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| REGISTRATION REPORT  Part B  Section 8  Environmental Fate  Detailed summary of the risk assessment |
| Product code: CA3642  Product name(s): Joust Pro  Chemical active substance(s):  Prothioconazole, 150 g/L  Azoxystrobin, 150 g/L |
| Central Zone  Zonal Rapporteur Member State: Poland |
| CORE ASSESSMENT  New Authorisation (Art.33) |
| Sponsor: Nufarm Crop Products UK Limited  Applicant: Nufarm Polska Sp. z o. o.  Submission date: 01/02/2023, update August 2023  MS Finalisation date: August 2023 (initial Core Assessment)  October 2024, December 2024 (final Core Assessment) |

Version history

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| --- | --- |
| When | What |
| February 2023 | Original applicant version |
| August 2023 | V 2.0 Addition of PEC values (soil, groundwater and surface water) for Sunflower in response to comments from ZRMS (Poland). Some metabolite PECsoil values were changed due to errors in previous calculations. |
| August 2023 | 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.  Following the evaluation and before sending the document for commenting, all colored highlighting was removed, from the parts updated by the Applicant, for better legibility. |
| October 2024 | Final report (Core Assessment updated following the commenting period)  Additional information/assessments included by the zRMS in the report in response to comments received from the cMS and the Applicant are highlighted in yellow. Information no longer relevant is ~~struck through~~ and shaded for transparency. |
| December 2024 | Final report (Core Assessment updated following the second commenting period)  Additional information/assessments included by the zRMS in the report in response to comments received from the cMS and the Applicant are highlighted in yellow. Not agreed or not relevant information are ~~struck through~~ and shaded for transparency. |

Table of Contents

[8 Fate and behaviour in the environment (KCP 9) 4](#_Toc144470939)

[8.1 Critical GAP and overall conclusions 5](#_Toc144470940)

[8.2 Metabolites considered in the assessment 66](#_Toc144470941)

[8.3 Rate of degradation in soil (KCP 9.1.1) 67](#_Toc144470942)

[8.3.1 Aerobic degradation in soil (KCP 9.1.1.1) 67](#_Toc144470943)

[8.3.1.1 Prothioconazole and its metabolites 67](#_Toc144470944)

[8.3.1.2 Azoxystrobin and its metabolites 69](#_Toc144470945)

[8.3.2 Anaerobic degradation in soil (KCP 9.1.1.1) 71](#_Toc144470946)

[8.4 Field studies (KCP 9.1.1.2) 71](#_Toc144470947)

[8.4.1 Soil dissipation testing on a range of representative soils (KCP 9.1.1.2.1) 71](#_Toc144470948)

[8.4.1.1 Prothioconazole and its metabolites 71](#_Toc144470949)

[8.4.1.2 Azoxystrobin and its metabolites 72](#_Toc144470950)

[8.4.2 Soil accumulation testing (KCP 9.1.1.2.2) 74](#_Toc144470951)

[8.5 Mobility in soil (KCP 9.1.2) 74](#_Toc144470952)

[8.5.1 Prothioconazole and its metabolites 74](#_Toc144470953)

[8.5.2 Azoxystrobin and its metabolites 75](#_Toc144470954)

[8.5.3 Column leaching (KCP 9.1.2.1) 78](#_Toc144470955)

[8.5.4 Lysimeter studies (KCP 9.1.2.2) 78](#_Toc144470956)

[8.5.5 Field leaching studies (KCP 9.1.2.3) 78](#_Toc144470957)

[8.6 Degradation in the water/sediment systems (KCP 9.2, KCP 9.2.1, KCP 9.2.2, KCP 9.2.3) 78](#_Toc144470958)

[8.6.1 Prothioconazole and its metabolites 78](#_Toc144470959)

[8.6.2 Azoxystrobin and its metabolites 79](#_Toc144470960)

[8.7 Predicted Environmental Concentrations in soil (PECsoil) (KCP 9.1.3) 80](#_Toc144470961)

[8.7.1 Justification for new endpoints 80](#_Toc144470962)

[8.7.2 Active substance(s) and relevant metabolite(s) 80](#_Toc144470963)

[8.7.2.1 Prothioconazole and its metabolites 81](#_Toc144470964)

[8.7.2.2 Azoxystrobin and its metabolites 85](#_Toc144470965)

[8.7.2.3 PECsoil of formulation 89](#_Toc144470966)

[8.8 Predicted Environmental Concentrations in groundwater (PECgw) (KCP 9.2.4) 90](#_Toc144470967)

[8.8.1 Justification for new endpoints 90](#_Toc144470968)

[8.8.2 Active substance(s) and relevant metabolite(s) (KCP 9.2.4.1) 91](#_Toc144470969)

[8.8.2.1 Prothioconazole and its metabolites 96](#_Toc144470970)

[8.8.2.2 Azoxystrobin and its metabolites 99](#_Toc144470971)

[8.9 Predicted Environmental Concentrations in surface water (PECsw) (KCP 9.2.5) 104](#_Toc144470972)

[8.9.1 Justification for new endpoints 104](#_Toc144470973)

[8.9.2 Active substance(s), relevant metabolite(s) and the formulation (KCP 9.2.5) 105](#_Toc144470974)

[8.9.2.1 Prothioconazole and its metabolites 113](#_Toc144470975)

[8.9.2.2 Azoxystrobin and its metabolites 125](#_Toc144470976)

[8.9.2.3 PECsw/sed of formulated product 133](#_Toc144470977)

[8.9.2.4 Relevant scenarios for PECsw assessment 133](#_Toc144470978)

[8.10 Fate and behaviour in air (KCP 9.3, KCP 9.3.1) 138](#_Toc144470979)

[8.10.1 Prothioconazole and its metabolites 138](#_Toc144470980)

[8.10.2 Azoxystrobin and its metabolites 138](#_Toc144470981)

[Appendix 1 Lists of data considered in support of the evaluation 140](#_Toc144470982)

# Fate and behaviour in the environment (KCP 9)

This document reviews the environmental fate and behaviour studies for the new product CA3642, an SC formulation containing prothioconazole (150 g/L) and azoxystrobin (150 g/L) in the Central zone (Article 33 application). Prothioconazole was approved at EU level in Commission Directive 2008/44/EC of 4 April 2008, and azoxystrobin was approved in Commission Implementing Regulation (EU) No 703/2011 of 20 July 2011. Prothioconazole and azoxystrobin are currently undergoing renewal at EU level.

CA3642 is a fungicide, intended for use on winter and spring varieties of cereals and oilseed rape. In addition, uses on minor crops (sunflower, flax, linseed, poppy, mustard and gold of pleasure) are included in the proposed GAP. Environmental exposures from these minor crop uses are covered by the proposed major crop uses on oilseed rape.

CA3642 was not the example product for the EU review of the active substances prothioconazole and azoxystrobin, and the uses in the GAP are not completely covered by the evaluations performed in the EU review. New exposure assessments were therefore required.

Where appropriate, this document refers to the conclusions of the EU reviews of prothioconazole and azoxystrobin. 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.

For the environment this includes consideration of the following as specified in the Commission Directive 2008/44/EC for prothioconazole:

* *The protection of aquatic organisms. Risk mitigation measures such as buffer zones shall be applied, where appropriate*

For the environment this includes consideration of the following as specified in the Commission Implementing Regulation (EU) No 703/2011 for azoxystrobin:

* *the potential for groundwater contamination, when the active substance is applied in regions with vulnerable soil and/or climatic conditions;*
* *the protection of aquatic organisms.*

These concerns have been addressed within the current submission.

Note: this Part B document only reviews data (active substance or product) and additional information that have not previously been considered within the EU review process, as part of the EU review of prothioconazole and azoxystrobin. However, it is intended that this product registration is evaluated prior to the EU renewal of the active substances; existing EU-agreed endpoints therefore apply, unless further justification has been provided.

For the implementation of the uniform principles of Annex VI, this document follows the conclusions of the review report on prothioconazole (SANCO/3923/07 - final), the EFSA Conclusion on the peer review of the pesticide risk assessment of the active substance prothioconazole (EFSA Scientific Report (2007) 106, 1-98), the EFSA Conclusion on the peer review of the pesticide risk assessment of the active substance azoxystrobin (EFSA Journal 2010; 8(4):1542), EFSA supporting publication 2014:EN-718 on the confirmatory data for azoxystrobin, and the associated DAR documents.

Appendix 1 of this document contains the list of references included in this document for support of the evaluation.

Appendix 2 of this document details any new studies submitted for this evaluation.

Information on the detailed composition of CA3642 can be found in the confidential dossier of this submission (Registration Report - Part C).

## Critical GAP and overall conclusions

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

| **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Use-No. \*** | **Member state(s)** | **Crop and/or situation**  **(crop destination / purpose of crop)** | **F, Fn, Fpn G, Gn, Gpn or I \*\*** | **Pests or Group of pests controlled**  **(additionally: developmental stages of the pest or pest group)** | **Application** | | | | **Application rate** | | | **PHI**  **(days)** | **Remarks:**  **e.g. g saf­ener/ syner­gist per ha** | **Conclusion** |
| **Method / Kind** | **Timing / Growth stage of crop & season** | **Max. number**  **a) per use**  **b) per crop/ season** | **Min. interval between applications (days)** | **kg or L product/ha**  **a) max. rate per appl.**  **b) max. total rate per crop/season** | **g or kg as/ha**  **a) max. rate per appl.**  **b) max. total rate per crop/season** | **Water L/ha**  **min/max** | **Groundwater** |
| Zonal uses (field or outdoor uses, certain types of protected crops) | | | | | | | | | | | | | | |
| 1. | AT | Wheat (winter & spring)  Spelt  Einkorn wheat  Emmer Wheat  Tritordeum | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Glume blotch  *Stagonospora nodorum* (LEPTNO)  Brown Rust  *Puccinia recondita*  *Puccinia tritici* (PUCCRT)  Yellow Rust  *Puccinia striiformis* (PUCCST)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)*  Tan Spot  *Pyrenophora tritici-repentis* (PYRNTR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 2. | BE | Wheat (winter & spring)  Spelt  Einkorn wheat  Emmer Wheat  Tritordeum | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Glume blotch  *Stagonospora nodorum* (LEPTNO)  Brown Rust  *Puccinia recondita*  *Puccinia tritici* (PUCCRT)  Yellow Rust  *Puccinia striiformis* (PUCCST)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)*  Tan Spot  *Pyrenophora tritici-repentis* (PYRNTR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 3 | CZ | Wheat (winter & spring)  Spelt  Einkorn wheat  Emmer Wheat  Tritordeum | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Glume blotch  *Stagonospora nodorum* (LEPTNO)  Brown Rust  *Puccinia recondita*  *Puccinia tritici* (PUCCRT)  Yellow Rust  *Puccinia striiformis* (PUCCST)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)*  Tan Spot  *Pyrenophora tritici-repentis* (PYRNTR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 4 | DE | Wheat (winter & spring) (within the group of wheat included: spelt, einkorn wheat, emmer wheat, durum wheat)  Tritordeum | F | Septoria leaf spot  *Zymoseptoria tritici* (SEPTTR)  Glume blotch  *Septoria nodorum* (LEPTNO)  Brown Rust  *Puccinia recondite f. sp. tritici* (PUCCRT)  Yellow Rust  *Puccinia striiformis* (PUCCST)  Powdery mildew  *Erysiphe graminis* (ERYSGR)  Tan Spot  *Drechslera tritici-repentis* (PYRNTR)  Head blight of cereals  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.4  b) 2.8 | a) 420  (210+210)  b) 840  (420+420) | 150-400 | 35 |  | A |
| 5. | DE | Wheat (winter & spring) (within the group of wheat included: spelt, einkorn wheat, emmer wheat, durum wheat)  Tritordeum | F | Fusarium ear blight  *Fusarium spp.* (FUSASP) | foliar spray | BBCH 61 – 69  (spring) | a) 1  b) 2 | N/A | a) 1.4  b) 2.8 | a) 420  (210+210)  b) 840  (420+420) | 150-400 | 35 |  | A |
| 6. | DE | Wheat (winter & spring) (within the group of wheat included: spelt, einkorn wheat, emmer wheat, durum wheat)  Tritordeum | F | *Pseudocercosporella herpotrichoides* (PSDCHE) | foliar spray | BBCH 30 – 32  (spring) | a) 1  b) 2 | N/A | a) 1.4  b) 2.8 | a) 420  (210+210)  b) 840  (420+420) | 150-400 | 35 |  | A |
| 7. | HU | Wheat (winter & spring)  Spelt  Einkorn wheat  Emmer Wheat  Tritordeum | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Glume blotch  *Stagonospora nodorum* (LEPTNO)  Brown Rust  *Puccinia recondita*  *Puccinia tritici* (PUCCRT)  Yellow Rust  *Puccinia striiformis* (PUCCST)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)*  Tan Spot  *Pyrenophora tritici-repentis* (PYRNTR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 8. | IE | Wheat (winter & spring)  Spelt  Einkorn wheat  Emmer Wheat  Tritordeum | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Glume blotch  *Stagonospora nodorum* (LEPTNO)  Brown Rust  *Puccinia recondita*  *Puccinia tritici* (PUCCRT)  Yellow Rust  *Puccinia striiformis* (PUCCST)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)*  Tan Spot  *Pyrenophora tritici-repentis* (PYRNTR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 9. | LU | Wheat (winter & spring)  Spelt  Einkorn wheat  Emmer Wheat  Tritordeum | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Glume blotch  *Stagonospora nodorum* (LEPTNO)  Brown Rust  *Puccinia recondita*  *Puccinia tritici* (PUCCRT)  Yellow Rust  *Puccinia striiformis* (PUCCST)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)*  Tan Spot  *Pyrenophora tritici-repentis* (PYRNTR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 10. | NL | Wheat (winter & spring)  Spelt  Einkorn wheat  Emmer Wheat  Tritordeum | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Glume blotch  *Stagonospora nodorum* (LEPTNO)  Brown Rust  *Puccinia recondita*  *Puccinia tritici* (PUCCRT)  Yellow Rust  *Puccinia striiformis* (PUCCST)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)*  Tan Spot  *Pyrenophora tritici-repentis* (PYRNTR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 11. | NI | Wheat (winter & spring)  Spelt  Einkorn wheat  Emmer Wheat  Tritordeum | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Glume blotch  *Stagonospora nodorum* (LEPTNO)  Brown Rust  *Puccinia recondita*  *Puccinia tritici* (PUCCRT)  Yellow Rust  *Puccinia striiformis* (PUCCST)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)*  Tan Spot  *Pyrenophora tritici-repentis* (PYRNTR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 12. | PL | Wheat (winter & spring)  Spelt  Einkorn wheat  Emmer Wheat  Tritordeum | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Glume blotch  *Stagonospora nodorum* (LEPTNO)  Brown Rust  *Puccinia recondita*  *Puccinia tritici* (PUCCRT)  Yellow Rust  *Puccinia striiformis* (PUCCST)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)*  Tan Spot  *Pyrenophora tritici-repentis* (PYRNTR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 13. | RO | Wheat (winter & spring)  Spelt  Einkorn wheat  Emmer Wheat  Tritordeum | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Glume blotch  *Stagonospora nodorum* (LEPTNO)  Brown Rust  *Puccinia recondita*  *Puccinia tritici* (PUCCRT)  Yellow Rust  *Puccinia striiformis* (PUCCST)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)*  Tan Spot  *Pyrenophora tritici-repentis* (PYRNTR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 14. | SK | Wheat (winter & spring)  Spelt  Einkorn wheat  Emmer Wheat  Tritordeum | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Glume blotch  *Stagonospora nodorum* (LEPTNO)  Brown Rust  *Puccinia recondita*  *Puccinia tritici* (PUCCRT)  Yellow Rust  *Puccinia striiformis* (PUCCST)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)*  Tan Spot  *Pyrenophora tritici-repentis* (PYRNTR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 15. | AT | Durum Wheat | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Brown Rust  *Puccinia recondita*  *Puccinia tritici* (PUCCRT)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 16. | BE | Durum Wheat | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Brown Rust  *Puccinia recondita*  *Puccinia tritici* (PUCCRT)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 17. | CZ | Durum Wheat | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Brown Rust  *Puccinia recondita*  *Puccinia tritici* (PUCCRT)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 18. | HU | Durum Wheat | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Brown Rust  *Puccinia recondita*  *Puccinia tritici* (PUCCRT)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 19. | IE | Durum Wheat | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Brown Rust  *Puccinia recondita*  *Puccinia tritici* (PUCCRT)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 20. | LU | Durum Wheat | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Brown Rust  *Puccinia recondita*  *Puccinia tritici* (PUCCRT)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 21. | NL | Durum Wheat | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Brown Rust  *Puccinia recondita*  *Puccinia tritici* (PUCCRT)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 22. | NI | Durum Wheat | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Brown Rust  *Puccinia recondita*  *Puccinia tritici* (PUCCRT)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 23. | PL | Durum Wheat | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Brown Rust  *Puccinia recondita*  *Puccinia tritici* (PUCCRT)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 24. | RO | Durum Wheat | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Brown Rust  *Puccinia recondita*  *Puccinia tritici* (PUCCRT)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 25. | SK | Durum Wheat | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Brown Rust  *Puccinia recondita*  *Puccinia tritici* (PUCCRT)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 26. | AT | Triticale  (winter & spring) | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Brown Rust  *Puccinia recondite*  *Puccinia tritici (PUCCRT)*  Leaf blotch  *Rhynchosporium secalis* (RHYNSE)  Yellow Rust  *Puccinia striiformis* (PUCCST)  Glume blotch  *Stagonospora nodorum* (LEPTNO)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 27. | BE | Triticale  (winter & spring) | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Brown Rust  *Puccinia recondite*  *Puccinia tritici (PUCCRT)*  Leaf blotch  *Rhynchosporium secalis* (RHYNSE)  Yellow Rust  *Puccinia striiformis* (PUCCST)  Glume blotch  *Stagonospora nodorum* (LEPTNO)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 28. | CZ | Triticale  (winter & spring) | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Brown Rust  *Puccinia recondite*  *Puccinia tritici (PUCCRT)*  Leaf blotch  *Rhynchosporium secalis* (RHYNSE)  Yellow Rust  *Puccinia striiformis* (PUCCST)  Glume blotch  *Stagonospora nodorum* (LEPTNO)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 29. | DE | Triticale  (winter & spring) | F | Septoria leaf spot  *Septoria tritici* (SEPTTR)  Brown Rust  *Puccinia recondite f. sp. tritici (PUCCRT)*  Leaf blotch  *Rhynchosporium secalis* (RHYNSE)  Yellow Rust  *Puccinia striiformis* (PUCCST)  Glume blotch  *Septoria nodorum* (LEPTNO)  Powdery mildew  *Erysiphe graminis* (ERYSGR)  Head blight of cereals | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.4  b) 2.8 | a) 420  (210+210)  b) 840  (420+420) | 150-400 | 35 |  | A |
| 30. | DE | Triticale  (winter & spring) | F | *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 61 – 69  (spring) | a) 1  b) 2 |  | a) 1.4  b) 2.8 | a) 420  (210+210)  b) 840  (420+420) | 150-400 | 35 |  | A |
| 31. | HU | Triticale  (winter & spring) | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Brown Rust  *Puccinia recondite*  *Puccinia tritici (PUCCRT)*  Leaf blotch  *Rhynchosporium secalis* (RHYNSE)  Yellow Rust  *Puccinia striiformis* (PUCCST)  Glume blotch  *Stagonospora nodorum* (LEPTNO)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 32. | IE | Triticale  (winter & spring) | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Brown Rust  *Puccinia recondite*  *Puccinia tritici (PUCCRT)*  Leaf blotch  *Rhynchosporium secalis* (RHYNSE)  Yellow Rust  *Puccinia striiformis* (PUCCST)  Glume blotch  *Stagonospora nodorum* (LEPTNO)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 33. | LU | Triticale  (winter & spring) | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Brown Rust  *Puccinia recondite*  *Puccinia tritici (PUCCRT)*  Leaf blotch  *Rhynchosporium secalis* (RHYNSE)  Yellow Rust  *Puccinia striiformis* (PUCCST)  Glume blotch  *Stagonospora nodorum* (LEPTNO)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 34. | NL | Triticale  (winter & spring) | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Brown Rust  *Puccinia recondite*  *Puccinia tritici (PUCCRT)*  Leaf blotch  *Rhynchosporium secalis* (RHYNSE)  Yellow Rust  *Puccinia striiformis* (PUCCST)  Glume blotch  *Stagonospora nodorum* (LEPTNO)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 35. | NI | Triticale  (winter & spring) | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Brown Rust  *Puccinia recondite*  *Puccinia tritici (PUCCRT)*  Leaf blotch  *Rhynchosporium secalis* (RHYNSE)  Yellow Rust  *Puccinia striiformis* (PUCCST)  Glume blotch  *Stagonospora nodorum* (LEPTNO)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 36. | PL | Triticale  (winter & spring) | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Brown Rust  *Puccinia recondite*  *Puccinia tritici (PUCCRT)*  Leaf blotch  *Rhynchosporium secalis* (RHYNSE)  Yellow Rust  *Puccinia striiformis* (PUCCST)  Glume blotch  *Stagonospora nodorum* (LEPTNO)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 37. | RO | Triticale  (winter & spring) | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Brown Rust  *Puccinia recondite*  *Puccinia tritici (PUCCRT)*  Leaf blotch  *Rhynchosporium secalis* (RHYNSE)  Yellow Rust  *Puccinia striiformis* (PUCCST)  Glume blotch  *Stagonospora nodorum* (LEPTNO)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 38. | SK | Triticale  (winter & spring) | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Brown Rust  *Puccinia recondite*  *Puccinia tritici (PUCCRT)*  Leaf blotch  *Rhynchosporium secalis* (RHYNSE)  Yellow Rust  *Puccinia striiformis* (PUCCST)  Glume blotch  *Stagonospora nodorum* (LEPTNO)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 39. | AT | Rye  (winter & spring) | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Leaf blotch  *Rhynchosporium secalis* (RHYNSE)  Crown Rust  *Puccinia recondita f. sp. recondite (PUCCRR)*  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)*  Powdery mildew  *Blumeria graminis* (ERYSGR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 40. | BE | Rye  (winter & spring) | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Leaf blotch  *Rhynchosporium secalis* (RHYNSE)  Crown Rust  *Puccinia recondita f. sp. recondite (PUCCRR)*  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)*  Powdery mildew  *Blumeria graminis* (ERYSGR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 41. | CZ | Rye  (winter & spring) | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Leaf blotch  *Rhynchosporium secalis* (RHYNSE)  Crown Rust  *Puccinia recondita f. sp. recondite (PUCCRR)*  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)*  Powdery mildew  *Blumeria graminis* (ERYSGR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 42. | DE | Rye  (winter & spring) | F | Septoria leaf spot  *Septoria tritici* (SEPTTR)  Leaf blotch  *Rhynchosporium secalis* (RHYNSE)  Crown Rust  *Puccinia recondita f. sp. recondite (PUCCRR)*  Powdery mildew  *Blumeria graminis* (ERYSGR)  Head blight of cereals | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.4  b) 2.8 | a) 420  (210+210)  b) 840  (420+420) | 150-400 | 35 |  | A |
| 43. | DE | Rye  (winter & spring) | F | *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.4  b) 2.8 | a) 420  (210+210)  b) 840  (420+420) | 150-400 | 35 |  | A |
| 44. | DE | Rye  (winter & spring) | F | *Pseudocercosporella herpotrichoides* (PSDCHE) | foliar spray | BBCH 30 – 32  (spring) | a) 1  b) 2 | N/A | a) 1.4  b) 2.8 | a) 420  (210+210)  b) 840  (420+420) | 150-400 | 35 |  | A |
| 45. | HU | Rye  (winter & spring) | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Leaf blotch  *Rhynchosporium secalis* (RHYNSE)  Crown Rust  *Puccinia recondita f. sp. recondite (PUCCRR)*  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)*  Powdery mildew  *Blumeria graminis* (ERYSGR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 46. | IE | Rye  (winter & spring) | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Leaf blotch  *Rhynchosporium secalis* (RHYNSE)  Crown Rust  *Puccinia recondita f. sp. recondite (PUCCRR)*  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)*  Powdery mildew  *Blumeria graminis* (ERYSGR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 47. | LU | Rye  (winter & spring) | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Leaf blotch  *Rhynchosporium secalis* (RHYNSE)  Crown Rust  *Puccinia recondita f. sp. recondite (PUCCRR)*  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)*  Powdery mildew  *Blumeria graminis* (ERYSGR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 48. | NL | Rye  (winter & spring) | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Leaf blotch  *Rhynchosporium secalis* (RHYNSE)  Crown Rust  *Puccinia recondita f. sp. recondite (PUCCRR)*  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)*  Powdery mildew  *Blumeria graminis* (ERYSGR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 49. | NI | Rye  (winter & spring) | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Leaf blotch  *Rhynchosporium secalis* (RHYNSE)  Crown Rust  *Puccinia recondita f. sp. recondite (PUCCRR)*  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)*  Powdery mildew  *Blumeria graminis* (ERYSGR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 50. | PL | Rye  (winter & spring) | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Leaf blotch  *Rhynchosporium secalis* (RHYNSE)  Crown Rust  *Puccinia recondita f. sp. recondite (PUCCRR)*  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)*  Powdery mildew  *Blumeria graminis* (ERYSGR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 51. | RO | Rye  (winter & spring) | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Leaf blotch  *Rhynchosporium secalis* (RHYNSE)  Crown Rust  *Puccinia recondita f. sp. recondite (PUCCRR)*  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)*  Powdery mildew  *Blumeria graminis* (ERYSGR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 52. | SK | Rye  (winter & spring) | F | Septoria leaf spot  *Zymoseptoria tritici*  *Mycosphaerella graminicola* (SEPTTR)  Leaf blotch  *Rhynchosporium secalis* (RHYNSE)  Crown Rust  *Puccinia recondita f. sp. recondite (PUCCRR)*  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)*  Powdery mildew  *Blumeria graminis* (ERYSGR)  Head blight of cereals  *Fusarium spp. (FUSASP)*  *Microdochium spp. (MICDSP)* | foliar spray | BBCH 30 – 69  (spring) | a) 2  b) 2 | 14-21 | a) 1.2-1.4  b) 2.4-2.8 | a) 360-420  (180+180 – 210+210)  b) 720-840  (360+360 – 420+420) | 100-400 | 35 |  | A |
| 53. | AT | Oat (winter & spring) | F | Crown Rust  *Puccinia coronata* (PUCCCO)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)* | foliar spray | BBCH 30 – 61  (spring) | a) 2  b) 2 | 14-21 | a) 1.0  b) 2.0 | a) 300  (150+150)  b) 600  (300+300) | 100-400 | 35 |  | A |
| 54. | BE | Oat (winter & spring) | F | Crown Rust  *Puccinia coronata* (PUCCCO)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)* | foliar spray | BBCH 30 – 61  (spring) | a) 2  b) 2 | 14-21 | a) 1.0  b) 2.0 | a) 300  (150+150)  b) 600  (300+300) | 100-400 | 35 |  | A |
| 55. | CZ | Oat (winter & spring) | F | Crown Rust  *Puccinia coronata* (PUCCCO)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Eyespot  *Pseudocercosporella herpotrichoides* (PSDCHA) | foliar spray | BBCH 30 – 61  (spring) | a) 2  b) 2 | 14-21 | a) 1.0  b) 2.0 | a) 300  (150+150)  b) 600  (300+300) | 100-400 | 35 |  | A |
| 56. | DE | Oat (winter & spring) | F | Crown Rust  *Puccinia coronata* (PUCCCO)  Powdery mildew  *Blumeria graminis* (ERYSGR) | foliar spray | BBCH 30 – 61  (spring) | a) 2  b) 2 | 14-21 | a) 1.0  b) 2.0 | a) 300  (150+150)  b) 600  (300+300) | 150-400 | 35 |  | A |
| 57. | DE | Oat (winter & spring) | F | Eyespot  *Pseudocercosporella herpotrichoides* (PSDCHE) | foliar spray | BBCH 30 – 32  (spring) | a) 1  b) 2 |  | a) 1.0  b) 2.0 | a) 300  (150+150)  b) 600  (300+300) | 150-400 | 35 |  | A |
| 58. | HU | Oat (winter & spring) | F | Crown Rust  *Puccinia coronata* (PUCCCO)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)* | foliar spray | BBCH 30 – 61  (spring) | a) 2  b) 2 | 14-21 | a) 1.0  b) 2.0 | a) 300  (150+150)  b) 600  (300+300) | 100-400 | 35 |  | A |
| 59. | IE | Oat (winter & spring) | F | Crown Rust  *Puccinia coronata* (PUCCCO)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)* | foliar spray | BBCH 30 – 61  (spring) | a) 2  b) 2 | 14-21 | a) 1.0  b) 2.0 | a) 300  (150+150)  b) 600  (300+300) | 100-400 | 35 |  | A |
| 60. | LU | Oat (winter & spring) | F | Crown Rust  *Puccinia coronata* (PUCCCO)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)* | foliar spray | BBCH 30 – 61  (spring) | a) 2  b) 2 | 14-21 | a) 1.0  b) 2.0 | a) 300  (150+150)  b) 600  (300+300) | 100-400 | 35 |  | A |
| 61. | NL | Oat (winter & spring) | F | Crown Rust  *Puccinia coronata* (PUCCCO)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)* | foliar spray | BBCH 30 – 61  (spring) | a) 2  b) 2 | 14-21 | a) 1.0  b) 2.0 | a) 300  (150+150)  b) 600  (300+300) | 100-400 | 35 |  | A |
| 62. | NI | Oat (winter & spring) | F | Crown Rust  *Puccinia coronata* (PUCCCO)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)* | foliar spray | BBCH 30 – 61  (spring) | a) 2  b) 2 | 14-21 | a) 1.0  b) 2.0 | a) 300  (150+150)  b) 600  (300+300) | 100-400 | 35 |  | A |
| 63. | PL | Oat (winter & spring) | F | Crown Rust  *Puccinia coronata* (PUCCCO)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)* | foliar spray | BBCH 30 – 61  (spring) | a) 2  b) 2 | 14-21 | a) 1.0  b) 2.0 | a) 300  (150+150)  b) 600  (300+300) | 100-400 | 35 |  | A |
| 64. | RO | Oat (winter & spring) | F | Crown Rust  *Puccinia coronata* (PUCCCO)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)* | foliar spray | BBCH 30 – 61  (spring) | a) 2  b) 2 | 14-21 | a) 1.0  b) 2.0 | a) 300  (150+150)  b) 600  (300+300) | 100-400 | 35 |  | A |
| 65. | SK | Oat (winter & spring) | F | Crown Rust  *Puccinia coronata* (PUCCCO)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)* | foliar spray | BBCH 30 – 61  (spring) | a) 2  b) 2 | 14-21 | a) 1.0  b) 2.0 | a) 300  (150+150)  b) 600  (300+300) | 100-400 | 35 |  | A |
| 66. | AT | Barley (winter & spring) | F | Leaf spot of Barley  *Ramularia collo-cygni* (RAMUCC)  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)*  Brown Rust  *Puccinia hordei* (PUCCHD)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Leaf Blotch  *Rhynchosporium secalis* (RHYNSE )  Net Blotch  *Pyrenophora teres* (PYRNTE) | foliar spray | BBCH 30 – 61  (spring) | a) 2  b) 2 | 14-21 | a) 1.0  b) 2.0 | a) 300  (150+150)  b) 600  (300+300) | 100-400 | 35 |  | A |
| 67. | BE | Barley (winter & spring) | F | Leaf spot of Barley  *Ramularia collo-cygni* (RAMUCC)  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)*  Brown Rust  *Puccinia hordei* (PUCCHD)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Leaf Blotch  *Rhynchosporium secalis* (RHYNSE )  Net Blotch  *Pyrenophora teres* (PYRNTE) | foliar spray | BBCH 30 – 61  (spring) | a) 2  b) 2 | 14-21 | a) 1.0  b) 2.0 | a) 300  (150+150)  b) 600  (300+300) | 100-400 | 35 |  | A |
| 68. | CZ | Barley (winter & spring) | F | Leaf spot of Barley  *Ramularia collo-cygni* (RAMUCC)  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)*  Brown Rust  *Puccinia hordei* (PUCCHD)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Leaf Blotch  *Rhynchosporium secalis* (RHYNSE )  Net Blotch  *Pyrenophora teres* (PYRNTE) | foliar spray | BBCH 30 – 61  (spring) | a) 2  b) 2 | 14-21 | a) 1.0  b) 2.0 | a) 300  (150+150)  b) 600  (300+300) | 100-400 | 35 |  | A |
| 69. | DE | Barley (winter & spring) | F | Leaf spot of Barley  *Ramularia collo-cygni* (RAMUCC)  Brown Rust  *Puccinia hordei* (PUCCHD)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Leaf Blotch  *Rhynchosporium secalis* (RHYNSE )  Net Blotch  *Pyrenophora teres* (PYRNTE) | foliar spray | BBCH 30 – 61  (spring) | a) 2  b) 2 | 14-21 | a) 1.0  b) 2.0 | a) 300  (150+150)  b) 600  (300+300) | 150-400 | 35 |  | A |
| 70. | DE | Barley (winter & spring) | F | *Pseudocercosporella herpotrichoides* (PSDCHE) | foliar spray | BBCH 30 – 32  (spring) | a) 1  b) 2 |  | a) 1.0  b) 2.0 | a) 300  (150+150)  b) 600  (300+300) | 150-400 | 35 |  | A |
| 71. | HU | Barley (winter & spring) | F | Leaf spot of Barley  *Ramularia collo-cygni* (RAMUCC)  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)*  Brown Rust  *Puccinia hordei* (PUCCHD)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Leaf Blotch  *Rhynchosporium secalis* (RHYNSE )  Net Blotch  *Pyrenophora teres* (PYRNTE) | foliar spray | BBCH 30 – 61  (spring) | a) 2  b) 2 | 14-21 | a) 1.0  b) 2.0 | a) 300  (150+150)  b) 600  (300+300) | 100-400 | 35 |  | A |
| 72. | IE | Barley (winter & spring) | F | Leaf spot of Barley  *Ramularia collo-cygni* (RAMUCC)  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)*  Brown Rust  *Puccinia hordei* (PUCCHD)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Leaf Blotch  *Rhynchosporium secalis* (RHYNSE )  Net Blotch  *Pyrenophora teres* (PYRNTE) | foliar spray | BBCH 30 – 61  (spring) | a) 2  b) 2 | 14-21 | a) 1.0  b) 2.0 | a) 300  (150+150)  b) 600  (300+300) | 100-400 | 35 |  | A |
| 73. | LU | Barley (winter & spring) | F | Leaf spot of Barley  *Ramularia collo-cygni* (RAMUCC)  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)*  Brown Rust  *Puccinia hordei* (PUCCHD)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Leaf Blotch  *Rhynchosporium secalis* (RHYNSE )  Net Blotch  *Pyrenophora teres* (PYRNTE) | foliar spray | BBCH 30 – 61  (spring) | a) 2  b) 2 | 14-21 | a) 1.0  b) 2.0 | a) 300  (150+150)  b) 600  (300+300) | 100-400 | 35 |  | A |
| 74. | NL | Barley (winter & spring) | F | Leaf spot of Barley  *Ramularia collo-cygni* (RAMUCC)  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)*  Brown Rust  *Puccinia hordei* (PUCCHD)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Leaf Blotch  *Rhynchosporium secalis* (RHYNSE )  Net Blotch  *Pyrenophora teres* (PYRNTE) | foliar spray | BBCH 30 – 61  (spring) | a) 2  b) 2 | 14-21 | a) 1.0  b) 2.0 | a) 300  (150+150)  b) 600  (300+300) | 100-400 | 35 |  | A |
| 75. | NI | Barley (winter & spring) | F | Leaf spot of Barley  *Ramularia collo-cygni* (RAMUCC)  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)*  Brown Rust  *Puccinia hordei* (PUCCHD)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Leaf Blotch  *Rhynchosporium secalis* (RHYNSE )  Net Blotch  *Pyrenophora teres* (PYRNTE) | foliar spray | BBCH 30 – 61  (spring) | a) 2  b) 2 | 14-21 | a) 1.0  b) 2.0 | a) 300  (150+150)  b) 600  (300+300) | 100-400 | 35 |  | A |
| 76. | PL | Barley (winter & spring) | F | Leaf spot of Barley  *Ramularia collo-cygni* (RAMUCC)  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)*  Brown Rust  *Puccinia hordei* (PUCCHD)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Leaf Blotch  *Rhynchosporium secalis* (RHYNSE )  Net Blotch  *Pyrenophora teres* (PYRNTE) | foliar spray | BBCH 30 – 61  (spring) | a) 2  b) 2 | 14-21 | a) 1.0  b) 2.0 | a) 300  (150+150)  b) 600  (300+300) | 100-400 | 35 |  | A |
| 77. | RO | Barley (winter & spring) | F | Leaf spot of Barley  *Ramularia collo-cygni* (RAMUCC)  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)*  Brown Rust  *Puccinia hordei* (PUCCHD)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Leaf Blotch  *Rhynchosporium secalis* (RHYNSE )  Net Blotch  *Pyrenophora teres* (PYRNTE) | foliar spray | BBCH 30 – 61  (spring) | a) 2  b) 2 | 14-21 | a) 1.0  b) 2.0 | a) 300  (150+150)  b) 600  (300+300) | 100-400 | 35 |  | A |
| 78. | SK | Barley (winter & spring) | F | Leaf spot of Barley  *Ramularia collo-cygni* (RAMUCC)  Eyespot  *Pseudocercosporella herpotrichoides (PSDCHE)*  Brown Rust  *Puccinia hordei* (PUCCHD)  Powdery mildew  *Blumeria graminis* (ERYSGR)  Leaf Blotch  *Rhynchosporium secalis* (RHYNSE )  Net Blotch  *Pyrenophora teres* (PYRNTE) | foliar spray | BBCH 30 – 61  (spring) | a) 2  b) 2 | 14-21 | a) 1.0  b) 2.0 | a) 300  (150+150)  b) 600  (300+300) | 100-400 | 35 |  | A |
| 79. | AT | Winter Oilseed Rape | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Sclerotinia stem rot  *Sclerotinia sclerotiorum* (SCLESC)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Alternaria leaf spot  *Alternaria brassicae* (ALTEBA)  Light leaf spot  *Pyrenopeziza brassicae* (PYRPBR)  Brownish-grey mildew  *Botryotinia fuckeliana* (BOTRCI) | foliar spray | BBCH 14 – 18  (Autumn)  or  BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | 56 |  | A |
| 80. | BE | Winter Oilseed Rape | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Sclerotinia stem rot  *Sclerotinia sclerotiorum* (SCLESC)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Alternaria leaf spot  *Alternaria brassicae* (ALTEBA)  Light leaf spot  *Pyrenopeziza brassicae* (PYRPBR)  Brownish-grey mildew  *Botryotinia fuckeliana* (BOTRCI) | foliar spray | BBCH 14 – 18  (Autumn)  or  BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | 56 |  | A |
| 81. | CZ | Winter Oilseed Rape | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Sclerotinia stem rot  *Sclerotinia sclerotiorum* (SCLESC)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Alternaria leaf spot  *Alternaria brassicae* (ALTEBA)  Light leaf spot  *Pyrenopeziza brassicae* (PYRPBR)  Brownish-grey mildew  *Botryotinia fuckeliana* (BOTRCI) | foliar spray | BBCH 14 – 18  (Autumn)  or  BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | 56 |  | A |
| 82. | DE | Winter Oilseed Rape | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Light leaf spot  *Cylindrosporium concentricum* (PYRPBR)  Brownish-grey mildew  *Botryotinia fuckeliana* (BOTRCI) | foliar spray | BBCH 14 – 18  (Autumn)  or  BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.2  b) 1.2 | a) 360  (180+180)  b) 360  (180+180) | 150-400 | 56 |  | A |
| 83. | HU | Winter Oilseed Rape | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Sclerotinia stem rot  *Sclerotinia sclerotiorum* (SCLESC)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Alternaria leaf spot  *Alternaria brassicae* (ALTEBA)  Light leaf spot  *Pyrenopeziza brassicae* (PYRPBR)  Brownish-grey mildew  *Botryotinia fuckeliana* (BOTRCI) | foliar spray | BBCH 14 – 18  (Autumn)  or  BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | 56 |  | A |
| 84. | IE | Winter Oilseed Rape | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Sclerotinia stem rot  *Sclerotinia sclerotiorum* (SCLESC)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Alternaria leaf spot  *Alternaria brassicae* (ALTEBA)  Light leaf spot  *Pyrenopeziza brassicae* (PYRPBR)  Brownish-grey mildew  *Botryotinia fuckeliana* (BOTRCI) | foliar spray | BBCH 14 – 18  (Autumn)  or  BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | 56 |  | A |
| 85. | LU | Winter Oilseed Rape | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Sclerotinia stem rot  *Sclerotinia sclerotiorum* (SCLESC)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Alternaria leaf spot  *Alternaria brassicae* (ALTEBA)  Light leaf spot  *Pyrenopeziza brassicae* (PYRPBR)  Brownish-grey mildew  *Botryotinia fuckeliana* (BOTRCI) | foliar spray | BBCH 14 – 18  (Autumn)  or  BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | 56 |  | A |
| 86. | NL | Winter Oilseed Rape | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Sclerotinia stem rot  *Sclerotinia sclerotiorum* (SCLESC)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Alternaria leaf spot  *Alternaria brassicae* (ALTEBA)  Light leaf spot  *Pyrenopeziza brassicae* (PYRPBR)  Brownish-grey mildew  *Botryotinia fuckeliana* (BOTRCI) | foliar spray | BBCH 14 – 18  (Autumn)  or  BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | 56 |  | A |
| 87. | NI | Winter Oilseed Rape | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Sclerotinia stem rot  *Sclerotinia sclerotiorum* (SCLESC)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Alternaria leaf spot  *Alternaria brassicae* (ALTEBA)  Light leaf spot  *Pyrenopeziza brassicae* (PYRPBR)  Brownish-grey mildew  *Botryotinia fuckeliana* (BOTRCI) | foliar spray | BBCH 14 – 18  (Autumn)  or  BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | 56 |  | A |
| 88. | PL | Winter Oilseed Rape | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Sclerotinia stem rot  *Sclerotinia sclerotiorum* (SCLESC)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Alternaria leaf spot  *Alternaria brassicae* (ALTEBA)  Light leaf spot  *Pyrenopeziza brassicae* (PYRPBR)  Brownish-grey mildew  *Botryotinia fuckeliana* (BOTRCI) | foliar spray | BBCH 14 – 18  (Autumn)  or  BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | 56 |  | A |
| 89. | RO | Winter Oilseed Rape | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Sclerotinia stem rot  *Sclerotinia sclerotiorum* (SCLESC)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Alternaria leaf spot  *Alternaria brassicae* (ALTEBA)  Light leaf spot  *Pyrenopeziza brassicae* (PYRPBR)  Brownish-grey mildew  *Botryotinia fuckeliana* (BOTRCI) | foliar spray | BBCH 14 – 18  (Autumn)  or  BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | 56 |  | A |
| 90. | SK | Winter Oilseed Rape | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Sclerotinia stem rot  *Sclerotinia sclerotiorum* (SCLESC)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Alternaria leaf spot  *Alternaria brassicae* (ALTEBA)  Light leaf spot  *Pyrenopeziza brassicae* (PYRPBR)  Brownish-grey mildew  *Botryotinia fuckeliana* (BOTRCI) | foliar spray | BBCH 14 – 18  (Autumn)  or  BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | 56 |  | A |
| Interzonal uses (use as seed treatment, in greenhouses (or other closed places of plant production), as post-harvest treatment or for treatment of empty storage rooms) | | | | | | | | | | | | | | |
| None | | | | | | | | | | | | | |  |
| Minor uses according to Article 51 (zonal uses) | | | | | | | | | | | | | | |
| 91. | AT | Spring Oilseed Rape | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Sclerotinia stem rot  *Sclerotinia sclerotiorum* (SCLESC)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Alternaria leaf spot  *Alternaria brassicae* (ALTEBA)  Light leaf spot  *Pyrenopeziza brassicae* (PYRPBR)  Brownish-grey mildew  *Botryotinia fuckeliana* (BOTRCI) | foliar spray | BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | 56 | Extrapolation from winter Oilseed Rape (spring use) | A |
| 92. | BE | Spring Oilseed Rape | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Sclerotinia stem rot  *Sclerotinia sclerotiorum* (SCLESC)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Alternaria leaf spot  *Alternaria brassicae* (ALTEBA)  Light leaf spot  *Pyrenopeziza brassicae* (PYRPBR)  Brownish-grey mildew  *Botryotinia fuckeliana* (BOTRCI) | foliar spray | BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | 56 | Extrapolation from winter Oilseed Rape (spring use) | A |
| 93. | CZ | Spring Oilseed Rape | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Sclerotinia stem rot  *Sclerotinia sclerotiorum* (SCLESC)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Alternaria leaf spot  *Alternaria brassicae* (ALTEBA)  Light leaf spot  *Pyrenopeziza brassicae* (PYRPBR)  Brownish-grey mildew  *Botryotinia fuckeliana* (BOTRCI) | foliar spray | BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | 56 | Extrapolation from winter Oilseed Rape (spring use) | A |
| 94. | DE | Spring Oilseed Rape | F | Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Light leaf spot  *Cylindrosporium concentricum* (PYRPBR) | foliar spray | BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.2  b) 1.2 | a) 360  (180+180)  b) 360  (180+180) | 150-400 | 56 | Extrapolation from winter Oilseed Rape (spring use) | A |
| 95. | HU | Spring Oilseed Rape | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Sclerotinia stem rot  *Sclerotinia sclerotiorum* (SCLESC)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Alternaria leaf spot  *Alternaria brassicae* (ALTEBA)  Light leaf spot  *Pyrenopeziza brassicae* (PYRPBR)  Brownish-grey mildew  *Botryotinia fuckeliana* (BOTRCI) | foliar spray | BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | 56 | Extrapolation from winter Oilseed Rape (spring use) | A |
| 96. | IE | Spring Oilseed Rape | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Sclerotinia stem rot  *Sclerotinia sclerotiorum* (SCLESC)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Alternaria leaf spot  *Alternaria brassicae* (ALTEBA)  Light leaf spot  *Pyrenopeziza brassicae* (PYRPBR)  Brownish-grey mildew  *Botryotinia fuckeliana* (BOTRCI) | foliar spray | BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | 56 | Extrapolation from winter Oilseed Rape (spring use) | A |
| 97. | LU | Spring Oilseed Rape | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Sclerotinia stem rot  *Sclerotinia sclerotiorum* (SCLESC)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Alternaria leaf spot  *Alternaria brassicae* (ALTEBA)  Light leaf spot  *Pyrenopeziza brassicae* (PYRPBR)  Brownish-grey mildew  *Botryotinia fuckeliana* (BOTRCI) | foliar spray | BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | 56 | Extrapolation from winter Oilseed Rape (spring use) | A |
| 98. | NL | Spring Oilseed Rape | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Sclerotinia stem rot  *Sclerotinia sclerotiorum* (SCLESC)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Alternaria leaf spot  *Alternaria brassicae* (ALTEBA)  Light leaf spot  *Pyrenopeziza brassicae* (PYRPBR)  Brownish-grey mildew  *Botryotinia fuckeliana* (BOTRCI) | foliar spray | BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | 56 | Extrapolation from winter Oilseed Rape (spring use) | A |
| 99. | NI | Spring Oilseed Rape | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Sclerotinia stem rot  *Sclerotinia sclerotiorum* (SCLESC)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Alternaria leaf spot  *Alternaria brassicae* (ALTEBA)  Light leaf spot  *Pyrenopeziza brassicae* (PYRPBR)  Brownish-grey mildew  *Botryotinia fuckeliana* (BOTRCI) | foliar spray | BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | 56 | Extrapolation from winter Oilseed Rape (spring use) | A |
| 100. | PL | Spring Oilseed Rape | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Sclerotinia stem rot  *Sclerotinia sclerotiorum* (SCLESC)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Alternaria leaf spot  *Alternaria brassicae* (ALTEBA)  Light leaf spot  *Pyrenopeziza brassicae* (PYRPBR)  Brownish-grey mildew  *Botryotinia fuckeliana* (BOTRCI) | foliar spray | BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | 56 | Extrapolation from winter Oilseed Rape (spring use) | A |
| 101. | RO | Spring Oilseed Rape | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Sclerotinia stem rot  *Sclerotinia sclerotiorum* (SCLESC)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Alternaria leaf spot  *Alternaria brassicae* (ALTEBA)  Light leaf spot  *Pyrenopeziza brassicae* (PYRPBR)  Brownish-grey mildew  *Botryotinia fuckeliana* (BOTRCI) | foliar spray | BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | 56 | Extrapolation from winter Oilseed Rape (spring use) | A |
| 102. | SK | Spring Oilseed Rape | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Sclerotinia stem rot  *Sclerotinia sclerotiorum* (SCLESC)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Alternaria leaf spot  *Alternaria brassicae* (ALTEBA)  Light leaf spot  *Pyrenopeziza brassicae* (PYRPBR)  Brownish-grey mildew  *Botryotinia fuckeliana* (BOTRCI) | foliar spray | BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | 56 | Extrapolation from winter Oilseed Rape (spring use) | A |
| 103. | PL | Sunflower | F | Sclerotinia Stem rot  *Sclerotinia sclerotiorum* SCLESC)  Grey mould  *Botrytis cinerea* (BOTCRI)  Stalk rot of sunflower  *Diaporthe helianthi* (DIAPHE)  Black stem of Sunflower  *Plenodomus lindquistii* (LEPTLI) | foliar spray | BBCH 16– 64  (spring) | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | 56 | Extrapolation from main crops not possible, exposure assessment performed with consideration of maize as a surrogate crop. | A |
| 104. | BE | Flax (for fiber production only) | F | Powdery mildew flax  *Erysiphe spp* (ERYSPP) | Foliar spray | BBCH 33 – 51 | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | N/A | Extrapolation from winter Oilseed Rape (spring use) | A |
| 105. | AT | Linseeds, Poppy, Mustard and Gold of pleasure | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Sclerotinia stem rot  *Sclerotinia sclerotiorum* (SCLESC)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Alternaria leaf spot  *Alternaria brassicae* (ALTEBA)  Light leaf spot  *Pyrenopeziza brassicae* (PYRPBR) | foliar spray | BBCH 14 – 18  (Autumn)  or  BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | 56 | Extrapolation from winter Oilseed Rape | A |
| 106. | BE | Linseeds, Poppy, Mustard and Gold of pleasure | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Sclerotinia stem rot  *Sclerotinia sclerotiorum* (SCLESC)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Alternaria leaf spot  *Alternaria brassicae* (ALTEBA)  Light leaf spot  *Pyrenopeziza brassicae* (PYRPBR) | foliar spray | BBCH 14 – 18  (Autumn)  or  BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | 56 | Extrapolation from winter Oilseed Rape | A |
| 107. | CZ | Linseeds, Poppy, Mustard and Gold of pleasure | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Sclerotinia stem rot  *Sclerotinia sclerotiorum* (SCLESC)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Alternaria leaf spot  *Alternaria brassicae* (ALTEBA)  Light leaf spot  *Pyrenopeziza brassicae* (PYRPBR) | foliar spray | BBCH 14 – 18  (Autumn)  or  BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | 56 | Extrapolation from winter Oilseed Rape | A |
| 108. | DE | Seed bearing plans: Linseeds, Poppy, Mustard and Gold of pleasure | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Sclerotinia stem rot  *Sclerotinia sclerotiorum* (SCLESC)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Alternaria leaf spot  *Alternaria brassicae* (ALTEBA)  Light leaf spot  *Cylindrosporium concentricum* (PYRPBR) | foliar spray | BBCH 14 – 18  (Autumn)  or  BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.2  b) 1.2 | a) 360  (180+180)  b) 360  (180+180) | 150-400 | 56 | Extrapolation from winter Oilseed Rape | A |
| 109. | HU | Linseeds, Poppy, Mustard and Gold of pleasure | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Sclerotinia stem rot  *Sclerotinia sclerotiorum* (SCLESC)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Alternaria leaf spot  *Alternaria brassicae* (ALTEBA)  Light leaf spot  *Pyrenopeziza brassicae* (PYRPBR) | foliar spray | BBCH 14 – 18  (Autumn)  or  BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | 56 | Extrapolation from winter Oilseed Rape | A |
| 110. | IE | Linseeds, Poppy, Mustard and Gold of pleasure | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Sclerotinia stem rot  *Sclerotinia sclerotiorum* (SCLESC)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Alternaria leaf spot  *Alternaria brassicae* (ALTEBA)  Light leaf spot  *Pyrenopeziza brassicae* (PYRPBR) | foliar spray | BBCH 14 – 18  (Autumn)  or  BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | 56 | Extrapolation from winter Oilseed Rape | A |
| 111. | LU | Linseeds, Poppy, Mustard and Gold of pleasure | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Sclerotinia stem rot  *Sclerotinia sclerotiorum* (SCLESC)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Alternaria leaf spot  *Alternaria brassicae* (ALTEBA)  Light leaf spot  *Pyrenopeziza brassicae* (PYRPBR) | foliar spray | BBCH 14 – 18  (Autumn)  or  BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | 56 | Extrapolation from winter Oilseed Rape | A |
| 112. | NL | Linseeds, Poppy, Mustard and Gold of pleasure | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Sclerotinia stem rot  *Sclerotinia sclerotiorum* (SCLESC)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Alternaria leaf spot  *Alternaria brassicae* (ALTEBA)  Light leaf spot  *Pyrenopeziza brassicae* (PYRPBR) | foliar spray | BBCH 14 – 18  (Autumn)  or  BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | 56 | Extrapolation from winter Oilseed Rape | A |
| 113. | NI | Linseeds, Poppy, Mustard and Gold of pleasure | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Sclerotinia stem rot  *Sclerotinia sclerotiorum* (SCLESC)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Alternaria leaf spot  *Alternaria brassicae* (ALTEBA)  Light leaf spot  *Pyrenopeziza brassicae* (PYRPBR) | foliar spray | BBCH 14 – 18  (Autumn)  or  BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | 56 | Extrapolation from winter Oilseed Rape | A |
| 114. | PL | Linseeds, Poppy, Mustard and Gold of pleasure | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Sclerotinia stem rot  *Sclerotinia sclerotiorum* (SCLESC)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Alternaria leaf spot  *Alternaria brassicae* (ALTEBA)  Light leaf spot  *Pyrenopeziza brassicae* (PYRPBR) | foliar spray | BBCH 14 – 18  (Autumn)  or  BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | 56 | Extrapolation from winter Oilseed Rape | A |
| 115. | RO | Linseeds, Poppy, Mustard and Gold of pleasure | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Sclerotinia stem rot  *Sclerotinia sclerotiorum* (SCLESC)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Alternaria leaf spot  *Alternaria brassicae* (ALTEBA)  Light leaf spot  *Pyrenopeziza brassicae* (PYRPBR) | foliar spray | BBCH 14 – 18  (Autumn)  or  BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | 56 | Extrapolation from winter Oilseed Rape | A |
| 116. | SK | Linseeds, Poppy, Mustard and Gold of pleasure | F | Phoma leaf spot/stem canker  *Leptosphaeria maculans* (LEPTMA)  Sclerotinia stem rot  *Sclerotinia sclerotiorum* (SCLESC)  Powdery mildew  *Erysiphe cruciferarum* (ERYSCR)  Alternaria leaf spot  *Alternaria brassicae* (ALTEBA)  Light leaf spot  *Pyrenopeziza brassicae* (PYRPBR) | foliar spray | BBCH 14 – 18  (Autumn)  or  BBCH 20 – 69  (Spring) | a) 1  b) 1 | N/A | a) 1.0-1.2  b) 1.0-1.2 | a) 300 - 360  (150+150-180+180)  b) 300 - 360  (150+150-180+180) | 100-400 | 56 | Extrapolation from winter Oilseed Rape | A |
| Minor uses according to Article 51 (interzonal uses) | | | | | | | | | | | | | | |
| None | | | | | | | | | | | | | |  |

