European Commission

Draft Renewal Assessment Report
prepared according to the Commission Regulation (EU) N° 1107/2009

METCONAZOLE

Volume 3 – B.8 (PPP) – BAS 555 01 F

Rapporteur Member State : Belgium
Co-Rapporteur Member State : United Kingdom

Version History

When	What
January 2004	Draft Assessment Report (DAR) – prepared by RMS BE in the context of the inclusion of the a.s. in Annex I to Council Directive 91/414/EEC. A revised version of the initial DAR was issued in December 2004. Addenda to the initial DAR were issued in August 2004, January 2005 and September 2005.
January 2018	Draft Renewal Assessment Report (DRAR) – prepared in the context of the application for renewal of approval of the a.s. according to Reg (EU) No EU 844/2012. Environmental fate and behaviour evaluation: Vol. 3, part B.8 Evaluation of the previous Annex I inclusion is not reported in this document since significant change occurred last years regarding the e-fate assessment (FOCUS guidelines). For most parts of the current assessment, no specific studies performed with the formulation have been done. For these parts, it is referred to the fate and behaviour of the active substance (*i.e.* a reference to Vol 3 AS – B8 on metconazole (2018)).

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B.8. ENVIRONMENTAL FATE AND BEHAVIOUR

Introduction

Metconazole is an existing active substance, included as a fungicide into the Annex I of the Council Directive 91/414/EEC, by means of the Commission Directive 2006/74/EC of 21 August 2006. The evaluation was based on the Draft Assessment Report prepared by the Rapporteur Member State – Belgium in 2004 on the basis of the documentation submitted by the Applicant –BASF, identified in course of the evaluation as a sole Applicant for metconazole. Addenda to this Draft Assessment Report were published in August 2004, January 2005 and September 2005. In support of the inclusion of metconazole into the Annex I of the Council Directive 91/414/EEC a Review report for the active substance metconazole (SANCO/10027/2006 final, 23 May 2006) was issued, summarising the results of the evaluation and providing the EU-agreed List of the EndPoints for this active substance.

Commission Directive 2006/74/EC, including metconazole into the Annex I of Council Directive 91/414/EEC, indicated particular conditions to be taken into account by Member States in relation to the granting of authorisations of plant protection products containing metconazole:
- Member states must pay particular attention to the protection of aquatic organisms, birds and mammals. Conditions of authorisation should include risk mitigation measures, where appropriate.
- Member states must pay particular attention to the operator safety. Conditions of authorisation should include protective measures, where appropriate.

The environmental degradation of metconazole produces several minor polar and non-polar metabolites. However, only metconazole (all compartments), 1, 2, 4-triazole (all compartments except air) and M555F013 cis (in surface water and sediment only) are requiring further consideration following the conclusions of the Volume 3 CA B.8.

For the first inclusion predicted environmental concentrations (PEC) were estimated for max. 2 applications of 90 g a.s/ha with an interval of 14 days. The formulation CARAMBA 60 SL was applied in cereals and oilseed rape. The representative formulation supporting the application for renewal approval is BAS 555 01 F. Information on the detailed composition of BAS 555 01 F can be found in Volume 4 – Annex C.

Concentrations of metconazole in various environmental compartments are predicted following the proposed use pattern. The PEC in soil, surface water, sediment and groundwater are provided. The long-term concentrations are based on results obtained for the active substance contained in the formulation.

B.8.1. FATE AND BEHAVIOUR IN SOIL

No studies were performed with BAS 555 01 F. The fate and behaviour in soil is addressed in Vol. 3 CA B.8.1.

B.8.1.1. Rate of degradation in soil

No studies were performed with BAS 555 01 F. The rate of degradation in soil is addressed in Vol. 3 CA B.8.1.

B.8.1.1.1. Laboratory studies

No laboratory studies were performed with BAS 555 01 F. Data for the active substance and its metabolites are covered by information given in Vol. 3 CA B.8.1.

B.8.1.1.2. Field studies

No field studies were performed with BAS 555 01 F. Data for the active substance and its metabolites are covered by information given in Vol. 3 CA B.8.1.1.2.2.

B.8.1.1.2.1 Soil dissipation studies

No soil dissipation studies were performed with BAS 555 01 F. Data for the active substance and its metabolites are covered by information given in Vol. 3 CA B.8.1.1.2.2.1.

B.8.1.1.2.1 Soil accumulation studies

No soil accumulation studies were performed with BAS 555 01 F. Data for the active substance and its metabolites are covered by information given in Vol. 3 CA B.8.1.1.2.2.2.

B.8.1.2. Mobility in the soil

No study was submitted on the mobility of BAS 555 01 F or metconazole in soil.

B.8.1.2.1. Laboratory studies

No laboratory studies were performed with BAS 555 01 F. Data for the active substance and its metabolites are covered by information given in Vol. 3 CA B.8.1.3.1.

B.8.1.2.2. Lysimeter studies

The leaching risk of metconazole and its metabolites is addressed by PEC_{gw} calculations using results from degradation rate and adsorption/desorption studies. Neither the active substance nor its metabolites reveal any risk for groundwater contamination. Lysimeter studies are therefore considered not necessary by the Notifier.

B.8.1.2.3. Field leaching studies

Due to the negligible leaching risk of the active substance and its metabolites, field leaching studies are not considered necessary by the Notifier.

B.8.1.3. Estimation of concentrations in soil

Reference:	Imukova, K., Pape, L., Predicted environmental concentrations of BAS 555 F - Metconazole and its metabolites in soil, groundwater, surface water and sediment according to FOCUS following application to cereals and winter oilseed rape 2015/1000241, 2015a, Document No. 2015/1000241
Guideline(s):	FOCUS Ground Water Report SANCO/321/2000 rev. 2, FOCUS groundwater (2009): SANCO/13144/2010 v3 of 2014, Generic Guidance for Tier 1 FOCUS Ground Water Assessments version 2.2, FOCUS Kinetics (2006) SANCO/10058/2005 version 1.1 of Dec. 2014, FOCUS Surface Water Report SANCO/4802/2001 rev. 2, FOCUS (2015): Generic guidance for FOCUS surface water scenarios v 1.4, FOCUS (2007): Landscape And Mitigation Factors Volume 1 SANCO/10422/2005 v2.0., FOCUS (2007): Landscape And Mitigation Factors Volume 2 SANCO/10422/2005 v2.0., FOCUS Air (2008) SANCO/10553/2006 Rev. 2 June 2008
Deviations:	None
GLP:	Not applicable (calculations only)
Validity of the study:	Acceptable
Previous evaluation:	No; Submitted for the purpose of renewal of a.s. approval

PEC_{soil} values were calculated for metconazole and its soil metabolite 1,2,4-triazole for a worst-case application scenario of 2 x 72 g a.s. ha^{-1} to winter oilseed rape (autumn application) covering the use in cereals and winter oilseed rape (spring application). A conservative crop interception of 40% for the first and 80% for the second application was considered in accordance with the guidance of the FOCUS groundwater scenarios working group (2014).

As 1,2,4-triazole shows a biphasic degradation pattern in soil, the model ESCAPE 2.0 which can handle biphasic kinetic models was used for the calculation of PEC_{soil} for 1,2,4-triazole.

A soil bulk density of 1.5 g cm^{-3} and a soil layer depth of 5 cm were assumed for the PEC_{soil} calculations. Additionally, the accumulation behaviors of metconazole and 1,2,4-triazole were assessed assuming application of metconazole over many years. For the calculations of the $PEC_{soil,plateau}$ and $PEC_{soil,accu}$ a soil layer of 20 cm was considered.

Table B.8.1.3-1: $PEC_{soil,max}$, $PEC_{soil,plateau}$ and $PEC_{soil,accu}$ of metconazole and its soil metabolite 1,2,4-triazole following application to winter oilseed rape, autumn application

Compound	$PEC_{soil,max}$ [mg kg^{-1}]	$PEC_{soil,plateau}$ [mg kg^{-1}]	$PEC_{soil,accu}$ [mg kg^{-1}] (= $PEC_{soil,plateau}$ + $PEC_{soil,max}$)
	in 0 – 5 cm depth	in 0 – 20 cm depth	in 0 – 5 cm depth
Metconazole	0.058	0.013	0.071
1, 2, 4-triazole	0.001	<0.001	0.001

I. Materials and methods

Application scenario

Calculations of PEC_{soil} were conducted in the context of a risk envelope approach for a worst-case application scenario. Conservative crop interception values were chosen as recommended by the FOCUS groundwater scenarios working group (FOCUS (2014).

An interception of 80% was considered for all applications in cereals at BBCH 30 to 69 and in winter oilseed rape (spring application) at BBCH 21 to 71. For the autumn application in winter oilseed rape an interception of 40% for the first application at BBCH 13 to 20 and of 80% for the second application at BBCH 21 to 71 was assumed.

Considering the application rates according to the GAP, the maximum individual and the total yearly soil load is 18 and 36 g a.s. ha^{-1} for the use in cereals, 14.4 and 28.8 g a.s. ha^{-1} for the use in winter oilseed rape (spring application) and 43.2 and 57.6 g a.s. ha^{-1} for the use in winter oilseed rape (autumn application), respectively. Accordingly, the application scenario in winter oilseed rape (autumn application) was chosen for PEC_{soil} calculation as worst-case scenario regarding maximum individual and total yearly soil load. An overview of the application scenarios considered given in Table B.8.1.3-2.

Table B.8.1.3-2: Application scenarios of metconazole considered for the determination of the worst-case scenario for the PEC_{soil} calculations

Application scenario	Cereals	Winter oilseed rape, spring application	Winter oilseed rape, autumn application [a]
Growth stage[BBCH]	30-69	21 - 71	13-20, 21-71
Application rate [g a.s. ha^{-1}]	90 / 90	72 / 72	72 / 72
No. of applications [-]	2	2	2
Interval [d]	21	14	150 [b]
Interception [%]	80 / 80	80 / 80	40 / 80
Amount reaching the soil surface [g a.s. ha^{-1}]	18 / 18	14.4 / 14.4	43.2 / 14.4
Total yearly soil load [g a.s. ha^{-1}]	36	28.8	57.6

[a] Worst-case scenario for risk envelope covering all other uses
[b] Assumed to account for interval between autumn and spring application

Environmental fate parameters

Degradation of metconazole in soil

For the PEC_{soil} calculations, the worst-case DT_{50} obtained in the field dissipation studies (Davies, 1991/1992 and 1993, trial Reculver, UK) of 259 days (SFO kinetics) was used (see Vol. 3 CA B.8.1.1.2.2.1).

Maximum occurrence and degradation of the metabolite 1,2,4-triazole in soil

In the older laboratory aerobic soil degradation study with ^{14}C- triazole-labelled metconazole a polar fraction was detected at a maximum amount of 10.5 % of total applied radioactivity (TAR) at the end of the study (121 days after treatment (DAT)). It was shown that the polar fraction contained at least two components and that the major component represented an average of 9.1% TAR. It is assumed that this polar fraction is 1,2,4-triazole, based on similar HPLC retention times of this polar peak versus 1,2,4-triazole which was observed in the new ^{14}C-triazole-labelled aerobic metabolism study at very low concentrations (maximum of 1.2% TAR).

Hence, for PEC_{soil} calculation, a maximum occurrence of 1,2,4-triazole in soil of 9.1% was used (see Vol. 3 CA B.8, section B.8.1.1.2.2.1, Davies, 1991/1992 and 1993).

EU agreed degradation endpoints for 1,2,4-triazole are available for four field trials, where the metabolite showed a biphasic degradation behavior (CRD (2014): Triazole Derived Metabolite: 1,2,4-Triazole. Proposed revision to DT_{50} Summary, Scientific Evaluation and Assessment July 2011, revised September 2011 (after comments from MS and EFSA) and further revised January 2013 (minor clarifications added post-commenting)). Un-normalized DT_{50} range from 6.8 days (DFOP) to 28.1 days (DFOP) (see Vol. 3 CA B.8.1.1.2.2.1, Table B.8.1.1.2.2.1-41), the worst-case parameter set belonging to 28.1 days was considered for the assessment.

Table B.8.1.3-3: Overview of the parameters of metconazole and its metabolite 1,2,4-triazole used for PEC_{soil} calculations

Input parameter	Metconazole	1,2,4-triazole
Molar mass [g mol^{-1}]	319.8	69.1
Molar correction factor (f_{mol}) [-]	-	0.216
Max. occurrence in soil ($f_{max,soil}$) [-]	-	0.091
DT_{50} (SFO) [d]	259.0	
Degradation parameters DFOP model:		
k_1 [d^{-1}]		0.0632
k_2 [d^{-1}]		0.0020
g [-]		0.5732

<u>Calculations methods</u>

Maximum, actual and time-weighted average concentrations in soil ($PEC_{soil,max}$, $PEC_{soil,act}$, $PEC_{soil,twa}$) were calculated for the parent substance and its soil metabolite. The calculations were carried out based on the approach given in the guidance of the FOCUS workgroup on degradation kinetics (FOCUS (2006)). Additionally, the accumulation behavior of metconazole and its metabolite in soil was assessed assuming application over many years.

<u>Calculation of maximum concentrations in soil ($PEC_{soil,max}$)</u>

The maximum PEC of metconazole in soil ($PEC_{soil,max}$) were calculated according to Equation B.8.1.3-1. A soil bulk density of 1.5 g cm^{-3} and a depth of the soil layer of 5 cm were assumed.

Equation B.8.1.3-1: Calculation of $PEC_{soil,max}$ following multiple applications

$$PEC_{soil,max} = \sum_{i=1}^{n}\left[\left(\frac{A_i \cdot (1 - f_{int,i})}{100 \cdot d \cdot bd_{soil}}\right) \cdot e^{-k \cdot (t_n - t_i)}\right]$$

with:	$PEC_{soil,max}$	maximum concentration in soil after n applications	[mg kg^{-1}]
	n	number of applications	[-]
	A_i	application rate at i-th application	[g a.s. ha^{-1}]
	$f_{int,i}$	fraction intercepted by plant cover at i-th application	[-]
	d	depth of soil layer	[cm]
	bd_{soil}	soil bulk density	[g cm^{-3}]
	k	degradation rate (= ln (2) / DT_{50})	[d^{-1}]
	t_i	time of i-th application	[d]
	t_n	time of n-th (last) application	[d]

Calculation of actual and time-weighted average concentrations in soil ($PEC_{soil,act}$ and $PEC_{soil,twa}$)

Actual concentrations in soil ($PEC_{soil,act}$) were calculated for different time points t = 1, 2, 4, 7, 14, 21, 28, 50 and 100 days after the occurrence of the maximum PEC_{soil}, assuming degradation in soil according to first-order kinetics with Equation B.8.1.3-2.

Equation B.8.1.3-2: Calculation of actual PEC_{soil}

$$PEC_{soil,act} = PEC_{soil,max} \cdot e^{-k \cdot t}$$

with:	$PEC_{soil,act}$	actual concentration in soil	[mg kg^{-1}]
	$PEC_{soil,max}$	maximum concentration in soil	[mg kg^{-1}]
	k	degradation rate (= ln (2) / DT_{50})	[d^{-1}]
	t	time after maximum concentration	[d]

The maximum time-weighted average concentrations ($PEC_{soil,twa}$) for exposure periods (Δt) of 1, 2, 4, 7, 14, 21, 28, 50 and 100 days were derived from the time series of PEC ranging from the day of the first application up to 200 DAT (days after first treatment). Thereby, for a given exposure period Δt, the respective set of time-weighted average concentrations is calculated from the time series first (moving time-frame) and scanned for the highest value in the set afterwards (Equation B.8.1.3-3).

Equation B.8.1.3-3: Calculation of time-weighted average concentration in soil ($PEC_{soil,twa}$)

$$PEC_{soil,twa}(\Delta t) = \max\left[\frac{1}{m}\sum_{t=t_j}^{t_j+\Delta t} PEC_{soil}(t)\right] \quad \text{for } j = 0,...,200$$

with:	$PEC_{soil,twa}(\Delta t)$	worst-case time-weighted average concentration in soil for time interval Δt	[mg kg^{-1}]
	$PEC_{soil}(t)$	concentration in soil at time t	[mg kg^{-1}]
	t	time (considering an increment of 0.1 d at each step)	[d]
	t_j	start time point for integration (0.05 days)	[d]
	Δt	time interval	[d]
	j	running variable for time step	[-]
	m	number of time steps in time interval Δt	[-]

Maximum PEC_{soil} due to multi-year application ($PEC_{soil,accu}$)

Since the worst-case field DT_{90} of metconazole in soil exceeds one year, the potential of accumulation of the metconazole in soil was assessed. For this purpose, the plateau concentration in soil at steady state ($PEC_{soil,plateau}$) and the overall accumulation PEC in soil ($PEC_{soil,accu}$) after application of metconazole over many years were determined following Equation B.8.1.3-4 and Equation B.8.1.3-5. A soil layer depth of 20 cm was considered for the calculations as a conservative assumption for mixing by soil cultivation.

Equation B.8.1.3-4: Calculation of the plateau PEC_{soil}

$$PEC_{soil,plateau} = \frac{PEC_{soil,max,20}}{1-e^{-kt}} \cdot e^{-k \cdot (t-i)}$$

with:	$PEC_{soil,plateau}$	plateau concentration at steady state	[mg kg^{-1}]
	$PEC_{soil,max,20}$	maximum soil concentration after multiple applications considering a mixing depth of 20 cm	[mg kg^{-1}]
	t	interval between application seasons (365 days)	[d]
	i	interval between first application and last application in the cropping season	[d]
	k	degradation rate (= ln (2) / DT_{50})	[d^{-1}]

The $PEC_{soil,accu}$ represents the highest potential soil concentration considering the multi-year accumulation load as background concentration ($PEC_{soil,plateau}$) plus the peak concentration ($PEC_{soil,max}$) after application in the top soil layer of 5 cm (Equation B.8.1.3-5).

Equation B.8.1.3-5: Calculation of the overall accumulation PEC_{soil}

$$PEC_{soil,accu} = PEC_{soil,plateau} + PEC_{soil,max}$$

with:	$PEC_{soil,accu}$	maximum concentration in soil for the accumulation risk assessment	[mg kg^{-1}]
	$PEC_{soil,plateau}$	concentration at steady state (plateau concentration) related to the plough layer depth	[mg kg^{-1}]
	$PEC_{soil,max}$	maximum concentration that gives respect to the soil load after one application period related to the soil layer depth)	[mg kg^{-1}]

<u>Calculation of PEC_{soil} for the metabolite 1,2,4-triazole of metconazole</u>

The metabolite of metconazole, 1,2,4-triazole, shows a biphasic degradation behavior in soil. Therefore, the model ESCAPE 2.0 (28 July 2015) was selected to derive maximum, actual and time-weighted average PEC in soil as well as accumulation concentration after multi-year use. A detailed description of ESCAPE is given in Klein (2008).

Only maximum values are reported, which can also be considered as worst-case estimates of short-term and long-term exposure.

For the PEC_{soil} calculation the ESCAPE standard scenario with constant climate conditions at 20°C was selected. A soil density of 1.5 kg L^{-1}, a soil layer depth of 5 cm and a tillage depth of 20 cm were considered. The application mode was set to to ‘Iteration of annual application pattern over 10 years’.

PEC_{soil} calculations for the metabolite 1,2,4-triazole were conducted taking into account the application rate of the parent substance corrected with the molar correction factor which accounts for the mass difference between parent and metabolite and the maximum observed occurrence of the metabolite in soil.

II. Results and discussion

The maximum, actual and time-weighted average concentrations of metconazole in soil following application to winter oilseed rape (autumn application) are shown in Table B.8.1.3-4.

Table B.8.1.3-4: PEC_{soil} of metconazole following application to winter oilseed rape, autumn application

	Time [a] [d]	$PEC_{soil,act}$ [mg kg^{-1}]	$PEC_{soil,twa}$ [mg kg^{-1}]
Global maximum	0	0.058	-
Short-term	1	0.058	0.058
	2	0.057	0.058
	4	0.057	0.057
Long-term	7	0.057	0.057
	14	0.056	0.057
	21	0.055	0.056
	28	0.054	0.056
	50	0.051	0.054
	100	0.051	0.051

[a] Time: days following maximum concentration ($PEC_{soil,act}$) or time interval ($PEC_{soil,twa}$)

The $PEC_{soil,accu}$ of metconazole following multi-year use in winter oilseed rape (autumn application), together with the relevant values of $PEC_{soil,plateau}$ and $PEC_{soil,max}$ are given in Table B.8.1.3-5.

Table B.8.1.3-5: $PEC_{soil,max}$, $PEC_{soil,plateau}$ and $PEC_{soil,accu}$ of metconazole following multi-year use in winter oilseed rape, autumn application

$PEC_{soil,max}$ [mg kg^{-1}] in 0 - 5 cm depth	$PEC_{soil,plateau}$ [mg kg^{-1}] in 0 - 20 cm depth	$PEC_{soil,accu}$ [mg kg^{-1}] (= $PEC_{soil,plateau}$ + $PEC_{soil,max}$) in 0 - 5 cm depth
0.058	0.013	0.071

The $PEC_{soil,max}$ of the metabolite 1,2,4 triazole following application in winter oilseed rape (autumn application) is given in Table B.8.1.3-6 together with the corresponding values of $PEC_{soil,accu}$ and $PEC_{soil,plateau}$ following multi-year use. Only global maximum values are reported, which can be considered as worst-case estimates of short-term and long-term exposure.

Table B.8.1.3-6: $PEC_{soil,max}$ $PEC_{soil,plateau}$ and $PEC_{soil,accu}$ of 1,2,4-triazole following application to winter oilseed rape, autumn application

$PEC_{soil,max}$ [mg kg^{-1}] in 0 - 5 cm depth	$PEC_{soil,plateau}$ [mg kg^{-1}] in 0 - 20 cm depth	$PEC_{soil,accu}$ [mg kg^{-1}] (= $PEC_{soil,plateau}$ + $PEC_{soil,max}$) in 0 - 5 cm depth
0.001	<0.001	0.001

III. Conclusion

Initial, short-term and long-term actual and time-weighted average PEC_{soil} were calculated for metconazole, active substance in the formulated product BAS 555 01 F, and its soil metabolite 1,2,4-triazole.

PEC_{soil} calculations for all intended uses are covered by a twofold application of 72 g a.s. ha^{-1} to winter oilseed rape (autumn application) with 40% and 80% interception, respectively. It represents an overall worst-case with respect to the soil load over all scenarios intended by the GAP.

The predicted concentrations in soil are appropriate to be used for the subsequent risk assessment for soil organisms.

RMS conclusions on PEC_{Soil}

Regarding the compliance of the product BAS 555 01 F with the persistence criteria of the Uniform Principles of Regulation (EU) 546/2011, no non-extractable residues were formed during the laboratory tests in amounts exceeding 70% of the initial dose after 100 days with a mineralization rate of less than 5% in 100 days.

Based on the observed half-life in the German standard sandy soil 2.2 in Edwards (1990), i.e. 568.6 d when normalized for temperature (20°C) and moisture (pF2), field dissipation studies are required for metconazole. Normalized DT_{50} in the 6 other tested soils were also above 60 days (range equivalent to 69.0-198.4 days).

Best-fit field half-lives of metconazole ranged from 7 to 259 days (Reculver soil, UK, Davies 1993, in Vol. 3 CA B.8). Field DT_{50} are above 90 days in 4 tested soils. It should thus be scientifically demonstrated that under field conditions there is no accumulation in soil at such levels that unacceptable residues in succeeding crops occur and/or that unacceptable phytotoxic effects on succeeding crops occur and/or that there is an unacceptable impact on the environment, in accordance with the relevant requirements provided for in points 2.5.1.2, 2.5.1.3, 2.5.1.4 and 2.5.2 of Regulation (EU) 546/2011.

For the metabolite M555F020 (1,2,4-triazole), no data were available from the aerobic degradation studies on metconazole in Volume 3 CA B.8, consequently no degradation rates were calculated. Degradation endpoints for 1,2,4-triazole are available and accepted at EU level (*CRD (2014): Triazole Derived Metabolite: 1,2,4-Triazole. Proposed revision to DT_{50} Summary, Scientific Evaluation and Assessment July 2011, revised September 2011 (after comments from MS and EFSA) and further revised January 2013 (minor clarifications added post-commenting), 24 Oct. 2014*). According to the available information, field derived DT_{50} and DT_{90} values should be used. Best fit DT_{50} of 1,2,4-triazole obtained in terrestrial field dissipation studies are in the range 6.8-28.1 days, thus under 3 months. No accumulation is expected in soil for this metabolite.

Maximum PEC_{soil} after application of BAS 555 01 F are expected to be those as reported in Table B.8.1.3-5. These PEC_{soil} and related time-weighted average concentrations can be used to check the absence of unacceptable residues in succeeding crops and/or the absence of phytotoxic effects on succeeding crops and/or the absence of unacceptable impact on the environment and non-target species.

B.8.2. FATE AND BEHAVIOUR IN WATER AND SEDIMENT

B.8.2.1 Aerobic mineralization in surface water

No studies were performed with BAS 555 01 F. The aerobic mineralization in surface water is sufficiently addressed by information given in Vol. 3 CA B.8.2.2.2.

B.8.2.2 Water/sediment study

No water/sediment studies were performed with BAS 555 01 F. Data for the active substance and its metabolites are covered by information given in Vol. 3 CA B.8.2.2.3.

B.8.2.3 Irradiated water/sediment study

No irradiated water/sediment study was performed with the active substance or BAS 555 01 F.

B.8.2.4 Estimation of concentrations in groundwater

B.8.2.4.1 Calculation of concentrations in groundwater

Predicted environmental concentrations in groundwater (PEC_{GW})

Reference:	Imukova, K., Pape, L., Predicted environmental concentrations of BAS 555 F - Metconazole and its metabolites in soil, groundwater, surface water and sediment according to FOCUS following application to cereals and winter oilseed rape 2015/1000241, 2015a, Document No. 2015/1000241

Guideline(s):	FOCUS Ground Water Report SANCO/321/2000 rev. 2, FOCUS groundwater (2009): SANCO/13144/2010 v3 of 2014, Generic Guidance for Tier 1 FOCUS Ground Water Assessments version 2.2, FOCUS Kinetics (2006) SANCO/10058/2005 version 1.1 of Dec. 2014, FOCUS Surface Water Report SANCO/4802/2001 rev. 2, FOCUS (2015): Generic guidance for FOCUS surface water scenarios v 1.4, FOCUS (2007): Landscape And Mitigation Factors Volume 1 SANCO/10422/2005 v2.0., FOCUS (2007): Landscape And Mitigation Factors Volume 2 SANCO/10422/2005 v2.0., FOCUS Air (2008) SANCO/10553/2006 Rev. 2 June 2008
Deviations:	None
GLP:	Not applicable (calculation only)
Validity of the study:	Acceptable
Previous evaluation:	No; Submitted for the purpose of renewal of a.s. approval

PEC_{gw} were calculated for metconazole and its soil metabolite 1,2,4-triazole according to the guidance of the FOCUS groundwater working group (2000, 2014) using the models FOCUS-PEARL 4.4.4, FOCUS-PELMO 5.5.3 and FOCUS-MACRO 5.5.4.

The biphasic degradation behavior (DFOP) of 1,2,4-triazole in soil was accounted for by including two metabolite compartments, a fast and a slow degrading compartments associated with the parameters of the fast and the slow phases of the DFOP model.

All scenarios available for the $FOCUS_{gw}$ crops representing winter and spring cereals and winter oilseed rape were considered for the leaching assessment. Calculations were based on the worst-case application scenarios considering the highest application rate, the maximum number of applications, the minimum application interval and the earliest possible application date. Conservative crop interception values were chosen according to FOCUS (2014). Continuous cropping over a period of 26 years was assumed and annual application of the active substance was taken into account.

The following endpoints were used as input parameters for the PEC_{gw} calculations.

Table B.8.2.4.1-1: Endpoints used for PEC_{gw} calculation for metconazole and its metabolite 1,2,4-triazole

Input parameter	Metconazole	1,2,4-triazole
Molar mass [g mol^{-1}]	319.8	69.1
$DT_{50,soil}$ [d]	93.6[a]	1.68 (DFOP fast phase) [b] 60.50 (DFOP slow phase)
K_{oc} [mL g^{-1}]	1071.0	89.0
K_{om} [mL g^{-1}]	621.2	51.6
1/n [-]	0.925	0.916
Formation fraction [-]	-	0.284

[a] geomean of normalized $DegT_{50}$ (n = 6, Pape and Studenroth, 2015b)
[b] geomean of normalized field DT_{50} values (n = 4, CRD, 2014)

The 80th percentiles of the predicted annual average leachate concentrations of metconazole and its soil metabolite were below 0.1 µg L^{-1} in all tested scenarios with all models. Therefore, the leaching of unacceptable amounts of substances after application of metconazole to winter oilseed rape, winter and spring cereals is highly unlikely.

I. Material and methods

<u>FOCUS model selection and modeling approach</u>

The leaching assessment for metconazole and its metabolite 1,2,4-triazole was conducted according to the guidance of the FOCUS groundwater scenarios workgroup (FOCUS (2000)).

The leaching assessment was conducted for Tier 1 of the tiered assessment scheme. The simulations were carried out using FOCUS-PEARL 4.4.4, FOCUS-PELMO 5.5.3 and FOCUS-MACRO 5.5.4 in combination with the FOCUS standard scenarios.

Implementation of biphasic degradation for the metabolite 1,2,4-triazole

The degradation behavior of 1,2,4-triazole is described with the DFOP kinetic model and was implemented for PEC_{gw} modeling as recommended by FOCUS (FOCUS (2014b)). The fraction of the metabolite formed from the parent was divided into two compartments, i.e. one fast degrading and one slow degrading compartment. For each compartment, the corresponding rate of the DFOP model was considered as degradation endpoint. The formation fraction of the metabolite was multiplied with the parameter g of the DFOP model for the fast degrading compartment and with (1-g) for the slow degrading compartment. The total PEC_{gw} of the metabolite was calculated by adding the PEC_{gw} of the two compartments. In order to minimize the influence of non-linear sorption for the metabolite, the amount of active substance applied was doubled and the predicted concentrations of parent and metabolite in the leachate were divided by 2. The compartment model considered for the calculations is shown in Figure B.8.2.4.1-1:

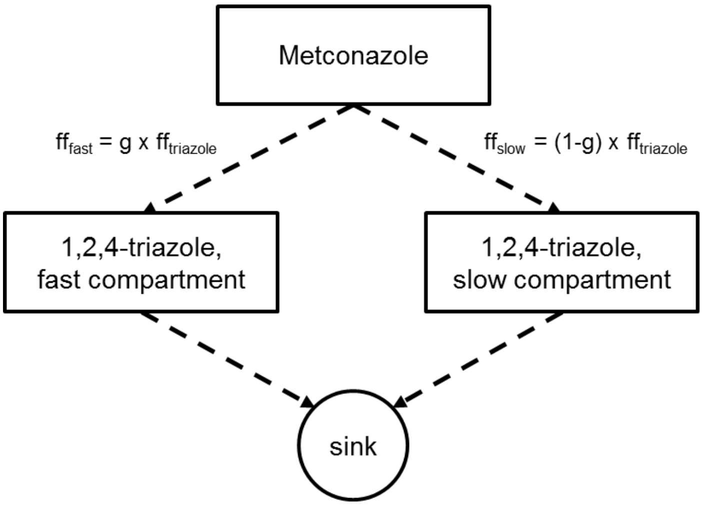

Figure B.8.2.4.1-1: Compartment model of metconazole and 1,2,4-triazole considered for PEC_{gw} calculation

For calculations with FOCUS-PEARL and FOCUS-PELMO, the parent substance and the metabolite were considered together in one model run as described above. For the FOCUS-MACRO calculations, the metabolite was calculated as “parent equivalent”, i.e. the application rate of the parent was corrected, taking into account the molar correction factor of the metabolite and formation fraction of the metabolite. In accordance with the approach described above two model runs were performed: one run corresponding to the fast degrading compartment where the metabolite application rate was multiplied with the parameter g of the DFOP model and one run corresponding to the slow degrading compartment where the metabolite application rate was multiplied with (1-g). As for the calculations with the other models, the metabolite application rate was doubled. The total PEC_{gw} of the metabolite was calculated by dividing the predicted concentrations of the metabolite in the leachate of the two model runs by 2 and finally adding the results for both runs.

Application scenarios

PEC_{gw} values of metconazole were calculated for the same worst-case application scenarios as for the PEC_{soil} assessment (see B.8.1.3, Material and Methods). PEC_{gw} calculations were performed for all FOCUS groundwater scenarios that are parameterized for the $FOCUS_{gw}$ crops winter oilseed rape, winter and spring cereals. For winter oilseed rape, the two application windows proposed in the GAP were considered separately: twofold spring application at BBCH 21-71 (spring application) and combined autumn and spring application at BBCH 13-20 and 21-71, respectively (autumn application).

Application dates for each scenario were specified with regard to variations in beginning and duration of crop development within Europe. The application dates were selected based on the recommendations given by the tool AppDate, which calculates appropriate application dates for the relevant crops defined for the different FOCUS scenarios based on BBCH of the crop (Klein, M. (2010)). In addition, if no realistic dates could be derived with AppDate (i.e. spring application to winter cereals and winter oilseed rape), a study which describes the date of different growth stages of various crops around the regions of the FOCUS groundwater scenarios based on numerous field trials was considered (Saur, et al. (2001)).

The worst-case application scenarios and application dates for all relevant FOCUS scenarios are shown in Table B.8.2.4.1-2 for cereals and Table B.8.2.4.1-3 to Table B.8.2.4.1-4 for oilseed rape.

Table B.8.2.4.1-2: Application scenario of metconazole applied to winter and spring cereals considered for PEC_{gw} calculations

Crops	**Cereals**	
$FOCUS_{gw}$ crop	1 Cereals, winter/spring	
Growth stage at first application [BBCH]	30	30
No. of applications	1	2
Application interval [d]	-	21
Application rate [g a.s. ha^{-1}]	90	90
Interception [%]	80	80/80
Amount reaching the soil surface [g a.s. ha^{-1}]	18	18/18
Total yearly soil load [g a.s. ha^{-1}]	18	36
Application dates winter cereals		
Scenario	**1st application**	**2nd application**
Châteaudun	9 - 1st May (121) [a]	10 - 22nd May (142) [a]
Hamburg	11 - 1st May	12 - 22nd May
Jokioinen	13 - 1st June	14 - 22nd June
Kremsmünster	15 - 1st May	16 - 22nd May
Okehampton	17 - 1st May	18 - 22nd May
Piacenza	19 - 15th March	20 - 5th April
Porto	21 - 15th March	22 - 5th April
Sevilla	23 - 15th March	24 - 5th April
Thiva	25 - 15th March	26 - 5th April
Application dates spring cereals		
Scenario	**1st application**	**2nd application**
Châteaudun	27 - 7th April (97) [a]	28 - 28th April (118) [a]
Hamburg	29 - 29th April	30 - 20th May
Jokioinen	31 - 15th June	32 - 6th July
Kremsmünster	33 - 29th April	34 – 20th May
Okehampton	35 - 29th April	36 - 20th May
Porto	37 - 7th April	38 - 28th April

[a] In brackets: Julian date used for FOCUS-MACRO calculations

Table B.8.2.4.1-3: Application scenario of metconazole applied to winter oilseed rape, autumn application considered for PEC_{gw} calculations

Crops	**Oilseed rape**
$FOCUS_{gw}$ crop	Oilseed rape (winter)

Growth stage at first application [BBCH]	13 (autumn) / 21 (spring)	
No. of applications	2	
Application interval [d]	n.r.	
Application rate [g a.s. ha^{-1}]	72	
Interception [%]	40 / 80	
Amount reaching the soil surface [g a.s. ha^{-1}]	43.2 / 14.4	
Total yearly soil load [g a.s. ha^{-1}]	57.6	
Application dates		
Scenario	**1st application**	**2nd application**
Châteaudun	40 - 28th September (285) [a]	41 - 15th March (74) [a]
Hamburg	42 - 23rd September	43 - 15th March
Kremsmünster	44 - 23rd September	45 - 15th March
Okehampton	46 - 4th September	47 - 15th March
Piacenza	48 - 26th October	49 - 15th February
Porto	50 - 28th September	51 - 15th February

n.r. = not relevant
[a] In brackets: Julian date used for FOCUS-MACRO calculations

Table B.8.2.4.1-4: Application scenario of metconazole applied to winter oilseed rape, spring application considered for PEC_{gw} calculations

Crops	**Oilseed rape**	
$FOCUS_{gw}$ crop	Oilseed rape (winter)	
Growth stage at first application [BBCH]	21	
No. of applications	2	
Application interval [d]	14	
Application rate [g a.s. ha^{-1}]	72	
Interception [%]	80 / 80	
Amount reaching the soil surface [g a.s. ha^{-1}]	14.4 / 14.4	
Total yearly soil load [g a.s. ha^{-1}]	28.8	
Application dates		
Scenario	**1st application**	**2nd application**
Châteaudun	53 - 15th March (74) [a]	54 - 29th March (88) [a]
Hamburg	55 - 15th March	56 - 29th March
Kremsmünster	57 - 15th March	58 - 29th March
Okehampton	59 - 15th March	60 - 29th March
Piacenza	61 - 15th February	62 - 1st March
Porto	63 - 15th February	64 - 1st March

[a] In brackets: Julian date used for FOCUS-MACRO calculations

Environmental fate parameters

Degradation parameters of metconazole in soil

A total of seven degradation endpoints for environmental fate modeling are available for metconazole from kinetic evaluations of laboratory studies (see Vol. 3 CA B.8.1.1.2.1.1). Endpoints reported for actual study conditions were further normalized to reference conditions (20°C, pF2). Normalized DT_{50} values range from 69 to 568.6 days (Vol. 3 CA B.8.1.1.2.1.1, Table B.8.1.1.2.1.1-21).

