

**REGISTRATION REPORT**  
**Part B**  
**Section 3**  
**Efficacy Data and Information**  
Concise summary

Product code: GLOB1811F

Product name(s): RASPUT

Chemical active substance:

Boscalid, 500 g/kg

**Poland – Art. 33**

**CORE ASSESSMENT**  
**(authorization)**

Applicant: Globachem NV

Submission date: June 2021

**MS Finalisation date: 18/03/2022**

## Version history

When	What
December 2021	First zRMS PL evaluation
March 2022	RR finalized by zRMS after commenting period

## Table of Contents

<b>3</b>	<b>Efficacy Data and Information (including Value Data) on the Plant Protection Product (KCP 6).....</b>	<b>4</b>
3.1	Summary and conclusions of zRMS on Section 3: Efficacy (KCP 6).....	4
3.2	Efficacy data (KCP 6).....	9
3.2.1	Preliminary tests (KCP 6.1) .....	12
3.2.2	Minimum effective dose tests (KCP 6.2).....	14
3.2.3	Efficacy tests (KCP 6.2) .....	15
3.3	Information on the occurrence or possible occurrence of the development of resistance (KCP 6.3) .....	39
3.3.1	Mode of action an inherent risk of the active substance .....	39
3.3.2	Inherent risk of target pathogens.....	39
3.3.3	Resistance mechanisms and cases of resistance .....	40
3.3.4	Cross resistance.....	40
3.3.5	Acceptability of the resistance risk .....	40
3.3.6	Management strategy .....	40
3.3.7	Implementation of the management strategy .....	41
3.4	Adverse effects on treated crops (KCP 6.4).....	43
3.4.1	Phytotoxicity to host crop (KCP 6.4.1).....	43
3.4.2	Effect on yield of treated plants or plant product (KCP 6.4.2) .....	44
3.4.3	Effects on the quality of plants and plant products (KCP 6.4.3) .....	47
3.4.4	Effects on transformation processes (KCP 6.4.4).....	52
3.4.5	Impact on treated plants or plant products to be used for propagation (KCP 6.4.5) .....	52
3.5	Observations on other undesirable or unintended side-effects (KCP 6.5)...	52
3.5.1	Impact on succeeding crops (KCP 6.5.1).....	52
3.5.2	Impact on other plants including adjacent crops (KCP 6.5.2) .....	52
3.6	Other/special studies .....	53
	<b>Appendix 1 Lists of data considered in support of the evaluation.....</b>	<b>55</b>

### 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)

##### Review Comments:

This application was submitted by Globachem NV for approval of Rasput (GLOB1811F) a water dispersible granule (WG) containing 500 g/kg boscalid for use as a fungicide in oilseed rape in Poland.

Boscalid was included on Annex I of Directive 91/414/EEC on 1 of August 2008 under Inclusion Directive 2008/44/EC.

This Part B document only reviews data (Annex III) and additional information that has not previously been considered within the EU review process.

Since this document is based on the information provided by the applicant, all review comments, additions and corrections have been made using commenting boxes or highlighted in grey. Any incorrect data or text not evaluated by the zRMS has been crossed out.

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

##### Abstract

The aim of this document is the support of an application for authorization of the fungicide GLOB1811F containing 500g/kg of boscalid, formulated as a wettable granule (WG) developed by Globachem NV for the control of *Sclerotinia sclerotiorum*, *Alternaria brassicae*, and *Plenodomus lingam* (*Leptosphaeria maculans*) in oilseed rape.

##### Preliminary tests:

No preliminary range-finding tests are available. Based on the knowledge about this active substance and the experiences with products, preliminary tests in field trials to assess the biological activity of the active substance or dose range for the plant protection product were not deemed necessary.

##### Minimum effective dose:

To fulfil the requirements of justifying the minimum effective dosage according to EPPO guideline PP1/225 (1) GLOB1811F in winter rape was tested rates of 0.2 – 0.5 kg/ha. All trials were conducted as part of the efficacy tests. The results of dosage range tests clearly show that in case of higher pest pressure, the efficacy of GLOB1811F against SCLESC, LEPTMA and ALTEBA increase with higher dose rates of up to 0.5 kg/ha. However, these results also demonstrate that acceptable levels of control can be reached at the lowest tested dose rate of 0.2 kg/ha, in cases with relatively low pest pressure. It would therefore be justified that rates below 0.5 kg/ha may be applied only when pest pressure or forecast pest pressure is at a lower level.

##### EFFICACY TESTS:

Collected results show that efficacy of GLOB1811F was consistently similar or even higher than that of the standard product Cantus with the same spectrum of activity against winter oilseed rape pathogens. In case of higher pest pressure, the efficacy of GLOB1811F against SCLESC, LEPTMA and ALTEBA increase with higher dose rates of up to 0.5 kg/ha. It would therefore be reasonable that rates below 0.5 kg/ha may be applied only when pest pressure or forecast pest pressure is at a lower level. Moreover, according to the standard EPPO PP 1/226(2), an insufficient number of trials for LEPTMA and ALTEBA were presented. As adverse weather conditions had a significant influence on the results of the efficacy trials and GLOB1811F has achieved under these conditions similar or higher efficacy than CANTUS is

reasonable to conditionally register GLOB1811F in the requested uses. The applicant will need to submit the missing LEPTMA and ALTEBA trials at a later date.

No efficacy data is available to support use on spring oilseed rape. This use may be claimed as "minor uses" under Article 51 of Regulation 1107/2009 as an extension of the registration.

**Information on possible occurrence of the development of resistance:**

Boscalid is a fungicide active ingredient belonging to the pyridine-carboxamides group (also known as carboxins or oxathiins, group FRAC 7). The mode of action of boscalid is the inhibition of the enzyme succinate dehydrogenase (SDH), also known as complex II in the mitochondrial electron transport chain (Kulka and von Schmeling 1995).

According to the findings of the SDHI Working Group of the Fungicide Resistance Action Committee FRAC (Virtual Meeting on January 20 - 21, 2021), currently there is no evidence of field strains of *Leptosphaeria maculans*, *Sclerotinia sclerotiorum* or *Alternaria brassicae* that are resistant to SDHI fungicides in oilseed rape in Poland. Based on the information above, the zRMS considers that the risk of resistance developing to boscalid from the proposed use of GLOB1811F is low to moderate. Anyhow, to further ensure a high level of efficacy of the test product on the target diseases, measures for a resistance management are recommended:

**Strategies and General Guidelines for the 2020/21 season:**

- Strategies for the management of SDHI fungicide resistance, in all crops, are based on the statements listed below. These statements serve as a fundamental guide for the development of local resistance management programs.

- Resistance management strategies have been designed in order to be proactive and to prevent or delay the development of resistance to SDHI fungicides.

- A fundamental principle that must be adhered to when applying resistance management strategies for SDHI fungicides is that:

The SDHI fungicides (benodanil, benzovindiflupyr, bixafen, boscalid, carboxin, cyclobutrifluram, fenfuram, fluindapyr, fluopyram, flutolanil, fluxapyroxad, furametpyr, inpyrfluxam, isofetamid, isoflucypram, isopyrazam, mepronil, oxycarboxin, penflufen, penthiopyrad, pydiflumetofen, sedaxane, thifluzamide) are in the same cross-resistance group.

- Fungicide programs must deliver effective disease management. Apply SDHI fungicide-based products at effective rates and intervals according to manufacturers' recommendations.

- Effective disease management is a critical component to delay the build-up of resistant pathogen populations.

- The number of applications of SDHI fungicide based products within a total disease management program must be limited.

- When mixtures are used for SDHI fungicide resistance management, applied as tank mix or as a co-formulated mixture, the mixture partner:

- should provide satisfactory disease control when used alone on the target disease

- must have a different mode of action

- Mixtures of two or more SDHI fungicides can be applied to provide good biological efficacy; however, they do not provide an anti-resistance strategy and must be treated as a solo SDHI for resistance management. Each application of such a mixture when used in a spray program counts as one SDHI application.

- SDHI fungicides should be used preventively or at the early stages of disease development.

- Please refer to the "mixture document" (link) for more information on fungicide mixtures for resistance management.

- Species can carry different mutations which affect SDHIs. A few mutations can lead to different sensitivities depending on the chemical structure of the active ingredient.

- As SDHIs are cross-resistant, resistance management must be the same for all SDHIs.

- All monitoring and guideline related statements refer to the entire group of SDHI.

**Yield and parameters:**

In all trials, the effects of GLOB1811F were similar to those of the reference product tested at the same rates. No unacceptable yield effects caused by GLOB1811F at the higher dose rate of 0.5 kg/ha were recorded in any of the trials. Therefore, it can be supposed that GLOB1811F applied at 0.2 up to 0.5 kg/ha has no negative effect on yield.

**Phytotoxicity to host crop:**

GLOB1811F was completely selective in oilseed rape. Therefore, it is maintained that this fungicide will be safe when used as proposed.

**Adverse effects on adjacent crops:**

During many years of commercial use, no negative impact of boscalid on other plants including adjacent crops was observed under practical agricultural conditions. Boscalid is registered and used for many years on a wide range of crops. Therefore, even if drift to adjacent monocotyledonous or dicotyledonous crops should occur, no crop injury is expected due to the large safety margin of GLOB1811F on all potential adjacent crops.

**Adverse effects on succeeding crops**

During many years of commercial use, no negative impact of boscalid on following crops was observed under practical agricultural conditions. The absence of any negative impact on following crops can be explained by the good selectivity of this active substance. Boscalid is currently registered for use on different crops and no negative impact was reported until now.

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

<b>PPP (product name/code):</b>	RASPUT / GLOB1811F	<b>Formulation type:</b>	GAP rev. 1.0, date: 2021-04-30 WG
<b>Active substance 1:</b>	Boscalid	<b>Conc. of as 1:</b>	500 g/kg
<b>Safener:</b>	/	<b>Conc. of safener:</b>	/
<b>Synergist:</b>	/	<b>Conc. of synergist:</b>	/
<b>Applicant:</b>	Globachem NV	<b>Professional use:</b>	<input checked="" type="checkbox"/>
<b>Zone(s):</b>	Central	<b>Non professional use:</b>	<input type="checkbox"/>
<b>Verified by MS:</b>	yes/no		
<b>Field of use:</b>	Fungicide		

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. <sup>(e)</sup>	Membe r state(s)	Crop and/ or situation  (crop destination / purpose of crop)	F, Fn, Fpn G, Gn, Gpn or I	Pests or Group of pests controlled  (additionally: developmental stages of the pest or pest group)	Application				Application rate			PHI (day s)	Remarks:  e.g. g safener/synergi st per ha <sup>(f)</sup>	zRMS conclusion
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applicati ons (days)	kg product / ha a) max. rate per appl. b) max. total rate per crop/season	kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha  min / max			
Zonal uses (field or outdoor uses, certain types of protected crops)														
1	CEU	Oilseed rape (Winter & <b>Spring</b> )	F	<i>Sclerotina sclerotiorum</i>	Foliar Spray	BBCH 55-69	a) 2 b) 2	14	a) 0.5 b) 1.0	a) 0.250 b) 0.500	200-300	-	Maximum 2 applications of 0.2 to 0.5 kg product/ ha per season per crop for all diseases	A
2	CEU	Oilseed rape (Winter & <b>Spring</b> )	F	<i>Alternaria brassicae</i>	Foliar Spray	BBCH 55-69	a) 2 b) 2	14	a) 0.5 b) 1.0	a) 0.250 b) 0.500	200-300	-	Maximum 2 applications of 0.2 to 0.5 kg product/ ha per season per crop for all diseases	R
3	CEU	Oilseed rape (Winter & <b>Spring</b> )	F	<i>Leptosphaeria maculans</i>	Foliar Spray	BBCH 20-59	a) 2 b) 2	14	a) 0.5 b) 1.0	a) 0.250 b) 0.500	200-300	-	Maximum 2 applications of 0.2 to 0.5 kg product/ ha per season per crop for all diseases	R

\* 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 core assessment dossier summarises the information related to the efficacy of the plant protection product Rasput (also named GLOB1811F), containing the active ingredient boscalid, which is further referred to as Boscalid 50 WG. Boscalid 50 WG is a protectant and systemic fungicide for use against early and late-season diseases in oilseed rape.

Boscalid (formerly nicobifen) was approved on the 1<sup>st</sup> of August 2008 and was included in directive 91/414/EEC, amended by Commission Directive 2008/44/EC. The approval of boscalid was last extended by Commission Implementing Regulation (EU) 2019/707 of May 7<sup>th</sup>, 2019.

The Annex I Inclusion Directive of boscalid provides specific provisions under Part B which need to be considered by the applicant in the preparation of their submission and by the MS prior to granting an authorisation.

For the implementation of the uniform principles of Annex VI, the conclusions of the review report on the active substances, and in particular Appendices I and II thereof, as finalised in the corresponding Standing Committee on Plants, Animals, Food and Feed shall be taken into account.

In this overall assessment there are however no efficacy related concerns.

Appendix 1: List of references included in this document for support of the evaluation.

Appendix 2: Table of intended uses.

Appendix 3: GEP Certificates of the different laboratories.

### Description of active substances

Boscalid is a systemic fungicide that belongs to the class of the pyridine-carboxamides.

In its pure form boscalid has the appearance of white, scentless crystals. It is not explosive and has no oxidizing properties. In a 1% aqueous solution it has a pH of 5.5 at 23°C. It has a melting point of 142.8 to 143.8 °C and is stable under the recommended storage conditions. Its technical characteristics are acceptable for a wettable granule formulation. Its technical properties are such that no particular problems are to be expected when Boscalid 50 WG is used as recommended.

### Mode of action

Boscalid is absorbed through the leaves and inhibits succinate-dehydrogenase (FRAC code C2), thereby disturbing energy production in fungi.

