FINAL REGISTRATION REPORT

Part B

Section 3

Efficacy Data and Information

Concise summary

Product code: BAS 758 00 F

Product name(s): Revyflex Plus

Chemical active substance(s):

Mefentrifluconazole, 66.6 g/L

Metrafenone, 100 g/L

Pyraclostrobin, 80 g/L

Central Zone

Zonal Rapporteur Member State: Poland

CORE ASSESSMENT

(authorization)

Applicant: BASF

Submission date: June 2022

MS Finalisation date: 27/01/2023

Version history

When	What
03/2022	Initial dRR – BASF DocID 2021/2054591
04/2022	Dossier sent for evaluation
06/2022	Update dRR – BASF DocID 2022/2029716
06/2022	Update dRR – BASF DocID 2022/2034380
10/2022	zRMS evaluation of dRR
January 2023	Final version prepared by zRMS after Commenting period

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3 Efficacy Data and Information (including Value Data) on the Plant Protection Product (KCP 6)

Transformation of the dRR (applicant version) into the RR (zRMS version)

Comments of zRMS:	Conclusions from the assessment were prepared using grey commenting boxes placed at the end of each chapter. The parts of the text amended or added by the zRMS evaluator are highlighted in grey and the parts struck off are ~~visibly marked with the grey front~~.

3.1 Summary and conclusions of zRMS on Section 3: Efficacy (KCP 6)

Abstract

zRMS

The submitted efficacy data (reports from field trials) fulfil requirements and conditions determined in the EPPO guidelines, the Commission Regulation (EU) No 545/2011 of 10 June 2011 implementing Regulation (EC) No 1107/2009 of the European Parliament and of the Council as regards the data requirements for plant protection products. The reports and data were submitted to support the evaluation for the authorization of BAS 758 00 F in Maritime EPPO climate zone, NE EPPO climate zone and SE EPPO climatic zone.

BAS 758 00 F contains 66,6~~7~~ g/l of the new active substance - mefentrifluconazole, 100 g/l of the active substance metrafenone, 80 g/l of the active substance pyraclostrobin and is formulated as an emulsifiable concentrate (EC). The plant protection product is used in cereals as fungicide for the control of a wide range of diseases at a dose rate of 0,5 - 1,0 l/ha and 1,5 l/ha with maximum 2 application in season when required.

The applicant submitted 203 reports showing the results in research into product efficacy carried out in 2019 and 2020 in Maritime, NE and SE and EPPO climate zones, on cultivars of:
- winter wheat (103 trials) against: (SEPTTR) *Zymoseptoria tritici*, (PUCCRT) *Puccinia triticina*, (PUCCST) *Puccinia striiformis*, (ERYSGR) *Blumeria graminis*, (PYRNTR) *Pyrenophora tritici-repentis*, (PSDCHE) *Oculimacula spp.*;
- spring wheat (2 trials) against: (PUCCST) *Puccinia striiformis*, (PYRNTR) *Pyrenophora tritici-repentis;*
- winter and spring barley (62 trials) against: (PYRNTE) *Pyrenophora teres*, (PUCCHD) *Puccinia hordei*, (ERYSGR) *Blumeria graminis*, (RHYNSE) *Rhynchosporium secalis*, (RAMUCC) *Ramularia collo - cygni*;
- winter triticale (17 trials) against: (SEPTSP) *Septoria spp.*, (PUCCRE) *Puccinia recondite* ; (PUCCST) *Puccinia striiformis*, (ERYSGR) *Blumeria graminis;*
- rye (16 trials) against (PUCCRE) *Puccinia recondite*, (RHYNSE) *Rhynchosporium secalis*,
- oat (3 trials) against: (PUCCCA) *Puccinia coronata, (*ERYSGR) *Blumeria graminis*

to support the registration of BAS 758 00 F in countries: AT, BE, DE, IE, NL, PL, CZ, HU, RO and SK.

The effectiveness of the product was describe according to the following scale:
≥ 80% – Effectively controlled **(E)**
60 – 80% – Medium effectively controlled **(ME)**
0 – 60% – Limiting the number of pest **(R)**

NE EPPO climatic zone (Poland)

winter wheat at a dose rate 1,5 L/ha	• **SEPTTR** *Zymoseptoria tritici* **(E)** • **PUCCRT** *Puccinia triticina* **(E)** • **PUCCST** *Puccinia striiformis* **(E)** • **ERYSGR** *Blumeria graminis* **(E)** • **PYRNTR** *Pyrenophora tritici – repentis* **(E)** • **PSDCHE** *Oculimacula yallundae* **(ME)**
spring wheat at a	• **PUCCST** *Puccinia striiformis* **(E)**

dose rate 1,5 L/ha	• **PYRNTR** *Pyrenophora tritici – repentis* **(E)**
winter barley at a dose rate 1,5 L/ha	• **PYRNTE** *Pyrenophora teres* **(E)** • **PUCCHD** *Puccinia hordei* **(E)** • **RHYNSE** *Rhynchosporium secalis* **(E)** • **ERYSGR** *Blumeria graminis* **(E)**
spring barley at a dose rate 1,5 L/ha	• **PYRNTE** *Pyrenophora teres* **(E)** • **PUCCHD** *Puccinia hordei* **(E)** • **RHYNSE** *Rhynchosporium secalis* **(E)** • **ERYSGR** *Blumeria graminis* **(E)**
winter triticale at a dose rate 1,5 L/ha	• **SEPTTR** *Septoria tritici* **(E)** • **PUCCRE** *Puccinia recondita* **(E)** • **PUCCST** *Puccinia striiformis* **(E)** • **ERYSGR** *Blumeria graminis* **(E)**
rye at a dose rate 1,5 L/ha	• **PUCCRE** *Puccinia recondita* **(E)** • **RHYNSE** *Rhynchosporium secalis* **(E)**

Results from efficacy trials demonstrate that BAS 758 00 F at the dose rate 1,5 L/ha is a good alternative to standard fungicides for the control of several diseases in cereals. The product showed a rapid and long-lasting effect. Maximum number of applications in one season is 2, with a minimum of 14 days between applications and between growth stages 30-59. For PSDCHE application time is BBCH 30-32 of wheat.

The presented number of trials against ERYSGR on winter barley and spring barley does not meet the registration requirements in Poland. Nevertheless, the product performed efficiently and at similar efficiency level at a dose of 1.5 l/ha in the Maritime zone. That is why it is proposed to be conditionally present on the label until the number of trials is completed.

The evaluation of minor uses (*Triticum durum* and *Triticum spelta L.*) was not performed. In case of art. 33 of PPPR authorization the Applicant needs to present efficacy data. For the purpose of BAS 758 00 F authorization any efficacy data for minor uses were not presented by the Applicant.
In the GAP table, the Applicant asked for registration of the product also for protection of TRZAS, TTLSO. In accordance with the extrapolation rules set by Polish Ministry of Agriculture and Rural Development results from winter wheat can be extrapolated to spring wheat, winter and spring triticale. Nevertheless, according to the principles of extrapolation, a representative number of trials (1-2) should be provided for the crops to which we extrapolate. Therefore, to support efficacy of spring wheat against more diseases and spring triticale, the number 1-2 trials for the above-mentioned diseases must be submitted.

SE EPPO climatic zone

crop	dose rate 0,5 L/ha	dose rate 1,0 L/ha
winter wheat	• **SEPTTR** *Zymoseptoria tritici* **(ME)** • **PUCCRT** *Puccinia triticina* **(E)** • **ERYSGR** *Blumeria graminis* **(E)** • **PYRNTR** *Pyrenophora tritici-repentis* **(ME)** • **PSDCHE** *Oculimacula yallundae* **(ME)**	• **SEPTTR** *Zymoseptoria tritici* **(E)** • **PUCCRT** *Puccinia triticina* **(E)** • **ERYSGR** *Blumeria graminis* **(E)** • **PYRNTR** *Pyrenophora tritici-repentis* **(E)** • **PSDCHE** *Oculimacula yallundae* **(E)**
winter barley	• **PYRNTE** *Pyrenophora teres* **(E)** • **ERYSGR** *Blumeria graminis* **(E)**	• **PYRNTE** *Pyrenophora teres* **(E)** • **ERYSGR** *Blumeria graminis* **(E)**
spring barley	• **PYRNTE** *Pyrenophora teres* **(E)** • **ERYSGR** *Blumeria graminis* **(E)**	• **PYRNTE** *Pyrenophora teres* **(E)** • **ERYSGR** *Blumeria graminis* **(E)**

The presented number of trials against ERYSGR on winter and spring barley does not meet the registration requirements in Poland. Nevertheless, the product performed efficiently and performed at the same efficiency level (89,5%) at a dose of 1.5 l/ha in the Maritime zone. That is why it is proposed to be condi-

tionally present on the label until the number of tests is completed.

Results from efficacy trials demonstrate that BAS 758 00 F at the dose rate 0,5 L/ha and 1,0 L/ha is a good alternative to standard fungicides for the control of several diseases in cereals. The product showed a rapid and long-lasting effect. Maximum number of applications in one season is 2, with a minimum of 14 days between applications and between growth stages 30-59. For PSDCHE application time is BBCH 30-32 of wheat.

In the GAP table, the Applicant asked for registration of the product also for protection of TRZAS, TRZDU, TRZSP, SECCS, SECCW, TTLSO, TTLWI. Results from winter wheat might be extrapolated to TRZAS, TRZDU, TRZSP, SECCS TTLSO. Nevertheless, a representative number of trials (1-2) should be provided for the crops to which we extrapolate. What is more the Applicant did not provide any trials on AVESA. The product efficacy cannot be assessed against diseases on AVESA. The zRMS will leave it to the decision of the SE EPPO climatic zone Member States (cMS).

Maritime EPPO climatic zone

winter wheat at a dose rate 1,5 L/ha	• **SEPTTR** *Zymoseptoria tritici* **(E)** • **PUCCRT** *Puccinia triticina* **(E)** • **PUCCST** *Puccinia striiformis* **(E)** • **ERYSGR** *Blumeria graminis* **(E)** • **PYRNTR** *Pyrenophora tritici – repentis* **(E)** • **PSDCHE** *Oculimacula yallundae* **(ME)**
winter barley at a dose rate 1,5 L/ha	• **PYRNTE** *Pyrenophora teres* **(E)** • **PUCCHD** *Puccinia hordei* **(E)** • **RHYNSE** *Rhynchosporium secalis* **(E)** • **RAMUCC** *Ramularia collo-cygni* **(E)**
spring barley at a dose rate 1,5 L/ha	• **PYRNTE** *Pyrenophora teres* **(E)**
winter triticale at a dose rate 1,5 L/ha	• **SEPTTR** *Septoria tritici* **(E)** • **PUCCRE** *Puccinia recondita* **(E)** • **PUCCST** *Puccinia striiformis* **(E)** • **ERYSGR** *Blumeria graminis* **(E)**
rye at a dose rate 1,5 L/ha	• **PUCCRE** *Puccinia recondita* **(E)** • **RHYNSE** *Rhynchosporium secalis* **(ME)**

Results from efficacy trials demonstrate that BAS 758 00 F at the dose rate 1,5 L/ha is a good alternative to standard fungicides for the control of several diseases in cereals. The product showed a rapid and long-lasting effect. Maximum number of applications in one sea-son is 2, with a minimum of 14 days between applications and between growth stages 30-59. For PSDCHE application time is BBCH 30-32 of wheat.

In the GAP table, the Applicant asked for registration of the product also for protection of TRZAS, TRZDU, TRZSP, TTLSO. Results from winter wheat might be extrapolated to TRZAS, TRZDU, TRZSP, TTLSO. Additionally results from HORVS may be also extrapolated to HORVS. Nevertheless, a representative number of trials (1-2) should be provided for the crops to which we extrapolate. The zRMS will leave it to the decision of the Maritime EPPO climatic zone Member States (cMS).

The applicant provided full information on the prevalence of resistance to three active substances in UE and in third countries. A robust risk analysis was performed to define a strategy for managing the risk of resistance to three active substances contained in the product BAS 758 00 F. The presented strategy complies with the resistance management strategy recommended by FRAC. Nevertheless in case any new information which would change the resistance risk analysis regulatory authorities should be informed about it.

BAS 758 00 F was safe to the crops on which it was applied as no phytotoxicity symptoms were observed in the efficacy tests. The product did not cause a negative impact on the yield of winter and spring wheat, winter and spring barley, winter triticale, rye, oats in the presence of disease and in the absence of disease (1 trial for winter barley and 1 trial for winter triticale).

The product BAS 758 00 F had no negative effect on cereals quality, processing of malting and brewing barley and was safe for the germination of the grains of treated wheat and barley.
No problems is going to be linked to BAS 758 00 use on succeeding and adjusted crops, if product uses in accordance with the recommendations.
The two-stage cleaning of the field sprayer with water immediately after using the BAS 758 00 F is a sufficient tank cleaning procedure. Protective clothing will be cleaned effectively when washed with usual laundry detergents.
BAS 758 00 F is chemically compatible with the tested tank mix partners.

According to the above, the plant protection product BAS 758 00 is recommended to be approved to use according to the table of intended uses for BAS 758 00. The evaluation was carried out in accordance with the Uniform Principles.

Evaluation of the data submitted at the commenting stage

In response to the AT cMS request, the Applicant presented results of the product efficacy against PUCCST on spelt. BAS 758 00 F effectively controlled the disease.
BAS 758 00 F was safe to spelt as no phytotoxicity symptoms were observed in the efficacy tests. The product did not cause a negative impact on the yield and quality of spelt in the presence of disease.

Table 3.1-1: Acceptability of intended uses (and respective fall-back GAPs, if applicable)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use-No. *	**Member state(s)**	**Crop and/ or situation (crop destination / purpose of crop)**	**F, Fn, Fnp G, Gn, Gnp or I ****	**Pests or Group of pests controlled (additionally: developmental stages of the pest or pest group)**	**Application**				**Application rate**			**PHI (days)**	**Remarks:**	**zRMS Conclusion (efficacy)**
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	g as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max		e.g. g safener/ synergist per ha, other dose rate expression, dose range (min-max)	
Zonal uses (field or outdoor uses, certain types of protected crops)														
1	AT, BE, DE, IE, NL, ~~PL~~	wheat TRZAW, TRZAS TRZDU, TRZSP	F	*Oculimacula spp.* - PSDCHE *Blumeria graminis* - ERYSGR *Zymoseptoria tritici* - SEPTTR *Puccinia triticina* - PUCCRT *Puccinia striiformis* - PUCCST *P. tritici-repentis* - PYRNTR	Spraying (SP)	30 - 59	a) 2 b) 2	14	a) 1,5 b) 3	a) 0,100* / 0,150** / 0,120*** b) 0,200* / 0,300** / 0,240***	100 - 300	56	For eyespot control, only one application at BBCH 30-32	C
2	AT, BE, DE, IE, NL, ~~PL~~	barley HORVW HORVS	F	*B. graminis* - ERYSGR *Pyrenophora teres* - PYRNTE *R. secalis* - RHYNSE *R. collo-cygni* - RAMUCC *Puccinia hordei* - PUCCHD	Spraying (SP)	30 - 59	a) 2 b) 2	14	a) 1,5 b) 3	a) 0,100* / 0,150** / 0,120*** b) 0,200* / 0,300** / 0,240***	100 - 300	56		C
3	AT, BE, DE, IE, NL, ~~PL~~	rye SECCW SECCS SECCE	F	*R. secalis* - RHYNSE *Puccinia recondita* - PUCCRE	Spraying (SP)	30 - 59	a) 2 b) 2	14	a) 1,5 b) 3	a) 0,100* / 0,150** / 0,120*** b) 0,200* / 0,300** / 0,240***	100 - 300	56		C

4	AT, BE, DE, IE, NL, ~~PL~~	triticale TTLWI TTLSO	F	*B. graminis* - ERYSGR *Septoria spp.* - SEPTSP *Puccinia recondita* - PUCCRE *Puccinia striiformis* - PUCCST	Spraying (SP)	30 - 59	a) 2 b) 2	14	a) 1,5 b) 3	a) 0,100* / 0,150** / 0,120*** b) 0,200* / 0,300** / 0,240***	100 - 300	56		C
5	AT, DE, BE, NL, IE	oat AVESA	F	*B. graminis* - ERYSGR *Puccinia coronata* - PUCCCA	Spraying (SP)	30 - 59	a) 2 b) 2	14	a) 1,5 b) 3	a) 0,100* / 0,150** / 0,120*** b) 0,200* / 0,300** / 0,240***	100 - 300	56		C
6	CZ	wheat TRZAW, TRZAS TRZDU, TRZSP	F	*Oculimacula spp.* - PSDCHE *Blumeria graminis* - ERYSGR *Zymoseptoria tritici* - SEPTTR *Puccinia triticina* - PUCCRT *Puccinia striiformis* - PUCCST *P. tritici-repentis* - PYRNTR	Spraying (SP)	30 - 59	a) 1 b) 1		a) 1 - 1,5 b) 1 - 1,5	a) 0,100* / 0,150** / 0,120*** b) 0,100* / 0,150** / 0,120***	100 - 300	56	For eyespot control, only one application at BBCH 30-32	C
7	CZ	barley HORVW HORVS	F	*B. graminis* - ERYSGR *Pyrenophora teres* - PYRNTE *R. secalis* - RHYNSE *R. collo-cygni* - RAMUCC *Puccinia hordei* - PUCCHD	Spraying (SP)	30 - 59	a) 1 b) 1		a) 1 - 1,5 b) 1 - 1,5	a) 0,100* / 0,150** / 0,120*** b) 0,100* / 0,150** / 0,120***	100 - 300	56		C
8	CZ	rye SECCW SECCS SECCE	F	*R. secalis* - RHYNSE *Puccinia recondita* - PUCCRE	Spraying (SP)	30 - 59	a) 1 b) 1		a) 1 - 1,5 b) 1 - 1,5	a) 0,100* / 0,150** / 0,120*** b) 0,100* / 0,150** / 0,120***	100 - 300	56		C

9	CZ	triticale TTLWI TTLSO	F	*B. graminis* - ERYSGR *Septoria spp.* - SEPTSP *Puccinia recondita* - PUCCRE *Puccinia striiformis* – PUCCST	Spraying (SP)	30 - 59	a) 1 b) 1		a) 1 - 1,5 b) 1 - 1,5	a) 0,100* / 0,150** / 0,120*** b) 0,100* / 0,150** / 0,120***	100 - 300	56		C
10	CZ	oat AVESA	F	*B. graminis* - ERYSGR *Puccinia coronata* – PUCCCA	Spraying (SP)	30 - 59	a) 1 b) 1		a) 1 - 1,5 b) 1 - 1,5	a) 0,100* / 0,150** / 0,120*** b) 0,100* / 0,150** / 0,120***	100 - 300	56		C
11	HU, RO, SK	wheat TRZAW, TRZAS TRZDU, TRZSP	F	*Oculimacula spp.* - PSDCHE *Blumeria graminis* - ERYSGR *Zymoseptoria tritici* - SEPTTR *Puccinia triticina* - PUCCRT *Puccinia striiformis* - PUCCST *P. tritici-repentis* – PYRNTR	Spraying (SP)	30 - 59	a) 2 b) 2	14	a) 0,5 - 1 b) 0,5 - 2	a) 0,067* / 0,100** / 0,080*** b) 0,133* / 0,200** / 0,160***	100 - 300	56	For eyespot control, only one application at BBCH 30-32	C
12	HU, RO, SK	barley HORVW HORVS	F	*B. graminis* - ERYSGR *Pyrenophora teres* - PYRNTE *Puccinia hordei* – PUCCHD	Spraying (SP)	30 - 59	a) 2 b) 2	14	a) 0,5 - 1 b) 0,5 - 2	a) 0,067* / 0,100** / 0,080*** b) 0,133* / 0,200** / 0,160***	100 - 300	56		C
13	HU, RO, SK	rye SECCW SECCS SECCE	F	*R. secalis* - RHYNSE *Puccinia recondita* - PUCCRE	Spraying (SP)	30 - 59	a) 2 b) 2	14	a) 0,5 - 1 b) 0,5 - 2	a) 0,067* / 0,100** / 0,080*** b) 0,133* / 0,200** / 0,160***	100 - 300	56		C
14	HU, RO, SK	triticale TTLWI TTLSO	F	*B. graminis* - ERYSGR *Septoria spp.* - SEPTSP *Puccinia recondita* - PUCCRE *Puccinia striiformis* – PUCCST	Spraying (SP)	30 - 59	a) 2 b) 2	14	a) 0,5 - 1 b) 0,5 - 2	a) 0,067* / 0,100** / 0,080*** b) 0,133* / 0,200** / 0,160***	100 - 300	56		C

15	HU, RO, SK	oat AVESA	F	*B. graminis* - ERYSGR *Puccinia coronata* - PUCCCA	Spraying (SP)	30 - 59	a) 2 b) 2	14	a) 0,5 - 1 b) 0,5 - 2	a) 0,067* / 0,100** / 0,080*** b) 0,133* / 0,200** / 0,160***	100 - 300	56		C
16	PL	wheat TRZAW, ~~TRZDU, TRZSP~~	F	*Oculimacula spp.* - PSDCHE *Blumeria graminis* - ERYSGR *Zymoseptoria tritici* - SEPTTR *Puccinia triticina* - PUCCRT *Puccinia striiformis* - PUCCST *P. tritici-repentis* - PYRNTR	Spraying (SP)	30 - 59	a) 2 b) 2	14	a) 1,5 b) 3	a) 0,100* / 0,150** / 0,120*** b) 0,200* / 0,300** / 0,240***	100 - 300	56	For eyespot control, only one application at BBCH 30-32	A
17	PL	wheat TRZAS	F	~~*Oculimacula spp.* - PSDCHE~~ ~~*Blumeria graminis* - ERYSGR~~ ~~*Zymoseptoria tritici* - SEPTTR~~ ~~*Puccinia triticina* - PUCCRT~~ *Puccinia striiformis* - PUCCST *P. tritici-repentis* - PYRNTR	Spraying (SP)	30 - 59	a) 2 b) 2	14	a) 1,5 b) 3	a) 0,100* / 0,150** / 0,120*** b) 0,200* / 0,300** / 0,240***	100 - 300	56	For eyespot control, only one application at BBCH 30-32	A
18	PL	barley HORVW	F	~~*B. graminis* - ERYSGR~~ *Pyrenophora teres* - PYRNTE *R. secalis* - RHYNSE ~~*R. collo-cygni* - RAMUCC~~ *Puccinia hordei* - PUCCHD	Spraying (SP)	30 - 59	a) 2 b) 2	14	a) 1,5 b) 3	a) 0,100* / 0,150** / 0,120*** b) 0,200* / 0,300** / 0,240***	100-300	56		A

19	PL	barley HORVS	F	~~*B. graminis* -~~ ~~ERYSGR~~ *Pyrenophora teres* - PYRNTE *R. secalis* - RHYNSE ~~*R. collo-cygni* -~~ ~~RAMUCC~~ *Puccinia hordei* - PUCCHD	Spraying (SP)	30 - 59	a) 2 b) 2	14	a) 1,5 b) 3	a) 0,100* / 0,150** / 0,120*** b) 0,200* / 0,300** / 0,240***	100 - 300	56		A
20	PL	Barley HORVW barley HORVS	F	*B. graminis* - *ERYSGR*	Spraying (SP)	30 - 59	a) 2 b) 2	14	a) 1,5 b) 3	a) 0,100* / 0,150** / 0,120*** b) 0,200* / 0,300** / 0,240***	100- 300	56		R
21	PL	rye SECCW SECCS SECCE	F	*R. secalis* - RHYNSE *Puccinia recondita* - PUCCRE	Spraying (SP)	30 - 59	a) 2 b) 2	14	a) 1,5 b) 3	a) 0,100* / 0,150** / 0,120*** b) 0,200* / 0,300** / 0,240***	100- - 300	56		A
22	PL	triticale TTLWI	F	*B. graminis* - ERYSGR *Septoria spp.* - SEPTTR *Puccinia recondita* - PUCCRE *Puccinia striiformis* - PUCCST	Spraying (SP)	30 - 59	a) 2 b) 2	14	a) 1,5 b) 3	a) 0,100* / 0,150** / 0,120*** b) 0,200* / 0,300** / 0,240***	100 - 300	56		A
23	PL	~~triticale~~ ~~TTLSO~~	F	~~*B. graminis* -~~ ~~ERYSGR~~ ~~*Septoria spp.* -~~ ~~SEPTSP~~ ~~*Puccinia recondita* -~~ ~~PUCCRE~~ ~~*Puccinia striiformis* -~~ ~~PUCCST~~	~~Spraying~~ ~~(SP)~~	~~30 - 59~~	~~a) 2~~ ~~b) 2~~	~~14~~	~~a) 1,5~~ ~~b) 3~~	~~a) 0,100* / 0,150** /~~ ~~0,120***~~ ~~b) 0,200* / 0,300** /~~ ~~0,240***~~	~~100 -~~ ~~300~~	~~56~~		N

* Mefentrifluconazole
** Metrafenone
*** Pyraclostrobin
Use number(s) in accordance with the list of all intended GAPs in Part B, Section 0 should be given in column 1.
F: professional field use, Fn: non-professional field use, Fpn: professional and non-professional field use, G: professional greenhouse use, Gn: non-professional greenhouse use, Gpn: professional and non-professional greenhouse use, I: indoor application

Column 15: zRMS conclusion.

A	Acceptable
R	Acceptable with further restriction
C	To be confirmed by cMS
N	Not acceptable / evaluation not possible
n.r.	Not relevant for section 3

3.2 Efficacy data (KCP 6)

Introduction

This Biological Assessment Dossier (BAD) supports the registration of BAS 758 00 F in countries within the Central registration zone (AT, BE, CZ, DE, HU, IE, NL, PL, RO and SK). Poland was selected as zRMS in charge of the evaluation of the dossier. A separate submission will be done in the United Kingdom.
BAS 758 00 F is a fungicide to be used in cereals (wheat, barley, triticale, rye and oats). The targets for the use of BAS 758 00 F are the diseases: *Zymoseptoria tritici*, *Septoria* spp., *Puccinia* spp., *Pyrenophora tritici-repentis*, *Pyrenophora teres*, *Oculimacula* spp., *Blumeria graminis*, *Rhynchosporium secalis* and *Ramularia collo-cygni*.

Description of active substances

Mode of action

Mefentrifluconazole (BAS 750 F) is a fungicide belonging to the group of the sterol biosynthesis inhibitors (SBI, mode of action class G). Within the SBIs, it belongs to the subgroup of demethylation inhibitors (DMI, G1, FRAC 2017) and the chemical group of triazoles.
The primary mode of action of DMIs is the blocking of ergosterol biosynthesis through inhibition of cytochrome P450 sterol 14α-demethylase (CYP51). The depletion of ergosterol and accumulation of non-functional 14α-methyl sterols results in inhibition of growth and cell membrane disruption.
Mefentrifluconazole is the first isopropanol azole: the triazole ‘head’ sits on the ‘neck’ of a slim isopropanol linker. This chemical constellation ensures a high degree of structural flexibility that is unique among the DMI linkers. This slim isopropanol linker requires less energy to adjust its conformation compared to conventional DMIs. When mefentrifluconazole approaches the active site of its target enzyme, the flexible linker allows it to form a hook, which fits into the enzyme’s binding pocket, resulting in strong inhibition of enzyme activity. This might explain the high intrinsic activity of mefentrifluconazole on the target enzyme, which has been shown in studies with the CYP51 of *Zymoseptoria tritici* in comparison with other DMIs.
In the formulation BAS 758 00 F, mefentrifluconazole is active against different fungal stages both on the plant surface and in the plant tissue. After application to the plant, the active ingredient is taken up via the leaf and slowly but consistently translocated apically via the transpiration flow. The limited translocation leads to a formation of inner-leaf reservoirs which allow a well-balanced, long lasting systemic activity. As a result, mefentrifluconazole can control fungal stages which have already become established in deeper tissue layers of the plant (curative activity). Furthermore, mefentrifluconazole shows an impressive residual activity, as the majority of leaf deposits are well-protected in the inner leaf. Since the vapour pressure of mefentrifluconazole is very low, a gas phase activity was not observed.

Metrafenone is classified chemically as a benzophenone and is the first fungicide active ingredient within this group to be developed. The mode of action of the fungicide metrafenone has been analyzed on the powdery mildew fungi of barley (*Blumeria graminis* f. sp. *hordei*) and wheat (*Blumeria graminis* f. sp. *tritici*) on the morphological and cytological level. Preventative treatments with metrafenone reduce spore germination and block development beyond formation of appressoria, which penetrate less often. Additionally, metrafenone affects fungal survival by causing swelling, bursting and collapse of hyphal tips resulting in the release of globules of cytoplasm. Bifurcation of hyphal tips, secondary appressoria and hyper branching were also frequently observed. A histochemical analysis showed that metrafenone causes disruption of the apical actin cap and apical vesicle transport as well as weakening of the cell wall at hyphal tips. Finally, metrafenone strongly reduces sporulation. Reduced sporulation is associated with malformation of conidiophores that show irregular septation, multinucleate cells and delocalization of actin. Microtubules seem to be only secondarily affected in metrafenone treated *Blumeria graminis*. The results suggest that the mode of action of metrafenone interferes with hyphal morphogenesis, polarized hyphal growth, establishment and maintenance of cell polarity. Metrafenone likely disturbs a pathway regulating organization of the actin cytoskeleton.

Pyraclostrobin is a fungicide active ingredient belonging to the strobilurin group (group FRAC C3). The biochemical mode of action of strobilurins is the inhibition of mitochondrial respiration resulting from a blockage of electron transport from ubihydroquinone oxidation centre (Qo) of the cytochrome bc1 complex (complex III). Interrupting the electron transport chain this way prevents oxidative phosphorylation, thus causing a severe reduction in the availability of ATP, the main energy currency of the cell. The shortage of energy has a wide range of biochemical consequences such as the breakdown of essential membrane potentials and concentration gradients and the inhibition of the biosynthesis of metabolites and macromolecules such as proteins and nucleic acids. Fungal spore germination, mycelial growth and the development of infection structures are thus prevented.
Pyraclostrobin is active against fungal development stages both on the plant surface and within the tissues. The preferred method of application is spraying, upon which the compound is absorbed by the leaf and has mobility in the transpiration stream and low phloem mobility. Therefore, a systemic and translaminar activity can be observed.
Protective application prevents new infection predominantly by inhibiting spore germination. This stage of fungal development has a very high energy requirement, which makes it particularly sensitive to an inhibition of the mitochondrial electron transport chain. Post infection application of Pyraclostrobin leads to a rapid collapse of fungal structures already established on leaf surface. Since the compound can penetrate the leaf surface, it is also active against fungal structures that have developed within the plant tissues.
Pyraclostrobin provides disease control on many fungi belonging to *Ascomycetes, Oomycetes, Basidiomycetes* and *Deuteromycetes* groups, which can be found in several crops.

Table 3.2-1: Details of the active substances

Active ingredient	**Mefentrifluconazole**	**Metrafenone**	**Pyraclostrobin**
CAS number:	1417782-03-6	220899-03-6	175013-18-0
IUPAC name:	2-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl]-1-(1H-1,2,4-triazol-1-yl)propan-2-ol	(3-bromo-6-methoxy-2-methylphenyl)-(2,3,4-trimethoxy-6-methylphenyl)methanone	Methyl (2-(((1-(4-chlorophenyl)-1H-pyrazol-3-yl)oxy)methyl)phenyl)(methoxy)carbamate
Molecular weight:	397.8 g/mol	409.3 g/mol	387.8 g/mol
Chemical formula:	$C_{18}H_{15}ClF_3N_3O_2$	$C_{19}H_{21}BrO_5$	$C_{19}H_{18}ClN_3O_4$
Chemical group:	Triazoles / Isopropanol-azoles	Benzophenone	Strobilurin
Mode of action:	blocking of ergosterol biosynthesis demethylation inhibiton (DMI)	disturbing a pathway regulating organization of the actin cytoskeleton	Inhibition of the complex III : cytochrome bc1
Resistance group:	G1/DMI-fungicides	B6/aryl-phenylketones	C3/QoI-fungicides

Description of the plant protection product

BAS 758 00 F is a novel fungicide containing 66.7 g/l mefentrifluconazole, 100 g/l metrafenone and 80 g/l pyraclostrobin as an emulsifiable concentrate (EC). BAS 758 00 F is intended for use as a foliar spray in wheat, barley, triticale, rye and oats against the diseases *Zymoseptoria tritici, Septoria* spp., *Puccinia* spp., *Pyrenophora tritici-repentis, Pyrenophora teres, Oculimacula* spp., *Blumeria graminis, Rhynchosporium secalis* and *Ramularia collo-cygni*.
The applications should be made between growth stages 30-59 BBCH of all cereal crops. Maximum two applications could be made in the crop with a maximum dose rate per treatment of 1.5 L/ha. Requested uses are presented in Table 3.1-1.

Table 3.2-2: Simplified table of currently registered uses and requested uses for BAS 758 00 F

Uses		Member State	Requested rate(s)	Comments / Other relevant details on GAPs
Crop(s)	**Target(s)**			
Wheat	*Zymoseptoria tritici*	AT, BE, CZ, DE, NL, IE, PL, HU, RO, SK	1.5 L/ha (AT, BE, DE, NL, IE, PL) 1.0 - 1.5 L/ha (CZ) 0.5-1.0 L/ha (HU, RO, SK)	
	Puccinia triticina	AT, BE, CZ, DE, NL, IE, PL, HU, RO, SK		
	Puccinia striiformis	AT, BE, CZ, DE, NL, IE, PL, HU, RO, SK		
	Blumeria graminis	AT, BE, CZ, DE, NL, IE, PL, HU, RO, SK		
	Pyrenophora tritici-repentis	AT, BE, CZ, DE, NL, IE, PL, HU, RO, SK		
	Oculimacula spp.	AT, BE, CZ, DE, NL, IE, PL, HU, RO, SK		
Barley	*Pyrenophora teres*	AT, BE, CZ, DE, NL, IE, PL, HU, RO, SK		
	Puccinia hordei	AT, BE, CZ, DE, NL, IE, PL, HU, RO, SK		
	Blumeria graminis	AT, BE, CZ, DE, NL, IE, PL, HU, RO, SK		
	Rhynchosporium secalis	AT, BE, CZ, DE, NL, IE, PL		
	Ramularia collo-cygni	AT, BE, CZ, DE, NL, IE		
Triticale	*Septoria* spp.	AT, BE, CZ, DE, NL, IE, PL, HU, RO, SK		
	Puccinia recondita	AT, BE, CZ, DE, NL, IE, PL, HU, RO, SK		
	Puccinia striiformis	AT, BE, CZ, DE, NL, IE, PL, HU, RO, SK		
	Blumeria graminis	AT, BE, CZ, DE, NL, IE, PL, HU, RO, SK		
Rye	*Puccinia recondita*	AT, BE, CZ, DE, NL, IE, PL, HU, RO, SK		
	Rhynchosporium secalis	AT, BE, CZ, DE, NL, IE, PL, HU, RO, SK		
Oat	*Puccinia coronata*	AT, BE, CZ, DE, NL, IE HU, RO, SK		
	Blumeria graminis	AT, BE, CZ, DE, NL, IE HU, RO, SK		

Further details are in the table “All intended uses” in Part B - Section 0.

Description of the target pests

Table 3.2-3: Glossary of pests mentioned in the dossier.

EPPO code	Scientific name	Common name
ERYSGR	*Blumeria graminis*	Powdery mildew of wheat
PSDCHE	*Oculimacula* spp.	Eyespot of wheat
PUCCRT	*Puccinia triticina*	Brown rust of wheat
PUCCST	*Puccinia striiformis*	Yellow rust of wheat
PYRNTR	*Pyrenophora tritici-repentis*	Tan spot of wheat
SEPTTR	*Zymoseptoria tritici*	Septoria leaf blotch of wheat
ERYSGR	*Blumeria graminis*	Powdery mildew of barley
PYRNTE	*Pyrenophora teres*	Net blotch of barley
PUCCHD	*Puccinia hordei*	Brown rust of barley
RAMUCC	*Ramularia collo-cygni*	Ramularia leaf spot of barley
RHYNSE	*Rhynchosporium secalis*	Rhynchosporium leaf scald of barley
PUCCRE	*Puccinia recondita*	Brown rust of rye
RHYNSE	*Rhynchosporium secalis*	Rhynchosporium leaf scald of triticale
ERYSGR	*Blumeria graminis*	Powdery mildew of triticale
PUCCRE	*Puccinia recondita*	Brown rust of triticale
PUCCST	*Puccinia striiformis*	Yellow rust of triticale
SEPTSP	*Septoria* spp.	Septoria leaf blotch of triticale
PUCCCA	*Puccinia coronata*	Crown rust of oats
ERYSGR	*Blumeria graminis*	Powdery mildew of oats

Table 3.2-4: Major / minor status of intended uses (for all cMS and zRMS).

Crop and/or situation	Crop status		Pests or group of pests controlled	Pest status	
	Major	minor		Major	minor
Wheat	AT, BE, CZ, DE, NL, UK, IE, PL, HU, RO, SK	-	*Zymoseptoria tritici*	AT, BE, CZ, DE, NL, UK, IE, PL, HU, RO, SK	-
			Puccinia triticina		
			Puccinia striiformis		
			Blumeria graminis		
			Pyrenophora tritici-repentis		
			Oculimacula spp.		
Barley	AT, BE, CZ, DE, NL (HORVS), UK, IE, PL, HU, RO, SK	NL (HORVW)	*Pyrenophora teres*	AT, BE, CZ, DE, NL (HORVS), UK, IE, PL, HU, RO, SK	NL (HORVW)
			Puccinia hordei		
			Blumeria graminis		
			Rhynchosporium secalis	AT, BE, CZ, DE, NL (HORVS), UK, IE, PL	NL (HORVW)
			Ramularia collo-cygni		
Triticale	~~AT,~~ BE, CZ, DE, PL, HU, SK	NL, UK, IE, RO, AT	*Septoria* spp.	AT, BE, CZ, DE, PL, HU, SK	NL, UK, IE, RO, ~~SK~~
			Puccinia recondita		
			Puccinia striiformis		
			Blumeria graminis		
Rye	AT (SECCW), BE, CZ, DE, PL, HU, SK (SECCW)	AT (SECCS), NL, UK, IE, RO, SK (SECCS),	*Puccinia recondita*	AT (SECCW), BE, CZ, DE, PL, HU, SK ~~(SECCW)~~	AT (SECCS), NL, UK, IE, RO, ~~SK (SECCS~~)
			Rhynchosporium secalis		
Oats	BE, CZ, DE, PL, RO, SK	AT, NL, UK, IE, HU	*Blumeria graminis*	BE, CZ, DE, PL, RO, SK	AT, NL, UK, IE, HU, ~~SK~~
			Puccinia coronata		

Comments of zRMS:	CMSs are asked to confirm the status of crops and diseases.

Compliance with the Uniform Principles

All of the efficacy trials used in this dossier are performed according to GEP and EPPO Guidelines.

In section 3.7 of this dossier the list of test facilities is included.

The same set of efficacy trials were used for sections: Minimum effective dose tests (3.2.2), Efficacy tests (3.2.3), Yield and quality in presence of disease (3.2.3), Phytotoxicity to host crop (3.4.1).

Details on the trial methodologies and performance of the efficacy trials are given in section 3.2.3 Efficacy tests (KCP 6.2) in text and tabular form.

Information on trials submitted (3.1 Efficacy data)

The same set of 203 efficacy trials are used for sections: Minimum effective dose tests (3.2.2), Efficacy tests (3.2.3), Yield and quality in presence of disease (3.2.3), Phytotoxicity to host crop (3.4.1).

Table 3.2-5: Presentation of efficacy trials

Crop(s) *	Country	Years	Number of trials			GEP, non-GEP ***
			Maritime	North-East	South-East	
Winter wheat	Czech Rep.	2019	5			GEP
		2020	3			GEP
	Denmark	2020	2			GEP
	Germany	2019	11			GEP
		2020	9			GEP
	Netherland	2020	2			GEP
	UK	2019	6			GEP
		2020	2			GEP
	Latvia	2019		1		GEP
		2020		1		GEP
	Poland	2019		22		GEP
		2020		10		GEP
	Bulgaria	2019			5	GEP
		2020			3	GEP
	Hungary	2020			4	GEP
	Romania	2019			3	GEP
		2020			7	GEP
	Slovakia	2019			3	GEP
		2020			4	GEP
	TOTAL	2019-2020	**40**	**34**	**29**	**103**
Spring wheat	Finland	2019		1		
		2020		1		
	TOTAL	2019-2020		**2**		**2**
Spelt	Germany	2022	2			
			2			**2**
Winter barley	Denmark	2020	1			
	Germany	2019	9			
		2020	8			
	Ireland	2020	1			
	UK	2019	4			
		2020	1			
	Poland	2019		2		GEP
		2020		12		GEP
		2021		2		GEP
	Bulgaria	2019			2	GEP
		2020			1	GEP
	Hungary	2019			1	GEP
		2020			1	
	Romania	2019			2	GEP
		2020			2	GEP
	TOTAL	2019-2019	**24**	**16**	**9**	**49**

Crop(s) *	Country	Years	Number of trials			GEP, non-GEP ***
			Maritime	North-East	South-East	
Spring barley	Denmark	2020	2			
	Latvia	2020		2		
	Lithuania	2019		1		GEP
				1		
	Poland	2019		6		GEP
	Slovakia	2019			1	GEP
	TOTAL	2019-2019	**2**	**10**	**1**	**13**
Triticale	Denmark	2019	1			GEP
		2020	1			GEP
	Germany	2019	3			GEP
		2020	4			GEP
	Lithuania	2019		1		GEP
	Poland	2019		3		GEP
		2020		4		GEP
	TOTAL	2019-2020	**9**	**8**		**17**
Rye	Denmark	2020	1			GEP
	Germany	2019	2			GEP
		2020	4			GEP
	Latvia	2019		1		GEP
		2020		1		GEP
	Poland	2019		3		GEP
		2020		4		GEP
	TOTAL	2019-2020	**7**	**9**		**16**
Oats	UK	2019	**3**			GEP
	TOTAL	2019	**3**			**3**
GRAND TOTAL		2019-2020	**87**	**79**	**39**	**205**

Table 3.2-6: Presentation of reference standards used in efficacy trials

Crop(s)	Reference standard	Country(ies) where the product is registered (1)	Authorization number	Active substance(s)	Formulation		Registered application rate(3)	Application rate in trials (per treatment)
					Type(2)	Concentration of a.s.		
TRZAW HORVX TTLWI SECCE	Proline BAS 93141 F	Austria Belgium Czech Republic Germany Ireland Latvia Lithuania Romania Slovakia UK	3771/0 9805P/B 4523-1 025287-00 03786 0637 AS2-6F(2018) 457PC 06-02-0768 12084	prothioconazole	EC	250 g/L	0.8 L/ha 0.8 L/ha 0.8 L/ha 0.8 L/ha 0.8 L/ha 0.6-0.8 L/ha 0.8 L/ha 0.8 L/ha 0.6-0.8 L/ha 0.8 L/ha	0.8 L/ha
	Proline 275 BAS 93144 F	UK	14790	prothioconazole	EC	275 g/L	0.72 L/ha	0.72 L/ha
TRZAW	BoogieXpro BAS 94760 F	Czech Rep. Germany Ireland Poland UK	4855-0 026778-00/013 05256 R- 380/2017d 15061	prothioconazole bixafen spiroxamine	EC	100 g/L 50 g/L 250 g/L	0.9-1.2 L/ha 1.5 L/ha 1.5 L/ha 0.9-1.5 L/ha 1.5 L/ha	1.5 L/ha

Crop(s)	Reference standard	Country(ies) where the product is registered (1)	Authorization number	Active substance(s)	Formulation		Registered application rate(3)	Application rate in trials (per treatment)
					Type(2)	Concentration of a.s.		
	Input Triple BAS 96430 F	Germany Latvia Lithuania Poland	008930-00 0651 AS2-103F R- 751/2020d	prothioconazole proquinazid spiroxamine	EC	160 g/L 40 g/L 200 g/L	1.25 L/ha 0.75 L/ha 0.75 L/ha 1-1.25 L/ha	1 L/ha

Comments of zRMS:	This report summarizes the information concerning the efficacy of the plant protection product BAS 758 00 F. The product contains 66,~~67~~ g/L of the active substance mefentrifluconazole, 100 g/L of the active substance metrafenone, 80 g/l of the active substance pyraclostrobin and is formulated as an emulsifiable concentrate (EC). It is used as fungicide in cereals. The reports and data were submitted to support of the evaluation of BAS 758 00 F authorization in AT, BE, DE, IE, NL, PL, CZ, HU, RO, SK. The active substance mefentrifluconazole is included in the Annex to Commission Implementing Regulation (EU) No 540/2011 containing the active substances approved for use in plant protection products under Regulation (EC) No 1107/2009 with the expiration of approval on 20/03/2029. According to general provisions applying to all substances listed in the Annex to commission Implementing Regulation (EU) No 540/2011 of 25 May 2011 implementing Regulation (EC) No1107/2009 of the European Parliament and of the Council as regards the list of approved active substances specific provisions of Regulation (EU) No 540/2011 were as follows: For the implementation of the uniform principles as referred to in Article 29(6) of Regulation (EC) No 1107/2009, the conclusions of the review report on mefentrifluconazole, and in particular Appendices I and II thereof, shall be taken into account. In this overall assessment Member States shall pay particular attention to: — the protection of operators, ensuring that conditions of use include the application of adequate personal protective equipment; — the protection of aquatic organisms. Conditions of use shall include risk mitigation measures, such as buffer zones and/or vegetative strips, where appropriate. The applicant shall submit to the Commission, the Member States and the Authority confirmatory information as regards: 1. the technical specification of the active substance as manufactured (based on commercial scale production) and the compliance of the toxicity batches with the confirmed technical specification; 2. the effect of water treatment processes on the nature of residues present in surface and groundwater, when surface water or ground water is abstracted for drinking water. The applicant shall submit the information referred to in point 1 by 20 March 2020 and the information referred to in point 2 within two years from the date of publication, by the Commission, of a guidance document on evaluation of the effect of water treatment processes on the nature of residues present in surface and groundwater. The active substance metrafenone is included in the Annex to Commission Implementing Regulation (EU) No 540/2011 containing the active substances approved for use in plant protection products under Regulation (EC) No 1107/2009 with the expiration of approval on 30/04/2023. According to general provisions applying to all substances listed in the Annex to commission Implementing Regulation (EU) No 540/2011 of 25 May 2011 implementing Regulation (EC) No1107/2009 of the European Parliament and of the Council as regards the list of approved active substances specific provisions of Regulation (EU) No 540/2011 were as follows: Part A Only uses as fungicide may be authorised.

	Part B For the implementation of the uniform principles as referred to in Article 29(6) of Regulation (EC) No 1107/2009, the conclusions of the review report on metrafenone, and in particular Appendices I and II thereof, as finalised in the Standing Committee on the Food Chain and Animal Health on 14 July 2006 shall be taken into account. The Member States shall inform the Commission in accordance with Article 38 of Regulation (EC) No 1107/2009 on the specification of the technical material as commercially manufactured. The active substance pyraclostrobin is included in the Annex to Commission Implementing Regulation (EU) No 540/2011 containing the active substances approved for use in plant protection products under Regulation (EC) No 1107/2009 with the expiration of approval on 31/03/2023. According to general provisions applying to all substances listed in the Annex to commission Implementing Regulation (EU) No 540/2011 of 25 May 2011 implementing Regulation (EC) No1107/2009 of the European Parliament and of the Council as regards the list of approved active substances specific provisions of Regulation (EU) No 540/2011 were as follows: Only uses as fungicide or plant growth regulator may be authorised. For the implementation of the uniform principles as referred to in Article 29(6) of Regulation (EC) No 1107/2009, the conclusions of the review report on pyraclostrobin, and in particular Appendices I and II thereof, as finalised in the Standing Committee on the Food Chain and Animal Health on 28 November 2003 shall be taken into account. In this overall assessment Member States: — should pay particular attention to the protection of aquatic organisms, especially fish, — should pay particular attention to the protection of terrestrial arthropods and earthworms. Risk mitigation measures should be applied where appropriate. The Member States shall inform the Commission in accordance with Article 38 of Regulation (EC) No 1107/2009 on the specification of the technical material as commercially manufactured. Table 3.1-1 of this document contains the table of intended uses for BAS 758 00 F.

3.2.1 Preliminary tests (KCP 6.1)

Rationale for the co-formulation BAS 758 00 F

BAS 758 00 F consists of mefentrifluconazole, pyraclostrobin and metrafenone.

Mefentrifluconazole is a novel demethylase-inhibitor fungicide (“DMI”, FRAC code G1) with excellent activity against Septoria leaf blotch as well as rust species in wheat and good activity against several other diseases.

Pyraclostrobin is a strobilurin fungicide (“QoI”, FRAC code C3) with known efficacy against several cereal diseases such as Septoria leaf blotch, brown and yellow rust and net blotch.

Metrafenone is classified chemically as a benzophenone and has been the first fungicide active ingredient within this group to be developed. It is classified by FRAC in the Mode of Action Group B, Cytoskeleton and Motor Proteins and within this class in B6 actin/myosin/fimbrin function and has the FRAC code 50 (aryl-phenyl-ketones). It is successfully used to control powdery mildew and eyespot in cereals.

The active ingredients are registered as solo-formulations and co-formulations as of today in a broad range of countries. A detailed overview about the registrations of the different products in the different countries can be found in the BAD (BASF DocID 2022/2034379) in part 3.2.0.3 Overview on existing uses of the active ingredient (KCP 6).

BAS 758 00 F is designed to combine 3 different ingredients which control the different relevant disease in wheat and barley. All three actives in the formulation show key strength on certain diseases, by combining all of them the desired broad-spectrum control is achieved.

On top, as an additional advantage, the resistance management is improved with this novel product by combining three different actives from different modes of action being active on the most relevant diseases. For more detail see the resistance management in the BAD in section 3.3 Information on the occurrence or possible occurrence of the development of resistance (KCP 6.3).

Justification of BAS 758 00 F

The formulation BAS 758 00 F contains three different active ingredients which are active against several diseases in cereals.
Mefentrifluconazole, as a DMI fungicide, provides a high level of activity on *Zymoseptoria tritici, Puccinia triticina* and *Puccinia striiformis* as well as *Ramularia collo-cygni,* but also shows good to medium efficacy on diseases such as *Blumeria graminis* and *Pyrenophora teres*.
Metrafenone, as a benzophenone, is mainly active against *Blumeria graminis* and *Oculimacula spp,* but also shows medium efficacy against *Zymoseptoria tritici*.
Pyraclostrobin, as a QoI, controls well rust species in all cereals and shows - depending on the G143A resistance status - a partial or good control of *Zymoseptoria tritici*. In barley, pyraclostrobin shows excellent control of *Rhynchosporium secalis* and *Pyrenophora teres,* the latter even in the presence of the F129 L mutation, which is widespread especially in the Western European countries such as Germany, UK, France and Denmark.

Efficacy of the single active ingredients at rates as used in BAS 758 00 F

To prove and verify the efficacy of these active ingredients against major pathogens in wheat and barley, trials were conducted between 2015 and 2020 with different dose rates of the single active ingredients at the identical rate used in BAS 758 00 F; always in comparison to an approved standard fungicide. In most cases Proline (Prothioconazole) at 0.8 L/ha was used. In some comparisons for Metrafenone this standard was not tested, but instead Unix (Cyprodinil) at 1,0 kg/ha. In the detailed result tables it is indicated in red when Unix was used instead of Proline.
This was deemed necessary not only due to a utilization of a lower dose rate than currently registered (mefentrifluconazole, pyraclostrobin) but as well due to some reports about resistance developments to DMI fungicides (to which mefentrifluconazole belongs), QoI fungicides (to which pyraclostrobin belongs) and to metrafenone (for powdery mildew). The products tested are shown below in Table 3.2-7.

Table 3.2-7: Products used to evaluate the activity of mefentrifluconazole, pyraclostrobin and metrafenone against major target diseases.

Product	Active ingredients	Formulation		Tested rate	
BAS 750 01 F	Mefentrifluconazole	100 g/l	EC	0.5 L/ha	50 g/ha
BAS 750 01 F	Mefentrifluconazole	100 g/l	EC	1.0 L/ha	100 g/ha
BAS 750 01 F	Mefentrifluconazole	100 g/l	EC	1.5 L/ha	150 g/ha
BAS 500 06 F	Pyraclostrobin	200 g/l	EC	0.5 L/ha	100 g/ha
BAS 500 06 F	Pyraclostrobin	200 g/l	EC	0.75 L/ha	150 g/ha
BAS 500 06 F	Pyraclostrobin	200 g/l	EC	1.1-1.25 L/ha	220 – 250 g/ha

BAS 560 00 F	Metrafenone	300 g/l	SC	0.5 L/ha	150 g/ha
Proline (BAS 9314 1F)	Prothioconazole	250 g/l	EC	0.8 L/ha	200 g/ha
Unix (BAS 9181 0F)	Cyprodinil	750 g/kg	WG	1.0 kg/ha	750 g/ha

All trials were set up fully randomized and with four replicates. The disease was assessed visually by estimating the percentage of leaf area infected by the disease. This is then expressed as severity of attack (P% Inf). The assessments were conducted at different times after the application. Mostly the last assessment was chosen, usually around crop growth stage BBCH 75.

Efficacy of 100g/ha mefentrifluconazole

At the intended target rate of 1.5 L/ha for BAS 758 00 F, the applied rate for mefentrifluconazole is 100g/ha. This is 67% of the approved individual dose rate of 150g/ha mefentrifluconazole. In wheat also one further reduced dose rate (50 gai/ha) was tested. Table 3.2-8 shows the summary of the observed efficacy in comparison to a full dose rate of 0.8 L/ha Proline (200g/ha prothioconazole), which was the selected registration standard.

Table 3.2-8: Comparison of different dose rates of mefentrifluconazole towards Proline at 0.8 L/ha against different diseases.

Disease	Zone	Nb. of trials	Untreated	0,5 L/ha BAS 750 01 F Mefentrifluconazole 50 gai/ha % Efficacy	1,0 L/ha BAS 750 01 F Mefentrifluconazole 100 gai/ha % Efficacy	1,5 L/ha BAS 750 01 F Mefentrifluconazole 150 gai/ha % Efficacy	0,8 L/ha BAS 93141 F Prothioconazole 200 gai/ha % Efficacy
Septoria leaf blotch (*Zymoseptoria tritici*)	Maritime	22	44	63	75	81	59
	Min / Max		5-100	0 90	9 98	43 98	10 97
	North-east	4	30	71	83	86	75
	Min / Max		11-76	62 90	69 96	75 98	63 98
	South-east	6	34	55	73	82	74
	Min / Max		19-52	28 84	52 100	54 100	50 96
	Mean efficacy	32	41	**62**	**76**	**82**	**64**
	Min / Max		5-100	0 90	9 100	43 100	10 98
Brown rust of wheat (*Puccinia triticina*)	Maritime	2	18	69	90	94	55
	Min / Max		11-26	57 82	88 92	90 98	41 68
	North-east	3	28	82	89	93	76
	Min / Max		9-66	76 89	80 97	85 98	67 89
	South-east	2	42	68	77	83	70
	Min / Max		33-62	43 94	57 97	69 98	43 97
	Mean efficacy	7	30	**74**	**86**	**90**	**68**
	Min / Max		11-66	43 94	57 97	69 98	41 97
Yellow rust of wheat (*Puccinia striiformis*)	Maritime	5	30	65	80	87	84
	Min / Max		5-93	36 100	55 100	79 100	75 100
	South-east	2	19	81	94	99	94
	Min / Max		10-25	76 86	87 100	98 100	93 95
	Mean efficacy	7	28	**70**	**84**	**91**	**87**
	Min / Max		5-93	36 100	55 100	79 100	75 100
Net blotch in barley (*Pyrenophora teres*)	Maritime	16	37		47	51	74
	Min / Max		7-99		21 80	23 93	45 100
	North-east	9	23		67	72	78
	Min / Max		9-75		40 79	47 85	55 95
	South-east	5	46		65	69	72
	Min / Max		25-87		44 78	44 84	48 86
	Mean efficacy	30	35		**56**	**61**	**75**
	Min / Max		7-99		21 80	23 93	45 100
Leaf scald of barley (*Rhynchosporium secalis*)	Maritime	5	43		52	57	98
	Min / Max		20-78		25 69	17 77	96 100
	North-east	1	10		47	57	47
	Min / Max		4-15		47 47	57 57	47 47
	South-east	1	30		93	98	97
	Min / Max		10-50		93 93	98 98	97 97
	Mean efficacy	7	36		**58**	**63**	**89**
	Min / Max		4-78		25 93	17 98	47 100
Ramularia of barley (*Ramularia collo-cygni*)	Maritime	29	50		73	79	76
	Min / Max		13-100		42 98	53 99	32 100
	North-east	1	23		81	83	77
	Min / Max		18-27		81 81	83 83	77 77
	Mean efficacy	30	49		**74**	**79**	**76**
	Min / Max		13-100		42 98	53 99	32 100
Rust of barley (*Puccinia hordei*)	Maritime	10	25		76	81	85
	Min / Max		5-53		33 100	33 100	41 100
	North-east	4	20		68	70	78
	Min / Max		10-35		43 90	43 92	57 98
	Mean efficacy	14	24		**74**	**78**	**83**
	Min / Max		5-53		33 100	33 100	41 100

Individual results used for the summaries and all trial details and assessment data are available in the Appendix of the source document and described in detail in BAD (BASF DocID 2022/2034379).
To summarize, the highest efficacy was seen with 150 gai/ha of mefentrifluconazole, but even at 100 gai/ha it shows excellent efficacy on *Zymoseptoria tritici* and rust species in wheat, being superior or at least similar to the full rate of the standard prothioconazole. At the lowest tested rate in wheat, 50 gai/ha the efficacy dropped quite strongly.
Also in barley against *Ramularia collo-cygni* the efficacy of mefentrifluconazole at 100 gai/ha was rather similar to the chosen standard. The efficacy against other barley diseases is inferior to the performance of the standard, but still on a good to medium level.

Efficacy of 100g/ha pyraclostrobin

At the intended target rate of 1.5 L/ha for BAS 758 00 F, the applied rate for pyraclostrobin is 120g/ha. This is 48% of the approved individual dose rate of 250g/ha pyraclostrobin. In the past years mainly the 100 gai/ha of Pyraclostrobin was tested. In addition, two higher rates were tested. Table 3.2-9 shows the summary of the observed efficacy in comparison to a full dose rate of 0.8 L/ha Proline (200g/ha prothioconazole), which was the selected registration standard.

Table 3.2-9: Comparison of different rates of pyraclostrobin towards Proline at 0.8 L/ha against different diseases.

Disease	zone	nb. of trials	Untreated	0,5 L/ha BAS 500 06 F Pyraclostrobin 100 gai/ha % Efficacy	0,75 L/ha BAS 500 06 F Pyraclostrobin 150 gai/ha % Efficacy	1,1 - 1,25 L/ha BAS 500 06 F Pyraclostrobin 220-250 gai/ha % Efficacy	0,8 L/ha BAS 93141 F Prothioconazole 200 gai/ha % Efficacy
Septoria leaf blotch (*Zymoseptoria tritici*)	Maritime	11	38	42	50	53	70
	Min / Max		12-95	4 100	9 100	20 100	40 100
	North-east	3	26	75	81	85	86
	Min / Max		11-36	61 87	71 93	71 94	76 91
	South-east	4	28	88	90	91	89
	Min / Max		15-44	79 97	81 97	81 97	75 97
	Mean efficacy	18	34	**58**	**64**	**67**	**77**
	Min / Max		11-95	4 100	9 100	20 100	40 100
Yellow rust of wheat (*Puccinia striiformis*)	Maritime	11	57	65	72	76	67
	Min / Max		10-97	37 100	30 100	34 100	36 100
	South-east	1	22	78	85	88	77
	Min / Max		22-22	78 78	85 85	88 88	77 77
	Mean efficacy	12	54	**66**	**73**	**77**	**68**
	Min / Max		10-97	37 100	30 100	34 100	36 100
Brown rust of wheat (*Puccinia triticina*)	Maritime	4	18	96	98	99	82
	Min / Max		11-29	90 100	94 100	98 100	59 98
	North-east	3	21	87	93	96	86
	Min / Max		15-29	78 93	91 94	94 100	70 98
	South-east	3	22	91	92	93	93
	Min / Max		16-30	83 97	81 98	84 100	85 98
	Mean efficacy	10	20	**92**	**95**	**96**	**86**
	Min / Max		11-30	78 100	81 100	84 100	59 98
Net blotch of barley (*Pyrenophora teres*)	Maritime	8	34	77	85	87	87
	Min / Max		6-84	46 97	47 98	54 100	67 99
	North-east	2	16	78	86	92	95
	Min / Max		9-26	78 79	83 89	88 95	93 97
	South-east	2	35	78	88	92	94
	Min / Max		28-43	68 88	84 92	91 93	92 96
	Mean efficacy	12	30	**78**	**85**	**89**	**89**
	Min / Max		6-84	46 97	47 98	54 100	67 99
Leaf scald of barley (*Rhynchosporium secalis*)	Maritime	2	10	77	79	86	83
	Min / Max		6-13	70 84	69 90	74 98	70 97
	North-east	1	16	79	87	95	95
	Min / Max		14-17	79 79	87 87	95 95	95 95
	Mean efficacy	3	12	**78**	**82**	**89**	**87**
	Min / Max		6-17	70 84	69 90	74 98	70 97
Rust of barley (*Puccinia hordei*)	Maritime	2	18	98	99	98	96
	Min / Max		10-26	96 100	97 100	97 100	94 98
	South-east	1	12	100	100	100	100
	Min / Max		12-12	100 100	100 100	100 100	100 100
	Mean efficacy	3	16	**99**	**99**	**99**	**98**
	Min / Max		10-26	96 100	97 100	97 100	94 100

Individual results used for the summaries, trial details and assessment data can be found in tables in Appendix of source document and described in detail in BAD (BASF DocID 2022/2034379).

The highest efficacy was achieved with 220-250 gai/ha. Nevertheless, the results show that pyraclostrobin at the dose rate of 100 gai/ha still shows excellent efficacy against all rust species in wheat and barley, being superior or at the same level as the standard prothioconazole at full rate. The efficacy against *Zymoseptoria tritici* is inferior due to the widespread G143A resistance in the western countries. Nevertheless, the detailed trial overviews show that especially in the South-east EPPO zone still good efficacy of pyraclostrobin is seen due to a more QoI sensitive population, which is again at 100 gai/ha on a similar level as the standard. Although the efficacy of pyraclostrobin against *Rhynchosporium secalis* and *Pyrenophora teres* at 100 gai/ha is lower than the full rate of the standard, it is still at a high level (78%). With 150 gai and higher dose rates of pyraclostrobin the efficacy is similar to the chosen standard. This was one of the reasons, why the dose rate of pyraclostrobin in BAS 758 00 F finally was decided at 120 gai/ha.

Efficacy of 150g/ha metrafenone

At the intended target rate of 1.5 L/ha for BAS 758 00 F, the applied rate for metrafenone is 150g/ha which is identical to the maximum dose rate currently approved for cereal disease control in Europe. Table 3.2-10 shows the summary of the observed efficacy in comparison to a full dose rate of 0.8 L/ha Proline (200g/ha prothioconazole), which was the selected registration standard.

Table 3.2-10: Comparison of 150 gai/ha metrafenone towards Proline at 0.8 L/ha against different diseases.

Disease	Zone	Nb. of trials	Untreated	0,5 L/ha BAS 560 00 F Metrafenone 150 gai/ha % Efficacy	Standard product Cyprodinil Prothioconazole 750/200 gai/ha % Efficacy
Septoria leaf blotch (*Zymoseptoria tritici*)	Maritime	14	30	48	55
	Min / Max		4-83	13 96	31 85
	North-east	4	20	57	54
	Min / Max		8-48	42 84	29 88
	South-east	6	16	63	69
	Min / Max		5-37	45 73	41 81
	Mean efficacy	24	24	**53**	**60**
	Min / Max		4-83	13 96	29 85
Eyespot of wheat (*Oculimacula spp.*)	Maritime	17	30	72	59
	Min / Max		10-82	45 95	16 88
	North-east	8	34	81	71
	Min / Max		24-42	66 97	17 92
	South-east	10	41	75	78
	Min / Max		20-56	55 97	47 100
	Mean efficacy	35	33	**75**	**67**
	Min / Max		10-82	45 97	16 100
Powdery mildew of wheat and barley (*Blumeria graminis*)	Maritime	4	31	91	76
	Min / Max		12-74	83 95	57 93
	North-east	13	24	76	71
	Min / Max		5-87	44 100	31 93
	South-east	12	19	92	87
	Min / Max		8-38	82 100	50 100
	Mean efficacy	29	23	**84**	**78**
	Min / Max		5-87	44 100	31 100
Net blotch in barley (*Pyrenophora teres*)	Maritime	7	24	48	78
	Min / Max		6-84	7 89	58 89
	North-east	5	15	50	64
	Min / Max		7-24	24 74	40 82
	South-east	15	20	77	85
	Min / Max		8-93	44 100	44 100
	Mean efficacy	27	21	**64**	**79**
	Min / Max		6-93	7 100	40 100

Individual results used for the summaries, trial details and assessment data can be found in tables 21-24 of Appendix in source document and described in detail in BAD (BASF DocID 2022/2034379).
The main strength of metrafenone is the performance against powdery mildew and eyespot, which was confirmed to be superior to the standard. Although the efficacy against *Zymoseptoria tritici* and *Pyrenophora teres* is only moderate and inferior to the standard, it can be seen as an interesting add-on for the product concept BAS 758 00 F in terms of overall efficacy and resistance management.

Summary of the efficacy of the single active ingredients at rates as used in BAS 758 F

To summarize, each of the shown actives has certain strength which are combined in BAS 758 00 F to achieve a broad-spectrum fungicide which shows efficacy against all relevant diseases in wheat and barley with a built-in resistance management. An overview can be found below:

Disease	mefentrifluconazole 100 gai/ha	pyraclostrobin 100-120 gai/ha	metrafenone 150 gai/ha
Zymoseptoria tritici	excellent	excellent* to medium	medium
Puccinia tricina	excellent	excellent	low
Puccinia striiformis	excellent	excellent	low
Blumeria graminis	good	medium	good
Oculimacula spp.	low	low	good
Pyrenophora teres	medium	excellent	medium
Rhynchosporium secalis	low	excellent	low
Ramularia collo-cygni	excellent	low	low
Puccinia hordei	good	excellent	low

* in countries were populations with higher sensitivity to QoI are found.

Efficacy of the single and combined active ingredients of BAS 758 00 F

In 2020, wheat and barley trials were conducted to compare the efficacy of the solo actives in direct comparison including suboptimal two-way mixtures and the finally chosen ratio of BAS 758 00 F as a three-way mixture. To complete the picture, Proline was included at full dose rates as registration standard.

Table 3.2-11 shows the products and dose rates tested in 2020. Also, these trials were conducted fully randomized and 4 times replicated. The disease was assessed separately as % leaf area affected by the disease or in case of eyespot on the stem basis as % severity of affected stem tissue. This is then expressed as P% Inf and efficacy is calculated out of this value. Each disease was assessed separately. In the majority of cases, the last available assessment at BBCH 75 was chosen for the summaries.

Table 3.2-11: Comparison of single actives and two-way mixture towards the final composition of BAS 758 00 F.

Product	Active ingredients	Formulation		Tested rate	
BAS 750 01 F	Mefentrifluconazole	100 g/l	EC	1.0 L/ha	100 g/ha
BAS 500 06 F	Pyraclostrobin	200 g/l	EC	0.6 L/ha	120 g/ha
BAS 560 00 F	Metrafenone	300 g/l	SC	0.5 L/ha	150 g/ha
BAS 750 01 F + BAS 560 00 F	Mefentrifluconazole + Metrafenone	100 g/l 300 g/l	EC SC	1.0 L/ha 0.5 L/ha	100 g/ha 150 g/ha
BAS 750 01 F + BAS 500 06 F	Mefentrifluconazole + Pyraclostrobin	100 g/l 200 g/l	EC EC	1.0 L/ha 0.6 L/ha	100 g/ha 120 g/ha
BAS 500 06 F + BAS 560 00 F	Pyraclostrobin + Metrafenone	200 g/l 300 g/l	EC SC	0.6 L/ha 0.5 L/ha	120 g/ha 150 g/ha
BAS 758 00 F	Mefentrifluconazole + Pyraclostrobin + Metrafenone	66.6 g/l 80 g/l 100 g/l	EC	1.5 L/ha	100 g/ha 120 g/ha 150 g/ha
Proline (BAS 9314 1F)	Prothioconazole	250 g/l	EC	0.8 L/ha	200 g/ha

Table 3.2-12: Efficacy in [%] of mefentrifluconazole, pyraclostrobin and metrafenone in comparison to a standard product.

Disease	Zone	Nb. of trials	Untreated	0,5 L/ha BAS 560 00 F Metrafenone 150 gai/ha % Efficacy	0,6 L/ha BAS 500 06 F Pyraclostrobin 120 gai/ha % Efficacy	1,0 L/ha BAS 750 01 F Mefentrifluconazole 100 gai/ha % Efficacy	0,8 L/ha BAS 93141 F Prothioconazole 200 gai/ha % Efficacy
Septoria leaf blotch (*Zymoseptoria tritici*)	Maritime	4	45	42	48	72	75
	Min / Max		14-96	7 83	3 90	25 95	68 80
	North-east	1	10	47	32	68	74
	Min / Max		10-10	47 47	32 32	68 68	74 74
	South-east	2	13	51	71	68	64
	Min / Max		5-21	40 63	64 79	62 74	61 67
	Mean efficacy	7	33	**46**	**52**	**70**	**72**
	Min / Max		5-96	7 83	3 90	25 95	61 80
eye spot of wheat (*Oculimacula spp.*)	Maritime	3	33	44	23	22	39
	Min / Max		19-54	42 45	12 37	12 40	21 52
	North-east	2	39	42	18	8	29
	Min / Max		18-59	39 45	5 30	3 14	29 29
	Mean efficacy	5	35	43	21	17	35
	Min / Max		18-59	39 45	5 37	3 40	21 52
powdery mildew of wheat (*Blumeria graminis*)	Maritime	1	8	53	18	38	80
	Min / Max		6-11	53 53	18 18	38 38	80 80
	South-east	1	17	90	78	89	87
	Min / Max		15-19	90 90	78 78	89 89	87 87
	Mean efficacy	2	12	71	48	63	83
	Min / Max		6-19	53 90	18 78	38 89	80 87
Net blotch in barley (*Pyrenophora teres*)	Maritime	4	34	24	71	33	71
	Min / Max		8-100	0 47	58 85	1 58	58 84
	North-east	1	9	49	83	49	82
	Min / Max		8-10	49 49	83 83	49 49	82 82
	South-east	1	12	64	70	66	75
	Min / Max		8-16	64 64	70 70	66 66	75 75
	Mean efficacy	6	28	**35**	**73**	**41**	**73**
	Min / Max		8-100	0 64	58 85	1 66	58 84
Ramularia of barley (*Ramularia collo-cygni*)	Maritime	1	21	1	44	99	76
	Min / Max		15-29	1 1	44 44	99 99	76 76
	Mean efficacy	1	21	**1**	**44**	**99**	**76**
	Min / Max		15-29	1 1	44 44	99 99	76 76

Table 3.2-13: Efficacy in [%] of BAS 758 00 F in comparison to different two-way mixes and a standard product.

