0.097	0.823	<0.001

- a The bolded values are the PEC_{gw} of >0.1 µg/L.
b The geometric field DegT₅₀ of 6.7 days was used at Tier 1 and Tier 2.
c PEC_{gw} of IN-70941 and IN-70942 in acidic soils are reported as they are higher than those in the alkaline soils.
d RAR, 2017. Renewal Assessment Report for Review of Annex I Inclusion of Rimsulfuron. Annex B: RMS summary and evaluation of the data and information. Annex B.8 – Environmental fate and behaviour. Notifier – DuPont de Nemours (Deutschland) GmbH. Rapporteur Member State: Slovenia; Co-Rapporteur Member State: Finland. Republic of Slovenia Ministry of Agriculture, Forestry, and Food. January 2017.

Table 8.8-15: Tier 1 PEC_{gw} for rimsulfuron and its metabolites following application on maize as predicted with PEARL 4.4.4

Crop	Scenario	80 th Percentile PEC _{gw} at 1 m Soil Depth (µg/L)						
		Rim-sulfuron	IN-70941 (pH <6)	IN-70941 (pH >7)	IN-70942 (pH <6)	IN-70942 (pH >7)	IN-E9260	IN-J0290
Maize 1 × 20 g a.s./ha BBCH 11-18	Châteaudun	<0.001	2.229	0.139	0.117	0.086	0.901	<0.001
	Hamburg	<0.001	2.710	0.250	0.119	0.125	1.114	<0.001
	Kremsmünster	<0.001	1.978	0.153	0.108	0.096	0.646	<0.001
	Okehampton	<0.001	1.516	0.221	0.072	0.111	0.538	<0.001
	Piacenza	<0.001	2.295	0.131	0.153	0.074	0.966	<0.001
	Porto	<0.001	1.099	0.070	0.035	0.024	0.421	<0.001
	Sevilla	<0.001	1.999	0.019	0.103	0.005	1.268	<0.001
Thiva	<0.001	4.288	0.097	0.313	0.075	1.906	<0.001	
Maize 10 + 10 g a.s./ha BBCH 11-18 7 d interval	Châteaudun	<0.001	2.247	0.145	0.117	0.090	0.906	<0.001
	Hamburg	<0.001	2.735	0.263	0.120	0.129	1.120	<0.001
	Kremsmünster	<0.001	1.978	0.165	0.108	0.099	0.641	<0.001
	Okehampton	<0.001	1.521	0.230	0.073	0.114	0.535	<0.001
	Piacenza	<0.001	2.296	0.138	0.152	0.077	0.947	<0.001
	Porto	<0.001	1.105	0.075	0.035	0.025	0.422	<0.001
	Sevilla	<0.001	2.011	0.021	0.103	0.006	1.274	<0.001
Thiva	<0.001	4.300	0.102	0.314	0.078	1.913	<0.001	
Maize 12.59 + 7.41 g a.s./ha BBCH 11-18 7 d interval	Châteaudun	<0.001	2.242	0.143	0.117	0.089	0.905	<0.001
	Hamburg	<0.001	2.729	0.259	0.119	0.128	1.118	<0.001
	Kremsmünster	<0.001	1.977	0.160	0.108	0.098	0.643	<0.001
	Okehampton	<0.001	1.517	0.227	0.072	0.113	0.535	<0.001
	Piacenza	<0.001	2.294	0.136	0.152	0.076	0.952	<0.001
	Porto	<0.001	1.105	0.074	0.035	0.025	0.421	<0.001
	Sevilla	<0.001	2.007	0.020	0.103	0.006	1.272	<0.001
Thiva	<0.001	4.296	0.101	0.313	0.077	1.911	<0.001	

Table 8.8-16: Tier 2 PEC_{gw} for rimsulfuron and its metabolites following application on maize as predicted with PEARL 4.4.4

Crop	Scenario	80 th Percentile PEC _{gw} at 1 m Soil Depth (µg/L)				
		Rimsulfuron	IN-70941	IN-70942	IN-E9260	IN-J0290
Maize 1 × 20 g a.s./ha BBCH 11-18	Châteaudun	<0.001	0.5088	0.0173	0.0692	<0.001
	Hamburg	<0.001	0.6874	0.0353	0.1117	<0.001
	Kremsmünster	<0.001	0.4588	0.0174	0.0657	<0.001
	Okehampton	<0.001	0.4951	0.0181	0.0658	<0.001
	Piacenza	<0.001	0.4643	0.0281	0.0534	<0.001
	Porto	<0.001	0.2520	0.0047	0.0320	<0.001
	Sevilla	<0.001	0.1735	0.0056	0.0181	<0.001
Thiva	<0.001	0.5685	0.0235	0.0665	<0.001	

Crop	Scenario	80 th Percentile PEC _{gw} at 1 m Soil Depth (µg/L)				
		Rimsulfuron	IN-70941	IN-70942	IN-E9260	IN-J0290
Maize 10 + 10 g a.s./ha BBCH 11- 18 7 d interval	Châteaudun	<0.001	0.5185	0.0178	0.0719	<0.001
	Hamburg	<0.001	0.7056	0.0358	0.1141	<0.001
	Kremsmünster	<0.001	0.4585	0.0174	0.0660	<0.001
	Okehampton	<0.001	0.5011	0.0182	0.0672	<0.001
	Piacenza	<0.001	0.4658	0.0278	0.0537	<0.001
	Porto	<0.001	0.2590	0.0048	0.0334	<0.001
	Sevilla	<0.001	0.1783	0.0058	0.0188	<0.001
	Thiva	<0.001	0.5764	0.0237	0.0682	<0.001
Maize 12.59 + 7.41 g a.s./ha BBCH 11- 18 7 d interval	Châteaudun	<0.001	0.5169	0.0176	0.0712	<0.001
	Hamburg	<0.001	0.7008	0.0357	0.1131	<0.001
	Kremsmünster	<0.001	0.4600	0.0174	0.0659	<0.001
	Okehampton	<0.001	0.4985	0.0182	0.0667	<0.001
	Piacenza	<0.001	0.4662	0.0278	0.0541	<0.001
	Porto	<0.001	0.2568	0.0048	0.0330	<0.001
	Sevilla	<0.001	0.1770	0.0058	0.0186	<0.001
	Thiva	<0.001	0.5742	0.0236	0.0677	<0.001

Table 8.8-17: Tier 1 PEC_{gw} for rimsulfuron and its metabolites following application on maize as predicted with PELMO 5.5.3

Crop	Scenario	80 th Percentile PEC _{gw} at 1 m Soil Depth (µg/L)						
		Rim-sulfuron	IN-70941 (pH<6)	IN-70941 (pH>7)	IN-70942 (pH<6)	IN-70942 (pH>7)	IN-E9260	IN-J0290
Maize 1 × 20 g a.s./ha BBCH 11-18	Châteaudun	<0.001	2.419	0.106	0.141	0.070	0.978	<0.001
	Hamburg	<0.001	2.364	0.199	0.112	0.099	0.945	<0.001
	Kremsmünster	<0.001	2.007	0.163	0.110	0.094	0.738	<0.001
	Okehampton	<0.001	1.478	0.212	0.069	0.099	0.506	<0.001
	Piacenza	<0.001	1.586	0.149	0.086	0.081	0.538	<0.001
	Porto	<0.001	1.131	0.075	0.034	0.025	0.445	<0.001
	Sevilla	<0.001	1.902	0.014	0.079	0.003	1.012	<0.001
	Thiva	<0.001	3.148	0.072	0.248	0.049	1.427	<0.001
Maize 10 + 10 g a.s./ha BBCH 11-18 7 d interval	Châteaudun	<0.001	2.432	0.109	0.142	0.073	0.978	<0.001
	Hamburg	<0.001	2.377	0.208	0.112	0.103	0.947	<0.001
	Kremsmünster	<0.001	1.987	0.169	0.110	0.097	0.734	<0.001
	Okehampton	<0.001	1.464	0.216	0.069	0.101	0.497	<0.001
	Piacenza	<0.001	1.553	0.160	0.085	0.081	0.540	<0.001
	Porto	<0.001	1.135	0.078	0.035	0.026	0.445	<0.001
	Sevilla	<0.001	1.914	0.014	0.080	0.003	1.015	<0.001
	Thiva	<0.001	3.134	0.074	0.248	0.051	1.430	<0.001
Maize 12.59 + 7.41 g a.s./ha BBCH 11-18 7 d interval	Châteaudun	<0.001	2.428	0.108	0.141	0.072	0.978	<0.001
	Hamburg	<0.001	2.373	0.206	0.112	0.102	0.946	<0.001
	Kremsmünster	<0.001	1.992	0.167	0.110	0.096	0.735	<0.001
	Okehampton	<0.001	1.461	0.215	0.069	0.100	0.499	<0.001
	Piacenza	<0.001	1.561	0.157	0.085	0.081	0.539	<0.001
	Porto	<0.001	1.137	0.077	0.035	0.026	0.445	<0.001
	Sevilla	<0.001	1.911	0.014	0.080	0.003	1.014	<0.001
	Thiva	<0.001	3.137	0.074	0.248	0.051	1.429	<0.001

Table 8.8-18: Tier 2 PEC_{gw} for rimsulfuron and its metabolites following application on maize as predicted with PELMO 5.5.3

Crop	Scenario	80 th Percentile PEC _{gw} at 1 m Soil Depth (µg/L)				
		Rimsulfuron	IN-70941	IN-70942	IN-E9260	IN-J0290
Maize 1 × 20 g a.s./ha BBCH 11-18	Châteaudun	<0.001	0.451	0.017	0.061	<0.001
	Hamburg	<0.001	0.611	0.031	0.089	<0.001
	Kremsmünster	<0.001	0.480	0.017	0.072	<0.001
	Okehampton	<0.001	0.474	0.017	0.062	<0.001
	Piacenza	<0.001	0.408	0.021	0.055	<0.001
	Porto	<0.001	0.269	0.005	0.031	<0.001
	Sevilla	<0.001	0.151	0.004	0.019	<0.001
Thiva	<0.001	0.464	0.017	0.050	<0.001	
Maize 10 + 10 g a.s./ha BBCH 11-18 7 d interval	Châteaudun	<0.001	0.460	0.017	0.064	<0.001
	Hamburg	<0.001	0.624	0.031	0.092	<0.001
	Kremsmünster	<0.001	0.489	0.017	0.073	<0.001
	Okehampton	<0.001	0.480	0.017	0.062	<0.001
	Piacenza	<0.001	0.418	0.020	0.056	<0.001
	Porto	<0.001	0.271	0.005	0.032	<0.001
	Sevilla	<0.001	0.154	0.004	0.019	<0.001
Thiva	<0.001	0.470	0.018	0.051	<0.001	
Maize 12.59 + 7.41 g a.s./ha BBCH 11-18 7 d interval	Châteaudun	<0.001	0.457	0.017	0.063	<0.001
	Hamburg	<0.001	0.620	0.031	0.091	<0.001
	Kremsmünster	<0.001	0.488	0.017	0.072	<0.001
	Okehampton	<0.001	0.477	0.017	0.062	<0.001
	Piacenza	<0.001	0.415	0.020	0.056	<0.001
	Porto	<0.001	0.271	0.005	0.032	<0.001
	Sevilla	<0.001	0.153	0.004	0.019	<0.001
Thiva	<0.001	0.469	0.018	0.051	<0.001	

Table 8.8-7: Tier 1 PEC_{gw} for rimsulfuron and its metabolites following application on maize as predicted with MACRO 5.5.4

Crop	Scenario	80 th Percentile PEC _{gw} at 1 m Soil Depth (µg/L)						
		Rim-sulfuron	IN-70941 (pH <6)	IN-70941 (pH >7)	IN-70942 (pH <6)	IN-70942 (pH >7)	IN-E9260	IN-J0290
Maize 1 × 20 g a.s./ha BBCH 11-18	Châteaudun	<0.001	1.844	0.072	0.097	0.031	0.821	<0.001
Maize 10 + 10 g a.s./ha BBCH 11-18 7 d interval	Châteaudun	<0.001	1.843	0.074	0.096	0.032	0.823	<0.001
Maize 12.59 + 7.41 g a.s./ha BBCH 11-18 7 d interval	Châteaudun	<0.001	1.843	0.073	0.096	0.032	0.822	<0.001

zRMS comments:

As already indicated in zRMS comments in point 8.8.1.1 above, approach of the Applicant to perform separate simulations with consideration of endpoints reported in EFSA Scientific Report (2005) 45 and EFSA Journal 2018;16(5):5258 has been agreed.

The application pattern considered in simulation was in line with the Central Zone GAP. Assumed crop interception corresponded with BBCH stages at which GF-3969 is intended to be applied.

Assessment based on endpoints from EFSA (2005)

At Tier 1 input parameters as reported in EFSA Scientific Report (2005) 45 were used by the Applicant for rimsulfuron and its metabolites with exception of metabolite IN-J0290, for which values originating from new degradation and soil sorption studies were considered instead of worst case default values used during the first EU review of rimsulfuron. Nevertheless, new studies with IN-J0290 considered by the Applicant were already

peer-reviewed and accepted at the EU level during renewal processes of several sulfonylurea herbicides and their results were confirmed. For this reason it was decided by the zRMS to accept their consideration in Tier 1 groundwater modelling. It is noted that the soil DT_{50} of 27.7 days was agreed at the EU level from the study by Shaw (2002). However, DT_{50} of 27 days considered by the Applicant was only slightly shorter and this difference is considered to have no impact on the obtained results. The kinetic formation fraction of 0.28 was slightly higher than ff of 0.27 agreed in the course of the renewal process and was thus accepted. Sorption parameters were the same as these accepted from the study by Aikens (2001, Doc. No DuPont-5264) during the review of the various sulfonylurea herbicides.

Results of the performed simulations demonstrated leaching of rimsulfuron, IN-70941, IN-70942 and IN-E9260 above the threshold concentration of 0.1 $\mu\text{g/L}$. Predicted concentrations of metabolite IN-J0290 were $<0.1 \mu\text{g/L}$ in all scenarios.

Due to unacceptable leaching of the active substance, the Tier 2 groundwater modelling has been performed by the Applicant, but was not agreed by the zRMS since its validation would require generation of additional active substance endpoints at the zonal level, while EU agreed endpoints were available from the renewal process finalised in 2018. Taking this into account, in opinion of the zRMS the groundwater modelling performed with consideration of endpoints reported in EFSA Journal 2018;16(5):5258 may be considered as a refinement option and its results replace results of the Tier 1 simulations performed with consideration of EFSA (2005) endpoints.

Assessment based on endpoints from EFSA (2018)

At Tier 1 all input parameters were in line with endpoints reported in EFSA Journal 2018;16(5):5258. Due to DT_{50} of 6.7 days derived on the basis of field dissipation studies, being considerably shorter than DT_{50} of 22 days agreed in 2005, PEC_{GW} values obtained for rimsulfuron in all scenarios and all application patterns were $<0.1 \mu\text{g/L}$. However, this shorter parent DT_{50} resulted with worst case results for metabolites comparing to modelling based on endpoints from 2005. In order to refine PEC_{GW} for metabolites, Tier 2 modelling has been performed by the Applicant with consideration of DT_{50} and formation fractions derived from the field dissipation studies provided in rimsulfuron RAR of 2018. It should be, however, noted that in the course of the rimsulfuron EU renewal process reliability of field dissipation data for derivation of metabolites endpoints were questioned ~~in during the were considered reliable for parent simulations only~~ and during the Pesticides Peer Review Meeting TC 155 it was concluded that field dissipation data may be used in parent simulation only. This conclusion is applicable also during the zonal assessments based on endpoints reported in EFSA (2018) and for this reason Tier 2 modelling was not agreed by the zRMS.

It should be noted that the discussion on relevance of the metabolites data from the field dissipation studies performed by DuPont has been recently re-opened with the updated RAR made available in January 2021. Nevertheless, as this discussion is ongoing at the EU level, the conclusions of consideration of the field dissipation data as provided in EFSA Journal 2018;16(5):5258 remain valid until new conclusion is issued at the EU level.

The groundwater modelling based on endpoints from 2005 and 2018 was independently validated by the zRMS using the same input parameters. Obtained results were in good agreement with these derived by the Applicant.

On the basis of the obtained results rimsulfuron and metabolite IN-J0290 are not expected to migrate to groundwater at concentrations exceeding 0.1 $\mu\text{g/L}$ when GF-3969 is used according to the intended use pattern. PEC_{GW} for toxicologically non-relevant metabolite IN-70941 were $>0.75 \mu\text{g/L}$ (max 4.3 $\mu\text{g/L}$) and the consumer risk assessment has been performed in the Core Assessment, Part B, Section 10 resulting with predicted exposure $<1.0\%$ ADI indicating acceptable risk.

PEC_{GW} for toxicologically non-relevant metabolite IN-70942 were $>0.1 \mu\text{g/L}$, but $<0.75 \mu\text{g/L}$ (max 0.314 $\mu\text{g/L}$) so no further assessment for this compound is deemed necessary.

PEC_{GW} for IN-E9260 were $>0.75 \mu\text{g/L}$ (max 1.913 $\mu\text{g/L}$) and the consumer risk assessment has been performed in the Core Assessment, Part B, Section 10 resulting with predicted exposure $<1.0\%$ ADI indicating acceptable risk. It should be noted that this metabolite was indicated as potentially toxicologically relevant in EFSA Journal 2018;16(5):5258, however based on additional data provided in support of evaluation of GF-3969 the zRMS toxicology expert concluded that IN-E2960 should be considered as toxicologically not relevant.

Overall, based on the performed evaluation no unacceptable risk to groundwater from rimsulfuron and its metabolites is expected following the intended uses of GF-3969.

During the commenting period it was pointed out that due to PEC_{GW} values for majority of rimsulfuron metabolites being $>0.001 \mu\text{g/L}$, MACRO simulation should have been performed for these compounds and the Applicant was thus requested to provide respective calculations. Modelling performed using MACRO was performed by the Applicant using endpoints and application pattern as agreed by the zRMS above. Applicants' simulations were independently validated by the zRMS using the same inputs. Obtained results were lower comparing to results of modelling performed PEARL and PELMO, regardless if endpoints from EFSA (2005) or EFSA (2018) were considered and conclusion provided above remains valid.

Please note that additional groundwater modelling may be required by the Member States that do not accept simulations performed according to FOCUS recommendations.

8.8.2.2 Thifensulfuron methyl and its metabolites

Assessment based on the EFSA endpoints (EFSA, 2015)

Predicted environmental concentrations in groundwater (PEC_{gw}) were conducted for thifensulfuron methyl and its soil metabolites (IN-L9225, IN-L9223, IN-A4098, IN-U5F72, IN-JZ789, IN-A5546, IN-V7160, IN-L9226 and IN-W8268) in order to support authorisation in European Union in groundwater were simulated with the modelling endpoints recommended in the EFSA conclusion for thifensulfuron methyl (2015).

The PEC_{gw} for thifensulfuron methyl and its metabolites were calculated for the uses on maize in Europe as summarized in Table 8.8-20.

The degradation pathways of thifensulfuron methyl and the metabolites with estimated formation fractions were simulated as shown in Figure 8.8-4.

For the metabolites IN-V7160, IN-A5546, IN-W8268, and IN-L9226 with no statistically robust formation fractions estimated, the simulation was conducted with metabolites applied as parent at the application rates summarized in Table 8.8-21. The application rates of metabolites were estimated by:

$$\text{The rate} = \text{Parent application rate (g a.s./ha)} \times \text{MW}_{\text{metabolite}}/\text{MW}_{\text{parent}} \times \text{Max. Occurrence (\%)}$$

All the input parameters are summarised Table 8.8-22. Foliar interception of 25% was applied and plant update factor of 0.0 was used for both parent and metabolites.

Input parameters for the FOCUS MACRO are summarised in Table 8.8-23.

Application dates were set to emergence + 10 days for all the ground water scenarios.

All the simulation was conducted using FOCUS PEARL 4.4.4, FOCUS PELMO 5.5.3 and FOCUS MACRO 5.5.4 with the standard FOCUS scenarios.

Table 8.8-20: Simulated application regimes for thifensulfuron methyl

Crop	Crop growth Stage	Recommended application time	Application interval (d)	Interception ^a (%)	Annual application rate (g a.s./ha)	Net soil deposit (g a.s./ha)
Maize	BBCH 11-18	Emergence + 10 days	-	25	12.5	9.375
			7 d		7.87 + 4.63	5.9025 + 3.4725
			7 d		6.25 + 6.25	4.6875 + 4.6875

a Interception according to EFSA (2014).

Table 8.8-21: Application rates of the metabolites simulated as parent compound

Crop	Crop growth Stage	Application timing	Interval (d)	Annual application rate (g a.s./ha) ^a				
				Thifensulfuron methyl	IN-V7160	IN-W8268	IN-A5546 ^b	IN-L9226 ^b
Maize	11-18	Emergence +10 days	-	12.5	0.57	1.81	7.14	12.05
			7 d	7.87 + 4.63	0.36 + 0.21	1.14 + 0.67	4.49 + 2.64	7.59 + 4.46
			7 d	6.25 + 6.25	0.28 + 0.28	0.90 + 0.90	3.57 + 3.57	6.02 + 6.02

- a The application rate for the metabolites dosed as parent = rate of thifensulfuron methyl × MW of a metabolite/MW of thifensulfuron methyl × maximum occurrence of a metabolite (%);
- b The worst-case of 100% was assumed in estimating the metabolite application rate.

Table 8.8-22: Input parameters related to active substance thifensulfuron methyl and metabolites for PEC_{gw} calculations

Compound	Thifensulfuron methyl	IN-L9225	IN-L9223	IN-A4098	IN-U5F72	Value in accordance with EU endpoint / Reference
Molar mass (g/mol)	387.4	373.4	207.2	140.1	378.3	Yes/EFSA, 2015
Water solubility (mg/L) (pH 7.0, 20 °C)	2240	2240	2240	2240	2240	Yes/EFSA, 2015
Saturated vapour pressure (Pa) (20 °C)	5.2×10^{-9}	5.2×10^{-9}	5.2×10^{-9}	5.2×10^{-9}	5.2×10^{-9}	Yes/EFSA, 2015
K _{foc} (L/kg)	9.0 (median, n = 9)	19.9 (arithmetic, n = 6)	4.07 (arithmetic, n = 4)	45.5 (median, n = 27)	524.0 (arithmetic, n = 3)	Yes/EFSA, 2015
Freundlich Exponent 1/n (-)	0.932 (arithmetic mean, n = 9)	0.85 (arithmetic mean, n = 6)	1.157 (arithmetic mean, n = 4)	0.9 (arithmetic mean, n = 27)	1.0 (arithmetic mean, n = 3)	Yes/EFSA, 2015
Plant uptake factor (-)	0	0	0	0	0	FOCUS default
DT _{50,soil} (d)	1.39 (geometric mean, n = 6)	32.3 (geometric mean, n = 11)	178 (geometric mean, n = 3)	167.9 (geometric mean, n = 16)	73.0 (Geometric mean, n = 8)	Yes/EFSA, 2015
Formation fraction	-	0.95 from Parent	0.3 from IN-L9225	0.05 from Parent and 0.14 from IN-L9225	1.0 from IN-JZ789 and 0.22 from IN-L9225	Yes/EFSA, 2015
Maximum occurrence in soil (%)	-	-	-	-	-	Yes/EFSA, 2015

Table 8.8-22: Input parameters related to active substance thifensulfuron methyl and metabolites for PECgw calculations (continued)

Compound	IN-JZ789	IN-A5546 ^a	IN-V7160 ^a	IN-L9226 ^a	IN-W8268 ^a	Value in accordance with EU endpoint / Reference
Molar mass (g/mol)	359.3	221.2	183.2	373.4	189.2	Yes/EFSA, 2015
Water solubility (mg/L) (pH 7.0, 25 °C)	2240	2240	2240	2240	2240	Yes/EFSA, 2015
Saturated vapour pressure (Pa) (20 °C)	5.2×10^{-9}	5.2×10^{-9}	5.2×10^{-9}	5.2×10^{-9}	5.2×10^{-9}	Yes/EFSA, 2015
K_{foc} (L/kg)	31.1 (arithmetic, n = 8)	49.0 (arithmetic, n = 3)	113.94 (arithmetic, n = 5)	126 (arithmetic, n = 6)	7.4 (arithmetic, n = 6)	Yes/EFSA, 2015
Freundlich Exponent 1/n (-)	1.0 (arithmetic mean, n = 8)	0.91 (arithmetic mean, n = 3)	0.913 (arithmetic mean, n = 5)	0.900 (arithmetic mean, n = 6)	1.16 (arithmetic mean, n = 6)	Yes/EFSA, 2015
Plant uptake factor (-)	0	0	0	0	0	FOCUS default
DT _{50,soil} (d)	60 (Geometric mean, n = 5)	3 (Geometric mean, n = 5)	19.4 (Geometric mean, n = 5)	0.95 (Geometric mean, n = 6)	18.7 (Geometric mean, n = 6)	Yes/EFSA, 2015
Formation fraction	0.26 from IN-L9225	-	-	-	-	Yes/EFSA, 2015
Maximum occurrence in soil (%)	-	100 ^b	9.6	100 ^b	29.6	Yes/EFSA, 2015

a Metabolites IN-A5546, IN-L9226, IN-V7160 and IN-W8268 were simulated as a pseudo-parent, thus, there are no formation fraction values given.

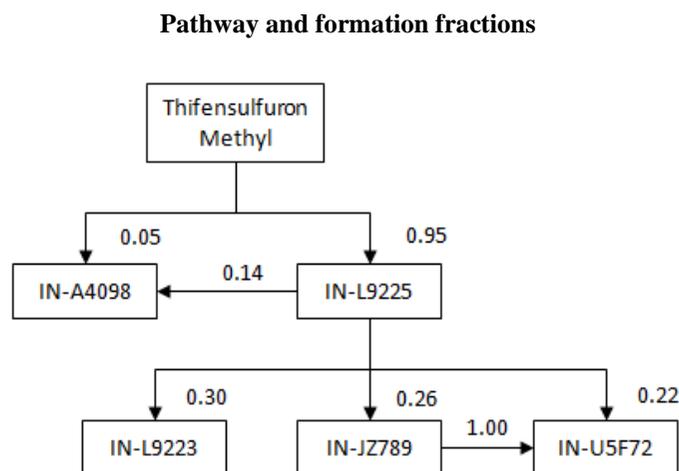
b The worst-case of 100% occurrence is assumed as in the EFSA conclusion (2015).

Table 8.8-8: Input parameters for thifensulfuron methyl and metabolites (EFSA 2015 endpoints) used for PECgw assessment using FOCUS MACRO 5.5.4

Pathway	Formation fraction [*]	Conversion factor [*]	Applied Dose [*] (12.5 g a.s./ha)	Applied Dose [*] (7.87 + 4.63 g a.s./ha)		Applied Dose [*] (6.25 + 6.25 g a.s./ha)
Thifensulfuron methyl → IN-L9225	0.95	0.916	9.38	5.90	3.47	2×4.69
Thifensulfuron methyl → IN-A4098	0.05	0.018	9.38	5.90	3.47	2×4.69
IN-L9225 → IN-L9223	0.3	0.166	8.58	5.40	3.18	2×4.29
IN-L9225 → IN-JZ789	0.26	0.250	8.58	5.40	3.18	2×4.29
IN-L9225 → IN-U5F72	0.22	0.223	8.58	5.40	3.18	2×4.29
IN-L9225 → IN-A4098	0.14	0.053	8.58	5.40	3.18	2×4.29
IN-JZ789 → IN-U5F72	1.0	1.053	2.15	1.35	0.80	2×1.07

*Calculation of Conversion factor, Applied dose and approach used for PECgw MACRO simulation available in Figure 8.8-1.

Figure 8.8-4: Pathway of thifensulfuron methyl with formation fractions used in the simulations



The 80th percentile PEC_{gw} values of thifensulfuron methyl and its metabolites are summarised in Table 8.8-24.

The maximum 80th percentile PEC_{gw} values of thifensulfuron methyl and its major soil metabolite IN-A4098, IN-W8268, IN-V7160, IN-A5546, IN-L9226, and IN-U5F72 are $<0.1 \mu\text{g/L}$ for all proposed uses on maize.

The maximum 80th percentile PEC_{gw} values of the metabolites IN-L9223, IN-L9225, and IN-JZ789 exceeds $0.1 \mu\text{g/L}$, however, remain below $0.75 \mu\text{g/L}$ for all applications. These metabolites are toxicologically non-relevant and not likely to pose leaching risk to ground water.

The details of scenario-specific results with PEARL 4.4.4, PELMO 5.5.3 and **MACRO 5.5.4** are provided in Table 8.8-25 to Table 8.8-27.

Table 8.8-24: Summary of PEARL and PELMO overall maximum PEC_{gw} values of thifensulfuron methyl and its metabolites resulting from applications to maize

Application rate (g a.s./ha)	Application timing	Maximum PEC _{gw} 80 th percentile (µg/L)									
		Thifensulfuron methyl	IN-L9225	IN-L9223	IN-A4098	IN-U5F72	IN-JZ789	IN-L9226	IN-A5546	IN-V7160	IN-W8268
1 × 12.5	Emerg. + 10 d	<0.001	0.101	0.827	0.084	0.073	0.320	<0.001	<0.001	<0.001	0.069
2 × 6.25	Emerg. + 10 d ^a	<0.001	0.110	0.831	0.085	0.075	0.328	<0.001	<0.001	<0.001	0.078
7.87 + 4.63	Emerg. + 10 d ^a	<0.001	0.108	0.830	0.085	0.075	0.326	<0.001	<0.001	<0.001	0.076

^a Time interval between the two applications is 7 days.
PEC_{GW} >0.1 µg/L are highlighted in bold

Table 8.8-25: PEC_{gw} for thifensulfuron methyl and metabolites on maize at the application rate of 1×12.5 g a.s./ha at BBCH 11-18 (with FOCUS PEARL 4.4.4, FOCUS PELMO 5.5.3 and FOCUS MACRO 5.5.4)

Crop	Scenario	80 th Percentile PEC _{gw} at 1 m Soil Depth (µg/L)									
		Thifensulfuron methyl	IN-L9225	IN-L9223	IN-A4098	IN-U5F72	IN-JZ789	IN-L9226	IN-A5546	IN-V7160	IN-W8268
FOCUS PEARL 4.4.4	Châteaudun	<0.001	0.045	0.499	0.063	0.054	0.211	<0.001	<0.001	<0.001	0.024
	Hamburg	<0.001	0.101	0.676	0.079	0.073	0.320	<0.001	<0.001	<0.001	0.069
	Kremsmünster	<0.001	0.071	0.367	0.057	0.057	0.200	<0.001	<0.001	<0.001	0.032
	Okehampton	<0.001	0.098	0.334	0.057	0.049	0.199	<0.001	<0.001	<0.001	0.037
	Piacenza	<0.001	0.045	0.462	0.061	0.053	0.175	<0.001	<0.001	<0.001	0.011
	Porto	<0.001	0.018	0.206	0.032	0.015	0.106	<0.001	<0.001	<0.001	0.006
	Sevilla	<0.001	0.002	0.408	0.027	0.013	0.066	<0.001	<0.001	<0.001	0.001
	Thiva	<0.001	0.024	0.827	0.084	0.061	0.206	<0.001	<0.001	<0.001	0.009
FOCUS PELMO 5.5.3	Châteaudun	<0.001	0.031	0.525	0.061	0.051	0.191	<0.001	<0.001	<0.001	0.015
	Hamburg	<0.001	0.071	0.551	0.071	0.06	0.267	<0.001	<0.001	<0.001	0.039
	Kremsmünster	<0.001	0.068	0.407	0.059	0.054	0.207	<0.001	<0.001	<0.001	0.036
	Okehampton	<0.001	0.091	0.328	0.056	0.043	0.19	<0.001	<0.001	<0.001	0.040
	Piacenza	<0.001	0.053	0.322	0.05	0.046	0.172	<0.001	<0.001	<0.001	0.017
	Porto	<0.001	0.021	0.208	0.033	0.014	0.109	<0.001	<0.001	<0.001	0.006
	Sevilla	<0.001	0.001	0.359	0.021	0.01	0.066	<0.001	<0.001	<0.001	0.001
	Thiva	<0.001	0.016	0.611	0.07	0.042	0.172	<0.001	<0.001	<0.001	0.004
FOCUS MACRO 5.5.4	Châteaudun	<0.001	0.018	0.432	0.042	0.022	0.136	<0.001	<0.001	<0.001	0.010

Table 8.8-26: PEC_{gw} for thifensulfuron methyl and metabolites on maize at the application rate of 2×6.25 g a.s./ha at BBCH 11-18 (with FOCUS PEARL 4.4.4, FOCUS PELMO 5.5.3 and FOCUS MACRO 5.5.4)

Crop	Scenario	80 th Percentile PEC _{gw} at 1 m Soil Depth (µg/L)									
		Thifensulfuron methyl	IN-L9225	IN-L9223	IN-A4098	IN-U5F72	IN-JZ789	IN-L9226	IN-A5546	IN-V7160	IN-W8268
FOCUS PEARL 4.4.4	Châteaudun	<0.001	0.048	0.502	0.064	0.056	0.214	<0.001	<0.001	<0.001	0.026
	Hamburg	<0.001	0.110	0.681	0.081	0.075	0.328	<0.001	<0.001	<0.001	0.078
	Kremsmünster	<0.001	0.068	0.367	0.056	0.056	0.198	<0.001	<0.001	<0.001	0.034
	Okehampton	<0.001	0.108	0.335	0.057	0.049	0.199	<0.001	<0.001	<0.001	0.042
	Piacenza	<0.001	0.048	0.459	0.061	0.053	0.180	<0.001	<0.001	<0.001	0.013
	Porto	<0.001	0.020	0.207	0.032	0.015	0.107	<0.001	<0.001	<0.001	0.007
	Sevilla	<0.001	0.003	0.412	0.027	0.014	0.068	<0.001	<0.001	<0.001	0.001
	Thiva	<0.001	0.026	0.831	0.085	0.062	0.210	<0.001	<0.001	<0.001	0.010
FOCUS PELMO 5.5.3	Châteaudun	<0.001	0.033	0.527	0.062	0.052	0.194	<0.001	<0.001	<0.001	0.016
	Hamburg	<0.001	0.079	0.554	0.072	0.062	0.271	<0.001	<0.001	<0.001	0.042
	Kremsmünster	<0.001	0.068	0.407	0.059	0.055	0.201	<0.001	<0.001	<0.001	0.036
	Okehampton	<0.001	0.102	0.33	0.055	0.044	0.193	<0.001	<0.001	<0.001	0.041
	Piacenza	<0.001	0.061	0.317	0.049	0.046	0.171	<0.001	<0.001	<0.001	0.017
	Porto	<0.001	0.022	0.207	0.034	0.014	0.108	<0.001	<0.001	<0.001	0.006
	Sevilla	<0.001	0.001	0.362	0.022	0.011	0.067	<0.001	<0.001	<0.001	0.001
	Thiva	<0.001	0.017	0.612	0.071	0.043	0.177	<0.001	<0.001	<0.001	0.005
FOCUS MACRO 5.5.4	Châteaudun	<0.001	0.020	0.432	0.042	0.023	0.139	<0.001	<0.001	<0.001	0.011

Table 8.8-27: PEC_{gw} for thifensulfuron methyl and metabolites on maize at the application rate of 7.87 + 4.63 g a.s./ha at BBCH 11-18 (with FOCUS PEARL 4.4.4, FOCUS PELMO 5.5.3 and FOCUS MACRO 5.5.4)

Crop	Scenario	80 th Percentile PEC _{gw} at 1 m Soil Depth (µg/L)									
		Thifensulfuron methyl	IN-L9225	IN-L9223	IN-A4098	IN-U5F72	IN-JZ789	IN-L9226	IN-A5546	IN-V7160	IN-W8268
FOCUS PEARL 4.4.4	Châteaudun	<0.001	0.048	0.501	0.064	0.056	0.213	<0.001	<0.001	<0.001	0.025
	Hamburg	<0.001	0.108	0.680	0.080	0.075	0.326	<0.001	<0.001	<0.001	0.076
	Kremsmünster	<0.001	0.067	0.367	0.056	0.056	0.198	<0.001	<0.001	<0.001	0.034
	Okehampton	<0.001	0.105	0.335	0.058	0.049	0.200	<0.001	<0.001	<0.001	0.042
	Piacenza	<0.001	0.047	0.460	0.061	0.052	0.178	<0.001	<0.001	<0.001	0.012
	Porto	<0.001	0.020	0.206	0.032	0.015	0.106	<0.001	<0.001	<0.001	0.007
	Sevilla	<0.001	0.002	0.411	0.027	0.014	0.068	<0.001	<0.001	<0.001	0.001
	Thiva	<0.001	0.026	0.830	0.085	0.062	0.209	<0.001	<0.001	<0.001	0.010
FOCUS PELMO 5.5.3	Châteaudun	<0.001	0.032	0.527	0.061	0.052	0.193	<0.001	<0.001	<0.001	0.016
	Hamburg	<0.001	0.077	0.553	0.072	0.061	0.27	<0.001	<0.001	<0.001	0.042
	Kremsmünster	<0.001	0.067	0.407	0.059	0.055	0.202	<0.001	<0.001	<0.001	0.037
	Okehampton	<0.001	0.099	0.329	0.056	0.044	0.192	<0.001	<0.001	<0.001	0.042
	Piacenza	<0.001	0.058	0.319	0.049	0.046	0.171	<0.001	<0.001	<0.001	0.017
	Porto	<0.001	0.021	0.208	0.033	0.014	0.108	<0.001	<0.001	<0.001	0.006
	Sevilla	<0.001	0.001	0.361	0.022	0.011	0.067	<0.001	<0.001	<0.001	0.001
	Thiva	<0.001	0.017	0.612	0.071	0.043	0.176	<0.001	<0.001	<0.001	0.005
FOCUS MACRO 5.5.4	Châteaudun	<0.001	0.020	0.432	0.042	0.023	0.138	<0.001	<0.001	<0.001	0.011

zRMS comments:

All input parameters considered by the Applicant in groundwater modelling for thifensulfuron-methyl and its metabolites were in line with endpoints reported in EFSA Journal 2015;13(7):4201. The application pattern considered in simulation was in line with the Central Zone GAP. Assumed crop interception corresponded with BBCH stages at which GF-3969 is intended to be applied.

Approach of the Applicant to simulate metabolites IN-V7160, IN-A5546, IN-W8268, and IN-L9226 as the parent with consideration of pseudo-application rates calculated with consideration of the molar ratio and peak occurrence in soil is in line with approach taken in the course of the EU review of thifensulfuron-methyl.

The groundwater modelling was independently validated by the zRMS using the same input parameters. Obtained results were in good agreement with these derived by the Applicant.

On the basis of the obtained results thifensulfuron-methyl and metabolites IN-A4098, IN-U5F72, IN-L9226, IN-A5546, IN-V7160 and IN-W8268 are not expected to migrate to groundwater at concentrations exceeding 0.1 µg/L when GF-3969 is used according to the intended use pattern.

PEC_{GW} for metabolites IN-L9225 and IN-JZ789 were >0.1 µg/L, but <0.75 µg/L (max 0.110 and 0.328 µg/L, respectively) so no further assessment for these compounds is deemed necessary. It should be noted that both metabolites were indicated as toxicologically relevant in EFSA Journal 2015:13(7):4201. However RAC opinion of December 2016 changed harmonised classification of thifensulfuron-methyl and in consequence metabolites IN-L9225 and IN-JZ789 may be considered as toxicologically non-relevant. For more details, please refer to the Core Assessment, Part B, Section 10.

PEC_{GW} for **IN-L9223** ~~IN-L9225~~ were >0.75 µg/L (max 0.831 µg/L) and the consumer risk assessment has been performed in the Core Assessment, Part B, Section 10 resulting with predicted exposure <2.0% ADI indicating acceptable risk. It should be noted that this metabolite was indicated as potentially toxicologically relevant in EFSA Journal 2015:13(7):4201. However RAC opinion of December 2016 changed harmonised classification of thifensulfuron-methyl and in consequence metabolites IN-L9225 and IN-JZ789 may be considered as toxicologically non-relevant. For more details, please refer to the Core Assessment, Part B, Section 10.

Overall, based on the performed evaluation no unacceptable risk to groundwater from thifensulfuron-methyl and its metabolites is expected following the intended uses of GF-3969.

Following the commenting the Applicant was requested to provide MACRO simulations since PEC_{GW} values for majority of thifensulfuron-methyl metabolites were >0.001 µg/L. Modelling performed using MACRO was performed by the Applicant using endpoints and application pattern as agreed by the zRMS above. Applicants' simulations were independently validated by the zRMS using the same inputs. Obtained results were lower comparing to results of modelling performed PEARL and PELMO and conclusion provided above remains valid.

Please note that additional groundwater modelling may be required by the Member States that do not accept simulations performed according to FOCUS recommendations.

8.8.2.3 Isoxadifen-ethyl

Table 8.8-28: Input parameters related to application for PEC_{gw} calculations

Use No.	1; 14		
Crop	Safener isoxadifen-ethyl: maize	Safener isoxadifen-ethyl: maize	Safener isoxadifen-ethyl: maize
Application rate (g a.s./ha)	Safener isoxadifen-ethyl: 15 g a.s./ha	Safener isoxadifen-ethyl: 9.44 + 5.56 g a.s./ha	Safener isoxadifen-ethyl: 1 × 7.5 g a.s./ha
Number of applications/interval (d)	1 / -	2 / 7	2 / 7
Relative application date	Absolute dates are given in table below		
Crop interception (%)	Safener isoxadifen-ethyl: 25%		
Frequency of application	annual		
Models used for calculation	FOCUS PEARL v4.4.4, FOCUS PELMO v5.5.3		

Table 8.8-29: Application dates used for groundwater risk assessment

Crop	Scenario	1 st Application day (Emergence+10 days)	2 nd Application (7d interval)
Maize	Châteaudun	11-May	18-May
	Hamburg	15-May	22-May
	Jokioinen	-	-
	Kremsmünster	15-May	22-May
	Okehampton	4-Jun	11-Jun
	Piacenza	25-May	1-Jun
	Porto	11-May	18-May
	Sevilla	17-Mar	24-Mar
	Thiva	30-Apr	7-May

Table 8.8-30: Input parameters related to safener isoxadifen-ethyl and metabolites for PEC_{gw} calculations

Compound	Isoxadifen-ethyl	AE F129431	Value in accordance with EU endpoint y/n/ Reference*
Molecular weight (g/mol)	295.4	267.3	Y/ Evaluation from Germany (2002)
Water solubility (mg/L):	1.06 (20°C)	1000 (20°C) (default)	Y/ Evaluation from Germany (2002) N/ default value
Saturated vapour pressure (Pa):	2.2×10^{-6} (20°C)	1.0×10^{-10} (20°C) (default)	Y/ Evaluation from Germany (2002) N/ default value
DT ₅₀ in soil (d)	0.4 (SFO, geomean, lab., normalisation to pF2, 20 °C with Q ₁₀ of 2.58, n=4)	4.1 (SFO, geomean, lab., normalisation to pF2, 20 °C with Q ₁₀ of 2.58, n=4)	Y/ Evaluation from Germany (2002)
Transformation rate (1/d)	1.73287	0.16906	Y/ Evaluation from Germany (2002) (Calculated as $\ln 2 / DT_{50}$)
K _{foc} (mL/g)/K _{fom}	727/422 (estimated from octanol/water partition coefficient)	92/53 (geometric mean, n = 4)	Y/ Evaluation from Germany (2002)
1/n	1.0 (FOCUS default value)	0.83 (arithmetic mean, n = 4)	Y/ Evaluation from Germany (2002)
Plant uptake factor	0	0	Default value
Formation fraction	-	1.0	Default value

* Summary of the German national evaluation of the safener isoxadifen-ethyl, 14 August 2002, RMS: Germany.
BCS document ID: M-263999-01-1 – see Part B, Section 0 – Core Assessment, Point 0.1.3 (Regulatory history of the active(s))

Table 8.8-31: PEC_{gw} for isoxadifen-ethyl (safener) and metabolite on maize at the application rate of 1×15 g a.s./ha (with FOCUS PEARL v4.4.4, PELMO v5.5.3)

Scenario	80 th Percentile PEC _{gw} at 1 m Soil Depth (µg/L)			
	Isoxadifen-ethyl		AE F129431	
	PEARL	PELMO	PEARL	PELMO
Châteaudun	<0.001	<0.001	<0.001	<0.001
Hamburg	<0.001	<0.001	<0.001	<0.001
Kremsmünster	<0.001	<0.001	<0.001	<0.001
Okehampton	<0.001	<0.001	<0.001	<0.001
Piacenza	<0.001	<0.001	<0.001	<0.001
Porto	<0.001	<0.001	<0.001	<0.001
Sevilla	<0.001	<0.001	<0.001	<0.001
Thiva	<0.001	<0.001	<0.001	<0.001

Table 8.8-32: PEC_{gw} for isoxadifen-ethyl (safener) and metabolite on maize at the application rate of 9.44 + 5.56 g a.s./ha (with FOCUS PEARL v4.4.4, PELMO v5.5.3)

Scenario	80 th Percentile PEC _{gw} at 1 m Soil Depth (µg/L)			
	Isoxadifen-ethyl		AE F129431	
	PEARL	PELMO	PEARL	PELMO
Châteaudun	<0.001	<0.001	<0.001	<0.001
Hamburg	<0.001	<0.001	<0.001	<0.001
Kremsmünster	<0.001	<0.001	<0.001	<0.001
Okehampton	<0.001	<0.001	<0.001	<0.001
Piacenza	<0.001	<0.001	<0.001	<0.001
Porto	<0.001	<0.001	<0.001	<0.001
Sevilla	<0.001	<0.001	<0.001	<0.001
Thiva	<0.001	<0.001	<0.001	<0.001

Table 8.8-33: PEC_{gw} for isoxadifen-ethyl (safener) and metabolite on maize at the application rate of 2×7.5 g a.s./ha (with FOCUS PEARL v4.4.4, PELMO v5.5.3)

Scenario	80 th Percentile PEC _{gw} at 1 m Soil Depth (µg/L)			
	Isoxadifen-ethyl		AE F129431	
	PEARL	PELMO	PEARL	PELMO
Châteaudun	<0.001	<0.001	<0.001	<0.001
Hamburg	<0.001	<0.001	<0.001	<0.001
Kremsmünster	<0.001	<0.001	<0.001	<0.001
Okehampton	<0.001	<0.001	<0.001	<0.001
Piacenza	<0.001	<0.001	<0.001	<0.001
Porto	<0.001	<0.001	<0.001	<0.001
Sevilla	<0.001	<0.001	<0.001	<0.001
Thiva	<0.001	<0.001	<0.001	<0.001

zRMS comments:

No EU agreed data exist for the safener, isoxadifen-ethyl and for this reason validation of input parameters considered in the groundwater exposure assessment presented above against EU agreed endpoints was not possible.

It is noted that values used by the Applicant originate from the national evaluation performed by Germany in 2002. However, since the time of this evaluation majority of guidance documents were updated and endpoints considered by the Applicant in above calculations do not adhere to the current standards and cannot be thus considered to be fully reliable and relevant for purposes of the exposure assessment following uses of GF-3969. Derivation of respective endpoints would require full re-evaluation of the whole data package for isoxadifen-ethyl, which is, however, outside the scope of the zonal evaluation, since endpoints for safeners should be derived in the course of the EU review process.

Taking this into account, validation of groundwater exposure calculated for isoxadifen-ethyl was not possible and calculations provided above have been retained for informative purposes only with font colour changed to grey in order to easily distinguish validated from non-validated data.

Although input parameters for isoxadifen-ethyl cannot be confirmed, the zRMS performed independent simulations for this compound using input parameters proposed by the Applicant. In case endpoints are confirmed to be correct, no unacceptable leaching of isoxadifen-ethyl or its metabolites is expected following application of GF-3969 according to the intended use pattern.

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

GF-3969 is applied to maize at a maximum rate of 20 g a.s./ha of rimsulfuron, 12.5 g a.s./ha of thifensulfuron methyl, and 15 g a.s./ha isoxadifen-ethyl (safener). GF-3969 was not the representative formulation evaluated for Annex I inclusion of rimsulfuron or thifensulfuron methyl.

The surface water modelling was conducted for rimsulfuron, thifensulfuron methyl and isoxadifen-ethyl with application rates, dates, and other application scenarios in Table 8.9-1 and Table 8.9-2.

Table 8.9-1: Input parameters related to application for PEC_{sw/sed} calculations

Plant protection product	GF-3969
Use No.	All uses intended in the Central Zone 1-14
Crop	maize
Application rate	20 g a.s./ha rimsulfuron 12.5 g a.s./ha thifensulfuron methyl 15 g a.s./ha isoxadifen-ethyl 12.59 + 7.41 g a.s./ha rimsulfuron 7.87 + 4.63 g a.s./ha thifensulfuron methyl 9.44 + 5.56 g a.s./ha isoxadifen-ethyl 2 × 10 g a.s./ha rimsulfuron 2 × 6.25 g a.s./ha thifensulfuron methyl 2 × 7.5 g a.s./ha isoxadifen-ethyl
Number of applications/interval (d)	1 or 2/7 (split application)
Application method	Ground spray
CAM (Chemical application method)	2
Soil depth (cm)	4
Models used for calculation	STEPS 1-2 in FOCUS, Version 3.2 FOCUS SWASH v 5.3, FOCUS PRZM v 4.3.1, FOCUS MACRO v 5.5.4, FOCUS TOXWA v 5.5.3 SWAN v5.0.0

Table 8.9-2: FOCUS Step 3 Scenario related application windows for PEC_{sw/sed} calculations for the application of GF-3969

Crop	Scenario	Application window used in modelling for single application ^a	Application window used in modelling for split double application
Maize	D3 (Vredepel)	May 15 – June 14	15-May – 21-June
	D4 (Skousbo)	May 20 – June 19	20-May – 26-June
	D5 (La Jailliere)	May 20 – June 19	20-May – 26-June
	D6 (Thiva)	April 30 – May 30	30-Apr – 06-June
	R1 (Weiherbach)	May 13 – June 12	13-May – 19-June
	R2 (Porto)	May 11 – June 10	11-May – 17-June
	R3 (Bologna)	May 11 – June 10	11-May – 17-June
	R4 (Roujan)	April 20 – May 20	20-Apr – 27-May

^a A 30-day window for single application and a 37 days window for double application was defined in SWASH considering the first possible day of application 10 days after emergence.

zRMS comments:

The application pattern assumed in surface water exposure assessment presented in Table 8.8-1 is in line with the critical Central Zone GAP with some minor corrections introduced by the zRMS for clarity.

Application dates used at Step 3 and 4 modelling reported in Table 8.9-2 were checked by the zRMS using AppDate ver. 3.06 tool and are confirmed to be correct.

8.9.1 Justification for new endpoints

8.9.1.1 Rimsulfuron

Assessment with the 2005 EFSA endpoint

The EU agreed endpoints for rimsulfuron and its metabolites were used in the simulation, except for the modelling endpoints for the metabolite IN-J0290.

Assessment with the 2018 EFSA endpoint

The EU agreed endpoints for rimsulfuron and its metabolites were used in the simulation.

zRMS comments:

Since the Applicants' approach to perform separate simulations with consideration of endpoints reported in EFSA Scientific Report (2005) 45 and EFSA Journal 2018;16(5):5258 has been already agreed by the zRMS for groundwater modelling, it is also considered acceptable for surface water exposure assessment. For detailed discussion on taken approach and considered input parameters, please refer to point 8.8.1.1 and 8.8.2.1 of this document.