**Table 3.2-1 Details of the active substance in Boscalid 50 WG**

Active substance	Boscalid
Concentration	500 g/kg
Chemical group	Pyridine-carboxamides
Mode of action	Inhibition of succinate dehydrogenase
Biological action	Inhibition of energy production

**Description of the plant protection product**

Boscalid 50 WG is a protectant and systemic fungicide for use in oilseed rape for the control of *Sclerotinia sclerotiorum*, *Alternaria brassicae*, and *Plenodomus lingam* (*Leptosphaeria maculans*).

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

Two applications of 0.2-0.5 kg/ha can be made from the moment side shoots start to form (BBCH 20) until the end of flowering (BBCH 69).

This dossier supports the use on oilseed rape, but this molecule has also been used in grapes, peas, celeriac and green beans. It is also used against fungi of *Monilia* genus.

**Table 3.2-2 Simplified table of currently registered uses and requested uses for Boscalid 50 WG**

Uses		Member State	Requested rate(s)	Comments / Other relevant details on GAPs
Crop(s)	Target(s)			
BRSNN Oilseed rape	ALTEBA <i>Alternaria brassicae</i> SCLESC <i>Sclerotinia sclerotiorum</i> LEPTMA <i>Plenodomus lingam</i>	PL	0.2-0.5 kg/ha	max. 2 applications <b><u>REQUESTED</u></b>

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
ALTEBA	<i>Alternaria brassicae</i>
SCLESC	<i>Sclerotinia sclerotiorum</i>
ERYSCR	<i>Erysiphe cruciferarum</i>
LEPTMA	<i>Plenodomus lingam</i>

**Table 3.2-4 Levels of control for fungicides**

Claim level	Level of control
<i>Control</i>	> 80 %
<i>Partial/moderate control</i>	60 - 80 %
<i>Some control</i>	40 - 60 %

**Table 3.2-5 Major / minor status of intended pre-emergence uses (for all cMS and zRMS)**

Crop and/or situation	Crop status		Pests or group of pests controlled	Pest status	
	Major	minor		Major	minor
BRSNN Oilseed rape	PL	-	ALTEBA SCLESC LEPTMA	PL	-

## Compliance with the Uniform Principles

All data submitted in this Biological assessment dossier are in compliance with the Uniform Principles.

### Information on trials submitted (3.2 Efficacy data)

**Table 3.2-6 Presentation of trials (efficacy trials, preliminary trials...)**

Crop(s)*	Target(s)*	Country	Years	Type of trial**	Number of trials (number of valid trials)	GEP, non-GEP, official***	Comments (any other relevant information)
BRSNN	ALTEBA SCLESC LEPTMA	CZ	2019	MED + E	4	GEP	-
			2020	MED + E	1	GEP	-
		SE	2019	MED + E	1	GEP	-
		PL	2020	MED + E	3	GEP	-
		FR	2020	MED + E	1	GEP	-
TOTAL					10		

\* According to the GAP table. Timing of the application(s) can be added if relevant (e.g. Pre-mergence vs post-emergence, spring vs autumn).

\*\* P = preliminary trial, MED = minimum effective dose, E = efficacy trial.

\*\*\* GEP: Good Experimental Practices. Official: carried out by a national official organisation.

In this dossier, the list of individual trials is presented under 3.2.3 Efficacy tests. The reference products used in the efficacy trials were the BASF products Cantus, Propatan and Pictor Pro which are all identical products containing 500 g/kg boscalid in a WG formulation and which are therefore highly similar to Boscalid 50 WG. It should be noted that Cantus is also registered in Poland, as seen in the table below.

**Table 3.2-7 Presentation of reference standards used in trials (efficacy trials, preliminary trials...)**

Crop	Reference standard	Country(ies) where the product is registered <sup>(1)</sup>	Reg. number	Active substance	Formulation		Registered application rate <sup>(3)</sup>	Application rate in trials (per treatment)	Remark <sup>(4)</sup>
					Type <sup>(2)</sup>	Concentration of a.s.			
BRSNN	Propatan	CZ	4889-1	Boscalid	WG	500 g/kg	1 or 2 appl. 0.5 kg/ha	1 or 2 appl. 0.3-0.5 kg/ha	-
	Cantus	SE	4872	Boscalid	WG	500 g/kg	1 or 2 appl. 0.5 kg/ha	2 appl. 0.3-0.5 kg/ha	-
		PL	R-111/2018	Boscalid	WG	500 g/kg	1 or 2 appl. 0.2-0.5 kg/ha	2 appl. 0.2-0.5 kg/ha	-
	Pictor Pro	FR	2050075	Boscalid	WG	500 g/kg	1 or 2 appl. 0.5 kg/ha	2 appl. 0.2-0.5 kg/ha	-

(1) only on use(s) applied for (with the test product).

(2) e.g. WP (wetable powder), EC (emulsifiable concentrate), etc.

(3) dose(s) / dose range authorized on that use in the country.

(4) Other relevant information (e.g. uses, number of applications, spray volume, method of application, etc.).

### 3.2.1 Preliminary tests (KCP 6.1)

Boscalid has been widely and successfully used in plant protection practice in many European countries for many years. The properties of this active substance and the performance of its formulations are well known and practically tested.

Providing preliminary tests is not regarded essential for this submission.

Comments of zRMS: No preliminary range-finding tests are available. Based on the knowledge about this active substance and the experiences with products, preliminary tests in field trials to assess the biological activity of the active substance or dose range for the plant protection product were not deemed necessary.

### 3.2.2 Minimum effective dose tests (KCP 6.2)

Multiple dose rates of Boscalid 50 WG were tested in the efficacy trials described in section 3.2.3. The results of the final assessments of these trials are summarized in the table below. In accordance with Table 3.2-4, the levels of control provided by the different dose rates are indicated as follows.

Control (>80% efficacy)

Moderate control (60-80% efficacy)

Some control (40-60% efficacy)

In the column ‘Trial info’ more information is given on which efficacy trials were used; ‘PL’ indicates only trials performed in Poland were used; ‘PL + CZ’ indicates trials from the Czech Republic, which are also applicable for Poland, were included.

**Minimum effective dose table 3.2-1 Comparison of the efficacy of different dose rates of Boscalid 50 WG**

Disease	Part rated	Timing (DA-A)	Assessment type	Trial info	n	Untreated control			Efficacy Boscalid 50 WG								
						Mean	Min	Max	0.2 L/ha (40%)			0.3 L/ha (60%)			0.5 L/ha (100%)		
									Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
SCLESC	STEM	39-85	PESSEV	PL	3	43.37	18.80	81.20	58.61	51.40	62.90	66.40	63.00	71.20	76.60	69.30	84.80
				PL + CZ	4	40.28	18.80	81.20	48.83	19.50	62.90	62.63	51.30	71.20	74.25	67.20	84.80
				PL + CZ	7	28.29	5.90	81.20	-	-	-	72.43	51.30	93.22	83.14	67.20	98.31
			PESINC	PL + CZ	7	50.29	36.00	100.00	-	-	-	50.54	2.00	77.27	67.40	2.00	92.11
			TH04	PL	3	36.45	15.75	66.80	59.53	52.39	63.70	65.74	62.50	71.90	72.23	62.50	78.20
				PL + CZ	4	32.21	15.75	66.80	49.92	21.10	63.70	62.08	51.10	71.90	71.10	62.50	78.20
				PL + CZ	7	23.26	9.50	66.80	-	-	-	63.19	38.90	79.60	79.86	62.50	92.50
LEPTMA	LEAF	28-52	PESSEV	PL	2	24.73	6.95	42.50	50.33	46.30	54.35	53.72	49.40	58.04	63.77	58.80	68.73
				PL + CZ	4	20.19	6.95	42.50	-	-	-	49.71	44.10	58.04	68.93	58.80	76.60
	STEM	39-42	PESSEV	PL + CZ	2	7.70	7.60	7.80	-	-	-	51.43	41.03	61.84	83.30	69.23	97.37
	ROOT	71-79	PESSEV	PL	2	2.38	1.75	3.01	80.81	65.78	95.84	84.53	73.33	95.72	88.38	80.00	96.76
			TH04	PL	2	59.50	43.75	75.25	56.38	38.48	74.27	60.88	41.65	80.10	67.78	50.61	84.95

### Summary

The table above clearly demonstrates that the level of control provided by Boscalid 50 WG increases with higher dose rates (positive dose response). However, these results also demonstrate that adequate levels of control can be reached at the lowest tested dose rate of 0.2 kg/ha, especially in cases with relatively low pest pressure. For examples of this reference is made to section 3.2.3, where all individual trial results are shown.

The amount of control increases with increasing dose rates. The highest tested dose rate of 0.5 kg/ha is required to achieve better control and more consistent results in more challenging conditions. Therefore the applicant requests registration of 0.2-0.5 kg/ha dose range. This is also in accordance with the highly similar product Cantus (R-111/2018), which also contains 500 g/kg boscalid in a WG formulation and is registered in Poland. Furthermore, the orthogonal comparison between Boscalid 50 WG and Cantus (or identical products Filan and Pictor Pro) demonstrates that Boscalid 50 WG generally outperforms the reference product.

Additionally, the effect on yield amount, discussed in section 3.4.2 demonstrates that (on average) yield amount was already increased by almost 15% for the lowest requested dose rate of 0.2 kg/ha, which confirms 0.2 kg/ha can indeed be considered the minimum requested dose rate.

Comments of zRMS: To fulfil the requirements of justifying the minimum effective dosage according to EPPO guideline PP1/225 (1) GLOB1811F in winter rape was tested rates of 0.2 – 0,5 kg/ha. All trials were conducted as part of the efficacy tests. The results of dosage range tests clearly show that in case of higher pest pressure, the efficacy of GLOB1811F against SCLESC, LEPTMA and ALTEBA increase with higher dose rates of up to 0.5 kg/ha. However, these results also demonstrate that acceptable levels of control can be reached at the lowest tested dose rate of 0.2 kg/ha, in cases with relatively low pest pressure. It would therefore be justified that rates below 0.5 kg/ha may be applied only when pest pressure or forecast pest pressure is at a lower level.

### 3.2.3 Efficacy tests (KCP 6.2)

In total, 3 efficacy trials were carried out by GEP certified research institutions in Poland and 7 efficacy trials were carried out in 3 countries of the Maritime EPPO Zone; the Czech Republic (5), France (1) and Sweden (1) in 2019 and 2020 to evaluate the efficacy of Boscalid 50 WG for the control of *Alternaria brassicae*, *Sclerotinia sclerotiorum* and *Plenodomus lingam* in oilseed rape.

It is important to note that the trials performed in France and Sweden, although not valid for registration in Poland, can be used as confirmatory trials. As such they confirm the good efficacy of Boscalid 50 WG in a broad range of conditions.

The trial methodology, crop species, trial site information, application details, location and soil type are presented in the Table 3.2-8 and Table 3.2-9.

**Table 3.2-8 Details on trial methodology**

<b>Guidelines</b>	General guidelines	EPPO PP 1/152 (4), 1/135 (4), 1/181 (4)
	Specific guidelines	EPPO PP 1/78(3)
<b>Experimental design</b>	Plot design	Field trials
	Number of replications	4
<b>Crop</b>	Trials per crop	10
	Varieties per crop	10
	BBCH at application	51-75
<b>Application</b>	Applications	1 (KCP 6.2-01) ( <u>worst case</u> ) 2 (KCP 6.2-02 – KCP 6.2-10)
	Spray volumes	200-300 L/ha
<b>Assessment</b>	Assessment types	Phytotoxicity, pest severity, pest incidence, lodging, yield, yield quality
	Assessment dates	Phytotoxicity: from application Pest severity, pest incidence: 0-85 DAA Lodging, yield, yield quality: at harvest
	Field / Greenhouse...	Field
	GEP	All trials were performed according to GEP

**Table 3.2-9 Summary form of information concerning trial sites and application details**

Type of trials Effectiveness  
Identity of the product under test BOSCALID 50 WG  
Crop: Oilseed rape  
Harmful organism ALTEBA, SCLESC, LEPTMA  
Responsible body for reporting trial See second column  
Date of submission January 2021

Trial reference	Testing unit	Trial location Soil type	Test method Plot size	Application details			Growth stage crop (1 <sup>st</sup> and last application)	Oilseed rape variety
				Date (1 <sup>st</sup> and last), interval	Method, applic. amount	Applic. technique		
KCP 6.2-01		Kromeriz (CZ) Loam	EPPO PP 1/135(3), 1/152(4), 1/181(4) and 1/78(3) Plot size: 25 m <sup>2</sup>	27/05/2019	Overall spray, 225 L/ha	Downward spraying	BBCH 67	DK Exception
KCP 6.2-02		Petrov nad Desnou (CZ) Sandy Loam	EPPO PP 1/135(3), 1/152(4), 1/181(4) and 1/78(3) Plot size: 42 m <sup>2</sup>	24/05/2019 7/06/2019	Overall spray, 300 L/ha	Downward spraying	BBCH 65 BBCH 69	Orex
KCP 6.2-03		Trutnov (CZ) Sandy Loam	EPPO PP 1/135(3), 1/152(4), 1/181(4) and 1/78(3) Plot size: 24.6 m <sup>2</sup>	26/05/2019 9/06/2019	Overall spray, 200 L/ha	Downward spraying	BBCH 67 BBCH 75	DK Exlibris
KCP 6.2-04		Zabreh na Morave (CZ) Clay Loam	EPPO PP 1/135(3), 1/152(4), 1/181(4) and 1/78(3) Plot size: 42 m <sup>2</sup>	27/05/2019 10/06/2019	Overall spray, 200 L/ha	Downward spraying	BBCH 65 BBCH 69	Orava
KCP 6.2-05		Skänninge (SE) Silt Loam	EPPO PP 1/135(3), 1/152(4), 1/181(4) and 1/78(3) Plot size: 30 m <sup>2</sup>	19/06/2019 3/07/2019	Overall spray, 200 L/ha	Downward spraying	BBCH 65 BBCH 69	Mahjong
KCP 6.2-06		Kromeriz (CZ) Loam	EPPO PP 1/135(3), 1/152(4), 1/181(4) and 1/78(3) Plot size: 25 m <sup>2</sup>	06/04/2020 07/05/2020	Overall spray, 220 L/ha	Downward spraying	51-57 65	Sherpa
KCP 6.2-07		Konojad (PL) Sandy loam	EPPO PP 1/135(3), 1/152(4), 1/181(4) and 1/78(3) Plot size: 20 m <sup>2</sup>	06/04/2020 30/04/2020	Overall spray, 300 L/ha	Downward spraying	53-55 65	Monolit