Disease	Zone	Nb. of trials	Untreated	Mefentrifluconazole + Metrafenone 100 + 150 gai/ha % Efficacy	Mefentrifluconazole + Pyraclostrobin 100 + 120 gai/ha % Efficacy	Metrafenone + Pyraclostrobin 150 + 120 gai/ha % Efficacy	1,5 l/ha BAS 758 00 F 100 + 120 + 150 gai/ha % Efficacy	0,8 L/ha BAS 93141 F Prothioconazole 200 gai/ha % Efficacy
Septoria leaf blotch (*Zymoseptoria tritici*)	Maritime	4	45	81	81	51	82	76
	Min / Max		14-96	58 96	64 96	28 69	72 91	70 80
	North-east	1	10	78	63	48	57	74
	Min / Max		10-10					
	South-east	2	13	67	76	75	82	67
	Min / Max		5-21	59 75	73 80	71 79	77 87	67 67
	Mean efficacy	7	33	**76**	**77**	**57**	**79**	**74**
	Min / Max		5-96	58 96	63 96	28 79	57 91	67 80
eye spot of wheat (*Oculimacula spp.*)	Maritime	3	33	50	35	46	53	39
	Min / Max		19-54	35 57	21 52	35 58	45 60	21 52
	North-east	2	39	43	20	45	55	29
	Min / Max		18-59	24 63	9 31	40 50	42 68	29 29
	Mean efficacy	5	35	**47**	**29**	**46**	**54**	**35**
	Min / Max		18-59	24 63	9 52	35 58	42 68	21 52
powdery mildew of wheat (*Blumeria graminis*)	Maritime	1	8	57	46	38	61	80
	Min / Max		6-11	57 57	46 46	38 38	61 61	80 80
	South-east	1	17	94	91	89	100	87
	Min / Max		15-19	94 94	91 91	89 89	100 100	87 87
	Mean efficacy	2	12	**76**	**68**	**64**	**81**	**83**
	Min / Max		6-19	57 94	46 91	38 89	61 100	80 87
Net blotch in barley (*Pyrenophora teres*)	Maritime	4	34	48	75	65	76	71
	Min / Max		8-100	22 64	50 90	35 87	57 88	58 84
	North-east	1	9	66	89	83	82	82
	Min / Max		8-10	66 66	89 89	83 83	82 82	82 82
	South-east	1	12	67	86	71	87	75
	Min / Max		8-16	67 67	86 86	71 71	87 87	75 75
	Mean efficacy	6	28	**54**	**79**	**69**	**79**	**73**
	Min / Max		8-100	22 67	50 90	35 87	57 88	58 84
Ramularia of barley (*Ramularia collo-cygni*)	Maritime	1	21	97	100	65	98	76
	Min / Max		15-29	97 97	100 100	65 65	98 98	76 76
	Mean efficacy	1	21	**97**	**100**	**65**	**98**	**76**
	Min / Max		15-29	97 97	100 100	65 65	98 98	76 76

Individual results used for the summaries can be found in tables 25-34 of source document and described in detail in BAD (BASF DocID 2022/2034379).
All trial details and assessment data are also available in the Appendix of source document.

In 2020 no rust results were obtained. The available trial results from 2020 confirm previous results obtained from the trials of the single active ingredients.

By combining two active ingredients, an increased efficacy could be seen against **septoria** when mefentrifluconazole was included, without mefentrifluconazole the efficacy dropped. Nevertheless BAS 758 00 F did show the highest efficacy superior to the tested standard Proline at the full rate.

Against **eyespot**, an increased efficacy was visible as well when two actives were combined as long as metrafenone was included. The two-way mix without metrafenone showed weaker performance. But again, BAS 758 F did show superior efficacy towards all tested 2-way mixes and also towards the standard.

For **powdery mildew**, the efficacy of the two-way mixes was superior to the single ais tested when metrafenone and mefentrifluconazole were combined. The other two mixture were just similar or slightly weaker than metrafenone solo. Nevertheless, BAS 758 00 F at 1.5 L/ha did show superior efficacy in comparison to the best two-way mix and performed comparable to the standard.

With **net blotch** in barley, the two-way mixes showed improved efficacy in comparison to the tested single actives. Best performance was achieved by the mixture mefentrifluconazole and pyraclostrobin. The other two-way mixtures performed inferior. BAS 758 00 F at 1.5 L/ha showed similar performance as the two-way mixture mefentrifluconazole and pyraclostrobin and being superior to the standard.

Ramularia was just obtained in one barley trial. The two-way mixes including mefentrifluconazole showed similar or better performance than the best single active ingredients. The mixture without mefentrifluconazole showed weaker performance. BAS 758 00 F at 1.5 L/ha performed similar to the two-way mixtures with mefentrifluconazole and being superior to the standard.

Conclusions

The efficacy of the different active ingredients was tested, at the dose rate used in BAS 758 00 F, in comparison to a standard. The three active ingredients showed - depending on the disease - excellent to medium efficacy and therefore contribute to the control of main diseases in wheat and barley. A similar to higher efficacy than the full rate of the tested standard was achieved in most cases. Therfore, it is justified that in the mixture lower amounts than the registered ones for the single actives are used.
By combining the three actives in one product, an impressive broad-spectrum efficacy can be achieved with BAS 758 00 F, including a built-in resistance management.

The results show that BAS 758 00 F at 1.5 L/ha shows superior control of wheat diseases in comparison to only two-way mixes and the efficacy is superior to the tested standard.

For barley diseases such as *Ramularia collo-cygni* and *Pyrenophora teres*, the efficacy of BAS 758 00 F was on the level of the best two way mix (mefentrifluconazole and pyraclostrobin). Nevertheless, the efficacy of BAS 758 00 F was on both diseases superior to the standard tested and on diseases like powdery mildew and eyespot the strength of metrafenone would be visible also in barley, even though no data were available from 2020. This could be extrapolated from wheat. Also here, the target of BAS 758 00 F is a universal broad spectrum efficacy which could be achieved referring to the data provided in the efficacy chapter of the biological assessment dossier.

With BAS 758 00 F at target dose rate of 1.5 L/ha, a consistent high level of performance as well as a broad-spectrum efficacy against numerous diseases could be achieved.

Bridging trials (KCP 6.1)

Efficacy data with the final formulation, BAS 758 00 F, are available from trials conducted in 2020. In 2019, the very similar formulation BAS 758 AR F was used. The detailed comparison of both formulations is given in the confidential document of this submission. In order to demonstrate the equivalence in terms of fungicidal performance between these formulations and to relate the 2020 data with those from 2019 in many trials carried out in 2020 BAS 758 00 F was compared to BAS 758 AR F. The efficacy results generated from these trials are reported in the following tables of this section. Registration of the dose rate 1.5 L/ha is proposed in Maritime and North-East EPPO zones. Therefore results for efficacy of that dose are presented for Maritime and North-East zones. Results of the efficacy of dose rate 1.0 L/ha are presented for South-East zone. This is the highest dose rate requested in South-East EPPO zone. For more information please see BAD (BASF DocID 2022/2034379).

***Zymoseptoria tritici* (SEPTTR) Septoria leaf blotch of wheat**
Data on wheat useful for bridging were generated in 22 trials in which efficacy against *Zymoseptoria tritici* was tested. Bridging data are available from Maritime (9 trials), North-East (4 trials) and South-East (9 trials) EPPO climatic zones.

Table 3.2-14: *Zymoseptoria tritici* (SEPTTR) in wheat – bridging data in Maritime and North-East zones, summary

EPPO Zone		Untreated	BAS 758 AR F	BAS 758 00 F	Proline
			1.5 L/ha	1.5 L/ha	0.8 L/ha
Maritime	average	32.9	88.6	89.8	74.8
	min- max	7.2-99.8	76.7-100.0	82.2-100.0	29.2-100.0
	n	9	9	9	9
North-East	average	11.5	89.5	90.1	85.4
	min- max	8.5-15.2	76.6-100.0	79.3-100.0	65.6-100.0
	n	4	4	4	4
All zones	average	26.3	88.9	89.9	78.1
	min- max	7.2-99.8	76.6-100.0	79.3-100.0	29.2-100.0
	n	13	13	13	13

Table 3.2-15: *Zymoseptoria tritici* (SEPTTR) in wheat – bridging data in South-East zone, summary

EPPO Zone		Untreated	BAS 758 AR F	BAS 758 00 F	Proline
			1.0 L/ha	1.0 L/ha	0.8 L/ha
South-East	average	10.4	90.4	91.6	81.8
	min- max	7.5-14.1	80.8-100.0	83.0-100.0	57.1-100.0
	n	9	9	9	9

Average levels of *Zymoseptoria tritici* control in wheat were similar for BAS 758 AR F and BAS 758 00 F applied at full dose rate 1.5 L/ha (89% and 90% respectively). The same was recorded for both formulations applied in South-East zone at the dose rate 1.0 L/ha (90% and 92% respectively). It is therefore evident that there is full equivalence of BAS 758 AR F and BAS 758 00 F in control of *Zymoseptoria tritici* in wheat.

***Puccinia striiformis* (PUCCST), yellow rust of wheat**
Data on wheat useful for bridging were generated in 8 trials in which efficacy against *Puccinia striiformis* was tested. Bridging data are available from Maritime (5 trials), North-East (2 trials) and South-East (1 trial) EPPO climatic zones.

Table 3.2-16: *Puccinia striiformis* (PUCCRT) in wheat – bridging data in Maritime and North-East zones, summary

EPPO Zone		Untreated	BAS 758 AR F	BAS 758 00 F	Proline
			1.5 L/ha	1.5 L/ha	0.8 L/ha
Maritime	average	26.2	93.6	93.7	92.1
	min- max	15.7-40.0	86.2-100.0	84.4-100.0	78.1-100.0
	n	5	5	5	5
North-East	average	8.0	99.8	99.3	99.4
	min- max	5.9-10.1	99.7-100.0	98.5-100.0	98.7-100.0
	n	2	2	2	2
All zones	average	21.0	95.4	95.3	94.2
	min- max	5.9-40.0	86.2-100.0	84.4-100.0	78.1-100.0
	n	7	7	7	7

Table 3.2-17: *Puccinia striiformis* (PUCCST) in wheat – bridging data in South-East zone, summary

EPPO Zone		Untreated	BAS 758 AR F	BAS 758 00 F	Proline
			1.0 L/ha	1.0 L/ha	0.8 L/ha
South-East	average	93.8	99.1	98.1	94.5
	min- max	-	-	-	-
	n	1	1	1	1

Average levels of *Puccinia striiformis* control in wheat were the same for BAS 758 AR F and BAS 758 00 F applied at dose rate 1.5 L/ha (95% for both formulations). Very similar results were recorded for both formulations applied in South-East zone at dose rate 1.0 L/ha (99% and 98% respectively). It is therefore evident that there is full equivalence of BAS 758 AR F and BAS 758 00 F in control of *Puccinia striiformis* in wheat.

***Pyrenophora teres* (PYRNTE), net blotch of barley**

Data on barley useful for bridging were generated in 6 trials in which the efficacy against *Pyrenophora teres* was tested. Bridging data are available from Maritime (2 trials), North-East (1 trial) and South-East (3 trials) EPPO zones.

Table 3.2-18: *Pyrenophora teres* (PYRNTE) in barley – bridging data in Maritime and North-East zones, summary

EPPO Zone		Untreated	BAS 758 AR F	BAS 758 00 F	Proline
			1.5 L/ha	1.5 L/ha	0.8 L/ha
Maritime	average	23.7	94.8	95.7	70.8
	min- max	6.5-40.9	90.7-98.8	92.9-98.5	60.9-80.8
	n	2	2	2	2
North-East	average	75.0	78.0	83.8	86.5
	min- max	-	-	-	-
	n	1	1	1	1
All zones	average	40.8	89.2	91.7	76.0
	min- max	6.5-75.0	78.0-98.8	83.8-98.5	60.9-86.5
	n	3	3	3	3

Table 3.2-19: *Pyrenophora teres* (PYRNTE) in barley – bridging data in South-East zone, summary

EPPO Zone		Untreated	BAS 758 AR F	BAS 758 00 F	Proline
			1.0 L/ha	1.0 L/ha	0.8 L/ha
South-East	average	8.2	96.4	98.3	95.2
	min- max	6.0-10.0	94.1-100.0	97.1-100.0	91.6-98.2
	n	3	3	3	3

Average levels of *Pyrenophora teres* control in barley were similar for BAS 758 AR F and BAS 758 00 F applied at dose rate 1.5 L/ha (89% and 92% respectively). The same was recorded for both formulations in South-East zone at dose rate 1.0 L/ha (96% and 98% respectively). It is therefore evident that there is full equivalence of BAS 758 AR F and BAS 758 00 F in control of *Pyrenophora teres* in barley.

***Ramularia collo-cygni* (RAMUCC) Ramularia leaf spot of barley**

Data on barley useful for bridging were generated in 7 trials in which efficacy against *Ramularia collo-cygni* was tested. Trials were conducted in Maritime (6 trials) and North-East (1 trial) EPPO climatic zones.

Table 3.2-20: *Ramularia collo-cygni* (RAMUCC) in barley – bridging data in Maritime and North-East zones, summary

EPPO Zone		Untreated	BAS 758 AR F	BAS 758 00 F	Proline
			1.5 L/ha	1.5 L/ha	0.8 L/ha
Maritime	average	52.6	83.4	84.4	84.9
	min- max	5.0-98.6	64.4-98.0	71.1-98.0	68.9-94.0
	n	6	6	6	6
North-East	average	8.8	77.1	77.1	77.1
	min- max	-	-	-	-
	n	1	1	1	1
All zones	average	46.3	82.5	83.4	83.8
	min- max	5.0-98.6	64.4-98.0	71.1-98.0	68.9-94.0
	n	7	7	7	7

Average levels of *Ramularia collo-cygni* control in barley were very similar for BAS 758 AR F and BAS 758 00 F applied at dose rate 1.5 L/ha (82% and 83% respectively). It is therefore evident that there is full equivalence of BAS 758 AR F and BAS 758 00 F in control of *Ramularia collo-cygni* in barley.

***Septoria* spp. (SEPTSP) Septoria leaf blotch of triticale**

Data on triticale useful for bridging were generated in 4 trials in which efficacy against *Septoria spp.* was tested. Trials were conducted in Maritime (2 trials) and North-East (2 trial) EPPO climatic zones.

Table 3.2-21: *Septoria* spp. (SEPTSP) in triticale – bridging data in Maritime and North-East zones, summary

EPPO Zone		Untreated	BAS 758 AR F	BAS 758 00 F	Proline
			1.5 L/ha	1.5 L/ha	0.8 L/ha
Maritime	average	25.5	94.5	95.6	90.8
	min- max	25.2-25.9	91.1-97.8	93.6-97.5	88.4-93.2
	n	2	2	2	2
North-East	average	14.5	89.7	93.1	86.8
	min- max	6.4-22.5	88.4-91.1	92.9-93.3	81.1-92.4
	n	2	2	2	2
All zones	average	20.0	92.1	94.3	88.8
	min- max	6.4-25.9	88.4-97.8	92.9-97.5	81.1-93.2
	n	4	4	4	4

Average levels of *Septoria* spp. control in triticale were similar for BAS 758 AR F and BAS 758 00 F applied at dose rate 1.5 L/ha (92% and 94% respectively). It is therefore evident that there is full equivalence of BAS 758 ARF and BAS 758 00 F in control of *Septoria* spp. in triticale.

***Puccinia recondita* (PUCCRE) Brown rust of rye**

Data on rye useful for bridging were generated in 8 trials in which efficacy against *Puccinia recondita* was tested. Trials were conducted in Maritime (4 trials) and North-East (4 trial) EPPO climatic zones.

Table 3.2-22: *Puccinia recondita* (PUCCRE) in rye – bridging data in Maritime and North-East zones, summary

EPPO Zone		Untreated	BAS 758 AR F	BAS 758 00 F	Proline
			1.5 L/ha	1.5 L/ha	0.8 L/ha
Maritime	average	10.6	92.3	92.9	93.7
	min- max	5.5-15.3	83.5-100.0	86.3-100.0	89.0-100.0
	n	4	4	4	4
North-East	average	15.7	90.1	91.7	89.2
	min- max	5.8-25.0	81.3-100.0	86.7-100.0	78.7-99.1
	n	4	4	4	4
All zones	average	13.2	91.2	92.3	91.5
	min- max	5.5-25.0	81.3-100.0	86.3-100.0	78.7-100.0
	n	8	8	8	8

Average levels of *Puccinia recondita* control in rye were similar for BAS 758 AR F and BAS 758 00 F applied at dose rate 1.5 L/ha (91% and 92% respectively). It is therefore evident that there is full equivalence of BAS 758 ARF and BAS 758 00 F in control of *Puccinia recondita* in rye.

Conclusions

Bridging field data collected from many trials carried out in different European countries and concerning significant wheat, barley, triticale and rye diseases show that BAS 758 AR F is equivalent to BAS 758 00 F in terms of biological activity. This confirms that changes in the tested formulations did not have any impact on the efficacy. It is thus concluded that data from the BAS 758 AR F formulation can be used to support the registration of BAS 758 00 F.

comments of zRMS: dRR point 3.2.1	**dRR point 3.2.1.1** For justification of the mixture and the ratio the Applicant presented: 1. Efficacy of the single active ingredients was presented at rates as used in BAS 758 00 F in order to prove and verify the efficacy of actives with different dose rates of actives substances. What is more, the Applicant wanted to verify some reports about resistance developments to active substances which belong to 3 different FRAC groups. Efficacy was compared to the reference products. **Martime EPPO climate zone** **The active substance mefentrifluconazole** was tested at the dose rates: 100 g ai/ha (used in BAS 758 00 F, the targed dose rate), 150 g ai/ha (an aproved dose rate in a solo product) and 50 gcai/ha on following cereals: • wheat against: SEPTTR (22 trials), PUCCRT (2 trials), PUCCST (5 trials) • barley against: PYRNTE (16 trials), RHYNSE (5 trials), RAMUCC (29 trials), PUCCHD (10 trials) in trials carried out in DE, DK, FR, NL, UK, IE, CZ, AT from 2015 to 2020. The highest efficacy was obtained using dose rate of 150 g/ha. Neverthesles dose rate of 100 g/ha (used in BAS 758 00 F, the targed dose rate) showed good efficacy, similar or better than the reference product against wheat diseases and against RAMUCC on barley. Additionally both dose rates 100g/ha and 150g/ha performed similarly and simultaneously were less effective against PUCCHD, RHYNSE, PYRNTE than the reference product in

trials on barley. At he lowest tested rate 50 gai/ha the efficacy was quite low.
It can be concluded that the target dose rate 100 g/ha might be considered the correct dose rate used in the BAS 758 00 F mixture, ensuring a good level of crop protection at lowering amount of used active substance in comparison to the approved solo product, with the dose rate 150 g/ha.

The active substance pyraclostrobin was tested at the dose rates: 100 g/ha (the targed dose rate used in BAS 758 00 F is 120 g/ha), 150 g/ha and 220 - 250 g/ha (an aproved dose rate in a solo product) on following cereals:

- wheat against: SEPTTR (11 trials), PUCCST (11 trials), PUCCRT (4 trials),
- barley against: PYRNTE (8 trials), RHYNSE (2 trials), PUCCHD (2 trials)

in trials carried out in DE, DK, FR, UK in 2015.
The highest and similar efficacy was obtained using dose rates of 150 g/ha and 220 - 250 g/ha and comparable or better than the reference product. Neverthesles dose rate of 100 g/ha (lower than used in BAS 758 00 F, the targed dose rate) showed good efficacy, similar or better than the reference product against wheat diseases PUCCST, PUCCRT and against PUCCHD on barley. The dose rate 100 g/ha showed also good efficacy against PYRNTE and RHYNSE (average 77%) but performed weaker than the reference product.
Every three dose rates of pyraclostrobin showed less efficacy against SEPTTR (42-53%) than the reference product (average 70%). The reason of lower pyraclostrobin efficacy agaisnt *Zymoseptoria tritici*, explained by the Applicant is the widespread G143A resistance in the western countries of EU.
The intended dose rate of a.s. is 120 g/ha what is the dose rate between 100 g/ha and 150 g/ha. It can be assumed that a dose of 120 g/ha will give better effects than 100 g/ha and comparable to a dose of 150 g/ha in crop protection. On the basis above results it can be concluded that the target dose rate 120 g/ha might be considered the correct dose rate used in the BAS 758 00 F mixture, ensuring a good level of crop protection at lowering amount of used active substance in comparison to the approved solo product, with the dose rate 220 - 250 g/ha.

The active substance metrafenone was tested at the dose rate: 150 g/ha (used in BAS 758 00 F, the targed dose rate and aproved in a solo product) on following cereals:

- wheat against: SEPTTR (14 trials), OLIMSP (17 trials) ERYSGR (4 trials),
- barley against: PYRNTE (7 trials)

in trials carried out in UK, CZ, AT, SE, DE, FR, from 2015 to 2020.
The dose rate of 150 g/ha (used in BAS 758 00 F, the targed dose rate) showed better efficacy than the reference products against against OLIMSP and ERSGR. Efficacy against SEPTTR was genelally weak in trials with both the solo product and reference product. The dose rate 150 g/ha showed weak efficacy against PYRNTE (average 48%) and lower than the reference product (average 78%). Nevertheless addition this substance to the mixture might be considered a factor of resistance management and enlargment of overall mixture efficacy.

<u>NE EPPO climate zone</u>

The active substance mefentrifluconazole was tested at the dose rates: 100 g/ha (used in BAS 758 00 F, the targed dose rate), 150 g/ha (an aproved dose rate in a solo product) and 50 g/ha on following cereals:

- wheat against: SEPTTR (4 trials), PUCCRT (3 trials);
- barley against: PYRNTE (9 trials), RHYNSE (1 trial), RAMUCC (1 trial), PUCCHD (4 trials)

in trials carried out in PL, LT, LV from 2015 to 2019.
The highest efficacy was obtained using dose rate of 150 g/ha. Neverthesles dose rate of 100 g/ha (used in BAS 758 00 F, the targed dose rate) showed good efficacy, similar or better than the reference product against wheat diseases and against RAMUCC on barley. Additionally both dose rates 100g/ha and 150 g/ha performed similarly and simultaneously were less effective against PUCCHD, PYRNTE than the reference product in trials on barley. In trials agaist RHYNSE dose rate 100g/ha showed inferior efficacy but at the same

level as in the reference product.
It can be concluded that the target dose rate 100 g/ha might be considered the correct dose rate used in the BAS 758 00 F mixture, ensuring a good level of crop protection at lowering amount of used active substance in comparison to the approved solo product, with the dose rate 150 g/ha.

The active substance pyraclostrobin was tested at the dose rates: 100 g/ha (the targed dose rate used in BAS 758 00 F is 120 g/ha), 150 g/ha and 220 - 250 g/ha (an aproved dose rate in a solo product) on following cereals:

- wheat against: SEPTTR (3 trials), PUCCRT (3 trials),
- barley against: PYRNTE (2 trials), RHYNSE (1 trial)

in trials carried out in PL in 2015.
The highest and similar efficacy was obtained using dose rates of 150 g/ha and 220 - 250 g/ha and comparable or better than the reference product. Neverthesles dose rate of 100 g/ha (lower than used in BAS 758 00 F, the targed dose rate) showed very good efficacy, similar to the reference product against PUCCRT. The dose rate 100 g/ha showed also good efficacy against SEPTTR, PYRNTE, RHYNSE (75%, 78% and 79% respectively) but performed weaker than the reference product (86%, 95% and 95% respectively).
The intended dose rate of a.s. is 120 g/ha what is the dose rate between 100 g/ha and 150 g/ha. It can be assumed that a dose of 120 g/ha will give better effects than 100 g/ha and comparable to a dose of 150 g/ha in crop protection. On the basis above results it can be concluded that the target dose rate 120 g/ha might be considered the correct dose rate used in the BAS 758 00 F mixture, ensuring a good level of crop protection at lowering amount of used active substance in comparison to the approved solo product, with the dose rate 220 - 250 g/ha.

The active substance metrafenone was tested at the dose rate: 150 g/ha (used in BAS 758 00 F, the targed dose rate and aproved in a solo product) on following cereals:

- wheat against: SEPTTR (4 trials), OLIMSP (8 trials) ERYSGR (13 trials),
- barley against: PYRNTE (5 trials)

in trials carried out in PL from 2015 to 2019.
The dose rate of 150 g/ha (used in BAS 758 00 F, the targed dose rate) showed comparable or better efficacy than the reference products against against SEPTTR, OLIMSP, and ERSGR. Efficacy against PYRNTE was inferior (50%) than the reference product (64%). Nevertheless addition this substance to the mixture might be considered a factor of resistance management and enlargment of overall mixture efficacy.

<u>SE EPPO climate zone</u>

The active substance mefentrifluconazole was tested at the dose rates: 100 g/ha (used in BAS 758 00 F, the targed dose rate), 150 g/ha (an aproved dose rate in a solo product) and 50 g/ha on following cereals:

- wheat against: SEPTTR (6 trials), PUCCRT (2 trials), PUCCST (2 trials);
- barley against: PYRNTE (5 trials), RHYNSE (1 trial)

in trials carried out in RO, BG, HU, SK from 2015 to 2018.
The highest efficacy was obtained using dose rate of 150 g/ha which was comparable otr better tha the reference product. Neverthesles dose rate of 100 g/l (used in BAS 758 00 F, the targed dose rate) showed good efficacy, similar or better than the reference product against wheat diseases and against RHYNSE on barley. Additionally both dose rates 100g/ha and 150 g/ha performed similarly and simultaneously were less effective against PYRNTE (65% and 69% respectively) than the reference product (72%) in trials on barley.
It can be concluded that the target dose rate 100 g/ha might be considered the correct dose rate used in the BAS 758 00 F mixture, ensuring a good level of crop protection at lowering amount of used active substance in comparison to the approved solo product, with the dose rate 150 g/ha.

The active substance pyraclostrobin was tested at the dose rates: 100 g/ha (the targed dose rate used in BAS 758 00 F is 120 g/ha), 150 g/ha and 220 - 250 g/ha (an aproved dose rate in a solo product) on following cereals:

- wheat against: SEPTTR (4 trials), PUCCST (1 trial), PUCCRT (3 trials),
- barley against: PYRNTE (2 trials), PUCCHD (1 trial),

in trials carried out in HU, RO in 2015.
The highest and similar efficacy was obtained using dose rates of 150 g/ha and 220 - 250 g/ha and comparable or better than the reference product. Neverthesles dose rate of 100 g/ha (lower than used in BAS 758 00 F, the targed dose rate) showed good efficacy, similar or better than the reference product against wheat diseases and PUCCHD. The dose rate 100 g/ha showed also good efficacy against PYRNTE (78%) but performed weaker than the reference product (94%).
The intended dose rate of a.s. is 120 g/ha what is the dose rate between 100 g/ha and 150 g/ha. It can be assumed that a dose of 120 g/ha will give better effects than 100 g/l and comparable to a dose of 150 g/ha in crop protection. On the basis above results it can be concluded that the target dose rate 120 g/ha might be considered the correct dose rate used in the BAS 758 00 F mixture, ensuring a good level of crop protection at lowering amount of used active substance in comparison to the approved solo product, with the dose rate 220 - 250 g/ha.

The active substance metrafenone was tested at the dose rate: 150 g/ha (used in BAS 758 00 F, the targed dose rate and aproved in a solo product) on following cereals:

- wheat against: SEPTTR (6 trials), OLIMSP (10 trials) ERYSGR (12 trials);
- barley against: PYRNTE (15 trials)

in trials carried out in RO, BG, SK from 2017 to 2020.
The dose rate of 150 g/ha (used in BAS 758 00 F, the targed dose rate) showed comparable or better efficacy than the reference products against against OLIMSP and ERSGR. Efficacy against SEPTTR and PYRNTE was inferior (63% and 77% respectyvely) than the reference product (69% and 85% respectyvely). Nevertheless addition this substance to the mixture might be considered a factor of resistance management and enlargment

2. Efficacy of the single and combined active ingredients of BAS 758 00 F to compare efficacy of the solo actives, two – inredient (a.s) mixtures, the final mixture BAS 758 00 F (the three – inredient (a.s) mixture) and a reference product.

<u>Martime EPPO climate zone</u>

Efficacy of different solo active substance at the dose rate used in BAS 758 00 F and efficacy of the reference product were compared.
on following cereals:

- wheat against: SEPTTR (4 trials), OLIMSP (3 trials), ERYSGR (1 trial),
- barley against: PYRNTE (4 trials), RAMUCC (1 trial)

The dose rate 100 g/ha of mefentrifluconazole showed the best activity against SEPPTR and RAMUCC and the efficacy was comparable or better than the reference product. The next active substance, pyraclostrobin at dose rate 120 g/ha showed the best activity against PYRNTE and protected barley at the same level as the reference product. The dose rate 150 g/ha of metrafenone showed the best activity against OLIMSP and ERYSGR. The dose rate performed inferior against ERYSGR (53%) in comparison to the reference product (80%). It might be concluded that each active substance, depending on the disease, showed good or medium efficacy and it will give a cotribiution in the proposed mixture to the control of diseases in wheat and barley. Efficacy of particular active substance at proposed dose rates was comparable or better in most cases than the reference product that is why lowering dose rates of actives in the mixture are justified.

In the next comparison efficacy of two – inredient (a.s) mixtures, the final mixture BAS 758 00 F (the three – inredient (a.s) mixture) and a reference product were presented:

- 100 g/ha of Mefentrifluconazole + 150 g/ha Metrafenone
- 100 g/ha of Mefentrifluconazole + 120 g/ha Pyraclostrobin
- 150 g/ha Metrafenone + 120 g/ha Pyraclostrobin
- 100 g/ha of Mefentrifluconazole + 150 g/ha Metrafenon+ 120 g/ha Pyraclostrobin - BAS 758 00 F

	• 200 g/ha Prothioconazole – BAS 93141 F, the reference product The efficacy on following cereals was tested: wheat against: SEPTTR (4 trials), OLIMSP (3 trials), ERYSGR (1 trial), barley against: PYRNTE (4 trials), RAMUCC (1 trial) Comparing above mentioned mixtures, addition of mefentrifluconazole gave efficacy improvement against SEPTTR, RAMUCC; two actives mefentrifluconazole plus metrafenone gave better efficacy against OLIMSP, ERYSGR; pyraclostrobin and mefentrifluconazole mixed together gave better efficacy against PYRTRE. To sum up, efficacy of the final mixture BAS 758 00 F was better or comparable - depending on the disease – to particular two – inredient (a.s) mixtures what confirms that 3 active substnaces in one mixture will guaratee wider -spectrum crop protection against different diseases in comparison to solo products and two – inredient (a.s) mixtures. **<u>NE EPPO climate zone</u>** Efficacy of different solo active substance at the dose rate used in BAS 758 00 F and efficacy of the reference product were compared. on following cereals: • wheat against: SEPTTR (1 trial), OLIMSP (2 trials) • barley against: PYRNTE (1 trial) The dose rate 100 g/ha of mefentrifluconazole showed the best activity against SEPPTR and the efficacy was comparable to the reference product. The next active substance, pyraclostrobin at dose rate 120 g/ha showed the best activity against PYRNTE and protected barley at the same level as the reference product. The dose rate 150 g/ha of metrafenone showed the best activity against OLIMSP and better than the reference product. It might be concluded that each active substance, depending on the disease, showed good or medium efficacy and it will give a cotribiution in the proposed mixture to the control of diseases in wheat and barley. Efficacy of particular active substance proposed dose rates was comparable or better in most cases than the reference product that is why lowering dose rates of actives in the mixture are justified. In the next comparison efficacy of two – inredient (a.s) mixtures, the final mixture BAS 758 00 F (the three – inredient (a.s) mixture) and a reference product were presented: • 100 g/ha of Mefentrifluconazole + 150 g/ha Metrafenone • 100 g/ha of Mefentrifluconazole + 120 g/ha Pyraclostrobin • 150 g/ha Metrafenone + 120 g/ha Pyraclostrobin • 100 g/ha of Mefentrifluconazole + 150 g/ha Metrafenon+ 120 g/ha Pyraclostrobin - BAS 758 00 F • 200 g/ha Prothioconazole – BAS 93141 F, the reference product The efficacy on following cereals was tested: wheat against: SEPTTR (1 trial), OLIMSP (2 trials) barley against: PYRNTE (1 trial) Comparing above mentioned mixtures, addition of mefentrifluconazole gave efficacy improvement against SEPTTR; addition of Metrafenone gave better efficacy against OLIMSP; addition of pyraclostrobin gave better efficacy against PYRTRE. For NE EPPO climate zone the Applicant presented limited data. Neverthrless it confirms mainly conclusions from Maritime EPPO climate zone. To sum up, efficacy of the final mixture BAS 758 00 F was better or comparable - depending on the disease – to particular two – inredient (a.s) mixtures what confirms that 3 active substnaces in one mixture will guaratee wider -spectrum crop protection against different diseases in comparison to solo products and two – inredient (a.s) mixtures.

SE EPPO climate zone

Efficacy of different solo active substance at the dose rate used in BAS 758 00 F and efficacy of the reference product were compared.
on following cereals:

- wheat against: SEPTTR (2 trials), ERYSGR (1 trial),
- barley against: PYRNTE (1 trial)

The dose rate 100 g/ha of mefentrifluconazole and pyraclostrobin at dose rate 120 g/ha showed the best activity against SEPPTR and the efficacy was comparable or better than the reference product. The dose rate 100 g/ha of mefentrifluconazole and the dose rate 150 g/ha of metrafenone showed the best activity against ERYSGR and protected wheat at the same level or better level as the reference product. In one trial against PYRNTE all actives protected barley on the silimar level.
It might be concluded that each active substance, depending on the disease, showed good or medium efficacy and it will give a cotribiution in the proposed mixture to the control of diseases in wheat and barley. Efficacy of particular active substance at proposed dose rates was comparable or better in most cases than the reference product that is why lowering dose rates of actives in the mixture are justified.

In the next comparison efficacy of two – inredient (a.s) mixtures, the final mixture BAS 758 00 F (the three – inredient (a.s) mixture) and a reference product were presented:

- 100 g/ha of Mefentrifluconazole + 150 g/ha Metrafenone
- 100 g/ha of Mefentrifluconazole + 120 g/ha Pyraclostrobin
- 150 g/ha Metrafenone + 120 g/ha Pyraclostrobin
- 100 g/ha of Mefentrifluconazole + 150 g/ha Metrafenon+ 120 g/ha Pyraclostrobin - BAS 758 00 F
- 200 g/ha Prothioconazole – BAS 93141 F, the reference product

The efficacy on following cereals was tested:
wheat against: SEPTTR (2 trials), ERYSGR (1 trial),
barley against: PYRNTE (1 trials)
Comparing above mentioned mixtures, addition of pyraclostrobin gave efficacy improvement against SEPTTR; each combination of actives substances gave better efficacy against ERYSGR; pyraclostrobin and mefentrifluconazole mixed together gave excellent efficacy against PYRTRE.
To sum up, limited data presented by Applicant showed that efficacy of the final mixture BAS 758 00 F was clearly better than particular two – inredient (a.s) mixtures what confirms that 3 active substnaces in one mixture will guaratee wider -spectrum crop protection against different diseases in comparison to solo products and two – inredient (a.s) mixtures.

dRR point 3.2.1.2
The Applicant used in some reports very similar formulation to BAS 758 00 F. In the point "Bridging trials (KCP 6.1)" it is demonstrated the equivalence of BAS 758 00 F efficacy and the formulation BAS 758 AR F efficacy.

Maritime EPPO climate zone

The bridging data were presented: in 9 trials on wheat against SEPTTR; in 5 trials on wheat against PUCCST; in 2 trials on barley against PYRNTE; in 6 trials on barley against RAMUCC; in 2 trials on triticale against SEPTTR; in 4 trials on rye against PUCCRE carried out in CZ, DE, DK, NL, UK, IE in 2020.

Average levels of major target diseases control in wheat and barley were very similar for BAS 758 00 F and BAS 758 AR F applied at dose rate 1,5 l/ha.

Disease/crop	Efficacy [%]		
	BAS 758 AR F	BAS 758 00 F	reference product
SEPTTR/wheat	88,6	89,8	74,8
PUCCST/wheat	93,6	93,7	92,1

PYRNTE/barley	94,8	95,7	70,8
RAMUCC/barley	83,4	84,4	84,9
SEPTTR/triticale	94,5	95,6	90,8
PUCCRE/rye	92,3	92,9	93,7

The presented results show equivalence of BAS 758 00 F and BAS 758 AR F. That is why data from trials using the BAS 758 AR F product can be used to support the efficacy of the BAS 765 00 F product.

NE EPPO climate zone

The bridging data were presented: in 4 trials on wheat against SEPTTR; in 2 trials on wheat against PUCCST; in 1 trial on barley against PYRNTE; in 1 trial on barley against RAMUCC; in 2 trials on triticale against SEPTTR; in 4 trials on rye against PUCCRE carried out in PL, LV in 2020.

Average levels of major target diseases control in wheat and barley were similar for BAS 758 00 F and BAS 758 AR F applied at dose rate 1,5 l/ha.

Disease/crop	Efficacy [%]		
	BAS 758 AR F	BAS 758 00 F	reference product
SEPTTR/wheat	89,5	90,1	78,1
PUCCST/wheat	99,8	99,3	99,4
PYRNTE/barley	78,0	83,8	86,5
RAMUCC/barley	77,1	77,1	77,1
SEPTTR/triticale	89,7	93,1	86,8
PUCCRE/rye	90,1	91,7	89,2

The presented results show equivalence of BAS 758 00 F and BAS 758 AR F. That is why data from trials using the BAS 758 AR F product can be used to support the efficacy of the BAS 765 00 F product.

SE EPPO climate zone

The bridging data were presented: in 9 trials on wheat against SEPTTR; in 1 trial on wheat against PUCCST; in 3 trials on barley against PYRNTE carried out in BG, RO, SK, HU in 2020.

Average levels of major target diseases control in wheat and barley were similar for BAS 758 00 F and BAS 758 AR F applied at dose rate 1,0 l/ha.

Disease/crop	Efficacy [%]		
	BAS 758 AR F	BAS 758 00 F	reference product
SEPTTR/wheat	90,4	91,6	81,8
PUCCST/wheat	99,1	98,1	94,5
PYRNTE/barley	96,4	98,3	95,2

The presented results show equivalence of BAS 758 00 F and BAS 758 AR F. That is why data from trials using the BAS 758 AR F product can be used to support the efficacy of the BAS 765 00 F product.

Data from three EPPO climate zones confirmed that changes in the tested formulations did not have any impact on the efficacy. It might be concluded that the BAS 758 AR F formulation can be used to support the authorization of the BAS 758 00 F formulation.

3.2.2 Minimum effective dose tests (KCP 6.2)

Many plant protection products are used to control a range of target diseases. In such situations, it would be impractical and unnecessary to provide evidence for the minimum effective dose for all recommendations. Information is required for a range of targets which are considered to be the most important and for which control provides a major agricultural benefit. Therefore, to justify the minimum effective dose for BAS 758 00 F, data is presented on a number of key target diseases for which efficacy is claimed. In the years 2019 - 2020 the minimum effective dose tests for BAS 758 00 F were conducted in 64 field trials throughout Europe. In Maritime and North-East EPPO zones only the dose rate 1.5 L/ha is proposed. In

South-East EPPO zone a dose range of 0.5 L/ha - 1.0 L/ha of BAS 758 00 F is requested. In countries like HU, SK and RO the use of lower than registered dose rates is not permitted. This underlines the need for registered dose rate ranges in order to provide flexibility in the use rate to farmers depending on disease pressure and weather conditions in these countries. In other countries the label gives the farmer guidance on the dose rates to be used and thus the explicit dose rate range on the label is a seen as a benefit. Therefore if it is considered justified, that a dose rate range is proposed.

All trials were performed according to methodology set out in section 3.2.3 Efficacy tests (KCP 6.2). The only difference is that in the section - Efficacy tests (KCP 6.2) trials on spring and winter cultivars are discussed separately for North-East EPPO zone. However, in MED section all trials (on spring and winter cultivars) are summarized together to show advantage of target dose.

***Zymoseptoria tritici* (SEPTTR), Septoria leaf blotch of wheat**

Maritime and North-East EPPO zones
In years 2019 and 2020 the product BAS 758 00 F was tested in 19 efficacy trials in order to determine the minimum effective dose for the control of Septoria leaf blotch in wheat. The application rate of 1.5 L/ha was compared with a reduced dose rate 1.0 L/ha. Both tested doses were compared to the standard product Proline containing prothioconazole (250 g a.i./L) and applied at the dose of 0.8 L/ha.

Table 3.2-23: *Zymoseptoria tritici* (SEPTTR) in wheat – minimum effective dose - Maritime and North-East zones, summary

EPPO Zone		Untreated	BAS 758 00 F		Proline
			1.0 L/ha	1.5 L/ha	0.8 L/ha
Maritime	average	33.4	73.0	86.7	69.1
	min- max	7.9-100.0	62.2-89.5	81.1-100.0	41.6-89.5
	n	10	10	10	10
North-East	average	18.5	76.5	86.6	76.1
	min- max	5.7-42.2	46.9-90.0	78.2-95.4	54.6-99.1
	n	9	9	9	9
All zones	average	26.3	74.7	86.6	72.4
	min- max	5.7-100.0	46.9-90.0	78.2-100.0	41.6-99.1
	n	19	19	19	19

In all cases, efficacy of BAS 758 00 F applied at the dose rate of 1.5 L/ha was higher than achieved with the 1.0 L/ha dose rate. Moreover, the lower dose of the product gave less consistent and more variable disease control. These data therefore justify that in order to achieve optimum activity of BAS 758 00 F it should be used at the 1.5 L/ha dose rate in Maritime and North-East EPPO zones. Performance of BAS 758 00 F applied at dose rate 1.0 L/ha was on the level of Proline. If the product is used at rate 1.5 L/ha it outperformed significantly the standard.

***Puccinia triticina* (PUCCRT), brown rust of wheat**

Maritime and North-East EPPO zones
In 2019 the product BAS 758 00 F was tested in 8 efficacy trials in order to determine the minimum effective dose for the control of brown rust in wheat. The application rate of 1.5 L/ha was compared with a reduced dose rate 1.0 L/ha. Both tested doses were compared to the standard product Proline containing prothioconazole (250 g a.i./L) and applied at the dose of 0.8 L/ha.

Table 3.2-24: *Puccinia triticina* (PUCCRT) in wheat – minimum effective dose - Maritime and North-East zones, summary

EPPO Zone		Untreated	BAS 758 00 F	Proline

			1.0 L/ha	1.5 L/ha	0.8 L/ha
Maritime	average	15.2	81.0	87.8	52.2
	min- max	5.3-34.4	70.8-91.9	79.2-96.4	25.0-75.5
	n	3	3	3	3
North-East	average	24.1	84.9	93.6	78.4
	min- max	11.3-34.8	80.1-93.3	87.7-100.0	64.6-90.6
	n	5	5	5	5
All zones	average	20.8	83.4	91.4	68.6
	min- max	5.3-34.8	70.8-93.3	79.2-100.0	25.0-90.6
	n	8	8	8	8

In all cases, efficacy of BAS 758 00 F applied at the dose rate of 1.5 L/ha was higher than achieved with the 1.0 L/ha dose rate. Moreover, the lower dose of the product gave less consistent and more variable disease control. These data therefore justify that in order to achieve optimum activity of BAS 758 00 F it should be used at the 1.5 L/ha dose rate in Maritime and North-East EPPO zones. Performance of BAS 758 00 F applied at dose rate 1.0 L/ha was better than performance of Proline. If the product is used at rate 1.5 L/ha it significantly outperformed the standard.

South-East EPPO Zone

In 2019 the minimum effective dose for BAS 758 00 F was tested in 6 efficacy trials for brown rust in wheat. Product BAS 758 00 F was applied at rates of 0.3 L/ha, 0.5 L/ha and 1.0 L/ha. All tested doses were compared to the standard product Proline applied at the dose of 0.8 L/ha.

Table 3.2-25: *Puccinia triticina* (PUCCRT) in wheat - minimum effective dose – South-East zone, summary

EPPO Zone		Untreated	BAS 758 00 F			Proline
			0.3 L/ha	0.5 L/ha	1.0 L/ha	0.8 L/ha
South-East	average	22.5	77.2	84.9	92.3	89.3
	min- max	6.8-32.3	73.5-81.3	82.3-89.8	89.4-94.6	86.8-92.4
	n	6	6	6	6	6

The application of BAS 758 00 F at a dose range of 0.5 L/ha – 1.0 L/ha provided more efficient control of disease than 0.3 L/ha. For the lower dose rate 0.3 L/ha both, the average efficacy and efficacy of most trials, were below 80%. The presented data therefore justify that in order to achieve optimum activity of BAS 758 00 F it should be used at the 0.5 L/ha to 1.0 L/ha dose range in South-East EPPO zone. Proline provided higher disease control compared to the dose rate of 0.5 L/ha BAS 758 00 F. Nevertheless, BAS 758 00 F applied at 0.5 L/ha still gave a high disease control of 85%. BAS 758 00 F applied at full dose rate priovided superior disease control compared to Proline.

***Blumeria graminis* (ERYSGT), powdery mildew of wheat**

Maritime and North-East EPPO zones

In years 2019 and 2020 product BAS 758 00 F was tested in 10 efficacy trials (6 in Maritime zone and 4 in North-East zone) in order to determine the minimum effective dose for the control of powdery mildew in wheat. The application rate of 1.5 L/ha was compared with a reduced dose rate 1.0 L/ha. Both tested doses were compared to the standard product Proline, applied at a dose of 0.8 L/ha.

Table 3.2-26: *Blumeria graminis* (ERYSGT) in wheat – minimum effective dose - Maritime and North-East zones, summary

EPPO Zone		Untreated	BAS 758 00 F		Proline
			1.0 L/ha	1.5 L/ha	0.8 L/ha
Maritime	average	22.2	64.7	88.5	59.8
	min- max	7.5-75.0	0.0-88.6	79.6-98.0	0.0-92.6

	n	6	6	6	6
North-East	average	6.0	70.5	82.6	85.8
	min- max	5.0-7.6	56.0-80.9	75.5-88.4	75.5-100.0
	n	4	4	4	4
All zones	average	15.7	67.0	86.1	70.2
	min- max	5.0-75.0	0.0-88.6	75.5-98.0	0.0-100.0
	n	10	10	10	10

In all cases, the efficacy of BAS 758 00 F applied at the dose rate of 1.5 L/ha was higher than achieved with the 1.0 L/ha dose rate. Moreover, the lower dose of the product gave less consistent and more variable disease control. These data therefore justify that in order to achieve optimum activity of BAS 758 00 F it should be used at the 1.5 L/ha dose rate in Maritime and North-East EPPO zones. On average the performance of BAS 758 00 F applied at the dose rate 1.0 L/ha was almost at the level of Proline. If the product was used at the rate 1.5 L/ha it outperformed the standard.
In the trial DEV-F-2019-DE-C13-B-04.0-DE-D17-021 the assessment was conducted at the day of the second application. However the first application was done 3 weeks earlier. Therefore this is considered as a valid assessment made after one product application.
In the trial DEV-F-2020-CZ-C26-A-02.0-CZ-CZH-C91 both BAS 758 00 F at dose rate 1.0 L/ha and standard product are completely ineffective while BAS 758 00 F at full dose rate ensured effective disease control. Symptoms of powdery mildew were not observed 20 days after the application. Then the disease developed rapidly, infection of untreated control reached 75% within 10 days. In such unfavorable conditions only the maximum dose rate of BAS 758 00 F was efficient. Moreover BAS 758 AR F at dose rate 1.5 L/ha was applied in this trial and achieved almost the same effectiveness as BAS 758 00 F at the same dose rate. This confirms both reliability of the trial and equivalence of both formulations.
In the trial DEV-F-2020-DE-C11-D-04.0-DE-D12-C11 efficacy of standard product is lower than expected. Challenging conditions, especially high infection pressure of diseases at application, are considered the reason for this. Results of SEPTTR control for both standard product and BAS 758 00 F at the dose rate 1.0 L/ha confirm this (efficacy below 70%). The results also confirm that full dose rate of BAS 758 00 F can be effective even under challenging conditions like high disease pressure at application.

Pyrenophora teres (PYRNTE), net blotch of barley

Maritime and North-East EPPO zones
In years 2019 and 2020 the product BAS 758 00 F was tested in 10 efficacy trials in order to determine the minimum effective dose for the control net blotch in barley. The product was applied at rates of 1.0 L/ha and 1.5 L/ha. Both tested doses were compared to the standard product Proline at the dose of 0.8 L/ha.

Table 3.2-27: *Pyrenophora teres* (PYRNTE) in barley – minimum effective dose - Maritime and North-East zones, summary

EPPO Zone		Untreated	BAS 758 00 F		Proline
			1.0 L/ha	1.5 L/ha	0.8 L/ha
Maritime	average	8.8	82.1	93.4	74.7
	min- max	6.5-10.8	78.2-93.1	87.6-100.0	62.4-93.1
	n	4	4	4	4
North-East	average	17.0	73.0	86.3	78.9
	min- max	6.1-45.0	58.2-85.2	76.3-97.6	66.6-88.9
	n	6	6	6	6
All zones	average	13.7	76.7	89.1	77.2
	min- max	6.1-45.0	58.2-93.1	76.3-100.0	62.4-93.1
	n	10	10	10	10

Application of BAS 758 00 F at the dose rate of 1.0 L/ha gave lower control than achieved with the 1.5 L/ha dose rate. The efficacy at the full rate of BAS 758 00 F was more reliable compared to the lower dose rate. These data therefore justify that in order to achieve optimum activity of BAS 758 00 F it should be used at the 1.5 L/ha dose rate. The average efficacy values show that 1.5 L/ha BAS 758 00 F is superior to Proline, nevertheless efficacy of BAS 758 00 F at reduced rate of 1.0 L/ha is at the same level as Proline.
In the first and second trial from Maritime EPPO zone results are the same. Despite establishment of both trials in the same location, application of tested products was done with an interval of 6 days, at different BBCH GS of crop. The infestation with net blotch was at a rather low level, with limited development over time. That could explain the very similar performance of the two trials. Therefore similarity of results is considered accidental. Results obtained in these trials for other diseases differ.

South-East EPPO zone
In 2019 the product BAS 758 00 F was tested in 4 efficacy trials in order to determine the minimum effective dose for the control of net blotch in barley. The product was applied at rates of 0.3 L/ha, 0.5 L/ha and 1.0 L/ha. All tested doses were compared to the standard product Proline at the dose of 0.8 L/ha.

Table 3.2-28: *Pyrenophora teres* (PYRNTE) in barley– minimum effective dose - South-East zone, summary

EPPO Zone		Untreated	BAS 758 00 F			Proline
			0.3 L/ha	0.5 L/ha	1.0 L/ha	0.8 L/ha
South-East	average	17.9	71.7	79.1	87.7	77.0
	min- max	6.4-29.8	58.0-78.2	72.7-82.2	85.9-89.2	44.2-90.9
	n	4	4	4	4	4

Application of BAS 758 00 F at the lower dose rate of 0.3 L/ha gave lower control than achieved with the 0.5 L/ha and 1.0 L/ha dose rates. Both, the average efficacy and efficacy in all trials is below 80% with 0.3 L/ha BAS 758 00 F. These data therefore justify that in order to achieve optimum activity of BAS 758 00 F it should be used at the 0.5 to 1.0 L/ha dose range. On average, the standard Proline controlled the disease at the level of BAS 758 00 F applied at 0.5 L/ha. If BAS 758 00 F is applied with 1.0 L/ha, it outperforms Proline at 0.8 L/ha.

***Rhynchosporium secalis* (RHYNSE), rhynchosporium leaf scald of barley**

Maritime and North-East EPPO zones
In years 2019 and 2020 product BAS 758 00 F was tested in 7 efficacy trials in order to determine the minimum effective dose for the control of rhynchosporium leaf scald in barley. The product was applied at rates of 1.0 L/ha and 1.5 L/ha. Both tested doses were compared to the standard product Proline at the dose rate of 0.8 L/ha.

Table 3.2-29: *Rhynchosporium secalis* (RHYNSE) in barley –minimum effective dose - Maritime and North-East, summary

EPPO Zone		Untreated	BAS 758 00 F		Proline
			1.0 L/ha	1.5 L/ha	0.8 L/ha
Maritime	average	31.9	65.3	85.1	86.8
	min- max	5.5-91.0	46.4-90.9	73.7-100.0	53.3-100.0
	n	5	5	5	5
North-East	average	7.1	86.6	93.2	92.3
	min- max	7.0-7.3	83.5-89.7	91.5-94.8	91.4-93.1
	n	2	2	2	2
All zones	average	24.8	71.4	87.4	88.4
	min- max	5.5-91.0	46.4-90.9	73.7-100.0	53.3-100.0
	n	7	7	7	7

Application of BAS 758 00 F at the dose rate of 1.0 L/ha gave lower control than achieved with the 1.5 L/ha dose rate. The efficacy at the full rate of BAS 758 00 F was more consistent and reliable compared to the lower dose rate. The full dose rate was 16% more effective than the lower dose rate. These data therefore justify that in order to achieve optimum activity of BAS 758 00 F it should be used at the 1.5 L/ha dose rate. The average efficacy values show that 1.5 L/ha BAS 758 00 F is performing equal to Proline.

***Blumeria graminis* (ERYSGH), powdery mildew of barley**

South-East EPPO zone
In 2019 the product BAS 758 00 F was tested in 4 efficacy trials in order to determine the minimum effective dose for the control of powdery mildew in barley. Product was applied at rates of 0.3 L/ha, 0.5 L/ha and 1.0 L/ha. All tested doses were compared to the standard product Proline at the dose of 0.8 L/ha.

Table 3.2-30: *Blumeria graminis* (ERYSGH) in barley – minimum effective dose - South-East zone, summary

EPPO Zone		Untreated	BAS 758 00 F			Proline
			0.3 L/ha	0.5 L/ha	1.0 L/ha	0.8 L/ha
South-East	average	21.8	67.1	77.1	85.4	81.0
	min- max	8.2-42.5	50.3-87.2	66.6-89.5	74.3-93.8	69.7-91.9
	n	4	4	4	4	4

Application of BAS 758 00 F at the lower dose rate of 0.3 L/ha gave lower control than achieved with the 0.5 L/ha and 1.0 L/ha dose rates. The dose rate 0.5 L/ha is 10% more effective than 0.3 L/ha. These data therefore justify that in order to achieve optimum activity of BAS 758 00 F it should be used at the 0.5 to 1.0 L/ha dose range. Proline provided a slightly better disease control than BAS 758 00 F applied at 0.5 L/ha, but if BAS 758 00 F is applied at 1.0 l/ha it outperforms the standard.

***Septoria* spp. (SEPTSP), Septoria leaf blotch of triticale**

Maritime and North-East EPPO zone
In the years 2019 and 2020 the product BAS 758 00 F was tested in 5 efficacy trials (1 in Maritime zone and 4 in North-East zone) in order to determine the minimum effective dose for the control of Septoria leaf blotch in triticale. The application rate of 1.5 L/ha was compared with a reduced dose rate of 1.0 L/ha. Both tested doses were compared to the standard product Proline, applied at a dose rate of 0.8 L/ha.

Table 3.2-31: *Septoria spp.* (SEPTSP) in triticale –minimum effective dose - Maritime and North-East zones, summary

EPPO Zone		Untreated	BAS 758 00 F		Proline
			1.0 L/ha	1.5 L/ha	0.8 L/ha
Maritime	average	25.2	87.9	93.6	93.2
	min- max	-	-	-	-
	n	1	1	1	1
North-East	average	17.4	77.3	86.4	80.1
	min- max	6.4-23.3	69.6-89.8	76.3-93.3	68.5-92.4
	n	4	4	4	4
All zones	average	18.9	79.4	87.9	82.8
	min- max	6.4-25.2	69.6-89.8	76.3-93.6	68.5-93.2
	n	5	5	5	5

Application of BAS 758 00 F at the dose rate of 1.0 L/ha gave lower control than achieved with the 1.5 L/ha dose rate. The efficacy at the full rate of BAS 758 00 F was more reliable compared to the lower dose rate. These data therefore justify that in order to achieve optimum activity of BAS 758 00 F it should be used at the 1.5 L/ha dose rate. The average efficacy values show that BAS 758 00 F applied at dose rate 1.0 L/ha is slightly less effective than Proline. However BAS 758 00 F at full dose rate is superior to the standard product.

***Puccinia recondita* (PUCCRE), brown rust of rye**

Maritime and North-East EPPO zones
In the years 2019 and 2020 product BAS 758 00 F was tested in 6 efficacy trials (2 in Maritime zone and 4 in North-East zone) in order to determine the minimum effective dose for the control of brown rust in rye. The application rate of 1.5 L/ha was compared with a reduced dose rate of 1.0 L/ha. Both tested doses were compared to the standard product Proline, applied at a dose rate of 0.8 L/ha.

Table 3.2-32: *Puccinia recondita* (PUCCRE) in rye –minimum effective dose - Maritime and North-East, summary

EPPO Zone		Untreated	BAS 758 00 F		Proline
			1.0 L/ha	1.5 L/ha	0.8 L/ha
Maritime	average	30.3	78.7	83.0	89.0
	min- max	9.8-50.8	74.8-82.5	79.7-86.3	89.0-89.1
	n	2	2	2	2
North-East	average	18.6	71.5	90.7	89.5
	min- max	5.8-36.9	50.9-89.1	84.9-100.0	78.7-99.1
	n	4	4	4	4
All zones	average	22.5	73.9	88.2	89.4
	min- max	5.8-50.8	50.9-89.1	79.7-100.0	78.7-99.1
	n	6	6	6	6

Application of BAS 758 00 F at the rate of 1.0 L/ha gave lower control than achieved with the 1.5 L/ha dose rate. The full dose rate ensured 14% better control of the disease. Moreover, the efficacy at the full rate of BAS 758 00 F was more consistent and reliable compared to the lower dose, with an average efficacy above 80%. These data therefore justify that in order to achieve optimum activity of BAS 758 00 F it should be used at the 1.5 L/ha dose rate. The average efficacy values show that BAS 758 00 F applied at dose rate 1.0 L/ha is slightly less effective than Proline. However the efficacy of BAS 758 00 F at the full dose rate is on average at the level of the standard product.

3.2.2.1 Summary and conclusions on the minimum effective dose (KCP 6.2)

According to the presented results from 64 trials, the 1.5 L/ha dose rate of BAS 758 00 F in Maritime and North-East zones and the 1.0 L/ha dose rate in the South-East EPPO zone provided the optimum overall control and should be considered as an effective solution against the major cereal diseases, for which efficacy of BAS 758 00 F is claimed. As a result, the proposed dose rates should be considered the minimum effective dose to deliver broad spectrum diseases control under a wide range of environmental conditions. In accordance with the EPPO standard PP1/225 (2) for minimum effective dose tests, situations were identified where reduced dose rates provided satisfactory control, which was in several cases as good or very close to the performance of the standard Proline. It is therefore concluded, that in specific agroclimatic conditions or in situations of lower diseases pressure, a reduced dose rate of BAS 758 00 F respectively 1.0 L/ha in Czech Republic and 0.5 L/ha in countries of South-East zone may be sufficient under practical conditions, especially if the product is used in mixture with other chemistry.

North - East and Maritime EPPO Zones
The application rate of 1.5 L/ha was tested in 56 field efficacy trials in comparison with a reduced dose rate of 1.0 L/ha. The application of 1.5 L/ha dose rate is justifiable based on data in control of Septoria leaf blotch, brown rust and powdery mildew of wheat, where 1.5 L/ha dose rate performed better than reduced rate about 12%, 8% and 19% respectively. The barley diseases (net blotch an Rhynchosporium leaf scald) were also better controlled (11% and 16% respectively) by 1.5 L/ha in comparison to the reduced rate. The advantage of the full dose rate was observed also for Septoria leaf blotch on triticale (full

dose rate 9% better than reduced dose) and brown rust of rye (full dose rate 14% better than reduced dose). However it must be admitted that reduced dose rate in many trials ensured quite high efficacy, therefore average efficacy for this dose rate often was close to or even exceeded 80%. This issue is discussed in section 3.2.3.20 Dose rate range justification (KCP 6.2).

Table 3.2-33: Minimum Effective Dose in Maritime and North-East zones, Summary all crops

EPPO climatic Zone	Crop	Disease	No. of trials		Untreated	BAS 758 00 F		Standard
						1.0 L/ha	1.5 L/ha	
					infect	efficacy		
Maritime and North-East	Wheat	SEPTTR	n = 19	mean	26.3	74.7	86.6	72.4
				(min-max)	5.7-100.0	46.9-90.0	78.2-100.0	41.6-99.1
		PUCCRE	n = 8	mean	20.8	83.4	91.4	68.6
				(min-max)	5.3-34.8	70.8-93.3	79.2-100.0	25.0-90.6
		ERYSGR	n = 10	mean	15.7	67.0	86.1	70.2
				(min-max)	5.0-75.0	0.0-88.6	75.5-98.0	0.0-100.0
	Barley	PYRNTE	n = 10	mean	13.7	76.7	89.1	77.2
				(min-max)	6.1-45.0	58.2-93.1	76.3-100.0	62.4-93.1
		RHYNSE	n = 7	mean	24.8	71.4	87.4	88.4
				(min-max)	5.5-91.0	46.4-90.9	73.7-100.0	53.3-100.0
	Rye	PUCCRE	n = 6	mean	22.5	73.9	88.2	89.4
				(min-max)	5.8-50.8	50.9-89.1	79.7-100.0	78.7-99.1
	Triticale	SEPTSP	n = 5	mean	18.9	79.4	87.9	82.8
				(min-max)	6.4-25.2	69.6-89.8	76.3-93.6	68.5-93.2

South – East EPPO Zone

The application rates of 0.5 L/ha and 1.0 L/ha were tested in 12 field efficacy trials in comparison with a lower dose rate of 0.3 L/ha. The results from field trials, based on diseases of wheat (brown rusts) and barley (net blotch and powdery mildew) clearly show the dose response and validate the dose rates of 0.5 – 1.0 L/ha. The full dose rate confirmed the outstanding product performance being superior to the full rate of the standard product. The lower rate of 0.5 L/ha showed in most cases a similar performance or only slightly lower performance than the standard. The confirmation of the dose range efficacy is especially important for South-East EPPO zone countries HU, SK and RO. In these countries, use of the lower than registered dose rates is not permitted. Therefore a dose rate range registration is required to provide flexibility to the farmers depending on the disease pressure and weather conditions in these countries. This issue is further discussed in section 3.2.3.20 Dose rate range justification (KCP 6.2).

Table 3.2-34: Minimum Effective Dose in South-East zone, Summary all crops

EPPO Zone climatic	Crop	Disease	No. of trials		Untreated	BAS 758 00 F			Standard
						0.3 L/ha	0.5 L/ha	1.0 L/ha	
					infect	efficacy			
South-East	Wheat	PUCCRT	n = 6	mean	22.5	77.2	84.9	92.3	89.3
				(min-max)	6.8-32.3	73.5-81.3	82.3-89.8	89.4-94.6	86.8-92.4
	Barley	PYRNTE	n = 4	mean	17.9	71.7	79.1	87.7	77.0
				(min-max)	6.4-29.8	58.0-78.2	72.7-82.2	85.9-89.2	44.2-90.9
		ERYSGR	n = 4	mean	21.8	67.1	77.1	85.4	81.0
				(min-max)	8.2-42.5	50.3-87.2	66.6-89.5	74.3-93.8	69.7-91.9

comments of zRMS: dRR point 3.2.2

Minimum effective dose tests

The claimed dose rate is 1,5 l/ha for NE and Maritime EPPO climate zones and 0,5 and 1,0 l/ha for SE EPPO climate zone.

Maritime EPPO climate zone

The doses justification of BAS 758 00 F are supported by data from 31 efficacy trials on:
wheat against SEPTTR (10 trials), PUCCTR (3 trials), ERYSGT (6 trials)
barley against PYRNTE (4 trials), RHYNSE (5 trials)
triticale against SEPTTR (1 trial)
rye against PUCCRE (2 trials)
for which efficacy of BAS 765 00 F is claimed. Efficacy of the claimed dose rate 1,5 l/ha was compared with the reduced (67% of the claimed dose rate) dose rate of 1,0 l/ha. Trials were conducted in 2019 and 2020 in CZ, DE, UK, DK.

Disease/crop	Efficacy of BAS 758 00 F [%]		
	1,0 l/ha	1,5 l/ha	reference product
SEPTTR/wheat	73,0	86,7	69,1
PUCCTR/wheat	81,0	87,8	52,5
ERYSGT/wheat	64,7	88,5	59,8
PYRNTE/barley	82,1	93,4	74,7
RHYNSE/barley	65,3	85,1	86,8
SEPTTR/triticale	87,9	93,6	93,2
PUCCRE/rye	78,8	83,0	89,0

In the Maritime EPPO climatic zone efficacy trials BAS 758 00 F at the dose rate of 1,5 l/ha showed more consistent and higher level of efficacy (than the reduced dose rate (1,0 l/ha).
1,5 l/ha dose rate of BAS 758 00 F demonstrated a very good diseases control (similar level of efficacy or better in comparison to the reference product) and was considered as the minimum effective dose rate.

NE EPPO climate zone

The doses justification of BAS 758 00 F are supported by data from 34 efficacy trials on:
wheat against SEPTTR (9 trials), PUCCTR (5 trials), ERYSGT (4 trials)
barley against PYRNTE (6 trials), RHYNSE (2 trials)
triticale against SEPTTR (4 trials)
rye against PUCCRE (4 trials)
for which efficacy of BAS 765 00 F is claimed. Efficacy of the claimed dose rate 1,5 l/ha was compared with the reduced (67% of the claimed dose rate) dose rate of 1,0 l/ha. Trials were conducted in 2019 and 2020 mainly in PL and LV (1 trial).

Disease/crop	Efficacy of BAS 758 00 F [%]		
	1,0 l/ha	1,5 l/ha	reference product
SEPTTR/wheat	76,5	86,6	76,1
PUCCTR/wheat	84,9	93,6	78,8
ERYSGT/wheat	70,5	82,6	85,8
PYRNTE/barley	73,0	86,3	78,9
RHYNSE/barley	86,6	93,2	92,3
SEPTTR/triticale	77,3	86,4	80,1
PUCCRE/rye	71,5	90,7	89,5

In the NE EPPO climatic zone efficacy trials BAS 758 00 F at the dose rate of 1,5 l/ha showed more consistent and higher level of efficacy than the reduced dose rate (1,0 l/ha).
1,5 l/ha dose rate of BAS 758 00 F demonstrated a very good diseases control (similar

level of efficacy or better in comparison to the reference product) and was considered as the minimum effective dose rate.

SE EPPO climate zone

The doses justification of BAS 758 00 F are supported by data from 14 efficacy trials on:
wheat against PUCCTR (6 trials)
barley against PYRNTE (4 trials), ERYSGH (4 trials)

Efficacy of the claimed dose rates 0,5 - 1,0 l/ha was compared with the reduced dose rate of 0,3 l/ha (60% and 30% respectively of the claimed dose rates).
Trials were conducted in 2019 in HU, RO, SK, BG

Disease/crop	Efficacy of BAS 758 00 F [%]			
	0,3 l/ha	0,5 l/ha	1,0 l/ha	reference product
PUCCTR/wheat	77,2	84,9	92,3	89,3
PYRNTE/barley	71,7	79,1	87,7	77,0
ERYSGH/barley	67,1	77,1	85,4	81,0

In the SE EPPO climatic zone efficacy trials BAS 758 00 F at the dose rates of 0,5 - 1,0 l/ha showed more consistent and higher level of efficacy than the reduced dose rate (0,3 l/ha).
1,0 l/ha dose rate of BAS 758 00 F demonstrated a very good diseases control and better level of efficacy in comparison to the reference product.
The dose rate of 0,5 l/ha against PUCCTR on wheat and ERYSGH on barley performed a little worse (84,9 and 77,1% respectively) than the reference product (89,3% and 81,0% respectively) but still protected crops on a high level.
The dose rates of 0,5 l/ha and 1,0 l/ha demonstrated a good diseases control and was considered as the minimum effective dose.

3.2.3 Efficacy tests (KCP 6.2)

Table 3.2-35: Details on trial methodology

Guidelines	General guidelines	EPPO 1/135 (4) Phytotoxicity assessment EPPO 1/152 (4) Design and analysis of efficacy evaluation trials EPPO 1/181 (4) Conduct and reporting of efficacy evaluation trials including good experimental practice EPPO 1/223 (2) Introduction to the efficacy evaluation of plant protection products EPPO 1/239 (2) Dose expression of plant protection products
	Specific guidelines	EPPO PP 1/26 (3) (4) Foliar diseases of cereals EPPO PP 1/28 (2) (3) Eyespot of cereals
Experimental design	Plot design	One - factorial randomized block design (205),
	Plot size	10.0-45.0 m²
	Number of replications	4 (205)
Crop	Trials per crop	Winter wheat (103) Spring wheat (2) Spelt (2) Winter barley (49) Spring barley (13) Triticale (17) Rye (16) Oats (3)
	Varieties per crop	Winter wheat: Akteur, Altigo, Arkadia, Augustus, Avenue, Benchmark, Bennington, Bergamo, Bernstein, Bohemia, Cameleon, Capo, Clare, Cordiale, Crusoe, Cubus, Discus, Edvins, Euforia, Evina, Ezopus, Falado, Fidelius, Florian, Fredis, Genius, Glosa, Ingenio, JB Asano, Joker, Kerrin, Kws Extase, Kws Kinetic, Kws Ozon, Lukullus, Madejka, Matrix, Monopol, MS Arlis, Murgavets, MV Tallér, Natula,Opal, Pamir, Pankratz, Patras, Porthus, Princeps, PS Kvalitas,RGT Depot, RGT Gravity, Riband, Ritmo, Rubisko, Sadovo, Sailor, Shabras, Skagen, Sorial, Stelarka, Substance, Tobak, Tonacja, Vanessa, Winnetou, Zyta Spring wheat: Amaretto, Wanamo Spelt: Zollernperle, Zollernspelz Winter barley: Bartosz, Bazant, California, Danilo, Daxor, Flagon, Gloria, Hjemdal, Jalon, Joy, Jup, Kobuz, Kosmos, KWS Orwell, KWS Tenor, Lomerit, Maris Otter, Memento, Metaxa, Noveta, Obzor, Ordinale, Pixel, Quadriga, Sandra, Saphira, Su Ellen, Su Vireni, Zanzibar, Zenek Spring barley: Chapeau, Dante, Grace, Kucyk, KWS Harris, KWS Irina, Malz, Penguin, Propino, Quench, Teksas, Tocada

		Rye: Binntto, Cossani, Dankowskie Diam, Kaupo, Mephisto, Su Forsetti, Vinetto Triticale: Agendus, Cappricia, Fredro, Grenado, KWS Aveo, Lombardo, Meloman, Neogen, Rotondo, Tantris, Trismart, Tulus Oats: Fusion, Mascani
Application	Crop stage (BBCH)* at application	between 30 and 69 between 30 and 32 for PSDCHE
	Number of applications	1 in majority of trials, 8 trials on wheat, 7 trials on barley and 1 trial on triticale were carried with 2 application of tested product (and standards). In these trials number of days after second application is presented in column DAT of efficacy tables
	Spray volumes	100 - 300 L/ha
Assessment	Assessment types	Visual assessing of foliar disease as specified in PP1/26 (4) Visual assessing of haulm/tillers as specified in PP1/28 (3)
	Assessment dates	foliar and ear diseases: in majority of cases, the focus of this dossier was to target late assessment done about 35-40 days after treatment. In some exception, the considered assessment was done earlier (even 18 DAT), for example in case when the diseases level on untreated started to decline because of the challenging (to disease) weather conditions, while in other trials the considered assessment was done later, due to late diseases appearance (up to 57 DAT). In trials with two applications assessment was sometimes done less than 18 days after second application. This is still relevant when timie after first application is considered. PSDCHE: 40-99 DAT

Trial layout

Untreated plots were included in the trial layout. The trial sites were chosen according to the disease presence or its probability to appear on a disease sensitive variety. The locations of the trials were chosen to present the performance of the product and its crop safety profile across requested climatic zones.

Statistical analysis

The observed or calculated variables were subjected to an analysis of variance (ANOVA). When the result of the analysis was significant, a multiple comparison of treatments was performed as follows:
- efficacy data: Student-Newman-Keuls-Test (SNK) with an automatic transformation of assessed data
- yield and quality data: Tukey-Test without transformation of data.

The statistical tests show which treatments are different with a 95% probability. The averages are divided into homogeneous groups (A, B, C …). Statistically significant difference exists, if the letters beside the results for two treatments are different. Values followed by the same letter are not significantly different ($P<0.05$).

Statistics of efficacy is available on the individual leaf layer level. No statistics have been made on these mean values as they were calculated additionally.

Statistical analysis is presented in Single Trial Report.

Application equipment

All treatments with the exception of untreated controls were treated in the same way by plot sprayers. It is considered that the quality and quantity of product applied to the plant by the plot sprayers is representative of that achieved with commercial machinery.

The boom pressure varied between 1.5 and 5 bar, whilst the spray volume ranged between 100 and 300 L/ha.

More details on the applications can be found in Appendixes 4 and 10 of BAD (BASF DocID 2022/2034379).

Treatments

Efficacy data with the final formulation, BAS 758 00 F, are available from trials conducted in 2020. In 2019, the very similar formulation BAS 758 AR F was used. In order to demonstrate the equivalence in terms of fungicidal performance between these formulations and to relate the 2020 data with those from 2019 in many trials carried out in 2020 BAS 758 00 F was compared with BAS 758 AR F. Results of this comparison are presented in section 3.2.1 Preliminary tests (KCP 6.1).
In the efficacy section of this document most trials were carried with one application of the tested product (and standards). In 8 trials on wheat, 7 trials on barley and 1 trial on triticale two applications were done to show advantages and safety of such a use. In these trials, the number of days after last assessment is presented in the efficacy tables.