Six modeling endpoints for metconazole are available from field studies (see Vol. 3 CA B.8.1.1.2.2.1). Normalized DT_{50} values range from 26.6 to 368.5 days (Vol. 3 CA B.8.1.1.2.2.1, Table B.8.1.1.2.2.1-31). In order to derive a suitable DT_{50} value for PEC_{gw} modeling, the EFSA endpoint selector (EFSA (2014)) was used. The test confirmed that field studies show significantly shorter DT_{50} than laboratory studies. Hence, the geometric mean of normalized field DT_{50} of 93.6 days, was considered for modeling.

Sorption of metconazole to soil

The sorption behavior of metconazole was investigated in two studies in a total of nine soils (see Vol. 3 CA B.8.1.2.1.1). The reported adsorption coefficients ($K_{f,oc}$) range from 726 mL g^{-1} to 1718 mL g^{-1} and the Freundlich exponents (1/n) from 0.887 to 0.983 (see Vol. 3 CA 7.1.2.1.1, Table B.8.1.2.1.1-5). The geometric mean $K_{f,oc}$ of 1071 mL g^{-1} ($K_{f,om}$ = 621.2 mL g^{-1}) and the arithmetic mean 1/n of 0.925 were considered for PEC_{gw} calculation.

Formation and degradation of the metabolite 1,2,4-triazole in soil

EU agreed normalized modeling DT_{50} for 1,2,4-triazole are available for four field trials (CRD (2014)). For all trials the DFOP kinetic model was used to describe the degradation behavior of the metabolite. The fast-phase DT_{50} range from 0.5 to 4.6 days, the slow-phase DT_{50} range from 25.1 to 126.0 days and the parameter g range from 0.364 to 0.655 (Vol. 3 CA B.8.1.2.2.1, Table B.8.1.1.2.2.1-42). For PEC_{gw} modeling, the geometric mean of the fast- and slow-phase DT_{50} values of 1.68 and 60.5 days, respectively, and the arithmetic mean of the parameter g of 0.489 was used.

For 1,2,4-triazole, a conservative formation fraction from metconazole was calculated (Vol 3 CA B.8.1.1.2.1.2, Pape, L., 2015d). The reported value of 0.284 was used for PEC_{gw} calculation.

Sorption of the metabolite 1,2,4-triazole to soil

EU agreed sorption endpoints appropriate for PEC_{gw} modeling of 1,2,4-triazole are available for four soils (CRD (2014)). The reported $K_{f,oc}$ values range from 43 mL g^{-1} to 120 mL g^{-1} with corresponding 1/n values from 0.827 to 1.016 (Vol. 3 CA B.8.1.2.1.2, Table B.8.1.2.1.2-1). The arithmetic mean $K_{f,oc}$ value of 89 mL g^{-1} ($K_{f,om}$ = 51.6 mL g^{-1}) and the arithmetic mean 1/n value of 0.916 were used for PEC_{gw} modeling.

Input parameters for metconazole and its metabolite 1,2,4-triazole

A summary of the substance parameters used for the Tier 1 PEC_{gw} calculations is given in Table B.8.2.4.1-5 for metconazole and in Table B.8.2.4.1-6 for 1,2,4-triazole.

Table B.8.2.4.1-5: Summary of input parameters used to simulate the leaching behavior of metconazole

Input parameter	Unit	Value	Remarks
PHYSICO-CHEMICAL PARAMETERS			
Molecular mass	[g mol^{-1}]	319.8	Phys-chem. properties
Water solubility (20°C, pH7)	[mg L^{-1}]	30.4	Phys-chem. properties
Molar enthalpy of dissolution	[kJ mol^{-1}]	27	FOCUS recommendation
Saturated vapor pressure (20°C)	[Pa]	2.1 x 10^{-8}	Phys-chem. Properties
Molar enthalpy of vaporization	[kJ mol^{-1}]	95	FOCUS recommendation
Diffusion coefficient in water (20°C)			FOCUS recommendation
PEARL	[m^2 d^{-1}]	4.3 x 10^{-5}	
MACRO	[m^2 s^1]	5 x 10^{-10}	
Diffusion coefficient in gaz (20°C)			FOCUS recommendation
PEARL PELMO	[m^2 d^{-1}] [cm^2 s^{-1}]	0.43 0.05	
DEGRADATION PARAMETERS			
DT_{50} soil at reference conditions (20°C, pF2)	[d]	93.6	Geometric mean of normalized field values (n = 6, Vol. 3 CA B.8, Table B.8.1.1.2.2.1-40)

PELMO transformation rates to 1,2,4-triazole:	[d^{-1}]		Calculated as ln(2)/DT_{50} x metabolite formation fraction x parameter g (or 1-g)
To fast degrading compartment		0.00102699	
To slow degrading compartment		0.00107319	
PELMO transformation rate to SINK	[d^{-1}]	0.00530524	Calculated as ln(2)/DT_{50} x transformation fraction CO_2
Molar activation energy (PEARL)	[kJ mol^{-1}]	65.4	EFSA recommendation
Q_{10} (PELMO)	[-]	2.58	EFSA recommendation
Temperature correction exponent (MACRO)	[K^{-1}]	0.0948	EFSA recommendation
Exponent of moisture correction function PEARL, PELMO MACRO	[-]	0.7 0.49	FOCUS recommendation
SORPTION PARAMETERS			
K_{oc}	[mL g^{-1}]	1071.0	Geometric mean (n = 9, Vol. 3 CA B.8, Table B.8.1.2.1.1-5)
K_{om}	[mL g^{-1}]	621.2	Calculated as K_{om} = K_{oc}/1.724
Freundlich exponent 1/n	[-]	0.925	Arithmetic mean (n = 9, Vol. 3 CA B.8, Table B.8.1.2.1.1-5)
Method of subroutine description	[-]	pH independent	-
CROP RELATED PARAMETERS			
TSCF (crop uptake)	[-]	0.5[a]	FOCUS recommendation

[a] In light of latest guidance on crop uptake from FOCUS groundwater guidance, the default TSCF of 0.5 no longer applies. It should be either 0 as a conservative first tier or an alternative value that should be supported by data on uptake soil (e.g. specific plant uptake studies, information from rotational crop residue trials etc etc.). However, this is not expected to affect the modelled PECgw which is always < 0.001µg/l for the a.s due to high sorption.

Table B.8.2.4.1-6: Summary of input parameters used to simulate the leaching behavior of 1,2,4-triazole

Input parameter	Unit	Value	Remarks
PHYSICO-CHEMICAL PARAMETERS			
Molecular mass	[g mol^{-1}]	69.1	Phys-chem. properties
Water solubility (20°C)	[mg L^{-1}]	700000	Phys-chem. properties
Molar enthalpy of dissolution	[kJ mol^{-1}]	27	FOCUS recommendation
Saturated vapor pressure (20°C)	[Pa]	0.22	Phys-chem. Properties
Molar enthalpy of vaporization	[kJ mol^{-1}]	95	FOCUS recommendation
Diffusion coefficient in water (20°C)			FOCUS recommendation
PEARL	[m^2 d^{-1}]	4.3 x 10^{-5}	
MACRO	[m^2 s^1]	5 x 10^{-10}	
Diffusion coefficient in gaz (20°C) PEARL	[m^2 d^{-1}]	0.43	FOCUS recommendation
DEGRADATION PARAMETERS			

DT_{50} soil at reference conditions (20°C, pF2) Fast degrading compartment Slow degrading compartment	[d]	1.68 60.50	Geometric mean of normalized field values (n = 4, Vol. 3 CA B.8, Table B.8.1.1.2.2.1-42)
Fraction in fast degrading compartment (g)	[-]	0.489	Arithmetic mean (n=4, Vol. 3 CA B.8, Table B.8.1.1.2.2.1-42)
Formation fraction from parent	[-]	0.284	Single value
PEARL formation fractions: To fast degrading compartment To slow degrading compartment	[-]	0.139 0.145	Formation fraction x g Formation fraction x (1-g)
MACRO formation fraction	[-]	-	Calculated as parent-equivalent
PELMO transformation rates to SINK: Fast degrading compartment Slow degrading compartment	[d^{-1}]	0.412588 0.011457	Calculated as $\ln(2)/DT_{50}$
Molar activation energy (PEARL)	[kJ mol^{-1}]	65.4	EFSA recommendation
Q_{10} (PELMO)	[-]	2.58	EFSA recommendation
Temperature correction exponent (MACRO)	[K^{-1}]	0.0948	EFSA recommendation
Exponent of moisture correction function PEARL, PELMO MACRO	[-]	0.7 0.49	FOCUS recommendation
SORPTION PARAMETERS			
K_{oc}	[mL g^{-1}]	89.0	Arithmetic mean (n = 4, Vol. 3 CA B.8, Table B.8.1.2.1.2-1)
K_{om}	[mL g^{-1}]	51.6	Calculated as $K_{om} = K_{oc}/1.724$
Freundlich exponent 1/n	[-]	0.916	Arithmetic mean (n = 4, Vol. 3 CA B.8, Table B.8.1.2.1.2-1)
Method of subroutine description	[-]	pH independent	-
CROP RELATED PARAMETERS			
TSCF (crop uptake)	[-]	0	CRD recommendation (2014)

II. Results and discussion

The results of the calculations for metconazole and its metabolite 1,2,4-triazole are summarized in Table B.8.2.4.1-7 and Table B.8.2.4.1-8.

Table B.8.2.4.1-7: 80th percentile annual leachate concentrations of metconazole following application to various crops

Crop	Scenario	PEC$_{gw}$ [µg L^{-1}]		
		PEARL 4.4.4	PELMO 5.5.3	MACRO 5.5.4
Winter cereals	Châteaudun	<0.001	<0.001	<0.001
	Hamburg			- [a]
	Jokioinen			
	Kremsmünster			
	Okehampton			
	Piacenza			
	Porto			
	Sevilla			
	Thiva			
Spring cereals	Châteaudun	<0.001	<0.001	<0.001
	Hamburg			- [a]
	Jokioinen			
	Kremsmünster			
	Okehampton			
	Porto			
Winter oilseed rape, autumn application	Châteaudun	<0.001	<0.001	<0.001
	Hamburg			- [a]
	Kremsmünster			
	Okehampton			
	Piacenza			
	Porto			
Winter oilseed rape, spring application	Châteaudun	<0.001	<0.001	<0.001
	Hamburg			- [a]
	Kremsmünster			
	Okehampton			
	Piacenza			
	Porto			

[a] Scenario not defined for the model

Table B.8.2.4.1-8: 80th percentile annual leachate concentrations of 1,2,4-triazole following application to various crops

Crop	Scenario	PEC$_{gw}$ [µg L^{-1}]		
		PEARL 4.4.4	PELMO 5.5.3	MACRO 5.5.4
Winter cereals	Châteaudun	0.001	0.001	<0.001
	Hamburg	0.006	0.007	- [a]
	Jokioinen	0.002	0.003	
	Kremsmünster	0.004	0.004	
	Okehampton	0.006	0.007	
	Piacenza	0.003	0.004	
	Porto	0.003	0.005	
	Sevilla	<0.001	<0.001	
	Thiva	<0.001	<0.001	
Spring cereals	Châteaudun	0.001	0.001	0.001
	Hamburg	0.007	0.006	- [a]
	Jokioinen	0.002	0.002	
	Kremsmünster	0.004	0.004	
	Okehampton	0.006	0.005	
	Porto	0.003	0.004	
Winter oilseed rape, autumn application	Châteaudun	0.003	<0.001	0.003
	Hamburg	0.012		- [a]
	Kremsmünster	0.008		

	Okehampton	0.011		
	Piacenza	0.005		
	Porto	0.007		
Winter oilseed rape, spring application	Châteaudun	0.001	0.001	<0.001
	Hamburg	0.005	0.005	- [a]
	Kremsmünster	0.003	0.003	
	Okehampton	0.004	0.005	
	Piacenza	0.002	0.002	
	Porto	0.002	0.004	

[a] Scenario not defined for the model

The 80th percentile average annual leachate concentrations of metconazole and its metabolite 1,2,4-triazole were below 0.1 µg L^{-1} for all crops and in all tested scenarios and models. Therefore, the leaching of unacceptable amounts of all substances following application of metconazole to winter oilseed rape, winter and spring cereals is highly unlikely.

III. Conclusion

A tiered approach was considered to address the risk for groundwater following the guidelines of FOCUS groundwater. No risk was identified for metconazole, nor for its soil metabolite 1,2,4-triazole at Tier 1 (PEC_{gw} < 0.1 µg L^{-1}).

<u>RMS comments on PEC_{gw}:</u>

The provisional results of the calculations presented above demonstrate that for the proposed EU-representative application pattern of BAS 555 01 F, PEC_{GW} values of this compound and its soil metabolite 1,2,4-triazole were < 0.1 µg/L.

B.8.2.4.2 Additional field tests

No additional field tests were performed with BAS 555 01 F. Data for the active substance and its metabolites are covered by information given in Vol. 3 CA B.8 Section B.8.1.1.2.2.

B.8.2.5 Estimation of concentrations in surface water and sediment

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

Reference:	Imukova, K., Pape, L., Predicted environmental concentrations of BAS 555 F - Metconazole and its metabolites in soil, groundwater, surface water and sediment according to FOCUS following application to cereals and winter oilseed rape 2015/1000241, 2015a, Document No. 2015/1000241
Guideline(s):	FOCUS Ground Water Report SANCO/321/2000 rev. 2, FOCUS groundwater (2009): SANCO/13144/2010 v3 of 2014, Generic Guidance for Tier 1 FOCUS Ground Water Assessments version 2.2, FOCUS Kinetics (2006) SANCO/10058/2005 version 1.1 of Dec. 2014, FOCUS Surface Water Report SANCO/4802/2001 rev. 2, FOCUS (2015): Generic guidance for FOCUS surface water scenarios v 1.4, FOCUS (2007): Landscape And Mitigation Factors Volume 1 SANCO/10422/2005 v2.0., FOCUS (2007): Landscape And Mitigation Factors Volume 2

	SANCO/10422/2005 v2.0., FOCUS Air (2008) SANCO/10553/2006 Rev. 2 June 2008
Deviations:	None
GLP:	Not applicable (calculation only)
Validity of the study:	Acceptable
Previous evaluation:	No; Submitted for the purpose of renewal of a.s. approval

Predicted environmental concentrations in surface water (PEC_{sw}) and sediment (PEC_{sed}) were calculated for metconazole and its soil metabolite 1,2,4-triazole and its aquatic metabolite M555F013 following spray application of metconazole to winter and spring cereals and winter oilseed rape.

Calculations were performed according to the recommendations of the FOCUS working group on surface water scenarios in a stepwise approach (FOCUS 2001, 2007, 2014). For metconazole, the entry pathways spray drift, drainage and runoff were considered relevant. For the metabolite 1,2,4-triazole occurring in soil only, the relevant entry pathways are runoff and drainage of the metabolite. For the metabolite M555F013 occurring in water and sediment the relevant entry pathways are formation after spray drift, drainage and runoff of the parent substance.

For metconazole, PEC_{sw} calculations were performed at Step 1 to Step 4 for the use in winter and spring cereals and winter oilseed rape. Maximum PEC_{sed} were reported for calculations at Step 1 to Step 3. For the metabolites, maximum PEC_{sw} and PEC_{sed} were reported for calculations at Step 1 and Step 2.

The software packages STEPS1-2 in FOCUS version 3.2 (Step 1 and 2), FOCUS-PRZM version 4.3.1, FOCUS-MACRO version 5.5.4, FOCUS-TOXSWA version 4.4.3 (Step 3) and SWAN version 4.0.1 (Step 4) were used.

Simulations were performed for single and multiple applications, covering the growth stages foreseen by the GAP and taking into account the maximum application rate per treatment and the minimum application interval in case of multiple applications.

Step 1 and 2 calculations were carried out for metconazole and its metabolites for two worst-case scenarios: winter cereals and winter oilseed rape (autumn application). At Step 2 of the assessment, the region ‘South Europe’ and ‘North Europe’ cereals and winter oilseed rape, respectively where combined with the application period ‘Oct-Feb’. At Step 3 and 4, all FOCUS scenarios available for cereals and oilseed rape were considered.

For metconazole, Step 3 and 4 calculations were conducted in a tiered approach. At Tier 1, calculations were performed with standard input parameters according to FOCUS while at Tier 2, the default foliar DT_{50} of 10 days was refined by experimental data of 2 days for cereals and 8.7 days for winter oilseed rape for all scenarios considered at Tier 1. At Tier 3, the interception values implemented in FOCUS MACRO for the Tier 2 drainage scenarios were refined to be in agreement with the values recommended by FOCUS for the respective BBCH growth stages specified in the GAP.

The following tables provide the input parameters used for the $PEC_{sw,sed}$ calculations.

Table B.8.2.5-1: Endpoints used for PEC_{sw} and PEC_{sed} calculation for metconazole

Input parameter	**Metconazole**
Molar mass [g mol^{-1}]	319.8
$DT_{50,soil}$ [d]	93.6 [a]
$DT_{50,water,sediment}$ (Step 1 - 2) [d]	384.0 [b]
$DT_{50,water}$ (Step 3 - 4) [d]	384.0 [b]
$DT_{50,sediment}$ (Step 3 - 4) [d]	1000 [c]
K_{oc} [mL g^{-1}]	1071.0 [d]
1/n [-]	0.925 [e]

[a] Geometric mean of normalized field values (n = 6, Vol. 3 CA B.8, Table B.8.1.1.2.2.1-40)
[b] Geometric mean (n = 4, Vol. 3 CA B.8, Table B.8.2.2.3-53)
[c] Default value (worst case)

[d] Geometric mean (n = 9, Vol. 3 CA B.8, Table B.8.1.2.1.1-5)
[e] Arithmetic mean (n = 9, Vol. 3 CA B.8, Table B.8.1.2.1.1-5)

Table B.8.2.5-2: Endpoints used for PEC_{sw} and PEC_{sed} calculation for the metabolite 1,2,4-triazole

Input parameter	1,2,4-triazole
Molar mass [g mol^{-1}]	69.1
$DT_{50,soil}$ [d]	60.50 (DFOP slow phase) [a]
$DT_{50,water,sediment}$ (Step 1 - 2) [d]	1000 [b]
K_{oc} [mL g^{-1}]	89.0 [c]
Max. occurrence in soil [%]	9.1 [d]
Max. occurrence in water/sediment [%]	0.01 [e]

[a] Geometric mean of normalized field values (n = 4, Vol. 3 CA B.8, Table B.8.1.1.2.2.1-42)
[b] Default value, not detected in water and sediment
[c] Arithmetic mean (n = 4, Vol. 3 CA B.8, Table B.8.1.2.1.2-1)
[d] Vol. 3 CA B.8, Gedik and Fullard (2002)
[e] Default value, not detected in water and sediment

Table B.8.2.5-3: Endpoints used for PEC_{sw} and PEC_{sed} calculation for the metabolite M555F013

Input parameter	M555F013
Molar mass [g mol^{-1}]	349.8
$DegT_{50,soil}$ [d]	1000 [a]
$DT_{50,water,sediment}$ (Step 1 - 2) [d]	1000 [a]
K_{oc} [mL g^{-1}]	10 [b]
Max. occurrence in soil [%]	0.001 [c]
Max. occurrence in water/sediment [%]	10.9 [d]

[a] Default value (worst case)
[b] Default value. Metabolite did not occur in soil degradation studies, a conservative Koc of 10 mL g^{-1} was assumed for Step 1-2 simulations
[c] Default value. Metabolite did not occur in soil degradation studies, a maximum occurrence of 0.001% was assumed for Step 1-2 simulations
[d] Maximum in total system after 152 d (Vol. 3 CA B.8, Table B.8.2.2.3-54)

I. Material and methods

Calculation of predicted environmental concentrations in surface water (PEC_{sw}) and sediment (PEC_{sed}) was performed for the active substance for metconazole, its soil metabolite 1,2,4-triazole and its aquatic metabolite M555F013 following spray application of metconazole to winter and spring cereals and winter oilseed rape.

The calculations of PEC_{sw} and PEC_{sed} were performed according to the recommendations of the FOCUS working group on surface water scenarios (FOCUS (2001)) in a stepwise approach considering the pathways spray drift, drainage and runoff.

Application scenario

According to Good Agricultural Practice (GAP), metconazole is scheduled for application to winter oilseed rape, winter and spring cereals. For winter oilseed rape, the two application windows proposed in the GAP were considered separately: combined autumn and spring application at BBCH 13-20 and 21-71, respectively (autumn application) and twofold spring application at BBCH 21-71 (spring application).

The application scenarios considered for the PEC_{sw} and PEC_{sed} calculations are given in Table B.8.2.5-4. At Step 2 to Step 4, simulations were performed for single and multiple applications.

Table B.8.2.5-4: Worst-case application scenarios of metconazole applied to cereals and winter oilseed rape considered for PEC_{sw} and PEC_{sed} calculations

Crop	Cereals		Winter oilseed rape
$FOCUS_{sw}$ crop	**Winter cereals**	**Spring cereals**	**Winter oilseed rape**

Growth stage [BBCH]	30 - 69				**Autumn application** autumn: 13 – 20 and spring: 21 - 71		**Spring application** spring: 21 - 71	
No. of applications [-]	1	2	1	2	1	2	1	2
Interval [d]	-	21	-	21	-	150 [a]	-	14
Application rate [g a.s. ha^{-1}]	90	90	90	90	72	72	72	72
Total yearly application rate [g a.s. ha^{-1}]	90	180	90	180	72	144	72	144

[a] Assumed to account for interval between autumn and spring application

Environmental fate parameters

Degradation and sorption of metconazole in soil

The degradation and sorption behavior of metconazole in soil was described in detail in Section B. 8.2.4.1. The geometric mean of normalized field DT_{50} values of 93.6 days, the geometric mean $K_{f,oc}$ value of 1071 mL g^{-1} and the arithmetic mean 1/n of 0.925 were used for the PEC_{sw} and PEC_{sed} calculations.

Formation, degradation and sorption the metabolites of metconazole in soil

The maximum occurrence and the degradation and sorption behavior of 1,2,4-triazole was described in detail in Sections B.8.1.3 and B.8.2.4.1. A maximum occurrence in soil of 9.1%, the geometric mean of normalized field DT_{50} of 60.5 days (slow phase of DFOP kinetic model), and the arithmetic $K_{f,oc}$ value of 89 mL g^{-1} were used.

The metabolite M555F013 did not occur in soil degradation studies. Hence, a maximum occurrence in soil of 0.001%, a DT_{50} in soil of 1000 days, and a K_{oc} value of 10 mL g^{-1} were assumed for the PEC_{sw} and PEC_{sed} calculations.

Fate and behavior of metconazole in aquatic systems

The degradation of metconazole was investigated in two studies with two water/sediment systems each (see Vol. 3 CA B.8.2.2.3). Kinetic re-evaluation of the old study data was performed (see Vol. 3 CA B.8, Pape, 2015d) to comply with the recommendations of the FOCUS workgroup on degradation (FOCUS (2006)).

Modelling endpoints for metconazole were derived from the kinetic evaluation at Level P-I for degradation in the total system with DT_{50} values ranging from 138 to 777.5 days (Vol. 3 CA B.8.2.2.3, Table B.8.2.2.3-25). The geometric mean of 384 days was used for the PEC_{sw} calculations at Step 1-2. For modelling at Step 3-4, the total system DT_{50} was ascribed to the water compartment and a default value of 1000 days was used for the sediment compartment.

Fate and behavior of the metabolites of metconazole in aquatic systems

The metabolite 1,2,4-triazole was not found in water/sediment studies. Therefore, a maximum occurrence in the water/sediment system of 0.01% and a DT_{50} of 1000 days were assumed for the calculations.

M555F013 occurred at amounts >5% in one water/sediment system. The maximum occurrence of 10.9% and, as no dissipation of the metabolite was observed, a default DT_{50} of 1000 days were used for the calculations.

Summary of input parameters

Input parameters for metconazole and its metabolite used in the assessment are summarized in Table B.8.2.5-5 to Table B.8.2.5-7.

Table B.8.2.5-5: Summary of input parameters for metconazole used for PEC_{sw} and PEC_{sed} calculations

Input parameter	**Unit**	**Value**	**Remarks**
Molecular mass	[g mol^{-1}]	319.8	Phys.-chem. properties
Water solubility (20°C, pH7)	[mg L^{-1}]	30.4	Phys.-chem. properties
Vapor pressure (20°C)	[Pa]	2.1 x 10^{-8}	Phys-chem. properties
Degradation in soil			
DT_{50} soil at reference conditions (20°C, pF2)	[d]	93.6	Geometric mean of normalized field values (n = 6, Vol. 3 CA B.8, Table B.8.1.1.2.2.1-40)
Temperature correction function Reference temperature MACRO: PRZM: Q_{10}	 [°C] [K^{-1}] [-]	 20 0.0948 2.58	EFSA recommendation
Moisture correction function Reference moisture Moisture exponent (PRZM) Moisture exponent (MACRO)	 [-] [-] [-]	 pF 2 0.7 0.49	FOCUS recommendation
Sorption to soil			
K_{oc}	[mL g^{-1}]	1071.0	Geometric mean (n = 9, Vol. 3 CA B.8, Table B.8.1.2.1.1-5)
Freundlich exponent 1/n	[-]	0.925	Arithmetic mean (n = 9, Vol. 3 CA B.8, Table B.8.1.2.1.1-5)
Degradation in aquatic systems			
DT_{50} water, sediment (Step 1 - 2)	[d]	384.0	Geometric mean of total system DT_{50} (Level P-I, n = 4)
DT_{50} water (Step 3 - 4)	[d]	384.0	
DT_{50} sediment (Step 3 - 4)	[d]	1000	Default value
DT_{50} crop, (Step 3 - 4) Tier 1:	[d]	10	Default value
Tier 2, 3 cereals: winter oilseed rape :	[d]	2 8.7	Experimental data
Temperature correction function Reference temperature TOXSWA: activation energy	 [°C] [J mol^{-1}]	 20 65400	EFSA recommendation
Management related parameters			
Crop uptake factor	[-]	0.5	FOCUS recommendation
Wash off coefficient PRZM: MACRO:	 [cm^{-1}] [mm^{-1}]	 0.5 0.05	FOCUS recommendation

Table B.8.2.5-6: Summary of input parameters for 1,2,4-triazole used for PEC_{sw} and PEC_{sed} calculations

Input parameter	**Unit**	**Value**	**Remarks**
Molecular mass	[g mol^{-1}]	69.1	Phys.-chem. properties
Water solubility (20°C)	[mg L^{-1}]	700000	
Degradation in soil			
DT_{50} soil at reference conditions (20°C, pF2)	[d]	60.50	Geometric mean of normalized field values (slow phase of DFOP model, n = 4)
Max. observed occurrence in soil	[%]	9.1	Gedik and Fullard, 2002
Sorption to soil			

K_{oc}	[mL g^{-1}]	89.0	Arithmetic mean (n = 4, Vol. 3 CA B.8, Table B.8.1.2.1.2-1)
Degradation in aquatic systems			
DT_{50} water, sediment (Step 1 - 2)	[d]	1000	Default value, not detected in water and sediment
Max. observed occurrence in water/sediment	[%]	1 x 10^{-2}	Default value, not detected in water and sediment

Table B.8.2.5-7: Summary of input parameters for M555F013 used for PEC_{sw} and PEC_{sed} calculations

Input parameter	Unit	Value	Remarks
Molecular mass	[g mol^{-1}]	349.8	Phys.-chem. properties
Water solubility (20°C)	[mg L^{-1}]	30.4	Phys.-chem. properties
Degradation in soil			
DT_{50} soil at reference conditions (20°C, pF2)	[d]	1000	Default value, worst-case
Max. observed occurrence in soil	[%]	1 x 10^{-3}	Default value, metabolite not found in soil studies
Sorption to soil			
K_{oc}	[mL g^{-1}]	10.0	Default value, metabolite not found in soil studies
Degradation in aquatic systems			
DT_{50} water, sediment (Step 1 - 2)	[d]	1000	Default value, not detected in water and sediment
Max. observed occurrence in water/sediment	[%]	10.9	Default value, not detected in water and sediment

FOCUS surface water models and scenarios

Simulation models

The following versions of the models and software tools were used for the assessment: FOCUS version 3.2 (Step 1 and 2), FOCUS-PRZM version 4.3.1, FOCUS-MACRO version 5.5.4, FOCUS-TOXSWA version 4.4.3 (Step 3) and SWAN version 4.0.1 (Step 4).

Setup of FOCUS surface water runs

For metconazole, PEC_{sw} calculations were performed at Step 1 to Step 4 for the use in winter oilseed rape, winter and spring cereals. The results of PEC_{sed} calculations were reported at Step 1 to Step 3. For the metabolites PEC_{sw} and PEC_{sed} calculations were conducted at Step 1 and Step 2.

Step 1 and 2 scenario settings

Step 1 and 2 calculations were carried out for metconazole and its metabolites for two worst-case scenarios: winter cereals and winter oilseed rape (autumn application).

At Step 2 of the assessment, the region 'South Europe' combined with the application period ‘Oct-Feb’ was taken into account for winter cereals representing a maximum entry by drainage and runoff of 4% of the soil load. For winter oilseed rape, the region 'North Europe' was combined with the application period ‘Oct-Feb’ which resulted in a maximum entry by drainage and runoff of 5% of the soil load. Appropriate crop interception values were applied according to FOCUS.

The worst-case Step 2 FOCUS scenarios are summarized in Table B.8.2.5-8.

Table B.8.2.5-8: Worst-case Step 2 FOCUS scenarios for cereals and winter oilseed rape

$FOCUS_{sw}$ crop	Interception class	Application period	Region

Winter cereals [a]	Average crop cover	Oct-Feb	South Europe
Winter oilseed rape, autumn application [b]	Minimal crop cover	Oct-Feb	North Europe

[a] Worst-case application scenario covering use in spring cereals
[b] Worst-case application scenario covering spring application

Step 3 and 4: application timing

At Step 3, all FOCUS scenarios parameterized for winter oilseed rape, winter and spring cereals were selected for the simulations. The application methods ‘ground spray’ was chosen and the chemical application method (CAM) was set to option '2' (application to foliar linear).

A summary of the FOCUS scenarios available for each crop is given in Table B.8.2.5-9.

Table B.8.2.5-9: Step 3 and 4 FOCUS scenarios for cereals and winter oilseed rape

FOCUS$_{sw}$ crop	**Calculations**	**Scenarios**	**Application method**	**Chemical application method**
Winter cereals	Step 3 – 4	D1 - D6, R1, R3, R4	Ground spray	Foliar linear
Spring cereals	Step 3 – 4	D1, D3, D4, D5, R4		
Winter oilseed rape, autumn application	Step 3 – 4	D2 - D5, R1, R3		
Winter oilseed rape, spring application	Step 3 - 4			

The application window that is required for the Pesticide Application Tool (PAT) to determine actual application dates was chosen to cover the whole application window as specified in the GAP for each crop considering the respective BBCH growth stage and pre-harvest interval (PHI). The application windows were chosen to be in agreement with the application dates for the calculation of PEC$_{gw}$ (see Section B.8.2.4.1). Application dates for each scenario were specified with regard to variations in beginning and duration of crop development within Europe. The application dates were selected based on the recommendations given by the tool AppDate, which calculates appropriate application dates for the relevant crops defined for the different FOCUS scenarios based on BBCH of the crop (Klein, 2010). In addition, if no realistic dates could be derived with AppDate (i.e. spring application to winter cereals and winter oilseed rape), a study which describes the date of different growth stages of various crops around the regions of the FOCUS groundwater scenarios based on numerous field trials was considered (Saur et al., 2001).

For calculations for single and multiple application the same application window was applied. The detailed application timing used for the calculations is shown in Table B.8.2.5-10 to Table B.8.2.5-13.

Table B.8.2.5-10: Application timing at Step 3 and 4 for metconazole in spring cereals

Scenario	**Water body**	**Application window** [a]	**Application dates according to PAT** [a]
D1	ditch	2nd June - 31st July	17th June / 8th July (17th June)
D1	stream	2nd June - 31st July	17th June / 8th July (17th June)
D3	ditch	29th April - 16th July	4th May / 27th May (4th May)
D4	pond	24th May - 22nd July	30th May / 4th July (30th May)
D4	stream	24th May - 22nd July	30th May / 4th July (30th May)
D5	pond	12th April - 15th June	14th April / 11th May (14th April)

D5	stream	12th April - 15th June	14th April / 11th May (14th April)
R4	stream	12th April - 15th June	4th May / 27th May (4th May)

PAT = Pesticide application tool. If the year chosen by PAT is a leap year, the actual application date may differ by one day
[a] In parentheses: application timing for a single application, if a single and a multiple application was implemented

Table B.8.2.5-11: Application timing at Step 3 and 4 for metconazole in winter cereals

Scenario	Water body	Application window [a]	Application dates according to PAT [a]
D1	ditch	1st June - 22nd July	17th June / 8th July (17th June)
D1	stream	1st June - 22nd July	17th June / 8th July (17th June)
D2	ditch	1st May - 3rd July	7th May / 2nd June (7th May)
D2	stream	1st May - 3rd July	7th May / 2nd June (7th May)
D3	ditch	1st May - 11th July	4th May / 28th May (4th May)
D4	pond	27th May - 17th July	30th May / 4th July (30th May)
D4	stream	27th May - 17th July	30th May / 4th July (30th May)
D5	pond	15th March - 10th June	8th April / 11th May (8th April)
D5	stream	15th March - 10th June	8th April / 11th May (8th April)
D6	ditch	15th March - 26th May	15th March / 9th April (15th March)
R1	pond	1st May - 26th June	2nd May / 13th June (2nd May)
R1	stream	1st May - 26th June	2nd May / 13th June (2nd May)
R3	stream	15th March – 27th May	28th March / 22nd April (28 th March)
R4	stream	15th March - 10th June	4th May / 27th May (4th May)

PAT = Pesticide application tool. If the year chosen by PAT is a leap year, the actual application date may differ by one day
[a] In parentheses: application timing for a single application, if a single and a multiple application was implemented

Table B.8.2.5-12: Application timing at Step 3 and 4 for metconazole in winter oil seed rape, autumn application

Scenario	Water body	Application window [a]	Application dates according to PAT [a]
D2	ditch	6th October - 20th May	9th October / 13th March (9th October)
D2	stream	6th October - 20th May	9th October / 13th March (9th October)
D3	ditch	23rd September - 25th May	26th September / 26th March (26th September)

D4	pond	24th September - 14th June	28th September / 14th March (28th September)
D4	stream	24th September - 14th June	28th September / 14th March (28th September)
D5	pond	11th October - 10th May	27th November / 26th April (27th November)
D5	stream	11th October - 10th May	27th November / 26th April (27th November)
R1	pond	25th September – 15th May	6th October / 18th March (6th October)
R1	stream	25th September – 15th May	6th October / 18th March (6th October)
R3	stream	26th October – 10th April	27th October / 25th February (27th October)

PAT = Pesticide application tool. If the year chosen by PAT is a leap year, the actual application date may differ by one day
[a] In parentheses: application timing for a single application, if a single and a multiple application was implemented

Table B.8.2.5-13: Application timing at Step 3 and 4 for metconazole in winter oil seed rape, spring application

Scenario	Water body	Application window [a]	Application dates according to PAT [a]
D2	ditch	15th March - 20th May	15th March / 1st April (15th March)
D2	stream	15th March - 20th May	15th March / 1st April (15th March)
D3	ditch	15th March - 25th May	16th March / 4th April (16th March)
D4	pond	15th April - 14th June	18th April / 30th May (18th April)
D4	stream	15th April - 14th June	18th April / 30th May (18th April)
D5	pond	15th February - 10th May	21st February / 7th March (21st February)
D5	stream	15th February - 10th May	21st February / 7th March (21st February)
R1	pond	15th March - 15th May	17th March / 26th April (17th March)
R1	stream	15th March - 15th May	17th March / 26th April (17th March)
R3	stream	15th February - 10th April	19th February / 20th March (19th February)

PAT = Pesticide application tool. If the year chosen by PAT is a leap year, the actual application date may differ by one day
[a] In parentheses: application timing for a single application, if a single and a multiple application was implemented

Step 3 and 4: tiered approach

Calculations at Step 3 and 4 were conducted in a tiered approach:

At **Tier 1,** calculations were performed with standard input parameters according to FOCUS.