Trial reference	Testing unit	Trial location Soil type	Test method Plot size	Application details			Growth stage crop (1 <sup>st</sup> and last application)	Oilseed rape variety
				Date (1 <sup>st</sup> and last), interval	Method, applic. amount	Applic. technique		
KCP 6.2-08		Jankowice Wielkie (PL) Sandy loam	EPPO PP 1/135(3), 1/152(4), 1/181(4) and 1/78(3) Plot size: 21 m <sup>2</sup>	08/04/2020 05/05/2020	Overall spray, 200 L/ha	Downward spraying	55 65	Kuga
KCP 6.2-09		Łany Wielkie (PL) Sandy loam	EPPO PP 1/135(3), 1/152(4), 1/181(4) and 1/78(3) Plot size: m <sup>2</sup>	08/04/2020 28/04/2020	Overall spray, 200 L/ha	Downward spraying	31 65	Alibaba
KCP 6.2-10		Les Achards (FR) Loam	EPPO PP 1/135(3), 1/152(4), 1/181(4) and 1/78(3) Plot size: 39 m <sup>2</sup>	16/03/2020 02/04/2020	Overall spray, 200 L/ha	Downward spraying	57 65	Temptation

Details of the formulations tested are provided in Table 3.2-10 while details of application rates are provided in Table 3.2-11.

**Table 3.2-10 Formulation included in the efficacy trials**

Product	Active substance	Active substance content	Formulation type
Boscalid 50 WG / GLOB1811F	Boscalid	500 g/kg	WG
Propatan / Cantus / Pictor Pro	Boscalid	500 g/kg	WG

**Table 3.2-11 Application rates**

Trial reference number	Product	Application rate	
		Amount of as/ha	Amount of product/ha
KCP 6.2-01-05	Untreated	-	-
	Boscalid 50 WG	150 g/ha	0.3 kg/ha
	Boscalid 50 WG	250 g/ha	0.5 kg/ha
	Propatan / Cantus	250 g/ha	0.5 kg/ha
KCP 6.2-07-10	Untreated	-	-
	GLOB1811F	100 g/ha	0.2 kg/ha
	GLOB1811F	150 g/ha	0.3 kg/ha
	GLOB1811F	250 g/ha	0.5 kg/ha
	Propatan / Cantus / Pictor Pro	250 g/ha	0.5 kg/ha

### **Trial results**

The following tables summarize the data gathered in the efficacy trials. It should be noted that treatments with Cantus, Propatan and Pictor Pro were summarized together under treatment name Cantus, because these products are identical.

The Townsend-Heuberger (TH04) values was calculated for the disease severity. For these calculations, all plants that were given the same treatment were divided into 4 classes based on their level of pest severity. These classes were: 1-50% pest severity (class 1), 51-75% pest severity (class 2), 76-99% pest severity (class 3) and 100% pest severity (class 4) The distribution is given in percentages for each treatment.

The TH04 formula is:  $DS(\%) = \Sigma(nV) / NV \times 100$

Where n is the percentage of plants in this class, V is the class value (1 to 4), N is the highest class (4), and N is the total amount of plants (100%).

All KCP numbers in the tables below are coloured according to the country they were performed in.

**Trials performed in Poland**

**Trials performed in the Czech Republic**

**Confirmatory trials performed in France and Sweden**

For all efficacy tables presented below the summaries are made for all trials applicable for Poland (including the Czech trials) and for all trials together (including confirmatory trials). In the final summary provided in Table 3.2-30 all efficacy results obtained from only trials performed in Poland is also given.

**Table 3.2-12 Pest severity of SCLESC on stems**

Product	Appl, rate	KCP 6.2-02								KCP 6.2-03				KCP 6.2-04								KCP 6.2-06			
		28 DA-A				42 DA-A				43 DA-A				28 DA-A				39 DA-A				85 DA-A			
		BBCH 64				BBCH 85				BBCH 81				BBCH 71				BBCH 85				BBCH 85			
		STEM (PESSEV)				STEM (PESSEV)				STEM (PESSEV)				STEM (PESSEV)				STEM (PESSEV)				STEM (PESSEV)			
		%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat
Control	-	2.30	a	0.00	-	5.90	a	0.00		23.50	a	0.00		6.10	a	0.00		7.50	a	0.00		31.00	a	0.00	
Boscalid 50 WG	0.2 kg/ha																					24.50	b	19.50	c
Boscalid 50 WG	0.3 kg/ha	0.40	b	82.61	-	0.40	b	93.22	-	5.50	b	76.60	-	1.70	b	72.13	-	1.00	b	86.67	-	14.80	c	51.30	b
Boscalid 50 WG	0.5 kg/ha	0.10	b	95.65	-	0.10	b	98.31	-	2.50	b	89.36	-	0.00	b	100.00	-	0.20	b	97.33	-	10.00	cd	67.20	ab
Cantus	0.5 kg/ha	0.10	b	95.65	-	0.10	b	98.31	-	4.00	b	82.98	-	0.00	b	100.00	-	0.30	b	96.00	-	11.00	cd	64.70	ab
Product	Appl, rate	KCP 6.2-07				KCP 6.2-08				KCP 6.2-09				KCP 6.2-05				KCP 6.2-10							
		78 DA-A				71 DA-A				79 DA-A				37 DA-A				79 DA-A							
		%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat				
Control	-	18.80	a	0.00		81.20	a	0.00		30.10	a	0.00		6.00	a	0.00		45.50	a	0.00					
Boscalid 50 WG	0.2 kg/ha	7.50	bcd	61.52	bcd	39.40	c	51.40	e	11.20	b	62.90	a					4.50	b	89.40	bc				
Boscalid 50 WG	0.3 kg/ha	6.70	b-e	65.00	abc	30.00	e	63.00	c	8.60	b	71.20	a	0.50	b	91.67	-	3.90	b	90.90	abc				
Boscalid 50 WG	0.5 kg/ha	2.80	e	84.80	ab	25.00	g	69.30	a	7.20	b	75.70	a	0.00	b	100.00	-	2.20	b	94.70	a				
Cantus	0.5 kg/ha	3.20	def	83.74	ab	27.70	f	65.90	b	8.60	b	71.60	a	0.50	b	91.67	-	2.60	b	94.00	ab				
Product	Appl, rate	Final assessments																							
		incl. confirm. appl. for Poland										incl. confirm.													
		n		Mean		Min		Max		Median		Stdev		n		Mean		Min		Max		Median		Stdev	
Control	-	7		28.29		5.90		81.20		23.50		25.35		9		27.72		5.90		81.20		23.50		24.10	
Boscalid 50 WG	0.2 kg/ha	4		48.83		19.50		62.90		56.46		20.21		5		56.94		19.50		89.40		61.52		25.21	
Boscalid 50 WG	0.3 kg/ha	7		72.43		51.30		93.22		71.20		14.40		9		76.62		51.30		93.22		76.60		14.99	
Boscalid 50 WG	0.5 kg/ha	7		83.14		67.20		98.31		84.80		12.74		9		86.30		67.20		100.00		89.36		12.76	
Cantus	0.5 kg/ha	7		80.46		64.70		98.31		82.98		13.64		9		83.21		64.70		98.31		83.74		13.02	

**Table 3.2-13 Pest incidence of SCLESC on stems**

Product	Appl, rate	KCP 6.2-02								KCP 6.2-03				KCP 6.2-04								KCP 6.2-06			
		28 DA-A				42 DA-A				43 DA-A				28 DA-A				39 DA-A				85 DA-A			
		BBCH 64				BBCH 85				BBCH 81				BBCH 71				BBCH 64				BBCH 85			
		STEM (PESINC)				STEM (PESINC)				STEM (PESINC)				STEM (PESINC)				STEM (PESINC)				STEM (PESINC)			
		%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat
Control	-	34.00	a	0.00		44.00	a	0.00		40.00	a	0.00		51.00	a	0.00		38.00	a	0.00		47.00	a	0.00	
Boscalid 50 WG	0.2 kg/ha																					41.00	a	12.10	d
Boscalid 50 WG	0.3 kg/ha	10.00	b	70.59	-	10.00	b	77.27	-	11.00	b	72.50	-	18.00	b	64.71	-	23.00	b	39.47	-	27.00	b	39.80	c
Boscalid 50 WG	0.5 kg/ha	4.00	b	88.24	-	4.00	b	90.91	-	5.00	c	87.50	-	0.00	b	100.00	-	3.00	c	92.11	-	17.00	bcd	63.30	ab
Cantus	0.5 kg/ha	5.00	b	85.29	-	5.00	b	88.64	-	8.00	c	80.00	-	0.00	b	100.00	-	6.00	c	84.21	-	18.00	bcd	59.50	abc
Product	Appl, rate	KCP 6.2-07				KCP 6.2-08				KCP 6.2-09				KCP 6.2-05				KCP 6.2-10							
		78 DA-A				71 DA-A				79 DA-A				37 DA-A				79 DA-A							
		BBCH 61				BBCH 83				BBCH 85				BBCH 80				BBCH 85							
		STEM (PESINC)				STEM (PESINC)				STEM (PESINC)				STEM (PESINC)				STEM (PESINC)							
		%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat				
Control	-	36.00	a	0.00		100.00	a	0.00		47.00	a	0.00		12.00	a	0.00		100.00	a	0.00					
Boscalid 50 WG	0.2 kg/ha	21.00	b	44.91	b	98.00	a	2.00	-	21.00	b	55.70	a					57.00	b	43.00	d				
Boscalid 50 WG	0.3 kg/ha	16.00	bc	55.70	ab	100.00	a	0.00	-	15.00	bc	67.00	a	1.00	b	91.67	-	42.00	bc	58.00	bcd				
Boscalid 50 WG	0.5 kg/ha	12.00	bc	67.89	ab	100.00	a	0.00	-	15.00	bc	68.10	a	0.00	b	100.00	-	23.00	d	77.00	a				
Cantus	0.5 kg/ha	14.00	bc	62.55	ab	100.00	a	0.00	-	17.00	bc	63.70	a	1.00	b	91.67	-	31.00	cd	69.00	ab				
Product	Appl, rate	Final assessments																							
		incl. confirm. appl. for Poland											incl. confirm.												
		n		Mean		Min		Max		Median		Stdev	n		Mean		Min		Max		Median		Stdev		
Control	-	7		50.29		36.00		100.00		44.00		22.34	9		51.56		12.00		100.00		44.00		29.40		
Boscalid 50 WG	0.2 kg/ha	4		28.68		2.00		55.70		28.51		25.69	5		31.54		2.00		55.70		43.00		23.15		
Boscalid 50 WG	0.3 kg/ha	7		50.25		0.00		77.27		55.70		26.73	9		55.71		0.00		91.67		58.00		26.91		
Boscalid 50 WG	0.5 kg/ha	7		67.11		0.00		92.11		68.10		31.96	9		71.87		0.00		100.00		77.00		29.80		
Cantus	0.5 kg/ha	7		62.66		0.00		88.64		63.70		29.94	9		66.58		0.00		91.67		69.00		27.66		

**Table 3.2-14 TH04 of SCLESC on stems**

Product	Appl, rate	KCP 6.2-02								KCP 6.2-03				KCP 6.2-04								KCP 6.2-06			
		28 DA-A				42 DA-A				43 DA-A				28 DA-A				39 DA-A				85 DA-A			
		BBCH 71				BBCH 85				BBCH 81				BBCH 71				BBCH 85				BBCH 85			
		STEM (TH04)				STEM (TH04)				STEM (TH04)				STEM (TH04)				STEM (TH04)				STEM (TH04)			
		%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat
Control	-	8.50	a	0.00		11.00	a	0.00		13.50	a	0.00		12.80	a	0.00	b	9.50	a	0.00		19.50	a	0.00	
Boscalid 50 WG	0.2 kg/ha																					15.30	b	21.10	c
Boscalid 50 WG	0.3 kg/ha	2.50	b	67.20	a	2.50	b	75.50	a	2.80	b	79.60	b	4.50	b	67.60	a	5.80	b	38.90	b	9.50	c	51.10	b
Boscalid 50 WG	0.5 kg/ha	1.00	b	90.00	a	1.00	b	91.70	a	1.30	b	90.40	a	0.00	b	100.00	a	0.80	c	92.50	a	6.30	cd	67.70	ab
Cantus	0.5 kg/ha	1.30	b	87.20	a	1.30	b	89.60	a	2.00	b	85.00	ab	0.00	b	100.00	a	1.50	c	83.90	a	7.30	cd	63.10	ab
Product	Appl, rate	KCP 6.2-07				KCP 6.2-08				KCP 6.2-09				KCP 6.2-05				KCP 6.2-10							
		78 DA-A				71 DA-A				79 DA-A				37 DA-A				79 DA-A							
		BBCH 61				BBCH 83				BBCH 85				BBCH 80				BBCH 85							
		STEM (TH04)				STEM (TH04)				STEM (TH04)				STEM (TH04)				STEM (TH04)							
		%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat				
Control	-	15.75	a	0.00		66.80	a	0.00		26.80	a	0.00		3.00	a	0.00		37.50	a	0.00					
Boscalid 50 WG	0.2 kg/ha	7.75	bc	52.39	bc	25.00	b	62.50	-	9.80	b	63.70	a					14.30	b	61.40	d				
Boscalid 50 WG	0.3 kg/ha	6.00	bcd	62.81	abc	25.00	b	62.50	-	7.30	b	71.90	a	0.30	b	91.70	-	10.50	bcd	71.40	a-d				
Boscalid 50 WG	0.5 kg/ha	3.75	cd	76.00	b	25.00	b	62.50	-	5.80	b	78.20	a	0.00	b	100.00	-	5.80	d	84.10	a				
Cantus	0.5 kg/ha	4.00	cd	74.97	ab	25.00	b	62.50	-	6.30	b	76.30	a	0.30	b	93.80	-	7.80	bcd	79.00	ab				
Product	Appl, rate	Final assessments																							
		incl. confirm. appl. for Poland											incl. confirm.												
		n		Mean		Min		Max		Median		Stdev	n		Mean		Min		Max		Median		Stdev		
Control	-	7		23.26		9.50		66.80		15.75		20.06	9		22.59		3.00		66.80		15.75		19.44		
Boscalid 50 WG	0.2 kg/ha	4		49.92		21.10		63.70		57.45		19.87	6		47.03		21.10		63.70		56.90		20.48		
Boscalid 50 WG	0.3 kg/ha	7		63.19		38.90		79.60		62.81		14.34	9		60.03		38.90		91.70		62.50		17.10		
Boscalid 50 WG	0.5 kg/ha	7		79.86		62.50		92.50		78.20		12.10	9		80.13		62.50		100.00		78.20		13.03		
Cantus	0.5 kg/ha	7		76.48		62.50		89.60		76.30		10.62	9		75.62		62.50		93.80		76.30		10.99		