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

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

Explanation for column 15 “Conclusion”

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

Table 8.1‑2: Assessed (critical) uses during EU approval of prothioconazole 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 as/ha  a) max. rate per appl.  b) max. total rate per crop/season | Water L/ha  min/max |
|  | EU | Wheat, rye, triticale | F | Rusts, Eyespot,  Fusarium spp.,  Powd. Mildew,  Rhynchospor.,  Septoria, | Overall spray | start 26-29 up  to BBCH69 | a) 3  b) 3 | 14 |  | 200 | 200-400 | 35 |  |
|  | EU | Barley, oat | F | Rusts, Eyespot,  Pyren. teres,  Powd. Mildew,  Fusarium spp.,  Rhynchospor. | Overall spray | start 30 up to BBCH 61 | a) 2  b) 2 | 14 |  | 200 | 200-400 | 35 |  |
|  | EU | Oilseed rape | F | Sclerotinia,  Botrytis,  Alternaria,  Leptosphaeria | Overall spray | start BBCH 53 | a) 2  b) 2 | 14 |  | 175 | 200-400 | 56 |  |

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

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

Table 8.1‑3: Assessed (critical) uses during EU approval of azoxystrobin 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 as/ha  a) max. rate per appl.  b) max. total rate per crop/season | Water L/ha  min/max |
|  | EU | Broccoli, cauliflower, brussels sprouts, kale | F | *Alternaria brassicae,*  *Mycosphaerella brassicicola,*  *Peronospora parasitica* | Foliar spray | BBCH 35-39 | a) 2  b) 2 | 12 |  | 250 | 200-600 | 14 |  |
|  | EU | Barley | F | *Pyrenophora teres*  *Puccinia hordei*  *Rhynchosporium secalis*  *Gaeumannomyces graminis*  *var. Tritici*  Barley spotting | Foliar spray | BBCH 31-59 | a) 2  b) 2 | 14 |  | 250 | 100-300 | 35 | Timing of applications  determined primarily by growth stage;1st no later than BBCH 39, 2nd no later than BBCH 59. |
|  | EU | Wheat | F | *Septoria tritici*  *Septoria nodorum*  *Puccinia striiformis*  *Puccinia recondita*  *Gaeumannomyces graminis*  *var. tritici* | Foliar spray | BBCH 31-69 | a) 2  b) 2 | 14 |  | 250 | 100-300 | 56 | Timing of applications  determined primarily by growth stage;1st no later than BBCH 39, 2nd no later than BBCH 69. |

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

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

## Metabolites considered in the assessment

Table 8.2‑1: Metabolites of prothioconazole potentially relevant for exposure assessment

| **Metabolite** | **Molar mass** | **Chemical structure** | **Maximum observed occurrence in compartments** | **Exposure assessment required due to** |
| --- | --- | --- | --- | --- |
| Prothioconazole-S-methyl | 358.3 |  | Soil (max. 14.6 % at 7d)  water/sediment (anaerobic): 77 % (in sediment, not detected in water)  water/sediment (aerobic): 12.7% (whole system); 3.1% (water); 9.6% (sediment) | PECsoil: GAP different to EU assessment  PECgw: Model changes since EU assessment  PECsw/sed: Model changes since EU assessment |
| Prothioconazole-desthio | 312.2 |  | Soil (max. 57.1 % at 7d)  Water (max. 32.3 % at 7d)  Sediment (max. 26.9 % at 14d)  Water/sediment system (54.6% at 7d) | PECsoil: GAP different to EU assessment  PECgw: Model changes since EU assessment  PECsw/sed: Model changes since EU assessment |
| 1,2,4-triazole | 69.1 |  | Water (max. 37.2 % at 121d)  Sediment (max. 6.1 % at 121d)  Water/sediment system (max. 41.8 % at 121d) | PECsw/sed: Model changes since EU assessment |
| JAU 6476-thiazocine  (prothioconazole-thiazocine, M12) | 307.8 |  | Aqueous photolysis study: 14.1% on day 5 | Considered not relevant in EFSA (2007) |

|  |
| --- |
| **zRMS comments:**  Information regarding prothioconazole metabolites is in general in line with EU agreed endpoints reported in EFSA Scientific Report (2007) 106, with some minor corrections.  Information on metabolite JAU 6476-thiazocine has been added by the zRMS, as this metabolite was found at >10% in aqueous photolysis study. However, it was considered not relevant for the exposure assessment during EU review. |

**Table 8.2‑2: Metabolites of azoxystrobin potentially relevant for exposure assessment**

| Metabolite | Molar mass | Chemical structure | Maximum observed occurrence in compartments | Exposure assessment required due to |
| --- | --- | --- | --- | --- |
| R234886  (M 02) | 389.4 |  | Soil (max. 28.8% at 360 d)  Water/sediment system (max. 18.1 % at unspecified time\*) | PECsoil: GAP different to EU assessment  PECgw: Model changes since EU assessment  PECsw/sed: Model changes since EU assessment |
| R401553  (M 28) | 213.2 |  | Soil (max. 17% at unspecified time\*\*)  Water (photolysis, max. 8.9 % at unspecified time\*\*) | PECsoil: GAP different to EU assessment  PECgw: Model changes since EU assessment  PECsw/sed: Model changes since EU assessment |
| R402173  (M 30) | 333.3 |  | Soil (max. 17% at unspecified time\*\*)  Water (photolysis, max. 2.4 % at unspecified time\*\*) | PECsoil: GAP different to EU assessment  PECgw: Model changes since EU assessment  PECsw/sed: Model changes since EU assessment |

\* According to the EFSA conclusion, the maximum water/sediment concentration for R234886 was agreed to be 18.1% AR (derived by calculating the individual mean for each of 3 label positions from data from 3 TLC solvent systems prior to calculating an overall mean), however no timepoint is specified and no data on metabolite concentrations are provided in study summaries in the 2009 DAR or the 1997 monograph from the previous EU evaluation of azoxystrobin.

\* According to the 2009 DAR, the metabolites R401553 and R402173 were found in field studies and aqueous photolysis studies evaluated for the previous approval of azoxystrobin under Dir. 91/414/EEC, but the studies themselves have not been summarised in the DAR. These metabolites are not mentioned in the previous 1998 review report or the 1997 monograph and it was not possible to determine the time at which the peak was reached.

|  |
| --- |
| **zRMS comments:**  Information regarding azoxystrobin metabolites is in line with EU agreed endpoints reported in EFSA Journal 2010; 8(4):1542. |

## 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.

### Aerobic degradation in soil (KCP 9.1.1.1)

#### Prothioconazole and its metabolites

All endpoints are taken from the agreed values in the EFSA 2007 conclusion (EFSA Scientific Report (2007) 106, 1-98) and information taken from the study summaries in the associated DAR. No formulation studies are submitted or required.

Laboratory soil degradation data are available for 4 soils on prothioconazole and the relevant soil metabolites, prothioconazole-S-methyl and prothioconazole-desthio. The endpoints are summarised below in Table 8.3‑1 to Table 8.3‑3. The agreed endpoints from the 2007 EFSA conclusion are provided, with data from individual studies taken from the DAR.

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

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Incubation conditions** | **Soil** | | | **Statistical evaluation** | | | **Report** |
| Type | org.  C % | pH  (H2O) | DT50  (days) | DT90  (days) | Kinetics |
| Dark, 20°C, 48% max.  water holding capacity | Sandy loam (LH) | 2.00 | 7.2 | 0.07 | 5.30 | FOMC | Gilges, M. (2000)  MR-549/99  DAR, 2005; EFSA, 2007 |
| Silty clay  loam (ST) | 1.66 | 5.9 | 0.70 | 78.20 | FOMC |
| Dark, 20°C, 50% max.  water holding capacity | Silt (HF) | 2.14 | 7.1 | 0.30 | 0.99 | SFO | Hellpointner,  E. (2001b)  MR-104/01  DAR, 2005; EFSA, 2007 |
| Loamy sand (BV) | 0.79 | 6.8 | 1.27 | 4.22 | SFO |
| **Worst-case (persistence, EFSA Conclusion 2007)** | | | | **1.27\*** | **78.20** |  | |
| **Median (EFSA Conclusion 2007)** | | | | **0.50\*** |  | | |
| **Geometric mean** | | | | **0.37\*** |  | | |

\*Note that field data showed longer DT50 values and was selected by EFSA as a worst-case for risk assessment

Table 8.3‑2: Summary of aerobic degradation rates for prothioconazole-S-methyl - laboratory studies

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Incubation conditions** | **Soil** | | | **Statistical evaluation** | | | **Report** |
| Type | org.  C % | pH  (H2O) | DT50  (days) | DT90  (days) | Kinetics |
| Dark, 20°C, 40% max.  water holding capacity | Loamy silt   (HF) | 1.55 | 7.3 | 5.9 | 19.6 | SFO | Gilges, M. (2001a)  MR 340/00  DAR, 2005; EFSA, 2007 |
| Loamy Silt (LH) | 0.98 | 7.9 | 27.2 | 90.2 | SFO |
| Sandy  loam (LH) | 1.02 | 7.2 | 8.2 | 27.2 | SFO |
| Silty clay (ST) | 1.46 | 6.3 | 46.0 | 153.0 | SFO |
| **Worst-case (persistence, EFSA Conclusion 2007)** | | | | **46.0** | **153.0** |  | |
| **Geometric mean (modelling, EFSA Conclusion 2007)** | | | | **15.7** |  | | |

Table 8.3‑3: Summary of aerobic degradation rates for prothioconazole-desthio - laboratory studies

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Incubation conditions** | **Soil** | | | **Statistical evaluation** | | | **Report** |
| Type | org.  C % | pH  (H2O) | DT50  (days) | DT90  (days) | Kinetics |
| Dark, 20°C, 40% max.  water holding capacity | Loamy silt   (HF) | 1.55 | 7.3 | 34.0 | 113.0 | SFO | Gilges, M. (2001b)  MR 327/00  DAR, 2005; EFSA, 2007 |
| Loamy Silt (LH) | 0.98 | 7.9 | 29.6 | 59.2 | SFO |
| Sandy loam (LH) | 1.02 | 7.2 | 7.0 | 23.2 | SFO |
| Silty clay (ST) | 1.46 | 6.3 | 18.6 | 61.9 | SFO |
| **Worst-case (persistence, EFSA Conclusion 2007)** | | | | **34.0\*** | **113.0\*** |  | |
| **Median (EFSA Conclusion 2007)** | | | | **24.1\*** |  | | |
| **Geometric mean** | | | | **20.5\*** |  | | |

\*Note that field data showed longer DT50 values and was selected by EFSA as a worst-case for risk assessment

|  |
| --- |
| **zRMS comments:**  Soil degradation data for prothioconazole and its metabolites are in line with EU agreed endpoints reported in EFSA Scientific Report (2007) 106 and prothioconazole DAR of 2005.  For relevant endpoints considered in exposure assessment, please refer to points 8.7 (soil), 8.8 (groundwater) and 8.9 (surface water) of this document. |

#### Azoxystrobin and its metabolites

All endpoints are taken from the agreed values in the EFSA 2010 conclusion (EFSA Journal 2010; 8(4):1542), 2014 confirmatory data (EFSA supporting publication 2014:EN-718), and information taken from the study summaries in the associated DAR. No formulation studies are submitted or required.

Laboratory soil degradation data are available for azoxystrobin and the relevant soil metabolites, R234886, R401553 and R402173. The endpoints are summarised below in Table 8.3‑4 to Table 8.3‑7.

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

| Azoxystrobin, laboratory studies, aerobic conditions | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Soil name | Soil type | pH | T.°C | MWHC % | DT50 (d) | DT90 (d) | DT50 (d) 20°C  pF2/10kPa | Chi2 (%) | Kinetic model | Evaluated on EU level y/n/ Reference |
| 18 Acres | Sandy clay loam | 6.4 | 20 | 40 | 56.4 | 187 | 35.2 | 3.70 | SFO | Y, EFSA (2010) |
| East Anglia | Sand | 7.9 | 20 | 40 | 66.9 | 222 | 57.2 | 5.34 | SFO | Y, EFSA (2010) |
| Wisborough Green | Silty clay loam | 5.9 | 20 | 40 | 94.1 | 313 | 54.1 | 5.60 | SFO | Y, EFSA (2010) |
| 18 Acres | Sandy clay loam | 7 | 20 | 75% of 1/3 bar | 87 | 289 | 65.2 | 2.06 | SFO | Y, EFSA (2010) |
| Hyde Farm | Sandy clay loam | 7 | 20 | 75% of 1/3 bar | 72.8 | 242 | 48.5 | 7.10 | SFO | Y, EFSA (2010) |
| Visalia | Sandy loam | 8.4 | 20 | 75% of 1/3 bar | 141.6 | 470 | 79.9 | 2.97 | SFO | Y, EFSA (2010) |
| Derbyshire | Clay loam | 7.5 | 20 | pF2 | 118.4 | 393 | 118.4 | 4.84 | SFO | Y, EFSA (2010) |
| Holland | Sandy loam | 8.2 | 20 | pF2 | 153.4 | 510 | 153.4 | 1.92 | SFO | Y, EFSA (2010) |
| Lincolnshire | Sandy loam | 7.4 | 20 | pF2 | 248 | 824 | 248 | 7.5 | SFO | Y, EFSA (2010) |
| Geometric mean (n=9a) | | | | | | | 84.5 | | | |
| pH-dependency: | | | | | | | n | | | |

a true geometric mean (geometric mean of 18 Acres soils taken first)

Table 8.3‑5: Summary of aerobic degradation rates for R234886 - laboratory studies

| R234886, Laboratory studies, aerobic conditions | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Soil name | Soil type (USDA) | pH  (-) | T  (°C) | pF | DT50 (d) | DT90 (d) | DT50 (d) 20°C  pF2/10kPa | Kinetic model | Evaluated on EU level y/n/ Reference |
| Wisborough Green | Clay loam | 5.3 | - | 2 | 97.6 | - | 97.6 | DFOP | Y, EFSA confirmatory data (2014) |
| Frensham | Sandy loam | 5.4 | - | 2 | 110 | - | 110 | DFOP | Y, EFSA confirmatory data (2014) |
| Ohio | Loamy sand | 5.8 | - | 2 | 89.9 | - | 89.9 | SFO | Y, EFSA confirmatory data (2014) |
| Nuptown | Sandy clay loam | 6.2 | - | 2 | 94.9 | - | 94.9 | DFOP | Y, EFSA confirmatory data (2014) |
| Georgia | Loamy sand | 7.1 | - | 2 | 102 | - | 102 | SFO | Y, EFSA confirmatory data (2014) |
| 18 Acres | Sandy clay loam | 7.0 | - | 75% of 1/3 bar | 23.7 | - | 17.8 | SFO | Y, EFSA (2010) |
| Gartenacker | Silt loam | 7.3 | - | 2 | 25.7 | - | 25.7 | SFO | Y, EFSA confirmatory data (2014) |
| Pappelacker | Sandy loam | 7.4 | - | 2 | 47.1 | - | 47.1 | SFO | Y, EFSA confirmatory data (2014) |
| Hyde Farm | Sandy loam | 7.5 | - | 75% of 1/3 bar | 31.8 | - | 21.2 | SFO | Y, EFSA (2010) |
| East Anglia | Loamy sand | 7.9 | - | 40% MWHC | 56.5 | - | 43.4 | SFO | Y, EFSA (2010) |
| North Dakota | Sandy loam | 7.8 | - | 2 | 65.4 | - | 65.4 | SFO | Y, EFSA confirmatory data (2014) |
| Vetroz | Loam | 7.9 | - | 2 | 69.1 | - | 69.1 | SFO | Y, EFSA confirmatory data (2014) |
| Geometric mean alkaline soils (n=7) | | | | | | | 36.7 | | |
| Geometric mean acidic soils (n=5) | | | | | | | 98.6 | | |
| pH-dependency: | | | | | | | y | | |

Table 8.3‑6: Summary of aerobic degradation rates for R401553 - laboratory studies

| R401553, Laboratory studies, aerobic conditions | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Soil name | Soil type | pH | T.°C | MWHC % | DT50 (d) | DT90 (d) | DT50 (d) 20°C  pF2/10kPa | Chi2 (%) | Kinetic model | Evaluated on EU level y/n/ Reference |
| Fresham | Sandy loam | 6.6 | 20 | 40 | 1.36 | 4.52 | 0.9 | 9.1 | SFO | Y, EFSA (2010) |
| Wisborough Green | Silty clay loam | 6.4 | 20 | 40 | 1.59 | 5.29 | 0.9 | 10.9 | SFO | Y, EFSA (2010) |
| East Anglia | Loamy sand | 7.9 | 20 | 40 | 2.01 | 6.68 | 1.5 | 12.3 | SFO | Y, EFSA (2010) |
| Geometric mean (n=3) | | | | | | | 1.1 | | | |
| pH-dependency | | | | | | | n | | | |

Table 8.3‑7: Summary of aerobic degradation rates for R402173 - laboratory studies

| R402173, Laboratory studies, aerobic conditions | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Soil name | Soil type | pH | T.°C | MWHC % | DT50 (d) | DT90 (d) | DT50 (d) 20°C  pF2/10kPa | Chi2 (%) | Kinetic model | Evaluated on EU level y/n/ Reference |
| Fresham | Sandy loam | 6.6 | 20 | 40 | 8.44 | - | 5.7 | 8.6 | SFO | Y, EFSA (2010) |
| Wisborough Green | Silty clay loam | 6.4 | 20 | 40 | 4.24 | - | 2.4 | 12.3 | SFO | Y, EFSA (2010) |
| East Anglia | Loamy sand | 7.9 | 20 | 40 | 9.8 | - | 7.5 | 12.7 | SFO | Y, EFSA (2010) |
| Geometric mean (n=3) | | | | | | | 4.7 | | | |
| pH-dependency | | | | | | | n | | | |

|  |
| --- |
| **zRMS comments:**  Soil degradation data for azoxystrobin and its metabolites are in line with EU agreed endpoints reported in EFSA Journal 2010; 8(4):1542 and in Addendum with confirmatory data for azoxystrobin (September, 2014).  For relevant endpoints considered in exposure assessment, please refer to points 8.7 (soil), 8.8 (groundwater) and 8.9 (surface water) of this document. |

### Anaerobic degradation in soil (KCP 9.1.1.1)

No data were required for active substance approvals. No studies are required for product assessment.

|  |
| --- |
| **zRMS comments:**  It is noted that in line with information provided in EFSA Scientific Report (2007) 106, prothioconazole might be potentially exposed to anaerobic conditions when applied during the winter, following autumn seed treatment. The application pattern of CA3642 does not include application as a seed treatment, so anaerobic route of exposure is not considered further, in line with EU conclusions. |

## Field studies (KCP 9.1.1.2)

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

#### Prothioconazole and its metabolites

All endpoints are taken from the agreed values in the EFSA 2007 conclusion (EFSA Scientific Report (2007) 106, 1-98) and information taken from the study summaries in the associated DAR, though the selection criteria for modelling endpoints has been changed to follow current guidelines (*e.g.* geometric means). No formulation studies are submitted or required.