At **Tier 2**, the default foliar DT_{50} of 10 days was refined by experimental data of 2 days for cereals and 8.7 days for winter oilseed rape (Sandt, 2014a; Roussel, 2015a) for all scenarios considered at Tier 1.

At **Tier 3**, the interception values implemented in FOCUS MACRO for the Tier 2 drainage scenarios were refined to be in agreement with the values recommended by FOCUS for the respective BBCH growth stages specified in the GAP. According to GAP, the application timing depends on the BBCH growth stages of the individual crops which may vary considerably between different years depending on actual weather conditions. In the FOCUS models, this correlation is accounted for by calculating individual application dates with the PAT tool depending on the weather conditions specified in the FOCUS scenarios. In contrast, plant development is assumed to be independent from actual weather conditions and specified by fixed dates for emergence, maximum leaf area index (LAI) and harvest. As a result, the application date calculated by the PAT tool may not be in agreement with the crop growth stage recommended in the GAP. In these cases, interception values calculated internally by the FOCUS models deviate considerably from interception values recommended by FOCUS for the BBCH growth stages specified in the GAP, which are also considered for modeling PEC_{soil} and PEC_{gw} as described in Section B.8.1.3 (Table B.8.1.3-2) and Section B.8.2.4.1 (Table B.8.2.4.1-2 to Table B.8.2.4.1-4).

According to FOCUS, recommended interception values are 80% for application to cereals after BBCH 30 and to winter oilseed rape after BBCH 20 and 40% for application to winter oilseed rape at BBCH 10-19. For calculations at Tier 3, interception values specified in the input files of FOCUS MACRO (*.par, parameter ZFINT) that were lower than the appropriate value for the BBCH growth stage according to GAP where replaced by the values recommended by FOCUS. That means, for cereals and winter oilseed rape (spring application) all interception values <80% were set to 80% while for winter oilseed rape (autumn application) all interception values <40% for the first application were set to 40% and values <80% for the second application were set to 80%. The actual interception values of the FOCUS drainage scenarios are summarized in Appendix 3 of the complete modeling report.

The refinements considered at the different tiers are summarized in Table B.8.2.5-14.

Table B.8.2.5-14: Overview of refinements of the tiered approach for PEC_{sw} calculations

	Refinement	Details of the refinement	Scenarios
Tier 1	None	-	-
Tier 2	Foliar DT_{50}	Cereals: 2 days	All Tier 1 scenarios
		Winter oilseed rape: 8.7 days	
Tier 3	Interception	Cereals: 1^{st} and 2^{nd} app. 80%	Tier 2 drainage scenarios
		Winter oilseed rape (spring application): 1^{st} and 2^{nd} app. 80%	
		Winter oilseed rape (autumn application): 1^{st} app. 40%, 2^{nd} app. 80%	

Step 4: mitigation options

At Step 4, drift mitigation was applied at all tiers to all FOCUS scenarios parameterized in Step 3 for spring and winter cereals and winter oilseed rape as recommended by the FOCUS working group on landscape and mitigation factors in ecological risk assessments (FOCUS (2007a)). No-spray buffer zones of 5 m and 10 m were assessed. In addition, at Tier 1 and 2 runoff mitigation using vegetated filter strips was considered in combination with 10 m no-spray buffer zone. As metconazole is a non-volatile substance (vapour pressure of $<10^{-5}$ Pa) deposition after volatilization from soil and plants on the water surface was not considered.

II. Results and discussion

Predicted concentrations of metconazole in surface water

Global maximum concentrations

Step 1 and 2

Table B.8.2.5-15: Steps 1-2: $PEC_{sw,max}$ of metconazole following application to winter cereals and winter oilseed rape, autumn application

FOCUS$_{sw}$ Crop	Step 1 $PEC_{sw,max}$ [µg L^{-1}]	Step 2 $PEC_{sw,max}$ [µg L^{-1}]	
		Single application	Multiple application
Winter cereals [a]	26.367	4.260	7.855
Winter oilseed rape, autumn application [b]	21.094	3.216	4.352

[a] Worst-case application scenario covering use in spring cereals
[b] Worst-case application scenario covering spring application

Step 3 and 4

Tier 1

Table B.8.2.5-16: Step 3 and 4, Tier 1: $PEC_{sw,max}$ of metconazole following application of 1 x 90 g a.s. ha^{-1} to spring cereals

Location	Water body	$PEC_{sw,max}$ [µg L^{-1}] and main entry route			
		Step 3	Step 4		
		Edge-of-Field	05mD	10mD	10mD+R
D1	ditch	0.781 Drift	0.691 Drainage	0.691 Drainage	0.691 Drainage
D1	stream	0.507 Drift	0.432 Drainage	0.432 Drainage	0.432 Drainage
D3	ditch	0.570 Drift	0.155 Drift	0.082 Drift	0.082 Drift
D4	pond	0.047 Drainage	0.046 Drainage	0.046 Drainage	0.046 Drainage
D4	stream	0.466 Drift	0.170 Drift	0.122 Drainage	0.122 Drainage
D5	pond	0.029 Drainage	0.029 Drainage	0.028 Drainage	0.028 Drainage
D5	stream	0.479 Drift	0.175 Drift	0.093 Drift	0.093 Drift
R4	stream	0.616 Runoff	0.616 Runoff	0.616 Runoff	0.280 Runoff

D = Drift mitigation by no-spray buffer zones [m]
R = Runoff mitigation by vegetated filter strips [m]

Table B.8.2.5-17: Step 3 and 4, Tier 1: $PEC_{sw,max}$ of metconazole following application of 2 x 90 g a.s. ha^{-1} to spring cereals

Location	Water body	$PEC_{sw,max}$ [µg L^{-1}] and main entry route			
		Step 3	Step 4		
		Edge-of-Field	05mD	10mD	10mD+R
D1	ditch	1.227 Drainage	1.227 Drainage	1.227 Drainage	1.227 Drainage
D1	stream	0.767 Drainage	0.767 Drainage	0.767 Drainage	0.767 Drainage
D3	ditch	0.499 Drift	0.129 Drift	0.067 Drift	0.067 Drift
D4	pond	0.105 Drainage	0.104 Drainage	0.103 Drainage	0.103 Drainage
D4	stream	0.425 Drift	0.260 Drainage	0.260 Drainage	0.260 Drainage
D5	pond	0.062	0.061	0.060	0.060

		Drainage	Drainage	Drainage	Drainage
D5	stream	0.430 Drift	0.152 Drift	0.104 Drainage	0.104 Drainage
R4	stream	0.617 Runoff	0.617 Runoff	0.617 Runoff	0.281 Runoff

D = Drift mitigation by no-spray buffer zones [m]
R = Runoff mitigation by vegetated filter strips [m]

Table B.8.2.5-18: Step 3 and 4, Tier 1: $PEC_{sw,max}$ of metconazole following application of 1 x 90 g a.s. ha^{-1} to winter cereals

Location	Water body	$PEC_{sw,max}$ [µg L^{-1}] and main entry route			
		Step 3	Step 4		
		Edge-of-Field	05mD	10mD	10mD+R
D1	ditch	0.693 Drift	0.506 Drainage	0.506 Drainage	0.506 Drainage
D1	stream	0.505 Drift	0.318 Drainage	0.318 Drainage	0.318 Drainage
D2	ditch	1.067 Drainage	1.067 Drainage	1.067 Drainage	1.067 Drainage
D2	stream	0.677 Drift	0.675 Drainage	0.675 Drainage	0.675 Drainage
D3	ditch	0.570 Drift	0.154 Drift	0.082 Drift	0.082 Drift
D4	pond	0.033 Drainage	0.032 Drainage	0.031 Drainage	0.031 Drainage
D4	stream	0.475 Drift	0.174 Drift	0.092 Drift	0.092 Drift
D5	pond	0.029 Drainage	0.028 Drainage	0.028 Drainage	0.028 Drainage
D5	stream	0.455 Drift	0.166 Drift	0.088 Drift	0.088 Drift
D6	ditch	0.572 Drift	0.168 Drainage	0.168 Drainage	0.168 Drainage
R1	pond	0.067 Runoff	0.065 Runoff	0.063 Runoff	0.029 Runoff
R1	stream	0.453 Runoff	0.453 Runoff	0.453 Runoff	0.206 Runoff
R3	stream	0.527 Drift	0.458 Runoff	0.458 Runoff	0.209 Runoff
R4	stream	0.581 Runoff	0.581 Runoff	0.581 Runoff	0.264 Runoff

D = Drift mitigation by no-spray buffer zones [m]
R = Runoff mitigation by vegetated filter strips [m]

Table B.8.2.5-19: Step 3 and 4, Tier 1: $PEC_{sw,max}$ of metconazole following application of 2 x 90 g a.s. ha^{-1} to winter cereals

Location	Water body	$PEC_{sw,max}$ [µg L^{-1}] and main entry route			
		Step 3	Step 4		
		Edge-of-Field	05mD	10mD	10mD+R
D1	ditch	1.020 Drainage	1.020 Drainage	1.020 Drainage	1.020 Drainage
D1	stream	0.639 Drainage	0.639 Drainage	0.639 Drainage	0.639 Drainage
D2	ditch	2.065 Drainage	2.065 Drainage	2.065 Drainage	2.065 Drainage

D2	stream	1.291 Drainage	1.291 Drainage	1.291 Drainage	1.291 Drainage
D3	ditch	0.499 Drift	0.129 Drift	0.067 Drift	0.067 Drift
D4	pond	0.080 Drainage	0.079 Drainage	0.077 Drainage	0.077 Drainage
D4	stream	0.426 Drift	0.213 Drainage	0.213 Drainage	0.213 Drainage
D5	pond	0.071 Drainage	0.071 Drainage	0.069 Drainage	0.069 Drainage
D5	stream	0.460 Drift	0.162 Drift	0.119 Drainage	0.119 Drainage
D6	ditch	0.501 Drift	0.295 Drainage	0.295 Drainage	0.295 Drainage
R1	pond	0.119 Runoff	0.116 Runoff	0.111 Runoff	0.053 Runoff
R1	stream	0.664 Runoff	0.664 Runoff	0.664 Runoff	0.302 Runoff
R3	stream	0.709 Runoff	0.709 Runoff	0.709 Runoff	0.319 Runoff
R4	stream	0.581 Runoff	0.581 Runoff	0.581 Runoff	0.264 Runoff

D = Drift mitigation by no-spray buffer zones [m]
R = Runoff mitigation by vegetated filter strips [m]

Table B.8.2.5-20: Step 3 and 4, Tier 1: $PEC_{sw,max}$ of metconazole following application of 1 x 72 g a.s. ha^{-1} to winter oil seed rape, autumn application

Location	Water body	$PEC_{sw,max}$ [µg L^{-1}] and main entry route			
		Step 3	Step 4		
		Edge-of-Field	05mD	10mD	10mD+R
D2	ditch	1.527 Drainage	1.527 Drainage	1.527 Drainage	1.527 Drainage
D2	stream	0.984 Drainage	0.984 Drainage	0.984 Drainage	0.984 Drainage
D3	ditch	0.458 Drift	0.124 Drift	0.066 Drift	0.066 Drift
D4	pond	0.057 Drainage	0.056 Drainage	0.055 Drainage	0.055 Drainage
D4	stream	0.394 Drift	0.198 Drainage	0.198 Drainage	0.198 Drainage
D5	pond	0.042 Drainage	0.041 Drainage	0.040 Drainage	0.040 Drainage
D5	stream	0.425 Drift	0.155 Drift	0.104 Drainage	0.104 Drainage
R1	pond	0.050 Runoff	0.049 Runoff	0.048 Runoff	0.022 Runoff
R1	stream	0.389 Runoff	0.389 Runoff	0.389 Runoff	0.174 Runoff
R3	stream	0.552 Runoff	0.552 Runoff	0.552 Runoff	0.251 Runoff

D = Drift mitigation by no-spray buffer zones [m]
R = Runoff mitigation by vegetated filter strips [m]

Table B.8.2.5-21: Step 3 and 4, Tier 1: $PEC_{sw,max}$ of metconazole following application of 2 x 72 g a.s. ha^{-1} to winter oil seed rape, autumn application

Location	Water body	$PEC_{sw,max}$ [µg L^{-1}]

		and main entry route			
		Step 3	**Step 4**		
		Edge-of-Field	**05mD**	**10mD**	**10mD+R**
D2	ditch	1.527 Drainage	1.527 Drainage	1.527 Drainage	1.527 Drainage
D2	stream	0.984 Drainage	0.984 Drainage	0.984 Drainage	0.984 Drainage
D3	ditch	0.400 Drift	0.104 Drift	0.054 Drift	0.054 Drift
D4	pond	0.056 Drainage	0.056 Drainage	0.054 Drainage	0.054 Drainage
D4	stream	0.341 Drift	0.198 Drainage	0.198 Drainage	0.198 Drainage
D5	pond	0.041 Drainage	0.040 Drainage	0.039 Drainage	0.039 Drainage
D5	stream	0.368 Drift	0.130 Drift	0.104 Drainage	0.104 Drainage
R1	pond	0.060 Runoff	0.059 Runoff	0.056 Runoff	0.027 Runoff
R1	stream	0.400 Runoff	0.400 Runoff	0.400 Runoff	0.179 Runoff
R3	stream	0.556 Runoff	0.556 Runoff	0.556 Runoff	0.253 Runoff

D = Drift mitigation by no-spray buffer zones [m]
R = Runoff mitigation by vegetated filter strips [m]

Table B.8.2.5-22: Step 3 and 4, Tier 1: $PEC_{sw,max}$ of metconazole following application of 1 x 72 g a.s. ha^{-1} to winter oil seed rape, spring application

Location	**Water body**	**$PEC_{sw,max}$ [µg L^{-1}] and main entry route**			
		Step 3	**Step 4**		
		Edge-of-Field	**05mD**	**10mD**	**10mD+R**
D2	ditch	0.774 Drainage	0.774 Drainage	0.774 Drainage	0.774 Drainage
D2	stream	0.505 Drift	0.482 Drainage	0.482 Drainage	0.482 Drainage
D3	ditch	0.455 Drift	0.123 Drift	0.065 Drift	0.065 Drift
D4	pond	0.027 Drainage	0.026 Drainage	0.026 Drainage	0.026 Drainage
D4	stream	0.350 Drift	0.128 Drift	0.083 Drainage	0.083 Drainage
D5	pond	0.022 Drift	0.019 Drift	0.019 Drainage	0.019 Drainage
D5	stream	0.296 Drift	0.108 Drift	0.058 Drift	0.058 Drift
R1	pond	0.036 Runoff	0.035 Runoff	0.034 Runoff	0.016 Runoff
R1	stream	0.311 Runoff	0.311 Runoff	0.311 Runoff	0.141 Runoff
R3	stream	0.425 Drift	0.286 Runoff	0.286 Runoff	0.126 Runoff

D = Drift mitigation by no-spray buffer zones [m]
R = Runoff mitigation by vegetated filter strips [m]

Table B.8.2.5-23: Step 3 and 4, Tier 1: $PEC_{sw,max}$ of metconazole following application of 2 x 72 g a.s. ha^{-1} to winter oil seed rape, spring application

Location	Water body	PEC$_{sw,max}$ [µg L^{-1}] and main entry route			
		Step 3	Step 4		
		Edge-of-Field	05mD	10mD	10mD+R
D2	ditch	1.605 Drainage	1.605 Drainage	1.605 Drainage	1.605 Drainage
D2	stream	1.000 Drainage	1.000 Drainage	1.000 Drainage	1.000 Drainage
D3	ditch	0.398 Drift	0.104 Drift	0.054 Drift	0.054 Drift
D4	pond	0.050 Drainage	0.049 Drainage	0.048 Drainage	0.048 Drainage
D4	stream	0.332 Drift	0.147 Drainage	0.147 Drainage	0.147 Drainage
D5	pond	0.048 Drainage	0.048 Drainage	0.047 Drainage	0.047 Drainage
D5	stream	0.314 Drift	0.111 Drift	0.084 Drainage	0.084 Drainage
R1	pond	0.077 Runoff	0.075 Runoff	0.072 Runoff	0.033 Runoff
R1	stream	0.471 Runoff	0.471 Runoff	0.471 Runoff	0.214 Runoff
R3	stream	0.387 Runoff	0.387 Runoff	0.387 Runoff	0.177 Runoff

D = Drift mitigation by no-spray buffer zones [m]
R = Runoff mitigation by vegetated filter strips [m]

Tier 2

Table B.8.2.5-24: Step 3 and 4, Tier 2: PEC$_{sw,max}$ of metconazole following application of 1 x 90 g a.s. ha^{-1} to spring cereals

Location	Water body	PEC$_{sw,max}$ [µg L^{-1}] and main entry route			
		Step 3	Step 4		
		Edge-of-Field	05mD	10mD	10mD+R
D1	ditch	0.740 Drift	0.599 Drainage	0.599 Drainage	0.599 Drainage
D1	stream	0.506 Drift	0.375 Drainage	0.375 Drainage	0.375 Drainage
D3	ditch	0.570 Drift	0.155 Drift	0.082 Drift	0.082 Drift
D4	pond	0.033 Drainage	0.033 Drainage	0.032 Drainage	0.032 Drainage
D4	stream	0.466 Drift	0.170 Drift	0.090 Drift	0.090 Drift
D5	pond	0.026 Drainage	0.026 Drainage	0.025 Drainage	0.025 Drainage
D5	stream	0.479 Drift	0.175 Drift	0.093 Drift	0.093 Drift
R4	stream	0.377 Drift	0.259 Runoff	0.259 Runoff	0.117 Runoff

D = Drift mitigation by no-spray buffer zones [m]
R = Runoff mitigation by vegetated filter strips [m]

Table B.8.2.5-25: Step 3 and 4, Tier 2: PEC$_{sw,max}$ of metconazole following application of 2 x 90 g a.s. ha^{-1} to spring cereals

Location	Water body	PEC$_{sw,max}$ [µg L^{-1}]

		and main entry route			
		Step 3	**Step 4**		
		Edge-of-Field	**05mD**	**10mD**	**10mD+R**
D1	ditch	0.919 Drift	0.775 Drainage	0.775 Drainage	0.775 Drainage
D1	stream	0.485 Drainage	0.485 Drainage	0.485 Drainage	0.485 Drainage
D3	ditch	0.499 Drift	0.129 Drift	0.067 Drift	0.067 Drift
D4	pond	0.057 Drainage	0.056 Drainage	0.054 Drainage	0.054 Drainage
D4	stream	0.425 Drift	0.150 Drift	0.137 Drainage	0.137 Drainage
D5	pond	0.042 Drainage	0.042 Drainage	0.041 Drainage	0.041 Drainage
D5	stream	0.430 Drift	0.152 Drift	0.079 Drift	0.079 Drift
R4	stream	0.326 Drift	0.260 Runoff	0.260 Runoff	0.117 Runoff

D = Drift mitigation by no-spray buffer zones [m]
R = Runoff mitigation by vegetated filter strips [m]

Table B.8.2.5-26: Step 3 and 4, Tier 2: $PEC_{sw,max}$ of metconazole following application of 1 x 90 g a.s. ha^{-1} to winter cereals

Location	**Water body**	**$PEC_{sw,max}$ [µg L^{-1}]** **and main entry route**			
		Step 3	**Step 4**		
		Edge-of-Field	**05mD**	**10mD**	**10mD+R**
D1	ditch	0.651 Drift	0.333 Drainage	0.333 Drainage	0.333 Drainage
D1	stream	0.505 Drift	0.209 Drainage	0.209 Drainage	0.209 Drainage
D2	ditch	0.959 Drainage	0.959 Drainage	0.959 Drainage	0.959 Drainage
D2	stream	0.657 Drift	0.599 Drainage	0.599 Drainage	0.599 Drainage
D3	ditch	0.570 Drift	0.154 Drift	0.082 Drift	0.082 Drift
D4	pond	0.021 Drainage	0.020 Drainage	0.019 Drainage	0.019 Drainage
D4	stream	0.475 Drift	0.174 Drift	0.092 Drift	0.092 Drift
D5	pond	0.026 Drainage	0.026 Drainage	0.025 Drainage	0.025 Drainage
D5	stream	0.455 Drift	0.166 Drift	0.088 Drift	0.088 Drift
D6	ditch	0.572 Drift	0.155 Drift	0.124 Drainage	0.124 Drainage
R1	pond	0.043 Runoff	0.041 Runoff	0.039 Runoff	0.020 Runoff
R1	stream	0.374 Drift	0.261 Runoff	0.261 Runoff	0.118 Runoff
R3	stream	0.527 Drift	0.251 Runoff	0.251 Runoff	0.115 Runoff
R4	stream	0.377 Drift	0.169 Runoff	0.169 Runoff	0.076 Runoff

D = Drift mitigation by no-spray buffer zones [m]

R = Runoff mitigation by vegetated filter strips [m]

Table B.8.2.5-27: Step 3 and 4, Tier 2: $PEC_{sw,max}$ of metconazole following application of 2 x 90 g a.s. ha^{-1} to winter cereals

Location	Water body	$PEC_{sw,max}$ [µg L^{-1}] and main entry route			
		Step 3	Step 4		
		Edge-of-Field	05mD	10mD	10mD+R
D1	ditch	0.838 Drift	0.475 Drainage	0.475 Drainage	0.4753 Drainage
D1	stream	0.437 Drift	0.298 Drainage	0.298 Drainage	0.298 Drainage
D2	ditch	1.635 Drainage	1.635 Drainage	1.635 Drainage	1.635 Drainage
D2	stream	1.023 Drainage	1.023 Drainage	1.023 Drainage	1.023 Drainage
D3	ditch	0.499 Drift	0.129 Drift	0.067 Drift	0.067 Drift
D4	pond	0.039 Drainage	0.038 Drainage	0.036 Drainage	0.036 Drainage
D4	stream	0.426 Drift	0.151 Drift	0.095 Drainage	0.095 Drainage
D5	pond	0.060 Drainage	0.059 Drainage	0.058 Drainage	0.058 Drainage
D5	stream	0.460 Drift	0.162 Drift	0.101 Drainage	0.101 Drainage
D6	ditch	0.501 Drift	0.158 Drainage	0.158 Drainage	0.158 Drainage
R1	pond	0.066 Runoff	0.063 Runoff	0.057 Runoff	0.031 Runoff
R1	stream	0.326 Drift	0.264 Runoff	0.264 Runoff	0.120 Runoff
R3	stream	0.460 Drift	0.319 Runoff	0.319 Runoff	0.144 Runoff
R4	stream	0.326 Drift	0.169 Runoff	0.169 Runoff	0.076 Runoff

D = Drift mitigation by no-spray buffer zones [m]
R = Runoff mitigation by vegetated filter strips [m]

Table B.8.2.5-28: Step 3 and 4, Tier 2: $PEC_{sw,max}$ of metconazole following application of 1 x 72 g a.s. ha^{-1} to winter oil seed rape, autumn application

Location	Water body	$PEC_{sw,max}$ [µg L^{-1}] and main entry route			
		Step 3	Step 4		
		Edge-of-Field	05mD	10mD	10mD+R
D2	ditch	1.527 Drainage	1.527 Drainage	1.527 Drainage	1.527 Drainage
D2	stream	0.984 Drainage	0.984 Drainage	0.984 Drainage	0.984 Drainage
D3	ditch	0.458 Drift	0.124 Drift	0.066 Drift	0.066 Drift
D4	pond	0.057 Drainage	0.056 Drainage	0.055 Drainage	0.055 Drainage
D4	stream	0.394 Drift	0.198 Drainage	0.198 Drainage	0.198 Drainage
D5	pond	0.042 Drainage	0.041 Drainage	0.040 Drainage	0.040 Drainage

D5	stream	0.425 Drift	0.155 Drift	0.104 Drainage	0.104 Drainage
R1	pond	0.050 Runoff	0.049 Runoff	0.048 Runoff	0.022 Runoff
R1	stream	0.387 Runoff	0.387 Runoff	0.387 Runoff	0.173 Runoff
R3	stream	0.550 Runoff	0.550 Runoff	0.550 Runoff	0.250 Runoff

D = Drift mitigation by no-spray buffer zones [m]

Table B.8.2.5-29: Step 3 and 4, Tier 2: $PEC_{sw,max}$ of metconazole following application of 2 x 72 g a.s. ha^{-1} to winter oil seed rape, autumn application

Location	**Water body**	**$PEC_{sw,max}$ [µg L^{-1}] and main entry route**			
		Step 3	**Step 4**		
		Edge-of-Field	**05mD**	**10mD**	**10mD+R**
D2	ditch	1.527 Drainage	1.527 Drainage	1.527 Drainage	1.527 Drainage
D2	stream	0.984 Drainage	0.984 Drainage	0.984 Drainage	0.984 Drainage
D3	ditch	0.400 Drift	0.104 Drift	0.054 Drift	0.054 Drift
D4	pond	0.056 Drainage	0.056 Drainage	0.054 Drainage	0.054 Drainage
D4	stream	0.341 Drift	0.198 Drainage	0.198 Drainage	0.198 Drainage
D5	pond	0.041 Drainage	0.040 Drainage	0.039 Drainage	0.039 Drainage
D5	stream	0.368 Drift	0.130 Drift	0.104 Drainage	0.104 Drainage
R1	pond	0.059 Runoff	0.057 Runoff	0.055 Runoff	0.026 Runoff
R1	stream	0.397 Runoff	0.397 Runoff	0.397 Runoff	0.177 Runoff
R3	stream	0.553 Runoff	0.553 Runoff	0.553 Runoff	0.252 Runoff

D = Drift mitigation by no-spray buffer zones [m]
R = Runoff mitigation by vegetated filter strips [m]

Table B.8.2.5-30: Step 3 and 4, Tier 2: $PEC_{sw,max}$ of metconazole following application of 1 x 72 g a.s. ha^{-1} to winter oil seed rape, spring application

Location	**Water body**	**$PEC_{sw,max}$ [µg L^{-1}] and main entry route**			
		Step 3	**Step 4**		
		Edge-of-Field	**05mD**	**10mD**	**10mD+R**
D2	ditch	0.767 Drainage	0.767 Drainage	0.767 Drainage	0.767 Drainage
D2	stream	0.504 Drift	0.478 Drainage	0.478 Drainage	0.478 Drainage
D3	ditch	0.455 Drift	0.123 Drift	0.065 Drift	0.065 Drift
D4	pond	0.025 Drainage	0.025 Drainage	0.024 Drainage	0.024 Drainage
D4	stream	0.350 Drift	0.128 Drift	0.080 Drainage	0.080 Drainage
D5	pond	0.021 Drift	0.019 Drift	0.018 Drainage	0.018 Drainage

D5	stream	0.296 Drift	0.108 Drift	0.058 Drift	0.058 Drift
R1	pond	0.034 Runoff	0.033 Runoff	0.032 Runoff	0.015 Runoff
R1	stream	0.301 Drift	0.295 Runoff	0.295 Runoff	0.134 Runoff
R3	stream	0.425 Drift	0.273 Runoff	0.273 Runoff	0.120 Runoff

D = Drift mitigation by no-spray buffer zones [m]
R = Runoff mitigation by vegetated filter strips [m]

Table B.8.2.5-31: Step 3 and 4, Tier 2: $PEC_{sw,max}$ of metconazole following application of 2 x 72 g a.s. ha^{-1} to winter oil seed rape, spring application

Location	Water body	$PEC_{sw,max}$ [µg L^{-1}] and main entry route			
		Step 3	Step 4		
		Edge-of-Field	05mD	10mD	10mD+R
D2	ditch	1.587 Drainage	1.587 Drainage	1.587 Drainage	1.587 Drainage
D2	stream	0.988 Drainage	0.988 Drainage	0.988 Drainage	0.988 Drainage
D3	ditch	0.398 Drift	0.104 Drift	0.054 Drift	0.054 Drift
D4	pond	0.047 Drainage	0.047 Drainage	0.046 Drainage	0.046 Drainage
D4	stream	0.332 Drift	0.140 Drainage	0.140 Drainage	0.140 Drainage
D5	pond	0.047 Drainage	0.046 Drainage	0.046 Drainage	0.046 Drainage
D5	stream	0.314 Drift	0.111 Drift	0.082 Drainage	0.082 Drainage
R1	pond	0.072 Runoff	0.071 Runoff	0.068 Runoff	0.032 Runoff
R1	stream	0.439 Runoff	0.439 Runoff	0.439 Runoff	0.199 Runoff
R3	stream	0.367 Drift	0.363 Runoff	0.363 Runoff	0.166 Runoff

D = Drift mitigation by no-spray buffer zones [m]
R = Runoff mitigation by vegetated filter strips [m]

Tier 3

Table B.8.2.5-32: Step 3 and 4, Tier 3: $PEC_{sw,max}$ of metconazole following application of 1 x 90 g a.s. ha^{-1} to spring cereals

Location	Water body	$PEC_{sw,max}$ [µg L^{-1}] and main entry route		
		Step 3	Step 4	
		Edge-of-Field	05mD	10mD
D1	ditch	0.611 Drift	0.191 Drift	0.117 Drift
D1	stream	0.505 Drift	0.185 Drift	0.098 Drift
D3	ditch	0.570 Drift	0.155 Drift	0.082 Drift
D4	pond	0.020	0.017	0.013

		Drift	Drift	Drainage
D4	stream	0.466 Drift	0.170 Drift	0.090 Drift
D5	pond	0.020 Drift	0.018 Drift	0.013 Drift
D5	stream	0.479 Drift	0.175 Drift	0.093 Drift

D = Drift mitigation by no-spray buffer zones [m]

Table B.8.2.5-33: Step 3 and 4, Tier 3: $PEC_{sw,max}$ of metconazole following application of 2 x 90 g a.s. ha^{-1} to spring cereals

Location	Water body	$PEC_{sw,max}$ [µg L^{-1}] and main entry route		
		Step 3	Step 4	
		Edge-of-Field	05mD	10mD
D1	ditch	0.811 Drift	0.241 Drift	0.193 Drainage
D1	stream	0.437 Drift	0.155 Drift	0.121 Drainage
D3	ditch	0.499 Drift	0.129 Drift	0.067 Drift
D4	pond	0.033 Drainage	0.032 Drainage	0.030 Drainage
D4	stream	0.425 Drift	0.150 Drift	0.078 Drift
D5	pond	0.029 Drift	0.025 Drift	0.018 Drift
D5	stream	0.430 Drift	0.152 Drift	0.079 Drift

D = Drift mitigation by no-spray buffer zones [m]

Table B.8.2.5-34: Step 3 and 4, Tier 3: $PEC_{sw,max}$ of metconazole following application of 1 x 90 g a.s. ha^{-1} to winter cereals

Location	Water body	$PEC_{sw,max}$ [µg L^{-1}] and main entry route		
		Step 3	Step 4	
		Edge-of-Field	05mD	10mD
D1	ditch	0.615 Drift	0.195 Drift	0.172 Drainage
D1	stream	0.504 Drift	0.184 Drift	0.107 Drainage
D2	ditch	0.626 Drift	0.269 Drainage	0.269 Drainage
D2	stream	0.535 Drift	0.211 Drift	0.168 Drainage
D3	ditch	0.570 Drift	0.154 Drift	0.082 Drift
D4	pond	0.020 Drift	0.017 Drift	0.012 Drift
D4	stream	0.475 Drift	0.174 Drift	0.092 Drift
D5	pond	0.020 Drift	0.018 Drift	0.013 Drift
D5	stream	0.455 Drift	0.166 Drift	0.088 Drift
D6	ditch	0.572 Drift	0.155 Drift	0.082 Drift

D = Drift mitigation by no-spray buffer zones [m]

Table B.8.2.5-35: Step 3 and 4, Tier 3: $PEC_{sw,max}$ of metconazole following application of 2 x 90 g a.s. ha^{-1} to winter cereals

Location	Water body	$PEC_{sw,max}$ [µg L^{-1}] and main entry route		
		Step 3	Step 4	
		Edge-of-Field	05mD	10mD
D1	ditch	0.814 Drift	0.297 Drainage	0.297 Drainage
D1	stream	0.437 Drift	0.186 Drainage	0.186 Drainage
D2	ditch	0.659 Drift	0.589 Drainage	0.589 Drainage
D2	stream	0.535 Drift	0.211 Drift	0.168 Drainage
D3	ditch	0.570 Drift	0.154 Drift	0.082 Drift
D4	pond	0.020 Drift	0.017 Drift	0.012 Drift
D4	stream	0.475 Drift	0.174 Drift	0.092 Drift
D5	pond	0.020 Drift	0.018 Drift	0.013 Drift
D5	stream	0.455 Drift	0.166 Drift	0.088 Drift
D6	ditch	0.572 Drift	0.155 Drift	0.082 Drift

D = Drift mitigation by no-spray buffer zones [m]

Table B.8.2.5-36: Step 3 and 4, Tier 3: $PEC_{sw,max}$ of metconazole following application of 1 x 72 g a.s. ha^{-1} to winter oil seed rape, autumn application

Location	Water body	$PEC_{sw,max}$ [µg L^{-1}] and main entry route		
		Step 3	Step 4	
		Edge-of-Field	05mD	10mD
D2	ditch	0.868 Drainage	0.868 Drainage	0.868 Drainage
D2	stream	0.562 Drainage	0.562 Drainage	0.562 Drainage
D3	ditch	0.458 Drift	0.124 Drift	0.066 Drift
D4	pond	0.038 Drainage	0.037 Drainage	0.035 Drainage
D4	stream	0.394 Drift	0.144 Drift	0.123 Drainage
D5	pond	0.028 Drainage	0.027 Drainage	0.026 Drainage
D5	stream	0.425 Drift	0.155 Drift	0.082 Drift

D = Drift mitigation by no-spray buffer zones [m]

Table B.8.2.5-37: Step 3 and 4, Tier 3: $PEC_{sw,max}$ of metconazole following application of 2 x 72 g a.s. ha^{-1} to winter oil seed rape, autumn application