Timing of Applications
Trials were designed to target the disease at the onset of the attack, thus allowing the targeting of ideally one pathogen written in the protocol. In the practical world, the window of application might be narrow (3 days) what's more the disease stage – and the appropriate timing of the application - was assessed by a trialist and the precision of such a prediction was limited. For example, *Zymoseptoria tritici* (SEPTTR) has a latent period from 14 up to 40 days. The disease, to be controlled must be hit not later than at half of the latent period, while the physical symptoms are not yet visible. In trials presented in this documentation, some of the lower efficacy figures might be explained by too late application, while the disease had already passed half of the latent period. This can be confirmed by the unsatisfactory performance of the standard.

Assessments
In the trials, applications were done at a range of timings (BBCH 30 - 69 with vast majority of trials at BBCH up to 59), to represent usual farmer practice as well as target disease at onset. Individual trials in which the application was done at later growth stages are considered reliable, because disease occurred late and can definitely be used to support the efficacy.
The growth stages at the application time determined the protected leaves/plant part in the crop. Treatments at BBCH 30-33 target protection of leaf 3, while the application at BBCH 39 onwards target protection of the flag leaf and ear. Those application timings, depending on disease development, may offer protectant control on more leaf layers. The early application (T1) may suppress disease in the canopy therefore the symptoms on the flag leaf could be diminished. Also, in some cases, while the disease infection come late, the T1 application can offer protection of all top three leaves. This is in response to fungicide treatment, which depends on the disease progress, therefore in the efficacy tables in this document only some non-targeted leaf layers are presented.

Development trials are usually designed to evaluate control on only one disease. However in reality, a trial is usually infected by more than one disease, therefore the treatments may not appropriately target the infection of other disease as the spray time might be too late or too early to act preventatively.

BAS 758 00 F in the normal conditions even with high disease pressure provides long lasting efficacy at least comparable to standards. This advantage is confirmed in the vast majority of the field trials. However, in the situation of uncommon disease patterns as well as unusual disease pressure, the activity of BAS 758 00 F as well as the standard lasted shorter than normally. These trials are described below each efficacy table.

The specificities of field trials allow products to be assessed in a wide range of practical situations. However, these trials are strongly dependent on weather conditions, disease development in the season and potential interruption from human error. All these factors can influence/ interfere with the final result of the trial.

In the disease control trials, disease levels were usually assessed at application and at various intervals after application (from 18 to 57 days after treatment) as a visual percentage cover of infection on a particular plant part, where multiple diseases were present, each disease was assessed individually. This was carried out in accordance with EPPO standard PP1/26 (4) – 'Foliar Diseases of Cereals'. In trials with two

applications the assessment was sometimes done less than 18 days after second application. This is still relevant when the time after first application is considered.
In general, assessments were done based on single leaf layers. In some countries, disease infection levels were recorded as a "leaf" rather than a specified plant part. This is a different method used compared to other countries but is still relevant. The term 'leaf' is used, as it is an assessment of disease levels typically on 2 or 3 leaves having disease present. The levels of infection are expressed as the mean of the percentage of disease present on the assessed leaves. Trials where this assessment method is used present usually lower efficacy scores due to assessing also leaves not targeted during application (ex. T2 spray at BBCH 39, assessed leaves: 1, 2 and 3).

Product efficacy figures are derived in most cases from the top three leaves. This leaf layers, in particular in wheat were chosen because the top three leaves have the greatest contribution to yield. However, the most important factor, which may limit lower leaves layer assessment to be consider is the late assessment timing. For example, some assessments presented in efficacy tables were done about 40 days after application, while applications were done at BBCH 32- 51 and as result, in many cases, the considered assessment was done in June at BBCH 69 -77. At such a late growth stage, the assessment done on lower leaves may be not relevant. However, in case of earlier application and assessment at growth stages BBCH 32-59 results obtained for lower leaf layers may be still relevant. Therefore, results for 4^{th} or 5^{th} leaf were used in some cases providing that assessment was done not later than BBCH 59. Disease intensity was calculated based on the assessments.

On eyespot one assessment was performed 40 - 99 DAT. Twenty-five stems are randomly taken from each plot. The assessment is carried out on:
- The number of attacked stems
- The percentage of damaged area – after a transversal cut of the stems an estimation of the main eye shape elliptical lesion forms is done. Based on these assessments the BEFWER is calculated:
BEFWER: intensity of attack expressed in percentage (%), calculated from 4-classes assessment.

Trial Numbering/References
Full trial reference numbers are used in the data tables and the tables of site and application details. Taking the final trial from the site and application details as an example:
DEV-F-2019-PL-C36-A-02.0-PL-PLE-D19
"DEV" indicates that this is a development trial as distinct from other trial types
"F" indicates that this is a fungicide treatment trial
"2019" indicates the year in which the trial was conducted
"C36" is the trial protocol number (subsequent information detailing the version)
"PL" is the country code, in this case for Poland
"PLE" is a specific local region in the country
"D19" is a unique identifier for this trial taking into consideration the preceding information

Data summaries
In each section of the BAD, for example efficacy or yield, data are presented by crop (the efficacy section is split by target diseases).
In each table, the percentage of the evaluated factor (e.g. control of disease, yield) in relation to the untreated plot is presented. For the standard products, the evaluated factor in relation to the untreated plots is generally placed in the last column.
Below each trials results table, a summary of the data is provided with the number of trials summarized with the average, minimum and maximum values. The average is calculated from one assessment timing from each trial, (if more than one leaf layer was assessed at the assessment – the mean of all values obtained is considered the result of trial). The assessment timings were selected according to the criteria described in Table 3.2-35.
Values are generally rounded to one decimal place. Figures for percentage control and summary means are generally calculated within Microsoft Excel and due to rounding may be slightly different from a manual calculation of percentage control or summary means from the data presented in the tables.

Trials in which disease levels in untreated plots were insufficient to reliably demonstrate activity of the product are not presented in the dose response and efficacy sections.
Yield and quality data are presented for efficacy trials.

Zymoseptoria tritici (SEPTTR), Septoria leaf blotch of wheat (KCP 6.2)

The efficacy of BAS 758 00 F against *Zymoseptoria tritici* in wheat was tested in 48 trials spread over EPPO zones. In the Maritime zone 21 trials were conducted, along with 17 trials in North-East and 10 trials in the South-East. The main standard used for this disease was Proline / Proline 275 at maximum dose rate.

Table 3.2-36: Control of *Zymoseptoria tritici* in wheat – disease control (%) - Maritime and North-East EPPO zones, summary

EPPO Zone		Untreated	BAS 758 00 F	Proline
			1.5 L/ha	0.8 L/ha
Maritime	average	37.9	87.3	72.6
	min- max	7.2-100.0	78.1-100.0	29.2-100.0
	n	21.0	21	21
North-East	average	15.4	89.7	79.8
	min- max	5.6-42.2	77.6-100.0	50.2-100.0
	n	17	17	17
All zones	average	27.8	88.4	75.8
	min- max	5.6-100.0	77.6-100.0	29.2-100.0
	n	38	38	38

Table 3.2-37: Control of *Zymoseptoria tritici* in wheat – disease control (%) - South-East EPPO zone, summary

EPPO Zone		Untreated	BAS 758 00 F		Proline
			0.5 L/ha	1.0 L/ha	0.8 L/ha
South-East	average	10.1	77.2	91.2	85.0
	min- max	7.5-14.1	62.0-93.1	83.0-100.0	76.6-100.0
	n	10	10	10	10

BAS 758 00 F gave outstanding control of *Zymoseptoria tritici* with an average of 88% for the dose rate 1.5 L/ha in the Maritime and North-East EPPO zones. The infection in the untreated control is ranging from 6% to 100% (~28%). The efficacy of the product varied from 78% to 100%. The average performance of the standard was about 13% worse than the full dose of BAS 758 00 F. The performance of the product was on a similar level in Maritime and North-East EPPO zones.
BAS 758 00 F gave very good control of *Zymoseptoria tritici* in the South-East zone with an average about 91% for the dose rate 1.0 L/ha and 77% for the dose rate 0.5 L/ha. The infection in the untreated is ranging from 6% to 14% (~10%). The efficacy of the product varied from 83% to 100%. Thus BAS 758 00 F at the rate 1.0 L/ha performed superior to the standard product and showed slightly lower performance than the standard, when applied at 0.5 L/ha
In 6 trials BAS 758 00 F was applied twice. The performance of the product was very good up to 42 days after the second application. This confirms that double application of the product prolongs the period of protection against diseases and also is safe for treated plants (for more details see section 3.4 Adverse effects on treated crops (KCP 6.4)).

Puccinia triticina (PUCCRT), brown rust of wheat (KCP 6.2).

The efficacy of BAS 758 00 F against *Puccinia triticina* in wheat was tested in 33 trials spread over EPPO zones. In the Maritime zone 11 trials were conducted, along with 12 trials in the North-East and 10 trials in the South-East.

Table 3.2-38: Control of *Puccinia triticina* in wheat – disease control (%) - Maritime and North-East EPPO zones, summary

EPPO Zone		Untreated	BAS 758 00 F	Proline
			1.5 L/ha	0.8 L/ha
Maritime	average	35.8	93.7	63.4
	min- max	5.3-100.0	79.2-100.0	25.0-89.2
	n	11	11	11
North-East	average	15.0	95.2	86.7
	min- max	5.6-34.8	87.7-100.0	64.6-100.0
	n	12	12	12
All zones	average	25.0	94.5	75.6
	min- max	5.3-100.0	79.2-100.0	25.0-100.0
	n	23	23	23

Table 3.2-39: Control of *Puccinia triticina* in wheat – disease control (%) - South-East EPPO zone, summary

EPPO Zone		Untreated	BAS 758 00 F		Proline
			0.5 L/ha	1.0 L/ha	0.8 L/ha
South-East	average	16.7	88.5	94.6	89.3
	min- max	5.9-32.3	82.3-98.0	89.4-100.0	85.2-96.0
	n	10	10	10	10

BAS 758 00 F gave outstanding control of *Puccinia triticina* with an average of 95% efficacy recorded for the dose rate 1.5 L/ha. The infection in the untreated ranged from 5% to 100% (~25%). The efficacy of the product varied from 79% to 100%. In all cases, BAS 758 00 F at the full dose rate performed at the same level or better than Proline. In average BAS 758 00 F at 1.5 L/ha showed an 17% higher efficacy than the standard. The performance of BAS 758 00 F was almost the same in the Maritime and North-East zone.
BAS 758 00 F gave outstanding control of *Puccinia triticina* in the South-East zone with an average of 95% efficacy, recorded for the dose rate 1.0 L/ha and 89% for the dose rate 0.5 L/ha. The infection in the untreated ranged from 6% to 32% (~17%). The efficacy of the product varied from 89% to 100% for the full dose rate and from 82% to 98% for the dose rate 0.5 L/ha. BAS 758 00 F at full dose rate performed better than Proline with 5% higher average efficacy. BAS 758 00 F at the dose rate 0.5 L/ha performed on the level of the standard.
There are available results of 1 trial in which BAS 758 00 F was applied twice. The performance of the product was excellent in this trial ensuring full protection of wheat against brown rust. This confirms that double application of the product prolongs the period of protection against diseases and also is safe for treated plants (for more details see section 3.4 Adverse effects on treated crops (KCP 6.4)).
In one trial performance of Proline is below expectations (25%). The likely reason of this is late assessment - 49 DAT. After such a long time standard product might be less efficient, while performance of BAS 758 00 F at full dose rate is still satisfactory. The brown rust symptoms occured late in the trial, therefore cannot be assesed after a shorter period after application. However in the same trials performacne against yellow rust was assessed 23 and 40 DAT. In these assesment the performance of Proline was on the level of BAS 758 00 F at dose rate 1.0 L/ha - as expected. Therefore results of this trial are considered valid.

Puccinia striiformis (PUCCST), yellow rust of wheat (KCP 6.2)

The efficacy of BAS 758 00 F against *Puccinia striiformis* in wheat was tested in 20 trials spread over EPPO zones. In the Maritime zone 13 trials were conducted, along with 7 trials in the North-East and 1 trial in the South-East. Additionally results of 2 trials on spelt were presented.
Assessment of product performance for North-East EPPO zone is carried out separately on spring and

winter cultivars. Therefore, trials carried out on winter cultivars (6 trials) and spring cultivars (1 trial) are presented separately in the summary table below.
The RegPest model was used to justify comparability of trials across Europe. 4 trials were conducted in Maritime EPPO zone in regions with high (about 80%) similarity to chosen North-East region. Therefore, those trials fully confirm the efficacy of the product in North-East EPPO zone. Average efficacy values of North-East EPPO Zone trials including extrapolated results of trials from other EPPO zones are presented in Table 3.2-40.

Table 3.2-40: Control of *Puccinia striiformis* in wheat – disease control (%) - Maritime and North-East EPPO zones, summary

EPPO Zone		Untreated	BAS 758 00 F	Proline
			1.5 L/ha	0.8 L/ha
Maritime	average	25.1	94.7	91.1
	min- max	5.3-50.4	84.4-100.0	68.5-100.0
	n	13	13	13
North-East TRZAW	average	10.5	95.3	96.3
	min- max	5.9-16.6	79.3-100.0	88.5-100.0
	n	6	6	6
North-East TRZAW incl. RegPest extrap.	average	14.2	95.7	94.6
	min- max	5.3-50.4	79.3-100.0	68.5-100.0
	n	10	10	10
North-East TRZAS	average	7.6	87.5	83.8
	min- max	-	-	-
	n	1	1	1
All zones	average	19.9	94.5	92.4
	min- max	5.3-50.4	79.3-100.0	68.5-100.0
	n	20	20	20
Maritime spelt	average	8.3	100.0	99.3
	min- max	6.6-10.0	-	98.7-100.0
	n	2	2	2

Table 3.2-41: Control of *Puccinia striiformis* in wheat – inf., disease control (%) - South-East EPPO zone, summary

EPPO Zone		Untreated	BAS 758 00 F		Proline
			0.5 L/ha	1.0 L/ha	0.8 L/ha
South-East	average	93.8	97.1	98.1	94.5
	min- max	-	-	-	-
	n	1	1	1	1

BAS 758 00 F gave outstanding control of *Puccinia striiformis* with an average of 95% efficacy, recorded for the dose rate 1.5 L/ha. Infection in the untreated ranged from 5% to 50% (~20%). The efficacy of the product varied from 79% to 100%. BAS 758 00 F at the full dose rate performed on average at the level of the standard. The performance of the product was almost the same in the Maritime and North-East zones. The performance of the product was also on similar level when used in spring and winter cultivars of wheat in the North-East EPPO zone. This additionally confirms that the extrapolation rules set by Polish Ministry of Agriculture and Rural Development in the Extrapolation table for efficacy section can be used here. Therefore results from winter wheat for which full set of data is available in the North-East EPPO zone can be extrapolated to spring wheat. Results on spelt confirm outstanding performance of BAS 758 00 F.
There are available results of 3 trials in which BAS 758 00 F was applied twice. The performance of the product was excellent in these trials ensuring full protection of wheat against yellow rust. This confirms that double application of product prolongs the period of protection against diseases and also is safe for treated plants (for more details see section 3.4 Adverse effects on treated crops (KCP 6.4)).
In the only trial available in the South-East EPPO zone BAS 758 00 F gave outstanding control of *Puccinia striiformis* with an average efficacy of 98% recorded for the dose rate 1.0 L/ha and 97% for the dose

rate 0.5 L/ha. Infection in the untreated was 94%. BAS 758 00 F at both dose rates performed at the level of Proline.
Yellow rust is an irregular occurring disease and needs wet and cold conditions for development (for more information see section Description of the target pests (KCP 6)). Therefore in some years it is difficult to produce a sufficient data set from South-East EPPO zone. However, for other wheat diseases it is evident that the effect of BAS 758 00 F application is consistent across EPPO zones. Therefore the trials from the Maritime and North-East EPPO zones, in which the dose rate 1 L/ha was tested, can be used to support efficacy in the South-East zone.

Table 3.2-42: Control of *Puccinia striiformis* in wheat – inf., disease control (%) - trials supporting efficacy in South-East EPPO zone, summary

EPPO Zone		Untreated	BAS 758 00 F	Proline
			1.0 L/ha	0.8 L/ha
Maritime	average	24.7	85.3	90.4
	min- max	5.3-50.4	42.9-100.0	68.5-100.0
	n	12	12	12
North-East	average	10.5	92.8	96.3
	min- max	5.9-16.6	75.3-100.0	88.5-100.0
	n	6	6	6
All zones	average	20.0	87.8	92.4
	min- max	5.3-50.4	42.9-100.0	68.5-100.0
	n	18	18	18

BAS 758 00 F gave good control of *Puccinia striiformis* with an average of 88% efficacy, recorded for the dose rate 1.0 L/ha. Infection in the untreated ranged from 5% to 50% (~20%). The efficacy of the product varied from 43% to 100%. BAS 758 00 F at the dose rate 1 L/ha performed only at a slightly lower level than the standard product. These results indicate that under certain conditions the dose rate 1 L/ha is efficient even in the climatic zones favorable for the development of *Puccinia striiformis*. Therefore BAS 758 00 F applied at the dose rate 1 L/ha certainly is efficient under conditions less favorable for disease development as present in the South-East zone. Such a pattern is visible also for other wheat diseases.

Blumeria graminis (ERYSGR), powdery mildew of wheat (KCP 6.2)

The efficacy of BAS 758 00 F against *Blumeria graminis* in wheat was tested in 22 trials spread over EPPO zones. In the Maritime zone 7 trials were conducted, along with 9 trials in the North-East zone and 6 trials in South-East zone.

Table 3.2-43: Control of *Blumeria graminis* in wheat – disease control (%) - Maritime and North-East EPPO zones, summary

EPPO Zone		Untreated	BAS 758 00 F	Proline
			1.5 L/ha	0.8 L/ha
Maritime	average	19.8	87.8	63.4
	min- max	5.0-75.0	79.6-98.0	0.0-92.6
	n	7	7	7
North-East	average	6.7	86.4	86.2
	min- max	5.0-11.0	75.5-93.3	65.2-100.0
	n	9	9	9
All zones	average	12.4	87.0	76.2
	min- max	5.0-75.0	75.5-98.0	0.0-100.0
	n	16	16	16

Table 3.2-44: Control of *Blumeria graminis* in wheat – disease control (%) - South-East EPPO zone, summary

EPPO Zone		Untreated	BAS 758 00 F		Proline
			0.5 L/ha	1.0 L/ha	0.8 L/ha
South-East	average	10.0	81.8	91.3	85.6
	min- max	5.5-16.5	46.8-98.0	80.8-100.0	63.3-100.0
	n	6	6	6	6

BAS 758 00 F gave good control of *Blumeria graminis* in the Maritime and North-East zones with an average of 87% recorded for the dose rate 1.5 L/ha. The infection ranged from 5% to 75% (~12%). The efficacy of the product varied from 76% to 98%. BAS 758 00 F at the full dose rate outperformed the standard. The performance of the product was almost the same in the Maritime and North-East zones.
BAS 758 00 F gave good control of *Blumeria graminis* in the South-East zone with an average of 91% efficacy, recorded for the dose rate 1.0 L/ha and 82% for the dose rate 0.5 L/ha. Infection ranged from 6% to 17% (~10%). The efficacy of the product applied at the dose rate 1.0 L/ha varied from 81% to 100%. The efficacy recorded for the dose rate 0.5 L/ ha was close to 80% or higher with the exception of one trial in which was 47%. The performance of the standard which was also exceptionally poor in this trial confirms challenging conditions.
The excellent performance of the full dose (1.5 L/ha) in the Maritime and North-East EPPO zones was almost the same as performance of the full dose (1.0 L/ha) in the South-East EPPO zone. Whereas the performance of reduced dose 0.5 L/ha almost matched the performance of standard product. This confirms proper selection of dose rates in all zones.

Pyrenophora tritici-repentis (PYRNTR), tan spot of wheat (KCP 6.2)

The efficacy of BAS 758 00 F against *Pyrenophora tritici-repentis* in wheat was tested in 23 trials spread over EPPO zones. In the Maritime zone 7 trials were conducted, along with 9 trials in the North-East zone and 7 trials in South-East zone. Assessment of product performance for North-East EPPO zone is carried out separately on spring and winter cultivars. Therefore, trials carried out on winter cultivars (7 trials) and spring cultivars (2 trials) are presented separately in the summary table below.

Table 3.2-45: Control of *Pyrenophora tritici-repentis* in wheat –disease control (%) – Maritime and North-East EPPO zones, summary

EPPO Zone		Untreated	BAS 758 00 F	Proline
			1.5 L/ha	0.8 L/ha
Maritime	average	17.5	87.5	82.1
	min- max	4.3-50.0	64.1-100.0	57.0-100.0
	n	7	7	7
North-East TRZAW	average	12.8	87.5	79.7
	min- max	5.9-25.3	75.7-100.0	57.7-100.0
	n	7	7	7
North-East TRZAS	average	18.8	82.4	81.6
	min- max	16.6-20.9	80.0-84.8	71.3-91.8
	n	2	2	2
All zones	average	15.6	86.9	81.0
	min- max	4.3-50.0	64.1-100.0	57.0-100.0
	n	16	16	16

Table 3.2-46: Control of *Pyrenophora tritici-repentis* in wheat –disease control (%) – South-East EPPO zone, summary

EPPO Zone		Untreated	BAS 758 00 F		Proline
			0.5 L/ha	1.0 L/ha	0.8 L/ha
South-East	average	12.5	78.2	85.8	78.9
	min- max	5.0-54.7	69.5-94.0	75.0-93.1	66.2-96.6
	n	7	7	7	7

BAS 758 00 F gave good control of *Pyrenophora tritici-repentis* in the Maritime and North-East EPPO zones with an average of 87% efficacy, recorded for the dose rate 1.5 L/ha. Infection ranged from 4% to 50% (~16%). The efficacy of the product varied from 64% to 100%. The standard product performed 6% less efficient than BAS 758 00 F. The average performance of BAS 758 00 F was similar in the North-East and Maritime EPPO zones. The performance of the product was also on similar level when used in spring and winter cultivars of wheat in North-East EPPO zone. This additionally confirms that the extrapolation rules set by Polish Ministry of Agriculture and Rural Development in the Extrapolation table for efficacy section can be used here. Therefore results from winter wheat for which full set of data is available in the North-East EPPO zone can be extrapolated to spring wheat.
BAS 758 00 F gave good control of *Pyrenophora tritici-repentis* in the South-East zone with an average of 86% efficacy, recorded for the dose rate 1.0 L/ha and 78% for the dose rate 0.5 L/ha. Infection ranged from 5% to 55% (~12%). The efficacy of the product varied from 75% to 93% for full dose rate and from 70% to 94% for dose rate 0.5 L/ha. The standard product on average performed worse than the full dose rate of BAS 758 00 F and on the same level as the lower dose rate of this product.
The performance of the full dose (1.5 L/ha) in the Maritime and North-East EPPO zones was almost the same as the performance of the full dose (1.0 L/ha) in the South-East EPPO zone. Whereas the performance of the reduced dose 0.5 L/ha matched the performance of the standard product. This confirms a proper selection of dose rates in all zones.

Oculimacula spp. (PSDCHE), Cereal eyespot (KCP 6.2)

The efficacy of BAS 758 00 F against *Oculimacula* spp. in wheat was tested in 24 trials spread over EPPO zones. In the Maritime zone 11 trials were conducted, along with 8 trials in the North-East and 5 trials in the South-East zone.

Table 3.2-47: Control of *Oculimacula* spp. in wheat – disease control (%) - Maritime and North-East EPPO zones, summary

EPPO Zone		Untreated	BAS 758 00 F	Proline
			1.5 L/ha	0.8 L/ha
Maritime	average	23.3	76.4	66.1
	min- max	8.5-48.0	55.7-100.0	21.3-85.9
	n	11	11	11
North-East	average	26.3	79.8	72.3
	min- max	18.1-35.3	65.8-90.2	29.5-92.2
	n	8	8	8
All zones	average	24.6	77.8	68.7
	min- max	8.5-48.0	55.7-100.0	21.3-92.2
	n	19	19	19

Table 3.2-48: Control of *Oculimacula* spp. in wheat – disease control (%) - South-East EPPO zone, summary

EPPO Zone		Untreated	BAS 758 00 F		Proline
			0.5 L/ha	1.0 L/ha	0.8 L/ha
South-East	average	23.5	67.2	80.8	77.3
	min- max	7.3-39.5	48.0-90.5	65.2-100.0	65.5-100.0
	n	5	5	5	5

BAS 758 00 F gave good control of *Oculimacula* spp. in the Maritime and North-East EPPO zones with an average of 78% efficacy, recorded for the dose rate 1.5 L/ha. The infection ranged from 9% to 48% (~25%). The efficacy of the product varied from 56% to 100%. The standard product performed on a much lower level than the full dose rate of BAS 758 00 F. The good performance of the product is very similar in the Maritime and North-East zones.
BAS 758 00 F gave good control of *Oculimacula* spp. in the South-East zone with an average of 81% efficacy, recorded for the dose rate 1.0 L/ha and 67% efficacy for the dose rate 0.5 L/ha. The infection ranged from 7% to 40% (~24%). The efficacy of the product at full dose rate varied from 65% to 100% and from 48% to 90% for dose rate 0.5 L/ha. The standard product performed on a slightly lower level than the full dose rate of BAS 758 00 F.

Pyrenophora teres, (PYRNTE), net blotch of barley (KCP 6.2)

The efficacy of BAS 758 00 F against *Pyrenophora teres* in barley was tested in 35 trials spread over EPPO zones. In the Maritime zone 11 trials were conducted, along with 17 trials in the North-East zone and 7 trials in the South-East zone. Assessment of product performance for North-East EPPO zone is carried out separately on spring and winter cultivars. Therefore, trials carried out on winter cultivars (11 trials) and spring cultivars (6 trials) are presented separately in the summary table below.

Table 3.2-49: Control of *Pyrenophora teres* in barley – disease control (%) - Maritime and North-East EPPO zones, summary

EPPO Zone		Untreated	BAS 758 00 F	Proline
			1.5 L/ha	0.8 L/ha
Maritime	average	24.8	89.9	76.9
	min- max	6.5-68.8	79.5-100.0	60.9-100.0
	n	11	11	11
North-East HORVW	average	8.7	91.6	88.8
	min- max	4.5-16.3	76.3-100.0	70.3-100.0
	n	11	11	11
North-East HORVS	average	26.6	91.1	85.3
	min- max	6.5-75.0	77.8-100.0	66.6-98.4
	n	6	6	6
All zones	average	18.9	90.8	83.4
	min- max	4.5-75.0	76.3-100.0	60.9-100.0
	n	28	28	28

Table 3.2-50: Control of *Pyrenophora teres* in barley – disease control (%) - South-East EPPO zone, summary

EPPO Zone		Untreated	BAS 758 00 F		Proline
			0.5 L/ha	1.0 L/ha	0.8 L/ha
South-East	average	13.8	85.9	92.2	84.8
	min- max	6.0-29.8	72.7-95.7	85.9-100.0	44.2-98.2
	n	7	7	7	7

BAS 758 00 F gave outstanding control of *Pyrenophora teres* in the Maritime and North-East EPPO zones with an average of 91% efficacy, recorded for dose rate 1.5 L/ha. Infection in the untreated ranged from 5% to 75% (~19%). The efficacy of the product varied from 76% to 100%. The standard performed on a slightly lower level than BAS 758 00 F.
The very good performance of the product was on a very similar level in both EPPO zones. The performance of the product was also on similar level when used in spring or winter cultivars of barley in North-East EPPO zone. This additionally confirms that the extrapolation rules set by the Polish Ministry of Agriculture and Rural Development in the Extrapolation table for efficacy section can be used here. Therefore the results from winter barley for which a full set of data is available in the North-East EPPO zone can be extrapolated to spring barley.
BAS 758 00 F gave outstanding control of *Pyrenophora teres* in the South-East zone with an average of 92% efficacy, recorded for the dose rate 1.0 L/ha and 86% for the dose rate 0.5 L/ha. The infection in the untreated ranged from 6% to 30% (~14%). The efficacy of the product varied from 86% to 100% for the full dose rate and from 73% to 96% for the dose rate 0.5 L/ha. On average the standard performed on the level of the lower dose of BAS 758 00 F.
In 2 trials BAS 758 00 F was applied twice. The performance of the product was very good up to 34 days after the second application. This confirms that double application of the product prolongs the period of protection against diseases and also is safe for the treated plants (for more details see section 3.4 Adverse effects on treated crops (KCP 6.4)).

Puccinia hordei (PUCCHD), brown rust of barley

The efficacy of BAS 758 00 F against *Puccinia hordei* in barley was tested in 25 trials conducted in the Maritime (9 trials), North-East (13 trials) and South-East (3 trials) EPPO zones. Assessment of the product performance for North-East EPPO zone is carried out separately on spring and winter cultivars. Therefore, trials carried out on winter cultivars (10 trials) and spring cultivars (3 trials) are presented separately in the summary table below.

Table 3.2-51: Control of *Puccinia hordei* in barley – disease control (%) - Maritime and North-East EPPO zones, summary

EPPO Zone		Untreated	BAS 758 00 F	Proline
			1.5 L/ha	0.8 L/ha
Maritime	average	17.7	92.6	86.3
	min- max	5.0-54.0	81.7-100.0	64.7-100.0
	n	9	9	9
North-East HORVW	average	20.5	94.5	94.1
	min- max	6.4-38.0	85.5-100.0	87.0-100.0
	n	10	10	10
North-East HORVS	average	12.0	94.0	92.2
	min- max	8.5-14.1	88.2-99.3	88.2-96.3
	n	3	3	3
All zones	average	18.2	93.6	90.6
	min- max	5.0-54.0	81.7-100.0	64.7-100.0
	n	22	22	22

Table 3.2-52: Control of *Puccinia hordei* in barley – disease control (%) - South-East EPPO zone, summary

EPPO Zone		Untreated	BAS 758 00 F		Proline
			0.5 L/ha	1.0 L/ha	0.8 L/ha
South-East	average	11.0	93.5	96.4	92.0
	min- max	6.5-19.5	91.8-96.4	94.7-98.0	90.5-93.4
	n	3	3	3	3

BAS 758 00 F gave outstanding control of brown rust in the Maritime and North-East EPPO zones with an average of 94%efficacy, recorded for the dose rate 1.5 L/ha. Infection ranged between 5% and 54% (~18%) in the untreated. The efficacy of the standard product almost matched the efficacy of BAS 758 00 F. However BAS 758 00 F provided more consistent control of barley rust.
The very good performance of the product was on the same level when used in spring and winter cultivars of barley. This additionally confirms that the extrapolation rules set by Polish Ministry of Agriculture and Rural Development in the Extrapolation table for efficacy section can be used here. Therefore, results from winter barley for which full set of data is available in the North-East EPPO zone can be extrapolated to spring barley.
BAS 758 00 F gave very good control of brown rust in South-East EPPO zone with an average of 96% efficacy, recorded for the dose rate 1.0 L/ha and 94% for the dose rate 0.5 L/ha. Infection ranged between 7% and 20% (~11%) in the untreated. The standard performed similar to the lower rate of BAS 758 00 F and slightly worse than full rate of product.
In 1 trial BAS 758 00 F was applied twice. The performance of the product was very good up to 27 days after the second application. This confirms that a double application of product prolongs the period of protection against diseases and also is safe for the treated plants (for more details see section 3.4 Adverse effects on treated crops (KCP 6.4)).

Blumeria graminis (ERYSGR), powdery mildew of barley (KCP 6.2)

The efficacy of BAS 758 00 F against *Blumeria graminis* in barley was tested in 14 trials conducted in Maritime EPPO zone (4 trials), North-East zone (4 trials) and South-East zone (6 trials). Since the number of trials is insufficient, especially in North-East EPPO zone, additionally to the trials with BAS 758 00 F trials with products containing its active substances were presented as supportive data. Therefore results on BAS 560 00 F (Flexity, containing metrafenone) and BAS 750 01 F (Revystar, containing mefentrifluconazole) were used to support the efficacy against *Blumeria graminis* on barley. Since BAS 500 06 F (Comet, containing pyraclostrobin) is not registered against powdery mildew it was not considered.

Table 3.2-53: Control of *Blumeria graminis* in barley – disease control (%) - Maritime and North-East EPPO zones, summary

EPPO Zone		Untreated	BAS 758 00 F	Proline
			1.5 L/ha	0.8 L/ha
Maritime	average	15.6	89.5	87.6
	min- max	7.0-28.8	81.4-99.1	69.8-100.0
	n	4	4	4
North-East HORVW	average	6.2	89.5	89.5
	min- max	5.2-8.0	81.6-100.0	77.7-100.0
	n	3	3	3
North-East HORVS	average	11.6	86.0	75.3
	min- max	-	-	-
	n	1	1	1
All zones	average	11.6	89.0	86.8
	min- max	5.2-28.8	81.4-100.0	69.8-100.0
	n	8	8	8

Table 3.2-54: Control of *Blumeria graminis* in barley – disease control (%) - South-East EPPO zone, summary

EPPO Zone		Untreated	BAS 758 00 F		Proline
			0.5 L/ha	1.0 L/ha	0.8 L/ha
South-East	average	24.1	80.2	86.9	82.0
	min- max	8.2-42.5	66.6-95.2	74.3-98.5	69.7-91.9
	n	6	6	6	6

BAS 758 00 F gave very good control of powdery mildew in Maritime and North-East EPPO zones with an average of 89% efficacy, recorded for the dose rate 1.5 L/ha. Infection in the untreated ranged from 5% to 29% (~12%). The efficacy of the product varied from 81% to 100%. The standard performed on a slightly lower level than BAS 758 00 F.
BAS 758 00 F gave good control of powdery mildew in the South-East zone with an average of 87% recorded for the dose rate 1.0 L/ha and 80% for the dose rate 0.5 L/ha. The performance of the full dose was consistent, undependably on conditions and better than the standard. The reduced dose ensured good control in the majority of trials and on average almost match the performance of the standard.
Generally, there are forms of *Blumeria graminis* specific for individual crops which do not cross-infect. However, results on other cereals can give an idea about the pathogen reaction to product. Therefore, results of powdery mildew control on wheat can be considered supportive (7 trials from Maritime zone with average efficacy 88%, 9 trials from North-East zone with average efficacy 86% for the 1.5 L/ha of BAS 758 00 F and 6 trials from South-East EPPO zone with average efficacy of 91% for the dose rate 1.0 L/ha and 82% for the dose rate 0.5 L/ha). Moreover, in the dossiers supporting solo application of mefentrifluconazole and metrafenone there are numerous trials indicating high efficacy against this pathogen on barley.
BAS 560 00 F contains 300 g/L of metrafenone, is used at the dose rate 0.5 L/ha in Maritime and North-East EPPO zones, in South-East zone the dose range 0.2 L/ha - 0.5 L/ha is recommended. Hence in Maritime and North-East zones 150 g/ha metrafenone is used. This is exactly the same amount of metrafenone which is provided with 1.5 L/ha of BAS 758 00 F. Therefore trials presented in BAD submitted in Poland in 2018 (BASF DocID 2018/1052144) can be used to support the efficacy of BAS 758 00 F in the North-East and Maritime EPPO zones. In this document the results of the efficacy against powdery mildew from 6 trials on spring barley are presented. BAS 560 00 F applied at dose rate 0.5 L/ha gave average efficacy of 98%. Additionally in the BAD submitted in 2015 in Germany (BASF DocID 2015/1245097) results of 11 trials (9 on winter barley and 2 on spring barley) were presented. BAS 560 00 F ensured average efficacy of 91%. In 2019 a dossier supporting the registration of the dose range 0.2 L/ha - 0.5 L/ha in the South-East zone was submitted in Slovakia (BASF DocID 2019/2052378). In this document efficacy

against powdery mildew was assessed in 8 trials (7 on winter barley and 1 on spring barley). The average efficacy was 81% for the dose rate 0.2 L/ha and 91% for the dose rate 0.5 L/ha.
Overall, it is concluded that the above presented results can be used to support efficacy of BAS 758 00 F against powdery mildew.
BAS 750 01 F contains 100 g/L of mefentrifluconazole. It is recommended to apply this product at the dose rate of 1.5 L/ha in Maritime and North-East EPPO zones. Hence in these zones 150 g/ha mefentrifluconazole is applied. This is higher dose rate of this active substance than provided with BAS 758 00 F. The dose rate of mefentrifluconazole in BAS 758 00 F is 100 g/ha and corresponds to the dose rate 1.0 L/ha of BAS 750 01 F. Analysis of 7 trials which were used to support efficacy of BAS 750 01 F against powdery mildew on barley in BAD submitted in 2018 (BASF DocID 2017/1199996) shows that the dose rate 1.0 L/ha was tested in 5 of these trials. In that BAD the dose rate 1.0 L/ha was compared to the dose rate 1.5 L/ha to establish minimum effective dose. However efficacy against *Blumeria graminis* on barley is not analyzed in MED section. Therefore the results of trials in which the dose rate 1.0 L/ha was tested are presented below. These trials are used exclusively in this section and are not included in the trials presented in Table 3.2-5: Presentation of efficacy trials

Table 3.2-55: Control of *Blumeria graminis* in barley – disease control (%) - North-East EPPO zone, summary

EPPO Zone		Untreated	BAS 750 01 F		Proline
			1.0 L/ha	1.5 L/ha	0.8 L/ha
North-East	average	8.8	84.8	88.9	84.5
	min- max	5.0-20.6	73.2-100.0	72.5-100.0	58.1-100.0
	n	5	5	5	5

BAS 750 01 F gave very good control of powdery mildew in the North-East EPPO zones with an average of 85% recorded for the dose rate 1.0 L/ha. The standard performed on the same level. This indicates that mefentrifluconazole at a dose rate of 100 g/ha is effective in controlling powdery mildew on barley.
Overall, it is concluded that the above presented results can be used to support efficacy of BAS 758 00 F against powdery mildew. Therefore it is concluded that a sufficient set of data was presented to request registration of powdery mildew in all three EPPO zones.

Rhynchosporium secalis (RHYNSE), Rhynchosporium leaf scald of barley

The efficacy of BAS 758 00 F against *Rhynchosporium secalis* in barley was tested in 16 trials spread across EPPO zones. In the Maritime zone 7 trials were conducted, along with 9 trials in the North-East zone. The assessment of the product performance for the North-East EPPO zone is carried out separately on spring and winter cultivars. Therefore, trials carried out on winter cultivars (8 trials) and spring cultivars (1 trial) are presented separately in the summary table. The RegPest model was used to justify the comparability of trials across Europe. 2 trials were conducted in Maritime EPPO zone in regions with high (about 80%) similarity to the chosen North-East region. Therefore, those trials fully confirm the efficacy of BAS 758 00 F in the North-East EPPO zone. Average efficacy values of North-East EPPO Zone trials including extrapolated results of trials from other EPPO zones are presented in Table 3.2-56.

Table 3.2-56: Control of *Rhynchosporium secalis* in barley – disease control (%) - Maritime and North-East EPPO zones, summary

EPPO Zone		Untreated	BAS 758 00 F	Proline
			1.5 L/ha	0.8 L/ha
Maritime	average	40.8	82.5	89.8
	min- max	5.5-91.0	64.8-100.0	53.3-100.0
	n	7	7	7
North-East	average	8.3	92.0	89.5

EPPO Zone		Untreated	BAS 758 00 F	Proline
			1.5 L/ha	0.8 L/ha
HORVW	min- max	5.0-17.4	78.7-100.0	74.8-100.0
	n	8	8	8
North-East	average	12.4	90.6	86.2
HORVW	min- max	5.0-49.9	78.7-100.0	53.3-100.0
inc. RegPest extrap.	n	10	10	10
North-East	average	7.3	94.8	93.1
HORVS	min- max	-	-	-
	n	1	1	1
All zones	average	22.4	88.0	89.8
	min- max	5.0-91.0	64.8-100.0	53.3-100.0
	n	16	16	16

BAS 758 00 F gave very good control of Rhynchosporium leaf scald in Maritime and North-East EPPO zones with an average of 88% efficacy, recorded for the dose rate 1.5 L/ha. Infection in the untreated ranged from 5% to 91% (~22%). The efficacy of the product varied from 65% to 100%. The performance of BAS 758 00 F and the standard product was almost at the same level.
The very good performance of the product was on the same level when used in spring or winter cultivars of barley. This additionally confirms that the extrapolation rules set by Polish Ministry of Agriculture and Rural Development in the Extrapolation table for efficacy section can be used here. Therefore, results from winter barley for which a full set of data is available in the North-East EPPO zone can be extrapolated to spring barley.
In 2 trials BAS 758 00 F was applied twice. The performance of the product was very good up to 27 days after the second application. This confirms that a double application of the product prolongs the period of protection against diseases and also is safe for treated plants (for more details see section 3.4 Adverse effects on treated crops (KCP 6.4)).

Ramularia collo - cygni, (RAMUCC), Ramularia leaf spot of barley

The efficacy of BAS 758 00 F against *Ramularia collo - cygni* in barley was tested in 14 trials spread across EPPO zones. In the Maritime zone 12 trials were conducted, along with 2 trials in the North-East zone. Assessment of product performance for the North-East EPPO zone is usually carried out separately on spring and winter cultivars. However *Ramularia collo-cygni* is not requested for North-East zone. Therefore, trials carried out on winter cultivars and spring cultivars are merged in the summary table below.

Table 3.2-57: Control of *Ramularia collo - cygni* in barley – disease control (%) - Maritime and North-East EPPO zones, summary

EPPO Zone		Untreated	BAS 758 00 F	Proline
			1.5 L/ha	0.8 L/ha
Maritime	average	43.5	87.7	82.9
	min- max	5.0-98.6	71.1-100.0	61.6-100.0
	n	12	12	12
North-East	average	8.5	88.6	88.6
	min- max	8.2-8.8	77.1-100.0	77.1-100.0
	n	2	2	2
All zones	average	38.5	87.8	83.7
	min- max	5.0-98.6	71.1-100.0	61.6-100.0
	n	14	14	14

BAS 758 00 F gave very good control of Ramularia leaf spot in the Maritime and North-East EPPO zone with an average of 88% efficacy, recorded for the dose rate 1.5 L/ha. Infection in the untreated ranged

from 5% to 99% (~39%). The efficacy of the product varied from 71% to 100%. The performance of BAS 758 00 F was superior to the performance of the standard product.
In 4 trials BAS 758 00 F was applied twice. The performance of the product was very good up to 34 days after the second application. This confirms that a double application of the product prolongs the period of protection against diseases and also is safe for treated plants (for more details see section 3.4 Adverse effects on treated crops (KCP 6.4)).

Septoria spp. (SEPTSP), Septoria leaf blotch of triticale (KCP 6.2)

The efficacy of BAS 758 00 F against *Septoria* spp. in triticale was tested in 4 trials conducted in Maritime zone and 7 trials in North-East EPPO zone. These trials are intended to support registration of BAS 758 00 F in all requested countries from three EPPO zones. Proline at dose rate 0.8 L/ha was used as standard in all trials.

Table 3.2-58: Control of *Septoria* spp. in triticale – disease control (%) - summary

EPPO Zone		Untreated	BAS 758 00 F	Proline
			1.5 L/ha	0.8 L/ha
Maritime	average	22.3	90.3	82.4
	min- max	8.5-38.3	74.5-97.5	43.6-100.0
	n	5	5	5
North-East	average	15.5	87.6	86.6
	min- max	6.0-23.3	70.5-100.0	68.5-100.0
	n	7	7	7
All zones	average	17.8	88.7	84.8
	min- max	6.0-38.3	70.5-100.0	43.6-100.0
	n	12	12	12

BAS 758 00 F gave very good control of Septoria with an average of 89% efficacy, recorded for the dose rate 1.5 L/ha. The infection in the untreated ranged from 6% to 38% (~18%). The efficacy of the product varied from 71% to 100%. The efficacy of BAS 758 00 F was very similar in both considered EPPO zones. The efficacy of BAS 758 00 F was slightly better than the efficacy of the standard.
Additionally to above mentioned results, trials conducted on winter wheat can be used to support efficacy of BAS 758 00 F against Septoria leaf blotch. This is possible because direct extrapolation from winter wheat to triticale is acceptable. The rules of extrapolation are described in detail in the document prepared by Polish Ministry of Agriculture and placed on its website. Results of 48 trials on wheat from three EPPO zones are available. BAS 758 00 F provided a mean level of control of 88% efficacy for the dose rate 1.5 L/ha in the Maritime and North-East, 91% for 1.0 L/ha and 77% for the dose rate 0.5 L/ha in the South-East zone. The comparison of available trials for Maritime and North-East EPPO zones indicates that results for wheat are almost the same as presented above for triticale. No South-East zone trials on triticale were submitted. However, results of 10 trials on wheat clearly demonstrate control of Septoria. Additionally, for Maritime and North-East EPPO zones the same control of Septoria leaf blotch with BAS 758 00 F on both cereal crops wheat and triticale was proven. Therefore, it is concluded that data on wheat are sufficient to claim control of Septoria leaf blotch on triticale in South-East EPPO zone.

Puccinia recondita (PUCCRE), brown rust of triticale (KCP 6.2)

The efficacy of BAS 758 00 F against *Puccinia recondita* in triticale was tested in 7 trials; 3 conducted in Maritime zone and 4 in North-East EPPO zone. These trials are intended to support the registration of BAS 758 00 F in all requested countries from three EPPO zones. Proline at dose rate 0.8 L/ha was used as standard in all trials.

Table 3.2-59: Control of *Puccinia recondita* in triticale – disease control (%) - summary

EPPO Zone		Untreated	BAS 758 00 F	Proline
			1.5 L/ha	0.8 L/ha
Maritime	average	19.3	92.4	74.7
	min- max	13.0-30.5	83.6-99.4	27.8-98.7
	n	3	3	3
North-East	average	15.5	92.1	83.6
	min- max	7.1-28.5	88.9-99.6	64.7-99.1
	n	4	4	4
All zones	average	17.2	92.2	79.8
	min- max	7.1-30.5	83.6-99.6	27.8-99.1
	n	7	7	7

BAS 758 00 F ensured very good control of brown rust on triticale. The efficacy recorded for the dose rate 1.5 L/ha was 92%. The infection in the untreated ranged from 7% to 30% (~17%). The efficacy of the product varied from 84% to 100%. The efficacy of BAS 758 00 F was about 12% better than the efficacy of the standard product.
Additionally to above presented results, trials conducted on winter wheat can be used to support efficacy of BAS 758 00 F against brown rust. This is possible because direct extrapolation from winter wheat to triticale is acceptable. Results of 35 trials from three EPPO zones are available. BAS 758 00 F provided a mean level of control of 95% for the dose rate 1.5 L/ha in the Maritime and North-East zones, 95% for the dose rate 1.0 L/ha and 89% for the dose rate 0.5 L/ha in the South-East zone. Overall, almost the same efficacy against brown rust for BAS 758 00 F was presented in trials on wheat and triticale for the dose rate 1.5 L/ha. This confirms high efficacy of BAS 758 00 F against brown rust.
No South-East zone trials on triticale were submitted. However, results of 10 trials on wheat clearly demonstrate control of brown rust. Additionally, for Maritime and North-East EPPO zones very similar results of *Puccinia* spp. control with BAS 758 00 F on both cereal crops (wheat and triticale) were obtained. Therefore, it is concluded that data on wheat are sufficient to claim control of brown rust on triticale in the South-East EPPO zone.

Puccinia striiformis (PUCCST), yellow rust of triticale

The efficacy of BAS 758 00 F against *Puccinia striiformis* in triticale was tested in 8 trials conducted in Maritime (7 trials) and in North-East (1 trial) zones. The additional supporting evidence is data mentioned in section where yellow rust was evaluated on wheat. It is very unlikely that the same pathogen (*Puccinia striiformis*) will have different behavior on two cereals – wheat and triticale.

Table 3.2-60: Control of *Puccinia stiiformis* in triticale – disease control (%) - summary

EPPO Zone		Untreated	BAS 758 00 F	Proline
			1.5 L/ha	0.8 L/ha
Maritime	average	33.9	96.6	93.2
	min- max	13.4-90.0	87.0-100.0	69.9-100.0
	n	7	7	7
North-East	average	36.3	75.2	90.3
	min- max	-	-	-
	n	1	1	1
All zones	average	34.2	93.9	92.9
	min- max	13.4-90.0	75.2-100.0	69.9-100.0
	n	8	8	8

BAS 758 00 F ensured very good control of yellow rust on triticale. The efficacy recorded for the dose rate of 1.5 L/ha was 94%. The infection in the untreated ranged from 13% to 90% (~34%). The efficacy of the product varied from 75% to 100%. The efficacy of BAS 758 00 F was at the same level as the effi-

cacy recorded for the standard product.
Additionally to above presented results, trials conducted on winter wheat can be used to support the efficacy of BAS 758 00 F against yellow rust. This is possible because direct extrapolation from winter wheat to triticale is acceptable. Results of 20 trials from three EPPO zones are described. BAS 758 00 F provided a mean level of control of 95% for the dose rate 1.5 L/ha in the Maritime and North-East zones, 98% for the dose rate 1.0 L/ha and 97% for the dose rate 0.5 L/ha in the South-East zone. Overall, almost the same efficacy against yellow rust for BAS 758 00 F was presented in trials on wheat and triticale for the dose rate 1.5 L/ha. This confirms a high efficacy of BAS 758 00 F against yellow rust.
No South-East zone trials on triticale were submitted. However, results of the trial on wheat clearly demonstrate control of yellow rust. Additionally, for Maritime and North-East EPPO zones very similar results of *Puccinia striiformis* control with BAS 758 00 F on both cereal crops (wheat and triticale) were obtained. Therefore, it is concluded that data on wheat are sufficient to claim control of yellow rust on triticale.

Blumeria graminis (ERYSGT), powdery mildew of triticale

The efficacy of BAS 758 00 F against *Blumeria graminis* in triticale was tested in 4 trials conducted in the Maritime EPPO zone and in 2 trials conducted in the North-East zone. Proline at full dose rate was used as a standard in all trials.

Table 3.2-61: Control of *Blumeria graminis* in triticale – disease control (%) - summary

EPPO Zone		Untreated	BAS 758 00 F	Proline
			1.5 L/ha	0.8 L/ha
Maritime	average	9.8	85.4	79.1
	min- max	4.5-16.8	72.2-94.4	61.3-92.1
	n	4	4	4
North-East	average	27.1	82.4	82.5
	min- max	11.8-42.5	81.9-82.9	74.5-90.6
	n	2	2	2
All zones	average	15.6	84.4	80.3
	min- max	4.5-42.5	72.2-94.4	61.3-92.1
	n	6	6	6

BAS 758 00 F ensured good control of powdery mildew on triticale. The efficacy recorded for the dose rate of 1.5 L/ha was 84%. The infection in the untreated ranged from 5% to 43% (~16%). The efficacy of the product varied from 72% to 94%. The performance of BAS 758 00 F was slightly better than those of the standard product. In the trial DEV-F-2019-DE-CT2-A-04.0-DE-D17-015 the results recorded for the 4th leaf were not used to calculate average efficacy values. Generally results for the 4th leaf are considered reliable and can be used. However in this trial the assessment was done at BBCH GS 63-65, at this growth stage sometimes the 4th leaf is dried-out even in the absence of disease.
Additionally to the above presented results, trials which were conducted on winter wheat are presented in section 3.2.3.2. These trials can be used to support the efficacy of BAS 758 00 F against powdery mildew. This is possible because direct extrapolation from winter wheat to triticale is acceptable. In section 3.2.3.2 results of 22 trials from three EPPO zones are described. BAS 758 00 F provided a mean level of control of 87% for the dose rate of 1.5 L/ha in the Maritime and North-East zones, 91% for the dose rate 1.0 L/ha and 81% for the dose rate 0.5 L/ha in the South-East zone. Overall almost the same efficacy against powdery mildew for BAS 758 00 F was presented in trials on wheat and triticale for the dose rate 1.5 L/ha. This confirms a high efficacy of BAS 758 00 F against powdery mildew.
No South-East zone trials on triticale were submitted. However, results of a trial on wheat clearly demonstrate control of powdery mildew. Additionally, for Maritime and North-East EPPO zones very similar results of *Blumeria graminis* control with BAS 758 00 F on both cereal crops (wheat and triticale) were obtained. Therefore, it is concluded that data on wheat are sufficient to claim control of powdery mildew on triticale.

Puccinia recondita (PUCCRE), brown rust of rye (KCP 6.2)

The efficacy of BAS 758 00 F against *Puccinia recondita* in rye was tested in 6 trials conducted in the Maritime EPPO zone and in 7 trials conducted in the North-East zone. Proline at full dose rate was used as a standard in all trials.

Table 3.2-62: Control of *Puccinia recondita* in rye – disease control (%) - summary

EPPO Zone		Untreated	BAS 758 00 F	Proline
			1.5 L/ha	0.8 L/ha
Maritime	average	18.9	91.2	93.0
	min- max	5.5-50.8	79.7-100.0	89.0-100.0
	n	6	6	6
North-East	average	18.7	90.1	92.4
	min- max	5.8-36.9	80.0-100.0	78.7-99.1
	n	7	7	7
All zones	average	18.8	90.6	92.7
	min- max	5.5-50.8	79.7-100.0	78.7-100.0
	n	13	13	13

BAS 758 00 F ensured very good control of brown rust on rye. The average efficacy recorded for the dose rate of 1.5 L/ha was 91%. The infection in the untreated ranged from 6% to 51% (~19%). The efficacy of the product varied from 80% to 100%. The performance of BAS 758 00 F and the standard product was at the same level.
Additionally to above presented results, trials conducted on winter wheat can be used to support the efficacy of BAS 758 00 F against brown rust. This is possible because direct extrapolation from winter wheat to rye is acceptable for many diseases. The rules of extrapolation are described in detail in the document prepared by Ministry of Agriculture and placed on its website. Results of 35 trials on wheat from three EPPO zones are available. BAS 758 00 F provided a mean level of control of 95% for the dose rate 1.5 L/ha in the Maritime and North-East EPPO zones, 95% for the dose rate 1 L/ha and 89% for the dose rate 0.5 L/ha in the South-East zone. Overall, almost the same efficacy results were presented from trials on wheat and rye for the dose rate 1.5 L/ha which confirms high efficacy of BAS 758 00 F against brown rust.
No South-East zone trials on rye were submitted. However, results of 10 trials on wheat clearly demonstrate control of brown rust. Additionally, for Maritime and North-East EPPO zones very similar results of *Puccinia* spp. control with BAS 758 00 F on both cereal crops (wheat and rye) were obtained. Therefore, it is concluded that data on wheat are sufficient to claim control of brown rust on rye in South-East EPPO zone.

Rhynchosporium secalis (RHYNSE), Rhynchosporium leaf scald of rye

The efficacy of BAS 758 00 F against *Rhynchosporium secalis* in rye was tested in 3 trials conducted in Maritime EPPO zone and in 6 trials conducted in North-East zone. Proline at full dose rate was used as a standard in all trials.

Table 3.2-63: Control of *Rhynchosporium secalis* in rye – disease control (%) - summary

EPPO Zone		Untreated	BAS 758 00 F	Proline
			1.5 L/ha	0.8 L/ha
Maritime	average	24.5	64.7	81.7
	min- max	8.5-41.3	57.4-75.0	64.7-91.2
	n	3	3	3
North-East	average	16.7	84.3	77.5
	min- max	6.0-33.8	71.6-100.0	52.8-97.4
	n	6	6	6
All zones	average	19.3	77.8	78.9
	min- max	6.0-41.3	57.4-100.0	52.8-97.4
	n	9	9	9

BAS 758 00 F ensured good control of Rhynchosporium on rye. The average efficacy recorded for the dose rate of 1.5 L/ha was 78%. The infection in the untreated ranged from 6% to 41% (~19%). The efficacy of the product varied from 57% to 100%. On average the performance of BAS 758 00 F and the standard product was at the same level.
Additionally to above presented results, trials conducted on barley can be used to support the efficacy of BAS 758 00 F against Rhynchosporium. This is possible because direct extrapolation from barley to rye is acceptable for some diseases. The rules of extrapolation are described in detail in the document prepared by Ministry of Agriculture and placed on its website. Results of 14 trials on barley from two EPPO zones are available. BAS 758 00 F provided a mean level of control of 88% for the dose rate 1.5 L/ha in the Maritime and North-East EPPO zones. Even though BAS 758 00 F did show a slightly higher performance against Rhynchosporium in barley the result from rye are still comparable, as the difference is small. Still a high efficacy of BAS 758 00 F at 1.5 L/ha against Rhynchosporium can be confirmed.

Blumeria graminis (ERYSGR), powdery mildew of oats

The efficacy of BAS 758 00 F against *Blumeria graminis* in oats was tested in 3 trials conducted in Maritime EPPO Zone.

Table 3.2-64: Control of *Blumeria graminis* in oats – diseases control (%) – summary

EPPO Zone		Untreated	BAS 758 00 F	Proline
			1.5 L/ha	0.8 L/ha
Maritime	average	15.8	95.7	94.0
	min- max	10.1-19.8	90.1-100.0	87.8-100.0
	n	3	3	3

BAS 758 00 F ensured very good control of powdery mildew on oats. The average efficacy recorded for the dose rate of 1.5 L/ha was 96%. The infection in the untreated ranged from 10% to 20% (~16%). The efficacy of the product varied from 90% to 100%. The performance of BAS 758 00 F and the standard product was at the same level.

Puccinia coronata (PUCCCA), crown rust of oats

The efficacy of BAS 758 00 F against *Puccinia coronata* in oats was tested in 2 trials conducted in Maritime EPPO Zone.

Table 3.2-65: Control of *Puccinia coronata* in oats – disease control (%) – summary

EPPO Zone		Untreated	BAS 758 00 F	Proline
			1.5 L/ha	0.8 L/ha
Maritime	average	15.8	85.6	84.1
	min- max	7.1-24.4	74.2-97.0	79.8-88.4
	n	2	2	2

BAS 758 00 F ensured very good control of *Puccinia coronata* on oats. The average efficacy recorded for the dose rate of 1.5 L/ha was 86%. The infection in the untreated ranged from 7% to 24% (~16%). The efficacy of the product varied from 74% to 97%. The performance of BAS 758 00 F and the standard product was at the same level.

Dose rate range justification (KCP 6.2)

In certain countries within the EU28, among them Hungary, Romania, Slovakia and Slovenia, regulations do not allow the farmer to apply lower dose rates than the registered ones, even in cases where the use of a lower dose rate might be justified. In other countries the label gives the farmer guidance on the dose rates to be used and thus the explicit dose rate on the label is a seen as a benefit (the Czech Republic).
A dose rate range is therefore requested for these countries to allow farmers to use the product as part of an Integrated Pest Management approach and adapt the application rate of the Plant Protection Product as needed. Crop variety, crop vigor, disease pressure and the prevailing climatic conditions are all potential factors that could affect the application rate.
Across the results, it is demonstrated that lower dose rates of BAS 758 00 F can be effective under certain agricultural conditions. A number of trials carried out on different crops support this. Trials are presented for different EPPO zones: Maritime, North-East and South-East climatic zone.
Based on the fact that the mentioned countries need a dose rate range and that the overall principles of efficacy of a lower dose rate has been demonstrated with data from different EPPO climatic zones, it is proposed to allow a dose rate range of 0.5 – 1.0 L/ha of BAS 758 00 F for Hungary, Romania and Slovakia and a dose rate range of 1.0 – 1.5 L/ha of BAS 758 00 F for Czech Republic,

Data from altogether 52 trials from Maritime and North-East EPPO zones following application of BAS 758 00 F at reduced dose rate of 1.0 L/ha compared to the full dose rate of 1.5 L/ha were presented in the Minimum Effective Dose chapter. As the reduced dose rate tested in MED chapter is the same as the lower limit of the dose rate range proposed for Czech Republic, no additional tables are presented here. It is referred to section 3.2.2 Minimum effective dose tests (KCP 6.2).
Dose response in wheat was justified on SEPTTR and ERYSGT, in barley on PYRNTE and RHYNSE, in triticale on SEPTSP and in rye on PUCCRE. The benefit of the full dose rate of 1.5 L/ha is obvious, it provided clearly superior efficacy on average always higher than 80% and more consistent in both EPPO zones. On the other hand, it is observed that in many trials the reduced dose rate achieved quite high efficacy, often above 80%. Therefore for 5 out of 6 assessed diseases the average efficacy for the reduced dose rate is higher than 70%. In addition, the efficacy of the lower rate especially in the Maritime zone was, for many diseases, comparable to the standard Proline. Therefore it is concluded that the results demonstrate that under certain conditions reasonable efficacy can be achieved with the reduced dose rate of 1.0 L/ha.

Since the dose rates of 0.5 L/ha and 1.0 L/ha of BAS 758 00 F are requested in all countries of the South-East zone in which the product is intended to be registered, in all efficacy trials both dose rates were assessed. Data from altogether 39 trials from the South-East EPPO zone following application of

BAS 758 00 F at the reduced dose rate of 0.5 L/ha compared to the full dose rate of 1.0 L/ha were presented in the Efficacy chapter.
The benefit of the full dose rate of 1.0 L/ha is clearly visible, it provided superior efficacy (always the average is higher than 80% in many cases ensures almost full protection). However the dose rate 0.5 L/ha also controls most diseases sufficiently, with average efficacy higher than 75% for 8 out of 9 tested diseases and usually on the same level as the standard. The results demonstrate that in most cases reasonable efficacy can be achieved with the reduced dose rate of 0.5 L/ha BAS 758 00 F in the South-East EPPO zone.

Conclusion
The proposed dose range of 1.0-1.5 L/ha of BAS 758 00 F in the Czech Republic and the dose range of 0.5-1.0 L/ha in countries of South-East EPPO zone provide the farmer reasonable frame to adapt the dose rate to actual situation and is considered as justified for use in all cereals crops.

Comments of zRMS:

The applicant submitted 203 reports showing the results in research into product efficacy carried out in 2019 and 2020 in Maritime, NE and SE and EPPO climate zones, on cultivars of:
- winter wheat (103 trials) against: (SEPTTR) *Zymoseptoria tritici*, (PUCCRT) *Puccinia triticina*, (PUCCST) *Puccinia striiformis*, (ERYSGR) *Blumeria graminis*, (PYRNTR) *Pyrenophora tritici-repentis*, (PSDCHE) *Oculimacula spp*.;
- spring wheat (2 trials) against: (PUCCST) *Puccinia striiformis*, (PYRNTR) *Pyrenophora tritici-repentis;*
- winter and spring barley (62 trials) against: (PYRNTE) *Pyrenophora teres*, (PUCCHD) *Puccinia hordei*, (ERYSGR) *Blumeria graminis*, (RHYNSE) *Rhynchosporium secalis*, (RAMUCC) *Ramularia collo - cygni*;
- winter triticale (17 trials) against: (SEPTSP) *Septoria spp*., (PUCCRE) *Puccinia recondite* ; (PUCCST) *Puccinia striiformis*, (ERYSGR) *Blumeria graminis;*
- rye (16 trials) against (PUCCRE) *Puccinia recondite*, (RHYNSE) *Rhynchosporium secalis*,
- oat (3 trials) against: (PUCCCA) *Puccinia coronata, (*ERYSGR) *Blumeria graminis*

to support the registration of BAS 758 00 F in countries: AT, BE, DE, IE, NL, PL, CZ, HU, RO and SK.

In these trials, the efficacy of BAS 758 00 F was compared to Proline or Proline 275 (BAS 93141 F or BAS 93144 F) containing prothioconazole (250 and respectively 275 g. a. i./L) as reference products.

Maritime EPPO climatic zone

Trials were conducted in several regions in CZ, UK, DE, DK, NL, AT.
In all regions cereals were grown commercially with natural diseases infection. Trials were of randomized block design with a minimum of four replicates. Details on trial sites, applications are included in the Appendix 4 of BAD.
All trials were conducted by units with rights for performing investigation on efficacy of plant protection products. Investigations were performed according to principles of “Good Experimental Practice” (GEP) (List of Certificates includes Appendix 1 of BAD).

The efficacy trials were designed, conducted and reported according to the following EPPO guidelines:
- EPPO 1/135 (4) Phytotoxicity assessment
- EPPO 1/152 (4) Design and analysis of efficacy evaluation trials
- EPPO 1/181 (4) Conduct and reporting of efficacy evaluation trials including good experimental practice
- EPPO 1/223 (2) Introduction to the efficacy evaluation of plant protection products
- EPPO 1/239 (2) Dose expression of plant protection products
- PP 1/26(4) Foliar and ear diseases on cereals
- PP 1/28 (3) Eyespot of cereals

The product BAS 758 00 F was tested:
- in different varieties of winter wheat (varieties: Cubus, Tobak, Patras, Pankratz, Akteur, JB Asano, Bergamo, Benchmark, Matrix, Ritmo, Winnetou, Monopol, Crusoe, Shabras, Clare, Cordiale, Kerrin, RGT Gravity, Vanessa, Genius, Bernstain, Augustus, RGT Depot, Substance,

KWS Extase, Lukullus, Riband, Bennington, Porthus, KWS Kinetic) at the dose rates of 1,0 l/ha and 1,5 L/ha and was applied one time in most trials (BBCH 31-69, for PSDCHE BBCH 30-32 - target time at the onset of the disease attack, spray volume 100 – 300 l/ha) against: SEPTTR, PUCCRT, PUCCST, ERYSGR, PYRNTR, PSDCHE; results were presented at the following time after treatment [days after treatments]: for SEPTTR – 15-48, for PUCCRT- 15-49, for PUCCST -23 – 54, for ERYSGR- 20 -40, for PYRNTR – 30 – 42, for PSDCHE- 49-99;

- in different varieties of winter and spring barley (varieties: Quadriga, Pixel, Lomerit, Joy, Sandra, SU Vireni, California, Noveta, Memento, Danilo, Maris, KWS Orwell, Flagon, Otter, Hjemdal) and spring barley (varieties: Chapeau, KWS Irina) at the dose rate of 1,0 l/ha and 1,5 l/ha and was applied one time in most trials (BBCH 31-55 (W), BBCH 37-43 (S), - target time at the onset of the disease attack, spray volume 200 – 300 l/ha) against: PYRNTE, PUCCHD, ERYSGR, RHYNSE, RAMUCC; results were presented at the following time after treatment [days after treatments]: for PYRNTE – 31-51 (s) and 29-44 (w), for PUCCHD – 21-44 (w), ERYSGR -22-43 (w) ,RHYNSE – 19-49 (w), RAMUCC – 19-51 (w);
- in different varieties of winter triticale (Lombardo, Agendus, Capricia, KWS Aveo, Su Agendus, Neogen) at the dose rate of 1,0 l/ha and 1,5 l/ha and was applied one time (BBCH 31-39 - target time at the onset of the disease attack, spray volume 200 – 300 l/ha) against: SEPTSP, PUCCRE, PUCCST, ERYSGT; results were presented at the following time after treatment [days after treatments]: for SEPTSP – 19-46, for PUCCRE – 39-45, PUCCST – 15 -47, ERYSGT – 21-45;
- in different varieties of winter rye (KWS Bono, Cossani, Su Mephisto, Su Forsetti, KWS Bintoo) at the dose rate of 1,0 l/ha and 1,5 l/ha and was applied one time (BBCH 37-59 - target time at the onset of the disease attack, spray volume 200 – 300 l/ha) against PUCCRE, RHYNSE; results were presented at the following time after treatment [days after treatments]: for PUCCRE – 41 49, RHYNSE - 41 – 51;
- in two varieties of oat (Mascani, Fusion) at the dose rate of 1,0 l/ha and 1,5 l/ha and was applied one time (BBCH 30-59 - target time at the onset of the disease attack, spray volume 200 l/ha) against ERYSGR and PUCCCA; results were presented at the following time after treatment [days after treatments]: for ERYSGR – 28 – 51, for PUCCCA – 35-57.

The efficacy of the efficacy of BAS 758 00 F was compared to Proline or Proline 275 (BAS 93141 F or BAS 93144 F) containing prothioconazole (250 and respectively 275 g. a. i./L) as reference products. The results were presented as a pest severity. The recommended dose rate of product is 1,5 l/ha applied one time or two times when required (the second application 14-21 days after the first application).

The effectiveness of the product was describe according to the following scale:
≥ 80% – Effectively controlled **(E)**
60 – 80% – Medium effectively controlled **(ME)**
0 – 60% – Limiting the number of pest **(R)**

The effectiveness of dose rate 1,5 l/ha of BAS 758 00 F on winter wheat:

- against *Zymoseptoria tritici* **SEPTTR** (septoria leaf blotch of wheat) in 21 trials. The tested product effectively controlled disease at dose rate 1,5 l/ha (87,3%) – **E** and performed superior to the reference product (72,6%).
  Infection in the untreated ranging: from 7,2% to 100% (average 37,9%);

  In 6 trials efficacy of the product was assessed 15 – 42 days after the second application.

  In 15 trials after one application, the efficacy of the product was on the level 87,4% - **E** and efficacy of the reference product was on the level 71,9%. In 6 trials after the second application, the product protected the crop on the similar level of 87,1% - **E** and efficacy of the reference product was on the level 74,3%. Those results show that the second application prolonged performance of the product up to 42 days after the second application.
- against *Puccinia triticina* **PUCCRT** (brown rust of wheat) in 11 trials. The tested product effectively controlled disease (93,7%) – **E** and performed superior to the reference product (63,4 %).
  Infection in the untreated ranging: from 5,3% to 100% (average 35,8%);

  In 1 trial efficacy of the product was assessed 15 days after the second application. As mentioned above this result showed that the second application prolonged performance of the product.

- against *Puccinia striiformis* **PUCCST** (yellow rust of wheat) in 13 trials. The tested product effectively controlled disease (94,7%) – **E** and performed superior to the reference product (91,1%).
  Infection in the untreated ranging: from 5,3% to 50,4% (average 25,1%);

In 3 trials efficacy of the product was assessed 19 – 28 days after the second application. As mentioned above those results showed that the second application prolonged performance of the product.

What is more, the Applicant did not take into account one trial DEV-F-2019-UK-C23-A-01.0-UK-UK3-A15, explaining a late time of assessment - 54 DAA, where average efficacy of the product was 72,2% and for the reference product 80,6%, with average infestation 9,5% in the untreated. On the other hand other one trial MKD-F-2020-DE-013-A-03.0-DE-D08-F13 was assessed also very late – 51 DAA with a higher level of infestation – 30 % where efficacy of the product and the reference product was 100%. That is why the excluded trial was also taken into account by the evaluator. The average efficacy of the product is still very high 93,1% - **E** and better than the reference product – 90,2%. Those results confirm long-lasting protection of product.

- against *Blumeria graminis* **ERYSGR** (powdery mildew of wheat) in 7 trials. The tested product effectively controlled disease (87,8%) – **E** and performed superior to the reference (63,4 %).
  Infection in the untreated ranging: from 5,0% to 75,0% (average 19,8%);

  In 2 trials efficacy of the product was assessed 23 days after the second application. As mentioned above those results showed that the second application prolonged performance of the product.

- against *Pyrenophora tritici – repentis* **PYRNTR** (tan spot of wheat) in 7 trials. The tested product effectively controlled disease (87,5%) – **E** and performed superior to the reference (82,1 %)
  Infection in the untreated ranging: from 4,3% to 50,0% (average 17,5%);

  In 2 trials efficacy of the product was assessed 21-42 days after the second application. As mentioned above those results showed that the second application prolonged performance of the product.

- against *Oculimacula* spp **PSDCHE** (cereal eyespot) in 11 trials. The tested product medium effectively controlled disease (76,4%) – **ME** and performed superior to the reference product (66,1 %)
  Infection in the untreated ranging: from 8,5% to 48,0% (average 23,3%);

In the GAP table, the Applicant asked for registration of the product also for protection of TRZAS, TRZDU, TRZSP. Results from winter wheat (with full package of data for SEPTTR, PUCCRT, PUCCST, ERYSGR, PYRNTR, PSDCHE) might be extrapolated to TRZAS, TRZDU, TRZSP. Nevertheless, a representative number of trials (1-2) should be provided for the crops to which we extrapolate if are considered major crops. The zRMS will leave it to the decision of Maritime EPPO climate zone Member States (cMS).

The effectiveness of dose rate 1,5 l/ha of BAS 758 00 F on winter and spring barley:

- against *Pyrenophora teres* **PYRNTE** (net blotch of barley) in 11 trials. On the winter and spring barley (2 trials) the tested product effectively controlled disease at dose rate 0,6 L/ha (89,9%) – **E** and performed superior to the reference (76,9 %).
  Infection in the untreated ranging: from 6,5% to 68,8% (average 24,8%);

  In 2 trials efficacy of the product was assessed 29 - 34 days after the second application. The second application prolonged performance of the product.