Field soil degradation data are available for 8 trials on prothioconazole and the relevant soil metabolite, prothioconazole-desthio. The endpoints are summarised below in Table 8.4‑1 (as reported in the DAR).

Please note that field data was normalised using the time-step method based on measured daily temperatures and used a Q10 value of 2.2. There is insufficient data in the DAR study summary to perform re-normalisation using a Q10 of 2.58, therefore the values with a Q10 of 2.2 were used in modelling, as they are the current agreed EU endpoint.

Table 8.4‑1: Summary of aerobic degradation rates for prothioconazole and prothioconazole-desthio - field studies

|  |  | **Actual temperatures** | | | | | | **Normalised for 20°C** | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Prothioconazole** | | | **Desthio-prothioconazole** | | | **Prothioconazole** | | **Desthio-prothioconazole** | |
| **Trial Location** | **Cropped or bare** | **DT50**  **(d)** | **DT90**  **(d)** | **R2** | **DT50**  **(d)** | **DT90**  **(d)** | **R2** | **DT50**  **(d)** | **R2** | **DT50**  **(d)** | **R2** |
| 51399 Höfchen, Germany | Bare | 1.9 | 6.4 | 1.00 | 16.3 | 54.1 | 0.98 | 1.2 | 1.00 | 10.3 | 0.99 |
| IP31 3SH, Thurston, Great Britain | Bare | 1.6 | 5.5 | 1.00 | 54.7 | 182 | 0.96 | 0.8 | 1.00 | 27.0 | 0.98 |
| 27700 Fresne l'Archeveque, France (North) | Bare | 1.3 | 4.4 | 1.00 | 47.6 | 158 | 0.94 | 1.6 | 1.00 | 27.5 | 0.86 |
| IP31 3SH Thurston, Great Britain | Cropped | 2.8 | 9.3 | 0.99 | 50.2 | 167 | 0.91 | 1.4 | 1.00 | 23.4 | 0.94 |
| 27700 Fresne l'Archeveque France (North) | Cropped | 1.4 | 4.5 | 1.00 | 36.8 | 122 | 0.93 | 1.6 | 1.00 | 20.1 | 0.86 |
| 13103 St. Etienne du Gres, France (South) | Cropped | 1.7 | 5.6 | 0.99 | 72.3 | 240 | 0.91 | 1.1 | 1.000 | 61.9 | 0.97 |
| 37060 Nogarole Rocca, VR, Italy | Cropped | 1.6 | 5.4 | 0.99 | 30.5 | 101 | 0.98 | 1.5 | 1.00 | 20.7 | 0.95 |
| 40789 Laacherhof, Germany | Bare | 1.5 | 5.1 | 1.00 | 27.9 | 92.6 | 0.98 | 0.6 | 1.00 | 15.2 | 1.00 |
| **Worst-case (persistence)** | | **2.8** | **9.3** | **-** | **72.3** | **240** | **-** |  | | | |
| **Geometric mean (modelling, EFSA Conclusion 2007))** | | | | | | | | **1.2** | **-** | **22.7** | **-** |

|  |
| --- |
| **zRMS comments:**  The triggering endpoints for prothioconazole and metabolite JAU 5479-desthio provided in Tables 8.4-1 above are in line with data reported in EFSA Scientific Report (2007) 106 and prothioconazole DAR of 2005.  For relevant endpoints considered in exposure assessment, please refer to points 8.7 (soil), 8.8 (groundwater) and 8.9 (surface water) of this document. |

#### Azoxystrobin and its metabolites

All endpoints are taken from the agreed values in the EFSA 2010 conclusion (EFSA Journal 2010; 8(4):1542), 2014 confirmatory data (EFSA supporting publication 2014:EN-718), and information taken from the study summaries in the associated DAR. No formulation studies are submitted or required.

Field soil dissipation data are available for azoxystrobin. The endpoints for persistence triggers and modelling are summarised below in Table 8.4‑2 and Table 8.4‑3, respectively.

Table 8.4‑2: Summary of aerobic degradation rates for azoxystrobin - field studies: Triggering endpoints

| Azoxystrobin, Field studies – Triggering endpoints | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Soil type | Location | pH | Depth (cm) | DissT50 (d)  actual | DT90 (d) actual | Kinetic  parameters | St.  (2) | Method of calculation | Evaluated on EU level y/n/ Reference |
| Sandy clay loam | Spalding | 7.5 | 30 | 261.9 | 869.9 | not available | 10.6 | SFO | Y, EFSA (2010) |
| Silty clay loam | Nagele | 7.9 | 30 | 186.4 | 619.3 | not available | 10.2 | SFO | Y, EFSA (2010) |
| Sandy clay loam | Shirebrook | 6.7 | 30 | 120.9 | 401.7 | not available | 17.2 | SFO | Y, EFSA (2010) |
| Maximum (n=3) | | | | 261.9 | 869.9 |  | | |  |

Table 8.4‑3: Summary of aerobic degradation rates for azoxystrobin - field studies: Modelling endpoints

| Azoxystrobin, Field studies – Modelling endpoints | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Soil type | Location | pH | Depth (cm) | DT50 (d) 20°C, pF2 | DT50 (d) 20°C, pF2 quick | DT50 (d) 20°C, pF2 slow | Fit | Evaluated on EU level y/n/ Reference |
| Sandy clay loam | Spalding | 7.5 | 30 | 106.7 | - | - | SFO | Y, EFSA (2010) |
| Silty clay loam | Nagele | 7.9 | 30 | 86.3 | - | - | SFO | Y, EFSA (2010) |
| Sandy clay loam | Shirebrook | 6.7 | 30 | 56.1 | - | - | SFO | Y, EFSA (2010) |
| Clay loam | Volpedo | 8.2 | 30 | - | 2.62 | 80.6 | DFOP | Y, EFSA (2010) |
| Sandy loam | Bienenbuttel-Varendorf | 6.4 | 30 | - | 2.95 | 61.3 | DFOP | Y, EFSA (2010) |
| Sandy clay loam | Saxa-Anhalt | 6.6 | 30 | - | 1.64 | 93.7 | DFOP | Y, EFSA (2010) |
| Clay loam | Isle/Sorgue | 8.5 | 30 | - | 4.65 | 121.6 | DFOP | Y, EFSA (2010) |
| Sandy loam | Monteux Vaucluse | 8.5 | 30 | - | 4.03 | 68 | DFOP | Y, EFSA (2010) |
| Silt loam | St Vigor | 6.1 | 30 | - | 3.02 | 34.5 | DFOP | Y, EFSA (2010) |
| Silty clay loam | Massalombarda | 8.3 | 30 | - | 1.39 | 105 | DFOP | Y, EFSA (2010) |
| Clay loam | Grisolles | 7.7 | 30 | - | 13.3 | 66 | DFOP | Y, EFSA (2010) |
| Clay | Cambridgeshire | 8 | 30 | - | 2.09 | 93.7 | DFOP | Y, EFSA (2010) |
| Clay | Somerset | 8.1 | 30 | - | 0.42 | 73.7 | DFOP | Y, EFSA (2010) |
| Geometric mean (n=x) | | | | 80.2 | 2.55 | 75.9 |  |  |
|  | | | | **78.0a** |  |  |  |  |
| pH-dependency | | | | n | |  | | |

a geometric mean (80.2 and 75.9 days)

|  |
| --- |
| **zRMS comments:**  Field degradation data presented in Tables 8.4-2 and 8.4-3 above are in with EU agreed endpoints presented in EFSA Journal 2010; 8(4):1542.  For relevant endpoints considered in exposure assessment, please refer to points 8.7 (soil), 8.8 (groundwater) and 8.9 (surface water) of this document. |

### Soil accumulation testing (KCP 9.1.1.2.2)

No soil accumulation testing was required.

|  |
| --- |
| **zRMS comments:**  No EU agreed data from soil accumulation studies with and prothioconazole and azoxystrobin are available in EFSA Scientific Report (2007) 106 and EFSA Journal 2010; 8(4):1542, respectively. Potential for soil accumulation is thus addressed in calculation of soil exposure in point 8.7 of this report. |

## Mobility in soil (KCP 9.1.2)

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

### Prothioconazole and its metabolites

All endpoints are taken from the agreed values in the EFSA 2007 conclusion (EFSA Scientific Report (2007) 106, 1-98) and information taken from the study summaries in the associated DAR, though the selection criteria for modelling endpoints has been changed to follow current guidelines (e.g. geometric means, which in all cases were more conservative if compared with the mean values). No formulation studies are submitted or required.

No batch equilibrium data could be obtained for prothioconazole due to its instability in soil. The Koc was estimated from column leaching studies. Data are available on 4 soils for each of the relevant metabolites in soil and surface water (prothioconazole-S-methyl, prothioconazole-desthio, and 1,2,4-triazole), which are summarised below.

Table 8.5‑1: Summary of soil adsorption/desorption for prothioconazole

| Prothioconazole | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Soil name | Soil type | OC  (%) | pH  (H2O) | Kd  (mL/g) | Koc  (mL/g) | 1/n  (-) | Evaluated on EU level y/n/ Reference |
| Byromville, Georgia, USA | loamy sand | 0.86 | 6.7 | 15.2 | 1765 | N/A\* | Y, EFSA (2007) |
| pH-dependency | | | | | No | | |

\* Data were taken from a column leaching study so no Freundlich coefficient is available. A worst-case value of 1 is recommended for use in modelling.

Table 8.5‑2: Summary of soil adsorption/desorption for prothioconazole-S-methyl

| Prothioconazole-S-methyl | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Soil name | Soil type | OC  (%) | pH  (H2O) | Kf  (mL/g) | Kfoc  (mL/g) | 1/n  (-) | Evaluated on EU level y/n/ Reference |
| Laacher Hof | sandy loam | 2.02 | 7.2 | 56.0 | 2772.4 | 0.87 | Y, EFSA (2007) |
| Höfchen, | silt | 2.14 | 7.1 | 64.1 | 2995.0 | 0.88 |
| Stanley | silty clay loam | 1.66 | 5.9 | 41.2 | 2484.0 | 0.91 |
| Byromville | loamy sand | 0.79 | 6.8 | 15.6 | 1973.6 | 0.85 |
| Arithmetic mean (n=4) | | | | | 2556.3 | **0.88\*** |  |
| Geometric mean (n=4) | | | | | **2525.9\*** |  | |
| pH-dependency | | | | | No | | |

\* Used for modelling

Table 8.5‑3: Summary of soil adsorption/desorption for prothioconazole-desthio

| Prothioconazole-desthio | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Soil Name | Soil Type | OC  (%) | pH  (H2O) | Kf  (mL/g) | Kfoc  (mL/g) | 1/n  (-) | Evaluated on EU level y/n/ Reference |
| Laacher Hof | sandy loam | 2.02 | 7.2 | 12.46 | 616.8 | 0.79 | Y, EFSA (2007) |
| Höfchen, | silt | 2.14 | 7.1 | 13.38 | 625.3 | 0.83 |
| Stanley | silty clay loam | 1.66 | 5.9 | 8.90 | 536.4 | 0.83 |
| Byromville | loamy sand | 0.79 | 6.8 | 4.13 | 523.0 | 0.80 |
| Arithmetic mean (n=4) | | | | | 575.4 | **0.81\*** |  |
| **Geometric mean (used for modelling) (n=4)** | | | | | **573.5\*** |  | |
| pH-dependency | | | | | No | | |

\* Used for modelling

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

| 1,2,4-triazole | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Soil Name | Soil Type | OC  (%) | pH  (H2O) | Kf  (mL/g) | Kfoc  (mL/g) | 1/n  (-) | Evaluated on EU level y/n/ Reference |
| Alpaugh | silty clay | 0.70 | 8.8 | 0.833 | 120 | 0.833 | Y, EFSA (2007)  Experts’ meeting PRAPeR 12 (2007) |
| Hollister | clay loam | 1.74 | 6.9 | 0.748 | 43 | 0.748 |
| Lakeland | sand | 0.12 | 4.8 | 0.234 | 202† | 0.234† |
| Lawrenceville | silty clay loam | 0.70 | 7.0 | 0.722 | 104 | 0.722 |
| Pachappa | sandy loam | 0.81 | 6.9 | 0.719 | 89 | 0.720 |
| Arithmetic mean (n=4) | | | | | 89 | **0.91\*** |  |
| **Geometric mean (used for modelling) (n=4)** | | | | | **83\*** |  | |
| pH-dependency | | | | | No | | |

\* Used for modelling

† Excluded from mean values as an outlier by EFSA, experts’ meeting PRAPeR 12 (2007)

|  |
| --- |
| **zRMS comments:**  Soil mobility data for prothioconazole and its major soil metabolites presented in Tables 8.5-1 to 8.5-3 are in line with EU agreed endpoints as reported in EFSA Scientific Report (2007) 106 and prothioconazole DAR of 2005.  Information on soil sorption of the metabolite 1,2,4-triazole presented in Table 8.5-4 is in line with EU agreed endpoints as reported in EFSA Scientific Report (2008) 176 for tebuconazole.  It is noted that at the EU level no respective soil adsorption-desorption studies were performed with prothioconazole and the Koc of 1765 mL/g has been derived from the aged leaching study. The method used for this calculation is questionable and was not agreed during the recent EU renewal of this active substance. Nevertheless, as the renewal process is still ongoing, the Koc of 1765 mL/g is considered to be an EU agreed endpoint that is relevant for the exposure assessment until new list of endpoints becomes valid.  For metabolites JAU 6476-S-methyl and JAU 6476-desthio the geometric mean Kfoc values were calculated by the Applicant, although in the EFSA conclusion only arithmetic mean values are reported and further used for groundwater and surface water modelling. The geometric mean values calculated by the Applicant were based on the individual Kfoc from the LoEP and are confirmed to be correct. For relevant endpoints considered in exposure assessment, please refer to points 8.8 (groundwater) and 8.9 (surface water) of this document |

### Azoxystrobin and its metabolites

All endpoints are taken from the agreed values in the EFSA 2010 conclusion (EFSA Journal 2010; 8(4):1542), 2014 confirmatory data (EFSA supporting publication 2014:EN-718), and information taken from the study summaries in the associated DAR. No formulation studies are submitted or required.

Table 8.5‑5: Summary of soil adsorption/desorption for azoxystrobin

| Azoxystrobin | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| Soil type | OC  (%) | pH  (-) | Kf  (mL/g) | Kfoc  (mL/g) | 1/n  (-) | Evaluated on EU level y/n/ Reference |
| Sandy clay loam | 1.7 | 7.5 | 7.9 | 465 | 0.84 | Y, EFSA (2010) |
| Loamy sand A | 1.7 | 7.8 | 4 | 235 | 0.82 | Y, EFSA (2010) |
| Loamy sand B | 3 | 7.9 | 6.2 | 207 | 0.85 | Y, EFSA (2010) |
| Sand | 0.3 | 5.5 | 1.5 | 500 | 0.84 | Y, EFSA (2010) |
| Silty clay loam | 1.6 | 4.9 | 9.5 | 594 | 0.9 | Y, EFSA (2010) |
| Clay loam | 2.8 | 5.5 | 15 | 536 | 0.9 | Y, EFSA (2010) |
| Arithmetic mean (n=6) | | | | 423 | **0.86\*** |  |
| Geometric mean (n=6) | | | | **392\*** | - |  |
| pH-dependency | | | | No | | |

\* Used for modelling

Table 8.5‑6: Summary of soil adsorption/desorption for R234886

| R234886 | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Soil name | Class\* | OC  (%) | pH  (H2O) | Kf  (mL/g) | Kfoc  (mL/g) | 1/n  (-) | Evaluated on EU level y/n/ Reference |
| Nebo | acidic | 1.62 | 4.9 | 6.8 | 420 | 0.90 | Y, EFSA confirmatory data (2014) |
| Wisborough Green | 2.4 | 5.3 | 2.43 | 101 | 0.70 | Y, EFSA confirmatory data (2014) |
| Frensham | 1.84 | 5.4 | 1.83 | 100 | 0.70 | Y, EFSA confirmatory data (2014) |
| Lilly Field | 0.29 | 5.5 | 1.4 | 490 | 0.79 | Y, EFSA confirmatory data (2014) |
| Picket Piece | 2.78 | 5.5 | 10 | 360 | 0.89 | Y, EFSA confirmatory data (2014) |
| Ohio | 1.36 | 5.8 | 1.52 | 112 | 0.70 | Y, EFSA confirmatory data (2014) |
| Nuptown | 2.47 | 6.2 | 1.53 | 62 | 0.71 | Y, EFSA confirmatory data (2014) |
| Georgia | 0.67 | 7.1 | 1.22 | 182 | 0.83 | Y, EFSA confirmatory data (2014) |
| Gartenacker | alkaline | 2.67 | 7.3 | 0.87 | 33 | 0.82 | Y, EFSA confirmatory data (2014) |
| Pappelacker | 1.11 | 7.4 | 0.42 | 37 | 0.80 | Y, EFSA confirmatory data (2014) |
| Hyde Farm | 1.74 | 7.5 | 0.85 | 49 | 0.85 | Y, EFSA confirmatory data (2014) |
| East Anglia | 1.68 | 7.8 | 0.35 | 21 | 0.76 | Y, EFSA confirmatory data (2014) |
| North Dakota | 2.78 | 7.8 | 1.65 | 59 | 0.86 | Y, EFSA confirmatory data (2014) |
| Vetroz | 2.38 | 7.9 | 0.72 | 30 | 0.86 | Y, EFSA confirmatory data (2014) |
| Kenny Hill | 2.96 | 7.9 | 0.82 | 28 | 0.90 | Y, EFSA (2010) |
| Arithmetic mean alkaline soils (n=7) | | | | | 36.7 | **0.83\*** |  |
| Geometric mean alkaline soils (n=7) | | | | | **34.8\*** | - |  |
| Arithmetic mean acidic soils (n=8) | | | | | 228.4 | **0.78\*** |  |
| Geometric mean acidic soils (n=8) | | | | | **176.6\*** | - |  |
| pH-dependency | | | | | Yes | | |

\* Used for modelling

Due to the pH-dependency, the EFSA (2014) confirmatory data evaluation agreed to use separate Koc and 1/n endpoints for the modelling of acidic and alkaline conditions. The pH-dependency also applies to soil degradation or R234886, so there is no clear worst-case pH and both sets of parameters must be modelled (acidic soils are the slowest for degradation, but mobility is higher in alkaline soils).

Table 8.5‑7: Summary of soil adsorption/desorption for R401553

| R401553 | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| - | Soil Type | OC  (%) | pH  (H2O) | Kf  (mL/g) | Kfoc  (mL/g) | 1/n  (-) | Evaluated on EU level y/n/ Reference |
| Sandy clay loam | | 1.74 | 7.5 | 1.9 | 110 | 0.81 | Y, EFSA (2010) |
| Loamy sand | | 0.29 | 6.8 | 0.76 | 260 | 0.81 | Y, EFSA (2010) |
| Sandy loam | | 2.96 | 8.5 | 2.4 | 81 | 0.84 | Y, EFSA (2010) |
| Silty clay loam | | 2.15 | 6.2 | 11 | 500 | 0.89 | Y, EFSA (2010) |
| Silty clay loam | | 2.38 | 5.6 | 1.6 | 66 | 0.85 | Y, EFSA (2010) |
| Clay loam | | 2.61 | 5.4 | 2.9 | 110 | 0.92 | Y, EFSA (2010) |
| Arithmetic mean (n=6) | | | | | 188 | **0.85\*** |  |
| Geometric mean (n=6) | | | | | **143\*** | - |  |
| pH-dependency | | | | | No | | |

\* Used for modelling

Table 8.5‑8: Summary of soil adsorption/desorption for R402173

| R402173 | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| - | Soil Type | OC  (%) | pH  (H2O) | Kf  (mL/g) | Kfoc  (mL/g) | 1/n  (-) | Evaluated on EU level y/n/ Reference |
| Sandy clay loam | | 1.74 | 7.5 | 0.65 | 37 | 0.96 | Y, EFSA (2010) |
| Loamy sand | | 0.29 | 6.8 | 0.27 | 93 | 0.95 | Y, EFSA (2010) |
| Sandy loam | | 2.96 | 8.5 | 0.74 | 25 | 0.96 | Y, EFSA (2010) |
| Silty clay loam | | 2.15 | 6.2 | 4.2 | 200 | 0.92 | Y, EFSA (2010) |
| Silty clay loam | | 2.38 | 5.6 | 2 | 86 | 0.93 | Y, EFSA (2010) |
| Clay loam | | 2.61 | 5.4 | 2.9 | 110 | 0.96 | Y, EFSA (2010) |
| Arithmetic mean (n=6) | | | | | 91.8 | 0.95 |  |
| Geometric mean (n=6) | | | | | 73.9 | - |  |
| Worst case | | | | | **25\*** | **0.96\*** |  |
| pH-dependency | | | | | Yes | | |

\* Used for modelling

Due to the pH-dependent mobility of R402173, the worst-case Koc and 1/n were selected as modelling endpoints in the EFSA (2010) conclusion.

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| --- |
| **zRMS comments:**  Soil mobility data for azoxystrobin and its metabolites are in line with EU agreed endpoints as reported in EFSA Journal 2010; 8(4):1542 and Addendum with confirmatory data for azoxystrobin (September, 2014).  It is noted that for azoxystrobin and its metabolites the geometric mean Kfoc values were calculated by the Applicant, although in the EFSA conclusion only arithmetic mean values are reported and further used for groundwater and surface water modelling. The geometric mean values calculated by the Applicant were based on the individual Kfoc from the LoEP and are confirmed to be correct. For relevant endpoints considered in exposure assessment, please refer to points 8.8 (groundwater) and 8.9 (surface water) of this document |

### Column leaching (KCP 9.1.2.1)

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

|  |
| --- |
| **zRMS comments:**  Results of column leaching and aged residues leaching of prothioconazole are reported in EFSA Scientific Report (2007) 106, however are not necessary for purposes of evaluation of CA3642, as based on results of the groundwater modelling no unacceptable leaching of prothioconazole or its metabolites is expected. The column leaching studies were not required during the EU review of azoxystrobin.  The leaching potential azoxystrobin and their metabolites following application of CA3642 is addressed in groundwater modelling presented in point 8.8 of this document. |

### Lysimeter studies (KCP 9.1.2.2)

Lysimeter studies were not required to support the risk assessment.

|  |
| --- |
| **zRMS comments:**  The lysimeter studies were not required during the EU review of both active substances. The leaching potential of prothioconazole and azoxystrobin and their metabolites following application of CA3642 is addressed in groundwater modelling presented in point 8.8 of this document. |

### Field leaching studies (KCP 9.1.2.3)

Field leaching studies were not required to support the risk assessment.

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| --- |
| **zRMS comments:**  The field leaching studies were not required during the EU review of both active substances. The leaching potential of prothioconazole and azoxystrobin and their metabolites following application of CA3642 is addressed in groundwater modelling presented in point 8.8 of this document. |

## 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.

### Prothioconazole and its metabolites

All endpoints are taken from the agreed values in the EFSA 2007 conclusion (EFSA Scientific Report (2007) 106, 1-98) and information taken from the study summaries in the associated DAR, though the selection criteria for modelling endpoints has been changed to follow current guidelines (e.g. geometric means). No formulation studies are submitted or required.

Table 8.6‑1: Summary of degradation in water/sediment of prothioconazole

| Prothioconazole Distribution (max. sediment 23.4 % after 1 day) | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Water/sediment system | pH  water/  sed. | DegT50  whole syst.  (d) | DegT90 whole syst.  (d) | Kinetic, Fit | DissT50 water  (d) | DissT90 water  (d) | Kinetic, Fit | DissT50 sed.  (d) | Kinetic, Fit | Evaluated on EU level y/n/ Reference |
| Hönniger Weiher | 7.84 | 2.8 | 76.4 | HS | 0.8 | 2.7 | SFO | n.d. | n.d. | Y, EFSA (2007) |
| Angler Weiher | 7.45 | 1.6 | 23.6 | HS | 1.0 | 3.4 | SFO | n.d | n.d |
| Geometric mean (n=2) | | 2.2 | 42.5 |  | 0.9 | 3.0 |  | n.d |  |  |

n.d. = not determined

Table 8.6‑2: Summary of observed metabolites

|  |  |  |
| --- | --- | --- |
| Prothioconazole-desthio  Water/sediment system | Max. in water 32.3 % after 7 d (Angler Weiher, phenyl label)  Max. in sediment 26.9 % after 14 d (Angler Weiher, phenyl label)  Max. in water/sediment 54.6 % after 7 d (Angler Weiher, phenyl label) | Y, EFSA (2007),  DAR Vol.3 B8 |
| 1,2,4-Triazole  Water/sediment system | Max. in water 37.2 % after 121 d (Angler Weiher, triazole label)  Max. in sediment 4.6 % after 121 d (Angler Weiher, triazole label)  Max. in water/sediment 41.8 % after 121 d (Angler Weiher, triazole label) |

|  |
| --- |
| **zRMS comments:**  Degradation data for prothioconazole and is metabolites in water/sediment systems provided in tables above are in line with EU agreed endpoints reported in EFSA Scientific Report (2007) 106 and prothioconazole DAR (2005) and are relevant for the surface water exposure assessment. |

### Azoxystrobin and its metabolites

All endpoints are taken from the agreed values in the EFSA 2010 conclusion (EFSA Journal 2010; 8(4):1542), 2014 confirmatory data (EFSA supporting publication 2014:EN-718), and information taken from the study summaries in the associated DAR. No formulation studies are submitted or required.

Table 8.6‑3: Summary of degradation in water/sediment of azoxystrobin

| Azoxystrobin Distribution (max. water/sediment 91.2 % after 0 days) | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Water/sediment system | pH  water/  sed. | DegT50  whole syst.  (d) | DegT90 whole syst.  (d) | Kinetic, Fit | DissT50 water  (d) | DissT90 water  (d) | Kinetic, Fit | DissT50 sed.  (d) | Kinetic, Fit | Evaluated on EU level y/n/ Reference |
| Old Basing | 7.5 | 234 | 777 | SFO | - | - | - | - | - | Y, EFSA (2010) |
| Virgina water | 6.4 | 180 | 598 | SFO | - | - | - | - | - | Y, EFSA (2010) |
| Geometric mean (n=2) | | 205 | 682 |  | - | - |  | - |  |  |

Table 8.6‑4: Summary of observed metabolites

|  |  |  |
| --- | --- | --- |
| **R234886**  **Water/sediment system** | Max. in water/sediment 18.1 % | Y, EFSA (2010) |
| **R401553**  **Water/sediment system** | Max. in water/sediment 8.9 % | Y, EFSA (2010) |
| **R402173**  **Water/sediment system** | Max. in water/sediment 2.4 % | Y, EFSA (2010) |

|  |
| --- |
| **zRMS comments:**  Degradation data for azoxystrobin and is metabolites in water/sediment systems provided in tables above are in line with EU agreed endpoints reported in EFSA Journal 2010; 8(4):1542 and are relevant for the surface water exposure assessment. |

## Predicted Environmental Concentrations in soil (PECsoil) (KCP 9.1.3)

The EU evaluations of soil exposure (EFSA Scientific Report (2007) 106, 1-98 and EFSA Journal 2010; 8(4):1542) did not cover all uses in the product GAP (see Table 8.1‑1 and Table 8.1‑2). Therefore new calculations have been performed and are summarised below.

### Justification for new endpoints

All endpoints are taken from the agreed values in the EFSA 2007 conclusion (EFSA Scientific Report (2007) 106, 1-98) and information taken from the study summaries in the associated DAR.

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

PECsoil values have been calculated following the FOCUS guidance in European Commission Document 7617/VI/96. PECsoil values have been calculated for three uses, providing a risk envelope for all uses in the GAP.

Metabolite PEC values were determined by multiplying the parent application rate by the maximum observed level (adjusted for any molecular weight differences) and assuming SFO degradation from this peak (with the slowest DT50 of either parent or metabolite). If the parent accumulates in soil, the application rate for metabolite PECaccumulation was adjusted based on the accumulation factor of the parent substance.

Table 8.7‑1: Input parameters related to application for PECsoil calculations

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **GAP use number** | **Covering uses 1-78** | **Covering uses 79-90, 105-116** | **Covering uses 79-116** | **Covering use 103** |
| Crop | Cereals | Winter oilseed rape (autumn use)\* | Spring or winter oilseed rape (spring use only)\*\* | Sunflower\*\*\* |
| Prothioconazole Application rate (g as/ha) | 210 g a.s./ha | 180 g a.s./ha | 180 g a.s./ha | 180 g a.s./ha |
| Azoxystrobin Application rate (g as/ha) | 210 g a.s./ha | 180 g a.s./ha | 180 g a.s./ha | 180 g a.s./ha |
| Number of applications/interval | 2 / 14d | 1 | 1 | 1 |
| Crop interception (%) | 80% (BBCH 30) | 40% (BBCH 14) | 80% (BBCH 20) | 20% (BBCH 16) |
| Depth of soil layer (relevant for plateau concentration) (cm) | 5 cm (20 cm tillage for plateau) | | | |

\*Proxy crop covering minor uses in autumn on ~~linseeds,~~ poppy, mustard and gold of pleasure

\*\*Proxy crop covering minor uses in spring on flax, ~~sunflower~~, ~~linseeds~~, poppy, mustard and gold of pleasure

\*\*\* Proxy crop covering minor uses on linseeds (the worse cae interception for linseed at BBCH 14-18 is 30%)

Table 8.7‑2: Input parameter for active substance(s) and relevant metabolite(s) for PECsoil calculation

| Compound | Molecular weight (g/mol) | Max. occurrence (%) | DT50  (days) | Value in accordance with EU endpoint y/n/  Reference |
| --- | --- | --- | --- | --- |
| Prothioconazole | 344.26 | - | 2.8 d (SFO, worst-case, field) | Y, EFSA Scientific Report (2007) 106, 1-98 |
| Prothioconazole-S-methyl | 358.3 | 14.6 % | 46 d (SFO, worst-case, lab) |
| Prothioconazole-desthio | 312.2 | 57.1 % | 72.3 d (SFO, worst-case, field) |
| Azoxystrobin | 403.4 | - | 262 (SFO, worst-case, field) | Y, EFSA J. 2010; 8(4):1542 |
| R234886 | 389.4 | 28.8 % | 110 (DFOP, worst-case slow phase)\* | Y, EFSA 2014:EN-718 |
| R401553 | 213.2 | 17.0 % | 1.5 (SFO, worst-case lab) | Y, EFSA J. 2010; 8(4):1542 |
| R402173 | 333.3 | 17.0 % | 7.5 (SFO, worst-case lab) |

\* Degradation was calculated using SFO kinetics with the slow phase DFOP DT50 as a conservative first-tier approach

|  |
| --- |
| **zRMS comments:**  The application pattern assumed in soil exposure assessment is in line with the critical Central Zone GAP and it is thus agreed. Relevant crop interception in line with FOCUS groundwater guidance (2021) have been selected.  Input parameters presented in Table 8.7-2 are in line with EU agreed parameters for prothioconazole and azoxystrobin reported in EFSA Scientific Report (2007) 106 and EFSA Journal 2010; 8(4):1542, respectively. |

#### Prothioconazole and its metabolites

PECsoil values are provided in the tables below. The worst-case values occur following autumn treatment of winter oilseed rape.

Table 8.7‑3: PECsoil for prothioconazole on cereals

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **PECsoil**  **(mg/kg)** | | **Cereals** | | | |
| **Single application** | | **Multiple applications** | |
| **Actual** | **TWA** | **Actual** | **TWA** |
| Initial |  | 0.0560 | - | 0.0578 | - |
| Short term | 24h | 0.0437 | 0.0496 | 0.0451 | 0.0512 |
| 2d | 0.0341 | 0.0442 | 0.0352 | 0.0455 |
| 4d | 0.0208 | 0.0355 | 0.0215 | 0.0367 |
| Long term | 7d | 0.0099 | 0.0266 | 0.0102 | 0.0274 |
| 14d | 0.0018 | 0.0157 | 0.0018 | 0.0161 |
| 21d | 0.0003 | 0.0107 | 0.0003 | 0.0110 |
| 28d | 0.0001 | 0.0081 | 0.0001 | 0.0083 |
| 50d | <0.0001 | 0.0045 | <0.0001 | 0.0047 |
| 100d | <0.0001 | 0.0023 | <0.0001 | 0.0023 |
| Plateau concentration (20 cm) | | Not relevant. DT90 < 1 year, does not accumulate | | | |
| PECaccumulation (PECact +PECsoil plateau) | |

Table 8.7‑4: PECsoil for prothioconazole on oilseed rape (autumn or spring use)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **PECsoil**  **(mg/kg)** | | **Oilseed rape** | | | |
| **Autumn application** | | **Spring application** | |
| **Actual** | **TWA** | **Actual** | **TWA** |
| Initial |  | 0.1440 | - | 0.0480 | - |
| Short term | 24h | 0.1124 | 0.1276 | 0.0375 | 0.0425 |
| 2d | 0.0878 | 0.1136 | 0.0293 | 0.0379 |
| 4d | 0.0535 | 0.0914 | 0.0178 | 0.0305 |
| Long term | 7d | 0.0255 | 0.0684 | 0.0085 | 0.0228 |
| 14d | 0.0045 | 0.0403 | 0.0015 | 0.0134 |
| 21d | 0.0008 | 0.0275 | 0.0003 | 0.0092 |
| 28d | 0.0001 | 0.0208 | <0.0001 | 0.0069 |
| 50d | <0.0001 | 0.0116 | <0.0001 | 0.0039 |
| 100d | <0.0001 | 0.0058 | <0.0001 | 0.0019 |
| Plateau concentration (20 cm) | | Not relevant. DT90 < 1 year, does not accumulate | | | |
| PECaccumulation (PECact +PECsoil plateau) | |

Table 8.7‑5: PECsoil for prothioconazole on sunflower

|  |  |  |  |
| --- | --- | --- | --- |
| **PECsoil**  **(mg/kg)** | | **Sunflower** | |
| **Actual** | **TWA** |
| Initial |  | 0.1920 | - |
| Short term | 24h | 0.1499 | 0.1701 |
| 2d | 0.1170 | 0.1514 |
| 4d | 0.0713 | 0.1219 |
| Long term | 7d | 0.0339 | 0.0912 |
| 14d | 0.0060 | 0.0537 |
| 21d | 0.0011 | 0.0367 |
| 28d | 0.0002 | 0.0277 |
| 50d | 0.0000 | 0.0155 |
| 100d | 0.0000 | 0.0078 |
| Plateau concentration (20 cm) | | Not relevant. DT90 < 1 year, does not accumulate | |
| PECaccumulation (PECact +PECsoil plateau) | |

Table 8.7‑6: PECsoil for prothioconazole-S-methyl on cereals

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **PECsoil**  **(mg/kg)** | | **Cereals** | | | |
| **Single application** | | **Multiple applications** | |
| **Actual** | **TWA** | **Actual** | **TWA** |
| Initial |  | 0.0085 | - | 0.0154 | - |
| Short term | 24h | 0.0084 | 0.0084 | 0.0152 | 0.0153 |
| 2d | 0.0083 | 0.0084 | 0.0149 | 0.0152 |
| 4d | 0.0080 | 0.0083 | 0.0145 | 0.0149 |
| Long term | 7d | 0.0077 | 0.0081 | 0.0139 | 0.0146 |
| 14d | 0.0069 | 0.0077 | 0.0125 | 0.0139 |
| 21d | 0.0062 | 0.0073 | 0.0112 | 0.0132 |
| 28d | 0.0056 | 0.0069 | 0.0101 | 0.0126 |
| 50d | 0.0040 | 0.0060 | 0.0072 | 0.0108 |
| 100d | 0.0019 | 0.0044 | 0.0034 | 0.0080 |
| Plateau concentration (20 cm) | | Not relevant. DT90 < 1 year, does not accumulate | | | |
| PECaccumulation (PECact +PECsoil plateau) | |

Table 8.7‑7: PECsoil for prothioconazole-S-methyl on oilseed rape (autumn or spring use)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **PECsoil**  **(mg/kg)** | | **Oilseed rape** | | | |
| **Autumn application** | | **Spring application** | |
| **Actual** | **TWA** | **Actual** | **TWA** |
| Initial |  | 0.0219 | - | 0.0073 | - |
| Short term | 24h | 0.0216 | 0.0217 | 0.0072 | 0.0072 |
| 2d | 0.0212 | 0.0216 | 0.0071 | 0.0072 |
| 4d | 0.0206 | 0.0212 | 0.0069 | 0.0071 |
| Long term | 7d | 0.0197 | 0.0208 | 0.0066 | 0.0069 |
| 14d | 0.0177 | 0.0197 | 0.0059 | 0.0066 |
| 21d | 0.0159 | 0.0188 | 0.0053 | 0.0063 |
| 28d | 0.0143 | 0.0179 | 0.0048 | 0.0060 |
| 50d | 0.0103 | 0.0154 | 0.0034 | 0.0051 |
| 100d | 0.0048 | 0.0113 | 0.0016 | 0.0038 |
| Plateau concentration (20 cm) | | Not relevant. DT90 < 1 year, does not accumulate | | | |
| PECaccumulation (PECact +PECsoil plateau) | |