Location	Water body	$PEC_{sw,max}$ [µg L^{-1}] and main entry route	
		Step 3	Step 4

		Edge-of-Field	05mD	10mD
D2	ditch	0.868 Drainage	0.868 Drainage	0.868 Drainage
D2	stream	0.562 Drainage	0.562 Drainage	0.562 Drainage
D3	ditch	0.400 Drift	0.104 Drift	0.054 Drift
D4	pond	0.036 Drainage	0.036 Drainage	0.034 Drainage
D4	stream	0.341 Drift	0.123 Drainage	0.123 Drainage
D5	pond	0.028 Drift	0.026 Drainage	0.025 Drainage
D5	stream	0.368 Drift	0.130 Drift	0.070 Drainage

D = Drift mitigation by no-spray buffer zones [m]

Table B.8.2.5-38: Step 3 and 4, Tier 3: PEC$_{sw,max}$ of metconazole following application of 1 x 72 g a.s. ha^{-1} to winter oil seed rape, spring application

Location	Water body	PEC$_{sw,max}$ [µg L^{-1}] and main entry route		
		Step 3	Step 4	
		Edge-of-Field	05mD	10mD
D2	ditch	0.529 Drift	0.376 Drainage	0.376 Drainage
D2	stream	0.443 Drift	0.235 Drainage	0.235 Drainage
D3	ditch	0.455 Drift	0.123 Drift	0.065 Drift
D4	pond	0.019 Drainage	0.018 Drainage	0.018 Drainage
D4	stream	0.350 Drift	0.128 Drift	0.068 Drift
D5	pond	0.018 Drift	0.016 Drift	0.012 Drift
D5	stream	0.296 Drift	0.108 Drift	0.057 Drift

D = Drift mitigation by no-spray buffer zones [m]

Table B.8.2.5-39: Step 3 and 4, Tier 3: PEC$_{sw,max}$ of metconazole following application of 2 x 72 g a.s. ha^{-1} to winter oil seed rape, spring application

Location	Water body	PEC$_{sw,max}$ [µg L^{-1}] and main entry route		
		Step 3	Step 4	
		Edge-of-Field	05mD	10mD
D2	ditch	0.808 Drainage	0.808 Drainage	0.808 Drainage
D2	stream	0.504 Drainage	0.504 Drainage	0.504 Drainage
D3	ditch	0.398 Drift	0.104 Drift	0.054 Drift
D4	pond	0.035 Drainage	0.034 Drainage	0.033 Drainage
D4	stream	0.332 Drift	0.118 Drift	0.103 Drainage
D5	pond	0.029 Drift	0.025 Drift	0.024 Drainage

D5	stream	0.314 Drift	0.111 Drift	0.058 Drift

D = Drift mitigation by no-spray buffer zones [m]

Time-weighted average concentrations

Step 1 and 2

Table B.8.2.5-40: Steps 1-2: $PEC_{sw,act}$ and $PEC_{sw,twa}$ of metconazole following application to winter cereals

Time* [d]	**Step 1**		**Step 2**			
			South Europe (Oct. – Feb.)			
			Single application		**Multiple application**	
	Actual [µg L^{-1}]	**TWA [µg L^{-1}]**	**Actual [µg L^{-1}]**	**TWA [µg L^{-1}]**	**Actual [µg L^{-1}]**	**TWA [µg L^{-1}]**
0	26.367	-	4.260	-	7.855	-
1	25.348	25.857	4.169	4.215	7.697	7.776
2	25.302	25.591	4.162	4.190	7.683	7.733
4	25.211	25.424	4.147	4.172	7.656	7.701
7	25.075	25.303	4.125	4.157	7.614	7.673
14	24.760	25.110	4.073	4.128	7.519	7.620
21	24.449	24.941	4.022	4.101	7.424	7.570
28	24.142	24.780	3.971	4.075	7.331	7.522
42	23.540	24.466	3.872	4.024	7.148	7.428
50	23.202	24.291	3.816	3.995	7.046	7.375
100	21.200	23.238	3.487	3.822	6.438	7.056

*Time: days following maximum concentration (Actual) or time interval (TWA)

Table B.8.2.5-41: Steps 1-2: $PEC_{sw,act}$ and $PEC_{sw,twa}$ of metconazole following application to winter oilseed rape

Time* [d]	**Step 1**		**Step 2**			
			North Europe (Oct. – Feb.)			
			Single application		**Multiple application**	
	Actual [µg L^{-1}]	**TWA [µg L^{-1}]**	**Actual [µg L^{-1}]**	**TWA [µg L^{-1}]**	**Actual [µg L^{-1}]**	**TWA [µg L^{-1}]**
0	21.094		3.216	---	4.352	---
1	20.278	20.686	3.144	3.180	4.241	4.296
2	20.242	20.473	3.138	3.161	4.233	4.267
4	20.169	20.339	3.127	3.147	4.218	4.246
7	20.060	20.243	3.110	3.135	4.195	4.229
14	19.808	20.088	3.071	3.113	4.143	4.199
21	19.559	19.953	3.033	3.092	4.091	4.172
28	19.314	19.824	2.994	3.073	4.039	4.145
42	18.832	19.573	2.920	3.034	3.938	4.093
50	18.562	19.433	2.878	3.012	3.882	4.064
100	16.960	18.591	2.629	2.882	3.547	3.888

*Time: days following maximum concentration (Actual) or time interval (TWA)

Steps 3 and 4

Tier 1

Table B.8.2.5-42: Step 3 and 4, Tier 1: $PEC_{sw,act}$ and $PEC_{sw,twa}$ of metconazole following application of 1 x 90 g a.s. ha^{-1} to spring cereals

Location	**Time* [d]**	**Step 3**	**Step 4: Buffer zones and mitigation**		
		Edge-of-field	**05mD**	**10mD**	**10mD+R**
		PEC_{sw}	**PEC_{sw}**	**PEC_{sw}**	**PEC_{sw}**

		[µg L^{-1}]		[µg L^{-1}]		[µg L^{-1}]		[µg L^{-1}]	
		Actual	**TWA**	**Actual**	**TWA**	**Actual**	**TWA**	**Actual**	**TWA**
D1, ditch	0	0.781	-	0.691	-	0.691	-	0.691	-
	1	0.728	0.753	0.658	0.679	0.658	0.679	0.658	0.679
	2	0.691	0.731	0.636	0.672	0.636	0.672	0.636	0.672
	4	0.643	0.698	0.679	0.665	0.679	0.665	0.679	0.665
	7	0.593	0.663	0.647	0.660	0.647	0.660	0.647	0.660
	14	0.508	0.648	0.634	0.648	0.634	0.648	0.634	0.648
	21	0.430	0.639	0.607	0.639	0.607	0.639	0.607	0.639
	28	0.362	0.628	0.592	0.628	0.592	0.628	0.592	0.628
	42	0.256	0.610	0.553	0.610	0.553	0.610	0.553	0.610
	50	0.212	0.599	0.529	0.599	0.529	0.599	0.529	0.599
	100	0.130	0.534	0.300	0.534	0.300	0.534	0.300	0.534
D1, stream	0	0.507	-	0.432	-	0.432	-	0.432	-
	1	0.164	0.425	0.409	0.425	0.409	0.425	0.409	0.425
	2	0.013	0.419	0.397	0.419	0.397	0.419	0.397	0.419
	4	0.004	0.414	0.423	0.414	0.423	0.414	0.423	0.414
	7	0.003	0.411	0.402	0.411	0.402	0.411	0.402	0.411
	14	0.002	0.403	0.393	0.403	0.393	0.403	0.393	0.403
	21	0.001	0.397	0.376	0.397	0.376	0.397	0.376	0.397
	28	0.001	0.390	0.368	0.390	0.368	0.390	0.368	0.390
	42	<0.001	0.379	0.338	0.379	0.338	0.379	0.338	0.379
	50	<0.001	0.371	0.329	0.371	0.329	0.371	0.329	0.371
	100	0.059	0.325	0.004	0.325	0.004	0.325	0.004	0.325
D3, ditch	0	0.570	-	0.155	-	0.082	-	0.082	-
	1	0.308	0.456	0.083	0.123	0.044	0.065	0.044	0.065
	2	0.057	0.306	0.015	0.083	0.008	0.044	0.008	0.044
	4	0.005	0.161	0.001	0.044	<0.001	0.023	<0.001	0.023
	7	0.002	0.093	<0.001	0.025	<0.001	0.013	<0.001	0.013
	14	<0.001	0.047	<0.001	0.013	<0.001	0.007	<0.001	0.007
	21	<0.001	0.032	<0.001	0.009	<0.001	0.005	<0.001	0.005
	28	<0.001	0.024	<0.001	0.006	<0.001	0.003	<0.001	0.003
	42	<0.001	0.016	<0.001	0.004	<0.001	0.002	<0.001	0.002
	50	<0.001	0.013	<0.001	0.004	<0.001	0.002	<0.001	0.002
	100	<0.001	0.007	<0.001	0.002	<0.001	0.001	<0.001	0.001
D4, pond	0	0.047	-	0.046	-	0.046	-	0.046	-
	1	0.047	0.047	0.046	0.046	0.045	0.046	0.045	0.046
	2	0.046	0.047	0.046	0.046	0.045	0.045	0.045	0.045
	4	0.046	0.047	0.045	0.046	0.044	0.045	0.044	0.045
	7	0.045	0.046	0.044	0.046	0.043	0.045	0.043	0.045
	14	0.041	0.045	0.041	0.045	0.040	0.044	0.040	0.044
	21	0.039	0.045	0.038	0.044	0.038	0.043	0.038	0.043
	28	0.036	0.044	0.036	0.044	0.035	0.043	0.035	0.043
	42	0.037	0.042	0.036	0.042	0.036	0.041	0.036	0.041
	50	0.034	0.042	0.034	0.041	0.033	0.040	0.033	0.040
	100	0.025	0.037	0.025	0.037	0.025	0.036	0.025	0.036
D4, stream	0	0.466	-	0.170	-	0.122	-	0.122	-
	1	<0.001	0.076	<0.001	0.076	0.024	0.076	0.024	0.076
	2	<0.001	0.072	<0.001	0.072	0.106	0.072	0.106	0.072
	4	<0.001	0.057	<0.001	0.057	0.014	0.057	0.014	0.057
	7	<0.001	0.046	<0.001	0.046	0.010	0.046	0.010	0.046
	14	<0.001	0.029	<0.001	0.029	0.028	0.029	0.028	0.029
	21	<0.001	0.025	<0.001	0.025	0.010	0.025	0.010	0.025

	28	<0.001	0.021	<0.001	0.021	0.002	0.021	0.002	0.021
	42	<0.001	0.015	-**	0.015	<0.001	0.015	<0.001	0.015
	50	<0.001	0.013	-**	0.013	0.014	0.013	0.014	0.013
	100	<0.001	0.008	<0.001	0.008	<0.001	0.008	<0.001	0.008

D5, pond	0	0.029	-	0.029	-	0.028	-	0.028	-
	1	0.029	0.029	0.028	0.029	0.028	0.028	0.028	0.028
	2	0.028	0.029	0.028	0.028	0.027	0.028	0.027	0.028
	4	0.027	0.029	0.027	0.028	0.026	0.028	0.026	0.028
	7	0.026	0.028	0.026	0.028	0.025	0.027	0.025	0.027
	14	0.025	0.027	0.024	0.027	0.024	0.026	0.024	0.026
	21	0.023	0.026	0.023	0.026	0.022	0.025	0.022	0.025
	28	0.022	0.025	0.022	0.025	0.021	0.025	0.021	0.025
	42	0.020	0.024	0.020	0.024	0.019	0.023	0.019	0.023
	50	0.019	0.023	0.018	0.023	0.018	0.023	0.018	0.023
	100	-**	0.019	-**	0.018	-**	0.018	-**	0.018

D5, stream	0	0.479	-	0.175	-	0.093	-	0.093	-
	1	<0.001	0.027	<0.001	0.022	<0.001	0.022	<0.001	0.022
	2	<0.001	0.021	<0.001	0.021	<0.001	0.021	<0.001	0.021
	4	<0.001	0.018	<0.001	0.018	<0.001	0.018	<0.001	0.018
	7	<0.001	0.015	<0.001	0.015	<0.001	0.015	<0.001	0.015
	14	<0.001	0.011	<0.001	0.011	<0.001	0.011	<0.001	0.011
	21	<0.001	0.007	<0.001	0.007	<0.001	0.007	<0.001	0.007
	28	<0.001	0.006	<0.001	0.006	<0.001	0.006	<0.001	0.006
	42	<0.001	0.004	<0.001	0.004	<0.001	0.004	<0.001	0.004
	50	<0.001	0.004	<0.001	0.004	<0.001	0.004	<0.001	0.004
	100	-**	0.002	-**	0.002	-**	0.002	-**	0.002

R4, stream	0	0.616	-	0.616	-	0.616	-	0.280	-
	1	0.513	0.496	0.513	0.496	0.513	0.496	0.234	0.226
	2	0.003	0.465	0.003	0.465	0.003	0.465	0.001	0.212
	4	0.001	0.244	0.001	0.244	0.001	0.244	<0.001	0.112
	7	0.175	0.194	0.175	0.194	0.175	0.194	0.079	0.088
	14	<0.001	0.126	<0.001	0.126	<0.001	0.126	<0.001	0.057
	21	<0.001	0.085	<0.001	0.084	<0.001	0.084	<0.001	0.038
	28	<0.001	0.066	<0.001	0.064	<0.001	0.064	<0.001	0.029
	42	<0.001	0.044	<0.001	0.043	<0.001	0.043	<0.001	0.020
	50	<0.001	0.037	<0.001	0.036	<0.001	0.036	<0.001	0.016
	100	<0.001	0.019	<0.001	0.018	<0.001	0.018	<0.001	0.008

* Time = days following maximum concentration (Actual) or time interval (TWA)
** Simulated time too short for calculation (might not be applicable for this table)
D = Drift mitigation by no-spray buffer zones [m]
R = Runoff mitigation by vegetated filter strips [m]
N = Drift mitigation by drift reducing nozzles [%]
(not all mitigation measures might be applicable for this table)

Table B.8.2.5-43: Step 3 and 4, Tier 1: $PEC_{sw,act}$ and $PEC_{sw,twa}$ of metconazole following application of 2 x 90 g a.s. ha^{-1} to spring cereals

Location	Time* [d]	Step 3		Step 4: Buffer zones and mitigation					
		Edge-of-field		05mD		10mD		10mD+R	
		PEC_{sw} [µg L^{-1}]		PEC_{sw} [µg L^{-1}]		PEC_{sw} [µg L^{-1}]		PEC_{sw} [µg L^{-1}]	
		Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
D1, ditch	0	1.227	-	1.227	-	1.227	-	1.227	-
	1	1.187	1.212	1.187	1.212	1.187	1.212	1.187	1.212
	2	1.158	1.201	1.158	1.201	1.158	1.201	1.158	1.201

	4	1.209	1.192	1.209	1.192	1.209	1.192	1.209	1.192
	7	1.168	1.187	1.168	1.187	1.168	1.187	1.168	1.187
	14	1.138	1.168	1.138	1.168	1.138	1.168	1.138	1.168
	21	1.070	1.143	1.070	1.143	1.070	1.143	1.070	1.143
	28	1.006	1.117	1.006	1.117	1.006	1.117	1.006	1.117
	42	0.944	1.073	0.943	1.073	0.943	1.073	0.943	1.073
	50	0.900	1.051	0.899	1.050	0.899	1.050	0.899	1.050
	100	0.510	0.932	0.507	0.932	0.506	0.932	0.506	0.932

D1, stream	0	0.767	-	0.767	-	0.767	-	0.767	-
	1	0.739	0.758	0.739	0.758	0.739	0.758	0.739	0.758
	2	0.722	0.750	0.722	0.750	0.722	0.750	0.722	0.750
	4	0.754	0.743	0.754	0.743	0.754	0.743	0.754	0.743
	7	0.725	0.740	0.725	0.740	0.725	0.740	0.725	0.740
	14	0.704	0.726	0.704	0.726	0.704	0.726	0.704	0.726
	21	0.662	0.710	0.662	0.710	0.662	0.710	0.662	0.710
	28	0.626	0.694	0.626	0.694	0.626	0.694	0.626	0.694
	42	0.575	0.666	0.575	0.666	0.575	0.666	0.575	0.666
	50	0.559	0.650	0.559	0.650	0.559	0.650	0.559	0.650
	100	0.007	0.572	0.007	0.572	0.007	0.572	0.007	0.572

D3, ditch	0	0.499	-	0.129	-	0.067	-	0.067	-
	1	0.298	0.409	0.077	0.106	0.040	0.055	0.040	0.055
	2	0.072	0.288	0.018	0.075	0.010	0.039	0.010	0.039
	4	0.006	0.156	0.002	0.040	<0.001	0.021	<0.001	0.021
	7	0.002	0.090	<0.001	0.023	<0.001	0.012	<0.001	0.012
	14	<0.001	0.046	<0.001	0.012	<0.001	0.006	<0.001	0.006
	21	<0.001	0.031	<0.001	0.008	<0.001	0.004	<0.001	0.004
	28	<0.001	0.043	<0.001	0.011	<0.001	0.006	<0.001	0.006
	42	<0.001	0.029	<0.001	0.008	<0.001	0.004	<0.001	0.004
	50	<0.001	0.025	<0.001	0.006	<0.001	0.003	<0.001	0.003
	100	<0.001	0.012	<0.001	0.003	<0.001	0.002	<0.001	0.002

D4, pond	0	0.105	-	0.104	-	0.103	-	0.103	-
	1	0.105	0.105	0.104	0.104	0.102	0.103	0.102	0.103
	2	0.104	0.105	0.103	0.104	0.101	0.103	0.101	0.103
	4	0.103	0.104	0.102	0.104	0.100	0.102	0.100	0.102
	7	0.100	0.104	0.100	0.103	0.098	0.101	0.098	0.101
	14	0.093	0.102	0.093	0.101	0.091	0.099	0.091	0.099
	21	0.087	0.099	0.086	0.099	0.085	0.097	0.085	0.097
	28	0.082	0.099	0.081	0.098	0.080	0.096	0.080	0.096
	42	0.085	0.095	0.084	0.094	0.083	0.092	0.083	0.092
	50	0.079	0.093	0.079	0.093	0.078	0.091	0.078	0.091
	100	0.058	0.084	0.058	0.083	0.057	0.082	0.057	0.082

D4, stream	0	0.425	-	0.260	-	0.260	-	0.260	-
	1	<0.001	0.168	0.057	0.168	0.057	0.168	0.057	0.168
	2	<0.001	0.159	0.230	0.159	0.230	0.159	0.230	0.159
	4	<0.001	0.128	0.034	0.128	0.034	0.128	0.034	0.128
	7	<0.001	0.103	0.023	0.103	0.023	0.103	0.023	0.103
	14	<0.001	0.066	0.067	0.066	0.067	0.066	0.067	0.066
	21	<0.001	0.058	0.024	0.058	0.024	0.058	0.024	0.058
	28	<0.001	0.049	0.005	0.049	0.005	0.049	0.005	0.049
	42	<0.001	0.033	0.001	0.033	0.001	0.033	0.001	0.033
	50	<0.001	0.031	0.037	0.031	0.037	0.031	0.037	0.031
	100	<0.001	0.019	<0.001	0.019	<0.001	0.019	<0.001	0.019

D5, pond	0	0.062	-	0.061	-	0.060	-	0.060	-
	1	0.061	0.062	0.061	0.061	0.060	0.060	0.060	0.060
	2	0.060	0.061	0.060	0.061	0.059	0.060	0.059	0.060
	4	0.059	0.061	0.058	0.061	0.057	0.060	0.057	0.060
	7	0.057	0.060	0.056	0.060	0.055	0.059	0.055	0.059
	14	0.053	0.058	0.052	0.058	0.051	0.057	0.051	0.057
	21	0.050	0.056	0.050	0.056	0.049	0.055	0.049	0.055
	28	0.048	0.055	0.047	0.054	0.046	0.053	0.046	0.053
	42	0.043	0.052	0.043	0.051	0.042	0.050	0.042	0.050
	50	0.041	0.050	0.040	0.050	0.040	0.049	0.040	0.049
	100	-**	0.040	-**	0.040	-**	0.039	-**	0.039

D5, stream	0	0.430	-	0.152	-	0.104	-	0.104	-
	1	<0.001	0.046	<0.001	0.046	0.031	0.046	0.031	0.046
	2	<0.001	0.044	<0.001	0.044	0.004	0.044	0.004	0.044
	4	<0.001	0.039	<0.001	0.039	0.022	0.039	0.022	0.039
	7	<0.001	0.032	<0.001	0.032	<0.001	0.032	<0.001	0.032
	14	<0.001	0.024	<0.001	0.024	0.001	0.024	0.001	0.024
	21	<0.001	0.017	<0.001	0.017	<0.001	0.017	<0.001	0.017
	28	<0.001	0.013	<0.001	0.013	0.002	0.013	0.002	0.013
	42	<0.001	0.009	<0.001	0.009	<0.001	0.009	<0.001	0.009
	50	<0.001	0.008	<0.001	0.008	<0.001	0.008	<0.001	0.008
	100	<0.001	0.005	<0.001	0.005	<0.001	0.005	<0.001	0.005

R4, stream	0	0.617	-	0.617	-	0.617	-	0.281	-
	1	0.514	0.497	0.514	0.497	0.514	0.497	0.234	0.227
	2	0.003	0.466	0.003	0.466	0.003	0.466	0.001	0.213
	4	0.001	0.244	0.001	0.244	0.001	0.244	<0.001	0.112
	7	0.175	0.194	0.175	0.194	0.175	0.194	0.079	0.088
	14	<0.001	0.131	<0.001	0.128	<0.001	0.127	<0.001	0.058
	21	<0.001	0.088	<0.001	0.085	<0.001	0.085	<0.001	0.039
	28	<0.001	0.068	<0.001	0.065	<0.001	0.064	<0.001	0.030
	42	<0.001	0.045	<0.001	0.043	<0.001	0.043	<0.001	0.020
	50	<0.001	0.038	<0.001	0.036	<0.001	0.036	<0.001	0.017
	100	<0.001	0.019	<0.001	0.018	<0.001	0.018	<0.001	0.008

* Time = days following maximum concentration (Actual) or time interval (TWA)
** Simulated time too short for calculation (might not be applicable for this table)
D = Drift mitigation by no-spray buffer zones [m]
R = Runoff mitigation by vegetated filter strips [m]

Tier 2

Table B.8.2.5-50: Step 3 and 4, Tier 2: $PEC_{sw,act}$ and $PEC_{sw,twa}$ of metconazole following application of 1 x 90 g a.s. ha^{-1} to spring cereals

Location	**Time* [d]**	**Step 3**		**Step 4: Buffer zones and mitigation**					
		Edge-of-field		**05mD**		**10mD**		**10mD+R**	
		PEC_{sw} [µg L^{-1}]		**PEC_{sw} [µg L^{-1}]**		**PEC_{sw} [µg L^{-1}]**		**PEC_{sw} [µg L^{-1}]**	
		Actual	**TWA**	**Actual**	**TWA**	**Actual**	**TWA**	**Actual**	**TWA**
D1, ditch	0	0.740	-	0.599	-	0.599	-	0.599	-
	1	0.687	0.711	0.567	0.587	0.567	0.587	0.567	0.587
	2	0.651	0.690	0.545	0.580	0.545	0.580	0.545	0.580
	4	0.604	0.658	0.588	0.573	0.588	0.573	0.588	0.573
	7	0.557	0.624	0.556	0.568	0.556	0.568	0.556	0.568
	14	0.477	0.570	0.547	0.558	0.547	0.558	0.547	0.558
	21	0.404	0.551	0.527	0.551	0.527	0.551	0.527	0.551

	28	0.339	0.544	0.521	0.544	0.521	0.543	0.521	0.543
	42	0.238	0.531	0.486	0.530	0.486	0.530	0.486	0.530
	50	0.196	0.522	0.465	0.522	0.465	0.522	0.465	0.522
	100	0.111	0.464	0.263	0.464	0.263	0.464	0.263	0.464
D1, stream	0	0.506	-	0.375	-	0.375	-	0.375	-
	1	0.164	0.393	0.352	0.367	0.352	0.367	0.352	0.367
	2	0.013	0.362	0.340	0.362	0.340	0.362	0.340	0.362
	4	0.004	0.357	0.366	0.357	0.366	0.357	0.366	0.357
	7	0.002	0.354	0.345	0.354	0.345	0.354	0.345	0.354
	14	0.001	0.347	0.338	0.347	0.338	0.347	0.338	0.347
	21	0.001	0.343	0.326	0.343	0.326	0.343	0.326	0.343
	28	<0.001	0.338	0.324	0.338	0.324	0.338	0.324	0.338
	42	<0.001	0.329	0.297	0.329	0.297	0.329	0.297	0.329
	50	<0.001	0.323	0.290	0.323	0.290	0.323	0.290	0.323
	100	0.048	0.282	0.004	0.282	0.004	0.282	0.004	0.282
D3, ditch	0	0.570	-	0.155	-	0.082	-	0.082	-
	1	0.308	0.456	0.083	0.123	0.044	0.065	0.044	0.065
	2	0.057	0.306	0.015	0.083	0.008	0.044	0.008	0.044
	4	0.005	0.161	0.001	0.044	<0.001	0.023	<0.001	0.023
	7	0.002	0.093	<0.001	0.025	<0.001	0.013	<0.001	0.013
	14	<0.001	0.047	<0.001	0.013	<0.001	0.007	<0.001	0.007
	21	<0.001	0.032	<0.001	0.009	<0.001	0.005	<0.001	0.005
	28	<0.001	0.024	<0.001	0.006	<0.001	0.003	<0.001	0.003
	42	<0.001	0.016	<0.001	0.004	<0.001	0.002	<0.001	0.002
	50	<0.001	0.013	<0.001	0.004	<0.001	0.002	<0.001	0.002
	100	<0.001	0.007	<0.001	0.002	<0.001	0.001	<0.001	0.001
D4, pond	0	0.033	-	0.033	-	0.032	-	0.032	-
	1	0.033	0.033	0.033	0.033	0.032	0.032	0.032	0.032
	2	0.033	0.033	0.033	0.033	0.032	0.032	0.032	0.032
	4	0.032	0.033	0.032	0.033	0.031	0.032	0.031	0.032
	7	0.032	0.033	0.031	0.032	0.031	0.032	0.031	0.032
	14	0.030	0.032	0.029	0.032	0.028	0.031	0.028	0.031
	21	0.028	0.032	0.027	0.032	0.026	0.031	0.026	0.031
	28	0.026	0.032	0.026	0.031	0.025	0.030	0.025	0.030
	42	0.026	0.030	0.026	0.030	0.025	0.029	0.025	0.029
	50	0.024	0.030	0.024	0.029	0.023	0.029	0.023	0.029
	100	0.018	0.026	0.018	0.026	0.017	0.025	0.017	0.025
D4, stream	0	0.466	-	0.170	-	0.090	-	0.090	-
	1	<0.001	0.055	<0.001	0.055	<0.001	0.055	<0.001	0.055
	2	<0.001	0.051	<0.001	0.051	<0.001	0.051	<0.001	0.051
	4	<0.001	0.040	<0.001	0.040	<0.001	0.040	<0.001	0.040
	7	<0.001	0.032	<0.001	0.032	<0.001	0.032	<0.001	0.032
	14	<0.001	0.020	<0.001	0.020	<0.001	0.020	<0.001	0.020
	21	<0.001	0.017	<0.001	0.017	<0.001	0.017	<0.001	0.017
	28	<0.001	0.014	<0.001	0.014	-**	0.014	-**	0.014
	42	<0.001	0.010	-**	0.010	-**	0.010	-**	0.010
	50	-**	0.009	-**	0.009	-**	0.009	-**	0.009
	100	<0.001	0.005	<0.001	0.005	<0.001	0.005	<0.001	0.005
D5, pond	0	0.026	-	0.026	-	0.025	-	0.025	-
	1	0.026	0.026	0.025	0.025	0.025	0.025	0.025	0.025
	2	0.025	0.026	0.025	0.025	0.024	0.025	0.024	0.025
	4	0.024	0.026	0.024	0.025	0.024	0.025	0.024	0.025

	7	0.023	0.025	0.023	0.025	0.023	0.024	0.023	0.024
	14	0.022	0.024	0.022	0.024	0.021	0.023	0.021	0.023
	21	0.021	0.023	0.021	0.023	0.020	0.023	0.020	0.023
	28	0.020	0.023	0.020	0.022	0.019	0.022	0.019	0.022
	42	0.018	0.022	0.017	0.021	0.017	0.021	0.017	0.021
	50	0.017	0.021	0.016	0.021	0.016	0.020	0.016	0.020
	100	-**	0.017	-**	0.016	-**	0.016	-**	0.016
D5, stream	0	0.479	-	0.175	-	0.093	-	0.093	-
	1	<0.001	0.027	<0.001	0.020	<0.001	0.020	<0.001	0.020
	2	<0.001	0.019	<0.001	0.019	<0.001	0.019	<0.001	0.019
	4	<0.001	0.016	<0.001	0.016	<0.001	0.016	<0.001	0.016
	7	<0.001	0.013	<0.001	0.013	<0.001	0.013	<0.001	0.013
	14	<0.001	0.009	<0.001	0.009	<0.001	0.009	<0.001	0.009
	21	<0.001	0.007	<0.001	0.007	<0.001	0.007	<0.001	0.007
	28	<0.001	0.005	<0.001	0.005	<0.001	0.005	<0.001	0.005
	42	<0.001	0.003	<0.001	0.003	<0.001	0.003	<0.001	0.003
	50	<0.001	0.003	<0.001	0.003	-**	0.003	-**	0.003
	100	-**	0.002	-**	0.002	-**	0.002	-**	0.002
R4, stream	0	0.377	-	0.259	-	0.259	-	0.117	-
	1	<0.001	0.175	<0.001	0.175	<0.001	0.175	<0.001	0.080
	2	<0.001	0.167	<0.001	0.167	<0.001	0.167	<0.001	0.077
	4	<0.001	0.088	0.180	0.088	0.180	0.088	0.082	0.040
	7	<0.001	0.075	<0.001	0.075	<0.001	0.075	<0.001	0.034
	14	0.227	0.048	<0.001	0.048	<0.001	0.048	<0.001	0.022
	21	0.122	0.035	<0.001	0.032	<0.001	0.032	<0.001	0.015
	28	<0.001	0.027	<0.001	0.025	<0.001	0.024	<0.001	0.011
	42	<0.001	0.018	<0.001	0.017	<0.001	0.016	<0.001	0.008
	50	<0.001	0.015	<0.001	0.014	<0.001	0.014	<0.001	0.006
	100	<0.001	0.008	0.035	0.007	0.035	0.007	0.016	0.003

* Time = days following maximum concentration (Actual) or time interval (TWA)
** Simulated time too short for calculation (might not be applicable for this table)
D = Drift mitigation by no-spray buffer zones [m]
R = Runoff mitigation by vegetated filter strips [m]

Table B.8.2.5-51: Step 3 and 4, Tier 2: $PEC_{sw,act}$ and $PEC_{sw,twa}$ of metconazole following application of 2 x 90 g a.s. ha^{-1} to spring cereals

Location	Time* [d]	Step 3		Step 4: Buffer zones and mitigation					
		Edge-of-field		05mD		10mD		10mD+R	
		PEC_{sw} [µg L^{-1}]		PEC_{sw} [µg L^{-1}]		PEC_{sw} [µg L^{-1}]		PEC_{sw} [µg L^{-1}]	
		Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
D1, ditch	0	0.919	-	0.775	-	0.775	-	0.775	-
	1	0.866	0.891	0.742	0.763	0.742	0.763	0.742	0.763
	2	0.829	0.869	0.719	0.755	0.719	0.755	0.719	0.755
	4	0.776	0.835	0.762	0.748	0.762	0.748	0.762	0.748
	7	0.717	0.796	0.730	0.743	0.729	0.743	0.729	0.743
	14	0.609	0.731	0.714	0.730	0.714	0.730	0.714	0.730
	21	0.515	0.719	0.680	0.718	0.680	0.718	0.680	0.718
	28	0.433	0.706	0.657	0.705	0.657	0.705	0.657	0.705
	42	0.308	0.683	0.614	0.683	0.614	0.683	0.614	0.683
	50	0.256	0.670	0.586	0.670	0.586	0.670	0.586	0.670
	100	0.130	0.597	0.332	0.596	0.332	0.596	0.332	0.596
D1, stream	0	0.485	-	0.485	-	0.485	-	0.485	-
	1	0.462	0.477	0.462	0.477	0.462	0.477	0.462	0.477

	2	0.448	0.471	0.448	0.471	0.448	0.471	0.448	0.471
	4	0.475	0.466	0.475	0.466	0.475	0.466	0.475	0.466
	7	0.453	0.463	0.453	0.463	0.453	0.463	0.453	0.463
	14	0.442	0.454	0.442	0.454	0.442	0.454	0.442	0.454
	21	0.421	0.447	0.421	0.447	0.421	0.447	0.421	0.447
	28	0.409	0.438	0.409	0.438	0.409	0.438	0.409	0.438
	42	0.375	0.423	0.375	0.423	0.375	0.423	0.375	0.423
	50	0.365	0.415	0.365	0.415	0.365	0.415	0.365	0.415
	100	0.005	0.364	0.005	0.364	0.005	0.364	0.005	0.364

D3, ditch	0	0.499	-	0.129	-	0.067	-	0.067	-
	1	0.298	0.409	0.077	0.106	0.040	0.055	0.040	0.055
	2	0.072	0.288	0.018	0.075	0.010	0.039	0.010	0.039
	4	0.006	0.156	0.002	0.040	<0.001	0.021	<0.001	0.021
	7	0.002	0.090	<0.001	0.023	<0.001	0.012	<0.001	0.012
	14	<0.001	0.046	<0.001	0.012	<0.001	0.006	<0.001	0.006
	21	<0.001	0.031	<0.001	0.008	<0.001	0.004	<0.001	0.004
	28	<0.001	0.043	<0.001	0.011	<0.001	0.006	<0.001	0.006
	42	<0.001	0.029	<0.001	0.008	<0.001	0.004	<0.001	0.004
	50	<0.001	0.025	<0.001	0.006	<0.001	0.003	<0.001	0.003
	100	<0.001	0.012	<0.001	0.003	<0.001	0.002	<0.001	0.002

D4, pond	0	0.057	-	0.056	-	0.054	-	0.054	-
	1	0.056	0.057	0.056	0.056	0.054	0.054	0.054	0.054
	2	0.056	0.057	0.055	0.056	0.054	0.054	0.054	0.054
	4	0.055	0.056	0.054	0.056	0.053	0.054	0.053	0.054
	7	0.054	0.056	0.053	0.055	0.052	0.054	0.052	0.054
	14	0.050	0.055	0.049	0.054	0.048	0.052	0.048	0.052
	21	0.047	0.054	0.046	0.053	0.045	0.052	0.045	0.052
	28	0.044	0.053	0.043	0.053	0.042	0.051	0.042	0.051
	42	0.045	0.051	0.045	0.050	0.043	0.049	0.043	0.049
	50	0.042	0.050	0.042	0.050	0.041	0.048	0.041	0.048
	100	0.031	0.045	0.031	0.044	0.030	0.043	0.030	0.043

D4, stream	0	0.425	-	0.150	-	0.137	-	0.137	-
	1	<0.001	0.111	<0.001	0.087	0.029	0.087	0.029	0.087
	2	<0.001	0.082	<0.001	0.082	0.120	0.082	0.120	0.082
	4	<0.001	0.066	<0.001	0.066	0.017	0.066	0.017	0.066
	7	<0.001	0.053	<0.001	0.053	0.012	0.053	0.012	0.053
	14	<0.001	0.034	<0.001	0.034	0.034	0.034	0.034	0.034
	21	<0.001	0.030	<0.001	0.030	0.012	0.030	0.012	0.030
	28	<0.001	0.025	<0.001	0.025	0.002	0.025	0.002	0.025
	42	<0.001	0.017	<0.001	0.017	<0.001	0.017	<0.001	0.017
	50	<0.001	0.016	<0.001	0.016	0.018	0.016	0.018	0.016
	100	<0.001	0.009	<0.001	0.009	<0.001	0.009	<0.001	0.009