- against *Puccinia hordei* **PUCCHD** (brown rust of barley) in 9 trials. On winter barley the tested product effectively controlled disease (92,6%) - **E** and performed better than the reference product (86,3%).
  Infection in the untreated ranging: from 5,0% to 54,0% (average 17,7%);

  In 1 trial efficacy of the product was assessed 27 days after the second application. The second application prolonged performance of the product.

- against *Blumeria graminis* **ERYSGR** (powdery mildew of barley) in 4 trials. On winter barley the tested product effectively controlled disease (89,5%) - **E** and performed comparable to the reference product (87,6%).

Infection in the untreated ranging: from 7,0% to 28,8% (average 15,6%);

The number of trials against ERYSGR on barley as a major crop/major disease is insufficient. The Applicant presented explanation concerning supportive trials from wheat and possibility of extrapolation data from dossier solo application of metrafenone and mefentrifluconazole with the same amount of actives which is provided with 1,5 l/ha of BAS 758 00 F, to this disease. In relation to supportive data of solo dossiers both mentioned active substances, in according to EPPO standard PP 1/306 " General principles for the development of co-formulated mixtures of plant protection products" such an approach would be acceptable. But the standard points that "a bridging approach (a reduced data package) may be possible, particularly where there is no overlap in the activity of the active substances and the applied doses in the mixtures are comparable with those of the solo product". Actives substances contained in BAS 758 00 F do not have overlap activity (different modes of action against diseases) but the Applicant has not presented bridging trials to support of this disease control.

Nevertheless the product performed at a similar level of effectiveness in the NE zone (89.5%) at a dose of 1.5 l/ha. cMS can consider data from the NE zone as support for evaluating the product's performance in the Maritime zone. Nevertheless zRMS will leave it to the final decision of cMS whether the number of trials or the Applicant explanation is sufficient.

- against *Rhynchosporium secalis* **RHYNSE** (rhynchosporium leaf scald of barley) in 7 trials. On winter barley the tested product effectively controlled disease (82,5%) - **E** and performed a little worse than the reference product (89,8%).
  Infection in the untreated ranging: from 5,5% to 91,0% (average 40,8%);
  In 2 trials efficacy of the product was assessed 19 - 27 days after the second application. The second application prolonged performance of the product.

- against *Ramularia collo-cygni* **RAMUCC** (ramularia leaf spot of barley) in 12 trials. On winter barley the tested product effectively controlled disease (87,7%) - **E** and performed a little better than the reference product (82,9%).
  Infection in the untreated ranging: from 5,0% to 98,6% (average 43,5%);
  In 4 trials efficacy of the product was assessed 19 - 34 days after the second application. The second application prolonged performance of the product.

Results from winter barley for PUCCHD, PYRNTE, RHYNSE, RAMUCC might be extrapolated to spring barley. For PYRNTE the applicant presented a representative number of trials -2- for spring barley that is why results spring barley might be acceptable. For PUCCHD, RHYNSE, RAMUCC there were no trials on spring barley that is why possibility of winter barley results extrapolation to spring barley the zRMS will leave to the decision of the cMS.

<u>The effectiveness of dose rate 1,5 l/ha of BAS 758 00 F on winter triticale:</u>

- against *Zymoseptoria tritici* **SEPTTR** (septoria leaf blotch of wheat) in 5 trials. The tested product effectively controlled disease at dose rate 1,5 l/ha (90,3%) – **E** and performed superior to the reference product (82,4%)
  Infection in the untreated ranging: from 8,5% to 38,3% (average 22,3%);

- against *Puccinia recondita* **PUCCRE** (brown rust of triticale) in 3 trials. The tested product effectively controlled disease (92,4%) – **E** and performed superior to the reference product (74,7%)
  Infection in the untreated ranging: from 13,0% to 30,5% (average 19,3%);

- against *Puccinia striiformis* **PUCCST** (yellow rust of triticale) in 7 trials. The tested product effectively controlled disease (96,6%) – **E** and performed superior to the reference product (93,2%);
  Infection in the untreated ranging: from 13,4% to 90,0% (average 33,9%);

  In 1 trial efficacy of the product was assessed 15 days after the second application. The second application prolonged performance of the product.

- against *Blumeria graminis* **ERYSGR** (powdery mildew of triticale) in 4 trials. The tested product effectively controlled disease (85,4%) - **E** and performed better than the reference product (79,1%).
  Infection in the untreated ranging: from 4,5% to 16,8% (average 9,8%);

In the GAP table, the Applicant asked for registration of the product also for protection of TTLWI, TTLSO. Results from winter wheat (with full package of data for SEPTTR, PUCCRT,

PUCCST, ERYSGR) might be extrapolated to winter and spring triticale. Nevertheless, a representative number of trials (1-2) should be provided for the crops to which we extrapolate. Therefore, the above results are appropriate for winter triticale and cannot be used for spring triticale. To support efficacy of spring triticale 1-2 trials for the above-mentioned diseases must be submitted. The zRMS will leave it to the decision of the cMS.

The effectiveness of dose rate 1,5 l/ha of BAS 758 00 F on winter rye:

- against *Puccinia recondita* **PUCCRE** (brown rust of rye) in 6 trials. The tested product effectively controlled disease (91,2%) – **E** and the product performed inferior to the reference product (93,0%). Infection in the untreated was average 18,9%;
- against *Rhynchosporium secalis* **RHYNSE** (rhynchosporium leaf scald of rye) in 3 trials. The tested product effectively controlled disease (64,7%) - **ME** and performed worse than the reference product (81,7%).
  Infection in the untreated ranging: from 8,5% to 41,3% (average 24,5%);

Results from winter wheat (with full package of data for PUCCRT) might be extrapolated to rye. The presented data for winter wheat and winter rye meet all requirements for winter and spring rye. Results from winter barley (with full package of data for RHYNSE) might be extrapolated to rye. The presented data for winter barley and winter rye meet all requirements for winter and spring rye The zRMS will leave it to the decision of the cMS.

The effectiveness of dose rate 1,5 l/ha of BAS 758 00 F on oat:

- against *Blumeria graminis* **ERYSGR** (powdery mildew of oats) in 3 trials. The tested product effectively controlled disease (95,7%) and the product performed similarly to the reference product (94,0%). Infection in the untreated was average 15,8%;
- against *Puccinia coronata* **PUCCCA** (crown rust of oats) in 2 trials. The tested product effectively controlled disease (85,6%) and the product performed similarly to the reference product (84,1%). Infection in the untreated was average 15,8%;

The number of trials against ERYSGR and PUCCCA on oat as a major crop/major disease is insufficient. If oat is considered minor crop, the number of trials as well as results fully support these uses. Nevertheless the zRMS will leave the final decision to cMSs.

BAS 758 00 F effectively controlled diseases in cereals at dose rate 1,5 l/ha applied one or two times in season, in trials presented for the Maritime EPPO climate zone. In trials on winter wheat against PSDCHE and in trials on rye against RHYNSE, the product performed medium effectively.
The Applicant is requesting 2 applications of the product per season (for *Oculimacula spp*. only one application), with a minimum of 14 days between applications and between growth stages 30-59. For PSDCHE application time is BBCH 30-32 of wheat.

To confirm the efficacy of BAS 758 00 F at different application dates, the Applicant has submitted an extensive package of efficacy trials, with treatments carried out at a wide range of developmental stages of crops, taking into account the different requirements of individual pathogens as to the developmental stages of plants at which they are usually infected. Two applications may prove necessary in practice, for example, at the onset of pressure from another disease when the long-term efficacy of the first fungicide dose has come to an end.

The Applicant has submitted trials with two applications for the Maritime zone (in DE- 13 trials and in CZ – 1 trial, in DK – 2 trials). The effectiveness of the product was evaluated after 2 applications at the dose rate 1,5 l/ha: on winter wheat (against: SEPTTR, PUCCTR, PUCCST, ERYSGR, PYRNTR) into 8 trials, on winter barley (against: PYRNTE, PUCCHD, ERYSGR, RHYNSE, RAMUCC) into 7 trials, winter triticale (PUCCST) into 1 trial.
The results in trials with two applications indicated that effectiveness of the product was prolonged as a result of the second application. The product maintained high efficacy after both 1 and 2 applications. What is more twice application of the product was safe for crops as there were no symptoms of phytotoxicity and no impact of yield, hectolitre weight of harvested grain and thousand grain weight.

The final decision on whether to allow 2 applications of the product per season based on the trials presented is up to the cMSs.

The Applicant is also proposing to allow a dose rate range of 1,0 – 1,5 l/ha of BAS 758 00 F for Czech Republic in order to adapt the application rate of the product to crop variety, crop vigour, disease pressure

and the prevailing climatic conditions as potential factors that could affect the application rate. The results of the reduce dose rate - 1,0 l/ha were presented in the section 3.2.2 Minimum effective dose tests (KCP 6.2) showing sufficient control of some diseases. ZRMs will leave this decision to the cMS.

Evaluation of the data submitted at the commenting stage

In response to the AT cMS request during the commenting stage, the Applicant presented 2 additional trials concerning PUCCST control on spelt (var. Zollernperle), conducted in DE, in 2022.

The effectiveness of dose rate 1,5 l/ha of BAS 758 00 F on spelt (one application)

Results obtained from these trials confirmed excellent performance of BAS 758 00 F. The product effectively controlled the disease (100%) and comparable to the reference product (99,3%).
Infection in the untreated ranging: from 5,5% to 10% (average 7,8%).

NE EPPO climatic zone

Trials were conducted in several regions in PL, LV, FI, LT. Additionally the applicant has presented document – „ BAS 758 00 F Report on comparison of regions" which was generated automatically by the RegPest application developed in a collaboration of IUNG-PIB and PSOR, for, PL (NE EPPO climate zone) and DE (Maritime EPPO climatic zone) to support data for PL with data conducted for DE. The document has presented similarities in agronomic conditions (average over 80%) to recognise efficacy data from one EPPO climatic zone as supportive for another EPPO climatic zone.

In all regions cereals were grown commercially with natural diseases infection. Trials were of randomized block design with a minimum of four replicates. Details on trial sites, applications are included in the Appendix 4 of BAD.
All trials were conducted by units with rights for performing investigation on efficacy of plant protection products. Investigations were performed according to principles of "Good Experimental Practice" (GEP) (List of Certificates includes Appendix 1 of BAD).

The efficacy trials were designed, conducted and reported according to the following EPPO guidelines:
- EPPO 1/135 (4) Phytotoxicity assessment
- EPPO 1/152 (4) Design and analysis of efficacy evaluation trials
- EPPO 1/181 (4) Conduct and reporting of efficacy evaluation trials including good experimental practice
- EPPO 1/223 (2) Introduction to the efficacy evaluation of plant protection products
- EPPO 1/239 (2) Dose expression of plant protection products
- PP 1/26(4) Foliar and ear diseases on cereals
- PP 1/28 (3) Eyespot of cereals

The product BAS 758 00 F was tested:

- in different varieties of winter wheat (varieties: Edvins, Princeps, Fidelius, Zyta, Skagen, Opal, Tonacja, Pamir, Joker, Arkadia, Bohemia, Tobak, Florian, Evina, Fredris, KWS Ozon, Sailor, Euforia, Natula) at the dose rates of 1,0 l/ha and 1,5 L/ha and was applied one time (BBCH 31-61, for PSDCHE BBCH 30-32 - target time at the onset of the disease attack, spray volume 200 – 300 l/ha) against: SEPTTR, PUCCRT, PUCCST, ERYSGR, PYRNTR, PSDCHE; results were presented at the following time after treatment [days after treatments]: for SEPTTR – 21-49, for PUCCRT- 21-30, for PUCCST -20 – 45, for ERYSGR- 20 -52, PYRNTR – 20-49, for PSDCHE- 51-99;

- in two varieties of spring wheat (varieties: Vanamo, Amaretto) at the dose rates of 1,0 l/ha and 1,5 L/ha and was applied (BBCH 37-51, spray volume 200 l/ha) against: PUCCST and PYRNTR; results were presented at the following time after treatment [days after treatments]: for PUCCST - 35, for PYRNTR- 31-35;

- in different varieties of winter barley (varieties: Ordinale, Kosmos, Quadriga, Bażant, Sandra,

Zenek, Metaxa, Gloria, KWS Tenor, Bartosz) at the dose rate of 1,0 l/ha and 1,5 l/ha and was applied one time in most trials (BBCH 30-59 - target time at the onset of the disease attack, spray volume 200 – 300 l/ha) against: PYRNTE, PUCCHD, ERYSGR, RHYNSE, RAMUCC; results were presented at the following time after treatment [days after treatments]: for PYRNTE –30-51, for PUCCHD – 30-41, ERYSGR -40-41 ,RHYNSE – 20-41, RAMUCC – 21;

- in different varieties of spring barley (varieties: Penguin, Dante, Teksas, Kucyk, KWS Harris, Quench, Tocada, Propino,) at the dose rate of 1,0 l/ha and 1,5 l/ha and was applied one time in most trials (BBCH 32-51 - target time at the onset of the disease attack, spray volume 200 – 300 l/ha) against: PYRNTE, PUCCHD, ERYSGR, RHYNSE, RAMUCC; results were presented at the following time after treatment [days after treatments]: for PYRNTE – 20-31, for PUCCHD – 18-22, ERYSGR -30 ,RHYNSE – 33, RAMUCC – 29;
- in different varieties of winter triticale (Grenado, Trismart, Tulus, Tantris, Meloman, Fredro, Rotondo) at the dose rate of 1,0 l/ha and 1,5 l/ha and was applied one time (BBCH 30-59 - target time at the onset of the disease attack, spray volume 200 – 300 l/ha) against: SEPTSP, PUCCRE, PUCCST, ERYSGT; results were presented at the following time after treatment [days after treatments]: for SEPTSP – 20-49, for PUCCRE – 28-41, PUCCST – 30, ERYSGT – 30;
- in different varieties of winter rye (Kaupo, Binntto, Dolaro, Su, Forsetti, Vinetto, Dankowskie Zlot, Dankowskie Diam, Mephisto) at the dose rate of 1,0 l/ha and 1,5 l/ha and was applied one time (BBCH 37-59 - target time at the onset of the disease attack, spray volume 200 – 250 l/ha) against PUCCRE, RHYNSE; results were presented at the following time after treatment [days after treatments]: for PUCCRE – 31 - 43, RHYNSE - 31 – 54;

The efficacy of the efficacy of BAS 758 00 F was compared to Proline or Proline 275 (BAS 93141 F or BAS 93144 F) containing prothioconazole (250 and respectively 275 g. a. i./L) as reference products. The results were presented as a pest severity. The recommended dose rate of product is 1,5 l/ha applied one time or two times when required.

The effectiveness of the product was describe according to the following scale:
≥ 80% – Effectively controlled **(E)**
60 – 80% – Medium effectively controlled **(ME)**
0 – 60% – Limiting the number of pest **(R)**

The effectiveness of dose rate 1,5 l/ha of BAS 758 00 F on winter wheat:

- against *Zymoseptoria tritici* **SEPTTR** (septoria leaf blotch of wheat) in 17 trials. The tested product effectively controlled disease at dose rate 1,5 l/ha (89,7%) – **E** and performed superior to the reference product (79,8%)
  Infection in the untreated ranging: from 5,6% to 42,2% (average 15,4%);
- against *Puccinia triticina* **PUCCRT** (brown rust of wheat) in 7 trials. The tested product effectively controlled disease (95,2%) – **E** and performed superior to the reference product (86,7 %)
  Infection in the untreated ranging: from 5,6% to 34,8% (average 15,0%);
- against *Puccinia striiformis* **PUCCST** (yellow rust of wheat) in 6 trials. The tested product effectively controlled disease (95,3%) – **E** and performed comparable to the reference product (96,3%);
  Infection in the untreated ranging: from 5,9% to 16,6% (average 10,5%);

Additionally results from 4 DE trials were taken into account (from regions with high similarity to chosen North-East region), which confirmed high effeciveness of the product – 95,7% and comparable to the reference product - 94,6%.

- against *Blumeria graminis* **ERYSGR** (powdery mildew of wheat) in 9 trials. The tested product effectively controlled disease (86,4%) – **E** and performed comparable to the reference (86,2 %).
  Infection in the untreated ranging: from 5,0% to 11,0% (average 6,7%);
- against *Pyrenophora tritici – repentis* **PYRNTR** (tan spot of wheat) in 7 trials. The tested product effectively controlled disease (87,5%) – **E** and performed superior to the reference (79,7 %)

Infection in the untreated ranging: from 5,9% to 25,3% (average 12,8%);

- against *Oculimacula* spp **PSDCHE** (cereal eyespot) in 8 trials. The tested product medium effectively controlled disease (79,8%) – **ME** and performed superior to the reference product (72,3 %)
  Infection in the untreated ranging: from 18,1% to 35,3% (average 26,3%);

The effectiveness of dose rate 1,5 l/ha of BAS 758 00 F on spring wheat:

- against *Puccinia striiformis* **PUCCST** (yellow rust of wheat) in 1 trial. The tested product effectively controlled disease (87,5%) – **E** and performed superior to the reference product (83,8%);
  Infection in the untreated ranging: 7,6%
- against *Pyrenophora tritici – repentis* **PYRNTR** (tan spot of wheat) in 2 trials. The tested product effectively controlled disease (82,4%) – **E** and performed superior to the reference (81,6 %)
  Infection in the untreated ranging: from 16,6% to 20,9% (average 18,8%);

In the GAP table, the Applicant asked for registration of the product also for protection of TRZAS, TRZDU, TRZSP. In accordance with the extrapolation rules set by Polish Ministry of Agriculture and Rural Development results from winter wheat (with full package of data for SEPTTR, PUCCRT, PUCCST, ERYSGR, PYRNTR, PSDCHE) can be extrapolated to spring wheat. Nevertheless, according to the principles of extrapolation, a representative number of trials (1 -2) should be provided for the crops to which we extrapolate. The applicant presented 2 trials against PYRNTR and 1 trial against PUCCST on spring wheat. 1 trial against PUCCST might be acceptable because the product performed effectively, as on the winter wheat and better than the reference product.

Triticum durum and *Triticum spelta L.* are minor crops in Poland. The evaluation for these crops was not performed. In case of art. 33 of PPPR authorization the Applicant needs to present efficacy data. For the purpose of BAS 758 00 F authorization any efficacy data for minor uses was not presented by the Applicant.

The effectiveness of dose rate 1,5 l/ha of BAS 758 00 F on winter barley:

- against *Pyrenophora teres* **PYRNTE** (net blotch of barley) in 11 trials. The tested product effectively controlled disease at dose rate 0,6 L/ha (91,6%) – **E** and performed comparable to the reference (88,8 %).
  Infection in the untreated ranging: from 4,5% to 16,3% (average 8,7%);
- against *Puccinia hordei* **PUCCHD** (brown rust of barley) in 10 trials. The tested product effectively controlled disease (94,5%) - **E** and performed comparable to the reference product (94,1%).
  Infection in the untreated ranging: from 6,4% to 38,0% (average 20,5%);
- against *Blumeria graminis* **ERYSGR** (powdery mildew of barley) in 3 trials. The tested product effectively controlled disease (89,5%) - **E** and performed comparable the reference product (89,5%).
  Infection in the untreated ranging: from 5,2% to 8,0% (average 6,2%);

The number of trials against ERYSGR on barley as a major crop/major disease is insufficient. It should be at least 6 for the major crop/major disease combination. The Applicant presented explanation concerning supportive trials from wheat and possibility of extrapolation data from dossier solo application of mefentrifluconazole with the same amount of actives which is provided with 1,5 l/ha of BAS 758 00 F, to this disease. In relation to supportive data of mentioned active substance solo dossier, in according to EPPO standard PP 1/306 " General principles for the development of co-formulated mixtures of plant protection products" such an approach would be acceptable. But the standard points that a reduced data package and bridging approach may be possible, particularly where there is no overlap in the activity of the active substances and the applied doses in the mixtures are comparable with those of the solo product. Actives substances contained in BAS 758 00 F do not have overlap activity (different modes of action against diseases) but the Applicant has not presented bridging trials to support of this disease control (trials where performance of the solo product is compared to performance of BAS 758 00 F).

The presented number of trials against ERYSGR on winter barley does not meet the registration requirements in Poland. Nevertheless, the product performed efficiently 89,5% (81,6% - 100%) and performed at the same efficiency level (89,5%) at the dose of 1,5 l/ha in the Maritime zone. That is why it is

proposed to be conditionally present on the label until the number of trials is completed.

- against *Rhynchosporium secalis* **RHYNSE** (rhynchosporium leaf scald of barley) in 8 trials. The tested product effectively controlled disease (92,0%) - **E** and performed comparable to the reference product (89,5%).
  Infection in the untreated ranging: from 5,0% to 17,4% (average 8,3%);

Additionally results from 2 DE trials were taken into account (from regions with high similarity to chosen North-East region), which confirmed high effeciveness of the product – 90,6% and better than the reference product - 86,2%.

- against *Ramularia collo-cygni* **RAMUCC** (ramularia leaf spot of barley) in 1 trial. The tested product effectively controlled disease (100%) - **E** and performed comparable to the reference product (100%).
  Infection in the untreated ranging: 8,2;

The applicant informed in the BAD that "... *Ramularia collo-cygni* is not requested for North-East zone". However *Ramularia collo-cygni* is mentioned as a target disease requested for North-East zone in the GAP table, the evaluator made the conclusion about this use. The number of trials (1 trial) against RAMUCC presented in the NE EPPO climate zone is not sufficient to confirm efficacy.

The effectiveness of dose rate 1,5 l/ha of BAS 758 00 F on spring barley:

- against *Pyrenophora teres* **PYRNTE** (net blotch of barley) in 6 trials. The tested product effectively controlled disease at dose rate 0,6 L/ha (91,1%) – **E** and performed superior to the reference (85,3 %).
  Infection in the untreated ranging: from 6,5% to 75,0% (average 26,6%);
- against *Puccinia hordei* **PUCCHD** (brown rust of barley) in 3 trials. The tested product effectively controlled disease (94,0%) - **E** and performed comparable to the reference product (92,2%).
  Infection in the untreated ranging: from 8,5% to 14,1% (average 12,0%);
- against *Blumeria graminis* **ERYSGR** (powdery mildew of barley) in 1 trial. The tested product effectively controlled disease (86,0%) - **E** and performed better than the reference product (75,3%).
  Infection in the untreated ranging: 11,6%.
- against *Rhynchosporium secalis* **RHYNSE** (rhynchosporium leaf scald of barley) in 1 trial. The tested product effectively controlled disease (94,8%) - **E** and performed comparable to the reference product (93,1%).
  Infection in the untreated ranging: 7,3%;
- against *Ramularia collo-cygni* **RAMUCC** (ramularia leaf spot of barley) in 1 trial. The tested product medium effectively controlled disease (77,1%) - **ME** and performed comparable to the reference product (77,1%).
  Infection in the untreated ranging: 8,2%;

Results from winter barley for PYRNTE, PUCCHD, RHYNSE might be extrapolated to spring barley (from full package data). For PYRNTE, PUCCHD the applicant presented a representative number of trials - more than 2- for spring barley that is why results for spring barley might be acceptable. Against RHYNSE 1 trial was presented on spring barley with the same high efficacy (94,8%) as for winter barley that is why it might be also acceptable to confirm extrapolation.

The presented number of trials against ERYSGR on winter barley is not sufficient to support extrapolation to spring barley. What is more for spring barley a representative number of trials should be at least 2 trials. Nevertheless, the product performed efficiently - 86% and it is proposed to place conditionally on the label the use against ERYSGR on winter barley as well as on spring barley until the number of trials is completed.

The effectiveness of dose rate 1,5 l/ha of BAS 758 00 F on winter triticale:

- against *Zymoseptoria tritici* **SEPTTR** (septoria leaf blotch of wheat) in 7 trials. The tested product effectively controlled disease at dose rate 1,5 l/ha (87,6%) – **E** and performed comparable to the reference product (86,6%)

Infection in the untreated ranging: from 6,0% to 23,3% (average 15,5%);

- against *Puccinia recondita* **PUCCRE** (brown rust of triticale) in 4 trials. The tested product effectively controlled disease (92,1%) – **E** and performed superior to the reference product (83,6%)
  Infection in the untreated ranging: from 7,1% to 28,5% (average 15,5%);
- against *Puccinia striiformis* **PUCCST** (yellow rust of triticale) in 1 trial. To support efficacy against PUCCST 6 trials from DE were also taken into consideration The tested product effectively controlled disease (93,6%) – **E** and performed comparable to the reference product (91,9%);
  Infection in the untreated ranging: from 13,4%– 90% (average 32,6%);
- against *Blumeria graminis* **ERYSGR** (powdery mildew of triticale) in 2 trials. The tested product effectively controlled disease (82,4%) - **E** and performed comparable to the reference product (82,5%).
  Infection in the untreated ranging: from 11,8% to 42,5% (average 27,1%);

In the GAP table, the Applicant asked for registration of the product for protection of TTLWI, TTLSO. Results from winter wheat (with full package of data for SEPTTR, PUCCRT, PUCCST, ERYSGR) might be extrapolated to winter and spring triticale. Nevertheless, for SEPTTR, PUCCRT, PUCCST, EYSGR a representative number of trials (1- 2) should be provided for the crops to which we extrapolate. Therefore, the above results are appropriate for winter triticale against SEPTTR, PUCCRT, PUCCST, ERYSGR and cannot be used for spring triticale. To support efficacy of spring triticale 2 trials for the above-mentioned diseases must be submitted.

The effectiveness of dose rate 1,5 l/ha of BAS 758 00 F on rye:

- against *Puccinia recondita* **PUCCRE** (brown rust of rye) in 7 trials. The tested product effectively controlled disease (90,1%) – **E** and the product performed inferior to the reference product (92,4%).
  Infection in the untreated was average 18,7% (from 5,8% - 36,9%);
- against *Rhynchosporium secalis* **RHYNSE** (rhynchosporium leaf scald of rye) in 6 trials. The tested product effectively controlled disease (84,3%) - **E** and performed better than the reference product (77,5%).
  Infection in the untreated ranging: from 6,0% to 33,8% (average 16,7%);

BAS 758 00 F effectively controlled diseases in cereals at dose rate 1,5 l/ha applied one time in season, in trials presented for the NE EPPO climate zone. In trials on winter wheat against PSDCHE the product performed medium effectively.

The Applicant is requesting max 2 applications of the product per season (for *Oculimacula spp*. only one application), with a minimum of 14 days between applications and between growth stages 30-59. For PSDCHE application time is BBCH 30-32 of wheat (spray volume 100 – 300).

To confirm the efficacy of BAS 758 00 F at different application dates, the Applicant has submitted an extensive package of efficacy trials, with treatments carried out at a wide range of developmental stages of crops, taking into account the different requirements of individual pathogens as to the developmental stages of plants at which they are usually infected.
Two applications may prove necessary in practice, for example, at the onset of pressure from another disease when the long-term efficacy of the first fungicide dose has come to an end. An example is the control of cereal eyespot, at the early growth stage of winter wheat BBCH 30-32 and brown rust occurring at BBCH 49-59. In such a situation, a treatment carried out at an earlier stage - BBCH 30-32 against cereal eyespot may no longer be effective against brown rust. It will therefore be necessary to carry out a second treatment of the season.

The Applicant has not submitted trials with two applications for the NE zone. However, in several trials in the Maritime zone (in DE- 13 trials and in CZ – 1 trial) effectiveness of the product was evaluated after 2 applications: on winter wheat (against: SEPTTR, PUCCTR, PUCCST, ERYSGR, PYRNTR) into 7 trials, on winter barley (against: PYRNTE, PUCCHD, ERYSGR, RHYNSE, RAMUCC) into 7 trials.
Trials from neighbouring countries (Germany and the Czech Republic) can be used to prove that there is no negative effect of double application of BAS 758 00 F on protected plants in Poland. These studies

were conducted under agro-climatic conditions similar to those prevailing in Poland. Using the RegPest model, the Applicant presented an example comparison of agro-climatic conditions for the Lower Silesian and Warmian-Masurian provinces and regions in Germany. The similarity of agro-climatic conditions of the regions was shown to be about 80%, which, according to the model, indicates a very low risk of different behaviour of the same product in these regions.

The results in trials with two applications indicated that effectiveness of the product was prolonged as a result of the second application. The product maintained high efficacy after both 1 and 2 applications. What is more twice application of the product was safe for crops as there were no symptoms of phytotoxicity and no impact of yield, hectolitre weight of harvested grain and thousand grain weight.

Taking into account the above considerations, it may be concluded that 2 applications of the product per season will be safe to crops and it is proposed to adopt it.

SE EPPO climatic zone

Trials were conducted in several regions in BG, RO, SK, HU.
In all regions cereals were grown commercially with natural diseases infection. Trials were of randomized block design with a minimum of four replicates. Details on trial sites, applications are included in the Appendix 4 of BAD.
All trials were conducted by units with rights for performing investigation on efficacy of plant protection products. Investigations were performed according to principles of “Good Experimental Practice” (GEP) (List of Certificates includes Appendix 1 of BAD).

The efficacy trials were designed, conducted and reported according to the following EPPO guidelines:
- EPPO 1/135 (4) Phytotoxicity assessment
- EPPO 1/152 (4) Design and analysis of efficacy evaluation trials
- EPPO 1/181 (4) Conduct and reporting of efficacy evaluation trials including good experimental practice
- EPPO 1/223 (2) Introduction to the efficacy evaluation of plant protection products
- EPPO 1/239 (2) Dose expression of plant protection products
- PP 1/26(4) Foliar and ear diseases on cereals
- PP 1/28 (3) Eyespot of cereals

The product BAS 758 00 F was tested:

- in different varieties of winter wheat (varieties: Avenue, Falado, Discus, Ingenio, Sorial, Stelarka, Ezopus, Madejka, Murgavets, Sadovo, Mv Tallér, Genius, Cameleon, Altigo, Rubisco, Glosa, Ms Arlis, Fidelius, Ps Kvalitas, Capo) at the dose rates of 0,5 l/ha and 1,0 L/ha and was applied one time (BBCH 31-64, for PSDCHE BBCH 30-32 - target time at the onset of the disease attack, spray volume 200 – 300 l/ha) against: SEPTTR, PUCCRT, PUCCST, ERYSGR, PYRNTR, PSDCHE; results were presented at the following time after treatment [days after treatments]: for SEPTTR – 20-54, for PUCCRT- 20 - 52, for PUCCST - 40, for ERYSGR- 22 - 40, PYRNTR – 21-50, for PSDCHE- 40-71;

- in different varieties of winter barley (varieties: Jub, Obzor, Daxor, Jalon, Su Ellen, Zanzibar, Saphira) at the dose rate of 0,5 l/ha and 1,0 l/ha and was applied one time (BBCH 37-61 - target time at the onset of the disease attack, spray volume 200 – 250 l/ha) against: PYRNTE, PUCCHD, ERYSGR; results were presented at the following time after treatment [days after treatments]: for PYRNTE –20-36, for PUCCHD – 33-34, ERYSGR -20-34;

- in one variety of spring barley (Malz) at the dose rate of 0,5 l/ha and 1,0 l/ha and was applied one time (BBCH 37-41 - target time at the onset of the disease attack, spray volume 200 l/ha) against: PYRNTE, ERYSGR; results were presented at the following time after treatment [days after treatments]: for PYRNTE – 24, ERYSGR -24;

The efficacy of the efficacy of BAS 758 00 F was compared to Proline or Proline 275 (BAS 93141 F or BAS 93144 F) containing prothioconazole (250 and respectively 275 g. a. i./L) as reference products. The results were presented as a pest severity. The recommended dose rate of product is 1,5 l/ha applied one time or two times when required.

The effectiveness of the product was describe according to the following scale:
≥ 80% – Effectively controlled **(E)**
60 – 80% – Medium effectively controlled **(ME)**

0 – 60% – Limiting the number of pest **(R)**

The effectiveness of BAS 758 00 F on winter wheat:

- against *Zymoseptoria tritici* **SEPTTR** (septoria leaf blotch of wheat) in 10 trials. The tested product effectively controlled disease at the dose rate 1,0 l/ha (91,2%) – **E** and performed superior to the reference product (85,0%). At the dose rate 0,5 l/ha the product performed medium effectively (77,2%) – **ME** and presented lower performance than the reference product.
  Infection in the untreated ranging: from 7,5% to 14,1% (average 10,1%);
- against *Puccinia triticina* **PUCCRT** (brown rust of wheat) in 10 trials. The tested product effectively controlled disease at the dose rates 1,0 l/ha (94,6%) and 0,5 l/ha (88,5%) – **E** and performed respectively superior and comparable to the reference product (89,3%).
  Infection in the untreated ranging: from 5,9% to 32,3% (average 16,7%);
- against *Puccinia striiformis* **PUCCST** (yellow rust of wheat) in 1 trial. The tested product effectively controlled disease at the dose rates 1,0 l/ha (98,1%) and 0,5 l/ha (97,1%) – **E** and performed a little better to the reference product (94,5%).
  Infection in the untreated was on the level of 93,8%;

One trial presented against PUCCST on winter wheat as a major crop/major disease combination is insufficient. The Applicant having based on the similarity in product performance through all zones, presented a position that trials from the Maritime and North-East EPPO zones, in which the dose rate 1,0 l/ha was tested, might be supportive for SE zone. The tested product performed effectively (87,8%) **(E)** at the dose rate 1,0 l/ha in the Maritime and NE zones (where climatic conditions might be more favorable for PUUCST development) and showed a little lower performance than the reference product. The ZRMS will leave it up to the SE EPPO climate zone member states (cMSs) to decide whether data from other EPPO climate zones will be acceptable.

- against *Blumeria graminis* **ERYSGR** (powdery mildew of wheat) in 6 trials. The tested product effectively controlled disease at the dose rates 1,0 l/ha (91,3%) and 0,5 l/ha (81,8%) – **E** and performed respectively superior and slightly weaker than the reference product (85,6%).
  In one of the 6 trials product effectiveness was only to reduce number of pest (R) at the dose rate 0,5 l/ha. The reference product performed comparable weak in this trial (R).
  Infection in the untreated ranging: from 5,5% to 16,5% (average 10,0%);
- against *Pyrenophora tritici – repentis* **PYRNTR** (tan spot of wheat) in 7 trials. The tested product effectively controlled disease at the dose rate 1,0 l/ha (85,8%) – **E** and performed superior to the reference product (78,9%). At the dose rate 0,5 l/ha the product performed medium effectively (78,2%) – **ME** and performed comparable to the reference product.
  Infection in the untreated ranging: from 5,0% to 54,7% (average 12,5%);
- against *Oculimacula* spp **PSDCHE** (cereal eyespot) in 5 trials. The tested product effectively controlled disease at the dose rate 1,0 l/ha (80,8%) – **E** and performed slightly superior than the reference product (77,3%). The efficacy of the product ranged from 65,2 % to 100% and similarly, the efficacy of the reference product ranged from 65,5% to 100%.
  At the dose rate 0,5 l/ha the product performed medium effectively (67,2%) – **ME** and presented lower performance than the reference product.
  Infection in the untreated ranging: from 7,3% to 39,5% (average 23,5%);

The presented number of trials is less than minimal number of required efficacy trials (6). The dose rate 1,0 l/ha of the product ensured good control in 3 of the 5 trials and the reference product performed in similar way. The less than minimal number of required efficacy trials might be acceptable in this case. Nevertheless the ZRMS will leave the final decision up to the SE EPPO climate zone member states (cMSs).

In the GAP table, the Applicant asked for registration of the product also for protection of TRZAS, TRZDU, TRZSP. Results from winter wheat (with full package of data for SEPTTR, PUCCRT, PUCCST, ERYSGR, PYRNTR, PSDCHE) might be extrapolated to TRZAS, TRZDU, TRZSP. Nevertheless, a representative number of trials (1-2) should be provided for the crops to which we extrapolate if are considered major crops. The zRMS will leave it to the decision of SE EPPO climate zone Member States (cMS).

The effectiveness of BAS 758 00 F on winter/spring barley:

- against *Pyrenophora teres* **PYRNTE** (net blotch of barley) in 7 trials (one trial was conducted on spring barley). The tested product effectively controlled disease at the dose rates 1,0 l/ha (92,2%) and 0,5 l/ha (85,9%) – **E** and performed respectively superior and comparable to the reference product (84,8%).
  Infection in the untreated ranging: from 6,0% to 29,8% (average 13,8%);
- against *Puccinia hordei* **PUCCHD** (brown rust of barley) in 3 trials. The tested product effectively controlled disease at the dose rates 1,0 l/ha (96,4%) and 0,5 l/ha (93,5%) – **E** and performed a little better than the reference product (92,0%).
  Infection in the untreated ranging: from 6,5% to 19,5% (average11,0%);

The number of trials presented against PUCCHD on winter barley as a major crop/major disease combination is insufficient to confirm the product efficacy. The applicant proposed to consider results of brown rust control on wheat as supportive results (10 trials from South-East EPPO zone with average efficacy of 95% for full dose rate) to obtain an idea about PUCCHD reaction to the product. It is up to cMS whether such explanation might be acceptable.

- against *Blumeria graminis* **ERYSGR** (powdery mildew of barley) in 6 trials (one trial was conducted on spring barley). The tested product effectively controlled disease at the dose rates 1,0 l/ha (86,9%) and 0,5 l/ha (80,2%) – **E** and performed respectively a little better and comparable to the reference product (82,0%).
  Infection in the untreated ranging: from 8,2% to 42,5% (average24,1%);

Results from winter barley for PYRNTE, ERYSGR might be extrapolated to spring barley (from full package data). For PYRNTE, ERYSGR the applicant presented a representative number of trial - 1- for spring barley that is why results for spring barley might be acceptable. The zRMS will leave it to the decision of SE EPPO climate zone Member States (cMS).

The effectiveness of BAS 758 00 F on winter/spring triticale:

The Applicant has not presented trials on winter and spring triticale. Results from winter wheat (with full package of data for SEPTTR, PUCCRE, PUCCST, ERYSGR) might be extrapolated to winter and spring triticale. Nevertheless, a representative number of trials (1- 2) should be provided for the crops to which we extrapolate. Therefore, results for winter wheat would be appropriate for winter/spring triticale against SEPTTR, PUCCRE, ERYSGR if a representative number of trials (1- 2) were presented for winter/spring triticale against the listed diseases. Nevertheless, the zRMS will leave it to the decision of SE EPPO climate zone Member States (cMS).

The effectiveness of BAS 758 00 F on rye:

The Applicant has not presented trials on winter and spring rye. Results from winter wheat (with full package of data for PUCCRE) and from winter barley (with full package of data for RHYNSE) might be extrapolated to winter and spring rye. Nevertheless, a representative number of trials (1- 2) should be provided for the crops to which we extrapolate. Therefore, results for winter wheat would be appropriate for winter/spring rye against PUCCRE if a representative number of trials (1- 2) were presented for winter/spring rye against the disease. What is more the applicant did not presented any trials against RHYNSE on winter barley. Therefore, there is no basic data from which extrapolation might be done. The Applicant suggested considering data from other zones.
The zRMS will leave it to the decision of SE EPPO climate zone Member States (cMS).

The effectiveness of BAS 758 00 F on oats:

The Applicant has not presented trials on oats against: ERYSGR and PUCCCA. The Applicant suggested considering data from the Maritime zone. In zRSM's opinion the appropriate number of trials needs to be submitted respectively at least 6 for major crop/major disease and 2-3 for minor crop. Nevertheless, the zRMS will leave it to the decision of SE EPPO climate zone Member States (cMS).

BAS 758 00 F effectively controlled diseases in cereals at dose rate 1,0 l/ha applied one in season, in trials presented for the SE EPPO climate zone. The dose rate 0,5 l/ha applied once in season controled most diseases effectively, but against several diseased on winter wheat performed medium effectively: SEPTTR, PYRNTR, PSDCHE.

The Applicant is proposing to allow a dose rate range of 0,5 – 1,0 l/ha of BAS 758 00 F for Hungary, Romania, Slovakia in order to adapt the application rate of the product to crop variety, crop vigour, disease pressure and the prevailing climatic conditions as potential factors that could affect the application rate. ZRMs will leave this decision to the cMSs.

The Applicant is also requesting 2 applications of the product per season (for *Oculimacula spp*. only one application), with a minimum of 14 days between applications and between growth stages 30-59. For PSDCHE application time is BBCH 30-32 of wheat.
To confirm the efficacy of BAS 758 00 F at different application dates, the Applicant has submitted an extensive package of efficacy trials, with treatments carried out at a wide range of developmental stages of crops, taking into account the different requirements of individual pathogens as to the developmental stages of plants at which they are usually infected.
Two applications may prove necessary in practice, for example, at the onset of pressure from another disease when the long-term efficacy of the first fungicide dose has come to an end.
The Applicant has not submitted trials with two applications for the SE zone. However, in several trials in the Maritime zone (in DE- 13 trials and in CZ – 1 trial, in DK – 2 trials) effectiveness of the product was evaluated after 2 applications at the dose rate 1,5 l/ha: on winter wheat (against: SEPTTR, PUCCTR, PUCCST, ERYSGR, PYRNTR) into 8 trials, on winter barley (against: PYRNTE, PUCCHD, ERYSGR, RHYNSE, RAMUCC) into 7 trials, winter triticale (PUCCST) into 1 trial.
The results in trials with two applications indicated that effectiveness of the product was prolonged as a result of the second application. The product maintained high efficacy after both 1 and 2 applications. What is more twice application of the product was safe for crops as there were no symptoms of phytotoxicity and no impact of yield, hectolitre weight of harvested grain and thousand grain weight.
The final decision on whether to allow 2 applications of the product per season based on the trials presented is up to the cMSs.

Yield (and relevant quality indicators), from efficacy trials (in the presence of challenging pest populations)

The effect of BAS 758 00 F on cereal quality was assessed by measuring yield, hectoliter weight of harvested grain and thousand grain weight (TGW) in efficacy trials. Yield was assessed as the grain yield from a known harvested area corrected to an 86% dry matter (14% of moisture). The results are expressed in deci-tonnes per hectare (dt/ha) and as a percentage of untreated plots. Thousand grain weight (TGW) was determined using an electric counter to produce 1000-grain sample lots for weighing. Results are presented as the weight of 1000 grains in grams, corrected to 86% dry matter content, and expressed as a percentage of untreated plots. Hectolitre weights were obtained in a similar manner by weighing a relevant sample size from each treatment and corrected for moisture content. Results are expressed as the weight of 100 litres of grain in kg and as a percent of untreated plots. Yield, hectoliter weight and thousand grain weight were presented separately for every crop included into this document.

Table 3.2-66: Yield effect of BAS 758 00 F in efficacy trials - Maritime and North-East zones - summary

Grouping	Number of trials	Untreated control			BAS 758 00 F 1.5 l/ha			Proline 0.8 l/ha		
		Mean dt	Mean %	Min & Max %	Mean dt	Mean %	Min & Max %	Mean dt	Mean %	Min & Max %
wheat	75	76.3	100.0	-	86.7	114.6	96.1-166.5	84.8	111.8	95.9-157.8
spelt	2	81.0	100.0	-	88.8	109.6	108.4-110.9	86.1	106.2	105.4-107.1
barley	50	70.9	100.0	-	79.6	113.3	88.1-143.1	79.4	112.9	98.1-145.6
rye	16	78.0	100.0	-	89.9	116.1	105.0-140.8	89.0	114.8	104.2-142.1
triticale	17	73.6	100.0	-	90.1	125.5	104.6-188.4	88.5	123.2	101.3-199.1

Grouping	Number of trials	Untreated control			BAS 758 00 F 1.5 l/ha			Proline 0.8 l/ha		
		Mean dt	Mean %	Min & Max %	Mean dt	Mean %	Min & Max %	Mean dt	Mean %	Min & Max %
oat	3	65.3	100.0	-	73.7	112.8	103.8-119.0	73.6	112.6	96.8-124.1

Table 3.2-67: Yield effect of BAS 758 00 F in efficacy trials - South-East zone - summary

Grouping	Number of trials	Untreated control			BAS 758 00 F 1.0 l/ha			Proline 0.8 l/ha		
		Mean dt	Mean %	Min & Max %	Mean dt	Mean %	Min & Max %	Mean dt	Mean %	Min & Max %
wheat	29	52.2	100.0	-	58.6	112.7	101.2-133.5	57.5	110.7	101.9-138.0
barley	10	47.8	100.0	-	54.5	115.7	104.3-127.2	54.0	115.0	100.8-132.4

Table 3.2-68: Hectoliter weight effect of BAS 758 00 F in efficacy trials - Maritime and North-East zones - summary

Grouping	Number of trials	Untreated control			BAS 758 00 F 1.5 l/ha			Proline 0.8 l/ha		
		Mean kg	Mean %	Min & Max %	Mean kg	Mean %	Min & Max %	Mean kg	Mean %	Min & Max %
wheat	74	73.4	100.0	-	74.7	102.0	97.8-119.1	74.4	101.4	91.8-110.8
spelt	2	74.7	100.0	-	75.2	100.6	100.2-101.1	74.9	100.2	100.0-100.4
barley	48	63.2	100.0	-	64.8	102.7	98.1-110.6	64.6	102.4	98.5-110.5
rye	15	73.6	100.0	-	74.1	100.7	98.8-104.4	74.3	100.9	98.1-103.6
triticale	17	67.5	100.0	-	69.5	103.0	98.2-109.0	69.2	102.6	98.5-108.8
oat	3	52.3	100.0	-	53.1	101.5	100.0-103.2	52.9	101.2	100.9-101.7

Table 3.2-69: Hectoliter weight effect of BAS 758 00 F in efficacy trials - South-East zone - summary

Grouping	Number of trials	Untreated control			BAS 758 00 F 1.0 l/ha			Proline 0.8 l/ha		
		Mean kg	Mean %	Min & Max %	Mean kg	Mean %	Min & Max %	Mean kg	Mean %	Min & Max %
wheat	29	72.7	100.0	-	73.9	101.8	98.3-119.9	73.5	101.3	93.5-114.2
barley	10	59.3	100.0	-	60.2	101.6	98.9-105.7	60.2	101.5	97.1-103.0

Table 3.2-70: Thousand grain weight effect of BAS 758 00 F in efficacy trials - Maritime and North-East zones - summary

Grouping	Number of trials	Untreated control			BAS 758 00 F 1.5 l/ha			Proline 0.8 l/ha		
		Mean g	Mean %	Min & Max %	Mean g	Mean %	Min & Max %	Mean g	Mean %	Min & Max %
wheat	71	39.0	100.0	-	40.9	105.5	87.3-136.3	40.2	103.5	87.1-116.4
spelt	2	33.1	100.0	-	33.3	100.7	95.7-105.7	34.5	104.3	100.0-108.7
barley	45	42.7	100.0	-	44.6	104.8	86.7-126.5	44.4	104.1	94.8-114.6

Grouping	Number of trials	Untreated control			BAS 758 00 F 1.5 l/ha			Proline 0.8 l/ha		
		Mean g	Mean %	Min & Max %	Mean g	Mean %	Min & Max %	Mean g	Mean %	Min & Max %
rye	16	30.1	100.0	-	31.0	103.0	85.9-115.1	30.4	101.3	87.4-114.7
triticale	17	36.5	100.0	-	39.7	109.8	94.6-156.7	40.0	110.6	95.7-162.8
oat	3	32.6	100.0	-	34.0	103.9	100.9-108.7	34.0	104.0	101.0-108.6

Table 3.2-71: Thousand grain weight effect of BAS 080 F in efficacy trials - South-East zones - summary

Grouping	Number of trials	Untreated control			BAS 758 00 F 1.5 l/ha			Proline 0.8 l/ha		
		Mean g	Mean %	Min & Max %	Mean g	Mean %	Min & Max %	Mean g	Mean %	Min & Max %
wheat	29	40.5	100.0	-	41.7	103.1	98.7-113.5	41.4	102.3	85.2-111.8
barley	10	42.6	100.0	-	43.3	101.7	95.9-109.1	43.4	101.8	99.7-104.7

Summary and conclusion

The above presented results confirm the claim made in the introduction that BAS 758 00 F is a highly effective fungicide, offering a great opportunity for the control of important pathogens of cereals. The active ingredients contribute towards a rapid and particularly long-lasting fungicidal action against the most important cereal pathogens.

An overall summary in Table 3.2-72 recapitulates the results organized in a different order than in the efficacy chapter. Here they are ordered first by pathogen and then within the pathogen by the target crop. The aim is to visualize that the product is similarly efficient on the same pathogens across the different crops and to support the extrapolation claims made within the efficacy chapter.

Comments of zRMS:	**Quality parameters of treated cereals in the presence of challenging pest populations** The effect of BAS 758 00 F on cereals was assessed in efficacy trials by measuring following parameters: 1. Yield- grain yield from a known harvested area corrected to 86% dry matter [dt/ha] and % of untreated plots, 2. Hectolitre weights of the harvested grains corrected to 86% dry matter presented in [kg] and % of untreated plots, 3. Thousand grain weight corrected to 86% dry matter presented in [g] and % of untreated plots **Maritime EPPO climate zone** Yield [% of untreated plots] in: • winter wheat- 118,8 (99,4 – 166,5); standard – 115,2% • winter barley – 112 (88,1 – 143,1); standard – 113,0 In one trial yield was exceptionally 88% of untreated and lower than standard – 98,1%. However no phytotoxicity symptoms were observed in this trial, and in other trials yield was higher than in the untreated control. It might be assumed that treatment with the product is not the reason of lower yield. • winter triticale – 135,9 (108,5 – 188,4); standard – 135,0 • rye – 111,2 (105,6 – 116,0); standard – 111,1

	• oats – 112,8 (103,0 – 119,0); standard – 112,6 Hectolitre weights of the harvested grains [% of untreated plots] of: • winter wheat 102,2 (97,8 – 119,1); standard – 101,7 • winter barley - 103,3 (98,5 – 110,6); standard – 102,5 • winter triticale – 103,7 (99,2 – 109,0); standard – 103,5 • rye - 100,3 (98,8 – 103,6); standard – 101,1 • oats – 101,5 (100 – 103,2); standard – 101,2 Thousand grain weight [% of untreated plots] of: • winter wheat -107,2 (87,3 – 136,3); standard – 104,5 In one trial TGW was exceptionally 87,3% of untreated but with the standard treatment TWG was similar - 87,1%. What is more no phytotoxicity symptoms were observed in this trial, and in other trials TWG was higher than in the untreated control. It might be assumed that treatment with the product is not the reason of lower TGW. • winter barley – 107,1 (100,7 – 126,5); standard – 104,5 • winter triticale - 115,7 (101,0 – 156,7); standard – 114,6 • rye - 101,2 (85,9 – 109,4); standard – 100,6 In one trial TGW was exceptionally 85,9% of untreated but with the standard treatment TWG was similar - 87,4%. What is more no phytotoxicity symptoms were observed in this trial, and in other trials TWG was higher than in the untreated control. It might be assumed that treatment with the product is not the reason of lower TGW. • oats – 103,9 (100,9 – 108,7); standard – 104,4 In the Maritime EPPO climate zone, the effect of BAS 758 00 F on cereals was assessed in trials with one and two applications on winter wheat, winter barley and winter triticale, showing no negative effect on yield treated cereals. BAS 758 00 F showed no negative impact on yield and quality parameters at dose rate 1,5 l/ha of winter wheat (39 trials), winter barley (26 trials), winter triticale (9 trials), rye (7 trials), oats (3 trials). **Evaluation of the data submitted at the commenting stage** The effect of BAS 758 00 F on spelt was assessed in efficacy trials by measuring following parameters: yield, HWG, TGW – [% of untreated plot]. Yield - the product 109,6%; the reference product – 106,2% HGW - the product 100,6%; the reference product – 100,2% TGW - the product 100,6%; the reference product – 100,2% BAS 758 00 F showed no negative impact on yield and quality parameters at dose rate 1,5 l/ha of spelt (2 trials). **NE EPPO climate zone** Yield [% of untreated plots] in: • winter wheat – 110,1 (96,1 – 149,3); standard – 108,3 • spring wheat – 110,7 (108,2 – 113,2); standard – 104,7 • winter barley – 113,4 (96,7 – 126,9); standard – 111,4 • spring barley – 114,2 (96,0 – 138,2); standard – 114,6 • winter triticale -113,9 (104,6 – 125,3); standard – 110,0 • rye – 119,9 (105,0 – 140,8) ; standard – 117,7 Hectolitre weights of the harvested grains [% of untreated plots] of: • winter wheat – 101,6 (98,6 – 108,4); standard – 101,1

	• spring wheat – 101,5 (100,5 – 102,4); standard – 100,8 • winter barley – 102,5 (99,7 – 109,0); standard – 102,7 • spring barley – 101,4 (98,1 – 107,8); standard – 101,7 • winter triticale -102,2 (98,2 – 108,0); standard – 101,5 • rye – 101,1 (99,3 – 104,4); standard – 100,7 Thousand grain weight [% of untreated plots] of: • winter wheat – 103,5 (92,9 – 124,9); standard – 102,6 • spring wheat – 107,3 (104,1 – 110,4); standard – 101,0 • winter barley – 113,4 (96,7 – 126,9); standard – 111,4 • spring barley – 102,4 (91,5 – 107,5); standard – 102,6 • winter triticale -103,1 (94,6 – 112,0); standard – 106,2 • rye – 104,4 (99,1 – 115,1); standard – 101,8 In the NE EPPO climate zone, the effect of BAS 758 00 F on cereals was not assessed in trials with two applications. Nevertheless in DE and CZ trials on winter wheat, winter barley and winter triticale BAS 758 00 F showed no negative effect on yield treated cereals. BAS 758 00 F showed no negative impact on yield and quality parameters at dose rate 1,5 l/ha of winter and spring wheat (34 + 2 trials), winter and spring barley (14 +10 trials), winter triticale (9 trials), rye (9 trials). **SE EPPO climate zone** Yield [% of untreated plots] in: • winter wheat at dose rate 0,5 l/ha- 108,5 (100,7 – 122,7); standard – 110,7 • winter wheat at dose rate 1,0 l/ha- 112,7 (101,2 – 133,5); standard – 110,7 • winter barley at dose rate 0,5 l/ha- 113,8 (102,2 – 126,5); standard – 115,0 • winter barley at dose rate 1,0 l/ha- 115,7 (104,3 – 127,2); standard – 115,0 Hectolitre weights of the harvested grains [% of untreated plots] of: • winter wheat at dose rate 0,5 l/ha- 101,5 (97,8 – 114,1); standard – 101,3 • winter wheat at dose rate 1,0 l/ha- 101,8 (98,3 – 119,9); standard – 101,3 • winter barley at dose rate 0,5 l/ha- 101,1 (98,5 – 103,3); standard – 101,5 • winter barley at dose rate 1,0 l/ha- 101,6 (98,9 – 105,7); standard – 101,5 Thousand grain weight [% of untreated plots] of: • winter wheat at dose rate 0,5 l/ha- 102,0 (94,7 – 107,4); standard – 102,3 • winter wheat at dose rate 1,0 l/ha- 103,1 (98,7 – 113,5); standard – 102,3 • winter barley at dose rate 0,5 l/ha- 101,3 (96,9 – 104,1); standard – 101,8 • winter barley at dose rate 1,0 l/ha- 101,7 (95,9 – 104,7); standard – 101,8 In the SE EPPO climate zone, the effect of BAS 758 00 F on cereals was not assessed in trials with two applications. It is up to cMS to decide whether data from the Maritime EPPO climate zone may be acceptable to confirm the lack of negative effect on cereals with two applications of the product.

	BAS 758 00 F showed no negative impact on yield and quality parameters at dose rates 0,5 l/ha and 1,0 l/ha of winter wheat (29 trials), winter barley (10 trials).

Table 3.2-72: Efficacy summary

Disease	Crop	EPPO Zone	No. of trials		Untreated	BAS 758 00 F			Standard
						0.5 L/ha	1.0 L/ha	1.5 L/ha	
SEPTTR/SEPTSP	**Wheat**	**Maritime**	**n = 21**	mean	37.9	-	-	87.3	72.6
				(min-max)	7.2-100.0	-	-	78.1-100.0	29.2-100.0
		North East	**n = 17**	mean	15.4	-	-	89.7	79.8
				(min-max)	5.6-42.2	-	-	77.6-100.0	50.2-100.0
		All zones	**n = 38**	mean	27.8	-	-	88.4	75.8
				(min-max)	5.6-100.0	-	-	77.6-100.0	29.2-100.0
		South East	**n = 10**	mean	10.1	77.2	91.2	-	85.0
				(min-max)	7.5-14.1	62.0-93.1	83.0-100.0	-	76.6-100.0
	Triticale	**Maritime**	**n = 5**	mean	22.3	-	-	90.3	82.4
				(min-max)	8.5-38.3	-	-	74.5-97.5	43.6-100.0
		North East	**n = 7**	mean	15.5	-	-	87.6	86.6
				(min-max)	6.0-23.3	-	-	70.5-100.0	68.5-100.0
		All zones	**n = 12**	mean	17.8	-	-	88.7	84.8
				(min-max)	6.0-38.3	-	-	70.5-100.0	43.6-100.0
PUCCRT/PCCRE/ PUCCHD	**Wheat**	**Maritime**	**n = 11**	mean	35.8	-	-	93.7	63.4
				(min-max)	5.3-100.0	-	-	79.2-100.0	25.0-89.2
		North East	**n = 12**	mean	15.0	-	-	95.2	86.7
				(min-max)	5.6-34.8	-	-	87.7-100.0	64.6-100.0
		All zones	**n = 23**	mean	25.0	-	-	94.5	75.6
				(min-max)	5.3-100.0	-	-	79.2-100.0	25.0-100.0
		South East	**n = 10**	mean	16.7	88.5	94.6	-	89.3
				(min-max)	5.9-32.3	82.3-98.0	89.4-100.0	-	85.2-96.0
	Barley	**Maritime**	**n = 9**	mean	17.7	-	-	92.6	86.3
				(min-max)	5.0-54.0	-	-	81.7-100.0	64.7-100.0
		North East winter	**n = 10**	mean	20.5	-	-	94.5	94.1
				(min-max)	6.4-38.0	-	-	85.5-100.0	87.0-100.0
		North East spring	**n = 3**	mean	12.0	-	-	94.0	92.2
				(min-max)	8.5-14.1	-	-	88.2-99.3	88.2-96.3
		All zones	**n = 22**	mean	18.2	-	-	93.6	90.6
				(min-max)	5.0-54.0	-	-	81.7-100.0	64.7-100.0
		South East	**n = 3**	mean	11.0	93.5	96.4	-	92.0
				(min-max)	6.5-19.5	91.8-96.4	94.7-98.0	-	90.5-93.4
	Triticale	**Maritime**	**n = 3**	mean	19.3	-	-	92.4	74.7
				(min-max)	13.0-30.5	-	-	83.6-99.4	27.8-98.7
		North East	**n = 4**	mean	15.5	-	-	92.1	83.6
				(min-max)	7.1-28.5	-	-	88.9-99.6	64.7-99.1
		All zones	**n = 7**	mean	17.2	-	-	92.2	79.8
				(min-max)	7.1-30.5	-	-	83.6-99.6	27.8-99.1
	Rye	**Maritime**	**n = 6**	mean	18.9	-	-	91.2	93.0
				(min-max)	5.5-50.8	-	-	79.7-100.0	89.0-100.0
		North East	**n = 7**	mean	18.7	-	-	90.1	92.4
				(min-max)	5.8-36.9	-	-	80.0-100.0	78.7-99.1
		All zones	**n = 13**	mean	18.8	-	-	90.6	92.7
				(min-max)	5.5-50.8	-	-	79.7-100.0	78.7-100.0
PUCCST	**Wheat**	**Maritime**	**n = 13**	mean	25.1	-	-	94.7	91.1
				(min-max)	5.3-50.4	-	-	84.4-100.0	68.5-100.0

Disease	Crop	EPPO Zone	No. of trials		Untreated	BAS 758 00 F 0.5 L/ha	BAS 758 00 F 1.0 L/ha	BAS 758 00 F 1.5 L/ha	Standard
		North East TRZAW	**n = 6**	mean	10.5	-	-	95.3	96.3
				(min-max)	5.9-16.6	-	-	79.3-100.0	88.5-100.0
		North East TRZAS	**n = 1**	mean	7.6	-	-	87.5	83.8
				(min-max)	-	-	-	-	-
		All zones	**n = 20**	mean	19.9	-	-	94.5	92.4
				(min-max)	5.3-50.4	-	-	79.3-100.0	68.5-100.0
		South East	**n = 1**	mean	93.8	97.1	98.1	-	94.5
				(min-max)	-	-	-	-	-
	Spelt	**Maritime**	**n=2**	mean	8.3	-	-	100.0	99.3
				(min-max)	6.6-10.0	-	-	-	98.7-100.0
	Triticale	**Maritime**	**n = 7**	mean	33.9	-	-	96.6	93.2
				(min-max)	13.4-90.0	-	-	87.0-100.0	69.9-100.0
		North East	**n = 1**	mean	36.3	-	-	75.2	90.3
				(min-max)	-	-	-	-	-
		All zones	**n = 8**	mean	34.2	-	-	93.9	92.9
				(min-max)	13.4-90.0	-	-	75.2-100.0	69.9-100.0
PUCCO	**Oats**	**Maritime**	**n = 2**	mean	15.8	-	-	85.6	84.1
				(min-max)	7.1-24.4	-	-	74.2-97.0	79.8-88.4
PYRNTR	**Wheat**	**Maritime**	**n = 7**	mean	17.5	-	-	87.5	82.1
				(min-max)	4.3-50.0	-	-	64.1-100.0	57.0-100.0
		North East TRZAW	**n = 7**	mean	12.8	-	-	87.5	79.7
				(min-max)	5.9-25.3	-	-	75.7-100.0	57.7-100.0
		North East TRZAS	**n = 2**	mean	18.8	-	-	82.4	81.6
				(min-max)	16.6-20.9	-	-	80.0-84.8	71.3-91.8
		All zones	**n = 16**	mean	15.6	-	-	86.9	81.0
				(min-max)	4.3-50.0	-	-	64.1-100.0	57.0-100.0
		South East	**n = 7**	mean	12.5	78.2	85.8	-	78.9
				(min-max)	5.0-54.7	69.5-94.0	75.0-93.1	-	66.2-96.6
PSDCHE	**Wheat**	**Maritime**	**n = 11**	mean	23.3	-	-	76.4	66.1
				(min-max)	8.5-48.0	-	-	55.7-100.0	21.3-85.9
		North East	**n = 8**	mean	26.3	-	-	79.8	72.3
				(min-max)	18.1-35.3	-	-	65.8-90.2	29.5-92.2
		All zones	**n = 19**	mean	24.6	-	-	77.8	68.7
				(min-max)	8.5-48.0	-	-	55.7-100.0	21.3-92.2
		South East	**n = 5**	mean	23.5	67.2	80.8	-	77.3
				(min-max)	7.3-39.5	48.0-90.5	65.2-100.0	-	65.5-100.0
ERYSGR	**Wheat**	**Maritime**	**n = 7**	mean	19.8	-	-	87.8	63.4
				(min-max)	5.0-75.0	-	-	79.6-98.0	0.0-92.6
		North East	**n = 9**	mean	6.7	-	-	86.4	86.2
				(min-max)	5.0-11.0	-	-	75.5-93.3	65.2-100.0
		All zones	**n = 16**	mean	12.4	-	-	87.0	76.2
				(min-max)	5.0-75.0	-	-	75.5-98.0	0.0-100.0
		South East	**n = 6**	mean	10.0	81.8	91.3	-	85.6
				(min-max)	5.5-16.5	46.8-98.0	80.8-100.0	-	63.3-100.0
	Barley	**Maritime**	**n = 4**	mean	15.6	-	-	89.5	87.6
				(min-max)	7.0-28.8	-	-	81.4-99.1	69.8-100.0
		North East HORVW	**n = 3**	mean	6.2	-	-	89.5	89.5
				(min-max)	5.2-8.0	-	-	81.6-100.0	77.7-100.0
		North East HORVS	**n = 1**	mean	11.6	-	-	86.0	75.3
				(min-max)	-	-	-	-	-
		All zones	**n = 6**	mean	13.2	-	-	87.6	83.9
				(min-max)	5.2-28.8	-	-	81.4-99.1	69.8-100.0
		South East	**n = 6**	mean	24.1	80.2	86.9	-	82.0
				(min-max)	8.2-42.5	66.6-95.2	74.3-98.5	-	69.7-91.9

Disease	Crop	EPPO Zone	No. of trials		Untreated	BAS 758 00 F 0.5 L/ha	BAS 758 00 F 1.0 L/ha	BAS 758 00 F 1.5 L/ha	Standard
	Triticale	**Maritime**	**n = 4**	mean	9.8	-	-	85.4	79.1
				(min-max)	4.5-16.8	-	-	72.2-94.4	61.3-92.1
		North East	**n = 2**	mean	27.1	-	-	82.4	82.5
				(min-max)	11.8-42.5	-	-	81.9-82.9	74.5-90.6
		All zones	**n = 6**	mean	15.6	-	-	84.4	80.3
				(min-max)	4.5-42.5	-	-	72.2-94.4	61.3-92.1
	Oats	**Maritime**	**n = 3**	mean	15.8	-	-	95.7	94.0
				(min-max)	10.1-19.8	-	-	90.1-100.0	87.8-100.0
PYRNTE	**Barley**	**Maritime**	**n = 11**	mean	24.8	-	-	89.9	76.9
				(min-max)	6.5-68.8	-	-	79.5-100.0	60.9-100.0
		North East HORVW	**n = 11**	mean	8.7	-	-	91.6	88.8
				(min-max)	4.5-16.3	-	-	76.3-100.0	70.3-100.0
		North East HORVS	**n = 6**	mean	26.6	-	-	91.1	85.3
				(min-max)	6.5-75.0	-	-	77.8-100.0	66.6-98.4
		All zones	**n = 28**	mean	18.9	-	-	90.8	83.4
				(min-max)	4.5-75.0	-	-	76.3-100.0	60.9-100.0
		South East	**n = 7**	mean	13.8	85.9	92.2	-	84.8
				(min-max)	6.0-29.8	72.7-95.7	85.9-100.0	-	44.2-98.2
RHYNSE	**Barley**	**Maritime**	**n = 7**	mean	40.8	-	-	82.5	89.8
				(min-max)	5.5-91.0	-	-	64.8-100.0	53.3-100.0
		North East HORVW	**n = 8**	mean	8.3	-	-	92.0	89.5
				(min-max)	5.0-17.4	-	-	78.7-100.0	74.8-100.0
		North East HORVS	**n = 1**	mean	7.3	-	-	94.8	93.1
				(min-max)	-	-	-	-	-
		All zones	**n =14**	mean	24.3	-	-	87.8	90.2
				(min-max)	5.0-91.0	-	-	64.8-100.0	53.3-100.0
	Rye	**Maritime**	**n = 3**	mean	24.5	-	-	64.7	81.7
				(min-max)	8.5-41.3	-	-	57.4-75.0	64.7-91.2
		North East	**n = 6**	mean	16.7	-	-	84.3	77.5
				(min-max)	6.0-33.8	-	-	71.6-100.0	52.8-97.4
		All zones	**n = 9**	mean	19.3	-	-	77.8	78.9
				(min-max)	6.0-41.3	-	-	57.4-100.0	52.8-97.4
RAMUCC	**Barley**	**Maritime**	**n = 12**	mean	43.5	-	-	87.8	82.9
				(min-max)	5.0-98.6	-	-	71.1-100.0	61.6-100.0
		North East	**n = 2**	mean	8.5	-	-	88.6	88.6
				(min-max)	8.2-8.8	-	-	77.1-100.0	77.1-100.0
		All zones	**n = 14**	mean	38.5	-	-	87.8	83.7
				(min-max)	5.0-98.6	-	-	71.1-100.0	61.6-100.0

Yield, hectolitre weight and thousand grain weight were presented separately for every crop included into this document. In efficacy trials treated with BAS 758 00 F no negative impact on these parameters were seen. In the majority of the trials instead positive impact on yield, hectolitre weight and thousand grain weight was seen.

3.3 Information on the occurrence or possible occurrence of the development of resistance (KCP 6.3)

BAS 758 00 F (66.7 g a.i. mefentrifluconazole + 100 g metrafenone + 80 g pyraclostrobin per litre EC formulation) is intended for control of the following diseases.
In wheat it is intended for control of powdery mildew (*Blumeria graminis* f.sp. *tritici*), Septoria leaf blotch (*Zymoseptoria tritici*), brown rust (*Puccinia triticina*), yellow rust (*Puccinia striiformis*), tan spot (*Pyrenophora tritici-repentis*) and eyespot (*Oculimacula yallundae* and *Oculimacula acuformis*).
In barley it is intended for control of powdery mildew (*Blumeria graminis* f.sp. *hordei*), net blotch *(Pyrenophora teres),* leaf scald *(Rhynchosporium secalis*), Ramularia leaf spot *(Ramularia collo-cygni)* and leaf rust (*Puccinia hordei*).
In rye it is intended for control of powdery mildew (*Blumeria graminis* f.sp. *secalis*), leaf scald (*Rhynchosporium secalis*), leaf rust (*Puccinia recondita*) and eyespot (*Oculimacula yallundae and Oculimacula acuformis*).
In triticale it is intended for control of powdery mildew, Septoria leaf and glume blotch (*Zymoseptoria tritici* and *Parastagonospora nodorum*), rusts (*Puccinia recondita* and *Puccinia striiformis*).
In oat it is intended for control of *P. coronata* and *E. graminis*.

Mode of action

Mefentrifluconazole is a fungicide belonging to the group of the sterol biosynthesis inhibitors (SBI, mode of action class G) according to the classification of the Fungicide Resistance Action Committee (FRAC). Within the SBIs, it belongs to the subgroup of demethylation inhibitors (DMI, G1, FRAC 2021) and the chemical group of triazoles.
The primary mode of action of DMIs is the blocking of ergosterol biosynthesis through inhibition of cytochrome P450 sterol 14α-demethylase (cyp51). The depletion of ergosterol and accumulation of non-functional 14α-methyl sterols results in inhibition of growth and cell membrane disruption.
Mefentrifluconazole is the first isopropanol azole: the triazole ‘head’ sits on the ‘neck’ of a slim isopropanol linker. This chemical constellation ensures a high degree of structural flexibility that is unique among the DMIs. This slim linker requires less energy to adjust compared to conventional DMIs. When mefentrifluconazole approaches the active site of its target enzyme, the flexible linker allows it to form a hook, which fits into the enzyme’s binding pocket, resulting in strong inhibition of enzyme activity. This might explain the high intrinsic activity of mefentrifluconazole on the target enzyme, which has been shown in studies with the cyp51 of *Zymoseptoria tritici* in comparison with other DMIs (Figure 3.3-1).

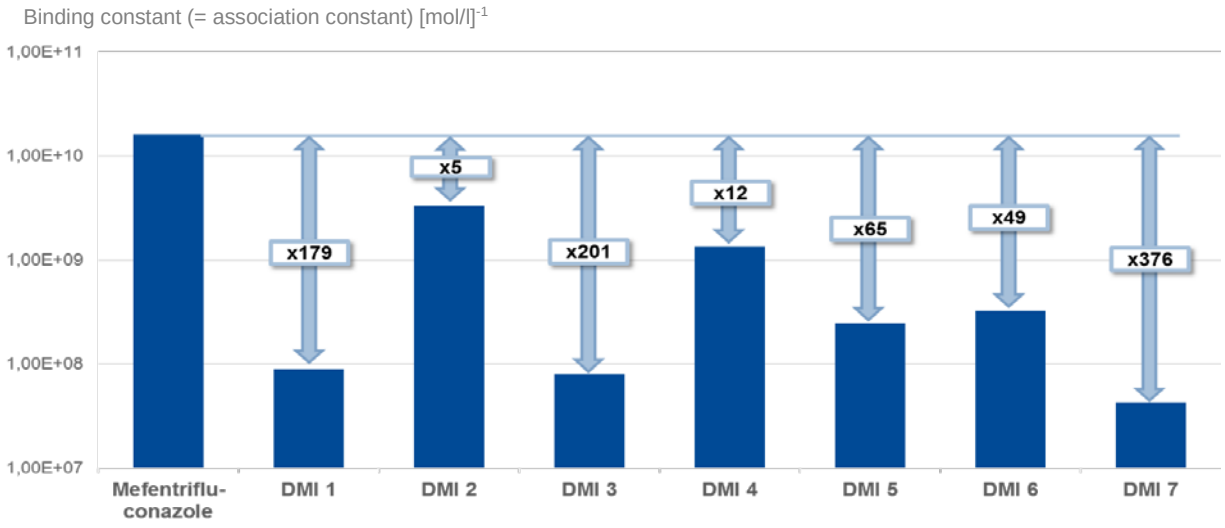


Figure 3.3-1: Binding constant (= association constant) of mefentrifluconazole and different DMIs [mol/l]$^{-1}$ on the cytochrome P450 sterol 14α-demethylase (CYP51). The binding constant describes the affinity between

a compound and its target. The higher the value, the stronger is the binding. Detailed method description is shown in the chapter "Test Methods".