Table 8.7‑8: PECsoil for prothioconazole-S-methyl on sunflower

|  |  |  |  |
| --- | --- | --- | --- |
| **PECsoil**  **(mg/kg)** | | **Sunflower** | |
| **Actual** | **TWA** |
| Initial |  | 0.0292 | - |
| Short term | 24h | 0.0287 | 0.0290 |
| 2d | 0.0283 | 0.0287 |
| 4d | 0.0275 | 0.0283 |
| Long term | 7d | 0.0263 | 0.0277 |
| 14d | 0.0236 | 0.0263 |
| 21d | 0.0213 | 0.0250 |
| 28d | 0.0191 | 0.0238 |
| 50d | 0.0137 | 0.0205 |
| 100d | 0.0065 | 0.0151 |
| Plateau concentration (20 cm) | | Not relevant. DT90 < 1 year, does not accumulate | |
| PECaccumulation (PECact +PECsoil plateau) | |

Table 8.7‑9: PECsoil for prothioconazole-desthio on cereals

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **PECsoil**  **(mg/kg)** | | **Cereals** | | | |
| **Single application** | | **Multiple applications** | |
| **Actual** | **TWA** | **Actual** | **TWA** |
| Initial |  | 0.0290 | - | 0.0544 | - |
| Short term | 24h | 0.0286 | 0.0288 | 0.0538 | 0.0541 |
| 2d | 0.0281 | 0.0286 | 0.0533 | 0.0538 |
| 4d | 0.0273 | 0.0281 | 0.0523 | 0.0533 |
| Long term | 7d | 0.0261 | 0.0275 | 0.0508 | 0.0526 |
| 14d | 0.0235 | 0.0261 | 0.0475 | 0.0509 |
| 21d | 0.0211 | 0.0249 | 0.0444 | 0.0492 |
| 28d | 0.0190 | 0.0237 | 0.0416 | 0.0477 |
| 50d | 0.0137 | 0.0204 | 0.0337 | 0.0432 |
| 100d | 0.0064 | 0.0150 | 0.0208 | 0.0350 |
| Plateau concentration (20 cm) | | Not relevant. DT90 < 1 year, does not accumulate | | | |
| PECaccumulation (PECact +PECsoil plateau) | |

~~Table 8.7‑10: PEC~~~~soil~~ ~~for prothioconazole-desthio on oilseed rape (autumn or spring use)~~

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **~~PEC~~~~soil~~**  **~~(mg/kg)~~** | | **~~Oilseed rape~~** | | | |
| **~~Autumn application~~** | | **~~Spring application~~** | |
| **~~Actual~~** | **~~TWA~~** | **~~Actual~~** | **~~TWA~~** |
| ~~Initial~~ |  | ~~0.0746~~ | ~~-~~ | ~~0.0249~~ | ~~-~~ |
| ~~Short term~~ | ~~24h~~ | ~~0.0735~~ | ~~0.0740~~ | ~~0.0245~~ | ~~0.0247~~ |
| ~~2d~~ | ~~0.0724~~ | ~~0.0735~~ | ~~0.0241~~ | ~~0.0245~~ |
| ~~4d~~ | ~~0.0702~~ | ~~0.0724~~ | ~~0.0234~~ | ~~0.0241~~ |
| ~~Long term~~ | ~~7d~~ | ~~0.0671~~ | ~~0.0708~~ | ~~0.0224~~ | ~~0.0236~~ |
| ~~14d~~ | ~~0.0604~~ | ~~0.0672~~ | ~~0.0201~~ | ~~0.0224~~ |
| ~~21d~~ | ~~0.0543~~ | ~~0.0639~~ | ~~0.0181~~ | ~~0.0213~~ |
| ~~28d~~ | ~~0.0489~~ | ~~0.0608~~ | ~~0.0163~~ | ~~0.0203~~ |
| ~~50d~~ | ~~0.0351~~ | ~~0.0524~~ | ~~0.0117~~ | ~~0.0175~~ |
| ~~100d~~ | ~~0.0165~~ | ~~0.0385~~ | ~~0.0055~~ | ~~0.0128~~ |
| ~~Plateau concentration (20 cm)~~ | | ~~Not relevant. DT90 < 1 year, does not accumulate~~ | | | |
| ~~PEC~~~~accumulation~~ ~~(PEC~~~~act~~ ~~+PEC~~~~soil plateau~~~~)~~ | |

Table 8.7‑11: PECsoil for prothioconazole-desthio on sunflower

|  |  |  |  |
| --- | --- | --- | --- |
| **PECsoil**  **(mg/kg)** | | **Sunflower** | |
| **Actual** | **TWA** |
| Initial |  | 0.0994 | - |
| Short term | 24h | 0.0985 | 0.0989 |
| 2d | 0.0975 | 0.0985 |
| 4d | 0.0957 | 0.0975 |
| Long term | 7d | 0.0930 | 0.0962 |
| 14d | 0.0869 | 0.0930 |
| 21d | 0.0813 | 0.0901 |
| 28d | 0.0760 | 0.0872 |
| 50d | 0.0616 | 0.0790 |
| 100d | 0.0381 | 0.0639 |
| Plateau concentration (20 cm) | | Not relevant. DT90 < 1 year, does not accumulate | |
| PECaccumulation (PECact +PECsoil plateau) | |

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **zRMS comments:**  The soil exposure for prothioconazole and its metabolites has been independently validated by the zRMS using FOCUS methods using EU agreed endpoints and the pseudo-application rates of metabolites derived with consideration of the parent rate, molar ratio and peak occurrence in soil.  The calculated PECSOIL values for prothioconazole and its metabolites were similar to those obtained by the Applicant and therefore results reported in Tables 8.7-3 to 8.7-11 above may be used for the soil risk assessment purposes, only with exception for use on oilseed rape. PECSOIL values for metabolite prothioconazole-desthio have been incorrectly calculated with DT50 value of 46 days relevant for prothioconazole-S-methyl, instead of DT50 for prothioconazole-desthio of 72.3 days. Therefore results reported in Table 8.7-10 have been struck through as incorrect..  The zRMS performed additional modelling for metabolite prothioconazole-desthio with consideration correct DT50 value, the calculated PECSOIL are presented in table below. The PECSOIL,ACCU was not required as DT50 of the metabolite is below 100 days. The short- and long-term PECSOIL values are not reported below as they are not necessary for the risk assessment purposes. Only 21 TWA PECSOIL is provided as being required for evaluation of the risk of secondary poisoning for birds and mammals.   |  |  |  | | --- | --- | --- | | **PECSOIL JAU-Desthio**  **(mg/kg)** | **Oilseed rape** | | | **Autumn application** | **Spring application** | | Initial | 0.0746 | 0.0249 | | 21-d TWA | 0.068 | 0.023 |   B |

#### Azoxystrobin and its metabolites

PECsoil values are provided in the tables below. The worst-case values occur following autumn treatment of winter oilseed rape. Calculations for azoxystrobin were made using ESCAPE (v2.0) to determine the accumulation over multiple years. Although the metabolites do not themselves accumulate, the PECaccumulation was calculated based on the accumulated parent PEC value.

Table 8.7‑12: PECsoil for azoxystrobin on cereals

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **PECsoil**  **(mg/kg)** | | **Cereals** | | | |
| **Single application** | | **Multiple applications** | |
| **Actual** | **TWA** | **Actual** | **TWA** |
| Initial |  | 0.0560 | - | 0.1100 | - |
| Short term | 24h | 0.0559 | 0.0559 | 0.1097 | 0.1098 |
| 2d | 0.0557 | 0.0559 | 0.1094 | 0.1097 |
| 4d | 0.0554 | 0.0557 | 0.1088 | 0.1094 |
| Long term | 7d | 0.0550 | 0.0555 | 0.1079 | 0.1090 |
| 14d | 0.0540 | 0.0550 | 0.1060 | 0.1080 |
| 21d | 0.0530 | 0.0545 | 0.1040 | 0.1070 |
| 28d | 0.0520 | 0.0540 | 0.1021 | 0.1060 |
| 50d | 0.0491 | 0.0525 | 0.0963 | 0.1030 |
| 100d | 0.0430 | 0.0492 | 0.0844 | 0.0966 |
| Plateau concentration (20 cm) | | 0.0086 | | 0.0169 | |
| PECaccumulation (PECact +PECsoil plateau) | | 0.0646 | | 0.1269 | |

Table 8.7‑13: PECsoil for azoxystrobin on oilseed rape (autumn or spring use)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **PECsoil**  **(mg/kg)** | | **Oilseed rape** | | | |
| **Autumn application** | | **Spring application** | |
| **Actual** | **TWA** | **Actual** | **TWA** |
| Initial |  | 0.1440 | - | 0.0480 | - |
| Short term | 24h | 0.1436 | 0.1438 | 0.0479 | 0.0479 |
| 2d | 0.1432 | 0.1436 | 0.0477 | 0.0479 |
| 4d | 0.1425 | 0.1432 | 0.0475 | 0.0477 |
| Long term | 7d | 0.1414 | 0.1427 | 0.0471 | 0.0476 |
| 14d | 0.1388 | 0.1414 | 0.0463 | 0.0471 |
| 21d | 0.1362 | 0.1401 | 0.0454 | 0.0467 |
| 28d | 0.1337 | 0.1388 | 0.0446 | 0.0463 |
| 50d | 0.1262 | 0.1349 | 0.0421 | 0.0450 |
| 100d | 0.1105 | 0.1265 | 0.0368 | 0.0422 |
| Plateau concentration (20 cm) | | 0.0221 | | 0.0074 | |
| PECaccumulation (PECact +PECsoil plateau) | | 0.1661 | | 0.0554 | |

Table 8.7‑14: PECsoil for azoxystrobin on sunflower

|  |  |  |  |
| --- | --- | --- | --- |
| **PECsoil**  **(mg/kg)** | | **Sunflower** | |
| **Actual** | **TWA** |
| Initial |  | 0.1920 | - |
| Short term | 24h | 0.1915 | 0.1917 |
| 2d | 0.1910 | 0.1915 |
| 4d | 0.1900 | 0.1910 |
| Long term | 7d | 0.1885 | 0.1902 |
| 14d | 0.1850 | 0.1885 |
| 21d | 0.1816 | 0.1868 |
| 28d | 0.1783 | 0.1851 |
| 50d | 0.1682 | 0.1798 |
| 100d | 0.1474 | 0.1687 |
| Plateau concentration (20 cm) | | 0.0295 | |
| PECaccumulation (PECact +PECsoil plateau) | | 0.2215 | |

Table 8.7‑15: PECsoil for R234886 on cereals

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **PECsoil**  **(mg/kg)** | | **Cereals** | | | |
| **Single application** | | **Multiple applications** | |
| **Actual** | **TWA** | **Actual** | **TWA** |
| Initial |  | 0.0156 | - | 0.0306 | - |
| Short term | 24h | 0.0155 | 0.0155 | 0.0305 | 0.0305 |
| 2d | 0.0155 | 0.0155 | 0.0304 | 0.0305 |
| 4d | 0.0154 | 0.0155 | 0.0303 | 0.0304 |
| Long term | 7d | 0.0153 | 0.0154 | 0.0300 | 0.0303 |
| 14d | 0.0150 | 0.0153 | 0.0295 | 0.0300 |
| 21d | 0.0147 | 0.0151 | 0.0289 | 0.0297 |
| 28d | 0.0145 | 0.0150 | 0.0284 | 0.0295 |
| 50d | 0.0136 | 0.0146 | 0.0268 | 0.0286 |
| 100d | 0.0119 | 0.0137 | 0.0235 | 0.0269 |
| Plateau concentration (20 cm) | | Metabolite does not accumulate | | Metabolite does not accumulate | |
| PECaccumulation (from parent PECaccumulation) | | 0.0180 | | 0.0353 | |

Table 8.7‑16: PECsoil for R234886 on oilseed rape (autumn or spring use)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **PECsoil**  **(mg/kg)** | | **Oilseed rape** | | | |
| **Autumn application** | | **Spring application** | |
| **Actual** | **TWA** | **Actual** | **TWA** |
| Initial |  | 0.0400 | - | 0.0133 | - |
| Short term | 24h | 0.0399 | 0.0400 | 0.0133 | 0.0133 |
| 2d | 0.0398 | 0.0399 | 0.0133 | 0.0133 |
| 4d | 0.0396 | 0.0398 | 0.0132 | 0.0133 |
| Long term | 7d | 0.0393 | 0.0397 | 0.0131 | 0.0132 |
| 14d | 0.0386 | 0.0393 | 0.0129 | 0.0131 |
| 21d | 0.0379 | 0.0389 | 0.0126 | 0.0130 |
| 28d | 0.0372 | 0.0386 | 0.0124 | 0.0129 |
| 50d | 0.0351 | 0.0375 | 0.0117 | 0.0125 |
| 100d | 0.0307 | 0.0352 | 0.0102 | 0.0117 |
| Plateau concentration (20 cm) | | Metabolite does not accumulate | | Metabolite does not accumulate | |
| PECaccumulation (from parent PECaccumulation) | | 0.0462 | | 0.0154 | |

Table 8.7‑17: PECsoil for R234886 on sunflower

|  |  |  |  |
| --- | --- | --- | --- |
| **PECsoil**  **(mg/kg)** | | **Sunflower** | |
| **Actual** | **TWA** |
| Initial |  | 0.0534 | - |
| Short term | 24h | 0.0532 | 0.0533 |
| 2d | 0.0531 | 0.0532 |
| 4d | 0.0528 | 0.0531 |
| Long term | 7d | 0.0524 | 0.0529 |
| 14d | 0.0514 | 0.0524 |
| 21d | 0.0505 | 0.0519 |
| 28d | 0.0496 | 0.0515 |
| 50d | 0.0468 | 0.0500 |
| 100d | 0.0410 | 0.0469 |
| Plateau concentration (20 cm) | | Metabolite does not accumulate | |
| PECaccumulation (from parent PECaccumulation) | | 0.0616 | |

Table 8.7‑18: PECsoil for R401553 on cereals

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **PECsoil**  **(mg/kg)** | | **Cereals** | | | |
| **Single application** | | **Multiple applications** | |
| **Actual** | **TWA** | **Actual** | **TWA** |
| Initial |  | 0.0050 | - | 0.0099 | - |
| Short term | 24h | 0.0050 | 0.0050 | 0.0099 | 0.0099 |
| 2d | 0.0050 | 0.0050 | 0.0098 | 0.0099 |
| 4d | 0.0050 | 0.0050 | 0.0098 | 0.0098 |
| Long term | 7d | 0.0049 | 0.0050 | 0.0097 | 0.0098 |
| 14d | 0.0048 | 0.0049 | 0.0095 | 0.0097 |
| 21d | 0.0048 | 0.0049 | 0.0093 | 0.0096 |
| 28d | 0.0047 | 0.0048 | 0.0092 | 0.0095 |
| 50d | 0.0044 | 0.0047 | 0.0087 | 0.0093 |
| 100d | 0.0039 | 0.0044 | 0.0076 | 0.0087 |
| Plateau concentration (20 cm) | | Metabolite does not accumulate | | Metabolite does not accumulate | |
| PECaccumulation (from parent PECaccumulation) | | 0.0058 | | 0.0114 | |

Table 8.7‑19: PECsoil for R401553 on oilseed rape (autumn or spring use)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **PECsoil**  **(mg/kg)** | | **Oilseed rape** | | | |
| **Autumn application** | | **Spring application** | |
| **Actual** | **TWA** | **Actual** | **TWA** |
| Initial |  | 0.0129 | - | 0.0043 | - |
| Short term | 24h | 0.0129 | 0.0129 | 0.0043 | 0.0043 |
| 2d | 0.0129 | 0.0129 | 0.0043 | 0.0043 |
| 4d | 0.0128 | 0.0129 | 0.0043 | 0.0043 |
| Long term | 7d | 0.0127 | 0.0128 | 0.0042 | 0.0043 |
| 14d | 0.0125 | 0.0127 | 0.0042 | 0.0042 |
| 21d | 0.0122 | 0.0126 | 0.0041 | 0.0042 |
| 28d | 0.0120 | 0.0125 | 0.0040 | 0.0042 |
| 50d | 0.0113 | 0.0121 | 0.0038 | 0.0040 |
| 100d | 0.0099 | 0.0114 | 0.0033 | 0.0038 |
| Plateau concentration (20 cm) | | Metabolite does not accumulate | | Metabolite does not accumulate | |
| PECaccumulation (from parent PECaccumulation) | | 0.0149 | | 0.0050 | |

Table 8.7‑20: PECsoil for R401553 on sunflower

|  |  |  |  |
| --- | --- | --- | --- |
| **PECsoil**  **(mg/kg)** | | **Sunflower** | |
| **Actual** | **TWA** |
| Initial |  | 0.0173 | - |
| Short term | 24h | 0.0172 | 0.0172 |
| 2d | 0.0172 | 0.0172 |
| 4d | 0.0171 | 0.0172 |
| Long term | 7d | 0.0169 | 0.0171 |
| 14d | 0.0166 | 0.0169 |
| 21d | 0.0163 | 0.0168 |
| 28d | 0.0160 | 0.0166 |
| 50d | 0.0151 | 0.0162 |
| 100d | 0.0132 | 0.0152 |
| Plateau concentration (20 cm) | | Metabolite does not accumulate | |
| PECaccumulation (from parent PECaccumulation) | | 0.0199 | |

Table 8.7‑21: PECsoil for R402173 on cereals

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **PECsoil**  **(mg/kg)** | | **Cereals** | | | |
| **Single application** | | **Multiple applications** | |
| **Actual** | **TWA** | **Actual** | **TWA** |
| Initial |  | 0.0079 | - | 0.0155 | - |
| Short term | 24h | 0.0078 | 0.0079 | 0.0154 | 0.0154 |
| 2d | 0.0078 | 0.0078 | 0.0154 | 0.0154 |
| 4d | 0.0078 | 0.0078 | 0.0153 | 0.0154 |
| Long term | 7d | 0.0077 | 0.0078 | 0.0152 | 0.0153 |
| 14d | 0.0076 | 0.0077 | 0.0149 | 0.0152 |
| 21d | 0.0074 | 0.0077 | 0.0146 | 0.0150 |
| 28d | 0.0073 | 0.0076 | 0.0143 | 0.0149 |
| 50d | 0.0069 | 0.0074 | 0.0135 | 0.0145 |
| 100d | 0.0060 | 0.0069 | 0.0119 | 0.0136 |
| Plateau concentration (20 cm) | | Metabolite does not accumulate | | Metabolite does not accumulate | |
| PECaccumulation (from parent PECaccumulation) | | 0.0091 | | 0.0178 | |

Table 8.7‑22: PECsoil for R402173 on oilseed rape (autumn or spring use)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **PECsoil**  **(mg/kg)** | | **Oilseed rape** | | | |
| **Autumn application** | | **Spring application** | |
| **Actual** | **TWA** | **Actual** | **TWA** |
| Initial |  | 0.0202 | - | 0.0067 | - |
| Short term | 24h | 0.0202 | 0.0202 | 0.0067 | 0.0067 |
| 2d | 0.0201 | 0.0202 | 0.0067 | 0.0067 |
| 4d | 0.0200 | 0.0201 | 0.0067 | 0.0067 |
| Long term | 7d | 0.0199 | 0.0200 | 0.0066 | 0.0067 |
| 14d | 0.0195 | 0.0199 | 0.0065 | 0.0066 |
| 21d | 0.0191 | 0.0197 | 0.0064 | 0.0066 |
| 28d | 0.0188 | 0.0195 | 0.0063 | 0.0065 |
| 50d | 0.0177 | 0.0189 | 0.0059 | 0.0063 |
| 100d | 0.0155 | 0.0178 | 0.0052 | 0.0059 |
| Plateau concentration (20 cm) | | Metabolite does not accumulate | | Metabolite does not accumulate | |
| PECaccumulation (from parent PECaccumulation) | | 0.0233 | | 0.0078 | |

Table 8.7‑23: PECsoil for R402173 on sunflower

|  |  |  |  |
| --- | --- | --- | --- |
| **PECsoil**  **(mg/kg)** | | **Sunflower** | |
| **Actual** | **TWA** |
| Initial |  | 0.0270 | - |
| Short term | 24h | 0.0269 | 0.0269 |
| 2d | 0.0268 | 0.0269 |
| 4d | 0.0267 | 0.0268 |
| Long term | 7d | 0.0265 | 0.0267 |
| 14d | 0.0260 | 0.0265 |
| 21d | 0.0255 | 0.0262 |
| 28d | 0.0250 | 0.0260 |
| 50d | 0.0236 | 0.0253 |
| 100d | 0.0207 | 0.0237 |
| Plateau concentration (20 cm) | | Metabolite does not accumulate | |
| PECaccumulation (from parent PECaccumulation) | | 0.0311 | |

|  |
| --- |
| **zRMS comments:**  The soil exposure for azoxystrobin and its metabolites has been independently validated by the zRMS using FOCUS methods using EU agreed endpoints and the pseudo-application rates of metabolites derived with consideration of the parent rate, molar ratio and peak occurrence in soil.  It is noted that for metabolites R234886, R401553 and R402173 the maximum DT50 value of 262 days of azoxystrobin was used for soil exposure calculation, this is accepted by the zRMS as it represents worst case.  The calculated PECSOIL values for azoxystrobin and its metabolites were similar and lower to those obtained by the Applicant and therefore results reported in Tables 8.7-12 to 8.7-23 above may be used for the soil risk assessment purposes. |

#### PECsoil of formulation

Please note that only the instantaneous PECsoil following a single application is relevant, since the formulation will immediately separate into its components, which then degrade at different rates. The calculation of winter oilseed rape at its earliest stage provides a risk envelope for all other uses.

Table 8.7‑24: PECsoil for formulation

| Preparation | Use/Crop | Application rate (L/ha) | Product density(kg/L)\* | Application rate (g/ha) | Crop interception | PECact (mg/kg) |
| --- | --- | --- | --- | --- | --- | --- |
| CA3642 | W/S Cereals | 1.4  2.8\*\* | 1.1004 | 1541  3082\*\* | 80% | 0.411  0.822\*\* |
|  | Winter oilseed rape (autumn use) | 1.2 | 1.1004 | 1320 | 40% | 1.056 |
|  | Winter or spring oilseed rape (spring use) | 1.2 | 1.1004 | 1320 | 80% | 0.352 |
|  | Sunflower | 1.2 | 1.1004 | 1320 | 20% | 1.4085 |

\* Taken from KCP 2.6.1 (Wang, Q. 2022)

\*\* double application to cereals considered as highest worst-case assumption by some cMS.

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| **zRMS comments:**  Soil exposure for the formulated product was recalculated by the zRMS and the same PECsoil were obtained. For this reason PECsoil as reported in table above is considered relevant for the soil risk assessment.  During the commenting period some of Membesr States required calculations with the sum of application rate, considering cumulated dose as a worst-case approach.  Nevertheless, the zRMS is of the opinion that the risk assessment for the formulated product should be based on soil exposure resulting from multiple applications of particular active compounds and formulation endpoints expressed in terms of the active substance. |

## Predicted Environmental Concentrations in groundwater (PECgw) (KCP 9.2.4)

The EU evaluation of groundwater exposure (EFSA Scientific Report (2007) 106, 1-98 and EFSA Journal 2010; 8(4):1542) did not cover all uses in the product GAP (see Table 8.1‑1 and Table 8.1‑2) and did not include modelling according to current FOCUS and EFSA guidelines. Therefore, new modelling has been performed and is summarised below.

### Justification for new endpoints

All endpoints are taken from the data in the prothioconazole EFSA 2007 conclusion (EFSA Scientific Report (2007) 106, 1-98) and azoxystrobin EFSA 2010 conclusion (2010; 8(4):1542) plus the confirmatory data evaluated at EU level for the metabolite R234886 (EFSA supporting publication 2014:EN-718 and the 2014 DAR addendum). The geometric mean Kfoc was used instead of the arithmetic mean listed in EFSA 2007 for several substances in order to comply with the requirements of current EFSA guidance (EFSA Journal 2014;12(5):3662). The geometric mean provides a slightly more conservative endpoint (higher soil mobility) than the arithmetic mean, resulting in a worst-case risk envelope that covers older assessments with arithmetic means. The differences are summarised below in Table 8.8‑1. Note that no changes were made to the Kfoc endpoint for prothioconazole or R402173, as mean values were not used.

Table 8.8‑1: Justification of new Kfoc endpoints used in modelling

| **Substance** | **Endpoint** | **Agreed EU modelling endpoint** | **New modelling endpoint** | **Justification** |
| --- | --- | --- | --- | --- |
| Prothioconazole | Kfoc | 1765 (single value) | | No change required. |
| Prothioconazole-S-methyl | Kfoc | 2556.3  (arithmetic mean) | 2525.9  (geometric mean) | Geometric means follow current guidelines (EFSA Journal 2014;12(5):3662) and result in a more conservative risk assessment and are required in several member states where approval is requested.  The individual endpoints used for calculation of the mean are unchanged from the agreed EU values. |
| Prothioconazole-desthio | Kfoc | 575.4  (arithmetic mean) | 573.5  (geometric mean) |
| Azoxystrobin | Kfoc | 423  (arithmetic mean) | 392  (geometric mean) |
| R234886 | Kfoc | Acidic soils: 228.4  Alkaline soils: 36.7  (arithmetic mean) | Acidic soils: 176.6  Alkaline soils: 34.8  (geometric mean) |
| R401553 | Kfoc | 188  (arithmetic mean) | 143  (geometric mean) |
| R402173 | Kfoc | 25  (worst-case due to pH dependence, n = 6) | | No change required. |

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| --- |
| **zRMS comments:**  For prothioconazole metabolites: JAU 6476-S-methyl and JAU 6476-desthio and for azoxystrobin and its metabolites: R234886 and R401553 the geometric mean Kfoc values were calculated by the Applicant, although in the EFSA conclusion only arithmetic mean values are reported and further used for groundwater modelling. The calculated by the Applicant geometric mean values were based on the individual Kfoc from the LoEP and are confirmed to be correct. This deviations is agreed by the zRMS since the geometric mean Kfoc values are lower than arithmetic mean Kfoc values and is thus more conservative in regards of leaching of the substances to the groundwater. Moreover consideration of geometric mean Kfoc values is in line with current EFSA recommendations. |

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

PECgw values have been calculated for uses on winter and spring varieties of both oilseed rape and cereals, providing a risk envelope for all uses in the GAP. The application scenarios are summarised in Table 8.8‑2 and the modelling was provided in the reports summarised below. As the reports used the same substance endpoints with different crops, they are summarised together.

Table 8.8‑2: Input parameters related to application for PECgw calculations

|  |  |  |  |
| --- | --- | --- | --- |
| **GAP use number** | **Covering uses 79-90, 105-116 (autumn applications to winter varieties)** | **Covering uses 79-90, 105-116 (spring applications to winter varieties)** | **Covering uses 91-116 (spring applications to spring varieties)** |
| Crop | Winter OSR (autumn) | Winter OSR (spring) | Spring OSR (spring) |
| Application rate (g as/ha) | 180 g/ha prothioconazole  180 g/ha azoxystrobin | 180 g/ha prothioconazole  180 g/ha azoxystrobin | 180 g/ha prothioconazole  180 g/ha azoxystrobin |
| Number of applications/interval (d) | 1 | 1 | 1 |
| Relative application date | AppDate (v3.06):  BBCH 14 | AppDate (v3.06):  BBCH 21\* | AppDate (v3.06):  BBCH 20 |
| Crop interception (%) | 40 | 80 | 80 |
| Application to soil (g as/ha) | 108 | 36 | 36 |
| Frequency of application | Annual | | |
| Models used for calculation | FOCUS PEARL v5.5.5, FOCUS PELMO v6.6.4, FOCUS MACRO v5.5.4 | | |

\* Note that AppDate assumes that BBCH 20 is reached in autumn, so BBCH 21 was used to determine the re-start of growth after the winter dormancy period, when the product would be applied. In some southern EU winter OSR scenarios (Piacenza, Porto), BBCH 21 is reached before spring, which would result in applications during winter. The product GAP requires applications to be made in spring, therefore 1st March is used as a conservative worst-case timing.

|  |  |  |  |
| --- | --- | --- | --- |
| **GAP use number** | **Covering uses 1-78 (winter varieties)** | **Covering uses 1-78 (spring varieties)** | **Cove~~r~~ring use 103** |
| Crop | Winter cereals | Spring cereals | Sunflower (maize as surrogate)\*\* |
| Application rate (g as/ha) | 210 g/ha prothioconazole  210 g/ha azoxystrobin | 210 g/ha prothioconazole  210 g/ha azoxystrobin | 180 g/ha prothioconazole  180 g/ha azoxystrobin |
| Number of applications/interval (d) | 2 / 14 | 2 / 14 | 1 |
| Relative application date | AppDate (v3.06):  BBCH 30\* | AppDate (v3.06):  BBCH 30 | AppDate (v3.06):  BBCH 16 |
| Crop interception (%) | 80 | 80 | 20 |
| Application to soil (g as/ha) | 42 | 42 | 144 |
| Frequency of application | Annual | | |
| Models used for calculation | FOCUS PEARL v5.5.5, FOCUS PELMO v6.6.4, FOCUS MACRO v5.5.4 | | |

\* In some southern EU winter cereals scenarios (Porto, Sevilla, Thiva), BBCH 30 is reached before spring, which would result in applications during winter. The product GAP requires applications to be made in spring, therefore the 1st March is used as a conservative worst-case timing. \*\* maize used as surrogate crop for sunflower.

|  |  |
| --- | --- |
| **Data point:** | K-CP 9.2.4/01 |
| **Report author** | M. Hale |
| **Report year** | 2022 |
| **Report title** | CA3642: Predicted Environmental Concentrations in Groundwater Following Application to Cereals and Oilseed Rape, Using FOCUS‑PEARL, FOCUS-PELMO and FOCUS-MACRO |
| **Report No** | 22/125 |
| **Document No** | Not applicable |
| **Guidelines followed in study** | FOCUS |
| **Deviations from current test guideline** | None |
| **Previous evaluation** | None |
| **GLP/Officially recognised testing facilities** | NA |
| **Acceptability/Reliability:** | Yes |

|  |  |
| --- | --- |
| **Data point:** | K-CP 9.2.4/02 |
| **Report author** | M. Hale |
| **Report year** | 2023 |
| **Report title** | CA3642: Predicted Environmental Concentrations in Groundwater Following Application to Sunflower in Poland, Using FOCUS PEARL, FOCUS-PELMO and FOCUS-MACRO |
| **Report No** | 23/94 |
| **Document No** | Not applicable |
| **Guidelines followed in study** | FOCUS |
| **Deviations from current test guideline** | None |
| **Previous evaluation** | None |
| **GLP/Officially recognised testing facilities** | NA |
| **Acceptability/Reliability:** | Yes |

The risk to groundwater was assessed through simulations using the environmental fate models FOCUS-PEARL (v5.5.5), FOCUS-PELMO (v6.6.4) and FOCUS-MACRO (v5.5.4). For uses that span a large range of growth stages, the earliest growth stage was used as a worst-case to determine the crop interception. Application dates were set using AppDate (v3.06) to provide the date at which the target BBCH stage is reached in each FOCUS scenario, while remaining within the seasonal timings specified in the GAP. The absolute application timings are given in Table 8.8‑3. Please note that the Hale (2022) report contains all FOCUS scenarios, but this summary does not include data for Jokioinen, Sevilla or Thiva because they are not relevant for any countries within the central zone according to the Working Document of the Central Zone in the Authorisation of PPPs (v1r1 June 2018). The Hale (2023) report contains data for the relevant scenarios in Poland only, as Sunflower use is not requested in other countries.

Table 8.8‑3: Application dates used for groundwater risk assessment

| Application dates (absolute) | | | |
| --- | --- | --- | --- |
| **Scenario** | **Winter OSR (autumn)** | **Winter OSR (spring)** | **Spring OSR (spring)** |
| Châteaudun | 14/09 | 02/03 | - |
| Hamburg | 09/09 | 09/04 | - |
| Kremsmünster | 09/09 | 06/04 | - |
| Okehampton | 21/08  11/04\*\* | 31/03 | 11/04 |
| Piacenza | 12/10 | 01/03 | - |
| Porto | 30/09 | 01/03 | 09/04 |

| Application dates (absolute) | | | |
| --- | --- | --- | --- |
| **Scenario** | **Winter cereals** | **Spring cereals** | **Sunflower\*** |
| Châteaudun | 15/04, 29/04 | 16/04, 30/04 | 23/05 |
| Hamburg | 04/05, 18/05 | 28/04, 12/05 | 23/05 |
| Kremsmünster | 24/04, 08/05 | 27/04, 11/05 | 23/05 |
| Okehampton | 21/04, 05/05 | 22/04, 06/05 | - |
| Piacenza | 19/03, 02/04 | - | - |
| Porto | 01/03, 15/03 | 02/04, 16/04 | - |

\* Maize used as a surrogate crop

\*\* minor uses on linseeds at BBCH 14-18 only defined for Okehampton scenario

Input parameters for prothioconazole, azoxystrobin and their relevant metabolites were taken from the EU agreed endpoints in the EFSA conclusions and the associated data in the DAR and any confirmatory data. A summary of the environmental fate parameters is given in Table 8.8‑4 to Table 8.8‑10. Note that two degradation pathways were modelled, to simulate microbial degradation to R234886, and to simulate photolytic degradation to R401553 and R402173. These simulations were performed separately, so R234886 is simulated with the worst-case assumption that there is no competing photolytic degradation, while the photolytic metabolites were simulated by assuming there was no competing microbial degradation. This follows the methods agreed in the EFSA review of confirmatory data (EFSA supporting publication 2014:EN-718). Any parameters not mentioned below were left at the default recommendation of the models. The degradation pathways are shown in

Figure 8.8‑1.

|  |  |  |  |
| --- | --- | --- | --- |
| Prothioconazole | 0.146  → | Prothioconazole-S-methyl | (All models) |
| 0.571  → | Prothioconazole-desthio |

|  |  |  |  |
| --- | --- | --- | --- |
| Azoxystrobin  (microbial DT50) | 0.874  → | R234886 | (All models) |
|  |  |  |  |
| Azoxystrobin  (photolytic DT50) | 0.385  → | R402173 | (PEARL + PELMO) |
|  | ↓ 0.468 |
| 0.392  → | R401553 |

|  |  |  |  |
| --- | --- | --- | --- |
| Azoxystrobin  (photolytic DT50) | 0.385  → | R402173 | (MACRO) |
|  |  |
| 0.572\*  → | R401553 |

\* Worst-case single step formation was calculated from the sum of both routes as 0.392+(0.468\*0.385)

*Scientific guidance on soil phototransformation products in groundwater – consideration, parameterisation and simulation in the exposure assessment of plant protection products* (EFSA 2022) was not followed for the calculation of phototransformation products of azoxystrobin because the application was made prior to the enforcement date of 1st January 2024.

Figure 8.8‑1: Degradation pathways for prothioconazole and azoxystrobin

Table 8.8‑4: Input parameters related to prothioconazole for PECgw calculations

| Parameter | Prothioconazole | Value in accordance with EU endpoint y/n/  Reference |
| --- | --- | --- |
| Molecular weight (g/mol) | 344.26 | Y, EFSA (2007) |
| Saturated vapour pressure (Pa) | 0 (20°C) | Y, EFSA (2007)\*  (default worst-case) |
| Water solubility (mg/L) | 2000 (20°C, pH 9, worst-case) | Y, EFSA (2007) |
| DT50,soil (d) | 1.2 (geomean, field, normalisation to 20°C with Q10 of 2.2, n =8) | Y, EFSA (2007), RAR (2005)\*\* |
| Kfoc / Kfom (mL/g) | 1765/1024 (n=1) | Y, EFSA (2007) |
| Freundlich Exponent  1/n | 1 | Y, EFSA (2007)  (default worst-case) |
| Plant Uptake | 0 | Default |

\* EFSA (2007) gives a vapour pressure of “<< 4× 10-7 Pa”, below the minimum detectable is testing. A value of 0 was used as a worst-case to prevent volatile losses from soil and water.

\*\* Field DT50 is significantly greater than lab value and is a worst-case even with Q10 of 2.2. The RAR does not contain sufficient data to renormalise the field DT50 using a Q10 of 2.58.

Table 8.8‑5: Input parameters related to prothioconazole-S-methyl for PECgw calculations

| Parameter | Prothioconazole-S-methyl | Value in accordance with EU endpoint y/n/  Reference |
| --- | --- | --- |
| Molecular weight (g/mol) | 358.3 | Y, EFSA (2007) |
| Saturated vapour pressure (Pa) | 0 (20°C) | Worst-case default |
| Water solubility (mg/L) | 1×106 (20°C) | Worst-case default |
| DT50,soil (d) | 15.7 (geometric mean, n=4) | Y, EFSA (2007), RAR (2005) |
| Kfoc / Kfom (mL/g) | 2525.9 / 1465.1 (geometric mean, n = 4) | N, EFSA (2007), RAR (2005)\* |
| Freundlich Exponent, 1/n | 0.88 (arithmetic mean, n = 4) | Y, EFSA (2007), RAR (2005) |
| Plant Uptake | 0 | Default |
| Formation fraction in soil: | 0.146 (from prothioconazole) | Y, EFSA (2007) |

\* value changed to geometric mean in accordance with current EFSA guidance (EFSA 2007 used an arithmetic mean Kfoc of 2556.3 mL/g).