8.9.1.2 Thifensulfuron methyl

The EU agreed endpoints for thifensulfuron methyl and its metabolites (EFSA, 2015) were used in the simulation.

8.9.1.3 Isoxadifen-ethyl

The EU agreed endpoints for isoxadifen-ethyl and its metabolites were not available; the endpoints evaluated by UBA (Germany, 2002) were used in exposure assessment.

zRMS comments:

No EU agreed data exist for the safener, isoxadifen-ethyl and for this reason validation of input parameters considered in the groundwater exposure assessment against EU agreed endpoints was not possible.

It is noted that values used by the Applicant originate from the national evaluation performed by Germany in 2002. However, since the time of this evaluation majority of guidance documents were updated and endpoints considered by the Applicant in performed simulations do not adhere to the current standards and cannot be thus considered to be fully reliable and relevant for purposes of the exposure assessment following uses of GF-3969. Derivation of respective endpoints would require full re-evaluation of the whole data package for isoxadifen-methyl, which is, however, outside the scope of the zonal evaluation, since endpoints for safeners should be derived in the course of the EU review process.

Taking this into account, validation of surface water exposure calculated for isoxadifen-ethyl was not possible and performed modelling has been retained for informative purposes only with font colour changed to grey in order to easily distinguish validated from non-validated data.

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

The summary of surface water modelling results for rimsulfuron and thifensulfuron methyl are presented as follows.

8.9.2.1 Rimsulfuron and its metabolites

PEC_{sw} for rimsulfuron and its metabolite with the 2005 EFSA Endpoints (EFSA, 2005); (DuPont-51207)

The predicted concentration of rimsulfuron and its metabolites in surface water was simulated using the 2005 EFSA endpoints, with the latest version of surface water modelling tools.

The application scenarios simulated are provided in Table 8.9-3. Input parameters are summarized in Table 8.9-4.

The Step 1 and Step 2, Step 3 and Step 4 maximum PEC_{sw}, PEC_{sed} and 7 day TWA PEC_{sw} values of rimsulfuron and its metabolites after application on maize are summarized in Table 8.9-5 to Table 8.9-29.

Table 8.9-3: Recommended use patterns of rimsulfuron on maize

Formulation	Crop	Application Timing	BBCH ^a Growth Stage	Number of appl. (-)	Interval (days)	Application Rate (g a.s./ha)
GF-3969	Maize	Emergence + 10 d	BBCH 11-18	1	-	20
			BBCH 11-18	2	7	10 + 10
			BBCH 11-18	2	7	12.59 + 7.41

a First application assumed to occur at earliest growth stage.

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

Compound	Rimsulfuron	IN-70941	IN-70942	IN-E9260	IN-J0290	IN-JF999	Value in accordance with EU endpoint / Reference
Molar mass (g/mol)	431.45	367.4	324.36	250.3	155.2	310.33	Yes/EFSA, 2005
Water solubility (mg/L) (20 °C)	7300	7300	7300	7300	7300	7300	Yes/EFSA, 2005
Saturated vapour pressure (Pa) (20 °C)	8.9×10^{-7}	8.9×10^{-7}	8.9×10^{-7}	8.9×10^{-7}	8.9×10^{-7}	8.9×10^{-7}	Yes/EFSA, 2005
Diffusion coefficient in water (m ² /d)	4.3×10^{-5}	not required for Step 1+2	FOCUS default				
Diffusion coefficient in air (m ² /d)	0.43	not required for Step 1+2	FOCUS default				
K _{foc} (L/kg)	47 (arithmetic mean)	42 (arithmetic mean)	194 (arithmetic mean)	24 (arithmetic mean)	458 (Arithmetic mean)	0 (Estimate, not found in soil)	Yes/EFSA, 2005

Compound	Rimsulfuron	IN-70941	IN-70942	IN-E9260	IN-J0290	IN-JF999	Value in accordance with EU endpoint / Reference
Freundlich Exponent 1/n (-)	1.02 (arithmetic mean)	0.93 (Arithmetic mean; sandy loam soils)	0.85 (arithmetic mean))	1.0 (Arithmetic mean; sandy loam soils)	0.8 (arithmetic mean)	0 (Estimate, not found in soil)	Yes/EFSA, 2005
Plant uptake factor (-)	0	0	0	0	0	0	FOCUS default
Wash-off factor from Crop (1/mm)	0.05 (MACRO) 0.50 (PRZM)	not required for Step 1+2	not required for Step 1+2	not required for Step 1+2	not required for Step 1+2	not required for Step 1+2	FOCUS default
DT _{50,soil} (d)	22 (Geomean)	140 (geometric mean)	94 (geometric mean)	390 (geometric mean)	27 (geometric mean)	1000 (Estimate, not found in soil)	Yes/EFSA, 2005 No/EFSA, 2013
DT _{50,water} (d)	7	28	22	1000 (default)	1000 (default)	1000 (Estimate)	Yes/EFSA, 2005
DT _{50,sed} (d)	11	31	107	1000 (default)	1000 (default)	1000 (Estimate)	Yes/EFSA, 2005
DT _{50,whole system} (d)	11	31	107	1000 (default)	1000 (default)	1000 (Estimate)	Yes/EFSA, 2005
Maximum occurrence observed (% molar basis with respect to the parent)	-	Soil: 54.5 Total system: 87.2	Soil: 23.5 Total system: 83.8	Soil: 18.9 Total system: 16.2	Soil: 12.7 Total system: 19.1	Soil: 0 Total system: 24.5	Yes/EFSA, 2005

Rimsulfuron- Steps 1, 2, 3 and 4

Maize, 1 × 20 g a.s./ha, BBCH 11-18

Table 8.9-5: FOCUS Steps 1, 2 and 3 PEC_{sw} and PEC_{sed} for rimsulfuron following application of 1 × 20 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Season/ Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1					
	-	6.458	-	5.214	2.949
Step 2					
Northern Europe	Mar-May	0.949	-	0.687	0.429
	Jun-Sep	0.949	-	0.687	0.429
Southern Europe	Mar-May	1.779	-	1.289	0.819
	Jun-Sep	1.364	-	0.988	0.624
Step 3					
D3	ditch	0.115	Drift	0.028	0.020
D4	pond	0.026	Drainage	0.026	0.019
D4	stream	0.096	Drift	0.021	0.015
D5	pond	0.022	Drainage	0.022	0.017
D5	stream	0.103	Drift	0.022	0.015
D6	ditch	0.106	Drift	0.026	0.015
R1	pond	0.028	Runoff	0.023	0.010
R1	stream	0.604	Runoff	0.047	0.065
R2	stream	0.159	Runoff	0.024	0.027
R3	stream	0.836	Runoff	0.084	0.088
R4	stream	0.840	Runoff	0.093	0.112

^a Time as required by ecotox.

Table 8.9-6: FOCUS Step 4 global maximum PEC_{sw} (µg/L) values for rimsulfuron resulting from an application of 1 × 20 g a.s./ha to maize, BBCH 11-18

PEC _{sw} (µg/L)	Scenario	STEP 4			
		None	10 (FOCUS L&M)	20 (FOCUS L&M)	10 m VFS Mod
Nozzle reduction	Vegetative strip (m)	None	10	20	10 m VFS Mod
	No spray buffer (m)	1 1/3	10	20	10
None	D3 ditch	0.115	0.029	0.020	0.029
None	D4 pond	0.026	0.026	0.026	0.026
None	D4 stream	0.096	0.026	0.025	0.026
None	D5 pond	0.022	0.022	0.022	0.022
None	D5 stream	0.103	0.030	0.023	0.030
None	D6 ditch	0.106	0.019	0.011	0.019
None	R1 pond	0.028	0.012	0.006	0.003
None	R1 stream	0.604	0.274	0.143	0.016
None	R2 stream	0.159	0.072	0.038	0.022
None	R3 stream	0.836	0.377	0.198	0.023
None	R4 stream	0.840	0.382	0.200	0.016

Maize, 12.59 + 7.41 g a.s./ha, BBCH 11-18

Table 8.9-7: FOCUS Steps 1, 2 and 3 PEC_{sw} and PEC_{sed} for rimsulfuron following of 12.59 + 7.41 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Season/ Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1^b					
	-	6.458	-	5.214	2.949
Step 2^b					
Northern Europe	Mar-May	0.949	-	0.687	0.429
	Jun-Sep	0.949	-	0.687	0.429
Southern Europe	Mar-May	1.779	-	1.289	0.819
	Jun-Sep	1.364	-	0.988	0.624
Step 3					
D3	ditch	0.068	Drift	0.020	0.015
D4	pond	0.027	Drainage	0.027	0.020
D4	stream	0.055	Drift	0.022	0.016
D5	pond	0.017	Drainage	0.017	0.012
D5	stream	0.058	Drift	0.015	0.011
D6	ditch	0.058	Drift	0.014	0.008
R1	pond	0.017	Runoff	0.014	0.006
R1	stream	0.380	Runoff	0.030	0.041
R2	stream	0.170	Runoff	0.026	0.028
R3	stream	0.527	Runoff	0.053	0.055
R4	stream	0.530	Runoff	0.059	0.070

a Time as required by ecotox.

b Note that due to limitations of Steps 1-2 tool we cannot conduct simulation of split application with different rates, the Step 1 and Step 2 PEC_{sw} are covered by the single application rate of 1×20 g a.s./ha.

Table 8.9-8: FOCUS Step 4 global maximum PEC_{sw} (µg/L) values for rimsulfuron resulting from an application of 12.59 + 7.41 g a.s./ha to maize, BBCH 11-18

PEC _{sw} (µg/L)	Scenario	STEP 4			
		None	10 (FOCUS L&M)	20 (FOCUS L&M)	10 m VFSmod
Nozzle reduction	Vegetative strip (m)	None	10 (FOCUS L&M)	20 (FOCUS L&M)	10 m VFSmod
	No spray buffer (m)	1 1/3	10	20	10
None	D3 ditch	0.068	0.020	0.016	0.020
None	D4 pond	0.027	0.027	0.027	0.027
None	D4 stream	0.055	0.026	0.026	0.026
None	D5 pond	0.017	0.017	0.017	0.017
None	D5 stream	0.058	0.018	0.016	0.018
None	D6 ditch	0.058	0.010	0.006	0.010
None	R1 pond	0.017	0.007	0.004	0.001
None	R1 stream	0.380	0.172	0.090	0.008
None	R2 stream	0.170	0.077	0.041	0.011
None	R3 stream	0.527	0.238	0.125	0.012
None	R4 stream	0.530	0.241	0.126	0.008

Maize, 1 × 12.59 g a.s./ha, BBCH 11-18

Table 8.9-9: FOCUS Step 3 PEC_{sw} and PEC_{sed} for rimsulfuron following application of 1 × 12.59 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Season/Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	7 d - PEC _{sw, twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
D3	ditch	0.073	Drift	0.017	0.013
D4	pond	0.017	Drainage	0.017	0.012
D4	stream	0.061	Drift	0.014	0.010
D5	pond	0.014	Drainage	0.014	0.011
D5	stream	0.065	Drift	0.014	0.009
D6	ditch	0.067	Drift	0.016	0.010
R1	pond	0.017	Runoff	0.015	0.006
R1	stream	0.380	Runoff	0.030	0.041
R2	stream	0.100	Runoff	0.015	0.017
R3	stream	0.527	Runoff	0.053	0.055
R4	stream	0.530	Runoff	0.059	0.070

^a Time as required by ecotox.

Note – Additional simulation for single application for the gaps with two application was conducted to address the drift issue.

Table 8.9-10: FOCUS Step 4 global maximum PEC_{sw} (µg/L) values for rimsulfuron resulting from an application of 1 × 12.59 g a.s./ha to maize, BBCH 11-18

PEC _{sw} (µg/L)	Scenario	STEP 4			
		None	10 (FOCUS L&M)	20 (FOCUS L&M)	10 m VFS Mod
Nozzle reduction	Vegetative strip (m)	None	10	20	10 m VFS Mod
	No spray buffer (m)	1 1/3	10	20	10
None	D3 ditch	0.073	0.018	0.013	0.018
None	D4 pond	0.017	0.017	0.017	0.017
None	D4 stream	0.061	0.017	0.016	0.017
None	D5 pond	0.014	0.014	0.014	0.014
None	D5 stream	0.065	0.019	0.014	0.019
None	D6 ditch	0.067	0.012	0.007	0.012
None	R1 pond	0.017	0.007	0.004	0.002
None	R1 stream	0.380	0.172	0.090	0.010
None	R2 stream	0.100	0.045	0.024	0.014
None	R3 stream	0.527	0.238	0.125	0.014
None	R4 stream	0.530	0.241	0.126	0.010

Maize, 2 × 10 g a.s./ha, BBCH 11-18

Table 8.9-11: FOCUS Steps 1, 2 and 3 PEC_{sw} and PEC_{sed} for rimsulfuron following of 2 × 10 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Season/Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1					
	-	6.458	-	5.214	2.949
Step 2					
Northern Europe	Mar-May	0.827	-	0.599	0.377
	Jun-Sep	0.827	-	0.599	0.377
Southern Europe	Mar-May	1.574	-	1.141	0.729
	Jun-Sep	1.201	-	0.870	0.553
Step 3					
D3	ditch	0.056	Drift	0.019	0.014
D4	pond	0.028	Drainage	0.027	0.020
D4	stream	0.045	Drift	0.023	0.016
D5	pond	0.015	Drainage	0.015	0.011
D5	stream	0.046	Drift	0.013	0.009
D6	ditch	0.046	Drift	0.011	0.007
R1	pond	0.014	Runoff	0.011	0.005
R1	stream	0.302	Runoff	0.024	0.032
R2	stream	0.174	Runoff	0.027	0.029
R3	stream	0.418	Runoff	0.042	0.044
R4	stream	0.446	Runoff	0.053	0.064

a Time as required by ecotox.

Table 8.9-12: FOCUS Step 4 global maximum PEC_{sw} (µg/L) values for rimsulfuron resulting from an application of 2 × 10 g a.s./ha to maize, BBCH 11-18

PEC _{sw} (µg/L)	Scenario	STEP 4			
		None	10 (FOCUS L&M)	20 (FOCUS L&M)	10 m VFS Mod
Nozzle reduction	Vegetative strip (m)	None	10 (FOCUS L&M)	20 (FOCUS L&M)	10 m VFS Mod
	No spray buffer (m)	1 +/3	10	20	10
None	D3 ditch	0.056	0.018	0.015	0.018
None	D4 pond	0.028	0.028	0.028	0.028
None	D4 stream	0.045	0.026	0.026	0.026
None	D5 pond	0.015	0.015	0.015	0.015
None	D5 stream	0.046	0.014	0.013	0.014
None	D6 ditch	0.046	0.008	0.006	0.008
None	R1 pond	0.014	0.006	0.003	0.002
None	R1 stream	0.302	0.137	0.071	0.007
None	R2 stream	0.174	0.079	0.041	0.009
None	R3 stream	0.418	0.189	0.099	0.009
None	R4 stream	0.446	0.202	0.106	0.007

Maize, 1 × 10 g a.s./ha, BBCH 11-18

Table 8.9-13: FOCUS Step 3 PEC_{sw} and PEC_{sed} for rimsulfuron following application of 1 × 10 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Season/Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
D3	ditch	0.058	Drift	0.014	0.010
D4	pond	0.013	Drainage	0.013	0.010
D4	stream	0.048	Drift	0.011	0.008
D5	pond	0.011	Drainage	0.011	0.008
D5	stream	0.052	Drift	0.011	0.007
D6	ditch	0.053	Drift	0.013	0.008
R1	pond	0.014	Runoff	0.012	0.005
R1	stream	0.302	Runoff	0.024	0.032
R2	stream	0.079	Runoff	0.012	0.013
R3	stream	0.418	Runoff	0.042	0.044
R4	stream	0.421	Runoff	0.047	0.056

^a Time as required by ecotox.

Note – Additional simulation for single application was conducted to address the drift issues

Table 8.9-14: FOCUS Step 4 global maximum PEC_{sw} (µg/L) values for rimsulfuron resulting from an application of 1 × 10 g a.s./ha to maize, BBCH 11-18

PEC _{sw} (µg/L)	Scenario	STEP 4			
		None	10 (FOCUS L&M)	20 (FOCUS L&M)	10 m VFS Mod
Nozzle reduction	Vegetative strip (m)	None	10	20	10 m VFS Mod
	No spray buffer (m)	1.43	10	20	10
None	D3 ditch	0.058	0.014	0.010	0.014
None	D4 pond	0.013	0.013	0.013	0.013
None	D4 stream	0.048	0.013	0.012	0.013
None	D5 pond	0.011	0.011	0.011	0.011
None	D5 stream	0.052	0.015	0.011	0.015
None	D6 ditch	0.053	0.010	0.005	0.010
None	R1 pond	0.014	0.006	0.003	0.001
None	R1 stream	0.302	0.137	0.071	0.008
None	R2 stream	0.079	0.036	0.019	0.011
None	R3 stream	0.418	0.189	0.099	0.011
None	R4 stream	0.421	0.191	0.100	0.008

Rimsulfuron metabolites Step 1-2 summary results:

Maize, 1 × 20 g a.s./ha, BBCH 11-18

Table 8.9-15: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-70941 following application of 1 × 20 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	7.754	7.172	3.199
Step 2				
Northern Europe	Mar-May	1.170	1.073	0.480
Northern Europe	Jun-Sep	1.170	1.073	0.480
Southern Europe	Mar-May	2.221	2.038	0.916
Southern Europe	Jun-Sep	1.695	1.555	0.696

a Time as required by ecotox.

Table 8.9-16: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-70942 following application of 1 × 20 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	4.389	4.269	8.289
Step 2				
Northern Europe	Mar-May	0.666	0.600	1.272
Northern Europe	Jun-Sep	0.666	0.600	1.272
Southern Europe	Mar-May	1.243	1.125	2.385
Southern Europe	Jun-Sep	0.954	0.863	1.829

a Time as required by ecotox.

Table 8.9-17: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-E9260 following application of 1 × 20 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	1.333	1.329	0.316
Step 2				
Northern Europe	Mar-May	0.203	0.202	0.049
Northern Europe	Jun-Sep	0.203	0.202	0.049
Southern Europe	Mar-May	0.388	0.387	0.093
Southern Europe	Jun-Sep	0.296	0.295	0.071

a Time as required by ecotox.

Table 8.9-18: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-J0290 following application of 1 × 20 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	0.486	0.481	2.169
Step 2				
Northern Europe	Mar-May	0.072	0.071	0.325
Northern Europe	Jun-Sep	0.072	0.071	0.325
Southern Europe	Mar-May	0.135	0.134	0.614
Southern Europe	Jun-Sep	0.104	0.103	0.470

a Time as required by ecotox.

Table 8.9-19: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-JF999 following application of 1 × 20 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	1.207	1.204	<0.001
Step 2				
Northern Europe	Mar-May	0.188	0.187	<0.001
Northern Europe	Jun-Sep	0.188	0.187	<0.001
Southern Europe	Mar-May	0.343	0.342	<0.001
Southern Europe	Jun-Sep	0.265	0.265	<0.001

a Time as required by ecotox.

Maize, 12.59 + 7.41 g a.s./ha, BBCH 11-18

Table 8.9-20: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-70941 following application of 12.59 + 7.41 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	7.754	7.172	3.199
Step 2				
Northern Europe	Mar-May	1.170	1.073	0.480
Northern Europe	Jun-Sep	1.170	1.073	0.480
Southern Europe	Mar-May	2.221	2.038	0.916
Southern Europe	Jun-Sep	1.695	1.555	0.696

a Time as required by ecotox.

Table 8.9-21: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-70942 following application of 12.59 + 7.41 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	4.389	4.269	8.289
Step 2				
Northern Europe	Mar-May	0.666	0.600	1.272
Northern Europe	Jun-Sep	0.666	0.600	1.272
Southern Europe	Mar-May	1.243	1.125	2.385
Southern Europe	Jun-Sep	0.954	0.863	1.829

a Time as required by ecotox.

Table 8.9-22: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-E9260 following application of 12.59 + 7.41 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	1.333	1.329	0.316
Step 2				
Northern Europe	Mar-May	0.203	0.202	0.049
Northern Europe	Jun-Sep	0.203	0.202	0.049
Southern Europe	Mar-May	0.388	0.387	0.093
Southern Europe	Jun-Sep	0.296	0.295	0.071

a Time as required by ecotox.

Table 8.9-23: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-J0290 following application of 12.59 + 7.41 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	0.486	0.481	2.169
Step 2				
Northern Europe	Mar-May	0.072	0.071	0.325
Northern Europe	Jun-Sep	0.072	0.071	0.325
Southern Europe	Mar-May	0.135	0.134	0.614
Southern Europe	Jun-Sep	0.104	0.103	0.470

a Time as required by ecotox.

Table 8.9-24: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-JF999 following application of 12.59 + 7.41 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	1.207	1.204	<0.001
Step 2				
Northern Europe	Mar-May	0.188	0.187	<0.001
Northern Europe	Jun-Sep	0.188	0.187	<0.001
Southern Europe	Mar-May	0.343	0.342	<0.001
Southern Europe	Jun-Sep	0.265	0.265	<0.001

a Time as required by ecotox.

Maize, 2 × 10 g a.s./ha, BBCH 11-18

Table 8.9-25: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-70941 following application of 2 × 10 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	7.754	7.172	3.199
Step 2				
Northern Europe	Mar-May	1.079	0.990	0.443
Northern Europe	Jun-Sep	1.079	0.990	0.443
Southern Europe	Mar-May	2.061	1.892	0.852
Southern Europe	Jun-Sep	1.570	1.441	0.646

a Time as required by ecotox.

Table 8.9-26: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-70942 following application of 2 × 10 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	4.389	4.269	8.289
Step 2				
Northern Europe	Mar-May	0.601	0.543	1.150
Northern Europe	Jun-Sep	0.601	0.543	1.150
Southern Europe	Mar-May	1.132	1.025	2.173
Southern Europe	Jun-Sep	0.867	0.784	1.662

a Time as required by ecotox.

Table 8.9-27: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-E9260 following application of 2 × 10 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	1.333	1.329	0.316
Step 2				
Northern Europe	Mar-May	0.192	0.191	0.046
Northern Europe	Jun-Sep	0.192	0.191	0.046
Southern Europe	Mar-May	0.369	0.368	0.089
Southern Europe	Jun-Sep	0.281	0.280	0.067

a Time as required by ecotox.

Table 8.9-28: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-J0290 following application of 2 × 10 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	0.486	0.481	2.169
Step 2				
Northern Europe	Mar-May	0.065	0.064	0.294
Northern Europe	Jun-Sep	0.065	0.064	0.294
Southern Europe	Mar-May	0.123	0.121	0.557
Southern Europe	Jun-Sep	0.094	0.093	0.426

a Time as required by ecotox.

Table 8.9-29: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-JF999 following application of 2 × 10 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	1.207	1.204	<0.001
Step 2				
Northern Europe	Mar-May	0.169	0.168	<0.001
Northern Europe	Jun-Sep	0.169	0.168	<0.001
Southern Europe	Mar-May	0.309	0.308	<0.001
Southern Europe	Jun-Sep	0.239	0.238	<0.001

a Time as required by ecotox.

Conclusions

Predicted environmental concentrations in surface water (PEC_{sw}) and in sediment (PEC_{sed}) were calculated for rimsulfuron and its metabolites, using the FOCUS Step 1-2 calculator. Additionally, to further refine the risk assessment FOCUS Step 3 and Step 4 simulations were conducted for rimsulfuron using FOCUS Step 3 and Step 4 tools.

Step 1 and Step 2 PEC_{sw} and PEC_{sed} values were simulated for the following major soil and aquatic metabolites of rimsulfuron: IN-70941, IN-70942, IN-E9260, IN-J0290 and IN-JF999.

It is concluded that all metabolites of rimsulfuron were characterised as being of extremely low risk to aquatic organisms.

Based on the Step 1 to Step 4 PEC_{sw} and PEC_{sed} results of rimsulfuron, it can be concluded that safe uses exist in relevant agricultural areas for GF-3969 in Europe, if product is applied in compliance with the label recommendations.

PEC_{sw} of rimsulfuron and its metabolites with the 2018 EFSA endpoints (EFSA, 2018); (DuPont-51210).

The predicted concentration of rimsulfuron and its metabolites in surface water was simulated using the 2018 EFSA endpoints, with the latest version of surface water modelling tools.

The application scenarios simulated are provided in **Table 8.9-30**. Input parameters are summarized in Table 8.9-31.

The Step 1 and Step 2, Step 3 and Step 4 maximum PEC_{sw} , PEC_{sed} and 7 day TWA PEC_{sw} values of rimsulfuron application in maize are summarized from Table 8.9-32 to Table 8.9-68.

Table 8.9-30: Recommended use patterns of rimsulfuron on maize

Formulation	Crop	Application Timing	BBCH ^a Growth Stage	Number of appl. (-)	Interval (days)	Application Rate (g a.s./ha)
GF-3969	Maize	Emergence + 10 d	BBCH 11-18	1	-	20
			BBCH 11-18	2	7	10 + 10
			BBCH 11-18	2	7	12.59 + 7.41

a First application assumed to occur at earliest growth stage.

Compound	Rimsulfuron	IN-70941	IN-70942	IN-E9260	IN-J0290	IN-JF999	IN-S9H84	F2	MHO	Value in accordance with EU endpoint / Reference
DT _{50,soil} (d)	6.7 (geometric mean, field, normalised, n = 7)	Acidic 314* (geometric mean, lab, acidic soils, pH ≤ 6, normalisation to pF2, 20 °C with Q ₁₀ of 2.58, n = 4) Alkaline 44.9* (geometric mean, lab, acidic soils, pH ≥ 7, normalisation to pF2, 20 °C with Q ₁₀ of 2.58, n = 5)	140.1 (geometric mean, field and lab, normalised, n = 6)	519.9 (geometric mean, field and lab, normalised, n = 6)	45.2 (geometric mean, field and lab, normalised, n = 6)	300 ^e	300 ^e	300 ^e	300 ^e	Yes/EFSA, 2018 No/EFSA, 2013 ^e
DT _{50,water} (d)	9.5 (maximum, whole system, n = 2)	42.8 (maximum, whole system, n = 2)	224.1 (maximum, whole system, n = 2)	1000 (default)	1000 (default)	90.6 (maximum, whole system, n = 2)	1000 (default)	1000 (default)	1000 (default)	Yes/EFSA, 2018
DT _{50,sed} (d)	1000	43 (maximum, whole system, n = 2)	224.1 (maximum, whole system, n = 2)	1000 (default)	1000 (default)	90.6 (maximum, whole system, n = 2)	1000 (default)	1000 (default)	1000 (default)	Yes/EFSA, 2018
DT _{50,whole system} (d)	9.5 (maximum, whole system, n = 2)	87.2	83.3	16.2	22.2	24.5	17.3	83.3	16.2	Yes/EFSA, 2018
Maximum occurrence observed (% molar basis with respect to the parent)	-	Soil: 74 Total system: 87.2	Soil: 65.4 Total system: 83.8	Soil: 18.9 Total system: 16.2	Soil: 12.7 Total system: nr ^b	Soil: nr ^b Total system: 24.5	Soil: nr ^b Total system: 17.3	Soil: nr Water: 12 ^g	Soil: nr Water: 20 ^g	Yes/EFSA, 2018

- a While 42 L/kg was used for the modelling presented in EFSA (2018), 53.68 L/kg is given as the geometric on page 44 in EFSA (2018).
- b While 23.2 L/kg was used for the modelling presented in EFSA (2018) as the geometric mean, the same value is given as the arithmetic mean on page 44 in EFSA (2018).
- c Although 275.8 L/kg is reported on on page 45 in EFSA (2018), it is not clear which of the soils presented were used to calculate the modelling endpoint. Furthermore, 247.18 L/kg was used in the surface water modelling in the EFSA review (2018).
- d Although 1×10^{-10} L/kg was used in the surface water modelling in EFSA (2018), the smallest value we could enter into the model was 0.001 L/kg.
- e EFSA 2013 recommends using the value of 300 d if the metabolite does not occur in soil (EFSA Journal 2013; 11(7):3290)
- f Although those values were used in the modelling in EFSA (2018), they are not the same as those given in the aquatic degradation tables in the EFSA review.
- g Formed via aquatic photochemical degradation.

Rimsulfuron- Steps 1, 2, 3 and 4

Maize, 1 × 20 g a.s./ha, BBCH 11-18

Table 8.9-32: FOCUS Steps 1, 2 and 3 PEC_{sw} and PEC_{sed} for rimsulfuron following application of 1 × 20 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Season/ Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1					
	-	6.469	-	5.058	2.866
Step 2					
Northern Europe	Mar-May	0.756	-	0.597	0.344
	Jun-Sep	0.756		0.597	0.344
Southern Europe	Mar-May	1.380	-	1.090	0.628
	Jun-Sep	1.068	-	0.843	0.486
Step 3					
D3	ditch	0.105	Drift	0.017	0.015
D4	pond	0.004	Drift	0.004	0.002
D4	stream	0.090	Drift	0.001	0.004
D5	pond	0.004	Drift	0.004	0.003
D5	stream	0.094	Drift	<0.001	0.003
D6	ditch	0.105	Drift	0.025	0.019
R1	pond	0.026	Runoff	0.022	0.014
R1	stream	0.546	Runoff	0.043	0.068
R2	stream	0.097	Drift	0.012	0.016
R3	stream	0.689	Runoff	0.068	0.084
R4	stream	0.678	Runoff	0.075	0.104

a Time as required by ecotox.

Table 8.9-33: FOCUS Step 4 global maximum PEC_{sw} (µg/L) values for rimsulfuron resulting from an application of 1 × 20 g a.s./ha to maize, BBCH 11-18

PEC _{sw} (µg/L)	Scenario	STEP 4			
		None	10 (FOCUS L&M)	20 (FOCUS L&M)	10 m VFS Mod
Nozzle reduction	Vegetative strip (m)	None	10	20	10 m VFS Mod
	No spray buffer (m)	1/3	10	20	10
None	D3 ditch	0.105	0.018	0.009	0.018
None	D4 pond	0.004	0.003	0.002	0.003
None	D4 stream	0.090	0.020	0.010	0.020
None	D5 pond	0.004	0.003	0.002	0.003
None	D5 stream	0.094	0.021	0.011	0.021
None	D6 ditch	0.105	0.018	0.010	0.018
None	R1 pond	0.026	0.011	0.006	0.003
None	R1 stream	0.546	0.247	0.129	0.016
None	R2 stream	0.097	0.034	0.018	0.022
None	R3 stream	0.689	0.311	0.163	0.023
None	R4 stream	0.678	0.308	0.162	0.016

Maize, 12.59 + 7.41 g a.s./ha, BBCH 11-18

Table 8.9-34: FOCUS Steps 1, 2 and 3 PEC_{sw} and PEC_{sed} for rimsulfuron following of 12.59 + 7.41 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Season/ Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1*					
	-	6.469	-	5.058	2.866
Step 2*					
Northern Europe	Mar-May	0.756	-	0.597	0.344
	Jun-Sep	0.756	-	0.597	0.344
Southern Europe	Mar-May	1.380	-	1.090	0.628
	Jun-Sep	1.068	-	0.843	0.486
Step 3					
D3	ditch	0.057	Drift	0.010	0.008
D4	pond	0.003	Drift	0.002	0.002
D4	stream	0.049	Drift	<0.001	0.002
D5	pond	0.002	Drift	0.002	0.002
D5	stream	0.051	Drift	<0.001	0.002
D6	ditch	0.057	Drift	0.014	0.010
R1	pond	0.016	Runoff	0.014	0.009
R1	stream	0.344	Runoff	0.027	0.043
R2	stream	0.090	Runoff	0.014	0.019
R3	stream	0.433	Runoff	0.043	0.053
R4	stream	0.427	Runoff	0.047	0.066

^a Time as required by ecotox.

* Note that due to limitations of Steps1-2 tool we cannot conduct simulation of split application with different rates, the simulation is covered by the modeling with combined application rate 1×20 g a.s./ha.

Table 8.9-35: FOCUS Step 4 global maximum PEC_{sw} (µg/L) values for rimsulfuron resulting from an application of 12.59 + 7.41 g a.s./ha to maize, BBCH 11-18

PEC _{sw} (µg/L)	Scenario	STEP 4			
		None	10 (FOCUS L&M)	20 (FOCUS L&M)	10 m VFSmod
Nozzle reduction	Vegetative strip (m)	None	10	20	10 m VFSmod
	No spray buffer (m)	1/3	10	20	10
None	D3 ditch	0.057	0.009	0.005	0.009
None	D4 pond	0.003	0.002	0.001	0.002
None	D4 stream	0.049	0.010	0.005	0.010
None	D5 pond	0.002	0.002	0.001	0.002
None	D5 stream	0.051	0.011	0.006	0.011
None	D6 ditch	0.057	0.009	0.005	0.009
None	R1 pond	0.016	0.007	0.004	0.002
None	R1 stream	0.344	0.156	0.081	0.008
None	R2 stream	0.090	0.041	0.022	0.011
None	R3 stream	0.433	0.196	0.102	0.012
None	R4 stream	0.427	0.194	0.102	0.008

Maize, 1 × 12.59 g a.s./ha, BBCH 11-18

Table 8.9-36: FOCUS Step 3 PEC_{sw} and PEC_{sed} for rimsulfuron following application of 1 × 12.59 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Season/Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
D3	Ditch	0.066	Drift	0.011	0.010
D4	Pond	0.003	Drift	0.002	0.001
D4	Stream	0.057	Drift	<0.001	0.002
D5	Pond	0.003	Drift	0.002	0.002
D5	Stream	0.059	Drift	<0.001	0.002
D6	Ditch	0.066	Drift	0.016	0.012
R1	Pond	0.016	Runoff	0.014	0.009
R1	Stream	0.344	Runoff	0.027	0.043
R2	Stream	0.061	Drift	0.007	0.010
R3	Stream	0.434	Runoff	0.043	0.053
R4	Stream	0.427	Runoff	0.047	0.066

a Time as required by ecotox.

Note that the single application is simulated to address the drift issues with the two application in a gap.

Table 8.9-37: FOCUS Step 4 global maximum PEC_{sw} (µg/L) values for rimsulfuron resulting from an application of 1 × 12.59 g a.s./ha to maize, BBCH 11-18

PEC _{sw} (µg/L)	Scenario	STEP 4			
		None	10 (FOCUS L&M)	20 (FOCUS L&M)	10 m VFS Mod
Nozzle reduction	Vegetative strip (m)	None	10	20	10 m VFS Mod
	No spray buffer (m)	1/3	10	20	10
None	D3 ditch	0.066	0.011	0.006	0.011
None	D4 pond	0.003	0.002	0.001	0.002
None	D4 stream	0.057	0.013	0.007	0.013
None	D5 pond	0.003	0.002	0.001	0.002
None	D5 stream	0.059	0.013	0.007	0.013
None	D6 ditch	0.066	0.012	0.006	0.012
None	R1 pond	0.016	0.007	0.004	0.002
None	R1 stream	0.344	0.156	0.081	0.010
None	R2 stream	0.061	0.022	0.011	0.014
None	R3 stream	0.434	0.196	0.103	0.014
None	R4 stream	0.427	0.194	0.102	0.010

Maize, 2 × 10 g a.s./ha, BBCH 11-18

Table 8.9-38: FOCUS Steps1, 2 and 3 PEC_{sw} and PEC_{sed} for rimsulfuron following of 2 × 10 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Season/ Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1					
	-	6.469	-	5.058	2.866
Step 2					
Northern Europe	Mar-May	0.558	-	0.440	0.253
	Jun-Sep	0.558	-	0.440	0.253
Southern Europe	Mar-May	1.020	-	0.806	0.464
	Jun-Sep	0.789	-	0.623	0.359
Step 3					
D3	ditch	0.046	Drift	0.008	0.008
D4	pond	0.003	Drift	0.003	0.002
D4	stream	0.039	Drift	<0.001	0.002
D5	pond	0.003	Drift	0.002	0.002
D5	stream	0.043	Drift	<0.001	0.003
D6	ditch	0.046	Drift	0.011	0.008
R1	pond	0.012	Runoff	0.011	0.008
R1	stream	0.273	Runoff	0.022	0.034
R2	stream	0.096	Runoff	0.015	0.020
R3	stream	0.344	Runoff	0.034	0.042
R4	stream	0.389	Runoff	0.046	0.068

a Time as required by ecotox.

Table 8.9-39: FOCUS Step 4 global maximum PEC_{sw} (µg/L) values for rimsulfuron resulting from an application of 2 × 10 g a.s./ha to maize, BBCH 11-18

PEC _{sw} (µg/L)	Scenario	STEP 4			
Nozzle reduction	Vegetative strip (m)	None	10 (FOCUS L&M)	20 (FOCUS L&M)	10 m VFS Mod
	No spray buffer (m)	1/3	10	20	10
None	D3 ditch	0.046	0.007	0.004	0.007
None	D4 pond	0.003	0.002	0.001	0.002
None	D4 stream	0.039	0.008	0.004	0.008
None	D5 pond	0.003	0.002	0.001	0.002
None	D5 stream	0.043	0.009	0.005	0.009
None	D6 ditch	0.046	0.008	0.004	0.008
None	R1 pond	0.012	0.005	0.003	0.002
None	R1 stream	0.273	0.124	0.065	0.007
None	R2 stream	0.096	0.043	0.023	0.009
None	R3 stream	0.344	0.155	0.081	0.009
None	R4 stream	0.389	0.176	0.092	0.007

Maize, 1 × 10 g a.s./ha, BBCH 11-18

Table 8.9-40: FOCUS Step 3 PEC_{sw} and PEC_{sed} for rimsulfuron following application of 1 × 10 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Season/Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
D3	ditch	0.052	Drift	0.009	0.008
D4	pond	0.002	Drift	0.002	0.001
D4	stream	0.045	Drift	<0.001	0.002
D5	pond	0.002	Drift	0.002	0.001
D5	stream	0.047	Drift	<0.001	0.002
D6	ditch	0.053	Drift	0.013	0.009
R1	pond	0.013	Runoff	0.011	0.007
R1	stream	0.273	Runoff	0.022	0.034
R2	stream	0.049	Drift	0.006	0.008
R3	stream	0.344	Runoff	0.034	0.042
R4	stream	0.338	Runoff	0.037	0.052

a Time as required by ecotox.

Note – the single application is simulated to address the drift issues with the two application in a gap.

Table 8.9-41: FOCUS Step 4 global maximum PEC_{sw} (µg/L) values for rimsulfuron resulting from an application of 1 × 10 g a.s./ha to maize, BBCH 11-18

PEC _{sw} (µg/L)	Scenario	STEP 4			
		None	10 (FOCUS L&M)	20 (FOCUS L&M)	10 m VFS Mod
Nozzle reduction	Vegetative strip (m)	None	10	20	10 m VFS Mod
	No spray buffer (m)	1/3	10	20	10
None	D3 ditch	0.052	0.009	0.005	0.009
None	D4 pond	0.002	0.001	0.001	0.001
None	D4 stream	0.045	0.010	0.005	0.010
None	D5 pond	0.002	0.001	0.001	0.001
None	D5 stream	0.047	0.011	0.006	0.011
None	D6 ditch	0.053	0.009	0.005	0.009
None	R1 pond	0.013	0.006	0.003	0.001
None	R1 stream	0.273	0.124	0.065	0.008
None	R2 stream	0.049	0.017	0.009	0.011
None	R3 stream	0.344	0.155	0.081	0.011
None	R4 stream	0.338	0.154	0.081	0.008

Rimsulfuron metabolites Step 1-2 summary results:

Maize, 1 × 20 g a.s./ha, BBCH 11-18

Table 8.9-42: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-70941 at pH ≤6 following application of 1 × 20 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	8.802	8.555	3.665
Step 2				
Northern Europe	Mar-May	1.180	1.114	0.487
Northern Europe	Jun-Sep	1.180	1.114	0.487
Southern Europe	Mar-May	2.236	2.112	0.923
Southern Europe	Jun-Sep	1.708	1.613	0.705

a Time as required by ecotox.

Table 8.9-43: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-70941 at pH >7 following application of 1 × 20 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	8.802	8.555	3.665
Step 2				
Northern Europe	Mar-May	1.149	1.085	0.474
Northern Europe	Jun-Sep	1.149	1.085	0.474
Southern Europe	Mar-May	2.175	2.055	0.898
Southern Europe	Jun-Sep	1.662	1.570	0.686

a Time as required by ecotox.

Table 8.9-44: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-70942 following application of 1 × 20 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	6.070	5.875	11.512
Step 2				
Northern Europe	Mar-May	0.813	0.798	1.544
Northern Europe	Jun-Sep	0.813	0.798	1.544
Southern Europe	Mar-May	1.529	1.506	2.913
Southern Europe	Jun-Sep	1.171	1.152	2.228

a Time as required by ecotox.

Table 8.9-45: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-E9260 following application of 1 × 20 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	1.334	1.152	0.306
Step 2				
Northern Europe	Mar-May	0.183	0.182	0.042
Northern Europe	Jun-Sep	0.183	0.182	0.042
Southern Europe	Mar-May	0.349	0.348	0.081
Southern Europe	Jun-Sep	0.266	0.265	0.062

a Time as required by ecotox.

Table 8.9-46: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-J0290 following application of 1 × 20 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	0.223	0.200	0.614
Step 2				
Northern Europe	Mar-May	0.031	0.031	0.087
Northern Europe	Jun-Sep	0.031	0.031	0.087
Southern Europe	Mar-May	0.063	0.063	0.173
Southern Europe	Jun-Sep	0.047	0.047	0.130

a Time as required by ecotox.

Table 8.9-47: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-JF999 following application of 1 × 20 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	1.207	1.095	<0.001
Step 2				
Northern Europe	Mar-May	0.148	0.144	<0.001
Northern Europe	Jun-Sep	0.148	0.144	<0.001
Southern Europe	Mar-May	0.264	0.258	<0.001
Southern Europe	Jun-Sep	0.206	0.201	<0.001

a Time as required by ecotox.

Table 8.9-48: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-S9H84 following application of 1 × 20 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	0.764	0.667	<0.001
Step 2				
Northern Europe	Mar-May	0.094	0.094	<0.001
Northern Europe	Jun-Sep	0.094	0.094	<0.001
Southern Europe	Mar-May	0.168	0.168	<0.001
Southern Europe	Jun-Sep	0.131	0.131	<0.001

a Time as required by ecotox.

Table 8.9-49: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for F2 following application of 1 × 20 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	0.584	0.567	0.058
Step 2				
Northern Europe	Mar-May	0.072	0.072	0.007
Northern Europe	Jun-Sep	0.072	0.072	0.007
Southern Europe	Mar-May	0.128	0.128	0.013
Southern Europe	Jun-Sep	0.100	0.100	0.010

a Time as required by ecotox.

Table 8.9-50: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for MHO following application of 1 × 20 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	1.016	0.878	0.099
Step 2				
Northern Europe	Mar-May	0.125	0.125	0.013
Northern Europe	Jun-Sep	0.125	0.125	0.013
Southern Europe	Mar-May	0.223	0.223	0.022
Southern Europe	Jun-Sep	0.174	0.174	0.017

a Time as required by ecotox.

Maize, 12.59 + 7.41 g a.s./ha, BBCH 11-18

Table 8.9-51: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-70941 at pH ≤ 6 following application of 12.59 + 7.41 a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	8.802	8.555	3.665
Step 2				
Northern Europe	Mar-May	1.180	1.114	0.487
Northern Europe	Jun-Sep	1.180	1.114	0.487
Southern Europe	Mar-May	2.236	2.112	0.923
Southern Europe	Jun-Sep	1.708	1.613	0.705

a Time as required by ecotox.

Table 8.9-52: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-70941 at pH >7 following application of 12.59 + 7.41 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	8.802	8.555	3.665
Step 2				
Northern Europe	Mar-May	1.149	1.085	0.474
Northern Europe	Jun-Sep	1.149	1.085	0.474
Southern Europe	Mar-May	2.175	2.055	0.898
Southern Europe	Jun-Sep	1.662	1.570	0.686

a Time as required by ecotox.

Table 8.9-53: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-70942 following application of 12.59 + 7.41 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	6.070	5.875	11.512
Step 2				
Northern Europe	Mar-May	0.813	0.798	1.544
Northern Europe	Jun-Sep	0.813	0.798	1.544
Southern Europe	Mar-May	1.529	1.506	2.913
Southern Europe	Jun-Sep	1.171	1.152	2.228

a Time as required by ecotox.

Table 8.9-54: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-E9260 following application of 12.59 + 7.41 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	1.334	1.152	0.306
Step 2				
Northern Europe	Mar-May	0.183	0.182	0.042
Northern Europe	Jun-Sep	0.183	0.182	0.042
Southern Europe	Mar-May	0.349	0.348	0.081
Southern Europe	Jun-Sep	0.266	0.265	0.062

a Time as required by ecotox.

Table 8.9-55: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-J0290 following application of 12.59 + 7.41 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	0.223	0.200	0.614
Step 2				
Northern Europe	Mar-May	0.031	0.031	0.087
Northern Europe	Jun-Sep	0.031	0.031	0.087
Southern Europe	Mar-May	0.063	0.063	0.173
Southern Europe	Jun-Sep	0.047	0.047	0.130

a Time as required by ecotox.

Table 8.9-56: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-JF999 following application of 12.59 + 7.41 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	1.207	1.095	<0.001
Step 2				
Northern Europe	Mar-May	0.148	0.144	<0.001
Northern Europe	Jun-Sep	0.148	0.144	<0.001
Southern Europe	Mar-May	0.264	0.258	<0.001
Southern Europe	Jun-Sep	0.206	0.201	<0.001

a Time as required by ecotox.

Table 8.9-57: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-S9H84 following application of 12.59 + 7.41 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	0.764	0.667	<0.001
Step 2				
Northern Europe	Mar-May	0.094	0.094	<0.001
Northern Europe	Jun-Sep	0.094	0.094	<0.001
Southern Europe	Mar-May	0.168	0.168	<0.001
Southern Europe	Jun-Sep	0.131	0.131	<0.001

a Time as required by ecotox.

Table 8.9-58: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for F2 following application of 12.59 + 7.41 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	0.584	0.567	0.058
Step 2				
Northern Europe	Mar-May	0.072	0.072	0.007
Northern Europe	Jun-Sep	0.072	0.072	0.007
Southern Europe	Mar-May	0.128	0.128	0.013
Southern Europe	Jun-Sep	0.100	0.100	0.010

a Time as required by ecotox.

Table 8.9-59: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for MHO following application of 12.59 + 7.41 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	1.016	0.878	0.099
Step 2				
Northern Europe	Mar-May	0.125	0.125	0.013
Northern Europe	Jun-Sep	0.125	0.125	0.013
Southern Europe	Mar-May	0.223	0.223	0.022
Southern Europe	Jun-Sep	0.174	0.174	0.017

a Time as required by ecotox.

Maize, 2 × 10 g a.s./ha, BBCH 11-18

Table 8.9-60: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-70941 at pH ≤ 6 following application of 2 × 10 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	8.802	8.555	3.665
Step 2				
Northern Europe	Mar-May	1.035	0.977	0.427
Northern Europe	Jun-Sep	1.035	0.977	0.427
Southern Europe	Mar-May	1.967	1.858	0.812
Southern Europe	Jun-Sep	1.501	1.418	0.620

a Time as required by ecotox.

Table 8.9-61: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-70941 at pH >7 following application of 2 × 10 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	8.802	8.555	3.665
Step 2				
Northern Europe	Mar-May	0.981	0.925	0.405
Northern Europe	Jun-Sep	0.981	0.925	0.405
Southern Europe	Mar-May	1.858	1.755	0.767
Southern Europe	Jun-Sep	1.419	1.340	0.586

a Time as required by ecotox.

Table 8.9-62: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-70942 following application of 2 × 10 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	6.070	5.875	11.512
Step 2				
Northern Europe	Mar-May	0.709	0.696	1.346
Northern Europe	Jun-Sep	0.709	0.696	1.346
Southern Europe	Mar-May	1.332	1.313	2.539
Southern Europe	Jun-Sep	1.021	1.004	1.942

a Time as required by ecotox.

Table 8.9-63: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-E9260 following application of 2 × 10 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	1.334	1.152	0.306
Step 2				
Northern Europe	Mar-May	0.165	0.164	0.038
Northern Europe	Jun-Sep	0.165	0.164	0.038
Southern Europe	Mar-May	0.315	0.314	0.073
Southern Europe	Jun-Sep	0.240	0.239	0.056

a Time as required by ecotox.

Table 8.9-64: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-J0290 following application of 2 × 10 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	0.223	0.200	0.614
Step 2				
Northern Europe	Mar-May	0.030	0.030	0.082
Northern Europe	Jun-Sep	0.030	0.030	0.082
Southern Europe	Mar-May	0.060	0.060	0.165
Southern Europe	Jun-Sep	0.045	0.045	0.123

a Time as required by ecotox.

Table 8.9-65: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-JF999 following application of 2 × 10 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	1.207	1.095	<0.001
Step 2				
Northern Europe	Mar-May	0.114	0.111	<0.001
Northern Europe	Jun-Sep	0.114	0.111	<0.001
Southern Europe	Mar-May	0.200	0.195	<0.001
Southern Europe	Jun-Sep	0.157	0.153	<0.001

a Time as required by ecotox.

Table 8.9-66: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for IN-S9H84 following application of 2 × 10 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	0.764	0.667	<0.001
Step 2				
Northern Europe	Mar-May	0.073	0.073	<0.001
Northern Europe	Jun-Sep	0.073	0.073	<0.001
Southern Europe	Mar-May	0.128	0.127	<0.001
Southern Europe	Jun-Sep	0.100	0.100	<0.001

a Time as required by ecotox.

Table 8.9-67: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for F2 following application of 2 × 10 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	0.584	0.567	0.058
Step 2				
Northern Europe	Mar-May	0.056	0.055	0.006
Northern Europe	Jun-Sep	0.056	0.055	0.006
Southern Europe	Mar-May	0.097	0.097	0.010
Southern Europe	Jun-Sep	0.077	0.076	0.008

a Time as required by ecotox.

Table 8.9-68: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for MHO following application of 2 × 10 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	1.016	0.878	0.099
Step 2				
Northern Europe	Mar-May	0.097	0.097	0.010
Northern Europe	Jun-Sep	0.097	0.097	0.010
Southern Europe	Mar-May	0.170	0.169	0.017
Southern Europe	Jun-Sep	0.133	0.133	0.013

a Time as required by ecotox.

Conclusions

Predicted environmental concentrations in surface water (PEC_{sw}) and in sediment (PEC_{sed}) were calculated for rimsulfuron and its metabolites, using the FOCUS Step 1-2 calculator. Additionally, to further refine the risk assessment FOCUS Step 3 and Step 4 simulations were conducted for rimsulfuron using FOCUS Step 3 and Step 4 tools.

Step 1 and Step 2 PEC_{sw} and PEC_{sed} values were simulated for the following major soil and aquatic metabolites of rimsulfuron: IN-70941, IN-70942, IN-E9260, IN-J0290, IN-JF999, IN-S9H84, F2, and MHO.

It is concluded that all metabolites of rimsulfuron were characterised as being of extremely low risk to aquatic organisms.