Metrafenone is classified chemically as a benzophenone and has been the first fungicide active ingredient within this group to be developed. The mode of action of the fungicide metrafenone has been analysed on the powdery mildew fungi of barley (*Blumeria graminis* f. sp. *hordei*) and wheat (*Blumeria graminis* f. sp. *tritici*) on the morphological and cytological level. Preventative treatments with metrafenone reduce spore germination and block development beyond formation of appressoria, which penetrate less often. Additionally, metrafenone affects fungal survival by causing swelling, bursting and collapse of hyphal tips resulting in the release of globules of cytoplasm. Bifurcation of hyphal tips, secondary appressoria and hyperbranching were also frequently observed (Opalski *et al.* 2006). A histochemical analysis showed that metrafenone causes disruption of the apical actin cap and apical vesicle transport as well as weakening of the cell wall at hyphal tips. Finally, metrafenone strongly reduces sporulation. Reduced sporulation is associated with malformation of conidiophores that show irregular septation, multinucleate cells and delocalization of actin. Microtubules seem to be only secondarily affected in metrafenone-treated *Blumeria graminis*. The results suggest that the mode of action of metrafenone interferes with hyphal morphogenesis, polarized hyphal growth, and establishment and maintenance of cell polarity. Metrafenone likely disturbs a pathway regulating organization of the actin cytoskeleton. Therefore, it is classified by FRAC in the Mode of Action Group B, Cytoskeleton and Motor Proteins and within this class in B6 actin/myosin/fimbrin function and has the FRAC code 50 (aryl-phenyl-ketones).

Pyraclostrobin: According to the classification of FRAC, pyraclostrobin belongs to the Mode of Action Group C (Respiration) and to the subgroup C3 (inhibition of complex III) with the target site cytochrome *bc*1 at QoI site and the FRAC code 11 with the group name QoI fungicides (Quinone outside inhibitors). The mode of action of QoI fungicides is the inhibition of mitochondrial respiration resulting from a blockage of the electron transport from ubihydroquinone to cytochrome *c* by means of a binding to the ubihydroquinone oxidation centre (Qo) of the cytochrome bc_1 complex (Complex III). This leads to a reduction of energy-rich ATP that is available to support a range of essential processes in the fungal cell.

Mechanism of resistance

Mefentrifluconazole: Three major mechanisms are associated with changes in DMI-sensitivity:
Mutations in the target gene (cyp51), as described e.g. for *Zymoseptoria tritici* (Leroux *et al.* 2006, Stammler *et al.* 2008, Huf *et al.* 2018), *Puccinia triticina* (Stammler *et al.* 2009) and *Phakopsora pachyrhizi* (Schmitz et al. 2014).
Overexpression of the target protein, as described e.g. for *Zymoseptoria tritici* (Cools *et al.* 2012), *Phakopsora pachyrhizi* (Schmitz *et al.* 2014), *Blumeriella jaapii* (Ma *et al.* 2006), *Puccinia triticina* (Stammler *et al.* 2009) and *Venturia inaequalis* (Schnabel and Jones 2001).
Reduced intracellular accumulation of DMIs by overexpression of efflux-pumps, as described e.g. for *Zymoseptoria tritici* (Leroux and Walker 2011) and *Botrytis cinerea* (Kretschmer *et al.* 2009, Grabke and Stammler 2015).

Various mutations in the target gene have different effects on different DMIs (Fraaije *et al.* 2007, Stammler *et al.* 2008, Huf *et al.* 2018, 2020). Target gene mutations might be combined and accumulate and can result in higher levels of resistance (Cools and Fraaije 2013, Huf *et al.* 2020). In addition, target site overexpression and/or enhanced efflux can also be found simultaneously in isolates (Stammler and Semar 2011, Cools and Fraaije 2013, Strobel *et al.* 2014, Huf *et al.* 2020). The accumulation of different resistance mechanisms results in a quantitative (directional) type of resistance and changes in the sensitivity of a population are gradual.

Metrafenone: The mechanism of resistance to metrafenone is not fully elucidated. Isolates of *Blumeria graminis* f.sp. *tritici* with sensitivities outside the baseline have been firstly detected in the 2008 sensitivity monitoring studies. Most of such isolates were classified as moderately adapted and are still inhibited with registered field rates of metrafenone in glasshouse tests. Single isolates were identified to be resistant, which were not fully inhibited at registered rates (Felsenstein *et al.* 2010). This indicates that two phenotypes with two different mechanisms may be expressed. Sequence analysis of the actin gene in such

isolates did not show any mutations compared with metrafenone sensitive isolates.

Pyraclostrobin: There is evidence from studies with other inhibitors of the bc1 complex on the mechanism of resistance with baker's yeast (di Rago *et al.* 1989) and several non-pathogenic fungi (Kraiczy *et al.* 1996) that various target site mutations can lead to amino acid substitutions within the cytochrome b protein and that these changes can prevent the binding of a range of mitochondrial electron transport inhibitors to the cytochrome b protein. The main target site mutation in plant pathogens is the exchange from glycine to alanine at amino acid position 143 of the cytochrome b. This G143A mutation leads to high levels of resistance.
It is interesting to note that some fungal species do not show this mutation even after more than 20 years of intensive control by QoI fungicides, e.g. different rust species (*Puccinia* spp.), *Pyrenophora teres*, *Monilinia laxa*, *Monilinia fructicola*, *Guignardia bidwellii* and *Alternaria solani*. For these species this is connected with the presence of an intron (encoding a maturase, BASF internal studies) starting within or directly after the codon 143 (Grasso *et al.* 2006, Miessner and Stammler 2010, Miessner *et al.* 2011, Stammler *et al.* 2006). It is assumed that a mutation from a glycine- to an alanine-codon would lead to an incorrect splicing and consequently to a non-functional cytochrome b (Grasso *et al.* 2006).
A mutation at codon 129, which leads to the substitution of phenylalanine by leucine (F129L) is described for some of these "intron" species (e.g. *Pyrenophora teres* and *Alternaria solani*, Stammler *et al.* 2006, Pasche *et al.* 2005). The mutation F129L results generally in lower resistance factors (FRAC 2021, Semar *et al.* 2007).
Another mutation, the G137R has been rarely found in *Pyrenophora teres* and *Pyrenophora tritici-repentis* (BASF internal studies) and plays obviously only a minor role in the sensitivity response to QoI fungicides (FRAC 2021). Internal studies indicate that this mutation is connected with fitness penalties.
For the target pathogens in this resistance risk analysis an intron after the G143A is present in all *Puccinia* species and in *Pyrenophora teres* (Grasso *et al.* 2006, Stammler *et al.* 2006).

Evidence of resistance

Mefentrifluconazole: Some pathogens have shown a shift towards lower sensitivity in the period since DMI introduction. For most plant pathogenic fungi, the situation has stabilized after a period of adaptation (FRAC 2021).
European DMI sensitivity monitoring has been intensified for *Zymoseptoria tritici* since 2003, the year of the spreading of QoI resistance in this pathogen in Europe. A shift to a reduced sensitivity towards different DMIs has been determined with isolates taken from the most important cereal-growing regions in Europe (FRAC 2021, Strobel *et al*. 2014). Similar reports on stable sensitivity situations exist for *Puccinia triticina* (FRAC 2021, Stammler *et al*. 2009) and other *Puccinia* species (FRAC 2021), *Rhynchosporium secalis* (FRAC 2021), *Pyrenophora teres* (FRAC 2021), *Blumeria graminis* f.sp. *tritici* and *Blumeria graminis* f.sp. *hordei* (FRAC 2021).
Mutations and combinations of mutations in the target gene and to a lesser extent also enhanced efflux and target protein overexpression can be linked to the sensitivity changes observed (Cools and Fraaije 2013, Huf *et al.* 2020).
Isolates of *Zymoseptoria tritici* belonging to different cyp51-haplotypes showed variation in their sensitivity response to different DMIs, that means, correlation of sensitivity between various DMIs can be low or even negative (Stammler and Semar 2011). This is confirmed by frequency analyses of cyp51-haplotypes in the field after various DMI applications, which showed that DMIs select cyp51-haplotypes differently (Fraaije *et al.* 2007, Stammler *et al.* 2008). This is especially the case for mefentrifluconazole, which is highly active on many strains of *Zymoseptoria tritici*, which show lower sensitivity to other DMIs.

Hypothesis why mefentrifluconazole provides high efficacy on DMI shifted strains
Mutations in the cyp51 gene cause alterations of the binding site, often the binding site is widened, which affects the binding of conventional DMIs. The mefentrifluconazole molecule is more flexible in its structure than other DMIs and might therefore be able to bind even if the binding pocket shape is altered (Strobel *et al.* 2020). This flexibility comes from the fact that the triazole 'head' sits on the 'neck' of a slim isopropanol linker. This chemical constellation ensures a high degree of structural flexibility that is

unique among the DMIs (Figure 3.3-2). This slim linker requires less energy to adjust compared to conventional DMIs. When mefentrifluconazole approaches the active site of the target enzyme C14-demethylase (cyp51), the flexible linker allows it to easily form a “hook”, which fits perfectly into the enzyme’s binding pocket, resulting in strong inhibition of enzyme activity. It easily adapts to different shapes and sizes of binding pockets caused by various target site mutations (Figure 3.3-3).

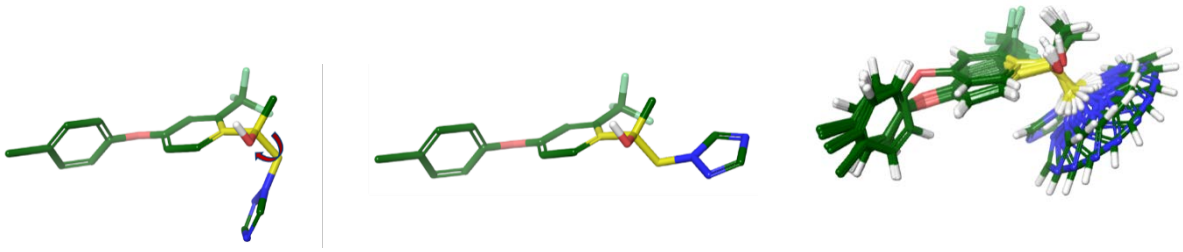


Figure 3.3-2: Flexibility of the mefentrifluconazole molecule

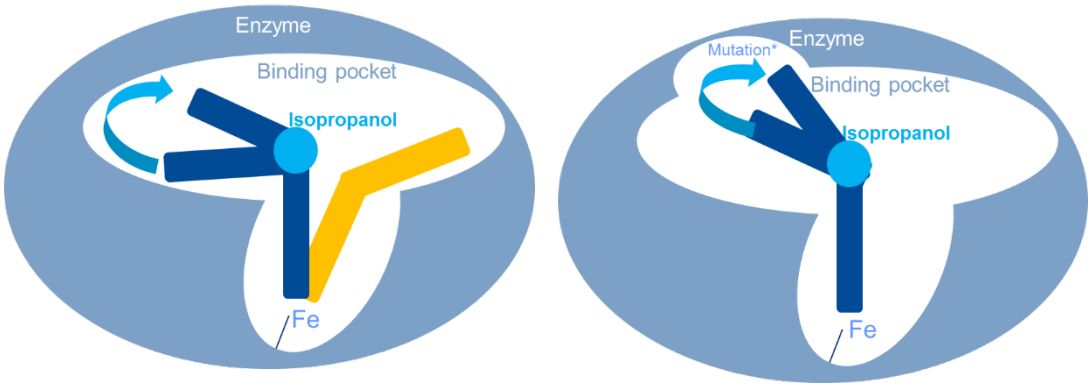


Figure 3.3-3: Adaption of mefentrifluconazole in a wildtype (left) and a mutated binding pocket (right), schematic. Blue: mefentrifluconazole, yellow: other DMI. The heme iron (Fe) of the cytochrome P450 is the major binding partner for the triazole ring of DMI fungicides.

Metrafenone: First evidence of resistance came from sensitivity monitoring studies on *Blumeria graminis* f.sp. *tritici* in 2008 (Felsenstein *et al.* 2010, Stammler *et al.* 2014). In the following years monitoring was intensified and airborne isolates were randomly collected in different regions of the most important European cereal growing regions. The sensitivities of the majority of the isolates were comparable to the baseline sensitivity, which was determined in 2000 before market launch of the compound. Three different sensitivity phenotypes were identified for wheat powdery mildew (Figure 3.3-4), those with wild type sensitivity (EC_{50} <0.02 mgl^{-1}), moderately adapted isolates (EC_{50}=0.1-0.5 mgl^{-1}) and resistant isolates (EC_{50}>10 mgl^{-1}). Sensitive reference isolates were completely inhibited at 1/3 of the registered dose rate at any application time point (2 days preventive as well as 2 days curative treatment scheme) and also moderately adapted strains were controlled well at full rate in any trial lay-out. A strain classified as resistant showed a decreased response to increasing fungicide concentrations and was not completely controlled even at high dose rates (Figure 3.3-5).

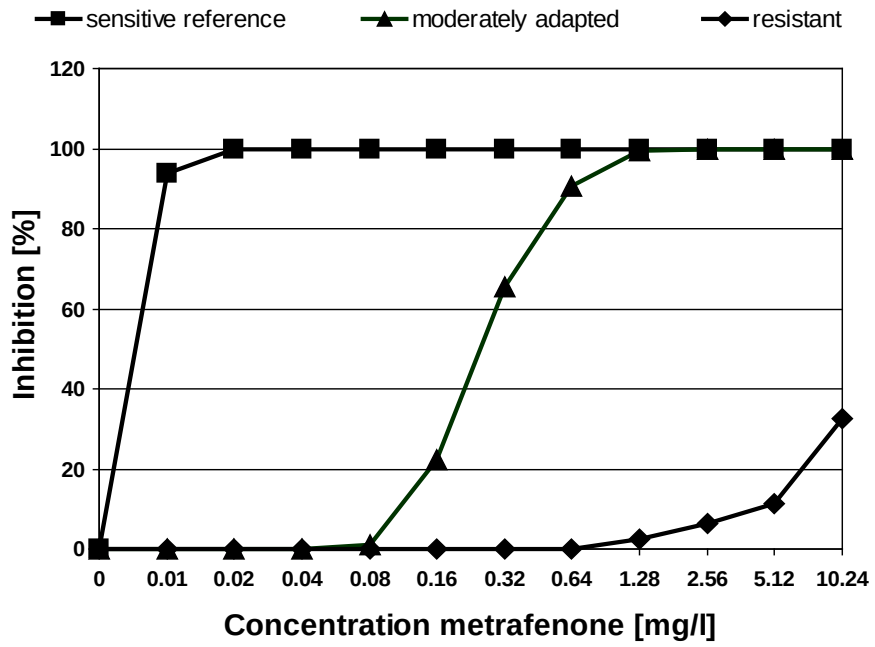


Figure 3.3-4: Inhibition curves of a sensitive, moderately adapted and resistant isolate of wheat powdery mildew in detached leaf assay.

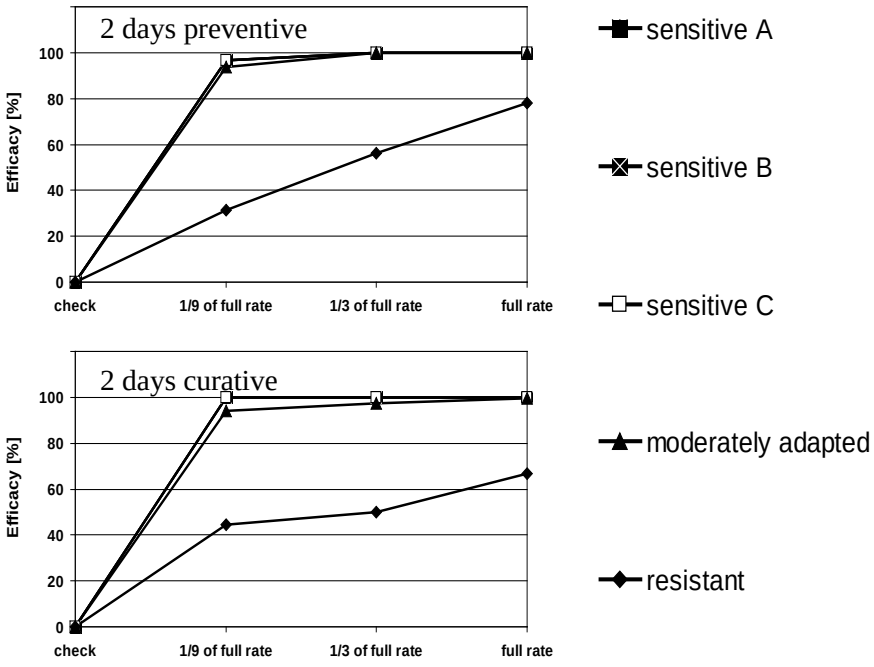


Figure 3.3-5. Preventive and curative activity of metrafenone on isolates of wheat powdery mildew with different sensitivities to metrafenone. Three sensitive isolates (labeled with squares), 1 moderately adapted isolate (triangle) and 1 resistant isolate (rhombus) were included. All three sensitive isolates were nearly completely inhibited at lowest concentration and share therefore the same lines.

Spores from a 3-day curative trial derived from lesions of untreated leaves and from leaves treated with 1/9 rate (for sensitive isolates) or 1/3 rate (for moderately adapted isolates and resistant isolate) were used as inoculum to investigate the viability of spores from treated leaves. The results indicate that the spores from treated leaves infected with the sensitive and moderately adapted isolates cannot infect untreated leaves, while spores from treated leaves infected with the resistant isolate are able to infect untreated

leaves (Table 3.3-1).

Table 3.3-1. Capability of infection of spores from different isolates taken from metrafenone treated leaves. Spores of sensitive and moderately adapted isolates from treated leaves were not able to infect untreated leaves. Spores of a resistant isolate from treated leaves infected untreated leaves. Spores of all isolates from untreated leaves infected untreated leaves (+ = spores infected untreated leaves, - = spores did not infect untreated leaves).

Origin of spores	Sensitive isolate	Moderately adapted isolate	Resistant isolate
Spores from untreated leaves	+	+	+
Spores from treated leaves*	-	-	+

* Spores taken from 1/9 reg. rate for sensitive and 1/3 reg. rate for moderately adapted and resistant isolate.

Competition trials, where sensitive, moderately adapted and resistant isolates were mixed in various constellations and grown for several cycles on untreated wheat leaves, showed that the sensitive isolates dominated after several transfers in mixtures with moderately adapted or resistant isolates (Figure 3.3-6). These data indicate fitness penalties for the moderately adapted and resistant phenotypes.

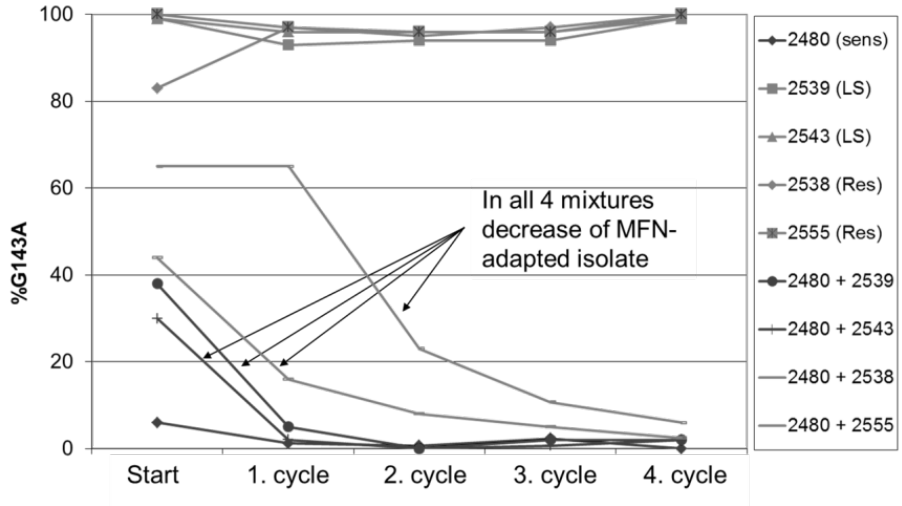


Figure 3.3-6: Competitive growth of sensitive (2480), moderately adapted (2539 or 2543) and resistant (2538 or 2555) isolates on untreated leaves for 4 cycles. Moderately adapted and resistant isolates contained G143A in cytochrome *b*, which was used as marker and detected by qPCR. "Start"= initial suspension value. Curves show high values for single isolates 2539, 2543, 2538 and 2555. Four curves of the mixtures 2480+2538, 2480+2555, 2480+2539 and 2480+2538 showed decreasing tendency (MFN = metrafenone). Curve at the bottom represents the sensitive isolate without G143A mutation.

Pyraclostrobin: The evidence of resistance to QoIs comes from cases of field resistance shown by different plant pathogens. The pathogens have been isolated and found to be resistant to high concentrations of QoIs indicating a disruptive (single step) resistance (FRAC 2021).
The G143A mutation in the cytochrome *b* gene has been detected in several plant pathogenic fungi, including the target pathogens *Blumeria graminis*, *Zymoseptoria tritici*, *Parastagonospora nodorum*, *Pyrenophora tritici-repentis and Ramularia collo-cygni* of this resistance risk analysis, but not in *Puccinia* species or *Pyrenophora teres*. Only single cases are known for *Rhynchosporium secalis* from the last years monitoring's (FRAC 2021).
The mutation F129L has been found in *Pyrenophora teres* and *Pyrenophora tritici-repentis* and in these two pathogens also – but rarely - the mutation G137R (BASF internal studies, FRAC 2021).
An actual list of plant pathogenic fungi where QoI resistance has been detected can be found on the FRAC webpage.

Cross resistance

Mefentrifluconazole: There are a lot of studies available on the sensitivity of plant pathogens, namely *Zymoseptoria tritici* towards DMIs. These studies indicated that a clear statement on DMI cross resistance is not possible. There are DMIs which show a good correlation for the sensitivity in *Zymoseptoria tritici*, but correlations for others are low, especially when sensitivities of imidazoles and triazoles are correlated. Obviously, there are mechanisms which might affect all DMIs to a more or lesser level, such as target site (cyp51) overexpression, enhanced efflux or some target site mutations. It has been shown for *Zymoseptoria tritici* in various studies that some target site mutations are more selective to the one than to another DMI. While cyp51-haplotypes containing I381V have higher EC_{50} values to some triazoles, such as tebuconazole and metconazole, EC_{50} values for prochloraz are on the wild type level or even lower (at least for the cyp51-haplotypes, where I381V is not combined with V136A and/or S524T, Leroux *et al.* 2011, Stammler e*t al.* 2008).

For mefentrifluconazole, this low correlation of sensitivity between DMIs is even more pronounced (Strobel *et al.* 2020). This is described in Figure 3.3-7, where sensitivity correlations of mefentrifluconazole and epoxiconazole and desthio-prothioconazole, respectively, are shown. The low correlation coefficients (R^2) indicate a low correlation with the sensitivity to other DMIs. Figure 3.3-8 shows that the current adaptation of *Z. tritici*, determined as EC_{50}, is in a smaller range for mefentrifluconazole than for other DMIs.

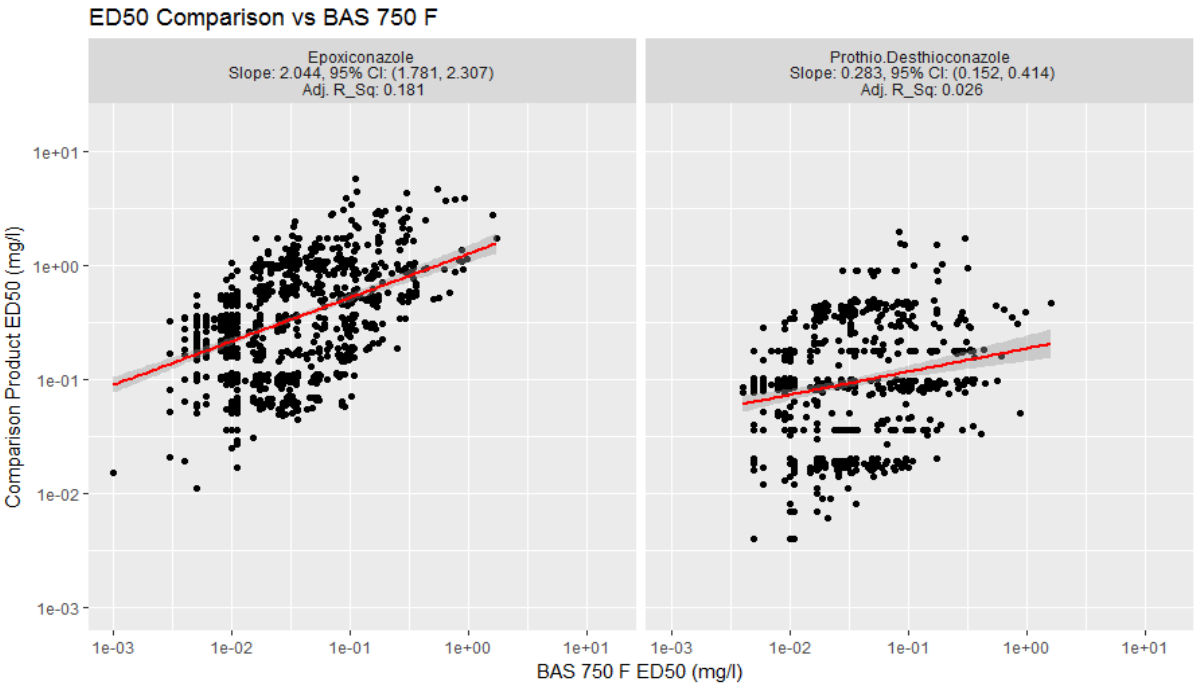


Figure 3.3-7: Correlation of the mefentrifluconazole sensitivity of *Zymoseptoria tritici* to epoxiconazole and desthio-prothioconazole, determined by microtiter assays (BASF, unpublished studies). R^2 (Adj. R_Sq) are 0.181 and 0.026 for epoxiconazole and desthio-prothioconazole, respectively. Desthio-prothioconazole was used instead of prothioconazole due to its' recognized role in disease control (Parker *et al.* 2013).

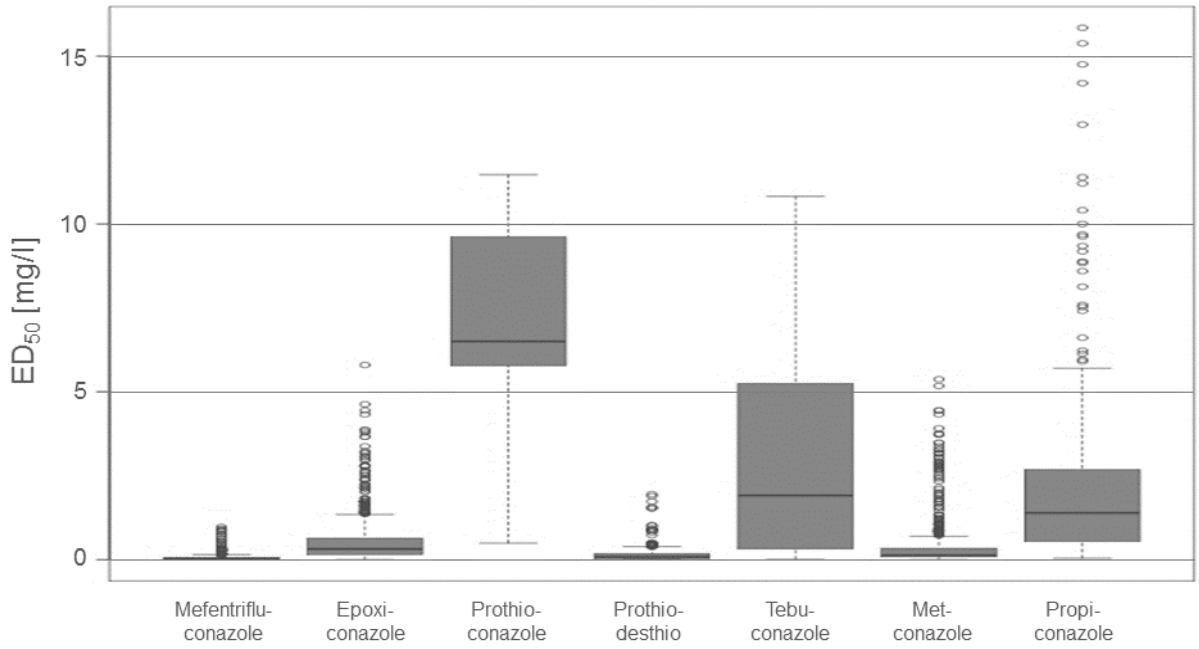
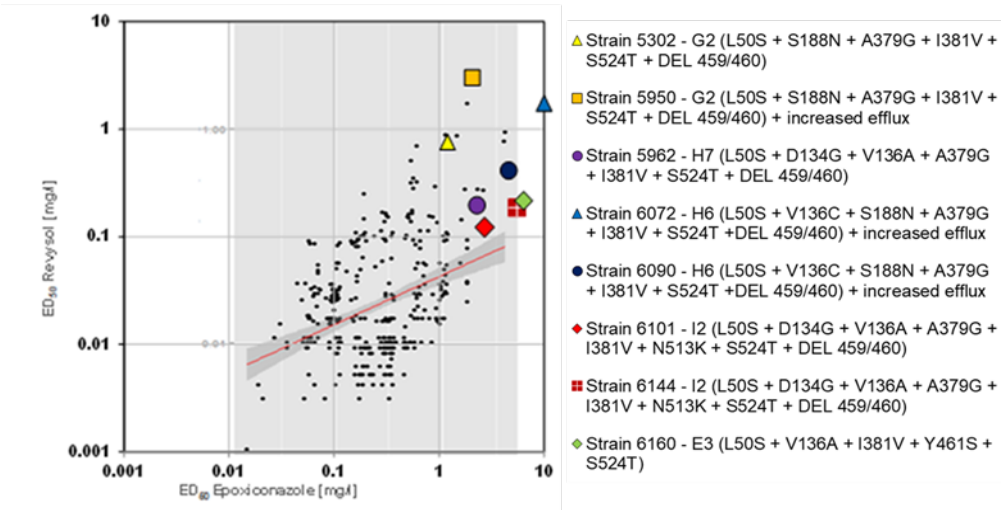


Figure 3.3-8: Range of sensitivity (ED_{50}) determined in isolates from cross resistance studies with European populations from 2014-2016 (1272 isolates, BASF, unpublished studies). Lowest range was found for mefentrifluconazole.

A step closer to the field but running the disease cycle of defined isolates on the host plant under defined and controlled conditions, are *in vivo* trials in the greenhouse with a simulation of practical conditions. The latter is achieved by the use of wheat seedlings, market formulations and application equipment containing a spray bar with flat nozzles and fungicides rates, which are orientated on registered field rates (+ dilutions) and water volume of 400 l/ha. Greenhouse tests indicate that mefentrifluconazole provides excellent control of the most shifted strains, which could be detected in extensive monitoring programmes in the last years. Even pure populations of those most shifted isolates are efficiently controlled under severe infection conditions, where high spore load and optimal infection conditions concerning temperature, light exposure and humidity are provided. Both DMIs, which are leading in Europe for Septoria leaf blotch control, epoxiconazole and prothioconazole, were less active than mefentrifluconazole (Figure 3.3-9).



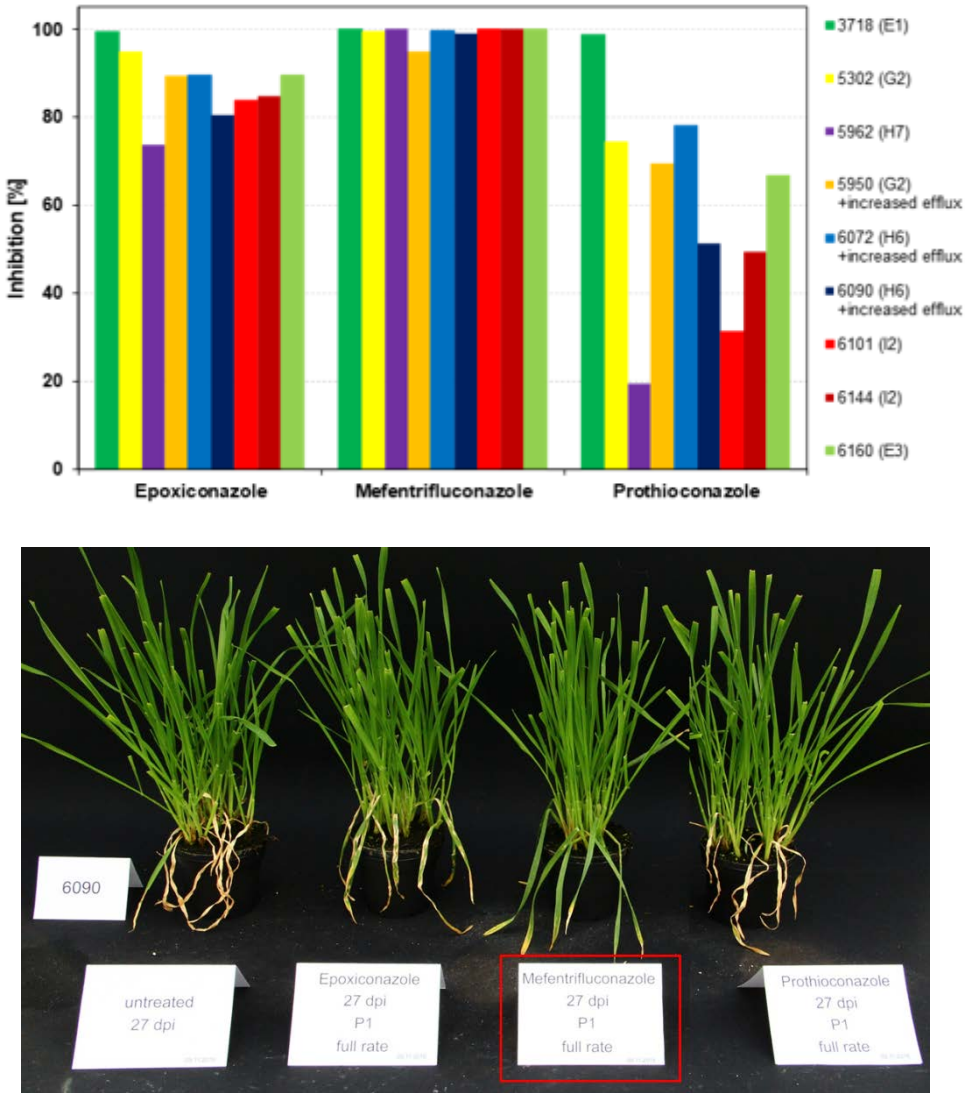


Figure 3.3-9: Efficacy of mefentrifluconazole, epoxiconazole and prothioconazole on selected, most shifted strains identified in the last years monitoring. Upper: Selection of isolates used for the tests by their EC_{50} values, cyp51 and efflux background. Middle: Efficacy of the three DMIs on the different strains (3718 is a low shifted reference strain). Lower: Example of plants diseased with strain 6090, untreated and treated with DMIs.

However, the current recommendation of the FRAC SBI Working Group is to consider all DMIs as one product group in which in general cross resistance exists.
Within the SBI-group, there is no cross resistance between morpholines (e.g. fenpropimorph) and DMI fungicides. There is no cross-resistance or a correlation of the sensitivity to SBI fungicides and other modes of action.

Metrafenone: Sensitivity studies with quinoxyfen resistant isolates and QoI resistant isolates of *Blumeria graminis* f.sp. *tritici* and *Erysiphe necator* indicated no cross-resistance with metrafenone. For *Oculimacula yallundae* and *Oculimacula acuformis*, strains with different sensitivities to prochloraz and/or triazoles and/or resistant to benzimidazoles were included in sensitivity studies. There were no correlations between the sensitivities of prochloraz, triazoles and metrafenone and no cross-resistance between carbendazim and metrafenone could be detected.
Taken the results together it can be concluded that there is no cross-resistance to QoI, quinoxyfen, morpholines, prochloraz, triazoles and benzimidazoles or other modes of action (Schmitt *et al.* 2006)

Pyraclostrobin: Studies to date have shown that there is cross resistance between QoI fungicides (FRAC

2021), in particular when the mutation G143A in the cytochrome *b* gene is the cause of resistance. There is no indication of cross resistance with pyraclostrobin and fungicides from outside the QoI group.

Baseline sensitivity / Monitoring data

In the following chapter, BASF baseline sensitivity data and the most recent BASF monitoring data are provided, followed by the latest statements of FRAC available on the FRAC website. Sensitivities to DMIs and mefentrifluconazole are described in subchapter **A,** followed by sensitivities to metrafenone in subchapter **B** and QoIs and pyraclostrobin in subchapter **C**.

The pathogens of this RRA are listed in the following order:
1: *Zymoseptoria tritici*
2: *Puccinia* spp.
3. *Pyrenophora teres*
4. *Rhynchosporium secalis*
5. *Blumeria graminis*
6. *Parastagonospora nodorum*
7. *Pyrenophora tritici-repentis*
8. *Oculimacula* spp.
9. *Ramularia collo-cygni*
In this chapter the term EC_{50} is used when they were evaluated with *in vitro* test systems (e.g. microtiter tests) and the term ED_{50} is used when the data are based on *in vivo* test systems (e.g. detached leaf tests).

A. Mefentrifluconazole

Baseline studies

More than 40 years ago the first DMI fungicides have been launched for control of various pathogens in a high number of crops. Many field populations of plant pathogens adapted to DMIs and therefore they do not reflect the “wild type” or “baseline” sensitivity, which a population had before DMI market launch.

Therefore, sensitivity studies nowadays cannot be seen as baselines, but show the actual sensitivity situation. Together with the sensitivity of old wild type isolates from internal or external fungal culture collections, the adaptation of isolates from current field populations compared to the baseline sensitivity can be estimated.

However, it is of most importance if the current field population is still sufficiently controlled with registered field rates. Annual sensitivity monitoring shows changes in populations over time, which might then lead to further studies on the field efficacy.

A1. Zymoseptoria tritici

Monitoring data

Broad European field monitoring for mefentrifluconazole started in 2014. Data from 2014 to 2020 were mainly from the most intensive growing wheat regions in Europe, which are known for highest DMI adaptation worldwide. Box and whisker plots of EC_{50} values are provided in Figure 3.3-10. The variability of sensitivity is caused by mechanisms known to be responsible for DMI shifting. However, even isolates with the lowest sensitivity are still controlled by mefentrifluconazole as shown in the previous chapter (Figure 3.3-9). The data from 2014 to 2020 show a quite stable sensitivity situation.

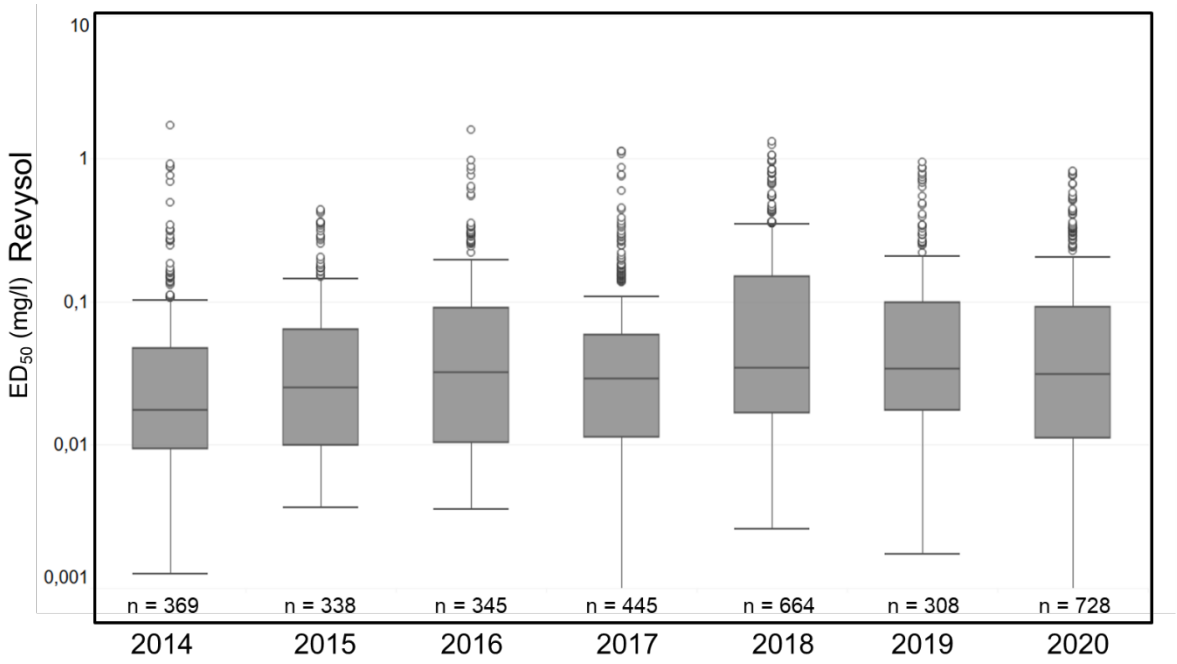


Figure 3.3-10: Sensitivity of European populations of *Zymoseptoria tritici* from 2014 to 2020 towards mefentrifluconazole (Revysol). Method was a microtiter test, EC_{50} [mg/l] values were determined by Probit analysis.

FRAC statement

FRAC summary of the status of DMI resistance in Zymoseptoria tritici based on all available data from the different members of the FRAC DMI Working Group (status webpage April 20th, 2021):

I.1. Septoria Leaf Blotch (*Mycosphaerella graminicola* / *Zymoseptoria tritici*)

esentation of monitoring data 2020: ADAMA, BASF, Bayer, Corteva, Sumitomo, ngenta

- Disease pressure was low to moderate with very dry conditions in some countries in 2020.
- DMIs field performance was good when used according to the manufacturers and FRAC recommendations. No general field resistance has been reported.
- Monitoring 2020 was carried out in Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, France, Germany, , Hungary, Ireland, Italy, Latvia, Lithuania, Netherlands, Norway, Poland, Romania, Russia, Slovakia, , Spain, Sweden, Switzerland, Turkey, Ukraine, and United Kingdom
- After the slight increase in the frequency of less sensitive isolates from 2002 to 2004, the situation had stabilised between 2005 and 2008. In 2009 a trend to slightly higher EC50 values was observed in important cereal growing areas (France, Germany, Ireland, United Kingdom), this trend has slowed down in 2010 to 2012 and was stable in 2013. 2014 sensitivity was in the same range as 2011.
- In 2015 depending on the individual active ingredient and regions slight shifts of sensitivity of populations have been observed. Highest EC50 values were observed in areas of elevated disease pressure and sub-optimal use of azoles in spray programs (e.g. reduction of rates in comparison to the manufacturer's recommended rate and inappropriate use of effective mix-partners).
- In 2016 and also in 2017 the sensitivity of the populations was overall stable on a European level with regional differences also based on different disease epidemics. In regions with lower sensitivity in 2015 the sensitivity of the populations was stable and, in some areas, even partially increased.
- In 2018 the sensitivity of the populations was overall stable on the European level.
- In 2019, the sensitivity of the populations was overall stable on European level with EC_{50} sensitivity values slightly higher compared to 2018 in some geographies but overall in the range of previous years.
- In 2020, the sensitivity of populations was overall stable on European level with EC_{50} sensitivity values in the range of previous years.

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- In *Z. tritici*, different DMI haplotypes can lead to varying levels of sensitivity depending on the chemical structure. As DMIs are generally cross-resistant, resistance management approaches should be the same for all DMIs.
- Overall, as already reported in 2019 DMI EC_{50} sensitivity values were somewhat higher in the UK and Ireland than observed on the European continent where a gradient can be observed from North-West to South-East.

A2. Puccinia triticina and other *Puccinia* species

Monitoring data

A broad European monitoring for mefentrifluconazole and Puccinia triticina was done in 2016, 2018 and 2020 (Figure 3.3-11) in the company EpiLogic (Freising, Germany) with a bioassay using detached leaves treated with different concentrations of mefentrifluconazole and subsequent ED_{50} calculation. The frequency diagramme including the 3 years of monitoring is provided in Figure 3.3-11. The data indicate that there is a stable situation for mefentrifluconazole over all seasons.

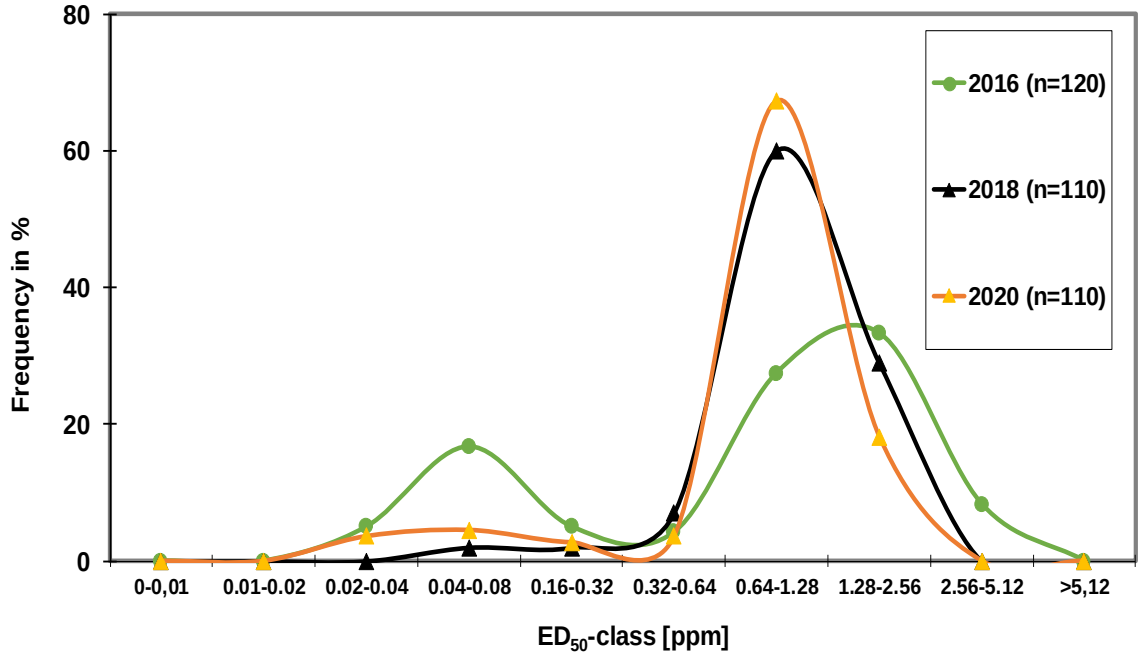

Figure 3.3-11: Frequency distribution of ED_{50} values of European isolates towards mefentrifluconazole. Monitoring started in 2016 and will be followed up every two years.

FRAC statement

FRAC summary of the status of DMI resistance in brown and yellow rust based on all available data from the different members of the FRAC DMI Working Group (status webpage April 20th, 2021):

1.1.3. Wheat brown rust (*Puccinia triticina*)

Presentation of monitoring data 2020: BASF, Bayer, Sumitomo,

- Brown rust disease pressure was low to moderate in most of the countries in Europe.
- Good field performance of DMIs against rust has been maintained.
- Monitoring in 2020 has been carried out in Belgium, Czech Republic, France, Germany, Hungary, Italy, Poland, Romania, Slovakia, Spain and United Kingdom.
- Sensitivity data from 2020 for wheat brown rust showed that sensitivities were in the range of those of the last 20 years as observed in monitoring from other FRAC member companies

1.1.6. Yellow rust (*Puccinia striiformis*)

Presentation of monitoring data 2020: Sumitomo, Bayer

- Disease pressure was low to moderate.
- In 2020, monitoring was carried out in Belgium, Denmark, France, Germany, Italy, Poland, Portugal, Spain and United Kingdom.

  The first monitoring in 2015 showed high sensitivity and low diversity, and from 2016 to 2020 a stable situation was reported.

A3. Pyrenophora teres

Monitoring data

Sensitivity of European isolates towards mefentrifluconazole from Ireland, France, Belgium, Germany, Denmark, Czech Republic and Italy isolated in 2015 showed a narrow distribution of EC_{50} values similar to the reference isolate isolated before 2000 with an EC_{50} median of 1.39 mg/l and a minimum value of 0.26 mg/l and a maximum value of 2.34 mg/l (Table 3.3-2).
This serves as the sensitivity situation before market introduction and further monitoring studies will show if there will be changes.

Table 3.3-2: Sensitivity of European isolates of *Pyrenophora teres* to mefentrifluconazole, determined in a MT test with YBA as medium

Isolate	Year of isolation	Country	EC_{50}
1013	1998	NZ	2.34
1741	2015	IE	1.02
1742	2015	IE	2.08
1762	2015	BE	1.53
1807	2015	DK	1.43
1849	2015	CZ	0.86
1867	2015	FR	1.36
1879	2015	FR	0,26
1966	2015	DE	1.18
1996	2015	IT	1.73

FRAC statement

FRAC summary of the status of DMI resistance in *Pyrenophora teres* based on all available data from the different members of the FRAC DMI Working Group (status webpage April 20th, 2021):

1.2.3. Net blotch (*Pyrenophora teres /Drechslera teres*)

Presentation of monitoring data 2020: Bayer, Syngenta

- Disease pressure was generally low in 2019.
- Performance of SBI containing spray programmes was good.
- Monitoring was carried out in Belgium, Czech Republic, Denmark, France, Germany, Hungary, Ireland and United Kingdom.
- In 2017 in France significant shifts of sensitivity of populations have been observed. Highest EC_{50} values were observed in areas of elevated disease pressure, often coupled with a reported reduced variety-resistance at significant cultivation areas, and sub-optimal use of azoles in spray programs (e.g. reduction of rates in comparison to the manufacturer's recommended rate and inappropriate use of effective mix-partners).
- In general, over the past years a significant fluctuation in sensitivity levels between the years was detected. In 2017 in single locations in Germany there have been seen some shifting which needs to be observed in the next season. The monitoring in the other countries showed a stable situation in 2017 within the regular fluctuation.
- The monitoring of the last 20 years showed a certain level of fluctuations of the sensitivity level in the regions over the years. In 2018, the situation stabilized again in all countries including France and Germany, thus being comparable to the long-term monitoring results.
- In 2019, like 2017 lower sensitivities have been frequently detected in major French regions and in a single location in North-Eastern Germany. In the other European regions monitored sensitivity ranges were stable.
- In 2020, monitoring was carried out in Austria, Bulgaria, Czech Republic, Denmark, France, Germany, Hungary, Ireland, Italy, Lithuania, Poland, Romania, Russia, Slovakia, Spain, Sweden, Switzerland, Ukraine and United Kingdom.
- Overall, the sensitivity of populations monitored in 2020 stayed in the range observed in previous years, without any major geographical differences across Europe.

A4. Rhynchosporium secalis (syn. *Rhynchosporium commune*)

Monitoring data

Sensitivity of European isolates towards mefentrifluconazole from Ireland, UK, France The Netherlands, Belgium, Denmark, Germany and Poland isolated in 2014-2017 showed a narrow distribution of EC_{50} values similar to the reference isolate from 2002 with an EC_{50} median of 3.14 mg/l, a minimum value of 1.62 mg/l and a max of 4.06 mg/l (Table 3.3-3).
This serves as the current sensitivity situation before market introduction and further monitoring studies will show if there will be changes.

Table 3.3-3: Sensitivity of European isolates of *Rhynchosporium secalis* to mefentrifluconazole, determined in a MT test with YBG as medium

Isolate	Year of isolation	Country	EC_{50}
1870	2002	UK	2.08
3469	2014	DK	4.06
3491	2015	DK	3.58
3494	2015	NL	2.24
3659	2015	BE	3.56
3664	2015	BE	3.38
3689	2016	FR	1.62
3700	2016	FR	3.04
3723	2016	DE	3.22
3736	2016	PL	2.97
3761	2016	PL	2.12
3766	2016	UK	2.17
3789	2016	DE	2.41
3808	2016	IE	2.61
3813	2016	IE	3.79
3838	2016	UK	3.70
3839	2017	FR	3.43
3863	2017	DE	3.07
3873	2017	UK	3.35
3889	2017	FR	3.29

FRAC statement

FRAC summary of the status of DMI resistance in Rhynchosporium secalis based on all available data from the different members of the FRAC DMI Working Group (status webpage April 20th, 2021):

1.2.2. Scald (*Rhynchosporium commune*)

Presentation of monitoring data 2020: BASF, Syngenta

- Field performance of DMIs was good.

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- Monitoring was carried out in Denmark, France, Germany, Hungary, IrelandLatvia, Poland,Slovakia, Spain and United Kingdom
- Stable situation. The sensitivity of the populations stayed in the range observed in Europe in the previous 15 years.

A5. Blumeria graminis

Monitoring data

No BASF data available

FRAC statement

FRAC summary of the status of DMI resistance in Blumeria graminis based on all available data from the different members of the FRAC DMI Working Group (status webpage April 20th, 2021):

1.1.2. Powdery mildew (*Blumeria graminis* f.sp. *tritici* / *Erysiphe graminis* f.sp. *tritici*)

Disease pressure in 2020 was low across Europe.

DMIs

Presentation of monitoring data 2020: Bayer, Sumitomo, Syngenta

- DMI field performance was good.
- In 2019, monitoring was carried out in Czech Republic, France, Germany, Poland, and United Kingdom.
- A limited monitoring in New Zealand in 2019 showed sensitivity ranges comparable to European populations.
- In 2020, monitoring was carried out in Belgium, Czech Republic, Denmark, France, Germany, Hungary, Italy, Poland and United Kingdom.
- Sensitivity data presented for 2016 to 2020 confirmed that the situation was overall stable within the range of variability detected during the last 20 years.
- Differences in the sensitivity are significantly a.i. and regionally dependent. Higher resistance factors were observed only for particular DMIs especially in France, Germany and UK, but also to a lesser extend in Belgium.

1.2.1. Powdery Mildew (*Blumeria graminis* f.sp. *hordei* / *Erysiphe graminis* f.sp. *hordei*)

In 2020, disease pressure was low in Europe.

DMIs

Monitoring was carried out in Czech Republic, Denmark (2016), France, Germany, Latvia, Sweden (2016), Ukraine, and United Kingdom. Results from 2018 & 2020 monitoring in France, Germany and United Kingdom were presented by Bayer.

- DMI products performed well.
- The sensitivity of the populations stayed in the range observed for more than 15 years.

A6. *Parastagonospora nodorum* (formerly known as *Stagonospora nodorum, Leptosphaeria nodorum, Phaeosphaeria nodorum* or *Septoria nodorum*)

Monitoring data

Sensitivity of European isolates towards mefentrifluconazole from Germany isolated in 2010 and 2012 showed low EC_{50} values <0.01 mg/l (Table 3.3-4).
This serves as the current sensitivity situation before market introduction and further monitoring studies will show if there will be any changes.

Table 3.3-4: Sensitivity of European isolates of *Parastagonospora nodorum* to mefentrifluconazole, determined in a MT test with YBG as medium

Isolate	Year of isolation	Country	EC_{50}
Sn 7	Before 2000	Unknown, Reference	< 0.01
2000	Before 2000	Unknown, Reference	< 0.01
9	2010	DE	< 0.01
19	2012	DE	< 0.01

FRAC statement

FRAC summary of the status of DMI resistance in *Parastagonospora nodorum* based on all available data from the different members of the FRAC DMI Working Group (status webpage April 20th, 2021):

1.1.9. Glume blotch (*Stagnospora nodorum*)

Presentation of monitoring data 2020: Syngenta

- A limited monitoring was carried out in Czech Republic and Sweden. A very narrow sensitivity range with high sensitivity levels was observed.

A7. Pyrenophora tritici-repentis

Monitoring data

No BASF data available

FRAC statement

FRAC summary of the status of DMI resistance in *Pyrenophora tritici-repentis* based on all available data from the different members of the FRAC DMI Working Group (status webpage April 20th, 2021):

1.1.5. Tan spot (*Pyrenophora tritici-repentis, syn. Drechslera tritici-repentis)*

Presentation of monitoring data 2020: Syngenta

- Monitoring data from 2019 in Finland, Lithuania, and United Kingdom showed a narrow range of sensitivity in line with results from previous years.
-
- In 2020, a limited monitoring was carried out in Czech Republic, Romania and Sweden. A stable and sensitive situation was observed.

***A8. Oculimacula* spp.**

Monitoring data

No BASF data are so far available for mefentrifluconazole and *Oculimacula* spp.

FRAC statement

FRAC summary of the status of DMI resistance in *Oculimacula* spp. based on all available data from the

different members of the FRAC DMI Working Group (status April 20th, 2021):

1.1.4. Eyespot (*Tapesia* spp, *syn. Oculimacula* spp.)

Presentation of monitoring data 2020: Syngenta.

- Field performance was good.
- An analysis of samples from France, Germany, Latvia, Lithuania, Poland, Russia, Spain, Ukraine and United Kingdom from 2020 was presented.
- Between 2003 and 2012 there was no change in the sensitivity of W and R types, stable situation had been observed during that time. In 2013, some sensitivity change has been observed in the United Kingdom, but not in France or Germany. In 2014 further sensitivity decrease has been observed in the United Kingdom, and for the first time also in France and Germany. However, overall, resistance factors still remain low and performance was not affected.
- The 2018 data showed a homogenous and sensitive situation in all countries.
- In 2019, still comparable sensitivity ranges and medians were observed in all monitored countries without any geographical variations.
- In 2020, the same range of sensitivity as in previous years was observed in all countries.

A9. Ramularia collo-cygni

Monitoring data

Monitoring studies with mefentrifluconazole and European isolates of *Ramularia collo-cygni* were performed by the company Agrotest fyto (Kromeriz, Czech Republic). Test system was a Petridish assay. The data showed a broad range of sensitivity, which indicate an acquired adaptation (Figure 3.3-12). Previous studies showed that this is caused by various target site mutations (Rehfus *et al.*, 2019, FRAC 2021).

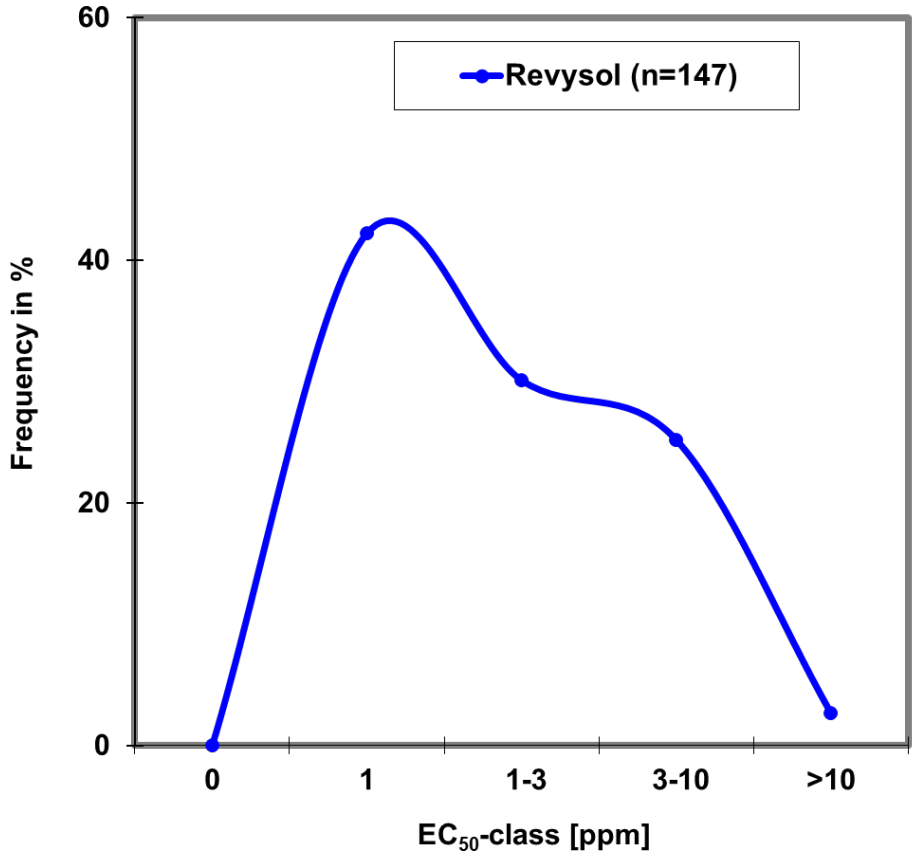

Figure 3.3-12: Frequency distribution of EC_{50} values of European isolates of *Ramularia collo-cygni* towards mefentrifluconazole.

FRAC statement

FRAC summary of the status of DMI resistance in *Ramularia collo-cygni* based on all available data from the different members of the FRAC DMI Working Group (status April 20th, 2021):

1.2.4. Ramularia leaf spot (*Ramularia collo-cygni*)

Presentation of monitoring data 2020: BASF, Syngenta.

- In 2020, ,onitoring was carried out in Denmark France, Germany, Hungary, Ireland, Italy, Lithuania, Poland, Slovakia, Spain, Sweden, Switzerland, and United Kingdom.
- Field performance can be regionally significantly affected, due to the low disease pressure hard to evaluate in 2018.
- Isolates were detected showing significant loss of sensitivity. Relevant CYP51-mutations explaining the effects have been identified (I325T, I328L, Y403C/Y405H).
- 2016: broad sensitivity range has been identified with very high frequency of high resistant strains in southern Germany, with moderate frequency in Denmark, Ireland, Belgium, Northwestern Germany, and low frequency detected in France, Austria, Sweden, and United Kingdom. No detection of resistance in Estonia.
- First data from 2016 showed high frequency of resistant strains in Denmark, Ireland, and United Kingdom, moderate frequency in Estonia, low to moderate frequency in Sweden, and no resistant strains were detected in Finland. In other countries the monitoring is still ongoing; the results will be reported later.

In 2018 the results are:

- no isolates with the above-mentioned mutations detected in Switzerland, Spain and Italy, and Sweden.
- no to high frequency in Denmark,
- low to moderate frequency in single samples from Austria, France, Hungary,
- low to high frequency in Germany,
- moderate to high frequency in Belgium, Netherlands, United Kingdom, Ireland, and Latvia.

In 2019 the results are:

- no isolates/samples with the above-mentioned mutations were detected in Spain & Italy
- no to low frequencies in Slovenia and Croatia
- low frequencies of DMI resistance allele were detected in Switzerland and Slovakia
- in Austria, low to moderate frequencies were observed
- moderate to high frequencies in Belgium, Germany and Sweden
- high frequencies in Ireland, United Kingdom and France

In 2020, the results from bioassay and molecular analysis focusing on the most relevant mutations are:

- no to low frequencies of resistance in Italy, Switzerland, and Spain
- no to high frequencies of resistance in France
- moderate to high frequencies of resistance in Germany and Sweden,
- high frequencies of resistance in Czech Republic, Denmark, France, Hungary, Ireland, Lithuania, Slovakia and United Kingdom.

B. Metrafenone

Metrafenone is mainly active on powdery mildews and eyespot. Therefore, there are no data available for *Zymoseptoria tritici*, *Puccinia* spp., *Pyrenophora teres*, *Rhynchosporium secalis*, *Parastagonospora nodorum*, *Pyrenophora tritici-repentis* and *Ramularia collo-cygni*.
Since there is no FRAC Working Group for FRAC code 50, no data are available on the FRAC page, which could be shared here.

B1: Zymoseptoria tritici

No sensitivity data are available

B2: Puccinia spp.

No sensitivity data are available

B3: Pyrenophora teres

No sensitivity data are available

B4: Rhynchosporium secalis

No sensitivity data are available

B5. Blumeria graminis f.sp. *tritici*

Intensive monitoring studies with a very high number of isolates isolated across Europe are running since more than 20 years to follow up the development of adaptation to metrafenone in wheat powdery mildew. These studies are performed by EpiLogic with detached leaf tests. Figure 3.3-13 shows the results of the 2020 monitoring for *Blumeria graminis* f.sp. *tritici* and Figure 3.3-14 the development of moderate and high resistant isolates since 2008 (first year of metrafenone resistance detection). Studies indicate that high resistant strains are still rarely found and that the frequency of moderate adapted strains is stable over the last years.

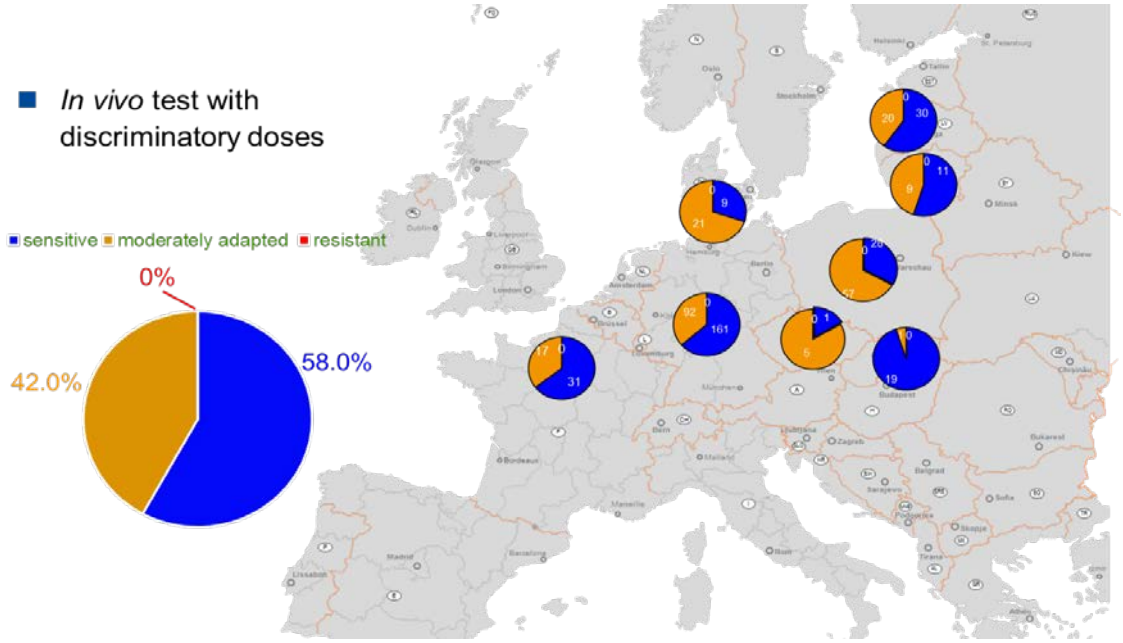

Figure 3.3-13: Monitoring results from 2020. 529 isolates were made from airborne monitoring, 222 were moderately adapted (orange), 0 resistant (red). Majority of isolates are full sensitive (blue).

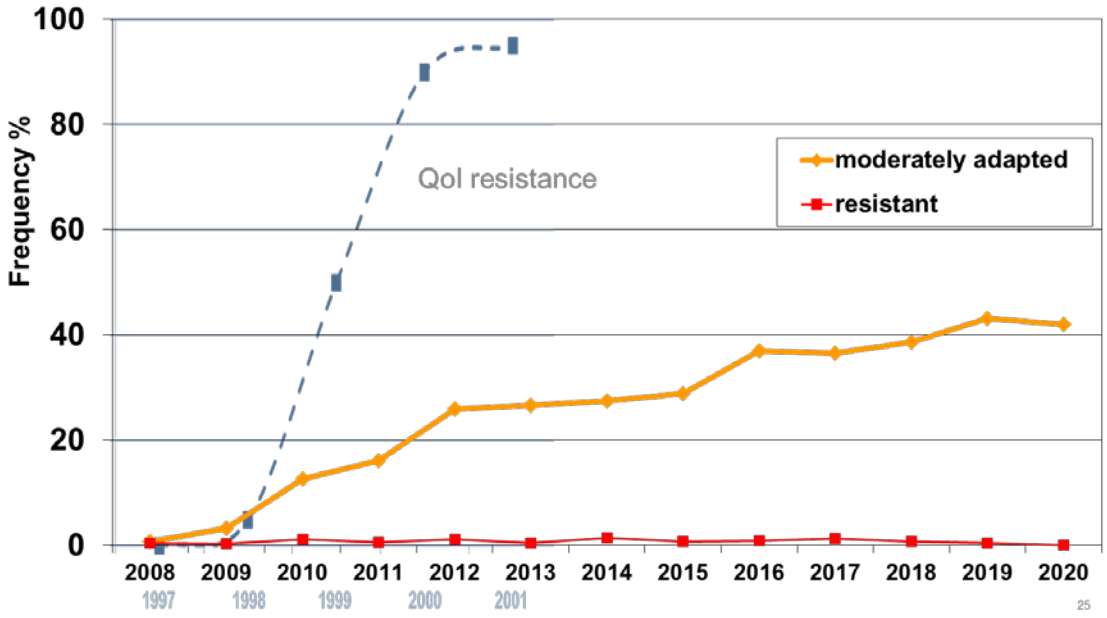

Figure 3.3-14: Frequency of moderately adapted isolates (orange) and resistant isolates (red) from 2008 to 2020. Frequency of moderately adapted isolates remains stable in the last years, frequency of resistant isolates remains very low over all time. As a comparison, the development of QoI resistance in the same species is provided.

B6. Parastagonospora nodorum

No sensitivity data are available

B7. Pyrenophora tritici-repentis

No sensitivity data are available

***B8. Oculimacula* spp.**

Leroux *et al.* (2013) published that a germ tube elongation test does not work for determination of metrafenone sensitivity in *Oculimacula* spp., but a mycelial growth assay, which provided EC_{50} values of 0.08 and 0.8 ppm for *O. acuformis* and *O. yallundae*, respectively.
Other methods, such as detached leaf tests were BASF internally developed, but they showed also a high variability. Greenhouse tests with potted wheat plants in the greenhouse were also tested, but the very long incubation time (~6 weeks) makes this test system also not appropriate for a seasonal monitoring.
Recently, EpiLogic developed a reliable method for sensitivity monitoring. The studies for 2020 are ongoing.

B9. Ramularia collo-cygni

No sensitivity data are available

C. Pyraclostrobin

Baseline studies

QoI were introduced in cereals in 1996. Many internal baseline studies are available and there is a high number of publications available on wild type sensitivity on many plant pathogenic fungi. The resistance mechanisms are elucidated, and genetic assays are established for efficient monitoring. Therefore, baseline sensitivity studies on the different pathogens are not provided but latest monitoring data.

C1. Zymoseptoria tritici

Monitoring data

High frequencies of G143A mutation have been detected in intensive wheat growing areas in North-Western Europe. The situation in Southern and Eastern European countries is much more favourable, where QoI resistance is still absent or present at lower levels (Figure 3.3-15).

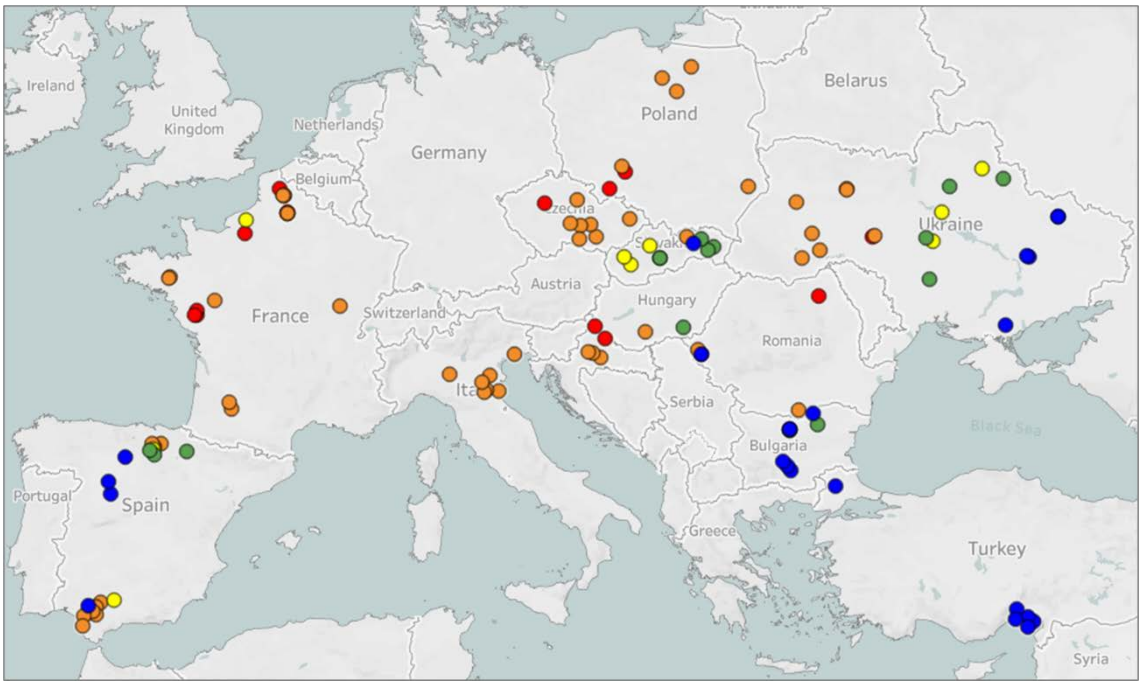

Figure 3.3-15: Monitoring of QoI sensitivity of *Zymoseptoria tritici* in 2020. Each dot represents a sample (N=122), which was analysed for frequency of G143A mutation by real-time PCR (blue: 0-2, green 3-10, yellow 11-30, orange 31-75, red 76-100% frequency of G143A).