D5, pond	0	0.042	-	0.042	-	0.041	-	0.041	-
	1	0.042	0.042	0.041	0.041	0.040	0.040	0.040	0.040
	2	0.041	0.042	0.041	0.041	0.040	0.040	0.040	0.040
	4	0.040	0.042	0.039	0.041	0.038	0.040	0.038	0.040
	7	0.038	0.041	0.038	0.040	0.037	0.039	0.037	0.039
	14	0.036	0.039	0.035	0.039	0.034	0.038	0.034	0.038
	21	0.034	0.038	0.033	0.038	0.033	0.037	0.033	0.037
	28	0.032	0.037	0.032	0.037	0.031	0.036	0.031	0.036
	42	0.029	0.035	0.029	0.035	0.028	0.034	0.028	0.034
	50	0.027	0.034	0.027	0.034	0.026	0.033	0.026	0.033
	100	-**	0.028	-**	0.027	-**	0.026	-**	0.026

D5, stream	0	0.430	-	0.152	-	0.079	-	0.079	-
	1	<0.001	0.036	<0.001	0.032	<0.001	0.032	<0.001	0.032
	2	<0.001	0.030	<0.001	0.030	<0.001	0.030	<0.001	0.030
	4	<0.001	0.027	<0.001	0.027	<0.001	0.027	<0.001	0.027
	7	<0.001	0.022	<0.001	0.022	<0.001	0.022	<0.001	0.022
	14	<0.001	0.015	<0.001	0.015	<0.001	0.015	<0.001	0.015
	21	<0.001	0.011	<0.001	0.011	<0.001	0.011	<0.001	0.011
	28	<0.001	0.008	<0.001	0.008	<0.001	0.008	<0.001	0.008
	42	<0.001	0.006	<0.001	0.006	<0.001	0.006	<0.001	0.006
	50	<0.001	0.005	<0.001	0.005	<0.001	0.005	<0.001	0.005
	100	-**	0.003	-**	0.003	-**	0.003	-**	0.003
R4, stream	0	0.326	-	0.260	-	0.260	-	0.117	-
	1	<0.001	0.176	<0.001	0.176	<0.001	0.176	<0.001	0.080
	2	<0.001	0.168	<0.001	0.168	<0.001	0.168	<0.001	0.077
	4	<0.001	0.088	0.181	0.088	0.181	0.088	0.082	0.040
	7	<0.001	0.075	<0.001	0.075	<0.001	0.075	<0.001	0.034
	14	<0.001	0.053	<0.001	0.050	<0.001	0.049	<0.001	0.023
	21	<0.001	0.035	<0.001	0.033	<0.001	0.033	<0.001	0.015
	28	<0.001	0.029	<0.001	0.026	<0.001	0.025	<0.001	0.012
	42	<0.001	0.019	<0.001	0.017	<0.001	0.017	<0.001	0.008
	50	<0.001	0.016	<0.001	0.014	<0.001	0.014	<0.001	0.007
	100	<0.001	0.008	0.095	0.007	0.095	0.007	0.044	0.003

* Time = days following maximum concentration (Actual) or time interval (TWA)
** Simulated time too short for calculation (might not be applicable for this table)
D = Drift mitigation by no-spray buffer zones [m]
R = Runoff mitigation by vegetated filter strips [m]

Table B.8.2.5-52: Step 3 and 4, Tier 2: $PEC_{sw,act}$ and $PEC_{sw,twa}$ of metconazole following application of 1 x 90 g a.s. ha^{-1} to winter cereals

Location	Time* [d]	Step 3		Step 4: Buffer zones and mitigation					
		Edge-of-field		05mD		10mD		10mD+R	
		PEC_{sw} [µg L^{-1}]		PEC_{sw} [µg L^{-1}]		PEC_{sw} [µg L^{-1}]		PEC_{sw} [µg L^{-1}]	
		Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
D1, ditch	0	0.651	-	0.333	-	0.333	-	0.333	-
	1	0.600	0.624	0.307	0.323	0.307	0.323	0.307	0.323
	2	0.567	0.603	0.293	0.319	0.293	0.319	0.293	0.319
	4	0.523	0.573	0.323	0.313	0.323	0.313	0.323	0.313
	7	0.482	0.542	0.301	0.310	0.301	0.310	0.301	0.310
	14	0.414	0.495	0.297	0.304	0.297	0.304	0.297	0.304
	21	0.351	0.457	0.293	0.301	0.293	0.301	0.293	0.301
	28	0.294	0.423	0.313	0.301	0.313	0.301	0.313	0.301
	42	0.205	0.364	0.288	0.300	0.288	0.300	0.288	0.300
	50	0.168	0.336	0.276	0.297	0.276	0.297	0.276	0.297
	100	0.062	0.268	0.155	0.268	0.155	0.268	0.155	0.268
D1, stream	0	0.505	-	0.209	-	0.209	-	0.209	-
	1	0.162	0.392	0.191	0.202	0.191	0.202	0.191	0.202
	2	0.011	0.223	0.183	0.199	0.183	0.199	0.183	0.199
	4	0.003	0.195	0.201	0.195	0.201	0.195	0.201	0.195
	7	0.001	0.193	0.187	0.193	0.187	0.193	0.187	0.193
	14	<0.001	0.189	0.184	0.189	0.184	0.189	0.184	0.189
	21	<0.001	0.188	0.182	0.188	0.182	0.188	0.182	0.188
	28	<0.001	0.187	0.195	0.187	0.195	0.187	0.195	0.187
	42	<0.001	0.187	0.176	0.187	0.176	0.187	0.176	0.187

	50	<0.001	0.184	0.173	0.184	0.173	0.184	0.173	0.184
	100	<0.001	0.160	0.002	0.160	0.002	0.160	0.002	0.160

	0	0.959	-	0.959	-	0.959	-	0.959	-
	1	0.212	0.808	0.212	0.641	0.212	0.641	0.212	0.641
	2	0.163	0.786	0.163	0.570	0.163	0.570	0.163	0.570
	4	0.200	0.754	0.200	0.515	0.200	0.515	0.200	0.515
	7	0.874	0.720	0.874	0.505	0.874	0.505	0.874	0.505
D2, ditch	14	0.176	0.580	0.176	0.454	0.176	0.454	0.176	0.454
	21	0.704	0.496	0.704	0.421	0.704	0.421	0.704	0.421
	28	0.463	0.453	0.463	0.414	0.463	0.414	0.463	0.414
	42	0.184	0.445	0.184	0.386	0.184	0.386	0.184	0.386
	50	0.160	0.430	0.160	0.381	0.160	0.373	0.160	0.373
	100	0.299	0.369	0.299	0.343	0.299	0.338	0.299	0.338

	0	0.657	-	0.599	-	0.599	-	0.599	-
	1	0.610	0.631	0.109	0.368	0.109	0.368	0.109	0.368
	2	0.580	0.613	0.096	0.324	0.096	0.324	0.096	0.324
	4	0.540	0.585	0.104	0.305	0.104	0.295	0.104	0.295
	7	0.354	0.551	0.557	0.297	0.557	0.291	0.557	0.291
D2, stream	14	0.211	0.394	0.109	0.267	0.109	0.260	0.109	0.260
	21	0.239	0.320	0.463	0.236	0.463	0.236	0.463	0.236
	28	0.153	0.292	0.336	0.229	0.336	0.228	0.336	0.228
	42	0.150	0.273	0.103	0.231	0.103	0.219	0.103	0.219
	50	0.143	0.259	0.090	0.223	0.090	0.213	0.090	0.213
	100	0.071	0.213	0.138	0.195	0.138	0.190	0.138	0.190

	0	0.570	-	0.154	-	0.082	-	0.082	-
	1	0.301	0.453	0.082	0.123	0.043	0.065	0.043	0.065
	2	0.053	0.301	0.014	0.082	0.007	0.043	0.007	0.043
	4	0.005	0.159	0.001	0.043	<0.001	0.023	<0.001	0.023
	7	0.002	0.092	<0.001	0.025	<0.001	0.013	<0.001	0.013
D3, ditch	14	<0.001	0.046	<0.001	0.013	<0.001	0.007	<0.001	0.007
	21	<0.001	0.031	<0.001	0.008	<0.001	0.004	<0.001	0.004
	28	<0.001	0.023	<0.001	0.006	<0.001	0.003	<0.001	0.003
	42	<0.001	0.016	<0.001	0.004	<0.001	0.002	<0.001	0.002
	50	<0.001	0.013	<0.001	0.004	<0.001	0.002	<0.001	0.002
	100	<0.001	0.007	<0.001	0.002	<0.001	<0.001	<0.001	<0.001

	0	0.021	-	0.020	-	0.019	-	0.019	-
	1	0.021	0.021	0.020	0.020	0.019	0.019	0.019	0.019
	2	0.020	0.021	0.020	0.020	0.019	0.019	0.019	0.019
	4	0.020	0.020	0.019	0.020	0.018	0.019	0.018	0.019
	7	0.019	0.020	0.018	0.019	0.017	0.018	0.017	0.018
D4, pond	14	0.019	0.020	0.019	0.019	0.018	0.018	0.018	0.018
	21	0.018	0.019	0.017	0.019	0.017	0.018	0.017	0.018
	28	0.017	0.019	0.016	0.018	0.015	0.017	0.015	0.017
	42	0.015	0.018	0.014	0.017	0.014	0.017	0.014	0.017
	50	0.015	0.017	0.014	0.017	0.014	0.016	0.014	0.016
	100	0.011	0.015	0.010	0.015	0.010	0.014	0.010	0.014

	0	0.475	-	0.174	-	0.092	-	0.092	-
	1	<0.001	0.058	<0.001	0.032	<0.001	0.032	<0.001	0.032
D4, stream	2	<0.001	0.030	<0.001	0.030	<0.001	0.030	<0.001	0.030
	4	<0.001	0.023	<0.001	0.023	<0.001	0.023	<0.001	0.023
	7	<0.001	0.018	<0.001	0.018	<0.001	0.018	<0.001	0.018

	14	<0.001	0.011	<0.001	0.011	<0.001	0.011	<0.001	0.011
	21	<0.001	0.009	<0.001	0.009	-**	0.009	-**	0.009
	28	<0.001	0.007	<0.001	0.007	-**	0.007	-**	0.007
	42	<0.001	0.005	-**	0.005	-**	0.005	-**	0.005
	50	<0.001	0.004	-**	0.004	-**	0.004	-**	0.004
	100	-**	0.002	-**	0.002	-**	0.002	-**	0.002
D5, pond	0	0.026	-	0.026	-	0.025	-	0.025	-
	1	0.026	0.026	0.026	0.026	0.025	0.025	0.025	0.025
	2	0.026	0.026	0.025	0.026	0.025	0.025	0.025	0.025
	4	0.025	0.026	0.025	0.026	0.024	0.025	0.024	0.025
	7	0.024	0.026	0.024	0.025	0.023	0.025	0.023	0.025
	14	0.022	0.025	0.022	0.024	0.022	0.024	0.022	0.024
	21	0.021	0.024	0.021	0.024	0.020	0.023	0.020	0.023
	28	0.020	0.023	0.020	0.023	0.019	0.022	0.019	0.022
	42	0.018	0.022	0.018	0.022	0.017	0.021	0.017	0.021
	50	0.017	0.021	0.017	0.021	0.016	0.020	0.016	0.020
	100	-**	0.017	-**	0.017	-**	0.016	-**	0.016
D5, stream	0	0.455	-	0.166	-	0.088	-	0.088	-
	1	<0.001	0.021	<0.001	0.021	<0.001	0.021	<0.001	0.021
	2	<0.001	0.020	<0.001	0.020	<0.001	0.020	<0.001	0.020
	4	<0.001	0.017	<0.001	0.017	<0.001	0.017	<0.001	0.017
	7	<0.001	0.014	<0.001	0.014	<0.001	0.014	<0.001	0.014
	14	<0.001	0.010	<0.001	0.010	<0.001	0.010	<0.001	0.010
	21	<0.001	0.007	<0.001	0.007	<0.001	0.007	<0.001	0.007
	28	<0.001	0.005	<0.001	0.005	<0.001	0.005	<0.001	0.005
	42	<0.001	0.004	<0.001	0.004	<0.001	0.004	<0.001	0.004
	50	<0.001	0.003	<0.001	0.003	<0.001	0.003	<0.001	0.003
	100	-**	0.002	-**	0.002	-**	0.002	-**	0.002
D6, ditch	0	0.572	-	0.155	-	0.124	-	0.124	-
	1	0.468	0.519	0.127	0.141	0.049	0.091	0.049	0.091
	2	0.286	0.452	0.077	0.122	0.023	0.067	0.023	0.067
	4	0.045	0.292	0.012	0.079	0.008	0.042	0.008	0.042
	7	0.010	0.176	0.003	0.048	0.003	0.026	0.003	0.026
	14	0.004	0.091	0.001	0.025	<0.001	0.016	<0.001	0.016
	21	<0.001	0.061	<0.001	0.017	<0.001	0.011	<0.001	0.011
	28	<0.001	0.046	<0.001	0.013	<0.001	0.012	<0.001	0.012
	42	0.001	0.034	<0.001	0.013	0.004	0.011	0.004	0.011
	50	<0.001	0.030	<0.001	0.011	0.002	0.009	0.002	0.009
	100	<0.001	0.015	<0.001	0.007	<0.001	0.007	<0.001	0.007
R1, pond	0	0.043	-	0.041	-	0.039	-	0.020	-
	1	0.042	0.042	0.041	0.041	0.038	0.039	0.019	0.020
	2	0.041	0.042	0.040	0.041	0.038	0.038	0.019	0.019
	4	0.040	0.042	0.039	0.040	0.037	0.038	0.019	0.019
	7	0.039	0.041	0.038	0.040	0.035	0.037	0.018	0.019
	14	0.036	0.039	0.035	0.038	0.033	0.036	0.017	0.018
	21	0.034	0.038	0.033	0.037	0.031	0.034	0.016	0.017
	28	0.032	0.037	0.031	0.036	0.029	0.033	0.015	0.017
	42	0.030	0.036	0.030	0.034	0.028	0.032	0.014	0.017
	50	0.028	0.035	0.027	0.034	0.026	0.031	0.013	0.017
	100	0.026	0.032	0.025	0.030	0.024	0.028	0.012	0.015
R1, stream	0	0.374	-	0.261	-	0.261	-	0.118	-
	1	<0.001	0.143	<0.001	0.143	<0.001	0.143	<0.001	0.065

	2	<0.001	0.072	<0.001	0.072	<0.001	0.072	<0.001	0.033
	4	<0.001	0.036	0.002	0.036	0.002	0.036	<0.001	0.016
	7	<0.001	0.033	<0.001	0.033	<0.001	0.033	<0.001	0.015
	14	<0.001	0.025	0.034	0.025	0.034	0.025	0.001	0.011
	21	<0.001	0.019	<0.001	0.019	<0.001	0.019	<0.001	0.009
	28	0.196	0.016	<0.001	0.016	<0.001	0.016	<0.001	0.007
	42	<0.001	0.013	<0.001	0.013	<0.001	0.013	<0.001	0.006
	50	0.144	0.011	<0.001	0.011	<0.001	0.011	<0.001	0.005
	100	<0.001	0.007	<0.001	0.007	<0.001	0.007	<0.001	0.003

R3, stream	0	0.527	-	0.251	-	0.251	-	0.115	-
	1	<0.001	0.222	0.002	0.222	0.002	0.222	<0.001	0.102
	2	<0.001	0.121	0.001	0.121	0.001	0.121	<0.001	0.056
	4	<0.001	0.061	<0.001	0.061	<0.001	0.061	<0.001	0.028
	7	<0.001	0.035	<0.001	0.035	<0.001	0.035	<0.001	0.016
	14	<0.001	0.018	<0.001	0.018	<0.001	0.018	<0.001	0.008
	21	<0.001	0.013	<0.001	0.013	<0.001	0.013	<0.001	0.006
	28	<0.001	0.015	<0.001	0.015	<0.001	0.015	<0.001	0.007
	42	<0.001	0.013	<0.001	0.013	<0.001	0.013	<0.001	0.006
	50	<0.001	0.011	<0.001	0.011	<0.001	0.011	<0.001	0.005
	100	<0.001	0.007	<0.001	0.006	<0.001	0.006	<0.001	0.003

R4, stream	0	0.377	-	0.169	-	0.169	-	0.076	-
	1	<0.001	0.117	<0.001	0.117	<0.001	0.117	<0.001	0.054
	2	<0.001	0.112	<0.001	0.112	<0.001	0.112	<0.001	0.051
	4	<0.001	0.059	0.121	0.059	0.121	0.059	0.055	0.027
	7	<0.001	0.050	<0.001	0.050	<0.001	0.050	<0.001	0.023
	14	0.151	0.032	<0.001	0.032	<0.001	0.032	<0.001	0.014
	21	0.082	0.024	<0.001	0.022	<0.001	0.021	<0.001	0.010
	28	<0.001	0.019	<0.001	0.017	<0.001	0.016	<0.001	0.008
	42	<0.001	0.013	<0.001	0.011	<0.001	0.011	<0.001	0.005
	50	<0.001	0.011	<0.001	0.010	<0.001	0.009	<0.001	0.004
	100	<0.001	0.005	0.023	0.005	0.023	0.005	0.011	0.002

* Time = days following maximum concentration (Actual) or time interval (TWA)
** Simulated time too short for calculation (might not be applicable for this table)
D = Drift mitigation by no-spray buffer zones [m]
R = Runoff mitigation by vegetated filter strips [m]

Table B.8.2.5-53: Step 3 and 4, Tier 2: $PEC_{sw,act}$ and $PEC_{sw,twa}$ of metconazole following application of 2 x 90 g a.s. ha^{-1} to winter cereals

Location	Time* [d]	Step 3		Step 4: Buffer zones and mitigation					
		Edge-of-field		05mD		10mD		10mD+R	
		PEC_{sw} [µg L^{-1}]		PEC_{sw} [µg L^{-1}]		PEC_{sw} [µg L^{-1}]		PEC_{sw} [µg L^{-1}]	
		Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
D1, ditch	0	0.838	-	0.475	-	0.475	-	0.475	-
	1	0.788	0.811	0.444	0.463	0.444	0.463	0.444	0.463
	2	0.752	0.790	0.425	0.456	0.424	0.456	0.424	0.456
	4	0.702	0.758	0.463	0.450	0.463	0.450	0.463	0.450
	7	0.648	0.722	0.435	0.446	0.435	0.446	0.435	0.446
	14	0.550	0.660	0.429	0.437	0.429	0.437	0.429	0.437
	21	0.464	0.608	0.419	0.434	0.419	0.434	0.419	0.434
	28	0.388	0.563	0.434	0.431	0.434	0.431	0.434	0.431
	42	0.273	0.521	0.402	0.426	0.402	0.426	0.402	0.426
	50	0.226	0.505	0.385	0.421	0.385	0.421	0.385	0.421
	100	0.088	0.377	0.216	0.376	0.215	0.376	0.215	0.376

D1, stream	0	0.437	-	0.298	-	0.298	-	0.298	-
	1	0.141	0.339	0.276	0.290	0.276	0.290	0.276	0.290
	2	0.010	0.285	0.265	0.285	0.265	0.285	0.265	0.285
	4	0.003	0.281	0.289	0.281	0.289	0.281	0.289	0.281
	7	0.001	0.278	0.271	0.278	0.271	0.278	0.271	0.278
	14	<0.001	0.272	0.266	0.272	0.266	0.272	0.266	0.272
	21	0.437	0.270	0.260	0.270	0.260	0.270	0.260	0.270
	28	0.001	0.268	0.270	0.268	0.270	0.268	0.270	0.268
	42	<0.001	0.265	0.246	0.265	0.246	0.265	0.246	0.265
	50	<0.001	0.261	0.241	0.261	0.241	0.261	0.241	0.261
	100	<0.001	0.224	0.003	0.224	0.003	0.224	0.003	0.224

D2, ditch	0	1.635	-	1.635	-	1.635	-	1.635	-
	1	0.367	1.100	0.367	1.100	0.367	1.100	0.367	1.100
	2	0.294	0.985	0.294	0.985	0.294	0.985	0.294	0.985
	4	0.349	0.925	0.349	0.897	0.349	0.897	0.349	0.897
	7	1.503	0.889	1.503	0.878	1.503	0.878	1.503	0.878
	14	0.312	0.806	0.312	0.786	0.312	0.786	0.312	0.786
	21	1.210	0.731	1.210	0.727	1.210	0.727	1.210	0.727
	28	0.769	0.711	0.769	0.711	0.769	0.711	0.769	0.711
	42	0.318	0.721	0.318	0.663	0.318	0.663	0.318	0.663
	50	0.279	0.697	0.279	0.642	0.279	0.635	0.279	0.635
	100	0.507	0.667	0.507	0.597	0.507	0.585	0.507	0.585

D2, stream	0	1.023	-	1.023	-	1.023	-	1.023	-
	1	0.195	0.686	0.195	0.632	0.195	0.632	0.195	0.632
	2	0.176	0.671	0.176	0.563	0.176	0.563	0.176	0.563
	4	0.187	0.649	0.187	0.510	0.187	0.510	0.187	0.510
	7	0.960	0.625	0.960	0.503	0.960	0.503	0.960	0.503
	14	0.193	0.510	0.193	0.447	0.193	0.447	0.193	0.447
	21	0.795	0.438	0.795	0.405	0.795	0.405	0.795	0.405
	28	0.556	0.429	0.556	0.390	0.556	0.390	0.556	0.390
	42	0.182	0.420	0.182	0.376	0.182	0.366	0.182	0.366
	50	0.161	0.409	0.161	0.366	0.161	0.358	0.161	0.358
	100	0.235	0.371	0.235	0.336	0.235	0.327	0.235	0.327

D3, ditch	0	0.499	-	0.129	-	0.067	-	0.067	-
	1	0.295	0.408	0.076	0.106	0.040	0.055	0.040	0.055
	2	0.069	0.286	0.018	0.074	0.009	0.038	0.009	0.038
	4	0.006	0.154	0.002	0.040	<0.001	0.021	<0.001	0.021
	7	0.002	0.089	<0.001	0.023	<0.001	0.012	<0.001	0.012
	14	<0.001	0.045	<0.001	0.012	<0.001	0.006	<0.001	0.006
	21	<0.001	0.030	<0.001	0.008	<0.001	0.004	<0.001	0.004
	28	<0.001	0.042	<0.001	0.011	<0.001	0.006	<0.001	0.006
	42	<0.001	0.029	<0.001	0.007	<0.001	0.004	<0.001	0.004
	50	<0.001	0.024	<0.001	0.006	<0.001	0.003	<0.001	0.003
	100	<0.001	0.012	<0.001	0.003	<0.001	0.002	<0.001	0.002

D4, pond	0	0.039	-	0.038	-	0.036	-	0.036	-
	1	0.038	0.039	0.037	0.038	0.035	0.036	0.035	0.036
	2	0.038	0.039	0.037	0.038	0.035	0.035	0.035	0.035
	4	0.036	0.038	0.035	0.037	0.033	0.035	0.033	0.035
	7	0.036	0.037	0.035	0.037	0.033	0.035	0.033	0.035
	14	0.037	0.037	0.037	0.036	0.035	0.034	0.035	0.034
	21	0.035	0.037	0.034	0.036	0.032	0.034	0.032	0.034
	28	0.032	0.036	0.031	0.035	0.030	0.033	0.030	0.033

	42	0.029	0.034	0.028	0.033	0.027	0.032	0.027	0.032
	50	0.029	0.033	0.028	0.033	0.027	0.031	0.027	0.031
	100	0.021	0.029	0.020	0.028	0.019	0.027	0.019	0.027
D4, stream	0	0.426	-	0.151	-	0.095	-	0.095	-
	1	<0.001	0.122	<0.001	0.059	0.018	0.059	0.018	0.059
	2	<0.001	0.061	<0.001	0.055	0.084	0.055	0.084	0.055
	4	<0.001	0.044	<0.001	0.044	0.008	0.044	0.008	0.044
	7	<0.001	0.034	<0.001	0.034	0.005	0.034	0.005	0.034
	14	<0.001	0.021	<0.001	0.021	0.022	0.021	0.022	0.021
	21	<0.001	0.018	<0.001	0.018	0.004	0.018	0.004	0.018
	28	<0.001	0.014	<0.001	0.014	<0.001	0.014	<0.001	0.014
	42	<0.001	0.009	<0.001	0.009	<0.001	0.009	<0.001	0.009
	50	<0.001	0.009	<0.001	0.009	0.009	0.009	0.009	0.009
	100	<0.001	0.005	-**	0.005	<0.001	0.005	<0.001	0.005
D5, pond	0	0.060	-	0.059	-	0.058	-	0.058	-
	1	0.059	0.060	0.059	0.059	0.058	0.058	0.058	0.058
	2	0.059	0.060	0.058	0.059	0.057	0.058	0.057	0.058
	4	0.057	0.059	0.056	0.059	0.055	0.058	0.055	0.058
	7	0.055	0.058	0.054	0.058	0.053	0.057	0.053	0.057
	14	0.051	0.056	0.051	0.056	0.050	0.055	0.050	0.055
	21	0.049	0.055	0.048	0.054	0.047	0.053	0.047	0.053
	28	0.046	0.053	0.046	0.052	0.045	0.051	0.045	0.051
	42	0.042	0.050	0.041	0.050	0.040	0.049	0.040	0.049
	50	0.040	0.049	0.039	0.048	0.039	0.047	0.039	0.047
	100	-**	0.039	-**	0.038	-**	0.037	-**	0.037
D5, stream	0	0.460	-	0.162	-	0.101	-	0.101	-
	1	0.003	0.174	0.001	0.062	0.033	0.046	0.033	0.046
	2	<0.001	0.088	<0.001	0.044	0.004	0.044	0.004	0.044
	4	<0.001	0.044	<0.001	0.040	0.022	0.040	0.022	0.040
	7	<0.001	0.034	<0.001	0.034	0.001	0.034	0.001	0.034
	14	<0.001	0.025	<0.001	0.025	0.001	0.025	0.001	0.025
	21	<0.001	0.017	<0.001	0.017	<0.001	0.017	<0.001	0.017
	28	<0.001	0.013	<0.001	0.013	0.002	0.013	0.002	0.013
	42	<0.001	0.009	<0.001	0.009	<0.001	0.009	<0.001	0.009
	50	<0.001	0.008	<0.001	0.008	<0.001	0.008	<0.001	0.008
	100	<0.001	0.005	<0.001	0.005	<0.001	0.005	<0.001	0.005
D6, ditch	0	0.501	-	0.158	-	0.158	-	0.158	-
	1	0.415	0.456	0.062	0.118	0.062	0.117	0.062	0.117
	2	0.309	0.410	0.029	0.106	0.029	0.086	0.029	0.086
	4	0.134	0.309	0.010	0.080	0.010	0.054	0.010	0.054
	7	0.061	0.215	0.003	0.055	0.003	0.034	0.003	0.034
	14	0.017	0.124	<0.001	0.032	<0.001	0.020	<0.001	0.020
	21	0.007	0.086	<0.001	0.022	<0.001	0.014	<0.001	0.014
	28	0.004	0.078	<0.001	0.020	<0.001	0.015	<0.001	0.015
	42	0.002	0.069	0.006	0.018	0.006	0.014	0.006	0.014
	50	0.002	0.059	0.003	0.015	0.003	0.011	0.003	0.011
	100	<0.001	0.033	<0.001	0.011	<0.001	0.009	<0.001	0.009
R1, pond	0	0.066	-	0.063	-	0.057	-	0.031	-
	1	0.064	0.065	0.062	0.062	0.056	0.057	0.031	0.031
	2	0.063	0.064	0.060	0.062	0.055	0.056	0.030	0.031
	4	0.062	0.064	0.059	0.061	0.054	0.055	0.029	0.030
	7	0.059	0.062	0.057	0.059	0.052	0.054	0.028	0.030

	14	0.055	0.060	0.052	0.057	0.047	0.052	0.026	0.028
	21	0.051	0.057	0.048	0.055	0.044	0.050	0.024	0.027
	28	0.049	0.056	0.046	0.053	0.042	0.048	0.023	0.026
	42	0.047	0.053	0.045	0.050	0.041	0.046	0.022	0.025
	50	0.043	0.051	0.041	0.049	0.038	0.045	0.020	0.024
	100	0.042	0.046	0.040	0.044	0.038	0.041	0.019	0.022
R1, stream	0	0.326	-	0.264	-	0.264	-	0.120	-
	1	<0.001	0.211	<0.001	0.211	<0.001	0.211	<0.001	0.096
	2	<0.001	0.106	<0.001	0.106	<0.001	0.106	<0.001	0.048
	4	<0.001	0.053	0.002	0.053	0.002	0.053	<0.001	0.024
	7	<0.001	0.033	<0.001	0.033	<0.001	0.033	<0.001	0.015
	14	<0.001	0.025	0.035	0.025	0.035	0.025	0.001	0.011
	21	<0.001	0.020	<0.001	0.020	<0.001	0.020	<0.001	0.009
	28	<0.001	0.018	<0.001	0.016	<0.001	0.016	<0.001	0.008
	42	<0.001	0.016	<0.001	0.015	<0.001	0.015	<0.001	0.007
	50	<0.001	0.015	<0.001	0.014	<0.001	0.013	<0.001	0.006
	100	<0.001	0.010	<0.001	0.009	<0.001	0.009	<0.001	0.004
R3, stream	0	0.460	-	0.319	-	0.319	-	0.144	-
	1	0.003	0.222	0.001	0.222	0.001	0.222	<0.001	0.102
	2	0.001	0.121	<0.001	0.121	<0.001	0.121	<0.001	0.056
	4	<0.001	0.100	0.001	0.077	0.001	0.077	<0.001	0.035
	7	<0.001	0.058	<0.001	0.044	<0.001	0.044	<0.001	0.020
	14	<0.001	0.032	0.174	0.032	0.174	0.032	0.077	0.015
	21	0.290	0.026	<0.001	0.026	<0.001	0.026	<0.001	0.012
	28	<0.001	0.026	<0.001	0.022	<0.001	0.021	<0.001	0.010
	42	<0.001	0.023	<0.001	0.020	<0.001	0.019	<0.001	0.009
	50	<0.001	0.019	<0.001	0.017	<0.001	0.016	<0.001	0.008
	100	<0.001	0.011	<0.001	0.009	<0.001	0.009	<0.001	0.004
R4, stream	0	0.326	-	0.169	-	0.169	-	0.076	-
	1	<0.001	0.117	<0.001	0.117	<0.001	0.117	<0.001	0.054
	2	<0.001	0.112	<0.001	0.112	<0.001	0.112	<0.001	0.051
	4	<0.001	0.059	0.121	0.059	0.121	0.059	0.055	0.027
	7	<0.001	0.050	<0.001	0.050	<0.001	0.050	<0.001	0.023
	14	<0.001	0.037	<0.001	0.034	<0.001	0.033	<0.001	0.015
	21	<0.001	0.025	<0.001	0.022	<0.001	0.022	<0.001	0.010
	28	<0.001	0.021	<0.001	0.018	<0.001	0.017	<0.001	0.008
	42	<0.001	0.014	<0.001	0.012	<0.001	0.011	<0.001	0.005
	50	<0.001	0.012	<0.001	0.010	<0.001	0.009	<0.001	0.005
	100	<0.001	0.006	0.082	0.005	0.082	0.005	0.037	0.002

* Time = days following maximum concentration (Actual) or time interval (TWA)
** Simulated time too short for calculation (might not be applicable for this table)
D = Drift mitigation by no-spray buffer zones [m]
R = Runoff mitigation by vegetated filter strips [m]

Table B.8.2.5-54: Step 3 and 4, Tier 2: $PEC_{sw,act}$ and $PEC_{sw,twa}$ of metconazole following application of 1 x 72 g a.s. ha^{-1} to winter oil seed rape, autumn application

Location	Time* [d]	Step 3		Step 4: Buffer zones and mitigation					
		Edge-of-field		05mD		10mD		10mD+R	
		PEC_{sw} [µg L^{-1}]		PEC_{sw} [µg L^{-1}]		PEC_{sw} [µg L^{-1}]		PEC_{sw} [µg L^{-1}]	
		Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
D2, ditch	0	1.527	-	1.527	-	1.527	-	1.527	-
	1	0.341	1.108	0.341	1.108	0.341	1.108	0.341	1.108
	2	0.306	0.852	0.306	0.852	0.306	0.852	0.306	0.852

	4	0.287	0.686	0.287	0.664	0.287	0.663	0.287	0.663
	7	0.267	0.638	0.267	0.635	0.267	0.635	0.267	0.635
	14	0.247	0.631	0.247	0.631	0.247	0.631	0.247	0.631
	21	0.228	0.606	0.228	0.605	0.228	0.605	0.228	0.605
	28	-**	0.580	-**	0.580	-**	0.579	-**	0.579
	42	-**	0.574	-**	0.561	-**	0.561	-**	0.561
	50	-**	0.576	-**	0.545	-**	0.545	-**	0.545
	100	-**	0.498	-**	0.471	-**	0.468	-**	0.468
D2, stream	0	0.984	-	0.984	-	0.984	-	0.984	-
	1	0.215	0.663	0.215	0.663	0.215	0.663	0.215	0.663
	2	0.178	0.466	0.178	0.447	0.178	0.447	0.178	0.447
	4	0.171	0.444	0.171	0.385	0.171	0.385	0.171	0.385
	7	0.158	0.422	0.158	0.380	0.158	0.380	0.158	0.380
	14	0.148	0.380	0.148	0.370	0.148	0.370	0.148	0.370
	21	0.142	0.354	0.142	0.354	0.141	0.354	0.141	0.354
	28	-**	0.335	-**	0.335	-**	0.335	-**	0.335
	42	-**	0.331	-**	0.318	-**	0.318	-**	0.318
	50	-**	0.335	-**	0.314	-**	0.314	-**	0.314
	100	-**	0.293	-**	0.273	-**	0.272	-**	0.272
D3, ditch	0	0.458	-	0.124	-	0.066	-	0.066	-
	1	0.342	0.400	0.093	0.108	0.049	0.057	0.049	0.057
	2	0.174	0.330	0.047	0.089	0.025	0.047	0.025	0.047
	4	0.023	0.202	0.006	0.055	0.003	0.029	0.003	0.029
	7	0.005	0.120	0.001	0.032	<0.001	0.017	<0.001	0.017
	14	0.001	0.061	<0.001	0.017	<0.001	0.009	<0.001	0.009
	21	<0.001	0.041	<0.001	0.011	<0.001	0.006	<0.001	0.006
	28	<0.001	0.031	<0.001	0.008	<0.001	0.004	<0.001	0.004
	42	<0.001	0.021	<0.001	0.006	<0.001	0.003	<0.001	0.003
	50	<0.001	0.017	<0.001	0.005	<0.001	0.003	<0.001	0.003
	100	<0.001	0.009	<0.001	0.002	<0.001	0.001	<0.001	0.001
D4, pond	0	0.057	-	0.056	-	0.055	-	0.055	-
	1	0.057	0.057	0.056	0.056	0.055	0.055	0.055	0.055
	2	0.056	0.057	0.056	0.056	0.054	0.055	0.054	0.055
	4	0.055	0.057	0.054	0.056	0.053	0.055	0.053	0.055
	7	0.053	0.056	0.053	0.055	0.051	0.054	0.051	0.054
	14	0.049	0.055	0.048	0.054	0.047	0.053	0.047	0.053
	21	0.046	0.055	0.045	0.054	0.044	0.052	0.044	0.052
	28	0.043	0.054	0.042	0.053	0.041	0.052	0.041	0.052
	42	0.042	0.051	0.042	0.050	0.041	0.049	0.041	0.049
	50	0.039	0.050	0.039	0.049	0.038	0.048	0.038	0.048
	100	0.029	0.044	0.029	0.043	0.028	0.042	0.028	0.042
D4, stream	0	0.394	-	0.198	-	0.198	-	0.198	-
	1	<0.001	0.113	0.030	0.112	0.030	0.112	0.030	0.112
	2	<0.001	0.100	0.165	0.100	0.165	0.100	0.165	0.100
	4	<0.001	0.079	0.014	0.079	0.014	0.079	0.014	0.079
	7	<0.001	0.056	0.008	0.056	0.008	0.056	0.008	0.056
	14	<0.001	0.034	0.036	0.034	0.036	0.034	0.036	0.034
	21	<0.001	0.029	0.008	0.029	0.008	0.029	0.008	0.029
	28	<0.001	0.023	<0.001	0.023	<0.001	0.023	<0.001	0.023
	42	<0.001	0.016	<0.001	0.016	<0.001	0.016	<0.001	0.016
	50	<0.001	0.014	0.016	0.014	0.016	0.014	0.016	0.014
	100	<0.001	0.008	<0.001	0.008	<0.001	0.008	<0.001	0.008