**Table 3.2-15 Pest severity of LEPTMA on leaves**

Product	Appl, rate	KCP 6.2-02								KCP 6.2-04															
		14 DA-A				28 DA-A				0 DA-A				14 DA-A				28 DA-A							
		BBCH 69				BBCH 71				BBCH 65				BBCH 69				BBCH 71							
		LEAF (PESSEV)				LEAF (PESSEV)				LEAF (PESSEV)				LEAF (PESSEV)				LEAF (PESSEV)							
		%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat				
Control	-	2.20	a	0.00	c	15.20	a	0.00	c	0.30	a	0.00	-	8.10	a	0.00	c	16.10	a	0.00	c				
Boscalid 50 WG	0.2 kg/ha																								
Boscalid 50 WG	0.3 kg/ha	1.40	b	35.80	b	7.80	b	47.30	b	0.40	a	-33.33	-	4.40	b	44.30	b	8.80	b	44.10	b				
Boscalid 50 WG	0.5 kg/ha	0.50	c	78.80	a	3.30	c	76.60	a	0.40	a	-33.33	-	2.40	c	69.90	a	4.30	b	71.60	a				
Cantus	0.5 kg/ha	0.50	c	74.60	a	4.60	bc	68.10	a	0.40	a	-33.33	-	2.90	c	62.80	a	5.60	b	63.60	a				
Product	Appl, rate	KCP 6.2-07								KCP 6.2-08								KCP 6.2-10							
		24 DA-A				52 DA-A				27 DA-A				48 DA-A				17 DA-A				37 DA-A			
		BBCH 65				BBCH 73				BBCH 65				BBCH 72				BBCH65				BBCH 69			
		LEAF (PESSEV)				LEAF (PESSEV)				LEAF (PESSEV)				LEAF (PESSEV)				LEAF (PESSEV)				LEAF (PESSEV)			
		%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat
Control	-	3.06	a	0.00		6.95	a	0.00		67.50	a	0.00		42.50	a	0.00		27.50	a	0.00		50.00	a	0.00	
Boscalid 50 WG	0.2 kg/ha	1.82	b	41.06	a	3.19	bc	54.35	ab	52.50	b	20.20	c	22.50	b	46.30	a	23.80	a	12.50	b	25.00	cd	50.00	abc
Boscalid 50 WG	0.3 kg/ha	1.52	b	50.28	a	2.91	bcd	58.04	ab	35.00	cd	48.20	ab	21.30	b	49.40	a	25.00	a	9.20	b	17.50	cd	65.00	ab
Boscalid 50 WG	0.5 kg/ha	1.38	b	54.81	a	2.17	d	68.73	a	25.00	d	62.60	a	17.50	b	58.80	a	22.50	a	17.50	b	17.50	cd	65.00	ab
Cantus	0.5 kg/ha	1.78	b	41.37	a	3.15	bc	54.71	ab	21.30	d	67.90	a	15.00	b	64.40	a	26.30	a	5.00	b	27.50	c	45.00	bc
Product	Appl, rate	Final assessments																							
		incl. confirm. appl. for Poland											incl. confirm.												
		n		Mean		Min		Max		Median		Stdev		n		Mean		Min		Max		Median		Stdev	
Control	-	4		20.19		6.95		42.50		15.65		15.43		5		26.15		6.95		50.00		16.10		18.88	
Boscalid 50 WG	0.2 kg/ha	2		50.33		46.30		54.35		50.33		5.69		3		50.22		46.30		54.35		50.00		4.03	
Boscalid 50 WG	0.3 kg/ha	4		49.71		44.10		58.04		48.35		5.97		5		52.77		44.10		65.00		49.40		8.57	
Boscalid 50 WG	0.5 kg/ha	4		68.93		58.80		76.60		70.17		7.50		5		68.15		58.80		76.60		68.73		6.73	
Cantus	0.5 kg/ha	4		62.70		54.71		68.10		64.00		5.68		5		59.16		45.00		68.10		63.60		9.32	

**Table 3.2-16 Pest incidence of LEPTMA on leaves**

Product	Appl, rate	KCP 6.2-02								KCP 6.2-04															
		14 DA-A				28 DA-A				0 DA-A				14 DA-A								28 DA-A			
		BBCH 69				BBCH 71				BBCH 65				BBCH 69								BBCH 71			
		LEAF (PESINC)				LEAF (PESINC)				LEAF (PESINC)				LEAF (PESINC)								LEAF (PESINC)			
%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat						
Control	-	2.20	a	0.00	c	25.00	a	0.00	c	0.30	a	0.00	-	25.00	a	0.00	c	23.00	a	0.00	a				
Boscalid 50 WG	0.2 kg/ha																								
Boscalid 50 WG	0.3 kg/ha	1.40	b	35.80	b	21.30	b	15.00	b	0.30	a	0.00	-	21.30	b	15.00	b	23.00	a	0.00	a				
Boscalid 50 WG	0.5 kg/ha	0.50	c	78.80	a	17.30	c	31.00	a	0.30	a	0.00	-	17.30	c	31.00	a	23.00	a	0.00	a				
Cantus	0.5 kg/ha	0.50	c	74.60	a	18.80	bc	25.00	ab	0.30	a	0.00	-	18.80	bc	25.00	ab	23.00	a	0.00	a				
Product	Appl, rate	KCP 6.2-07								KCP 6.2-07								KCP 6.2-10							
		24 DA-A				52 DA-A				27 DA-A				48 DA-A				17 DA-A				37 DA-A			
		BBCH 65				BBCH 73				BBCH 65				BBCH 72				BBCH65				BBCH 69			
		LEAF (PESINC)				LEAF (PESINC)				LEAF (PESINC)				LEAF (PESINC)				LEAF (PESINC)				LEAF (PESINC)			
%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat		
Control	-	88.00	a	0.00		100.00		0.00		90.00	a	0.00		96.30	a	0.00		100.00	-	0.00	-	100.00	-	0.00	-
Boscalid 50 WG	0.2 kg/ha	59.00	b	33.25	a	63.00	cd	37.00	ab	75.00	bc	16.50	b	46.30	bc	51.90	cd	100.00	-	0.00	-	100.00	-	0.00	-
Boscalid 50 WG	0.3 kg/ha	58.00	b	34.22	a	87.00	ab	13.00	c	70.00	cd	21.70	ab	42.50	cd	55.80	bc	100.00	-	0.00	-	100.00	-	0.00	-
Boscalid 50 WG	0.5 kg/ha	50.00	b	43.21	a	56.00	d	44.00	a	67.50	cd	24.50	ab	36.30	def	62.20	ab	100.00	-	0.00	-	100.00	-	0.00	-
Cantus	0.5 kg/ha	60.00	b	31.90	a	70.00	cd	30.00	abc	67.50	cd	24.90	ab	30.00	f	68.70	a	100.00	-	0.00	-	100.00	-	0.00	-
Product	Appl, rate	Final assessments																							
		incl. confirm. appl. for Poland											incl. confirm.												
		n		Mean		Min		Max		Median		Stdev		n		Mean		Min		Max		Median		Stdev	
Control	-	4		54.83		0.30		100.00		60.65		50.92		5		68.86		23.00		100.00		96.30		40.99	
Boscalid 50 WG	0.2 kg/ha	2		44.45		37.00		51.90		44.45		10.54		3		29.63		0.00		51.90		37.00		26.72	
Boscalid 50 WG	0.3 kg/ha	4		20.95		0.00		55.80		14.00		24.17		5		16.76		0.00		55.80		13.00		22.93	
Boscalid 50 WG	0.5 kg/ha	4		34.30		0.00		62.20		37.50		26.20		5		27.44		0.00		62.20		31.00		27.39	
Cantus	0.5 kg/ha	4		30.93		0.00		68.70		27.50		28.40		5		24.74		0.00		68.70		25.00		28.22	

**Table 3.2-17      Pest severity of LEPTMA on stems**

[illegible]

**Table 3.2-18      Pest incidence of LEPTMA on stems**

Product	Appl, rate	KCP 6.2-02								KCP 6.2-04																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
---------	---------------	------------	--	--	--	--	--	--	--	------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

**Table 3.2-19 TH04 of LEPTMA on stems**

Product	Appl, rate	KCP 6.2-02								KCP 6.2-04																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
---------	---------------	------------	--	--	--	--	--	--	--	------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

**Table 3.2-20 Pest severity of LEPTMA on roots**

[illegible]

**Table 3.2-21**      **Pest incidence of LEPTMA on roots**

[illegible]

**Table 3.2-22 TH04 of LEPTMA on roots**

Product	Appl, rate	KCP 6.2-08				KCP 6.2-09				KCP 6.2-10																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								</
---------	---------------	------------	--	--	--	------------	--	--	--	------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	----

**Table 3.2-23 Pest incidence of LEPTMA on pods**

Product	Appl, rate	KCP 6.2-08			
		71 DA-A			
		BBCH 83			
		POD (PESINC)			
		%	Stat	%UNCK	Stat
Control	-	86.30	a	0.00	
Boscalid 50 WG	0.2 kg/ha	33.80	d	60.80	c
Boscalid 50 WG	0.3 kg/ha	26.30	e	69.60	b
Boscalid 50 WG	0.5 kg/ha	21.30	f	75.30	a
Cantus	0.5 kg/ha	17.50	f	79.60	a

**Table 3.2-24 Pest severity of ALTEBA on leaves**

Product	Appl, rate	KCP 6.2-05			
		15 DA-A			
		BBCH 69			
		LEAF (PESSEV)			
		%	Stat	%UNCK	Stat
Control	-	1.30	a	0.00	b
Boscalid 50 WG	0.3 kg/ha	0.10	b	92.40	a
Boscalid 50 WG	0.5 kg/ha	0.10	b	93.00	a
Cantus	0.5 kg/ha	0.00	b	97.10	a

**Table 3.2-25 Pest incidence of ALTEBA on leaves**

Product	Appl, rate	KCP 6.2-05			
		15 DA-A			
		BBCH 69			
		LEAF (PESINC)			
		%	Stat	%UNCK	Stat
Control	-	60.00	a	0.00	b
Boscalid 50 WG	0.3 kg/ha	1.50	b	97.50	a
Boscalid 50 WG	0.5 kg/ha	2.00	b	96.70	a
Cantus	0.5 kg/ha	1.00	b	98.30	a

Product	Appl, rate	KCP 6.2-01					KCP 6.2-05			
		42 DA-A					50 DA-A			
		BBCH 89					BBCH 81			
		POD (PESSEV)					POD (PESSEV)			
		%	Stat	%UNCK	Stat		%	Stat	%UNCK	Stat
Control	-	30.00	a	0.00	c	0.30	a	0.00	-	
Boscalid 50 WG	0.3 kg/ha	20.00	b	33.30	b	0.10	b	87.50	-	
Boscalid 50 WG	0.5 kg/ha	15.00	c	50.00	a	0.00	b	92.90	-	
Cantus	0.5 kg/ha	15.00	c	50.00	a	0.00	b	89.30	-	

Product	Appl, rate	KCP 6.2-01				KCP 6.2-07				KCP 6.2-05																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
---------	---------------	------------	--	--	--	------------	--	--	--	------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

**Table 3.2-28 Efficacy results against ERYSCR in KCP 6.2-01 and KCP 6.2-04 on lateral branches, stems, and pods**

Product	Appl, rate	KCP 6.2-01				KCP 6.2-01				KCP 6.2-04				KCP 6.2-04				KCP 6.2-04							
		14 DA-A				14 DA-A				39 DA-A				39 DA-A				39 DA-A							
		BBCH 75				BBCH 75				BBCH 85				BBCH 85				BBCH 85							
		BRALAT (PESSEV)				BRALAT (PESINC)				STEM (PESSEV)				STEM (PESINC)				STEM (TH04)							
		%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat				
Control	-	50.00	a	0.00	a	100.00	a	0.00	a	15.20	a	0.00	-	100.00	a	0.00	-	25.00	a	0.00	c				
Boscalid 50 WG	0.3 kg/ha	30.00	b	40.00	b	100.00	a	0.00	a	7.80	b	48.68	-	85.00	bc	15.00	-	21.30	b	15.00	b				
Boscalid 50 WG	0.5 kg/ha	20.00	c	60.00	a	100.00	a	0.00	a	3.30	c	78.29	-	69.00	c	31.00	-	17.30	c	31.00	a				
Cantus	0.5 kg/ha	20.00	c	60.00	a	100.00	a	0.00	a	4.60	bc	69.74	-	75.00	bc	25.00	-	18.80	bc	25.00	ab				
Product	Appl, rate	KCP 6.2-04				KCP 6.2-04																			
		39 DA-A				39 DA-A																			
		BBCH 85				BBCH 85																			
		POD (PESSEV)				POD (PESINC)																			
		%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat																
Control	-	18.70	a	0.00	c	25.00	a	0.00	b																
Boscalid 50 WG	0.3 kg/ha	14.50	b	22.00	b	21.30	b	15.00	a																
Boscalid 50 WG	0.5 kg/ha	10.80	c	41.90	a	17.30	c	31.00	a																
Cantus	0.5 kg/ha	11.30	c	39.80	a	17.30	c	31.00	a																

Table 3.2-29 shows the orthogonal comparison between Boscalid 50 WG and the reference products. Differences in performance of less than 5% are considered insignificant. For trial-specific information reference products reference is made to Table 3.2-8 and Table 3.2-9. For individual trial results reference is made to the tables above.