Table 8.8‑6: Input parameters related to prothioconazole-desthio for PECgw calculations

| Parameter | Prothioconazole-desthio | Value in accordance with EU endpoint y/n/  Reference |
| --- | --- | --- |
| Molecular weight (g/mol) | 312.2 | Y, EFSA (2007), RAR (2005) |
| Saturated vapour pressure (Pa) | 0 (20°C) | Worst-case default |
| Water solubility (mg/L) | 1×106 (20°C) | Worst-case default |
| DT50,soil (d) | 22.7 (geomean, normalisation to 10 kPa or pF2, 20 °C with Q10 of 2.2, n =8)\*\* | Y, EFSA (2007), RAR (2005) |
| Kfoc / Kfom (mL/g) | 573.5 / 332.7 (geometric mean, n = 4) | N, EFSA (2007), RAR (2005)\* |
| Freundlich Exponent  1/n | 0.81 (arithmetic mean, n = 4) | Y, EFSA (2007), RAR (2005) |
| Plant Uptake | 0 | Worst-case default |
| Formation fraction in soil: | 0.571 (from prothioconazole) | Y, EFSA (2007) |

\* value changed to geometric mean in accordance with current EFSA guidance (EFSA 2007 used an arithmetic mean Kfoc of 575.4 mL/g).

\*\* Field DT50 is significantly greater than lab value and is a worst-case even with Q10 of 2.2. The RAR does not contain sufficient data to renormalise the field DT50 uising a Q10 of 2.58.

Table 8.8‑7: Input parameters related to azoxystrobin for PECgw calculations

| Parameter | Azoxystrobin | Value in accordance to EU endpoint y/n/  Reference |
| --- | --- | --- |
| Molecular weight (g/mol) | 403.4 | Y, EFSA (2010) |
| Saturated vapour pressure (Pa) | 1.1 × 10-10 (25°C) | Y, EFSA (2010) |
| Water solubility (mg/L) | 6.7 (20°C) | Y, EFSA (2010) |
| DT50,soil microbial (d) | 78.0 (geometric mean of field studies (slow phase), normalisation to 10 kPa or pF2, 20 °C with Q10 of 2.58, n = 13) | Y, EFSA (2010) |
| DT50,soil photolysis(d) | 2.55 (geometric mean of field studies (fast phase), normalisation to 10 kPa or pF2, 20 °C with Q10 of 2.58, n = 10) | Y, EFSA (2010) |
| Kfoc / Kfom (mL/g) | 392 / 227.4 (geometric mean, n = 6) | N, EFSA (2010)\* |
| Freundlich Exponent, 1/n | 0.86 (arithmetic mean, n = 6) | Y, EFSA (2010) |
| Plant Uptake | 0 | Default |

\* value changed to geometric mean in accordance with current EFSA guidance (EFSA 2010 used an arithmetic mean Kfoc of 423)

Table 8.8‑8: Input parameters related to R234886 for PECgw calculations

| Parameter | R234886 | Value in accordance to EU endpoint y/n/  Reference |
| --- | --- | --- |
| Molecular weight (g/mol) | 389.4 | Y, EFSA (2014) |
| Saturated vapour pressure (Pa) | 0 | Worst-case |
| Water solubility (mg/L) | 57 (20°C) | Y, EFSA (2014) |
| DT50,soil (d) | acidic soil: 98.6  neutral/alkaline soils: 36.7 | Y, EFSA (2014) |
| Kfoc / Kfom (mL/g) | acidic soil: 176.6 / 102.4 (geometric mean, n=8)  alkaline soils: 34.8 / 20.2 (geometric mean, n=7) | N, EFSA (2014)\* |
| Freundlich Exponent, 1/n | acidic soil: 0.78  neutral/alkaline soils: 0.83 | Y, EFSA (2014) |
| Plant Uptake | 0 | Default |
| Formation fraction in soil: | 0.874 from azoxystrobin (microbial route) | Y, EFSA (2014) |

\* values changed to geometric mean in accordance with current EFSA guidance (EFSA 2014 used arithmetic mean Kfoc of 228.4 and 36.7 for acid and alkaline soils, respectively).

Table 8.8‑9: Input parameters related to R401553 for PECgw calculations

| Parameter | R401553 | Value in accordance to EU endpoint y/n/  Reference |
| --- | --- | --- |
| Molecular weight (g/mol) | 213.2 | Y, EFSA (2010) |
| Saturated vapour pressure (Pa) | 0 | Worst-case |
| Water solubility (mg/L) | 560 (20°C) | Y, EFSA (2010) |
| DT50,soil (d) | 1.1 (geometric mean, n=3) | Y, EFSA (2010) |
| Kfoc / Kfom (mL/g) | 143 / 82.9 (geometric mean, n = 6) | N, EFSA (2010)\* |
| Freundlich Exponent  1/n | 0.85 (arithmetic mean, n = 6) | Y, EFSA (2010) |
| Plant Uptake | 0 | Default |
| DT50,soil (d) | 1.1 (geometric mean, n=3) | Y, EFSA (2010) |
| Formation fraction in soil (PEARL/PELMO): | 0.392 from azoxystrobin (photolytic route)  0.468 from R402173 | Y, EFSA (2010) |
| Formation fraction in soil (MACRO): | Sum of fractions from both routes:  0.392+(0.468\*0.385) = 0.572 | Y, EFSA (2010) |

\* value changed to geometric mean in accordance with current EFSA guidance (EFSA 2010 used an arithmetic mean Kfoc of 188)

Table 8.8‑10: Input parameters related to R402173 for PECgw calculations

| Parameter | R402173 | Value in accordance to EU endpoint y/n/  Reference |
| --- | --- | --- |
| Molecular weight (g/mol) | 333.3 | Y, EFSA (2010) |
| Saturated vapour pressure (Pa) | 0 | Worst-case |
| Water solubility (mg/L) | 61 (20°C) | Y, EFSA (2010) |
| DT50,soil (d) | 4.7 (geometric mean, n=3) | Y, EFSA (2010) |
| Kfoc / Kfom (mL/g) | 25 / 14.5 (worst-case due to pH dependence, n = 6) | Y, EFSA (2010) |
| Freundlich Exponent  1/n | 0.96 (worst-case due to pH dependence, n = 6) | Y, EFSA (2010) |
| Plant Uptake | 0 | Default |
| Formation fraction in soil: | 0.385 from azoxystrobin (photolytic route) | Y, EFSA (2010) |

|  |
| --- |
| **zRMS comments:**  The application pattern assumed in simulations is in line with the critical Central Zone GAP as presented in Table 8.1-1. It is noted that the Central Zone GAP includes several minor crops. The following surrogate crops were considered by the Applicant in simulations:   1. Spring and winter oilseed rape (major crop) for flax and linseeds, poppy, mustard and gold of pleasure. The zRMS agrees that winter OSR is most suitable surrogate crop. 2. Maize was used as surrogate crop for sunflower and zRMS agrees with that.   Application dates presented in Table 8.8-3 were checked by the zRMS using AppDate ver. 3.06 tool and are considered acceptable. In case of use in winter OSR for scenarios Piacenza and Porto the application dates at BBCH 21 reflect a winter application, however according the Central Zone GAP the application should occur in spring thus 1st of March was used as a conservative worst-case timing for application in spring.  The only available FOCUS groundwater scenario for linseed is the Okehampton scenario, therefore respective information of application date was added to the Table 8.8-3.  Input parameters for prothioconazole and its metabolites presented in Table 8.8-4 to 8.8-6 and used in the modelling are in general in line with the EU agreed endpoints reported in EFSA Scientific Report (2007) 106.  Input parameters for azoxystrobin and its metabolites presented in Table 8.8-7 to 8.8-10 and used in the modelling are in general in line with EU agreed endpoints as reported in EFSA Journal 2010; 8(4):1542 and in Addendum with confirmatory data for azoxystrobin (September, 2014).  The only exception is consideration of the geometric mean instead of arithmetic mean Kfoc values for prothioconazole metabolites and azoxystrobin and its metabolites This deviations is, however, agreed by the zRMS as the geometric mean Kfoc values are lower than arithmetic mean values and represent thus worst case in terms of the potential leaching. Moreover, consideration of geometric mean Kfoc values is in line with current EFSA recommendations.  In simulations PUF value of 0 was assumed for all compounds, which is in line with recommendations of the most recent version of the FOCUS Groundwater Guidance (2014 and 2021). |

#### Prothioconazole and its metabolites

The PECgw results from FOCUS-PEARL, FOCUS-PELMO and FOCUS-MACRO are summarised in Table 8.8‑11, Table 8.8‑12, and Table 8.8‑13 for prothioconazole, prothioconazole-S-methyl, and prothioconazole-desthio, respectively.

Table 8.8‑11: PECgw for prothioconazole

| Crop | Scenario | 80th Percentile PECgw at 1 m Soil Depth (μg/L) | | |
| --- | --- | --- | --- | --- |
| PEARL (5.5.5) | PELMO (6.6.4) | MACRO (5.5.4) |
| Winter OSR  (autumn application) | Châteaudun | <0.000001 | <0.001 | <0.000001 |
| Hamburg | <0.000001 | <0.001 | - |
| Kremsmünster | <0.000001 | <0.001 | - |
| Okehampton | <0.000001 | <0.001 | - |
| Piacenza | <0.000001 | <0.001 | - |
| Porto | <0.000001 | <0.001 | - |
| Winter OSR  (spring application) | Châteaudun | <0.000001 | <0.001 | <0.000001 |
| Hamburg | <0.000001 | <0.001 | - |
| Kremsmünster | <0.000001 | <0.001 | - |
| Okehampton | <0.000001 | <0.001 | - |
| Piacenza | <0.000001 | <0.001 | - |
| Porto | <0.000001 | <0.001 | - |
| Spring OSR | Okehampton | <0.000001 | <0.001 | - |
| Porto | <0.000001 | <0.001 | - |
| Winter cereals | Châteaudun | <0.000001 | <0.001 | <0.000001 |
| Hamburg | <0.000001 | <0.001 | - |
| Kremsmünster | <0.000001 | <0.001 | - |
| Okehampton | <0.000001 | <0.001 | - |
| Piacenza | <0.000001 | <0.001 | - |
| Porto | <0.000001 | <0.001 | - |
| Spring cereals | Châteaudun | <0.000001 | <0.001 | <0.000001 |
| Hamburg | <0.000001 | <0.001 | - |
| Kremsmünster | <0.000001 | <0.001 | - |
| Okehampton | <0.000001 | <0.001 | - |
| Porto | <0.000001 | <0.001 | - |
| Sunflower (maize as surrogate) | Châteaudun | <0.000001 | <0.001 | <0.000001 |
| Hamburg | <0.000001 | <0.001 | - |
| Kremsmünster | <0.000001 | <0.001 | - |

Table 8.8‑12: PECgw for prothioconazole-S-methyl

| Crop | Scenario | 80th Percentile PECgw at 1 m Soil Depth (μg/L) | | |
| --- | --- | --- | --- | --- |
| PEARL (5.5.5) | PELMO (6.6.4) | MACRO (5.5.4) |
| Winter OSR  (autumn application) | Châteaudun | <0.000001 | <0.001 | <0.000001 |
| Hamburg | <0.000001 | <0.001 | - |
| Kremsmünster | <0.000001 | <0.001 | - |
| Okehampton | <0.000001 | <0.001 | - |
| Piacenza | <0.000001 | <0.001 | - |
| Porto | <0.000001 | <0.001 | - |
| Winter OSR  (spring application) | Châteaudun | <0.000001 | <0.001 | <0.000001 |
| Hamburg | <0.000001 | <0.001 | - |
| Kremsmünster | <0.000001 | <0.001 | - |
| Okehampton | <0.000001 | <0.001 | - |
| Piacenza | <0.000001 | <0.001 | - |
| Porto | <0.000001 | <0.001 | - |
| Spring OSR | Okehampton | <0.000001 | <0.001 | - |
| Porto | <0.000001 | <0.001 | - |
| Winter cereals | Châteaudun | <0.000001 | <0.001 | <0.000001 |
| Hamburg | <0.000001 | <0.001 | - |
| Kremsmünster | <0.000001 | <0.001 | - |
| Okehampton | <0.000001 | <0.001 | - |
| Piacenza | <0.000001 | <0.001 | - |
| Porto | <0.000001 | <0.001 | - |
| Spring cereals | Châteaudun | <0.000001 | <0.001 | <0.000001 |
| Hamburg | <0.000001 | <0.001 | - |
| Kremsmünster | <0.000001 | <0.001 | - |
| Okehampton | <0.000001 | <0.001 | - |
| Porto | <0.000001 | <0.001 | - |
| Sunflower (maize as surrogate) | Châteaudun | <0.000001 | <0.001 | <0.000001 |
| Hamburg | <0.000001 | <0.001 | - |
| Kremsmünster | <0.000001 | <0.001 | - |

Table 8.8‑13: PECgw for prothioconazole-desthio

| Crop | Scenario | 80th Percentile PECgw at 1 m Soil Depth (μg/L) | | |
| --- | --- | --- | --- | --- |
| PEARL (5.5.5) | PELMO (6.6.4) | MACRO (5.5.4) |
| Winter OSR  (autumn application) | Châteaudun | <0.000001 | <0.001 | <0.000001 |
| Hamburg | <0.000001 | <0.001 | - |
| Kremsmünster | <0.000001 | <0.001 | - |
| Okehampton | <0.000001 | <0.001 | - |
| Piacenza | <0.000001 | <0.001 | - |
| Porto | <0.000001 | <0.001 | - |
| Winter OSR  (spring application) | Châteaudun | <0.000001 | <0.001 | <0.000001 |
| Hamburg | <0.000001 | <0.001 | - |
| Kremsmünster | <0.000001 | <0.001 | - |
| Okehampton | <0.000001 | <0.001 | - |
| Piacenza | <0.000001 | <0.001 | - |
| Porto | <0.000001 | <0.001 | - |
| Spring OSR | Okehampton | <0.000001 | <0.001 | - |
| Porto | <0.000001 | <0.001 | - |
| Winter cereals | Châteaudun | <0.000001 | <0.001 | <0.000001 |
| Hamburg | <0.000001 | <0.001 | - |
| Kremsmünster | <0.000001 | <0.001 | - |
| Okehampton | <0.000001 | <0.001 | - |
| Piacenza | <0.000001 | <0.001 | - |
| Porto | <0.000001 | <0.001 | - |
| Spring cereals | Châteaudun | <0.000001 | <0.001 | <0.000001 |
| Hamburg | <0.000001 | <0.001 | - |
| Kremsmünster | <0.000001 | <0.001 | - |
| Okehampton | <0.000001 | <0.001 | - |
| Porto | <0.000001 | <0.001 | - |
| Sunflower (maize as surrogate) | Châteaudun | <0.000001 | <0.001 | <0.000001 |
| Hamburg | <0.000001 | <0.001 | - |
| Kremsmünster | <0.000001 | <0.001 | - |

PECgw values were <0.001 µg/L in all models, for prothioconazole and its metabolites in all scenarios and crops. The risk to groundwater was determined to be acceptable for all simulated uses of prothioconazole and its metabolites.

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| **zRMS comments:**  The groundwater modelling was independently validated by the zRMS in additional modelling with FOCUS PEARL 5.5.5 and FOCUS PELMO 6.6.4 using the EU agreed input parameters and application dates as suggested by AppDate 3.06.  Obtained results were in good agreement with these derived by the Applicant for prothioconazole and its metabolites presented in Table 8.8-11 to 8.8-13. Overall, no unacceptable leaching of prothioconazole and its metabolites is expected following application of CA3642 according to the intended use pattern.  Please note that additional groundwater modelling may be required by the concerned Member States that do not accept simulations performed according to FOCUS recommendations. |

#### Azoxystrobin and its metabolites

The PECgw results from FOCUS-PEARL, FOCUS-PELMO and FOCUS-MACRO are summarised in Table 8.8‑14 to Table 8.8‑18 for azoxystrobin and its relevant metabolites.

Table 8.8‑14: PECgw for azoxystrobin

| Crop | Scenario | 80th Percentile PECgw at 1 m Soil Depth (μg/L) | | |
| --- | --- | --- | --- | --- |
| PEARL (5.5.5) | PELMO (6.6.4) | MACRO (5.5.4) |
| Winter OSR  (autumn application) | Châteaudun | <0.000001 | <0.001 | <0.000001 |
| Hamburg | 0.000001 | <0.001 | - |
| Kremsmünster | <0.000001 | <0.001 | - |
| Okehampton | <0.000001 | <0.001 | - |
| Piacenza | <0.000001 | <0.001 | - |
| Porto | <0.000001 | <0.001 | - |
| Winter OSR  (spring application) | Châteaudun | <0.000001 | <0.001 | <0.000001 |
| Hamburg | <0.000001 | <0.001 | - |
| Kremsmünster | <0.000001 | <0.001 | - |
| Okehampton | <0.000001 | <0.001 | - |
| Spring OSR | Okehampton | <0.000001 | <0.001 | - |
| Porto | <0.000001 | <0.001 | - |
| Winter cereals | Châteaudun | <0.000001 | <0.001 | <0.000001 |
| Hamburg | <0.000001 | <0.001 | - |
| Kremsmünster | <0.000001 | <0.001 | - |
| Okehampton | <0.000001 | <0.001 | - |
| Piacenza | <0.000001 | <0.001 | - |
| Porto | <0.000001 | <0.001 | - |
| Spring cereals | Châteaudun | <0.000001 | <0.001 | <0.000001 |
| Hamburg | <0.000001 | <0.001 | - |
| Kremsmünster | <0.000001 | <0.001 | - |
| Okehampton | <0.000001 | <0.001 | - |
| Porto | <0.000001 | <0.001 | - |
| Sunflower (maize as surrogate) | Châteaudun | <0.000001 | <0.001 | <0.000001 |
| Hamburg | <0.000001 | <0.001 | - |
| Kremsmünster | <0.000001 | <0.001 | - |

Table 8.8‑15: PECgw for R234886 (acidic soils)

| Crop | Scenario | 80th Percentile PECgw at 1 m Soil Depth (μg/L) | | |
| --- | --- | --- | --- | --- |
| PEARL (5.5.5) | PELMO (6.6.4) | MACRO (5.5.4) |
| Winter OSR  (autumn application) | Châteaudun | <0.000001 | <0.001 | <0.000001 |
| Hamburg | 0.006886 | 0.002 | - |
| Kremsmünster | 0.000606 | <0.001 | - |
| Okehampton | 0.004780 | 0.006 | - |
| Piacenza | 0.000696 | <0.001 | - |
| Porto | 0.000186 | 0.002 | - |
| Winter OSR  (spring application) | Châteaudun | <0.000001 | <0.001 | <0.000001 |
| Hamburg | 0.000008 | <0.001 | - |
| Kremsmünster | <0.000001 | <0.001 | - |
| Okehampton | 0.000001 | <0.001 | - |
| Piacenza | <0.000001 | <0.001 | - |
| Porto | <0.000001 | <0.001 | - |
| Spring OSR | Okehampton | <0.000001 | <0.001 | - |
| Porto | <0.000001 | <0.001 | - |
| Winter cereals | Châteaudun | <0.000001 | <0.001 | <0.000001 |
| Hamburg | 0.001203 | <0.001 | - |
| Kremsmünster | 0.000047 | <0.001 | - |
| Okehampton | 0.001179 | 0.001 | - |
| Piacenza | 0.000135 | <0.001 | - |
| Porto | 0.000002 | <0.001 | - |
| Spring cereals | Châteaudun | <0.000001 | <0.001 | <0.000001 |
| Hamburg | 0.001754 | <0.001 | - |
| Kremsmünster | 0.000041 | <0.001 | - |
| Okehampton | 0.000792 | 0.001 | - |
| Porto | 0.000003 | <0.001 | - |
| Sunflower (maize as surrogate) | Châteaudun | 0.000056 | <0.001 | 0.000002 |
| Hamburg | 0.013153 | <0.001 | - |
| Kremsmünster | 0.002087 | <0.001 | - |

Table 8.8‑16: PECgw for R234886 (alkaline soils)

| Crop | Scenario | 80th Percentile PECgw at 1 m Soil Depth (μg/L) | | |
| --- | --- | --- | --- | --- |
| PEARL (5.5.5) | PELMO (6.6.4) | MACRO (5.5.4) |
| Winter OSR  (autumn application) | Châteaudun | **0.227738** | **0.139** | **0.203** |
| Hamburg | ***1.105915*** | ***1.011*** | - |
| Kremsmünster | **0.643946** | **0.601** | - |
| Okehampton | ***0.918616*** | ***0.987*** | - |
| Piacenza | **0.318677** | **0.438** | - |
| Porto | **0.591242** | ***1.030*** | - |
| Winter OSR  (spring application) | Châteaudun | 0.017268 | 0.009 | 0.0144 |
| Hamburg | **0.183911** | **0.155** | - |
| Kremsmünster | **0.110272** | 0.098 | - |
| Okehampton | **0.139433** | **0.154** | - |
| Piacenza | 0.042505 | 0.060 | - |
| Porto | 0.062124 | **0.128** | - |
| Spring OSR | Okehampton | **0.123711** | **0.148** | - |
| Porto | 0.058197 | 0.094 | - |
| Winter cereals | Châteaudun | 0.065759 | 0.043 | 0.0719 |
| Hamburg | **0.649416** | **0.573** | - |
| Kremsmünster | **0.405883** | **0.386** | - |
| Okehampton | **0.547637** | **0.577** | - |
| Piacenza | **0.209408** | **0.299** | - |
| Porto | **0.209489** | **0.391** | - |
| Spring cereals | Châteaudun | 0.053627 | 0.032 | 0.0683 |
| Hamburg | **0.710675** | **0.628** | - |
| Kremsmünster | **0.425253** | **0.408** | - |
| Okehampton | **0.518509** | **0.562** | - |
| Porto | **0.282962** | **0.382** | - |
| Sunflower (maize as surrogate) | Châteaudun | **0.613719** | **0.323** | **0.347** |
| Hamburg | ***1.523535*** | ***1.139*** | - |
| Kremsmünster | ***0.916919*** | ***0.831*** | - |

**Bold** values >0.1µg/L, ***Italic*** values >0.75 µg/L

The PECgw values for R234886 in alkaline soils were >0.1 µg/L in several scenarios, with a worst-case of 1.524 µg/L in the Hamburg scenario for the PEARL model following application to sunflower. R234886 was determined to be a non-relevant metabolite in the EFSA conclusion on azoxystrobin with acceptable risk to consumers at levels up to 22 µg/L.

Table 8.8‑17: PECgw for R401553

| Crop | Scenario | 80th Percentile PECgw at 1 m Soil Depth (μg/L) | | |
| --- | --- | --- | --- | --- |
| PEARL (5.5.5) | PELMO (6.6.4) | MACRO (5.5.4) |
| Winter OSR  (autumn application) | Châteaudun | 0.000003 | <0.001 | <0.000001 |
| Hamburg | 0.000383 | <0.001 | - |
| Kremsmünster | 0.000005 | <0.001 | - |
| Okehampton | 0.000019 | <0.001 | - |
| Piacenza | 0.000495 | 0.001 | - |
| Porto | 0.000074 | <0.001 | - |
| Winter OSR  (spring application) | Châteaudun | <0.000001 | <0.001 | <0.000001 |
| Hamburg | 0.000002 | <0.001 | - |
| Kremsmünster | <0.000001 | <0.001 | - |
| Okehampton | <0.000001 | <0.001 | - |
| Piacenza | 0.000001 | <0.001 | - |
| Porto | <0.000001 | <0.001 | - |
| Spring OSR | Okehampton | <0.000001 | <0.001 | - |
| Porto | <0.000001 | <0.001 | - |
| Winter cereals | Châteaudun | <0.000001 | <0.001 | <0.000001 |
| Hamburg | 0.000007 | <0.001 | - |
| Kremsmünster | <0.000001 | <0.001 | - |
| Okehampton | 0.000001 | <0.001 | - |
| Piacenza | 0.000004 | <0.001 | - |
| Porto | <0.000001 | <0.001 | - |
| Spring cereals | Châteaudun | <0.000001 | <0.001 | <0.000001 |
| Hamburg | 0.000009 | <0.001 | - |
| Kremsmünster | <0.000001 | <0.001 | - |
| Okehampton | 0.000001 | <0.001 | - |
| Porto | <0.000001 | <0.001 | - |
| Sunflower (maize as surrogate) | Châteaudun | <0.000001 | <0.001 | <0.000001 |
| Hamburg | 0.0000015 | <0.001 | - |
| Kremsmünster | <0.000001 | <0.001 | - |

Table 8.8‑18: PECgw for R402173

| Crop | Scenario | 80th Percentile PECgw at 1 m Soil Depth (μg/L) | | |
| --- | --- | --- | --- | --- |
| PEARL (5.5.5) | PELMO (6.6.4) | MACRO (5.5.4) |
| Winter OSR  (autumn application) | Châteaudun | 0.000214 | 0.001 | 0.00136 |
| Hamburg | 0.007881 | 0.015 | - |
| Kremsmünster | 0.002212 | 0.005 | - |
| Okehampton | 0.002499 | 0.005 | - |
| Piacenza | 0.012196 | 0.048 | - |
| Porto | 0.017830 | 0.023 | - |
| Winter OSR  (spring application) | Châteaudun | 0.000001 | <0.001 | <0.000001 |
| Hamburg | 0.000033 | <0.001 | - |
| Kremsmünster | 0.000047 | <0.001 | - |
| Okehampton | 0.000061 | <0.001 | - |
| Piacenza | 0.000018 | <0.001 | - |
| Porto | 0.000003 | <0.001 | - |
| Spring OSR | Okehampton | 0.000021 | <0.001 | - |
| Porto | 0.000001 | <0.001 | - |
| Winter cereals | Châteaudun | 0.000001 | <0.001 | <0.000001 |
| Hamburg | 0.000138 | <0.001 | - |
| Kremsmünster | 0.000055 | <0.001 | - |
| Okehampton | 0.000092 | <0.001 | - |
| Piacenza | 0.000192 | <0.001 | - |
| Porto | 0.000097 | <0.001 | - |
| Spring cereals | Châteaudun | 0.000001 | <0.001 | <0.000001 |
| Hamburg | 0.000172 | <0.001 | - |
| Kremsmünster | 0.000097 | <0.001 | - |
| Okehampton | 0.000098 | <0.001 | - |
| Porto | 0.000001 | <0.001 | - |
| Sunflower (maize as surrogate) | Châteaudun | 0.000014 | <0.001 | <0.000006 |
| Hamburg | 0.000277 | <0.001 | - |
| Kremsmünster | 0.000090 | <0.001 | - |

The PECgw values for azoxystrobin and R401553 were <0.001 µg/L in all models, for all scenarios, and crops. The PECgw values for R402173 were <0.1 µg/L in all models, for all scenarios, and crops, with a worst-case of 0.048 µg/L in Piacenza for the PELMO model following autumn application to winter oilseed rape. The risk to groundwater was determined to be acceptable for all simulated uses of these compounds.

The PECgw values for R234886 in acidic soils were a maximum of 0.013 µg/L in the Hamburg scenario for sunflowers in the PEARL model. R234886 in alkaline soils were >0.1 µg/L in several scenarios. The worst-case PECgw was 1.524 µg/L in the Hamburg scenario for sunflowers in the PEARL model. R234886 was determined to be a non-relevant metabolite in the EFSA conclusion on azoxystrobin with acceptable risk to consumers at levels up to 22 µg/L. R234886 is below the critical limit of 10 µg/L (SANCO/221/2000) for non-relevant metabolites and below levels of toxicological concern for consumers.

The risk to groundwater was determined to be acceptable for all simulated uses of CA3642.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **zRMS comments:**  The groundwater modelling was independently validated by the zRMS in additional modelling with FOCUS PEARL 5.5.5 and FOCUS PELMO 6.6.4 using the EU agreed input parameters and application dates as suggested by AppDate 3.06.  In line with information presented in Addendum with confirmatory data for azoxystrobin (September, 2014) the degradation of azoxystrobin was modelled using two separate simulations. The first simulations assumed that azoxystrobin degraded via microbial degradation to R234886, whilst the second assumed that azoxystrobin degraded due to photolysis to form metabolites: R401553 and R402173 (subsequently degrading to R401553).  Obtained results from zRMS modelling were in good agreement with these derived by the Applicant for azoxystrobin and its metabolites presented in Table 8.8-14 to 8.8-18. Performed simulations indicate that unacceptable leaching of azoxystrobin and its metabolites R401553 and R402173 is expected following application of CA3642 according to the intended use pattern.  The PECgw values for metabolite R234886 in acidic soils were <0.1 µg/L in all scenarios and crops. The PECgw values for metabolite R234886 in alkaline soils were above 0.1 µg/L in almost all scenarios with the maximum value of 1.52 µg/L in the Hamburg scenario (PEARL model) following application to sunflower. According to EFSA Journal 2010; 8(4):1542 metabolite R234886 is toxicologically not relevant. Since the PECGW values exceeded the threshold of 0.75 µg/L for non-relevant metabolites the consumer risk assessment was required. Details of the evaluation of the toxicological relevance and consumer risk assessment may be found the Core Assessment, Part B, Section 10.  During the commenting period it was correctly noted that for the minor crop linseeds the crop interception at BBCH 14-18 and 20-69 is 30% and 60%, respectively, which is lower than for oilseed rape (40% and 80%) used as a surrogate crop. Since the only available FOCUS groundwater scenario for linseed is the Okehampton scenario, therefore oilseed rape remains as a relevant surrogate crop for other relevant in Central Zone scenarios but with crop interception relevant for the linseed.  To reduce the workload, the additional groundwater modelling was performed by the zRMS only for the autumn application as it is the worst case considering the rate reaching soil. Additional simulations was based on the same input parameters and application dates as presented in Table 8.8-3, with exception for the Okehampton scenario.  Since all scenarios give PECgw values were lower than 0.001µg/L for both active substances, with the exception of the non-relevant azoxystrobin metabolite R234886 in alkaline soils, thus results only for this metabolite are further discussed. The obtained PECGW values were above 0.1 µg/L in all scenarios, with the maximum value of 1.379 µg/L (for Hamburg scenario). Nevertheless as the results were still lower from the maximum PECgw value of 1.52 µg/L following application to sunflower, no impact on the performed consumer risk assessment is expected. Overall, the use on linseed result in no unacceptable PECgw values, despite the lower crop interception.  Obtained PECgw result for the azoxystrobin metabolite R234886 in alkaline soils following autumn application to minor crop linseeds are presented in table below:  **PECgw for R234886 (alkaline soils)**   | Crop | Scenario | **80th Percentile PECgw at 1 m Soil Depth (μg/L)** | | | --- | --- | --- | --- | | PEARL (5.5.5) | PELMO (6.6.4) | | Minor crop Linseeds (BBCH 14-18)  1 x 180 g/ha, 30% int. | Châteaudun | **0.302** | **0.185** | | Hamburg | ***1.379*** | ***1.252*** | | Kremsmünster | **0.804** | **0.752** | | Okehampton | ***0.886*** | ***1.025*** | | Piacenza | **0.401** | **0.561** | | Porto | **0.743** | ***1.276*** |   Please note that additional groundwater modelling may be required by the concerned Member States that do not accept simulations performed according to FOCUS recommendations. |

## Predicted Environmental Concentrations in surface water (PECsw) (KCP 9.2.5)

The EU evaluation of surface water exposure (EFSA Scientific Report (2007) 106, 1-98 and EFSA Journal 2010; 8(4):1542) did not cover all uses in the product GAP (see Table 8.1‑1 and Table 8.1‑2) and did not include modelling according to current FOCUS and EFSA guidelines. Therefore, new modelling has been performed and is summarised below.

### Justification for new endpoints

All endpoints are taken from the data in the prothioconazole EFSA 2007 conclusion (EFSA Scientific Report (2007) 106, 1-98) and azoxystrobin EFSA 2010 conclusion (2010; 8(4):1542) plus the confirmatory data evaluated at EU level for the metabolite R234886 (EFSA supporting publication 2014:EN-718 and the 2014 DAR addendum). The geometric mean Kfoc was used instead of the arithmetic mean listed in EFSA 2007 for several substances in order to comply with the requirements of current EFSA guidance (EFSA Journal 2014;12(5):3662). The geometric mean provides a slightly more conservative endpoint (higher soil mobility) than the arithmetic mean, resulting in a worst-case risk envelope that covers older assessments with arithmetic means. The differences are summarised below in Table 8.9‑1. Note that no changes were made to the Kfoc endpoint for prothioconazole or R402173, as mean values were not used.

Table 8.9‑1: Justification of new Kfoc endpoints used in modelling

| **Substance** | **Endpoint** | **Agreed EU modelling endpoint** | **New modelling endpoint** | **Justification** |
| --- | --- | --- | --- | --- |
| Prothioconazole | Kfoc | 1765 (single value) | | No change required. |
| Prothioconazole-S-methyl | Kfoc | 2556.3  (arithmetic mean) | 2525.9  (geometric mean) | Geometric means follow current guidelines (EFSA Journal 2014;12(5):3662) and result in a more conservative risk assessment and are required in several member states where approval is requested.  The individual endpoints used for calculation of the mean are unchanged from the agreed EU values. |
| Prothioconazole-desthio | Kfoc | 575.4  (arithmetic mean) | 573.5  (geometric mean) |
| 1,2,4-Triazole | Kfoc | 89 (arithmetic mean) | 83 (geometric mean) |
| Azoxystrobin | Kfoc | 423  (arithmetic mean) | 392  (geometric mean) |
| R234886 | Kfoc | Acidic soils: 228.4  Alkaline soils: 36.7  (arithmetic mean) | Acidic soils: 176.6  Alkaline soils: 34.8  (geometric mean) |
| R401553 | Kfoc | 188  (arithmetic mean) | 143  (geometric mean) |
| R402173 | Kfoc | 25  (worst-case due to pH dependence, n = 6) | | No change required. |

|  |
| --- |
| **zRMS comments:**  For prothioconazole metabolites: JAU 6476-S-methyl, JAU 6476-desthio and 1,2,4-Triazole and for azoxystrobin and its metabolites: R234886 and R401553 the geometric mean Kfoc values were calculated by the Applicant, although in the EFSA conclusion only arithmetic mean values are reported and further used for surface water modelling. This deviations is agreed by the zRMS since the geometric mean Kfoc values are lower than arithmetic mean Kfoc values and represent thus worst case in terms of the water column exposure (relevant for aquatic organisms). Moreover consideration of geometric mean Kfoc values is in line with current EFSA recommendations. The calculated by the Applicant geometric mean values were based on the individual Kfoc from the LoEP and are confirmed to be correct. |

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

PECsw values for prothioconazole, azoxystrobin and all relevant metabolites were determined at FOCUS STEPS 1-2. FOCUS STEP 3 and 4 models were required for azoxystrobin, prothioconazole and the metabolite prothioconazole-desthio, a metabolite with relatively high ecotoxicity, persistence and mobility compared to the active substance (please refer to Part B9 for further information on ecotoxicity). PECsw values were calculated for single and multiple applications for uses on spring and winter cereals, and single applications on spring oilseed rape and winter oilseed rape, which provide a risk envelope for all uses in the GAP. The modelling was provided in the reports below. As the reports used the same substance endpoints with different crops, they are summarised together.

|  |  |
| --- | --- |
| **Data point:** | K-CP 9.2.5/01 |
| **Report author** | M. Hale |
| **Report year** | 2022 |
| **Report title** | CA3642: Predicted Environmental Concentrations in Surface Water Following Application to Cereals and Oilseed Rape, Using FOCUS STEPS 1-4 |
| **Report No** | 22/126 |
| **Document No** | Not applicable |
| **Guidelines followed in study** | FOCUS |
| **Deviations from current test guideline** | None |
| **Previous evaluation** | None |
| **GLP/Officially recognised testing facilities** | NA |
| **Acceptability/Reliability:** | Yes |

|  |  |
| --- | --- |
| **Data point:** | K-CP 9.2.5/02 |
| **Report author** | M. Hale |
| **Report year** | 2023 |
| **Report title** | CA3642: Predicted Environmental Concentrations in Surface Water Following Application to Sunflower in Poland, Using FOCUS STEPS 1-4 |
| **Report No** | 23/95 |
| **Document No** | Not applicable |
| **Guidelines followed in study** | FOCUS |
| **Deviations from current test guideline** | None |
| **Previous evaluation** | None |
| **GLP/Officially recognised testing facilities** | NA |
| **Acceptability/Reliability:** | Yes |

For simulations at STEPS 1 to 4, modelling was performed for all available FOCUS scenarios that are defined for the relevant crop type, with the exception of sunflower, which is only used in Poland and therefore only modelled for D3, D4 and R1. Application windows were set by using AppDate (v3.06) program to provide dates for the BBCH recommendations in the GAP. The exact application timings were automatically selected by the model, based on the application window and method of application. Full details are given in Table 8.9‑2.