D5, pond	0	0.042	-	0.041	-	0.040	-	0.040	-
	1	0.041	0.042	0.041	0.041	0.040	0.040	0.040	0.040
	2	0.041	0.042	0.040	0.041	0.039	0.040	0.039	0.040
	4	0.040	0.041	0.039	0.041	0.038	0.040	0.038	0.040
	7	0.039	0.041	0.038	0.040	0.037	0.039	0.037	0.039
	14	0.036	0.040	0.036	0.039	0.035	0.038	0.035	0.038
	21	0.035	0.039	0.034	0.038	0.033	0.037	0.033	0.037
	28	0.033	0.038	0.033	0.037	0.032	0.036	0.032	0.036
	42	0.029	0.036	0.029	0.035	0.028	0.034	0.028	0.034
	50	0.028	0.035	0.027	0.034	0.026	0.033	0.026	0.033
	100	-**	0.029	-**	0.028	-**	0.027	-**	0.027

D5, stream	0	0.425	-	0.155	-	0.104	-	0.104	-
	1	0.003	0.161	0.001	0.059	0.019	0.036	0.019	0.036
	2	<0.001	0.081	<0.001	0.031	0.012	0.031	0.012	0.031
	4	<0.001	0.041	<0.001	0.022	0.008	0.022	0.008	0.022
	7	<0.001	0.023	<0.001	0.019	0.004	0.019	0.004	0.019
	14	<0.001	0.014	<0.001	0.014	0.002	0.014	0.002	0.014
	21	<0.001	0.011	<0.001	0.011	<0.001	0.011	<0.001	0.011
	28	<0.001	0.009	<0.001	0.009	<0.001	0.009	<0.001	0.009
	42	0.001	0.006	0.001	0.006	0.001	0.006	0.001	0.006
	50	0.001	0.006	0.001	0.006	0.002	0.006	0.002	0.006
	100	<0.001	0.005	<0.001	0.004	-**	0.004	-**	0.004

R1, pond	0	0.050	-	0.049	-	0.048	-	0.022	-
	1	0.049	0.049	0.048	0.048	0.046	0.047	0.021	0.021
	2	0.048	0.049	0.047	0.048	0.045	0.046	0.021	0.021
	4	0.046	0.048	0.045	0.047	0.044	0.045	0.020	0.021
	7	0.044	0.047	0.043	0.046	0.042	0.044	0.019	0.020
	14	0.041	0.044	0.040	0.044	0.039	0.042	0.018	0.019
	21	0.038	0.043	0.037	0.042	0.036	0.041	0.016	0.019
	28	0.035	0.041	0.035	0.040	0.033	0.039	0.015	0.018
	42	0.040	0.040	0.039	0.040	0.038	0.038	0.017	0.017
	50	0.037	0.040	0.036	0.039	0.035	0.038	0.016	0.017
	100	0.024	0.035	0.024	0.034	0.023	0.033	0.011	0.015

R1, stream	0	0.387	-	0.387	-	0.387	-	0.173	-
	1	<0.001	0.164	<0.001	0.164	<0.001	0.164	<0.001	0.073
	2	<0.001	0.115	<0.001	0.115	<0.001	0.115	<0.001	0.052
	4	<0.001	0.080	<0.001	0.080	<0.001	0.080	<0.001	0.036
	7	<0.001	0.046	<0.001	0.046	<0.001	0.046	<0.001	0.020
	14	0.043	0.023	0.043	0.023	0.043	0.023	0.017	0.010
	21	0.004	0.015	0.004	0.015	0.004	0.015	0.002	0.007
	28	<0.001	0.012	<0.001	0.012	<0.001	0.012	<0.001	0.005
	42	<0.001	0.012	<0.001	0.012	<0.001	0.012	<0.001	0.005
	50	<0.001	0.010	<0.001	0.010	<0.001	0.010	<0.001	0.004
	100	<0.001	0.007	<0.001	0.006	<0.001	0.006	<0.001	0.003

R3, stream	0	0.550	-	0.550	-	0.550	-	0.250	-
	1	0.038	0.376	0.038	0.376	0.038	0.376	0.017	0.172
	2	0.001	0.289	0.001	0.289	0.001	0.289	<0.001	0.131
	4	<0.001	0.146	<0.001	0.146	<0.001	0.146	<0.001	0.066
	7	<0.001	0.096	<0.001	0.096	<0.001	0.096	<0.001	0.043
	14	<0.001	0.056	<0.001	0.051	<0.001	0.050	<0.001	0.023
	21	<0.001	0.038	<0.001	0.034	<0.001	0.034	<0.001	0.016
	28	<0.001	0.045	<0.001	0.045	<0.001	0.045	<0.001	0.020
	42	0.110	0.033	0.110	0.031	0.110	0.031	0.050	0.014

	50	<0.001	0.029	<0.001	0.028	<0.001	0.028	<0.001	0.013
	100	<0.001	0.016	<0.001	0.016	<0.001	0.015	<0.001	0.007

* Time = days following maximum concentration (Actual) or time interval (TWA)
** Simulated time too short for calculation (might not be applicable for this table)
D = Drift mitigation by no-spray buffer zones [m]
R = Runoff mitigation by vegetated filter strips [m]

Table B.8.2.5-55: Step 3 and 4, Tier 2: $PEC_{sw,act}$ and $PEC_{sw,twa}$ of metconazole following application of 2 x 72 g a.s. ha^{-1} to winter oil seed rape, autumn application

Location	Time* [d]	Step 3		Step 4: Buffer zones and mitigation					
		Edge-of-field		05mD		10mD		10mD+R	
		PEC_{sw} [µg L^{-1}]		PEC_{sw} [µg L^{-1}]		PEC_{sw} [µg L^{-1}]		PEC_{sw} [µg L^{-1}]	
		Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
D2, ditch	0	1.527	-	1.527	-	1.527	-	1.527	-
	1	0.342	1.108	0.341	1.108	0.341	1.108	0.341	1.108
	2	0.306	0.852	0.306	0.852	0.306	0.852	0.306	0.852
	4	0.288	0.678	0.287	0.664	0.287	0.663	0.287	0.663
	7	0.268	0.635	0.267	0.635	0.267	0.635	0.267	0.635
	14	0.249	0.631	0.248	0.631	0.247	0.631	0.247	0.631
	21	0.231	0.605	0.228	0.605	0.228	0.605	0.228	0.605
	28	-**	0.580	-**	0.580	-**	0.579	-**	0.579
	42	-**	0.565	-**	0.561	-**	0.561	-**	0.561
	50	-**	0.566	-**	0.545	-**	0.545	-**	0.545
	100	-**	0.493	-**	0.469	-**	0.468	-**	0.468
D2, stream	0	0.984	-	0.984	-	0.984	-	0.984	-
	1	0.215	0.663	0.215	0.663	0.215	0.663	0.215	0.663
	2	0.178	0.447	0.178	0.447	0.178	0.447	0.178	0.447
	4	0.171	0.396	0.171	0.385	0.171	0.385	0.171	0.385
	7	0.158	0.380	0.158	0.380	0.158	0.380	0.158	0.380
	14	0.148	0.370	0.148	0.370	0.148	0.370	0.148	0.370
	21	0.142	0.354	0.142	0.354	0.141	0.354	0.141	0.354
	28	-**	0.335	-**	0.335	-**	0.335	-**	0.335
	42	-**	0.321	-**	0.318	-**	0.318	-**	0.318
	50	-**	0.326	-**	0.314	-**	0.314	-**	0.314
	100	-**	0.289	-**	0.272	-**	0.272	-**	0.272
D3, ditch	0	0.400	-	0.104	-	0.054	-	0.054	-
	1	0.299	0.349	0.078	0.091	0.040	0.047	0.040	0.047
	2	0.152	0.288	0.039	0.075	0.020	0.039	0.020	0.039
	4	0.020	0.176	0.005	0.046	0.003	0.024	0.003	0.024
	7	0.004	0.105	0.001	0.027	<0.001	0.014	<0.001	0.014
	14	0.001	0.053	<0.001	0.014	<0.001	0.007	<0.001	0.007
	21	<0.001	0.036	<0.001	0.009	<0.001	0.005	<0.001	0.005
	28	<0.001	0.027	<0.001	0.007	<0.001	0.004	<0.001	0.004
	42	<0.001	0.018	<0.001	0.005	<0.001	0.002	<0.001	0.002
	50	<0.001	0.015	<0.001	0.004	<0.001	0.002	<0.001	0.002
	100	<0.001	0.008	<0.001	0.002	<0.001	0.001	<0.001	0.001
D4, pond	0	0.056	-	0.056	-	0.054	-	0.054	-
	1	0.056	0.056	0.055	0.056	0.054	0.054	0.054	0.054
	2	0.055	0.056	0.055	0.055	0.053	0.054	0.053	0.054
	4	0.054	0.056	0.053	0.055	0.052	0.054	0.052	0.054
	7	0.052	0.055	0.052	0.054	0.051	0.053	0.051	0.053
	14	0.048	0.054	0.048	0.053	0.047	0.052	0.047	0.052
	21	0.045	0.054	0.044	0.053	0.043	0.052	0.043	0.052

	28	0.042	0.053	0.041	0.052	0.040	0.051	0.040	0.051
	42	0.042	0.050	0.041	0.049	0.040	0.048	0.040	0.048
	50	0.039	0.049	0.038	0.048	0.038	0.047	0.038	0.047
	100	0.039	0.043	0.037	0.043	0.034	0.042	0.034	0.042

D4, stream	0	0.341	-	0.198	-	0.198	-	0.198	-
	1	<0.001	0.112	0.030	0.112	0.030	0.112	0.030	0.112
	2	<0.001	0.100	0.165	0.100	0.165	0.100	0.165	0.100
	4	<0.001	0.079	0.014	0.079	0.014	0.079	0.014	0.079
	7	<0.001	0.056	0.008	0.056	0.008	0.056	0.008	0.056
	14	<0.001	0.034	0.036	0.034	0.036	0.034	0.036	0.034
	21	<0.001	0.029	0.008	0.029	0.008	0.029	0.008	0.029
	28	<0.001	0.023	<0.001	0.023	<0.001	0.023	<0.001	0.023
	42	<0.001	0.016	<0.001	0.016	<0.001	0.016	<0.001	0.016
	50	<0.001	0.014	0.016	0.014	0.016	0.014	0.016	0.014
	100	<0.001	0.009	<0.001	0.008	<0.001	0.008	<0.001	0.008

D5, pond	0	0.041	-	0.040	-	0.039	-	0.039	-
	1	0.041	0.041	0.040	0.040	0.039	0.039	0.039	0.039
	2	0.040	0.041	0.040	0.040	0.039	0.039	0.039	0.039
	4	0.039	0.041	0.039	0.040	0.038	0.039	0.038	0.039
	7	0.038	0.040	0.038	0.040	0.037	0.039	0.037	0.039
	14	0.036	0.039	0.035	0.038	0.034	0.038	0.034	0.038
	21	0.034	0.038	0.033	0.037	0.033	0.036	0.033	0.036
	28	0.032	0.037	0.032	0.036	0.031	0.035	0.031	0.035
	42	0.029	0.035	0.028	0.035	0.028	0.034	0.028	0.034
	50	0.027	0.034	0.027	0.034	0.026	0.033	0.026	0.033
	100	-**	0.028	-**	0.028	-**	0.027	-**	0.027

D5, stream	0	0.368	-	0.130	-	0.104	-	0.104	-
	1	0.002	0.139	<0.001	0.049	0.019	0.036	0.019	0.036
	2	<0.001	0.070	<0.001	0.031	0.012	0.031	0.012	0.031
	4	<0.001	0.035	<0.001	0.022	0.008	0.022	0.008	0.022
	7	<0.001	0.020	<0.001	0.019	0.004	0.019	0.004	0.019
	14	<0.001	0.014	<0.001	0.014	0.002	0.014	0.002	0.014
	21	<0.001	0.011	<0.001	0.011	<0.001	0.011	<0.001	0.011
	28	<0.001	0.009	<0.001	0.009	<0.001	0.009	<0.001	0.009
	42	0.001	0.006	0.001	0.006	0.001	0.006	0.001	0.006
	50	0.001	0.006	0.001	0.006	0.002	0.006	0.002	0.006
	100	<0.001	0.005	<0.001	0.004	-**	0.004	-**	0.004

R1, pond	0	0.059	-	0.057	-	0.055	-	0.026	-
	1	0.058	0.058	0.056	0.057	0.054	0.054	0.026	0.026
	2	0.057	0.058	0.055	0.056	0.053	0.054	0.025	0.026
	4	0.055	0.057	0.054	0.056	0.052	0.053	0.024	0.025
	7	0.054	0.056	0.052	0.055	0.050	0.052	0.024	0.025
	14	0.050	0.054	0.049	0.053	0.047	0.050	0.022	0.024
	21	0.047	0.052	0.046	0.051	0.044	0.049	0.021	0.023
	28	0.044	0.050	0.043	0.049	0.041	0.047	0.020	0.022
	42	-**	0.047	-**	0.046	-**	0.044	-**	0.021
	50	-**	0.045	-**	0.044	-**	0.042	-**	0.020
	100	-**	0.041	-**	0.040	-**	0.038	-**	0.018

R1, stream	0	0.397	-	0.397	-	0.397	-	0.177	-
	1	<0.001	0.209	<0.001	0.209	<0.001	0.209	<0.001	0.095
	2	<0.001	0.117	<0.001	0.117	<0.001	0.117	<0.001	0.053
	4	<0.001	0.081	<0.001	0.081	<0.001	0.081	<0.001	0.036

	7	<0.001	0.046	<0.001	0.046	<0.001	0.046	<0.001	0.021
	14	0.044	0.023	0.044	0.023	0.044	0.023	0.017	0.010
	21	0.004	0.016	0.004	0.016	0.004	0.016	0.002	0.007
	28	<0.001	0.012	<0.001	0.012	<0.001	0.012	<0.001	0.005
	42	<0.001	0.012	<0.001	0.012	<0.001	0.012	<0.001	0.005
	50	<0.001	0.010	<0.001	0.010	<0.001	0.010	<0.001	0.005
	100	<0.001	0.007	<0.001	0.006	<0.001	0.006	<0.001	0.003

R3, stream	0	0.553	-	0.553	-	0.553	-	0.252	-
	1	0.038	0.378	0.038	0.378	0.038	0.378	0.017	0.173
	2	0.001	0.291	0.001	0.291	0.001	0.291	<0.001	0.132
	4	<0.001	0.146	<0.001	0.146	<0.001	0.146	<0.001	0.066
	7	<0.001	0.097	<0.001	0.097	<0.001	0.097	<0.001	0.043
	14	<0.001	0.055	<0.001	0.051	<0.001	0.050	<0.001	0.023
	21	<0.001	0.037	<0.001	0.034	<0.001	0.034	<0.001	0.015
	28	<0.001	0.045	<0.001	0.045	<0.001	0.045	<0.001	0.020
	42	0.110	0.033	0.110	0.031	0.110	0.031	0.050	0.014
	50	<0.001	0.029	<0.001	0.028	<0.001	0.028	<0.001	0.013
	100	<0.001	0.016	<0.001	0.016	<0.001	0.015	<0.001	0.007

* Time = days following maximum concentration (Actual) or time interval (TWA)
** Simulated time too short for calculation (might not be applicable for this table)
D = Drift mitigation by no-spray buffer zones [m]
R = Runoff mitigation by vegetated filter strips [m]

Table B.8.2.5-56: Step 3 and 4, Tier 2: $PEC_{sw,act}$ and $PEC_{sw,twa}$ of metconazole following application of 1 x 72 g a.s. ha^{-1} to winter oil seed rape, spring application

Location	Time* [d]	Step 3		Step 4: Buffer zones and mitigation					
		Edge-of-field		05mD		10mD		10mD+R	
		PEC_{sw} [µg L^{-1}]		PEC_{sw} [µg L^{-1}]		PEC_{sw} [µg L^{-1}]		PEC_{sw} [µg L^{-1}]	
		Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
D2, ditch	0	0.767	-	0.767	-	0.767	-	0.767	-
	1	0.171	0.620	0.171	0.491	0.171	0.491	0.171	0.491
	2	0.143	0.602	0.143	0.447	0.143	0.447	0.143	0.447
	4	0.128	0.562	0.127	0.428	0.127	0.428	0.127	0.428
	7	0.132	0.448	0.132	0.406	0.132	0.406	0.132	0.406
	14	0.170	0.387	0.170	0.346	0.170	0.346	0.170	0.346
	21	0.185	0.345	0.185	0.332	0.185	0.332	0.185	0.332
	28	0.119	0.326	0.119	0.311	0.119	0.311	0.119	0.311
	42	0.119	0.321	0.119	0.290	0.119	0.284	0.119	0.284
	50	0.260	0.305	0.260	0.279	0.260	0.274	0.260	0.274
	100	0.246	0.263	0.246	0.249	0.246	0.247	0.246	0.247
D2, stream	0	0.504	-	0.478	-	0.478	-	0.478	-
	1	0.469	0.485	0.079	0.293	0.079	0.293	0.079	0.293
	2	0.445	0.471	0.104	0.262	0.104	0.262	0.104	0.262
	4	0.147	0.369	0.075	0.246	0.075	0.246	0.075	0.246
	7	0.166	0.264	0.075	0.234	0.075	0.234	0.075	0.234
	14	0.239	0.222	0.148	0.198	0.148	0.198	0.148	0.198
	21	0.108	0.193	0.084	0.184	0.084	0.184	0.084	0.184
	28	0.119	0.180	0.068	0.171	0.068	0.171	0.068	0.171
	42	0.131	0.179	0.063	0.164	0.063	0.159	0.063	0.159
	50	0.113	0.170	0.198	0.157	0.198	0.153	0.198	0.153
	100	0.094	0.146	0.113	0.140	0.113	0.138	0.113	0.138
D3, ditch	0	0.455	-	0.123	-	0.065	-	0.065	-
	1	0.188	0.341	0.051	0.092	0.027	0.049	0.027	0.049

	2	0.021	0.210	0.006	0.057	0.003	0.030	0.003	0.030
	4	0.003	0.108	<0.001	0.029	<0.001	0.016	<0.001	0.016
	7	<0.001	0.062	<0.001	0.017	<0.001	0.009	<0.001	0.009
	14	<0.001	0.032	<0.001	0.009	<0.001	0.005	<0.001	0.005
	21	<0.001	0.021	<0.001	0.006	<0.001	0.003	<0.001	0.003
	28	<0.001	0.016	<0.001	0.004	<0.001	0.002	<0.001	0.002
	42	<0.001	0.011	<0.001	0.003	<0.001	0.002	<0.001	0.002
	50	<0.001	0.009	<0.001	0.002	<0.001	0.001	<0.001	0.001
	100	<0.001	0.005	<0.001	0.001	<0.001	<0.001	<0.001	<0.001
D4, pond	0	0.025	-	0.025	-	0.024	-	0.024	-
	1	0.025	0.025	0.025	0.025	0.024	0.024	0.024	0.024
	2	0.025	0.025	0.025	0.025	0.024	0.024	0.024	0.024
	4	0.024	0.025	0.024	0.025	0.023	0.024	0.023	0.024
	7	0.023	0.025	0.023	0.025	0.023	0.024	0.023	0.024
	14	0.025	0.024	0.021	0.024	0.021	0.023	0.021	0.023
	21	0.023	0.024	0.020	0.024	0.019	0.023	0.019	0.023
	28	0.021	0.024	0.019	0.023	0.018	0.023	0.018	0.023
	42	0.019	0.023	0.018	0.022	0.018	0.022	0.018	0.022
	50	0.019	0.022	0.017	0.022	0.017	0.021	0.017	0.021
	100	0.014	0.019	0.013	0.019	0.012	0.018	0.012	0.018
D4, stream	0	0.350	-	0.128	-	0.080	-	0.080	-
	1	<0.001	0.049	<0.001	0.049	0.014	0.049	0.014	0.049
	2	<0.001	0.045	<0.001	0.045	0.070	0.045	0.070	0.045
	4	<0.001	0.035	<0.001	0.035	0.006	0.035	0.006	0.035
	7	<0.001	0.025	-**	0.025	0.004	0.025	0.004	0.025
	14	-**	0.015	-**	0.015	0.016	0.015	0.016	0.015
	21	-**	0.013	-**	0.013	0.003	0.013	0.003	0.013
	28	-**	0.010	-**	0.010	<0.001	0.010	<0.001	0.010
	42	-**	0.007	-**	0.007	<0.001	0.007	<0.001	0.007
	50	-**	0.006	-**	0.006	0.006	0.006	0.006	0.006
	100	-**	0.004	-**	0.004	<0.001	0.004	<0.001	0.004
D5, pond	0	0.021	-	0.019	-	0.018	-	0.018	-
	1	0.021	0.021	0.019	0.019	0.018	0.018	0.018	0.018
	2	0.020	0.021	0.018	0.019	0.018	0.018	0.018	0.018
	4	0.019	0.020	0.017	0.018	0.017	0.018	0.017	0.018
	7	0.018	0.020	0.017	0.018	0.017	0.018	0.017	0.018
	14	0.017	0.019	0.015	0.017	0.015	0.017	0.015	0.017
	21	0.016	0.018	0.014	0.017	0.015	0.017	0.015	0.017
	28	0.015	0.017	0.013	0.016	0.014	0.016	0.014	0.016
	42	0.013	0.016	0.012	0.016	0.012	0.015	0.012	0.015
	50	0.012	0.016	0.011	0.015	0.011	0.015	0.011	0.015
	100	0.010	0.013	0.009	0.012	-**	0.012	-**	0.012
D5, stream	0	0.296	-	0.108	-	0.058	-	0.058	-
	1	<0.001	0.015	<0.001	0.015	<0.001	0.015	<0.001	0.015
	2	<0.001	0.014	<0.001	0.014	<0.001	0.014	<0.001	0.014
	4	<0.001	0.012	<0.001	0.012	<0.001	0.012	<0.001	0.012
	7	<0.001	0.010	<0.001	0.010	<0.001	0.010	<0.001	0.010
	14	<0.001	0.007	<0.001	0.007	<0.001	0.007	<0.001	0.007
	21	<0.001	0.005	<0.001	0.005	<0.001	0.005	<0.001	0.005
	28	<0.001	0.004	<0.001	0.004	<0.001	0.004	<0.001	0.004
	42	<0.001	0.003	<0.001	0.003	<0.001	0.003	<0.001	0.003
	50	<0.001	0.002	<0.001	0.002	<0.001	0.002	<0.001	0.002
	100	-**	0.001	-**	0.001	-**	0.001	-**	0.001

R1, pond	0	0.034	-	0.033	-	0.032	-	0.015	-
	1	0.034	0.034	0.033	0.033	0.031	0.032	0.015	0.015
	2	0.033	0.034	0.032	0.033	0.031	0.031	0.015	0.015
	4	0.032	0.033	0.031	0.032	0.030	0.031	0.014	0.015
	7	0.031	0.033	0.030	0.032	0.029	0.030	0.014	0.014
	14	0.029	0.031	0.028	0.031	0.027	0.029	0.013	0.014
	21	0.027	0.030	0.026	0.030	0.025	0.028	0.012	0.013
	28	0.027	0.029	0.026	0.029	0.025	0.028	0.012	0.013
	42	0.025	0.028	0.025	0.027	0.024	0.026	0.011	0.013
	50	0.024	0.028	0.023	0.027	0.022	0.026	0.010	0.013
	100	0.018	0.026	0.017	0.025	0.017	0.024	0.008	0.012

R1, stream	0	0.301	-	0.295	-	0.295	-	0.134	-
	1	<0.001	0.152	<0.001	0.152	<0.001	0.152	<0.001	0.069
	2	<0.001	0.076	<0.001	0.076	<0.001	0.076	<0.001	0.034
	4	<0.001	0.038	<0.001	0.038	<0.001	0.038	<0.001	0.017
	7	<0.001	0.023	<0.001	0.023	<0.001	0.023	<0.001	0.011
	14	<0.001	0.018	<0.001	0.018	<0.001	0.018	<0.001	0.008
	21	<0.001	0.014	<0.001	0.014	<0.001	0.014	<0.001	0.006
	28	<0.001	0.012	<0.001	0.012	<0.001	0.012	<0.001	0.005
	42	<0.001	0.009	<0.001	0.009	<0.001	0.009	<0.001	0.004
	50	<0.001	0.009	<0.001	0.009	<0.001	0.009	<0.001	0.004
	100	<0.001	0.007	<0.001	0.006	<0.001	0.006	<0.001	0.003

R3, stream	0	0.425	-	0.273	-	0.273	-	0.120	-
	1	0.002	0.154	0.001	0.130	0.001	0.130	<0.001	0.058
	2	<0.001	0.077	<0.001	0.066	<0.001	0.066	<0.001	0.030
	4	<0.001	0.039	<0.001	0.038	<0.001	0.038	<0.001	0.017
	7	<0.001	0.026	<0.001	0.026	<0.001	0.026	<0.001	0.012
	14	<0.001	0.021	<0.001	0.016	<0.001	0.016	<0.001	0.007
	21	<0.001	0.014	<0.001	0.011	<0.001	0.011	<0.001	0.005
	28	<0.001	0.010	<0.001	0.008	<0.001	0.008	<0.001	0.004
	42	<0.001	0.007	<0.001	0.007	<0.001	0.007	<0.001	0.003
	50	<0.001	0.007	<0.001	0.007	<0.001	0.007	<0.001	0.003
	100	<0.001	0.004	<0.001	0.004	<0.001	0.004	<0.001	0.002

* Time = days following maximum concentration (Actual) or time interval (TWA)
** Simulated time too short for calculation (might not be applicable for this table)
D = Drift mitigation by no-spray buffer zones [m]
R = Runoff mitigation by vegetated filter strips [m]

Table B.8.2.5-57: Step 3 and 4, Tier 2: $PEC_{sw,act}$ and $PEC_{sw,twa}$ of metconazole following application of 2 x 72 g a.s. ha^{-1} to winter oil seed rape, spring application

Location	Time* [d]	Step 3		Step 4: Buffer zones and mitigation					
		Edge-of-field		05mD		10mD		10mD+R	
		PEC_{sw} [µg L^{-1}]		PEC_{sw} [µg L^{-1}]		PEC_{sw} [µg L^{-1}]		PEC_{sw} [µg L^{-1}]	
		Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
D2, ditch	0	1.587	-	1.587	-	1.587	-	1.587	-
	1	0.360	1.011	0.360	1.011	0.360	1.011	0.360	1.011
	2	0.299	0.941	0.299	0.941	0.299	0.941	0.299	0.941
	4	0.263	0.887	0.263	0.887	0.263	0.887	0.263	0.887
	7	0.276	0.845	0.276	0.845	0.276	0.845	0.276	0.845
	14	0.362	0.726	0.362	0.726	0.362	0.726	0.362	0.726
	21	0.403	0.702	0.403	0.702	0.403	0.702	0.403	0.702
	28	0.249	0.657	0.248	0.657	0.248	0.657	0.248	0.657
	42	0.251	0.626	0.251	0.588	0.251	0.588	0.251	0.588

	50	0.566	0.596	0.566	0.578	0.566	0.578	0.566	0.578
	100	0.533	0.517	0.533	0.492	0.533	0.488	0.533	0.488

D2, stream	0	0.988	-	0.988	-	0.988	-	0.988	-
	1	0.164	0.606	0.164	0.606	0.164	0.606	0.164	0.606
	2	0.222	0.546	0.222	0.546	0.222	0.546	0.222	0.546
	4	0.153	0.513	0.153	0.513	0.153	0.513	0.153	0.513
	7	0.154	0.488	0.154	0.488	0.154	0.488	0.154	0.488
	14	0.321	0.416	0.321	0.416	0.321	0.416	0.321	0.416
	21	0.182	0.390	0.182	0.390	0.182	0.390	0.182	0.390
	28	0.142	0.365	0.142	0.365	0.142	0.365	0.142	0.365
	42	0.129	0.327	0.129	0.319	0.129	0.319	0.129	0.319
	50	0.429	0.312	0.429	0.306	0.429	0.306	0.429	0.306
	100	0.248	0.273	0.248	0.267	0.248	0.266	0.248	0.266

D3, ditch	0	0.398	-	0.104	-	0.054	-	0.054	-
	1	0.191	0.309	0.050	0.080	0.026	0.042	0.026	0.042
	2	0.027	0.198	0.007	0.052	0.004	0.027	0.004	0.027
	4	0.003	0.103	<0.001	0.027	<0.001	0.014	<0.001	0.014
	7	0.001	0.060	<0.001	0.016	<0.001	0.008	<0.001	0.008
	14	<0.001	0.030	<0.001	0.008	<0.001	0.004	<0.001	0.004
	21	<0.001	0.037	<0.001	0.010	<0.001	0.005	<0.001	0.005
	28	<0.001	0.029	<0.001	0.008	<0.001	0.004	<0.001	0.004
	42	<0.001	0.019	<0.001	0.005	<0.001	0.003	<0.001	0.003
	50	<0.001	0.016	<0.001	0.004	<0.001	0.002	<0.001	0.002
	100	<0.001	0.008	<0.001	0.002	<0.001	0.001	<0.001	0.001

D4, pond	0	0.047	-	0.047	-	0.046	-	0.046	-
	1	0.047	0.047	0.046	0.047	0.045	0.046	0.045	0.046
	2	0.047	0.047	0.046	0.047	0.045	0.045	0.045	0.045
	4	0.046	0.047	0.045	0.046	0.044	0.045	0.044	0.045
	7	0.044	0.046	0.044	0.046	0.043	0.045	0.043	0.045
	14	0.041	0.045	0.040	0.045	0.039	0.044	0.039	0.044
	21	0.038	0.045	0.038	0.044	0.037	0.043	0.037	0.043
	28	0.036	0.044	0.035	0.044	0.034	0.042	0.034	0.042
	42	0.036	0.042	0.036	0.042	0.035	0.040	0.035	0.040
	50	0.034	0.041	0.033	0.041	0.032	0.040	0.032	0.040
	100	0.025	0.036	0.025	0.036	0.024	0.035	0.024	0.035

D4, stream	0	0.332	-	0.140	-	0.140	-	0.140	-
	1	<0.001	0.087	0.026	0.087	0.026	0.087	0.026	0.087
	2	<0.001	0.080	0.122	0.080	0.122	0.080	0.122	0.080
	4	<0.001	0.064	0.012	0.064	0.012	0.064	0.012	0.064
	7	<0.001	0.046	0.008	0.046	0.008	0.046	0.008	0.046
	14	<0.001	0.028	0.031	0.028	0.031	0.028	0.031	0.028
	21	<0.001	0.025	0.008	0.025	0.008	0.025	0.008	0.025
	28	<0.001	0.020	<0.001	0.020	<0.001	0.020	<0.001	0.020
	42	<0.001	0.013	<0.001	0.013	<0.001	0.013	<0.001	0.013
	50	<0.001	0.013	0.014	0.013	0.014	0.013	0.014	0.013
	100	-**	0.007	<0.001	0.007	<0.001	0.007	<0.001	0.007

D5, pond	0	0.047	-	0.046	-	0.046	-	0.046	-
	1	0.046	0.047	0.046	0.046	0.046	0.046	0.046	0.046
	2	0.046	0.047	0.045	0.046	0.045	0.046	0.045	0.046
	4	0.045	0.046	0.044	0.046	0.044	0.045	0.044	0.045
	7	0.043	0.046	0.043	0.045	0.042	0.045	0.042	0.045
	14	0.040	0.044	0.040	0.044	0.039	0.043	0.039	0.043

	21	0.038	0.043	0.038	0.042	0.037	0.042	0.037	0.042
	28	0.036	0.041	0.036	0.041	0.035	0.041	0.035	0.041
	42	0.032	0.039	0.032	0.039	0.031	0.038	0.031	0.038
	50	0.030	0.038	0.030	0.038	0.030	0.037	0.030	0.037
	100	-**	0.030	-**	0.030	-**	0.029	-**	0.029
D5, stream	0	0.314	-	0.111	-	0.082	-	0.082	-
	1	<0.001	0.036	<0.001	0.036	0.027	0.036	0.027	0.036
	2	<0.001	0.034	<0.001	0.034	0.005	0.034	0.005	0.034
	4	<0.001	0.031	<0.001	0.031	0.018	0.031	0.018	0.031
	7	<0.001	0.025	<0.001	0.025	0.001	0.025	0.001	0.025
	14	<0.001	0.019	<0.001	0.019	0.002	0.019	0.002	0.019
	21	<0.001	0.013	<0.001	0.013	<0.001	0.013	<0.001	0.013
	28	<0.001	0.010	<0.001	0.010	0.002	0.010	0.002	0.010
	42	<0.001	0.007	<0.001	0.007	<0.001	0.007	<0.001	0.007
	50	<0.001	0.006	<0.001	0.006	<0.001	0.006	<0.001	0.006
	100	<0.001	0.004	<0.001	0.004	<0.001	0.004	<0.001	0.004
R1, pond	0	0.072	-	0.071	-	0.068	-	0.032	-
	1	0.071	0.072	0.070	0.070	0.067	0.067	0.031	0.031
	2	0.070	0.071	0.068	0.070	0.066	0.067	0.031	0.031
	4	0.068	0.070	0.067	0.069	0.064	0.066	0.030	0.031
	7	0.066	0.069	0.064	0.067	0.062	0.065	0.029	0.030
	14	0.061	0.066	0.060	0.065	0.057	0.062	0.027	0.029
	21	0.057	0.064	0.056	0.062	0.053	0.060	0.025	0.028
	28	0.056	0.062	0.055	0.061	0.053	0.058	0.025	0.027
	42	0.054	0.059	0.053	0.058	0.051	0.056	0.024	0.026
	50	0.050	0.059	0.049	0.057	0.047	0.055	0.022	0.026
	100	0.037	0.053	0.036	0.052	0.035	0.050	0.016	0.024
R1, stream	0	0.439	-	0.439	-	0.439	-	0.199	-
	1	<0.001	0.235	<0.001	0.235	<0.001	0.235	<0.001	0.107
	2	<0.001	0.118	<0.001	0.118	<0.001	0.118	<0.001	0.054
	4	0.002	0.059	0.002	0.059	0.002	0.059	<0.001	0.027
	7	<0.001	0.054	<0.001	0.054	<0.001	0.054	<0.001	0.024
	14	0.061	0.041	0.061	0.041	0.061	0.041	0.003	0.018
	21	<0.001	0.033	<0.001	0.033	<0.001	0.033	<0.001	0.015
	28	<0.001	0.028	<0.001	0.028	<0.001	0.028	<0.001	0.012
	42	<0.001	0.021	<0.001	0.021	<0.001	0.021	<0.001	0.010
	50	<0.001	0.020	<0.001	0.020	<0.001	0.020	<0.001	0.009
	100	<0.001	0.012	<0.001	0.012	<0.001	0.012	<0.001	0.005
R3, stream	0	0.367	-	0.363	-	0.363	-	0.166	-
	1	0.002	0.259	0.003	0.259	0.003	0.259	0.012	0.119
	2	<0.001	0.133	0.001	0.133	0.001	0.133	<0.001	0.061
	4	<0.001	0.075	<0.001	0.075	<0.001	0.075	<0.001	0.035
	7	<0.001	0.051	<0.001	0.051	<0.001	0.051	<0.001	0.024
	14	<0.001	0.032	<0.001	0.032	<0.001	0.032	<0.001	0.015
	21	<0.001	0.021	<0.001	0.021	<0.001	0.021	<0.001	0.010
	28	<0.001	0.016	<0.001	0.016	<0.001	0.016	<0.001	0.007
	42	<0.001	0.014	0.094	0.014	0.094	0.014	0.055	0.007
	50	<0.001	0.014	<0.001	0.014	<0.001	0.014	<0.001	0.007
	100	<0.001	0.009	<0.001	0.008	<0.001	0.008	0.002	0.004