Table 3.2-30 is a summary of all efficacy results presented above. Separate summaries are made for all trials performed in Poland, Poland with Czech trials, and all trials including the confirmatory trials performed in France and Sweden. In the final column the level of control is noted in accordance with Table 3.2-4. The levels of control are also indicated as follows.

Control (>80% efficacy)

Moderate control (60-80% efficacy)

Some control (40-60% efficacy)

**Table 3.2-29 Orthogonal comparison between Boscalid 50 WG and the reference products**

Disease	Part rated	Timing (DA-A)	Assessment type	Trial info	n	Untreated control			Efficacy (0.5 kg/ha)						No of trials where product is >, <, = compared to standard(s)
									Boscalid 50 WG			Cantus			
						Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	
SCLESC	STEM	39-85	PESSEV	PL + CZ	7	28.29	5.90	81.20	83.14	67.20	98.31	80.46	64.70	98.31	1x >, 6x =
				incl. confirm.	9	27.72	5.90	81.20	86.30	67.20	100.00	83.21	64.70	98.31	2x >, 7x =
			PESINC	PL + CZ	7	50.29	36.00	100.00	67.11	0.00	92.11	62.66	0.00	88.64	3x >, 4x =
				incl. confirm.	9	51.56	12.00	100.00	72.09	2.00	100.00	66.58	0.00	91.67	5x >, 4x =
			TH04	PL + CZ	7	23.26	9.50	66.80	79.86	62.50	92.50	76.48	62.50	89.60	2x >, 5x =
				incl. confirm.	9	22.59	3.00	66.80	82.57	62.50	100.00	78.69	62.50	93.80	4x >, 5x =
LEPTMA	LEAF	28-52	PESSEV	PL + CZ	4	20.19	6.95	42.50	68.93	58.80	76.60	62.70	54.71	68.10	3x >, 1x <
				incl. confirm.	5	26.15	6.95	50.00	68.15	58.80	76.60	59.16	45.00	68.10	4x >, 1x <
			PESINC	PL + CZ	4	61.08	23.00	100.00	34.30	0.00	62.20	30.93	0.00	68.70	2x >, 1x =, 1x <
				incl. confirm.	5	68.86	23.00	100.00	27.44	0.00	62.20	24.74	0.00	68.70	2x >, 2x =, 1x <
	STEM	39-42	PESSEV	PL + CZ	2	7.70	7.60	7.80	83.30	69.23	97.37	82.00	67.95	96.05	2x =
			PESINC	PL + CZ	2	75.00	67.00	83.00	43.75	16.42	71.08	42.72	11.94	73.49	2x =
			TH04	PL + CZ	2	18.80	16.80	20.80	43.80	16.40	71.20	42.70	11.90	73.50	2x =
			ROOT	71-79	PESSEV	PL + CZ	2	2.38	1.75	3.01	88.38	80.00	96.76	74.58	52.89
	incl. confirm.	3				2.09	1.50	3.01	77.39	55.40	96.76	67.72	52.89	96.28	1x >, 2x =
	PESINC	PL + CZ			2	82.50	65.00	100.00	46.88	38.75	55.00	33.35	27.00	39.70	1x >, 1x =
		incl. confirm.			3	88.33	65.00	100.00	44.25	38.75	55.00	32.90	27.00	39.70	2x >, 1x =
	TH04	PL + CZ			2	59.50	43.75	75.25	67.78	50.61	84.95	54.86	38.56	71.16	2x >
		incl. confirm.			3	52.00	37.00	75.25	63.65	50.61	84.95	54.57	38.56	71.16	2x >, 1x =
	POD	71	PESINC	PL + CZ	1	86.30	86.30	86.30	75.30	75.30	75.30	79.60	79.60	79.60	1x =
	ALTEBA	LEAF	15	PESINC	incl. confirm.	1	60.00	60.00	60.00	96.70	96.70	96.70	98.30	98.30	98.30
POD		42	PESSEV	PL + CZ	1	30.00	30.00	30.00	50.00	50.00	50.00	50.00	50.00	50.00	1x =
		42-78	PESINC	PL + CZ	2	53.75	7.50	100.00	34.05	0.00	68.10	23.57	0.00	47.14	1x >, 1x =
				incl. confirm.	3	38.60	7.50	100.00	56.03	0.00	100.00	44.88	0.00	87.50	2x >, 1x =
ERYSCR	BRALAT	14	PESSEV	PL + CZ	1	50.00	50.00	50.00	60.00	60.00	60.00	60.00	60.00	60.00	1x =
			PESINC	PL + CZ	1	100.00	100.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	1x =
	STEM	39	PESSEV	PL + CZ	1	15.20	15.20	15.20	78.29	78.29	78.29	69.74	69.74	69.74	1x >
			PESINC	PL + CZ	1	100.00	100.00	100.00	31.00	31.00	31.00	25.00	25.00	25.00	1x >
	POD	39	PESSEV	PL + CZ	1	18.70	18.70	18.70	41.90	41.90	41.90	39.80	39.80	39.80	1x =
			PESINC	PL + CZ	1	25.00	25.00	25.00	31.00	31.00	31.00	31.00	31.00	31.00	1x =
			TH04	PL + CZ	1	25.00	25.00	25.00	31.00	31.00	31.00	25.00	25.00	25.00	1x >

**Table 3.2-30 Summary of efficacy trials**

Disease	Part rated	Timing (DA-A)	Assessment type	Trial info	Dose rate	n	Untreated control			Efficacy (0.5 kg/ha)			Control		
										Boscalid 50 WG					
							Mean	Min	Max	Mean	Min	Max			
SCLESC	STEM	39-85	PESSEV	PL	0.2 kg/ha	3	43.37	18.80	81.20	58.61	51.40	62.90	SC		
					0.3 kg/ha	3	43.37	18.80	81.20	66.40	63.00	71.20	MC		
					0.5 kg/ha	3	43.37	18.80	81.20	76.60	69.30	84.80	MC		
				PL + CZ	0.2 kg/ha	4	40.28	18.80	81.20	48.83	19.50	62.90	SC		
					0.3 kg/ha	7	28.29	5.90	81.20	72.43	51.30	93.22	MC		
					0.5 kg/ha	7	28.29	5.90	81.20	83.14	67.20	98.31	C		
				Incl. confirm	0.2 kg/ha	5	41.32	18.80	81.20	56.94	19.50	89.40	SC		
					0.3 kg/ha	9	27.72	5.90	81.20	76.62	51.30	93.22	MC		
					0.5 kg/ha	9	27.72	5.90	81.20	86.30	67.20	100.00	C		
			PESINC	PL	0.2 kg/ha	3	61.00	36.00	100.00	34.20	2.00	55.70	-		
					0.3 kg/ha	3	61.00	36.00	100.00	41.57	2.00	67.00	SC		
					0.5 kg/ha	3	61.00	36.00	100.00	46.00	2.00	68.10	SC		
				PL + CZ	0.2 kg/ha	4	57.50	36.00	100.00	28.68	2.00	55.70	-		
					0.3 kg/ha	7	50.29	36.00	100.00	50.54	2.00	77.27	SC		
					0.5 kg/ha	7	50.29	36.00	100.00	67.11	0.00	92.11	MC		
				Incl. confirm	0.2 kg/ha	5	66.00	36.00	100.00	31.54	2.00	55.70	-		
					0.3 kg/ha	9	51.56	12.00	100.00	55.93	2.00	91.67	SC		
					0.5 kg/ha	9	51.56	12.00	100.00	71.87	0.00	100.00	MC		
			TH04	PL	0.2 kg/ha	3	36.45	15.75	66.80	59.53	52.39	63.70	SC		
					0.3 kg/ha	3	36.45	15.75	66.80	65.74	62.50	71.90	MC		
					0.5 kg/ha	3	36.45	15.75	66.80	72.23	62.50	78.20	MC		
				PL + CZ	0.2 kg/ha	4	32.21	15.75	66.80	49.92	21.10	63.70	SC		
					0.3 kg/ha	7	23.26	9.50	66.80	63.19	38.90	79.60	MC		
					0.5 kg/ha	7	23.26	9.50	66.80	79.86	62.50	92.50	MC		
		Incl. confirm		0.2 kg/ha	5	33.27	15.75	66.80	52.22	21.10	63.70	SC			
				0.3 kg/ha	9	22.59	3.00	66.80	67.27	38.90	91.70	MC			
				0.5 kg/ha	9	22.59	3.00	66.80	82.57	62.50	100.00	C			
		LEPTMA	LEAF	28-52	PESSEV	PL	0.2 kg/ha	2	24.73	6.95	42.50	50.33	46.30	54.35	SC
							0.3 kg/ha	2	24.73	6.95	42.50	53.72	49.40	58.04	SC
							0.5 kg/ha	2	24.73	6.95	42.50	63.77	58.80	68.73	MC
						PL + CZ	0.2 kg/ha	2	24.73	6.95	42.50	50.33	46.30	54.35	SC
							0.3 kg/ha	4	20.19	6.95	42.50	49.71	44.10	58.04	SC
							0.5 kg/ha	4	20.19	6.95	42.50	68.93	58.80	76.60	MC
					Incl. confirm	0.2 kg/ha	3	33.15	6.95	50.00	50.22	46.30	54.35	SC	
						0.3 kg/ha	5	26.15	6.95	50.00	52.77	44.10	65.00	SC	
						0.5 kg/ha	5	26.15	6.95	50.00	68.15	58.80	76.60	MC	
PESINC	PL					0.2 kg/ha	2	98.15	96.30	100.00	44.45	37.00	51.90	SC	
						0.3 kg/ha	2	98.15	96.30	100.00	34.40	13.00	55.80	-	
						0.5 kg/ha	2	98.15	96.30	100.00	53.10	44.00	62.20	SC	
	PL + CZ			0.2 kg/ha	2	98.15	96.30	100.00	44.45	37.00	51.90	SC			
				0.3 kg/ha	4	61.08	23.00	100.00	20.95	0.00	55.80	-			
				0.5 kg/ha	4	61.08	23.00	100.00	34.30	0.00	62.20	-			
Incl. confirm	0.2 kg/ha			3	98.77	96.30	100.00	29.63	0.00	51.90	-				
	0.3 kg/ha			5	68.86	23.00	100.00	16.76	0.00	55.80	-				
	0.5 kg/ha			5	68.86	23.00	100.00	27.44	0.00	62.20	-				
	STEM			39-42	PESSEV	CZ	0.3 kg/ha	2	7.70	7.60	7.80	51.43	41.03	61.84	SC
							0.5 kg/ha	2	7.70	7.60	7.80	83.30	69.23	97.37	C
					PESINC	CZ	0.3 kg/ha	2	75.00	67.00	83.00	17.59	7.46	27.71	-
0.5 kg/ha				2			75.00	67.00	83.00	43.75	16.42	71.08	SC		
TH04				CZ	0.3 kg/ha	2	18.80	16.80	20.80	17.15	7.40	26.90	-		
					0.5 kg/ha	2	18.80	16.80	20.80	43.80	16.40	71.20	SC		