Table 8.9‑2: Input parameters related to application for PECsw/sed calculations

|  |  |  |  |
| --- | --- | --- | --- |
| **GAP use number** | **Covering uses 79-90, 105-116 (autumn applications to winter varieties)** | **Covering uses 79-90, 105-116 (spring applications to winter varieties)** | **Covering uses 91-116 (spring applications to spring varieties)** |
| **Crop** | Winter OSR (autumn use) | Winter OSR (spring use) | Spring OSR (spring use) |
| FOCUS-STEPS Crop Group | Winter OSR | Winter OSR | Spring OSR |
| FOCUS STEPS 1-2 parameters | Oct-Feb  Minimal crop cover | Mar-May, Jun-Sep  Average crop cover | Mar-May, Jun-Sep  Average crop cover |
| FOCUS STEP 3 Locations | All available\* | All available\* | All available\* |
| Application window | BBCH 14 (autumn)  D3: 252-282  D4: 253-283  D5: 270-300  R1: 254-284  R3: 285-315 | BBCH 20 (spring)  (Appdate BBCH 21)\*\*  D3: 43-73  D4: 51-81  D5: 51-81  R1: 96-126  R3: 57-87 | BBCH 20 (spring)  D3: 117-147  D4 : 134-164  D5 : 93-123  R1 : 115-145 |
| Application method | Foliar spray | Foliar spray | Foliar spray |
| Application rate (g as/ha) | 180 g/ha prothioconazole  180 g/ha azoxystrobin | 180 g/ha prothioconazole  180 g/ha azoxystrobin | 180 g/ha prothioconazole  180 g/ha azoxystrobin |
| Number of applications/interval (d) | 1 | 1 | 1 |
| CAM (Chemical application method) | 2 | 2 | 2 |
| Soil depth (cm) | 4 | 4 | 4 |
| Models used for calculation | FOCUS SWASH v5.3, FOCUS PRZM v4.3.1,  FOCUS MACRO v5.5.4, FOCUS TOXWA v5.5.3 | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **GAP use number** | **Covering uses 1-78 (winter varieties)** | **Covering uses 1-78 (spring varieties)** | **Covering use 103** |
| Crop | Winter cereals | Spring cereals | Sunflower |
| FOCUS-STEPS Crop Group | Winter cereals | Spring cereals | Sunflower (R1)  Maize (surrogate for D3, D4) |
| FOCUS STEPS 1-2 parameters | Mar-May, Jun-Sep  Average crop cover | Mar-May, Jun-Sep  Average crop cover | Mar-May, Jun-Sep  Minimal crop cover |
| FOCUS Locations | All available\* | All available\* | D3, D4, R1 |
| Application window | BBCH 30  2 Applications:  D3: 106-150  D4: 77-121  D5: 74-118  R1: 114-158  R3: 78-122  R4: 60-104†  1 Application:  D3: 106-136  D4: 77-107  D5: 74-104  R1: 114-144  R3: 78-108  R4: 60-90† | BBCH 30  2 Applications:  D3: 118-162  D4: 138-182  D5: 99-143  R4: 99-143  1 Application:  D3: 118-148  D4: 138-168  D5: 99-129  R4: 99-129 | BBCH 16  D3: 145-175  D4: 151-181  R1: 135-165 |
| Application method | Foliar spray | Foliar spray | Foliar spray |
| Application rate (g as/ha) | 210 g/ha prothioconazole  210 g/ha azoxystrobin | 210 g/ha prothioconazole  210 g/ha azoxystrobin | 180 g/ha prothioconazole  180 g/ha azoxystrobin |
| Number of applications/interval (d) | 2 / 14 d †† | 2 / 14 d †† | 1 |
| CAM (Chemical application method) | 2 | 2 | 2 |
| Soil depth (cm) | 4 | 4 | 4 |
| Models used for calculation | FOCUS SWASH v5.3, FOCUS PRZM v4.3.1,  FOCUS MACRO v5.5.4, FOCUS TOXWA v5.5.3 | | |

\* Note that the Hale (2022) report contains all FOCUS scenarios, but this summary does not include data for D1, D2, D6 or R2 because they are not relevant for any countries within the central zone according to the Working Document of the Central Zone in the Authorisation of PPPs (v1r1 June 2018).

\*\* Note that AppDate assumes that BBCH 20 is reached in autumn, so BBCH 21 was used. In many scenarios, applications are predicted to occur slightly before spring (*e.g.* in late February), but this was considered a protective worst-case, given the difficulty of modelling applications in spring after the winter dormancy period in the FOCUS model

† BBCH 30 is reached very early in these scenarios (e.g. R4 = 24th Jan), which is not compatible with the GAP requirement of spring application. Therefore, 1st March was used as a realistic worst-case earliest date for spring application

†† An additional set of modelling was performed using 1 application, since this can result in higher PEC values as TOXSWA uses a lower spray-drift percentage for multiple applications.

The application timings chosen by the model are given below in Table 8.9‑3.

Table 8.9‑3: FOCUS STEP 3 application timings

| Crop | Scenario | Application window used in modelling  (Day numbers) | Actual dates selected by the model |
| --- | --- | --- | --- |
| Winter oilseed rape  (autumn) | D3 | 252-282 | 26 Sept |
| D4 | 253-283 | 10 Sep |
| D5 | 270-300 | 26 Oct |
| R1 | 254-284 | 17 Sep |
| R3 | 285-315 | 27 Oct |
| Winter oilseed rape  (spring) | D3 | 43-73 | 29 Feb |
| D4 | 51-81 | 24 Feb |
| D5 | 51-81 | 21 Feb |
| R1 | 96-126 | 7 Apr |
| R3 | 57-87 | 26 Feb |
| Spring oilseed rape | D3 | 117-147 | 4 May |
| D4 | 134-164 | 30 May |
| D5 | 93-123 | 8 Apr |
| R1 | 115-145 | 26 Apr |
| Winter cereals\* | D3 | 106-150 | 20 Apr, 4 May |
| D4 | 77-121 | 19 Mar, 18 Apr |
| D5 | 74-118 | 8 Apr, 22 Apr |
| R1 | 114-158 | 26 Apr, 10 May |
| R3 | 78-122 | 28 Mar, 11 Apr |
| R4 | 60-104 | 5 Mar, 21 Mar |
| Spring cereals\* | D3 | 118-162 | 4 May, 18 May |
| D4 | 138-182 | 30 May, 16 Jun |
| D5 | 99-143 | 14 Apr, 11 May |
| R4 | 99-143 | 4 May, 20 May |
| Sunflower | R1 | 135-165 | 13 Jun |
| Maize (surrogate for sunflower) | D3 | 145-175 | 26 May |
| D4 | 151-181 | 31 May |

\* Single application models used a 30d window starting at the earliest day number, and application was made on the first of the listed dates.

At STEP 4, the SWAN tool was used to modify the drift and runoff input factors used by TOXSWA, based on vegetated buffer strips of 10 and 20 meters. Runoff mitigation factors were taken from the guidance document SANCO/10422/2005 and are summarised below in Table 8.9‑4.

Table **8.9**‑**4**: Runoff mitigation factors

|  |  |  |
| --- | --- | --- |
|  | **10m vegetated filter strip** | **20m vegetated filter strip** |
| Reduction in runoff volume | 60% | 80% |
| Reduction in runoff volume | 60% | 80% |
| Reduction in erosion mass | 85% | 95% |
| Reduction in erosion flux | 85% | 95% |

Input parameters for prothioconazole, azoxystrobin and their relevant metabolites were taken from the EU agreed endpoints in the EFSA conclusions and the associated data in the DAR and any confirmatory data. A summary of the environmental fate parameters is given in Table 8.9‑5 to Table 8.9‑12. Any parameters not mentioned below were left at the default recommendation of the models.

Table 8.9‑5: Input parameters related to prothioconazole for PECsw/sed calculations

| Parameter | Prothioconazole | Value in accordance with EU endpoint y/n/  Reference |
| --- | --- | --- |
| Molecular weight (g/mol) | 344.26 | Y, EFSA (2007) |
| Saturated vapour pressure (Pa) | 0 (20°C) | Y, EFSA (2007)\*  (default worst-case) |
| Water solubility (mg/L) | 2000 (20°C, pH 9, worst-case) | Y, EFSA (2007) |
| Diffusion coefficient in water (m²/d) | not required for Step 1+2/  4.3 x 10-5 | default |
| Diffusion coefficient in air (m²/d) | not required for Step 1+2/0.43 | default |
| Kfoc / Kfom (mL/g) | 1765/1024 (n=1) | Y, EFSA (2007) |
| Freundlich Exponent  1/n | 1 | Y, EFSA (2007)  (default worst-case) |
| Plant Uptake | 0 | Default |
| Wash-Off factor from Crop (1/mm) | not required for Step 1+2/ 0.05 (MACRO)  0.50 (PRZM) |  |
| DT50,soil (d) | 1.2 (geomean, field, normalisation to 20°C with Q10 of 2.2, n =8) | Y, EFSA (2007), RAR (2005)\*\* |
| DT50,water (d) | 2.2 (geomean whole system, n=2)  (correct value from LoEP: 1.0 d) | Y, EFSA (2007) |
| DT50,sed (d) | 2.2 (geomean whole system, n=2)  (correct value from LoEP: 1.0 d) | Y, EFSA (2007) |
| DT50,whole system (d) | STEPS 1-2: 2.2 (geomean whole system, n=2)  (correct value: 1.0 d)  STEPS 3-4: Not used | Y, EFSA (2007) |

\* EFSA (2007) gives a vapour pressure of “<< 4× 10-7 Pa”, below the minimum detectable is testing. A value of 0 was used as a worst-case to prevent volatile losses from soil and water.

\*\* Field DT50 is significantly greater than lab value and is a worst-case even with Q10 of 2.2. The RAR does not contain sufficient data to renormalise the field DT50 uising a Q10 of 2.58.

Table 8.9‑6: Input parameters related to prothioconazole-S-methyl for PECsw/sed calculations

| Parameter | Prothioconazole-S-methyl | Value in accordance with EU endpoint y/n/  Reference |
| --- | --- | --- |
| Molecular weight (g/mol) | 358.3 | Y, EFSA (2007) |
| Saturated vapour pressure (Pa) | 0 (20°C) | Worst-case default |
| Water solubility (mg/L) | 1×106 (20°C) | Worst-case default |
| Diffusion coefficient in water (m²/d) | not required for Step 1+2 | - |
| Diffusion coefficient in air (m²/d) | not required for Step 1+2 | - |
| Kfoc / Kfom (mL/g) | 2525.9 / 1465.1 (geometric mean, n = 4) | N, EFSA (2007), RAR (2005)\* |
| Freundlich Exponent  1/n | 0.88 (arithmetic mean, n = 4) | Y, EFSA (2007), RAR (2005) |
| Plant Uptake | 0 | Default |
| Wash-Off factor from Crop (1/mm) | not required for Step 1+2 | - |
| DT50,soil (d) | 15.7 (geometric mean, n=4) | Y, EFSA (2007), RAR (2005) |
| DT50,water (d) | 1000 | Worst-case default |
| DT50,sed (d) | 1000 | Worst-case default |
| DT50,whole system (d) | 1000 | Worst-case default |
| Maximum occurrence observed (% molar basis with respect to the parent) | Soil: 14.6  Water/sediment: ~~Not relevant in water~~  12.7 (aerobic in whole system)  77 (anaerobic in sediment) | Y, EFSA (2007) |
| Formation fraction in soil: | not required for Step 1+2 | - |
| Formation fraction in water/sediment: | not required for Step 1+2 | - |

\* value changed to geometric mean (EFSA 2007 used an arithmetic mean). Geomean value more conservative than original EU Kfoc value in EFSA (2007) which was 2556.3 mL/g.

Table 8.9‑7: Input parameters related to prothioconazole-desthio for PECsw/sed calculations

| Parameter | Prothioconazole-desthio | Value in accordance with EU endpoint y/n/  Reference |
| --- | --- | --- |
| Molecular weight (g/mol) | 312.2 | Y, EFSA (2007), RAR (2005) |
| Saturated vapour pressure (Pa) | 0 (20°C) | Worst-case default |
| Water solubility (mg/L) | 1×106 (20°C) | Worst-case default |
| Diffusion coefficient in water (m²/d) | not required for Step 1+2/  4.3 x 10-5 | Default |
| Diffusion coefficient in air (m²/d) | not required for Step 1+2/0.43 | Default |
| Kfoc / Kfom (mL/g) | 573.5 / 332.7 (geometric mean, n = 4) | N, EFSA (2007), RAR (2005)\* |
| Freundlich Exponent  1/n | 0.81 (arithmetic mean, n = 4) | Y, EFSA (2007), RAR (2005) |
| Plant Uptake | 0 | Worst-case default |
| Wash-Off factor from Crop (1/mm) | not required for Step 1+2/ 0.05 (MACRO)  0.50 (PRZM) | Default |
| DT50,soil (d) | 22.7 (geomean, normalisation to 10 kPa or pF2, 20 °C with Q10 of 2.2, n =8)\*\* | Y, EFSA (2007), RAR (2005) |
| DT50,water (d) | 1000 | Worst-case default |
| DT50,sed (d) | 1000 | Worst-case default |
| DT50,whole system (d) | 1000 | Worst-case default |
| Maximum occurrence observed (% molar basis with respect to the parent) | Soil: 57.1%  Water/sediment (total system): 54.6% | Y, EFSA (2007), RAR (2005) |
| Formation fraction in soil: | 0.571 (from prothioconazole) | Y, EFSA (2007) |
| Formation fraction in water/sediment: | 1 (from prothioconazole) | Worst-case default |

\* value changed to geometric mean (EFSA 2007 used an arithmetic mean). Geomean value more conservative than original EU Kfoc value in EFSA (2007) which was 575.4 mL/g.

\*\* Field DT50 is significantly greater than lab value and is a worst-case even with Q10 of 2.2. The RAR does not contain sufficient data to renormalise the field DT50 uising a Q10 of 2.58.

Table 8.9‑8: Input parameters related to 1,2,4-triazole for PECsw/sed calculations

| Parameter | 1,2,4-Triazole | Value in accordance with EU endpoint y/n/  Reference |
| --- | --- | --- |
| Molecular weight (g/mol) | 69.1 | Y, EFSA (2007), RAR (2005) |
| Saturated vapour pressure (Pa) | 0 (20°C) | Worst-case default |
| Water solubility (mg/L) | 1×106 (20°C) | Worst-case default |
| Diffusion coefficient in water (m²/d) | not required for Step 1+2 | - |
| Diffusion coefficient in air (m²/d) | not required for Step 1+2 | - |
| Kfoc / Kfom (mL/g) | 83 / 48 (geometric mean, n = 4) | N, EFSA (2007), PRAPeR 12 (Jan 2007)\* |
| Freundlich Exponent  1/n | 0.916 (arithmetic mean, n = 4) | Y, EFSA (2007) |
| Plant Uptake | 0 | Worst-case default |
| Wash-Off factor from Crop (1/mm) | not required for Step 1+2 | - |
| DT50,soil (d) | 1000 | Worst-case default |
| DT50,water (d) | 1000 | Worst-case default |
| DT50,sed (d) | 1000 | Worst-case default |
| DT50,whole system (d) | 1000 | Worst-case default |
| Maximum occurrence observed (% molar basis with respect to the parent) | Soil: Not formed in soil  Water/sediment: 41.8 % | Y, EFSA (2007), RAR (2005) |
| Formation fraction in soil: | not required for Step 1+2 | - |
| Formation fraction in water/sediment: | not required for Step 1+2 | - |

\* value changed to geometric mean (EFSA 2007 used an arithmetic mean) . Geomean value more conservative than original EU Kfoc value in EFSA (2007) which was 89 mL/g.

Table 8.9‑9: Input parameters related to azoxystrobin for PECsw/sed calculations

| Parameter | Azoxystrobin | Value in accordance to EU endpoint y/n/  Reference |
| --- | --- | --- |
| Molecular weight (g/mol) | 403.4 | Y, EFSA (2010) |
| Saturated vapour pressure (Pa) | 1.1 × 10-10 (25°C) | Y, EFSA (2010) |
| Water solubility (mg/L) | 6.7 (20°C) | Y, EFSA (2010) |
| Diffusion coefficient in water (m²/d) | not required for Step 1+2/  4.3 x 10-5 | default |
| Diffusion coefficient in air (m²/d) | not required for Step 1+2/0.43 | default |
| Kfoc / Kfom (mL/g) | 392 / 227.4 (geometric mean, n = 6) | N, EFSA (2010)\* |
| Freundlich Exponent, 1/n | 0.86 (arithmetic mean, n = 6) | Y, EFSA (2010) |
| Plant Uptake | 0 | Default |
| Wash-Off factor from Crop (1/mm) | not required for Step 1+2/ 0.05 (MACRO)  0.50 (PRZM) | Default |
| DT50,soil (d) | 78.0 (geometric mean of field studies (slow phase), normalisation to 10 kPa or pF2, 20 °C with Q10 of 2.58, n = 13) | Y, EFSA (2010) |
| DT50,water (d) | 205 (STEPS 1-2)  1000 (default, STEPS 3-4) | Y, EFSA (2010) |
| DT50,sed (d) | 205 (geomean whole system, n=2) | Y, EFSA (2010) |
| DT50,whole system (d) | STEPS 1-2: 205 (geomean whole system, n=2)  STEPS 3-4: Not used | Y, EFSA (2010) |

\* value changed to geometric mean (EFSA 2010 used an arithmetic mean). Geomean value more conservative than original EU Kfoc value in EFSA (2010) which was 423 mL/g.

Table 8.9‑10: Input parameters related to R234886 for PECsw/sed calculations

| Parameter | R234886 | Value in accordance to EU endpoint y/n/  Reference |
| --- | --- | --- |
| Molecular weight (g/mol) | 389.4 | Y, EFSA (2014) |
| Saturated vapour pressure (Pa) | not required for Step 1+2 | - |
| Water solubility (mg/L) | 57 (20°C) | Y, EFSA (2014) |
| Diffusion coefficient in water (m²/d) | not required for Step 1+2 | - |
| Diffusion coefficient in air (m²/d) | not required for Step 1+2 | - |
| Kfoc / Kfom (mL/g) | acidic soil: 176.6 / 102.4 (geometric mean, n=8)  alkaline soils: 34.8 / 20.2 (geometric mean, n=7) | N, EFSA (2014)\* |
| Freundlich Exponent, 1/n | not required for Step 1+2 | - |
| Plant Uptake | not required for Step 1+2 | - |
| Wash-Off factor from Crop (1/mm) | not required for Step 1+2 | - |
| DT50,soil (d) | acidic soil: 98.6  alkaline soils: 36.7 | Y, EFSA (2014) |
| DT50,water (d) | 1000 | Y, EFSA (2014) |
| DT50,sed (d) | 1000 | Y, EFSA (2014) |
| DT50,whole system (d) | 1000 | Y, EFSA (2014) |
| Maximum occurrence observed (% molar basis with respect to the parent) | Soil: 28.8%  Water/sediment (total system): 18.1% | Y, EFSA (2014) |
| Formation fraction in soil: | not required for Step 1+2 | - |
| Formation fraction in water/sediment: | not required for Step 1+2 | - |

\* values changed to geometric means (EFSA 2014 used an arithmetic mean). Geomean value more conservative than original EU Kfoc values in EFSA (2014) which were 228.4 and 36.7 mL/g.

Table 8.9‑11: Input parameters related to R401553 for PECsw/sed calculations

| Parameter | R401553 | Value in accordance to EU endpoint y/n/  Reference |
| --- | --- | --- |
| Molecular weight (g/mol) | 213.2 | Y, EFSA (2010) |
| Saturated vapour pressure (Pa) | not required for Step 1+2 | - |
| Water solubility (mg/L) | 560 (20°C) | Y, EFSA (2010) |
| Diffusion coefficient in water (m²/d) | not required for Step 1+2 | - |
| Diffusion coefficient in air (m²/d) | not required for Step 1+2 | - |
| Kfoc / Kfom (mL/g) | 143 / 82.9 (geometric mean, n = 6) | N, EFSA (2010)\* |
| Freundlich Exponent  1/n | not required for Step 1+2 | - |
| Plant Uptake | not required for Step 1+2 | - |
| Wash-Off factor from Crop (1/mm) | not required for Step 1+2 | - |
| DT50,soil (d) | 1.1 (geometric mean, n=3) | Y, EFSA (2010) |
| DT50,water (d) | 1000 | Y, EFSA (2010) |
| DT50,sed (d) | 1000 | Y, EFSA (2010) |
| DT50,whole system (d) | 1000 | Y, EFSA (2010) |
| Maximum occurrence observed (% molar basis with respect to the parent) | Soil: 17.0%  Water/sediment (total system): 8.9% | Y, EFSA (2010) |
| Formation fraction in soil: | not required for Step 1+2 | - |
| Formation fraction in water/sediment: | not required for Step 1+2 | - |

\* value changed to geometric mean (EFSA 2010 used an arithmetic mean). Geomean value more conservative than original EU Kfoc value in EFSA (2010) which was 188 mL/g.

Table 8.9‑12: Input parameters related to R402173 for PECsw/sed calculations

| Parameter | R402173 | Value in accordance to EU endpoint y/n/  Reference |
| --- | --- | --- |
| Molecular weight (g/mol) | 333.3 | Y, EFSA (2010) |
| Saturated vapour pressure (Pa) | not required for Step 1+2 | - |
| Water solubility (mg/L) | 61 (20°C) | Y, EFSA (2010) |
| Diffusion coefficient in water (m²/d) | not required for Step 1+2 | - |
| Diffusion coefficient in air (m²/d) | not required for Step 1+2 | - |
| Kfoc / Kfom (mL/g) | 25 / 14.5 (worst-case due to pH dependence, n = 6) | Y, EFSA (2010) |
| Freundlich Exponent  1/n | not required for Step 1+2 | - |
| Plant Uptake | not required for Step 1+2 | - |
| Wash-Off factor from Crop (1/mm) | not required for Step 1+2 | - |
| DT50,soil (d) | 4.7 (geometric mean, n=3) | Y, EFSA (2010) |
| DT50,water (d) | 1000 | Y, EFSA (2010) |
| DT50,sed (d) | 1000 | Y, EFSA (2010) |
| DT50,whole system (d) | 1000 | Y, EFSA (2010) |
| Maximum occurrence observed (% molar basis with respect to the parent) | Soil: 17.0%  Water/sediment (total system): 2.4% | Y, EFSA (2010) |
| Formation fraction in soil: | not required for Step 1+2 | - |
| Formation fraction in water/sediment: | not required for Step 1+2 | - |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **zRMS comments:**  The application pattern assumed in simulations is in line with central Zone GAP as presented in Table 8.1-1. It is noted that the Central Zone GAP includes several minor crops. The following surrogate crops were considered by the Applicant in simulations:   1. Spring and winter oilseed rape (major crop) for flax, linseeds, poppy, mustard and gold of pleasure. The zRMS agrees that winter OSR is most suitable surrogate crop. 2. Maize was used as surrogate crop for sunflower for missing D3 and D4 scenarios, and zRMS agrees with that.   Application dates presented in Table 8.9-3 were checked by the zRMS using AppDate ver. 3.06 tool and are considered acceptable.  Input parameters used for surface water modelling for prothioconazole and its metabolites and presented in Tables 8.9-5 to 8.9-8 are in general in line with EU agreed endpoints with following remarks:   * for prothioconazole DT50 in water/sediment of 2.2 days was used instead of 1.0 days agreed in the course of the EU review. Nevertheless, in opinion of the zRMS this deviation is not expected to have significant impact on the obtained results. * for the metabolite JAU 6476 S-Methyl in the aerobic water/sediment study the maximum occurrence of 12.7% in the whole system is observed, while in the anaerobic study 77% only in sediment. Thus, respective changes were introduced in Table 8.9-6 and used in the independent zRMS calculations for this metabolite at Step 1-2. * for metabolites JAU 6476 S-methyl and JAU 6476-desthio and 1,2,4-Triazole the geometric instead of arithmetic mean Kfoc values were used. This deviation is agreed by the zRMS, as the geometric mean Kfoc values are lower than arithmetic mean values and represent thus worst case in terms of the potential leaching. Moreover, consideration of geometric mean Kfoc values is in line with current EFSA recommendations. * for metabolite JAU 6476-desthio it is noted that at the EU level no separate DT50 values were determined for water and sediment compartments and DT50 of 49.9 days is relevant for the whole system. Nevertheless, assumed 1000 days represents worst case and it was accepted by the zRMS. * With regard to parametrisation of the model at Step 3 and 4, it is noted that the KFOC of JAU 6476-desthio is between 100 and 2000 mL/g and guidance indicates that in such case the whole system degradation values should be applied to one compartment (water or sediment) and a default of 1000 days applied to the other compartment. The same applies to the parent with EU agreed KOC of 1765 mL/g. This approach gives four combinations for parent and metabolite modelling. Since the risk is driven by exposure via water and not sediment (endpoints for sediment dwellers are expressed in terms of mg/L) the four combinations indicated in table below were tested by the zRMS in order to check which gives the highest PECSW values. It turned out that the worst case combination was when the shortest DT50 value was applied to prothioconazole and the default of 1000 days was applied to JAU 6476-desthio in the water phase (combination 2 in table below). This combination was then used in the zRMS modelling performed for purposes of validation of the Applicants’ results.   Potential combinations of water and sediment DT50 values for use in Step 3 modelling.   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **Component** | **Endpoint** | **Combination run in FOCUS Step 3 modelling** | | | | | **1** | **2** | **3** | **4** | | Prothioconazole | DT50 (water phase) | 2.1 | **2.1** | 1000 | 1000 | | DT50 (sediment) | 1000 | **1000** | 2.1 | 2.1 | | JAU 6476-desthio | DT50 (water phase) | 49.9 | **1000** | 49.9 | 1000 | | DT50 (sediment) | 1000 | **49.9** | 1000 | 49.9 |   Considering all deviation mentioned above respective changes were introduced in Tables 8.9-5 and to 8.9-6.  Input parameters for azoxystrobin presented in Table 8.9-9 to 8.9-12 and used in the modelling are in general in line with EU agreed endpoints as reported in EFSA Journal 2010; 8(4):1542 and in Addendum with confirmatory data for azoxystrobin (September, 2014) with following remark:   * for azoxystrobin and its metabolites: R234886 and R401553 the geometric instead of arithmetic mean Kfoc values were used. This deviation is, however agreed by the zRMS, as the geometric mean Kfoc values are lower than arithmetic mean values and represent thus worst case in terms of the potential leaching. Moreover, consideration of geometric mean Kfoc values is in line with current EFSA recommendations. However, it should be emphasized that new active substance data should not be generated at the zonal level   At Step 3 PUF value of 0 was assumed for all compounds and it is in line with current recommendations.  Step 4 simulations were performed according to recommendations of the FOCUS work group on landscape and mitigation factors and were validated by the zRMS for convenience of the concerned Member States that consider FOCUS simulations as Step 4 at the national level. |

#### Prothioconazole and its metabolites

Prothioconazole STEPS 1-4 PECsw/sed

Results from the FOCUS STEPS 1-3 surface water modelling for prothioconazole are presented in Table 8.9‑13 to Table 8.9-18.

Table 8.9‑13: FOCUS STEP 1, 2 and 3 PECsw and PECsed for Prothioconazole following application to Winter OSR (autumn applications)

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | Max PECsed (μg/kg) |
| --- | --- | --- | --- | --- |
| **STEP 1** | - | - | 19.55 | 315.81 |
| **STEP 2** |  |  |  |  |
| Northern Europe | Oct-Feb | - | 1.66 | 11.54 |
| **STEP 3** |  |  |  |  |
| D3 | ditch | Drift | 1.144 | 0.5917 |
| D4 | pond | Drift | 0.03934 | 0.03467 |
| D4 | stream | Drift | 0.9854 | 0.1780 |
| D5 | pond | Drift | 0.03934 | 0.02852 |
| D5 | stream | Drift | 1.063 | 0.2321 |
| R1 | pond | Drift | 0.03931 | 0.03207 |
| R1 | stream | Drift | 0.7534 | 0.1033 |
| R3 | stream | Drift | 1.053 | 0.2888 |

Table 8.9‑14: FOCUS STEP 1, 2 and 3 PECsw and PECsed for Prothioconazole following application to Winter OSR (spring application)

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | Max PECsed (μg/kg) |
| --- | --- | --- | --- | --- |
| **STEP 1** | - | - | 19.55 | 315.81 |
| **STEP 2** |  |  |  |  |
| Northern | March-May | - | 1.66 | 4.24 |
| Europe | June-Sept | - | 1.66 | 4.24 |
| **STEP 3** |  |  |  |  |
| D3 | ditch | Drift | 1.136 | 0.4543 |
| D4 | pond | Drift | 0.03931 | 0.05417 |
| D4 | stream | Drift | 0.8851 | 0.03506 |
| D5 | pond | Drift | 0.03925 | 0.04587 |
| D5 | stream | Drift | 0.7382 | 0.00921 |
| R1 | pond | Drift | 0.03931 | 0.04324 |
| R1 | stream | Drift | 0.7492 | 0.0909 |
| R3 | stream | Drift | 1.062 | 0.2408 |

Table 8.9‑15: FOCUS STEP 1, 2 and 3 PECsw and PECsed for Prothioconazole following application to Spring OSR

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | Max PECsed (μg/kg) |
| --- | --- | --- | --- | --- |
| **STEP 1** | - | - | 19.55 | 315.81 |
| **STEP 2** |  |  |  |  |
| Northern | March-May | - | 1.66 | 4.24 |
| Europe | June-Sept | - | 1.66 | 4.24 |
| **STEP 3** |  |  |  |  |
| D3 | ditch | Drift | 1.141 | 0.4909 |
| D4 | pond | Drift | 0.03932 | 0.03444 |
| D4 | stream | Drift | 0.9331 | 0.06181 |
| D5 | pond | Drift | 0.03931 | 0.04269 |
| D5 | stream | Drift | 0.9045 | 0.02469 |
| R1 | pond | Drift | 0.03931 | 0.04325 |
| R1 | stream | Drift | 0.7504 | 0.09504 |

Table 8.9‑16: FOCUS STEP 1, 2 and 3 PECsw and PECsed for Prothioconazole following application to Winter Cereals

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | | Max PECsed (μg/kg) | |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | 1 app | 2 apps | 1 app | 2 apps |
| **STEP 1** | - | - | N/A | **22.81** | N/A | **368.44** |
| **STEP 2** |  |  |  |  |  |  |
| Northern | March-May | - | **1.93** | 1.71 | **8.35** | 8.09 |
| Europe | June-Sept | - | **1.93** | 1.71 | **8.35** | 8.09 |
| **STEP 3** |  |  |  |  |  |  |
| D3 | ditch | Drift | **1.329** | 1.162 | **0.5935** | 0.5187 |
| D4 | pond | Drift | **0.04585** | 0.04049 | **0.06272** | 0.06138 |
| D4 | stream | Drift | **0.9815** | 0.8784 | 0.02818 | **0.03129** |
| D5 | pond | Drift | **0.04586** | 0.04439 | 0.04983 | **0.05877** |
| D5 | stream | Drift | **1.061** | 1.013 | 0.02990 | **0.07159** |
| R1 | pond | Drift | **0.04586** | 0.04255 | **0.05045** | 0.04736 |
| R1 | stream | Drift | **0.8755** | 0.7571 | 0.1107 | **0.2478** |
| R3 | stream | Drift | **1.230** | 1.070 | 0.2190 | **0.7710** |
| R4 | stream | Drift | **0.8756** | 0.7572 | **0.1112** | 0.09945 |

**Bold** = worst case from 1 or 2 applications

Table 8.9‑17: FOCUS STEP 1, 2 and 3 PECsw and PECsed for Prothioconazole following application to Spring Cereals

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | | Max PECsed (μg/kg) | |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | 1 app | 2 apps | 1 app | 2 apps |
| **STEP 1** | - | - | N/A | **22.81** | N/A | **368.44** |
| **STEP 2** |  |  |  |  |  |  |
| Northern | March-May | - | **1.93** | 1.71 | **8.35** | 8.09 |
| Europe | June-Sept | - | **1.93** | 1.71 | **8.35** | 8.09 |
| **STEP 3** |  |  |  |  |  |  |
| D3 | ditch | Drift | **1.330** | 1.163 | **0.5582** | 0.5025 |
| D4 | pond | Drift | **0.04588** | 0.03895 | **0.04018** | 0.03360 |
| D4 | stream | Drift | **1.087** | 0.9709 | 0.07093 | **0.1018** |
| D5 | pond | Drift | **0.04587** | 0.0383 | **0.05004** | 0.04093 |
| D5 | stream | Drift | **1.117** | 1.003 | 0.04591 | **0.06047** |
| R4 | stream | Drift | **0.8793** | 0.9307 | 0.5257 | **0.6997** |

**Bold** = worst case from 1 or 2 applications

Table 8.9‑18: FOCUS STEP 1, 2 and 3 PECsw and PECsed for Prothioconazole following application to Sunflower

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | Max PECsed (μg/kg) |
| --- | --- | --- | --- | --- |
| **STEP 1** | - | - | 19.55 | 315.81 |
| **STEP 2** |  |  |  |  |
| Northern | Mar-May | - | 1.66 | 12.91 |
| Europe | Jun-Sep | - | 1.66 | 12.91 |
| **STEP 3** |  |  |  |  |
| D3\* | ditch | Drift | 0.9438 | 0.4120 |
| D4\* | pond | Drift | 0.03809 | 0.03157 |
| D4\* | stream | Drift | 0.8092 | 0.05315 |
| R1 | pond | Drift | 0.03807 | 0.02869 |
| R1 | stream | Drift | 0.6532 | 0.1122 |

\* maize used as surrogate crop

**FOCUS Step 4**

While prothioconazole is not expected to drive the risk assessment of CA3642, STEP 4 models were performed to determine the PECsw for the metabolite prothioconazole-desthio, which required the modelling of the parent prothioconazole. These PECsw values may also be used to support combined risk assessments with the other active substance azoxystrobin. STEP 4 models were performed using no spray buffer zones and vegetated filter strips (VFS). Mitigation measures were applied using SWAN (v5.0.0) to modify the SWASH input files.

Maximum PECsw values from the FOCUS-STEP 4 models are presented in Table 8.9‑19 to Table 8.9‑22. It should be noted that where drift is the dominant entry route, the single application models will often result in a higher PECsw. In such cases, the single application PECsw should be used when assessing the risk from multiple applications.