* Time = days following maximum concentration (Actual) or time interval (TWA)
** Simulated time too short for calculation (might not be applicable for this table)
D = Drift mitigation by no-spray buffer zones [m]
R = Runoff mitigation by vegetated filter strips [m]

Tier 3

Table B.8.2.5-58: Step 3 and 4, Tier 3: $PEC_{sw,act}$ and $PEC_{sw,twa}$ of metconazole following application of 1 x 90 g a.s. ha^{-1} to spring cereals

Location	Time* [d]	Step 3 Edge-of-field PECsw [µg L-1]		Step 4: Buffer zones and mitigation 05mD PECsw [µg L-1]		10mD PECsw [µg L-1]	
		Actual	TWA	Actual	TWA	Actual	TWA
D1, ditch	0	0.611	-	0.191	-	0.117	-
	1	0.561	0.584	0.176	0.183	0.109	0.113
	2	0.527	0.563	0.167	0.177	0.104	0.110
	4	0.485	0.534	0.154	0.168	0.096	0.105
	7	0.446	0.504	0.141	0.159	0.088	0.100
	14	0.381	0.458	0.120	0.145	0.075	0.096
	21	0.322	0.423	0.102	0.133	0.064	0.093
	28	0.268	0.391	0.085	0.123	0.054	0.091
	42	0.184	0.335	0.060	0.106	0.038	0.088
	50	0.150	0.308	0.049	0.098	0.032	0.087
	100	0.047	0.198	0.023	0.079	0.019	0.078
D1, stream	0	0.505	-	0.185	-	0.098	-
	1	0.162	0.391	0.059	0.143	0.032	0.076
	2	0.011	0.222	0.004	0.082	0.002	0.067
	4	0.002	0.113	0.001	0.064	<0.001	0.064
	7	0.001	0.066	<0.001	0.062	<0.001	0.062
	14	<0.001	0.059	<0.001	0.059	<0.001	0.059
	21	<0.001	0.057	<0.001	0.057	<0.001	0.057
	28	<0.001	0.056	<0.001	0.056	<0.001	0.056
	42	<0.001	0.054	<0.001	0.054	<0.001	0.054
	50	<0.001	0.053	<0.001	0.053	<0.001	0.053
	100	0.008	0.047	0.008	0.047	0.008	0.047
D3, ditch	0	0.570	-	0.155	-	0.082	-
	1	0.308	0.456	0.083	0.123	0.044	0.065
	2	0.057	0.306	0.015	0.083	0.008	0.044
	4	0.005	0.161	0.001	0.044	<0.001	0.023
	7	0.002	0.093	<0.001	0.025	<0.001	0.013
	14	<0.001	0.047	<0.001	0.013	<0.001	0.007
	21	<0.001	0.032	<0.001	0.009	<0.001	0.005
	28	<0.001	0.024	<0.001	0.006	<0.001	0.003
	42	<0.001	0.016	<0.001	0.004	<0.001	0.002
	50	<0.001	0.013	<0.001	0.004	<0.001	0.002
	100	<0.001	0.007	<0.001	0.002	<0.001	0.001
D4, pond	0	0.020	-	0.017	-	0.013	-
	1	0.019	0.019	0.017	0.017	0.013	0.013
	2	0.019	0.019	0.016	0.017	0.012	0.013
	4	0.018	0.019	0.015	0.016	0.012	0.013
	7	0.017	0.018	0.015	0.016	0.012	0.012
	14	0.016	0.017	0.014	0.015	0.012	0.012
	21	0.015	0.016	0.013	0.014	0.011	0.012
	28	0.014	0.016	0.012	0.014	0.010	0.012
	42	0.012	0.015	0.011	0.013	0.009	0.011

	50	0.012	0.014	0.010	0.013	0.009	0.011
	100	0.008	0.012	0.007	0.011	0.006	0.009

D4, stream	0	0.466	-	0.170	-	0.090	-
	1	<0.001	0.042	<0.001	0.020	<0.001	0.020
	2	<0.001	0.021	<0.001	0.018	<0.001	0.018
	4	<0.001	0.014	<0.001	0.014	<0.001	0.014
	7	<0.001	0.011	<0.001	0.011	<0.001	0.011
	14	<0.001	0.007	<0.001	0.007	-**	0.007
	21	<0.001	0.005	-**	0.005	-**	0.005
	28	<0.001	0.004	-**	0.004	-**	0.004
	42	<0.001	0.003	-**	0.003	-**	0.003
	50	-**	0.003	-**	0.003	-**	0.003
	100	-**	0.002	-**	0.002	-**	0.002

D5, pond	0	0.020	-	0.018	-	0.013	-
	1	0.020	0.020	0.017	0.018	0.013	0.013
	2	0.019	0.020	0.017	0.017	0.012	0.013
	4	0.019	0.019	0.016	0.017	0.012	0.012
	7	0.018	0.019	0.016	0.017	0.011	0.012
	14	0.017	0.018	0.014	0.016	0.011	0.012
	21	0.015	0.017	0.014	0.015	0.010	0.011
	28	0.015	0.017	0.013	0.015	0.009	0.011
	42	0.013	0.016	0.012	0.014	0.009	0.010
	50	0.013	0.015	0.011	0.013	0.008	0.010
	100	0.010	0.013	0.008	0.012	0.006	0.008

D5, stream	0	0.479	-	0.175	-	0.093	-
	1	<0.001	0.027	<0.001	0.010	<0.001	0.005
	2	<0.001	0.013	<0.001	0.005	<0.001	0.004
	4	<0.001	0.007	<0.001	0.003	<0.001	0.003
	7	<0.001	0.004	<0.001	0.002	<0.001	0.002
	14	<0.001	0.002	<0.001	0.001	<0.001	0.001
	21	<0.001	0.001	<0.001	<0.001	-**	<0.001
	28	<0.001	0.001	<0.001	<0.001	-**	<0.001
	42	<0.001	<0.001	-**	<0.001	-**	<0.001
	50	-**	<0.001	-**	<0.001	-**	<0.001
	100	-**	<0.001	-**	<0.001	-**	<0.001

* Time = days following maximum concentration (Actual) or time interval (TWA)
** Simulated time too short for calculation (might not be applicable for this table)
D = Drift mitigation by no-spray buffer zones [m]

Table B.8.2.5-59: Step 3 and 4, Tier 3: $PEC_{sw,act}$ and $PEC_{sw,twa}$ of metconazole following application of 2 x 90 g a.s. ha^{-1} to spring cereals

Location	**Time* [d]**	**Step 3**		**Step 4: Buffer zones and mitigation**			
		Edge-of-field		**05mD**		**10mD**	
		PEC_{sw} [µg L^{-1}]		**PEC_{sw} [µg L^{-1}]**		**PEC_{sw} [µg L^{-1}]**	
		Actual	**TWA**	**Actual**	**TWA**	**Actual**	**TWA**
D1, ditch	0	0.811	-	0.241	-	0.193	-
	1	0.760	0.784	0.227	0.234	0.190	0.191
	2	0.725	0.763	0.217	0.228	0.180	0.189
	4	0.676	0.731	0.203	0.219	0.177	0.182
	7	0.623	0.695	0.187	0.209	0.170	0.179
	14	0.527	0.634	0.159	0.191	0.162	0.172
	21	0.443	0.584	0.134	0.176	0.155	0.168
	28	0.369	0.539	0.113	0.165	0.149	0.165

	42	0.257	0.493	0.081	0.163	0.138	0.163
	50	0.211	0.478	0.068	0.162	0.129	0.161
	100	0.074	0.342	0.033	0.145	0.118	0.145

D1, stream	0	0.437	-	0.155	-	0.121	-
	1	0.141	0.339	0.050	0.120	0.119	0.119
	2	0.010	0.193	0.004	0.118	0.112	0.118
	4	0.003	0.113	0.001	0.113	0.110	0.113
	7	0.001	0.111	<0.001	0.111	0.106	0.111
	14	<0.001	0.107	<0.001	0.107	0.099	0.107
	21	0.437	0.103	0.155	0.103	0.093	0.103
	28	0.001	0.102	<0.001	0.102	0.090	0.102
	42	<0.001	0.101	<0.001	0.101	0.084	0.101
	50	<0.001	0.100	<0.001	0.100	0.075	0.100
	100	0.016	0.087	0.016	0.087	0.072	0.087

D3, ditch	0	0.499	-	0.129	-	0.067	-
	1	0.298	0.409	0.077	0.106	0.040	0.055
	2	0.072	0.288	0.018	0.075	0.010	0.039
	4	0.006	0.155	0.002	0.040	<0.001	0.021
	7	0.002	0.090	<0.001	0.023	<0.001	0.012
	14	<0.001	0.046	<0.001	0.012	<0.001	0.006
	21	<0.001	0.031	<0.001	0.008	<0.001	0.004
	28	<0.001	0.043	<0.001	0.011	<0.001	0.006
	42	<0.001	0.029	<0.001	0.008	<0.001	0.004
	50	<0.001	0.025	<0.001	0.006	<0.001	0.003
	100	<0.001	0.012	<0.001	0.003	<0.001	0.002

D4, pond	0	0.033	-	0.032	-	0.030	-
	1	0.033	0.033	0.032	0.032	0.030	0.030
	2	0.032	0.033	0.031	0.032	0.030	0.030
	4	0.031	0.033	0.030	0.032	0.029	0.030
	7	0.031	0.032	0.030	0.031	0.028	0.030
	14	0.032	0.032	0.031	0.031	0.026	0.029
	21	0.030	0.032	0.029	0.031	0.024	0.029
	28	0.028	0.031	0.027	0.030	0.023	0.029
	42	0.025	0.030	0.024	0.029	0.023	0.027
	50	0.025	0.029	0.025	0.028	0.021	0.027
	100	0.018	0.025	0.018	0.025	0.016	0.023

D4, stream	0	0.425	-	0.150	-	0.078	-
	1	<0.001	0.111	<0.001	0.048	<0.001	0.048
	2	<0.001	0.056	<0.001	0.046	<0.001	0.046
	4	<0.001	0.037	<0.001	0.037	<0.001	0.037
	7	<0.001	0.029	<0.001	0.029	<0.001	0.029
	14	<0.001	0.018	<0.001	0.018	<0.001	0.018
	21	<0.001	0.015	<0.001	0.015	<0.001	0.015
	28	<0.001	0.012	<0.001	0.012	<0.001	0.012
	42	<0.001	0.008	<0.001	0.008	-**	0.008
	50	-**	0.008	-**	0.008	-**	0.008
	100	<0.001	0.004	<0.001	0.004	<0.001	0.004

D5, pond	0	0.029	-	0.025	-	0.018	-
	1	0.029	0.029	0.025	0.025	0.018	0.018
	2	0.028	0.029	0.024	0.025	0.018	0.018

	4	0.027	0.028	0.024	0.025	0.017	0.018
	7	0.026	0.028	0.023	0.024	0.017	0.017
	14	0.025	0.027	0.022	0.023	0.016	0.017
	21	0.024	0.026	0.021	0.023	0.015	0.016
	28	0.023	0.025	0.020	0.022	0.014	0.016
	42	0.021	0.024	0.018	0.021	0.013	0.015
	50	0.020	0.023	0.017	0.020	0.013	0.015
	100	0.015	0.020	0.013	0.018	0.010	0.013

D5, stream	0	0.430	-	0.152	-	0.079	-
	1	<0.001	0.036	<0.001	0.013	<0.001	0.010
	2	<0.001	0.018	<0.001	0.009	<0.001	0.009
	4	<0.001	0.009	<0.001	0.008	<0.001	0.008
	7	<0.001	0.006	<0.001	0.006	<0.001	0.006
	14	<0.001	0.004	<0.001	0.004	<0.001	0.004
	21	<0.001	0.003	<0.001	0.003	<0.001	0.003
	28	<0.001	0.002	<0.001	0.002	-**	0.002
	42	<0.001	0.001	-**	0.001	-**	0.001
	50	<0.001	0.001	-**	0.001	-**	0.001
	100	-**	<0.001	-**	<0.001	-**	<0.001

* Time = days following maximum concentration (Actual) or time interval (TWA)
** Simulated time too short for calculation (might not be applicable for this table)
D = Drift mitigation by no-spray buffer zones [m]

Table B.8.2.5-60: Step 3 and 4, Tier 3: $PEC_{sw,act}$ and $PEC_{sw,twa}$ of metconazole following application of 1 x 90 g a.s. ha^{-1} to winter cereals

Location	Time* [d]	Step 3		Step 4: Buffer zones and mitigation			
		Edge-of-field		05mD		10mD	
		PEC_{sw} [µg L^{-1}]		PEC_{sw} [µg L^{-1}]		PEC_{sw} [µg L^{-1}]	
		Actual	TWA	Actual	TWA	Actual	TWA
D1, ditch	0	0.615	-	0.195	-	0.172	-
	1	0.565	0.588	0.180	0.187	0.165	0.170
	2	0.531	0.567	0.171	0.181	0.160	0.169
	4	0.489	0.538	0.158	0.172	0.160	0.164
	7	0.450	0.508	0.145	0.163	0.156	0.162
	14	0.386	0.463	0.124	0.158	0.150	0.158
	21	0.327	0.427	0.106	0.154	0.144	0.154
	28	0.273	0.395	0.089	0.152	0.141	0.152
	42	0.188	0.339	0.064	0.150	0.132	0.150
	50	0.154	0.312	0.053	0.149	0.125	0.149
	100	0.054	0.202	0.021	0.137	0.116	0.137
D1, stream	0	0.504	-	0.184	-	0.107	-
	1	0.162	0.391	0.059	0.143	0.103	0.106
	2	0.011	0.222	0.004	0.106	0.099	0.106
	4	0.002	0.113	0.001	0.102	0.099	0.102
	7	0.001	0.101	<0.001	0.101	0.096	0.101
	14	<0.001	0.098	<0.001	0.098	0.092	0.098
	21	<0.001	0.095	<0.001	0.095	0.087	0.095
	28	<0.001	0.094	<0.001	0.094	0.085	0.094
	42	<0.001	0.093	<0.001	0.093	0.080	0.093
	50	<0.001	0.092	<0.001	0.092	0.073	0.092
	100	<0.001	0.082	<0.001	0.082	0.071	0.082
D2, ditch	0	0.626	-	0.269	-	0.269	-
	1	0.575	0.598	0.054	0.198	0.054	0.173

	2	0.542	0.578	0.037	0.192	0.037	0.142
	4	0.500	0.548	0.029	0.183	0.029	0.126
	7	0.168	0.514	0.040	0.175	0.040	0.122
	14	0.091	0.316	0.062	0.143	0.062	0.113
	21	0.078	0.236	0.034	0.119	0.034	0.098
	28	0.067	0.195	0.031	0.106	0.031	0.090
	42	0.064	0.161	-**	0.103	-**	0.093
	50	0.059	0.147	-**	0.098	-**	0.089
	100	0.042	0.108	-**	0.081	-**	0.076

D2, stream	0	0.535	-	0.211	-	0.168	-
	1	0.489	0.510	0.194	0.202	0.018	0.119
	2	0.459	0.492	0.183	0.195	0.023	0.115
	4	0.419	0.465	0.168	0.185	0.014	0.110
	7	0.103	0.427	0.103	0.173	0.016	0.104
	14	0.046	0.242	0.046	0.114	0.028	0.080
	21	0.057	0.172	0.056	0.087	0.017	0.064
	28	0.031	0.139	0.029	0.075	0.015	0.058
	42	0.030	0.110	0.029	0.067	-**	0.056
	50	0.030	0.098	0.028	0.062	-**	0.052
	100	0.017	0.065	0.014	0.047	-**	0.042

D3, ditch	0	0.570	-	0.154	-	0.082	-
	1	0.301	0.453	0.082	0.123	0.043	0.065
	2	0.053	0.301	0.014	0.082	0.007	0.043
	4	0.005	0.159	0.001	0.043	<0.001	0.023
	7	0.002	0.092	<0.001	0.025	<0.001	0.013
	14	<0.001	0.046	<0.001	0.013	<0.001	0.007
	21	<0.001	0.031	<0.001	0.008	<0.001	0.004
	28	<0.001	0.023	<0.001	0.006	<0.001	0.003
	42	<0.001	0.016	<0.001	0.004	<0.001	0.002
	50	<0.001	0.013	<0.001	0.004	<0.001	0.002
	100	<0.001	0.007	<0.001	0.002	<0.001	<0.001

D4, pond	0	0.020	-	0.017	-	0.012	-
	1	0.019	0.019	0.017	0.017	0.012	0.012
	2	0.019	0.019	0.016	0.017	0.012	0.012
	4	0.018	0.019	0.015	0.016	0.011	0.012
	7	0.017	0.018	0.015	0.016	0.011	0.012
	14	0.016	0.017	0.014	0.015	0.010	0.011
	21	0.015	0.017	0.013	0.014	0.009	0.011
	28	0.014	0.016	0.012	0.014	0.009	0.011
	42	0.012	0.015	0.011	0.013	0.008	0.010
	50	0.012	0.015	0.010	0.013	0.007	0.010
	100	0.009	0.012	0.007	0.011	0.005	0.008

D4, stream	0	0.475	-	0.174	-	0.092	-
	1	<0.001	0.058	<0.001	0.021	<0.001	0.019
	2	<0.001	0.029	<0.001	0.017	<0.001	0.017
	4	<0.001	0.015	<0.001	0.013	<0.001	0.013
	7	<0.001	0.010	<0.001	0.010	<0.001	0.010
	14	<0.001	0.006	<0.001	0.006	<0.001	0.006
	21	<0.001	0.005	<0.001	0.005	-**	0.005
	28	<0.001	0.004	<0.001	0.004	-**	0.004
	42	<0.001	0.003	-**	0.003	-**	0.003
	50	<0.001	0.002	-**	0.002	-**	0.002

	100	-**	0.001	-**	0.001	-**	0.001
D5, pond	0	0.020	-	0.018	-	0.013	-
	1	0.020	0.020	0.017	0.018	0.013	0.013
	2	0.019	0.020	0.017	0.017	0.012	0.013
	4	0.019	0.019	0.016	0.017	0.012	0.012
	7	0.018	0.019	0.015	0.016	0.011	0.012
	14	0.016	0.018	0.014	0.016	0.011	0.011
	21	0.015	0.017	0.013	0.015	0.010	0.011
	28	0.015	0.017	0.013	0.015	0.009	0.011
	42	0.013	0.016	0.012	0.014	0.009	0.010
	50	0.013	0.015	0.011	0.013	0.008	0.010
	100	0.010	0.013	0.009	0.012	0.006	0.009
D5, stream	0	0.455	-	0.166	-	0.088	-
	1	<0.001	0.017	<0.001	0.006	<0.001	0.004
	2	<0.001	0.009	<0.001	0.003	<0.001	0.003
	4	<0.001	0.004	<0.001	0.003	<0.001	0.003
	7	<0.001	0.002	<0.001	0.002	<0.001	0.002
	14	<0.001	0.001	<0.001	0.001	<0.001	0.001
	21	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	28	<0.001	<0.001	-**	<0.001	-**	<0.001
	42	-**	<0.001	-**	<0.001	-**	<0.001
	50	-**	<0.001	-**	<0.001	-**	<0.001
	100	-**	<0.001	-**	<0.001	-**	<0.001
D6, ditch	0	0.572	-	0.155	-	0.082	-
	1	0.468	0.519	0.127	0.141	0.067	0.075
	2	0.286	0.452	0.077	0.122	0.041	0.065
	4	0.044	0.292	0.012	0.079	0.006	0.042
	7	0.010	0.176	0.003	0.047	0.001	0.025
	14	0.004	0.091	0.001	0.025	<0.001	0.013
	21	<0.001	0.061	<0.001	0.017	<0.001	0.009
	28	<0.001	0.046	<0.001	0.012	<0.001	0.007
	42	0.001	0.031	<0.001	0.009	<0.001	0.005
	50	<0.001	0.026	<0.001	0.008	<0.001	0.005
	100	<0.001	0.014	<0.001	0.004	<0.001	0.002

* Time = days following maximum concentration (Actual) or time interval (TWA)
** Simulated time too short for calculation (might not be applicable for this table)
D = Drift mitigation by no-spray buffer zones [m]

Table B.8.2.5-61: Step 3 and 4, Tier 3: $PEC_{sw,act}$ and $PEC_{sw,twa}$ of metconazole following application of 2 x 90 g a.s. ha^{-1} to winter cereals

Location	Time* [d]	Step 3		Step 4: Buffer zones and mitigation			
		Edge-of-field		05mD		10mD	
		PEC_{sw} [µg L^{-1}]		PEC_{sw} [µg L^{-1}]		PEC_{sw} [µg L^{-1}]	
		Actual	TWA	Actual	TWA	Actual	TWA
D1, ditch	0	0.814	-	0.297	-	0.297	-
	1	0.764	0.787	0.273	0.290	0.273	0.290
	2	0.728	0.766	0.259	0.289	0.259	0.289
	4	0.679	0.734	0.286	0.283	0.286	0.283
	7	0.626	0.699	0.266	0.281	0.266	0.281
	14	0.530	0.638	0.264	0.275	0.263	0.274
	21	0.446	0.588	0.261	0.270	0.261	0.270
	28	0.373	0.543	0.283	0.269	0.283	0.269
	42	0.261	0.495	0.260	0.269	0.260	0.268

	50	0.215	0.481	0.250	0.266	0.250	0.266
	100	0.081	0.345	0.142	0.241	0.141	0.241

D1, stream	0	0.437	-	0.186	-	0.186	-
	1	0.140	0.339	0.169	0.181	0.169	0.181
	2	0.010	0.193	0.162	0.180	0.162	0.180
	4	0.002	0.177	0.179	0.177	0.179	0.177
	7	0.001	0.175	0.165	0.175	0.165	0.175
	14	<0.001	0.170	0.163	0.170	0.163	0.170
	21	0.437	0.168	0.162	0.168	0.162	0.168
	28	0.001	0.167	0.176	0.167	0.176	0.167
	42	<0.001	0.167	0.159	0.167	0.159	0.167
	50	<0.001	0.165	0.157	0.165	0.157	0.165
	100	<0.001	0.144	0.002	0.144	0.002	0.144

D2, ditch	0	0.659	-	0.589	-	0.589	-
	1	0.614	0.635	0.133	0.361	0.133	0.359
	2	0.583	0.616	0.105	0.345	0.105	0.345
	4	0.544	0.589	0.094	0.305	0.094	0.305
	7	0.504	0.561	0.088	0.296	0.088	0.296
	14	0.304	0.458	0.132	0.257	0.132	0.257
	21	0.269	0.401	0.137	0.230	0.137	0.230
	28	0.243	0.364	0.101	0.219	0.101	0.219
	42	0.206	0.350	0.074	0.218	0.074	0.209
	50	0.191	0.337	0.065	0.211	0.065	0.203
	100	0.151	0.275	0.433	0.199	0.433	0.187

D2, stream	0	0.515	-	0.372	-	0.372	-
	1	0.478	0.495	0.066	0.220	0.066	0.213
	2	0.454	0.480	0.060	0.215	0.060	0.191
	4	0.423	0.458	0.056	0.207	0.056	0.166
	7	0.177	0.435	0.054	0.199	0.054	0.163
	14	0.091	0.276	0.058	0.163	0.058	0.140
	21	0.096	0.211	0.070	0.136	0.070	0.122
	28	0.093	0.208	0.058	0.133	0.058	0.115
	42	0.079	0.207	0.044	0.129	0.044	0.117
	50	0.070	0.190	0.041	0.124	0.041	0.111
	100	0.067	0.145	0.286	0.110	0.286	0.100

D3, ditch	0	0.499	-	0.129	-	0.067	-
	1	0.295	0.408	0.076	0.106	0.040	0.055
	2	0.069	0.286	0.018	0.074	0.009	0.038
	4	0.006	0.154	0.002	0.040	<0.001	0.021
	7	0.002	0.089	<0.001	0.023	<0.001	0.012
	14	<0.001	0.045	<0.001	0.012	<0.001	0.006
	21	<0.001	0.030	<0.001	0.008	<0.001	0.004
	28	<0.001	0.042	<0.001	0.011	<0.001	0.006
	42	<0.001	0.029	<0.001	0.007	<0.001	0.004
	50	<0.001	0.024	<0.001	0.006	<0.001	0.003
	100	<0.001	0.012	<0.001	0.003	<0.001	0.002

D4, pond	0	0.031	-	0.030	-	0.028	-
	1	0.031	0.031	0.030	0.030	0.028	0.028
	2	0.030	0.031	0.029	0.030	0.027	0.028
	4	0.029	0.031	0.028	0.030	0.026	0.028
	7	0.028	0.030	0.027	0.029	0.026	0.027
	14	0.029	0.030	0.029	0.028	0.027	0.027

	21	0.027	0.029	0.026	0.028	0.025	0.026
	28	0.025	0.029	0.024	0.028	0.023	0.026
	42	0.022	0.027	0.021	0.026	0.020	0.024
	50	0.022	0.026	0.021	0.025	0.020	0.024
	100	0.016	0.023	0.015	0.022	0.014	0.021
D4, stream	0	0.426	-	0.151	-	0.078	-
	1	<0.001	0.122	<0.001	0.044	<0.001	0.044
	2	<0.001	0.061	<0.001	0.042	<0.001	0.042
	4	<0.001	0.033	<0.001	0.033	<0.001	0.033
	7	<0.001	0.026	<0.001	0.026	<0.001	0.026
	14	<0.001	0.015	<0.001	0.015	<0.001	0.015
	21	<0.001	0.013	<0.001	0.013	<0.001	0.013
	28	<0.001	0.010	<0.001	0.010	<0.001	0.010
	42	<0.001	0.007	<0.001	0.007	-**	0.007
	50	<0.001	0.006	<0.001	0.006	-**	0.006
	100	<0.001	0.004	-**	0.004	-**	0.004
D5, pond	0	0.029	-	0.025	-	0.018	-
	1	0.028	0.029	0.025	0.025	0.018	0.018
	2	0.028	0.028	0.024	0.025	0.018	0.018
	4	0.027	0.028	0.024	0.024	0.017	0.018
	7	0.027	0.028	0.023	0.024	0.017	0.018
	14	0.025	0.027	0.022	0.023	0.016	0.017
	21	0.024	0.026	0.021	0.023	0.015	0.017
	28	0.023	0.025	0.020	0.022	0.015	0.016
	42	0.021	0.024	0.018	0.021	0.013	0.015
	50	0.020	0.024	0.018	0.021	0.013	0.015
	100	0.016	0.021	0.014	0.018	0.010	0.013
D5, stream	0	0.460	-	0.162	-	0.084	-
	1	0.003	0.174	0.001	0.062	<0.001	0.032
	2	<0.001	0.088	<0.001	0.031	<0.001	0.016
	4	<0.001	0.044	<0.001	0.016	<0.001	0.008
	7	<0.001	0.025	<0.001	0.009	<0.001	0.006
	14	<0.001	0.013	<0.001	0.005	<0.001	0.004
	21	<0.001	0.008	<0.001	0.003	<0.001	0.003
	28	<0.001	0.006	<0.001	0.002	<0.001	0.002
	42	<0.001	0.005	<0.001	0.002	<0.001	0.001
	50	<0.001	0.004	<0.001	0.001	<0.001	0.001
	100	<0.001	0.002	-**	<0.001	-**	<0.001
D6, ditch	0	0.501	-	0.130	-	0.087	-
	1	0.415	0.456	0.108	0.118	0.030	0.062
	2	0.308	0.410	0.080	0.106	0.012	0.055
	4	0.133	0.309	0.034	0.080	0.003	0.041
	7	0.061	0.214	0.016	0.055	<0.001	0.029
	14	0.016	0.124	0.004	0.032	<0.001	0.017
	21	0.007	0.086	0.002	0.022	<0.001	0.012
	28	0.004	0.078	0.001	0.020	<0.001	0.011
	42	0.002	0.069	<0.001	0.018	0.002	0.009
	50	0.002	0.059	<0.001	0.015	0.001	0.008
	100	<0.001	0.031	<0.001	0.009	<0.001	0.005

* Time = days following maximum concentration (Actual) or time interval (TWA)
** Simulated time too short for calculation (might not be applicable for this table)
D = Drift mitigation by no-spray buffer zones [m]

Table B.8.2.5-62: Step 3 and 4, Tier 3: $PEC_{sw,act}$ and $PEC_{sw,twa}$ of metconazole following application of 1 x 72 g a.s. ha^{-1} to winter oil seed rape, autumn application

Location	Time* [d]	Step 3		Step 4: Buffer zones and mitigation			
		Edge-of-field		05mD		10mD	
		PEC_{sw} [µg L^{-1}]		PEC_{sw} [µg L^{-1}]		PEC_{sw} [µg L^{-1}]	
		Actual	TWA	Actual	TWA	Actual	TWA
D2, ditch	0	0.868	-	0.868	-	0.868	-
	1	0.220	0.693	0.220	0.693	0.220	0.693
	2	0.201	0.572	0.201	0.517	0.201	0.517
	4	0.190	0.547	0.190	0.416	0.190	0.416
	7	0.176	0.522	0.176	0.410	0.176	0.410
	14	0.162	0.474	0.162	0.401	0.162	0.401
	21	0.149	0.405	0.149	0.383	0.149	0.383
	28	-**	0.379	-**	0.361	-**	0.361
	42	-**	0.378	-**	0.343	-**	0.342
	50	-**	0.378	-**	0.335	-**	0.335
	100	-**	0.325	-**	0.298	-**	0.295
D2, stream	0	0.562	-	0.562	-	0.562	-
	1	0.139	0.445	0.139	0.412	0.139	0.412
	2	0.118	0.430	0.118	0.269	0.118	0.269
	4	0.113	0.409	0.113	0.248	0.113	0.248
	7	0.104	0.388	0.104	0.244	0.104	0.244
	14	0.097	0.317	0.097	0.235	0.097	0.235
	21	0.092	0.257	0.092	0.222	0.092	0.222
	28	-**	0.234	-**	0.209	-**	0.209
	42	-**	0.227	-**	0.201	-**	0.201
	50	-**	0.227	-**	0.195	-**	0.195
	100	-**	0.195	-**	0.175	-**	0.170
D3, ditch	0	0.458	-	0.124	-	0.066	-
	1	0.342	0.400	0.093	0.108	0.049	0.057
	2	0.174	0.330	0.047	0.089	0.025	0.047
	4	0.023	0.202	0.006	0.055	0.003	0.029
	7	0.005	0.120	0.001	0.032	<0.001	0.017
	14	0.001	0.061	<0.001	0.017	<0.001	0.009
	21	<0.001	0.041	<0.001	0.011	<0.001	0.006
	28	<0.001	0.031	<0.001	0.008	<0.001	0.004
	42	<0.001	0.021	<0.001	0.006	<0.001	0.003
	50	<0.001	0.017	<0.001	0.005	<0.001	0.003
	100	<0.001	0.009	<0.001	0.002	<0.001	0.001
D4, pond	0	0.038	-	0.037	-	0.035	-
	1	0.037	0.038	0.036	0.037	0.035	0.035
	2	0.037	0.038	0.036	0.037	0.034	0.035
	4	0.035	0.037	0.034	0.036	0.033	0.034
	7	0.034	0.036	0.033	0.035	0.032	0.034
	14	0.036	0.036	0.035	0.035	0.034	0.033
	21	0.033	0.035	0.032	0.035	0.031	0.033
	28	0.030	0.035	0.030	0.034	0.029	0.032
	42	0.027	0.033	0.026	0.032	0.025	0.031
	50	0.027	0.032	0.027	0.031	0.026	0.030
	100	0.019	0.028	0.019	0.027	0.018	0.026
D4, stream	0	0.394	-	0.144	-	0.123	-
	1	<0.001	0.113	<0.001	0.069	0.018	0.069

	2	<0.001	0.061	<0.001	0.061	0.102	0.061
	4	<0.001	0.048	<0.001	0.048	0.008	0.048
	7	<0.001	0.034	<0.001	0.034	0.005	0.034
	14	<0.001	0.020	<0.001	0.020	0.021	0.020
	21	<0.001	0.017	<0.001	0.017	0.004	0.017
	28	<0.001	0.014	<0.001	0.014	<0.001	0.014
	42	<0.001	0.009	-**	0.009	<0.001	0.009
	50	<0.001	0.008	-**	0.008	0.008	0.008
	100	<0.001	0.005	<0.001	0.005	<0.001	0.005

D5, pond	0	0.028	-	0.027	-	0.026	-
	1	0.028	0.028	0.027	0.027	0.026	0.026
	2	0.027	0.028	0.027	0.027	0.026	0.026
	4	0.027	0.028	0.026	0.027	0.025	0.026
	7	0.026	0.027	0.025	0.027	0.024	0.025
	14	0.024	0.026	0.024	0.026	0.023	0.025
	21	0.023	0.026	0.022	0.025	0.021	0.024
	28	0.022	0.025	0.021	0.024	0.020	0.023
	42	0.020	0.024	0.019	0.023	0.018	0.022
	50	0.018	0.023	0.018	0.022	0.017	0.021
	100	-**	0.019	-**	0.019	-**	0.018

D5, stream	0	0.425	-	0.155	-	0.082	-
	1	0.003	0.161	0.001	0.059	<0.001	0.031
	2	<0.001	0.081	<0.001	0.030	<0.001	0.018
	4	<0.001	0.041	<0.001	0.015	<0.001	0.014
	7	<0.001	0.023	<0.001	0.012	<0.001	0.012
	14	<0.001	0.012	<0.001	0.009	<0.001	0.009
	21	<0.001	0.008	<0.001	0.007	<0.001	0.007
	28	<0.001	0.006	<0.001	0.005	<0.001	0.005
	42	<0.001	0.004	<0.001	0.004	<0.001	0.004
	50	<0.001	0.004	<0.001	0.003	<0.001	0.003
	100	<0.001	0.004	<0.001	0.002	<0.001	0.002

* Time = days following maximum concentration (Actual) or time interval (TWA)
** Simulated time too short for calculation (might not be applicable for this table)
D = Drift mitigation by no-spray buffer zones [m]

Table B.8.2.5-63: Step 3 and 4, Tier 3: $PEC_{sw,act}$ and $PEC_{sw,twa}$ of metconazole following application of 2 x 72 g a.s. ha^{-1} to winter oil seed rape, autumn application

Location	Time* [d]	Step 3		Step 4: Buffer zones and mitigation			
		Edge-of-field		05mD		10mD	
		PEC_{sw} [µg L^{-1}]		PEC_{sw} [µg L^{-1}]		PEC_{sw} [µg L^{-1}]	
		Actual	TWA	Actual	TWA	Actual	TWA
D2, ditch	0	0.868	-	0.868	-	0.868	-
	1	0.221	0.693	0.220	0.693	0.220	0.693
	2	0.202	0.536	0.201	0.517	0.201	0.517
	4	0.190	0.505	0.190	0.416	0.190	0.416
	7	0.177	0.474	0.176	0.410	0.176	0.410
	14	0.164	0.441	0.162	0.401	0.162	0.401
	21	0.152	0.384	0.150	0.383	0.149	0.383
	28	-**	0.362	-**	0.361	-**	0.361
	42	-**	0.367	-**	0.343	-**	0.342
	50	-**	0.369	-**	0.335	-**	0.335
	100	-**	0.321	-**	0.297	-**	0.295