FRAC statement

FRAC summary of the status of QoI resistance in *Zymoseptoria tritici* based on all available data from the different members of the FRAC QoI Working Group (status webpage April 20th, 2021):

Septoria leaf spot (*Septoria tritici* = *Mycosphaerella graminicola* = *Zymoseptoria tritici*), wheat

Companies: BASF, Syngenta

Monitoring data based on molecular data showed in 2020 the following situation:

In France, Germany, Denmark, Ireland, Latvia, Lithuania, Sweden, and United Kingdom widespread resistance over all these countries at high levels were detected.

Medium to high resistance level was detected in Croatia, Czech Republic and Poland.

In Austria, Italy, Spain, Switzerland and Ukraine populations were showing in average moderate levels of resistance with high variability.

Low to moderate levels were reported in Hungary, Romania, Russia, Slovakia and Ukraine.

No to low levels of resistance were found in Bulgaria and Turkey.

C2. Puccinia triticina and other *Puccinia* species.

Monitoring data

No reduced sensitivity has been detected for *Puccinia triticina* towards QoI in any sample in BASF monitoring studies since market introduction up to now. Latest data are from the 2020 season (Figure 3.3-16).

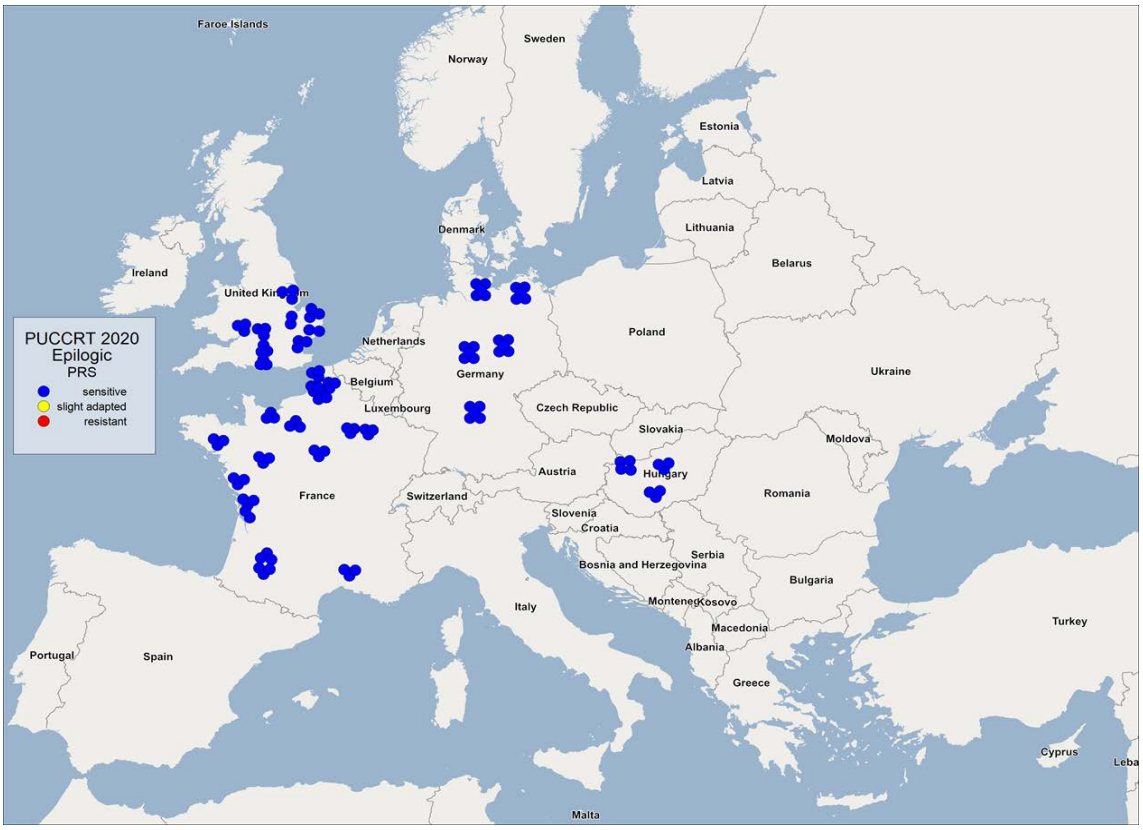

Figure 3.3-16: Monitoring of QoI sensitivity of *Puccinia triticina* in 2020. Each blue dot represents an isolate (N=110) which was analysed for QoI sensitivity in detached leaf tests with a discriminatory dose of the QoI pyraclostrobin. All isolates from all samples were sensitive to pyraclostrobin.

FRAC statements

FRAC summary of the status of QoI resistance in *Puccinia* species based on all available data from the different members of the FRAC QoI Working Group (status webpage April 20th, 2021):

Brown rust (*Puccinia recondita* = *Puccinia triticina*), wheat

Companies: BASF, Bayer and Syngenta

The monitoring in 2020 based on bioassay confirmed the sensitive situation reported already in previous years.

Countries tested included Denmark, France, Germany, Hungary, Poland and United Kingdom.

In 2020, performance of QoI fungicides against brown rust was good.

Yellow rust (*Puccinia striiformis*), wheat

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Companies: Bayer and Syngenta

The monitoring in 2020 based on bioassay confirmed the sensitive situation reported already in previous years.

Countries included: Belgium, Denmark, France, Germany, Poland, Spain, United Kingdom.

C3. Pyrenophora teres

Monitoring data

In 2020, the mutation F129L dominates the population in UK, Ireland, France and Germany, in other European countries this mutation is less frequent (Figure 3.3-17). The BASF method used was a quantitative pyrosequencing assay.

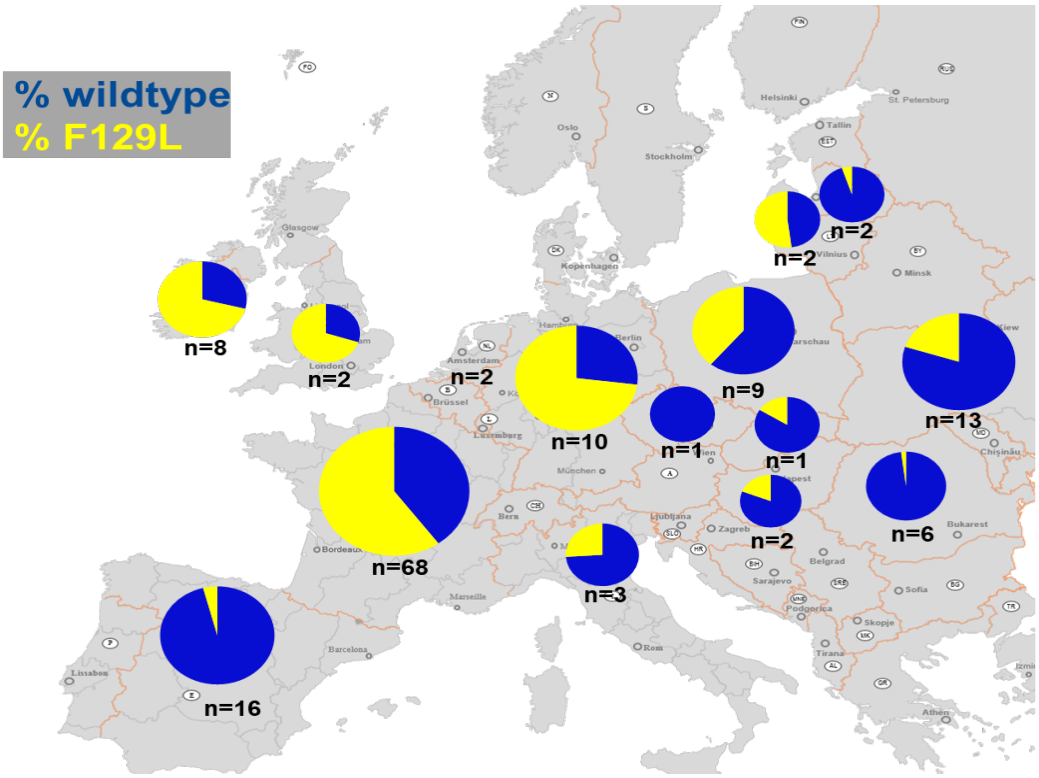

Figure 3.3-17: Frequency of the F129L mutation in *Pyrenophora teres* in various European countries. The F129L mutation was quantitatively detected by pyrosequencing. In total 162 samples were analysed. The number beyond the country diagrams indicate the number of samples per country. The diagrams show the mean values of all samples from the country.

FRAC statement

FRAC summary of the status of QoI resistance in *Pyrenophora teres* based on all available data from the different members of the FRAC QoI Working Group (status webpage April 20th, 2021):

Net blotch (*Pyrenophora teres*), barley

Companies: BASF, Bayer, Syngenta

Field performance of QoI-containing fungicides against net blotch was good.

Additional information: Mainly the F129L mutation was found. As already observed with other pathogens, resistance factors are significantly lower in comparison with the G143A mutation and field performance of products used according to FRAC and Manufacturers' recommendations remains good (for differences between QoI mutations see also the respective FRAC document titled "Mutations associated with QoI resistance" available on the FRAC website under QoI fungicides →Quick references).

These findings are consistent with the reported presence of a lethal intron in several fungi making the G143A mutation unlikely to occur.

Monitoring in 2020 based on bioassay and molecular studies showed the following situation:

Medium to high levels were found in Belgium, Germany, Ireland, Netherland and United Kingdom.

Medium levels were detected in Denmark, France, Lithuania, Sweden, Switzerland and Poland.

No to low levels were reported in Austria, Hungary, Italy, Latvia, Poland, Romania, Russia, Slovakia, Spain and Ukraine.

No resistance of mutation was found in Bulgaria, Czech Republic and Greece.

The situation in 2019 was as follows:

Medium to high in Denmark

Medium levels were detected in Belgium, Germany, France and United Kingdom.

No to medium in Ireland

Low in Netherlands, Sweden and Switzerland

No to low levels in Austria, Bulgaria, Czech Republic, Italy, Latvia, Poland, Romania, Russia, Slovakia, Spain and Ukraine

No resistance of mutation was found in Greece and Hungary.

In 2017 control of net blotch, esp. in areas in France, was difficult and potentially related to e.g. the high disease pressure, low varietal diversity, coupled to the reported break-down of variety-resistance (variety ETINCEL) at significant cultivation areas and higher frequencies of mutated strains.

***C4. Rhynchosporium secalis* (syn. *Rhynchosporium commune*)**

Monitoring data

Sensitivity monitoring (detection of G143A, F129L and G137R by pyrosequencing) on *Rhynchosporium secalis* did not show up any QoI-resistance in 2020 at any site analysed (Figure 3.3-18). Additionally, various isolates were made from the samples. Such isolates were tested in microtiter tests for their QoI sensitivity in order to identify if another mechanism, the AOX overexpression, is present, which is with the moleculargenetic methods used in our *Rhynchosporium secalis* monitoring not detectable. In 2020 only one isolate (0.7%) with AOX overexpression was found (Figure 3.3-19, Figure 3.3-20). The data show that the European population of *Rhynchosporium secalis* is still QoI sensitive.

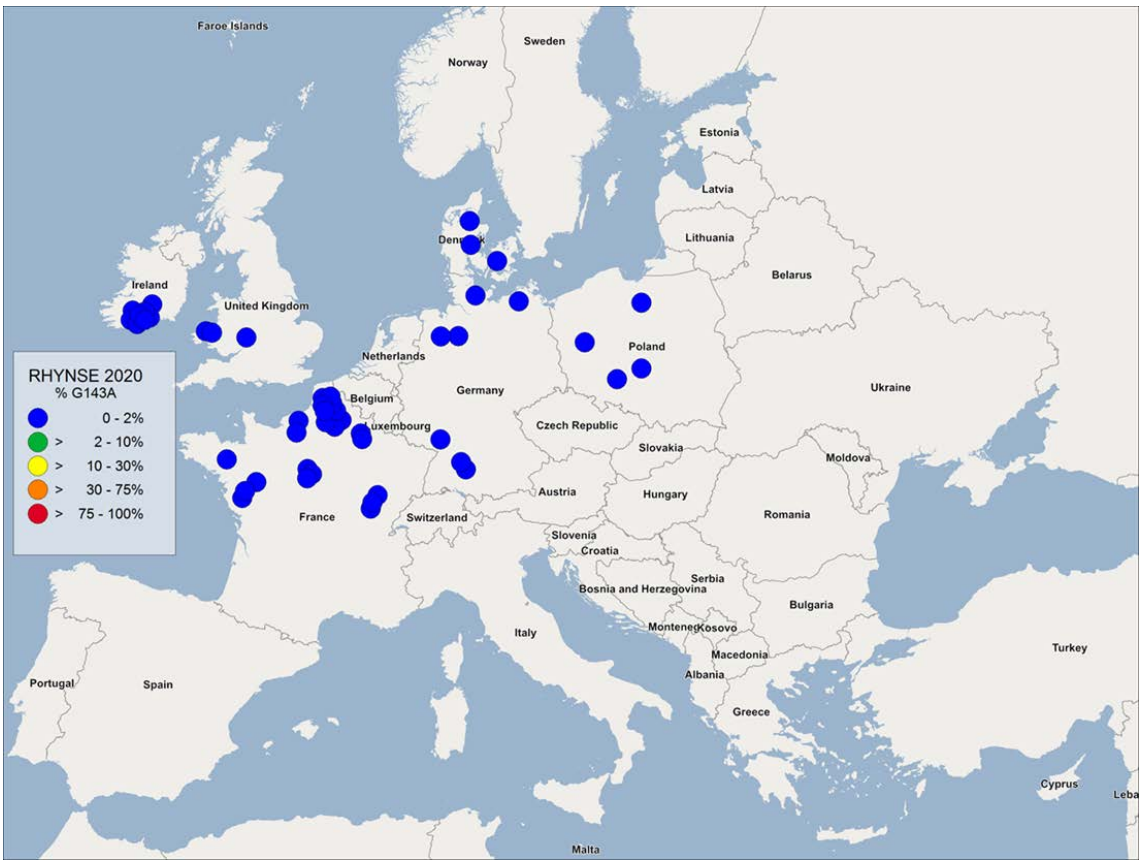

Figure 3.3-18: Monitoring of QoI sensitivity of *Rhynchosporium secalis* in 2020. Each blue dot represents a sample (N=49), which was analysed for QoI sensitivity by G143A, F129L and G137R analysis by pyrosequencing. All samples showed wild type sequences and were therefore classified as sensitive to QoIs.

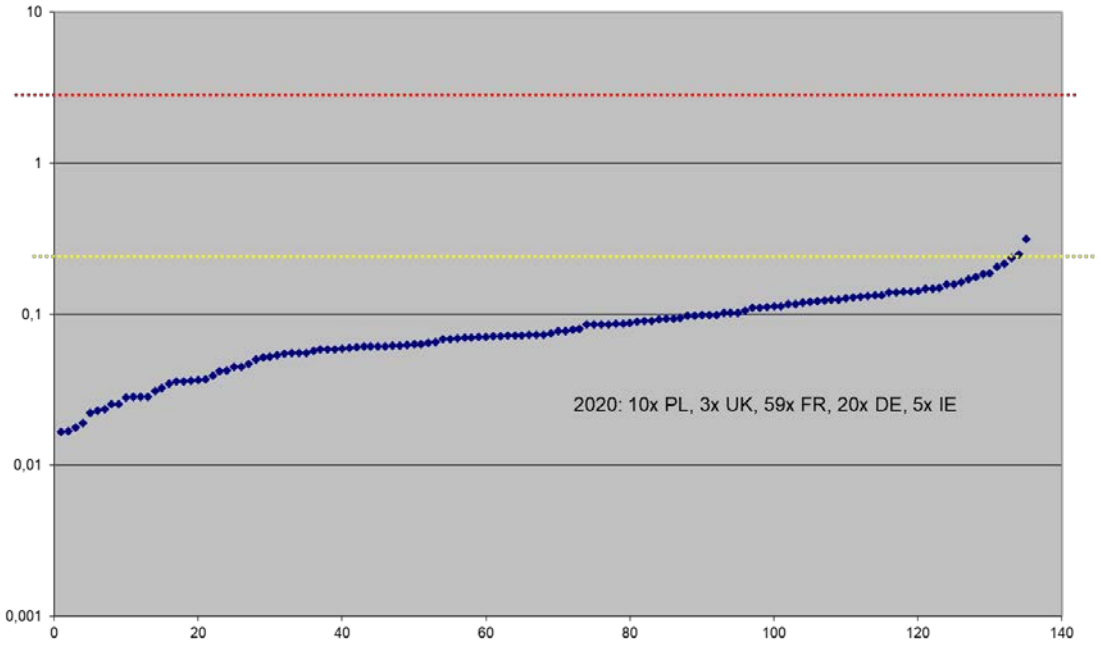

Figure 3.3-19: Monitoring of QoI sensitivity of isolates of *Rhynchosporium secalis* in 2020. Each dot represents the EC_{50} value of an isolate (N=135) for pyraclostrobin (ppm), determined by a microtiter assay. Lower dotted line represents the threshold for AOX overexpression, upper dotted line for G143A mutation. The thresholds were determined and confirmed in previous years with various experiments. In 2020 no isolate was found with the G143A mutation and only one with an AOX overexpression.

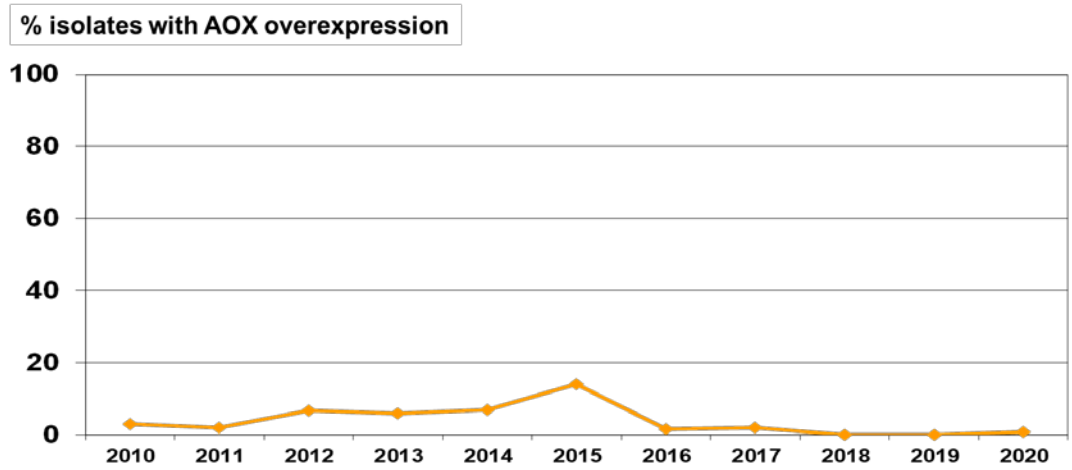

Figure 3.3-20: Frequency of isolates of *Rhynchosporium secalis* with an AOX overexpression from 2010 to 2020. The analysis show that the frequency is not increasing and at very low levels.

FRAC statement

FRAC summary of the status of QoI resistance in *Rhynchosporium secalis* based on all available data from the different members of the FRAC QoI Working Group (status webpage April 20th, 2021):

Leaf scald (*Rhynchosporium secalis* = *Rhynchosporium commune*), barley

Companies: BASF, Bayer and Syngenta

Monitoring: Performance of QoI fungicides against Leaf scald was good.

In 2020 monitoring based on bioassay and molecular studies showed full sensitivity in Denmark, Germany, France, Hungary, Ireland, Latvia, Netherland, Poland, Slovakia, Spain and United Kingdom.

Findings in 2019:
In 2019, samples were sensitive in Belgium, Denmark, France, Germany, Ireland, Poland, Slovakia and United Kingdom.

Additional information: However, in some years since 2008 (e. g., 2012, 2013 France, 2014 UK, 2015 Spain, 2019 United Kingdom), occasionally isolates/samples have been found containing the G143A mutation. The frequency is always very low.

C5. Blumeria graminis

Monitoring data

In 2020, 16 sites in Poland, Czech Republic, Hungary and Bulgaria were analysed for the frequency of the G143A in *Blumeria graminis.*
Four samples were from rye from Poland and with 0% G143A and therefore classified as full sensitive. Twelve samples were from wheat, samples from Bulgaria were with low to moderate frequency, from Czech Republic and Hungary with moderate frequency and from Poland with higher frequencies of the G143A.

FRAC statement

FRAC summary of the status of QoI resistance in cereal powdery mildews based on all available data from the different members of the FRAC QoI Working Group (status April 20th, 2021):

Powdery mildew (*Blumeria graminis* f. sp. *tritici* = *Erysiphe graminis* f.sp. *tritici*), wheat and rye (*Blumeria graminis f. sp secalis*)

Companies: BASF, Bayer

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Monitoring based on molecular data in 2020 for samples collected from wheat showed low to moderate frequency of G143A BG, moderate in HU, CZ and high in PL.

Samples collected from rye in 2020 from PL were all sensitive, based on molecular analysis.

Findings in 2019:

Monitoring has been carried out in Czech Republic, Latvia, Lithuania and Poland with medium to high frequencies of resistance.

Low to medium were reported in Czech Republic.

Powdery mildew (*Blumeria graminis* f. sp. *hordei* = *Erysiphe graminis* f.sp. *hordei*), barley

No monitoring in 2020

Companies: Bayer

Limited monitoring in 2019

Findings:
No to Low in Latvia and Lithuania.

Overall, where monitoring was carried out, there was a similar situation in 2018 as compared to 2017.

***C6. Parastagonospora nodorum* (formerly known as *Leptosphaeria nodorum, Phaeosphaeria nodorum* or *Septoria nodorum*)**

Monitoring data

No data from the last years are available. The last monitoring for this fungal species was carried out in 2010. Most samples were full sensitive; only 6 out of 30 samples contained the G143A mutation at low to high frequency (Figure 3.3-21).

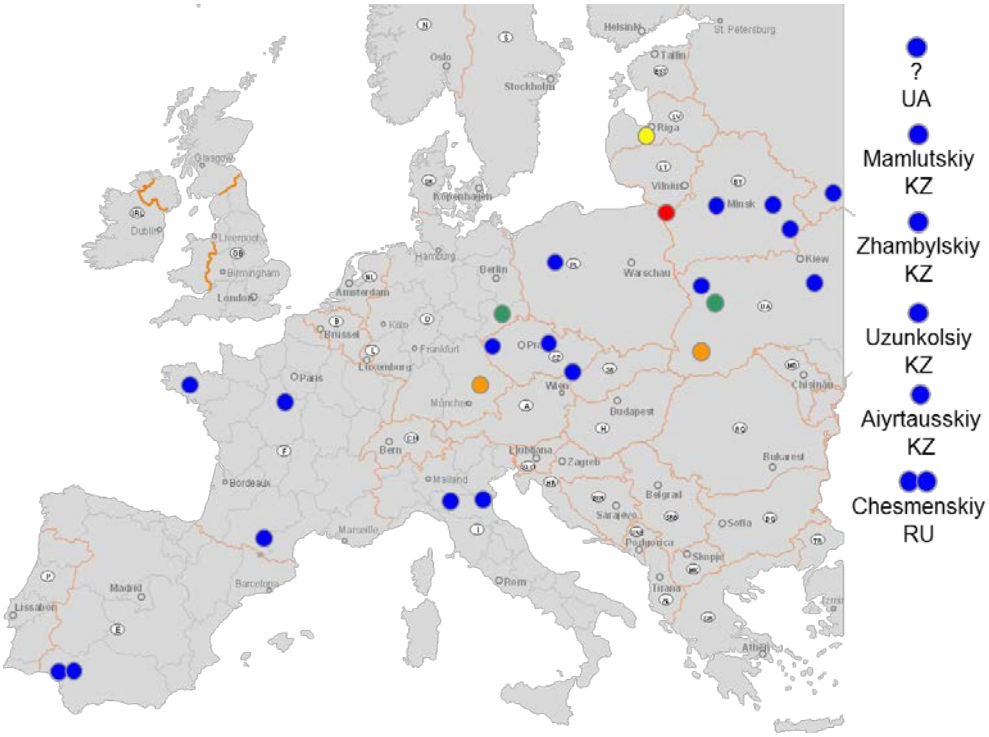

Figure 3.3-21: Monitoring of QoI sensitivity of *Parastagonospora nodorum* in 2010. Each dot represents a sample (N=30) which was analysed for frequency of G143A mutation by real-time PCR (blue: 0-2, green 3-10, yellow 11-30, orange 31-75, red 76-100% frequency of G143A). Dots on the right end are from samples outside the map segment.

FRAC statement

Parastagonospora nodorum is listed as a pathogen where the G143A mutation has been detected (FRAC 2021, Blixt *et al*. 2009). A current overview of the distribution and frequency of resistance is not available on the FRAC webpage.

C7. Pyrenophora tritici-repentis

Monitoring data

The G143A, F129L and (seldom) the G137R mutations were detected in Europe in the last years. The most important mutation is the G143A because of its higher frequency and higher impact on the sensitivity loss. The data on the current distribution over Europe in 2020 is shown in Figure 3.3-22. The G143A mutation was detected in different countries and fields with different levels.

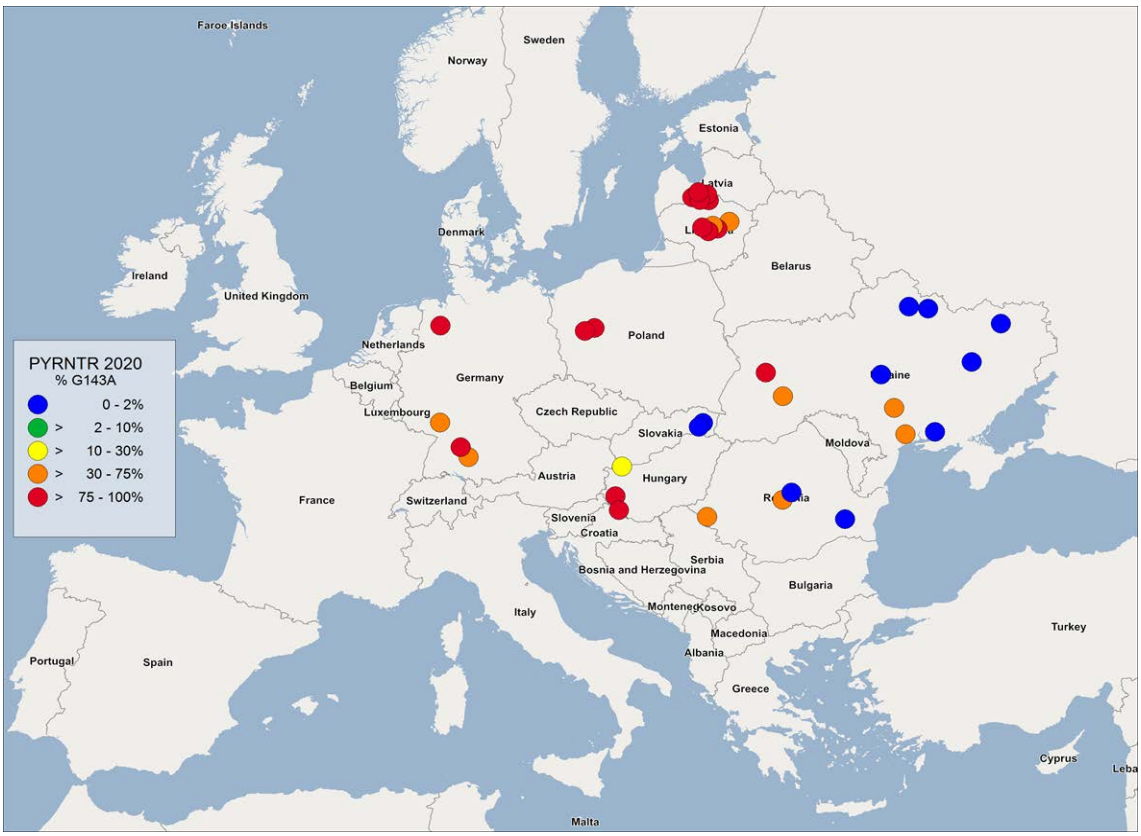

Figure 3.3-22: Monitoring of QoI sensitivity of *Pyrenophora tritici-repentis* in 2020. Each dot represents a sample (N=36) which was analysed for frequency of the G143A mutation by pyrosequencing (blue: 0-2, green 3-10, yellow 11-30, orange 31-75, red 76-100% frequency of G143A).

FRAC statement

FRAC summary of the status of QoI resistance in *Pyrenophora tritici-repentis* based on all available data from the different members of the FRAC QoI Working Group (status webpage April 20th, 2021):

Tan spot (Pyrenophora tritici-repentis), wheat

Companies: BASF, Syngenta

Monitoring in 2020 based on molecular studies measuring frequency of G143A, F129L and G137R and bioassay data showed the following situation.

High levels of resistance were detected in Denmark, Hungary and Latvia,

moderate to high in Poland,

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moderate in Germany,

low in Austria, Czech Republic, Romania and Ukraine and

no resistance detected in B.

Single resistant samples/isolates were found in Russia and Sweden.

***C8: Oculimacula* spp.**

No BASF or FRAC data are available for *Oculimacula* spp. sensitivity towards QoIs.

C9: Ramularia collo-cygni

QoI resistance is widespread in the European populations since more than 15 years. In 2020 147 mono-sporic isolates from 27 samples (fields) from France, Germany, Ireland and UK were analysed. From these, 12 isolates were QoI sensitive and 135 QoI resistant. The sensitive isolates came from different sites in Germany. Test system was a Petri dish assay with subsequent EC_{50} calculation and studies were performed by Agrotest fyto.

FRAC statement

FRAC summary of the status of QoI resistance in *Ramularia collo-cygni* based on all available data from the different members of the FRAC QoI Working Group (status webpage April 20th, 2021):

Ramularia leaf spot *(Ramularia collo-cygni)*, barley

Companies: BASF, Syngenta

Monitoring in 2020 based on bioassay and molecular quantification G143A showed the following results.

High frequency of resistance was found in Czech Republic, Denmark, Hungary, Ireland, Latvia, Slovakia, Sweden and United Kingdom,

moderate to high frequency in Germany and France,

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moderate frequency in Switzerland and

low frequency in Spain.

Findings 2018:
High frequency of G143A in Denmark, France, Hungary, Ireland, Spain and United Kingdom

Moderate frequency of G143A in Germany, Italy and Romania

Low frequency of G143A was found in Austria and Switzerland

Use pattern

BAS 758 00 F is intended for registration for control of the above-mentioned diseases in cereals with 0.75-1.50 l/ha in Latvia, Lithuania, Estonia; with 1.50 l/ha in Poland, Austria, Germany, Belgium, Netherlands, Ireland and UK; with 1.00 – 1.50 l/ha in Czech Republic; with 0.50 – 1.00 l/ha Hungary, Romania and Slovakia. Maximum number of applications is 2, with a minimum of 14 days between applications and between growth stages 30-59.

Resistance risk assessment of unrestricted use pattern

Fungicide risk

Mefentrifluconazole: FRAC describes the DMI fungicides in general as *medium-risk* compounds (FRAC 2021) according to the principles described in FRAC Monographs 1 and 2 (Brent 2007, Brent and Hollomon 2007).

Metrafenone: FRAC describes the Aryl-phenyl-ketone fungicides in general as *medium-risk* compounds (FRAC 2021) according to the principles described in FRAC Monographs 1 and 2 (Brent 2007, Brent and Hollomon 2007).

Pyraclostrobin: FRAC describes the QoI fungicides in general as *high-risk* compounds (FRAC 2021) according to the principles described in FRAC Monographs 1 and 2 (Brent 2007, Brent and Hollomon 2007).

Pathogen risk

FRAC classified recently a high number of pathogens in species with a low, medium and high risk for fungicide resistance. This classification is based on experience and reported resistance claims over the last 45 years. It is updated yearly. Generally, the risk increases when a pathogen undergoes many and short disease cycles per season, the dispersal through spores over time and space is high and the competitive ability of resistant individuals is high in the absence of selection pressure. Furthermore, the risk is considered as high when resistance evolved already after few years of product use.

High risk pathogens: *Blumeria graminis, Ramularia collo-cygni*

Medium risk pathogens: *Zymoseptoria tritici, Parastagonospora nodorum, Pyrenophora tritici-repentis, Pyrenophora teres, Oculimacula* spp.

Low risk pathogens: *Puccinia* spp., *Rhynchosporium secalis*

Combined pathogen-fungicide risk

The combined risks of pathogens and fungicides are visualized in Figure 3.3-23 and Figure 3.3-24.

benzimidazoles dicarboximides phenylamides QoI	**high (x 3)**	3	6	9
SDHIs metrafenone DMIs MBIs phenylpyrroles anilinopyrimidines morpholines CAA	**medium (x 2)**	2	4	6
chlorothalonil dithianon copper dithiocarbamates phthalimides sulphur SAR-inducers	**low (x 0.5)**	0.5	1	1.5
basic fungicide risk		**low (1)**	**medium (2)**	**high (3)**
basic disease risk		***Fusarium* spp. *Puccinia triticina* *Puccinia striiformis* *Rhynchosporium secalis***	***Zymoseptoria tritici* *Parastagonospora nodorum* *Pyrenophora teres* *Pyrenophora tritici-repentis* *Oculimacula* spp.**	***Blumeria graminis* *Ramularia collo-cygni***

Figure 3.3-23: Combined risk analysis (modified after Brent and Hollomon 2007)

Score	**Risk class**
0.5-2	low risk
3-6	medium risk
9	high risk

An alternative model is suggested by Brent (2007) and a new and updated version of the original paper (EPPO 2003) is also published by EPPO (2015). The position of the fungicides and the different pathogens can be made in this model more differentiated and is shown in Figure 3.3-24. The positions were allocated considering the current knowledge and experience on the fungicides and pathogens.

1: DMI on *Puccinia* spp.
2: DMI on *Rhynchosporium secalis, Parastagonospora nodorum, Oculimacula* spp.
3: DMI on *Zymoseptoria tritici, Pyrenophora tritici-repentis, Pyrenophora teres*
4: DMI on *Blumeria graminis, Ramularia collo-cygni*

5: Metrafenone on *Oculimacula* spp.
6: Metrafenone on *Blumeria graminis*

7: QoI on *Puccinia* spp.
8: QoI on *Pyrenophora teres*
9: QoI on *Rhynchosporium secalis, Parastagonospora nodorum, Oculimacula* spp.

10: QoI on *Zymoseptoria tritici, Pyrenophora tritici-repentis,*
11: QoI on *Blumeria graminis, Ramularia collo-cygni*

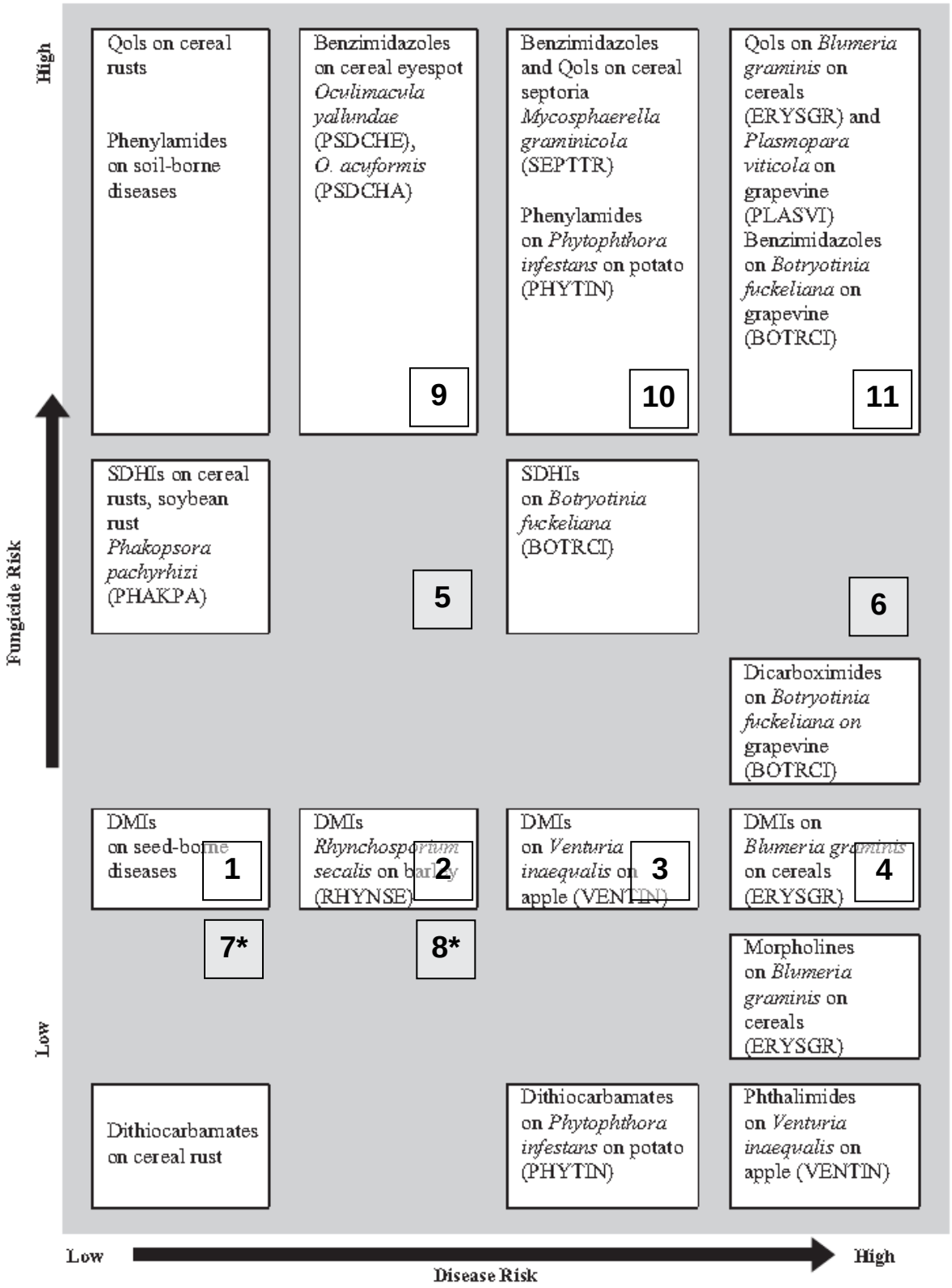

Figure 3.3-24: Scheme for visualizing the combined resistance risk (EPPO 2015). *7 and *8 are on a lower level, because *Puccinia* species and *Pyrenophora teres* have lower QoI resistance risk because of presence of an intron after codon 143 in the cytochrome *b* gene (please see chapter "Mechanism of resistance").

These diagrams exemplify interactions between inherent fungicide and pathogen risks of resistance development. The risk categorisation is approximate, and the scores are arbitrary. Nevertheless, these are probably the best estimates that can be made in the light of current knowledge. They represent risks under conditions of unrestricted fungicide use and severe, sustained disease pressure.

Taken the results of both analyses and the historical experience of resistance development together we classify the combined risks as follows:

DMI x pathogen …

Puccinia spp.: low
Rhynchosporium secalis, Parastagonospora nodorum, Oculimacula spp.: low to medium
Zymoseptoria tritici, Pyrenophora tritici-repentis, Pyrenophora teres: medium
Blumeria graminis: medium to high

Metrafenone x pathogen …

Oculimacula spp.: medium
Blumeria graminis: medium to high

QoI x pathogen …

Puccinia spp.: low
Pyrenophora teres: low to medium
Rhynchosporium secalis, Oculimacula spp.: medium
Zymoseptoria tritici, Parastagonospora nodorum, Pyrenophora tritici-repentis: medium to high
Blumeria graminis: high

Test methods

A. Methods for Resistance risk assessment

Pathogen resistance risk

Classification of the pathogens was made according to FRAC

Fungicide risk

Classification of the fungicides was made according FRAC.

Combined pathogen x fungicide risk

Two different approaches can be found in the literature, the first one is a diagram by Brent and Hollomon (2007) and the other a diagram published in the EPPO document “Efficacy evaluation of plant protection products, Resistance risk analysis, PP 1/213(4), (EPPO 2015)”. We made the analyses with both approaches to evaluate if there are significant differences. The results, however, show that the assessments of the combined pathogen x fungicide risks are very similar.

B. Methods for sensitivity analysis

Methods for detection of sensitivity are described in the “Baseline sensitivity / Sensitivity monitoring” chapter. In general, sensitivity can be assessed by *in vivo* tests or *in vitro* tests or – if the genetic background (mutation) is known for the relevant resistance mechanism – by molecular genetic methods such as pyrosequencing or real-time PCR. All methods are established in the Fungicide Resistance Research Laboratory of BASF.

C. Method for determination of the cytochrome P450 binding constant

P450 enzymes show a typical absorbance spectrum in the visible range. The binding of substrates and the displacement of water cause a change in the active site geometry that can give rise to a spin change of the heme iron from low-spin to high spin. This gives rise to a change in spectral properties with an increase at 390 nm and a decrease at 420 nm absorbance. This change can be measured by difference spectroscopy as a "type I" spectrum (Figure 3.3-25). Inhibitors like azoles that directly bind to the heme iron (with the imidazole or triazole moiety) lead to "type II" difference spectra with a maximum at 430 nm and a minimum at 390 nm (Figure 3.3-25). In the absence of the reducing enzyme partner the binding affinity of an inhibitor can be determined from the type II difference spectra at increasing inhibitor concentrations.

The method used for measuring the absorbance spectra and for calculation of the dissociation constant (K_D in mol/l) was adapted from Parker *et al*. (2010).

The binding constant (= association constant) in $[mol/l]^{-1}$ was derived from the dissociation constant (K_D)

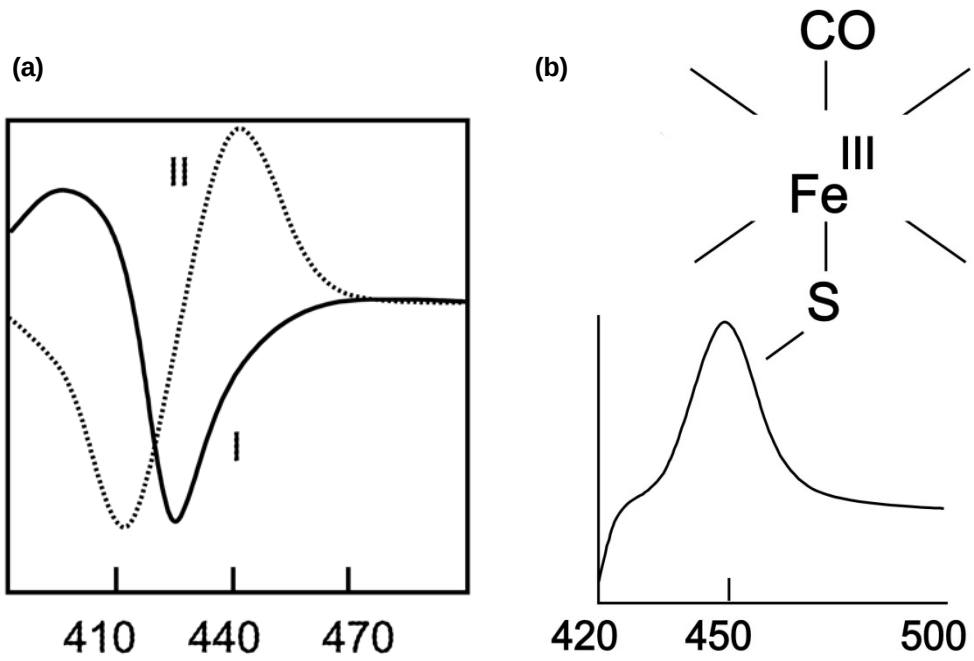

Figure 3.3-25: (a) Type I and Type II difference spectra of p450 enzymes and (b) CO difference spectrum of reduced CO bound p450 (adapted from Wikipedia)

Acceptability of the resistance risk

The analysis of the combined resistance risk showed that the risk is not acceptable for the medium-risk and high-risk pathogens under unrestricted use of BAS 758 00 F, therefore resistance management strategies need to be implemented.
Management strategies are necessary to reduce the risk of resistance development. The key of resistance management strategies is the reduction of selection pressure to a specific mode of action. Different modifiers that lead to such a reduction will be implemented in the resistance management strategy and are described in the next chapter.

Management strategy

The objective of resistance management strategies is the reduction of selection pressure to avoid or delay the occurrence of resistance or to keep the frequency of resistant isolates in a population low.
This can be achieved by good agricultural practice, which leads to less infection pressure (e.g. phytosanitary measurements, cultivation of less susceptible varieties, appropriate crop cultivation unfavourable for

the target pathogens).
Limiting the number of sprays is also an important factor in delaying the build-up of resistant pathogen populations (van den Berg et al. 2016). The number of BAS 758 00 F applications will be restricted to 2 applications per season
A further tool is the use of fungicide mixtures. Recent studies showed that especially mixtures help in delaying the selection of resistance (Hobbelen *et al.* 2013, 2014, van den Bosch *et al.* 2014). BAS 758 00 F is already a mixture of three compounds with different modes of action, where two of them are active against most target organisms (mefentrifluconazole and pyraclostrobin) and one is active against *Blumeria graminis* and *Oculimacula* spp. (metrafenone) and provides therefore a build-in resistance management.
Since population size of pathogens is lower at disease onset than when already established in the field, selection pressure is less when using preventive applications rather than curative or eradicative spray schemes. Therefore, BAS 758 00 F should be applied in a preventive manner following the recommendations on the label. An optimal timing is also an effective resistance management (van den Berg *et al.* 2013).
BASF is a member of the FRAC DMI Working Group and will promote effective anti-resistance management strategies. The current FRAC recommendations for resistance management of DMI fungicides are:

SBI:

General guidelines for using SBI fungicides (all crops)

Repeated application of SBI fungicides alone should not be used on the same crop in one season against a high-risk pathogen in areas of high disease pressure for that particular pathogen.
For crop/pathogen situations where repeated spray applications (e.g. orchard crops/powdery mildew) are made during the season, alternation (block sprays or in sequence) or mixtures with an effective non cross-resistant fungicide are recommended.
Where alternation or the use of mixtures is not feasible because of lack of effective or compatible non cross-resistant partner fungicides, then input of SBI's should be reserved for critical parts of the season or crop growth stage.
If DMI's or "morpholine" performance should decline and sensitivity testing has confirmed the presence of less sensitive forms, SBI's should only be used in mixture or alternation with effective non cross-resistant partner fungicides.
The introduction of the new classes of chemistry offers new opportunities for more effective resistance management. The use of different mode of actions should be maximised for the most effective resistance management strategies.
Users must adhere to the manufacturers' recommendations. In many cases, reports of "resistance" have, on investigation, been attributed to cutting recommended rates of use, or to poor or miss-timed application.
Fungicide input is only one aspect of crop management. Fungicide use does not replace the need for resistant crop varieties, good agronomic practice, plant hygiene/sanitation, etc.

Guidelines for using SBI fungicides on cereal crops

Repeated application of DMI or "morpholine" fungicides alone should not be used on the same crop in one season against a high-risk pathogen in areas of high disease pressure for that particular pathogen.
When used in mixture recommended effective rates of the SBI should be maintained.
Split and reduced rate programmes, using multiple repeated applications at dose rates below Manufacturer's recommendations, provide continuous selection pressure and accelerate the development of resistant populations, and therefore must not be used.
To ensure good performance in situations of high disease pressure it is of importance to adhere to dosages and spray timings as recommended by manufacturers. Highly curative late applications should be avoided. Mixing with a non-SBI fungicide at effective dose rates may contribute to a higher level of disease control.

The “morpholine” fungicides are effective non-cross-resistant partner fungicides for DMI’s on cereals for the control of powdery mildew.

QoI:

General guidelines for using QoI fungicides (all crops)

Fungicide programs must deliver effective disease management. Apply QoI fungicide based products at effective rates and intervals according to manufacturer's recommendations. Effective disease management is a critical component to delay the build-up of resistant pathogen populations.
The number of applications of QoI fungicide based products within a total disease management program must be limited whether applied straight or in mixtures with other fungicides. This limitation is inclusive to all QoI fungicides. Limitation of QoI fungicides within a spray programme provides time and space when the pathogen population is not influenced by QoI fungicide selection pressure.
A consequence of limitation of QoI fungicide based products is the need to alternate them with effective fungicides from different cross-resistance groups.
QoI fungicides, containing only the solo product, should be used in single or block applications in alternation with fungicides from a different cross-resistance group. Specific recommendation on size of blocks is given for specific crops.
QoI fungicides applied as tank mix or as a co-formulated mixture with an effective mixture partner, should be used in single or block applications in alternation with fungicides from a different cross-resistance group. Specific recommendations on size of blocks are given for specific crops.
Mixture partners for QoI fungicides should be chosen carefully to contribute to effective control of the targeted pathogen(s). The mixture partner must have a different mode of action, and in addition it may increase spectrum of activity or provide needed curative activity. Use of mixtures containing only QoI fungicides must not be considered as an anti-resistance measure.
Where local regulations do not allow mixtures, then strict alternations with non-cross resistant fungicides (no block applications) are necessary.
An effective partner for a QoI fungicide is one that provides satisfactory disease control when used alone on the target disease.
QoI fungicides are very effective at preventing spore germination and should therefore be used at the early stages of disease development (preventive treatment).

Guidelines for using QoI fungicides on cereal crops

Apply QoI fungicides always in mixtures with non-cross resistant fungicides to control cereal pathogens. At the rate chosen the respective partner(s) on its/ their own has/ have to provide effective disease control. Refer to manufacturers recommendations for rates.
Apply a maximum of 2 QoI fungicide containing sprays per cereal crop. Limiting the number of sprays is an important factor in delaying the build-up of resistant pathogen populations.
Apply QoI fungicides according to manufacturer’s recommendations for the target disease (or complex) at the specific crop growth stage indicated.
Apply the QoI fungicide preventively or as early as possible in the disease cycle. Do not rely only on the curative potential of QoI fungicides.
Split / reduced rate programmes, using repeated applications, which provide continuous selection pressure, accelerate the development of resistant populations and therefore must not be used.

The responsible usage of all these different measurements provides under the current knowledge an effective anti-resistance management strategy.

Implementation of the management strategy

BASF promotes an awareness of fungicide resistance management in product leaflets and training sessions to sales personnel, distributors and growers’ associations. The latest issues relating to fungicide resistance are discussed with the BASF technical managers from all regions of the world so that the in-

formation from individual countries can be passed on as quickly as possible to the other countries. In addition BASF actively participates in the FRAC meetings for all presently established Working Groups. In this way every attempt is made to formulate and promote resistance management strategies and the rational use of its fungicides.

Monitoring, reporting and reacting to changes in performance

The sensitivity of *Zymoseptoria tritici, Puccinia triticina, Pyrenophora teres, Ramularia collo-cygni* and *Rhynchosporium secalis* to DMIs is monitored by BASF on an annual or biannual basis in extensive monitoring studies over all important European cereal growing areas.
The sensitivity of *Blumeria graminis* and in future *Oculimacula* spp. to metrafenone is monitored by BASF including all countries where these pathogens are relevant.
The QoI sensitivity and/or presence of cytochrome *b* target site mutations (G143A, F129L, G137R) in *Zymoseptoria tritici, Puccinia triticina, Pyrenophora teres* and *Rhynchosporium secalis* are monitored by BASF on an annual or biannual basis in extensive monitoring studies over all important European cereal growing areas.
In case of field failure of BAS 758 00 F, which cannot be explained by other agronomic parameters, the sensitivity of the target pathogens of this Resistance Risk Analysis to mefentrifluconazole, metrafenone and pyraclostrobin will be analyzed.
Regulatory authorities will be informed at an early stage about all cases of field failure known to be due to resistance. Changes in sensitivity will be communicated in the FRAC working groups and may result in modifications to the recommended resistance management strategies.

Comments of zRMS:	BAS 758 00 F is intended for control of diseases in cereals with 1,5 l product/ha in the Maritime and NE EPPO climate zones and 0,5 l/ha and 1,0 l/ha in the SE EPPO climate zone. Maximum number of applications is 2, with a minimum of 14 days between applications and between growth stages 30-59. BAS 758 00 F is a mixture of three compounds with different modes of action. Mefentrifluconazole belongs to the chemical group of triazolinthiones and it is an inhibitor of ergosterol biosynthesis (SBI – Sterol Biosynthesis Inhibitors). According to Fungicide Resistance Action Committee active substance mefentrifluconazole (DMI fungicides class, FRAC group – G1 DMI) belongs to the group of fungicides that present a medium risk for resistance development. Mefentrifluconazole inhibits of cytochrome P450 sterol 14α-demethylase and as a results inhibits ergosterol synthesis and finally cell membrane disruption and inhibition of mycelium growth. It is the new active substance which the molecule has a unique structure among DMI fungicides. It is the special isopropanol azole: the triazole 'head' sits on the 'neck' of a slim isopropanol linker. The extremely good performance of the substance might be explained by the fact that this slim linker requires less energy to adjust to the target enzyme binding pocket (cytochrome P450 sterol 14α-demethylase) compared to conventional DMIs. However the current recommendation of the FRAC SBI Working Group is to consider all DMIs to be cross-resistant with each other. Metrafenone is classified by FRAC in the Mode of Action Group B, Cytoskeleton and Motor Proteins and within this class in B6 actin/myosin/fimbrin function and has the FRAC code 50 (aryl-phenyl-ketones). Pyraclostrobin belongs to the QoI fungicides (Quinone outside inhibitors) and to the subgroup C3 (inhibition of complex III) with the target site cytochrome *bc*1 at QoI site and the FRAC code 11 with the group name. The mode of action is the inhibition of mitochondrial respiration resulting from a blockage of the electron transport from ubihydroquinone to cytochrome c by means of a binding to the ubihydroquinone oxidation centre (Qo) of the cytochrome bc_1 complex (Complex III). This leads to a reduction of energy-rich ATP that is available to support a range of essential processes in the fungal cell. Mefentrifluconazole: FRAC determined the DMI fungicides as medium-risk compounds. Metrafenone: FRAC determined aryl-phenyl-ketone fungicides as medium-risk compounds.

	Pyraclostrobin FRAC determined the QoI fungicides in general as high-risk compounds. Pathogen risk: High risk pathogens: *Blumeria graminis, Ramularia collo-cygni* Medium risk pathogens: *Zymoseptoria tritici, Parastagonospora nodorum, Pyrenophora tritici-repentis, Pyrenophora teres, Oculimacula spp.* Low risk pathogens: *Puccinia spp., Rhynchosporium secalis* The Applicant presented combined risk analysis with two approaches – first is a diagram by Brent and Hollomon (2007) and the other a diagram published in the EPPO document "Efficacy evaluation of plant protection products, Resistance risk analysis, PP 1/213(4), (EPPO 2015)". The results show that the assessments of the combined pathogen x fungicide risks using both approaches are very similar. On the basis above mentioned analysis and data, the Applicant classified the combined risks as follows: DMI x pathogen: • low: *Puccinia* spp. • low to medium: *Rhynchosporium secalis, Parastagonospora nodorum, Oculimacula spp.* • medium: *Zymoseptoria tritici, Pyrenophora tritici-repentis, Pyrenophora teres* • medium to high: *Blumeria graminis* QoI x pathogen: • low: *Puccinia spp.* • low to medium: *Pyrenophora teres* (Monitoring data from 2020 showed that for BE, DE, IR, NL *P. teres* was medium to high risk pathogen) • medium: *Rhynchosporium secalis, Oculimacula spp.* • medium to high: *Zymoseptoria tritici, Parastagonospora nodorum, Pyrenophora tritici-repentis* • high: *Blumeria graminis* Metrafenon x pathogen: • medium: *Oculimacula spp.* • medium to high: *Blumeria graminis* What is more the Applicant used method to determine the cytochrome P450 binding constant to show very high value mefentrifluconazole binding constant. Giving strong binding of the cytochrome P450 by the substance may provide excellent control of the most shifted isolates (resistant) under severe infection conditions. For medium-risk and hihg risk pathogens under unrestricted use of BAS 758 00 F, risk is not acceptaptable, therefore the applicant proposed to implement resistance management strategies to obtain the reduction of selection pressure. Good agricultural practice leads to less infection pressure and limiting number of application is also important factor in preventing the build-up of resistant pathogen populations. That is why the use of the product is restricted to 2 application per season. What is more BAS 758 00 F should be applied in a preventive manner following the recommendations on the label, when population size of pathogens is lower and selection pressure is less (preventive applications, not curative or eradicative applications). This mixture (with all recommendation for using, with max application 2 times per season) will ensure maintenance of FRAC resistance management strategy. Nevertheless regulatory authorities should be informed about any new information which would change the resistance risk analysis.

3.4 Adverse effects on treated crops (KCP 6.4)

Adverse effects on treated crops were studied in efficacy trials (disease trials) as well as in 3 trials free of disease (where disease infection was much below 5%). Crops and varieties assessed in free of diseases trials are sumarized in Table 3.4-1 below and in Table 3.2-35 for efficacy trials. The detailed report of these trials can be seen in Appendix 5 and Appendix 7 of BAD (BASF DocID 2022/2034379). All principles mentioned in the Materials and methods were followed and also relate to the trials presented below.

Table 3.4-1: Crop/varieties included in free of diseases trials

Crop	No. trials	Varieties
winter wheat	1	Tobak
spring barley	1	Tesla
winter triticale	1	Trismart

3.4.1 Phytotoxicity to host crop (KCP 6.4.1)

Phytotoxicity was evaluated in a total of 205 efficacy trials and 3 trials free of disease. Trials were carried out on wheat, barley, rye, triticale and oats in countries across Europe over two seasons from 2019 to 2021 on a wide range of commercially grown varieties. Assessments were at the same time carried out to determine whether the application of the test product or of the reference products caused damage to the treated crops. The assessments were performed in compliance with EPPO Guideline PP 1/135 (3/4) (Phytotoxicity assessment). Crop selectivity was assessed on a whole plot basis and any damage symptoms were recorded as the percentage relative to untreated plots. Generally, no phytotoxicity symptoms caused by BAS 758 00 F at the proposed maximum use rate of 1.5 L/ha (in Maritime and North-East EPPO zones) and 1.0 L/ha (in South-East zone) were recorded in assessed trials. Only in one trial on wheat slight, transient symptoms of phytotoxicity (2.8%) were observed.
Details are provided in Appendix 7 of BAD (BASF DocID 2022/2034379).

Table 3.4-2 : Phytotoxicity of BAS 758 00 F – Efficacy trials (trials with and without disease)

Number of trials with…		Efficacy trials (208 trials)				
		with diseases (205 trials)			without diseases (3 trials)	
		BAS 758 00 F		Proline	BAS 758 00 F	Proline
		1.0 l/ha	1.5 l/ha	0.8 L/ha	1.5 l/ha	0.8 l/ha
No of trials conducted for each rate or product						
Maximum of phytotoxicity recorded during the trials	0% to 5%	39	164	203	3	3
	>5% to 10%	0	0	0	0	0
	>10% to 15%	0	0	0	0	0
	>15 %	0	0	0	0	0
Level of symptoms at the last assessments	0% to 5%	39	164	203	3	3
	>5% to 10%	0	0	0	0	0
	>10% to 15%	0	0	0	0	0
	>15 %	0	0	0	0	0

For crops and varieties assessed for phytotoxicity in efficacy trials please refer to Table 3.2-35. For crops and varieties assessed for phytotoxicity in trials free of disease refer to Table 3.4-1.

Comments of zRMS:	The applicant submitted 203 efficacy reports (for winter and spring wheat, winter and spring barley, winter triticale, rye, oats) where phytotoxicity of the product was also carried out at the proposed maximum use rate of 1,5 L/ha (in Maritime and North-East EPPO zones) and 1,0 L/ha (in South-East zone). What is more in the Maritime EPPO zone in 8 trials on winter wheat, in 7 trials on winter barley and in 1 trial on winter triticale phytotoxicity was assessed after the second application of the product with a minimum of 14 days between applications. In one trial conducted in PL, on winter wheat, var. Natula, phytotoxicity symptoms were observed on 12 and 19 DAA (2,75% and 1,75% respectively). The reference product (BoogieXPro) gave similar symptoms (3,5% and 2%). On 34 DAA symptoms disappeared. Phytotoxicity symptoms had no negative impact on yield, TWG and hectolitre weights of the harvested grains. Additionally the phytotoxicity was tested in 3 trials free of disease: in the Maritime EPPO zone (DE) on TRZAW, var. Tobak, BBCH 39 – 51; in the NE EPPO zone (PL) on HORVS, var. Tesla, BBCH 51-55 and TTLWI, var. Trismart, BBCH 49-51. No symptoms (in one PL trial symptoms were transient) of phytotoxicity were observed in either efficacy or disease-free trials. **Evaluation of the data submitted at the commenting stage** The applicant submitted 2 efficacy reports (for spelt), where phytotoxicity of the product was carried out at the proposed maximum use rate of 1,5 L/ha (in Maritime EPPO zones – DE). No symptoms of phytotoxicity were observed in efficacy trials.

3.4.2 Effect on the yield of treated plants or plant product (KCP 6.4.2)

Yields were assessed as the grain yield from a known harvested area corrected to an 86% dry matter (14% of moisture). The results are expressed in deci-tonnes per hectare (dt/ha) and as a percentage of untreated plots.
Results are available from 2 safety trials (where disease infection was below 5%). In these trials, BAS 758 00 F was compared to Proline. Summary is presented in Table 3.4-3 below, individual results in Appendix 10 of BAD (BASF DocID 2022/2034379).

Table 3.4-3: Yields in trials free of disease (dt/ha and % relative to untreated) – summary table

EPPO zone	Crop		Untreated	BAS 758 00 F 1.0 l/ha	BAS 758 00 F 1.5 l/ha	Proline 0.8 l/ha
North-East	barley	**average**	100.0	107.0	105.8	102.5
		(%)	46.0	49.3	48.7	47.2
		min-max	-	-	-	-
		n	1	1	1	1
	triticale	**average**	100.0	100.6	100.6	102.6
		(%)	72.7	73.2	73.2	74.7
		min-max	-	-	-	-
		n	1	1	1	1

Good yield responses were seen after fungicidal application, with BAS 758 00 F increasing yield up to 7% in free of disease trials (no or low disease values <5%). Standard offered an increase in yield about 3%. Based on the results it is concluded that no adverse effects on yield were seen from applications of BAS 765 00 F to cereal crops.

Comments of zRMS:	The effect of BAS 758 00 F on yield of spring barley and winter triticale was also assessed in 2 trials free of diseases. Trials were conducted in PL (NE EPPO zone). Yield in spring barley amounted [% of untreated plots]: 107,0 (1,0 L/ha) and 105,8 (1,5 l/ha). In trial with the standard product, yield amounted 102,5. Yield in winter triticale amounted [% of untreated plots]: 100,6 (1,0 L/ha) and 100,6 (1,5 l/ha). In trial with the standard product, yield amounted 102,6. It can be concluded that BAS 765 00 F showed no negative impact on yield (at dose rates 1,5 l/ha and 1,0 L/ha) of spring barley and winter triticale.

3.4.3 Effects on the quality of plants or plant products (KCP 6.4.3)

The effect of BAS 758 00 F on cereal quality was assessed by measuring hectoliter weight of harvested grain and thousand grain weight (TGW) in free of diseases trials. Thousand grain weight (TGW) was determined using an electric counter to produce 1000-grain sample lots for weighing. Results are presented as the weight of 1000 grains in grams, corrected to 86% dry matter content, and expressed as a percentage of untreated plots. Hectolitre weights were obtained in a similar manner by weighing a relevant sample size from each treatment and corrected for moisture content. Results are expressed as the weight of 100 litres of grain in kg and as a percent of untreated plots.

Thousand grain weight
Results are available from 2 trials (where disease infection was below 5%). In these trials, BAS 758 00 F was compared to Proline. Summary is presented in Table 3.4-4 below.

Table 3.4-4: Thousand grain weight in trials free of disease (g and % relative to untreated) – summary table

EPPO zone	Crop		Untreated	BAS 758 00 F 1.0 l/ha	BAS 758 00 F 1.5 l/ha	Proline 0.8 l/ha
North-East	barley	**average**	100.0	101.1	101.6	101.1

		(%)	59.4	60.0	60.3	60.0
		min-max	-	-	-	-
		n	1	1	1	1
	triticale	**average**	100.0	104.0	103.0	103.4
		(%)	46.7	48.6	48.1	48.3
		min-max	-	-	-	-
		n	1	1	1	1

BAS 758 00 F recorded thousand grain weight of 101%-104% relative to the untreated in diseases free trials. Therefore it is concluded that BAS 758 00 F has no adverse effects on hectolitre weight in barley.

Hectoliter weight
Results are available from 2 trials (where disease infection was below 5%). In these trials, BAS 758 00 F was compared to Proline. Summary is presented in Table 3.4-5 below.

Table 3.4-5: Hectoliter weight in trials free of disease (kg and % relative to untreated) – summary table

EPPO zone	Crop		Untreated	BAS 758 00 F 1.0 l/ha	BAS 758 00 F 1.5 l/ha	Proline 0.8 l/ha
North-East	barley	**average**	100.0	100.6	100.6	100.0
		(%)	63.2	63.5	63.5	63.2
		min-max	-	-	-	-
		n	1	1	1	1
	triticale	**average**	100.0	100.7	100.6	99.5
		(%)	77.5	78.1	78.0	77.2
		min-max	-	-	-	-
		n	1	1	1	1

BAS 758 00 F recorded hectoliter weight of 100%-101% relative to the untreated in diseases free trials. Therefore it is concluded that BAS 758 00 F has no adverse effects on hectolitre weight in barley.

Comments of zRMS:	The effect of BAS 758 00 F on spring barely and winter wheat was assessed by measuring hectoliter weight of harvested grain and thousand grain weight (TGW) in two PL free of diseases trials. BAS 758 00 F has no adverse effects on thousand grain weight and hectolitre weight in spring barley and winter triticale. There were no negative effects on yield and quality parameters after the application of 758 00 F. That is why no adverse effects on the quality of plants or plant products are expected.

3.4.4 Effects on transformation processes (KCP 6.4.4)

Bread-making - Wheat

The EPPO guideline PP 1/243 (2) indicates, that no transformation tests are necessary, if it can demonstrated, that no residues possibly affecting such processes are detectable. As proven in Part B, Section 7, no residues of the product have been found in the grains of the treated wheat. Therefore, no transformation studies on wheat are provided.

It is concluded that no residues appear in the grains of wheat and the transformation process studies are not required.

As described in Part B, Section 7, the results from residue studies from wheat can be extrapolated to rye and cover triticale. No residues of the product have been found in the grains of treated wheat. According to the possible extrapolation, these results are applicable to rye and triticale.
The EPPO guideline PP 1/243 provides general guidance on the need for data on transformation processes of harvested crops and is not specific to wheat. The EPPO guideline defines that no transformation tests are necessary, if the applicant can demonstrate that no residues possibly affecting such transformation processes are detectable. As the residue results for wheat are also applicable to rye and triticale, no residues of the product are expected in the treated grains of rye and triticale. Therefore, no transformation studies for rye and triticale were provided and are not seen as required.

Brewing study - Barley

Grains samples were taken from 2 trials conducted in 2019 on spring barley. Both trials received one applications of fungicide - full rate of BAS 758 00 F (1.5 l/ha) and other tested fungicides. The application timing followed the GAP table (one spray, fungicides diluted in 250 l/ha of water, applications conducted in BBCH from 61 to 69). The applications pattern also reflected the commercial practice. Trials were carried out under valid GEP certificate on field used for commercial production.

Grain samples were investigated at the chair of brewing and beverage technology-TUM/Weihenstephan (Lehrstuhl für Brau- und Getränketechnologie-BGT) with regard to brewing barley characteristics (specifications). The malting was done in the 1 kg micro malting system of the chair using the MEBAK standard method (45 % steeping degree, 5 steeping- and germination days, 18 °C down to 14.5 °C steeping- and germination temperature). The analyses were carried out using MEBAK standard methods by the laboratory of TUM-BGT.

The conclusion from the study is that results are similar between the untreated and the treated with various fungicides samples. Accordingly, no restrictions need apply for the use of BAS 758 00 F for barley grown for brewing. Details of results are presented in tables below.

Table 3.4-6: Malt analyses

		Check	BAS 76202F	BAS 76500F	BAS 758ARF	Check	BAS 76202F	BAS 76500F	BAS 758ARF
analysis	**unit**	**sample 1-1**	**sample 1-2**	**sample 1-3**	**sample 1-4**	**sample 2-1**	**sample 2-2**	**sample 2-3**	**sample 2-4**
water content	%	5.4	5.3	5.3	5.1	4.9	5.0	5.1	5.2
extract malt	%	76.8	76.4	76.5	77.7	76.4	76.1	76.3	77.4
extract malt d.m.	% d.m.	81.2	80.7	80.8	81.9	80.3	80.1	80.4	81.6
viscosity (related to 8,6 ww-%)		1.524	1.531	1.529	1.523	1.532	1.543	1.532	1.523
friability	%	73.9	76.8	73.2	75.3	74.1	73.9	72.3	75.8
1/1-steely	%	0.7	0.4	0.6	0.7	0.2	0.7	0.4	0.5
saccharification time	min.	5-10	5-10	5-10	5-10	5-10	5-10	5-10	5-10
final attenuation	%, app.	83.5	83.5	83.4	83.4	83.5	82.5	83.3	83.9
wort colour	EBC	2.8	3.2	2.9	3.2	2.9	3.1	3.2	3.0
pH		6.05	6.04	6.03	6.00	6.04	6.03	6.04	6.02
protein	%, d.m.	12.3	12.3	12.7	12.2	12.3	12.3	12.5	12.1
total soluble nitrogen	mg/100g malt d.m.	648	663	672	675	658	658	687	666
Kolbach index	%	32.9	33.7	33.1	34.6	33.4	33.4	34.4	34.4
free amino-N	mg/100g malt d.m.	111	107	99	97	117	112	113	103
beta-glucan 65 °C	mg/l	658	627	599	634	661	681	589	654
alpha amylase	DU, d.m.	52	53	53	48	54	48	61	53

Table 3.4-7: Wort analyses

sample		Check	BAS 76202F	BAS 76500F	BAS 758ARF	Check	BAS 76202F	BAS 76500F	BAS 758ARF
		sample 1-1	sample 1-2	sample 1-3	sample 1-4	sample 2-1	sample 2-2	sample 2-3	sample 2-4
gravity	GG %	11.14	11.15	11.2	11.08	11.28	11.45	11.31	11.15
gravity	GV %	11.61	11.63	11.69	11.55	11.77	11.95	11.81	11.63
app. degree of fermentation	%	77.1	76.7	77.1	77.6	78.4	79.4	80.1	79.5
pH		5.71	5.74	5.22	5.20	5.99	5.82	6.00	5.85
total nitrogen	mg/100 ml	90.6	93.2	92.1	93.7	95.0	97.1	96.8	92.6
total nitrogen (rel. to 12 GG %)	mg/100 ml	97.6	100.3	98.7	101.5	101.1	101.8	102.7	99.7
high molecular N	mg/100 ml	18.0	18.9	19.3	20.2	20.6	19.8	20.7	19.6
high molecular N (rel. to 12 GG %)	mg/100 ml	19.4	20.3	20.7	21.9	21.9	20.8	22.0	21.1
FAN	mg/100 ml	23.5	16.2	14.4	16.8	21.4	19.8	19.1	20.2
FAN (rel. to 12 GG %)	mg/100 ml	25.3	17.4	15.4	18.2	22.8	20.8	20.3	21.7
ß-Glucane	mg/l	460	503	504	541	546	553	551	516
ß-Glucane (rel. to 12 GG %)	mg/l	496	541	540	586	581	580	585	555
polyphenols	mg/l	207	204	203	208	189	209	206	194
polyphenols (rel. to 12 GG %)	mg/l	223	220	218	225	201	219	219	209
anthocyanogens	mg/l	106	107	107	104	104	105	112	113
anthocyanogens (rel. to 12 GG %)	mg/l	114	115	115	110	111	110	119	122
bitter units	EBC	49	45	46	48	44	43	46	45

Table 3.4-8: Beer analyses

			Check	BAS76202F	BAS76500F	BAS758ARF	Check	BAS76202F	BAS76500Ft	BAS758AR F
analysis			KS065	KS066	KS067	KS068	KS069	KS070	KS071	KS072
gravity (GG %)	MEBAK II 2.13.2.3	GG %	11.06	11.08	11.15	11.10	11.10	11.26	11.10	10.88
gravity (GV %)	MEBAK II 2.13.2.3	GV %	11.53	11.55	11.63	11.57	11.57	11.75	11.57	11.33
Alcohol (GG %)	NIR; OIML	GG %	3.56	3.57	3.60	3.60	3.62	3.66	3.62	3.53
Alcohol (Vol %)	NIR; OIML	Vol %	4.54	4.56	4.60	4.59	4.62	4.67	4.62	4.51
degree of fermentation, app.	NIR; OIML	%	64.1	64.1	64.3	64.5	79.5	79.1	79.5	79.1
pH	MEBAK II 2.17		4.48	4.42	4.42	4.42	4.70	4.60	4.60	4.50
colour	MEBAK II 2.16.2	EBC	3.5	3.7	3.5	3.8	3.4	3.7	3.5	3.3
viscosity	MEBAK I 4.1.4.4	mPa*s	1.531	1.562	1.582	1.547	1.538	1.553	1.553	1.527
foam according to NIBEM	MEBAK II 2.23.3	s	167	173	215	218	183	212	229	225
bitter units	MEBAK II 2.22.1	EBC	25	25	26	26	24	25	28	28

Table 3.4-9: Tasting results

Brew number	product	AWM	date	TUM-BGT	DLG-grade
K065	Check			sample 1-1	34.0
K066	BAS 76202F	1.0	ES 59-61	sample 1-2	38.4
K067	BAS 76500F	1.0	ES 59-61	sample 1-3	35.2
K068	BAS 758ARF	1.5	ES 59-61	sample 1-4	34.5
K069	Check			sample 2-1	36.0
K070	BAS 76202F	1.0	ES 61-63	sample 2-2	36.2
K071	BAS 76500F	1.0	ES 61-63	sample 2-3	36.6
K072	BAS 758ARF	1.5	ES 61-63	sample 2-4	35.6

Comments of zRMS:	In accordance with the EPPO guideline PP 1/243 (2) no transformation tests are necessary if no residues of the product are found in the grains of the treated wheat. Residue results can be extrapolate to rye and triticale, so transformation testing is not necessary for triticale and rye as well. In Part B, Section 7, the applicant provided information that no residues of the product were found in treated wheat grains. In that case there is no need for bread – making test. Moreover the impact of BAS 758 00 F on transformation processes was tested for barley in the study “Malting and brewing trails Evaluation of different barley varieties for brewing purposes”. The grain samples were from 2 trials conducted in 2019, in DE on spring barley. The tested product was applied once at the dose rate 1,5 L/ha and compared to two reference products. For malting and brewing of spring barley the following analyses were performed: Malt analyses Wort analyses

	Beer analyses Sensory beer analyses It might be concluded that BAS 758 00 F at the dose rate of 1,5 L/ha treatment did not have any direct effect on malt or beer quality.