Table 8.9‑19: FOCUS STEP 4 global maximum PECsw values for prothioconazole, following application to Winter Oilseed Rape

| **Scenario** | **Winter OSR (autumn application)** | | | | **Winter OSR (spring application)** | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Vegetated strip (m)** | **None** | **None** | **10** | **20** | **None** | **None** | **10** | **20** |
| **No spray buffer (m)** | **STEP 3** | **5** | **10** | **20** | **STEP 3** | **5** | **10** | **20** |
| D3 ditch | 1.144 | 0.3102 | 0.1645 | 0.0849 | 1.136 | 0.3081 | 0.1634 | 0.08547 |
| D4 pond | 0.03934 | 0.03403 | 0.02447 | 0.01633 | 0.03931 | 0.03401 | 0.02445 | 0.01634 |
| D4 stream | 0.9854 | 0.3599 | 0.1909 | 0.08911 | 0.8851 | 0.3232 | 0.1715 | 0.09922 |
| D5 pond | 0.03934 | 0.03404 | 0.02447 | 0.0163 | 0.03925 | 0.03396 | 0.02442 | 0.01634 |
| D5 stream | 1.063 | 0.3882 | 0.2060 | 0.07433 | 0.7382 | 0.2696 | 0.1430 | 0.1070 |
| R1 pond | 0.03931 | 0.03401 | 0.02445 | 0.01633 | 0.03931 | 0.03401 | 0.02445 | 0.01633 |
| R1 stream | 0.7534 | 0.2751 | 0.1460 | 0.07543 | 0.7492 | 0.2736 | 0.1452 | 0.07586 |
| R3 stream | 1.053 | 0.3847 | 0.2041 | 0.1072 | 1.062 | 0.4690 | 0.2071 | 0.1061 |

Table 8.9‑20: FOCUS STEP 4 global maximum PECsw values for prothioconazole, following application to Spring Oilseed Rape

| **Scenario** | **Spring OSR** | | | |
| --- | --- | --- | --- | --- |
| **Vegetated strip (m)** | **None** | **None** | **10** | **20** |
| **No spray buffer (m)** | **STEP 3** | **5** | **10** | **20** |
| D3 ditch | 1.141 | 0.3092 | 0.1640 | 0.08520 |
| D4 pond | 0.03932 | 0.03402 | 0.02446 | 0.01633 |
| D4 stream | 0.9331 | 0.3408 | 0.1808 | 0.09395 |
| D5 pond | 0.03931 | 0.03401 | 0.02445 | 0.01633 |
| D5 stream | 0.9045 | 0.3303 | 0.1753 | 0.09107 |
| R1 pond | 0.03931 | 0.03401 | 0.02445 | 0.01633 |
| R1 stream | 0.7504 | 0.2741 | 0.1454 | 0.07556 |

Table 8.9‑21: FOCUS STEP 4 global maximum PECsw values for prothioconazole, following application to Winter Cereals

| **Scenario** | **Winter Cereals (single application)** | | | | **Winter Cereals (two applications)** | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Vegetated strip (m)** | **None** | **None** | **10** | **20** | **None** | **None** | **10** | **20** |
| **No spray buffer (m)** | **STEP 3** | **5** | **10** | **20** | **STEP 3** | **5** | **10** | **20** |
| D3 ditch | **1.329** | **0.3602** | **0.1911** | **0.09926** | 1.162 | 0.3016 | 0.1567 | 0.07964 |
| D4 pond | **0.04585** | **0.03967** | **0.02852** | **0.01904** | 0.04049 | 0.03482 | 0.02471 | 0.01625 |
| D4 stream | **0.9815** | **0.3587** | **0.1902** | **0.09881** | 0.8784 | 0.3103 | 0.1612 | 0.08196 |
| D5 pond | **0.04586** | **0.03968** | **0.02853** | **0.01905** | 0.04439 | 0.03817 | 0.02708 | 0.01781 |
| D5 stream | **1.061** | **0.3877** | **0.2055** | **0.1068** | 1.013 | 0.358 | 0.1860 | 0.09456 |
| R1 pond | **0.04586** | **0.03968** | **0.02853** | **0.01905** | 0.04255 | 0.0366 | 0.02594 | 0.01705 |
| R1 stream | **0.8755** | **0.3200** | **0.1696** | **0.08814** | 0.7571 | 0.2948 | 0.1389 | 0.07065 |
| R3 stream | **1.230** | 0.4494 | **0.2383** | **0.1238** | 1.070 | **0.4904** | 0.2238 | 0.1174 |
| R4 stream | **0.8756** | **0.3200** | **0.1696** | **0.08815** | 0.7572 | 0.2675 | 0.1390 | 0.07066 |

**Bold** = worst-case from one or two applications

Table 8.9‑22: FOCUS STEP 4 global maximum PECsw values for prothioconazole, following application to Spring Cereals

| **Scenario** | **Spring Cereals (single application)** | | | | **Spring Cereals (two applications)** | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Vegetated strip (m)** | **None** | **None** | **10** | **20** | **None** | **None** | **10** | **20** |
| **No spray buffer (m)** | **STEP 3** | **5** | **10** | **20** | **STEP 3** | **5** | **10** | **20** |
| D3 ditch | **1.330** | **0.3606** | **0.1913** | **0.09937** | 1.163 | 0.3017 | 0.1567 | 0.07967 |
| D4 pond | **0.04588** | **0.0397** | **0.02854** | **0.01906** | 0.03895 | 0.03349 | 0.02376 | 0.01563 |
| D4 stream | **1.087** | **0.3974** | **0.2107** | **0.1095** | 0.9709 | 0.3430 | 0.1782 | 0.09060 |
| D5 pond | **0.04587** | **0.03969** | **0.02853** | **0.01905** | 0.0383 | 0.03293 | 0.02337 | 0.01537 |
| D5 stream | **1.117** | **0.4082** | **0.2164** | **0.1124** | 1.003 | 0.3545 | 0.1841 | 0.09362 |
| R4 stream | 0.8793 | 0.5565 | 0.2511 | 0.1311 | **0.9307** | **0.9307** | **0.4207** | **0.2198** |

**Bold** = worst-case from one or two applications

Table 8.9‑23: FOCUS STEP 4 global maximum PECsw values for prothioconazole, following application to Sunflower

| **Scenario** | **Sunflower** | | | |
| --- | --- | --- | --- | --- |
| **Vegetated strip (m)** | **None** | **None** | **10** | **20** |
| **No spray buffer (m)** | **STEP 3** | **5** | **10** | **20** |
| D3 ditch\* | 0.9438 | 0.3093 | 0.1640 | 0.08523 |
| D4 pond\* | 0.03809 | 0.03402 | 0.02446 | 0.01633 |
| D4 stream\* | 0.8092 | 0.3406 | 0.1807 | 0.09390 |
| R1 pond | 0.03807 | 0.03401 | 0.02445 | 0.01633 |
| R1 stream | 0.6532 | 0.2749 | 0.1459 | 0.07579 |

\* maize used as surrogate crop

Prothioconazole-S-methyl STEPS 1-2 PECsw/sed

Results from the FOCUS STEPS 1-2 surface water modelling for Prothioconazole-S-methyl are presented in Table 8.9‑24 to Table 8.9‑26. STEP 3 modelling was not performed as the risks to aquatic organisms were expected to be acceptable at STEP 2. Note that at STEPS 1 and 2, the PEC values are not affected by the winter/spring crop variety, only by the season of application.

Table 8.9‑24: FOCUS STEP 1 and 2 PECsw and PECsed for Prothioconazole-S-methyl following application to Winter OSR (autumn application)

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | Max PECsed (μg/kg) |
| --- | --- | --- | --- | --- |
| **STEP 1** | - | - | 4.12  ~~2.09~~ | 99.77  ~~52.72~~ |
| **STEP 2** |  |  |  |  |
| Northern Europe | Oct-Feb | - | 0.65  ~~0.52~~ | 15.87  ~~13.26~~ |

Table 8.9‑25: FOCUS STEP 1 and 2 PECsw and PECsed for Prothioconazole-S-methyl following application to Winter or Spring OSR (spring application)

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | Max PECsed (μg/kg) |
| --- | --- | --- | --- | --- |
| **STEP 1** | - | - | 4.12  ~~2.09~~ | 99.77  ~~52.72~~ |
| **STEP 2** |  |  |  |  |
| Northern | March-May | - | 0.22  ~~0.10~~ | 4.18  ~~2.65~~ |
| Europe | June-Sept | - | 0.22  ~~0.10~~ | 4.18  ~~2.65~~ |

Table 8.9‑26: FOCUS STEP 1 and 2 PECsw and PECsed for Prothioconazole-S-methyl following application to Winter or Spring Cereals

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | | Max PECsed (μg/kg) | |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | 1 app | 2 apps | 1 app | 2 apps |
| **STEP 1** | - | - | N/A | **8.24**  **~~4.87~~** | N/A | **199.54**  **~~123.02~~** |
| **STEP 2** |  |  |  |  |  |  |
| Northern | March-May | - | 0.38  ~~0.33~~ | **0.58**  **~~0.50~~** | 9.05  ~~8.25~~ | **13.82**  **~~12.69~~** |
| Europe | June-Sept | - | 0.38  ~~0.33~~ | **0.58**  **~~0.50~~** | 9.05  ~~8.25~~ | **13.82**  **~~12.69~~** |

**Bold** = worst case from 1 or 2 applications

Table 8.9‑27: FOCUS STEP 1 and 2 PECsw and PECsed for Prothioconazole-S-methyl following application to Sunflower

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | Max PECsed (μg/kg) |
| --- | --- | --- | --- | --- |
| **STEP 1** | - | - | 4.12  ~~2.09~~ | 99.77  ~~52.72~~ |
| **STEP 2** |  |  |  |  |
| Northern | Mar-May | - | 0.38  ~~0.28~~ | 9.05  ~~7.07~~ |
| Europe | Jun-Sep | - | 0.38  ~~0.28~~ | 9.05  ~~7.07~~ |

1,2,4-Triazole STEPS 1-2 PECsw/sed

Results from the FOCUS STEPS 1-2 surface water modelling for 1,2,4-Triazole are presented in Table 8.9‑28 to Table 8.9‑30. STEP 3 modelling was not performed as the risks to aquatic organisms were expected to be acceptable at STEP 2. Note that at STEPS 1 and 2, the PEC values are not affected by the winter/spring crop variety, only by the season of application.

Table 8.9‑28: FOCUS STEP 1 and 2 PECsw and PECsed for 1,2,4-Triazole following application to Winter OSR (autumn application)

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | Max PECsed (μg/kg) |
| --- | --- | --- | --- | --- |
| **STEP 1** | - | - | 2.99 | 16.80 |
| **STEP 2** |  |  |  |  |
| Northern Europe | Oct-Feb | - | 0.18 | 0.94 |

Table 8.9‑29: FOCUS STEP 1 and 2 PECsw and PECsed for 1,2,4-Triazole following application to Winter or Spring OSR (spring application)

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | Max PECsed (μg/kg) |
| --- | --- | --- | --- | --- |
| **STEP 1** | - | - | 2.99 | 16.80 |
| **STEP 2** |  |  |  |  |
| Northern | March-May | - | 0.14 | 0.55 |
| Europe | June-Sept | - | 0.14 | 0.55 |

Table 8.9‑30: FOCUS STEP 1 and 2 PECsw and PECsed for 1,2,4-Triazole following application to Winter or Spring Cereals

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | | Max PECsed (μg/kg) | |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | 1 app | 2 apps | 1 app | 2 apps |
| **STEP 1** | - | - | N/A | **6.98** | N/A | **39.20** |
| **STEP 2** |  |  |  |  |  |  |
| Northern | March-May | - | 0.16 | **0.24** | 0.83 | **1.23** |
| Europe | June-Sept | - | 0.16 | **0.24** | 0.83 | **1.23** |

**Bold** = worst case from 1 or 2 applications

**Table 8.9‑31: FOCUS STEP 1 and 2 PECsw and PECsed for 1,2,4-Triazole following application to Sunflower**

| **FOCUS STEP and**  **Scenario** | **Waterbody or Season** | **Dominant entry route** | **Max PECsw**  **(μg/L)** | **Max PECsed (μg/kg)** |
| --- | --- | --- | --- | --- |
| **STEP 1** | - | - | 2.99 | 16.8 |
| **STEP 2** |  |  |  |  |
| Northern | Mar-May | - | 0.14 | 0.71 |
| Europe | Jun-Sep | - | 0.14 | 0.71 |

Prothioconazole-desthio STEPS 1-4 PECsw/sed

Results from the FOCUS STEPS 1-3 surface water modelling for prothioconazole-desthio are presented in Table 8.9‑32 to Table 8.9‑41. Note that an entry route of “drift” refers to the metabolite forming in surface water from the drift entry of the active substance. Relatively little active substance enters via drainflow and runoff. Entry routes via “drainflow” and “runoff” involve the formation of the metabolite in soil, which is then transferred to surface water.

Table 8.9‑32: FOCUS STEP 1, 2 and 3 PECsw and PECsed for Prothioconazole-desthio following application to Winter OSR (autumn application)

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | Max PECsed (μg/kg) |
| --- | --- | --- | --- | --- |
| **STEP 1** | - | - | 35.26 | 200.05 |
| **STEP 2** |  |  |  |  |
| Northern Europe | Oct-Feb | - | 5.72 | 32.32 |
| **STEP 3** |  |  |  |  |
| D3 | ditch | Drift | 0.1575 | 0.4459 |
| D4 | pond | Drift | 0.02497 | 0.3194 |
| D4 | stream | Drift | 0.09069 | 0.05838 |
| D5 | pond | Drift | 0.02609 | 0.3256 |
| D5 | stream | Drift | 0.1452 | 0.1034 |
| R1 | pond | Runoff | 0.03418 | 0.4622 |
| R1 | stream | Runoff | 0.2791 | 0.1691 |
| R3 | stream | Runoff | 0.7631 | 1.038 |

Table 8.9‑33: FOCUS STEP 1, 2 and 3 PECsw and PECsed for Prothioconazole-desthio following application to Winter OSR (spring application)

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | Max PECsed (μg/kg) |
| --- | --- | --- | --- | --- |
| **STEP 1** | - | - | 35.26 | 200.05 |
| **STEP 2** |  |  |  |  |
| Northern | March-May | - | 1.58 | 8.59 |
| Europe | June-Sept | - | 1.58 | 8.59 |
| **STEP 3** |  |  |  |  |
| D3 | ditch | Drift | 0.03366 | 0.1202 |
| D4 | pond | Drift | 0.01915 | 0.2726 |
| D4 | stream | Drift | 0.06826 | 0.006747 |
| D5 | pond | Drift | 0.021 | 0.2918 |
| D5 | stream | Drift | 0.08112 | 0.002345 |
| R1 | pond | Runoff | 0.04732 | 0.531 |
| R1 | stream | Runoff | 0.2881 | 0.3478 |
| R3 | stream | Runoff | 0.4957 | 0.2428 |

Table 8.9‑34: FOCUS STEP 1, 2 and 3 PECsw and PECsed for Prothioconazole-desthio following application to Spring OSR

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | Max PECsed (μg/kg) |
| --- | --- | --- | --- | --- |
| **STEP 1** | - | - | 35.26 | 200.05 |
| **STEP 2** |  |  |  |  |
| Northern | March-May | - | 1.58 | 8.59 |
| Europe | June-Sept | - | 1.58 | 8.59 |
| **STEP 3** |  |  |  |  |
| D3 | ditch | Drift | 0.1147 | 0.2886 |
| D4 | pond | Drift | 0.02520 | 0.3039 |
| D4 | stream | Drift | 0.07435 | 0.01886 |
| D5 | pond | Drift | 0.02290 | 0.3220 |
| D5 | stream | Drift | 0.09940 | 0.006535 |
| R1 | pond | Runoff | 0.05388 | 0.5814 |
| R1 | stream | Runoff | 0.4218 | 0.3689 |

Table 8.9‑35: FOCUS STEP 1, 2 and 3 PECsw and PECsed for Prothioconazole-desthio following application to Winter Cereals

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | | Max PECsed (μg/kg) | |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | 1 app | 2 apps | 1 app | 2 apps |
| **STEP 1** | - | - | N/A | **82.28** | N/A | **466.78** |
| **STEP 2** |  |  |  |  |  |  |
| Northern | March-May | - | 3.85 | **6.23** | 21.55 | **34.78** |
| Europe | June-Sept | - | 3.85 | **6.23** | 21.55 | **34.78** |
| **STEP 3** |  |  |  |  |  |  |
| D3 | ditch | Drift | 0.06281 | **0.1108** | 0.1984 | **0.4342** |
| D4 | pond | Drift | 0.02159 | **0.03718** | 0.3120 | **0.5161** |
| D4 | stream | Drift | **0.07570** | 0.06775 | 0.005425 | **0.01040** |
| D5 | pond | Drift | 0.02706 | **0.04599** | 0.3798 | **0.6118** |
| D5 | stream | Drift | **0.1166** | 0.1125 | 0.007829 | **0.02431** |
| R1 | pond | Runoff | 0.05745 | **0.1475** | 0.6227 | **1.452** |
| R1 | stream | Runoff | 0.3729 | **1.121** | 0.4080 | **1.222** |
| R3 | stream | Runoff | 0.4835 | **1.200** | 0.6354 | **1.431** |
| R4 | stream | Runoff | 0.2592 | **0.7536** | 0.3113 | **0.7974** |

**Bold** = worst case from 1 or 2 applications

Table 8.9‑36: FOCUS STEP 1, 2 and 3 PECsw and PECsed for Prothioconazole-desthio following application to Spring Cereals (single application)

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | | Max PECsed (μg/kg) | |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | 1 app | 2 apps | 1 app | 2 apps |
| **STEP 1** | - | - | N/A | **82.28** | N/A | **466.78** |
| **STEP 2** |  |  |  |  |  |  |
| Northern | March-May | - | 3.85 | **6.23** | 21.55 | **34.78** |
| Europe | June-Sept | - | 3.85 | **6.23** | 21.55 | **34.78** |
| **STEP 3** |  |  |  |  |  |  |
| D3 | ditch | Drift | **0.1279** | 0.1158 | 0.3155 | **0.4864** |
| D4 | pond | Drift | 0.02946 | 0.0468 | 0.3423 | **0.5413** |
| D4 | stream | Drift | **0.08644** | 0.08120 | 0.02146 | **0.04848** |
| D5 | pond | Drift | 0.02774 | **0.04524** | 0.3778 | **0.6095** |
| D5 | stream | Drift | **0.1227** | 0.1107 | 0.01195 | **0.02857** |
| R4 | stream | Runoff | 0.7175 | **1.386** | 1.268 | **1.991** |

**Bold** = worst case from 1 or 2 applications

**Table 8.9‑37: FOCUS STEP 1, 2 and 3 PECsw and PECsed for Prothioconazole-desthio following application to Sunflower**

| **FOCUS STEP and**  **Scenario** | **Waterbody or Season** | **Dominant entry route** | **Max PECsw**  **(μg/L)** | **Max PECsed (μg/kg)** |
| --- | --- | --- | --- | --- |
| **STEP 1** | - | - | 35.26 | 200.05 |
| **STEP 2** |  |  |  |  |
| Northern | Mar-May | - | 3.3 | 18.47 |
| Europe | Jun-Sep | - | 3.3 | 18.47 |
| **STEP 3** |  |  |  |  |
| D3\* | ditch | Drift | 0.9443 | 0.2499 |
| D4\* | pond | Drift | 0.4766 | 0.2825 |
| D4\* | stream | Drift | 0.8109 | 0.01689 |
| R1 | pond | Runoff | 1.4681 | 0.7551 |
| R1 | stream | Runoff | 2.0891 | 1.044 |

\* maize used as surrogate crop

**FOCUS Step 4**

Surface water exposure at STEP 3 indicated potential risks for aquatic organisms due to the metabolite, prothioconazole-desthio. The worst-case PECvaluesoccurred due to runoff. Therefore, STEP 4 models were performed using vegetated filter strips (VFS) to mitigate the exposures. Mitigation measures were applied using SWAN (v5.0.0) to modify the SWASH input files.

Global maximum PECsw values from the FOCUS-STEP 4 models are presented in Table 8.9‑38 to Table 8.9‑41. It should be noted that where drift is the dominant entry route, the single application models will often result in a higher PECsw. In such cases, the single application PECsw should be used when assessing the risk from multiple applications.

Table 8.9‑38: FOCUS STEP 4 global maximum PECsw values for prothioconazole-desthio, following application to Winter Oilseed Rape

| **Scenario** | **Winter OSR (autumn application)** | | | | **Winter OSR (spring application)** | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Vegetated strip (m)** | **None** | **None** | **10** | **20** | **None** | **None** | **10** | **20** |
| **No spray buffer (m)** | **STEP 3** | **5** | **10** | **20** | **STEP 3** | **5** | **10** | **20** |
| D3 ditch | 0.1575 | 0.04255 | 0.02253 | 0.01169 | 0.03366 | 0.009113 | 0.004829 | 0.002507 |
| D4 pond | 0.02497 | 0.02154 | 0.01642 | 0.01354 | 0.01915 | 0.01651 | 0.01178 | 0.007791 |
| D4 stream | 0.09069 | 0.05218 | 0.05218 | 0.05218 | 0.06826 | 0.02491 | 0.01321 | 0.006863 |
| D5 pond | 0.02609 | 0.02256 | 0.01621 | 0.01085 | 0.02100 | 0.01811 | 0.01293 | 0.008556 |
| D5 stream | 0.1452 | 0.05299 | 0.0281 | 0.02397 | 0.08112 | 0.02961 | 0.01570 | 0.008156 |
| R1 pond | 0.03418 | 0.0327 | 0.01614 | 0.01006 | 0.04732 | 0.04453 | 0.02345 | 0.01377 |
| R1 stream | 0.2791 | 0.2791 | 0.1224 | 0.06315 | 0.2881 | 0.2881 | 0.1306 | 0.06842 |
| R3 stream | 0.7631 | 0.7631 | 0.3473 | 0.1820 | 0.4957 | 0.4957 | 0.2191 | 0.1135 |

Table 8.9‑39: FOCUS STEP 4 global maximum PECsw values for prothioconazole-desthio, following application to Spring Oilseed Rape

| **Scenario** | **Spring OSR** | | | |
| --- | --- | --- | --- | --- |
| **Vegetated strip (m)** | **None** | **None** | **10** | **20** |
| **No spray buffer (m)** | **STEP 3** | **5** | **10** | **20** |
| D3 ditch | 0.1147 | 0.03105 | 0.01645 | 0.008539 |
| D4 pond | 0.02520 | 0.02175 | 0.01555 | 0.01031 |
| D4 stream | 0.07435 | 0.02714 | 0.01439 | 0.007475 |
| D5 pond | 0.02290 | 0.01975 | 0.01410 | 0.009328 |
| D5 stream | 0.09940 | 0.03628 | 0.01924 | 0.009994 |
| R1 pond | 0.05388 | 0.05106 | 0.02610 | 0.0151 |
| R1 stream | 0.4218 | 0.4218 | 0.1915 | 0.1002 |

Table 8.9‑40: FOCUS STEP 4 global maximum PECsw values for prothioconazole-desthio, following application to Winter Cereals

| **Scenario** | **Winter Cereals (single application)** | | | | **Winter Cereals (two applications)** | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Vegetated strip (m)** | **None** | **None** | **10** | **20** | **None** | **None** | **10** | **20** |
| **No spray buffer (m)** | **STEP 3** | **5** | **10** | **20** | **STEP 3** | **5** | **10** | **20** |
| D3 ditch | 0.06281 | 0.01700 | 0.009012 | 0.004678 | **0.1108** | **0.02868** | **0.01488** | **0.007559** |
| D4 pond | 0.02159 | 0.01862 | 0.01328 | 0.008787 | **0.03718** | **0.03186** | **0.02242** | **0.01460** |
| D4 stream | **0.07570** | **0.02765** | **0.01465** | **0.00761** | 0.06775 | 0.02392 | 0.01242 | 0.006312 |
| D5 pond | 0.02706 | 0.02334 | 0.01665 | 0.01102 | **0.04599** | **0.03942** | **0.02777** | **0.01811** |
| D5 stream | **0.1166** | **0.04259** | **0.02257** | **0.01172** | 0.1125 | 0.03974 | 0.02063 | 0.01049 |
| R1 pond | 0.05745 | 0.05416 | 0.02831 | 0.01655 | **0.1475** | **0.1421** | **0.06794** | **0.03787** |
| R1 stream | 0.3729 | 0.3729 | 0.1694 | 0.08866 | **1.121** | **1.121** | **0.5091** | **0.2665** |
| R3 stream | 0.4835 | 0.4835 | 0.2206 | 0.1157 | **1.200** | **1.200** | **0.5477** | **0.2873** |
| R4 stream | 0.2592 | 0.2592 | 0.1170 | 0.06104 | **0.7536** | **0.7536** | **0.3400** | **0.1775** |

**Bold** = worst-case from one or two applications

Table 8.9‑41: FOCUS STEP 4 global maximum PECsw values for prothioconazole-desthio, following application to Spring Cereals

| **Scenario** | **Spring Cereals (single application)** | | | | **Spring Cereals (two applications)** | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Vegetated strip (m)** | **None** | **None** | **10** | **20** | **None** | **None** | **10** | **20** |
| **No spray buffer (m)** | **STEP 3** | **5** | **10** | **20** | **STEP 3** | **5** | **10** | **20** |
| D3 ditch | **0.1279** | **0.03462** | **0.01835** | **0.009523** | 0.1158 | 0.02999 | 0.01557 | 0.007906 |
| D4 pond | 0.02946 | 0.02542 | 0.01818 | 0.01205 | **0.0468** | **0.04013** | **0.02828** | **0.01844** |
| D4 stream | **0.08644** | **0.03157** | **0.01673** | **0.00869** | 0.0812 | 0.02867 | 0.01489 | 0.008024 |
| D5 pond | 0.02774 | 0.02393 | 0.01709 | 0.01131 | **0.04524** | **0.03878** | **0.02732** | **0.01781** |
| D5 stream | **0.1227** | **0.04484** | **0.02376** | **0.01234** | 0.1107 | 0.03908 | 0.02029 | 0.01031 |
| R4 stream | 0.7175 | 0.7175 | 0.3263 | 0.1709 | **1.386** | **1.386** | **0.6237** | **0.3254** |

**Bold** = worst-case from one or two applications

Table 8.9‑42: FOCUS STEP 4 global maximum PECsw values for prothioconazole-desthio, following application to Sunflower

| **Scenario** | **Sunflower** | | | |
| --- | --- | --- | --- | --- |
| **Vegetated strip (m)** | **None** | **None** | **10** | **20** |
| **No spray buffer (m)** | **STEP 3** | **5** | **10** | **20** |
| D3 ditch\* | 0.09735 | 0.03185 | 0.01688 | 0.00876 |
| D4 pond\* | 0.02443 | 0.02178 | 0.01557 | 0.01033 |
| D4 stream\* | 0.06438 | 0.02708 | 0.01436 | 0.00746 |
| R1 pond | 0.07567 | 0.07323 | 0.03593 | 0.02043 |
| R1 stream | 0.6933 | 0.6933 | 0.3153 | 0.1652 |

\* maize used as surrogate crop

|  |
| --- |
| **zRMS comments:**  The surface water exposure was independently validated by the zRMS in additional modelling with modified input parameters discussed above.  Results for prothioconazole at Step 1-4 were in general in good agreement with results obtained by the Applicant. PECSW at Step 3-4 were the same, whereas PECSED values obtained by the zRMS were slightly higher due to modified combination of DT50 values considered in simulations performed for parent+metabolite (JAU 6476-desthio). However, observed differences were slight and with no impact on the outcome of the risk assessment, which was driven by exposure of aquatic species via the water column. Overall, the surface water exposure reported in Tables 8.9-13 to 8.9-23 may be used in the aquatic risk assessment.  Results obtained by the zRMS for metabolite JAU 6476 S-Methyl at Step 1-2 were considerably higher comparing to these obtained by the Applicant since higher maximum occurrence in the whole system (12.7%) was considered by the zRMS at Steps 1-2 calculations. Thus, values reported in Tables 8.9-24 to 8.9-27 were corrected by the zRMS and may be used for purposes of the aquatic risk assessment.  Results for metabolite 1,2,4-triazole calculated by the zRMS at Steps 1-2 were the same comparing to these obtained by the Applicant. Overall, values in Tables 8.9-28 and 8.9-31 may be used further in the aquatic risk assessment.  Results for metabolite JAU 6476-desthio at Step 1-4 were in general in good agreement with results obtained by the Applicant. The PECSW/SED calculated by the zRMS at Steps 1-4 for the correct input parameters were the same or lower comparing to these obtained by the Applicant. Overall, the surface water exposure reported in Tables 8.9-32 to 8.9-42 may be used in the aquatic risk assessment.  Please note that additional surface water modelling may be required by the concerned Member States that do not accept simulations performed according to FOCUS recommendations. |

#### Azoxystrobin and its metabolites

Azoxystrobin STEPS 1-4 PECsw/sed

Results from the FOCUS STEPS 1-3 surface water modelling for Azoxystrobin are presented in Table 8.9‑43 to Table 8.9‑47.

Table 8.9‑43: FOCUS STEP 1, 2 and 3 PECsw and PECsed for Azoxystrobin following application to Winter OSR (autumn applications)

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | Max PECsed (μg/kg) |
| --- | --- | --- | --- | --- |
| **STEP 1** | - | - | 41.06 | 158.19 |
| **STEP 2** |  |  |  |  |
| Northern Europe | Oct-Feb | - | 12.62 | 48.76 |
| **STEP 3** |  |  |  |  |
| D3 | ditch | Drift | 1.145 | 0.7576 |
| D4 | pond | Drainflow | 1.111 | 6.314 |
| D4 | stream | Drift | 1.263 | 2.549 |
| D5 | pond | Drainflow | 0.4981 | 3.732 |
| D5 | stream | Drift | 1.064 | 0.8585 |
| R1 | pond | Runoff | 0.06035 | 0.4428 |
| R1 | stream | Runoff | 1.104 | 0.3422 |
| R3 | stream | Runoff | 2.760 | 1.699 |

Table 8.9‑44: FOCUS STEP 1, 2 and 3 PECsw and PECsed for Azoxystrobin following application to Winter OSR (spring application)

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | Max PECsed (μg/kg) |
| --- | --- | --- | --- | --- |
| **STEP 1** | - | - | 41.06 | 158.19 |
| **STEP 2** |  |  |  |  |
| Northern | March-May | - | 3.49 | 13.10 |
| Europe | June-Sept | - | 3.49 | 13.10 |
| **STEP 3** |  |  |  |  |
| D3 | ditch | Drift | 1.137 | 0.4603 |
| D4 | pond | Drainflow | 0.3373 | 2.171 |
| D4 | stream | Drift | 0.8855 | 0.8426 |
| D5 | pond | Drift | 0.1255 | 0.8791 |
| D5 | stream | Drift | 0.7567 | 0.1898 |
| R1 | pond | Runoff | 0.1272 | 0.7614 |
| R1 | stream | Runoff | 1.104 | 0.5398 |
| R3 | stream | Runoff | 1.860 | 0.6308 |

Table 8.9‑45: FOCUS STEP 1, 2 and 3 PECsw and PECsed for Azoxystrobin following application to Spring OSR

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | Max PECsed (μg/kg) |
| --- | --- | --- | --- | --- |
| **STEP 1** | - | - | 41.06 | 158.19 |
| **STEP 2** |  |  |  |  |
| Northern | March-May | - | 3.49 | 13.10 |
| Europe | June-Sept | - | 3.49 | 13.10 |
| **STEP 3** |  |  |  |  |
| D3 | ditch | Drift | 1.141 | 0.5911 |
| D4 | pond | Drainflow | 0.3901 | 2.504 |
| D4 | stream | Drift | 0.9346 | 0.9445 |
| D5 | pond | Drainflow | 0.1387 | 1.173 |
| D5 | stream | Drift | 0.9102 | 0.2789 |
| R1 | pond | Runoff | 0.1448 | 0.8488 |
| R1 | stream | Runoff | 1.566 | 0.6024 |

Table 8.9‑46: FOCUS STEP 1, 2 and 3 PECsw and PECsed for Azoxystrobin following application to Winter Cereals

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | | Max PECsed (μg/kg) | |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | 1 app | 2 apps | 1 app | 2 apps |
| **STEP 1** | - | - | N/A | **95.81** | N/A | **369.11** |
| **STEP 2** |  |  |  |  |  |  |
| Northern | March-May | - | 8.51 | **15.81** | 32.62 | **60.66** |
| Europe | June-Sept | - | 8.51 | **15.81** | 32.62 | **60.66** |
| **STEP 3** |  |  |  |  |  |  |
| D3 | ditch | Drift | **1.330** | 1.164 | 0.6163 | **0.7197** |
| D4 | pond | Drainflow | 0.4256 | **0.9800** | 2.689 | **5.707** |
| D4 | stream | Drift | **0.9848** | 0.9963 | 1.022 | **2.175** |
| D5 | pond | Drift/Drainflow\* | 0.1370 | **0.2858** | 1.220 | **2.642** |
| D5 | stream | Drift | **1.068** | 1.023 | 0.2630 | **0.5531** |
| R1 | pond | Runoff | 0.1501 | **0.4057** | 0.8853 | **2.188** |
| R1 | stream | Runoff | 1.399 | **4.140** | 0.6441 | **1.851** |
| R3 | stream | Runoff | 1.965 | **4.528** | 1.274 | **3.051** |
| R4 | stream | Runoff | 1.015 | **2.833** | 0.5224 | **1.322** |

\*Dominant entry route for single/multiple applications, repectively

**Bold** = worst case from 1 or 2 applications

Table 8.9‑47: FOCUS STEP 1, 2 and 3 PECsw and PECsed for Azoxystrobin following application to Spring Cereals

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | | Max PECsed (μg/kg) | |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | 1 app | 2 apps | 1 app | 2 apps |
| **STEP 1** | - | - | N/A | **95.81** | N/A | **369.11** |
| **STEP 2** |  |  |  |  |  |  |
| Northern | March-May | - | 8.51 | **15.81** | 32.62 | **60.66** |
| Europe | June-Sept | - | 8.51 | **15.81** | 32.62 | **60.66** |
| **STEP 3** |  |  |  |  |  |  |
| D3 | ditch | Drift | **1.331** | 1.164 | 0.6625 | **0.7528** |
| D4 | pond | Drainflow | 0.467 | **0.8872** | 2.969 | **5.333** |
| D4 | stream | Drift | **1.089** | 0.9725 | 1.118 | **2.011** |
| D5 | pond | Drainflow | 0.1391 | **0.2767** | 1.298 | **2.484** |
| D5 | stream | Drift | **1.122** | 1.010 | 0.2797 | **0.5308** |
| R4 | stream | Runoff | 2.569 | **4.321** | 1.985 | **3.304** |

**Bold** = worst case from 1 or 2 applications

Table 8.9‑48: FOCUS STEP 1, 2 and 3 PECsw and PECsed for Azoxystrobin following application to Sunflower

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | Max PECsed (μg/kg) |
| --- | --- | --- | --- | --- |
| **STEP 1** | - | - | 41.06 | 158.19 |
| **STEP 2** |  |  |  |  |
| Northern | Mar-May | - | 7.3 | 27.96 |
| Europe | Jun-Sep | - | 7.3 | 27.96 |
| **STEP 3** |  |  |  |  |
| D3\* | ditch | Drift | 0.9443 | 0.5029 |
| D4\* | pond | Drainflow | 0.4766 | 3.012 |
| D4\* | stream | Drift | 0.8109 | 1.147 |
| R1 | pond | Runoff | 1.4681 | 1.332 |
| R1 | stream | Runoff | 2.0891 | 1.527 |

\* maize used as surrogate crop

**FOCUS Step 4**

Surface water exposure at STEP 3 indicated potential risks for aquatic organisms due to azoxystrobin. The worst-case PECvaluesoccurred due to runoff. Therefore, STEP 4 models were performed using vegetated filter strips (VFS) to mitigate the exposures. Mitigation measures were applied using SWAN (v5.0.0) to modify the SWASH input files.

Global maximum PECsw values from the FOCUS-STEP 4 models are presented in Table 8.9‑49 to Table 8.9‑52. It should be noted that where drift is the dominant entry route, the single application models will often result in a higher PECsw. In such cases, the single application PECsw should be used when assessing the risk from multiple applications

Table 8.9‑49: FOCUS STEP 4 global maximum PECsw values for azoxystrobin, following application to Winter Oilseed Rape

| **Scenario** | **Winter OSR (autumn application)** | | | | **Winter OSR (spring application)** | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Vegetated strip (m)** | **None** | **None** | **10** | **20** | **None** | **None** | **10** | **20** |
| **No spray buffer (m)** | **STEP 3** | **5** | **10** | **20** | **STEP 3** | **5** | **10** | **20** |
| D3 ditch | 1.145 | 0.3103 | 0.1646 | 0.08549 | 1.137 | 0.3083 | 0.1635 | 0.08492 |
| D4 pond | 1.111 | 1.110 | 1.107 | 1.104 | 0.3373 | 0.3367 | 0.3357 | 0.3348 |
| D4 stream | 1.263 | 1.263 | 1.263 | 1.263 | 0.8855 | 0.3661 | 0.3661 | 0.3661 |
| D5 pond | 0.4981 | 0.4968 | 0.4943 | 0.4923 | 0.1255 | 0.1202 | 0.1106 | 0.1025 |
| D5 stream | 1.064 | 0.9225 | 0.9225 | 0.9225 | 0.7567 | 0.2878 | 0.1612 | 0.1521 |
| R1 pond | 0.06035 | 0.05851 | 0.02745 | 0.01636 | 0.1272 | 0.1244 | 0.05608 | 0.03022 |
| R1 stream | 1.104 | 1.104 | 0.4842 | 0.2501 | 1.104 | 1.104 | 0.5009 | 0.2623 |
| R3 stream | 2.760 | 2.760 | 1.257 | 0.6584 | 1.860 | 1.860 | 0.8215 | 0.4256 |

Table 8.9‑50: FOCUS STEP 4 global maximum PECsw values for azoxystrobin, following application to Spring Oilseed Rape

| **Scenario** | **Spring OSR** | | | |
| --- | --- | --- | --- | --- |
| **Vegetated strip (m)** | **None** | **None** | **10** | **20** |
| **No spray buffer (m)** | **STEP 3** | **5** | **10** | **20** |
| D3 ditch | 1.141 | 0.3094 | 0.1640 | 0.08522 |
| D4 pond | 0.3901 | 0.3891 | 0.3873 | 0.3858 |
| D4 stream | 0.9346 | 0.4336 | 0.4336 | 0.4336 |
| D5 pond | 0.1387 | 0.1387 | 0.1387 | 0.1387 |
| D5 stream | 0.9102 | 0.3356 | 0.2114 | 0.2114 |
| R1 pond | 0.1448 | 0.1420 | 0.06308 | 0.03371 |
| R1 stream | 1.566 | 1.566 | 0.7110 | 0.3723 |

Table 8.9‑51: FOCUS STEP 4 global maximum PECsw values for azoxystrobin, following application to Winter Cereals

| **Scenario** | **Winter Cereals (single application)** | | | | **Winter Cereals (two applications)** | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Vegetated strip (m)** | **None** | **None** | **10** | **20** | **None** | **None** | **10** | **20** |
| **No spray buffer (m)** | **STEP 3** | **5** | **10** | **20** | **STEP 3** | **5** | **10** | **20** |
| D3 ditch | **1.330** | **0.3604** | **0.1911** | **0.09929** | 1.164 | 0.3019 | 0.1568 | 0.0797 |
| D4 pond | 0.4256 | 0.4249 | 0.4235 | 0.4223 | **0.9800** | **0.9785** | **0.9759** | **0.9737** |
| D4 stream | 0.9848 | 0.4515 | 0.4515 | 0.4515 | **0.9963** | **0.9963** | **0.9963** | **0.9963** |
| D5 pond | 0.1370 | 0.1308 | 0.1298 | 0.1298 | **0.2858** | **0.2858** | **0.2858** | **0.2858** |
| D5 stream | **1.068** | 0.3947 | 0.2124 | 0.2070 | 1.023 | **0.4336** | **0.4336** | **0.4336** |
| R1 pond | 0.1501 | 0.1468 | 0.06612 | 0.03575 | **0.4057** | **0.3998** | **0.1731** | **0.09073** |
| R1 stream | 1.399 | 1.399 | 0.6355 | 0.3328 | **4.140** | **4.140** | **1.881** | **0.9849** |
| R3 stream | 1.965 | 1.965 | 0.8966 | 0.4705 | **4.528** | **4.528** | **2.067** | **1.084** |
| R4 stream | 1.015 | 1.015 | 0.4583 | 0.2392 | **2.833** | **2.833** | **1.279** | **0.6675** |

**Bold** = worst-case from one or two applications

Table 8.9‑52: FOCUS STEP 4 global maximum PECsw values for azoxystrobin, following application to Spring Cereals

| **Scenario** | **Spring Cereals (single application)** | | | | **Spring Cereals (two applications)** | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Vegetated strip (m)** | **None** | **None** | **10** | **20** | **None** | **None** | **10** | **20** |
| **No spray buffer (m)** | **STEP 3** | **5** | **10** | **20** | **STEP 3** | **5** | **10** | **20** |
| D3 ditch | **1.331** | **0.3607** | **0.1913** | **0.09939** | 1.164 | 0.302 | 0.1569 | 0.07975 |
| D4 pond | 0.4670 | 0.4659 | 0.4640 | 0.4623 | **0.8872** | **0.8853** | **0.8818** | **0.8789** |
| D4 stream | **1.089** | 0.5017 | 0.5017 | 0.5017 | 0.9725 | **0.9051** | **0.9051** | **0.9051** |
| D5 pond | 0.1391 | 0.1391 | 0.1391 | 0.1391 | **0.2767** | **0.2767** | **0.2767** | **0.2767** |
| D5 stream | **1.122** | 0.4129 | 0.2211 | 0.2186 | 1.010 | **0.4208** | **0.4208** | **0.4208** |
| R4 stream | 2.569 | 2.569 | 1.159 | 0.6052 | **4.321** | **4.321** | **1.942** | **1.013** |

**Bold** = worst-case from one or two applications

Table 8.9‑53: FOCUS STEP 4 global maximum PECsw values for azoxystrobin, following application to Sunflower

| **Scenario** | **Sunflower** | | | |
| --- | --- | --- | --- | --- |
| **Vegetated strip (m)** | **None** | **None** | **10** | **20** |
| **No spray buffer (m)** | **STEP 3** | **5** | **10** | **20** |
| D3 ditch\* | 0.9443 | 0.3095 | 0.1641 | 0.08525 |
| D4 pond\* | 0.4766 | 0.4759 | 0.4743 | 0.4729 |
| D4 stream\* | 0.8109 | 0.5271 | 0.5271 | 0.5271 |
| R1 pond | 1.4681 | 0.1771 | 0.08011 | 0.04358 |
| R1 stream | 2.0891 | 1.885 | 0.8572 | 0.4491 |

\* maize used as surrogate crop

R234886 STEPS 1-2 PECsw/sed

Results from the FOCUS STEPS 1-2 surface water modelling for R234886 are presented in Table 8.9‑54 to Table 8.9‑56. STEP 3 modelling was not performed as the risks to aquatic organisms were expected to be acceptable at STEP 2. Note that at STEPS 1 and 2, the PEC values are not affected by the winter/spring crop variety, only by the season of application.