Based on the Step 1 to Step 4 PEC_{sw} and PEC_{sed} results of rimsulfuron, it can be concluded that safe uses exist in relevant agricultural areas for GF-3969 in Europe, if product is applied in compliance with the label recommendations.

zRMS comments:

Two sets of surface water modelling were performed by the Applicant with consideration of input parameters reported in EFSA Scientific Report (2005) 45 and EFSA Journal 2018;16(5):5258. Since this approach has been already agreed by the zRMS for groundwater modelling it is considered relevant also for surface water exposure assessment. For detailed discussion on considered input parameters and deviations noted for metabolite IN-J0920 in modelling based on EFSA (2005) endpoints, please refer to points 8.8.1.1 and 8.8.2.1 of this document.

Step 4 simulations were performed according to recommendations of the FOCUS work group on landscape and mitigation factors. An additional set of calculations was performed using VFSmod and has been retained since some Member States (e.g. Poland) accept this tool for determination of surface water exposure in run-off scenarios.

Surface water modelling (including Step 4) was independently validated by the zRMS using the same input parameters and application pattern. Obtained values for the parent and metabolites were in good agreement with those obtained by the Applicant and therefore surface water exposure reported in tables above may be used in the aquatic risk assessment. Simulations performed with consideration of endpoints reported in EFSA (2005) resulted with higher PEC_{sw} values comparing to these obtained using endpoints from EFSA (2018), higher values should be used for purposes of the risk assessment.

Please note that additional surface water modelling may be required by the Member States that do not accept simulations performed according to FOCUS recommendations.

8.9.2.2 Thifensulfuron methyl and its metabolites

PEC_{sw} of thifensulfuron methyl and its metabolites with the 2015 EFSA endpoints (EFSA, 2015).

The predicted environmental concentrations of thifensulfuron methyl and its soil and water metabolites (IN-L9225, IN-L9226, IN-A5546, IN-V7160, IN-W8268, IN-L9223, IN-A4098, IN-JZ789, IN-U5F72, IN-B5528 and IN-D8858) in surface water were simulated using the EU-agreed endpoints in the EFSA conclusion on thifensulfuron methyl (EFSA, 2015).

The PEC_{sw} and PEC_{sed} were calculated for the use on maize as summarized in Table 8.9-69.

All input parameters from the EFSA conclusion (EFSA, 2015) for thifensulfuron methyl were used, as summarized in Table 8.9-70.

In addition, as suggested in the EFSA conclusion (2015), rather than running metabolite specific assessments using individual endpoints and peak occurrence levels, a simple conservative first tier assessment was performed with the worst-case parameters as summarized in Table 8.9-70, which was intended to be protective of all metabolites.

A plant uptake factor of 0.0 was chosen for the active substance in Step 3 calculations.

The latest version of surface water models such as FOCUS STEPS 1-2 version 3.2 for Step 1 and Step 2 calculations and FOCUS SWASH 5.3 for Step 3 calculations. The refinement at Step 4 was calculated using SWAN 5.0.0. The simulations were performed with the standard FOCUS scenarios.

The Step 1 and Step 2, Step 3 and Step 4 maximum PEC_{sw} , PEC_{sed} and 7 day TWA PEC_{sw} values of thifensulfuron methyl and its metabolites are summarized in Table 8.9-71 and Table 8.9-83.

Table 8.9-70: Input parameters related to active substance thifensulfuron methyl and metabolite(s) for PEC_{sw/sed} calculations STEP 1/2 and 3 (Continued)

Compound	IN-JZ789	IN-A5546	IN-V7160	IN-L9226	IN-W8268	IN-D8858	Value in accordance to EU endpoint y/n/ Reference
Molar mass (g/mol) ^a	359.3	221.2	183.2	373.4	189.2	280.3	Yes/EFSA, 2015
Water solubility (mg/L) (20 °C)	1000	1000	1000	1000	1000	1000	Yes/EFSA, 2015
Saturated vapour pressure (Pa) (20 °C)	-	-	-	-	-	-	Yes/EFSA, 2015
Diffusion coefficient in water (m ² /d)	-	-	-	-	-	-	FOCUS default
Diffusion coefficient in air (m ² /d)	-	-	-	-	-	-	FOCUS default
Freundlich Exponent 1/n (-)	-	-	-	-	-	-	Yes/EFSA, 2015
Plant uptake factor (-)	-	-	-	-	-	-	default
Wash-off factor from Crop (1/mm)	-	-	-	-	-	-	FOCUS default
K _{foc} (mL/g)	0 (default)	Yes/EFSA, 2015					
DT _{50,soil} (d)	1000 (default)	Yes/EFSA, 2015					
DT _{50,water} (d)	1000 (default)	Yes/EFSA, 2015					
DT _{50,sed} (d)	1000 (default)	Yes/EFSA, 2015					
DT _{50,whole system} (d)	1000 (default)	Yes/EFSA, 2015					
Maximum occurrence observed (% molar basis with respect to the parent)	Soil: 100 (worst-case) Total system: 100 (worst-case)	Yes/EFSA, 2015					

a in the Step 1&2 modeling for metabolite, the parent molecular weight of 387.4 was used for all metabolites.

Thifensulfuron methyl - Steps 1, 2, 3 and 4

Maize, 1 × 12.5 g a.s./ha, BBCH 11-18

Table 8.9-71: FOCUS Steps 1, 2 and 3 PEC_{sw} and PEC_{sed} for thifensulfuron methyl following application of 1 × 12.5 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Season/ Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1					
	-	4.232	-	3.811	0.371
Step 2					
Northern Europe	Mar-May	0.185	-	0.167	0.017
	Jun-Sep	0.185	-	0.167	0.017
Southern Europe	Mar-May	0.269	-	0.242	0.024
	Jun-Sep	0.227	-	0.204	0.020
Step 3					
D3	ditch	0.066	Drift	0.011	0.006
D4	pond	0.003	Drift	0.002	0.001
D4	stream	0.056	Drift	<0.001	0.002
D5	pond	0.003	Drift	0.002	0.001
D5	stream	0.059	Drift	<0.001	0.001
D6	ditch	0.066	Drift	0.017	0.008
R1	pond	0.009	Runoff	0.008	0.004
R1	stream	0.153	Runoff	0.012	0.013
R2	stream	0.061	Drift	<0.001	0.002
R3	stream	0.187	Runoff	0.018	0.015
R4	stream	0.174	Runoff	0.019	0.018

a Time as required by ecotox.

Table 8.9-72: FOCUS Step 4 global maximum PEC_{sw} (µg/L) values for thifensulfuron methyl resulting from an application of 1 × 12.5 g a.s./ha to maize, BBCH 11-18

PEC _{sw} (µg/L)	Scenario	STEP 4			
		None	10 (FOCUS L&M)	20 (FOCUS L&M)	10 m VFS Mod
Nozzle reduction	Vegetative strip (m)	None	10	20	10 m VFS Mod
	No spray buffer (m)	1 +/3	10	20	10
None	D3 ditch	0.066	0.011	0.006	0.011
None	D4 pond	0.003	0.002	0.001	0.002
None	D4 stream	0.056	0.013	0.007	0.013
None	D5 pond	0.003	0.002	0.001	0.002
None	D5 stream	0.059	0.013	0.007	0.013
None	D6 ditch	0.066	0.011	0.006	0.011
None	R1 pond	0.009	0.004	0.002	0.002
None	R1 stream	0.153	0.069	0.036	0.010
None	R2 stream	0.061	0.014	0.007	0.014
None	R3 stream	0.187	0.085	0.044	0.014
None	R4 stream	0.174	0.079	0.041	0.010

Maize, 7.87 + 4.63 g a.s./ha, BBCH 11-18

Table 8.9-73: FOCUS Steps 1, 2 and 3 PEC_{sw} and PEC_{sed} for thifensulfuron methyl following of 7.87 + 4.63 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Season/Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1*					
	-	4.232	-	3.811	0.371
Step 2*					
Northern Europe	Mar-May	0.185	-	0.167	0.017
	Jun-Sep	0.185	-	0.167	0.017
Southern Europe	Mar-May	0.269	-	0.242	0.024
	Jun-Sep	0.227	-	0.204	0.020
Step 3					
D3	ditch	0.036	Drift	0.006	0.004
D4	pond	0.002	Drift	0.002	0.001
D4	stream	0.030	Drift	<0.001	<0.001
D5	pond	0.002	Drift	0.002	0.001
D5	stream	0.032	Drift	<0.001	<0.001
D6	ditch	0.036	Drift	0.009	0.004
R1	pond	0.005	Runoff	0.005	0.003
R1	stream	0.097	Runoff	0.008	0.008
R2	stream	0.033	Drift	0.001	0.001
R3	stream	0.118	Runoff	0.011	0.010
R4	stream	0.117	Runoff	0.013	0.013

^a Time as required by ecotox.

* Note that due to limitations of Steps 1-2 tool we cannot conduct simulation of split application with different rates; the Step 1 & Step 2 was conducted with the combined application rate of 1×12.5 g a.s./ha.

Table 8.9-74: FOCUS Step 4 global maximum PEC_{sw} (µg/L) values for thifensulfuron methyl resulting from an application of 7.87 + 4.63 g a.s./ha to maize, BBCH 11-18

PEC _{sw} (µg/L)	Scenario	STEP 4			
		None	10 (FOCUS L&M)	20 (FOCUS L&M)	10 m VFSmod
Nozzle reduction	Vegetative strip (m)	None			
	No spray buffer (m)	1-1/3	10	20	10
None	D3 ditch	0.036	0.006	0.003	0.006
None	D4 pond	0.002	0.001	<0.001	0.001
None	D4 stream	0.030	0.006	0.003	0.006
None	D5 pond	0.002	0.001	<0.001	0.001
None	D5 stream	0.032	0.007	0.003	0.007
None	D6 ditch	0.036	0.006	0.003	0.006
None	R1 pond	0.005	0.002	0.001	0.001
None	R1 stream	0.097	0.046	0.023	0.005
None	R2 stream	0.033	0.007	0.004	0.007
None	R3 stream	0.118	0.053	0.028	0.007
None	R4 stream	0.117	0.052	0.028	0.005

Maize, 1 × 7.87 g a.s./ha, BBCH 11-18

Table 8.9-75: FOCUS Step 3 PEC_{sw} and PEC_{sed} for thifensulfuron methyl following application of 1 × 7.87 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Season/Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
D3	ditch	0.041	Drift	0.007	0.004
D4	pond	0.002	Drift	0.002	<0.001
D4	stream	0.035	Drift	<0.001	0.001
D5	pond	0.002	Drift	0.002	<0.001
D5	stream	0.037	Drift	<0.001	<0.001
D6	ditch	0.041	Drift	0.010	0.005
R1	pond	0.005	Runoff	0.005	0.003
R1	stream	0.097	Runoff	0.008	0.008
R2	stream	0.038	Drift	<0.001	0.001
R3	stream	0.118	Runoff	0.012	0.010
R4	stream	0.110	Runoff	0.012	0.011

^a Time as required by ecotox.

Note that additional simulation for single application was conducted to address the drift issues for the gap with multiple applications.

Table 8.9-76: FOCUS Step 4 global maximum PEC_{sw} (µg/L) values for thifensulfuron methyl resulting from an application of 1 × 7.87 g a.s./ha to maize, BBCH 11-18

PEC _{sw} (µg/L)	Scenario	STEP 4			
		None	10 (FOCUS L&M)	20 (FOCUS L&M)	10 m VFS Mod
Nozzle reduction	Vegetative strip (m)	None	10	20	10 m VFS Mod
	No spray buffer (m)	1-1/3	10	20	10
None	D3 ditch	0.041	0.007	0.004	0.007
None	D4 pond	0.002	0.001	<0.001	0.001
None	D4 stream	0.035	0.008	0.004	0.008
None	D5 pond	0.002	0.001	<0.001	0.001
None	D5 stream	0.037	0.008	0.004	0.008
None	D6 ditch	0.041	0.007	0.004	0.007
None	R1 pond	0.005	0.001	0.001	0.001
None	R1 stream	0.097	0.006	0.023	0.006
None	R2 stream	0.038	0.009	0.004	0.009
None	R3 stream	0.118	0.009	0.028	0.009
None	R4 stream	0.110	0.006	0.026	0.006

Maize, 2 × 6.25 g a.s./ha, BBCH 11-18

Table 8.9-77: FOCUS Steps 1, 2 and 3 PEC_{sw} and PEC_{sed} for thifensulfuron methyl following of 2 × 6.25 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Season/Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1					
	-	4.232	-	3.811	0.371
Step 2					
Northern Europe	Mar-May	0.124	-	0.112	0.011
	Jun-Sep	0.124	-	0.112	0.011
Southern Europe	Mar-May	0.167	-	0.151	0.015
	Jun-Sep	0.146	-	0.131	0.013
Step 3					
D3	ditch	0.028	Drift	0.005	0.004
D4	pond	0.002	Drift	0.002	0.001
D4	stream	0.024	Drift	<0.001	<0.001
D5	pond	0.002	Drift	0.002	0.001
D5	stream	0.027	Drift	<0.001	0.001
D6	ditch	0.029	Drift	0.007	0.003
R1	pond	0.004	Drift	0.004	0.003
R1	stream	0.113	Runoff	0.006	0.007
R2	stream	0.026	Drift	0.001	0.001
R3	stream	0.094	Runoff	0.009	0.008
R4	stream	0.158	Runoff	0.018	0.017

a Time as required by ecotox.

Table 8.9-78: FOCUS Step 4 global maximum PEC_{sw} (µg/L) values for thifensulfuron methyl resulting from an application of 2 × 6.25 g a.s./ha to maize, BBCH 11-18

PEC _{sw} (µg/L)	Scenario	STEP 4			
		None	10 (FOCUS L&M)	20 (FOCUS L&M)	10 m VFS Mod
Nozzle reduction	Vegetative strip (m)	None	10	20	10 m VFS Mod
	No spray buffer (m)	1 1/3	10	20	10
None	D3 ditch	0.028	0.005	0.002	0.005
None	D4 pond	0.002	0.001	<0.001	0.001
None	D4 stream	0.024	0.005	0.003	0.005
None	D5 pond	0.002	0.001	<0.001	0.001
None	D5 stream	0.027	0.006	0.003	0.006
None	D6 ditch	0.029	0.005	0.002	0.005
None	R1 pond	0.004	0.002	0.001	0.001
None	R1 stream	0.113	0.047	0.024	0.004
None	R2 stream	0.026	0.006	0.003	0.006
None	R3 stream	0.094	0.043	0.022	0.006
None	R4 stream	0.158	0.072	0.037	0.004

Maize, 1 × 6.25 g a.s./ha, BBCH 11-18

Table 8.9-79: FOCUS Step 3 PEC_{sw} and PEC_{sed} for thifensulfuron methyl following application of 1 × 6.25 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Season/Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
D3	ditch	0.033	Drift	0.006	0.003
D4	pond	0.001	Drift	0.001	<0.001
D4	stream	0.028	Drift	<0.001	<0.001
D5	pond	0.001	Drift	0.001	<0.001
D5	stream	0.029	Drift	<0.001	<0.001
D6	ditch	0.033	Drift	0.008	0.004
R1	pond	0.004	Runoff	0.004	0.002
R1	stream	0.077	Runoff	0.006	0.007
R2	stream	0.030	Drift	<0.001	<0.001
R3	stream	0.094	Runoff	0.009	0.008
R4	stream	0.087	Runoff	0.010	0.009

^a Time as required by ecotox.

Note that additional run for single application is done to address the drift issues for a gap with multiple applications.

Table 8.9-80: FOCUS Step 4 global maximum PEC_{sw} (µg/L) values for thifensulfuron methyl resulting from an application of 1 × 6.25 g a.s./ha to maize, BBCH 11-18

PEC _{sw} (µg/L)	Scenario	STEP 4			
		None	10 (FOCUS L&M)	20 (FOCUS L&M)	10 m VFS Mod
Nozzle reduction	Vegetative strip (m)	None	10	20	10 m VFS Mod
	No spray buffer (m)	1/3	10	20	10
None	D3 ditch	0.033	0.006	0.003	0.006
None	D4 pond	0.001	<0.001	<0.001	<0.001
None	D4 stream	0.028	0.006	0.003	0.006
None	D5 pond	0.001	<0.001	<0.001	<0.001
None	D5 stream	0.029	0.007	0.003	0.007
None	D6 ditch	0.033	0.006	0.003	0.006
None	R1 pond	0.004	0.002	0.001	<0.001
None	R1 stream	0.077	0.035	0.018	0.005
None	R2 stream	0.030	0.007	0.004	0.007
None	R3 stream	0.094	0.043	0.022	0.007
None	R4 stream	0.087	0.040	0.021	0.005

Thifensulfuron methyl metabolites (IN-L9225, IN-L9223, IN-A4098, IN-U5F72 (2-acid-3-triuret), IN-JZ789, IN-A5546, IN-V7160, IN-L9226, IN-W8268, IN-B5528, IN-D8858) Steps 1-2 summary results:

Table 8.9-81: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for all metabolites (IN-L9225, IN-L9223, IN-A4098, IN-U5F72 (2-acid-3-triuret), IN-JZ789, IN-A5546, IN-V7160, IN-L9226, IN-W8268, IN-B5528, IN-D8858) following application of 1 × 12.5 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg) ^b
Step 1				
	-	8.448	8.428	<0.001
Step 2				
Northern Europe	Mar-May	0.823	0.821	<0.001
Northern Europe	Jun-Sep	0.823	0.821	<0.001
Southern Europe	Mar-May	1.531	1.528	<0.001
Southern Europe	Jun-Sep	1.177	1.174	<0.001

a Time as required by ecotox.

b The PEC_{sed} of 0.0 is due to the assumed worst-case K_{foc} of 0.0.

Table 8.9-82: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for all metabolites (IN-L9225, IN-L9223, IN-A4098, IN-U5F72 (2-acid-3-triuret), IN-JZ789, IN-A5546, IN-V7160, IN-L9226, IN-W8268, IN-B5528, IN-D8858) following application of 7.87 + 4.63 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg) ^b
Step 1*				
	-	8.448	8.428	<0.001
Step 2*				
Northern Europe	Mar-May	0.823	0.821	<0.001
Northern Europe	Jun-Sep	0.823	0.821	<0.001
Southern Europe	Mar-May	1.531	1.528	<0.001
Southern Europe	Jun-Sep	1.177	1.174	<0.001

a Time as required by ecotox.

b The PEC_{sed} of 0.0 is due to the assumed worst-case K_{foc} of 0.0.

* Note that due to limitations of Steps 1-2 tool we cannot conduct simulation of the gap with split application but different rates, the gap was simulated by the combined single application rate 1×12.5 g a.s./ha.

Table 8.9-83: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for metabolites (IN-L9225, IN-L9223, IN-A4098, IN-U5F72 (2-acid-3-triuret), IN-JZ789, IN-A5546, IN-V7160, IN-L9226, IN-W8268, IN-B5528, IN-D8858) following application of 2 × 6.25 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg) ^b
Step 1				
	-	8.448	8.428	<0.001
Step 2				
Northern Europe	Mar-May	0.767	0.765	<0.001
Northern Europe	Jun-Sep	0.767	0.765	<0.001
Southern Europe	Mar-May	1.432	1.429	<0.001
Southern Europe	Jun-Sep	1.099	1.097	<0.001

a Time as required by ecotox.

b The PEC_{sed} of 0.0 is due to the assumed worst-case K_{foc} of 0.0.

Step 1 and Step 2 PEC_{sw} and PEC_{sed} values were simulated for the following major soil and water metabolites of thifensulfuron methyl: IN-L9225, IN-L9226, IN-A5546, IN-V7160, IN-W8268, IN-L9223, IN-A4098, IN-JZ789, IN-B5528, IN-U5F72, and IN-D8858.

It is concluded that all metabolites of thifensulfuron methyl were characterised as being of extremely low risk to aquatic organisms.

Based on the Step 1 to Step 4 PEC_{sw} and PEC_{sed} results of thifensulfuron methyl, it can be concluded that safe uses exist in relevant agricultural areas for GF-3969 in Europe, if product is applied in compliance with the label recommendations.

zRMS comments:

The input parameters considered by the Applicant in surface water modelling for thifensulfuron-methyl and its metabolites presented in Table 8.9-70 are in line with EU agreed parameters reported in EFSA Journal 2015;13(7):4201. Minor error was noted in the parent soil DT₅₀: 1.32 days was reported in Table 8.9-70, while in line with EFSA (2015) DT₅₀ of 1.39 days is relevant. In opinion of the zRMS this slight deviation has no impact on the presented results.

Approach taken in calculation performed for metabolites (i.e. simulation of “worst case” compound to cover all metabolites) is fully in line with this taken in the course of the EU review.

Step 4 simulations were performed according to recommendations of the FOCUS work group on landscape and mitigation factors. An additional set of calculations was performed using VFSmod and has been retained since some Member States (e.g. Poland) accept this tool for determination of surface water exposure in run-off scenarios.

Surface water modelling (including Step 4) was independently validated by the zRMS using the same input parameters and application pattern. Obtained values for the parent and metabolites were in good agreement with those obtained by the Applicant and therefore surface water exposure reported in tables above may be used in the aquatic risk assessment.

Please note that additional surface water modelling may be required by the Member States that do not accept simulations performed according to FOCUS recommendations.

8.9.2.3 Isoxadifen-ethyl and its metabolites

Table 8.9-84: Input parameters related to application for PEC_{SW/SED} calculations

Use No.	1; 14		
Crop	Safener isoxadifen-ethyl: maize	Safener isoxadifen-ethyl: maize	Safener isoxadifen-ethyl: maize
Application rate (g a.s./ha)	Safener isoxadifen-ethyl: 15 g a.s./ha	Safener isoxadifen-ethyl: 9.44 + 5.56 g a.s./ha	Safener isoxadifen-ethyl: 2 × 7.5 g a.s./ha
Number of applications/interval (d)	1 / -	2 / 7	2 / 7
Application window	Steps 1-2: Mar-May / NEU, SEU Jun-Sep / NEU, SEU Step 3 Table 8.9-85		
Application method	Spray application		
CAM (Chemical application method)	2 (application foliar lineal)		
Soil depth (cm)	4 (default)		
Models used for calculation	FOCUS STEPS 1-2 v3.2 FOCUS SWASH v5.3 (FOCUS PRZM v4.3.1, FOCUS MACRO v5.5.4, FOCUS TOXWA v5.5.3) SWAN v5.0.0		

Table 8.9-85: FOCUS Step 3 Scenario related input parameters for PEC_{sw/sed} calculations for the application in maize- risk envelope approach for isoxadifen-ethyl

Crop	Scenario	Application Window ^a	Julian Days
Maize single application	D3	15-May to 14-June	135-165
	D4	20-May to 19-June	140-170
	D5	20-May to 19-June	140-170
	D6	Apr 30 – May 30	120-150
	R1	13-May to 12-June	133-163
	R2	11-May to 10-June	131-161
	R3	11-May to 10-June	131-161
Maize double application	R4	20-Apr to 20-May	110-140
	D3	15-May to 21-June	135-172
	D4	20-May to 26-June	140-177
	D5	20-May to 26-June	140-177
	D6	30-Apr to 06-June	120-157
	R1	13-May to 19-June	133-170
	R2	11-May to 17-June	131-168
R3	11-May to 17-June	131-168	
R4	20-Apr to 27-May	110-147	

^a A 30 days window for single application and a 37 days window for double application was defined in SWASH considering the first possible day of application 10 days after emergence.

Table 8.9-86: Input parameters related to active substance isoxadifen-ethyl (safener) and metabolites for PEC_{sw/sed} calculations STEP 1/2 and 3

Compound	Isoxadifen-ethyl	AE F129431	AE C637375	AE C642961	Value in accordance to EU endpoint y/n/ Reference
Molecular weight (g/mol)	295.4	267.3	223.27	241.29	Y/ Evaluation from Germany (2002)
Saturated vapour pressure (Pa)	2.2×10^{-6} (20°C)	not required for Step 1+2	not required for Step 1+2	not required for Step 1+2	Y/ Evaluation from Germany (2002)
Water solubility (mg/L)	1.06 [#] (20°C)	1000 (20°C)	1000 (20°C)	1000 (20°C)	[#] Y/ Evaluation from Germany (2002) N/ default value
Diffusion coefficient in water (m ² /d)	not required for Step 1+2/ 4.3×10^{-5}	not required for Step 1+2	not required for Step 1+2	not required for Step 1+2	default
Diffusion coefficient in air (m ² /d)	not required for Step 1+2/0.43	not required for Step 1+2	not required for Step 1+2	not required for Step 1+2	default
K _{foc} (mL/g)	727 (from Erzgraeber, 2000)	92 (geometric mean, n = 4)	113 (geometric mean, n = 4)	10 (sw) or 10000 (sed) (worst-case default)	Y/ Evaluation from Germany (2002) N/ default
Freundlich Exponent 1/n	1.0 (FOCUS default)	not required for Step 1+2	not required for Step 1+2	not required for Step 1+2	Y/ Evaluation from Germany (2002)
Plant Uptake	0 (FOCUS default)	not required for Step 1+2	not required for Step 1+2	not required for Step 1+2	default
Wash-Off factor from Crop (1/mm)	not required for Step 1+2/ 0.05 (MACRO) 0.50 (PRZM)	not required for Step 1+2	not required for Step 1+2	not required for Step 1+2	default
DT _{50,soil} (d)	0.4 (SFO, geomean, lab., normalisation to pF2, 20 °C with Q ₁₀ of 2.58, n=4)	4.1 (SFO, geomean, lab., normalisation to pF2, 20 °C with Q ₁₀ of 2.58, n=4)	1×10^{-5} #	1×10^{-5} #	Y/ Evaluation from Germany (2002) # worst case default value
DT _{50,water} (d)	<u>Step 1/2:</u>	38 (SFO, worst-case total system, lab., n=2)	56 (SFO, worst-case total system, lab., n=2)	131 (SFO, worst-case total system, lab., n=2)	Y/ Evaluation from Germany (2002)

Compound	Isoxadifen-ethyl	AE F129431	AE C637375	AE C642961	Value in accordance to EU endpoint y/n/ Reference
	1.5 (SFO, worst-case total system, lab., n=2) Step 3: 1000 (FOCUS default)				
DT _{50, sed} (d)	1.5 (SFO, worst-case total system, lab., n=2)	38 (SFO, worst-case total system, lab., n=2)	56 (SFO, worst-case total system, lab., n=2)	131 (SFO, worst-case total system, lab., n=2)	Y/ Evaluation from Germany (2002)
DT _{50, whole system} (d)	<u>Step 1/2:</u> 1.5 (SFO, worst-case total system, lab., n=2)	38 (SFO, worst-case total system, lab., n=2)	56 (SFO, worst-case total system, lab., n=2)	131 (SFO, worst-case total system, lab., n=2)	Y/ Evaluation from Germany (2002)
Maximum occurrence observed (% molar basis with respect to the parent)	-	Water/ Sediment: 93.5 Soil: 92.8	Water/ Sediment: 40.1 Soil: 1 × 10 ⁻¹⁰	Water/ Sediment: 20.9 Soil: 1 × 10 ⁻¹⁰	Y/ Evaluation from Germany (2002)
Formation fraction in soil:	-	not required for Step 1+2	not required for Step 1+2	not required for Step 1+2	

Isoxadifen-ethyl (safener) - Steps 1, 2, and 3

Table 8.9-87: FOCUS Steps 1, 2 and 3 PEC_{sw} and PEC_{sed} for isoxadifen-ethyl following application of 1 × 15 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Season/ Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	7 d - PEC _{sw, twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1					
	-	2,677	-	0.785	18,458
Step 2					
Northern Europe	Mar-May	0.138	-	0.030	0.214
	Jun-Sep	0.138	-	0.030	0.214
Southern Europe	Mar-May	0.138	-	0.030	0.214
	Jun-Sep	0.138	-	0.030	0.214
Step 3					
D3	Ditch	0.079	Drift	0.013	0.028
D4	Pond	0.003	Drift	0.003	0.003
D4	Stream	0.067	Drift	<0.001	0.004
D5	Pond	0.003	Drift	0.003	0.003
D5	Stream	0.070	Drift	<0.001	0.003
D6	Ditch	0.079	Drift	0.019	0.032
R1	Pond	0.003	Drift	0.003	0.003
R1	Stream	0.053	Drift	0.001	0.004
R2	Stream	0.073	Drift	0.001	0.005
R3	Stream	0.077	Drift	0.004	0.015
R4	Stream	0.054	Drift	0.002	0.006

a Time as required by ecotox.

Table 8.9-88: FOCUS Steps 1, 2 and 3 PEC_{sw} and PEC_{sed} for isoxadifen-ethyl following of 9.44 + 5.56 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Season/ Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1*					
	-	2.677	-	0.785	18.458
Step 2*					
Northern Europe	Mar-May	0.138	-	0.030	0.214
	Jun-Sep	0.138	-	0.030	0.214
Southern Europe	Mar-May	0.138	-	0.030	0.214
	Jun-Sep	0.138	-	0.030	0.214
Step 3					
D3	ditch	0.043	Drift	0.007	0.015
D4	pond	0.002	Drift	0.002	0.002
D4	stream	0.036	Drift	<0.001	0.002
D5	pond	0.002	Drift	0.002	0.002
D5	stream	0.038	Drift	<0.001	0.002
D6	ditch	0.043	Drift	0.011	0.017
R1	pond	0.002	Drift	0.002	0.002
R1	stream	0.029	Drift	<0.001	0.002
R2	stream	0.039	Drift	<0.001	0.003
R3	stream	0.041	Drift	0.002	0.007
R4	stream	0.029	Drift	0.002	0.006

^a Time as required by ecotox.

Note that due to limitations of Steps 1-2 tool we cannot conduct simulation of the GAP with split application but different rates; the gap was simulated by the combined application rate 1×15 g a.s./ha.

Table 8.9-89: FOCUS Step 3 PEC_{sw} and PEC_{sed} for isoxadifen-ethyl following application of 1 × 9.44 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Season/ Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
D3	ditch	0.049	Drift	0.008	0.018
D4	pond	0.002	Drift	0.002	0.002
D4	stream	0.042	Drift	<0.001	0.003
D5	pond	0.002	Drift	0.002	0.002
D5	stream	0.044	Drift	<0.001	0.002
D6	ditch	0.049	Drift	0.012	0.020
R1	pond	0.002	Drift	0.002	0.002
R1	stream	0.033	Drift	<0.001	0.003
R2	stream	0.046	Drift	<0.001	0.003
R3	stream	0.048	Drift	0.002	0.008
R4	stream	0.034	Drift	0.001	0.004

^a Time as required by ecotox.

Note – Additional simulation for single application was conducted to cover requirement of ecotox risk assessment.

Table 8.9-90: FOCUS Steps 1, 2 and 3 PEC_{sw} and PEC_{sed} for isoxadifen-ethyl following of 2 × 7.5 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Season/ Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1					
	-	1.338	-	0.393	9.229
Step 2					
Northern Europe	Mar-May	0.062	-	0.014	0.099
	Jun-Sep	0.062	-	0.014	0.099
Southern Europe	Mar-May	0.062	-	0.014	0.099
	Jun-Sep	0.062	-	0.014	0.099
Step 3					
D3	ditch	0.034	Drift	0.006	0.013
D4	pond	0.002	Drift	0.002	0.002
D4	stream	0.029	Drift	<0.001	0.002
D5	pond	0.002	Drift	0.002	0.002
D5	stream	0.032	Drift	<0.001	0.003
D6	ditch	0.034	Drift	0.008	0.014
R1	pond	0.002	Drift	0.002	0.002
R1	stream	0.023	Drift	<0.001	0.002
R2	stream	0.031	Drift	<0.001	0.002
R3	stream	0.033	Drift	0.002	0.006
R4	stream	0.023	Drift	0.002	0.008

a Time as required by ecotox.

Table 8.9-91: FOCUS Step 3 PEC_{sw} and PEC_{sed} for isoxadifen-ethyl following application of 1 × 7.5 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Season/ Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
D3	ditch	0.039	Drift	0.007	0.014
D4	pond	0.002	Drift	0.001	0.001
D4	stream	0.034	Drift	<0.001	0.002
D5	pond	0.002	Drift	0.001	0.001
D5	stream	0.035	Drift	<0.001	0.002
D6	ditch	0.039	Drift	0.010	0.016
R1	pond	0.002	Drift	0.002	0.002
R1	stream	0.027	Drift	<0.001	0.002
R2	stream	0.036	Drift	<0.001	0.002
R3	stream	0.038	Drift	0.002	0.008
R4	stream	0.027	Drift	<0.001	0.003

a Time as required by ecotox.

Note – Additional simulation for single application was conducted to cover requirement of ecotox risk assessment

Isoxadifen-ethyl metabolites Steps 1-2 summary results:

Table 8.9-92: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for metabolites AE F129431 following application of 1 × 15 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	7.625	7.147	6.907
Step 2				
Northern Europe	Mar-May	0.386	0.359	0.346
Northern Europe	Jun-Sep	0.386	0.359	0.346
Southern Europe	Mar-May	0.672	0.628	0.604
Southern Europe	Jun-Sep	0.529	0.494	0.475

a Time as required by ecotox.

Table 8.9-93: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for metabolites AE C637375 following application of 1 × 15 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	1.359	1.297	1.511
Step 2				
Northern Europe	Mar-May	0.042	0.036	0.039
Northern Europe	Jun-Sep	0.042	0.036	0.039
Southern Europe	Mar-May	0.042	0.036	0.039
Southern Europe	Jun-Sep	0.042	0.036	0.039

a Time as required by ecotox.

Table 8.9-94: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for metabolites AE C642961 following application of 1 × 15 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	0.866	0.850	6.087
Step 2				
Northern Europe	Mar-May	0.024	0.023	0.161
Northern Europe	Jun-Sep	0.024	0.023	0.161
Southern Europe	Mar-May	0.024	0.023	0.162
Southern Europe	Jun-Sep	0.024	0.023	0.161

a Time as required by ecotox.

Table 8.9-95: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for metabolites AE F129431 following application of 9.44 + 5.56 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1*				
	-	7.625	7.147	6.907
Step 2*				
Northern Europe	Mar-May	0.386	0.359	0.346
Northern Europe	Jun-Sep	0.386	0.359	0.346
Southern Europe	Mar-May	0.672	0.628	0.604
Southern Europe	Jun-Sep	0.529	0.494	0.475

a Time as required by ecotox.

* Note that due to limitations of Steps 1-2 tool we cannot conduct simulation of the GAP with split application but different rates; the gap was simulated by the combined application rate 1×15 g a.s./ha.

Table 8.9-96: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for metabolites AE C637375 following application of 9.44 + 5.56 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	1.359	1.297	1.511
Step 2				
Northern Europe	Mar-May	0.042	0.036	0.039
Northern Europe	Jun-Sep	0.042	0.036	0.039
Southern Europe	Mar-May	0.042	0.036	0.039
Southern Europe	Jun-Sep	0.042	0.036	0.039

a Time as required by ecotox.

* Note that due to limitations of Steps 1-2 tool we cannot conduct simulation of the GAP with split application but different rates; the gap was simulated by the combined application rate 1×15 g a.s./ha.

Table 8.9-97: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for metabolites AE C642961 following application of 9.44 + 5.56 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	0.866	0.850	6.087
Step 2				
Northern Europe	Mar-May	0.024	0.023	0.161
Northern Europe	Jun-Sep	0.024	0.023	0.161
Southern Europe	Mar-May	0.024	0.023	0.162
Southern Europe	Jun-Sep	0.024	0.023	0.161

a Time as required by ecotox.

* Note that due to limitations of Steps 1-2 tool we cannot conduct simulation of the GAP with split application but different rates; the gap was simulated by the combined application rate 1×15 g a.s./ha.

Table 8.9-98: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for metabolites AE F129431 following application of 2 × 7.5 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	7.625	7.147	6.907
Step 2				
Northern Europe	Mar-May	0.270	0.251	0.241
Northern Europe	Jun-Sep	0.270	0.251	0.241
Southern Europe	Mar-May	0.457	0.426	0.410
Southern Europe	Jun-Sep	0.363	0.338	0.325

a Time as required by ecotox.

Table 8.9-99: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for metabolites AE C637375 following application of 2 × 7.5 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	1.359	1.297	1.511
Step 2				
Northern Europe	Mar-May	0.034	0.031	0.033
Northern Europe	Jun-Sep	0.034	0.031	0.033
Southern Europe	Mar-May	0.034	0.031	0.033
Southern Europe	Jun-Sep	0.034	0.031	0.033

a Time as required by ecotox.

Table 8.9-100: FOCUS Steps 1 and 2 PEC_{sw} and PEC_{sed} for metabolites AE C642961 following application of 2 × 7.5 g a.s./ha to maize, BBCH 11-18

Scenario FOCUS	Period/ Waterbody	Max PEC _{sw} (µg/L)	7 d - PEC _{sw,twa} (µg/L) ^a	Max PEC _{sed} (µg/kg)
Step 1				
	-	0.866	0.850	6.087
Step 2				
Northern Europe	Mar-May	0.020	0.020	0.139
Northern Europe	Jun-Sep	0.020	0.020	0.139
Southern Europe	Mar-May	0.020	0.020	0.140
Southern Europe	Jun-Sep	0.020	0.020	0.140

a Time as required by ecotox.

zRMS comments:

No EU agreed data exist for the safener, isoxadifen-ethyl and for this reason validation of input parameters considered in the surface water exposure assessment presented above against EU agreed endpoints was not possible.

It is noted that values used by the Applicant originate from the national evaluation performed by Germany in 2002. However, since the time of this evaluation majority of guidance documents were updated and endpoints considered by the Applicant in above calculations do not adhere to the current standards and cannot be thus considered to be fully reliable and relevant for purposes of the exposure assessment following uses of GF-3969.

Derivation of respective endpoints would require full re-evaluation of the whole data package for isoxadifen-ethyl, which is, however, outside the scope of the zonal evaluation, since endpoints for safeners should be derived in the course of the EU review process.

Taking this into account, validation of surface water exposure calculated for isoxadifen-ethyl was not possible and calculations provided above have been retained for informative purposes only with font colour changed to grey in order to easily distinguish validated from non-validated data.

Although input parameters for isoxadifen-ethyl cannot be confirmed, the zRMS performed independent simulations for this compound using input parameters proposed by the Applicant and the same result were obtained and could be used in evaluation provided that the endpoints are confirmed to be correct. Nevertheless, for purposes of the aquatic risk assessment from application of GF-3969 it is assumed that the surface water exposure to the formulated product calculated in point 8.9.2.4 below covers also exposure to the safener. It should be noted that this approach has been already accepted in the course of zonal evaluations of some formulations owned by the same Applicant (GF-3337 and GF-3313, both finalised in 2018).

8.9.2.4 PEC_{SW/SED} of GF-3969

Table 8.9-101: The surface water concentration of the formulated product – GF-3969 as predicted with Agdrift Calculator

Application Scenarios				PEC _{sw} of product (ug/L)								
Timing (BBCH)	Rate	# of appls.	Interval (d)	No buffer			10 m buffer			20 m buffer		
	(g /ha)			Pond	Ditch	Stream	Pond	Ditch	Stream	Pond	Ditch	Stream
11-18	135	1	-	0.0286	0.7171	0.5586	0.0184	0.1247	0.1247	0.0123	0.0648	0.0648
	67.5	2	7	0.0117	0.3112	0.2404	0.0074	0.0511	0.0511	0.0049	0.026	0.026
	67.5 ^b	1	-	0.0143	0.3586	0.2793	0.0092	0.0623	0.0623	0.0061	0.0324	0.0324
	85 + 50 ^a	2	7									
	85 ^b	1	-	0.018	0.4515	0.3517	0.0116	0.0785	0.0785	0.0077	0.0408	0.0408

a The GAP can not be simulated but the single appl. of 85 g a.s./ha generates the worst-case PEC_{sw}.

b The single application was simulated to address the issue of lower PEC_{sw} in the two applications due to drift issues with the tool.

zRMS comments:

The surface water exposure to formulation GF-3969 was validated by the zRMS using the Spray Drift Calculator. Obtained results were in a good agreement with these reported in Table 8.9-101. Reported values may be thus used in the aquatic risk assessment.

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

Rimsulfuron

EU agreed endpoints (EFSA, 2005)

Table 8.10-1 Summary of atmospheric degradation and behaviour of rimsulfuron

Endpoint	Rimsulfuron
Direct photolysis in air	Not studied – no data requested
Vapour pressure	8.9×10^{-7} Pa (20°C)
Quantum yield of direct phototransformation	Rimsulfuron: $\Phi = 0.0047$; IN-70942: $\Phi = 0.00072$
Photochemical oxidative degradation in air	DT ₅₀ : 0.611 h (12 hr day, Atkinson calculation)
Volatilisation	From plant surfaces: 0.3-3.5% in 24 hr.
	From soil: 0-2.2% over 24 hours
Metabolites	None

Summary

The fate and behaviour in air of rimsulfuron was evaluated during the Annex I Inclusion. Calculations conducted by DuPont based on the method of Lyman *et al.* (1982) demonstrated that concentrations of rimsulfuron in air are likely to be negligible. No additional studies have been performed.

Thifensulfuron methyl

The low vapour pressure (5.2×10^{-9} Pa at 20°C ~~25°C~~) and Henry's law constant (3.23×10^{-9} Pa m³/mol at pH 7) of the active substance thifensulfuron methyl indicate a low potential for volatilisation of the active substance from soil under practical conditions of use.

The fate and behaviour in air of thifensulfuron methyl was evaluated during the Annex I Inclusion. No additional studies have been performed.

Isoxadifen-ethyl

The fate of isoxadifen-ethyl in air has been evaluated, details are provided in the respective national reference by Germany (2002). No additional studies have been performed.

Table 8.10-2 Summary of atmospheric degradation and behaviour: isoxadifen-ethyl

Compound	Isoxadifen-ethyl
Direct photolysis in air	Not studied, no data required
Quantum yield of direct phototransformation	-
Photochemical oxidative degradation in air	DT ₅₀ : 1.4 days derived by the Atkinson model OH (24 h) concentration assumed = 0.5×10^6 OH/cm ³ DT ₅₀ : 1.0 days derived by the Atkinson model OH (12 h) concentration assumed = 1.5×10^6 OH/cm ³
Volatilisation	From plant surfaces (BBA Guideline): Not required. Anticipated to be minimal due to low vapour pressure From soil surfaces (BBA Guideline): Not required. Anticipated to be minimal due to low vapour pressure
Metabolites	None

The vapour pressure of the safener isoxadifen-ethyl is 2.2×10^{-6} Pa at 20°C. Hence the compound is regarded as non-volatile. Therefore exposure of adjacent surface waters and terrestrial ecosystems by the safener isoxadifen-ethyl from volatilization followed by subsequent deposition is not expected to occur.

zRMS comments:

Taking into account the low vapour pressure ($<10^{-5}$ Pa) and DT_{50} in air <2 days, rim sulfuron is not expected to be subject to volatilisation and the long- or short-range transport.

Although the DT_{50} in air calculated for thifensulfuron-methyl is 3.5 days (i.w. >1 days), no significant volatilisation of this compound is expected due to the low vapour pressure of 5.19×10^{-9} Pa.

No EU agreed data exist for the safener, isoxadifen-ethyl, and for this reason validation of information provided in Table 8.2-3 against EU agreed endpoints was not possible. Nevertheless, data provided by the Applicant have been retained for informative purposes with font colour changed to grey in order to easily distinguish validated from non-validated data. In case provided endpoints are confirmed to be correct, isoxadifen-ethyl is not expected to be subject to volatilisation and the long- or short-range transport due to the low vapour pressure ($<10^{-5}$ Pa) and DT_{50} in air <2 days.

Overall, the contamination of the atmosphere from the intended uses of GF-3969 is considered to be negligible.

Appendix 1 Lists of data considered in support of the evaluation

List of data submitted by the applicant and relied on – all documents

Data point	Author(s)	Year	Title Company Report No. Source GLP or GEP Status Published or not	Vertebrate study Y/N	Owner
KCP, 9.2.4.1/01	Huang, M.X.	2020	Predicted environmental concentrations of rimsulfuron and its metabolites in groundwater following application to maize – A modelling assessment for Europe using the 2018 EFSA endpoints DuPont-51202 EU E. I. du Pont de Nemours and Company GLP: No Published: No	N	DuPont
KCP, 9.2.4.1/02	Huang, M.X.	2020	Predicted environmental concentrations of rimsulfuron (DPX-E9636) and metabolites in groundwater: A modeling study conducted for maize with FOCUS PEARL 4.4.4 and PELMO 5.5.3 with the 2005 EFSA-recommended endpoints DuPont-51201 EU, Revision No. 1 E. I. du Pont de Nemours and Company GLP: No Published: No	N	DuPont
KCP, 9.2.5/01	Yamsani, S., Mishra, N., Huang, M.X.	2020	Predicted environmental concentrations of rimsulfuron and its metabolites in surface water following applications to maize - a modelling assessment with the 2018 EFSA endpoints DuPont-51210 EU E. I. du Pont de Nemours and Company GLP: No Published: No	N	DuPont
KCP, 9.2.5/02	Yamsani, S., Mishra, N., Huang, M.X.	2020	Predicted environmental concentrations of rimsulfuron and its metabolites in surface water following applications to maize - a modeling assessment for Europe with the 2005 EFSA endpoint DuPont-51207 EU, Revision No. 1 E. I. du Pont de Nemours and Company GLP: No Published: No	N	DuPont

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

Data point	Author(s)	Year	Title Company Report No. Source GLP or GEP Status Published or not	Vertebrate study Y/N	Owner
As most of endpoints for rimsulfuron, thifensulfuron-methyl and relevant metabolites were taken from the EU review, for the list of respective studies please refer to Volume 2 of the RAR for both active compounds.					

List of data submitted by the applicant and not relied on

Data point	Author(s)	Year	Title Company Report No. Source GLP or GEP Status Published or not	Vertebrate study Y/N	Owner	Reason for rejection
KCP, 9.1.1.1/01	Huber, A.	2007	The degradation of rimsulfuron in soil and aquatic systems - Summary of kinetic calculations DuPont-23315 DuPont de Nemours (Deutschland) GmbH GLP: No Published: No	N	DuPont	Endpoints from the first EU review (EFSA, 2005) or renewal process (EFSA, 2018) were used in evaluation. Generation of new active substance data was not necessary.
KCP, 9.1.2.1/01	Khanijo, I., Huang, M.X.	2015	Degradation of rimsulfuron (DPX-E9636) and its metabolites IN-70941, IN-70942, IN-E9260 and IN-J0290 in field dissipation studies - a kinetic calculation report DuPont-41948 E. I. du Pont de Nemours and Company GLP: No Published: No	N	DuPont	Endpoints from the first EU review (EFSA, 2005) or renewal process (EFSA, 2018) were used in evaluation. Generation of new active substance data was not necessary.

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

Data point	Author(s)	Year	Title Company Report No. Source GLP or GEP Status Published or not	Vertebrate study Y/N	Owner
There were no studies relied on and not submitted by the Applicant.					

Appendix 2 Detailed evaluation of the new Annex II studies

A 2.1 Rimsulfuron

Comments of zRMS:	The exposure assessment for rimsulfuron and its metabolites following uses of GF-3969 has been performed with consideration of endpoints from the first EU review (EFSA Scientific Report (2005) 45) or renewal process (EFSA Journal 2018;16(5):5258) and generation of the new active substance data was not necessary. Hence, the kinetic assessment by Huber (2007) was not evaluated by the zRMS.
-------------------	--

Reference:	KCP 9.1.1.1/01
Report:	Huber, A., (2007); The degradation of rimsulfuron in soil and aquatic systems - Summary of kinetic calculations
DuPont Report No.:	DuPont-23315
Testing Facility Report No.:	DuPont-23315
Guidelines	Not applicable- position paper
Deviations:	None
GLP:	No
Acceptability:	Not evaluated, not necessary for the zonal assessment for GF-3969

Please see original report for detailed study information.

Comments of zRMS:	The exposure assessment for rimsulfuron and its metabolites following uses of GF-3969 has been performed with consideration of endpoints from the first EU review (EFSA Scientific Report (2005) 45) or renewal process (EFSA Journal 2018;16(5):5258) and generation of the new active substance data was not necessary. Hence, the kinetic assessment by Khanijo n& Huang (2015) was not evaluated by the zRMS.
-------------------	---

Reference:	KCP 9.1.2.1/01
Report:	Khanijo, I., Huang, M.X. (2015); Degradation of rimsulfuron (DPX-E9636) and its metabolites IN-70941, IN-70942, IN-E9260 and IN-J0290 in field dissipation studies - a kinetic calculation report
DuPont Report No.:	DuPont-41948
Testing Facility Report No.:	DuPont-41948
Guidelines	Not applicable- position paper
Deviations:	None
GLP:	No
Acceptability:	Not evaluated, not necessary for the zonal assessment for GF-3969

Please see original report for detailed study information.

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

A 3.1 Rimsulfuron

A 3.1.1 Study 1, DuPont-51201 EU, Revision No. 1

Comments of zRMS:	The Tier 1 groundwater exposure assessment performed by the Applicant for rimsulfuron and its metabolites with consideration of endpoints reported in EFSA Scientific Report (2005) 45 has been accepted by the zRMS. For details of performed evaluation, please refer to point 8.8 of this document.
-------------------	--

Reference:	KCP 9.2.4.1/02
Report:	Huang, M.X., (2020); Predicted environmental concentrations of Rimsulfuron (DPX-E9636) and metabolites in groundwater: A modeling study conducted for maize with FOCUS PEARL 4.4.4 and PELMO 5.5.3 with the 2005 EFSA-recommended endpoints
DuPont Report No.:	DuPont-51201 EU, Revision No. 1
Testing Facility Report No.:	DuPont-51201 EU, Revision No. 1
Guidelines	Not applicable- position paper
Deviations:	None
GLP:	No
Acceptability:	Tier 1: accepted; Tier 2: not accepted

For details, refer to section 8.8.2.1.

A 3.1.2 Study 2, DuPont-51202 EU

Comments of zRMS:	The Tier 1 groundwater exposure assessment performed by the Applicant for rimsulfuron and its metabolites with consideration of endpoints reported in EFSA Journal 2018;16(5):5258 has been accepted by the zRMS. For details of performed evaluation, please refer to point 8.8 of this document.
-------------------	--

Reference:	KCP 9.2.4.1/01
Report:	Huang, M.X., (2020); Predicted environmental concentrations of rimsulfuron and its metabolites in groundwater following application to maize – A modelling assessment for Europe using the 2018 EFSA endpoints
DuPont Report No.:	DuPont-51202 EU
Testing Facility Report No.:	DuPont-51202 EU
Guidelines	Sanco/13144/2010, Version 3, 10/2014
Deviations:	None
GLP:	No
Acceptability:	Tier 1: accepted; Tier 2: not accepted

For details, refer to section 8.8.2.1.