Disease	Part rated	Timing (DA-A)	Assessment type	Trial info	Dose rate	n	Untreated control			Efficacy (0.5 kg/ha)			Control
							Mean	Min	Max	Mean	Min	Max	
LEPTMA	ROOT	71-79	PESSEV	PL	0.2 kg/ha	2	2.38	1.75	3.01	80.81	65.78	95.84	C
					0.3 kg/ha	2	2.38	1.75	3.01	84.53	73.33	95.72	C
					0.5 kg/ha	2	2.38	1.75	3.01	88.38	80.00	96.76	C
				Incl. confirm	0.2 kg/ha	3	2.09	1.50	3.01	62.71	26.50	95.84	MC
					0.3 kg/ha	3	2.09	1.50	3.01	67.65	33.90	95.72	MC
					0.5 kg/ha	3	2.09	1.50	3.01	77.39	55.40	96.76	MC
			PESINC	PL	0.2 kg/ha	2	82.50	65.00	100.00	29.34	27.68	31.00	-
					0.3 kg/ha	2	82.50	65.00	100.00	37.98	35.96	40.00	-
					0.5 kg/ha	2	82.50	65.00	100.00	46.88	38.75	55.00	SC
				Incl. confirm	0.2 kg/ha	3	88.33	65.00	100.00	21.89	7.00	31.00	-
					0.3 kg/ha	3	88.33	65.00	100.00	30.32	15.00	40.00	-
					0.5 kg/ha	3	88.33	65.00	100.00	44.25	38.75	55.00	SC
			TH04	PL	0.2 kg/ha	2	59.50	43.75	75.25	56.38	38.48	74.27	SC
					0.3 kg/ha	2	59.50	43.75	75.25	60.88	41.65	80.10	MC
					0.5 kg/ha	2	59.50	43.75	75.25	67.78	50.61	84.95	MC
				Incl. confirm	0.2 kg/ha	3	52.00	37.00	75.25	46.42	26.50	74.27	SC
					0.3 kg/ha	3	52.00	37.00	75.25	51.88	33.90	80.10	SC
					0.5 kg/ha	3	52.00	37.00	75.25	63.65	50.61	84.95	MC
	POD	71	PESINC	PL	0.2 kg/ha	1	86.30	86.30	86.30	60.80	60.80	60.80	MC
					0.3 kg/ha	1	86.30	86.30	86.30	69.60	69.60	69.60	MC
					0.5 kg/ha	1	86.30	86.30	86.30	75.30	75.30	75.30	MC
ALTEBA	LEAF	15	PESINC	Confirm.	0.3 kg/ha	1	60.00	60.00	60.00	97.50	97.50	97.50	C
					0.5 kg/ha	1	60.00	60.00	60.00	96.70	96.70	96.70	C
	POD	42	PESSEV	CZ	0.3 kg/ha	1	30.00	30.00	30.00	33.30	33.30	33.30	-
					0.5 kg/ha	1	30.00	30.00	30.00	50.00	50.00	50.00	SC
			PESINC	PL	0.2 kg/ha	1	7.50	7.50	7.50	44.29	44.29	44.29	SC
					0.3 kg/ha	1	7.50	7.50	7.50	28.10	28.10	28.10	-
					0.5 kg/ha	1	7.50	7.50	7.50	68.10	68.10	68.10	MC
				PL + CZ	0.2 kg/ha	1	7.50	7.50	7.50	44.29	44.29	44.29	SC
					0.3 kg/ha	2	53.75	7.50	100.00	14.05	0.00	28.10	-
					0.5 kg/ha	2	53.75	7.50	100.00	34.05	0.00	68.10	-
				Incl. confirm	0.2 kg/ha	1	7.50	7.50	7.50	44.29	44.29	44.29	SC
					0.3 kg/ha	3	38.60	7.50	100.00	38.90	0.00	88.60	-
					0.5 kg/ha	3	38.60	7.50	100.00	56.03	0.00	100.00	SC

## Summary

The orthogonal comparison to Cantus, a highly similar product that also contains 500 g/kg boscalid in a WG formulation, it is clear that the performance of Boscalid 50 WG is very comparable (and even better) than the reference product at the same dose rate.

The summary shows good control can be obtained when Boscalid 50 WG is applied at a dose rate of 0.2 L/ha, but that efficacy increases with higher dose rates of up to 0.5 kg/ha. Therefore these results are in support of the requested dose range of 0.2-0.5 kg/ha.

## Comments of zRMS:

Efficacy of 0,2 – 0,5 L/ha GLOB1811F in winter oilseed rape is demonstrated in a total of 8 efficacy trials conducted between 2019 and 2020 across the Maritime CZ (5) and Northeast EPPO zone PL (3). In these trials, the efficacy of GLOB1811F was compared to reference product CANTUS containing 500g/kg boscalid or identical products Filan and Pictor Pro. Two applications were made between the growth stage BBCH 31 - 75. Applications to all trials were made using experimental plot sprayers, calibrated to apply a spray volume approximately equivalent to 200 to 300 L/ha. The design, analysis of results and reporting of all efficacy studies were carried out under EPPO guidelines:

## No. Guideline Description

1. PP 1/135(4) Phytotoxicity assessment

2. PP 1/152(4) Design and analysis of efficacy evaluation trials

**3. PP 1/181(4) Conduct and reporting of efficacy evaluation trials including GEP**

**4. PP 178(3) Root, stem, foliar and pod diseases on oilseed rape**

Levels of disease control

Control claim	Percentage control
Control	at least 80%
Partial/moderate	60-80%
Reduction	40 - 60%

Tab.1 Summary of the efficacy of GLOB1811F in winter oilseed rape

Disease	No. of trials	Timing	Assessment type	Untreated Mean Min-max	Part rated	GLOB1811F			STANDARD 0,5 kg/ha
						0,2 kg/ha	0,3 kg/ha	0,5 kg/ha	Mean Limits
SCLESC	7	39-85	PESSEV	28,3 5,9-81,2	STEM	48,8 19,5-62,9	72,4 51,3-93,2	83,1 67,2-98,3	80,5 64,7-98,31
			PESINC	50,29 36,0-100		28,7 2,0-55,0	50,25 0,0 - 77,27	67,11 0,0-92,1	62,66 0,0-88,64
LEPTMA	4	28-52	PESSEV	20,2 6,95-42,5	LEAF	50,3 46,3-54,3	49,7 44,1-58,0	68,9 58,8-76,6	62,7 54,7-68,1
	2	39-42	PESINC	61,0 23,0-100		44,4 37,0-51,9	20,9 0,0-55,8	34,3 0,0-62,2	30,9 0,0-68,7
	2	39-42	PESSEV	7,7 7,6-7,8	STEM	-	51,4 41,0-61,8	83,3 69,2-97,4	82,0 67,9-96,0
	2	39-42	PESINC	75,0 67,0-83,0		-	17,6 7,5-27,7	43,7 16,4-71,0	42,7 11,9-73,5
	2	71-79	PESSEV	2,38 1,75-3,0	ROOT	80,8 65,8-95,8	84,5 73,3-95,7	88,4 80,0-96,7	74,6 52,9-96,3
	2		PESINC	82,5 65,0-100		29,3 27,7-31,0	38,0 36,0-40,0	46,9 38,75-55,0	33,3 27,0-39,7
ALTEBA	1	42	PESSEV	30	POD	-	33,3	50,0	50,0
	2	42-78	PESINC	53,7 7,5-100	POD	-	14,05 0,0-28,1	34,0 0,0-68,1	23,57 0,0-47,1

Looking at the single trials efficacy of GLOB1811F was consistently similar to or even higher than that of the standard product Cantus with the same spectrum of activity against winter oilseed rape pathogens. In case of higher pest pressure, the efficacy of GLOB1811F against SCLESC, LEPTMA and ALTEBA increase with higher dose rates of up to 0.5 kg/ha. It would therefore be reasonable that rates below 0.5 kg/ha may be applied only when pest pressure or forecast pest pressure is at a lower level.

Moreover, according to the standard EPPO PP 1/226(2), an insufficient number of trials for LEPTMA and ALTEBA were presented. As adverse weather conditions had a significant influence on the results of the efficacy trials and GLOB1811F has achieved under these conditions similar or higher efficacy than CANTUS is reasonable to conditionally register GLOB1811F in the requested uses. The applicant will need to submit the missing LEPTMA and ALTEBA trials at a later date.

No efficacy data is available to support use on spring oilseed rape. This use may be claimed as "minor uses" under Article 51 of Regulation 1107/2009 as an extension of the registration.

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

The Fungicide Resistance Action Committee (FRAC) website was consulted for this section.

#### **3.3.1 Mode of action and inherent risk of the active substance**

Boscalid belongs to FRAC group 7, all fungicides of this group inhibit complex II of the fungal mitochondrial respiration by binding and blocking SDH-mediated electron transfer from succinate to ubiquinone.

According to the FRAC Code List of 2020 boscalid, which is the only member of the chemical subgroup of the pyridine-carboxamides, shows a medium to high risk of development of resistance, together with all other members of entire group of Succinate-dehydrogenase inhibitors (SDHI).

#### **3.3.2 Inherent risk of target pathogens**

According to the most recent Pathogen Risk List published in September of 2019, *Alternaria brassicae* shows a medium risk of development of resistance to fungicides. *Sclerotinia sclerotiorum* and *Plenodomus lingam* (*Leptosphaeria maculans*) show a low risk of development of resistance.

The most up-to-date report of the meeting of the SDHI working group<sup>1</sup> was consulted for the results of their monitoring program. Their observations regarding the target species of Boscalid 50 WG are summarized below.

Resistance monitoring for *Plenodomus lingam* (*Leptosphaeria maculans*) started in 2016 with baseline sensitivity in all isolates.

##### *Alternaria brassicae*

In 2014 resistance was observed at low frequency in an isolate from cabbage in Germany. No reported resistance since then.

##### *Sclerotinia sclerotiorum*

Resistance monitoring since 2006, overall no to low resistance was detected.

The following mutations were associated to decreased sensitivity in past monitoring programs: B-H273Y, CH146R, C-G91R, D-H132R, C-G150R, D-T108K.

---

<sup>1</sup> Virtual Meeting on January 20 and January 21, 2021

Protocol of the discussions and use recommendations of the SDHI Working Group of the Fungicide Resistance Action Committee (FRAC)

### **3.3.3 Resistance mechanisms and cases of resistance**

According to the FRAC Code List (2020) Resistance to SDHI fungicides is known for several fungal species in field populations and lab mutants. Target site mutations in *sdh* gene, e.g. H/Y (or H/L) at 257, 267, 272 or P225L, dependent on fungal species. Members of the SDHI group of fungicides require resistance management.

In the list of confirmed cases of plant pathogenic organisms resistant to disease control agents of May 2020 there's only one case of resistance to SDHI fungicides of any fungal pathogens of oilseed rape. This single case was observed in *Sclerotinia sclerotiorum*, this observation was made in 2014.

### **3.3.4 Cross resistance**

Although all SDHI fungicides share the same target site, sensitivity to the different fungicides within the FRAC group may vary. Cross-resistance means that once a pathogen develops resistance to one fungicide within the FRAC group, it becomes resistant to all others. However, in FRAC group 7 fungicides, there seem to be differences in sensitivity between fungicides within the group after resistance has been detected in one particular fungicide. This therefore means that some FRAC group 7 fungicides may retain their efficacy even in case of resistance to another group 7 fungicide.

### **3.3.5 Acceptability of the resistance risk**

In an unrestricted use pattern, the resistance risk for boscalid is unacceptable. However, if the resistance management strategy is respected, resistance can be kept under control as seen in the yearly reports of the FRAC SDHI working group.

### **3.3.6 Management strategy**

Strategies for the management of SDHI fungicide resistance, in all crops, are based on the statements listed below. These statements serve as a fundamental guide for the development of local resistance management programs. Resistance management strategies have been designed to be proactive and to prevent or delay the development of resistance to SDHI fungicides.

A fundamental principle that must be adhered to when applying resistance management strategies for SDHI fungicides is that:

The SDHI fungicides (benodanil, benzovindiflupyr, bixafen, boscalid, carboxin, fenfuram, fluindapyr, fluopyram, flutolanil, fluxapyroxad, furametpyr, inpyrfluxam, isofetamid, isoflucypram, isopyrazam, mepronil, oxycarboxin, penflufen, penthiopyrad, pydiflumetofen, sedaxane, thifluzamide) are in the same cross-resistance group.

Fungicide programs must deliver effective disease management. Apply SDHI fungicide-based products at effective rates and intervals according to manufacturers' recommendations.

Effective disease management is a critical component to delay the build-up of resistant pathogen populations.

The number of applications of SDHI fungicide-based products within a total disease management program must be limited.

When mixtures are used for SDHI fungicide resistance management, applied as tank mix or as a co-formulated mixture, the mixture partner: should provide satisfactory disease control when used alone on the target disease and must have a different mode of action.

Mixtures of two or more SDHI fungicides can be applied to provide good biological efficacy; however, they do not provide an anti-resistance strategy and must be treated as a solo SDHI for resistance management. Each application of such a mixture when used in a spray program counts as one SDHI

application.

SDHI fungicides should be used preventively or at the early stages of disease development.

Please refer to FRAC Recommendations for Mixtures - January 2010 for more information on fungicide mixtures for resistance management.

Species can carry different mutations which affect SDHIs. A few mutations can lead to different sensitivities depending on the chemical structure of the active ingredient.

As SDHIs are cross-resistant, resistance management must be the same for all SDHIs.

All monitoring and guideline related statements refer to the entire group of SDHIs.

When mixtures are used for SDHI fungicide resistance management, applied as tank mix or as a co-formulated mixture, the mixture partner should provide satisfactory disease control when used alone on the target disease and must have a different mode of action.

The following spray table shall be used as a guideline irrespective of the targeted disease in the crops specified above.

When using a SDHI fungicide as a solo product, the number of applications should be no more than 1/3 (33%) of the total number of fungicide applications per season.

For programs in which tank mixes or pre-mixes of SDHI fungicides are utilized, the number of SDHI-containing applications should be no more than 1/2 (50%) of the total number of fungicide application per season.

In programs where SDHIs are made with both solo products and mixtures, the number of SDHI containing applications should be no more than 1/2 (50%) of the total no. of fungicides applied per season.

If used solo, apply SDHI fungicides in strict alternation with fungicides from a different cross-resistance group.

If used in mixture, apply SDHI fungicides in a maximum of 2 consecutive applications.

### 3.3.7 Implementation of the management strategy

The guidelines for the proper use of Boscalid 50 WG will be added to the label (see 3.3.9-management strategy).

Comments of zRMS: Boscalid is a fungicide active ingredient belonging to the pyridine-carboxamides group (also known as carboxins or oxathiins, group FRAC 7). The mode of action of boscalid is the inhibition of the enzyme succinate dehydrogenase (SDH), also known as complex II in the mitochondrial electron transport chain (Kulka and von Schmeling 1995).