	0	0.562	-	0.562	-	0.562	-

D2, stream	1	0.139	0.412	0.139	0.412	0.139	0.412
	2	0.118	0.379	0.118	0.269	0.118	0.269
	4	0.113	0.360	0.113	0.248	0.113	0.248
	7	0.104	0.342	0.104	0.244	0.104	0.244
	14	0.097	0.286	0.097	0.235	0.097	0.235
	21	0.092	0.236	0.092	0.222	0.092	0.222
	28	-**	0.219	-**	0.209	-**	0.209
	42	-**	0.217	-**	0.201	-**	0.201
	50	-**	0.218	-**	0.195	-**	0.195
	100	-**	0.191	-**	0.173	-**	0.170

D3, ditch	0	0.400	-	0.104	-	0.054	-
	1	0.299	0.349	0.078	0.091	0.040	0.047
	2	0.152	0.288	0.039	0.075	0.020	0.039
	4	0.020	0.176	0.005	0.046	0.003	0.024
	7	0.004	0.105	0.001	0.027	<0.001	0.014
	14	0.001	0.053	<0.001	0.014	<0.001	0.007
	21	<0.001	0.036	<0.001	0.009	<0.001	0.005
	28	<0.001	0.027	<0.001	0.007	<0.001	0.004
	42	<0.001	0.018	<0.001	0.005	<0.001	0.002
	50	<0.001	0.015	<0.001	0.004	<0.001	0.002
	100	<0.001	0.008	<0.001	0.002	<0.001	0.001

D4, pond	0	0.036	-	0.036	-	0.034	-
	1	0.036	0.036	0.035	0.036	0.034	0.034
	2	0.035	0.036	0.034	0.035	0.033	0.034
	4	0.034	0.036	0.033	0.035	0.032	0.034
	7	0.033	0.035	0.032	0.034	0.031	0.033
	14	0.035	0.035	0.034	0.034	0.033	0.032
	21	0.032	0.034	0.031	0.034	0.030	0.032
	28	0.030	0.034	0.029	0.033	0.028	0.032
	42	0.026	0.032	0.026	0.031	0.025	0.030
	50	0.026	0.031	0.026	0.030	0.025	0.029
	100	0.030	0.027	0.028	0.027	0.025	0.026

D4, stream	0	0.341	-	0.123	-	0.123	-
	1	<0.001	0.098	0.018	0.069	0.018	0.069
	2	<0.001	0.061	0.102	0.061	0.102	0.061
	4	<0.001	0.048	0.008	0.048	0.008	0.048
	7	<0.001	0.034	0.005	0.034	0.005	0.034
	14	<0.001	0.020	0.021	0.020	0.021	0.020
	21	<0.001	0.017	0.004	0.017	0.004	0.017
	28	<0.001	0.014	<0.001	0.014	<0.001	0.014
	42	<0.001	0.009	<0.001	0.009	<0.001	0.009
	50	<0.001	0.008	0.008	0.008	0.008	0.008
	100	<0.001	0.005	<0.001	0.005	<0.001	0.005

D5, pond	0	0.028	-	0.026	-	0.025	-
	1	0.028	0.028	0.026	0.026	0.025	0.025
	2	0.027	0.028	0.026	0.026	0.025	0.025
	4	0.027	0.027	0.025	0.026	0.024	0.025
	7	-**	0.026	0.024	0.026	0.023	0.025
	14	-**	0.026	0.023	0.025	0.022	0.024
	21	-**	0.025	0.022	0.024	0.021	0.023
	28	-**	0.024	0.021	0.024	0.020	0.023
	42	-**	0.023	0.018	0.022	0.018	0.022
	50	-**	0.022	0.017	0.022	0.017	0.021

	100	-**	0.019	-**	0.018	-**	0.017

D5, stream	0	0.368	-	0.130	-	0.070	-
	1	0.002	0.139	<0.001	0.049	0.012	0.026
	2	<0.001	0.070	<0.001	0.025	0.008	0.018
	4	<0.001	0.035	<0.001	0.014	0.005	0.014
	7	<0.001	0.020	<0.001	0.012	0.002	0.012
	14	<0.001	0.010	<0.001	0.009	<0.001	0.009
	21	<0.001	0.007	<0.001	0.007	<0.001	0.007
	28	<0.001	0.005	<0.001	0.005	<0.001	0.005
	42	<0.001	0.004	<0.001	0.004	<0.001	0.004
	50	<0.001	0.003	<0.001	0.003	0.001	0.003
	100	<0.001	0.003	<0.001	0.002	-**	0.002

* Time = days following maximum concentration (Actual) or time interval (TWA)
** Simulated time too short for calculation (might not be applicable for this table)
D = Drift mitigation by no-spray buffer zones [m]

Table B.8.2.5-64: Step 3 and 4, Tier 3: $PEC_{sw,act}$ and $PEC_{sw,twa}$ of metconazole following application of 1 x 72 g a.s. ha^{-1} to winter oil seed rape, spring application

Location	Time* [d]	Step 3		Step 4: Buffer zones and mitigation			
		Edge-of-field		05mD		10mD	
		PEC_{sw} [µg L^{-1}]		PEC_{sw} [µg L^{-1}]		PEC_{sw} [µg L^{-1}]	
		Actual	TWA	Actual	TWA	Actual	TWA
D2, ditch	0	0.529	-	0.376	-	0.376	-
	1	0.489	0.508	0.069	0.243	0.069	0.243
	2	0.462	0.491	0.058	0.216	0.058	0.216
	4	0.260	0.443	0.054	0.206	0.054	0.206
	7	0.111	0.323	0.054	0.193	0.054	0.193
	14	0.172	0.232	0.067	0.160	0.067	0.160
	21	0.088	0.191	0.069	0.149	0.069	0.149
	28	0.095	0.172	0.048	0.139	0.048	0.139
	42	0.103	0.160	0.047	0.129	0.047	0.124
	50	0.087	0.150	0.101	0.124	0.101	0.119
	100	0.066	0.122	0.098	0.109	0.098	0.106
D2, stream	0	0.443	-	0.235	-	0.235	-
	1	0.408	0.424	0.033	0.175	0.033	0.143
	2	0.384	0.409	0.040	0.170	0.040	0.124
	4	0.057	0.299	0.032	0.134	0.032	0.116
	7	0.067	0.191	0.032	0.109	0.032	0.109
	14	0.106	0.133	0.055	0.089	0.055	0.089
	21	0.040	0.106	0.032	0.081	0.032	0.081
	28	0.046	0.094	0.028	0.075	0.028	0.075
	42	0.054	0.089	0.027	0.073	0.027	0.069
	50	0.046	0.082	0.077	0.069	0.077	0.065
	100	0.039	0.066	0.043	0.059	0.043	0.057
D3, ditch	0	0.455	-	0.123	-	0.065	-
	1	0.188	0.341	0.051	0.092	0.027	0.049
	2	0.021	0.210	0.006	0.057	0.003	0.030
	4	0.003	0.108	<0.001	0.029	<0.001	0.016
	7	<0.001	0.062	<0.001	0.017	<0.001	0.009
	14	<0.001	0.032	<0.001	0.009	<0.001	0.005
	21	<0.001	0.021	<0.001	0.006	<0.001	0.003
	28	<0.001	0.016	<0.001	0.004	<0.001	0.002
	42	<0.001	0.011	<0.001	0.003	<0.001	0.002

	50	<0.001	0.009	<0.001	0.002	<0.001	0.001
	100	<0.001	0.005	<0.001	0.001	<0.001	<0.001
D4, pond	0	0.019	-	0.018	-	0.018	-
	1	0.019	0.019	0.018	0.018	0.017	0.018
	2	0.018	0.019	0.018	0.018	0.017	0.018
	4	0.018	0.018	0.017	0.018	0.016	0.017
	7	0.017	0.018	0.017	0.018	0.016	0.017
	14	0.018	0.018	0.018	0.017	0.017	0.017
	21	0.017	0.018	0.016	0.017	0.016	0.017
	28	0.015	0.017	0.015	0.017	0.015	0.016
	42	0.014	0.016	0.013	0.016	0.013	0.016
	50	0.014	0.016	0.013	0.016	0.013	0.015
	100	0.010	0.014	0.010	0.014	0.009	0.013
D4, stream	0	0.350	-	0.128	-	0.068	-
	1	<0.001	0.034	<0.001	0.034	<0.001	0.034
	2	<0.001	0.031	<0.001	0.031	<0.001	0.031
	4	<0.001	0.025	<0.001	0.025	-**	0.025
	7	<0.001	0.018	-**	0.018	-**	0.018
	14	-**	0.011	-**	0.011	-**	0.011
	21	-**	0.009	-**	0.009	-**	0.009
	28	-**	0.007	-**	0.007	-**	0.007
	42	-**	0.005	-**	0.005	-**	0.005
	50	-**	0.004	-**	0.004	-**	0.004
	100	-**	0.002	-**	0.002	-**	0.002
D5, pond	0	0.018	-	0.016	-	0.012	-
	1	0.017	0.018	0.015	0.016	0.012	0.012
	2	0.017	0.017	0.015	0.015	0.011	0.012
	4	0.016	0.017	0.014	0.015	0.011	0.011
	7	0.015	0.016	0.013	0.014	0.010	0.011
	14	0.014	0.015	0.012	0.014	0.009	0.010
	21	0.013	0.015	0.011	0.013	0.009	0.010
	28	0.012	0.014	0.011	0.013	0.008	0.010
	42	0.011	0.013	0.009	0.012	0.007	0.009
	50	0.010	0.013	0.009	0.011	0.007	0.009
	100	0.008	0.011	0.007	0.010	0.005	0.007
D5, stream	0	0.296	-	0.108	-	0.057	-
	1	<0.001	0.006	<0.001	0.006	<0.001	0.006
	2	<0.001	0.006	<0.001	0.006	<0.001	0.006
	4	<0.001	0.005	<0.001	0.005	<0.001	0.005
	7	<0.001	0.004	<0.001	0.004	<0.001	0.004
	14	<0.001	0.003	<0.001	0.003	<0.001	0.003
	21	<0.001	0.002	<0.001	0.002	<0.001	0.002
	28	<0.001	0.001	<0.001	0.001	<0.001	0.001
	42	<0.001	0.001	<0.001	0.001	<0.001	0.001
	50	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	100	-**	<0.001	-**	<0.001	-**	<0.001

* Time = days following maximum concentration (Actual) or time interval (TWA)
** Simulated time too short for calculation (might not be applicable for this table)
D = Drift mitigation by no-spray buffer zones [m]

Table B.8.2.5-65: Step 3 and 4, Tier 3: $PEC_{sw,act}$ and $PEC_{sw,twa}$ of metconazole following application of 2 x 72 g a.s. ha^{-1} to winter oil seed rape, spring

Location	Time*	Step 3		Step 4: Buffer zones and mitigation			

	[d]	Edge-of-field		05mD		10mD	
		PEC$_{sw}$ [µg L^{-1}]		PEC$_{sw}$ [µg L^{-1}]		PEC$_{sw}$ [µg L^{-1}]	
		Actual	TWA	Actual	TWA	Actual	TWA
D2, ditch	0	0.808	-	0.808	-	0.808	-
	1	0.150	0.578	0.150	0.518	0.150	0.518
	2	0.125	0.550	0.125	0.467	0.125	0.467
	4	0.113	0.507	0.113	0.446	0.113	0.446
	7	0.115	0.444	0.115	0.422	0.115	0.422
	14	0.149	0.368	0.149	0.353	0.149	0.353
	21	0.158	0.355	0.158	0.334	0.158	0.334
	28	0.104	0.338	0.104	0.311	0.104	0.311
	42	0.103	0.321	0.103	0.271	0.103	0.271
	50	0.234	0.301	0.234	0.264	0.234	0.264
	100	0.230	0.249	0.230	0.224	0.230	0.220
D2, stream	0	0.504	-	0.504	-	0.504	-
	1	0.070	0.410	0.070	0.308	0.070	0.308
	2	0.087	0.398	0.087	0.272	0.087	0.272
	4	0.067	0.310	0.067	0.254	0.067	0.254
	7	0.067	0.240	0.067	0.240	0.067	0.240
	14	0.126	0.199	0.126	0.199	0.126	0.199
	21	0.071	0.182	0.071	0.182	0.071	0.182
	28	0.060	0.169	0.060	0.169	0.060	0.169
	42	0.056	0.156	0.056	0.145	0.056	0.145
	50	0.180	0.147	0.180	0.138	0.180	0.138
	100	0.102	0.125	0.102	0.119	0.102	0.117
D3, ditch	0	0.398	-	0.104	-	0.054	-
	1	0.191	0.309	0.050	0.080	0.026	0.042
	2	0.027	0.198	0.007	0.052	0.004	0.027
	4	0.003	0.103	<0.001	0.027	<0.001	0.014
	7	0.001	0.060	<0.001	0.016	<0.001	0.008
	14	<0.001	0.030	<0.001	0.008	<0.001	0.004
	21	<0.001	0.037	<0.001	0.010	<0.001	0.005
	28	<0.001	0.029	<0.001	0.008	<0.001	0.004
	42	<0.001	0.019	<0.001	0.005	<0.001	0.003
	50	<0.001	0.016	<0.001	0.004	<0.001	0.002
	100	<0.001	0.008	<0.001	0.002	<0.001	0.001
D4, pond	0	0.035	-	0.034	-	0.033	-
	1	0.034	0.035	0.034	0.034	0.033	0.033
	2	0.034	0.035	0.034	0.034	0.032	0.033
	4	0.033	0.034	0.033	0.034	0.032	0.033
	7	0.032	0.034	0.032	0.033	0.031	0.032
	14	0.034	0.033	0.029	0.033	0.028	0.031
	21	0.032	0.033	0.027	0.033	0.026	0.031
	28	0.029	0.033	0.026	0.032	0.025	0.031
	42	0.026	0.031	0.025	0.030	0.024	0.029
	50	0.026	0.030	0.024	0.030	0.023	0.029
	100	0.019	0.026	0.018	0.026	0.017	0.025
D4, stream	0	0.332	-	0.118	-	0.103	-
	1	<0.001	0.064	<0.001	0.064	0.018	0.064
	2	<0.001	0.058	<0.001	0.058	0.090	0.058
	4	<0.001	0.046	<0.001	0.046	0.008	0.046
	7	<0.001	0.033	<0.001	0.033	0.005	0.033

	14	<0.001	0.020	<0.001	0.020	0.021	0.020
	21	<0.001	0.017	<0.001	0.017	0.005	0.017
	28	<0.001	0.014	-**	0.014	<0.001	0.014
	42	<0.001	0.009	-**	0.009	<0.001	0.009
	50	<0.001	0.009	-**	0.009	0.009	0.009
	100	-**	0.005	-**	0.005	<0.001	0.005

D5, pond	0	0.029	-	0.025	-	0.024	-
	1	0.028	0.028	0.025	0.025	0.024	0.024
	2	0.028	0.028	0.025	0.025	0.023	0.024
	4	0.027	0.028	0.024	0.025	0.023	0.024
	7	0.026	0.027	0.023	0.024	0.022	0.023
	14	0.024	0.026	0.022	0.023	0.020	0.022
	21	0.023	0.025	0.020	0.022	0.019	0.022
	28	0.021	0.024	0.019	0.022	0.018	0.021
	42	0.019	0.023	0.017	0.021	0.016	0.020
	50	0.018	0.022	0.016	0.020	0.015	0.019
	100	0.014	0.020	0.013	0.017	-**	0.015

D5, stream	0	0.314	-	0.111	-	0.058	-
	1	<0.001	0.019	<0.001	0.019	<0.001	0.019
	2	<0.001	0.018	<0.001	0.018	<0.001	0.018
	4	<0.001	0.016	<0.001	0.016	<0.001	0.016
	7	<0.001	0.013	<0.001	0.013	<0.001	0.013
	14	<0.001	0.009	<0.001	0.009	<0.001	0.009
	21	<0.001	0.006	<0.001	0.006	<0.001	0.006
	28	<0.001	0.005	<0.001	0.005	<0.001	0.005
	42	<0.001	0.003	<0.001	0.003	<0.001	0.003
	50	<0.001	0.003	<0.001	0.003	<0.001	0.003
	100	-**	0.002	-**	0.002	-**	0.002

* Time = days following maximum concentration (Actual) or time interval (TWA)
** Simulated time too short for calculation (might not be applicable for this table)
D = Drift mitigation by no-spray buffer zones [m]

<u>Predicted concentrations of the metabolites 1,2,4-triazole and M555F013 in surface water</u>

Only global maximum values are reported which can be considered as worst-case estimates of short-term and long-term exposure.

Table B.8.2.5-66: Steps 1-2: PEC$_{sw,max}$ of 1,2,4-triazole following application to winter cereals and winter oilseed rape, autumn application

FOCUS$_{sw}$ Crop	Step 1 PEC$_{sw,max}$ [µg L^{-1}]	Step 2 PEC$_{sw,max}$ [µg L^{-1}]	
		Single application	Multiple application
Winter cereals [a]	1.056	0.161	0.288
Winter oilseed rape, autumn application [b]	0.845	0.121	0.143

[a] Worst-case application scenario covering use in spring cereals
[b] Worst-case application scenario covering spring application

Table B.8.2.5-67: Steps 1-2: PEC$_{sw,max}$ of M555F013 following application to winter cereals and winter oilseed rape, autumn application

FOCUS$_{sw}$ Crop	Step 1 PEC$_{sw,max}$ [µg L^{-1}]	Step 2 PEC$_{sw,max}$ [µg L^{-1}]	
		Single application	Multiple application
Winter cereals [a]	7.257	1.194	2.207

Winter oilseed rape, autumn application [b]	5.806	0.901	1.225

[a] Worst-case application scenario covering use in spring cereals
[b] Worst-case application scenario covering spring application

Predicted concentrations of metconazole in sediment

Only global maximum values are reported which can be considered as worst-case estimates of short-term and long-term exposure.

Step 1 and 2

Table B.8.2.5-68: Steps 1-2: $PEC_{sed,max}$ of metconazole following application to winter cereals and winter oilseed rape, autumn application

FOCUS$_{sw}$ Crop	**Step 1 $PEC_{sed,max}$ [µg kg^{-1}]**	**Step 2 $PEC_{sed,max}$ [µg kg^{-1}]**	
		Single application	**Multiple application**
Winter cereals [a]	271.474	44.654	82.437
Winter oilseed rape, autumn application [b]	217.179	33.672	45.420

[a] Worst-case application scenario covering use in spring cereals
[b] Worst-case application scenario covering spring application

Step 3

Global maximum concentrations in sediment of metconazole are reported at Step 3 for Tier 1 calculations.

Table B.8.2.5-69: Step 3, Tier 1: $PEC_{sed,max}$ of metconazole following application to spring cereals

Location	**Water body**	**$PEC_{sed,max}$ [µg kg^{-1}]**	
		Single application	**Multiple application**
D1	ditch	7.722	13.060
D1	stream	4.121	6.972
D3	ditch	0.334	0.382
D4	pond	0.449	0.957
D4	stream	0.127	0.280
D5	pond	0.330	0.660
D5	stream	0.055	0.118
R4	stream	0.945	0.945

Table B.8.2.5-70: Step 3, Tier 1: $PEC_{sed,max}$ of metconazole following application to winter cereals

Location	**Water body**	**$PEC_{sed,max}$ [µg kg^{-1}]**	
		Single application	**Multiple application**
D1	ditch	5.925	10.740
D1	stream	3.006	5.490
D2	ditch	6.082	11.510
D2	stream	3.444	6.454
D3	ditch	0.330	0.377
D4	pond	0.325	0.731
D4	stream	0.090	0.217
D5	pond	0.333	0.740
D5	stream	0.056	0.146
D6	ditch	0.547	0.672
R1	pond	0.579	1.109
R1	stream	0.404	1.293
R3	stream	0.585	0.671
R4	stream	0.903	0.902

Table B.8.2.5-71: Step 3, Tier 1: $PEC_{sed,max}$ of metconazole following application to winter oil seed rape, autumn application

Location	Water body	$PEC_{sed,max}$ [µg kg^{-1}]	
		Single application	Multiple application
D2	ditch	7.102	7.361
D2	stream	4.075	4.068
D3	ditch	0.369	0.323
D4	pond	0.479	0.532
D4	stream	0.163	0.162
D5	pond	0.439	0.451
D5	stream	0.116	0.101
R1	pond	0.423	0.692
R1	stream	0.239	0.269
R3	stream	0.706	0.707

Table B.8.2.5-72: Step 3, Tier 1: $PEC_{sed,max}$ of metconazole following application to winter oil seed rape, spring application

Location	Water body	$PEC_{sed,max}$ [µg kg^{-1}]	
		Single application	Multiple application
D2	ditch	4.758	9.569
D2	stream	2.678	5.355
D3	ditch	0.235	0.271
D4	pond	0.265	0.484
D4	stream	0.076	0.137
D5	pond	0.229	0.515
D5	stream	0.037	0.094
R1	pond	0.333	0.650
R1	stream	0.188	0.427
R3	stream	0.186	0.422

Predicted concentrations of the metabolites 1,2,4-triazole and M555F013 in sediment

Only global maximum values are reported which can be considered as worst-case estimates of short-term and long-term exposure.

Table B.8.2.5-73: Steps 1-2: $PEC_{sed,max}$ of 1,2,4-triazole following application to winter cereals and winter oilseed rape, autumn application

$FOCUS_{sw}$ Crop	Step 1 $PEC_{sed,max}$ [µg kg^{-1}]	Step 2 $PEC_{sed,max}$ [µg kg^{-1}]	
		Single application	Multiple application
Winter cereals [a]	0.940	0.144	0.257
Winter oilseed rape, autumn application [b]	0.752	0.108	0.127

[a] Worst-case application scenario covering use in spring cereals
[b] Worst-case application scenario covering spring application

Table B.8.2.5-74: Steps 1-2: $PEC_{sed,max}$ of M555F013 following application to winter cereals and winter oilseed rape, autumn application

$FOCUS_{sw}$ Crop	Step 1 $PEC_{sed,max}$ [µg kg^{-1}]	Step 2 $PEC_{sed,max}$ [µg kg^{-1}]	
		Single application	Multiple application
Winter cereals [a]	0.725	0.119	0.220
Winter oilseed rape, autumn application [b]	0.580	0.090	0.122

[a] Worst-case application scenario covering use in spring cereals
[b] Worst-case application scenario covering spring application

III. Conclusion

Predicted environmental concentrations in surface water (PEC_{sw}) and sediment (PEC_{sed}) were calculated for metconazole and its metabolites 1,2,4-triazole and M555F013 according to the guidance of the FOCUS working group on surface water scenarios (FOCUS (2001, 2015)) following application to winter and spring cereals and winter oilseed rape.

The predicted concentrations in surface water and sediment are appropriate to be used for the subsequent risk assessment for aquatic organisms.

RMS comments:

Predicted environmental concentrations in surface water (PEC_{sw}) and sediment (PEC_{sed}) were calculated for metconazole and its soil metabolite 1,2,4-triazole and its aquatic metabolite M555F013 following spray application of metconazole to winter and spring cereals and winter oilseed rape.

Calculations were performed according to the recommendations of the FOCUS working group on surface water scenarios in a stepwise approach (FOCUS 2001, 2007, 2014). For metconazole, the entry pathways spray drift, drainage and runoff were considered relevant. For the metabolite 1,2,4-triazole occurring in soil only, the relevant entry pathways are runoff and drainage of the metabolite. For the metabolite M555F013 occurring in water and sediment the relevant entry pathways are formation after spray drift, drainage and runoff of the parent substance.

For metconazole, PEC_{sw} calculations were performed at Step 1 to Step 4 for the use in winter and spring cereals and winter oilseed rape. Maximum PEC_{sed} were reported for calculations at Step 1 to Step 3. For the metabolites, maximum PEC_{sw} and PEC_{sed} were reported for calculations at Step 1 and Step 2.

The software packages STEPS1-2 in FOCUS version 3.2 (Step 1 and 2), FOCUS-PRZM version 4.3.1, FOCUS-MACRO version 5.5.4, FOCUS-TOXSWA version 4.4.3 (Step 3) and SWAN version 4.0.1 (Step 4) were used.

Simulations were performed for single and multiple applications, covering the growth stages foreseen by the GAP and taking into account the maximum application rate per treatment and the minimum application interval in case of multiple applications.

Step 1 and 2 calculations were carried out for metconazole and its metabolites for two worst-case scenarios: winter cereals and winter oilseed rape (autumn application). At Step 2 of the assessment, the regions 'South Europe' and 'North Europe' cereals and winter oilseed rape, respectively, where combined with the application period 'Oct-Feb'. At Step 3 and 4, all FOCUS scenarios available for cereals and oilseed rape were considered.

For metconazole, Step 3 and 4 calculations were conducted in a tiered approach. At Tier 1, calculations were performed with standard input parameters according to FOCUS while at Tier 2, the default foliar DT_{50} of 10 days was refined by experimental data of 2 days for cereals and 8.7 days for winter oilseed rape (Sandt, 2014a; Roussel, 2015a) for all scenarios considered at Tier 1. At Tier 3, the interception values implemented in FOCUS MACRO for the Tier 2 drainage scenarios were refined to be in agreement with the values recommended by FOCUS for the respective BBCH growth stages specified in the GAP.
Substance-specific parameters were selected in accordance with those as proposed in Vol. 3 AS - B8 on mepanipyrim and also listed in Tables B.8.2.5-1 to B.8.2.5-3.

A summary of the maximum PEC_{sw} and PEC_{sed} is given in the tables below.

<u>Metconazole</u>

Step 1 and 2

Table B.8.2.5-75: Summary of Steps 1-2 highest PEC_{sw} and PEC_{sed} of metconazole following application to winter cereals and winter oilseed rape, autumn application

FOCUS$_{sw}$ Crop	Step 1		Step 2			
	$PEC_{sw,max}$ [µg L^{-1}]	$PEC_{sed,max}$ [µg kg^{-1}]	$PEC_{sw,max}$ [µg L^{-1}]		$PEC_{sed,max}$ [µg kg^{-1}]	
			Single application	Multiple application	Single application	Multiple application
Winter cereals [a]	26.367	271.474	4.260	7.855	44.654	82.437

Winter oilseed rape, autumn application [b]	21.094	217.179	3.216	4.352	33.672	45.420

[a] Worst-case application scenario covering use in spring cereals
[b] Worst-case application scenario covering spring application

Step 3 and 4

Table B.8.2.5-76: Summary of Steps 3-4 highest global PEC_{sw} and PEC_{sed} values of metconazole following application to spring cereals

	PEC_{sw} [µg L^{-1}] [a]								$PEC_{sed,max}$ [µg kg^{-1}] [a]
	Step 3		**Step 4**						**Step 3**
	Edge-of-Field		**05mD**		**10mD**		**10mD+R**		**Edge-of-Field**
	Max	**21d twa**	**Max**	**21d twa**	**Max**	**21d twa**	**Max**	**21d twa**	
Tier 1	1.227	1.143	1.227	1.143	1.227	1.143	1.227	1.143	13.060
Tier 2	0.919	0.719	0.775	0.718	0.775	0.718	0.775	0.718	not reported
Tier 3	0.811	0.584	0.241	0.176	0.193	0.168	not calculated		

D = Drift mitigation by no-spray buffer zones [m]
R = Runoff mitigation by vegetated filter strips [m]
[a] Worst-case scenario: D1 ditch, multiple application

Table B.8.2.5-77: Summary of Steps 3-4 highest global PEC_{sw} and PEC_{sed} values of metconazole following application to winter cereals

	PEC_{sw} [µg L^{-1}] [a]								$PEC_{sed,max}$ [µg kg^{-1}] [a]
	Step 3		**Step 4**						**Step 3**
	Edge-of-Field		**05mD**		**10mD**		**10mD+R**		**Edge-of-Field**
	Max	**21d twa**	**Max**	**21d twa**	**Max**	**21d twa**	**Max**	**21d twa**	
Tier 1	2.065	*0.939*	2.065	*0.939*	2.065	*0.939*	2.065	*0.939*	11.510
Tier 2	1.635	0.731	1.635	0.727	1.635	0.727	1.635	0.727	not reported
Tier 3	*0.814*	*0.588*	0.589	*0.270*	0.589	*0.270*	not calculated		

D = Drift mitigation by no-spray buffer zones [m]
R = Runoff mitigation by vegetated filter strips [m]
[a] Worst-case scenario: D2 ditch, multiple application (regular font), D1 ditch, multiple application (*italic font*)

Table B.8.2.5-78: Summary of Steps 3-4 highest global PEC_{sw} and PEC_{sed} values of metconazole following application to winter oil seed rape, autumn application

	PEC_{sw} [µg L^{-1}] [a]								$PEC_{sed,max}$ [µg kg^{-1}] [a]
	Step 3		**Step 4**						**Step 3**
	Edge-of-Field		**05mD**		**10mD**		**10mD+R**		**Edge-of-Field**
	Max	**21d twa**	**Max**	**21d twa**	**Max**	**21d twa**	**Max**	**21d twa**	
Tier 1	1.527	0.606	1.527	0.606	1.527	0.606	1.527	0.606	7.361
Tier 2	1.527	*0.606*	1.527	0.605	1.527	0.605	1.527	0.605	not reported
Tier 3	0.868	*0.405*	0.868	0.383	0.868	0.383	not calculated		

D = Drift mitigation by no-spray buffer zones [m]
R = Runoff mitigation by vegetated filter strips [m]
[a] Worst-case scenario: D2 ditch, multiple application (regular font), D2 ditch, single application (*italic font*)

Table B.8.2.5-79: Summary of Steps 3-4 highest global PEC_{sw} and PEC_{sed} values of metconazole following application to winter oil seed rape, spring application

	PEC_{sw} [µg L^{-1}] [a]								$PEC_{sed,max}$ [µg kg^{-1}] [a]
	Step 3		Step 4						Step 3
	Edge-of-Field		05mD		10mD		10mD+R		Edge-of-Field
	Max	21d twa	Max	21d twa	Max	21d twa	Max	21d twa	
Tier 1	1.605	0.710	1.605	0.710	1.605	0.710	1.605	0.710	9.569
Tier 2	1.587	0.702	1.587	0.702	1.587	0.702	1.587	0.702	not reported
Tier 3	0.808	0.355	0.808	0.334	0.808	0.334	not calculated		

D = Drift mitigation by no-spray buffer zones [m]
R = Runoff mitigation by vegetated filter strips [m]
[a] Worst-case scenario: D2 ditch, multiple application

Metabolites of metconazole

Table B.8.2.5-80: Summary of highest global PEC_{sw} and PEC_{sed} values of the metabolites of metconazole following application of metconazole to winter cereals and winter oilseed rape, autumn application

Crops	FOCUS level	1,2,4-triazole		M555F013	
		Surface water Max. PEC_{sw} [µg L^{-1}]	Sediment Max. PEC_{sed} [µg kg^{-1}]	Surface water Max. PEC_{sw} [µg L^{-1}]	Sediment Max. PEC_{sed} [µg kg^{-1}]
Winter cereals [a]	Step 1	1.056	0.940	7.257	0.725
	Step 2	0.288	0.257	2.207	0.220
Winter oilseed rape, autumn application [b]	Step 1	0.845	0.752	5.806	0.580
	Step 2	0.143	0.127	1.225	0.122

[a] Worst-case application scenario covering use in spring cereals
[b] Worst-case application scenario covering spring application

In Volume 3 CP B.9 (Section Ecotoxicology) the $RAC_{SW,ac}$ (RAC in surface water (SW) for adverse effects of pesticide exposure occurring within a relatively short period after exposure) is always compared with the $PEC_{SW,max}$ derived from the predicted exposure profile for the acute risk assessment. In the chronic risk assessment, the $RAC_{SW,ch}$ (RAC in surface water for adverse effects of pesticide exposure that develop slowly and/or have a long-lasting course and that are caused by short- or long-term exposure) is in the first instance compared with the $PEC_{SW,max}$, and under certain conditions with a $PEC_{SW,twa}$. If the RAC exceeds the relevant PEC_{sw} value, the risk can be considered low. If the RAC is lower than the PEC_{sw} value, further consideration is necessary (e.g. by considering PEC_{sw} values from the next FOCUS Step, or by refining the endpoints used to derive the RAC).

Details about the risk assessment for the active substance metconazole and the metabolites 1,2,4-triazole and M555F013 are given in Volume 3 CP B.9- BAS 555 01 F, Section B.9.4.3.2.

With the exception of the chronic risk to fish, the acute and chronic risk to aquatic organisms (in surface water and sediment) is acceptable based on FOCUS Step 1 or Step 2 values for the proposed uses of BAS 555 01 F in winter and spring cereals and in winter oilseed rape. The chronic risk to fish for the proposed use in winter and spring cereals was acceptable at FOCUS Step 3 for most of the FOCUS scenarios, and at FOCUS Step 4 with a 5 m no spray buffer zone for the D1 ditch scenario. For the proposed use in winter oilseed rape, the risk as acceptable at FOCUS Step 3 for most of the FOCUS scenarios, except for the D2 ditch and D2 stream scenario. For the latter scenarios, no acceptable risk could be demonstrated, even when a 10 m no spray buffer zone and vegetate buffer strip was applied at FOCUS Step 4. Risk mitigation measures for the FOCUS Step 3 scenarios D2 ditch and D2 stream need to be dealt with on member state level.

B.8.3. FATE AND BEHAVIOUR IN AIR

B.8.3.1 Route and rate of degradation in air and transport via air

No studies were performed with BAS 555 01 F. The route and rate of degradation in air as well as transport via air is sufficiently addressed by information given in Vol. 3 CA B.8.3.

Predicted environmental concentrations from airborne transport

No risk assessment needs to be performed due to the very low volatilisation potential of metconazole (vapour pressure of 2.1 x 10^{-8} Pa at 20º C, Vol. 3 CA B.8.3.1, Tremain and An, 2000) and its short DT_{50} in air ($t_{1/2}$ = 6.5 hours, Vol. 3 CA B.8.3.1, Mangels, 1996a). Consequently no PECs have been calculated.

B.8.4. ESTIMATION OF CONCENTRATIONS FOR OTHER ROUTES OF EXPOSURE

No other routes of exposure are anticipated after use of BAS 555 01 F in cereals and oilseed rape.

Article 4 (approval criteria for active substances) 3. (b) of Regulation (EC) No 1107/2009 requires that ‘it shall have no immediate or delayed harmful effects on human health, including that of vulnerable groups, or animal health, ….through drinking water (taking into account substances resulting from water treatment)’. Information on the effect of water treatment processes on the nature of residues when surface water or groundwater are abstracted for drinking water has been submitted by the Notifier and was evaluated in Vol. 3 CA B.8 (Schröder, 2018). The RMS considers that the requirement is fulfilled.

B.8.5 REFERENCES RELIED ON

Data Point	Author(s)	Year	Title Compagny Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study	Data protection claimed Y/N	Owner	Previous evaluation
KCP 9.1.3/1	Imukova K. Pape L.	2015	Predicted environmental concentrations of BAS 555 F - Metconazole and its metabolites in soil, groundwater, surface water and sediment according to FOCUS following application to cereals and winter oilseed rape 2015/1000241 BASF SE, Limburgerhof, Germany Fed.Rep. no Unpublished	No	No	BASF	No, submitted for the renewal
KCP 9.2.4.1/1	Imukova K. Pape L.	2015	Predicted environmental concentrations of BAS 555 F - Metconazole and its metabolites in soil, groundwater, surface water and sediment according to FOCUS following application to cereals and winter oilseed rape 2015/1000241 BASF SE, Limburgerhof, Germany Fed.Rep. no Unpublished	No	No	BASF	No, submitted for the renewal
KCP 9.2.5/1	Imukova K. Pape L.	2015	Predicted environmental concentrations of BAS 555 F - Metconazole and its metabolites in soil, groundwater, surface water and sediment according to FOCUS following application to cereals and winter oilseed rape 2015/1000241 BASF SE, Limburgerhof, Germany Fed.Rep. no Unpublished	No	No	BASF	No, submitted for the renewal