3.4.5 Impact on treated plants or plant products to be used for propagation (KCP 6.4.5)

According to EPPO PP1/135 (4) the special study on propagation is not necessary for submission of BAS 758 00 F because after treatments in field trials practically no phytotoxic effects were seen. However, the specific case study was conducted. Results from glasshouse trials are presented in the document "Germination trials with harvested grains from wheat and barley treated with BAS 758 00 F". Studies were conducted to establish the germination capacity of grain treated twice with BAS 758 00 F. A summary of results is presented below.

Four winter wheat trials located in various European countries were treated twice with 1.5 L/ha of BAS 758 00 F at crop growth stage BBCH 39-41 and 59. Then samples were collected and tested for germination capacity There were no differences seen in the germination of treated grain compared to the untreated.
Two winter barley trails located in European countries were treated twice with 1.5 L/ha of BAS 758 00 F from which grain samples were collected and tested for germination capacity. There were no differences seen in the germination capacity of treated grain compared to untreated.

Summary and conclusion

Results of study indicate that previous foliar treatment with BAS 758 00 F does not have any impact on germination of harvested cereals. For more information, please refer to BAD (BASF Doc ID 2022/2029717).

Comments of zRMS:	In order to check the impact of the product on treated plants or plant products to be used for propagation, the applicant presented 4 glasshouse trials for winter wheat and 2 glasshouse trials for winter barley from different countries (DE, NL, PL, FR). The studies for seedling germination were conducted according to ISTA -method (chapter 5, The Germination Test, 2006). Wheat and barley were treated two times with 1,5 l./ha of BAS 758 00 F. After samples were collected the germination capacity of seeds were tested. The following varieties of wheat double treated at growth stage BBCH 39 -41 and 59 were tested: Linus, Bennington, Arkadia, Absalon. The germination of barley double treated at growth stage BBCH 37 -43 and 59 was tested for the following varieties: Infinity, Rafaela. It might be concluded that previous foliar treatment with BAS 758 00 F at the double dose rate of 1,5 L/ha did not show any significant differences in the germination capacity of treated grain, compared to untreated. It might be concluded that BAS 758 00 F at the double dose rate of 1,5 L/ha is safe for the germination of the grains of treated crops.

3.5 Observations on other undesirable or unintended side-effects (KCP 6.5)

3.5.1 Impact on succeeding crops (KCP 6.5.1)

The influence on germination and growth of different crops grown in substrate treated with BAS 758 00 F has been evaluated in pot trials in the glasshouse. This is to simulate the replanting of various crops following a field failure of a crop treated with BAS 758 00 F. Further reference can be found in the BAD (BASF DocID 2022/2034379).

Guidelines Covered;
EPPO Guideline PP 1/207 (2)
EPPO Guideline PP 1/135 (4)
ISTA method, 2004, chapter 5
BBCH scale 2nd Edition 1997
BASF SOP Succeeding Crops August 2014.docx

Table 3.5-1: Plant species tested in pot trial

Beta vulgaris	Sugar beet	var. Danicia
Brassica napus	Oilseed rape	var. Licapo
Daucus carota	Carrot	var. LagunaF1
Helianthus annuus	Sunflower	var. Sunrich Orange F1
Hordeum vulgare	Winter barley	var. Astrid
Solanum tuberosum	Potatoe	var. Bintje
Pisum sativum	Pea	var. Livioletta
Triticum aestivum	Winter wheat	var. Monopol
Vicia faba	Broad bean	var. Taifun
Zea mays	Maize	var. Ronaldinio

Before cultivation of the crops, BAS 758 00 F was incorporated into the substrate. According to the PEC soil calculation (see Annex 1 of source document and Table 3.5-2 below), a dose rate of 3.0 l/ha BAS 758 00 F (= 739,8 g active ingredient/ha Mefentrifluconazole + Pyraclostrobin + Metrafenone) was applied. This is the 2-fold targeted registration rate. All crops were sown five weeks after substrate application.

The trials were carried out in a greenhouse at a temperature between 18 – 22 °C, about 70 % relative humidity and 16 h light per day. The crops were watered by hand as necessary.

Phytotoxicity was assessed as a percentage of injured plants at GS 12.
Germination was evaluated by counting the seedlings according to the ISTA-methods (Chapter 5: The Germination Test, 2004), at GS 12.
Plant height in cm (for monocots) and plant weight (frersh matter) in g/plant for all crops were measured at GS 12.

PEC_{soil} was calculated for Mefentrifluconazole, Pyraclostrobin and Metrafenone after yearly, multi-year application of BAS 758 00 F to cereals (GAP scenario) and maximum concentration after application in the succeeding crop experiment at twice the application rate (SOP 2).

Table 3.5-2: PEC soil calculated for mefentrifluconazole, pyraclostrobin and metrafenone

Substance	GAP scenario	SOP 2 scenario

	$PEC_{soil,plateau}$ [mg/kg] (20 cm tillage)	$PEC_{soil,max}$ [mg/kg]	$PEC_{soil,accu}$ [mg/kg]	$PEC_{soil,act}$ [mg/kg]
Mefentrifluconazole	0.039	0.053	**0.092**	**0.154**
Metrafenone	0.018	0.071	**0.089**	**0.231**
Pyraclostrobin	**- ****	**0.057**	- **	**0.185**

** DT_{50} = 37d → No accumulation
Bold: relevant for the comparison between GAP scenario and the SOP-2 scenario

Results showed that none of the tested crops showed crop injury when grown in substrate treated with BAS 758 00 F. Moreover, none of the tested crops grown in substrate treated with BAS 758 00 F exhibited a negative influence on germination rate in relation to the untreated substrate. No negative effect on plant weight or plant height was observed.

It can be therefore concluded that there are no indications for expecting a risk of damage to following crops due to application of BAS 758 00 F. Thus, no restriction in the choice of succeeding crops, even in the event of crop failure, after the application of BAS 758 00 F is required.

Comments of zRMS:	The impact of the product BAS 758 00 F on succeeding crops was conducted and reported according to the following guidelines: EPPO Guideline PP 1/207 (2) EPPO Guideline PP 1/135 (4) ISTA method, 2004, chapter 5 BBCH scale 2nd Edition 1997 BASF SOP Succeeding Crops August 2014 Germination and growth of different commercial varieties of crops were tested in greenhouse pot trials. Before cultivation of the crops a double dose rate of 1,5 L/ha BAS 758 00 F was incorporated into substrate (739,8 g active substances/ha Mefentrifluconazole, Pyraclostrobin, Metrafenone). The following crops were tested: Sugar beet, Oilseed rape, Carrot, Sunflower, Winter barley, Potatoe, Pea, Winter wheat, Broad bean, Maize. No injury of the tested crops was observed grown in grown in substrate treated with BAS 758 00 F. Moreover, there were no negative effects on germination, plant weight, and plant height of crops grown in substrate treated with BAS 758 00 F. It might be concluded that BAS 765 00 F at the double dose rate of 1,5 L/ha has no risk of damage to above mentioned crops.

3.5.2 Impact on other plants including adjacent crops (KCP 6.5.2)

PP 1/256(1) suggests that data can usually be taken from the non-target plant testing. Therefore, reference is made to Part B Section 09 (KCP 10.6). The corresponding report is available under DocID 2020/2037665.

Executive Summary

In a vegetative vigor test, six species of dicotyledonous plants (carrot, lettuce, oilseed rape, cabbage, soya bean, tomato) and four species of monocotyledonous plants (onion, rye grass, wheat, corn) were exposed to BAS 758 00 F to evaluate eventual adverse effect. BAS 758 00 F was applied post-emergence at growth stage BBCH 12 – 14 at 1.5 L/ha. Per plant species one control group (tap water only) was tested. After application, the plants were cultivated for 21 days under greenhouse conditions. Assessments for phytotoxicity and plant survival were done 7, 14 and 21 days after treatment (DAT); assessment for single plant length was done 21 days after application; plant dry weight was determined at study termination 21 DAT.

After post-emergence application it can be concluded that BAS 758 00 F at 1.5 L/ha did not cause effects to plant survival of the tested plant species. No reduction of plant length was observed for all tested plant species except tomato following the application of 1.5 L/ha BAS 758 00 F at BBCH stage 12-14. Tomato showed slight plant length reduction with 4 % at the tested rate of 1.5 L/ha BAS 758 00 F. No influence of BAS 758 00 F on plant biomass was observed for all tested plant species except carrot following the application of 1.5 L/ha BAS 758 00 F at BBCH stage 12-14. Carrot showed slight plant biomass reduction with 8 % at the tested rate of 1.5 L/ha BAS 758 00 F.

Table 3.5-3: Effect of BAS 758 00 F on plant survival (% to untreated control) - 21 DAT

Plant species	Rate BAS 758 00 F [L/ha]	Number of living plants per replicate			Plant survival 21 DAT [%]
		7 DAT	14 DAT	21 DAT	
Carrot	0.0	6.0	6.0	6.0	100
	1.5	6.0	6.0	6.0	100
Lettuce	0.0	6.0	6.0	6.0	100
	1.5	6.0	6.0	6.0	100
Oilseed rape	0.0	6.0	6.0	6.0	100
	1.5	6.0	6.0	6.0	100
Cabbage	0.0	6.0	6.0	6.0	100
	1.5	6.0	6.0	6.0	100
Soybean	0.0	6.0	6.0	6.0	100
	1.5	6.0	6.0	6.0	100
Tomato	0.0	6.0	6.0	6.0	100
	1.5	6.0	6.0	6.0	100
Onion	0.0	6.0	6.0	6.0	100
	1.5	6.0	6.0	6.0	100
Ryegrass	0.0	6.0	6.0	6.0	100
	1.5	6.0	6.0	6.0	100
Wheat	0.0	6.0	6.0	6.0	100
	1.5	6.0	6.0	6.0	100
Corn	0.0	6.0	6.0	6.0	100
	1.5	6.0	6.0	6.0	100

Treatment not significantly different to control

Table 3.5-4: Effect of BAS 758 00 F on plant length and biomass (% to untreated control) - 21 DAT

Plant species	Plant length Rate - BAS 758 00 F [L/ha]		Biomass (dry) Rate - BAS 758 00 F [L/ha]	
	0.0	1.5	0.0	1.5
Carrot	100.0	101.9	100.0	92.5*
Lettuce	100.0	103.0	100.0	97.1
Oilseed rape	100.0	101.7	100.0	98.1
Cabbage	100.0	102.1	100.0	100.1
Soybean	100.0	104.2	100.0	100.4
Tomato	100.0	96.0*	100.0	96.1
Onion	100.0	101.6	100.0	103.5
Ryegrass	100.0	95.5	100.0	92.7
Wheat	100.0	100.3	100.0	101.2
Corn	100.0	98.8	100.0	95.7

* significantly different to the untreated control (Student t-test, α=0.05) - based on the plant length or biomass data

Table 3.5-5: No observed effects rates (NOER) and ER50 for plant survival, phytotoxicity, plant length and biomass reduction after application of BAS 758 00 F at BBCH stage 12-14 – 21 DAT

Plant species	Plant survival		Phytotoxicity*		Plant length		Biomass	
	NOER	ER_{50}	NOER	ER_{50}	NOER	ER_{50}	NOER	ER_{50}
Carrot	≥ 1.5	> 1.5	≥ 1.5	> 1.5	≥ 1.5	> 1.5	< 1.5	> 1.5
Lettuce	≥ 1.5	> 1.5	≥ 1.5	> 1.5	≥ 1.5	> 1.5	≥ 1.5	> 1.5
Oilseed rape	≥ 1.5	> 1.5	≥ 1.5	> 1.5	≥ 1.5	> 1.5	≥ 1.5	> 1.5
Cabbage	≥ 1.5	> 1.5	≥ 1.5	> 1.5	≥ 1.5	> 1.5	≥ 1.5	> 1.5
Soybean	≥ 1.5	> 1.5	≥ 1.5	> 1.5	≥ 1.5	> 1.5	≥ 1.5	> 1.5
Tomato	≥ 1.5	> 1.5	≥ 1.5	> 1.5	< 1.5	> 1.5	≥ 1.5	> 1.5
Onion	≥ 1.5	> 1.5	≥ 1.5	> 1.5	≥ 1.5	> 1.5	≥ 1.5	> 1.5
Ryegrass	≥ 1.5	> 1.5	≥ 1.5	> 1.5	≥ 1.5	> 1.5	≥ 1.5	> 1.5
Wheat	≥ 1.5	> 1.5	≥ 1.5	> 1.5	≥ 1.5	> 1.5	≥ 1.5	> 1.5
Corn	≥ 1.5	> 1.5	≥ 1.5	> 1.5	≥ 1.5	> 1.5	≥ 1.5	> 1.5

* estimated from assessment data

Post-emergence application of BAS 758 00 F under worst-case greenhouse conditions did not result in any treatment-related symptom of phytotoxicity for all tested species. The ER_{50} based on phytotoxicity, plant dry weight and height was > 1.5 L/ha BAS 758 00 F for all tested plant species (the highest rate tested). The NOER for plant survival, plant length and plant biomass is equal or higher than the tested rate of 1.5 L/ha BAS 758 00 F, except for plant length of tomato and plant biomass of carrot where the NOER is slightly below the maximum field rate of 1.5 L/ha BAS 758 00 F. Lower dose rates were not tested. As the observed effects are marginal, in those worst-case test conditions, a practical impact is considered negligible.

These data represent worst case scenario, in practice it would mean that all application landed on surrounded field, what is extremely unlikely. Therefore, this data justifies the recommendation of no restrictions on adjacent crops after the application of BAS 758 00 F.

Comments of zRMS:	The impact of the product BAS 758 00 F on other plants including adjacent crops was conducted and reported according to the following guidelines: OECD Guideline 227 OCSPP 850.4150 The following dicotyledonous plants: carrot, lettuce, oilseed rape, cabbage, soya bean, tomato and monocotyledonous plants: onion, rye grass, wheat, corn were tested in a vegetative vigour test. BAS 758 00 F was applied at dose rate 1,5 L/ha, post-emergence, at growth stage BBCH 12 – 14 of the plants which were cultivated under greenhouse conditions for 21 days. Plant survival, phytotoxicity, plant length, plant dry weight were assessed as negative symptoms for all tested plants. Based on plant survival, phyto-toxicity, plant dry weight and plant length, ER50 amounted > 1,5 l/ha BAS BAS 758 00 F/ha for all tested plant. NOER values was > 1,5 l/ha except for plant length of tomato and plant biomass of carrot where the NOER is slightly below the maximum field rate of 1,5 l/ha BAS 758 00 F. Basing on phytotoxicity symptoms for all tested plant species, it might be concluded that BAS 758 00 F at the dose rate 1,5 L/ha caused no negative effects or cause marginal effects. It can be concluded that no restrictions are required on adjacent crops when BAS 758 00 F is applied.

3.5.3 Effects on beneficial and other non-target organisms (KCP 6.5.3)

Detailed studies on the possible adverse effects to beneficial organisms are submitted and summarized in Part B, Section 9 (Ecotoxicology).

Summary and conclusion

As a conclusion of all studies conducted, BAS 758 00 F does not have any negative impact on the cultivation of the tested adjacent and succeeding crops.
This indicates that the product BAS 758 00 F presents an extremely small risk of damage to any adjacent and succeeding crop.
It may therefore be concluded that there are no grounds for expecting a risk of damage to adjacent and succeeding crops due to application of BAS 758 00 F.
There is no necessity to recommend any restrictions concerning adjacent and succeeding crops, resulting from application of BAS 758 00 F.

3.6 Other/special studies

Tank cleaning

The attachment “Effectiveness of Procedures for Cleaning Application Equipment and Protective Clothing” - BAS 758 00 F” provides results that flushing with water will satisfactorily remove residues of the product without the need of a specific tank cleaner (for more information see BAD - BASF DocID 2022/2034379).

Physical and chemical compatibility

The physical and chemical compatibility of BAS 758 00 F together with 24 other plant protection products/ mixtures of plant protection products were tested according to ASTM method E 1518-05. A static

and dynamic tests of the mixtures were done. The mixtures were prepared with rates recommended for tank mixtures. A list with the 24 tested plant protection products/mixtures is presented in Table 3.6-1 below.

The physical properties of the tested aqueous mixture showed that BAS 758 00 F is physically compatible with the tank mix partners described in this report under normal tank mix conditions.
Based on the fact that no indications of any chemical reaction were observed between the mixed products, BAS 758 00 F is apparently chemically compatible with the tank mix partners described in table below.

The full report on physical and chemical compatibility of BAS 758 00 F can be found in BAD (BASF DocID 2022/2034379).

Table 3.6-1: Products tested in mixture with BAS 758 00 F.

Mixture number	BAS number	Trade name	Formulation	Content active ingredient	Comment
1	BAS 700 09 F	Imtrex	EC	62.5 g/l fluxapyroxad	foaming possible
2	BAS 830 01 F		EC	60 g/L Metyltetraprole	
3	BAS 9314 1 F	Proline	EC	250 g/L Prothioconazole	foaming occurs, consider using anti-foam agent
4	BAS 008 00 D	Turbo	GR		fertilizer
	BAS 122 08 W	Medax Top	SC	300 g/l mepiquat chloride + 50 g/l prohexadione calcium	
	BAS 067 10 W	Camposan Extra	SL	660 g/l ethephon	
5	BAS 139 00 W	Medax Max	WG	5% prohexadione calcium + 7.5 % trinexapac ethyl	
6	BAS 139 00 W	Medax Max	WG	5% prohexadione calcium + 7.5 % trinexapac ethyl	foaming occurs, consider using anti-foam agent
	BAS 062 03 W	CCC750	SL	750 g/L chlormequat chloride	
7	BAS 9053 7 W	Moddus Start	DC	250 g/L Trinexapac ethyl	foaming occurs, consider using anti-foam agent
	BAS 062 03 W	CCC750	SL	750 g/L chlormequat chloride	
8	BAS 9053 6 W	Calma	EC	175 g/L Trinexapac-ethyl	foaming occurs, consider using anti-foam agent
9	BAS 044 26 H	Duplosan DP	SL	600 g/l dichloroprop-P	foaming occurs, consider using anti-foam agent
10	BAS 812 00 H	Bitahlon 4D	WG	5,4% florasulam + 71.4 % tritosulfuron	
	BAS 160 00 S	Dash EC	EC	none	adjuvant-system
11	BAS 951 70 H	Ariane C	EC	80 g/l clopyralid + 2.5 g/l florasulam + 100 g/l fluroxypyr	
12	BAS 9438 1 H	Axial 50 EC	EC	50 g/L pixonaden + 12,5 g/L cloquintocet mexyl	
	BAS 9126 0 S	Adigor	EC	none	adjuvant-system
13	BAS 9583 1 H	Atlantis Flex	WG	45 g/kg mesosulfuron-methyl + 67,5 g/kg propoxycarbazone-sodium+ 90 g/kg mefenpyr-diethyl (safener)	foaming occurs, consider using anti-foam agent.
	BAS 9140 1 S	Biopower	SL	none	adjuvant-system

Mixture number	BAS number	Trade name	Formulation	Content active ingredient	Comment
14	BAS 9377 0 H	Atlantis	WG	0,6% iodosulfuron metyl natrium + 3% mesosulfuron methyl	foaming occurs, consider using anti-foam agent
	BAS 9101 0 S	Actirob B	EC	842 g/L rapeseed oil methyl ester	adjuvant
15	BAS 9673 0 H	Avoxa	EC	33.3 g/L pinoxaden + 8.33 g/L pyroxsulam + 8.33 g/L cloquintocet-mexyl (safener)	
16	BAS 9512 0 H	Broadway	WG	22.8 % florasulam + 68.3 % pyroxsulam + 68.3 % cloquintocet-mexyl	foaming occurs, consider using anti-foam agent
17	BAS 9628 1 H	Pixxaro	EC	280 g/L fluroxypyr + 12 g/L halauxifen + 12.5 g/L cloquintocet-mexyl	foaming occurs, consider using anti-foam agent
18	BAS 9647 0 H	Zypar	OD	5 g/L florasulam + 6 g/L halauxifen + 6 g/L cloquintocet-mexyl (safener)	
19	BAS 9005 0 I	Pirimor Granulat	GR	50% piromicarb	foaming occurs, consider using anti-foam agent
20	BAS 314 03 I	Sumicidin Alpha	EC	50 g/l esfenvalerate	foaming possible
21	BAS 9034 4 I	Decis Forte	EC	100 g/L deltamethrin	foaming possible
22	BAS 9158 2 I	Karate Zeon	CS	100 g/L lambda-cyhalothrin	foaming possible
23	BAS 9146 0 I	Teppeki	WG	50 % floricamid	foaming occurs, consider using anti-foam agent
24	BAS 9512 0 H	Broadway	WG	22.8 % florasulam + 68.3 % pyroxsulam + 68.3 % cloquintocet-mexy	
	BAS 9101 1 S	Broadway Netzmittel	EC	95 % rapeseed oil methyl ester	

Comments of zRMS:	**Tank cleaning** The Applicant used a calculation method to estimate the effectiveness cleaning of spray application equipment after the use of BAS 758 00 F. "Double rinse Procedure without any cleaning agent were tested. For the evaluation, the application was calculated with a concentration of 1,5 l/ha of the product, diluted in 100 L water/ ha. The results showed that after a two-stage cleaning (each step with 10 % water in relation to the total tank capacity) the amount of the active ingredient is reduced to 1:1800 compared to the initial quantity. It means that the calculated amount of active substances carried over into a following application will be amounted 0,82 g a.s./ ha with an application rate of 400 l/ha. It might be concluded that the two-stage cleaning of field sprayer with water immediately after the use of BAS 758 00 F makes the contamination in the immediately following application negligible. According to DIN EN ISO 16119-2, a dilution factor of at least 1:400 must be achieved. Based on the results from phytotoxicity studies it might be concluded that even if a large amount of water and thus a large volume per hectare is sprayed out in the next application, which leads to a high concentration of the displaced active substances per hectare, no plant damage will occur. Because the formulation of the product is mixing with water protective clothing will be cleaned effectively when washed with usual laundry detergents. **Physical and chemical compatibility** The physical and chemical compatibility of BAS 758 00 F with 24 other mixtures of plant protection products was conducted and reported according to the ASTM method E 1518-05. A list with the 24 tested plant protection products/mixtures is presented in Table 3.6 1of dRR. Based on the static test (where the following parameters homogeneity were examined: foaming, pH – value (once), creaming, flocculation, lumping, phase separation, sedimenta-

	tion/sediment, re-dispersibility (after 2 hours), sieve residues/deposits) and dynamic test/Shear test (where the following parameters homogeneity were examined: pH - value (once), foaming, sieve residues/deposit), no indications of any chemical reaction were observed between the mixed products. It might be concluded that BAS 758 00 F is chemically compatible with mentioned tank mix partners in the table.

RegPest model analysis

The majority of claimed uses, especially very important pathogens like *Zymoseptoria* in wheat, are supported by many more trials than EPPO requirements. However, efficacy against some of the diseases in the North East zone is not always demonstrated by satisfying number of trials. Therefore results of trials conducted in other EPPO zones were used as supportive data. However these trials can be used as supportive only when it is assured that their results (evaluation of plant protection product efficacy and the assessment of the environmental effects of their application) are relevant for areas which are intended to support. This is proven with use of RegPest Model. This software enables a comparison of the climatic and soil conditions and the structure of crops by visualization on a map of the similarity of areas in Europe. Areas where trials were conducted were compared to areas for which were used as supportive. Summary of these analysis is presented in Table 3.6-2 below. Detailed reports are available in separate document (for more details see BAD - BASF DocID 2022/2034379).

Table 3.6-2: Summary of reports on comparison of regions.

Zone where trial was conducted (x) and similarity to region in other zone(s) (% value)		Trial ID	Crop	Pathogen	Report on comparison of regions
Mar	N-E				
X	86%, 85% 85%, 84%	DEV-F-2019-DE-C13-B-04.0-DE-D12-C13	TRZAW	PUCCST	Sachsen-Anhalt (Deutschland) and Dolnoslaskie (Polska) Sachsen-Anhalt (Deutschland) and Kujawsko-Pomorskie (Polska)
X	84%, 85% 82%, 82%	DEV-F-2019-DE-C19-A-04.0-DE-IHE-B07	TRZAW	PUCCST	Hannover (Deutschland) and Dolnoslaskie (Polska) Hannover (Deutschland) and Kujawsko-Pomorskie (Polska)
X	86%, 85% 85%, 84%	DEV-F-2020-DE-C11-D-04.0-DE-D12-C11	TRZAW	PUCCST	Sachsen-Anhalt (Deutschland) and Dolnoslaskie (Polska) Sachsen-Anhalt (Deutschland) and Kujawsko-Pomorskie (Polska)
X	84%, 85% 82%, 82%	DEV-F-2020-DE-C17-D-04.0-DE-D04-020	TRZAW	PUCCST	Hannover (Deutschland) and Dolnoslaskie (Polska) Hannover (Deutschland) and Kujawsko-Pomorskie (Polska)
X	86%, 86% 82%, 82%	DEV-F-2019-EX-C41-V-04.0-DE-VTF-428	HORVW	RHYNSE	Karlsruhe (Deutschland) and Dolnoslaskie (Polska) Karlsruhe (Deutschland) and Kujawsko-Pomorskie (Polska)
X	87%, 88% 86%, 86%	DEV-F-2020-DE-C32-D-04.0-DE-IHE-H09	HORVW	RHYNSE	Schleswig-Holstein (Deutschland) and Dolnoslaskie (Polska) Schleswig-Holstein (Deutschland) and Kujawsko-Pomorskie (Polska)

The minimum level of similarity between regions where trials are conducted and regions for which are used as supportive (region with high cereals production in Poland) is always above 80%. This is considered high similarity and risk of different behavior of the same plant protection product when applied in these regions is negligible. Therefore results of the trials are considered reliable for regions for which are used as supportive.

3.7 List of test facilities including the corresponding certificates

Table 3.7-1: List of test facilities

Con.	Institute/ Organisation	Address	GEP Doc ID
AT	BASF Osterreich GmbH	Millenium Tower Handelskai 94-96 1200 Wien	2019/1029138
BG	Eurofins EOOD	Zar Kalojan 5 5570 Letniza	2015/1143221
	Anadiag Bulgaria EOOD	Patriarha Ewtimij 21/52 Sofia 1142	2013/1423440
CZ	BASF spol. s r.o.	Safrankova 3 155 00 Praha 5	2016/1351528
	ADW AGRO, a.s.	Krahulov 76 Okrisky 675 21	2019/2046744
	InTec Agro Trials, s.r.o.	Blatnicka 179 687 24 Uhersky Ostroh	2019/2055093
	Zamedelsky vyzkumny ustav Kromeriz s.r.o.	Havlickova 2787/121 767 01 Kromeriz	2017/1192567
	Zkusebni stanice Kluky	Kluky 201 Kluky 39819	2016/1350647
	Zkusebni Stanice Trutnov	Volanovska 409 541 01 Trutnov	2017/1156065
DE	BASF SE	Agrarzentrum Limburgerhof Spreyerer Strasse 2 67117 Limburgerhof	2013/1412362 2018/1238674
	Hetterich Fieldwork GbR	Bambergerstraße Schwarzach-Düllstadt 97359	2019/2041586
DK	AARHUS UNIVER-SITY	Department of Agroecology DK-4200 Slagelse	2014/1321454 2020/2104176
	AGROLAB DEN-MARK A/S	Rojleskovvej 18 DK-5500 Middelfart	2014/1327634
	BASF A/S	KALVEBOD BRYGGE 45 2. S. 1560 COPENHAGEN V	2020/2079424
HU	BASF Hungária Kft.	Központi major. 6710 Szeged-Szentmihály	2017/1077283
	CPR Europe Kft.	Török Ignác u. 30 97 00 Szombathely	2016/1350307 2020/2091439
	SGS Hungária KFT	Sirály u.4 1124 Budapest	2019/2039376
LT	Institute of Agriculture	Instituto ave 1 Akademija, LT-58344	2013/1418041 2020/2105312
	Sia Agrolab Baltic	Ozoli, Kursisi pag. Saldus novads Kursisi, LV-3890	2017/1014490
LV	LPPRC, Ltd.	Struktoru iela 14a Riga LV-1039	2016/1350437
	BASF SIA	Lambertu iela 33 B Marupe LV-2167	2020/2079667
NL	BASF Nederland B.V.	Groningensingel 1, Arnhem, the Netherlands	2019/2047841
PL	UTP in Bydgoszcz	ul. Ks. Kordeckiego 20 85-225 Bydgoszcz	2010/1226832
	IPP-NRI Sosnicowice	ul. Gliwicka 29 44-153 Sośnicowice	2010/1226834
	IOR PIB Poznań	ul. Władysława Węgorka 20 60-318 Poznań	2011/1269209

Con.	Institute/ Organisation	Address	GEP Doc ID
	Staphyt Sp. z o.o	ul. Ziębicka 2 60-164 Poznań	2011/1269203
	BASF Polska Sp. z o.o.	Al. Jerozolimskie 154 02-326 Warszawa	2011/1269204
	Eurofins Agroscience Serv	Parkowa 6 Kaźmierz 64-530	2016/1318743
	SGS Polska Sp. z o.o.	Bema 83 01-233 Warsaw	2016/1350127
	Agreco Sp. z o.o.	Lipowa 21/1 53-124 Wrocław	2018/1181238
RO	AgroProspect SRL	Hoghiz Fantana Village nr. 1 Brasov country cod 507099	2013/1399864
	SGS Romania S.A.	Strada Bucovina 56 300668 Timisoara	2019/2038531
	BASF SRL	Morii, 21 917250 Tamadau Mare	2016/1135081
	EAS Romania	Muntele mic, nr 20 307210 GIARMATA	2015/1174500
SK	UKSUP	Matuskova 21 833 16 Bratislava	2016/1352907
	Gemerprodukt Valice OVD	Okruzna 3771 979 01 Rimavska Sobota	2016/1273733
	Fyse, Ltd	Skolska 88 991 09 Kolare	2016/1056229
	Berberis s.r.o.	Boliarov 54 044 47 Boliarov	2017/1224930
	Vyskumny ustav ra-stlinnej vyroby Piestany	Bratislavska cesta 122 921 68 Piestany	2017/1226421
UK	BASF Plc	WINDMILL AVENUE WOOLPIT Suffolk GL7 5PU	2013/1060882 2018/1015310
	Eurofins Agroscience Serv	Slade Lane Wilson Melbourne DE73 8AG	2018/1103451
	Cropworks Ltd.	Bankfoot Perth PH1 4AQ	2020/2036579

Appendix 1 Lists of data considered in support of the evaluation

List of data submitted by the applicant and relied on

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6/1	Kryszczuk, A.	2022	Biological Assessment Dossier update - BAS 758 00 F - Central Zone - zRMS: Poland 2022/2034379 BASF Polska Sp. z o.o., Warsaw, Poland no Unpublished	No	BASF
KCP 6.1/1	Valtin, M.	2022	Justification of the co-formulated mixture BAS 758 00 F for cereals 2022/2034063 BASF SE, Limburgerhof, Germany Fed.Rep. no Unpublished	No	BASF
KCP 6.2/1	Anonymous	2010	GEP Certificate - Uniwersytet Technologiczno - Przyrodniczy im. Jana i Jedrzeja Sniadeckich - Wydzial Rolnictwa i Biotechnologii - Katedra Fitopatologii i Mikologii Molekularnej, Bydgoszcz, Poland 2010/1226832 <none> no Unpublished	No	BASF
KCP 6.2/2	Anonymous	2010	GEP Certificate - Institute of Plant Protection - National Research Institute in Poznan - Sosnicowice Branch - Pesticide Efficacy Testing Department, Poland 2010/1226834 <none> no Unpublished	No	BASF
KCP 6.2/3	Anonymous	2011	GEP Certificate - Institut of Plant Protection - National Research Institute - Department of Plant Protection Products - Team for Fungicide Investigation, Poznan, Poland 2011/1269209 Institute of Plant Protection - National Research Institute, Poznan, Poland no Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2/4	Anonymous	2011	GEP Certificate - Agrostat Sp. z.o.o., Poland 2011/1269203 Agrostat Sp. z o.o., Poznan, Poland no Unpublished	No	BASF
KCP 6.2/5	Anonymous	2011	GEP Certificate - BASF Polska Sp. z.o.o., Warsaw, Poland 2011/1269204 BASF Polska Sp. z o.o., Warsaw, Poland no Unpublished	No	BASF
KCP 6.2/6	Anonymous	2013	GEP Certificate: BASF plc, United Kingdom, 2013 2013/1060882 BASF plc, Cheadle Cheshire SK8 6QG, United Kingdom no Unpublished	No	BASF
KCP 6.2/7	Anonymous	2013	GEP Certificate - Anadiag Bulgaria EOOD (2013) 2013/1423440 Anadiag Bulgaria EOOD, Plovdiv, Bulgaria no Unpublished	No	BASF
KCP 6.2/8	Anonymous	2013	GEP Certificate: BASF SE Agrarzentrum Limburgerhof, Germany, 2013 2013/1412362 BASF SE, Limburgerhof, Germany Fed.Rep. no Unpublished	No	BASF
KCP 6.2/9	Anonymous	2013	GEP certificate - Lithuanian Institute of Agriculture, Akademija Lithuania - 2013-2019 2013/1418041 Lithuanian Institute of Agriculture, Akademija, Lithuania no Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2/10	Anonymous	2013	GEP Certificate - SC AgroProspect SRL Brasov, Romania, 2013 2013/1399864 SC AgroProspect Srl, Brasov, Romania no Unpublished	No	BASF
KCP 6.2/11	Anonymous	2013	GEP Certificate: Agrolab A/S, Field Trials, Middelfart, Denmark, 2014 2014/1327634 Agrolab A/S, Middelfart, Denmark no Unpublished	No	BASF
KCP 6.2/12	Anonymous	2013	GEP Certificate - Aarhus University (diseases and pests), Slagelse, Denmark 2014-2019 2014/1321454 University of Aarhus, Slagelse, Denmark no Unpublished	No	BASF
KCP 6.2/13	Anonymous	2015	GEP Certicate: Eurofins Agroscience Services EOOD, Letnitsa, Bulgaria - 2015 2015/1143221 Eurofins Agroscience Services EOOD, Letnitsa, Bulgaria no Unpublished	No	BASF
KCP 6.2/14	Anonymous	2015	GEP Certificate: S.C. Eurofins Agroscience Services SRL, Timisoara, Romania, 2015 2015/1174500 Eurofins Agroscience Services SRL, Timisoara, Romania no Unpublished	No	BASF
KCP 6.2/15	Anonymous	2016	GEP Certificate - Eurofins Agroscience Service GmbH 2016 2016/1318743 Eurofins Agroscience Services GmbH, Stade, Germany Fed.Rep. no Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2/16	Anonymous	2016	GEP Certificate - S.C. BASF SRL Calarasi Romania - 2016 2016/1135081 S.C. BASF SRL, Calarasi, Romania no Unpublished	No	BASF
KCP 6.2/17	Anonymous	2016	GEP Certificate - Latvijas Augu aizsardzibas petniecias centrs, Riga, LV 2016/1350437 Latvian State Centre of Plant Protection, Riga, Latvia no Unpublished	No	BASF
KCP 6.2/18	Anonymous	2016	GEP Certificate: FYSE s.r.o., Kolare, Slovakia, 2016 2016/1056229 FYSE s.r.o., Kolare, Slovakia no Unpublished	No	BASF
KCP 6.2/19	Anonymous	2016	GEP Certificate - UKSUP - Ustredny Kontrolny a Skusobny Ustav Polnohospodarsky, Kosice, Slovakia 2016 2016/1352907 UKSUP - Ustredny Kontrolny a Skusobny Ustav Polnohospodarsky, Kosice, Slovakia no Unpublished	No	BASF
KCP 6.2/20	Anonymous	2016	GEP Certificate - Gemerprodukt Valice OVD, Rimavska Sobota, Slowakia 2016 - Translation 2016/1273733 Gemerprodukt Valice OVD, Rimavska Sobota, Slovakia no Unpublished	No	BASF
KCP 6.2/21	Laczynski, T.	2016	GEP Certificate - SGS Polska Sp. zo.o Warswa Poland - Translation 2016/1350127 SGS Polska Sp. zo.o., Warsaw, Poland no Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2/22	Anonymous	2016	GEP Certificate: Zkusebni stanice Kluky, spol. s r.o., Czech Republic - 2016 2016/1350647 Zkusebni stanice Kluky spol. s.r.o., Kluky, Czech Republic no Unpublished	No	BASF
KCP 6.2/23	Anonymous	2016	GEP Certificate - SynTech Research Hungary Kft. Szombathely Hungary - 2016 2016/1350307 SynTech Research Hungary Kft., Szombathely, Hungary no Unpublished	No	BASF
KCP 6.2/24	Anonymous	2016	GEP Certificate: BASF spol. s r.o., Praha, Czech Republic 2016/1351528 BASF spol. s.r.o., Prague, Czech Republic no Unpublished	No	BASF
KCP 6.2/25	Anonymous	2017	GEP Certificate: UAB Agrolab Baltic, Vilnius, Lithuania, 2017 2017/1014490 UAB Agrolab Baltic, Vilnius, Lithuania no Unpublished	No	BASF
KCP 6.2/26	Anonymous	2016	GEP Certificate: Zemedelsky Vyzkumny Ustav Kromeriz s.r.o., Poland 2016 2017/1192567 Zemedelsky Vyzkumny Ustav Kromeriz s.r.o., Kromeriz, Poland no Unpublished	No	BASF
KCP 6.2/27	Anonymous	2016	GEP Certificate - Zkusebni Stanice Trutnov s.r.o, Trutnov, Czech Republic - 2017 2017/1156065 ZST - Zkusebni Stanice Trutnov s.r.o, Trutnov, Czech Republic no Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2/28	Anonymous	2017	GEP Certificate - NPPC - Vyskumny ustav rastlinnej vyroby Piestany, Piestany, Slovakia 2017 2017/1226421 VURV - Vyskumny Ustav Rastlinnej Vyroby Piestany, Piestany, Slovakia no Unpublished	No	BASF
KCP 6.2/29	Anonymous	2017	GEP Certificate - Berberis s.r.o., Boliarov, Slowakia 2017/1224930 Berberis s.r.o., Boliarov, Slovakia no Unpublished	No	BASF
KCP 6.2/30	Anonymous	2017	GEP Certificate - BASF Hungaria Kft - Budapest - Hungaria - 2017 2017/1077283 BASF Hungaria Kft., Budapest, Hungary no Unpublished	No	BASF
KCP 6.2/31	Anonymous	2018	GEP Certificate: BASF plc, United Kingdom, 2018 2018/1015310 BASF plc, Cheadle Cheshire SK8 6QG, United Kingdom no Unpublished	No	BASF
KCP 6.2/32	Anonymous	2018	GEP Certificate - Eurofins Agroscience Services Ltd. - United Kingdom - 2018-2022 2018/1103451 Eurofins Agroscience Services Ltd., Melbourne Derbyshire DE73 8AG, United Kingdom no Unpublished	No	BASF
KCP 6.2/33	Anonymous	2018	GEP Certificate: AGRECO Sp. z o.o., Wroclaw, Poland 2018 2018/1181238 AGRECO Sp. z o.o., Wroclaw, Poland no Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2/34	Anonymous	2018	GEP Certificate - BASF SE Agrarzentrum Limburgerhof Germany - 2018 2018/1238674 BASF SE, Limburgerhof, Germany Fed.Rep. no Unpublished	No	BASF
KCP 6.2/35	Anonymous	2018	GEP Certificate - SGS Romania SA - AFL seed & Crop - 2018 2019/2038531 SGS Romania SA - AFL seed & Crop, Timisoara, Romania no Unpublished	No	BASF
KCP 6.2/36	Anonymous	2019	GEP Certificate - BASF Oesterreich GmbH Wien Austria - 2018-2023 2019/1029138 BASF Oesterreich GmbH, Wien, Austria Rep. of no Unpublished	No	BASF
KCP 6.2/37	Anonymous	2019	GEP Certificate - Hetterich Fieldwork GbR Schwarzach - Germany 2019/2041586 Hetterich Fieldwork GbR, Schwarzach, Germany Fed.Rep. no Unpublished	No	BASF
KCP 6.2/38	Anonymous	2018	GEP Certificate - ADW Agro As Krahulov Czech Republic - 2018 2019/2046744 ADW Agro A.s., Krahulov, Czech Republic no Unpublished	No	BASF
KCP 6.2/39	Anonymous	2018	Rozhodnuti InTec Agro Trials spol sro, Uhersky Ostroh, Czech Republic 2019/2055093 InTec Agro Trials spol sro, Uhersky Ostroh, Czech Republic no Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2/40	Anonymous	2014	GEP Certificate: SGS Hungaria Kft., Budapest, Hungary 2019/2039376 SGS Hungaria Kft., Budapest, Hungary no Unpublished	No	BASF
KCP 6.2/41	Anonymous	2019	GEP Certificate - BASF Nederland BV Arnhem 2019 2019/2047841 BASF Nederland BV, Arnhem, Netherlands no Unpublished	No	BASF
KCP 6.2/42	Anonymous	2020	GEP certificate of CPR Europe Kft Szombathely Hungary, 2020 2020/2091439 CPR Europe Kft., Szombathely, Hungary no Unpublished	No	BASF
KCP 6.2/43	Anonymous	2020	GEP Certificate - Aarhus University - Department of Agroecology (diseases and pests), Flakkebjerg, Denmark - 2020 2020/2104176 Aarhus University, Aarhus, Denmark no Unpublished	No	BASF
KCP 6.2/44	Anonymous	2020	GEP certificate BASF A/S Kobenhavn Denmark 2020 2020/2079424 BASF Denmark A/S, Copenhagen, Denmark no Unpublished	No	BASF
KCP 6.2/45	Anonymous	2020	GEP Certificate - Cropworks Limited, UK, April 2020 - Feb 2025 2020/2036579 Cropworks Ltd., Bankfoot Perth PH1 4AQ, United Kingdom no Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2/46	Anonymous	2019	GEP Certificate: SIA Baltic Trial Station, Riga, Latvia, 2019 - 2024 2020/2079667 SIA Agrolab Baltic, Riga, Latvia no Unpublished	No	BASF
KCP 6.2/47	Anonymous	2019	GEP certificates for Institute of Agriculture - LAMMC- Lithuania 2020/2105312 Department of Soil and Crop Management - Institut of Agriculture, LAMMC, Akademija, Lithuania no Unpublished	No	BASF
KCP 6.2/48	Anonymous	2021	GEP Certificate - BASF Polska Spolka zo.o Warszawa - Poland - 2021 2021/2012841 BASF Polska Sp. z o.o., Warsaw, Poland no Unpublished	No	BASF
KCP 6.2/49	Lopatka, A., Koza, P., Siebielec, G., Lysiak, M.	2012	Expert report regarding division of Europe into regions characterized by homogenous soil and climatic conditions, within the boundaries of which the results of efficacy evaluation of pesticides can be relevant for the entire region 2012/1368202 IUNG - Institute of Soil Science and Plant Cultivation - State Research Institute, Pulawy, Poland no Unpublished	No	BASF
KCP 6.2/50	Anonymous	2021	BAS 758 00 F - Report on comparison of regions 2021/2014621 IUNG - Institute of Soil Science and Plant Cultivation - State Research Institute, Pulawy, Poland no Unpublished	No	BASF
KCP 6.2/51	Kryszczuk, A.	2022	BAS 758 00 F - single trial results 2022/2034408 <none> yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.3/1	Stammler, G.	2021	BAS 758 00 F - Resistance Risk Analysis 2021/2020625 BASF SE, Limburgerhof, Germany Fed.Rep. no Unpublished	No	BASF
KCP 6.4.5/1	Erven, T.	2021	Malting and brewing trails - Evaluation of different barley varieties for brewing purposes 2021/2038441 Lehrstuhl fuer Brau- und Getraenketechnologie, Germany Fed.Rep. yes Unpublished	No	BASF
KCP 6.4.5/2	Schuster, A.	2021	Germination trials with harvested grains from Wheat and Barley treated with BAS 758 00 F 2021/2004016 BASF SE, Limburgerhof, Germany Fed.Rep. no Unpublished	No	BASF
KCP 6.5.1/1	Brahm, L.	2021	Cultivation of different crops in substrate treated with BAS 758 00 F (Succeeding crops study) 2020/2035487 BASF SE, Limburgerhof, Germany Fed.Rep. no Unpublished	No	BASF
KCP 6.5.2/1	Teresiak-Baumgart, P.	2020	Effects of BAS 758 00 F on vegetative vigour of ten species of terrestrial plants under greenhouse conditions 2020/2037665 Agro-Check Dr. Teresiak & Erdmann GbR, Lentzke, Germany Fed.Rep. yes Unpublished	No	BASF
KCP 6.6/1	Nord, S.	2020	Effectiveness of Procedures for Cleaning Application Equipment and Protective Clothing - BAS 758 00 F 2020/2108630 BASF SE, Limburgerhof, Germany Fed.Rep. no Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.6/2	Schlotterbeck, U.	2021	Physical and chemical compatibility in aqueous tank mixtures of BAS 758 BB F 2021/2000193 BASF SE, Limburgerhof, Germany Fed.Rep. no Unpublished	No	BASF
6.1	Anonymous	2015	REGISTRATION BAS 750F / SEPTTR / WHEAT BASF Trial ID: DEV-F-2015-BG-C01-A-04.0-BG-BG0-001 yes Unpublished	No	BASF
6.1	Anonymous	2015	REGISTRATION BAS 750F / SEPTTR / WHEAT BASF Trial ID: DEV-F-2015-BG-C01-A-04.0-BG-BG0-002 yes Unpublished	No	BASF
6.1	Anonymous	2015	REGISTRATION BAS 750F / SEPTTR / WHEAT BASF Trial ID: DEV-F-2015-DE-C01-A-04.0-DE-D07-023 yes Unpublished	No	BASF
6.1	Anonymous	2015	REGISTRATION BAS 750F / SEPTTR / WHEAT BASF Trial ID: DEV-F-2015-DE-C01-A-05.0-DE-D05-C01 yes Unpublished	No	BASF
6.1	Anonymous	2015	REGISTRATION BAS 750F / PUCCRE / WHEAT BASF Trial ID: DEV-F-2015-DE-C10-A-04.0-DE-D02-C10 yes Unpublished	No	BASF
6.1	Anonymous	2015	REGISTRATION BAS 750F / PUCCRE / WHEAT BASF Trial ID: DEV-F-2015-DE-C10-A-04.0-DE-D08-F10 yes Unpublished	No	BASF
6.1	Anonymous	2015	REGISTRATION BAS 750F / PUCCRE / WHEAT BASF Trial ID: DEV-F-2015-DE-C10-A-04.0-DE-D12-C10 yes Unpublished	No	BASF

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6.1	Anonymous	2015	REGISTRATION BAS 750F / SEPTTR / WHEAT BASF Trial ID: DEV-F-2015-DK-C01-A-04.0-DK-DK1-200 yes Unpublished	No	BASF
6.1	Anonymous	2015	REGISTRATION BAS 750F / SEPTTR / WHEAT BASF Trial ID: DEV-F-2015-DK-C01-A-04.0-DK-DK1-201 yes Unpublished	No	BASF
6.1	Anonymous	2015	REGISTRATION BAS 750F / SEPTTR / WHEAT BASF Trial ID: DEV-F-2015-EX-C01-V-04.0-DE-VTF-452 yes Unpublished	No	BASF
6.1	Anonymous	2015	REGISTRATION BAS 750F / SEPTTR / WHEAT BASF Trial ID: DEV-F-2015-EX-C01-V-04.0-DE-VTF-541 yes Unpublished	No	BASF
6.1	Anonymous	2015	HOM BAS 750 F / BLE / SEPTORIOSE BASF Trial ID: DEV-F-2015-FR-C01-A-01.0-FR-FRB-B87 yes Unpublished	No	BASF
6.1	Anonymous	2015	HOM BAS 750 F / BLE / SEPTORIOSE BASF Trial ID: DEV-F-2015-FR-C01-A-01.0-FR-FRE-E50 yes Unpublished	No	BASF
6.1	Anonymous	2015	HOM BAS 750 F / BLE / ROUILLE BRUNE BASF Trial ID: DEV-F-2015-FR-C10-A-01.0-FR-FRB-B86 yes Unpublished	No	BASF
6.1	Anonymous	2015	HOM BAS 750 F / BLE / ROUILLE BRUNE BASF Trial ID: DEV-F-2015-FR-C10-A-01.0-FR-FRE-E83 yes Unpublished	No	BASF

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6.1	Anonymous	2015	REGISTRATION BAS 750F / PUCCRE / WHEAT BASF Trial ID: DEV-F-2015-HU-C10-A-03.0-HU-HU0-BI1 yes Unpublished	No	BASF
6.1	Anonymous	2015	REGISTRATION BAS 750F / PUCCRE / WHEAT BASF Trial ID: DEV-F-2015-HU-C10-A-03.0-HU-HU1-001 yes Unpublished	No	BASF
6.1	Anonymous	2015	REGISTRATION BAS 750F / PUCCRE / WHEAT BASF Trial ID: DEV-F-2015-NL-C10-A-03.1-NL-NL4-406 yes Unpublished	No	BASF
6.1	Anonymous	2015	REGISTRATION BAS 750F / SEPTTR / WHEAT BASF Trial ID: DEV-F-2015-PL-C01-A-04.0-PL-PL2-022 yes Unpublished	No	BASF
6.1	Anonymous	2015	REGISTRATION BAS 750F / PUCCRE / WHEAT BASF Trial ID: DEV-F-2015-PL-C10-A-03.0-PL-PLC-112 yes Unpublished	No	BASF
6.1	Anonymous	2015	REGISTRATION BAS 750F / SEPTTR / WHEAT BASF Trial ID: DEV-F-2015-RO-C01-A-03.0-RO-RO0-001 yes Unpublished	No	BASF
6.1	Anonymous	2015	REGISTRATION BAS 750F / SEPTTR / WHEAT BASF Trial ID: DEV-F-2015-RO-C01-A-03.0-RO-RO0-002 yes Unpublished	No	BASF
6.1	Anonymous	2015	REGISTRATION BAS 750F / SEPTTR / WHEAT BASF Trial ID: DEV-F-2015-UK-C01-A-02.0-UK-UK5-N08 yes Unpublished	No	BASF

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6.1	Anonymous	2015	REGISTRATION BAS 750F / PUCCRE / WHEAT BASF Trial ID: DEV-F-2015-UK-C10-A-01.0-UK-UK3-I10 yes Unpublished	No	BASF
6.1	Anonymous	2017	AZOLE COMPARISON / RUST DISEASES , SEPTTR / WHEAT BASF Trial ID: DEV-F-2017-BG-C66-A-03.1-BG-BG0-074 yes Unpublished	No	BASF
6.1	Anonymous	2017	AZOLE COMPARISON / RUST DISEASES , SEPTTR / WHEAT BASF Trial ID: DEV-F-2017-BG-C66-A-03.1-BG-BG0-075 yes Unpublished	No	BASF
6.1	Anonymous	2017	AZOLE COMPARISON / RUST DISEASES , SEPTTR / WHEAT BASF Trial ID: DEV-F-2017-DE-C66-A-03.0-DE-D08-C66 yes Unpublished	No	BASF
6.1	Anonymous	2017	AZOLE COMPARISON / RUST DISEASES , SEPTTR / WHEAT BASF Trial ID: DEV-F-2017-DE-C66-K-03.0-DE-DE0-001 yes Unpublished	No	BASF
6.1	Anonymous	2017	AZOLE COMPARISON / RUST DISEASES , SEPTTR / WHEAT BASF Trial ID: DEV-F-2017-DK-C66-A-03.1-DK-DK1-208 yes Unpublished	No	BASF
6.1	Anonymous	2017	AZOLE COMPARISON / SEPTTR / WHEAT BASF Trial ID: DEV-F-2017-EX-C66-V-04.0-DE-VTF-458 yes Unpublished	No	BASF
6.1	Anonymous	2017	COMPARAISON TRIAZOLES / BLE / SEPTORIOSE BASF Trial ID: DEV-F-2017-FR-C66-A-02.0-FR-FRE-E87 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.1	Anonymous	2017	AZOLE COMPARISON / RUST DISEASES , SEPTTR / WHEAT BASF Trial ID: DEV-F-2017-PL-C66-A-03.1-PL-PL1-041 yes Unpublished	No	BASF
6.1	Anonymous	2017	AZOLE COMPARISON / RUST DISEASES , SEPTTR / WHEAT BASF Trial ID: DEV-F-2017-PL-C66-A-03.1-PL-PLC-117 yes Unpublished	No	BASF
6.1	Anonymous	2017	AZOLE COMPARISON / SEPTTR / WHEAT BASF Trial ID: DEV-F-2017-UK-C66-B-02.0-IE-IE0-T04 yes Unpublished	No	BASF
6.1	Anonymous	2017	AZOLE COMPARISON / SEPTTR / WHEAT BASF Trial ID: DEV-F-2017-UK-C66-B-02.0-UK-UK4-R23 yes Unpublished	No	BASF
6.1	Anonymous	2017	T2 / BLATTKRANKHEITEN / AZOLVERGLEICH BASF Trial ID: MKD-F-2017-DE-007-A-02.0-DE-D09-710 yes Unpublished	No	BASF
6.1	Anonymous	2015	REGISTRATION BAS 750F / RHYNSE, RUST / BARLEY BASF Trial ID: DEV-F-2015-BG-C31-A-03.0-BG-EAS-001 yes Unpublished	No	BASF
6.1	Anonymous	2015	REGISTRATION BAS 750F / RHYNSE, RUST / BARLEY BASF Trial ID: DEV-F-2015-CZ-C31-A-03.0-CZ-CZ6-013 yes Unpublished	No	BASF
6.1	Anonymous	2015	REGISTRATION BAS 750F / RHYNSE, RUST / BARLEY BASF Trial ID: DEV-F-2015-DE-C31-A-04.0-DE-D05-C31 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.1	Anonymous	2015	REGISTRATION BAS 750 F / RAMUCC - TIMING / BARLEY BASF Trial ID: DEV-F-2015-DE-C42-A-04.0-AT-AT1-029 yes Unpublished	No	BASF
6.1	Anonymous	2015	REGISTRATION BAS 750 F / RAMUCC - TIMING / BARLEY BASF Trial ID: DEV-F-2015-DE-C42-A-04.0-DE-D01-019 yes Unpublished	No	BASF
6.1	Anonymous	2015	REGISTRATION BAS 750 F / RAMUCC - TIMING / BARLEY BASF Trial ID: DEV-F-2015-DE-C42-A-04.0-DE-D07-020 yes Unpublished	No	BASF
6.1	Anonymous	2015	REGISTRATION BAS 750 F / RAMUCC - TIMING / BARLEY BASF Trial ID: DEV-F-2015-DE-C42-A-04.0-DE-D09-500 yes Unpublished	No	BASF
6.1	Anonymous	2015	REGISTRATION BAS 750F / RHYNSE, RUST / BARLEY BASF Trial ID: DEV-F-2015-DK-C31-A-03.0-DK-DK1-001 yes Unpublished	No	BASF
6.1	Anonymous	2015	REGISTRATION BAS 750F / RHYNSE, RUST / BARLEY BASF Trial ID: DEV-F-2015-DK-C31-A-03.0-DK-DK1-002 yes Unpublished	No	BASF
6.1	Anonymous	2015	REGISTRATION BAS 750 F / RAMUCC - TIMING / BARLEY BASF Trial ID: DEV-F-2015-DK-C42-A-03.0-DK-DK1-001 yes Unpublished	No	BASF
6.1	Anonymous	2015	REGISTRATION BAS 750 F / RAMUCC - TIMING / BARLEY BASF Trial ID: DEV-F-2015-DK-C42-A-03.0-DK-DK1-002 yes Unpublished	No	BASF

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6.1	Anonymous	2015	REGISTRATION BAS 750F / RHYNSE, RUST / BARLEY BASF Trial ID: DEV-F-2015-EX-C31-V-04.0-DE-VTF-440 yes Unpublished	No	BASF
6.1	Anonymous	2015	REGISTRATION BAS 750 F / RAMUCC - TIMING / BARLEY BASF Trial ID: DEV-F-2015-EX-C42-V-04.0-DE-VTF-436 yes Unpublished	No	BASF
6.1	Anonymous	2015	REGISTRATION BAS 750 F / RAMUCC - TIMING / BARLEY BASF Trial ID: DEV-F-2015-EX-C42-V-04.0-DE-VTF-438 yes Unpublished	No	BASF
6.1	Anonymous	2015	HOM BAS 750 F / ORGE / RHYNCHOSPORIOSE / ROUILLE NAINE BASF Trial ID: DEV-F-2015-FR-C31-A-01.0-FR-FR2-282 yes Unpublished	No	BASF
6.1	Anonymous	2015	HOM BAS 750 F / ORGE / RHYNCHOSPORIOSE / ROUILLE NAINE BASF Trial ID: DEV-F-2015-FR-C31-A-01.0-FR-FR7-736 yes Unpublished	No	BASF
6.1	Anonymous	2015	HOM BAS 750 F / ORGE / RHYNCHOSPORIOSE / ROUILLE NAINE BASF Trial ID: DEV-F-2015-FR-C31-A-01.0-FR-FRB-B17 yes Unpublished	No	BASF
6.1	Anonymous	2015	HOM BAS 750 F / ORGE / RHYNCHOSPORIOSE / ROUILLE NAINE BASF Trial ID: DEV-F-2015-FR-C31-A-01.0-FR-FRE-E73 yes Unpublished	No	BASF
6.1	Anonymous	2015	HOM BAS 750F, 734F / ORGE / RHYNCHOSPORIOSE, ROUILLE NAINE BASF Trial ID: DEV-F-2015-FR-C31-B-01.0-FR-FRE-E57 yes Unpublished	No	BASF

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6.1	Anonymous	2015	HOM BAS 750 F - TIMING APP / ORGE / RAMULARIOSE BASF Trial ID: DEV-F-2015-FR-C42-A-01.0-FR-FR9-910 yes Unpublished	No	BASF
6.1	Anonymous	2015	HOM BAS 750 F - TIMING APP / ORGE / RAMULARIOSE BASF Trial ID: DEV-F-2015-FR-C42-A-01.0-FR-FRB-B16 yes Unpublished	No	BASF
6.1	Anonymous	2015	REGISTRATION BAS 750F / RHYNSE, RUST / BARLEY BASF Trial ID: DEV-F-2015-PL-C31-A-03.0-PL-PLD-001 yes Unpublished	No	BASF
6.1	Anonymous	2015	REGISTRATION BAS 750 F / RAMUCC - TIMING / BARLEY BASF Trial ID: DEV-F-2015-PL-C42-A-03.0-PL-PLF-010 yes Unpublished	No	BASF
6.1	Anonymous	2015	REGISTRATION BAS 750 F / RAMUCC - TIMING / BARLEY BASF Trial ID: DEV-F-2015-UK-C42-A-01.0-IE-IE0-T06 yes Unpublished	No	BASF
6.1	Anonymous	2016	HOM BAS 756 F / ORGE / RAMULARIOSE BASF Trial ID: DEV-F-2016-FR-C47-A-01.0-FR-FR2-217 yes Unpublished	No	BASF
6.1	Anonymous	2018	EVALUATION BAS 763 F / PYRNTE / BARLEY BASF Trial ID: DEV-F-2018-BG-C34-A-03.1-BG-BG0-075 yes Unpublished	No	BASF
6.1	Anonymous	2018	EVALUATION BAS 763 F / PYRNTE / BARLEY BASF Trial ID: DEV-F-2018-BG-C34-A-03.1-BG-BG0-084 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.1	Anonymous	2018	EVALUATION BAS 763 F / PYRNTE / BARLEY BASF Trial ID: DEV-F-2018-DE-C34-A-04.0-DE-D11-C34 yes Unpublished	No	BASF
6.1	Anonymous	2018	EVALUATION BAS 763 F / PYRNTE / BARLEY BASF Trial ID: DEV-F-2018-DE-C34-A-04.0-DE-D12-C34 yes Unpublished	No	BASF
6.1	Anonymous	2018	EVALUATION BAS 763 F / PYRNTE / BARLEY BASF Trial ID: DEV-F-2018-DE-C34-A-04.0-DE-D17-018 yes Unpublished	No	BASF
6.1	Anonymous	2018	REVYSOL PERFORMANCE / RAMUCC - DMI-RES / WHEAT BASF Trial ID: DEV-F-2018-DE-C53-A-04.0-AT-AT1-023 yes Unpublished	No	BASF
6.1	Anonymous	2018	REVYSOL PERFORMANCE / RAMUCC - DMI-RES / WHEAT BASF Trial ID: DEV-F-2018-DE-C53-A-04.0-DE-D01-021 yes Unpublished	No	BASF
6.1	Anonymous	2018	REVYSOL PERFORMANCE / RAMUCC - DMI-RES / WHEAT BASF Trial ID: DEV-F-2018-DE-C53-A-04.0-DE-D07-022 yes Unpublished	No	BASF
6.1	Anonymous	2018	REVYSOL PERFORMANCE / RAMUCC - DMI-RES / WHEAT BASF Trial ID: DEV-F-2018-DE-C53-A-04.0-DE-D09-817 yes Unpublished	No	BASF
6.1	Anonymous	2018	EVALUATION BAS 763 F / ORGE / HELMINTHOSPORIOSE BASF Trial ID: DEV-F-2018-FR-C34-A-01.0-FR-FR2-220 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.1	Anonymous	2018	PERFORMANCE REVYSOL / ORGE / RAMULARIOSE/ RES BASF Trial ID: DEV-F-2018-FR-C53-A-01.0-FR-FR1-119 yes Unpublished	No	BASF
6.1	Anonymous	2018	EVALUATION BAS 763 F / PYRNTE / BARLEY BASF Trial ID: DEV-F-2018-HU-C34-A-03.1-HU-HU0-SY1 yes Unpublished	No	BASF
6.1	Anonymous	2018	EVALUATION BAS 763 F / PYRNTE / BARLEY BASF Trial ID: DEV-F-2018-LT-C34-A-03.1-LT-LT0-AL1 yes Unpublished	No	BASF
6.1	Anonymous	2018	EVALUATION BAS 763 F / PYRNTE / BARLEY BASF Trial ID: DEV-F-2018-LV-C34-A-03.1-LV-LV0-092 yes Unpublished	No	BASF
6.1	Anonymous	2018	EVALUATION BAS 763 F / PYRNTE / BARLEY BASF Trial ID: DEV-F-2018-LV-C34-A-03.1-LV-LV0-AL1 yes Unpublished	No	BASF
6.1	Anonymous	2018	EVALUATION BAS 763 F / PYRNTE / BARLEY BASF Trial ID: DEV-F-2018-PL-C34-A-03.1-PL-PLB-B34 yes Unpublished	No	BASF
6.1	Anonymous	2018	EVALUATION BAS 763 F / PYRNTE / BARLEY BASF Trial ID: DEV-F-2018-PL-C34-A-03.1-PL-PLJ-001 yes Unpublished	No	BASF
6.1	Anonymous	2018	EVALUATION BAS 763 F / PYRNTE / BARLEY BASF Trial ID: DEV-F-2018-PL-C34-A-03.1-PL-PLK-006 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.1	Anonymous	2018	EVALUATION BAS 763 F / PYRNTE / BARLEY BASF Trial ID: DEV-F-2018-SK-C34-A-03.1-SK-SK0-G15 yes Unpublished	No	BASF
6.1	Anonymous	2018	EVALUATION BAS 763 F / PYRNTE / BARLEY BASF Trial ID: DEV-F-2018-SK-C34-A-03.1-SK-SK0-V11 yes Unpublished	No	BASF
6.1	Anonymous	2018	EVALUATION BAS 763 F / PYRNTE / BARLEY BASF Trial ID: DEV-F-2018-UK-C34-A-02.0-UK-UK3-Z14 yes Unpublished	No	BASF
6.1	Anonymous	2018	EVALUATION BAS 763 F / PYRNTE / BARLEY BASF Trial ID: DEV-F-2018-UK-C34-A-02.0-UK-UK4-N20 yes Unpublished	No	BASF
6.1	Anonymous	2018	EVALUATION BAS 763 F / PYRNTE / BARLEY BASF Trial ID: DEV-F-2018-UK-C34-A-02.0-UK-UK4-R15 yes Unpublished	No	BASF
6.1	Anonymous	2019	JUSTIFICATION OF BAS 832 F / RAMUCC / BARLEY BASF Trial ID: DEV-F-2019-DE-C47-A-04.0-AT-AT1-023 yes Unpublished	No	BASF
6.1	Anonymous	2019	JUSTIFICATION OF BAS 832 F / RAMUCC / BARLEY BASF Trial ID: DEV-F-2019-DE-C47-A-04.0-DE-D09-911 yes Unpublished	No	BASF
6.1	Anonymous	2019	PAVECTO AND REVYSOL PERFORMANCE / RAMUCC / BARLEY BASF Trial ID: DEV-F-2019-DE-C48-A-05.0-DE-D01-019 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.1	Anonymous	2019	PAVECTO AND REVYSOL PERFORMANCE / RAMUCC / BARLEY BASF Trial ID: DEV-F-2019-DE-C48-A-05.0-DE-D08-C48 yes Unpublished	No	BASF
6.1	Anonymous	2019	PAVECTO AND REVYSOL PERFORMANCE / RAMUCC / BARLEY DEV-F-2019-DE-C48-A-05.0-DE-D09-912 yes Unpublished	No	BASF
6.1	Anonymous	2019	PAVECTO AND REVYSOL PERFORMANCE / RAMUCC / BARLEY BASF Trial ID: DEV-F-2019-DK-C48-A-04.0-DK-DK1-204 yes Unpublished	No	BASF
6.1	Anonymous	2019	JUSTIFICATION DU BAS 832 F /ORGE/ RAMULARIOSE BASF Trial ID: DEV-F-2019-FR-C47-A-01.0-FR-FRZ-Z55 yes Unpublished	No	BASF
6.1	Anonymous	2019	JUSTIFICATION DU BAS 832 F /ORGE/ RAMULARIOSE BASF Trial ID: DEV-F-2019-FR-C48-A-02.0-FR-FR2-227 yes Unpublished	No	BASF
6.1	Anonymous	2019	JUSTIFICATION DU BAS 832 F /ORGE/ RAMULARIOSE BASF Trial ID: DEV-F-2019-FR-C48-A-02.0-FR-FR4-479 yes Unpublished	No	BASF
6.1	Anonymous	2019	JUSTIFICATION OF BAS 832 F / PYRNTE / BARLEY BASF Trial ID: DEV-F-2019-PL-C37-A-02.0-PL-PLC-112 yes Unpublished	No	BASF
6.1	Anonymous	2019	JUSTIFICATION OF BAS 832 F / PYRNTE / BARLEY BASF Trial ID: DEV-F-2019-UK-C37-A-01.0-UK-UK3-B24 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.1	Anonymous	2019	JUSTIFICATION OF BAS 832 F / PYRNTE / BARLEY BASF Trial ID: DEV-F-2019-UK-C37-A-01.0-UK-UK3-K23 yes Unpublished	No	BASF
6.1	Anonymous	2019	JUSTIFICATION OF BAS 832 F / RAMUCC / BARLEY BASF Trial ID: DEV-F-2019-UK-C47-A-01.0-UK-UK3-F18 yes Unpublished	No	BASF
6.1	Anonymous	2020	CONTROL OF RAMULARIA COLLO-CYGNI IN BARLEY BASF Trial ID: DEV-F-2020-DK-388-A-01.0-DK-DK1-001 yes Unpublished	No	BASF
6.1	Anonymous	2019	T2 / BLATTKRANKHEITEN / GERSTE BASF Trial ID: MKD-F-2019-DE-102-A-04.0-DE-D08-102 yes Unpublished	No	BASF
6.1	Anonymous	2019	T2 / BLATTKRANKHEITEN / GERSTE BASF Trial ID: MKD-F-2019-DE-102-K-02.0-DE-DE0-001 yes Unpublished	No	BASF
6.1	Anonymous	2019	T2 / BLATTKRANKHEITEN / GERSTE BASF Trial ID: MKD-F-2019-DE-102-K-02.0-DE-DE0-SU2 yes Unpublished	No	BASF
6.1	Anonymous	2015	FEASIBILITY BAS 773 F / ERYSGR / PSDCHE / WHEA BASF Trial ID: DEV-F-2015-PL-C27-A-03.0-PL-PL1-046 yes Unpublished	No	BASF
6.1	Anonymous	2015	FEASIBILITY BAS 773 F / ERYSGR / PSDCHE / WHEAT BASF Trial ID: DEV-F-2015-PL-C27-A-03.0-PL-PLC-154 yes Unpublished	No	BASF

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6.1	Anonymous	2015	FEASIBILITY BAS 773 F / ERYSGR / PSDCHE / WHEAT BASF Trial ID: DEV-F-2015-PL-C27-A-03.0-PL-PLD-001 yes Unpublished	No	BASF
6.1	Anonymous	2015	FEASIBILITY BAS 773 F / ERYSGR / PSDCHE / WHEAT BASF Trial ID: DEV-F-2015-UK-C27-B-03.0-UK-UK3-G15 yes Unpublished	No	BASF
6.1	Anonymous	2016	EVALUATION [750+510], EVAL BAS 717 F / PSDCHE / WHEAT BASF Trial ID: DEV-F-2016-EX-C30-V-04.0-DE-VTF-299 yes Unpublished	No	BASF
6.1	Anonymous	2016	AFPP / BLE / PIETIN-VERSE BASF Trial ID: DEV-F-2016-FR-801-A-02.0-FR-FR1-119 yes Unpublished	No	BASF
6.1	Anonymous	2016	AFPP / BLE / PIETIN-VERSE BASF Trial ID: DEV-F-2016-FR-801-A-02.0-FR-FR1-150 yes Unpublished	No	BASF
6.1	Anonymous	2017	RE-REGISTRATION 560F / PSDCHE (ERYSGT) / WHEAT BASF Trial ID: DEV-F-2017-BG-C29-A-01.0-BG-BG0-001 yes Unpublished	No	BASF
6.1	Anonymous	2017	RE-REGISTRATION 560F / PSDCHE (ERYSGT) / WHEAT BASF Trial ID: DEV-F-2017-BG-C29-A-01.0-BG-BG0-002 yes Unpublished	No	BASF
6.1	Anonymous	2017	RE-REGISTRATION 560F / PSDCHE (ERYSGT) / WHEAT BASF Trial ID: DEV-F-2017-BG-C29-A-01.0-BG-EAS-003 yes Unpublished	No	BASF