According to the findings of the SDHI Working Group of the Fungicide Resistance Action Committee FRAC (Virtual Meeting on January 20 - 21, 2021), currently there is no evidence of field strains of *Leptosphaeria maculans*, *Sclerotinia sclerotiorum* or *Alternaria brassicae* that are resistant to SDHI fungicides in oilseed rape in Poland. Based on the information above, the zRMS considers that the risk of resistance developing to boscalid from the proposed use of GLOB1811F is low to moderate. Anyhow, to further ensure a high level of efficacy of the test product on the target diseases, measures for a resistance management are recommended:

#### **Strategies and General Guidelines for the 2020/21 season:**

- Strategies for the management of SDHI fungicide resistance, in all crops, are based on the statements listed below. These statements serve as a fundamental guide for the development of local resistance management programs.
- Resistance management strategies have been designed in order to be proactive and to prevent or delay the development of resistance to SDHI fungicides.
- A fundamental principle that must be adhered to when applying resistance management strategies for SDHI fungicides is that:

The SDHI fungicides (benodanil, benzovindiflupyr, bixafen, boscalid, carboxin, cyclobutrifluram, fenfuram, fluindapyr, fluopyram, flutolanil, fluxapyroxad, furametpyr, inpyrfluxam, isofetamid, isoflucypram, isopyrazam, mepronil, oxycarboxin, penflufen, penthiopyrad, pydiflumetofen, sedaxane, thifluzamide) are in the same cross-resistance group.

- Fungicide programs must deliver effective disease management. Apply SDHI fungicide-based products at effective rates and intervals according to manufacturers' recommendations.
- Effective disease management is a critical component to delay the build-up of resistant pathogen populations.
- The number of applications of SDHI fungicide based products within a total disease management program must be limited.
- When mixtures are used for SDHI fungicide resistance management, applied as tank mix or as a co-formulated mixture, the mixture partner:
  - should provide satisfactory disease control when used alone on the target disease
  - must have a different mode of action
- Mixtures of two or more SDHI fungicides can be applied to provide good biological efficacy; however, they do not provide an anti-resistance strategy and must be treated as a solo SDHI for resistance management. Each application of such a mixture when used in a spray program counts as one SDHI application.
- SDHI fungicides should be used preventively or at the early stages of disease development.
- Please refer to the "mixture document" ([link](#)) for more information on fungicide mixtures for resistance management.
- Species can carry different mutations which affect SDHIs. A few mutations can lead to different sensitivities depending on the chemical structure of the active ingredient.
- As SDHIs are cross-resistant, resistance management must be the same for all SDHIs.
- All monitoring and guideline related statements refer to the entire group of SDHI

### 3.4 Adverse effects on treated crops (KCP 6.4)

Adverse effects on treated crops were assessed in all efficacy trials. For information on these trials reference is made to the section 3.2 (Efficacy data).

#### 3.4.1 Phytotoxicity to host crop (KCP 6.4.1)

Crop phytotoxicity was visually assessed during the season after application. For Boscalid 50 WG and the reference product N stands for the 0.5 kg/ha dose rate. No phytotoxicity was observed in any of the trials. The results are summarized in Table 3.4-1 below.

**Table 3.4-1 Phytotoxicity of Boscalid 50 WG  
Highest phytotoxicity and phytotoxicity at final assessment**

Number of trials with...		Efficacy trials (10)*		
		Boscalid 50 WG		Propatan / Cantus
		0.6 N	N	N
<b>Highest phytotox.</b>	0% to 5%	4 PL, 4 CZ, 1 FR, 1 SE	4 PL, 4 CZ, 1 FR, 1 SE	10
	>5% to 10%	-	-	-
	>10% to 15%	-	-	-
	>15 %	-	-	-
Phytotox. at final assessment	0% to 5%	4 PL, 4 CZ, 1 FR, 1 SE	4 PL, 4 CZ, 1 FR, 1 SE	10
	>5% to 10%	-	-	-
	>10% to 15%	-	-	-
	>15 %	-	-	-

#### Conclusion

No phytotoxic effects were observed in any of the trials performed with Boscalid 50 WG at the maximum requested dose rate of 0.5 kg/ha. Together, all phytotoxicity data gathered in the efficacy trials supports that Boscalid 50 WG is safe for use on oilseed rape.

Comments of zRMS: GLOB1811F was completely selectivity in oilseed rape. Therefore, it is maintained that this fungicide will be safe when used as proposed.

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

The effect on yield was evaluated in the efficacy trials described under section 3.2. The results are shown in Table 3.4-2 below. As with the efficacy results, all reference products were taken together under the name Cantus, because they are identical products.

All KCP numbers in the tables below are coloured according to the country they were performed in.

**Trials performed in Poland**

**Trials performed in the Czech Republic**

**Confirmatory trials performed in France and Sweden**

For all selectivity tables presented below the summaries are made for all trials applicable for Poland (including the Czech trials) and for all trials together (including confirmatory trials).

**Table 3.4-2 Yield in efficacy trials (kg/plot)**

Product	Appl, rate	KCP 6.2-01				KCP 6.2-02				KCP 6.2-03				KCP 6.2-04				KCP 6.2-06				KCP 6.2-07			
		45 DA-A				62 DA-A				59 DA-A				60 DA-A				99 DA-A				105 DA-A			
		BBCH 97				BBCH 89				BBCH 89				BBCH 67				BBCH 89				BBCH 97			
		kg/plot				kg/plot				kg/plot				kg/plot				kg/plot				kg/plot			
		kg	Stat	%UNCK	Stat	kg	Stat	%UNCK	Stat	kg	Stat	%UNCK	Stat	kg	Stat	%UNCK	Stat	kg	Stat	%UNCK	Stat	kg	Stat	%UNCK	Stat
Control	-	5.16	b	100.00	-	9.50	c	100.00	-	9.00	b	100.00	-	11.15	c	100.00	-	8.35	a	100.00	-	4.61	b	100.00	-
Boscalid 50 WG	0.2 kg/ha																	8.59	a	103.00	-	5.50	a	119.31	-
Boscalid 50 WG	0.3 kg/ha	6.83	a	132.36	-	10.72	b	112.79	-	9.74	ab	108.22	-	12.81	b	114.89	-	8.59	a	103.00	-	5.67	a	122.99	-
Boscalid 50 WG	0.5 kg/ha	7.18	a	139.15	-	12.73	a	133.95	-	10.36	a	115.11	-	14.23	a	127.62	-	8.85	a	106.00	-	5.64	a	122.34	-
Cantus	0.5 kg/ha	7.20	a	139.53	-	12.28	a	129.21	-	9.96	a	110.67	-	13.40	ab	120.18	-	8.61	a	103.00	-	5.61	a	121.69	-
Product	Appl, rate	KCP 6.2-08				KCP 6.2-09				KCP 6.2-10															
		111 DA-A				106 DA-A				112 DA-A															
		BBCH 99				BBCH 89				BBCH 89															
		kg/plot				kg/plot				kg/plot															
		kg	Stat	%UNCK	Stat	kg	Stat	%UNCK	Stat	kg	Stat	%UNCK	Stat												
Control	-	2.99	d	100.00	-	6.11	b	100.00	-	3.90	e	100.00	-												
Boscalid 50 WG	0.2 kg/ha	3.69	ab	123.41	-	6.64	ab	108.67	-	4.59	cd	117.69	-												
Boscalid 50 WG	0.3 kg/ha	3.75	ab	125.42	-	6.81	ab	111.46	-	4.32	de	110.77	-												
Boscalid 50 WG	0.5 kg/ha	3.75	ab	125.42	-	6.81	ab	111.46	-	4.87	bcf	124.87	-												
Cantus	0.5 kg/ha	3.88	a	129.77	-	7.15	a	117.02	-	4.87	bcd	124.87	-												
Product	Appl, rate	Final assessments																							
		All trials appl. for Poland										All trials													
		n		Mean		Min		Max		Median		Stdev		n		Mean		Min		Max		Median		Stdev	
Control	-	8		7.11		2.99		11.15		7.23		2.81		9		6.75		2.99		11.15		6.11		2.84	
Boscalid 50 WG	0.2 kg/ha	4		113.60		103.00		123.41		113.99		9.41		5		114.42		103.00		123.41		117.69		8.35	
Boscalid 50 WG	0.3 kg/ha	8		116.39		103.00		132.36		113.84		9.75		9		115.77		103.00		132.36		112.79		9.31	
Boscalid 50 WG	0.5 kg/ha	8		122.63		106.00		139.15		123.88		11.29		9		122.88		106.00		139.15		124.87		10.58	
Cantus	0.5 kg/ha	8		121.38		103.00		139.53		120.94		11.55		9		121.77		103.00		139.53		121.69		10.87	

**Table 3.4-3 Yield in efficacy trials (ton/ha))**

Product	Appl, rate	KCP 6.2-01				KCP 6.2-02				KCP 6.2-03				KCP 6.2-04				KCP 6.2-06				KCP 6.2-07			
		45 DA-A				62 DA-A				59 DA-A				60 DA-A				99 DA-A				105 DA-A			
		BBCH 97				BBCH 89				BBCH 89				BBCH 67				BBCH 89				BBCH 97			
		T-MET				T-MET				T-MET				T-MET				T-MET				T-MET			
		t/ha	Stat	%UNCK	Stat	t/ha	Stat	%UNCK	Stat	t/ha	Stat	%UNCK	Stat	t/ha	Stat	%UNCK	Stat	t/ha	Stat	%UNCK	Stat	t/ha	Stat	%UNCK	Stat
Control	-	2.03	b	100.00	b	3.09	c	100.00	c	3.67	b	100.00	b	3.73	b	100.00	b	3.40	a	100.00	-	2.33	b	100.00	b
Boscalid 50 WG	0.2 kg/ha																	3.49	a	103.00		2.78	a	119.69	a
Boscalid 50 WG	0.3 kg/ha	2.69	a	136.00	a	3.55	b	114.71	b	3.96	ab	108.40	ab	4.25	a	114.15	a	3.49	a	103.00	-	2.86	a	123.23	a
Boscalid 50 WG	0.5 kg/ha	2.84	a	142.00	a	4.21	a	136.28	a	4.21	a	115.10	a	4.71	a	126.26	a	3.59	a	106.00	-	2.85	a	122.96	a
Cantus	0.5 kg/ha	2.83	a	142.00	a	4.06	a	131.20	a	4.05	a	110.90	a	4.48	a	120.22	a	3.49	a	103.00	-	2.83	a	121.99	a
Product	Appl, rate	KCP 6.2-08				KCP 6.2-09				KCP 6.2-10															
		111 DA-A				106 DA-A				112 DA-A															
		BBCH 99				BBCH 89				BBCH 89															
		T-MET				T-MET				T-MET															
		t/ha	Stat	%UNCK	Stat	t/ha	Stat	%UNCK	Stat	t/ha	Stat	%UNCK	Stat												
Control	-	2.90	d	100.00	d	3.10	b	100.00	b	2.00	e	100.00	e												
Boscalid 50 WG	0.2 kg/ha	3.58	ab	123.61	ab	3.40	ab	108.55	ab	2.40	cd	119.80	cd												
Boscalid 50 WG	0.3 kg/ha	3.65	ab	125.80	ab	3.50	ab	111.49	ab	2.20	d	112.70	d												
Boscalid 50 WG	0.5 kg/ha	3.65	ab	126.05	ab	3.50	ab	111.56	ab	2.50	bcd	126.10	bcd												
Cantus	0.5 kg/ha	3.77	a	130.02	a	3.70	a	117.27	a	2.50	bcd	126.60	bcd												
Product	Appl, rate	Final assessments																							
		All trials appl. for Poland										All trials													
		n		Mean		Min		Max		Median		Stdev		n		Mean		Min		Max		Median		Stdev	
Control	-	8		3.03		2.03		3.73		3.10		0.60		9		2.92		2.00		3.73		3.09		0.66	
Boscalid 50 WG	0.2 kg/ha	4		113.71		103.00		123.61		114.12		9.58		5		114.93		103.00		123.61		119.69		8.73	
Boscalid 50 WG	0.3 kg/ha	8		117.10		103.00		136.00		114.43		10.63		9		116.61		103.00		136.00		114.15		10.05	
Boscalid 50 WG	0.5 kg/ha	8		123.28		106.00		142.00		124.51		12.18		9		123.59		106.00		142.00		126.05		11.44	
Cantus	0.5 kg/ha	8		122.08		103.00		142.00		121.11		12.30		9		122.58		103.00		142.00		121.99		11.60	

### **Conclusion**

In none of the trials any negative effects on yield amount were observed. Yield amount (ton/ha) increased by almost 15% at the lowest requested dose rate of 0.2 kg/ha. Yield amount increased even more with increasing dose rates; the mean yield gain was almost 24% for the highest requested dose rate of 0.5 kg/ha.

Therefore it can be stated that the application of Boscalid 50 WG will not negatively affect yield of oilseed rape.

Comments of zRMS: In all trials, the effects of GLOB1811F were similar to those of the reference product tested at the same rates. No unacceptable yield effects caused by GLOB1811F at the higher dose rate of 0.5 kg/ha were recorded in any of the trials. Therefore, it can be supposed that GLOB1811F applied at 0.2 up to 0.5 kg/ha has no negative effect on yield.

### **3.4.3 Effects on the quality of plants and plant products (KCP 6.4.3)**

Boscalid has been used successfully for several years in many countries without any negative impact on the yield quality of the treated crop. This is confirmed by the assessment of the quality parameters of the yield in the efficacy trials. These results are shown in the tables below.