A 3.1.3 Study 3, DuPont-51207 EU, Revision No. 1

Comments of zRMS:	The surface water exposure assessment performed by the Applicant for rimsulfuron and its metabolites with consideration of endpoints reported in EFSA Scientific Report (2005) 45 has been accepted by the zRMS. For details of performed evaluation, please refer to point 8.9 of this document.
-------------------	---

Reference:	KCP 9.2.5/02
Report:	Yamsani, S., Mishra, N., Huang, M.X. (2020); Predicted Environmental Concentrations of Rimsulfuron and its Metabolites in Surface Water Following Applications to Maize– A Modelling Assessment with 2005 EFSA endpoints
DuPont Report No.:	DuPont-51207 EU, Revision No. 1
Testing Facility Report No.:	DuPont-51207 EU, Revision No. 1
Guidelines	Not applicable - position paper
Deviations:	Not applicable - position paper
GLP:	No
Acceptability:	Acceptable

Step 1 and 2 Results:

Table A 1: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 1 × 20 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Mar-May)		Northern Europe (Mar-May)		Southern Europe (Mar-May)		Southern Europe (Mar-May)	
	Actual	TWA	Actual	TWA	PEC _{sw} (µg/L)	PEC _{sed} (µg/kg ds)	PEC _{sw} (µg/L)	PEC _{sed} (µg/kg ds)	PEC _{sw} (µg/L)	PEC _{sed} (µg/kg ds)	PEC _{sw} (µg/L)	PEC _{sed} (µg/kg ds)
0	6.458		2.949		0.949	---	0.429	---	1.779	---	0.819	---
1	6.053	6.255	2.845	2.897	0.858	0.903	0.418	0.423	1.609	1.694	0.784	0.801
2	5.683	6.061	2.671	2.827	0.778	0.861	0.379	0.411	1.460	1.614	0.712	0.775
4	5.010	5.700	2.355	2.668	0.641	0.784	0.312	0.378	1.203	1.471	0.586	0.711
7	4.147	5.214	1.949	2.444	0.480	0.687	0.234	0.332	0.900	1.289	0.438	0.624
14	2.668	4.284	1.254	2.010	0.243	0.518	0.119	0.251	0.457	0.971	0.223	0.472
21	1.717	3.575	0.807	1.678	0.124	0.404	0.060	0.196	0.232	0.758	0.113	0.368
28	1.104	3.028	0.519	1.422	0.063	0.326	0.031	0.158	0.118	0.611	0.057	0.297
42	0.457	2.263	0.215	1.063	0.016	0.229	0.008	0.111	0.030	0.429	0.015	0.208
50	0.276	1.959	0.130	0.920	0.007	0.194	0.004	0.094	0.014	0.364	0.007	0.177
100	0.012	1.021	0.006	0.480	<0.001	0.098	<0.001	0.047	<0.001	0.183	<0.001	0.089

Table A 2: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 1 × 20 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		Northern Europe (Jun-Sep)		Southern Europe (Jun-Sep)		Southern Europe (Jun-Sep)	
	Actual	TWA	Actual	TWA	PEC _{sw} (µg/L)	PEC _{sed} (µg/kg ds)	PEC _{sw} (µg/L)	PEC _{sed} (µg/kg ds)	PEC _{sw} (µg/L)	PEC _{sed} (µg/kg ds)	PEC _{sw} (µg/L)	PEC _{sed} (µg/kg ds)
0	6.458		2.949		0.949	---	0.429	---	1.364	---	0.624	---
1	6.053	6.255	2.845	2.897	0.858	0.903	0.418	0.423	1.233	1.299	0.601	0.612
2	5.683	6.061	2.671	2.827	0.778	0.861	0.379	0.411	1.119	1.237	0.545	0.593
4	5.010	5.700	2.355	2.668	0.641	0.784	0.312	0.378	0.922	1.128	0.449	0.544
7	4.147	5.214	1.949	2.444	0.480	0.687	0.234	0.332	0.690	0.988	0.336	0.478
14	2.668	4.284	1.254	2.010	0.243	0.518	0.119	0.251	0.350	0.745	0.171	0.361
21	1.717	3.575	0.807	1.678	0.124	0.404	0.060	0.196	0.178	0.581	0.087	0.282
28	1.104	3.028	0.519	1.422	0.063	0.326	0.031	0.158	0.090	0.468	0.044	0.227
42	0.457	2.263	0.215	1.063	0.016	0.229	0.008	0.111	0.023	0.329	0.011	0.160
50	0.276	1.959	0.130	0.920	0.007	0.194	0.004	0.094	0.011	0.279	0.005	0.135
100	0.012	1.021	0.006	0.480	<0.001	0.098	<0.001	0.047	<0.001	0.140	<0.001	0.068

Table A 3: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-70941 following application of 1 × 20 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
					Northern Europe (Mar-May)				Southern Europe (Mar-May)			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	7.754		3.199		1.170	---	0.480	---	2.221	---	0.916	---
1	7.576	7.665	3.182	3.191	1.139	1.155	0.468	0.474	2.164	2.193	0.911	0.914
2	7.408	7.578	3.111	3.169	1.112	1.140	0.457	0.468	2.112	2.165	0.889	0.907
4	7.084	7.412	2.975	3.106	1.058	1.112	0.435	0.457	2.010	2.113	0.846	0.887
7	6.624	7.172	2.782	3.008	0.983	1.073	0.404	0.441	1.867	2.038	0.786	0.857
14	5.665	6.652	2.379	2.792	0.827	0.988	0.340	0.406	1.571	1.877	0.662	0.789
21	4.844	6.182	2.035	2.595	0.696	0.912	0.286	0.375	1.323	1.732	0.557	0.729
28	4.142	5.758	1.740	2.417	0.586	0.844	0.241	0.347	1.113	1.603	0.469	0.675
42	3.029	5.024	1.272	2.109	0.415	0.728	0.171	0.299	0.789	1.382	0.332	0.582
50	2.533	4.664	1.064	1.958	0.341	0.672	0.140	0.276	0.648	1.276	0.273	0.537
100	0.828	3.094	0.348	1.299	0.100	0.434	0.041	0.178	0.189	0.824	0.080	0.347

Table A 4: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-70941 following application of 1 × 20 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
					Northern Europe (Jun-Sep)				Southern Europe (Jun-Sep)			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	7.754		3.199		1.170	---	0.480	---	1.695	---	0.696	---
1	7.576	7.665	3.182	3.191	1.139	1.155	0.468	0.474	1.652	1.674	0.679	0.687
2	7.408	7.578	3.111	3.169	1.112	1.140	0.457	0.468	1.612	1.653	0.662	0.679
4	7.084	7.412	2.975	3.106	1.058	1.112	0.435	0.457	1.534	1.613	0.630	0.662
7	6.624	7.172	2.782	3.008	0.983	1.073	0.404	0.441	1.425	1.555	0.585	0.639
14	5.665	6.652	2.379	2.792	0.827	0.988	0.340	0.406	1.199	1.432	0.493	0.588
21	4.844	6.182	2.035	2.595	0.696	0.912	0.286	0.375	1.009	1.322	0.415	0.543
28	4.142	5.758	1.740	2.417	0.586	0.844	0.241	0.347	0.850	1.223	0.349	0.503
42	3.029	5.024	1.272	2.109	0.415	0.728	0.171	0.299	0.602	1.055	0.247	0.433
50	2.533	4.664	1.064	1.958	0.341	0.672	0.140	0.276	0.494	0.974	0.203	0.400
100	0.828	3.094	0.348	1.299	0.100	0.434	0.041	0.178	0.144	0.629	0.059	0.258

Table A 5: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-70942 following application of 1 × 20 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
					Northern Europe (Mar-May)				Southern Europe (Mar-May)			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	4.389		8.289		0.666	---	1.272	---	1.243	---	2.385	---
1	4.337	4.363	8.413	8.351	0.639	0.653	1.239	1.255	1.199	1.221	2.323	2.354
2	4.309	4.343	8.359	8.368	0.623	0.642	1.207	1.239	1.168	1.202	2.263	2.324
4	4.253	4.312	8.251	8.336	0.591	0.624	1.145	1.207	1.108	1.170	2.147	2.264
7	4.171	4.269	8.092	8.266	0.546	0.600	1.058	1.162	1.024	1.125	1.984	2.179
14	3.986	4.174	7.733	8.089	0.454	0.550	0.880	1.064	0.852	1.030	1.650	1.995
21	3.810	4.081	7.391	7.913	0.378	0.505	0.732	0.977	0.708	0.946	1.373	1.833
28	3.641	3.992	7.063	7.741	0.314	0.465	0.609	0.900	0.589	0.871	1.142	1.688
42	3.325	3.822	6.451	7.411	0.217	0.397	0.421	0.770	0.408	0.745	0.790	1.444
50	3.157	3.729	6.125	7.231	0.176	0.365	0.341	0.708	0.330	0.685	0.640	1.327
100	2.284	3.213	4.430	6.232	0.047	0.232	0.092	0.449	0.089	0.434	0.172	0.841

Table A 6: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-70942 following application of 1 × 20 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
					Northern Europe (Jun-Sep)				Southern Europe (Jun-Sep)			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	4.389		8.289		0.666	---	1.272	---	0.954	---	1.829	---
1	4.337	4.363	8.413	8.351	0.639	0.653	1.239	1.255	0.919	0.937	1.781	1.805
2	4.309	4.343	8.359	8.368	0.623	0.642	1.207	1.239	0.895	0.922	1.735	1.781
4	4.253	4.312	8.251	8.336	0.591	0.624	1.145	1.207	0.850	0.897	1.646	1.736
7	4.171	4.269	8.092	8.266	0.546	0.600	1.058	1.162	0.785	0.863	1.521	1.670
14	3.986	4.174	7.733	8.089	0.454	0.550	0.880	1.064	0.653	0.790	1.265	1.530
21	3.810	4.081	7.391	7.913	0.378	0.505	0.732	0.977	0.543	0.725	1.052	1.405
28	3.641	3.992	7.063	7.741	0.314	0.465	0.609	0.900	0.452	0.668	0.875	1.294
42	3.325	3.822	6.451	7.411	0.217	0.397	0.421	0.770	0.313	0.571	0.606	1.107
50	3.157	3.729	6.125	7.231	0.176	0.365	0.341	0.708	0.253	0.525	0.491	1.017
100	2.284	3.213	4.430	6.232	0.047	0.232	0.092	0.449	0.068	0.333	0.132	0.645

Table A 7: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-E9260 following application of 1 × 20 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
					Northern Europe (Mar-May)				Southern Europe (Mar-May)			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.333		0.316		0.203	---	0.049	---	0.388	---	0.093	---
1	1.331	1.332	0.320	0.318	0.202	0.203	0.049	0.049	0.388	0.388	0.093	0.093
2	1.330	1.331	0.319	0.319	0.202	0.202	0.049	0.049	0.388	0.388	0.093	0.093
4	1.328	1.330	0.319	0.319	0.202	0.202	0.048	0.049	0.387	0.388	0.093	0.093
7	1.326	1.329	0.318	0.319	0.202	0.202	0.048	0.048	0.386	0.387	0.093	0.093
14	1.319	1.326	0.317	0.318	0.201	0.202	0.048	0.048	0.385	0.386	0.092	0.093
21	1.313	1.323	0.315	0.317	0.200	0.201	0.048	0.048	0.383	0.385	0.092	0.092
28	1.307	1.319	0.314	0.317	0.199	0.201	0.048	0.048	0.381	0.385	0.091	0.092
42	1.294	1.313	0.311	0.315	0.197	0.200	0.047	0.048	0.377	0.383	0.090	0.092
50	1.287	1.309	0.309	0.314	0.196	0.199	0.047	0.048	0.375	0.382	0.090	0.092
100	1.243	1.287	0.298	0.309	0.189	0.196	0.045	0.047	0.362	0.375	0.087	0.090

Table A 8: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-E9260 following application of 1 × 20 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
					Northern Europe (Jun-Sep)				Southern Europe (Jun-Sep)			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.333		0.316		0.203	---	0.049	---	0.296	---	0.071	---
1	1.331	1.332	0.320	0.318	0.202	0.203	0.049	0.049	0.295	0.295	0.071	0.071
2	1.330	1.331	0.319	0.319	0.202	0.202	0.049	0.049	0.295	0.295	0.071	0.071
4	1.328	1.330	0.319	0.319	0.202	0.202	0.048	0.049	0.295	0.295	0.071	0.071
7	1.326	1.329	0.318	0.319	0.202	0.202	0.048	0.048	0.294	0.295	0.071	0.071
14	1.319	1.326	0.317	0.318	0.201	0.202	0.048	0.048	0.293	0.294	0.070	0.071
21	1.313	1.323	0.315	0.317	0.200	0.201	0.048	0.048	0.291	0.293	0.070	0.070
28	1.307	1.319	0.314	0.317	0.199	0.201	0.048	0.048	0.290	0.293	0.070	0.070
42	1.294	1.313	0.311	0.315	0.197	0.200	0.047	0.048	0.287	0.291	0.069	0.070
50	1.287	1.309	0.309	0.314	0.196	0.199	0.047	0.048	0.285	0.290	0.068	0.070
100	1.243	1.287	0.298	0.309	0.189	0.196	0.045	0.047	0.276	0.285	0.066	0.068

Table A 9: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-J0290 following application of 1 × 20 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
					Northern Europe (Mar-May)				Southern Europe (Mar-May)			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.486		2.169		0.072	---	0.325	---	0.135	---	0.614	---
1	0.481	0.484	2.203	2.186	0.071	0.072	0.325	0.325	0.134	0.135	0.614	0.614
2	0.481	0.482	2.201	2.194	0.071	0.071	0.325	0.325	0.134	0.134	0.614	0.614
4	0.480	0.481	2.198	2.197	0.071	0.071	0.324	0.325	0.134	0.134	0.613	0.614
7	0.479	0.481	2.194	2.197	0.071	0.071	0.324	0.324	0.134	0.134	0.611	0.613
14	0.477	0.479	2.183	2.193	0.070	0.071	0.322	0.324	0.133	0.134	0.608	0.611
21	0.474	0.478	2.173	2.188	0.070	0.071	0.320	0.323	0.132	0.133	0.606	0.610
28	0.472	0.477	2.162	2.183	0.070	0.070	0.319	0.322	0.132	0.133	0.603	0.608
42	0.468	0.474	2.141	2.172	0.069	0.070	0.316	0.320	0.130	0.132	0.597	0.606
50	0.465	0.473	2.129	2.166	0.069	0.070	0.314	0.320	0.130	0.132	0.593	0.604
100	0.449	0.465	2.057	2.130	0.066	0.069	0.303	0.314	0.125	0.130	0.573	0.594

Table A 10: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-J0290 following application of 1 × 20 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
					Northern Europe (Jun-Sep)				Southern Europe (Jun-Sep)			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.486		2.169		0.072	---	0.325	---	0.104	---	0.470	---
1	0.481	0.484	2.203	2.186	0.071	0.072	0.325	0.325	0.103	0.103	0.469	0.470
2	0.481	0.482	2.201	2.194	0.071	0.071	0.325	0.325	0.103	0.103	0.469	0.469
4	0.480	0.481	2.198	2.197	0.071	0.071	0.324	0.325	0.102	0.103	0.468	0.469
7	0.479	0.481	2.194	2.197	0.071	0.071	0.324	0.324	0.102	0.103	0.467	0.469
14	0.477	0.479	2.183	2.193	0.070	0.071	0.322	0.324	0.102	0.102	0.465	0.467
21	0.474	0.478	2.173	2.188	0.070	0.071	0.320	0.323	0.101	0.102	0.463	0.466
28	0.472	0.477	2.162	2.183	0.070	0.070	0.319	0.322	0.101	0.102	0.461	0.465
42	0.468	0.474	2.141	2.172	0.069	0.070	0.316	0.320	0.100	0.101	0.456	0.463
50	0.465	0.473	2.129	2.166	0.069	0.070	0.314	0.320	0.099	0.101	0.454	0.462
100	0.449	0.465	2.057	2.130	0.066	0.069	0.303	0.314	0.096	0.099	0.438	0.454

Table A 11: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-JF999 following application of 1 × 20 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
					Northern Europe (Mar-May)				Southern Europe (Mar-May)			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.207		<0.001		0.188	---	<0.001		0.343	---	<0.001	
1	1.206	1.207	<0.001	<0.001	0.188	0.188	<0.001	<0.001	0.343	0.343	<0.001	<0.001
2	1.206	1.206	<0.001	<0.001	0.187	0.188	<0.001	<0.001	0.343	0.343	<0.001	<0.001
4	1.204	1.206	<0.001	<0.001	0.187	0.187	<0.001	<0.001	0.342	0.343	<0.001	<0.001
7	1.201	1.204	<0.001	<0.001	0.187	0.187	<0.001	<0.001	0.341	0.342	<0.001	<0.001
14	1.196	1.201	<0.001	<0.001	0.186	0.187	<0.001	<0.001	0.340	0.341	<0.001	<0.001
21	1.190	1.199	<0.001	<0.001	0.185	0.186	<0.001	<0.001	0.338	0.341	<0.001	<0.001
28	1.184	1.196	<0.001	<0.001	0.184	0.186	<0.001	<0.001	0.336	0.340	<0.001	<0.001
42	1.173	1.190	<0.001	<0.001	0.182	0.185	<0.001	<0.001	0.333	0.338	<0.001	<0.001
50	1.166	1.187	<0.001	<0.001	0.181	0.185	<0.001	<0.001	0.331	0.337	<0.001	<0.001
100	1.126	1.166	<0.001	<0.001	0.175	0.181	<0.001	<0.001	0.320	0.331	<0.001	<0.001

Table A 12: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-JF999 following application of 1 × 20 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	1.207		<0.001		0.188	---	<0.001		0.265	---	<0.001
1	1.206	1.207	<0.001	<0.001	0.188	0.188	<0.001	<0.001	0.265	0.265	<0.001	<0.001
2	1.206	1.206	<0.001	<0.001	0.187	0.188	<0.001	<0.001	0.265	0.265	<0.001	<0.001
4	1.204	1.206	<0.001	<0.001	0.187	0.187	<0.001	<0.001	0.265	0.265	<0.001	<0.001
7	1.201	1.204	<0.001	<0.001	0.187	0.187	<0.001	<0.001	0.264	0.265	<0.001	<0.001
14	1.196	1.201	<0.001	<0.001	0.186	0.187	<0.001	<0.001	0.263	0.264	<0.001	<0.001
21	1.190	1.199	<0.001	<0.001	0.185	0.186	<0.001	<0.001	0.262	0.263	<0.001	<0.001
28	1.184	1.196	<0.001	<0.001	0.184	0.186	<0.001	<0.001	0.260	0.263	<0.001	<0.001
42	1.173	1.190	<0.001	<0.001	0.182	0.185	<0.001	<0.001	0.258	0.262	<0.001	<0.001
50	1.166	1.187	<0.001	<0.001	0.181	0.185	<0.001	<0.001	0.256	0.261	<0.001	<0.001
100	1.126	1.166	<0.001	<0.001	0.175	0.181	<0.001	<0.001	0.248	0.256	<0.001	<0.001

Table A 13: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 2 × 10 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Mar-May)		PEC _{sed} (µg/kg ds)		Southern Europe (Mar-May)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	6.458		2.949		0.827	---	0.377	---	1.574	---	0.729
1	6.053	6.255	2.845	2.897	0.748	0.787	0.364	0.371	1.425	1.500	0.694	0.711
2	5.683	6.061	2.671	2.827	0.679	0.750	0.331	0.359	1.293	1.429	0.630	0.687
4	5.010	5.700	2.355	2.668	0.559	0.684	0.272	0.330	1.065	1.303	0.519	0.630
7	4.147	5.214	1.949	2.444	0.418	0.599	0.204	0.290	0.797	1.141	0.388	0.553
14	2.668	4.284	1.254	2.010	0.212	0.451	0.103	0.219	0.404	0.860	0.197	0.418
21	1.717	3.575	0.807	1.678	0.108	0.352	0.053	0.171	0.205	0.671	0.100	0.326
28	1.104	3.028	0.519	1.422	0.055	0.284	0.027	0.138	0.104	0.541	0.051	0.263
42	0.457	2.263	0.215	1.063	0.014	0.199	0.007	0.097	0.027	0.380	0.013	0.185
50	0.276	1.959	0.130	0.920	0.007	0.169	0.003	0.082	0.012	0.322	0.006	0.156
100	0.012	1.021	0.006	0.480	<0.001	0.085	<0.001	0.041	<0.001	0.162	<0.001	0.079

Table A 14: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 2 × 10 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	6.458		2.949		0.827	---	0.377	---	1.201	---	0.553
1	6.053	6.255	2.845	2.897	0.748	0.787	0.364	0.371	1.086	1.143	0.529	0.541
2	5.683	6.061	2.671	2.827	0.679	0.750	0.331	0.359	0.986	1.090	0.480	0.523
4	5.010	5.700	2.355	2.668	0.559	0.684	0.272	0.330	0.812	0.993	0.396	0.480
7	4.147	5.214	1.949	2.444	0.418	0.599	0.204	0.290	0.607	0.870	0.296	0.422
14	2.668	4.284	1.254	2.010	0.212	0.451	0.103	0.219	0.308	0.656	0.150	0.318
21	1.717	3.575	0.807	1.678	0.108	0.352	0.053	0.171	0.157	0.512	0.076	0.249
28	1.104	3.028	0.519	1.422	0.055	0.284	0.027	0.138	0.079	0.412	0.039	0.200
42	0.457	2.263	0.215	1.063	0.014	0.199	0.007	0.097	0.021	0.289	0.010	0.141
50	0.276	1.959	0.130	0.920	0.007	0.169	0.003	0.082	0.009	0.245	0.005	0.119
100	0.012	1.021	0.006	0.480	<0.001	0.085	<0.001	0.041	<0.001	0.124	<0.001	0.060

Table A 15: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-70941 following application of 2 × 10 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
					Northern Europe (Mar-May)				Southern Europe (Mar-May)			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	7.754		3.199		1.079	---	0.443	---	2.061	---	0.852	---
1	7.576	7.665	3.182	3.191	1.051	1.065	0.432	0.437	2.009	2.035	0.846	0.849
2	7.408	7.578	3.111	3.169	1.026	1.052	0.421	0.432	1.960	2.010	0.825	0.842
4	7.084	7.412	2.975	3.106	0.976	1.026	0.401	0.421	1.866	1.961	0.786	0.824
7	6.624	7.172	2.782	3.008	0.907	0.990	0.372	0.407	1.733	1.892	0.730	0.795
14	5.665	6.652	2.379	2.792	0.763	0.911	0.314	0.374	1.459	1.742	0.614	0.733
21	4.844	6.182	2.035	2.595	0.642	0.841	0.264	0.346	1.228	1.608	0.517	0.677
28	4.142	5.758	1.740	2.417	0.541	0.778	0.222	0.320	1.033	1.488	0.435	0.626
42	3.029	5.024	1.272	2.109	0.383	0.671	0.157	0.276	0.732	1.283	0.308	0.540
50	2.533	4.664	1.064	1.958	0.314	0.620	0.129	0.255	0.601	1.184	0.253	0.498
100	0.828	3.094	0.348	1.299	0.092	0.400	0.038	0.164	0.175	0.765	0.074	0.322

Table A 16: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-70941 following application of 2 × 10 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
					Northern Europe (Jun-Sep)				Southern Europe (Jun-Sep)			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	7.754		3.199		1.079	---	0.443	---	1.570	---	0.646	---
1	7.576	7.665	3.182	3.191	1.051	1.065	0.432	0.437	1.530	1.550	0.644	0.645
2	7.408	7.578	3.111	3.169	1.026	1.052	0.421	0.432	1.493	1.531	0.629	0.641
4	7.084	7.412	2.975	3.106	0.976	1.026	0.401	0.421	1.421	1.494	0.598	0.627
7	6.624	7.172	2.782	3.008	0.907	0.990	0.372	0.407	1.320	1.441	0.556	0.606
14	5.665	6.652	2.379	2.792	0.763	0.911	0.314	0.374	1.111	1.327	0.468	0.558
21	4.844	6.182	2.035	2.595	0.642	0.841	0.264	0.346	0.935	1.225	0.394	0.515
28	4.142	5.758	1.740	2.417	0.541	0.778	0.222	0.320	0.787	1.133	0.331	0.477
42	3.029	5.024	1.272	2.109	0.383	0.671	0.157	0.276	0.557	0.977	0.235	0.411
50	2.533	4.664	1.064	1.958	0.314	0.620	0.129	0.255	0.458	0.902	0.193	0.380
100	0.828	3.094	0.348	1.299	0.092	0.400	0.038	0.164	0.134	0.583	0.056	0.245

Table A 17: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-70942 following application of 2 × 10 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
					Northern Europe (Mar-May)				Southern Europe (Mar-May)			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	4.389		8.289		0.601	---	1.150	---	1.132	---	2.173	---
1	4.337	4.363	8.413	8.351	0.578	0.590	1.120	1.135	1.092	1.112	2.116	2.145
2	4.309	4.343	8.359	8.368	0.563	0.580	1.091	1.121	1.064	1.095	2.061	2.117
4	4.253	4.312	8.251	8.336	0.534	0.565	1.035	1.092	1.009	1.066	1.956	2.062
7	4.171	4.269	8.092	8.266	0.494	0.543	0.957	1.051	0.933	1.025	1.807	1.985
14	3.986	4.174	7.733	8.089	0.411	0.497	0.796	0.962	0.776	0.939	1.503	1.818
21	3.810	4.081	7.391	7.913	0.342	0.456	0.662	0.884	0.645	0.862	1.250	1.669
28	3.641	3.992	7.063	7.741	0.284	0.420	0.551	0.814	0.537	0.794	1.040	1.538
42	3.325	3.822	6.451	7.411	0.197	0.359	0.381	0.696	0.371	0.679	0.720	1.315
50	3.157	3.729	6.125	7.231	0.159	0.330	0.309	0.640	0.301	0.624	0.583	1.209
100	2.284	3.213	4.430	6.232	0.043	0.209	0.083	0.406	0.081	0.396	0.156	0.766

Table A 18: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-70942 following application of 2 × 10 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
					Northern Europe (Jun-Sep)				Southern Europe (Jun-Sep)			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	4.389		8.289		0.601	---	1.150	---	0.867	---	1.662	---
1	4.337	4.363	8.413	8.351	0.578	0.590	1.120	1.135	0.835	0.851	1.618	1.640
2	4.309	4.343	8.359	8.368	0.563	0.580	1.091	1.121	0.814	0.838	1.576	1.619
4	4.253	4.312	8.251	8.336	0.534	0.565	1.035	1.092	0.772	0.815	1.496	1.577
7	4.171	4.269	8.092	8.266	0.494	0.543	0.957	1.051	0.713	0.784	1.382	1.518
14	3.986	4.174	7.733	8.089	0.411	0.497	0.796	0.962	0.593	0.718	1.150	1.390
21	3.810	4.081	7.391	7.913	0.342	0.456	0.662	0.884	0.494	0.659	0.956	1.277
28	3.641	3.992	7.063	7.741	0.284	0.420	0.551	0.814	0.411	0.607	0.795	1.176
42	3.325	3.822	6.451	7.411	0.197	0.359	0.381	0.696	0.284	0.519	0.550	1.006
50	3.157	3.729	6.125	7.231	0.159	0.330	0.309	0.640	0.230	0.477	0.446	0.924
100	2.284	3.213	4.430	6.232	0.043	0.209	0.083	0.406	0.062	0.303	0.120	0.586

Table A 19: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-E9260 following application of 2 × 10 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
					Northern Europe (Mar-May)				Southern Europe (Mar-May)			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.333		0.316		0.192	---	0.046	---	0.369	---	0.089	---
1	1.331	1.332	0.320	0.318	0.192	0.192	0.046	0.046	0.369	0.369	0.089	0.089
2	1.330	1.331	0.319	0.319	0.192	0.192	0.046	0.046	0.369	0.369	0.088	0.089
4	1.328	1.330	0.319	0.319	0.191	0.192	0.046	0.046	0.368	0.369	0.088	0.088
7	1.326	1.329	0.318	0.319	0.191	0.191	0.046	0.046	0.367	0.368	0.088	0.088
14	1.319	1.326	0.317	0.318	0.190	0.191	0.046	0.046	0.366	0.367	0.088	0.088
21	1.313	1.323	0.315	0.317	0.189	0.191	0.045	0.046	0.364	0.366	0.087	0.088
28	1.307	1.319	0.314	0.317	0.188	0.190	0.045	0.046	0.362	0.366	0.087	0.088
42	1.294	1.313	0.311	0.315	0.186	0.189	0.045	0.045	0.359	0.364	0.086	0.087
50	1.287	1.309	0.309	0.314	0.185	0.189	0.045	0.045	0.357	0.363	0.086	0.087
100	1.243	1.287	0.298	0.309	0.179	0.185	0.043	0.045	0.344	0.357	0.083	0.086

Table A 20: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-E9260 following application of 2 × 10 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
					Northern Europe (Jun-Sep)				Southern Europe (Jun-Sep)			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.333		0.316		0.192	---	0.046	---	0.281	---	0.067	---
1	1.331	1.332	0.320	0.318	0.192	0.192	0.046	0.046	0.280	0.281	0.067	0.067
2	1.330	1.331	0.319	0.319	0.192	0.192	0.046	0.046	0.280	0.280	0.067	0.067
4	1.328	1.330	0.319	0.319	0.191	0.192	0.046	0.046	0.280	0.280	0.067	0.067
7	1.326	1.329	0.318	0.319	0.191	0.191	0.046	0.046	0.279	0.280	0.067	0.067
14	1.319	1.326	0.317	0.318	0.190	0.191	0.046	0.046	0.278	0.279	0.067	0.067
21	1.313	1.323	0.315	0.317	0.189	0.191	0.045	0.046	0.276	0.279	0.066	0.067
28	1.307	1.319	0.314	0.317	0.188	0.190	0.045	0.046	0.275	0.278	0.066	0.067
42	1.294	1.313	0.311	0.315	0.186	0.189	0.045	0.045	0.272	0.276	0.065	0.066
50	1.287	1.309	0.309	0.314	0.185	0.189	0.045	0.045	0.271	0.276	0.065	0.066
100	1.243	1.287	0.298	0.309	0.179	0.185	0.043	0.045	0.262	0.271	0.063	0.065

Table A 21: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-J0290 following application of 2 × 10 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
					Northern Europe (Mar-May)				Southern Europe (Mar-May)			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.486		2.169		0.065	---	0.294	---	0.123	---	0.557	---
1	0.481	0.484	2.203	2.186	0.064	0.065	0.294	0.294	0.122	0.122	0.556	0.557
2	0.481	0.482	2.201	2.194	0.064	0.065	0.294	0.294	0.122	0.122	0.556	0.556
4	0.480	0.481	2.198	2.197	0.064	0.064	0.293	0.294	0.121	0.122	0.555	0.556
7	0.479	0.481	2.194	2.197	0.064	0.064	0.293	0.293	0.121	0.121	0.554	0.555
14	0.477	0.479	2.183	2.193	0.064	0.064	0.291	0.293	0.121	0.121	0.551	0.554
21	0.474	0.478	2.173	2.188	0.063	0.064	0.290	0.292	0.120	0.121	0.549	0.553
28	0.472	0.477	2.162	2.183	0.063	0.064	0.289	0.291	0.119	0.121	0.546	0.551
42	0.468	0.474	2.141	2.172	0.062	0.063	0.286	0.290	0.118	0.120	0.541	0.549
50	0.465	0.473	2.129	2.166	0.062	0.063	0.284	0.289	0.118	0.120	0.538	0.547
100	0.449	0.465	2.057	2.130	0.060	0.062	0.275	0.284	0.114	0.118	0.520	0.538

Table A 22: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-J0290 following application of 2 × 10 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
					Northern Europe (Jun-Sep)				Southern Europe (Jun-Sep)			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.486		2.169		0.065	---	0.294	---	0.094	---	0.426	---
1	0.481	0.484	2.203	2.186	0.064	0.065	0.294	0.294	0.093	0.093	0.425	0.425
2	0.481	0.482	2.201	2.194	0.064	0.065	0.294	0.294	0.093	0.093	0.425	0.425
4	0.480	0.481	2.198	2.197	0.064	0.064	0.293	0.294	0.093	0.093	0.424	0.425
7	0.479	0.481	2.194	2.197	0.064	0.064	0.293	0.293	0.093	0.093	0.423	0.424
14	0.477	0.479	2.183	2.193	0.064	0.064	0.291	0.293	0.092	0.093	0.421	0.423
21	0.474	0.478	2.173	2.188	0.063	0.064	0.290	0.292	0.092	0.092	0.419	0.422
28	0.472	0.477	2.162	2.183	0.063	0.064	0.289	0.291	0.091	0.092	0.417	0.421
42	0.468	0.474	2.141	2.172	0.062	0.063	0.286	0.290	0.090	0.092	0.413	0.419
50	0.465	0.473	2.129	2.166	0.062	0.063	0.284	0.289	0.090	0.091	0.411	0.418
100	0.449	0.465	2.057	2.130	0.060	0.062	0.275	0.284	0.087	0.090	0.397	0.411

Table A 23: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-JF999 following application of 2 × 10 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
					Northern Europe (Mar-May)				Southern Europe (Mar-May)			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.207		<0.001		0.169	---	<0.001		0.309	---	<0.001	
1	1.206	1.207	<0.001	<0.001	0.168	0.168	<0.001	<0.001	0.308	0.308	<0.001	<0.001
2	1.206	1.206	<0.001	<0.001	0.168	0.168	<0.001	<0.001	0.308	0.308	<0.001	<0.001
4	1.204	1.206	<0.001	<0.001	0.168	0.168	<0.001	<0.001	0.308	0.308	<0.001	<0.001
7	1.201	1.204	<0.001	<0.001	0.168	0.168	<0.001	<0.001	0.307	0.308	<0.001	<0.001
14	1.196	1.201	<0.001	<0.001	0.167	0.168	<0.001	<0.001	0.306	0.307	<0.001	<0.001
21	1.190	1.199	<0.001	<0.001	0.166	0.167	<0.001	<0.001	0.304	0.306	<0.001	<0.001
28	1.184	1.196	<0.001	<0.001	0.165	0.167	<0.001	<0.001	0.303	0.306	<0.001	<0.001
42	1.173	1.190	<0.001	<0.001	0.164	0.166	<0.001	<0.001	0.300	0.304	<0.001	<0.001
50	1.166	1.187	<0.001	<0.001	0.163	0.166	<0.001	<0.001	0.298	0.303	<0.001	<0.001
100	1.126	1.166	<0.001	<0.001	0.157	0.163	<0.001	<0.001	0.288	0.298	<0.001	<0.001

Table A 24: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-JF999 following application of 2 × 10 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	1.207		<0.001		0.169	---	<0.001		0.239	---	<0.001
1	1.206	1.207	<0.001	<0.001	0.168	0.168	<0.001	<0.001	0.238	0.238	<0.001	<0.001
2	1.206	1.206	<0.001	<0.001	0.168	0.168	<0.001	<0.001	0.238	0.238	<0.001	<0.001
4	1.204	1.206	<0.001	<0.001	0.168	0.168	<0.001	<0.001	0.238	0.238	<0.001	<0.001
7	1.201	1.204	<0.001	<0.001	0.168	0.168	<0.001	<0.001	0.237	0.238	<0.001	<0.001
14	1.196	1.201	<0.001	<0.001	0.167	0.168	<0.001	<0.001	0.236	0.237	<0.001	<0.001
21	1.190	1.199	<0.001	<0.001	0.166	0.167	<0.001	<0.001	0.235	0.237	<0.001	<0.001
28	1.184	1.196	<0.001	<0.001	0.165	0.167	<0.001	<0.001	0.234	0.236	<0.001	<0.001
42	1.173	1.190	<0.001	<0.001	0.164	0.166	<0.001	<0.001	0.232	0.235	<0.001	<0.001
50	1.166	1.187	<0.001	<0.001	0.163	0.166	<0.001	<0.001	0.230	0.234	<0.001	<0.001
100	1.126	1.166	<0.001	<0.001	0.157	0.163	<0.001	<0.001	0.223	0.230	<0.001	<0.001

Step- 3 and 4 results:

Table A 25: FOCUS Step 3 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 1 × 20 g a.s./ha to maize, BBCH 11-18

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.115	0.095	0.068	0.050	0.040	0.028	0.019	0.016	0.015	0.014	0.013	0.013
	PEC _{sed}	0.020	0.020	0.019	0.017	0.016	0.014	0.013	0.013	0.013	0.013	0.013	0.013
D4, pond	PEC _{sw}	0.026	0.026	0.026	0.026	0.026	0.026	0.025	0.025	0.024	0.022	0.022	0.017
	PEC _{sed}	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.018	0.016
D4, stream	PEC _{sw}	0.096	0.024	0.023	0.022	0.022	0.021	0.021	0.021	0.019	0.016	0.015	0.013
	PEC _{sed}	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.014	0.014	0.013	0.013	0.012
D5, pond	PEC _{sw}	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.021	0.021	0.020	0.019	0.015
	PEC _{sed}	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.016	0.016	0.016	0.015	0.013
D5, stream	PEC _{sw}	0.103	0.023	0.023	0.023	0.023	0.022	0.022	0.021	0.020	0.019	0.019	0.016
	PEC _{sed}	0.015	0.015	0.015	0.015	0.015	0.015	0.014	0.014	0.014	0.014	0.014	0.013
D6, ditch	PEC _{sw}	0.106	0.093	0.075	0.057	0.044	0.026	0.013	0.009	0.007	0.006	0.005	0.003
	PEC _{sed}	0.015	0.015	0.014	0.013	0.012	0.009	0.006	0.005	0.004	0.003	0.003	0.003
R1, pond	PEC _{sw}	0.028	0.027	0.026	0.026	0.025	0.023	0.020	0.017	0.014	0.011	0.009	0.005
	PEC _{sed}	0.010	0.010	0.010	0.010	0.010	0.010	0.009	0.009	0.008	0.007	0.006	0.003
R1, stream	PEC _{sw}	0.604	0.313	0.157	0.104	0.078	0.047	0.024	0.016	0.012	0.008	0.007	0.003
	PEC _{sed}	0.065	0.045	0.034	0.028	0.024	0.019	0.013	0.010	0.008	0.006	0.005	0.003
R2, stream	PEC _{sw}	0.159	0.159	0.086	0.057	0.043	0.024	0.012	0.009	0.006	0.004	0.004	0.002
	PEC _{sed}	0.027	0.021	0.017	0.015	0.013	0.010	0.006	0.005	0.004	0.003	0.002	0.001
R3, stream	PEC _{sw}	0.836	0.484	0.243	0.162	0.122	0.084	0.044	0.029	0.022	0.015	0.012	0.006
	PEC _{sed}	0.088	0.068	0.052	0.043	0.038	0.032	0.021	0.016	0.013	0.009	0.008	0.004
R4, stream	PEC _{sw}	0.840	0.649	0.325	0.217	0.163	0.093	0.050	0.034	0.026	0.017	0.014	0.007
	PEC _{sed}	0.112	0.089	0.069	0.058	0.050	0.038	0.026	0.020	0.017	0.012	0.010	0.005

^a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 26: FOCUS Step 3 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 12.59 + 7.41 g a.s./ha to maize, BBCH 11-18

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.068	0.057	0.042	0.033	0.027	0.020	0.018	0.016	0.015	0.014	0.014	0.014
	PEC _{sed}	0.015	0.015	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014
D4, pond	PEC _{sw}	0.027	0.027	0.027	0.027	0.027	0.027	0.026	0.026	0.025	0.023	0.022	0.018
	PEC _{sed}	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.019	0.019	0.019	0.017
D4, stream	PEC _{sw}	0.055	0.025	0.024	0.023	0.023	0.022	0.022	0.021	0.020	0.017	0.016	0.013
	PEC _{sed}	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.015	0.015	0.014	0.014	0.013
D5, pond	PEC _{sw}	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.016	0.016	0.015	0.015	0.011
	PEC _{sed}	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.011	0.009
D5, stream	PEC _{sw}	0.058	0.016	0.016	0.016	0.016	0.015	0.015	0.015	0.014	0.014	0.013	0.012
	PEC _{sed}	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.010	0.010	0.010	0.010
D6, ditch	PEC _{sw}	0.058	0.051	0.041	0.031	0.024	0.014	0.009	0.006	0.005	0.004	0.003	0.003
	PEC _{sed}	0.008	0.008	0.008	0.007	0.007	0.005	0.004	0.003	0.003	0.002	0.002	0.002
R1, pond	PEC _{sw}	0.017	0.017	0.016	0.016	0.015	0.014	0.013	0.011	0.009	0.008	0.007	0.004
	PEC _{sed}	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.004	0.002
R1, stream	PEC _{sw}	0.380	0.197	0.099	0.066	0.049	0.030	0.015	0.013	0.010	0.008	0.006	0.003
	PEC _{sed}	0.041	0.028	0.021	0.018	0.015	0.012	0.008	0.007	0.006	0.005	0.004	0.002
R2, stream	PEC _{sw}	0.170	0.170	0.091	0.061	0.046	0.026	0.013	0.009	0.007	0.005	0.004	0.002
	PEC _{sed}	0.028	0.023	0.019	0.016	0.014	0.010	0.007	0.005	0.004	0.003	0.003	0.001
R3, stream	PEC _{sw}	0.527	0.305	0.154	0.102	0.077	0.053	0.028	0.019	0.014	0.011	0.010	0.005
	PEC _{sed}	0.055	0.043	0.033	0.027	0.024	0.020	0.014	0.010	0.008	0.007	0.006	0.003
R4, stream	PEC _{sw}	0.530	0.409	0.205	0.137	0.103	0.059	0.047	0.033	0.025	0.017	0.014	0.007
	PEC _{sed}	0.070	0.056	0.043	0.036	0.032	0.024	0.020	0.018	0.016	0.012	0.010	0.005

^a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 27: FOCUS Step 3 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 1 × 12.59 g a.s./ha to maize, BBCH 11-18

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.073	0.060	0.043	0.032	0.026	0.017	0.012	0.010	0.009	0.009	0.009	0.009
	PEC _{sed}	0.013	0.013	0.012	0.011	0.010	0.009	0.008	0.008	0.008	0.008	0.008	0.008
D4, pond	PEC _{sw}	0.017	0.017	0.017	0.017	0.017	0.017	0.016	0.016	0.015	0.014	0.014	0.011
	PEC _{sed}	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.010
D4, stream	PEC _{sw}	0.061	0.015	0.015	0.014	0.014	0.014	0.013	0.013	0.012	0.010	0.010	0.008
	PEC _{sed}	0.010	0.010	0.010	0.010	0.010	0.010	0.009	0.009	0.009	0.009	0.009	0.008
D5, pond	PEC _{sw}	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.013	0.013	0.012	0.009
	PEC _{sed}	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.010	0.010	0.010	0.008
D5, stream	PEC _{sw}	0.065	0.014	0.014	0.014	0.014	0.014	0.014	0.013	0.013	0.012	0.012	0.010
	PEC _{sed}	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.008
D6, ditch	PEC _{sw}	0.067	0.058	0.047	0.036	0.028	0.016	0.008	0.006	0.005	0.004	0.003	0.002
	PEC _{sed}	0.010	0.009	0.009	0.008	0.007	0.006	0.004	0.003	0.003	0.002	0.002	0.002
R1, pond	PEC _{sw}	0.017	0.017	0.017	0.016	0.016	0.015	0.013	0.011	0.009	0.007	0.006	0.003
	PEC _{sed}	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.002
R1, stream	PEC _{sw}	0.380	0.197	0.099	0.066	0.049	0.030	0.015	0.010	0.008	0.005	0.004	0.002
	PEC _{sed}	0.041	0.028	0.021	0.018	0.015	0.012	0.008	0.006	0.005	0.004	0.003	0.002
R2, stream	PEC _{sw}	0.100	0.100	0.054	0.036	0.027	0.015	0.008	0.005	0.004	0.003	0.002	0.001
	PEC _{sed}	0.017	0.013	0.011	0.009	0.008	0.006	0.004	0.003	0.002	0.002	0.001	<0.001
R3, stream	PEC _{sw}	0.527	0.305	0.154	0.102	0.077	0.053	0.028	0.019	0.014	0.009	0.008	0.004
	PEC _{sed}	0.055	0.043	0.033	0.027	0.024	0.020	0.013	0.010	0.008	0.006	0.005	0.002
R4, stream	PEC _{sw}	0.530	0.409	0.205	0.137	0.103	0.059	0.031	0.021	0.016	0.011	0.009	0.005
	PEC _{sed}	0.070	0.056	0.043	0.036	0.032	0.024	0.016	0.013	0.010	0.008	0.006	0.003

^a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 28: FOCUS Step 3 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 2 × 10 g a.s./ha to maize, BBCH 11-18

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.056	0.048	0.037	0.029	0.025	0.019	0.018	0.016	0.015	0.015	0.015	0.015
	PEC _{sed}	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014
D4, pond	PEC _{sw}	0.028	0.028	0.028	0.028	0.028	0.027	0.027	0.026	0.025	0.023	0.023	0.018
	PEC _{sed}	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.017
D4, stream	PEC _{sw}	0.045	0.025	0.024	0.024	0.024	0.023	0.022	0.022	0.020	0.017	0.016	0.013
	PEC _{sed}	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.015	0.015	0.014	0.014	0.013
D5, pond	PEC _{sw}	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.014	0.014	0.013	0.013	0.010
	PEC _{sed}	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.008
D5, stream	PEC _{sw}	0.046	0.013	0.013	0.013	0.013	0.013	0.013	0.012	0.012	0.012	0.011	0.010
	PEC _{sed}	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.008
D6, ditch	PEC _{sw}	0.046	0.041	0.033	0.025	0.019	0.011	0.008	0.006	0.005	0.003	0.003	0.003
	PEC _{sed}	0.007	0.007	0.006	0.006	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.002
R1, pond	PEC _{sw}	0.014	0.013	0.013	0.013	0.012	0.011	0.010	0.009	0.008	0.007	0.006	0.003
	PEC _{sed}	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.002
R1, stream	PEC _{sw}	0.302	0.156	0.078	0.052	0.039	0.024	0.012	0.011	0.009	0.007	0.006	0.003
	PEC _{sed}	0.032	0.023	0.017	0.014	0.012	0.009	0.006	0.006	0.005	0.005	0.004	0.002
R2, stream	PEC _{sw}	0.174	0.174	0.094	0.062	0.047	0.027	0.014	0.009	0.007	0.005	0.004	0.002
	PEC _{sed}	0.029	0.024	0.019	0.016	0.014	0.011	0.007	0.005	0.004	0.003	0.003	0.001
R3, stream	PEC _{sw}	0.418	0.242	0.122	0.081	0.061	0.042	0.022	0.015	0.012	0.010	0.009	0.004
	PEC _{sed}	0.044	0.034	0.026	0.022	0.019	0.016	0.011	0.008	0.007	0.006	0.005	0.003
R4, stream	PEC _{sw}	0.446	0.325	0.163	0.109	0.081	0.053	0.046	0.033	0.026	0.017	0.014	0.007
	PEC _{sed}	0.064	0.049	0.039	0.033	0.029	0.023	0.017	0.017	0.015	0.012	0.010	0.005

^a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 29: FOCUS Step 3 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 1 × 10 g a.s./ha to maize, BBCH 11-18

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.058	0.048	0.034	0.025	0.020	0.014	0.010	0.008	0.008	0.007	0.007	0.007
	PEC _{sed}	0.010	0.010	0.009	0.009	0.008	0.007	0.007	0.007	0.007	0.007	0.007	0.006
D4, pond	PEC _{sw}	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.012	0.012	0.011	0.011	0.009
	PEC _{sed}	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.009	0.009	0.009	0.009	0.008
D4, stream	PEC _{sw}	0.048	0.012	0.012	0.011	0.011	0.011	0.011	0.010	0.010	0.008	0.008	0.006
	PEC _{sed}	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.007	0.007	0.007	0.007	0.006
D5, pond	PEC _{sw}	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.007
	PEC _{sed}	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.006
D5, stream	PEC _{sw}	0.052	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.009	0.008
	PEC _{sed}	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
D6, ditch	PEC _{sw}	0.053	0.046	0.037	0.028	0.022	0.013	0.007	0.005	0.004	0.003	0.002	0.002
	PEC _{sed}	0.008	0.007	0.007	0.006	0.006	0.005	0.003	0.002	0.002	0.002	0.001	0.001
R1, pond	PEC _{sw}	0.014	0.013	0.013	0.013	0.012	0.012	0.010	0.008	0.007	0.005	0.005	0.002
	PEC _{sed}	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.003	0.003	0.002
R1, stream	PEC _{sw}	0.302	0.156	0.078	0.052	0.039	0.024	0.012	0.008	0.006	0.004	0.003	0.002
	PEC _{sed}	0.032	0.023	0.017	0.014	0.012	0.009	0.006	0.005	0.004	0.003	0.002	0.001
R2, stream	PEC _{sw}	0.079	0.079	0.043	0.028	0.021	0.012	0.006	0.004	0.003	0.002	0.002	<0.001
	PEC _{sed}	0.013	0.011	0.009	0.007	0.006	0.005	0.003	0.002	0.002	0.001	0.001	<0.001
R3, stream	PEC _{sw}	0.418	0.242	0.122	0.081	0.061	0.042	0.022	0.015	0.011	0.007	0.006	0.003
	PEC _{sed}	0.044	0.034	0.026	0.022	0.019	0.016	0.011	0.008	0.006	0.005	0.004	0.002
R4, stream	PEC _{sw}	0.421	0.325	0.163	0.109	0.081	0.047	0.025	0.017	0.013	0.009	0.007	0.004
	PEC _{sed}	0.056	0.044	0.034	0.029	0.025	0.019	0.013	0.010	0.008	0.006	0.005	0.003

^a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Step 4: 10 m NSZ +VFS

Table A 30: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 1 × 20 g a.s./ha to maize, BBCH 11-18 (10 m NSZ +VFS)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{SW}	0.029	0.025	0.020	0.017	0.016	0.014	0.014	0.014	0.014	0.013	0.013	0.013
	PEC _{SED}	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
D4, pond	PEC _{SW}	0.026	0.026	0.026	0.026	0.026	0.026	0.025	0.025	0.024	0.022	0.022	0.017
	PEC _{SED}	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.018	0.016
D4, stream	PEC _{SW}	0.026	0.024	0.023	0.022	0.022	0.021	0.021	0.021	0.019	0.016	0.015	0.013
	PEC _{SED}	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.014	0.014	0.013	0.013	0.012
D5, pond	PEC _{SW}	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.021	0.021	0.020	0.019	0.015
	PEC _{SED}	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.016	0.016	0.016	0.015	0.013
D5, stream	PEC _{SW}	0.030	0.023	0.023	0.023	0.023	0.022	0.022	0.021	0.020	0.019	0.019	0.016
	PEC _{SED}	0.015	0.015	0.015	0.015	0.015	0.015	0.014	0.014	0.014	0.014	0.014	0.013
D6, ditch	PEC _{SW}	0.019	0.017	0.014	0.011	0.008	0.005	0.005	0.004	0.004	0.004	0.003	0.003
	PEC _{SED}	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
R1, pond	PEC _{SW}	0.012	0.012	0.011	0.011	0.011	0.010	0.009	0.007	0.006	0.005	0.004	0.002
	PEC _{SED}	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.001
R1, stream	PEC _{SW}	0.274	0.142	0.071	0.047	0.035	0.021	0.011	0.007	0.005	0.004	0.003	0.002
	PEC _{SED}	0.029	0.020	0.015	0.013	0.011	0.008	0.006	0.004	0.004	0.003	0.002	0.001
R2, stream	PEC _{SW}	0.072	0.072	0.039	0.026	0.020	0.011	0.006	0.004	0.003	0.002	0.002	<0.001
	PEC _{SED}	0.012	0.010	0.008	0.006	0.006	0.004	0.003	0.002	0.002	0.001	0.001	<0.001
R3, stream	PEC _{SW}	0.377	0.219	0.110	0.073	0.055	0.037	0.019	0.013	0.010	0.006	0.005	0.003
	PEC _{SED}	0.039	0.031	0.023	0.019	0.017	0.014	0.009	0.007	0.006	0.004	0.003	0.002
R4, stream	PEC _{SW}	0.382	0.295	0.148	0.099	0.074	0.042	0.023	0.015	0.012	0.008	0.006	0.003
	PEC _{SED}	0.050	0.040	0.031	0.026	0.022	0.017	0.011	0.009	0.007	0.005	0.005	0.002