Table 8.9‑54: FOCUS STEP 1 and 2 PECsw and PECsed for R234886 following application to Winter OSR (autumn application)

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | Max PECsed (μg/kg) |
| --- | --- | --- | --- | --- |
| Acidic soils | | | | |
| **STEP 1** | - | - | 22.28 | 39.21 |
| **STEP 2** |  |  |  |  |
| Northern Europe | Oct-Feb | - | 6.64 | 11.70 |
| Alkaline soils | | | | |
| **STEP 1** | - | - | 26.19 | 9.60 |
| **STEP 2** |  |  |  |  |
| Northern Europe | Oct-Feb | - | 7.60 | 2.78 |

Table 8.9‑55: FOCUS STEP 1 and 2 PECsw and PECsed for R234886 following application to Winter or Spring OSR (spring application)

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | Max PECsed (μg/kg) |
| --- | --- | --- | --- | --- |
| Acidic soils | | | | |
| **STEP 1** | - | - | 22.28 | 39.21 |
| **STEP 2** |  |  |  |  |
| Northern Europe | Mar-May | - | 1.53 | 2.67 |
| Northern Europe | Jun-Sep | - | 1.53 | 2.67 |
| Alkaline soils | | | | |
| **STEP 1** | - | - | 26.25 | 9.12 |
| **STEP 2** |  |  |  |  |
| Northern Europe | Mar-May | - | 1.75 | 0.61 |
| Northern Europe | Jun-Sep | - | 1.75 | 0.61 |

Table 8.9‑56: FOCUS STEP 1 and 2 PECsw and PECsed for R234886 following application to Winter or Spring Cereals

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | | Max PECsed (μg/kg) | |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | 1 app | 2 apps | 1 app | 2 apps |
| Acidic soils | | | | | | |
| **STEP 1** | - | - | N/A | 51.98 | N/A | **91.50** |
| **STEP 2** |  |  |  |  |  |  |
| Northern | March-May | - | 4.27 | 8.06 | 7.50 | **14.17** |
| Europe | June-Sept | - | 4.27 | 8.06 | 7.50 | **14.17** |
| **Alkaline soils** | | | | | | |
| **STEP 1** | - | - | N/A | **61.25** | N/A | 21.08 |
| **STEP 2** |  |  |  |  |  |  |
| Northern | March-May | - | 4.89 | **8.85** | 1.70 | 3.07 |
| Europe | June-Sept | - | 4.89 | **8.85** | 1.70 | 3.07 |

**Bold** = worst case from 1 or 2 applications and acid/alkaline soil

Table 8.9‑57: FOCUS STEP 1 and 2 PECsw and PECsed for R234886 following application to Sunflower

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | Max PECsed (μg/kg) |
| --- | --- | --- | --- | --- |
| Acidic soils | | | | |
| **STEP 1** | - | - | 22.28 | 39.21 |
| **STEP 2** |  |  |  |  |
| Northern | Mar-May | - | 3.66 | 6.43 |
| Europe | Jun-Sep | - | 3.66 | 6.43 |
| Alkaline soils | | | | |
| **STEP 1** | - | - | 26.25 | 9.12 |
| **STEP 2** |  |  |  |  |
| Northern | Mar-May | - | 4.19 | 1.46 |
| Europe | Jun-Sep | - | 4.19 | 1.46 |

R401553 STEPS 1-2 PECsw/sed

Results from the FOCUS STEPS 1-2 surface water modelling for R401553 are presented in Table 8.9‑58 to Table 8.9‑60. STEP 3 modelling was not performed as the risks to aquatic organisms were expected to be acceptable at STEP 2. Note that at STEPS 1 and 2, the PEC values are not affected by the winter/spring crop variety, only by the season of application.

Table 8.9‑58: FOCUS STEP 1 and 2 PECsw and PECsed for R401553 following application to Winter OSR (autumn application)

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | Max PECsed (μg/kg) |
| --- | --- | --- | --- | --- |
| **STEP 1** | - | - | 6.98 | 9.95 |
| **STEP 2** |  |  |  |  |
| Northern Europe | Oct-Feb | - | 0.86 | 1.23 |

Table 8.9‑59: FOCUS STEP 1 and 2 PECsw and PECsed for R401553 following application to Winter or Spring OSR (spring application)

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | Max PECsed (μg/kg) |
| --- | --- | --- | --- | --- |
| **STEP 1** | - | - | 6.98 | 9.95 |
| **STEP 2** |  |  |  |  |
| Northern | March-May | - | 0.23 | 0.32 |
| Europe | June-Sept | - | 0.23 | 0.32 |

Table 8.9‑60: FOCUS STEP 1 and 2 PECsw and PECsed for R401553 following application to Winter or Spring Cereals

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | | Max PECsed (μg/kg) | |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | 1 app | 2 apps | 1 app | 2 apps |
| **STEP 1** | - | - | N/A | **16.28** | N/A | **23.22** |
| **STEP 2** |  |  |  |  |  |  |
| Northern | March-May | - | 0.58 | **1.01** | 0.82 | **1.44** |
| Europe | June-Sept | - | 0.58 | **1.01** | 0.82 | **1.44** |

**Bold** = worst case from 1 or 2 applications

Table 8.9‑61: FOCUS STEP 1 and 2 PECsw and PECsed for R401553 following application to Sunflower

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | Max PECsed (μg/kg) |
| --- | --- | --- | --- | --- |
| **STEP 1** | - | - | 6.98 | 9.95 |
| **STEP 2** |  |  |  |  |
| Northern | Mar-May | - | 0.49 | 0.70 |
| Europe | Jun-Sep | - | 0.49 | 0.70 |

R402173 STEPS 1-2 PECsw/sed

Results from the FOCUS STEPS 1-2 surface water modelling for R402173 are presented in Table 8.9‑62 to Table 8.9‑64. STEP 3 modelling was not performed as the risks to aquatic organisms were expected to be acceptable at STEP 2. Note that at STEPS 1 and 2, the PEC values are not affected by the winter/spring crop variety, only by the season of application.

Table 8.9‑62: FOCUS STEP 1 and 2 PECsw and PECsed for R402173 following application to Winter OSR (autumn application)

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | Max PECsed (μg/kg) |
| --- | --- | --- | --- | --- |
| **STEP 1** | - | - | 9.34 | 2.33 |
| **STEP 2** |  |  |  |  |
| Northern Europe | Oct-Feb | - | 1.72 | 0.43 |

Table 8.9‑63: FOCUS STEP 1 and 2 PECsw and PECsed for R402173 following application to Winter or Spring OSR (spring application)

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | Max PECsed (μg/kg) |
| --- | --- | --- | --- | --- |
| **STEP 1** | - | - | 9.34 | 2.33 |
| **STEP 2** |  |  |  |  |
| Northern | March-May | - | 0.37 | 0.09 |
| Europe | June-Sept | - | 0.37 | 0.09 |

Table 8.9‑64: FOCUS STEP 1 and 2 PECsw and PECsed for R402173 following application to Winter or Spring Cereals

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | | Max PECsed (μg/kg) | |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | 1 app | 2 apps | 1 app | 2 apps |
| **STEP 1** | - | - | N/A | **21.79** | N/A | **5.44** |
| **STEP 2** |  |  |  |  |  |  |
| Northern | March-May | - | 1.09 | **1.41** | 0.27 | **0.35** |
| Europe | June-Sept | - | 1.09 | **1.41** | 0.27 | **0.35** |

**Bold** = worst case from 1 or 2 applications

Table 8.9‑65: FOCUS STEP 1 and 2 PECsw and PECsed for R402173 following application to Sunflower

| FOCUS STEP and  Scenario | Waterbody or Season | Dominant entry route | Max PECsw  (μg/L) | Max PECsed (μg/kg) |
| --- | --- | --- | --- | --- |
| **STEP 1** | - | - | 9.34 | 2.33 |
| **STEP 2** |  |  |  |  |
| Northern | Mar-May | - | 0.93 | 0.23 |
| Europe | Jun-Sep | - | 0.93 | 0.23 |

|  |
| --- |
| **zRMS comments:**  The surface water exposure was independently validated by the zRMS in additional modelling using the same parameters indicated above. Obtained PECsw and PECsed were in good agreement with values calculated by the Applicant. Thus, surface water exposure reported in Tables 8.9-43 to 8.9-65 is relevant for the aquatic risk assessment.  Please note that additional surface water modelling may be required by the concerned Member States that do not accept simulations performed according to FOCUS recommendations. |

#### PECsw/sed of formulated product

The risk assessment can generally be extrapolated from the PECsw and PECsed values of the active substance and its metabolites. For completeness, the PECsw values for the formulated product were calculated using the FOCUS 90th percentile drift curves for distances of 1m, 5m, 10m and 20m, with dispersion into a focus STEP 1-2 water body of 0.3m depth with a 10:1 field: water surface area ratio (equivalent to 30,000 L/ha). Multiple applications, drainflow, runoff and sediment concentrations are not relevant for the formulation, as it dissociates into its component substances on contact with soil or water. The maximum individual application rates were used, with the product density of 1100.4 g/L (see KCP 2.6.1) to give an application rate in g product/ha. The PECsw calculations are summarised in Table 8.9‑66 and Table 8.9‑67.

Table 8.9‑66: Formulated product application rates

| Preparation | Use/Crop | Application rate (L/ha) | Product density(g/L)\* | Application rate (g/ha) |
| --- | --- | --- | --- | --- |
| CA3642 | Winter/spring oilsed rape and sunflower | 1.2 | 1.1004 | 1320 |
|  | Winter/spring cereals | 1.4 | 1.1004 | 1541 |

\* Taken from KCP 2.6.1 (Wang, Q. 2022)

Table 8.9‑67: Formulated product PECsw values

|  |  | PECsw (µg/L) | | | |
| --- | --- | --- | --- | --- | --- |
| Use/Crop | Application rate (g/ha) | 1m  (2.759 % drift) | 5m  (0.5719 % drift) | 10m  (0.2904% drift) | 20m  (0.1475% drift) |
| Winter/spring oilsed rape and sunflower | 1320 | 12.144 | 2.517 | 1.278 | 0.649 |
| Winter/spring cereals | 1541 | 14.168 | 2.937 | 1.491 | 0.757 |

|  |
| --- |
| **zRMS comments:**  The surface water exposure to formulation was validated by the zRMS using Spray Drift Calculator. Obtained results were in agreement with these reported in above and may be used in the aquatic risk assessment. |

#### Relevant scenarios for PECsw assessment

To assist with national evaluations, the relevant worst-case FOCUS scenarios have been assessed for each country. For all substances except the metabolite prothioconazole-desthio and the active substance azoxystrobin, all FOCUS scenarios will result in acceptable risks without mitigation measures (please refer to Part B.9 for the full assessment). The assessment of prothioconazole-desthio and azoxystrobin requires consideration of appropriate exposure scenarios and mitigation measures.

Relevant PECsw for assessment in Poland and Belgium

For approval in Poland and Belgium, the D4, R1 and R3 scenarios are relevant for risk assessment. The following PECsw values show the worst-cases for each crop.

Table 8.9‑68: Worst-case scenarios for Prothioconazole-desthio in Poland and Belgium

|  |  | **STEP 3** | | **STEP 4** | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | | **5m drift buffer** | | **10m VFS** | | **20m VFS** | |
| **Crop** | **# Apps** | **Scenario** | **PECsw** | **Scenario** | **PECsw** | **Scenario** | **PECsw** | **Scenario** | **PECsw** |
| Winter | 1(Aut) | R1s | 0.2791 | R1s | 0.2791 | R1s | 0.1224 | R1s | 0.06315 |
| OSR | 1(Spr) | R1s | 0.2881 | R1s | 0.2881 | R1s | 0.1306 | R1s | 0.06842 |
| Spring OSR | 1 | R1s | 0.4218 | R1s | 0.4218 | R1s | 0.1915 | R1s | 0.1002 |
| Winter | 1 | R1s | 0.3729 | R1s | 0.3729 | R1s | 0.1694 | R1s | 0.08866 |
| cereals | 2 | R1s | 1.1210 | R1s | 1.1210 | R1s | 0.5091 | R1s | 0.2665 |
| Spring | 1 | D3d | 0.1279 | D3d | 0.03462 | D3d | 0.01835 | D4p | 0.01205 |
| cereals | 2 | D3d | 0.1158 | D4p | 0.04013 | D4p | 0.02828 | D4p | 0.01844 |
| Sunflower\* | 1 | R1s | 0.6933 | R1s | 0.6933 | R1s | 0.3153 | R1s | 0.1652 |

\*Poland only

Table 8.9‑69: Worst-case scenarios for Azoxystrobin in Poland and Belgium

|  |  | **STEP 3** | | **STEP 4** | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | | **5m drift buffer** | | **10m VFS** | | **20m VFS** | |
| **Crop** | **# Apps** | **Scenario** | **PECsw** | **Scenario** | **PECsw** | **Scenario** | **PECsw** | **Scenario** | **PECsw** |
| Winter | 1(Aut) | D4s | 1.263 | D4s | 1.263 | D4s | 1.263 | D4s | 1.263 |
| OSR | 1(Spr) | D3d | 1.137 | R1s | 1.104 | R1s | 0.5009 | D3d | 0.3661 |
| Spring OSR | 1 | R1s | 1.566 | R1s | 1.566 | R1s | 0.7110 | D4s | 0.4336 |
| Winter | 1 | R1s | 1.399 | R1s | 1.399 | R1s | 0.6355 | D4s | 0.4515 |
| cereals | 2 | R1s | 4.140 | R1s | 4.140 | R1s | 1.883 | D4s | 0.9963 |
| Spring | 1 | D3d | 1.331 | D4s | 0.5017 | D4s | 0.5017 | D4s | 0.5017 |
| cereals | 2 | D3d | 1.164 | D4s | 0.9051 | D4s | 0.9051 | D4s | 0.9051 |
| Sunflower\* | 1 | R1s | 2.0891 | R1s | 1.885 | R1s | 0.8572 | R1s | 0.5271 |

\*Poland only

Relevant PECsw for assessment in Austria and Czechia

For approval in Austria and Czechia, the D4, R1 and R3 scenarios are relevant for risk assessment. The following PECsw values show the worst-cases for each crop.

Table 8.9‑70: Worst-case scenarios for Prothioconazole-desthio in Austria and Czech Republic

|  |  | **STEP 3** | | **STEP 4** | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | | **5m drift buffer** | | **10m VFS** | | **20m VFS** | |
| **Crop** | **# Apps** | **Scenario** | **PECsw** | **Scenario** | **PECsw** | **Scenario** | **PECsw** | **Scenario** | **PECsw** |
| Winter | 1(Aut) | R3s | 0.7631 | R3s | 0.7631 | R3s | 0.3473 | R3s | 0.1820 |
| OSR | 1(Spr) | R3s | 0.4957 | R3s | 0.4957 | R3s | 0.2191 | R3s | 0.1135 |
| Spring OSR | 1 | R1s | 0.4218 | R1s | 0.4218 | R1s | 0.1915 | R1s | 0.1002 |
| Winter | 1 | R3s | 0.4835 | R3s | 0.4835 | R3s | 0.2206 | R3s | 0.1157 |
| cereals | 2 | R3s | 1.200 | R3s | 1.200 | R3s | 0.5477 | R3s | 0.2873 |
| Spring | 1 | D4s | 0.08644 | D4s | 0.03157 | D4p | 0.01818 | D4p | 0.01205 |
| cereals | 2 | D4s | 0.08120 | D4p | 0.04013 | D4p | 0.02828 | D4p | 0.01844 |

Table 8.9‑71: Worst-case scenarios for Azoxystrobin in Austria and Czech Republic

|  |  | **STEP 3** | | **STEP 4** | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | | **5m drift buffer** | | **10m VFS** | | **20m VFS** | |
| **Crop** | **# Apps** | **Scenario** | **PECsw** | **Scenario** | **PECsw** | **Scenario** | **PECsw** | **Scenario** | **PECsw** |
| Winter | 1(Aut) | R3s | 2.760 | R3s | 2.760 | D4s | 1.263 | D4s | 1.263 |
| OSR | 1(Spr) | R3s | 1.860 | R3s | 1.860 | R3s | 0.8215 | R3s | 0.4256 |
| Spring OSR | 1 | R1s | 1.566 | R1s | 1.566 | R1s | 0.7110 | D4s | 0.4336 |
| Winter | 1 | R3s | 1.965 | R3s | 1.965 | R3s | 0.8966 | R3s | 0.4705 |
| cereals | 2 | R3s | 4.528 | R3s | 4.528 | R3s | 2.067 | R3s | 1.084 |
| Spring | 1 | D4s | 1.089 | D4s | 0.5017 | D4s | 0.5017 | D4s | 0.5017 |
| cereals | 2 | D4s | 0.9725 | D4s | 0.9051 | D4s | 0.9051 | D4s | 0.9051 |

Relevant PECsw for assessment in Hungary

For approval in Hungary, the D3, D5, R1, R3 and R4 scenarios are considered relevant for risk assessment. The following PECsw values show the worst-cases for each crop.

Table 8.9‑72: Worst-case scenarios for Prothioconazole-desthio in Hungary

|  |  | **STEP 3** | | **STEP 4** | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | | **5m drift buffer** | | **10m VFS** | | **20m VFS** | |
| **Crop** | **# Apps** | **Scenario** | **PECsw** | **Scenario** | **PECsw** | **Scenario** | **PECsw** | **Scenario** | **PECsw** |
| Winter | 1(Aut) | R3s | 0.7631 | R3s | 0.7631 | R3s | 0.3473 | R3s | 0.1820 |
| OSR | 1(Spr) | R3s | 0.4957 | R3s | 0.4957 | R3s | 0.2191 | R3s | 0.1135 |
| Spring OSR | 1 | R1s | 0.4218 | R1s | 0.4218 | R1s | 0.1915 | R1s | 0.1002 |
| Winter | 1 | R3s | 0.4835 | R3s | 0.4835 | R3s | 0.2206 | R3s | 0.1157 |
| cereals | 2 | R3s | 1.200 | R3s | 1.200 | R3s | 0.5477 | R3s | 0.2873 |
| Spring | 1 | R4s | 0.7175 | R4s | 0.7175 | R4s | 0.3263 | R4s | 0.1709 |
| cereals | 2 | R4s | 1.386 | R4s | 1.386 | R4s | 0.6237 | R4s | 0.3254 |

Table 8.9‑73: Worst-case scenarios for Azoxystrobin in Hungary

|  |  | **STEP 3** | | **STEP 4** | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | | **5m drift buffer** | | **10m VFS** | | **20m VFS** | |
| **Crop** | **# Apps** | **Scenario** | **PECsw** | **Scenario** | **PECsw** | **Scenario** | **PECsw** | **Scenario** | **PECsw** |
| Winter | 1(Aut) | R3s | 2.760 | R3s | 2.760 | R3s | 1.257 | D5s | 0.9225 |
| OSR | 1(Spr) | R3s | 1.860 | R3s | 1.860 | R3s | 0.8215 | R3s | 0.4256 |
| Spring OSR | 1 | R1s | 1.566 | R1s | 1.566 | R1s | 0.7110 | R1s | 0.3723 |
| Winter | 1 | R3s | 1.965 | R3s | 1.965 | R3s | 0.8966 | R3s | 0.4705 |
| cereals | 2 | R3s | 4.528 | R3s | 4.528 | R3s | 2.067 | R3s | 1.084 |
| Spring | 1 | R4s | 2.569 | R4s | 2.569 | R4s | 1.159 | R4s | 0.6052 |
| cereals | 2 | R4s | 4.321 | R4s | 4.321 | R4s | 1.942 | R4s | 1.013 |

Relevant PECsw for assessment in Ireland

For approval in Ireland, the D4 scenario and at least one of the R scenarios must pass the risk assessment. The following PECsw values show the critical PECsw for each crop (the highest value from either D4 or the best-case R scenario).

Table 8.9‑74: Worst-case scenarios for Prothioconazole-desthio in Ireland

|  |  | **STEP 3** | | **STEP 4** | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | | **5m drift buffer** | | **10m VFS** | | **20m VFS** | |
| **Crop** | **# Apps** | **Scenario** | **PECsw** | **Scenario** | **PECsw** | **Scenario** | **PECsw** | **Scenario** | **PECsw** |
| Winter | 1(Aut) | R1s | 0.2791 | R1s | 0.2791 | R1s | 0.1224 | R1s | 0.06315 |
| OSR | 1(Spr) | R1s | 0.2881 | R1s | 0.2881 | R1s | 0.1306 | R1s | 0.06842 |
| Spring OSR | 1 | R1s | 0.4218 | R1s | 0.4218 | R1s | 0.1915 | R1s | 0.1002 |
| Winter | 1 | R4s | 0.2592 | R4s | 0.2592 | R4s | 0.1170 | R4s | 0.06104 |
| cereals | 2 | R4s | 0.7536 | R4s | 0.7536 | R4s | 0.3400 | R4s | 0.1775 |
| Spring | 1 | R4s | 0.7175 | R4s | 0.7175 | R4s | 0.3263 | R4s | 0.1709 |
| cereals | 2 | R4s | 1.386 | R4s | 1.386 | R4s | 0.6237 | R4s | 0.3254 |

Table 8.9‑75: Worst-case scenarios for Azoxystrobin in Ireland

|  |  | **STEP 3** | | **STEP 4** | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | | **5m drift buffer** | | **10m VFS** | | **20m VFS** | |
| **Crop** | **# Apps** | **Scenario** | **PECsw** | **Scenario** | **PECsw** | **Scenario** | **PECsw** | **Scenario** | **PECsw** |
| Winter | 1(Aut) | D4s | 1.263 | D4s | 1.263 | D4s | 1.263 | D4s | 1.263 |
| OSR | 1(Spr) | R1s | 1.104 | R1s | 1.104 | R1s | 0.5009 | D4s | 0.3661 |
| Spring OSR | 1 | R1s | 1.566 | R1s | 1.566 | R1s | 0.7110 | D4s | 0.4336 |
| Winter | 1 | R4s | 1.015 | R4s | 1.015 | R4s | 0.4583 | D4s | 0.4515 |
| cereals | 2 | R4s | 2.833 | R4s | 2.833 | R4s | 1.279 | D4s | 0.9963 |
| Spring | 1 | R4s | 2.569 | R4s | 2.569 | R4s | 1.159 | R4s | 0.6052 |
| cereals | 2 | R4s | 4.321 | R4s | 4.321 | R4s | 1.942 | R4s | 1.013 |

Relevant PECsw for assessment in Romania

For approval in Romania, the D4, D5, R1, R3 and R4 scenarios are considered relevant for risk assessment. The following PECsw values show the worst-cases for each crop.

Table 8.9‑76: Worst-case scenarios for Prothioconazole-desthio in Romania

|  |  | **STEP 3** | | **STEP 4** | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | | **5m drift buffer** | | **10m VFS** | | **20m VFS** | |
| **Crop** | **# Apps** | **Scenario** | **PECsw** | **Scenario** | **PECsw** | **Scenario** | **PECsw** | **Scenario** | **PECsw** |
| Winter | 1(Aut) | R3s | 0.7631 | R3s | 0.7631 | R3s | 0.3473 | R3s | 0.1820 |
| OSR | 1(Spr) | R3s | 0.4957 | R3s | 0.4957 | R3s | 0.2191 | R3s | 0.1135 |
| Spring OSR | 1 | R1s | 0.4218 | R1s | 0.4218 | R1s | 0.1915 | R1s | 0.1002 |
| Winter | 1 | R3s | 0.4835 | R3s | 0.4835 | R3s | 0.2206 | R3s | 0.1157 |
| cereals | 2 | R3s | 1.200 | R3s | 1.200 | R3s | 0.5477 | R3s | 0.2873 |
| Spring | 1 | R4s | 0.7175 | R4s | 0.7175 | R4s | 0.3263 | R4s | 0.1709 |
| cereals | 2 | R4s | 1.386 | R4s | 1.386 | R4s | 0.6237 | R4s | 0.3254 |

Table 8.9‑77: Worst-case scenarios for Azoxystrobin in Romania

|  |  | **STEP 3** | | **STEP 4** | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | | **5m drift buffer** | | **10m VFS** | | **20m VFS** | |
| **Crop** | **# Apps** | **Scenario** | **PECsw** | **Scenario** | **PECsw** | **Scenario** | **PECsw** | **Scenario** | **PECsw** |
| Winter | 1(Aut) | R3s | 2.760 | R3s | 2.760 | D4s | 1.263 | D4s | 1.263 |
| OSR | 1(Spr) | R3s | 1.860 | R3s | 1.860 | R3s | 0.8215 | R3s | 0.4256 |
| Spring OSR | 1 | R1s | 1.566 | R1s | 1.566 | R1s | 0.7110 | D4s | 0.4336 |
| Winter | 1 | R3s | 1.965 | R3s | 1.965 | R3s | 0.8966 | R3s | 0.4705 |
| cereals | 2 | R3s | 4.528 | R3s | 4.528 | R3s | 2.067 | R3s | 1.084 |
| Spring | 1 | R4s | 2.569 | R4s | 2.569 | R4s | 1.159 | R4s | 0.6052 |
| cereals | 2 | R4s | 4.321 | R4s | 4.321 | R4s | 1.942 | R4s | 1.013 |

Relevant PECsw for assessment in Slovakia

For approval in Romania, the D4, D5 and R1 scenarios are considered relevant for risk assessment. The following PECsw values show the worst-cases for each crop.

Table 8.9‑78: Worst-case scenarios for Prothioconazole-desthio in Slovakia

|  |  | **STEP 3** | | **STEP 4** | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | | **5m drift buffer** | | **10m VFS** | | **20m VFS** | |
| **Crop** | **# Apps** | **Scenario** | **PECsw** | **Scenario** | **PECsw** | **Scenario** | **PECsw** | **Scenario** | **PECsw** |
| Winter | 1(Aut) | R1s | 0.2791 | R1s | 0.2791 | R1s | 0.1224 | R1s | 0.06315 |
| OSR | 1(Spr) | R1s | 0.2881 | R1s | 0.2881 | R1s | 0.1306 | R1s | 0.06842 |
| Spring OSR | 1 | R1s | 0.4218 | R1s | 0.4218 | R1s | 0.1915 | R1s | 0.1002 |
| Winter | 1 | R1s | 0.3729 | R1s | 0.3729 | R1s | 0.1694 | R1s | 0.08866 |
| cereals | 2 | R1s | 1.121 | R1s | 1.121 | R1s | 0.5091 | R1s | 0.2665 |
| Spring | 1 | D5s | 0.1227 | D5s | 0.04484 | D5s | 0.02376 | D5s | 0.01234 |
| cereals | 2 | D5s | 0.1107 | D5s | 0.04013 | D4p | 0.02828 | D4p | 0.01844 |

Table 8.9‑79: Worst-case scenarios for Azoxystrobin in Slovakia

|  |  | **STEP 3** | | **STEP 4** | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | | **5m drift buffer** | | **10m VFS** | | **20m VFS** | |
| **Crop** | **# Apps** | **Scenario** | **PECsw** | **Scenario** | **PECsw** | **Scenario** | **PECsw** | **Scenario** | **PECsw** |
| Winter | 1(Aut) | D4s | 1.263 | D4s | 1.263 | D4s | 1.263 | D4s | 1.263 |
| OSR | 1(Spr) | R1s | 1.104 | R1s | 1.104 | R1s | 0.5009 | D4s | 0.3661 |
| Spring OSR | 1 | R1s | 1.566 | R1s | 1.566 | R1s | 0.7110 | D4s | 0.4336 |
| Winter | 1 | R3s | 1.965 | R3s | 1.965 | R3s | 0.8966 | R3s | 0.4705 |
| cereals | 2 | R3s | 4.528 | R3s | 4.528 | R3s | 2.067 | R3s | 1.084 |
| Spring | 1 | D5s | 1.122 | D4s | 0.5017 | D4s | 0.5017 | D4s | 0.5017 |
| cereals | 2 | D5s | 1.010 | D4s | 0.9051 | D4s | 0.9051 | D4s | 0.9051 |

Relevant PECsw for assessment in Germany and the Netherlands

These member states do not use FOCUS STEPS for risk assessment and specific national models are required. Please refer to the national addenda.

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

### Prothioconazole and its metabolites

The endpoints for prothioconazole in the EFSA 2007 conclusion are sufficient to assess the risk from the product and are summarised below.

Table 8.10‑1 Summary of atmospheric degradation and behaviour

|  |  |
| --- | --- |
| Compound | Protioconazole |
| Direct photolysis in air | Not studied – no data requested |
| Quantum yield of direct phototransformation | Not studied – no data requested |
| Photochemical oxidative degradation in air | Prothioconazole:  Half-life: 1.1 hours  Chemical lifetime: 1.6 hours  Calculated according to Atkinson (AOPWIN v. 1.87, 12 hour day, 1.5×106 OH radicals/cm3)  prothioconazole-desthio (M04):  Half-life: 14.2 hours  Chemical lifetime: 20.5 hours  Calculated according to Atkinson (AOPWIN v. 1.87, 12 hour day, 1.5×106 OH radicals/cm3) |
| Volatilisation | Vapour pressure: <4×10-7 Pa  Henry’s law constant : 3×10-5 Pa.m3.mol-1  Laboratory route and rate soil studies indicated that volatilisation of prothioconazole and prothioconazole-desthio (M04) is unlikely to take place because no volatiles were detected at levels above 0.1% AR. |
| Metabolites | Not studied – no data requested |

The vapour pressure at 20 °C of the active substance was <4×10-7 Pa, below the minimum detectable level in the study. Hence the active substance is regarded as non-volatile. Therefore, exposure of adjacent surface waters and terrestrial ecosystems by the active substance will be negligible. Any trace amounts reaching the air will quickly degrade in the atmosphere via reaction with OH radicals and there is no risk of long-range transport or atmospheric accumulation.

|  |
| --- |
| **zRMS comments:**  Provided above information is in line with EU agreed data reported in EFSA Scientific Report (2007) 106, 1-98. Taking into account the low vapour pressure (<10-5 Pa) and DT50 in air <2 days, prothioconazole is not expected to be subject to volatilisation and the long- or short-range transport.  Taking this into account the contamination of the atmosphere with prothioconazole from the intended uses of CA3642 is considered to be negligible. |

### Azoxystrobin and its metabolites

The endpoints for azoxystrobin in the EFSA 2010 conclusion are sufficient to assess the risk from the product and are summarised below.

Table 8.10‑2: Summary of atmospheric degradation and behaviour

|  |  |
| --- | --- |
| Compound | Azoxystrobin |
| Direct photolysis in air | Not studied – no data requested |
| Quantum yield of direct phototransformation | Not studied – no data requested |
| Photochemical oxidative degradation in air | DT50 of 2.7 hours derived by the Atkinson model  (AOPWIN version 1.8). OH (12h) concentration  assumed = 1.5 x 106 cm-3 |
| Volatilisation | Vapour pressure (Pa): 1.1 x 10-10  Henry's Law Constant (Pa.m3/mol): 7.4 x 10-9  No significant tendency for volatilisation was  observed from soil and bean leaf surfaces up to 24  hours after the application of radiolabelled  azoxystrobin (dose rates: 264 or 291 g as/ha). |
| Metabolites | None |

The vapour pressure at 20 °C of the active substance azoxystrobin is < 10‑5 Pa. Hence the active substance azoxystrobin is regarded as non-volatile. Therefore, exposure of adjacent surface waters and terrestrial ecosystems by the active substance azoxystrobin due to volatilization with subsequent deposition should not be considered. Any trace amounts reaching the air will quickly degrade in the atmosphere via reaction with OH radicals and there is no risk of long-range transport or atmospheric accumulation.

|  |
| --- |
| **zRMS comments:**  Provided above information is in line with EU agreed data reported in EFSA Journal 2010; 8(4):1542. Taking into account the low vapour pressure (<10-5 Pa) and DT50 in air <2 days, azoxystrobin is not expected to be subject to volatilisation and the long- or short-range transport.  Taking this into account the contamination of the atmosphere with azoxystrobin from the intended uses of CA3642 is considered to be negligible. |

1. Lists of data considered in support of the evaluation

List of data submitted by the applicant and relied on

| Data point | Author(s) | Year | Title Company Report No.  Source (where different from company) GLP or GEP status Published or not | Vertebrate study  Y/N | Owner |
| --- | --- | --- | --- | --- | --- |
| K-CP 9.2.4/01 | Hale, M. | 2022 | CA3642: Predicted Environmental Concentrations in Groundwater Following Application to Cereals and Oilseed Rape, Using FOCUS‑PEARL, FOCUS-PELMO and FOCUS-MACRO  Staphyt Regulatory, Report No 22/125  Non-GLP  Unpublished | N | Nufarm Crop Products UK |
| K-CP 9.2.4/02 | Hale, M | 2023 | CA3642: Predicted Environmental Concentrations in Groundwater Following Application to Sunflower in Poland, Using FOCUS PEARL, FOCUS-PELMO and FOCUS-MACRO  Report No 23/94  Non-GLP  Unpublished | N | Nufarm Crop Products UK |
| K-CP 9.2.5/01 | Hale, M. | 2022 | CA3642: Predicted Environmental Concentrations in Surface Water Following Application to Cereals and Oilseed Rape, Using FOCUS STEPS 1-4  Staphyt Regulatory, Report No 22/126  Non-GLP  Unpublished | N | Nufarm Crop Products UK |
| K-CP 9.2.5/02 | Hale, M | 2023 | CA3642: Predicted Environmental Concentrations in Surface Water Following Application to Sunflower in Poland, Using FOCUS STEPS 1-4  Report No 23/95  Non-GLP  Unpublished | N | Nufarm Crop Products UK |

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

| Data point | Author(s) | Year | Title Company Report No.  Source (where different from company) GLP or GEP status Published or not | Vertebrate study  Y/N | Owner |
| --- | --- | --- | --- | --- | --- |
| As all endpoints for the active substances and its metabolites were taken from the EU review of prothioconazole and azoxystrobin, for the list of respective studies please refer to Volume 2 of the RAR. | | | | | |

List of data submitted by the applicant and not relied on

| Data point | Author(s) | Year | Title Company Report No.  Source (where different from company) GLP or GEP status Published or not | Vertebrate study  Y/N | Owner |
| --- | --- | --- | --- | --- | --- |
| There were no data submitted by the Applicant and not relied on. | | | | | |

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

| Data point | Author(s) | Year | Title Company Report No.  Source (where different from company) GLP or GEP status Published or not | Vertebrate study  Y/N | Owner |
| --- | --- | --- | --- | --- | --- |
| There were no data relied on and not submitted by the Applicant. | | | | | |