**Table 3.4-4 TKW in efficacy trials**

Product	Appl, rate	KCP 6.2-01				KCP 6.2-02				KCP 6.2-03				KCP 6.2-04				KCP 6.2-06				KCP 6.2-07			
		45 DA-A				62 DA-A				59 DA-A				60 DA-A				99 DA-A				109 DA-A			
		BBCH 97				BBCH 89				BBCH 89				BBCH 67				BBCH 89				BBCH 99			
		TKW				TKW				TKW				TKW				TKW				TKW			
		g	Stat	%UNCK	Stat	g	Stat	%UNCK	Stat	g	Stat	%UNCK	Stat	g	Stat	%UNCK	Stat	g	Stat	%UNCK	Stat	g	Stat	%UNCK	Stat
Control	-	4.40	b	100.00	b	4.84	a	100.00	a	4.55	b	100.00	b	4.79	a	100.00	a	4.61	a	100.00	-	6.13	a	100.00	a
Boscalid 50 WG	0.2 kg/ha																	4.65	a	101.00	a	6.26	a	102.07	a
Boscalid 50 WG	0.3 kg/ha	4.63	a	105.00	a	4.92	a	101.68	a	4.79	a	105.30	a	4.84	a	101.22	a	4.59	a	100.00	a	6.20	a	101.12	a
Boscalid 50 WG	0.5 kg/ha	4.73	a	108.00	a	4.92	a	101.73	a	4.90	a	107.70	a	4.96	a	103.75	a	4.53	a	98.00	a	6.20	a	101.15	a
Cantus	0.5 kg/ha	4.46	b	102.00	b	4.88	a	100.86	a	4.89	a	107.60	a	4.85	a	101.34	a	4.50	a	98.00	a	6.21	a	101.25	a
Product	Appl, rate	KCP 6.2-08				KCP 6.2-09				KCP 6.2-10															
		111 DA-A				106 DA-A				112 DA-A															
		BBCH 99				BBCH 89				BBCH 89															
		TKW				TKW				TKW															
		g	Stat	%UNCK	Stat	g	Stat	%UNCK	Stat	g	Stat	%UNCK	Stat												
Control	-	4.40	c	100.00	c	3.84	-	100.00	-	4.30	-	100.00	-												
Boscalid 50 WG	0.2 kg/ha	4.57	abc	103.82	abc	3.98	-	103.56	-	4.20	-	97.80	-												
Boscalid 50 WG	0.3 kg/ha	4.64	ab	105.47	ab	4.07	-	106.07	-	4.40	-	102.40	-												
Boscalid 50 WG	0.5 kg/ha	4.68	ab	106.42	ab	3.94	-	102.51	-	4.20	-	96.70	-												
Cantus	0.5 kg/ha	4.74	ab	107.66	ab	3.89	-	101.22	-	4.30	-	100.10	-												
Product	Appl, rate	Final assessments																							
		All trials appl. for Poland										All trials													
		n		Mean		Min		Max		Median		Stdev		n		Mean		Min		Max		Median		Stdev	
Control	-	8		4.69		3.84		6.13		4.58		0.66		9		4.65		3.84		6.13		4.55		0.63	
Boscalid 50 WG	0.2 kg/ha	4		102.61		101.00		103.82		102.82		1.32		5		101.65		97.80		103.82		102.07		2.44	
Boscalid 50 WG	0.3 kg/ha	8		103.23		100.00		106.07		103.34		2.44		9		103.14		100.00		106.07		102.40		2.30	
Boscalid 50 WG	0.5 kg/ha	8		103.66		98.00		108.00		103.13		3.51		9		102.88		96.70		108.00		102.51		4.02	
Cantus	0.5 kg/ha	8		102.49		98.00		107.66		101.30		3.39		9		102.23		98.00		107.66		101.25		3.27	

**Table 3.4-5**                      **HLW in efficacy trials**

Product	Appl, rate	KCP 6.2-02				KCP 6.2-04				KCP 6.2-07			
		62 DA-A				60 DA-A				105 DA-A			
		BBCH 89				BBCH 67				BBCH 99			
		HLW				HLW				HLW			
		kg	Stat	%UNCK	Stat	kg	Stat	%UNCK	Stat	kg	Stat	%UNCK	Stat
Control	-	56.15	a	100.00	a	56.93	a	100.00	a	61.33	a	100.00	a
Boscalid 50 WG	0.2 kg/ha									62.65	a	102.18	a
Boscalid 50 WG	0.3 kg/ha	56.30	a	100.32	a	57.30	a	100.82	a	62.10	a	101.28	a
Boscalid 50 WG	0.5 kg/ha	55.65	a	99.16	a	57.43	a	100.89	a	61.85	a	100.90	a
Cantus	0.5 kg/ha	56.43	a	100.55	a	58.75	a	103.29	a	61.95	a	101.04	a
Product	Appl, rate	Final assessments											
		All trials appl. for Poland											
		n		Mean		Min		Max		Median		Stdev	
Control	-	3.00		58.14		56.15		61.33		56.93		2.79	
Boscalid 50 WG	0.2 kg/ha	1.00		102.18		102.18		102.18		102.18		-	
Boscalid 50 WG	0.3 kg/ha	3.00		100.81		100.32		101.28		100.82		0.48	
Boscalid 50 WG	0.5 kg/ha	3.00		100.32		99.16		100.90		100.89		1.00	
Cantus	0.5 kg/ha	3.00		101.63		100.55		103.29		101.04		1.46	

**Table 3.4-6 Moisture content in efficacy trials**

Product	Appl, rate	KCP 6.2-01				KCP 6.2-02				KCP 6.2-03				KCP 6.2-04				KCP 6.2-06				KCP 6.2-07			
		45 DA-A				62 DA-A				59 DA-A				60 DA-A				99 DA-A				105 DA-A			
		BBCH 97				BBCH 69				BBCH 89				BBCH 67				BBCH 89				BBCH 97			
		MOICON				MOICON				MOICON				MOICON				MOICON				MOICON			
		%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat
Control	-	10.30	b	100.00	a	11.10	a	100.00	a	8.70	b	100.00	b	8.63	a	100.00	a	7.53	a	100.00	-	8.10	a	100.00	a
Boscalid 50 WG	0.2 kg/ha																	7.63	a	101.00	a	8.10	a	100.01	a
Boscalid 50 WG	0.3 kg/ha	10.50	a	102.00	a	9.58	b	86.63	b	9.00	ab	102.60	ab	9.43	a	109.02	a	7.63	a	101.00	a	8.13	a	100.35	a
Boscalid 50 WG	0.5 kg/ha	10.10	a	98.00	a	9.68	b	87.47	b	9.00	a	103.20	a	9.73	a	113.12	a	7.65	a	102.00	a	8.03	a	99.12	a
Cantus	0.5 kg/ha	10.50	a	103.00	a	9.78	b	88.58	b	9.00	ab	102.50	ab	8.73	a	101.23	a	7.70	a	102.00	a	8.13	a	100.34	a
Product	Appl, rate	KCP 6.2-08				KCP 6.2-09				KCP 6.2-10															
		111 DA-A				106 DA-A				112 DA-A															
		BBCH 99				BBCH 89				BBCH 89															
		MOICON				MOICON				TKW															
		%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat	%	Stat	%UNCK	Stat												
Control	-	7.10	-	100.00	-	6.75	-	100.00	-	8.40	-	100.00	-												
Boscalid 50 WG	0.2 kg/ha	7.10	-	100.44	-	6.85	-	101.63	-	8.40	-	100.40	-												
Boscalid 50 WG	0.3 kg/ha	7.10	-	99.64	-	6.85	-	101.75	-	8.20	-	98.10	-												
Boscalid 50 WG	0.5 kg/ha	6.90	-	96.87	-	6.85	-	101.74	-	8.90	-	106.10	-												
Cantus	0.5 kg/ha	7.10	-	100.01	-	6.65	-	98.82	-	8.50	-	102.10	-												
Product	Appl, rate	Final assessments																							
		All trials appl. for Poland										All trials													
		n		Mean		Min		Max		Median		Stdev		n		Mean		Min		Max		Median		Stdev	
Control	-	8		8.53		6.75		11.10		8.37		1.52		9		8.51		6.75		11.10		8.40		1.42	
Boscalid 50 WG	0.2 kg/ha	4		100.77		100.01		101.63		100.72		0.70		5		100.70		100.01		101.63		100.44		0.63	
Boscalid 50 WG	0.3 kg/ha	8		100.37		86.63		109.02		101.38		6.26		9		100.12		86.63		109.02		101.00		5.90	
Boscalid 50 WG	0.5 kg/ha	8		100.19		87.47		113.12		100.43		7.18		9		100.85		87.47		113.12		101.74		7.00	
Cantus	0.5 kg/ha	8		99.56		88.58		103.00		100.79		4.65		9		99.84		88.58		103.00		101.23		4.43	

## Conclusion

None of the yield quality parameters was negatively affected by Boscalid 50 WG. Therefore it can be stated that the application of Boscalid 50 WG will not negatively affect yield quality of oilseed rape.

---

Comments of zRMS: GLOB1811F did not negatively affect the quality parameters TKW, HLW and moisture content in oilseed rape. Quality after application of GLOB1811F was equivalent to the one of the untreated and reference product. Overall, it was demonstrated that the application of GLOB1811F should be considered as safe in oilseed rape, since no significantly negative effects on yield quality are to be expected if label recommendations were obeyed.

#### **3.4.4 Effects on transformation processes (KCP 6.4.4)**

According to EPPO Guideline PP 1/243 (2) oilseed rape is not subjected to transformation processes, therefore no transformation studies were performed.

#### **3.4.5 Impact on treated plants or plant products to be used for propagation (KCP 6.4.5)**

Boscalid is an old and well-known active substance. Furthermore this is not a requirement for fungicides according to EPPO Guideline PP 135(4).

Comments of zRMS: According to actual knowledge, there are no adverse effects on parts of plants used for propagating purposes have been observed. There are no signs concerning the influence of boscalid on the vitality and germination capacity of oilseed rape coming from plants applied with this product. According to the above statement, additional research is not required in this range.

#### **3.5 Observations on other undesirable or unintended side-effects (KCP 6.5)**

Boscalid is an old and well-known active substance. Currently authorized products such as Cantus (R-111/2018) and Royalty (R-188/2019), which also contain 500 g/kg boscalid, do not have negative effects side-effects. Furthermore, the requested dose rate of Boscalid 50 WG results in the same amount of active ingredient per hectare as the already registered products.

Therefore it can be concluded that Boscalid 50 WG is also safe when applied as recommended.

##### **3.5.1 Impact on succeeding crops (KCP 6.5.1)**

Boscalid is an old and well-known active substance. Currently authorized products such as Cantus (R-111/2018) and Royalty (R-188/2019), which also contain 500 g/kg boscalid, do not have negative effects side-effects. Furthermore, the requested dose rate of Boscalid 50 WG results in the same amount of active ingredient per hectare as the already registered products.

Therefore it can be concluded that Boscalid 50 WG is also safe when applied as recommended.

Comments of zRMS: During many years of commercial use, no negative impact of boscalid on following crops was observed under practical agricultural conditions. The absence of any negative impact on following crops can be explained by the good selectivity of this active substance. Boscalid is currently registered for use on different crops and no negative impact was reported until now.

##### **3.5.2 Impact on other plants including adjacent crops (KCP 6.5.2)**

Boscalid is an old and well-known active substance. Currently authorized products such as Cantus (R-111/2018) and Royalty (R-188/2019), which also contain 500 g/kg boscalid, do not have negative effects side-effects. Furthermore, the requested dose rate of Boscalid 50 WG results in the same amount of active ingredient per hectare as the already registered products.

Therefore it can be concluded that Boscalid 50 WG is also safe when applied as recommended.

Comments of zRMS: During many years of commercial use, no negative impact of boscalid on other plants including adjacent crops was observed under practical agricultural conditions. Boscalid is registered and used for many years on a wide range of crops. Therefore, even if drift to adjacent monocotyledonous or

dicotyledonous crops should occur, no crop injury is expected due to the large safety margin of GLOB1811F on all potential adjacent crops.

### **3.6 Other/special studies**

No additional studies were performed.

**List of test facilities including the corresponding certificates**

Reference is made to the Biological Assessment Dossier.

## Appendix 1 Lists of data considered in support of the evaluation

### List of data submitted by the applicant and not relied on

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-01	XXX	2019	Efficacy of boscalid in OSR. Trial ID: FE-19-A-BSCL-CZ01		Globachem NV
KCP 6.2-02	XXX	2019	FE-19-A-BSCL-CZ02 -Efficacy of boscalid in OSR.		Globachem NV
KCP 6.2-03	XXX	2019	Efficacy of Boscalid 50 WG in OSR FE-19-A-BSCL-CZ03		Globachem NV
KCP 6.2-04	XXX	2019	FE-19-A-BSCL-CZ04 - Efficacy of boscalid in OSR.		Globachem NV
KCP 6.2-05	XXX	2019	Efficacy of boscalid in OSR FE-19-A-BSCL-SE07		Globachem NV
KCP 6.2-06	XXX	2019	Efficacy of Prothioconazole and Boscalid in OSR.		Globachem NV
KCP 6.2-07	XXX	2020	Efficacy and Selectivity of Prothioconazole and Boscalid in OSR. FE-20-A-PTZxBSCL-PL03		Globachem NV
KCP 6.2-08	XXX	2020	Efficacy of Prothioconazole and Boscalid in OSR. FE-20-A-PTZxBSCL-PL04		Globachem NV
KCP 6.2-09	XXX	2020	Biologiczna ekspertyza skuteczności działania fungicydów protiokonazol i boskalid w zwalczaniu suchej zgnilizny kapustnych i zgnilizny twardzikowej w rzapaku ozimym. FE-20-A-PTZxBSCL-PL05		Globachem NV
KCP 6.2-10	XXX	2020	Efficacy of Prothioconazole and Boscalid in OSR		Globachem

<b>Data point</b>	<b>Author(s)</b>	<b>Year</b>	<b>Title</b> <b>Company Report No.</b> <b>Source (where different from company)</b> <b>GLP or GEP status</b> <b>Published or not</b>	<b>Vertebrate study Y/N</b>	<b>Owner</b>
			FE-20-A-PTZxBSCL-FR02		NV