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 31: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 12.59 + 7.41 g a.s./ha to maize, BBCH 11-18 (10 m NSZ +VFS)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{SW}	0.020	0.018	0.016	0.015	0.015	0.015	0.015	0.014	0.014	0.014	0.014	0.014
	PEC _{SED}	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014
D4, pond	PEC _{SW}	0.027	0.027	0.027	0.027	0.027	0.027	0.026	0.026	0.025	0.023	0.022	0.018
	PEC _{SED}	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.019	0.019	0.019	0.017
D4, stream	PEC _{SW}	0.026	0.025	0.024	0.023	0.023	0.022	0.022	0.021	0.020	0.017	0.016	0.013
	PEC _{SED}	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.015	0.015	0.014	0.014	0.013
D5, pond	PEC _{SW}	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.016	0.016	0.015	0.015	0.011
	PEC _{SED}	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.011	0.009
D5, stream	PEC _{SW}	0.018	0.016	0.016	0.016	0.016	0.015	0.015	0.015	0.014	0.014	0.013	0.012
	PEC _{SED}	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.010	0.010	0.010	0.010
D6, ditch	PEC _{SW}	0.010	0.009	0.007	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.003	0.003
	PEC _{SED}	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002
R1, pond	PEC _{SW}	0.007	0.007	0.007	0.007	0.007	0.006	0.005	0.005	0.004	0.003	0.003	0.002
	PEC _{SED}	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.001
R1, stream	PEC _{SW}	0.172	0.089	0.045	0.030	0.022	0.013	0.007	0.006	0.004	0.003	0.003	0.001
	PEC _{SED}	0.018	0.013	0.010	0.008	0.007	0.005	0.004	0.003	0.003	0.002	0.002	<0.001
R2, stream	PEC _{SW}	0.077	0.077	0.042	0.028	0.021	0.012	0.006	0.004	0.003	0.002	0.002	<0.001
	PEC _{SED}	0.013	0.010	0.008	0.007	0.006	0.005	0.003	0.002	0.002	0.001	0.001	<0.001
R3, stream	PEC _{SW}	0.238	0.138	0.069	0.046	0.035	0.024	0.012	0.008	0.006	0.005	0.004	0.002
	PEC _{SED}	0.025	0.019	0.015	0.012	0.010	0.009	0.006	0.004	0.004	0.003	0.003	0.001
R4, stream	PEC _{SW}	0.241	0.186	0.093	0.062	0.047	0.027	0.021	0.015	0.012	0.008	0.006	0.003
	PEC _{SED}	0.031	0.025	0.019	0.016	0.014	0.011	0.009	0.008	0.007	0.005	0.004	0.002

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 32: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 1 × 12.59 g a.s./ha to maize, BBCH 11-18 (10 m NSZ +VFS)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{SW}	0.018	0.016	0.013	0.011	0.010	0.009	0.009	0.009	0.009	0.009	0.009	0.009
	PEC _{SED}	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
D4, pond	PEC _{SW}	0.017	0.017	0.017	0.017	0.017	0.017	0.016	0.016	0.015	0.014	0.014	0.011
	PEC _{SED}	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.010
D4, stream	PEC _{SW}	0.017	0.015	0.015	0.014	0.014	0.014	0.013	0.013	0.012	0.010	0.010	0.008
	PEC _{SED}	0.010	0.010	0.010	0.010	0.010	0.010	0.009	0.009	0.009	0.009	0.009	0.008
D5, pond	PEC _{SW}	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.013	0.013	0.012	0.009
	PEC _{SED}	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.010	0.010	0.010	0.008
D5, stream	PEC _{SW}	0.019	0.014	0.014	0.014	0.014	0.014	0.014	0.013	0.013	0.012	0.012	0.010
	PEC _{SED}	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.008
D6, ditch	PEC _{SW}	0.012	0.011	0.009	0.007	0.005	0.003	0.003	0.003	0.002	0.002	0.002	0.002
	PEC _{SED}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
R1, pond	PEC _{SW}	0.007	0.007	0.007	0.007	0.007	0.006	0.005	0.005	0.004	0.003	0.003	0.001
	PEC _{SED}	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	<0.001
R1, stream	PEC _{SW}	0.172	0.089	0.045	0.030	0.022	0.013	0.007	0.005	0.003	0.002	0.002	<0.001
	PEC _{SED}	0.018	0.013	0.010	0.008	0.007	0.005	0.004	0.003	0.002	0.002	0.001	<0.001
R2, stream	PEC _{SW}	0.045	0.045	0.025	0.016	0.012	0.007	0.004	0.002	0.002	0.001	0.001	<0.001
	PEC _{SED}	0.007	0.006	0.005	0.004	0.004	0.003	0.002	0.001	0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{SW}	0.238	0.138	0.069	0.046	0.035	0.024	0.012	0.008	0.006	0.004	0.003	0.002
	PEC _{SED}	0.025	0.019	0.015	0.012	0.010	0.009	0.006	0.004	0.004	0.002	0.002	0.001
R4, stream	PEC _{SW}	0.241	0.186	0.093	0.062	0.047	0.027	0.014	0.010	0.007	0.005	0.004	0.002
	PEC _{SED}	0.031	0.025	0.019	0.016	0.014	0.011	0.007	0.006	0.005	0.003	0.003	0.001

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 33: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 2 × 10 g a.s./ha to maize, BBCH 11-18 (10 m NSZ +VFS)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{SW}	0.018	0.017	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
	PEC _{SED}	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014
D4, pond	PEC _{SW}	0.028	0.028	0.028	0.028	0.028	0.027	0.027	0.026	0.025	0.023	0.023	0.018
	PEC _{SED}	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.017
D4, stream	PEC _{SW}	0.026	0.025	0.024	0.024	0.024	0.023	0.022	0.022	0.020	0.017	0.016	0.013
	PEC _{SED}	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.015	0.015	0.014	0.014	0.013
D5, pond	PEC _{SW}	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.014	0.014	0.013	0.013	0.010
	PEC _{SED}	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.008
D5, stream	PEC _{SW}	0.014	0.013	0.013	0.013	0.013	0.013	0.013	0.012	0.012	0.012	0.011	0.010
	PEC _{SED}	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.008
D6, ditch	PEC _{SW}	0.008	0.007	0.006	0.005	0.005	0.005	0.004	0.004	0.003	0.003	0.003	0.003
	PEC _{SED}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
R1, pond	PEC _{SW}	0.006	0.006	0.005	0.005	0.005	0.005	0.004	0.004	0.003	0.003	0.003	0.001
	PEC _{SED}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	<0.001
R1, stream	PEC _{SW}	0.137	0.071	0.035	0.024	0.018	0.011	0.005	0.005	0.004	0.003	0.003	0.001
	PEC _{SED}	0.014	0.010	0.008	0.006	0.005	0.004	0.003	0.003	0.002	0.002	0.002	<0.001
R2, stream	PEC _{SW}	0.079	0.079	0.043	0.028	0.021	0.012	0.006	0.004	0.003	0.002	0.002	<0.001
	PEC _{SED}	0.013	0.010	0.008	0.007	0.006	0.005	0.003	0.002	0.002	0.001	0.001	<0.001
R3, stream	PEC _{SW}	0.189	0.110	0.055	0.037	0.028	0.019	0.010	0.007	0.005	0.004	0.004	0.002
	PEC _{SED}	0.020	0.015	0.012	0.010	0.008	0.007	0.005	0.004	0.003	0.003	0.002	0.001
R4, stream	PEC _{SW}	0.202	0.148	0.074	0.049	0.037	0.024	0.021	0.015	0.012	0.008	0.006	0.003
	PEC _{SED}	0.029	0.022	0.017	0.015	0.013	0.010	0.008	0.008	0.007	0.005	0.004	0.002

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 34: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 1 × 10 g a.s./ha to maize, BBCH 11-18 (10 m NSZ +VFS)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{SW}	0.014	0.013	0.010	0.009	0.008	0.007	0.007	0.007	0.007	0.007	0.007	0.007
	PEC _{SED}	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.006
D4, pond	PEC _{SW}	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.012	0.012	0.011	0.011
	PEC _{SED}	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.009	0.009	0.009	0.008
D4, stream	PEC _{SW}	0.013	0.012	0.012	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.008	0.008
	PEC _{SED}	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.007	0.007	0.007	0.006
D5, pond	PEC _{SW}	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.007
	PEC _{SED}	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.006
D5, stream	PEC _{SW}	0.015	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.009
	PEC _{SED}	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
D6, ditch	PEC _{SW}	0.010	0.009	0.007	0.005	0.004	0.003	0.002	0.002	0.002	0.002	0.002	0.002
	PEC _{SED}	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
R1, pond	PEC _{SW}	0.006	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.003	0.002	0.002	0.001
	PEC _{SED}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	<0.001
R1, stream	PEC _{SW}	0.137	0.071	0.035	0.024	0.018	0.011	0.005	0.004	0.003	0.002	0.002	<0.001
	PEC _{SED}	0.014	0.010	0.008	0.006	0.005	0.004	0.003	0.002	0.002	0.001	0.001	<0.001
R2, stream	PEC _{SW}	0.036	0.036	0.019	0.013	0.010	0.006	0.003	0.002	0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.006	0.005	0.004	0.003	0.003	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{SW}	0.189	0.110	0.055	0.037	0.028	0.019	0.010	0.006	0.005	0.003	0.003	0.001
	PEC _{SED}	0.020	0.015	0.012	0.010	0.008	0.007	0.005	0.003	0.003	0.002	0.002	<0.001
R4, stream	PEC _{SW}	0.191	0.148	0.074	0.049	0.037	0.021	0.011	0.008	0.006	0.004	0.003	0.002
	PEC _{SED}	0.025	0.020	0.015	0.013	0.011	0.008	0.006	0.004	0.004	0.003	0.002	0.001

^a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

STEP 4: 20 m NSZ+ VFS

Table A 35: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 1 × 20 g a.s./ha to maize, BBCH 11-18 (20 m NSZ +VFS)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{SW}	0.020	0.018	0.016	0.014	0.014	0.014	0.014	0.014	0.014	0.013	0.013	0.013
	PEC _{SED}	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
D4, pond	PEC _{SW}	0.026	0.026	0.026	0.026	0.026	0.026	0.025	0.025	0.024	0.022	0.022	0.017
	PEC _{SED}	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.018	0.016
D4, stream	PEC _{SW}	0.025	0.024	0.023	0.022	0.022	0.021	0.021	0.021	0.019	0.016	0.015	0.013
	PEC _{SED}	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.014	0.014	0.013	0.013	0.012
D5, pond	PEC _{SW}	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.021	0.021	0.020	0.019	0.015
	PEC _{SED}	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.016	0.016	0.016	0.015	0.013
D5, stream	PEC _{SW}	0.023	0.023	0.023	0.023	0.023	0.022	0.022	0.021	0.020	0.019	0.019	0.016
	PEC _{SED}	0.015	0.015	0.015	0.015	0.015	0.015	0.014	0.014	0.014	0.014	0.014	0.013
D6, ditch	PEC _{SW}	0.011	0.009	0.008	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.003	0.003
	PEC _{SED}	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
R1, pond	PEC _{SW}	0.006	0.006	0.006	0.006	0.006	0.005	0.005	0.004	0.003	0.003	0.002	0.001
	PEC _{SED}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	<0.001
R1, stream	PEC _{SW}	0.143	0.074	0.037	0.025	0.018	0.011	0.006	0.004	0.003	0.002	0.002	<0.001
	PEC _{SED}	0.015	0.011	0.008	0.007	0.006	0.004	0.003	0.002	0.002	0.001	0.001	<0.001
R2, stream	PEC _{SW}	0.038	0.038	0.020	0.014	0.010	0.006	0.003	0.002	0.002	0.001	<0.001	<0.001
	PEC _{SED}	0.006	0.005	0.004	0.003	0.003	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{SW}	0.198	0.114	0.058	0.038	0.029	0.020	0.010	0.007	0.005	0.003	0.003	0.001
	PEC _{SED}	0.020	0.016	0.012	0.010	0.009	0.007	0.005	0.004	0.003	0.002	0.002	<0.001
R4, stream	PEC _{SW}	0.200	0.155	0.077	0.052	0.039	0.022	0.012	0.008	0.006	0.004	0.003	0.002
	PEC _{SED}	0.026	0.021	0.016	0.013	0.012	0.009	0.006	0.005	0.004	0.003	0.002	0.001

^a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 36: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 12.59 + 7.41 g a.s./ha to maize, BBCH 11-18 (20 m NSZ +VFS)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.016	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.014	0.014	0.014	0.014
	PEC _{sed}	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014
D4, pond	PEC _{sw}	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.026	0.026	0.025	0.023	0.022
	PEC _{sed}	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.019	0.019	0.019
D4, stream	PEC _{sw}	0.026	0.025	0.024	0.023	0.023	0.022	0.022	0.021	0.020	0.017	0.016	0.013
	PEC _{sed}	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.015	0.015	0.014	0.014	0.013
D5, pond	PEC _{sw}	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.016	0.016	0.015	0.015	0.011
	PEC _{sed}	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.011	0.009
D5, stream	PEC _{sw}	0.016	0.016	0.016	0.016	0.016	0.015	0.015	0.015	0.014	0.014	0.013	0.012
	PEC _{sed}	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.010	0.010	0.010	0.010
D6, ditch	PEC _{sw}	0.006	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.003	0.003	0.003	0.003
	PEC _{sed}	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002
R1, pond	PEC _{sw}	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	<0.001
	PEC _{sed}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001
R1, stream	PEC _{sw}	0.090	0.047	0.023	0.016	0.012	0.007	0.004	0.003	0.002	0.002	0.001	<0.001
	PEC _{sed}	0.010	0.007	0.005	0.004	0.004	0.003	0.002	0.002	0.001	0.001	<0.001	<0.001
R2, stream	PEC _{sw}	0.041	0.041	0.022	0.015	0.011	0.006	0.003	0.002	0.002	0.001	<0.001	<0.001
	PEC _{sed}	0.007	0.005	0.004	0.004	0.003	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{sw}	0.125	0.072	0.036	0.024	0.018	0.012	0.006	0.004	0.003	0.003	0.002	0.001
	PEC _{sed}	0.013	0.010	0.008	0.006	0.005	0.005	0.003	0.002	0.002	0.001	0.001	<0.001
R4, stream	PEC _{sw}	0.126	0.097	0.049	0.033	0.024	0.014	0.011	0.008	0.006	0.004	0.003	0.002
	PEC _{sed}	0.016	0.013	0.010	0.008	0.007	0.005	0.005	0.004	0.004	0.003	0.002	0.001

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 37: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 1 × 12.59 g a.s./ha to maize, BBCH 11-18 (20 m NSZ +VFS)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.013	0.011	0.010	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
	PEC _{sed}	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
D4, pond	PEC _{sw}	0.017	0.017	0.017	0.017	0.017	0.017	0.016	0.016	0.015	0.014	0.014	0.011
	PEC _{sed}	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.010
D4, stream	PEC _{sw}	0.016	0.015	0.015	0.014	0.014	0.014	0.013	0.013	0.012	0.010	0.010	0.008
	PEC _{sed}	0.010	0.010	0.010	0.010	0.010	0.010	0.009	0.009	0.009	0.009	0.009	0.008
D5, pond	PEC _{sw}	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.013	0.013	0.012	0.009
	PEC _{sed}	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.010	0.010	0.010	0.008
D5, stream	PEC _{sw}	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.013	0.013	0.012	0.012	0.010
	PEC _{sed}	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.008
D6, ditch	PEC _{sw}	0.007	0.006	0.005	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002
	PEC _{sed}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
R1, pond	PEC _{sw}	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.001	<0.001
	PEC _{sed}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001
R1, stream	PEC _{sw}	0.090	0.047	0.023	0.016	0.012	0.007	0.004	0.002	0.002	0.001	0.001	<0.001
	PEC _{sed}	0.010	0.007	0.005	0.004	0.004	0.003	0.002	0.001	0.001	<0.001	<0.001	<0.001
R2, stream	PEC _{sw}	0.024	0.024	0.013	0.009	0.006	0.004	0.002	0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.004	0.003	0.003	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{sw}	0.125	0.072	0.036	0.024	0.018	0.012	0.006	0.004	0.003	0.002	0.002	<0.001
	PEC _{sed}	0.013	0.010	0.008	0.006	0.005	0.005	0.003	0.002	0.002	0.001	0.001	<0.001
R4, stream	PEC _{sw}	0.126	0.097	0.049	0.033	0.024	0.014	0.007	0.005	0.004	0.003	0.002	0.001
	PEC _{sed}	0.016	0.013	0.010	0.008	0.007	0.005	0.004	0.003	0.002	0.002	0.001	<0.001

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 38: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 2 × 10 g a.s./ha to maize, BBCH 11-18 (20 m NSZ +VFS)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{SW}	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
	PEC _{SED}	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014
D4, pond	PEC _{SW}	0.028	0.028	0.028	0.028	0.028	0.027	0.027	0.026	0.025	0.023	0.023	0.018
	PEC _{SED}	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.017
D4, stream	PEC _{SW}	0.026	0.025	0.024	0.024	0.024	0.023	0.022	0.022	0.020	0.017	0.016	0.013
	PEC _{SED}	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.015	0.015	0.014	0.014	0.013
D5, pond	PEC _{SW}	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.014	0.014	0.013	0.013	0.010
	PEC _{SED}	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.008
D5, stream	PEC _{SW}	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.012	0.012	0.012	0.011	0.010
	PEC _{SED}	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.008
D6, ditch	PEC _{SW}	0.006	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.003	0.003	0.003	0.003
	PEC _{SED}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
R1, pond	PEC _{SW}	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.001	<0.001
	PEC _{SED}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001
R1, stream	PEC _{SW}	0.071	0.037	0.018	0.012	0.009	0.006	0.003	0.003	0.002	0.002	0.001	<0.001
	PEC _{SED}	0.008	0.005	0.004	0.003	0.003	0.002	0.001	0.001	0.001	0.001	<0.001	<0.001
R2, stream	PEC _{SW}	0.041	0.041	0.022	0.015	0.011	0.006	0.003	0.002	0.002	0.001	<0.001	<0.001
	PEC _{SED}	0.007	0.005	0.004	0.004	0.003	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{SW}	0.099	0.057	0.029	0.019	0.014	0.010	0.005	0.003	0.003	0.002	0.002	<0.001
	PEC _{SED}	0.010	0.008	0.006	0.005	0.004	0.004	0.002	0.002	0.001	0.001	0.001	<0.001
R4, stream	PEC _{SW}	0.106	0.077	0.039	0.026	0.019	0.013	0.011	0.008	0.006	0.004	0.003	0.002
	PEC _{SED}	0.015	0.011	0.009	0.008	0.007	0.005	0.004	0.004	0.003	0.003	0.002	0.001

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 39: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 1 × 10 g a.s./ha to maize, BBCH 11-18 (20 m NSZ +VFS)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{SW}	0.010	0.009	0.008	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
	PEC _{SED}	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.006
D4, pond	PEC _{SW}	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.012	0.012	0.011	0.011	0.009
	PEC _{SED}	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.009	0.009	0.009	0.009	0.008
D4, stream	PEC _{SW}	0.012	0.012	0.012	0.011	0.011	0.011	0.011	0.010	0.010	0.008	0.008	0.006
	PEC _{SED}	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.007	0.007	0.007	0.007	0.006
D5, pond	PEC _{SW}	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.007
	PEC _{SED}	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.006
D5, stream	PEC _{SW}	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.009	0.008
	PEC _{SED}	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
D6, ditch	PEC _{SW}	0.005	0.005	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002
	PEC _{SED}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
R1, pond	PEC _{SW}	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.001	0.001	<0.001
	PEC _{SED}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, stream	PEC _{SW}	0.071	0.037	0.018	0.012	0.009	0.006	0.003	0.002	0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.008	0.005	0.004	0.003	0.003	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001
R2, stream	PEC _{SW}	0.019	0.019	0.010	0.007	0.005	0.003	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.003	0.002	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{SW}	0.099	0.057	0.029	0.019	0.014	0.010	0.005	0.003	0.003	0.002	0.001	<0.001
	PEC _{SED}	0.010	0.008	0.006	0.005	0.004	0.004	0.002	0.002	0.001	0.001	<0.001	<0.001
R4, stream	PEC _{SW}	0.100	0.077	0.039	0.026	0.019	0.011	0.006	0.004	0.003	0.002	0.002	<0.001
	PEC _{SED}	0.013	0.010	0.008	0.007	0.006	0.004	0.003	0.002	0.002	0.001	0.001	<0.001

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

STEP 4: 10 m VFS Mod

Table A 40: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 1 × 20 g a.s./ha to maize, BBCH 11-18 (10 m VFS Mod)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{SW}	0.029	0.025	0.020	0.017	0.016	0.014	0.014	0.014	0.014	0.013	0.013	0.013
	PEC _{SED}	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
D4, pond	PEC _{SW}	0.026	0.026	0.026	0.026	0.026	0.026	0.025	0.025	0.024	0.022	0.022	0.017
	PEC _{SED}	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.018	0.016
D4, stream	PEC _{SW}	0.026	0.024	0.023	0.022	0.022	0.021	0.021	0.021	0.019	0.016	0.015	0.013
	PEC _{SED}	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.014	0.014	0.013	0.013	0.012
D5, pond	PEC _{SW}	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.021	0.021	0.020	0.019	0.015
	PEC _{SED}	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.016	0.016	0.016	0.015	0.013
D5, stream	PEC _{SW}	0.030	0.023	0.023	0.023	0.023	0.022	0.022	0.021	0.020	0.019	0.019	0.016
	PEC _{SED}	0.015	0.015	0.015	0.015	0.015	0.015	0.014	0.014	0.014	0.014	0.014	0.013
D6, ditch	PEC _{SW}	0.019	0.017	0.014	0.011	0.008	0.005	0.005	0.004	0.004	0.004	0.003	0.003
	PEC _{SED}	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
R1, pond	PEC _{SW}	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, stream	PEC _{SW}	0.016	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R2, stream	PEC _{SW}	0.022	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{SW}	0.023	0.007	0.004	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R4, stream	PEC _{SW}	0.016	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 41: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 12.59 + 7.41 g a.s./ha to maize, BBCH 11-18 (10 m VFS Mod)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{SW}	0.020	0.018	0.016	0.015	0.015	0.015	0.015	0.014	0.014	0.014	0.014	0.014
	PEC _{SED}	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014
D4, pond	PEC _{SW}	0.027	0.027	0.027	0.027	0.027	0.027	0.026	0.026	0.025	0.023	0.022	0.018
	PEC _{SED}	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.019	0.019	0.019	0.017
D4, stream	PEC _{SW}	0.026	0.025	0.024	0.023	0.023	0.022	0.022	0.021	0.020	0.017	0.016	0.013
	PEC _{SED}	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.015	0.015	0.014	0.014	0.013
D5, pond	PEC _{SW}	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.016	0.016	0.015	0.015	0.011
	PEC _{SED}	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.011	0.009
D5, stream	PEC _{SW}	0.018	0.016	0.016	0.016	0.016	0.015	0.015	0.015	0.014	0.014	0.013	0.012
	PEC _{SED}	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.010	0.010	0.010	0.010
D6, ditch	PEC _{SW}	0.010	0.009	0.007	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.003	0.003
	PEC _{SED}	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002
R1, pond	PEC _{SW}	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, stream	PEC _{SW}	0.008	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R2, stream	PEC _{SW}	0.011	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{SW}	0.012	0.004	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R4, stream	PEC _{SW}	0.008	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 42: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 1 × 12.59 g a.s./ha to maize, BBCH 11-18 (10 m VFS Mod)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{SW}	0.018	0.016	0.013	0.011	0.010	0.009	0.009	0.009	0.009	0.009	0.009	0.009
	PEC _{SED}	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
D4, pond	PEC _{SW}	0.017	0.017	0.017	0.017	0.017	0.017	0.016	0.016	0.015	0.014	0.014	0.011
	PEC _{SED}	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.010
D4, stream	PEC _{SW}	0.017	0.015	0.015	0.014	0.014	0.014	0.013	0.013	0.012	0.010	0.010	0.008
	PEC _{SED}	0.010	0.010	0.010	0.010	0.010	0.010	0.009	0.009	0.009	0.009	0.009	0.008
D5, pond	PEC _{SW}	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.013	0.013	0.012	0.009
	PEC _{SED}	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.010	0.010	0.010	0.008
D5, stream	PEC _{SW}	0.019	0.014	0.014	0.014	0.014	0.014	0.014	0.013	0.013	0.012	0.012	0.010
	PEC _{SED}	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.008
D6, ditch	PEC _{SW}	0.012	0.011	0.009	0.007	0.005	0.003	0.003	0.003	0.002	0.002	0.002	0.002
	PEC _{SED}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
R1, pond	PEC _{SW}	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, stream	PEC _{SW}	0.010	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R2, stream	PEC _{SW}	0.014	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{SW}	0.014	0.004	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R4, stream	PEC _{SW}	0.010	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 43: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 2 × 10 g a.s./ha to maize, BBCH 11-18 (10 m VFS Mod)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{SW}	0.018	0.017	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
	PEC _{SED}	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014
D4, pond	PEC _{SW}	0.028	0.028	0.028	0.028	0.028	0.027	0.027	0.026	0.025	0.023	0.023	0.018
	PEC _{SED}	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.017
D4, stream	PEC _{SW}	0.026	0.025	0.024	0.024	0.024	0.023	0.022	0.022	0.020	0.017	0.016	0.013
	PEC _{SED}	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.015	0.015	0.014	0.014	0.013
D5, pond	PEC _{SW}	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.014	0.014	0.013	0.013	0.010
	PEC _{SED}	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.008
D5, stream	PEC _{SW}	0.014	0.013	0.013	0.013	0.013	0.013	0.013	0.012	0.012	0.012	0.011	0.010
	PEC _{SED}	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.008
D6, ditch	PEC _{SW}	0.008	0.007	0.006	0.005	0.005	0.005	0.004	0.004	0.003	0.003	0.003	0.003
	PEC _{SED}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
R1, pond	PEC _{SW}	0.002	0.002	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, stream	PEC _{SW}	0.007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R2, stream	PEC _{SW}	0.009	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{SW}	0.009	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R4, stream	PEC _{SW}	0.007	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 44: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 1 × 10 g a.s./ha to maize, BBCH 11-18 (10 m VFS Mod)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{SW}	0.014	0.013	0.010	0.009	0.008	0.007	0.007	0.007	0.007	0.007	0.007	0.007
	PEC _{SED}	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.006
D4, pond	PEC _{SW}	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.012	0.012	0.011	0.011
	PEC _{SED}	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.009	0.009	0.009	0.009
D4, stream	PEC _{SW}	0.013	0.012	0.012	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.008	0.008
	PEC _{SED}	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.007	0.007	0.007	0.007
D5, pond	PEC _{SW}	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010
	PEC _{SED}	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
D5, stream	PEC _{SW}	0.015	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.009
	PEC _{SED}	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
D6, ditch	PEC _{SW}	0.010	0.009	0.007	0.005	0.004	0.003	0.002	0.002	0.002	0.002	0.002	0.002
	PEC _{SED}	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
R1, pond	PEC _{SW}	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, stream	PEC _{SW}	0.008	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R2, stream	PEC _{SW}	0.011	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{SW}	0.011	0.004	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R4, stream	PEC _{SW}	0.008	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

^a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

A 3.1.4 Study 4, DuPont-51210 EU

Comments of zRMS:	The surface water exposure assessment performed by the Applicant for rimsulfuron and its metabolites with consideration of endpoints reported in EFSA Journal 2018;16(5):5258 has been accepted by the zRMS. For details of performed evaluation, please refer to point 8.9 of this document.
-------------------	---

Reference:	KCP 9.2.5/01
Report:	Yamsani, S., Mishra, N., Huang, M.X. (2020); Predicted Environmental Concentrations of Rimsulfuron and its Metabolites in Surface Water Following Applications to Maize– A Modelling Assessment with 2018 EFSA endpoints
DuPont Report No.:	DuPont-51210 EU
Testing Facility Report No.:	DuPont-51210 EU
Guidelines	Not applicable - position paper
Deviations:	None
GLP:	No
Acceptability:	Acceptable

Step 1 and 2 results:

Table A 45: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 1 × 20 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Mar-May)		PEC _{sed} (µg/kg ds)		Southern Europe (Mar-May)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	6.469		2.866		0.756	---	0.344	---	1.380	---	0.628	---
1	6.004	6.236	2.738	2.802	0.701	0.729	0.321	0.332	1.281	1.330	0.586	0.607
2	5.581	6.013	2.545	2.721	0.655	0.703	0.300	0.321	1.196	1.284	0.547	0.587
4	4.823	5.603	2.199	2.545	0.571	0.658	0.261	0.301	1.042	1.201	0.477	0.549
7	3.875	5.058	1.767	2.301	0.464	0.597	0.213	0.273	0.848	1.090	0.388	0.499
14	2.325	4.046	1.060	1.842	0.287	0.483	0.131	0.221	0.524	0.882	0.240	0.403
21	1.395	3.305	0.636	1.505	0.178	0.398	0.081	0.182	0.324	0.727	0.148	0.333
28	0.837	2.752	0.382	1.253	0.110	0.334	0.050	0.153	0.201	0.609	0.092	0.279
42	0.302	2.009	0.138	0.915	0.042	0.246	0.019	0.113	0.077	0.449	0.035	0.206
50	0.168	1.724	0.077	0.785	0.024	0.212	0.011	0.097	0.044	0.387	0.020	0.177
100	0.004	0.885	0.002	0.403	<0.001	0.109	<0.001	0.050	0.001	0.200	<0.001	0.091

Table A 46: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 1 × 20 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	6.469		2.866		0.756	---	0.344	---	1.068	---	0.486	---
1	6.004	6.236	2.738	2.802	0.701	0.729	0.321	0.332	0.991	1.029	0.454	0.470
2	5.581	6.013	2.545	2.721	0.655	0.703	0.300	0.321	0.925	0.994	0.423	0.454
4	4.823	5.603	2.199	2.545	0.571	0.658	0.261	0.301	0.806	0.929	0.369	0.425
7	3.875	5.058	1.767	2.301	0.464	0.597	0.213	0.273	0.656	0.843	0.300	0.386
14	2.325	4.046	1.060	1.842	0.287	0.483	0.131	0.221	0.406	0.682	0.186	0.312
21	1.395	3.305	0.636	1.505	0.178	0.398	0.081	0.182	0.251	0.562	0.115	0.257
28	0.837	2.752	0.382	1.253	0.110	0.334	0.050	0.153	0.155	0.472	0.071	0.216
42	0.302	2.009	0.138	0.915	0.042	0.246	0.019	0.113	0.059	0.348	0.027	0.159
50	0.168	1.724	0.077	0.785	0.024	0.212	0.011	0.097	0.034	0.299	0.016	0.137
100	0.004	0.885	0.002	0.403	<0.001	0.109	<0.001	0.050	<0.001	0.155	<0.001	0.071

Table A 47: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-70941 pH ≤ 6 following application of 1 × 20 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Mar-May)		PEC _{sed} (µg/kg ds)		Southern Europe (Mar-May)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	8.802		3.640		1.180	---	0.487	---	2.236	---	0.923	---
1	8.726	8.764	3.665	3.652	1.159	1.169	0.479	0.483	2.198	2.217	0.908	0.916
2	8.656	8.727	3.636	3.651	1.140	1.159	0.471	0.479	2.163	2.199	0.894	0.909
4	8.520	8.658	3.578	3.629	1.104	1.141	0.456	0.471	2.094	2.163	0.865	0.894
7	8.319	8.555	3.494	3.589	1.051	1.114	0.435	0.460	1.995	2.112	0.824	0.873
14	7.869	8.324	3.305	3.494	0.939	1.054	0.388	0.436	1.781	1.999	0.736	0.826
21	7.443	8.100	3.126	3.401	0.838	0.998	0.346	0.413	1.590	1.894	0.657	0.783
28	7.040	7.885	2.957	3.311	0.748	0.947	0.309	0.391	1.420	1.796	0.587	0.742
42	6.299	7.478	2.645	3.140	0.597	0.854	0.247	0.353	1.132	1.621	0.468	0.670
50	5.911	7.258	2.483	3.048	0.524	0.807	0.217	0.334	0.994	1.531	0.411	0.633
100	3.972	6.068	1.668	2.548	0.233	0.583	0.096	0.241	0.443	1.107	0.183	0.457

Table A 48: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-70941pH ≤ 6 following application of 1 × 20 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	8.802		3.640		1.180	---	0.487	---	1.708	---	0.705
1	8.726	8.764	3.665	3.652	1.159	1.169	0.479	0.483	1.678	1.693	0.694	0.699
2	8.656	8.727	3.636	3.651	1.140	1.159	0.471	0.479	1.651	1.679	0.683	0.694
4	8.520	8.658	3.578	3.629	1.104	1.141	0.456	0.471	1.599	1.652	0.661	0.683
7	8.319	8.555	3.494	3.589	1.051	1.114	0.435	0.460	1.523	1.613	0.629	0.667
14	7.869	8.324	3.305	3.494	0.939	1.054	0.388	0.436	1.360	1.526	0.562	0.631
21	7.443	8.100	3.126	3.401	0.838	0.998	0.346	0.413	1.214	1.446	0.502	0.598
28	7.040	7.885	2.957	3.311	0.748	0.947	0.309	0.391	1.084	1.372	0.448	0.567
42	6.299	7.478	2.645	3.140	0.597	0.854	0.247	0.353	0.864	1.238	0.357	0.512
50	5.911	7.258	2.483	3.048	0.524	0.807	0.217	0.334	0.759	1.169	0.314	0.483
100	3.972	6.068	1.668	2.548	0.233	0.583	0.096	0.241	0.338	0.845	0.140	0.349

Table A 49: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-70941 pH >7 following application of 1 × 20 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Mar-May)		PEC _{sed} (µg/kg ds)		Southern Europe (Mar-May)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	8.802		3.640		1.149	---	0.474	---	2.175	---	0.898
1	8.726	8.764	3.665	3.652	1.129	1.139	0.467	0.470	2.138	2.157	0.884	0.891
2	8.656	8.727	3.636	3.651	1.111	1.129	0.459	0.467	2.104	2.139	0.869	0.884
4	8.520	8.658	3.578	3.629	1.075	1.111	0.444	0.459	2.037	2.104	0.842	0.870
7	8.319	8.555	3.494	3.589	1.024	1.085	0.423	0.448	1.940	2.055	0.802	0.849
14	7.869	8.324	3.305	3.494	0.914	1.027	0.378	0.424	1.732	1.944	0.716	0.804
21	7.443	8.100	3.126	3.401	0.816	0.973	0.337	0.402	1.547	1.842	0.639	0.761
28	7.040	7.885	2.957	3.311	0.729	0.922	0.301	0.381	1.381	1.747	0.571	0.722
42	6.299	7.478	2.645	3.140	0.581	0.832	0.240	0.344	1.101	1.577	0.455	0.652
50	5.911	7.258	2.483	3.048	0.511	0.786	0.211	0.325	0.967	1.490	0.400	0.616
100	3.972	6.068	1.668	2.548	0.227	0.568	0.094	0.235	0.430	1.076	0.178	0.445

Table A 50: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-70941 pH >7 following application of 1 × 20 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	8.802		3.640		1.149	---	0.474	---	1.662	---	0.686
1	8.726	8.764	3.665	3.652	1.129	1.139	0.467	0.470	1.633	1.648	0.675	0.681
2	8.656	8.727	3.636	3.651	1.111	1.129	0.459	0.467	1.607	1.634	0.664	0.675
4	8.520	8.658	3.578	3.629	1.075	1.111	0.444	0.459	1.556	1.608	0.643	0.664
7	8.319	8.555	3.494	3.589	1.024	1.085	0.423	0.448	1.482	1.570	0.613	0.649
14	7.869	8.324	3.305	3.494	0.914	1.027	0.378	0.424	1.323	1.485	0.547	0.614
21	7.443	8.100	3.126	3.401	0.816	0.973	0.337	0.402	1.182	1.407	0.488	0.582
28	7.040	7.885	2.957	3.311	0.729	0.922	0.301	0.381	1.055	1.335	0.436	0.552
42	6.299	7.478	2.645	3.140	0.581	0.832	0.240	0.344	0.841	1.205	0.348	0.498
50	5.911	7.258	2.483	3.048	0.511	0.786	0.211	0.325	0.739	1.138	0.305	0.470
100	3.972	6.068	1.668	2.548	0.227	0.568	0.094	0.235	0.329	0.822	0.136	0.340

Table A 51: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-70942 following application of 1 × 20 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Mar-May)		PEC _{sed} (µg/kg ds)		Southern Europe (Mar-May)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	6.070		11.431		0.813	---	1.544	---	1.529	---	2.913
1	5.996	6.033	11.512	11.472	0.804	0.809	1.539	1.541	1.517	1.523	2.904	2.909
2	5.946	6.002	11.417	11.468	0.802	0.806	1.534	1.539	1.513	1.519	2.895	2.904
4	5.848	5.949	11.228	11.395	0.797	0.802	1.525	1.534	1.503	1.513	2.877	2.895
7	5.704	5.875	10.951	11.264	0.789	0.798	1.511	1.527	1.489	1.506	2.851	2.882
14	5.381	5.708	10.332	10.951	0.772	0.790	1.478	1.511	1.457	1.490	2.790	2.851
21	5.077	5.548	9.747	10.646	0.756	0.781	1.447	1.495	1.426	1.474	2.730	2.821
28	4.789	5.394	9.196	10.352	0.740	0.773	1.416	1.479	1.396	1.458	2.671	2.791
42	4.263	5.103	8.184	9.795	0.708	0.756	1.356	1.448	1.337	1.427	2.558	2.732
50	3.988	4.946	7.657	9.494	0.691	0.747	1.323	1.430	1.304	1.410	2.496	2.699
100	2.631	4.104	5.051	7.879	0.592	0.694	1.133	1.328	1.117	1.309	2.138	2.506

Table A 52: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-70942 following application of 1 × 20 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	6.070		11.431		0.813	---	1.544	---	1.171	---	2.228
1	5.996	6.033	11.512	11.472	0.804	0.809	1.539	1.541	1.161	1.166	2.222	2.225
2	5.946	6.002	11.417	11.468	0.802	0.806	1.534	1.539	1.157	1.162	2.215	2.222
4	5.848	5.949	11.228	11.395	0.797	0.802	1.525	1.534	1.150	1.158	2.201	2.215
7	5.704	5.875	10.951	11.264	0.789	0.798	1.511	1.527	1.139	1.152	2.181	2.205
14	5.381	5.708	10.332	10.951	0.772	0.790	1.478	1.511	1.115	1.140	2.134	2.181
21	5.077	5.548	9.747	10.646	0.756	0.781	1.447	1.495	1.091	1.127	2.088	2.158
28	4.789	5.394	9.196	10.352	0.740	0.773	1.416	1.479	1.068	1.115	2.044	2.135
42	4.263	5.103	8.184	9.795	0.708	0.756	1.356	1.448	1.022	1.092	1.957	2.090
50	3.988	4.946	7.657	9.494	0.691	0.747	1.323	1.430	0.997	1.079	1.909	2.065
100	2.631	4.104	5.051	7.879	0.592	0.694	1.133	1.328	0.855	1.001	1.636	1.917

Table A 53: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-E9260 following application of 1 × 20 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Mar-May)		PEC _{sed} (µg/kg ds)		Southern Europe (Mar-May)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	1.334		0.306		0.183	---	0.042	---	0.349	---	0.081
1	1.278	1.306	0.296	0.301	0.183	0.183	0.042	0.042	0.349	0.349	0.081	0.081
2	1.224	1.278	0.284	0.296	0.183	0.183	0.042	0.042	0.348	0.349	0.081	0.081
4	1.124	1.226	0.261	0.284	0.182	0.183	0.042	0.042	0.348	0.348	0.081	0.081
7	0.988	1.152	0.229	0.267	0.182	0.182	0.042	0.042	0.347	0.348	0.081	0.081
14	0.733	1.003	0.170	0.233	0.181	0.182	0.042	0.042	0.346	0.347	0.080	0.081
21	0.543	0.880	0.126	0.204	0.180	0.182	0.042	0.042	0.344	0.346	0.080	0.080
28	0.402	0.777	0.093	0.180	0.179	0.181	0.042	0.042	0.342	0.346	0.079	0.080
42	0.221	0.619	0.051	0.144	0.178	0.180	0.041	0.042	0.339	0.344	0.079	0.080
50	0.157	0.550	0.036	0.128	0.177	0.180	0.041	0.042	0.337	0.343	0.078	0.080
100	0.019	0.307	0.004	0.071	0.171	0.177	0.040	0.041	0.326	0.337	0.076	0.078

Table A 54: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-E9260 following application of 1 × 20 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	1.334		0.306		0.183	---	0.042	---	0.266	---	0.062
1	1.278	1.306	0.296	0.301	0.183	0.183	0.042	0.042	0.266	0.266	0.062	0.062
2	1.224	1.278	0.284	0.296	0.183	0.183	0.042	0.042	0.265	0.266	0.062	0.062
4	1.124	1.226	0.261	0.284	0.182	0.183	0.042	0.042	0.265	0.266	0.062	0.062
7	0.988	1.152	0.229	0.267	0.182	0.182	0.042	0.042	0.265	0.265	0.061	0.062
14	0.733	1.003	0.170	0.233	0.181	0.182	0.042	0.042	0.263	0.265	0.061	0.061
21	0.543	0.880	0.126	0.204	0.180	0.182	0.042	0.042	0.262	0.264	0.061	0.061
28	0.402	0.777	0.093	0.180	0.179	0.181	0.042	0.042	0.261	0.263	0.060	0.061
42	0.221	0.619	0.051	0.144	0.178	0.180	0.041	0.042	0.258	0.262	0.060	0.061
50	0.157	0.550	0.036	0.128	0.177	0.180	0.041	0.042	0.257	0.261	0.060	0.061
100	0.019	0.307	0.004	0.071	0.171	0.177	0.040	0.041	0.248	0.257	0.058	0.060

Table A 55: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-J0290 following application of 1 × 20 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Mar-May)		PEC _{sed} (µg/kg ds)		Southern Europe (Mar-May)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	0.223		0.614		0.031	---	0.087	---	0.063	---	0.173
1	0.216	0.219	0.595	0.605	0.031	0.031	0.087	0.087	0.063	0.063	0.173	0.173
2	0.209	0.216	0.577	0.595	0.031	0.031	0.087	0.087	0.063	0.063	0.173	0.173
4	0.197	0.209	0.542	0.577	0.031	0.031	0.086	0.087	0.063	0.063	0.173	0.173
7	0.179	0.200	0.494	0.552	0.031	0.031	0.086	0.086	0.063	0.063	0.172	0.173
14	0.144	0.180	0.397	0.498	0.031	0.031	0.086	0.086	0.062	0.063	0.172	0.172
21	0.116	0.163	0.319	0.450	0.031	0.031	0.085	0.086	0.062	0.062	0.171	0.172
28	0.093	0.148	0.256	0.409	0.031	0.031	0.085	0.086	0.062	0.062	0.170	0.172
42	0.060	0.124	0.166	0.342	0.031	0.031	0.084	0.085	0.061	0.062	0.168	0.171
50	0.047	0.113	0.129	0.311	0.030	0.031	0.084	0.085	0.061	0.062	0.167	0.170
100	0.010	0.068	0.027	0.188	0.029	0.030	0.081	0.084	0.059	0.061	0.162	0.167

Table A 56: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-J0290 following application of 1 × 20 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	0.223		0.614		0.031	---	0.087	---	0.047	---	0.130
1	0.216	0.219	0.595	0.605	0.031	0.031	0.087	0.087	0.047	0.047	0.130	0.130
2	0.209	0.216	0.577	0.595	0.031	0.031	0.087	0.087	0.047	0.047	0.130	0.130
4	0.197	0.209	0.542	0.577	0.031	0.031	0.086	0.087	0.047	0.047	0.130	0.130
7	0.179	0.200	0.494	0.552	0.031	0.031	0.086	0.086	0.047	0.047	0.129	0.130
14	0.144	0.180	0.397	0.498	0.031	0.031	0.086	0.086	0.047	0.047	0.129	0.129
21	0.116	0.163	0.319	0.450	0.031	0.031	0.085	0.086	0.046	0.047	0.128	0.129
28	0.093	0.148	0.256	0.409	0.031	0.031	0.085	0.086	0.046	0.047	0.128	0.129
42	0.060	0.124	0.166	0.342	0.031	0.031	0.084	0.085	0.046	0.046	0.126	0.128
50	0.047	0.113	0.129	0.311	0.030	0.031	0.084	0.085	0.046	0.046	0.126	0.128
100	0.010	0.068	0.027	0.188	0.029	0.030	0.081	0.084	0.044	0.046	0.121	0.126

Table A 57: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-JF999 following application of 1 × 20 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Mar-May)		PEC _{sed} (µg/kg ds)		Southern Europe (Mar-May)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	1.207		<0.001	-	0.148	---	<0.001	-	0.264	---	<0.001
1	1.174	1.190	<0.001	<0.001	0.147	0.147	<0.001	<0.001	0.262	0.263	<0.001	<0.001
2	1.141	1.174	<0.001	<0.001	0.146	0.147	<0.001	<0.001	0.260	0.262	<0.001	<0.001
4	1.078	1.141	<0.001	<0.001	0.144	0.146	<0.001	<0.001	0.257	0.260	<0.001	<0.001
7	0.990	1.095	<0.001	<0.001	0.140	0.144	<0.001	<0.001	0.251	0.258	<0.001	<0.001
14	0.812	0.997	<0.001	<0.001	0.133	0.140	<0.001	<0.001	0.238	0.251	<0.001	<0.001
21	0.666	0.910	<0.001	<0.001	0.126	0.137	<0.001	<0.001	0.225	0.244	<0.001	<0.001
28	0.547	0.834	<0.001	<0.001	0.119	0.133	<0.001	<0.001	0.214	0.238	<0.001	<0.001
42	0.368	0.706	<0.001	<0.001	0.107	0.127	<0.001	<0.001	0.192	0.226	<0.001	<0.001
50	0.293	0.646	<0.001	<0.001	0.101	0.123	<0.001	<0.001	0.180	0.220	<0.001	<0.001
100	0.071	0.402	<0.001	<0.001	0.069	0.103	<0.001	<0.001	0.123	0.185	<0.001	<0.001

Table A 58: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-JF999 following application of 1 × 20 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	1.207		<0.001	-	0.148	---	<0.001	-	0.206	---	<0.001
1	1.174	1.190	<0.001	<0.001	0.147	0.147	<0.001	<0.001	0.205	0.205	<0.001	<0.001
2	1.141	1.174	<0.001	<0.001	0.146	0.147	<0.001	<0.001	0.203	0.205	<0.001	<0.001
4	1.078	1.141	<0.001	<0.001	0.144	0.146	<0.001	<0.001	0.200	0.203	<0.001	<0.001
7	0.990	1.095	<0.001	<0.001	0.140	0.144	<0.001	<0.001	0.195	0.201	<0.001	<0.001
14	0.812	0.997	<0.001	<0.001	0.133	0.140	<0.001	<0.001	0.185	0.196	<0.001	<0.001
21	0.666	0.910	<0.001	<0.001	0.126	0.137	<0.001	<0.001	0.176	0.191	<0.001	<0.001
28	0.547	0.834	<0.001	<0.001	0.119	0.133	<0.001	<0.001	0.166	0.186	<0.001	<0.001
42	0.368	0.706	<0.001	<0.001	0.107	0.127	<0.001	<0.001	0.150	0.176	<0.001	<0.001
50	0.293	0.646	<0.001	<0.001	0.101	0.123	<0.001	<0.001	0.141	0.171	<0.001	<0.001
100	0.071	0.402	<0.001	<0.001	0.069	0.103	<0.001	<0.001	0.096	0.144	<0.001	<0.001

Table A 59: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-S9H84 following application of 1 × 20 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Mar-May)		PEC _{sed} (µg/kg ds)		Southern Europe (Mar-May)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	0.764		<0.001	-	0.094	---	<0.001	-	0.168	---	<0.001
1	0.734	0.749	<0.001	<0.001	0.094	0.094	<0.001	<0.001	0.168	0.168	<0.001	<0.001
2	0.705	0.735	<0.001	<0.001	0.094	0.094	<0.001	<0.001	0.168	0.168	<0.001	<0.001
4	0.651	0.706	<0.001	<0.001	0.094	0.094	<0.001	<0.001	0.168	0.168	<0.001	<0.001
7	0.577	0.667	<0.001	<0.001	0.094	0.094	<0.001	<0.001	0.167	0.168	<0.001	<0.001
14	0.436	0.585	<0.001	<0.001	0.093	0.094	<0.001	<0.001	0.166	0.167	<0.001	<0.001
21	0.330	0.517	<0.001	<0.001	0.093	0.094	<0.001	<0.001	0.166	0.167	<0.001	<0.001
28	0.249	0.459	<0.001	<0.001	0.092	0.093	<0.001	<0.001	0.165	0.166	<0.001	<0.001
42	0.142	0.370	<0.001	<0.001	0.092	0.093	<0.001	<0.001	0.163	0.166	<0.001	<0.001
50	0.103	0.330	<0.001	<0.001	0.091	0.093	<0.001	<0.001	0.162	0.165	<0.001	<0.001
100	0.014	0.187	<0.001	<0.001	0.088	0.091	<0.001	<0.001	0.157	0.162	<0.001	<0.001

Table A 60: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-S9H84 following application of 1 × 20 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	0.764		<0.001	-	0.094	---	<0.001	-	0.131	---	<0.001
1	0.734	0.749	<0.001	<0.001	0.094	0.094	<0.001	<0.001	0.131	0.131	<0.001	<0.001
2	0.705	0.735	<0.001	<0.001	0.094	0.094	<0.001	<0.001	0.131	0.131	<0.001	<0.001
4	0.651	0.706	<0.001	<0.001	0.094	0.094	<0.001	<0.001	0.131	0.131	<0.001	<0.001
7	0.577	0.667	<0.001	<0.001	0.094	0.094	<0.001	<0.001	0.131	0.131	<0.001	<0.001
14	0.436	0.585	<0.001	<0.001	0.093	0.094	<0.001	<0.001	0.130	0.131	<0.001	<0.001
21	0.330	0.517	<0.001	<0.001	0.093	0.094	<0.001	<0.001	0.129	0.130	<0.001	<0.001
28	0.249	0.459	<0.001	<0.001	0.092	0.093	<0.001	<0.001	0.129	0.130	<0.001	<0.001
42	0.142	0.370	<0.001	<0.001	0.092	0.093	<0.001	<0.001	0.127	0.129	<0.001	<0.001
50	0.103	0.330	<0.001	<0.001	0.091	0.093	<0.001	<0.001	0.127	0.129	<0.001	<0.001
100	0.014	0.187	<0.001	<0.001	0.088	0.091	<0.001	<0.001	0.122	0.127	<0.001	<0.001