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6.1	Anonymous	2017	RE-REGISTRATION 560F / ERYSGT / BARLEY BASF Trial ID: DEV-F-2017-BG-C29-B-01.0-BG-BG0-001 yes Unpublished	No	BASF
6.1	Anonymous	2017	REGISTRATION COLLIS OR 510F OR 717F / PSDCHE ERYSGT / WHEAT BASF Trial ID: DEV-F-2017-BG-C30-A-03.0-BG-BG0-001 yes Unpublished	No	BASF
6.1	Anonymous	2017	REGISTRATION COLLIS OR 510F OR 717F/ ERYSGR PYRNTE / BARLEY BASF Trial ID: DEV-F-2017-BG-C47-A-04.0-BG-BG0-001 yes Unpublished	No	BASF
6.1	Anonymous	2017	REGISTRATION COLLIS OR 510F OR 717F/ ERYSGR PYRNTE / BARLEY BASF Trial ID: DEV-F-2017-BG-C47-A-04.0-BG-BG0-002 yes Unpublished	No	BASF
6.1	Anonymous	2017	REGISTRATION COLLIS OR 510F OR 717F/ ERYSGR PYRNTE / BARLEY BASF Trial ID: DEV-F-2017-BG-C47-A-04.0-BG-EAS-003 yes Unpublished	No	BASF
6.1	Anonymous	2017	REGISTRATION COLLIS OR 510F OR 717F / PSDCHE ERYSGT / WHEAT BASF Trial ID: DEV-F-2017-CZ-C30-A-03.0-CZ-CZH-C10 yes Unpublished	No	BASF
6.1	Anonymous	2017	REGISTRATION COLLIS OR 510F OR 717F / PSDCHE ERYSGT / WHEAT BASF Trial ID: DEV-F-2017-CZ-C30-A-03.0-CZ-CZZ-005 yes Unpublished	No	BASF
6.1	Anonymous	2017	REGISTRATION COLLIS OR 510F OR 717F/ ERYSGR PYRNTE / BARLEY BASF Trial ID: DEV-F-2017-CZ-C47-A-04.0-CZ-CZC-K01 yes Unpublished	No	BASF

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6.1	Anonymous	2017	REGISTRATION COLLIS OR 510F OR 717F / PSDCHE / WHEAT BASF Trial ID: DEV-F-2017-EX-C30-V-04.0-DE-VTF-423 yes Unpublished	No	BASF
6.1	Anonymous	2017	HOM COLLIS, BAS 510 F, BAS 717 F / BLE / OIDIUM / PIETIN BASF Trial ID: DEV-F-2017-FR-C30-A-01.0-FR-FR7-741 yes Unpublished	No	BASF
6.1	Anonymous	2017	REGISTRATION COLLIS OR 510F OR 717F / PSDCHE ERYSGT / WHEAT BASF Trial ID: DEV-F-2017-LT-C30-A-03.0-LT-LT0-006 yes Unpublished	No	BASF
6.1	Anonymous	2017	RE-REGISTRATION 560F / ERYSGH / BARLEY BASF Trial ID: DEV-F-2017-PL-C29-B-01.0-PL-PLC-177 yes Unpublished	No	BASF
6.1	Anonymous	2017	REGISTRATION COLLIS OR 510F OR 717F / PSDCHE ERYSGT / WHEAT BASF Trial ID: DEV-F-2017-PL-C30-A-03.0-PL-PL1-029 yes Unpublished	No	BASF
6.1	Anonymous	2017	REGISTRATION COLLIS OR 510F OR 717F / PSDCHE ERYSGT / WHEAT BASF Trial ID: DEV-F-2017-PL-C30-A-03.0-PL-PLB-B13 yes Unpublished	No	BASF
6.1	Anonymous	2017	REGISTRATION COLLIS OR 510F OR 717F / PSDCHE ERYSGT / WHEAT BASF Trial ID: DEV-F-2017-PL-C30-A-03.0-PL-PLD-001 yes Unpublished	No	BASF
6.1	Anonymous	2017	REGISTRATION COLLIS OR 510F OR 717F/ ERYSGH PYRNTE / BARLEY BASF Trial ID: DEV-F-2017-PL-C47-A-04.0-PL-PL1-035 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.1	Anonymous	2017	REGISTRATION COLLIS OR 510F OR 717F/ ERYSGH PYRNTE / BARLEY BASF Trial ID: DEV-F-2017-PL-C47-A-04.0-PL-PL2-045 yes Unpublished	No	BASF
6.1	Anonymous	2017	REGISTRATION COLLIS OR 510F OR 717F/ ERYSGH PYRNTE / BARLEY BASF Trial ID: DEV-F-2017-PL-C47-A-04.0-PL-PLB-072 yes Unpublished	No	BASF
6.1	Anonymous	2017	REGISTRATION COLLIS OR 510F OR 717F/ ERYSGH PYRNTE / BARLEY BASF Trial ID: DEV-F-2017-PL-C47-A-04.0-PL-PLD-001 yes Unpublished	No	BASF
6.1	Anonymous	2017	RE-REGISTRATION 560F / PSDCHE (ERYSGT) / WHEAT BASF Trial ID: DEV-F-2017-RO-C29-A-01.0-RO-RO0-001 yes Unpublished	No	BASF
6.1	Anonymous	2017	RE-REGISTRATION 560F / ERYSGT / BARLEY BASF Trial ID: DEV-F-2017-RO-C29-B-01.0-RO-RO0-001 yes Unpublished	No	BASF
6.1	Anonymous	2017	REGISTRATION COLLIS OR 510F OR 717F / PSDCHE ERYSGT / WHEAT BASF Trial ID: DEV-F-2017-RO-C30-A-03.0-RO-RO0-001 yes Unpublished	No	BASF
6.1	Anonymous	2017	REGISTRATION COLLIS OR 510F OR 717F / PSDCHE ERYSGT / WHEAT BASF Trial ID: DEV-F-2017-RO-C30-A-03.0-RO-RO0-002 yes Unpublished	No	BASF
6.1	Anonymous	2017	REGISTRATION COLLIS OR 510F OR 717F / PSDCHE ERYSGT / WHEAT BASF Trial ID: DEV-F-2017-RO-C30-A-03.0-RO-RO0-003 yes Unpublished	No	BASF

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6.1	Anonymous	2017	REGISTRATION COLLIS OR 510F OR 717F/ ERYSGR PYRNTE / BARLEY BASF Trial ID: DEV-F-2017-RO-C47-A-04.0-RO-RO0-001 yes Unpublished	No	BASF
6.1	Anonymous	2017	REGISTRATION COLLIS OR 510F OR 717F/ ERYSGR PYRNTE / BARLEY BASF Trial ID: DEV-F-2017-RO-C47-A-04.0-RO-RO0-002 yes Unpublished	No	BASF
6.1	Anonymous	2017	REGISTRATION COLLIS OR 510F OR 717F/ ERYSGR PYRNTE / BARLEY BASF Trial ID: DEV-F-2017-RO-C47-A-04.0-RO-RO0-003 yes Unpublished	No	BASF
6.1	Anonymous	2017	RE-REGISTRATION 560F / PSDCHE (ERYSGT) / WHEAT BASF Trial ID: DEV-F-2017-SK-C29-A-01.0-SK-SK0-P07 yes Unpublished	No	BASF
6.1	Anonymous	2017	RE-REGISTRATION 560F / ERYSGT / BARLEY BASF Trial ID: DEV-F-2017-SK-C29-B-01.0-SK-SK0-F13 yes Unpublished	No	BASF
6.1	Anonymous	2017	RE-REGISTRATION 560F / ERYSGT / BARLEY BASF Trial ID: DEV-F-2017-SK-C29-B-01.0-SK-SK0-F14 yes Unpublished	No	BASF
6.1	Anonymous	2017	RE-REGISTRATION 560F / ERYSGT / BARLEY BASF Trial ID: DEV-F-2017-SK-C29-B-01.0-SK-SK0-P10 yes Unpublished	No	BASF
6.1	Anonymous	2017	REGISTRATION COLLIS OR 510F OR 717F / PSDCHE ERYSGT / WHEAT BASF Trial ID: DEV-F-2017-SK-C30-A-03.0-SK-SK0-F15 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.1	Anonymous	2017	REGISTRATION COLLIS OR 510F OR 717F / PSDCHE ERYSGT / WHEAT BASF Trial ID: DEV-F-2017-SK-C30-A-03.0-SK-SK0-P08 yes Unpublished	No	BASF
6.1	Anonymous	2017	REGISTRATION COLLIS OR 510F OR 717F/ ERYSGR PYRNTE / BARLEY BASF Trial ID: DEV-F-2017-SK-C47-A-04.0-SK-SK0-G09 yes Unpublished	No	BASF
6.1	Anonymous	2017	REGISTRATION COLLIS OR 510F OR 717F/ ERYSGR PYRNTE / BARLEY BASF Trial ID: DEV-F-2017-SK-C47-A-04.0-SK-SK0-G10 yes Unpublished	No	BASF
6.1	Anonymous	2017	REGISTRATION COLLIS OR 510F OR 717F/ ERYSGR PYRNTE / BARLEY BASF Trial ID: DEV-F-2017-UK-C47-A-02.0-UK-UK3-I09 yes Unpublished	No	BASF
6.1	Anonymous	2017	REGISTRATION COLLIS OR 510F OR 717F/ PYRNTE / BARLEY BASF Trial ID: DEV-F-2017-UK-C47-A-02.0-UK-UK3-M19 yes Unpublished	No	BASF
6.1	Anonymous	2017	REGISTRATION COLLIS OR 510F OR 717F/ ERYSGH / BARLEY BASF Trial ID: DEV-F-2017-UK-C47-B-02.0-UK-UK4-G21 yes Unpublished	No	BASF
6.1	Anonymous	2018	REGISTRATION 510F & COLLIS & 762F / PSDCHE / WHEAT BASF Trial ID: DEV-F-2018-BG-C22-A-03.0-BG-BG0-074 yes Unpublished	No	BASF
6.1	Anonymous	2018	EVALUATION BAS 765 F / ERYSGT / WHEAT BASF Trial ID: DEV-F-2018-BG-C23-A-03.0-BG-EAS-001 yes Unpublished	No	BASF

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6.1	Anonymous	2018	RE-REGISTRATION 560F / PSDCHE / WHEAT BASF Trial ID: DEV-F-2018-BG-C27-A-03.0-BG-BG0-001 yes Unpublished	No	BASF
6.1	Anonymous	2018	RE-REGISTRATION 560F / PSDCHE / WHEAT BASF Trial ID: DEV-F-2018-BG-C27-A-03.0-BG-EAS-002 yes Unpublished	No	BASF
6.1	Anonymous	2018	REGISTRATION 510F & COLLIS & 762F / PSDCHE / WHEAT BASF Trial ID: DEV-F-2018-CZ-C22-A-03.0-CZ-CZ3-AHU yes Unpublished	No	BASF
6.1	Anonymous	2018	REGISTRATION 510F & COLLIS & 762F / PSDCHE / WHEAT BASF Trial ID: DEV-F-2018-DE-C22-A-04.0-DE-D12-C22 yes Unpublished	No	BASF
6.1	Anonymous	2018	EXPLORE OPTIONS FOR RE-REG KUMULUS WG / ERYSGT / WHEAT BASF Trial ID: DEV-F-2018-DE-CRK-K-04.0-DE-DE0-001 yes Unpublished	No	BASF
6.1	Anonymous	2018	REGISTRATION 510F & COLLIS & 762F / PSDCHE / WHEAT BASF Trial ID: DEV-F-2018-EX-C22-V-04.0-DE-VTF-420 yes Unpublished	No	BASF
6.1	Anonymous	2018	HOMOLOGATION 510 F & 517 F / BLE / PIETIN BASF Trial ID: DEV-F-2018-FR-C22-A-01.0-FR-FR6-635 yes Unpublished	No	BASF
6.1	Anonymous	2018	EXTENSION BAS 70307F / SEPTTR, ERYSGR / SPRING WHEAT BASF Trial ID: DEV-F-2018-PL-8CS-A-01.0-PL-PLC-160 yes Unpublished	No	BASF

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6.1	Anonymous	2018	REGISTRATION 510F & COLLIS & 762F / PSDCHE / WHEAT BASF Trial ID: DEV-F-2018-PL-C22-A-03.0-PL-PLC-152 yes Unpublished	No	BASF
6.1	Anonymous	2018	REGISTRATION 510F & COLLIS & 762F / PSDCHE / WHEAT BASF Trial ID: DEV-F-2018-PL-C22-A-03.0-PL-PLD-001 yes Unpublished	No	BASF
6.1	Anonymous	2018	REGISTRATION 510F & COLLIS & 762F / PSDCHE / WHEAT BASF Trial ID: DEV-F-2018-PL-C22-A-03.0-PL-PLJ-001 yes Unpublished	No	BASF
6.1	Anonymous	2018	REGISTRATION 510F & COLLIS & 762F / PSDCHE / WHEAT BASF Trial ID: DEV-F-2018-PL-C22-A-03.0-PL-PLK-003 yes Unpublished	No	BASF
6.1	Anonymous	2018	RE-REGISTRATION 560F / ERYSGT / BARLEY BASF Trial ID: DEV-F-2018-PL-C27-B-03.0-PL-PLB-B24 yes Unpublished	No	BASF
6.1	Anonymous	2018	RE-REGISTRATION 560F / ERYSGT / BARLEY BASF Trial ID: DEV-F-2018-PL-C27-B-03.0-PL-PLC-168 yes Unpublished	No	BASF
6.1	Anonymous	2018	RE-REGISTRATION 560F / PSDCHE / WHEAT BASF Trial ID: DEV-F-2018-RO-C27-A-03.0-RO-RO0-001 yes Unpublished	No	BASF
6.1	Anonymous	2018	RE-REGISTRATION 560F / PSDCHE / WHEAT BASF Trial ID: DEV-F-2018-RO-C27-A-03.0-RO-RO0-002 yes Unpublished	No	BASF

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6.1	Anonymous	2018	REGISTRATION 510F & COLLIS & 762F / PSDCHE / WHEAT BASF Trial ID: DEV-F-2018-SE-C22-A-03.0-SE-SE0-AL1 yes Unpublished	No	BASF
6.1	Anonymous	2018	REGISTRATION 510F & COLLIS & 762F / PSDCHE / WHEAT BASF Trial ID: DEV-F-2018-SK-C22-A-03.0-SK-SK0-F01 yes Unpublished	No	BASF
6.1	Anonymous	2018	REGISTRATION 510F & COLLIS & 762F / PSDCHE / WHEAT BASF Trial ID: DEV-F-2018-SK-C22-A-03.0-SK-SK0-P05 yes Unpublished	No	BASF
6.1	Anonymous	2018	RE-REGISTRATION 560F / ERYSGT / BARLEY BASF Trial ID: DEV-F-2018-SK-C27-B-03.0-SK-SK0-V10 yes Unpublished	No	BASF
6.1	Anonymous	2018	REGISTRATION 510F & COLLIS & 762F / PSDCHE / WHEAT BASF Trial ID: DEV-F-2018-UK-C22-A-02.0-UK-UK3-A17 yes Unpublished	No	BASF
6.1	Anonymous	2018	REGISTRATION 510F & COLLIS & 762F / PSDCHE / WHEAT BASF Trial ID: DEV-F-2018-UK-C22-A-02.0-UK-UK3-K18 yes Unpublished	No	BASF
6.1	Anonymous	2018	REGISTRATION 510F & COLLIS & 762F / PSDCHE / WHEAT BASF Trial ID: DEV-F-2018-UK-C22-A-02.0-UK-UK3-Z12 yes Unpublished	No	BASF
6.1	Anonymous	2019	REG 758, 762 & 765 F - WEST/ PSDCHE, ERYSGR, SEPTTR / WHEAT BASF Trial ID: DEV-F-2019-CZ-C23-A-02.0-CZ-CZJ-ADW yes Unpublished	No	BASF

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6.1	Anonymous	2019	REG 758, 762 & 765 F - WEST/ PSDCHE, ERYSGR, SEPTTR / WHEAT BASF Trial ID: DEV-F-2019-CZ-C23-A-02.0-CZ-CZZ-003 yes Unpublished	No	BASF
6.1	Anonymous	2019	REG 758, 762 & 765 F - WEST/ PSDCHE, ERYSGR, SEPTTR / WHEAT BASF Trial ID: DEV-F-2019-DE-C23-A-04.0-AT-AT1-021 yes Unpublished	No	BASF
6.1	Anonymous	2019	WEST/ PSDCHE, ERYSGR, SEPTTR / WHEAT BASF Trial ID: DEV-F-2019-DE-C23-A-04.0-DE-IHE-H15 yes Unpublished	No	BASF
6.1	Anonymous	2019	WEST/ PSDCHE, ERYSGR, SEPTTR / WHEAT BASF Trial ID: DEV-F-2019-EX-C23-V-04.0-DE-VTF-412 yes Unpublished	No	BASF
6.1	Anonymous	2019	REG 758, 762 & 765 F - WEST/ PSDCHE, ERYSGR, SEPTTR / WHEAT BASF Trial ID: DEV-F-2019-EX-C23-V-04.0-DE-VTF-413 yes Unpublished	No	BASF
6.1	Anonymous	2019	REG 758, 762 & 765 F - WEST/ PSDCHE, ERYSGR, SEPTTR / WHEAT BASF Trial ID: DEV-F-2019-PL-C23-A-02.0-PL-PL1-028 yes Unpublished	No	BASF
6.1	Anonymous	2019	REG 758, 762 & 765 F - WEST/ PSDCHE, ERYSGR, SEPTTR / WHEAT BASF Trial ID: DEV-F-2019-PL-C23-A-02.0-PL-PLC-064 yes Unpublished	No	BASF
6.1	Anonymous	2019	REG 758, 762 & 765 F - WEST/ PSDCHE, ERYSGR, SEPTTR / WHEAT BASF Trial ID: DEV-F-2019-PL-C23-A-02.0-PL-PLD-001 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.1	Anonymous	2019	REG 758, 762 & 765 F - WEST/ PSDCHE, ERYSGR, SEPTTR / WHEAT BASF Trial ID: DEV-F-2019-PL-C23-A-02.0-PL-PLL-001 yes Unpublished	No	BASF
6.1	Anonymous	2019	REG 758, 762 & 765 F - WEST/ PSDCHE, ERYSGR, SEPTTR / WHEAT BASF Trial ID: DEV-F-2019-UK-C23-A-01.0-UK-UK3-A15 yes Unpublished	No	BASF
6.1	Anonymous	2019	REG 758, 762 & 765 F - WEST/ PSDCHE, ERYSGR, SEPTTR / WHEAT BASF Trial ID: DEV-F-2019-UK-C23-B-01.0-UK-UK4-N20 yes Unpublished	No	BASF
6.1	Anonymous	2020	REG BAS 754 F, 758 F & 833 F - NORTH-WEST/ PSDCHE/ ERYSGR BASF Trial ID: DEV-F-2020-CZ-C23-A-02.0-CZ-CZC-K01 yes Unpublished	No	BASF
6.1	Anonymous	2020	REG BAS 754 F, 758 F & 833 F - NORTH-WEST/ PSDCHE/ ERYSGR BASF Trial ID: DEV-F-2020-DE-C23-D-04.0-DE-D12-C23 yes Unpublished	No	BASF
6.1	Anonymous	2020	BAS 758 F RATIO JUSTIFICATION/ PYRNTE/ BARLEY BASF Trial ID: DEV-F-2020-DE-C38-A-04.0-DE-D04-022 yes Unpublished	No	BASF
6.1	Anonymous	2020	BAS 758 F RATIO JUSTIFICATION/ PYRNTE/ BARLEY BASF Trial ID: DEV-F-2020-DE-C38-A-04.0-DE-D12-C38 yes Unpublished	No	BASF
6.1	Anonymous	2020	REG BAS 758 F, 831 F & 832 F - NORTH-WEST/ PSDCHE/ ERYSGT BASF Trial ID: DEV-F-2020-PL-C23-D-02.0-PL-PL8-024 yes Unpublished	No	BASF

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6.1	Anonymous	2020	BAS 758 F RATIO JUSTIFICATION/ PYRNTE/ W-BARLEY BASF Trial ID: DEV-F-2020-PL-C38-A-02.0-PL-PL8-025 yes Unpublished	No	BASF
6.1	Anonymous	2020	BAS 758 F RATIO JUSTIFICATION/ PSDCHE/ SEPTTR/ WHEAT BASF Trial ID: DEV-F-2020-RO-C05-A-02.0-RO-RO0-001 yes Unpublished	No	BASF
6.1	Anonymous	2020	BAS 758 F RATIO JUSTIFICATION/ PYRNTE/ BARLEY BASF Trial ID: DEV-F-2020-RO-C38-A-02.0-RO-RO0-001 yes Unpublished	No	BASF
6.1	Anonymous	2020	BAS 758 F RATIO JUSTIFICATION/ PYRNTE/ BARLEY BASF Trial ID: DEV-F-2020-RO-C38-A-02.0-RO-RO0-002 yes Unpublished	No	BASF
6.1	Anonymous	2020	BAS 758 F RATIO JUSTIFICATION/ PSDCHE/ SEPTTR/ WHEAT BASF Trial ID: DEV-F-2020-UK-C05-A-03.0-UK-UK3-A16 yes Unpublished	No	BASF
6.1	Anonymous	2020	BAS 758 F RATIO JUSTIFICATION/ PYRNTE/ BARLEY BASF Trial ID: DEV-F-2020-UK-C38-A-03.0-UK-UK3-K19 yes Unpublished	No	BASF
6.1	Anonymous	2015	T0 / T1 / FUSSKRANKHEITEN / WEIZEN BASF Trial ID: MKD-F-2015-DE-003-K-02.0-DE-DE0-F01 yes Unpublished	No	BASF
6.1	Anonymous	2017	T0 / T1 / FUSSKRANKHEITEN / WEIZEN BASF Trial ID: MKD-F-2017-DE-001-A-02.0-DE-D08-F01 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.1	Anonymous	2017	T0 / T1 / FUSSKRANKHEITEN / WEIZEN BASF Trial ID: MKD-F-2017-DE-001-K-01.0-DE-AGA-007 yes Unpublished	No	BASF
6.1	Anonymous	2015	RE-REG BAS 480 38 F AND BAS 500 06 F/ PUCCRE / WHEAT BASF Trial ID: DEV-F-2015-DE-C16-A-04.0-DE-D04-C16 yes Unpublished	No	BASF
6.1	Anonymous	2015	RE-REG BAS 480 38 F AND BAS 500 06 F/ PUCCRE / WHEAY BASF Trial ID: DEV-F-2015-DE-C16-A-04.0-DE-D08-F16 yes Unpublished	No	BASF
6.1	Anonymous	2015	RE-REG BAS 480 38 F AND BAS 500 06 F/ PUCCRE / WHEAT BASF Trial ID: DEV-F-2015-DE-C16-A-04.0-DE-D09-506 yes Unpublished	No	BASF
6.1	Anonymous	2015	RE-REG BAS 480 38 F AND BAS 500 06 F / PUCCST / WHEAT BASF Trial ID: DEV-F-2015-DE-C24-A-04.0-DE-D02-C24 yes Unpublished	No	BASF
6.1	Anonymous	2015	RE-REG BAS 500 F / PYRNTE / BARLEY BASF Trial ID: DEV-F-2015-DE-C40-A-04.0-DE-D02-C40 yes Unpublished	No	BASF
6.1	Anonymous	2015	RE-REG BAS 500 F / PYRNTE / BARLEY BASF Trial ID: DEV-F-2015-DE-C40-A-04.0-DE-D12-C40 yes Unpublished	No	BASF
6.1	Anonymous	2015	RE-REG BAS 480 38 F AND BAS 500 06 F/ PUCCRE / WHEAT BASF Trial ID: DEV-F-2015-DK-C16-A-03.0-DK-DK1-003 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.1	Anonymous	2015	RE-REG BAS 480 38 F AND BAS 500 06 F/ PUCCRE / WHEAT BASF Trial ID: DEV-F-2015-DK-C16-A-03.0-DK-DK2-002 yes Unpublished	No	BASF
6.1	Anonymous	2015	RE-REG BAS 480 38 F AND BAS 500 06 F / PUCCST / WHEAT BASF Trial ID: DEV-F-2015-DK-C24-A-03.0-DK-DK1-001 yes Unpublished	No	BASF
6.1	Anonymous	2015	AND BAS 500 06 F / PUCCST / WHEAT BASF Trial ID: DEV-F-2015-DK-C24-A-03.0-DK-DK1-208 yes Unpublished	No	BASF
6.1	Anonymous	2015	RE-REG BAS 500 F / PYRNTE / BARLEY BASF Trial ID: DEV-F-2015-DK-C40-A-03.0-DK-DK1-001 yes Unpublished	No	BASF
6.1	Anonymous	2015	RE-REG BAS 480 38 F AND BAS 500 06 F / PUCCST / WHEAT BASF Trial ID: DEV-F-2015-EX-C24-V-04.0-DE-VTF-420 yes Unpublished	No	BASF
6.1	Anonymous	2015	RE-REG BAS 480 38 F AND BAS 500 06 F / PUCCST / WHEAT BASF Trial ID: DEV-F-2015-EX-C24-V-04.0-DE-VTF-424 yes Unpublished	No	BASF
6.1	Anonymous	2015	RE-REG BAS 500 F / PYRNTE / BARLEY BASF Trial ID: DEV-F-2015-EX-C40-V-04.0-DE-VTF-429 yes Unpublished	No	BASF
6.1	Anonymous	2015	REHOMOLO BAS 48038 F & BAS 50006 / BLE / ROUILLE BRUNE BASF Trial ID: DEV-F-2015-FR-C16-A-01.0-FR-FR2-222 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.1	Anonymous	2015	REHOMOLO BAS 48038 F & BAS 50006 / BLE / ROUILLE BRUNE BASF Trial ID: DEV-F-2015-FR-C16-A-01.0-FR-FRB-B02 yes Unpublished	No	BASF
6.1	Anonymous	2015	REHOMOLO BAS 48038 F & BAS 50006 / BLE / ROUILLE BRUNE BASF Trial ID: DEV-F-2015-FR-C16-A-01.0-FR-FRF-F27 yes Unpublished	No	BASF
6.1	Anonymous	2015	REHOMOLO BAS 48038 F & BAS 50006 F / BLE / ROUILLE JAUNE BASF Trial ID: DEV-F-2015-FR-C24-A-01.0-FR-FR2-286 yes Unpublished	No	BASF
6.1	Anonymous	2015	REHOMOLO BAS 48038 F & BAS 50006 F / BLE / ROUILLE JAUNE BASF Trial ID: DEV-F-2015-FR-C24-A-01.0-FR-FRE-E85 yes Unpublished	No	BASF
6.1	Anonymous	2015	REHOMOLO BAS 500 F / ORGE / HELMINTHOSPORIOSE BASF Trial ID: DEV-F-2015-FR-C40-A-01.0-FR-FR4-432 yes Unpublished	No	BASF
6.1	Anonymous	2015	REHOMOLO BAS 500 F / ORGE / HELMINTHOSPORIOSE BASF Trial ID: DEV-F-2015-FR-C40-B-01.0-FR-FRB-B84 yes Unpublished	No	BASF
6.1	Anonymous	2015	REHOMOLO BAS 500 F / ORGE / HELMINTHOSPORIOSE BASF Trial ID: DEV-F-2015-FR-C40-B-01.0-FR-FRE-E75 yes Unpublished	No	BASF
6.1	Anonymous	2015	RE-REG BAS 480 38 F AND BAS 500 06 F/ PUCCRE / WHEAT BASF Trial ID: DEV-F-2015-HU-C16-A-03.0-HU-HU0-AG1 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.1	Anonymous	2015	RE-REG BAS 480 38 F AND BAS 500 06 F/ PUCCRE / WHEAT BASF Trial ID: DEV-F-2015-HU-C16-A-03.0-HU-HU0-BI1 yes Unpublished	No	BASF
6.1	Anonymous	2015	RE-REG BAS 480 38 F AND BAS 500 06 F/ PUCCRE / WHEAT BASF Trial ID: DEV-F-2015-HU-C16-A-03.0-HU-HU0-SY1 yes Unpublished	No	BASF
6.1	Anonymous	2015	RE-REG BAS 480 38 F AND BAS 500 06 F / PUCCST / WHEAT BASF Trial ID: DEV-F-2015-HU-C24-A-03.0-HU-HU0-BI2 yes Unpublished	No	BASF
6.1	Anonymous	2015	RE-REG BAS 480 38 F AND BAS 500 06 F / PUCCST / WHEAT BASF Trial ID: DEV-F-2015-HU-C24-A-03.0-HU-HU0-SY1 yes Unpublished	No	BASF
6.1	Anonymous	2015	RE-REG BAS 480 38 F AND BAS 500 06 F/ PUCCRE / WHEAT BASF Trial ID: DEV-F-2015-PL-C16-A-03.0-PL-PLC-109 yes Unpublished	No	BASF
6.1	Anonymous	2015	RE-REG BAS 480 38 F AND BAS 500 06 F/ PUCCRE / WHEAT BASF Trial ID: DEV-F-2015-PL-C16-A-03.0-PL-PLD-001 yes Unpublished	No	BASF
6.1	Anonymous	2015	RE-REG BAS 480 38 F AND BAS 500 06 F / PUCCST / WHEAT BASF Trial ID: DEV-F-2015-PL-C24-A-03.0-PL-PLC-110 yes Unpublished	No	BASF
6.1	Anonymous	2015	RE-REG BAS 480 38 F AND BAS 500 06 F / PUCCST / WHEAT BASF Trial ID: DEV-F-2015-PL-C24-A-03.0-PL-PLD-001 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.1	Anonymous	2015	RE-REG BAS 500 F / PYRNTE / BARLEY BASF Trial ID: DEV-F-2015-PL-C40-A-03.0-PL-PL2-030 yes Unpublished	No	BASF
6.1	Anonymous	2015	RE-REG BAS 500 F / PYRNTE / BARLEY BASF Trial ID: DEV-F-2015-PL-C40-A-03.0-PL-PLC-196 yes Unpublished	No	BASF
6.1	Anonymous	2015	RE-REG BAS 500 F / PYRNTE / BARLEY BASF Trial ID: DEV-F-2015-PL-C40-A-03.0-PL-PLD-001 yes Unpublished	No	BASF
6.1	Anonymous	2015	RE-REG BAS 480 38 F AND BAS 500 06 F/ PUCCRE / WHEAT BASF Trial ID: DEV-F-2015-RO-C16-A-03.0-RO-RO0-001 yes Unpublished	No	BASF
6.1	Anonymous	2015	RE-REG BAS 480 38 F AND BAS 500 06 F/ PUCCRE / WHEAT BASF Trial ID: DEV-F-2015-RO-C16-A-03.0-RO-RO0-002 yes Unpublished	No	BASF
6.1	Anonymous	2015	RE-REG BAS 500 F / PYRNTE / BARLEY BASF Trial ID: DEV-F-2015-RO-C40-A-03.0-RO-RO0-001 yes Unpublished	No	BASF
6.1	Anonymous	2015	RE-REG BAS 500 F / PYRNTE / BARLEY BASF Trial ID: DEV-F-2015-RO-C40-A-03.0-RO-RO0-002 yes Unpublished	No	BASF
6.1	Anonymous	2015	RE-REG BAS 480 38 F AND BAS 500 06 F/ PUCCRE / WHEAT BASF Trial ID: DEV-F-2015-UK-C16-A-01.0-UK-UK3-G12 yes Unpublished	No	BASF

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6.1	Anonymous	2015	RE-REG BAS 480 38 F AND BAS 500 06 F/ PUCCRE / WHEAT BASF Trial ID: DEV-F-2015-UK-C16-A-01.0-UK-UK3-I12 yes Unpublished	No	BASF
6.1	Anonymous	2015	RE-REG BAS 480 38 F AND BAS 500 06 F / PUCCST / WHEAT BASF Trial ID: DEV-F-2015-UK-C24-A-01.0-UK-UK3-G14 yes Unpublished	No	BASF
6.1	Anonymous	2015	RE-REG BAS 480 38 F AND BAS 500 06 F / PUCCST / WHEAT BASF Trial ID: DEV-F-2015-UK-C24-A-01.0-UK-UK3-M11 yes Unpublished	No	BASF
6.1	Anonymous	2015	RE-REG BAS 480 38 F AND BAS 500 06 F / PUCCST / WHEAT BASF Trial ID: DEV-F-2015-UK-C24-A-01.0-UK-UK4-N12 yes Unpublished	No	BASF
6.1	Anonymous	2015	RE-REG BAS 480 38 F AND BAS 500 06 F / PUCCST / WHEAT BASF Trial ID: DEV-F-2015-UK-C24-A-01.0-UK-UK4-R02 yes Unpublished	No	BASF
6.1	Anonymous	2015	RE-REG BAS 500 F / PYRNTE / BARLEY BASF Trial ID: DEV-F-2015-UK-C40-A-01.0-UK-UK2-J76 yes Unpublished	No	BASF
6.1	Anonymous	2020	BAS 758 F RATIO JUSTIFICATION/ PSDCHE/ SEPTTR/ WHEAT BASF Trial ID: DEV-F-2020-CZ-C05-A-02.0-CZ-CZK-001 yes Unpublished	No	BASF
6.1	Anonymous	2020	BAS 758 F RATIO JUSTIFICATION/ PSDCHE/ SEPTTR/ WHEAT BASF Trial ID: DEV-F-2020-DE-C05-A-04.0-DE-D09-005 yes Unpublished	No	BASF

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6.1	Anonymous	2020	BAS 758 F RATIO JUSTIFICATION/ PSDCHE/ SEPTTR/ WHEAT BASF Trial ID: DEV-F-2020-DE-C05-A-04.0-DE-D11-C05 yes Unpublished	No	BASF
6.1	Anonymous	2020	BAS 758 F RATIO JUSTIFICATION/ PSDCHE/ SEPTTR/ WHEAT BASF Trial ID: DEV-F-2020-DE-C05-A-04.0-DE-D12-005 yes Unpublished	No	BASF
6.1	Anonymous	2020	BAS 758 F RATIO JUSTIFICATION/ PYRNTE/ BARLEY BASF Trial ID: DEV-F-2020-DE-C38-A-04.0-DE-D04-022 yes Unpublished	No	BASF
6.1	Anonymous	2020	BAS 758 F RATIO JUSTIFICATION/ PYRNTE/ BARLEY BASF Trial ID: DEV-F-2020-DE-C38-A-04.0-DE-D12-C38 yes Unpublished	No	BASF
6.1	Anonymous	2020	BAS 758 F RATIO JUSTIFICATION/ PSDCHE/ SEPTTR/ WHEAT BASF Trial ID: DEV-F-2020-EX-C05-V-04.0-DE-VTF-443 yes Unpublished	No	BASF
6.1	Anonymous	2020	BAS 758 F RATIO JUSTIFICATION/ PYRNTE/ BARLEY BASF Trial ID: DEV-F-2020-EX-C38-V-04.0-DE-VTF-318 yes Unpublished	No	BASF
6.1	Anonymous	2020	BAS 758 F RATIO JUSTIFICATION/ PSDCHE/ SEPTTR/ WHEAT BASF Trial ID: DEV-F-2020-LV-C05-A-02.0-LV-LV0-A09 yes Unpublished	No	BASF
6.1	Anonymous	2020	BAS 758 F RATIO JUSTIFICATION/ PSDCHE/ SEPTTR/ ERYSGT/ WHEAT BASF Trial ID: DEV-F-2020-PL-C05-A-02.0-PL-PL1-011 yes Unpublished	No	BASF

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6.1	Anonymous	2020	BAS 758 F RATIO JUSTIFICATION/ PSDCHE/ SEPTTR/ ERYSGT/ WHEAT BASF Trial ID: DEV-F-2020-PL-C05-A-02.0-PL-PL8-017 yes Unpublished	No	BASF
6.1	Anonymous	2020	BAS 758 F RATIO JUSTIFICATION/ PYRNTE/ W-BARLEY BASF Trial ID: DEV-F-2020-PL-C38-A-02.0-PL-PL8-025 yes Unpublished	No	BASF
6.1	Anonymous	2020	BAS 758 F RATIO JUSTIFICATION/ PSDCHE/ SEPTTR/ WHEAT BASF Trial ID: DEV-F-2020-RO-C05-A-02.0-RO-RO0-001 yes Unpublished	No	BASF
6.1	Anonymous	2020	BAS 758 F RATIO JUSTIFICATION/ PSDCHE/ SEPTTR/ WHEAT BASF Trial ID: DEV-F-2020-RO-C05-A-02.0-RO-RO0-002 yes Unpublished	No	BASF
6.1	Anonymous	2020	BAS 758 F RATIO JUSTIFICATION/ PYRNTE/ BARLEY BASF Trial ID: DEV-F-2020-RO-C38-A-02.0-RO-RO0-001 yes Unpublished	No	BASF
6.1	Anonymous	2020	BAS 758 F RATIO JUSTIFICATION/ PYRNTE/ BARLEY BASF Trial ID: DEV-F-2020-RO-C38-A-02.0-RO-RO0-002 yes Unpublished	No	BASF
6.1	Anonymous	2020	BAS 758 F RATIO JUSTIFICATION/ PSDCHE/ SEPTTR/ WHEAT BASF Trial ID: DEV-F-2020-UK-C05-A-03.0-UK-UK3-A16 yes Unpublished	No	BASF
6.1	Anonymous	2020	BAS 758 F RATIO JUSTIFICATION/ PSDCHE/ SEPTTR/ WHEAT BASF Trial ID: DEV-F-2020-UK-C05-A-03.0-UK-UK3-Z16 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.1	Anonymous	2020	BAS 758 F RATIO JUSTIFICATION/ PYRNTE/ BARLEY BASF Trial ID: DEV-F-2020-UK-C38-A-03.0-UK-UK3-K19 yes Unpublished	No	BASF
6.1, 6.2, 6.3, 6.4, 6.5, 6.6	Artur Kryszczuk	2022	BIOLOGICAL ASSESSMENT DOSSIER no Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - SOUTH-EAST/ SEPTTR/ WHEAT BASF Trial ID: DEV-F-2019-BG-C05-A-02.0-BG-BG0-068 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - SOUTH-EAST / PUCCRT/ WHEAT BASF Trial ID: DEV-F-2019-BG-C15-A-02.0-BG-BG0-069 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - SOUTH-EAST / PUCCRT/ WHEAT BASF Trial ID: DEV-F-2019-BG-C15-A-02.0-BG-BG0-070 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - EAST/ PSDCHE, ERYSGR/ WHEAT BASF Trial ID: DEV-F-2019-BG-C24-A-02.0-BG-BG0-071 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - EAST/ PSDCHE, ERYSGR/ WHEAT BASF Trial ID: DEV-F-2019-BG-C24-A-02.0-BG-BG0-072 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F & 758 F - NORTH-WEST/ PUCCRT/ WHEAT BASF Trial ID: DEV-F-2019-CZ-C13-A-02.0-CZ-CZZ-001 yes Unpublished	No	BASF

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6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 758, 762 & 765 F - WEST/ PSDCHE, ERYSGR, SEPTTR / WHEAT BASF Trial ID: DEV-F-2019-CZ-C23-A-02.0-CZ-CZJ-ADW yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 758, 762 & 765 F - WEST/ PSDCHE, ERYSGR, SEPTTR / WHEAT BASF Trial ID: DEV-F-2019-CZ-C23-A-02.0-CZ-CZZ-003 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - EAST/ PSDCHE, ERYSGR/ WHEAT BASF Trial ID: DEV-F-2019-CZ-C24-A-02.0-CZ-CZH-C51 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F & 758 F - NORTH-WEST/ PUCCRT/ WHEAT BASF Trial ID: DEV-F-2019-DE-C13-A-04.0-DE-D02-C13 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F & 758 F - NORTH-WEST/ PUCCRT/ WHEAT BASF Trial ID: DEV-F-2019-DE-C13-B-04.0-DE-D12-C13 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F & 758 F - NORTH-WEST/ PUCCRT/ WHEAT BASF Trial ID: DEV-F-2019-DE-C13-B-04.0-DE-D17-021 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ PUCCST/ WHEAT BASF Trial ID: DEV-F-2019-DE-C19-A-04.0-DE-D08-C19 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ PUCCST/ WHEAT BASF Trial ID: DEV-F-2019-DE-C19-A-04.0-DE-IHE-B07 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 758, 762 & 765 F - WEST/ PSDCHE, ERYSGR, SEPTTR / WHEAT BASF Trial ID: DEV-F-2019-DE-C23-A-04.0-AT-AT1-021 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ PYRNTR/ WHEAT BASF Trial ID: DEV-F-2019-DE-C27-A-04.0-DE-D12-C27 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ PYRNTR/ WHEAT BASF Trial ID BASF Trial ID: DEV-F-2019-DE-C27-A-04.0-DE-D17-022 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	BALAYA + FLEXITY VS 758 VS COMPETITORS / T1 DISEASES / WHEAT BASF Trial ID: DEV-F-2019-DE-C51-A-04.0-DE-D17-013 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 758, 762 & 765 F - WEST/ PSDCHE, ERYSGR, SEPTTR / WHEAT BASF Trial ID: DEV-F-2019-EX-C23-V-04.0-DE-VTF-412 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 758, 762 & 765 F - WEST/ PSDCHE, ERYSGR, SEPTTR / WHEAT BASF Trial ID: DEV-F- BASF Trial ID: DEV-F-2019-EX-C23-V-04.0-DE-VTF-413 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ PYRNTR/ WHEAT BASF Trial ID: DEV-F-2019-LV-C27-A-02.0-LV-LV0-M04 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ SEPTTR/ WHEAT BASF Trial ID: DEV-F-2019-PL-C03-A-02.0-PL-PL8-027 yes Unpublished	No	BASF

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6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - SOUTH-EAST/ SEPTTR/ WHEAT BASF Trial ID: DEV-F-2019-PL-C05-A-02.0-PL-PLC-079 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F & 758 F - NORTH-WEST/ PUCCRT/ WHEAT BASF Trial ID: DEV-F-2019-PL-C13-A-02.0-PL-PLC-069 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F & 758 F - NORTH-WEST/ PUCCRT/ WHEAT BASF Trial ID: DEV-F-2019-PL-C13-A-02.0-PL-PLE-D14 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - SOUTH-EAST / PUCCRT/ WHEAT BASF Trial ID: DEV-F-2019-PL-C15-A-02.0-PL-EAS-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - SOUTH-EAST / PUCCRT/ WHEAT BASF Trial ID: DEV-F-2019-PL-C15-A-02.0-PL-PL8-031 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - SOUTH-EAST / PUCCRT/ WHEAT BASF Trial ID: DEV-F-2019-PL-C15-A-02.0-PL-PLD-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - SOUTH-EAST / PUCCRT/ WHEAT BASF Trial ID: DEV-F-2019-PL-C15-A-02.0-PL-PLE-L15 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - SOUTH-EAST / PUCCRT/ WHEAT BASF Trial ID: DEV-F-2019-PL-C15-A-02.0-PL-PLK-007 yes Unpublished	No	BASF

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6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - SOUTH-EAST / PUCCRT/ WHEAT BASF Trial ID: DEV-F-2019-PL-C15-A-02.0-PL-PLL-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ PUCCST/ WHEAT BASF Trial ID: DEV-F-2019-PL-C19-A-02.0-PL-EAS-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ PUCCST/ WHEAT BASF Trial ID: DEV-F-2019-PL-C19-A-02.0-PL-PLC-074 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ PUCCST/ WHEAT BASF Trial ID: DEV-F-2019-PL-C19-A-02.0-PL-PLE-D16 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 758, 762 & 765 F - WEST/ PSDCHE, ERYSGR, SEPTTR / WHEAT BASF Trial ID: DEV-F-2019-PL-C23-A-02.0-PL-PLD-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 758, 762 & 765 F - WEST/ PSDCHE, ERYSGR, SEPTTR / WHEAT BASF Trial ID: DEV-F-2019-PL-C23-A-02.0-PL-PLL-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - EAST/ PSDCHE, ERYSGR/ WHEAT BASF Trial ID: DEV-F-2019-PL-C24-A-02.0-PL-PL8-034 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - EAST/ PSDCHE, ERYSGR/ WHEAT BASF Trial ID: DEV-F-2019-PL-C24-A-02.0-PL-PLD-001 yes Unpublished	No	BASF

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6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - EAST/ PSDCHE, ERYSGR/ WHEAT BASF Trial ID: DEV-F-2019-PL-C24-A-02.0-PL-PLL-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ PYRNTR/ WHEAT BASF Trial ID: DEV-F-2019-PL-C27-A-02.0-PL-EAS-C27 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ PYRNTR/ WHEAT BASF Trial ID: DEV-F-2019-PL-C27-A-02.0-PL-PLB-B10 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ PYRNTR/ WHEAT BASF Trial ID: DEV-F-2019-PL-C27-A-02.0-PL-PLC-078 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	BALAYA + FLEXITY VS 758 VS COMPETITORS / T1 DISEASES / WHEAT BASF Trial ID: DEV-F-2019-PL-C51-A-02.0-PL-PL8-020 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - SOUTH-EAST / PUCCRT/ WHEAT BASF Trial ID: DEV-F-2019-RO-C15-A-02.0-RO-RO0-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - SOUTH-EAST / PUCCRT/ WHEAT BASF Trial ID: DEV-F-2019-RO-C15-A-02.0-RO-SGS-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - EAST/ PSDCHE, ERYSGR/ WHEAT BASF Trial ID: DEV-F-2019-RO-C24-A-02.0-RO-RO0-002 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - SOUTH-EAST/ SEPTTR/ WHEAT BASF Trial ID: DEV-F-2019-SK-C05-A-02.0-SK-SK0-K10 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - EAST/ PSDCHE, ERYSGR/ WHEAT BASF Trial ID: DEV-F-2019-SK-C24-A-02.0-SK-SK0-F14 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - EAST/ PSDCHE, ERYSGR/ WHEAT BASF Trial ID: DEV-F-2019-SK-C24-A-02.0-SK-SK0-P04 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F & 758 F - NORTH-WEST/ PUCCRT/ WHEAT BASF Trial ID: DEV-F-2019-UK-C13-A-02.0-UK-UK3-K13 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F & 758 F - NORTH-WEST/ PUCCRT/ WHEAT BASF Trial ID: DEV-F-2019-UK-C13-A-02.0-UK-UK3-M19 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ PUCCST/ WHEAT DEV-F-2019-UK-C19-A-01.0-UK-UK3-K14 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ PUCCST/ WHEAT BASF Trial ID: DEV-F-2019-UK-C19-B-01.0-UK-UK4-R14 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	WEST/ PSDCHE, ERYSGR, SEPTTR / WHEAT BASF Trial ID: DEV-F-2019-UK-C23-A-01.0-UK-UK3-A15 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 758, 762 & 765 F - WEST/ PSDCHE, ERYSGR, SEPTTR / WHEAT BASF Trial ID: DEV-F-2019-UK-C23-A-01.0-UK-UK4-R23 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 754 F & BAS 758 F - SOUTH-EAST/ SEPTTR/ WHEAT BASF Trial ID: DEV-F-2020-BG-C03-A-02.0-BG-BG0-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 754 F, 758 F & 833 F - SOUTH-EAST/ PSDCHE/ WHEAT BASF Trial ID: DEV-F-2020-BG-C24-A-02.0-BG-BG0-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 754 F, 758 F & 833 F - SOUTH-EAST/ PSDCHE/ WHEAT BASF Trial ID: DEV-F-2020-BG-C24-A-02.0-BG-BG0-002 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 754 F, 758 F & 833 F - NORTH-WEST/ PSDCHE/ ERYSGR BASF Trial ID: DEV-F-2020-CZ-C23-A-02.0-CZ-CZC-K01 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 754 F- WEST/NORTH-EAST/ PYRNTR/ WHEAT BASF Trial ID: DEV-F-2020-CZ-C26-A-02.0-CZ-CZH-C91 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 754 F- WEST/NORTH-EAST/ PYRNTR/ WHEAT BASF Trial ID: DEV-F-2020-CZ-C26-A-02.0-CZ-CZZ-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 754 F- WEST/NORTH-EAST/ PUCCRT/ WHEAT BASF Trial ID: DEV-F-2020-DE-C11-A-04.0-AT-AT1-017 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 758 F- WEST/NORTH-EAST/ PUCCRT/ WHEAT BASF Trial ID: DEV-F-2020-DE-C11-D-04.0-DE-D12-C11 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 754 F- WEST/NORTH-EAST/ PUCCST/ WHEAT BASF Trial ID: DEV-F-2020-DE-C17-A-04.0-AT-AT1-018 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 758 F- WEST/NORTH-EAST/ PUCCST/ WHEAT BASF Trial ID: DEV-F-2020-DE-C17-D-04.0-DE-D04-020 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 758 F, 831 F & 832 F - NORTH-WEST/ PSDCHE/ ERYSGR BASF Trial ID: DEV-F-2020-DE-C23-D-04.0-DE-D12-C23 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 758 F- WEST/NORTH-EAST/ PYRNTR/ WHEAT BASF Trial ID: DEV-F-2020-DE-C26-D-04.0-DE-D12-C26 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 754 F- WEST/ PUCCST LOC.ID 20331-1 BASF Trial ID: DEV-F-2020-DK-C17-A-02.0-DK-DK0-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 754 F- WEST/NORTH-EAST/ PYRNTR/ WHEAT BASF Trial ID: DEV-F-2020-DK-C26-A-02.0-DK-DK1-210 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 758 F- WEST/NORTH-EAST/ SEPTTR/ WHEAT BASF Trial ID: DEV-F-2020-EX-C01-V-04.0-DE-VTF-331 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	BAS 736, 763, 758 & 765 F AT LOW WATER VOLUMES/SEPTTR/WHEAT BASF Trial ID: DEV-F-2020-EX-CW1-V-04.0-DE-VTF-440 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 754 F & BAS 758 - SOUTH-EAST/ PUCCRT/ WHEAT BASF Trial ID: DEV-F-2020-HU-C13-A-02.0-HU-HU1-002 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 754 F, 758 F & 833 F - SOUTH-EAST/ PSDCHE/ WHEAT BASF Trial ID: DEV-F-2020-HU-C24-A-02.0-HU-HU0-SGS yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 754 F & 758 F - SOUTH-EAST / PYRNTR / WHEAT BASF Trial ID: DEV-F-2020-HU-C27-A-02.0-HU-HU0-CP1 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 754 F & 758 F - SOUTH-EAST / PYRNTR / WHEAT BASF Trial ID: DEV-F-2020-HU-C27-A-02.0-HU-HU0-CP2 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 754 F- WEST/NORTH-EAST/ PUCCST/ WHEAT BASF Trial ID: DEV-F-2020-LV-C17-A-02.0-LV-AR2-479 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 754 F- WEST/NORTH-EAST/ PUCCRT/ WHEAT BASF Trial ID: DEV-F-2020-NL-C11-A-02.0-NL-NL4-404 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 754 F- WEST/NORTH-EAST/ PYRNTR/ WHEAT BASF Trial ID: DEV-F-2020-NL-C26-A-02.0-NL-NL4-405 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	BAS 758 F RATIO JUSTIFICATION/ PSDCHE/ SEPTTR/ ERYSGT/ WHEAT BASF Trial ID: DEV-F-2020-PL-C05-A-02.0-PL-PL8-017 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 758 F- WEST/NORTH-EAST/ PUCCRT/ WHEAT BASF Trial ID: DEV-F-2020-PL-C11-D-02.0-PL-PL8-020 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 758 F- WEST/NORTH-EAST/ PUCCST/ WHEAT BASF Trial ID: DEV-F-2020-PL-C17-D-02.0-PL-EAS-C17 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 758 F- WEST/NORTH-EAST/ PUCCST/ WHEAT BASF Trial ID: DEV-F-2020-PL-C17-D-02.0-PL-PL8-023 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 758 F- WEST/NORTH-EAST/ PUCCST/ WHEAT BASF Trial ID: DEV-F-2020-PL-C17-D-02.0-PL-PLL-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 758 F, 831 F & 832 F - NORTH-WEST/ PSDCHE/ ERYSGT BASF Trial ID: DEV-F-2020-PL-C23-D-02.0-PL-PL8-024 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 758 F- WEST/NORTH-EAST/ PYRNTR/ WHEAT BASF Trial ID: DEV-F-2020-PL-C26-D-02.0-PL-PLC-064 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 758 F- WEST/NORTH-EAST/ PYRNTR/ WHEAT BASF Trial ID: DEV-F-2020-PL-C26-D-02.0-PL-PLK-002 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 754 F & BAS 758 F - SOUTH-EAST/ SEPTTR/ WHEAT BASF Trial ID: DEV-F-2020-RO-C03-A-02.0-RO-RO0-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 754 F & BAS 758 F - SOUTH-EAST/ SEPTTR/ WHEAT BASF Trial ID: DEV-F-2020-RO-C03-A-02.0-RO-RO0-002 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 754 F & BAS 758 - SOUTH-EAST/ PUCCRT/ WHEAT BASF Trial ID: DEV-F-2020-RO-C13-A-02.0-RO-RO0-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 754 F & BAS 758 - SOUTH-EAST/ PUCCRT/ WHEAT BASF Trial ID: DEV-F-2020-RO-C13-A-02.0-RO-RO0-002 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 754 F, 758 F & 833 F - SOUTH-EAST/ PSDCHE/ WHEAT BASF Trial ID: DEV-F-2020-RO-C24-A-02.0-RO-RO0-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 754 F & 758 F - SOUTH-EAST / PYRNTR / WHEAT BASF Trial ID: DEV-F-2020-RO-C27-A-02.0-RO-EAS-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 754 F & 758 F - SOUTH-EAST / PYRNTR / WHEAT BASF Trial ID: DEV-F-2020-RO-C27-A-02.0-RO-SGS-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 754 F & BAS 758 F - SOUTH-EAST/ SEPTTR/ WHEAT BASF Trial ID: DEV-F-2020-SK-C03-A-02.0-SK-SK0-L04 yes Unpublished	No	BASF

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6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 754 F, 758 F & 833 F - SOUTH-EAST/ PSDCHE/ WHEAT BASF Trial ID: DEV-F-2020-SK-C24-A-02.0-SK-SK0-K06 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 754 F, 758 F & 833 F - SOUTH-EAST/ PSDCHE/ WHEAT BASF Trial ID: DEV-F-2020-SK-C24-A-02.0-SK-SK0-P04 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 754 F & 758 F - SOUTH-EAST / PYRNTR / WHEAT BASF Trial ID: DEV-F-2020-SK-C27-A-02.0-SK-SK0-G07 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 754 F- WEST/NORTH-EAST/ PUCCRT/ WHEAT BASF Trial ID: DEV-F-2020-UK-C11-A-02.0-UK-UK3-M20 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 754 F- WEST/NORTH-EAST/ PUCCST/ WHEAT BASF Trial ID: DEV-F-2020-UK-C17-A-03.0-UK-UK3-Z13 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	T1 / BLATTKRANKHEITEN / WEIZEN BASF Trial ID: MKD-F-2020-DE-013-A-03.0-DE-D08-F13 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	MARKET DEVELOPMENT TRIALS / PSDCHE, ERYSGT, SEPTTR / TRZAW BASF Trial ID: MKD-F-2020-PL-820-A-04.0-PL-PL8-031 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	MARKET DEVELOPMENT TRIALS / PSDCHE, ERYSGT, SEPTTR / TRZAW BASF Trial ID: MKD-F-2020-PL-820-A-04.0-PL-PL9-013 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ PYRNTR/ WHEAT BASF Trial ID: DEV-F-2019-FI-C27-A-02.0-FI-FI0-KO2 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 754 F- WEST/NORTH-EAST/ PYRNTR/ WHEAT BASF Trial ID: DEV-F-2020-FI-C26-A-02.0-FI-FI0-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - SOUTH-EAST / PYRNTE/ BARLEY BASF Trial ID: DEV-F-2019-BG-C36-A-02.0-BG-BG0-073 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - SOUTH-EAST / PYRNTE/ BARLEY BASF Trial ID: DEV-F-2019-BG-C36-A-02.0-BG-BG0-074 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ PYRNTE/ BARLEY BASF Trial ID: DEV-F-2019-DE-C34-A-04.0-DE-D08-C34 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ PYRNTE/ BARLEY BASF Trial ID: DEV-F-2019-DE-C34-B-04.0-DE-D11-C34 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ PYRNTE/ BARLEY BASF Trial ID: DEV-F-2019-DE-C34-B-04.0-DE-D12-C34 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ RHYNSE/ BARELY BASF Trial ID: DEV-F-2019-DE-C41-A-04.0-DE-D17-012 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ RHYNSE/ BARELY BASF Trial ID: DEV-F-2019-DE-C41-A-04.0-DE-IHE-H17 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ RAMUCC/ BARELY BASF Trial ID: DEV-F-2019-DE-C46-A-04.0-DE-D08-C46 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ RAMUCC/ BARELY BASF Trial ID: DEV-F-2019-DE-C46-A-04.0-DE-D09-910 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ RAMUCC/ BARELY BASF Trial ID: DEV-F-2019-DK-C46-A-02.0-DK-DK0-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ RHYNSE/ BARELY BASF Trial ID: DEV-F-2019-EX-C41-V-04.0-DE-VTF-428 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - SOUTH-EAST / PYRNTE/ BARLEY BASF Trial ID: DEV-F-2019-HU-C36-A-02.0-HU-HU1-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ PYRNTE/ BARLEY BASF Trial ID: DEV-F-2019-LT-C34-A-02.0-LT-LT0-AL1 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ PYRNTE/ BARLEY BASF Trial ID: DEV-F-2019-PL-C34-A-02.0-PL-PLB-B16 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ PYRNTE/ BARLEY BASF Trial ID: DEV-F-2019-PL-C34-A-02.0-PL-PLK-004 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ PYRNTE/ BARLEY BASF Trial ID: DEV-F-2019-PL-C34-A-02.0-PL-PLL-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - SOUTH-EAST / PYRNTE/ BARLEY BASF Trial ID: DEV-F-2019-PL-C36-A-02.0-PL-EAS-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - SOUTH-EAST / PYRNTE/ BARLEY BASF Trial ID: DEV-F-2019-PL-C36-A-02.0-PL-EAS-002 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - SOUTH-EAST / PYRNTE/ BARLEY BASF Trial ID: DEV-F-2019-PL-C36-A-02.0-PL-PL8-032 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - SOUTH-EAST / PYRNTE/ BARLEY BASF Trial ID: DEV-F-2019-PL-C36-A-02.0-PL-PL8-033 yes Unpublished yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - SOUTH-EAST / PYRNTE/ BARLEY BASF Trial ID: DEV-F-2019-PL-C36-A-02.0-PL-PLB-B17 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - SOUTH-EAST / PYRNTE/ BARLEY BASF Trial ID: DEV-F-2019-PL-C36-A-02.0-PL-PLB-B18 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - SOUTH-EAST / PYRNTE/ BARLEY BASF Trial ID: DEV-F-2019-PL-C36-A-02.0-PL-PLC-129 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - SOUTH-EAST / PYRNTE/ BARLEY BASF Trial ID: DEV-F-2019-PL-C36-A-02.0-PL-PLD-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - SOUTH-EAST / PYRNTE/ BARLEY BASF Trial ID: DEV-F-2019-PL-C36-A-02.0-PL-PLE-D19 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - SOUTH-EAST / PYRNTE/ BARLEY BASF Trial ID: DEV-F-2019-PL-C36-A-02.0-PL-PLE-D20 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - SOUTH-EAST / PYRNTE/ BARLEY BASF Trial ID: DEV-F-2019-PL-C36-A-02.0-PL-PLL-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ RHYNSE/ BARELY BASF Trial ID: DEV-F-2019-PL-C41-A-02.0-PL-EAS-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ RHYNSE/ BARELY BASF Trial ID: DEV-F-2019-PL-C41-A-02.0-PL-PLB-B20 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ RHYNSE/ BARELY BASF Trial ID: DEV-F-2019-PL-C41-A-02.0-PL-PLD-001 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ RHYNSE/ BARELY BASF Trial ID: DEV-F-2019-PL-C41-A-02.0-PL-PLL-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - SOUTH-EAST / PYRNTE/ BARLEY BASF Trial ID: DEV-F-2019-RO-C36-A-02.0-RO-RO0-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - SOUTH-EAST / PYRNTE/ BARLEY BASF Trial ID: DEV-F-2019-RO-C36-A-02.0-RO-SGS-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG BAS 758 F & 765 F - SOUTH-EAST / PYRNTE/ BARLEY BASF Trial ID: DEV-F-2019-SK-C36-A-02.0-SK-SK0-P05 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ PYRNTE/ BARLEY BASF Trial ID: DEV-F-2019-UK-C34-A-01.0-UK-UK3-F17 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ PYRNTE/ BARLEY BASF Trial ID: DEV-F-2019-UK-C34-A-01.0-UK-UK4-N12 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ PYRNTE/ BARLEY BASF Trial ID: DEV-F-2019-UK-C34-B-01.0-UK-UK3-L05 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ RHYNSE/ BARELY BASF Trial ID: DEV-F-2019-UK-C41-A-01.0-UK-UK3-L06 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 754 F, 758 F & 833 F/ SOUTH-EAST - PYRNTE/ BARLEY BASF Trial ID: DEV-F-2020-BG-C34-A-02.0-BG-BG0-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 758 F-WEST/NORTH-EAST/ PYRNTE/ BARLEY BASF Trial ID: DEV-F-2020-DE-C32-D-04.0-DE-D04-021 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 758 F-WEST/NORTH-EAST/ PYRNTE/ BARLEY BASF Trial ID: DEV-F-2020-DE-C32-D-04.0-DE-IHE-H09 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	BAS 758 F RATIO JUSTIFICATION/ PYRNTE/ BARLEY BASF Trial ID: DEV-F-2020-DE-C38-A-04.0-DE-D04-022 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	BAS 758 F RATIO JUSTIFICATION/ PYRNTE/ BARLEY BASF Trial ID: DEV-F-2020-DE-C38-A-04.0-DE-D12-C38 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 758 F-WEST/NORTH-EAST/ RAMUCC/ BARLEY BASF Trial ID: DEV-F-2020-DE-C41-D-04.0-DE-D07-027 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 758 F-WEST/NORTH-EAST/ RAMUCC/ BARLEY BASF Trial ID: DEV-F-2020-DE-C41-D-04.0-DE-D09-010 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 758 F-WEST/NORTH-EAST/ RAMUCC/ BARLEY BASF Trial ID: DEV-F-2020-DE-C41-D-04.0-DE-D09-011 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 754 F-WEST/NORTH-EAST/ PYRNTE/ BARLEY BASF Trial ID: DEV-F-2020-DK-C32-A-02.0-DK-DK2-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 754 F-WEST/NORTH-EAST/ RAMUCC/ BARLEY BASF Trial ID: DEV-F-2020-DK-C41-A-02.0-DK-DK2-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 754 F-WEST/NORTH-EAST/ RAMUCC/ BARLEY BASF Trial ID: DEV-F-2020-DK-C41-A-02.0-DK-DK2-002 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	BAS 758 F RATIO JUSTIFICATION/ PYRNTE/ BARLEY BASF Trial ID: DEV-F-2020-EX-C38-V-04.0-DE-VTF-318 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 754 F, 758 F & 833 F/ SOUTH-EAST - PYRNTE/ BARLEY BASF Trial ID: DEV-F-2020-HU-C34-A-02.0-HU-HU1-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 754 F-WEST/NORTH-EAST/ PYRNTE/ BARLEY BASF Trial ID: DEV-F-2020-LT-C32-A-02.0-LT-LT0-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 754 F-WEST/NORTH-EAST/ PYRNTE/ BARLEY BASF Trial ID: DEV-F-2020-LV-C32-A-02.0-LV-AR2-482 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 754 F-WEST/NORTH-EAST/ PYRNTE/ BARLEY BASF Trial ID: DEV-F-2020-LV-C32-A-02.0-LV-LV0-M12 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 758 F-WEST/NORTH-EAST/ PYRNTE/ BARLEY BASF Trial ID: DEV-F-2020-PL-C32-D-02.0-PL-PLC-092 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	BAS 758 F RATIO JUSTIFICATION/ PYRNTE/ W-BARLEY BASF Trial ID: DEV-F-2020-PL-C38-A-02.0-PL-PL8-025 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 754 F, 758 F & 833 F/ SOUTH-EAST - PYRNTE/ BARLEY BASF Trial ID: DEV-F-2020-RO-C34-A-02.0-RO-RO0-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 754 F, 758 F & 833 F/ SOUTH-EAST - PYRNTE/ BARLEY BASF Trial ID: DEV-F-2020-RO-C34-A-02.0-RO-RO0-002 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 754 F-WEST/NORTH-EAST/ RAMUCC/ BARLEY BASF Trial ID: DEV-F-2020-UK-C41-A-02.0-IE-IE0-J73 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 754 F-WEST/NORTH-EAST/ RAMUCC/ BARLEY BASF Trial ID: DEV-F-2020-UK-C41-A-02.0-UK-UK1-U07 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ TRITICALE BASF Trial ID: DEV-F-2019-DE-CT2-A-04.0-DE-D08-CT2 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ TRITICALE BASF Trial ID: DEV-F-2019-DE-CT2-A-04.0-DE-D17-015 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ TRITICALE BASF Trial ID: DEV-F-2019-DE-CT2-A-04.0-DE-IHE-B14 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ TRITICALE BASF Trial ID: DEV-F-2019-DK-CT2-A-02.0-DK-DK0-AL1 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ TRITICALE BASF Trial ID: DEV-F-2019-LT-CT2-A-02.0-LT-LT0-004 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ TRITICALE BASF Trial ID: DEV-F-2019-PL-CT2-A-02.0-PL-PL8-029 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ TRITICALE BASF Trial ID: DEV-F-2019-PL-CT2-A-02.0-PL-PLB-B12 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ TRITICALE BASF Trial ID: DEV-F-2019-PL-CT2-A-02.0-PL-PLL-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REGISTRATION BAS 736 F, 763 F, 758 F & 765 F, TRITICALE BASF Trial ID: DEV-F-2020-DE-CT1-D-04.0-DE-D04-025 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REGISTRATION BAS 736 F, 763 F, 758 F & 765 F, TRITICALE BASF Trial ID: DEV-F-2020-DE-CT1-D-04.0-DE-D11-CT1 yes Unpublished	No	BASF

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6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REGISTRATION BAS 736 F, 763 F, 758 F & 765 F, TRITICALE BASF Trial ID: DEV-F-2020-DE-CT1-D-04.0-DE-D12-CT1 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REGISTRATION BAS 736 F, 763 F, 758 F & 765 F, TRITICALE BASF Trial ID: DEV-F-2020-DE-CT1-D-04.0-DE-D17-024 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REGISTRATION BAS 736 F, 763 F, 758 F & 754 F, TRITICALE BASF Trial ID: DEV-F-2020-DK-CT1-A-02.0-DK-DK2-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REGISTRATION BAS 736 F, 763 F, 758 F & 765 F, TRITICALE BASF Trial ID: DEV-F-2020-PL-CT1-D-02.0-PL-PL1-014 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REGISTRATION BAS 736 F, 763 F, 758 F & 765 F, TRITICALE BASF Trial ID: DEV-F-2020-PL-CT1-D-02.0-PL-PL8-030 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REGISTRATION BAS 736 F, 763 F, 758 F & 765 F, TRITICALE BASF Trial ID: DEV-F-2020-PL-CT1-D-02.0-PL-PLB-B08 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REGISTRATION BAS 736 F, 763 F, 758 F & 765 F, TRITICALE BASF Trial ID: DEV-F-2020-PL-CT1-D-02.0-PL-PLL-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ RYE BASF Trial ID: DEV-F-2019-DE-CR2-A-04.0-DE-D12-CR2 yes Unpublished	No	BASF

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6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ RYE BASF Trial ID: DEV-F-2019-DE-CR2-A-04.0-DE-D17-025 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ RYE BASF Trial ID: DEV-F-2019-LV-CR2-A-02.0-LV-AR2-406 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ RYE BASF Trial ID: DEV-F-2019-PL-CR2-A-02.0-PL-PLB-B14 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ RYE BASF Trial ID: DEV-F-2019-PL-CR2-A-02.0-PL-PLK-004 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ RYE BASF Trial ID: DEV-F-2019-PL-CR2-A-02.0-PL-PLL-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REGISTRATION BAS 736 F, 763 F, 758 F & 765 F, RYE BASF Trial ID: DEV-F-2020-DE-CR1-D-04.0-DE-D04-024 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REGISTRATION BAS 736 F, 763 F, 758 F & 765 F, RYE BASF Trial ID: DEV-F-2020-DE-CR1-D-04.0-DE-D11-CR1 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REGISTRATION BAS 736 F, 763 F, 758 F & 765 F, RYE BASF Trial ID: DEV-F-2020-DE-CR1-D-04.0-DE-D12-CR1 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REGISTRATION BAS 736 F, 763 F, 758 F & 765 F, RYE BASF Trial ID: DEV-F-2020-DE-CR1-D-04.0-DE-D17-023 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REGISTRATION BAS 736 F, 763 F, 758 F & 754 F, RYE 360-1 BASF Trial ID: DEV-F-2020-DK-CR1-A-02.0-DK-DK2-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REGISTRATION BAS 736 F, 763 F, 758 F & 754 F, RYE BASF Trial ID: DEV-F-2020-LV-CR1-A-02.0-LV-AR2-481 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REGISTRATION BAS 736 F, 763 F, 758 F & 765 F / PUCCRE / RYE BASF Trial ID: DEV-F-2020-PL-CR1-D-02.0-PL-EAS-CR1 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REGISTRATION BAS 736 F, 763 F, 758 F & 765 F / PUCCRE / RYE BASF Trial ID: DEV-F-2020-PL-CR1-D-02.0-PL-PL8-029 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REGISTRATION BAS 736 F, 763 F, 758 F & 765 F / PUCCRE / RYE BASF Trial ID: DEV-F-2020-PL-CR1-D-02.0-PL-PLB-B09 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REGISTRATION BAS 736 F, 763 F, 758 F & 765 F / PUCCRE / RYE BASF Trial ID: DEV-F-2020-PL-CR1-D-02.0-PL-PLD-001 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REGISTRATION BAS 831 F & BAS 832 F / ERYSGR/ OAT BASF Trial ID: DEV-F-2019-UK-CH1-A-01.0-UK-UK3-A20 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REGISTRATION BAS 831 F & BAS 832 F / ERYSGR/ OAT BASF Trial ID: DEV-F-2019-UK-CH1-A-01.0-UK-UK3-F20 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REGISTRATION BAS 831 F & BAS 832 F / PUCCCA / OAT BASF Trial ID: DEV-F-2019-UK-CH2-A-01.0-UK-UK3-A21 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ PYRNTE/ BARLEY BASF Trial ID: DEV-F-2019-LT-C34-A-02.0-LT-LT0-002 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2019	REG 763 F, 736 F, 758 F & 830 F - NORTH-WEST/ TRITICALE BASF Trial ID: DEV-F-2019-PL-CT2-A-02.0-PL-PLK-004 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2020	REG BAS 736 F, 763 F & 758 F- WEST/NORTH-EAST/ PYRNTR/ WHEAT BASF Trial ID: DEV-F-2020-DE-C26-E-04.0-DE-D11-C26 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2021	REG BAS 560 F, BAS 758 F POLAND/ PSDCHE, ERYSGR/ BARLEY BASF Trial ID: DEV-F-2021-PL-C49-A-01.0-PL-PL8-032 yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2021	REG BAS 560 F, BAS 758 F POLAND/ PSDCHE, ERYSGR/ BARLEY BASF Trial ID: DEV-F-2021-PL-C49-A-01.0-PL-PLC-060 yes Unpublished	No	BASF
6.4.4	Dr. Tobias Erven	2021	M alting and brewing trails Evaluation of different barley varieties for brewing purposes DocID: 2021/20380441 yes Unpublished	No	BASF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2022	VARIOUS PRODUCTS / T2 DISEASES / SPELT BASF Trial ID: DEV-F-2022-DE-C10-A-04.0-DE-D12-PER yes Unpublished	No	BASF
6.2, 6.4.1, 6.4.2, 6.4.3	Anonymous	2021	VARIOUS PRODUCTS / T2 DISEASES / SPELT BASF Trial ID: DEV-F-2022-DE-C10-A-04.0-DE-D12-SPE yes Unpublished	No	BASF

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

There are no already evaluated studies submitted in this Section