Table A 61: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for F2 following application of 1 × 20 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Mar-May)		PEC _{sed} (µg/kg ds)		Southern Europe (Mar-May)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	0.584		0.057		0.072	---	0.007	---	0.128	---	0.013
1	0.579	0.581	0.058	0.057	0.072	0.072	0.007	0.007	0.128	0.128	0.013	0.013
2	0.574	0.579	0.057	0.058	0.072	0.072	0.007	0.007	0.128	0.128	0.013	0.013
4	0.564	0.574	0.056	0.057	0.072	0.072	0.007	0.007	0.128	0.128	0.013	0.013
7	0.550	0.567	0.055	0.057	0.072	0.072	0.007	0.007	0.128	0.128	0.013	0.013
14	0.519	0.551	0.052	0.055	0.071	0.072	0.007	0.007	0.127	0.128	0.013	0.013
21	0.490	0.535	0.049	0.054	0.071	0.071	0.007	0.007	0.126	0.127	0.013	0.013
28	0.462	0.521	0.046	0.052	0.071	0.071	0.007	0.007	0.126	0.127	0.013	0.013
42	0.411	0.492	0.041	0.049	0.070	0.071	0.007	0.007	0.125	0.126	0.012	0.013
50	0.385	0.477	0.039	0.048	0.070	0.071	0.007	0.007	0.124	0.126	0.012	0.013
100	0.254	0.396	0.025	0.040	0.067	0.070	0.007	0.007	0.120	0.124	0.012	0.012

Table A 62: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for F2 following application of 1 × 20 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	0.584		0.057		0.072	---	0.007	---	0.100	---	0.010
1	0.579	0.581	0.058	0.057	0.072	0.072	0.007	0.007	0.100	0.100	0.010	0.010
2	0.574	0.579	0.057	0.058	0.072	0.072	0.007	0.007	0.100	0.100	0.010	0.010
4	0.564	0.574	0.056	0.057	0.072	0.072	0.007	0.007	0.100	0.100	0.010	0.010
7	0.550	0.567	0.055	0.057	0.072	0.072	0.007	0.007	0.100	0.100	0.010	0.010
14	0.519	0.551	0.052	0.055	0.071	0.072	0.007	0.007	0.099	0.100	0.010	0.010
21	0.490	0.535	0.049	0.054	0.071	0.071	0.007	0.007	0.099	0.099	0.010	0.010
28	0.462	0.521	0.046	0.052	0.071	0.071	0.007	0.007	0.098	0.099	0.010	0.010
42	0.411	0.492	0.041	0.049	0.070	0.071	0.007	0.007	0.097	0.099	0.010	0.010
50	0.385	0.477	0.039	0.048	0.070	0.071	0.007	0.007	0.097	0.098	0.010	0.010
100	0.254	0.396	0.025	0.040	0.067	0.070	0.007	0.007	0.093	0.097	0.009	0.010

Table A 63: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for MHO following application of 1 × 20 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Mar-May)		PEC _{sed} (µg/kg ds)		Southern Europe (Mar-May)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	1.016		0.099		0.125	---	0.013	---	0.223	---	0.022
1	0.973	0.994	0.097	0.098	0.125	0.125	0.013	0.013	0.223	0.223	0.022	0.022
2	0.932	0.973	0.093	0.097	0.125	0.125	0.013	0.013	0.223	0.223	0.022	0.022
4	0.856	0.933	0.086	0.093	0.125	0.125	0.013	0.013	0.223	0.223	0.022	0.022
7	0.753	0.878	0.075	0.088	0.125	0.125	0.012	0.013	0.222	0.223	0.022	0.022
14	0.558	0.764	0.056	0.076	0.124	0.125	0.012	0.012	0.221	0.222	0.022	0.022
21	0.413	0.670	0.041	0.067	0.123	0.124	0.012	0.012	0.220	0.222	0.022	0.022
28	0.306	0.592	0.031	0.059	0.123	0.124	0.012	0.012	0.219	0.221	0.022	0.022
42	0.168	0.471	0.017	0.047	0.122	0.123	0.012	0.012	0.217	0.220	0.022	0.022
50	0.120	0.419	0.012	0.042	0.121	0.123	0.012	0.012	0.216	0.219	0.022	0.022
100	0.014	0.234	0.001	0.023	0.117	0.121	0.012	0.012	0.208	0.216	0.021	0.022

Table A 64: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for MHO following application of 1 × 20 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	1.016		0.099		0.125	---	0.013	---	0.174	---	0.017
1	0.973	0.994	0.097	0.098	0.125	0.125	0.013	0.013	0.174	0.174	0.017	0.017
2	0.932	0.973	0.093	0.097	0.125	0.125	0.013	0.013	0.174	0.174	0.017	0.017
4	0.856	0.933	0.086	0.093	0.125	0.125	0.013	0.013	0.174	0.174	0.017	0.017
7	0.753	0.878	0.075	0.088	0.125	0.125	0.012	0.013	0.173	0.174	0.017	0.017
14	0.558	0.764	0.056	0.076	0.124	0.125	0.012	0.012	0.173	0.173	0.017	0.017
21	0.413	0.670	0.041	0.067	0.123	0.124	0.012	0.012	0.172	0.173	0.017	0.017
28	0.306	0.592	0.031	0.059	0.123	0.124	0.012	0.012	0.171	0.173	0.017	0.017
42	0.168	0.471	0.017	0.047	0.122	0.123	0.012	0.012	0.169	0.172	0.017	0.017
50	0.120	0.419	0.012	0.042	0.121	0.123	0.012	0.012	0.168	0.171	0.017	0.017
100	0.014	0.234	0.001	0.023	0.117	0.121	0.012	0.012	0.163	0.168	0.016	0.017

Table A 65: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 2 × 10 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Mar-May)		PEC _{sed} (µg/kg ds)		Southern Europe (Mar-May)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	6.469		2.866		0.558	---	0.253	---	1.020	---	0.464
1	6.004	6.236	2.738	2.802	0.517	0.537	0.237	0.245	0.947	0.984	0.433	0.449
2	5.581	6.013	2.545	2.721	0.483	0.519	0.221	0.237	0.884	0.950	0.405	0.434
4	4.823	5.603	2.199	2.545	0.421	0.485	0.193	0.222	0.771	0.888	0.353	0.406
7	3.875	5.058	1.767	2.301	0.342	0.440	0.157	0.201	0.627	0.806	0.287	0.369
14	2.325	4.046	1.060	1.842	0.212	0.356	0.097	0.163	0.388	0.652	0.178	0.298
21	1.395	3.305	0.636	1.505	0.131	0.293	0.060	0.134	0.240	0.537	0.110	0.246
28	0.837	2.752	0.382	1.253	0.081	0.246	0.037	0.113	0.148	0.451	0.068	0.206
42	0.302	2.009	0.138	0.915	0.031	0.181	0.014	0.083	0.057	0.332	0.026	0.152
50	0.168	1.724	0.077	0.785	0.018	0.156	0.008	0.071	0.033	0.286	0.015	0.131
100	0.004	0.885	0.002	0.403	<0.001	0.081	<0.001	0.037	<0.001	0.148	<0.001	0.068

Table A 66: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 2 × 10 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	6.469		2.866		0.558	---	0.253	---	0.789	---	0.359
1	6.004	6.236	2.738	2.802	0.517	0.537	0.237	0.245	0.732	0.760	0.335	0.347
2	5.581	6.013	2.545	2.721	0.483	0.519	0.221	0.237	0.683	0.734	0.313	0.335
4	4.823	5.603	2.199	2.545	0.421	0.485	0.193	0.222	0.596	0.686	0.273	0.314
7	3.875	5.058	1.767	2.301	0.342	0.440	0.157	0.201	0.485	0.623	0.222	0.285
14	2.325	4.046	1.060	1.842	0.212	0.356	0.097	0.163	0.300	0.504	0.137	0.231
21	1.395	3.305	0.636	1.505	0.131	0.293	0.060	0.134	0.185	0.415	0.085	0.190
28	0.837	2.752	0.382	1.253	0.081	0.246	0.037	0.113	0.115	0.348	0.052	0.159
42	0.302	2.009	0.138	0.915	0.031	0.181	0.014	0.083	0.044	0.257	0.020	0.118
50	0.168	1.724	0.077	0.785	0.018	0.156	0.008	0.071	0.025	0.221	0.012	0.101
100	0.004	0.885	0.002	0.403	<0.001	0.081	<0.001	0.037	<0.001	0.114	<0.001	0.052

Table A 67: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-70941 pH ≤ 6 following application of 2 × 10 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Mar-May)		PEC _{sed} (µg/kg ds)		Southern Europe (Mar-May)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	8.802		3.640		1.035	---	0.427	---	1.967	---	0.812
1	8.726	8.764	3.665	3.652	1.017	1.026	0.420	0.424	1.934	1.951	0.799	0.806
2	8.656	8.727	3.636	3.651	1.001	1.017	0.414	0.420	1.903	1.935	0.786	0.799
4	8.520	8.658	3.578	3.629	0.969	1.001	0.400	0.414	1.842	1.903	0.761	0.787
7	8.319	8.555	3.494	3.589	0.923	0.977	0.381	0.404	1.755	1.858	0.725	0.768
14	7.869	8.324	3.305	3.494	0.824	0.925	0.341	0.382	1.567	1.759	0.648	0.727
21	7.443	8.100	3.126	3.401	0.736	0.876	0.304	0.362	1.399	1.666	0.578	0.689
28	7.040	7.885	2.957	3.311	0.657	0.831	0.271	0.343	1.249	1.580	0.516	0.653
42	6.299	7.478	2.645	3.140	0.524	0.750	0.216	0.310	0.996	1.426	0.412	0.589
50	5.911	7.258	2.483	3.048	0.460	0.708	0.190	0.293	0.875	1.347	0.362	0.557
100	3.972	6.068	1.668	2.548	0.205	0.512	0.085	0.212	0.389	0.974	0.161	0.402

Table A 68: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-70941 pH ≤ 6 following application of 2 × 10 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	8.802		3.640		1.035	---	0.427	---	1.501	---	0.620
1	8.726	8.764	3.665	3.652	1.017	1.026	0.420	0.424	1.475	1.488	0.610	0.615
2	8.656	8.727	3.636	3.651	1.001	1.017	0.414	0.420	1.452	1.476	0.600	0.610
4	8.520	8.658	3.578	3.629	0.969	1.001	0.400	0.414	1.405	1.452	0.581	0.600
7	8.319	8.555	3.494	3.589	0.923	0.977	0.381	0.404	1.339	1.418	0.553	0.586
14	7.869	8.324	3.305	3.494	0.824	0.925	0.341	0.382	1.195	1.342	0.494	0.555
21	7.443	8.100	3.126	3.401	0.736	0.876	0.304	0.362	1.067	1.271	0.441	0.525
28	7.040	7.885	2.957	3.311	0.657	0.831	0.271	0.343	0.953	1.206	0.394	0.498
42	6.299	7.478	2.645	3.140	0.524	0.750	0.216	0.310	0.760	1.088	0.314	0.450
50	5.911	7.258	2.483	3.048	0.460	0.708	0.190	0.293	0.667	1.028	0.276	0.425
100	3.972	6.068	1.668	2.548	0.205	0.512	0.085	0.212	0.297	0.743	0.123	0.307

Table A 69: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-70941 pH >7 following application of 2 × 10 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Mar-May)		PEC _{sed} (µg/kg ds)		Southern Europe (Mar-May)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	8.802		3.640		0.981	---	0.405	---	1.858	---	0.767
1	8.726	8.764	3.665	3.652	0.963	0.972	0.398	0.401	1.826	1.842	0.755	0.761
2	8.656	8.727	3.636	3.651	0.948	0.964	0.392	0.398	1.797	1.827	0.743	0.755
4	8.520	8.658	3.578	3.629	0.917	0.948	0.379	0.392	1.740	1.798	0.719	0.743
7	8.319	8.555	3.494	3.589	0.874	0.925	0.361	0.382	1.657	1.755	0.685	0.725
14	7.869	8.324	3.305	3.494	0.780	0.876	0.323	0.362	1.480	1.661	0.612	0.686
21	7.443	8.100	3.126	3.401	0.697	0.830	0.288	0.343	1.321	1.574	0.546	0.650
28	7.040	7.885	2.957	3.311	0.622	0.787	0.257	0.325	1.180	1.492	0.488	0.617
42	6.299	7.478	2.645	3.140	0.496	0.710	0.205	0.294	0.940	1.347	0.389	0.557
50	5.911	7.258	2.483	3.048	0.436	0.671	0.180	0.277	0.826	1.272	0.341	0.526
100	3.972	6.068	1.668	2.548	0.194	0.485	0.080	0.200	0.368	0.919	0.152	0.380

Table A 70: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-70941 pH>7 following application of 2 × 10 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	8.802		3.640		0.981	---	0.405	---	1.419	---	0.586
1	8.726	8.764	3.665	3.652	0.963	0.972	0.398	0.401	1.395	1.407	0.576	0.581
2	8.656	8.727	3.636	3.651	0.948	0.964	0.392	0.398	1.372	1.395	0.567	0.576
4	8.520	8.658	3.578	3.629	0.917	0.948	0.379	0.392	1.329	1.373	0.549	0.567
7	8.319	8.555	3.494	3.589	0.874	0.925	0.361	0.382	1.266	1.340	0.523	0.554
14	7.869	8.324	3.305	3.494	0.780	0.876	0.323	0.362	1.130	1.268	0.467	0.524
21	7.443	8.100	3.126	3.401	0.697	0.830	0.288	0.343	1.009	1.202	0.417	0.497
28	7.040	7.885	2.957	3.311	0.622	0.787	0.257	0.325	0.901	1.140	0.372	0.471
42	6.299	7.478	2.645	3.140	0.496	0.710	0.205	0.294	0.718	1.028	0.297	0.425
50	5.911	7.258	2.483	3.048	0.436	0.671	0.180	0.277	0.631	0.972	0.261	0.402
100	3.972	6.068	1.668	2.548	0.194	0.485	0.080	0.200	0.281	0.702	0.116	0.290

Table A 71: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-70942 following application of 2 × 10 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Mar-May)		PEC _{sed} (µg/kg ds)		Southern Europe (Mar-May)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	6.070		11.431		0.709	---	1.346	---	1.332	---	2.539
1	5.996	6.033	11.512	11.472	0.701	0.705	1.342	1.344	1.322	1.327	2.531	2.535
2	5.946	6.002	11.417	11.468	0.699	0.702	1.338	1.342	1.318	1.324	2.523	2.531
4	5.848	5.949	11.228	11.395	0.694	0.700	1.329	1.338	1.310	1.319	2.508	2.523
7	5.704	5.875	10.951	11.264	0.688	0.696	1.317	1.331	1.298	1.313	2.485	2.512
14	5.381	5.708	10.332	10.951	0.673	0.688	1.289	1.317	1.270	1.298	2.432	2.485
21	5.077	5.548	9.747	10.646	0.659	0.681	1.261	1.303	1.243	1.285	2.379	2.458
28	4.789	5.394	9.196	10.352	0.645	0.674	1.234	1.289	1.217	1.271	2.328	2.432
42	4.263	5.103	8.184	9.795	0.617	0.659	1.182	1.262	1.165	1.244	2.230	2.381
50	3.988	4.946	7.657	9.494	0.602	0.652	1.153	1.247	1.137	1.229	2.175	2.353
100	2.631	4.104	5.051	7.879	0.516	0.605	0.988	1.158	0.974	1.141	1.864	2.184

Table A 72: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-70942 following application of 2 × 10 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	6.070		11.431		0.709	---	1.346	---	1.021	---	1.942
1	5.996	6.033	11.512	11.472	0.701	0.705	1.342	1.344	1.012	1.016	1.936	1.939
2	5.946	6.002	11.417	11.468	0.699	0.702	1.338	1.342	1.009	1.013	1.930	1.936
4	5.848	5.949	11.228	11.395	0.694	0.700	1.329	1.338	1.002	1.009	1.919	1.930
7	5.704	5.875	10.951	11.264	0.688	0.696	1.317	1.331	0.993	1.004	1.901	1.922
14	5.381	5.708	10.332	10.951	0.673	0.688	1.289	1.317	0.972	0.993	1.860	1.901
21	5.077	5.548	9.747	10.646	0.659	0.681	1.261	1.303	0.951	0.983	1.820	1.881
28	4.789	5.394	9.196	10.352	0.645	0.674	1.234	1.289	0.931	0.972	1.781	1.861
42	4.263	5.103	8.184	9.795	0.617	0.659	1.182	1.262	0.891	0.952	1.706	1.822
50	3.988	4.946	7.657	9.494	0.602	0.652	1.153	1.247	0.869	0.940	1.664	1.800
100	2.631	4.104	5.051	7.879	0.516	0.605	0.988	1.158	0.745	0.873	1.426	1.671

Table A 73: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-E9260 following application of 2 × 10 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Mar-May)		PEC _{sed} (µg/kg ds)		Southern Europe (Mar-May)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	1.334		0.306		0.165	---	0.038	---	0.315	---	0.073
1	1.278	1.306	0.296	0.301	0.165	0.165	0.038	0.038	0.315	0.315	0.073	0.073
2	1.224	1.278	0.284	0.296	0.165	0.165	0.038	0.038	0.314	0.315	0.073	0.073
4	1.124	1.226	0.261	0.284	0.164	0.165	0.038	0.038	0.314	0.314	0.073	0.073
7	0.988	1.152	0.229	0.267	0.164	0.164	0.038	0.038	0.313	0.314	0.073	0.073
14	0.733	1.003	0.170	0.233	0.163	0.164	0.038	0.038	0.312	0.313	0.072	0.073
21	0.543	0.880	0.126	0.204	0.162	0.164	0.038	0.038	0.310	0.313	0.072	0.073
28	0.402	0.777	0.093	0.180	0.162	0.163	0.038	0.038	0.309	0.312	0.072	0.072
42	0.221	0.619	0.051	0.144	0.160	0.162	0.037	0.038	0.306	0.310	0.071	0.072
50	0.157	0.550	0.036	0.128	0.159	0.162	0.037	0.038	0.304	0.309	0.071	0.072
100	0.019	0.307	0.004	0.071	0.154	0.159	0.036	0.037	0.294	0.304	0.068	0.071

Table A 74: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-E9260 following application of 2 × 10 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	1.334		0.306		0.165	---	0.038	---	0.240	---	0.056
1	1.278	1.306	0.296	0.301	0.165	0.165	0.038	0.038	0.240	0.240	0.056	0.056
2	1.224	1.278	0.284	0.296	0.165	0.165	0.038	0.038	0.240	0.240	0.056	0.056
4	1.124	1.226	0.261	0.284	0.164	0.165	0.038	0.038	0.239	0.240	0.055	0.056
7	0.988	1.152	0.229	0.267	0.164	0.164	0.038	0.038	0.239	0.239	0.055	0.056
14	0.733	1.003	0.170	0.233	0.163	0.164	0.038	0.038	0.238	0.239	0.055	0.055
21	0.543	0.880	0.126	0.204	0.162	0.164	0.038	0.038	0.236	0.238	0.055	0.055
28	0.402	0.777	0.093	0.180	0.162	0.163	0.038	0.038	0.235	0.238	0.055	0.055
42	0.221	0.619	0.051	0.144	0.160	0.162	0.037	0.038	0.233	0.236	0.054	0.055
50	0.157	0.550	0.036	0.128	0.159	0.162	0.037	0.038	0.232	0.236	0.054	0.055
100	0.019	0.307	0.004	0.071	0.154	0.159	0.036	0.037	0.224	0.232	0.052	0.054

Table A 75: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-J0290 following application of 2 × 10 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Mar-May)		PEC _{sed} (µg/kg ds)		Southern Europe (Mar-May)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	0.223		0.614		0.030	---	0.082	---	0.060	---	0.165
1	0.216	0.219	0.595	0.605	0.030	0.030	0.082	0.082	0.060	0.060	0.164	0.164
2	0.209	0.216	0.577	0.595	0.030	0.030	0.082	0.082	0.060	0.060	0.164	0.164
4	0.197	0.209	0.542	0.577	0.030	0.030	0.082	0.082	0.060	0.060	0.164	0.164
7	0.179	0.200	0.494	0.552	0.030	0.030	0.082	0.082	0.059	0.060	0.164	0.164
14	0.144	0.180	0.397	0.498	0.030	0.030	0.081	0.082	0.059	0.059	0.163	0.164
21	0.116	0.163	0.319	0.450	0.029	0.030	0.081	0.082	0.059	0.059	0.162	0.163
28	0.093	0.148	0.256	0.409	0.029	0.030	0.081	0.081	0.059	0.059	0.161	0.163
42	0.060	0.124	0.166	0.342	0.029	0.029	0.080	0.081	0.058	0.059	0.160	0.162
50	0.047	0.113	0.129	0.311	0.029	0.029	0.079	0.081	0.058	0.059	0.159	0.162
100	0.010	0.068	0.027	0.188	0.028	0.029	0.077	0.079	0.056	0.058	0.153	0.159

Table A 76: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-J0290 following application of 2 × 10 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	0.223		0.614		0.030	---	0.082	---	0.045	---	0.123
1	0.216	0.219	0.595	0.605	0.030	0.030	0.082	0.082	0.045	0.045	0.123	0.123
2	0.209	0.216	0.577	0.595	0.030	0.030	0.082	0.082	0.045	0.045	0.123	0.123
4	0.197	0.209	0.542	0.577	0.030	0.030	0.082	0.082	0.045	0.045	0.123	0.123
7	0.179	0.200	0.494	0.552	0.030	0.030	0.082	0.082	0.045	0.045	0.123	0.123
14	0.144	0.180	0.397	0.498	0.030	0.030	0.081	0.082	0.044	0.045	0.122	0.123
21	0.116	0.163	0.319	0.450	0.029	0.030	0.081	0.082	0.044	0.044	0.122	0.123
28	0.093	0.148	0.256	0.409	0.029	0.030	0.081	0.081	0.044	0.044	0.121	0.122
42	0.060	0.124	0.166	0.342	0.029	0.029	0.080	0.081	0.043	0.044	0.120	0.122
50	0.047	0.113	0.129	0.311	0.029	0.029	0.079	0.081	0.043	0.044	0.119	0.121
100	0.010	0.068	0.027	0.188	0.028	0.029	0.077	0.079	0.042	0.043	0.115	0.119

Table A 77: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-JF999 following application of 2 × 10 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Mar-May)		PEC _{sed} (µg/kg ds)		Southern Europe (Mar-May)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	1.207		<0.001	-	0.114	---	<0.001	-	0.200	---	<0.001
1	1.174	1.190	<0.001	<0.001	0.113	0.113	<0.001	<0.001	0.199	0.199	<0.001	<0.001
2	1.141	1.174	<0.001	<0.001	0.112	0.113	<0.001	<0.001	0.197	0.199	<0.001	<0.001
4	1.078	1.141	<0.001	<0.001	0.110	0.112	<0.001	<0.001	0.194	0.197	<0.001	<0.001
7	0.990	1.095	<0.001	<0.001	0.108	0.111	<0.001	<0.001	0.190	0.195	<0.001	<0.001
14	0.812	0.997	<0.001	<0.001	0.102	0.108	<0.001	<0.001	0.180	0.190	<0.001	<0.001
21	0.666	0.910	<0.001	<0.001	0.097	0.105	<0.001	<0.001	0.170	0.185	<0.001	<0.001
28	0.547	0.834	<0.001	<0.001	0.092	0.102	<0.001	<0.001	0.162	0.180	<0.001	<0.001
42	0.368	0.706	<0.001	<0.001	0.082	0.097	<0.001	<0.001	0.145	0.171	<0.001	<0.001
50	0.293	0.646	<0.001	<0.001	0.078	0.094	<0.001	<0.001	0.136	0.166	<0.001	<0.001
100	0.071	0.402	<0.001	<0.001	0.053	0.079	<0.001	<0.001	0.093	0.140	<0.001	<0.001

Table A 78: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-JF999 following application of 2 × 10 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	1.207		<0.001	-	0.114	---	<0.001	-	0.157	---	<0.001
1	1.174	1.190	<0.001	<0.001	0.113	0.113	<0.001	<0.001	0.156	0.156	<0.001	<0.001
2	1.141	1.174	<0.001	<0.001	0.112	0.113	<0.001	<0.001	0.154	0.156	<0.001	<0.001
4	1.078	1.141	<0.001	<0.001	0.110	0.112	<0.001	<0.001	0.152	0.154	<0.001	<0.001
7	0.990	1.095	<0.001	<0.001	0.108	0.111	<0.001	<0.001	0.149	0.153	<0.001	<0.001
14	0.812	0.997	<0.001	<0.001	0.102	0.108	<0.001	<0.001	0.141	0.149	<0.001	<0.001
21	0.666	0.910	<0.001	<0.001	0.097	0.105	<0.001	<0.001	0.134	0.145	<0.001	<0.001
28	0.547	0.834	<0.001	<0.001	0.092	0.102	<0.001	<0.001	0.127	0.141	<0.001	<0.001
42	0.368	0.706	<0.001	<0.001	0.082	0.097	<0.001	<0.001	0.114	0.134	<0.001	<0.001
50	0.293	0.646	<0.001	<0.001	0.078	0.094	<0.001	<0.001	0.107	0.130	<0.001	<0.001
100	0.071	0.402	<0.001	<0.001	0.053	0.079	<0.001	<0.001	0.073	0.110	<0.001	<0.001

Table A 79: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-S9H84 following application of 2 × 10 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Mar-May)		PEC _{sed} (µg/kg ds)		Southern Europe (Mar-May)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	0.764		<0.001	-	0.073	---	<0.001	-	0.128	---	<0.001
1	0.734	0.749	<0.001	<0.001	0.073	0.073	<0.001	<0.001	0.128	0.128	<0.001	<0.001
2	0.705	0.735	<0.001	<0.001	0.073	0.073	<0.001	<0.001	0.127	0.128	<0.001	<0.001
4	0.651	0.706	<0.001	<0.001	0.073	0.073	<0.001	<0.001	0.127	0.127	<0.001	<0.001
7	0.577	0.667	<0.001	<0.001	0.072	0.073	<0.001	<0.001	0.127	0.127	<0.001	<0.001
14	0.436	0.585	<0.001	<0.001	0.072	0.072	<0.001	<0.001	0.126	0.127	<0.001	<0.001
21	0.330	0.517	<0.001	<0.001	0.072	0.072	<0.001	<0.001	0.126	0.127	<0.001	<0.001
28	0.249	0.459	<0.001	<0.001	0.071	0.072	<0.001	<0.001	0.125	0.126	<0.001	<0.001
42	0.142	0.370	<0.001	<0.001	0.071	0.072	<0.001	<0.001	0.124	0.126	<0.001	<0.001
50	0.103	0.330	<0.001	<0.001	0.070	0.072	<0.001	<0.001	0.123	0.125	<0.001	<0.001
100	0.014	0.187	<0.001	<0.001	0.068	0.070	<0.001	<0.001	0.119	0.123	<0.001	<0.001

Table A 80: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for IN-S9H84 following application of 2 × 10 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	0.764		<0.001	-	0.073	---	<0.001	-	0.100	---	<0.001
1	0.734	0.749	<0.001	<0.001	0.073	0.073	<0.001	<0.001	0.100	0.100	<0.001	<0.001
2	0.705	0.735	<0.001	<0.001	0.073	0.073	<0.001	<0.001	0.100	0.100	<0.001	<0.001
4	0.651	0.706	<0.001	<0.001	0.073	0.073	<0.001	<0.001	0.100	0.100	<0.001	<0.001
7	0.577	0.667	<0.001	<0.001	0.072	0.073	<0.001	<0.001	0.100	0.100	<0.001	<0.001
14	0.436	0.585	<0.001	<0.001	0.072	0.072	<0.001	<0.001	0.099	0.100	<0.001	<0.001
21	0.330	0.517	<0.001	<0.001	0.072	0.072	<0.001	<0.001	0.099	0.099	<0.001	<0.001
28	0.249	0.459	<0.001	<0.001	0.071	0.072	<0.001	<0.001	0.098	0.099	<0.001	<0.001
42	0.142	0.370	<0.001	<0.001	0.071	0.072	<0.001	<0.001	0.097	0.099	<0.001	<0.001
50	0.103	0.330	<0.001	<0.001	0.070	0.072	<0.001	<0.001	0.097	0.099	<0.001	<0.001
100	0.014	0.187	<0.001	<0.001	0.068	0.070	<0.001	<0.001	0.094	0.097	<0.001	<0.001

Table A 81: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for F2 following application of 2 × 10 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Mar-May)		PEC _{sed} (µg/kg ds)		Southern Europe (Mar-May)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	0.584		0.057		0.056	---	0.006	---	0.097	---	0.010
1	0.579	0.581	0.058	0.057	0.056	0.056	0.006	0.006	0.097	0.097	0.010	0.010
2	0.574	0.579	0.057	0.058	0.056	0.056	0.006	0.006	0.097	0.097	0.010	0.010
4	0.564	0.574	0.056	0.057	0.055	0.056	0.006	0.006	0.097	0.097	0.010	0.010
7	0.550	0.567	0.055	0.057	0.055	0.055	0.006	0.006	0.097	0.097	0.010	0.010
14	0.519	0.551	0.052	0.055	0.055	0.055	0.006	0.006	0.096	0.097	0.010	0.010
21	0.490	0.535	0.049	0.054	0.055	0.055	0.006	0.006	0.096	0.097	0.010	0.010
28	0.462	0.521	0.046	0.052	0.055	0.055	0.005	0.006	0.096	0.096	0.010	0.010
42	0.411	0.492	0.041	0.049	0.054	0.055	0.005	0.006	0.095	0.096	0.010	0.010
50	0.385	0.477	0.039	0.048	0.054	0.055	0.005	0.006	0.094	0.096	0.009	0.010
100	0.254	0.396	0.025	0.040	0.052	0.054	0.005	0.005	0.091	0.094	0.009	0.009

Table A 82: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for F2 following application of 2 × 10 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	0.584		0.057		0.056	---	0.006	---	0.077	---	0.008
1	0.579	0.581	0.058	0.057	0.056	0.056	0.006	0.006	0.076	0.077	0.008	0.008
2	0.574	0.579	0.057	0.058	0.056	0.056	0.006	0.006	0.076	0.076	0.008	0.008
4	0.564	0.574	0.056	0.057	0.055	0.056	0.006	0.006	0.076	0.076	0.008	0.008
7	0.550	0.567	0.055	0.057	0.055	0.055	0.006	0.006	0.076	0.076	0.008	0.008
14	0.519	0.551	0.052	0.055	0.055	0.055	0.006	0.006	0.076	0.076	0.008	0.008
21	0.490	0.535	0.049	0.054	0.055	0.055	0.006	0.006	0.075	0.076	0.008	0.008
28	0.462	0.521	0.046	0.052	0.055	0.055	0.005	0.006	0.075	0.076	0.008	0.008
42	0.411	0.492	0.041	0.049	0.054	0.055	0.005	0.006	0.074	0.075	0.007	0.008
50	0.385	0.477	0.039	0.048	0.054	0.055	0.005	0.006	0.074	0.075	0.007	0.008
100	0.254	0.396	0.025	0.040	0.052	0.054	0.005	0.005	0.071	0.074	0.007	0.007

Table A 83: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for MHO following application of 2 × 10 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Mar-May)		PEC _{sed} (µg/kg ds)		Southern Europe (Mar-May)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	1.016		0.099		0.097	---	0.010	---	0.170	---	0.017
1	0.973	0.994	0.097	0.098	0.097	0.097	0.010	0.010	0.169	0.169	0.017	0.017
2	0.932	0.973	0.093	0.097	0.097	0.097	0.010	0.010	0.169	0.169	0.017	0.017
4	0.856	0.933	0.086	0.093	0.096	0.097	0.010	0.010	0.169	0.169	0.017	0.017
7	0.753	0.878	0.075	0.088	0.096	0.097	0.010	0.010	0.169	0.169	0.017	0.017
14	0.558	0.764	0.056	0.076	0.096	0.096	0.010	0.010	0.168	0.169	0.017	0.017
21	0.413	0.670	0.041	0.067	0.095	0.096	0.010	0.010	0.167	0.168	0.017	0.017
28	0.306	0.592	0.031	0.059	0.095	0.096	0.010	0.010	0.166	0.168	0.017	0.017
42	0.168	0.471	0.017	0.047	0.094	0.095	0.009	0.010	0.165	0.167	0.016	0.017
50	0.120	0.419	0.012	0.042	0.093	0.095	0.009	0.010	0.164	0.167	0.016	0.017
100	0.014	0.234	0.001	0.023	0.090	0.093	0.009	0.009	0.158	0.164	0.016	0.016

Table A 84: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for MHO following application of 2 × 10 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.016		0.099		0.097	---	0.010	---	0.133	---	0.013	---
1	0.973	0.994	0.097	0.098	0.097	0.097	0.010	0.010	0.133	0.133	0.013	0.013
2	0.932	0.973	0.093	0.097	0.097	0.097	0.010	0.010	0.133	0.133	0.013	0.013
4	0.856	0.933	0.086	0.093	0.096	0.097	0.010	0.010	0.133	0.133	0.013	0.013
7	0.753	0.878	0.075	0.088	0.096	0.097	0.010	0.010	0.132	0.133	0.013	0.013
14	0.558	0.764	0.056	0.076	0.096	0.096	0.010	0.010	0.132	0.132	0.013	0.013
21	0.413	0.670	0.041	0.067	0.095	0.096	0.010	0.010	0.131	0.132	0.013	0.013
28	0.306	0.592	0.031	0.059	0.095	0.096	0.010	0.010	0.131	0.132	0.013	0.013
42	0.168	0.471	0.017	0.047	0.094	0.095	0.009	0.010	0.129	0.131	0.013	0.013
50	0.120	0.419	0.012	0.042	0.093	0.095	0.009	0.010	0.129	0.131	0.013	0.013
100	0.014	0.234	0.001	0.023	0.090	0.093	0.009	0.009	0.124	0.129	0.012	0.013

Step- 3 and 4 results:

Table A 85: FOCUS Step 3 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 1 × 20 g a.s./ha to maize, BBCH 11-18

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)											
			1	2	3	4	7	14	21	28	42	50	100	
D3, ditch	PEC _{sw}	0.105	0.085	0.058	0.040	0.031	0.017	0.009	0.009	0.006	0.004	0.003	0.002	0.001
	PEC _{sed}	0.015	0.015	0.013	0.012	0.011	0.009	0.006	0.005	0.004	0.004	0.003	0.003	0.002
D4, pond	PEC _{sw}	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.002	0.002	0.002	<0.001	
	PEC _{sed}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	
D4, stream	PEC _{sw}	0.090	0.008	0.004	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
	PEC _{sed}	0.004	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
D5, pond	PEC _{sw}	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.002	0.002	0.002	<0.001	
	PEC _{sed}	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	
D5, stream	PEC _{sw}	0.094	0.006	0.003	0.002	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
	PEC _{sed}	0.003	0.002	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
D6, ditch	PEC _{sw}	0.105	0.093	0.075	0.057	0.044	0.025	0.013	0.008	0.006	0.004	0.004	0.002	
	PEC _{sed}	0.019	0.018	0.017	0.016	0.015	0.012	0.009	0.007	0.007	0.005	0.005	0.003	
R1, pond	PEC _{sw}	0.026	0.025	0.024	0.024	0.023	0.022	0.020	0.017	0.015	0.012	0.010	0.006	
	PEC _{sed}	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.013	0.013	0.012	
R1, stream	PEC _{sw}	0.546	0.283	0.142	0.094	0.071	0.043	0.022	0.015	0.011	0.007	0.006	0.003	
	PEC _{sed}	0.068	0.048	0.037	0.031	0.027	0.022	0.016	0.013	0.012	0.009	0.009	0.006	
R2, stream	PEC _{sw}	0.097	0.076	0.041	0.027	0.020	0.012	0.006	0.004	0.003	0.002	0.002	<0.001	
	PEC _{sed}	0.016	0.013	0.011	0.009	0.008	0.007	0.005	0.004	0.004	0.003	0.003	0.002	
R3, stream	PEC _{sw}	0.689	0.400	0.201	0.134	0.101	0.068	0.036	0.024	0.018	0.012	0.010	0.005	
	PEC _{sed}	0.084	0.067	0.052	0.044	0.039	0.033	0.025	0.021	0.018	0.015	0.013	0.009	
R4, stream	PEC _{sw}	0.678	0.524	0.263	0.175	0.131	0.075	0.040	0.027	0.021	0.014	0.012	0.006	
	PEC _{sed}	0.104	0.083	0.066	0.056	0.049	0.038	0.028	0.024	0.021	0.017	0.016	0.011	

^a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 86: FOCUS Step 3 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 12.59 + 7.41 g a.s./ha to maize, BBCH 11-18

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.057	0.047	0.032	0.022	0.017	0.010	0.008	0.005	0.004	0.003	0.002	0.001
	PEC _{sed}	0.008	0.008	0.007	0.007	0.006	0.005	0.004	0.004	0.004	0.003	0.003	0.002
D4, pond	PEC _{sw}	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	<0.001
	PEC _{sed}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001
D4, stream	PEC _{sw}	0.049	0.004	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{sw}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	<0.001
	PEC _{sed}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001
D5, stream	PEC _{sw}	0.051	0.005	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{sw}	0.057	0.051	0.041	0.031	0.024	0.014	0.009	0.006	0.004	0.003	0.002	0.001
	PEC _{sed}	0.010	0.010	0.009	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.002
R1, pond	PEC _{sw}	0.016	0.015	0.015	0.015	0.014	0.014	0.012	0.011	0.010	0.008	0.007	0.004
	PEC _{sed}	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.007
R1, stream	PEC _{sw}	0.344	0.178	0.089	0.059	0.045	0.027	0.014	0.012	0.009	0.007	0.005	0.003
	PEC _{sed}	0.043	0.031	0.023	0.020	0.017	0.014	0.010	0.010	0.008	0.008	0.007	0.005
R2, stream	PEC _{sw}	0.090	0.091	0.049	0.032	0.024	0.014	0.007	0.005	0.004	0.003	0.002	0.001
	PEC _{sed}	0.019	0.015	0.013	0.011	0.010	0.008	0.006	0.005	0.004	0.003	0.003	0.002
R3, stream	PEC _{sw}	0.433	0.252	0.127	0.084	0.063	0.043	0.023	0.016	0.012	0.009	0.007	0.004
	PEC _{sed}	0.053	0.042	0.033	0.028	0.024	0.021	0.016	0.013	0.012	0.010	0.009	0.006
R4, stream	PEC _{sw}	0.427	0.330	0.165	0.110	0.083	0.047	0.039	0.028	0.021	0.014	0.012	0.006
	PEC _{sed}	0.066	0.053	0.042	0.035	0.031	0.025	0.022	0.021	0.020	0.017	0.016	0.011

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 87: FOCUS Step 3 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 1 × 12.59 g a.s./ha to maize, BBCH 11-18

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.066	0.054	0.037	0.025	0.019	0.011	0.006	0.004	0.003	0.002	0.002	<0.001
	PEC _{sed}	0.010	0.009	0.008	0.008	0.007	0.005	0.004	0.003	0.003	0.002	0.002	0.001
D4, pond	PEC _{sw}	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	0.001	<0.001
	PEC _{sed}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001
D4, stream	PEC _{sw}	0.057	0.005	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{sw}	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	<0.001	<0.001
	PEC _{sed}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001
D5, stream	PEC _{sw}	0.059	0.004	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{sw}	0.066	0.058	0.047	0.036	0.028	0.016	0.008	0.005	0.004	0.003	0.002	0.001
	PEC _{sed}	0.012	0.011	0.011	0.010	0.009	0.008	0.006	0.005	0.004	0.003	0.003	0.002
R1, pond	PEC _{sw}	0.016	0.016	0.015	0.015	0.015	0.014	0.012	0.011	0.009	0.007	0.007	0.004
	PEC _{sed}	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.008	0.008	0.006
R1, stream	PEC _{sw}	0.344	0.178	0.089	0.059	0.045	0.027	0.014	0.009	0.007	0.005	0.004	0.002
	PEC _{sed}	0.043	0.031	0.023	0.020	0.017	0.014	0.010	0.008	0.007	0.006	0.005	0.004
R2, stream	PEC _{sw}	0.061	0.048	0.026	0.017	0.013	0.007	0.004	0.003	0.002	0.001	0.001	<0.001
	PEC _{sed}	0.010	0.008	0.007	0.006	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.001
R3, stream	PEC _{sw}	0.434	0.252	0.127	0.084	0.063	0.043	0.023	0.015	0.011	0.008	0.006	0.003
	PEC _{sed}	0.053	0.042	0.033	0.028	0.025	0.021	0.016	0.013	0.011	0.009	0.009	0.006
R4, stream	PEC _{sw}	0.427	0.330	0.165	0.110	0.083	0.047	0.025	0.017	0.013	0.009	0.007	0.004
	PEC _{sed}	0.066	0.053	0.042	0.035	0.031	0.024	0.018	0.015	0.013	0.011	0.010	0.007

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 88: FOCUS Step 3 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 2 × 10 g a.s./ha to maize, BBCH 11-18

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{SW}	0.046	0.038	0.026	0.018	0.014	0.008	0.008	0.005	0.004	0.003	0.002	0.001
	PEC _{SED}	0.008	0.008	0.008	0.007	0.006	0.005	0.004	0.004	0.004	0.003	0.003	0.002
D4, pond	PEC _{SW}	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.001	0.001	<0.001
	PEC _{SED}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001
D4, stream	PEC _{SW}	0.039	0.004	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{SW}	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	<0.001
	PEC _{SED}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001
D5, stream	PEC _{SW}	0.043	0.006	0.003	0.002	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.003	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{SW}	0.046	0.040	0.033	0.025	0.019	0.011	0.008	0.005	0.004	0.003	0.002	0.001
	PEC _{SED}	0.008	0.008	0.008	0.007	0.007	0.005	0.005	0.004	0.004	0.003	0.003	0.002
R1, pond	PEC _{SW}	0.012	0.012	0.012	0.012	0.011	0.011	0.010	0.009	0.008	0.007	0.006	0.004
	PEC _{SED}	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.007	0.007	0.006
R1, stream	PEC _{SW}	0.273	0.142	0.071	0.047	0.035	0.022	0.011	0.010	0.008	0.006	0.005	0.003
	PEC _{SED}	0.034	0.024	0.019	0.016	0.014	0.011	0.008	0.008	0.007	0.007	0.006	0.005
R2, stream	PEC _{SW}	0.096	0.096	0.051	0.034	0.026	0.015	0.008	0.005	0.004	0.003	0.002	0.001
	PEC _{SED}	0.020	0.016	0.013	0.012	0.010	0.008	0.006	0.005	0.004	0.004	0.003	0.002
R3, stream	PEC _{SW}	0.344	0.200	0.100	0.067	0.050	0.034	0.018	0.013	0.010	0.007	0.006	0.003
	PEC _{SED}	0.042	0.033	0.026	0.022	0.019	0.017	0.013	0.011	0.009	0.008	0.008	0.006
R4, stream	PEC _{SW}	0.389	0.279	0.140	0.093	0.070	0.046	0.039	0.028	0.022	0.014	0.012	0.006
	PEC _{SED}	0.068	0.053	0.043	0.037	0.034	0.029	0.023	0.020	0.019	0.017	0.016	0.011

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 89: FOCUS Step 3 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 1 × 10 g a.s./ha to maize, BBCH 11-18

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{SW}	0.052	0.043	0.029	0.020	0.015	0.009	0.004	0.003	0.002	0.001	0.001	<0.001
	PEC _{SED}	0.008	0.007	0.007	0.006	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.001
D4, pond	PEC _{SW}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001
D4, stream	PEC _{SW}	0.045	0.004	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{SW}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001
D5, stream	PEC _{SW}	0.047	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{SW}	0.053	0.046	0.038	0.028	0.022	0.013	0.006	0.004	0.003	0.002	0.002	<0.001
	PEC _{SED}	0.009	0.009	0.009	0.008	0.007	0.006	0.005	0.004	0.003	0.003	0.002	0.002
R1, pond	PEC _{SW}	0.013	0.012	0.012	0.012	0.012	0.011	0.010	0.009	0.008	0.006	0.005	0.003
	PEC _{SED}	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.006	0.006	0.005
R1, stream	PEC _{SW}	0.273	0.142	0.071	0.047	0.035	0.022	0.011	0.007	0.006	0.004	0.003	0.002
	PEC _{SED}	0.034	0.024	0.019	0.016	0.014	0.011	0.008	0.007	0.006	0.005	0.004	0.003
R2, stream	PEC _{SW}	0.049	0.038	0.020	0.014	0.010	0.006	0.003	0.002	0.002	0.001	<0.001	<0.001
	PEC _{SED}	0.008	0.007	0.005	0.005	0.004	0.003	0.002	0.002	0.002	0.001	0.001	<0.001
R3, stream	PEC _{SW}	0.344	0.200	0.100	0.067	0.050	0.034	0.018	0.012	0.009	0.006	0.005	0.003
	PEC _{SED}	0.042	0.034	0.026	0.022	0.019	0.017	0.012	0.010	0.009	0.007	0.007	0.005
R4, stream	PEC _{SW}	0.338	0.261	0.131	0.087	0.066	0.037	0.020	0.014	0.010	0.007	0.006	0.003
	PEC _{SED}	0.052	0.042	0.033	0.028	0.025	0.019	0.014	0.012	0.010	0.009	0.008	0.005

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Step 4: 10 m NSZ +VFS

Table A 90: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 1 × 20 g a.s./ha to maize, BBCH 11-18 (10 m NSZ +VFS)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{SW}	0.018	0.015	0.010	0.007	0.005	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.003	0.003	0.002	0.002	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, pond	PEC _{SW}	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	<0.001
	PEC _{SED}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
D4, stream	PEC _{SW}	0.020	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{SW}	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	<0.001
	PEC _{SED}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001
D5, stream	PEC _{SW}	0.021	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{SW}	0.018	0.016	0.013	0.010	0.008	0.004	0.002	0.002	0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.001	0.001	0.001	0.001	<0.001
R1, pond	PEC _{SW}	0.011	0.011	0.011	0.010	0.010	0.010	0.009	0.007	0.007	0.005	0.005	0.002
	PEC _{SED}	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.005	0.004
R1, stream	PEC _{SW}	0.247	0.128	0.064	0.043	0.032	0.019	0.010	0.007	0.005	0.003	0.003	0.001
	PEC _{SED}	0.031	0.022	0.017	0.014	0.012	0.010	0.007	0.006	0.005	0.004	0.004	0.003
R2, stream	PEC _{SW}	0.034	0.035	0.019	0.012	0.009	0.005	0.003	0.002	0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.007	0.006	0.005	0.004	0.004	0.003	0.002	0.002	0.001	0.001	0.001	<0.001
R3, stream	PEC _{SW}	0.311	0.181	0.091	0.061	0.046	0.030	0.016	0.010	0.008	0.005	0.004	0.002
	PEC _{SED}	0.038	0.030	0.023	0.020	0.017	0.015	0.011	0.009	0.008	0.006	0.006	0.004
R4, stream	PEC _{SW}	0.308	0.238	0.119	0.080	0.060	0.034	0.018	0.012	0.009	0.006	0.005	0.003
	PEC _{SED}	0.047	0.038	0.030	0.025	0.022	0.017	0.013	0.011	0.009	0.008	0.007	0.005

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 91: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 12.59 + 7.41 g a.s./ha to maize, BBCH 11-18 (10 m NSZ +VFS)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{SW}	0.009	0.008	0.005	0.004	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, pond	PEC _{SW}	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001
D4, stream	PEC _{SW}	0.010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{SW}	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001
	PEC _{SED}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001
D5, stream	PEC _{SW}	0.011	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{SW}	0.009	0.008	0.007	0.005	0.004	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.002	0.002	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, pond	PEC _{SW}	0.007	0.007	0.006	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.002
	PEC _{SED}	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.003
R1, stream	PEC _{SW}	0.156	0.081	0.040	0.027	0.020	0.012	0.006	0.005	0.004	0.003	0.002	0.001
	PEC _{SED}	0.020	0.014	0.011	0.009	0.008	0.006	0.005	0.004	0.004	0.003	0.003	0.002
R2, stream	PEC _{SW}	0.041	0.041	0.022	0.015	0.011	0.006	0.003	0.002	0.002	0.001	<0.001	<0.001
	PEC _{SED}	0.008	0.007	0.006	0.005	0.004	0.003	0.002	0.002	0.002	0.001	0.001	<0.001
R3, stream	PEC _{SW}	0.196	0.114	0.057	0.038	0.029	0.019	0.010	0.007	0.005	0.004	0.003	0.002
	PEC _{SED}	0.024	0.019	0.015	0.012	0.011	0.009	0.007	0.006	0.005	0.004	0.004	0.003
R4, stream	PEC _{SW}	0.194	0.150	0.075	0.050	0.038	0.021	0.018	0.013	0.010	0.006	0.005	0.003
	PEC _{SED}	0.030	0.024	0.019	0.016	0.014	0.011	0.010	0.009	0.009	0.007	0.007	0.005

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 92: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 1 × 12.59 g a.s./ha to maize, BBCH 11-18 (10 m NSZ +VFS)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.011	0.009	0.006	0.004	0.003	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.002	0.002	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, pond	PEC _{sw}	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, stream	PEC _{sw}	0.013	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{sw}	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001
D5, stream	PEC _{sw}	0.013	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{sw}	0.012	0.010	0.008	0.006	0.005	0.003	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.002	0.002	0.002	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, pond	PEC _{sw}	0.007	0.007	0.007	0.007	0.006	0.006	0.005	0.005	0.004	0.003	0.003	0.002
	PEC _{sed}	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.003
R1, stream	PEC _{sw}	0.156	0.081	0.040	0.027	0.020	0.012	0.006	0.004	0.003	0.002	0.002	<0.001
	PEC _{sed}	0.020	0.014	0.011	0.009	0.008	0.006	0.005	0.004	0.003	0.003	0.002	0.002
R2, stream	PEC _{sw}	0.022	0.022	0.012	0.008	0.006	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.004	0.004	0.003	0.003	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{sw}	0.196	0.114	0.057	0.038	0.029	0.019	0.010	0.007	0.005	0.003	0.003	0.001
	PEC _{sed}	0.024	0.019	0.015	0.012	0.011	0.009	0.007	0.006	0.005	0.004	0.004	0.003
R4, stream	PEC _{sw}	0.194	0.150	0.075	0.050	0.038	0.021	0.011	0.008	0.006	0.004	0.003	0.002
	PEC _{sed}	0.030	0.024	0.019	0.016	0.014	0.011	0.008	0.007	0.006	0.005	0.004	0.003

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 93: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 2 × 10 g a.s./ha to maize, BBCH 11-18 (10 m NSZ +VFS)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.007	0.006	0.004	0.003	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, pond	PEC _{sw}	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001
D4, stream	PEC _{sw}	0.008	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{sw}	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001
D5, stream	PEC _{sw}	0.009	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{sw}	0.008	0.007	0.005	0.004	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, pond	PEC _{sw}	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.003	0.003	0.002
	PEC _{sed}	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003
R1, stream	PEC _{sw}	0.124	0.064	0.032	0.021	0.016	0.010	0.005	0.004	0.003	0.003	0.002	0.001
	PEC _{sed}	0.016	0.011	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.003	0.002
R2, stream	PEC _{sw}	0.043	0.044	0.023	0.016	0.012	0.007	0.003	0.002	0.002	0.001	<0.001	<0.001
	PEC _{sed}	0.009	0.007	0.006	0.005	0.004	0.004	0.003	0.002	0.002	0.002	0.001	<0.001
R3, stream	PEC _{sw}	0.155	0.090	0.045	0.030	0.023	0.015	0.008	0.005	0.004	0.003	0.003	0.001
	PEC _{sed}	0.019	0.015	0.012	0.010	0.009	0.007	0.006	0.005	0.004	0.004	0.003	0.002
R4, stream	PEC _{sw}	0.176	0.126	0.063	0.042	0.032	0.021	0.018	0.013	0.010	0.007	0.005	0.003
	PEC _{sed}	0.030	0.024	0.019	0.017	0.015	0.013	0.010	0.009	0.009	0.007	0.007	0.005

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 94: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 1 × 10 g a.s./ha to maize, BBCH 11-18 (10 m NSZ +VFS)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.009	0.007	0.005	0.004	0.003	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, pond	PEC _{sw}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, stream	PEC _{sw}	0.010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{sw}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, stream	PEC _{sw}	0.011	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{sw}	0.009	0.008	0.007	0.005	0.004	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.002	0.002	0.002	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, pond	PEC _{sw}	0.006	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.003	0.003	0.002	0.001
	PEC _{sed}	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002
R1, stream	PEC _{sw}	0.124	0.064	0.032	0.021	0.016	0.010	0.005	0.003	0.002	0.002	0.001	<0.001
	PEC _{sed}	0.016	0.011	0.008	0.007	0.006	0.005	0.004	0.003	0.003	0.002	0.002	0.001
R2, stream	PEC _{sw}	0.017	0.017	0.009	0.006	0.005	0.003	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.004	0.003	0.002	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{sw}	0.155	0.090	0.045	0.030	0.023	0.015	0.008	0.005	0.004	0.003	0.002	0.001
	PEC _{sed}	0.019	0.015	0.012	0.010	0.009	0.007	0.006	0.005	0.004	0.003	0.003	0.002
R4, stream	PEC _{sw}	0.154	0.119	0.060	0.040	0.030	0.017	0.009	0.006	0.005	0.003	0.003	0.001
	PEC _{sed}	0.024	0.019	0.015	0.013	0.011	0.009	0.006	0.005	0.005	0.004	0.004	0.002

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

STEP 4: 20 m NSZ+ VFS

Table A 95: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 1 × 20 g a.s./ha to maize, BBCH 11-18 (20 m NSZ +VFS)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.009	0.008	0.005	0.004	0.003	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, pond	PEC _{sw}	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, stream	PEC _{sw}	0.010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{sw}	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001
D5, stream	PEC _{sw}	0.011	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{sw}	0.010	0.008	0.007	0.005	0.004	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.002	0.002	0.002	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, pond	PEC _{sw}	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.004	0.003	0.003	0.002	0.001
	PEC _{sed}	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002
R1, stream	PEC _{sw}	0.129	0.067	0.033	0.022	0.017	0.010	0.005	0.003	0.003	0.002	0.001	<0.001
	PEC _{sed}	0.016	0.011	0.009	0.007	0.006	0.005	0.004	0.003	0.003	0.002	0.002	0.001
R2, stream	PEC _{sw}	0.018	0.018	0.010	0.007	0.005	0.003	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.004	0.003	0.002	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{sw}	0.163	0.095	0.048	0.032	0.024	0.016	0.008	0.005	0.004	0.003	0.002	0.001
	PEC _{sed}	0.020	0.016	0.012	0.010	0.009	0.008	0.006	0.005	0.004	0.003	0.003	0.002
R4, stream	PEC _{sw}	0.162	0.125	0.063	0.042	0.031	0.018	0.009	0.006	0.005	0.003	0.003	0.001
	PEC _{sed}	0.025	0.020	0.016	0.013	0.012	0.009	0.007	0.006	0.005	0.004	0.004	0.003

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 96: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 12.59 + 7.41 g a.s./ha to maize, BBCH 11-18 (20 m NSZ +VFS)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.005	0.004	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, pond	PEC _{sw}	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, stream	PEC _{sw}	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{sw}	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, stream	PEC _{sw}	0.006	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{sw}	0.005	0.004	0.003	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, pond	PEC _{sw}	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	<0.001
	PEC _{sed}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
R1, stream	PEC _{sw}	0.081	0.042	0.021	0.014	0.011	0.006	0.003	0.003	0.002	0.001	0.001	<0.001
	PEC _{sed}	0.010	0.007	0.006	0.005	0.004	0.003	0.002	0.002	0.002	0.002	0.002	0.001
R2, stream	PEC _{sw}	0.022	0.022	0.012	0.008	0.006	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.004	0.004	0.003	0.003	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{sw}	0.102	0.059	0.030	0.020	0.015	0.010	0.005	0.003	0.003	0.002	0.002	<0.001
	PEC _{sed}	0.013	0.010	0.008	0.007	0.006	0.005	0.004	0.003	0.003	0.002	0.002	0.001
R4, stream	PEC _{sw}	0.102	0.079	0.039	0.026	0.020	0.011	0.009	0.007	0.005	0.003	0.003	0.001
	PEC _{sed}	0.016	0.013	0.010	0.008	0.007	0.006	0.005	0.005	0.005	0.004	0.004	0.003

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 97: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 1 × 12.59 g a.s./ha to maize, BBCH 11-18 (20 m NSZ +VFS)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.006	0.005	0.003	0.002	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, pond	PEC _{sw}	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, stream	PEC _{sw}	0.007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{sw}	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, stream	PEC _{sw}	0.007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{sw}	0.006	0.005	0.004	0.003	0.003	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, pond	PEC _{sw}	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	<0.001
	PEC _{sed}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001
R1, stream	PEC _{sw}	0.081	0.042	0.021	0.014	0.011	0.006	0.003	0.002	0.002	0.001	<0.001	<0.001
	PEC _{sed}	0.010	0.007	0.006	0.005	0.004	0.003	0.002	0.002	0.002	0.001	0.001	<0.001
R2, stream	PEC _{sw}	0.011	0.011	0.006	0.004	0.003	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.002	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{sw}	0.103	0.059	0.030	0.020	0.015	0.010	0.005	0.003	0.003	0.002	0.001	<0.001
	PEC _{sed}	0.013	0.010	0.008	0.007	0.006	0.005	0.004	0.003	0.003	0.002	0.002	0.001
R4, stream	PEC _{sw}	0.102	0.079	0.039	0.026	0.020	0.011	0.006	0.004	0.003	0.002	0.002	<0.001
	PEC _{sed}	0.016	0.013	0.010	0.008	0.007	0.006	0.004	0.004	0.003	0.003	0.002	0.002

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 98: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 2 × 10 g a.s./ha to maize, BBCH 11-18 (20 m NSZ +VFS)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.004	0.003	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, pond	PEC _{sw}	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, stream	PEC _{sw}	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{sw}	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, stream	PEC _{sw}	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{sw}	0.004	0.003	0.003	0.002	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, pond	PEC _{sw}	0.003	0.003	0.003	0.003	0.003	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001
R1, stream	PEC _{sw}	0.065	0.033	0.017	0.011	0.008	0.005	0.003	0.002	0.002	0.001	0.001	<0.001
	PEC _{sed}	0.008	0.006	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001
R2, stream	PEC _{sw}	0.023	0.023	0.012	0.008	0.006	0.004	0.002	0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.005	0.004	0.003	0.003	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{sw}	0.081	0.047	0.024	0.016	0.012	0.008	0.004	0.003	0.002	0.002	0.001	<0.001
	PEC _{sed}	0.010	0.008	0.006	0.005	0.005	0.004	0.003	0.002	0.002	0.002	0.002	0.001
R4, stream	PEC _{sw}	0.092	0.066	0.033	0.022	0.017	0.011	0.009	0.007	0.005	0.003	0.003	0.001
	PEC _{sed}	0.016	0.013	0.010	0.009	0.008	0.007	0.005	0.005	0.004	0.004	0.004	0.003

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 99: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 1 × 10 g a.s./ha to maize, BBCH 11-18 (20 m NSZ +VFS)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.005	0.004	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, pond	PEC _{sw}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, stream	PEC _{sw}	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{sw}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, stream	PEC _{sw}	0.006	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{sw}	0.005	0.004	0.003	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, pond	PEC _{sw}	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.001	0.001	<0.001
	PEC _{sed}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001
R1, stream	PEC _{sw}	0.065	0.033	0.017	0.011	0.008	0.005	0.003	0.002	0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.008	0.006	0.004	0.004	0.003	0.003	0.002	0.002	0.001	0.001	0.001	<0.001
R2, stream	PEC _{sw}	0.009	0.009	0.005	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{sw}	0.081	0.047	0.024	0.016	0.012	0.008	0.004	0.003	0.002	0.001	0.001	<0.001
	PEC _{sed}	0.010	0.008	0.006	0.005	0.005	0.004	0.003	0.002	0.002	0.002	0.002	0.001
R4, stream	PEC _{sw}	0.081	0.062	0.031	0.021	0.016	0.009	0.005	0.003	0.002	0.002	0.001	<0.001
	PEC _{sed}	0.013	0.010	0.008	0.007	0.006	0.005	0.003	0.003	0.002	0.002	0.002	0.001

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

STEP 4: 10 m VFS Mod

Table A 100: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 1 × 20 g a.s./ha to maize, BBCH 11-18 (10 m VFS Mod)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{SW}	0.018	0.015	0.010	0.007	0.005	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.003	0.003	0.002	0.002	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, pond	PEC _{SW}	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	<0.001
	PEC _{SED}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
D4, stream	PEC _{SW}	0.020	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{SW}	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	<0.001
	PEC _{SED}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001
D5, stream	PEC _{SW}	0.021	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{SW}	0.018	0.016	0.013	0.010	0.008	0.004	0.002	0.002	0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.001	0.001	0.001	0.001	<0.001
R1, pond	PEC _{SW}	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.001	0.001	<0.001
	PEC _{SED}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
R1, stream	PEC _{SW}	0.016	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R2, stream	PEC _{SW}	0.022	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{SW}	0.023	0.007	0.004	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R4, stream	PEC _{SW}	0.016	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 101: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 12.59 + 7.41 g a.s./ha to maize, BBCH 11-18 (10 m VFS Mod)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{SW}	0.009	0.008	0.005	0.004	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, pond	PEC _{SW}	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001
D4, stream	PEC _{SW}	0.010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{SW}	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001
D5, stream	PEC _{SW}	0.011	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{SW}	0.009	0.008	0.007	0.005	0.004	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.002	0.002	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, pond	PEC _{SW}	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001
R1, stream	PEC _{SW}	0.008	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R2, stream	PEC _{SW}	0.011	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{SW}	0.012	0.004	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R4, stream	PEC _{SW}	0.008	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 102: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 1 × 12.59 g a.s./ha to maize, BBCH 11-18 (10 m VFS Mod)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.011	0.009	0.006	0.004	0.003	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.002	0.002	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, pond	PEC _{sw}	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, stream	PEC _{sw}	0.013	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{sw}	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001
D5, stream	PEC _{sw}	0.013	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{sw}	0.012	0.010	0.008	0.006	0.005	0.003	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.002	0.002	0.002	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, pond	PEC _{sw}	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, stream	PEC _{sw}	0.010	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R2, stream	PEC _{sw}	0.014	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{sw}	0.014	0.004	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R4, stream	PEC _{sw}	0.010	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 103: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 2 × 10 g a.s./ha to maize, BBCH 11-18 (10 m VFS Mod)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.007	0.006	0.004	0.003	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, pond	PEC _{sw}	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001
D4, stream	PEC _{sw}	0.008	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{sw}	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001
D5, stream	PEC _{sw}	0.009	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{sw}	0.008	0.007	0.005	0.004	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, pond	PEC _{sw}	0.002	0.002	0.002	0.002	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001
R1, stream	PEC _{sw}	0.007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R2, stream	PEC _{sw}	0.009	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{sw}	0.009	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R4, stream	PEC _{sw}	0.007	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 104: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for rimsulfuron following application of 1 × 10 g a.s./ha to maize, BBCH 11-18 (10 m VFS Mod)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.009	0.007	0.005	0.004	0.003	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, pond	PEC _{sw}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, stream	PEC _{sw}	0.010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{sw}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, stream	PEC _{sw}	0.011	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{sw}	0.009	0.008	0.007	0.005	0.004	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.002	0.002	0.002	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, pond	PEC _{sw}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, stream	PEC _{sw}	0.008	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R2, stream	PEC _{sw}	0.011	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{sw}	0.011	0.004	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R4, stream	PEC _{sw}	0.008	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

^a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

A 3.2 Thifensulfuron methyl PEC_{sw}/PEC_{sed}

Comments of zRMS:	The surface water exposure assessment performed by the Applicant for thifensulfuron-methyl and its metabolites has been accepted by the zRMS. For details of performed evaluation, please refer to point 8.9 of this document.
-------------------	--

Step 1 and 2 results:

Table A 105: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for thifensulfuron methyl following application of 1 × 12.5 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		Southern Europe (Jun-Sep)		PEC _{sw} (µg/L)		PEC _{sw} (µg/L)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	4.232		0.371		0.185	---	0.017	---	0.269	---	0.024	---
1	4.104	4.168	0.369	0.370	0.179	0.182	0.016	0.016	0.261	0.265	0.024	0.024
2	3.981	4.105	0.358	0.367	0.174	0.179	0.016	0.016	0.253	0.261	0.023	0.024
4	3.746	3.984	0.337	0.357	0.164	0.174	0.015	0.016	0.238	0.253	0.021	0.023
7	3.420	3.811	0.308	0.342	0.150	0.167	0.014	0.015	0.218	0.242	0.020	0.022
14	2.764	3.446	0.249	0.310	0.121	0.151	0.011	0.014	0.176	0.219	0.016	0.020
21	2.234	3.127	0.201	0.281	0.098	0.137	0.009	0.012	0.143	0.199	0.013	0.018
28	1.806	2.849	0.163	0.256	0.080	0.125	0.007	0.011	0.116	0.182	0.010	0.016
42	1.180	2.389	0.106	0.215	0.052	0.105	0.005	0.009	0.076	0.153	0.007	0.014
50	0.925	2.175	0.083	0.196	0.041	0.096	0.004	0.009	0.060	0.139	0.005	0.013
100	0.202	1.325	0.018	0.119	0.009	0.058	0.001	0.005	0.013	0.085	0.001	0.008

Table A 106: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for thifensulfuron methyl following application of 1 × 12.5 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	4.232		0.371		0.185	---	0.017	---	0.227	---	0.020
1	4.104	4.168	0.369	0.370	0.179	0.182	0.016	0.016	0.220	0.224	0.020	0.020
2	3.981	4.105	0.358	0.367	0.174	0.179	0.016	0.016	0.213	0.220	0.019	0.020
4	3.746	3.984	0.337	0.357	0.164	0.174	0.015	0.016	0.201	0.214	0.018	0.019
7	3.420	3.811	0.308	0.342	0.150	0.167	0.014	0.015	0.184	0.204	0.017	0.018
14	2.764	3.446	0.249	0.310	0.121	0.151	0.011	0.014	0.149	0.185	0.013	0.017
21	2.234	3.127	0.201	0.281	0.098	0.137	0.009	0.012	0.121	0.168	0.011	0.015
28	1.806	2.849	0.163	0.256	0.080	0.125	0.007	0.011	0.098	0.153	0.009	0.014
42	1.180	2.389	0.106	0.215	0.052	0.105	0.005	0.009	0.064	0.129	0.006	0.012
50	0.925	2.175	0.083	0.196	0.041	0.096	0.004	0.009	0.051	0.117	0.005	0.011
100	0.202	1.325	0.018	0.119	0.009	0.058	0.001	0.005	0.011	0.072	0.001	0.007

Table A 107: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for thifensulfuron methyl metabolites (IN-L9225, IN-L9223, IN-A4098, 2-acid-3-triuret (IN-U5F72), IN-JZ789, IN-A5546, IN-V7160, IN-L9226, IN-W8268) following application of 1 × 12.5 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Mar-May)		PEC _{sed} (µg/kg ds)		Southern Europe (Mar-May)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	8.448		<0.001		0.823	---	<0.001	---	1.531	---	<0.001
1	8.442	8.445	<0.001	<0.001	0.822	0.823	<0.001	<0.001	1.530	1.531	<0.001	<0.001
2	8.437	8.442	<0.001	<0.001	0.822	0.822	<0.001	<0.001	1.529	1.530	<0.001	<0.001
4	8.425	8.437	<0.001	<0.001	0.821	0.822	<0.001	<0.001	1.527	1.529	<0.001	<0.001
7	8.407	8.428	<0.001	<0.001	0.819	0.821	<0.001	<0.001	1.524	1.528	<0.001	<0.001
14	8.367	8.407	<0.001	<0.001	0.815	0.819	<0.001	<0.001	1.517	1.524	<0.001	<0.001
21	8.326	8.387	<0.001	<0.001	0.811	0.817	<0.001	<0.001	1.509	1.520	<0.001	<0.001
28	8.286	8.367	<0.001	<0.001	0.807	0.815	<0.001	<0.001	1.502	1.517	<0.001	<0.001
42	8.206	8.327	<0.001	<0.001	0.799	0.811	<0.001	<0.001	1.487	1.509	<0.001	<0.001
50	8.161	8.304	<0.001	<0.001	0.795	0.809	<0.001	<0.001	1.479	1.505	<0.001	<0.001
100	7.883	8.162	<0.001	<0.001	0.768	0.795	<0.001	<0.001	1.429	1.479	<0.001	<0.001

Table A 108: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for thifensulfuron methyl metabolites (IN-L9225, IN-L9223, IN-A4098, 2-acid-3-triuret (IN-U5F72), IN-JZ789, IN-A5546, IN-V7160, IN-L9226, IN-W8268) following application of 1 × 12.5 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	8.448		<0.001		0.823	---	<0.001	---	1.177	---	<0.001
1	8.442	8.445	<0.001	<0.001	0.822	0.823	<0.001	<0.001	1.176	1.177	<0.001	<0.001
2	8.437	8.442	<0.001	<0.001	0.822	0.822	<0.001	<0.001	1.176	1.176	<0.001	<0.001
4	8.425	8.437	<0.001	<0.001	0.821	0.822	<0.001	<0.001	1.174	1.176	<0.001	<0.001
7	8.407	8.428	<0.001	<0.001	0.819	0.821	<0.001	<0.001	1.171	1.174	<0.001	<0.001
14	8.367	8.407	<0.001	<0.001	0.815	0.819	<0.001	<0.001	1.166	1.171	<0.001	<0.001
21	8.326	8.387	<0.001	<0.001	0.811	0.817	<0.001	<0.001	1.160	1.169	<0.001	<0.001
28	8.286	8.367	<0.001	<0.001	0.807	0.815	<0.001	<0.001	1.155	1.166	<0.001	<0.001
42	8.206	8.327	<0.001	<0.001	0.799	0.811	<0.001	<0.001	1.143	1.160	<0.001	<0.001
50	8.161	8.304	<0.001	<0.001	0.795	0.809	<0.001	<0.001	1.137	1.157	<0.001	<0.001
100	7.883	8.162	<0.001	<0.001	0.768	0.795	<0.001	<0.001	1.098	1.137	<0.001	<0.001

Table A 109: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for thifensulfuron methyl following application of 2 × 6.25 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sw} (µg/L)		Southern Europe (Jun-Sep)		PEC _{sw} (µg/L)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	4.232		0.371		0.124	---	0.011	---	0.167	---	0.015
1	4.104	4.168	0.369	0.370	0.120	0.122	0.011	0.011	0.162	0.165	0.015	0.015
2	3.981	4.105	0.358	0.367	0.117	0.120	0.011	0.011	0.157	0.162	0.014	0.015
4	3.746	3.984	0.337	0.357	0.110	0.117	0.010	0.011	0.148	0.157	0.013	0.014
7	3.420	3.811	0.308	0.342	0.100	0.112	0.009	0.010	0.135	0.151	0.012	0.014
14	2.764	3.446	0.249	0.310	0.081	0.101	0.007	0.009	0.110	0.136	0.010	0.012
21	2.234	3.127	0.201	0.281	0.066	0.092	0.006	0.008	0.089	0.124	0.008	0.011
28	1.806	2.849	0.163	0.256	0.053	0.084	0.005	0.008	0.072	0.113	0.007	0.010
42	1.180	2.389	0.106	0.215	0.035	0.070	0.003	0.006	0.047	0.095	0.004	0.009
50	0.925	2.175	0.083	0.196	0.028	0.064	0.003	0.006	0.037	0.086	0.003	0.008
100	0.202	1.325	0.018	0.119	0.006	0.039	0.001	0.004	0.008	0.053	0.001	0.005

Table A 110: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for thifensulfuron methyl following application of 2 × 6.25 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sw} (µg/L)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	4.232		0.371		0.124	---	0.011	---	0.146	---	0.013
1	4.104	4.168	0.369	0.370	0.120	0.122	0.011	0.011	0.141	0.143	0.013	0.013
2	3.981	4.105	0.358	0.367	0.117	0.120	0.011	0.011	0.137	0.141	0.012	0.013
4	3.746	3.984	0.337	0.357	0.110	0.117	0.010	0.011	0.129	0.137	0.012	0.012
7	3.420	3.811	0.308	0.342	0.100	0.112	0.009	0.010	0.118	0.131	0.011	0.012
14	2.764	3.446	0.249	0.310	0.081	0.101	0.007	0.009	0.096	0.119	0.009	0.011
21	2.234	3.127	0.201	0.281	0.066	0.092	0.006	0.008	0.077	0.108	0.007	0.010
28	1.806	2.849	0.163	0.256	0.053	0.084	0.005	0.008	0.063	0.098	0.006	0.009
42	1.180	2.389	0.106	0.215	0.035	0.070	0.003	0.006	0.041	0.083	0.004	0.007
50	0.925	2.175	0.083	0.196	0.028	0.064	0.003	0.006	0.032	0.075	0.003	0.007
100	0.202	1.325	0.018	0.119	0.006	0.039	0.001	0.004	0.007	0.046	0.001	0.004

Table A 111: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for thifensulfuron methyl metabolites (IN-L9225, IN-L9223, IN-A4098, 2-acid-3-triuret (IN-U5F72), IN-JZ789, IN-A5546, IN-V7160, IN-L9226, IN-W8268) following application of 2 × 6.25 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Mar-May)		PEC _{sw} (µg/L)		Southern Europe (Mar-May)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	8.448		<0.001		0.767	---	<0.001	---	1.432	---	<0.001
1	8.442	8.445	<0.001	<0.001	0.766	0.766	<0.001	<0.001	1.431	1.432	<0.001	<0.001
2	8.437	8.442	<0.001	<0.001	0.766	0.766	<0.001	<0.001	1.430	1.431	<0.001	<0.001
4	8.425	8.437	<0.001	<0.001	0.765	0.766	<0.001	<0.001	1.428	1.430	<0.001	<0.001
7	8.407	8.428	<0.001	<0.001	0.763	0.765	<0.001	<0.001	1.425	1.429	<0.001	<0.001
14	8.367	8.407	<0.001	<0.001	0.759	0.763	<0.001	<0.001	1.418	1.425	<0.001	<0.001
21	8.326	8.387	<0.001	<0.001	0.756	0.761	<0.001	<0.001	1.412	1.422	<0.001	<0.001
28	8.286	8.367	<0.001	<0.001	0.752	0.759	<0.001	<0.001	1.405	1.418	<0.001	<0.001
42	8.206	8.327	<0.001	<0.001	0.745	0.756	<0.001	<0.001	1.391	1.412	<0.001	<0.001
50	8.161	8.304	<0.001	<0.001	0.741	0.754	<0.001	<0.001	1.383	1.408	<0.001	<0.001
100	7.883	8.162	<0.001	<0.001	0.715	0.741	<0.001	<0.001	1.336	1.384	<0.001	<0.001

Table A 112: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for thifensulfuron methyl metabolites (IN-L9225, IN-L9223, IN-A4098, 2-acid-3-triuret (IN-U5F72), IN-JZ789, IN-A5546, IN-V7160, IN-L9226, IN-W8268) following application of 2 × 6.25 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	8.448		<0.001		0.767	---	<0.001	---	1.099	---	<0.001
1	8.442	8.445	<0.001	<0.001	0.766	0.766	<0.001	<0.001	1.099	1.099	<0.001	<0.001
2	8.437	8.442	<0.001	<0.001	0.766	0.766	<0.001	<0.001	1.098	1.099	<0.001	<0.001
4	8.425	8.437	<0.001	<0.001	0.765	0.766	<0.001	<0.001	1.096	1.098	<0.001	<0.001
7	8.407	8.428	<0.001	<0.001	0.763	0.765	<0.001	<0.001	1.094	1.097	<0.001	<0.001
14	8.367	8.407	<0.001	<0.001	0.759	0.763	<0.001	<0.001	1.089	1.094	<0.001	<0.001
21	8.326	8.387	<0.001	<0.001	0.756	0.761	<0.001	<0.001	1.084	1.092	<0.001	<0.001
28	8.286	8.367	<0.001	<0.001	0.752	0.759	<0.001	<0.001	1.078	1.089	<0.001	<0.001
42	8.206	8.327	<0.001	<0.001	0.745	0.756	<0.001	<0.001	1.068	1.084	<0.001	<0.001
50	8.161	8.304	<0.001	<0.001	0.741	0.754	<0.001	<0.001	1.062	1.081	<0.001	<0.001
100	7.883	8.162	<0.001	<0.001	0.715	0.741	<0.001	<0.001	1.026	1.062	<0.001	<0.001

Step- 3 and 4 results:

Table A 113: FOCUS Step 3 PEC_{sw} and PEC_{sed} results for thifensulfuron methyl following application of 1 × 12.5 g a.s./ha to maize, BBCH 11-18

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.066	0.054	0.037	0.026	0.020	0.011	0.006	0.004	0.003	0.002	0.002	<0.001
	PEC _{sed}	0.006	0.006	0.006	0.005	0.005	0.004	0.003	0.002	0.002	0.001	0.001	<0.001
D4, pond	PEC _{sw}	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.001
	PEC _{sed}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
D4, stream	PEC _{sw}	0.056	0.005	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{sw}	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	<0.001
	PEC _{sed}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001
D5, stream	PEC _{sw}	0.059	0.004	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{sw}	0.066	0.059	0.049	0.037	0.029	0.017	0.008	0.006	0.004	0.003	0.002	0.001
	PEC _{sed}	0.008	0.008	0.007	0.007	0.006	0.005	0.004	0.003	0.003	0.002	0.002	0.001
R1, pond	PEC _{sw}	0.009	0.008	0.008	0.008	0.008	0.008	0.007	0.007	0.006	0.005	0.005	0.003
	PEC _{sed}	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.003
R1, stream	PEC _{sw}	0.153	0.079	0.040	0.026	0.020	0.012	0.006	0.004	0.003	0.002	0.002	<0.001
	PEC _{sed}	0.013	0.009	0.007	0.006	0.005	0.004	0.003	0.002	0.002	0.002	0.002	<0.001
R2, stream	PEC _{sw}	0.061	0.006	0.003	0.002	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{sw}	0.187	0.109	0.055	0.036	0.027	0.018	0.010	0.007	0.005	0.003	0.003	0.001
	PEC _{sed}	0.015	0.012	0.010	0.008	0.007	0.006	0.004	0.004	0.003	0.003	0.002	0.001
R4, stream	PEC _{sw}	0.174	0.134	0.067	0.045	0.034	0.019	0.010	0.007	0.005	0.004	0.003	0.001
	PEC _{sed}	0.018	0.014	0.011	0.009	0.008	0.006	0.005	0.004	0.003	0.003	0.002	0.002

^a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 114: FOCUS Step 3 PEC_{sw} and PEC_{sed} results for thifensulfuron methyl following application of 7.87 + 4.63 g a.s./ha to maize, BBCH 11-18

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.036	0.030	0.020	0.014	0.011	0.006	0.005	0.003	0.002	0.002	0.001	<0.001
	PEC _{sed}	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	<0.001
D4, pond	PEC _{sw}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	<0.001
	PEC _{sed}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001
D4, stream	PEC _{sw}	0.030	0.003	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{sw}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	<0.001
	PEC _{sed}	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, stream	PEC _{sw}	0.032	0.003	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{sw}	0.036	0.032	0.027	0.020	0.016	0.009	0.006	0.004	0.003	0.002	0.002	<0.001
	PEC _{sed}	0.004	0.004	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.001	0.001	<0.001
R1, pond	PEC _{sw}	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.002
	PEC _{sed}	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002
R1, stream	PEC _{sw}	0.097	0.050	0.025	0.017	0.013	0.008	0.004	0.004	0.003	0.002	0.002	<0.001
	PEC _{sed}	0.008	0.006	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.001	<0.001
R2, stream	PEC _{sw}	0.033	0.008	0.005	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{sw}	0.118	0.069	0.035	0.023	0.017	0.011	0.006	0.004	0.003	0.002	0.002	0.001
	PEC _{sed}	0.010	0.008	0.006	0.005	0.005	0.004	0.003	0.002	0.002	0.002	0.002	0.001
R4, stream	PEC _{sw}	0.117	0.085	0.042	0.028	0.021	0.013	0.012	0.008	0.007	0.004	0.004	0.002
	PEC _{sed}	0.013	0.010	0.009	0.007	0.007	0.006	0.004	0.004	0.004	0.003	0.003	0.002

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 115: FOCUS Step 3 PEC_{sw} and PEC_{sed} results for thifensulfuron methyl following application of 1 × 7.87 g a.s./ha to maize, BBCH 11-18

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.041	0.034	0.023	0.016	0.012	0.007	0.004	0.002	0.002	0.001	<0.001	<0.001
	PEC _{sed}	0.004	0.004	0.004	0.003	0.003	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001
D4, pond	PEC _{sw}	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, stream	PEC _{sw}	0.035	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{sw}	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, stream	PEC _{sw}	0.037	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{sw}	0.041	0.037	0.031	0.023	0.018	0.010	0.005	0.003	0.003	0.002	0.001	<0.001
	PEC _{sed}	0.005	0.005	0.005	0.004	0.004	0.003	0.002	0.002	0.002	0.001	0.001	<0.001
R1, pond	PEC _{sw}	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.003	0.003	0.002
	PEC _{sed}	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002
R1, stream	PEC _{sw}	0.097	0.050	0.025	0.017	0.013	0.008	0.004	0.003	0.002	0.001	0.001	<0.001
	PEC _{sed}	0.008	0.006	0.004	0.004	0.003	0.003	0.002	0.002	0.001	0.001	<0.001	<0.001
R2, stream	PEC _{sw}	0.038	0.004	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{sw}	0.118	0.069	0.035	0.023	0.017	0.012	0.006	0.004	0.003	0.002	0.002	<0.001
	PEC _{sed}	0.010	0.008	0.006	0.005	0.005	0.004	0.003	0.002	0.002	0.002	0.001	<0.001
R4, stream	PEC _{sw}	0.110	0.085	0.042	0.028	0.021	0.012	0.006	0.004	0.003	0.002	0.002	<0.001
	PEC _{sed}	0.011	0.009	0.007	0.006	0.005	0.004	0.003	0.002	0.002	0.002	0.002	0.001

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 116: FOCUS Step 3 PEC_{sw} and PEC_{sed} results for thifensulfuron methyl following application of 2 × 6.25 g a.s./ha to maize, BBCH 11-18

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.028	0.024	0.017	0.012	0.009	0.005	0.005	0.003	0.002	0.002	0.001	<0.001
	PEC _{sed}	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	<0.001
D4, pond	PEC _{sw}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	<0.001
	PEC _{sed}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001
D4, stream	PEC _{sw}	0.024	0.003	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{sw}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	<0.001
	PEC _{sed}	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, stream	PEC _{sw}	0.027	0.004	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{sw}	0.029	0.026	0.021	0.016	0.012	0.007	0.005	0.003	0.003	0.002	0.001	<0.001
	PEC _{sed}	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	<0.001
R1, pond	PEC _{sw}	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.002
	PEC _{sed}	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002
R1, stream	PEC _{sw}	0.113	0.040	0.020	0.013	0.010	0.006	0.003	0.004	0.003	0.002	0.002	<0.001
	PEC _{sed}	0.007	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	<0.001
R2, stream	PEC _{sw}	0.026	0.010	0.005	0.003	0.003	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{sw}	0.094	0.055	0.028	0.018	0.014	0.009	0.005	0.004	0.003	0.002	0.002	<0.001
	PEC _{sed}	0.008	0.006	0.005	0.004	0.004	0.003	0.002	0.002	0.002	0.002	0.001	<0.001
R4, stream	PEC _{sw}	0.158	0.113	0.057	0.038	0.028	0.018	0.013	0.009	0.007	0.005	0.004	0.002
	PEC _{sed}	0.017	0.013	0.011	0.009	0.008	0.007	0.005	0.004	0.004	0.003	0.003	0.002

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 117: FOCUS Step 3 PEC_{sw} and PEC_{sed} results for thifensulfuron methyl following application of 1 × 6.25 g a.s./ha to maize, BBCH 11-18

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.033	0.027	0.019	0.013	0.010	0.006	0.003	0.002	0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.003	0.003	0.003	0.003	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001
D4, pond	PEC _{sw}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, stream	PEC _{sw}	0.028	0.003	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{sw}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, stream	PEC _{sw}	0.029	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{sw}	0.033	0.030	0.024	0.019	0.014	0.008	0.004	0.003	0.002	0.001	0.001	<0.001
	PEC _{sed}	0.004	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.001	0.001	0.001	<0.001
R1, pond	PEC _{sw}	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.002
	PEC _{sed}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
R1, stream	PEC _{sw}	0.077	0.040	0.020	0.013	0.010	0.006	0.003	0.002	0.002	0.001	<0.001	<0.001
	PEC _{sed}	0.007	0.005	0.004	0.003	0.003	0.002	0.001	0.001	0.001	<0.001	<0.001	<0.001
R2, stream	PEC _{sw}	0.030	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{sw}	0.094	0.055	0.028	0.018	0.014	0.009	0.005	0.003	0.002	0.002	0.001	<0.001
	PEC _{sed}	0.008	0.006	0.005	0.004	0.004	0.003	0.002	0.002	0.002	0.001	0.001	<0.001
R4, stream	PEC _{sw}	0.087	0.067	0.034	0.023	0.017	0.010	0.005	0.004	0.003	0.002	0.001	<0.001
	PEC _{sed}	0.009	0.007	0.006	0.005	0.004	0.003	0.002	0.002	0.002	0.001	0.001	<0.001

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Step 4: 10 m NSZ +VFS

Table A 118: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for thifensulfuron methyl following application of 1 × 12.5 g a.s./ha to maize, BBCH 11-18 (10 m NSZ +VFS)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.011	0.009	0.006	0.005	0.003	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, pond	PEC _{sw}	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, stream	PEC _{sw}	0.013	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{sw}	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, stream	PEC _{sw}	0.013	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{sw}	0.011	0.010	0.008	0.006	0.005	0.003	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, pond	PEC _{sw}	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.002	0.002
	PEC _{sed}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
R1, stream	PEC _{sw}	0.069	0.036	0.018	0.012	0.009	0.005	0.003	0.002	0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.006	0.004	0.003	0.003	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001
R2, stream	PEC _{sw}	0.014	0.003	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{sw}	0.085	0.049	0.025	0.016	0.012	0.008	0.004	0.003	0.002	0.001	0.001	<0.001
	PEC _{sed}	0.007	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.001	0.001	<0.001	<0.001
R4, stream	PEC _{sw}	0.079	0.061	0.031	0.020	0.015	0.009	0.005	0.003	0.002	0.002	0.001	<0.001
	PEC _{sed}	0.008	0.006	0.005	0.004	0.004	0.003	0.002	0.002	0.002	0.001	0.001	<0.001

^a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 119: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for thifensulfuron methyl following application of 7.87 + 4.63 g a.s./ha to maize, BBCH 11-18 (10 m NSZ +VFS)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.006	0.005	0.003	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, pond	PEC _{sw}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, stream	PEC _{sw}	0.006	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{sw}	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, stream	PEC _{sw}	0.007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{sw}	0.006	0.005	0.004	0.003	0.003	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, pond	PEC _{sw}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001
	PEC _{sed}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001
R1, stream	PEC _{sw}	0.046	0.024	0.012	0.008	0.006	0.003	0.002	0.002	0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.004	0.003	0.002	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R2, stream	PEC _{sw}	0.007	0.004	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{sw}	0.053	0.031	0.015	0.010	0.008	0.005	0.003	0.002	0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.005	0.004	0.003	0.003	0.002	0.002	0.001	0.001	0.001	<0.001	<0.001	<0.001
R4, stream	PEC _{sw}	0.052	0.038	0.019	0.013	0.009	0.006	0.005	0.004	0.003	0.002	0.002	<0.001
	PEC _{sed}	0.007	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.001

^a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 120: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for thifensulfuron methyl following application of 1 × 7.87 g a.s./ha to maize, BBCH 11-18 (10 m NSZ +VFS)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.007	0.006	0.004	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, pond	PEC _{sw}	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, stream	PEC _{sw}	0.008	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{sw}	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, stream	PEC _{sw}	0.008	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{sw}	0.007	0.006	0.005	0.004	0.003	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, pond	PEC _{sw}	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, stream	PEC _{sw}	0.006	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R2, stream	PEC _{sw}	0.009	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{sw}	0.009	0.003	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R4, stream	PEC _{sw}	0.006	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 121: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for thifensulfuron methyl following application of 2 × 6.25 g a.s./ha to maize, BBCH 11-18 (10 m NSZ +VFS)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.005	0.004	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, pond	PEC _{sw}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, stream	PEC _{sw}	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{sw}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, stream	PEC _{sw}	0.006	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{sw}	0.005	0.004	0.003	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, pond	PEC _{sw}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	<0.001
	PEC _{sed}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
R1, stream	PEC _{sw}	0.047	0.018	0.009	0.006	0.005	0.003	0.001	0.002	0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.003	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R2, stream	PEC _{sw}	0.006	0.004	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{sw}	0.043	0.025	0.012	0.008	0.006	0.004	0.002	0.001	0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.004	0.003	0.002	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R4, stream	PEC _{sw}	0.072	0.051	0.026	0.017	0.013	0.008	0.006	0.004	0.003	0.002	0.002	<0.001
	PEC _{sed}	0.008	0.006	0.005	0.004	0.004	0.003	0.002	0.002	0.002	0.002	0.001	<0.001

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 122: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for thifensulfuron methyl following application of 1 × 6.25 g a.s./ha to maize, BBCH 11-18 (10 m NSZ +VFS)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.006	0.005	0.003	0.002	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, pond	PEC _{sw}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, stream	PEC _{sw}	0.006	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{sw}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, stream	PEC _{sw}	0.007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{sw}	0.006	0.005	0.004	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, pond	PEC _{sw}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	<0.001
	PEC _{sed}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001
R1, stream	PEC _{sw}	0.035	0.018	0.009	0.006	0.005	0.003	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.003	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R2, stream	PEC _{sw}	0.007	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{sw}	0.043	0.025	0.012	0.008	0.006	0.004	0.002	0.001	0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.004	0.003	0.002	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R4, stream	PEC _{sw}	0.040	0.031	0.015	0.010	0.008	0.004	0.002	0.002	0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.004	0.003	0.003	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

STEP 4: 20 m NSZ+ VFS

Table A 123: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for thifensulfuron methyl following application of 1 × 12.5 g a.s./ha to maize, BBCH 11-18 (20 m NSZ +VFS)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.006	0.005	0.003	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, pond	PEC _{sw}	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, stream	PEC _{sw}	0.007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{sw}	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, stream	PEC _{sw}	0.007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{sw}	0.006	0.005	0.004	0.003	0.003	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, pond	PEC _{sw}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	<0.001
	PEC _{sed}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001
R1, stream	PEC _{sw}	0.036	0.019	0.009	0.006	0.005	0.003	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.003	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R2, stream	PEC _{sw}	0.007	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{sw}	0.044	0.026	0.013	0.009	0.006	0.004	0.002	0.001	0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.004	0.003	0.002	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R4, stream	PEC _{sw}	0.041	0.032	0.016	0.011	0.008	0.005	0.002	0.002	0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.004	0.003	0.003	0.002	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 124: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for thifensulfuron methyl following application of 7.87 + 4.63 g a.s./ha to maize, BBCH 11-18 (20 m NSZ +VFS)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.003	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, pond	PEC _{sw}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, stream	PEC _{sw}	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{sw}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, stream	PEC _{sw}	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{sw}	0.003	0.003	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, pond	PEC _{sw}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, stream	PEC _{sw}	0.023	0.012	0.006	0.004	0.003	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R2, stream	PEC _{sw}	0.004	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{sw}	0.028	0.016	0.008	0.005	0.004	0.003	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.002	0.002	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R4, stream	PEC _{sw}	0.028	0.020	0.010	0.007	0.005	0.003	0.003	0.002	0.002	0.001	<0.001	<0.001
	PEC _{sed}	0.003	0.003	0.002	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 125: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for thifensulfuron methyl following application of 1 × 7.87 g a.s./ha to maize, BBCH 11-18 (20 m NSZ +VFS)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.004	0.003	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, pond	PEC _{sw}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, stream	PEC _{sw}	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{sw}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, stream	PEC _{sw}	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{sw}	0.004	0.003	0.003	0.002	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, pond	PEC _{sw}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, stream	PEC _{sw}	0.023	0.012	0.006	0.004	0.003	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R2, stream	PEC _{sw}	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{sw}	0.028	0.016	0.008	0.005	0.004	0.003	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.002	0.002	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R4, stream	PEC _{sw}	0.026	0.020	0.010	0.007	0.005	0.003	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.003	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 126: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for thifensulfuron methyl following application of 2 × 6.25 g a.s./ha to maize, BBCH 11-18 (20 m NSZ +VFS)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, pond	PEC _{sw}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, stream	PEC _{sw}	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{sw}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, stream	PEC _{sw}	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{sw}	0.002	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, pond	PEC _{sw}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, stream	PEC _{sw}	0.024	0.009	0.005	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R2, stream	PEC _{sw}	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{sw}	0.022	0.013	0.007	0.004	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R4, stream	PEC _{sw}	0.037	0.027	0.013	0.009	0.007	0.004	0.003	0.002	0.002	0.001	<0.001	<0.001
	PEC _{sed}	0.004	0.003	0.003	0.002	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 127: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for thifensulfuron methyl following application of 1 × 6.25 g a.s./ha to maize, BBCH 11-18 (20 m NSZ +VFS)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.003	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, pond	PEC _{sw}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, stream	PEC _{sw}	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{sw}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, stream	PEC _{sw}	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{sw}	0.003	0.003	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, pond	PEC _{sw}	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, stream	PEC _{sw}	0.018	0.009	0.005	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R2, stream	PEC _{sw}	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{sw}	0.022	0.013	0.007	0.004	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R4, stream	PEC _{sw}	0.021	0.016	0.008	0.005	0.004	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.002	0.002	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

STEP 4: 10 m VFS Mod

Table A 128: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for thifensulfuron methyl following application of 1 × 12.5 g a.s./ha to maize, BBCH 11-18 (10 m VFS Mod)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.011	0.009	0.006	0.005	0.003	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, pond	PEC _{sw}	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, stream	PEC _{sw}	0.013	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{sw}	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, stream	PEC _{sw}	0.013	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{sw}	0.011	0.010	0.008	0.006	0.005	0.003	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, pond	PEC _{sw}	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, stream	PEC _{sw}	0.010	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R2, stream	PEC _{sw}	0.014	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{sw}	0.014	0.004	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R4, stream	PEC _{sw}	0.010	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 129: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for thifensulfuron methyl following application of 7.87 + 4.63 g a.s./ha to maize, BBCH 11-18 (10 m VFS Mod)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.006	0.005	0.003	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, pond	PEC _{sw}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, stream	PEC _{sw}	0.006	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{sw}	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, stream	PEC _{sw}	0.007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{sw}	0.006	0.005	0.004	0.003	0.003	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, pond	PEC _{sw}	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, stream	PEC _{sw}	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R2, stream	PEC _{sw}	0.007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{sw}	0.007	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R4, stream	PEC _{sw}	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 130: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for thifensulfuron methyl following application of 1 × 7.87 g a.s./ha to maize, BBCH 11-18 (10 m VFS Mod)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.007	0.006	0.004	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, pond	PEC _{sw}	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, stream	PEC _{sw}	0.008	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{sw}	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, stream	PEC _{sw}	0.008	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{sw}	0.007	0.006	0.005	0.004	0.003	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, pond	PEC _{sw}	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, stream	PEC _{sw}	0.006	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R2, stream	PEC _{sw}	0.009	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{sw}	0.009	0.003	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R4, stream	PEC _{sw}	0.006	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 131: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for thifensulfuron methyl following application of 2 × 6.25 g a.s./ha to maize, BBCH 11-18 (10 m VFS Mod)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.005	0.004	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, pond	PEC _{sw}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, stream	PEC _{sw}	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{sw}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, stream	PEC _{sw}	0.006	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{sw}	0.005	0.004	0.003	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, pond	PEC _{sw}	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, stream	PEC _{sw}	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R2, stream	PEC _{sw}	0.006	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{sw}	0.006	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R4, stream	PEC _{sw}	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 132: FOCUS Step 4 PEC_{sw} and PEC_{sed} results for thifensulfuron methyl following application of 1 × 6.25 g a.s./ha to maize, BBCH 11-18 (10 m VFS Mod)

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{sw}	0.006	0.005	0.003	0.002	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, pond	PEC _{sw}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D4, stream	PEC _{sw}	0.006	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{sw}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, stream	PEC _{sw}	0.007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{sw}	0.006	0.005	0.004	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, pond	PEC _{sw}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1, stream	PEC _{sw}	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R2, stream	PEC _{sw}	0.007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{sw}	0.007	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R4, stream	PEC _{sw}	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{sed}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

^a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

A 3.3 Isoxadifen-ethyl (safener) PEC_{sw}/PEC_{sed}

Comments of zRMS:	In absene of the EU agreed input parameters for isoxadifen-ethyl, validation of the surface water exposure assessment provided by the Applicant was not possible. Results of the simulations have been retained for informative purposes only with font colour changed to grey in order to easily distinguish validated from non-validated data. For details of performed evaluation, please refer to point 8.9 of this document.
-------------------	---

PEC and TWA values for isoxadifen-ethyl and its metabolites from Step-1 and Step-2 Simulations:

Table A 133: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for isoxadifen-ethyl following application of 1 × 15 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Mar-May)				Southern Europe (Mar-May)			
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	2.677		18.458		0.138	---	0.214	---	0.138	---	0.214	---
1	1.644	2.160	11.949	15.203	0.058	0.098	0.157	0.185	0.058	0.098	0.157	0.185
2	1.035	1.738	7.527	12.386	0.034	0.072	0.101	0.157	0.034	0.072	0.101	0.157
4	0.411	1.207	2.987	8.649	0.014	0.047	0.052	0.114	0.014	0.047	0.054	0.115
7	0.103	0.785	0.747	5.635	0.003	0.030	0.013	0.078	0.003	0.030	0.014	0.079
14	0.004	0.408	0.029	2.928	<0.001	0.015	<0.001	0.041	<0.001	0.015	<0.001	0.041
21	<0.001	0.272	0.001	1.955	<0.001	0.010	<0.001	0.027	<0.001	0.010	<0.001	0.028
28	<0.001	0.204	<0.001	1.466	<0.001	0.008	<0.001	0.021	<0.001	0.008	<0.001	0.021
42	<0.001	0.136	<0.001	0.978	<0.001	0.005	<0.001	0.014	<0.001	0.005	<0.001	0.014
50	<0.001	0.114	<0.001	0.821	<0.001	0.004	<0.001	0.012	<0.001	0.004	<0.001	0.012
100	<0.001	0.057	<0.001	0.411	<0.001	0.002	<0.001	0.006	<0.001	0.002	<0.001	0.006

Table A 134: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for isoxadifen-ethyl following application of 1 × 15 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	2.677		18.458		0.138	---	0.214	---	0.138	---	0.214
1	1.644	2.160	11.949	15.203	0.058	0.098	0.157	0.185	0.058	0.098	0.157	0.185
2	1.035	1.738	7.527	12.386	0.034	0.072	0.101	0.157	0.034	0.072	0.101	0.157
4	0.411	1.207	2.987	8.649	0.014	0.047	0.052	0.114	0.014	0.047	0.053	0.115
7	0.103	0.785	0.747	5.635	0.003	0.030	0.013	0.078	0.003	0.030	0.013	0.078
14	0.004	0.408	0.029	2.928	<0.001	0.015	<0.001	0.041	<0.001	0.015	<0.001	0.041
21	<0.001	0.272	0.001	1.955	<0.001	0.010	<0.001	0.027	<0.001	0.010	<0.001	0.027
28	<0.001	0.204	<0.001	1.466	<0.001	0.008	<0.001	0.021	<0.001	0.008	<0.001	0.021
42	<0.001	0.136	<0.001	0.978	<0.001	0.005	<0.001	0.014	<0.001	0.005	<0.001	0.014
50	<0.001	0.114	<0.001	0.821	<0.001	0.004	<0.001	0.012	<0.001	0.004	<0.001	0.012
100	<0.001	0.057	<0.001	0.411	<0.001	0.002	<0.001	0.006	<0.001	0.002	<0.001	0.006

Table A 135: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for AE F129431 following application of 1 × 15 g a.s./ha isoxadifen-ethyl to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Mar-May)		PEC _{sed} (µg/kg ds)		Southern Europe (Mar-May)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	7.625		6.907		0.386	---	0.346	---	0.672	---	0.604
1	7.474	7.550	6.876	6.892	0.376	0.381	0.339	0.342	0.656	0.664	0.593	0.598
2	7.339	7.478	6.752	6.853	0.369	0.377	0.333	0.339	0.644	0.657	0.582	0.593
4	7.076	7.343	6.510	6.742	0.356	0.369	0.321	0.333	0.621	0.645	0.561	0.582
7	6.700	7.147	6.164	6.568	0.337	0.359	0.304	0.324	0.588	0.628	0.531	0.567
14	5.896	6.718	5.425	6.177	0.296	0.338	0.268	0.305	0.518	0.590	0.468	0.533
21	5.190	6.324	4.774	5.816	0.261	0.318	0.236	0.287	0.456	0.555	0.412	0.502
28	4.568	5.961	4.202	5.482	0.230	0.300	0.207	0.271	0.401	0.523	0.362	0.473
42	3.538	5.318	3.255	4.891	0.178	0.267	0.161	0.241	0.311	0.467	0.281	0.422
50	3.058	4.994	2.813	4.593	0.154	0.251	0.139	0.227	0.269	0.438	0.243	0.396
100	1.228	3.500	1.130	3.219	0.062	0.176	0.056	0.159	0.108	0.307	0.097	0.278

Table A 136: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for AE F129431 following application of 1 × 15 g a.s./ha isoxadifen-ethyl to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	7.625		6.907		0.386	---	0.346	---	0.529	---	0.475
1	7.474	7.550	6.876	6.892	0.376	0.381	0.339	0.342	0.516	0.523	0.466	0.470
2	7.339	7.478	6.752	6.853	0.369	0.377	0.333	0.339	0.507	0.517	0.458	0.466
4	7.076	7.343	6.510	6.742	0.356	0.369	0.321	0.333	0.488	0.507	0.441	0.458
7	6.700	7.147	6.164	6.568	0.337	0.359	0.304	0.324	0.462	0.494	0.418	0.446
14	5.896	6.718	5.425	6.177	0.296	0.338	0.268	0.305	0.407	0.464	0.368	0.419
21	5.190	6.324	4.774	5.816	0.261	0.318	0.236	0.287	0.358	0.437	0.324	0.394
28	4.568	5.961	4.202	5.482	0.230	0.300	0.207	0.271	0.315	0.412	0.285	0.372
42	3.538	5.318	3.255	4.891	0.178	0.267	0.161	0.241	0.244	0.367	0.221	0.332
50	3.058	4.994	2.813	4.593	0.154	0.251	0.139	0.227	0.211	0.345	0.191	0.311
100	1.228	3.500	1.130	3.219	0.062	0.176	0.056	0.159	0.085	0.242	0.077	0.218

Table A 137: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for AE C637375 following application of 1 × 15 g a.s./ha isoxadifen-ethyl to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Mar-May)		PEC _{sed} (µg/kg ds)		Southern Europe (Mar-May)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	1.359		1.488		0.042	---	0.039	---	0.042	---	0.039
1	1.337	1.348	1.511	1.499	0.038	0.040	0.038	0.039	0.038	0.040	0.039	0.039
2	1.320	1.338	1.492	1.500	0.037	0.039	0.038	0.038	0.037	0.039	0.038	0.039
4	1.288	1.321	1.455	1.487	0.036	0.038	0.037	0.038	0.037	0.038	0.037	0.038
7	1.241	1.297	1.402	1.462	0.034	0.036	0.036	0.037	0.034	0.036	0.036	0.037
14	1.138	1.243	1.286	1.403	0.031	0.034	0.033	0.036	0.031	0.034	0.033	0.036
21	1.044	1.192	1.179	1.346	0.028	0.033	0.030	0.034	0.028	0.033	0.030	0.034
28	0.957	1.144	1.081	1.292	0.026	0.031	0.027	0.033	0.026	0.031	0.028	0.033
42	0.805	1.055	0.909	1.192	0.022	0.029	0.023	0.030	0.022	0.029	0.023	0.030
50	0.729	1.009	0.824	1.140	0.020	0.027	0.021	0.029	0.020	0.028	0.021	0.029
100	0.393	0.776	0.444	0.877	0.011	0.021	0.011	0.022	0.011	0.021	0.011	0.022

Table A 138: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for AE C637375 following application of 1 × 15 g a.s./ha isoxadifen-ethyl to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	1.359		1.488		0.042	---	0.039	---	0.042	---	0.039
1	1.337	1.348	1.511	1.499	0.038	0.040	0.038	0.039	0.038	0.040	0.038	0.039
2	1.320	1.338	1.492	1.500	0.037	0.039	0.038	0.038	0.037	0.039	0.038	0.038
4	1.288	1.321	1.455	1.487	0.036	0.038	0.037	0.038	0.036	0.038	0.037	0.038
7	1.241	1.297	1.402	1.462	0.034	0.036	0.036	0.037	0.034	0.036	0.036	0.037
14	1.138	1.243	1.286	1.403	0.031	0.034	0.033	0.036	0.031	0.034	0.033	0.036
21	1.044	1.192	1.179	1.346	0.028	0.033	0.030	0.034	0.028	0.033	0.030	0.034
28	0.957	1.144	1.081	1.292	0.026	0.031	0.027	0.033	0.026	0.031	0.028	0.033
42	0.805	1.055	0.909	1.192	0.022	0.029	0.023	0.030	0.022	0.029	0.023	0.030
50	0.729	1.009	0.824	1.140	0.020	0.027	0.021	0.029	0.020	0.028	0.021	0.029
100	0.393	0.776	0.444	0.877	0.011	0.021	0.011	0.022	0.011	0.021	0.011	0.022

Table A 139: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for AE C642961 following application of 1 × 15 g a.s./ha isoxadifen-ethyl to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Mar-May)		PEC _{sed} (µg/kg ds)		Southern Europe (Mar-May)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	0.866		5.955		0.024	---	0.161	---	0.024	---	0.162
1	0.861	0.864	6.087	6.021	0.023	0.023	0.160	0.161	0.023	0.023	0.161	0.161
2	0.857	0.861	6.055	6.046	0.023	0.023	0.159	0.160	0.023	0.023	0.160	0.161
4	0.848	0.857	5.991	6.035	0.023	0.023	0.158	0.159	0.023	0.023	0.158	0.160
7	0.834	0.850	5.897	5.996	0.023	0.023	0.155	0.158	0.023	0.023	0.156	0.159
14	0.804	0.834	5.683	5.893	0.022	0.023	0.149	0.155	0.022	0.023	0.150	0.156
21	0.775	0.819	5.476	5.788	0.021	0.022	0.144	0.152	0.021	0.022	0.145	0.153
28	0.746	0.805	5.277	5.685	0.020	0.022	0.139	0.150	0.020	0.022	0.140	0.150
42	0.693	0.776	4.900	5.485	0.019	0.021	0.129	0.144	0.019	0.021	0.130	0.145
50	0.664	0.761	4.697	5.375	0.018	0.021	0.124	0.141	0.018	0.021	0.124	0.142
100	0.510	0.672	3.605	4.751	0.014	0.018	0.095	0.125	0.014	0.018	0.095	0.126

Table A 140: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for AE C642961 following application of 1 × 15 g a.s./ha isoxadifen-ethyl to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	0.866		5.955		0.024	---	0.161	---	0.024	---	0.161
1	0.861	0.864	6.087	6.021	0.023	0.023	0.160	0.161	0.023	0.023	0.161	0.161
2	0.857	0.861	6.055	6.046	0.023	0.023	0.159	0.160	0.023	0.023	0.160	0.161
4	0.848	0.857	5.991	6.035	0.023	0.023	0.158	0.159	0.023	0.023	0.158	0.160
7	0.834	0.850	5.897	5.996	0.023	0.023	0.155	0.158	0.023	0.023	0.156	0.158
14	0.804	0.834	5.683	5.893	0.022	0.023	0.149	0.155	0.022	0.023	0.150	0.156
21	0.775	0.819	5.476	5.788	0.021	0.022	0.144	0.152	0.021	0.022	0.144	0.153
28	0.746	0.805	5.277	5.685	0.020	0.022	0.139	0.150	0.020	0.022	0.139	0.150
42	0.693	0.776	4.900	5.485	0.019	0.021	0.129	0.144	0.019	0.021	0.129	0.145
50	0.664	0.761	4.697	5.375	0.018	0.021	0.124	0.141	0.018	0.021	0.124	0.142
100	0.510	0.672	3.605	4.751	0.014	0.018	0.095	0.125	0.014	0.018	0.095	0.125

Table A 141: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for isoxadifen-ethyl following application of 2 × 7.5 g a.s./ha to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Mar-May)		PEC _{sed} (µg/kg ds)		Southern Europe (Mar-May)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	1.338		9.229		0.062	---	0.099	---	0.062	---	0.099
1	0.822	1.080	5.974	7.602	0.027	0.045	0.072	0.086	0.027	0.045	0.072	0.086
2	0.518	0.869	3.764	6.193	0.016	0.033	0.046	0.072	0.016	0.033	0.046	0.072
4	0.205	0.604	1.494	4.325	0.006	0.022	0.024	0.053	0.006	0.022	0.025	0.053
7	0.051	0.393	0.373	2.818	0.001	0.014	0.006	0.036	0.001	0.014	0.006	0.036
14	0.002	0.204	0.015	1.464	<0.001	0.007	<0.001	0.019	<0.001	0.007	<0.001	0.019
21	<0.001	0.136	<0.001	0.978	<0.001	0.005	<0.001	0.013	<0.001	0.005	<0.001	0.013
28	<0.001	0.102	<0.001	0.733	<0.001	0.004	<0.001	0.009	<0.001	0.004	<0.001	0.010
42	<0.001	0.068	<0.001	0.489	<0.001	0.002	<0.001	0.006	<0.001	0.002	<0.001	0.006
50	<0.001	0.057	<0.001	0.411	<0.001	0.002	<0.001	0.005	<0.001	0.002	<0.001	0.005
100	<0.001	0.029	<0.001	0.205	<0.001	0.001	<0.001	0.003	<0.001	0.001	<0.001	0.003

Table A 142: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for isoxadifen-ethyl following application of 2 × 7.5 g a.s./ha to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	1.338		9.229		0.062	---	0.099	---	0.062	---	0.099
1	0.822	1.080	5.974	7.602	0.027	0.045	0.072	0.086	0.027	0.045	0.072	0.086
2	0.518	0.869	3.764	6.193	0.016	0.033	0.046	0.072	0.016	0.033	0.046	0.072
4	0.205	0.604	1.494	4.325	0.006	0.022	0.024	0.053	0.006	0.022	0.025	0.053
7	0.051	0.393	0.373	2.818	0.001	0.014	0.006	0.036	0.001	0.014	0.006	0.036
14	0.002	0.204	0.015	1.464	<0.001	0.007	<0.001	0.019	<0.001	0.007	<0.001	0.019
21	<0.001	0.136	<0.001	0.978	<0.001	0.005	<0.001	0.013	<0.001	0.005	<0.001	0.013
28	<0.001	0.102	<0.001	0.733	<0.001	0.004	<0.001	0.009	<0.001	0.004	<0.001	0.010
42	<0.001	0.068	<0.001	0.489	<0.001	0.002	<0.001	0.006	<0.001	0.002	<0.001	0.006
50	<0.001	0.057	<0.001	0.411	<0.001	0.002	<0.001	0.005	<0.001	0.002	<0.001	0.005
100	<0.001	0.029	<0.001	0.205	<0.001	0.001	<0.001	0.003	<0.001	0.001	<0.001	0.003

Table A 143: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for AE F129431 following application of 2 × 7.5 g a.s./ha isoxadifen-ethyl to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Mar-May)		PEC _{sed} (µg/kg ds)		Southern Europe (Mar-May)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	7.625		6.907		0.270	---	0.241	---	0.457	---	0.410
1	7.474	7.550	6.876	6.892	0.262	0.266	0.237	0.239	0.445	0.451	0.402	0.406
2	7.339	7.478	6.752	6.853	0.257	0.263	0.232	0.237	0.437	0.446	0.395	0.402
4	7.076	7.343	6.510	6.742	0.248	0.258	0.224	0.233	0.422	0.438	0.381	0.395
7	6.700	7.147	6.164	6.568	0.235	0.251	0.212	0.226	0.399	0.426	0.361	0.385
14	5.896	6.718	5.425	6.177	0.207	0.236	0.187	0.213	0.351	0.400	0.317	0.362
21	5.190	6.324	4.774	5.816	0.182	0.222	0.164	0.200	0.309	0.377	0.279	0.340
28	4.568	5.961	4.202	5.482	0.160	0.209	0.145	0.189	0.272	0.355	0.246	0.321
42	3.538	5.318	3.255	4.891	0.124	0.187	0.112	0.168	0.211	0.317	0.190	0.286
50	3.058	4.994	2.813	4.593	0.107	0.175	0.097	0.158	0.182	0.298	0.165	0.269
100	1.228	3.500	1.130	3.219	0.043	0.123	0.039	0.111	0.073	0.209	0.066	0.188

Table A 144: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for AE F129431 following application of 2 × 7.5 g a.s./ha isoxadifen-ethyl to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	7.625		6.907		0.270	---	0.241	---	0.363	---	0.325
1	7.474	7.550	6.876	6.892	0.262	0.266	0.237	0.239	0.354	0.358	0.320	0.322
2	7.339	7.478	6.752	6.853	0.257	0.263	0.232	0.237	0.347	0.354	0.314	0.320
4	7.076	7.343	6.510	6.742	0.248	0.258	0.224	0.233	0.335	0.348	0.303	0.314
7	6.700	7.147	6.164	6.568	0.235	0.251	0.212	0.226	0.317	0.338	0.286	0.306
14	5.896	6.718	5.425	6.177	0.207	0.236	0.187	0.213	0.279	0.318	0.252	0.287
21	5.190	6.324	4.774	5.816	0.182	0.222	0.164	0.200	0.246	0.299	0.222	0.270
28	4.568	5.961	4.202	5.482	0.160	0.209	0.145	0.189	0.216	0.282	0.195	0.255
42	3.538	5.318	3.255	4.891	0.124	0.187	0.112	0.168	0.167	0.252	0.151	0.227
50	3.058	4.994	2.813	4.593	0.107	0.175	0.097	0.158	0.145	0.236	0.131	0.213
100	1.228	3.500	1.130	3.219	0.043	0.123	0.039	0.111	0.058	0.166	0.053	0.150

Table A 145: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for AE C637375 following application of 2 × 7.5 g a.s./ha isoxadifen-ethyl to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Mar-May)		PEC _{sed} (µg/kg ds)		Southern Europe (Mar-May)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	1.359		1.488		0.034	---	0.033	---	0.034	---	0.033
1	1.337	1.348	1.511	1.499	0.032	0.033	0.032	0.033	0.032	0.033	0.033	0.033
2	1.320	1.338	1.492	1.500	0.031	0.032	0.032	0.032	0.031	0.032	0.032	0.033
4	1.288	1.321	1.455	1.487	0.031	0.032	0.031	0.032	0.031	0.032	0.031	0.032
7	1.241	1.297	1.402	1.462	0.028	0.031	0.030	0.031	0.028	0.031	0.030	0.032
14	1.138	1.243	1.286	1.403	0.026	0.029	0.028	0.030	0.026	0.029	0.028	0.030
21	1.044	1.192	1.179	1.346	0.024	0.028	0.025	0.029	0.024	0.028	0.025	0.029
28	0.957	1.144	1.081	1.292	0.022	0.026	0.023	0.028	0.022	0.026	0.023	0.028
42	0.805	1.055	0.909	1.192	0.018	0.024	0.020	0.026	0.018	0.024	0.020	0.026
50	0.729	1.009	0.824	1.140	0.017	0.023	0.018	0.025	0.017	0.023	0.018	0.025
100	0.393	0.776	0.444	0.877	0.009	0.018	0.010	0.019	0.009	0.018	0.010	0.019

Table A 146: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for AE C637375 following application of 2 × 7.5 g a.s./ha isoxadifen-ethyl to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	1.359		1.488		0.034	---	0.033	---	0.034	---	0.033
1	1.337	1.348	1.511	1.499	0.032	0.033	0.032	0.033	0.032	0.033	0.032	0.033
2	1.320	1.338	1.492	1.500	0.031	0.032	0.032	0.032	0.031	0.032	0.032	0.032
4	1.288	1.321	1.455	1.487	0.031	0.032	0.031	0.032	0.031	0.032	0.031	0.032
7	1.241	1.297	1.402	1.462	0.028	0.031	0.030	0.031	0.028	0.031	0.030	0.032
14	1.138	1.243	1.286	1.403	0.026	0.029	0.028	0.030	0.026	0.029	0.028	0.030
21	1.044	1.192	1.179	1.346	0.024	0.028	0.025	0.029	0.024	0.028	0.025	0.029
28	0.957	1.144	1.081	1.292	0.022	0.026	0.023	0.028	0.022	0.026	0.023	0.028
42	0.805	1.055	0.909	1.192	0.018	0.024	0.020	0.026	0.018	0.024	0.020	0.026
50	0.729	1.009	0.824	1.140	0.017	0.023	0.018	0.025	0.017	0.023	0.018	0.025
100	0.393	0.776	0.444	0.877	0.009	0.018	0.010	0.019	0.009	0.018	0.010	0.019

Table A 147: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for AE C642961 following application of 2 × 7.5 g a.s./ha isoxadifen-ethyl to maize (Mar-May, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Mar-May)		PEC _{sed} (µg/kg ds)		Southern Europe (Mar-May)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	0.866		5.955		0.020	---	0.139	---	0.020	---	0.140
1	0.861	0.864	6.087	6.021	0.020	0.020	0.139	0.139	0.020	0.020	0.139	0.139
2	0.857	0.861	6.055	6.046	0.020	0.020	0.138	0.139	0.020	0.020	0.138	0.139
4	0.848	0.857	5.991	6.035	0.020	0.020	0.136	0.138	0.020	0.020	0.137	0.138
7	0.834	0.850	5.897	5.996	0.020	0.020	0.134	0.137	0.020	0.020	0.135	0.137
14	0.804	0.834	5.683	5.893	0.019	0.020	0.129	0.134	0.019	0.020	0.130	0.135
21	0.775	0.819	5.476	5.788	0.018	0.019	0.125	0.132	0.018	0.019	0.125	0.132
28	0.746	0.805	5.277	5.685	0.017	0.019	0.120	0.129	0.018	0.019	0.121	0.130
42	0.693	0.776	4.900	5.485	0.016	0.018	0.112	0.125	0.016	0.018	0.112	0.125
50	0.664	0.761	4.697	5.375	0.016	0.018	0.107	0.122	0.016	0.018	0.107	0.123
100	0.510	0.672	3.605	4.751	0.012	0.016	0.082	0.108	0.012	0.016	0.082	0.109

Table A 148: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} results for AE C642961 following application of 2 × 7.5 g a.s./ha isoxadifen-ethyl to maize (Jun-Sep, BBCH 11-18)

Time after application (days)	Step 1				Step 2				Step 2			
	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg ds)		Northern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)		Southern Europe (Jun-Sep)		PEC _{sed} (µg/kg ds)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
	0	0.866		5.955		0.020	---	0.139	---	0.020	---	0.140
1	0.861	0.864	6.087	6.021	0.020	0.020	0.139	0.139	0.020	0.020	0.139	0.139
2	0.857	0.861	6.055	6.046	0.020	0.020	0.138	0.139	0.020	0.020	0.138	0.139
4	0.848	0.857	5.991	6.035	0.020	0.020	0.136	0.138	0.020	0.020	0.137	0.138
7	0.834	0.850	5.897	5.996	0.020	0.020	0.134	0.137	0.020	0.020	0.134	0.137
14	0.804	0.834	5.683	5.893	0.019	0.020	0.129	0.134	0.019	0.020	0.130	0.134
21	0.775	0.819	5.476	5.788	0.018	0.019	0.125	0.132	0.018	0.019	0.125	0.132
28	0.746	0.805	5.277	5.685	0.017	0.019	0.120	0.129	0.018	0.019	0.120	0.130
42	0.693	0.776	4.900	5.485	0.016	0.018	0.112	0.125	0.016	0.018	0.112	0.125
50	0.664	0.761	4.697	5.375	0.016	0.018	0.107	0.122	0.016	0.018	0.107	0.123
100	0.510	0.672	3.605	4.751	0.012	0.016	0.082	0.108	0.012	0.016	0.082	0.108

PEC and TWA values for isoxadifen-ethyl from Step-3 Simulations:

Step-3 Results

Table A 149: Step 3 PEC_{sw} (µg/L) and PEC_{sed} (µg/kg) values resulting from an application of 1 × 15 g a.s./ha isoxadifen-ethyl to maize, BBCH 11-18

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{SW}	0.079	0.064	0.044	0.031	0.023	0.013	0.007	0.004	0.003	0.002	0.002	<0.001
	PEC _{SED}	0.028	0.027	0.024	0.020	0.017	0.011	0.006	0.004	0.003	0.002	0.002	<0.001
D4, pond	PEC _{SW}	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002
	PEC _{SED}	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.001
D4, stream	PEC _{SW}	0.067	0.006	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.004	0.003	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{SW}	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002
	PEC _{SED}	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.001
D5, stream	PEC _{SW}	0.070	0.004	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.003	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{SW}	0.079	0.070	0.057	0.044	0.034	0.019	0.010	0.006	0.005	0.003	0.003	0.001
	PEC _{SED}	0.032	0.031	0.029	0.025	0.022	0.014	0.007	0.005	0.004	0.002	0.002	0.001
R1, pond	PEC _{SW}	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002
	PEC _{SED}	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.001
R1, stream	PEC _{SW}	0.053	0.007	0.003	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.004	0.003	0.003	0.002	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R2, stream	PEC _{SW}	0.073	0.007	0.004	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.005	0.003	0.002	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{SW}	0.077	0.029	0.014	0.010	0.007	0.004	0.002	0.001	0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.015	0.012	0.010	0.008	0.007	0.004	0.002	0.002	0.001	<0.001	<0.001	<0.001
R4, stream	PEC _{SW}	0.054	0.010	0.005	0.003	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.006	0.005	0.003	0.003	0.002	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001

^a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 150: Step 3 PEC_{sw} (µg/L) and PEC_{sed} (µg/kg) values resulting from an application of 9.44 + 5.56 g a.s./ha isoxadifen-ethyl to maize, BBCH 11-18

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{SW}	0.043	0.035	0.024	0.017	0.013	0.007	0.006	0.004	0.003	0.002	0.002	<0.001
	PEC _{SED}	0.015	0.015	0.013	0.011	0.009	0.006	0.004	0.004	0.003	0.002	0.001	<0.001
D4, pond	PEC _{SW}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001
	PEC _{SED}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001
D4, stream	PEC _{SW}	0.036	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{SW}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001
	PEC _{SED}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001
D5, stream	PEC _{SW}	0.038	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{SW}	0.043	0.038	0.031	0.024	0.018	0.011	0.007	0.004	0.003	0.002	0.002	<0.001
	PEC _{SED}	0.017	0.017	0.016	0.014	0.012	0.008	0.005	0.003	0.003	0.002	0.001	<0.001
R1, pond	PEC _{SW}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001
	PEC _{SED}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001
R1, stream	PEC _{SW}	0.029	0.004	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.002	0.002	0.002	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R2, stream	PEC _{SW}	0.039	0.004	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.003	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{SW}	0.041	0.013	0.006	0.004	0.003	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.007	0.005	0.004	0.003	0.003	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001
R4, stream	PEC _{SW}	0.029	0.010	0.005	0.003	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.006	0.005	0.004	0.003	0.003	0.002	0.001	0.001	0.001	<0.001	<0.001	<0.001

^a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 151: Step 3 PEC_{sw} (µg/L) and PEC_{sed} (µg/kg) values resulting from an application of 1 × 9.44 g a.s./ha isoxadifen-ethyl to maize, BBCH 11-18

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{SW}	0.049	0.040	0.027	0.019	0.014	0.008	0.004	0.003	0.002	0.001	0.001	<0.001
	PEC _{SED}	0.018	0.017	0.015	0.013	0.011	0.007	0.004	0.003	0.002	0.001	0.001	<0.001
D4, pond	PEC _{SW}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	<0.001
	PEC _{SED}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	<0.001
D4, stream	PEC _{SW}	0.042	0.004	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.003	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{SW}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001
	PEC _{SED}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	<0.001
D5, stream	PEC _{SW}	0.044	0.003	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{SW}	0.049	0.044	0.036	0.027	0.021	0.012	0.006	0.004	0.003	0.002	0.002	<0.001
	PEC _{SED}	0.020	0.019	0.018	0.016	0.014	0.009	0.005	0.003	0.002	0.002	0.001	<0.001
R1, pond	PEC _{SW}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	<0.001
	PEC _{SED}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	<0.001
R1, stream	PEC _{SW}	0.033	0.004	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.003	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R2, stream	PEC _{SW}	0.046	0.005	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.003	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{SW}	0.048	0.015	0.007	0.005	0.004	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.008	0.006	0.005	0.004	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R4, stream	PEC _{SW}	0.034	0.006	0.003	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.004	0.003	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

^a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 152: Step 3 PEC_{sw} (µg/L) and PEC_{sed} (µg/kg) values resulting from an application of 2 × 7.5 g a.s./ha isoxadifen-ethyl to maize, BBCH 11-18

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{SW}	0.034	0.028	0.020	0.014	0.011	0.006	0.006	0.004	0.003	0.002	0.002	<0.001
	PEC _{SED}	0.013	0.012	0.011	0.009	0.008	0.005	0.004	0.004	0.003	0.002	0.002	<0.001
D4, pond	PEC _{SW}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001
	PEC _{SED}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001
D4, stream	PEC _{SW}	0.029	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{SW}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001
	PEC _{SED}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001
D5, stream	PEC _{SW}	0.032	0.005	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.003	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{SW}	0.034	0.030	0.025	0.019	0.015	0.008	0.006	0.004	0.003	0.002	0.002	<0.001
	PEC _{SED}	0.014	0.013	0.012	0.011	0.010	0.006	0.004	0.003	0.002	0.002	0.001	<0.001
R1, pond	PEC _{SW}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001
	PEC _{SED}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001
R1, stream	PEC _{SW}	0.023	0.003	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R2, stream	PEC _{SW}	0.031	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{SW}	0.033	0.012	0.006	0.004	0.003	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.006	0.005	0.004	0.003	0.002	0.002	<0.001	0.001	<0.001	<0.001	<0.001	<0.001
R4, stream	PEC _{SW}	0.023	0.013	0.006	0.004	0.003	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.008	0.007	0.005	0.004	0.004	0.003	0.002	0.001	0.001	<0.001	<0.001	<0.001

^a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Table A 153: Step 3 PEC_{sw} (µg/L) and PEC_{sed} (µg/kg) values resulting from an application of 1 × 7.5 g a.s./ha isoxadifen-ethyl to maize, BBCH 11-18

Scenario	PEC type ^a	Max. Conc.	Time weighted average concentrations (days)										
			1	2	3	4	7	14	21	28	42	50	100
D3, ditch	PEC _{SW}	0.039	0.032	0.022	0.015	0.012	0.007	0.003	0.002	0.002	0.001	<0.001	<0.001
	PEC _{SED}	0.014	0.013	0.012	0.010	0.009	0.006	0.003	0.002	0.002	0.001	<0.001	<0.001
D4, pond	PEC _{SW}	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	<0.001
	PEC _{SED}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001
D4, stream	PEC _{SW}	0.034	0.003	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D5, pond	PEC _{SW}	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	<0.001
	PEC _{SED}	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001
D5, stream	PEC _{SW}	0.035	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D6, ditch	PEC _{SW}	0.039	0.035	0.029	0.022	0.017	0.010	0.005	0.003	0.002	0.002	0.001	<0.001
	PEC _{SED}	0.016	0.016	0.014	0.013	0.011	0.007	0.004	0.002	0.002	0.001	0.001	<0.001
R1, pond	PEC _{SW}	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	<0.001
	PEC _{SED}	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	<0.001
R1, stream	PEC _{SW}	0.027	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R2, stream	PEC _{SW}	0.036	0.004	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R3, stream	PEC _{SW}	0.038	0.014	0.007	0.005	0.004	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.008	0.006	0.005	0.004	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R4, stream	PEC _{SW}	0.027	0.005	0.003	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PEC _{SED}	0.003	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

^a Actual PEC (PEC_{sw} and PEC_{sed}) and time weighted average values are truncated to three decimal places in Excel for presentation. PEC_{sed} values are reported on a dry weight basis.

Appendix 4 IN-J0290 study summaries

The following studies were summarised in the DuPont Nicosulfuron EU Dossier, Annex IIA, Document M-II, Section 5, DuPont-12636 EU, Revision No. 1. The summaries are provided in this dossier for completeness.

Comments of zRMS:	The studies with IN-J0290 summarised below were already peer-reviewed and accepted at the EU level during renewal processes of several sulfonylurea herbicides (including rimsulfuron) and their results may be confirmed. No additional evaluation was deemed necessary at the zonal level and for this reason summaries below were struck through. For details of the studies evaluation at the EU level, please refer to the RAR of the active compounds (e.g. rimsulfuron or flupyrsulfuron).
-------------------	---

A 4.1 DuPont-5266

Report: Shaw, D. (2002); Degradation rates of [¹⁴C]IN-J0290 in four soils

DuPont Report No.: DuPont-5266

Guidelines: SETAC 1995, OECD 307 (2002) **Deviations:** None

Testing Facility: Huntingdon Life Sciences Ltd., Huntingdon, Cambridge, England UK

GLP: Yes

Certifying Authority: Department of Health (UK)

Executive summary:

The rate of degradation of IN J0290, a metabolite of nicosulfuron, was examined in four European soils (pH = 5.5–8.0, OC content = 0.3–2.5%) in the laboratory under aerobic conditions. The test soils were treated with radiolabeled IN J0290 at a concentration of 0.1 mg/kg dry weight soil. Samples were incubated in darkness at 20 ± 2°C with a soil moisture of approximately 50% of maximum water holding capacity (0 bar moisture) for up to 120 days.

IN J0290 degraded rapidly at 20°C in all test soils with DT₅₀ values ranging from 3 to 11 days, with a geometric mean of 7.1 days and DT₉₀ values ranging from 10 to 158 days, with a geometric mean of 69.5 days.

Material balance ranged from 90 to 103% of the applied radioactivity. Non-extractable-¹⁴C residues increased from 1.5% AR at Day 0 to 45.2% AR (after 14 days) in Speyer 2.2 soil, 39.6% AR in Pavia soil (after 30 days), 33.1% AR in Nambsheim soil (after 30 days), and 53.8% AR in Vercelli soil (after 90 and 120 days). Similarly, evolved ¹⁴CO₂ increased to 61.3% AR in Speyer 2.2 soil after 62 days, and to 29.8% AR, 53.5% AR and 27.2% AR in Pavia, Nambsheim and Vercelli soils respectively after 120 days. The maximum amount of volatile organics was approximately 0.5% AR.

The relative rate of degradation of IN J0290 by the three soils was related to organic matter content and microbial activity of the soils. The Speyer 2.2 soil had the highest organic matter content and microbial activity of all the soils and the dissipation of IN J0290 was fastest in this soil.

I. MATERIALS AND METHODS

A. MATERIALS

1. Test material: IN J0290 technical metabolite
 Lot/Batch #: J0290-17
 Purity: 99
 Description: White powder
 Stability of test compound: Shown to be stable in Day 0 extraction
2. Radiolabeled test material: ¹⁴C IN J0290 radiolabeled technical metabolite
 Lot/Batch #: 318
 Radiochemical purity: [Pyrimidine 2-¹⁴C]IN J0290: ≥95.0%
 Specific activity: 141.80 µCi/mg
 Description: White powder
 Stability of test compound: Shown to be stable in Day 0 extraction

3. Soils

Four soils were chosen to represent a range of agricultural soil types; Nambenheim, sandy loam from France, Pavia loamy sand from Italy, standard Speyer 2.2 sandy loam from Germany, and Vercelli silt loam from Italy. The soils were freshly collected from the field and stored under refrigeration (4°C) for less than 3 months prior to use. Soils were collected from specific locations with no application of chemicals of the same class within 3–5 years. Soils were equilibrated in flasks at 20°C for one week prior to use and their microbial viability was checked by microbial biomass determination.

Table A 154 Characteristics of test soils

Characteristic	Soil			
	Nambenheim	Pavia	Speyer 2.2	Vercelli
Soil name or designation	Nambenheim	Pavia	Speyer 2.2	Vercelli
Origin location	France	Italy	Germany	Italy
pH	8.0	5.5	6.7	6.1
% Sand (2000–50 µm)	57.2	82.0	73.2	22.0
% Silt (<50–2 µm)	30.0	10.4	20.0	64.4
% Clay (<2 µm)	12.8	7.6	6.8	13.6
Texture (USDA classification system)	Sandy loam	Loamy sand	Sandy loam	Silt loam
% Organic matter (Walkley-Black)	1.4	0.5	4.3	1.8
% Organic Carbon ^a	0.81	0.30	2.5	1.04
Cation exchange capacity (meq/100 g)	5.54	5.01	9.09	9.66
Maximum water holding capacity (%)	35.0	31.7	47.8	56.7
Microbial biomass (µg C g ⁻¹ soil)	231	51	482	174

^a % organic carbon = % organic matter/1.724

B. STUDY DESIGN

1. Experimental conditions

Portions of sieved soils (50 g dry soil equivalent) were adjusted to 50% of their respective maximum water holding capacities. Solutions of the radiolabeled test substance in acetonitrile:water (1:3, v:v) were prepared, and applied to soil samples (0.101 µg/g) in separate 1000 mL glass bottles. The volume of organic solvent added to each soil was 00.48% v/w soil dry weight. The soils were not mixed. The soils were connected to a flow through system with trapping solutions. Water lost to evaporation was replaced and soils were incubated in the dark at 20 ± 1°C under aerobic conditions for up to 120 days in closed systems to trap evolved carbon dioxide and volatile organic compounds.

Soil samples were taken and analysed for IN J0290. Additional samples were prepared and incubated for determination of biomass.

2. Sampling

Microbial biomass was determined at zero time and Day 120 (the last sampling point). Speyer 2.2 soil samples were taken for analysis at zero time and 3, 7, 14, 30, 45, and 62 days after application. Sampling was stopped earlier for the Speyer 2.2 soil since >97% of test material had degraded at Day 62. The other soils were analyzed at zero time and 3, 7, 14, 30, 45, 62, 90, and 120 days after application.

3. Description of analytical procedures

Sodium hydroxide solutions used to trap volatile components were replaced and analysed after 3, 7, 14, 22, 30, 45, 62, 76, 90, 106, and 120 days.

Soil samples were typically extracted three times with acetone: ammonium carbonate (1:9 v/v), centrifuged and combined. Zero time samples were extracted 3 times with acetone while Day 90 and 120 samples were extracted a fourth time with acetone/0.1 M ammonium carbonate (1:9 v/v). The pooled extracts were analysed in triplicate for total radioactivity by LSC analysis. Samples were concentrated under a stream of nitrogen to a volume of 5 mL, and analysed using reverse phase HPLC (Zorbax Rx[®]-C8, 25 cm × 4.6 mm) eluted with a gradient of acetonitrile and water containing 0.1 M ammonium formate. The effluent was passed through a UV detector (254 nm) to detect reference standards and a radioactivity detector to determine the quantities of radiolabeled test substance. The limit of detection (LOD) for IN J0290 was 0.003 µg a.s./g soil. The limit of quantification (LOQ, defined as 3 x LOD) for IN J0290 was 0.009 µg a.s./g soil.

Soil samples were combusted and unextracted ¹⁴C levels were measured using LSC.

II. RESULTS AND DISCUSSION

A. DATA

Table A 155 Distribution of radiolabeled components in aerobic soils after application of ¹⁴C IN J0290 (% applied radioactivity)

Soil and temperature	Sampling time (days)	IN-J0290	¹⁴ CO ₂	Organic volatiles	Others	Bound residue ^a	Total
Nambshheim mean of replicates 1 & 2 (20°C)	0	92.9	^b	^b	7.3	1.4	101.5
	3	68.2	0.37	ND	17.3	8.7	94.6
	7	60.9	12.72	0.26	10.4	10.0	94.3
	14	39.3	25.04	0.26	9.6	27.0	101.1
	30	25.2	38.64	0.26	5.3	33.1	102.9
	45	19.9	43.11	0.04	4.6	22.4	90.5
	62	17.0	47.46	0.04	4.3	23.3	92.0
	90	11.1	50.79	0.04	4.5	22.5	88.9
120	7.6	53.43	0.04	4.0	22.6	87.6	
Pavia mean of replicates 1 & 2 (20°C)	0	96.4	^b	^b	3.8	4.9	103.2
	3	78.4	0.94	ND	8.4	9.0	96.6
	7	60.3	3.66	ND	7.8	22.7	94.4
	14	39.6	6.82	0.48	15.9	31.3	94.0
	30	24.7	15.24	0.48	14.0	39.6	93.9
	45	19.0	25.21	ND	12.2	34.2	90.6
	62	18.8	26.78	ND	10.8	35.1	91.4
	90	18.2	28.50	ND	11.4	34.6	92.7
120	16.3	29.78	ND	10.0	34.6	90.5	
Speyer 2.2 mean of replicates 1 & 2 (20°C)	0	94.8	^b	^b	5.1	1.9	102.0
	3	46.2	15.41	ND	11.8	35.5	108.9
	7	19.5	34.78	ND	12.9	36.0	103.1
	14	7.5	49.80	0.22	4.8	45.2	107.5
	30	2.7	55.46	0.22	4.4	27.2	90.0
	45	3.1	57.07	0.22	3.0	31.4	95.1
	62	2.2	60.8	0.52	4.0	31.9	99.4
	90	NA	NA	NA	NA	NA	NA
120	NA	NA	NA	NA	NA	NA	
Vercelli	0	94.8	^b	^b	1.8	3.6	100.2

mean of replicates 1 & 2 (20°C)	3	64.9	3.67	ND	7.0	24.7	100.3
	7	48.6	8.44	0.14	9.2	30.8	97.1
	14	32.3	16.01	0.14	8.0	33.9	90.4
	30	17.7	21.10	0.14	3.7	51.6	94.0
	45	18.5	23.08	ND	6.1	49.2	96.7
	62	17.9	24.51	ND	5.4	52.3	100.0
	90	13.4	26.09	ND	5.9	53.8	99.2
	120	10.1	27.19	ND	4.1	53.8	95.1

a — Unextractable residue in soil

b — No sample

NA — No samples were taken beyond 62 days

ND — <LOD (2 x background) in trapping solution

C. MASS BALANCE

Material balance for the [¹⁴C] IN J0290 ranged from 90 to 103%.

D. BOUND AND EXTRACTABLE RESIDUES

The percentage of radioactivity in the extractable fraction decreased from Day 0 to Day 120 for all three soils. The level of bound residue increased steadily throughout the course of the study in all three soils. Extractability values ranged from 100.2% AR (Day 0) to 11.5% AR (Day 120) for Nambsheim soil, 98.3% AR (Day 0) to 26.1% AR (Day 120) for Pavia soil, 100.1% AR (Day 0) to 6.2% AR (Day 62) for Speyer 2.2 soil and 96.6% AR (Day 0) to 14.1% AR (Day 120) for Vercelli soil.

Bound residue values ranged from 1.4% AR (Day 0) to 22.6% AR (Day 120) for Nambsheim soil, 4.9% AR (Day 0) to 34.6% AR (Day 120) for Pavia soil, 1.9% AR (Day 0) to 31.9% AR (Day 62) for Speyer 2.2 soil, and from 3.6% AR (Day 0) to 53.8% AR (Day 120) for Vercelli soil.

E. VOLATILE COMPONENTS

Volatile radioactivity identified as ¹⁴CO₂ represented 27.2/61.3% of applied radioactivity. A small amount of organic volatiles was observed. The ultimate degradation product was carbon dioxide, showing that the compound was available for mineralisation by microorganisms.

F. TRANSFORMATION OF PARENT COMPOUND

Levels of IN J0290 in the soil declined continuously over a period of 120 days incubation. The DT₅₀ and DT₉₀ values for IN J0290 ranged from 3–11 and 10–158 days, respectively as shown in Table A-156.

The degradation of IN J0290 was fitted to a simple first order (SFO) and first order multi-compartment (FOMC) models as shown in Table A-156 in order to derive a DT₅₀ and DT₉₀.

The kinetic calculation was performed using the following equations:

$$M_p = M_0 * \exp(-k_p * t)$$

where: ———— M_p = % AR of parent at time t

————— M_0 = % AR of parent at time 0

————— k_p = first order rate constant, day⁻¹

————— t = time after application, days.

The DT₅₀ and DT₉₀ values for the SFO fit are obtained using the Equations above.

$$DT_{50} = \ln 2 / k_p$$

$$DT_{90} = \ln 10 / k_p$$

The equation used for the FOMC is the following:

$$M_p(t) = M_0 \left(\frac{t}{\beta} + 1 \right)^{-\alpha}$$

where: α = dimensionless scaling parameter

β = scaling parameter in units of the rate constant

The DT_{50} and DT_{90} values for the FOMC fit are given below:

$$DT_{50} = \beta \left(2^{\frac{1}{\alpha}} - 1 \right)$$

$$DT_{90} = \beta \left(10^{\frac{1}{\alpha}} - 1 \right)$$

Table A 156 — Degradation rate constant calculations

Soil	Number of data points	Incubation conditions	DT_{50} (days)	DT_{90} (days)	r^2	Method of calculation
Nambsheim	9	20°C	11.2	116	0.936	FOMC
Pavia	9	20°C	10.6	158	0.880	FOMC
Speyer 2.2	7	20°C	3.1	10	0.995	SEQ
Vercelli	9	20°C	6.9	127	0.864	FOMC
Geometric mean		20°C	7.1	69.5	-	-

III. CONCLUSIONS

IN J0290 degraded at 20°C in all test soils with DT_{50} values ranging from 3 to 11 days with a geometric mean of 7.1 days and DT_{90} values ranging from 10 to 158 days with a geometric mean of 69.5 days.

The relative rate of degradation of IN J0290 by the four soils was related to organic matter content and microbial activity of the soils. The Speyer 2.2 soil had the highest organic matter content and microbial activity of all the soils and the dissipation of IN J0290 was fastest in this soil.

The ultimate degradation product was carbon dioxide, showing that the compound was available for mineralisation by microorganisms.

(Shaw, D., 2002)

A 4.2 DuPont-5264

Report: Aikens, P.J. (2001); Adsorption/desorption of [¹⁴C]IN-J0290 in five soils

DuPont Report No.: DuPont-5264

Guidelines: OECD 106 (2000) **Deviations:** None

Testing Facility: Huntingdon Life Sciences Ltd, Huntingdon, Cambridge, England, UK

GLP: Yes

Certifying Authority: Department of Health (UK)

Executive summary:

The adsorption/desorption characteristics of IN J0290 were studied in five soils from Germany, Italy, USA, and France (pH range of 5.2 to 7.8, OC range of 0.5 to 3.1%) in a batch equilibrium experiment. The adsorption phase of the study was carried out by equilibrating air-dried/fresh soil with solutions of

IN J0290 in 0.01 M CaCl₂ at 10, 50, 100, 500, and 1000 µg a.s./kg soil in dark at 20–22°C for 24 hr by shaking on a reciprocating shaker. The soil/solution ratio was 1:2. A desorption was carried out by adding a volume of 0.01 M CaCl₂ (equal to what was removed after centrifugation and decantation) and agitated for 24 hours in the same conditions as for the adsorption phase. Samples were centrifuged and the process was repeated once. The mass balance at the end of adsorption phase of the study ranged from 99.5 to 101.7% of the applied radioactivity while the mass balance at the end of desorption phase ranged from 97.0 to 100.6%.

The Freundlich sorption constants ranged from 0.86 to 45.30 mL/g, averaging 10.40 mL/g. The adsorption K_{F,oe} values ranged from 58 to 1460 mL/g averaging 458 mL/g. The linear adsorption K_d values ranged from 1.71 to 212. mL/g, averaging 45.03 mL/g. The adsorption K_{oc} values ranged from 96 to 6849 mL/g, averaging 1707 mL/g. At the end of the desorption phase, between 21 and 47% of the adsorbed amount was desorbed. The apparent desorption K_d values ranged from 2.3 to 75 mL/g, averaging 18.85 mL/g.

Adsorption constants were not correlated with either soil organic matter, or with soil pH. K_{oc} values indicated relatively low potential for mobility in soil.

I. MATERIALS AND METHODS

A. MATERIALS

1. Radiolabeled test material: [Pyrimidine-2-¹⁴C]IN J0290 radiolabeled technical metabolite
 Lot/Batch #: 0318
 Radiochemical purity: >95%
 Specific activity: 141.8 µCi/mg (314800 dpm/µg)
 Description: White powder
 Stability of test compound: Shown to be stable under the conditions of the test

2. Soils:

The study was conducted with five different soil types (four European and one from the U.S.). These soils were collected from the top 0–15 cm layer in fields that had not been treated with a similar class of pesticide for at least three years. Air-dried soils were stored at ambient temperatures prior to experimentation. A summary of the physical and chemical properties of the soils is provided in Table A 157.

Table A 157 Characteristics of test soils

Property	Speyer 2.2	Pavia	Drummer	Nambsheim	Vercelli
Origin	Germany	Italy	USA	France	Italy
Soil texture ^a	Loamy sand	Loamy sand	Silt loam	Sandy loam	Silt loam
% Sand (2000–50 µm)	69.2	78.4	16.8	57.2	20.4
% Silt (<50–2 µm)	24.8	14.8	54.4	32.8	62.8
% Clay (<2 µm)	6.0	6.8	28.8	10.0	16.8
pH (in water)	6.4	5.2	5.5	7.8	5.8
Organic carbon (%)	2.1	0.5	3.1	0.7	1.2
CEC (meq/100 g)	10.67	2.59	34.05	6.48	8.45
Moisture at 1/3 atm (%)	—	—	—	—	—
Bulk density (g/cm ³)	—	—	—	—	—

^a—USDA soil classification system

B. STUDY DESIGN

1. Experimental conditions

Stock solutions of [pyrimidine-2-¹⁴C]IN J0290 in acetonitrile were prepared and aliquots were added to portions of 0.01 M CaCl₂ solution to give a concentration range of 0.2, 1, 2, 10 and 20 µg/mL, while ensuring that the concentration of acetonitrile in aqueous solution did not exceed 0.1% by volume. The appropriate solution to soil ratio was determined in preliminary testing at 2:1 (40–70% adsorption) for four of the soils and 20:1 (80% adsorption) for Drummer soil. Test soil (10 g dry weight) was shaken on a reciprocating shaker in darkness at 20–22 °C with 0.01 M aqueous CaCl₂ solution (approximately 19 mL) for an approximately 18-hour pre-equilibration period. After pre-equilibration, the soil slurries were treated with 1 mL of their respective application solutions to achieve nominal concentrations of the test substance of 0.01, 0.05, 0.1, 0.5, and 1 µg/mL. Control experiments were also performed using the same procedure but without the addition of soil to assess potential adsorption to glass test vessels. Following centrifugation (2500 rpm for 20 minutes), the supernatant was decanted and duplicate aliquots were prepared for radioassay.

Following the adsorption phase, fresh 0.01 M aqueous CaCl₂ (equal to what was removed) was added to each test vessel, equilibrated for 24 hours at 20–22 °C. The solutions and soils were then separated, quantified, and subjected to an additional desorption phase. Soil extracts from the highest concentration tested were further extracted using the following multi-step procedure: 1) extract with acetonitrile by shaking for 15 minutes on an orbital shaker; 2) extract twice as in step 1 above with acetonitrile: water (4:1, v/v) and 3) extract with acetonitrile: water (1:1, v/v) by sonicating for 15 minutes followed by shaking for 20 minutes on an orbital shaker. The extracts were used to assess the degree of degradation of IN J0290 during equilibration. Results were corrected for the slight degradation observed.

2. Description of analytical procedures

Radioactivity was determined by LSC, and both aqueous supernatants and soil extracts obtained after equilibration were analysed by normal phase TLC to determine the stability of IN J0290 in solution and in soil extracts.

H. RESULTS AND DISCUSSION

A. MASS BALANCE

Recovery of radioactivity in aqueous supernatant and soil extracts on completion of adsorption ranged from 99.5 to 101.7% of the applied radioactivity. Unextractable soil residues were measured by combustion and LSC. Recoveries following desorption ranged from 97.0 to 100.6%.

B. TRANSFORMATION OF PARENT COMPOUND

During the 24-hour equilibration period, no significant degradation was seen. The proportion of IN J0290 (as a % of sample radioactivity) was in the range of 82.8–96.2% for both supernatants and soil extracts.

C. FINDINGS

Adsorption isotherm data were analysed using the log form of the Freundlich equation: $\log x/m = 1/n \times \log C_e + \log K_f$, and Linear distribution coefficients (K_d) were calculated from the mean ratios of x/m to C_e (Table A 158).

Table A 158 Sorption constants of IN-J0290 in soils

Soil	% OC	pH	K_d (mL/g)	K_{oc} (mL/g)	K_F (mL/g)	K_{Foc} (mL/g)	1/n	r ²
Speyer 2.2	2.1	6.4	2.01	96	1.22	58.1	0.85	1.000
Pavia	0.5	5.2	4.76	952	2.26	452	0.81	1.000
Drummer	3.1	5.5	212.00	6849	45.30	1460	0.71	0.990
Nambsheim	0.7	7.8	1.71	245	0.86	123	0.79	1.000
Vercelli	1.2	5.8	4.69	391	2.35	196	0.82	1.000
Average	-	-	45.03	1707	10.40	458	0.80	1.000

The Freundlich adsorption plots obtained showed good linearity, with slopes generally close to unity indicating both adsorption and desorption was linearly proportional to soil concentration over the range tested. The Freundlich adsorption constants ranged from 0.86 to 45.3, averaging 10.40 mL/g for the five test soils, showing that IN J0290 was moderately bound. The linear adsorption K_d values ranged from 1.71 to 212 mL/g, with a mean value of 45 mL/g. The adsorption K_{oc} values ranged from 96 to 6849 mL/g, averaging 1707 mL/g. At the end of the desorption phase, between 21 and 47% of the adsorbed amount was desorbed. The apparent desorption K_d values ranged from 2.29 and 77.02 mL/g, averaging 18.85 mL/g. The % adsorbed and desorbed IN J0290 at each concentration is provided in Table A 159 and Table A 160, respectively.

Table A 159 Concentration of IN J0290 in the solid and liquid phases at the end of adsorption equilibration period

Concentration on soil ($\mu\text{g a.s./mL}$)	Speyer 2.2 Soil			Pavia Soil			Drummer Soil		
	On soil ^a ($\mu\text{g a.s./g}$)	In solution ($\mu\text{g a.s./mL}$)	% Adsorbed ^b	On soil ^a ($\mu\text{g a.s./g}$)	in solution ($\mu\text{g a.s./mL}$)	% Adsorbed ^b	On soil ^a ($\mu\text{g a.s./g}$)	in solution ($\mu\text{g a.s./mL}$)	% adsorbed ^b
1.0	0.6897	0.50625	34.49	1.012	0.3685	50.60	12.985	0.1958	64.93
0.5	0.34685	0.2277	34.69	0.4962	0.1642	49.62	6.612	0.0674	66.12
0.1	0.07335	0.0374	36.68	0.1082	0.0221	54.08	1.341	0.0061	67.03
0.05	0.0403	0.0159	40.30	0.0560	0.0091	56.00	0.6685	0.0022	66.85
0.01	0.0094	0.00355	47.00	0.0133	0.0019	66.25	0.1552	0.00045	77.58

a— Amount on soil residue was measured by soil residue analysis. Actual concentrations of IN J0290 in the aqueous solutions and soil extracts were calculated accounting for the proportion of the total radioactivity representing IN J0290 as described by TLC analysis.

b— % adsorbed as the % of the applied.

Table A 159 Concentration of IN-J0290 in the solid and liquid phases at the end of adsorption equilibration period (continued)

Concentration on soil (µg a.s./mL)	Nambsheim soil			Vercelli soil		
	On soil ^a (µg a.s./g)	In solution (µg a.s./mL)	% Adsorbed ^b	On soil ^a (µg a.s./g)	In solution (µg a.s./mL)	% Adsorbed ^b
1.0	0.5371	0.5979	26.86	1.0270	0.3519	51.35
0.5	0.2977	0.2585	29.77	0.4980	0.1586	49.80
0.1	0.0711	0.0394	35.53	0.1057	0.0222	52.85
0.05	0.0378	0.0176	37.75	0.0536	0.0096	53.55
0.01	0.0094	0.0037	46.75	0.0131	0.0018	65.25

a— Amount on soil residue was measured by soil residue analysis. Actual concentrations of IN-J0290 in the aqueous solutions and soil extracts were calculated accounting for the proportion of the total radioactivity representing IN-J0290 as described by TLC analysis.

b— % adsorbed as the % of the applied.

Table A 160 Desorption of IN-J0290 at nominal concentration of 1.0 µg/mL

Soil-Rep	% Desorbed (1 st desorption)	% Desorbed (2 nd desorption)	% Desorbed (Total)	K _{des} ^a
Speyer 2.2 soil-1	18	10	28	5.15
Speyer 2.2 soil-2	17	9	26	5.63
Average	18	10	28	5.39
Pavia soil-1	17	12	29	5.09
Pavia soil-2	15	11	26	5.60
Average	16	12	28	5.34
Drummer soil-1	12	8	29	77.93
Drummer soil-2	13	9	26	72.10
Average	13	9	28	75.02
Nambsheim soil-1	30	16	46	2.42
Nambsheim soil-2	33	15	48	2.15
Average	32	16	47	2.29
Vercelli soil-1	15	10	25	6.18
Vercelli soil-2	14	10	24	6.25
Average	15	10	25	6.21
Average of all soils	18	11	30	18.85

a— Apparent desorption coefficient

III. CONCLUSION

The adsorption constants did not appear to correlate with either the organic carbon content or pH of the soils tested. K_{oc} values ranged from 96 to 6849 mL/g, averaging 1707 mL/g. The results suggest that IN-J0290 is potentially not very mobile in soil.

(Aikens, P.J., 2001)