

FINAL REGISTRATION REPORT

Part B

Section 3

Efficacy Data and Information

Concise summary

Product code: GLOB2106cF

Product name: Revus Pro

Chemical active substances:

Propamocarb-HCl, 450 g/L

Mandipropamid, 75 g/L

Central Zone

Zonal Rapporteur Member State: Poland

CORE ASSESSMENT

Applicant: Globachem NV

Submission date: March 2023

MS Finalisation date: 06/03/2024

Version history

When	What
July 2023	Dossier sent for evaluation
November 2023	zRMS evaluation of dRR
March 2024	Final version prepared by zRMS after Commenting period

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

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

Comments of zRMS:	The commenting boxes are filled-in by the zRMS. They are usually placed at the end of each chapter. Commenting boxes are understandable alone and refer very precisely to the text commented. The main advantage of their use is to distinguish easily between the applicant and the zRMS text.
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3.1 Summary and conclusions of zRMS on Section 3: Efficacy (KCP 6)

Abstract

The Plant Protection Product GLOB2106cF/Revus Pro is intended to control a late blight/*Phytophthora infestans* in potatoes. 16 Preliminary trials and 36 efficacy experiments conducted in 2021 and 2022, in 4 EPPO zones confirmed a proper effectiveness of this fungicide. Preliminary trials indicated the advantage in the combined use of a.s. propamocarb-HCL and mandipropamid. This was the basis for creating the new formulation GLOB2106cF. The effective dose was set at 1.9 l/ha. The combination of results from experiments using a dose of 1.9 l/ha with the use of a dose of 2.0 l/ha of GLOB 2106cF can be considered acceptable on the basis of EPPO PP 1/307. The effectiveness of GLOB2106cF was analysed based on the effectiveness of these two doses.

A large number of experiments carried out in 2021 and 2022 in all required EPPO zones, on a large number of potato varieties and in various agrotechnical conditions allow us to consider 1.9l/ha as the effective dose of GLOB 2106cF to control late blight in potatoes. The fungicide is intended for three application during the potato growing season. GLOB2106cF/Revus Pro it is effective in controlling *Phytophthora infestans* in each EPPO zone: NE (+CZ,DE) 71%, MAR 90%, MED 67% (2.0l/ha), SE 81%. The obtained effectiveness was for 3 treatments.

The obtained effectiveness qualifies the Glob 2106cF fungicide as moderate control to control of *P. infestans* in Poland. Glob 2106cF shows selectivity towards potatoes crop. No adverse plant symptoms or negative effect of fungicide on potatoes yield were observed. The data obtained in the experiments confirm these features. The policy on counteracting the development of resistance has been properly presented in the dRR.

The results obtained in the experiments justify the needed for registration of studied agent for *P. infestans* control in Poland. The data provided in dRR confirm the above application and authorize the registration of GLOB2106cF/Revus Pro in Poland. The application is submitted for registration of Plant Protection Product GLOB2106cF/Revus Pro in Poland according to art. 33 of Regulation 1107/2009. The zRMS is Poland.

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

GAP rev. 1.0, date: 2023-03-21

PPP (product name/code): Revus Pro/GLOB2106cF Formulation type: SC ^(a, b)

Active substance 1: Propamocarb-HCl Conc. of as 1: 450 g/L ^(c)

Active substance 2: Mandipropamid Conc. of as 2: 75 g/L ^(c)

Safener: / Conc. of safener: / ^(c)

Synergist: / Conc. of synergist: / ^(c)

Applicant: Globachem NV Professional use:

Zone(s): Central ^(d) Non professional use:

Verified by MS: yes/~~no~~

Field of use: fungicide

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Use- No. ^(e)	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F, Fn, Fpn G, Gn, Gpn or I	Pests or Group of pests controlled (additionally: developmental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g safener/synergist per ha ^(f)
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	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	PL, BE, CZ, DE, NL	Seed, ware and starch potato (SOLTU)	F	<i>Phytophthora infestans</i> (PHYTIN)	Normal downward spraying	After emergence to shortly before harvest (BBCH21 - 89)	a) 3 b) 3	7	a) 1.9 b) 5.7	a) Propamocarb- HCl: 0.855 + Mandipropamid: 0.1425 b) Propamocarb- HCl: 2.565 + Mandipropamid: 0.4275	150- 300	14	

- * 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 document summarises the information related to the efficacy of the plant protection product Revus Pro, further referred to as GLOB2106cF, containing the active substances propamocarb-HCl and mandipropamid. GLOB2106cF is used against late blight (*Phytophthora infestans*) on potatoes.

It should be noted that all trials performed for this project are included in this submission, this includes trials performed in the Maritime, North-East, Mediterranean and South-East EPPO Zone. The applicant is aware that not all submitted data is accepted by the countries where registration is requested, however data from other EPPO Zones can be considered confirmatory data that demonstrates the performance of GLOB2106cF under a wide range of climatic and edaphic conditions.

For the implementation of the uniform principles of Annex VI, the conclusions of the review report on propamocarb-HCl and mandipropamid, and in particular Appendices I and II thereof, as finalised in the Standing Committee on the Food Chain and Animal Health shall be taken into account.

In this overall assessment there are no efficacy related concerns.

Description of active substances

Propamocarb-HCl is a carbamate ester that is the propyl ester of 3-(dimethylamino)propylcarbamic acid. It is a systemic fungicide used for the control of soil, root and leaf diseases caused by oomycetes, particularly *Phytophthora* and *Pythium* species.

Mandipropamid is a mandelic acid amide. It is a systemic fungicide used to control oomycete pathogens on potatoes, grapes and other crops.

Mandipropamid is approved in most EU countries and can be found as a solo product (usually as a 250 g/L SC formulation called Revus or Pergado) or in combination with other active substances (e.g. difenoconazole or cymoxanil).

Mode of action

Propamocarb-HCl belongs to the chemical group of the carbamates (group 28), which affect the cell membrane permeability (F4). It is a systemic compound with protective action against oomycetes that is used to control leaf diseases in vegetables and ornamental plants, it can also be used to combat soil borne diseases in some crops (applied directly to the soil). For the use against late blight on potatoes it is applied as a foliar spray.

Mandipropamid belongs to the chemical group of the carboxylic acid amides, which affect cellulose synthase (H5) and prevents spore germination. It is a translaminar compound which enters the plant, but does not circulate in the plant. Mandipropamid has a protective and curative action against oomycetes that is used on many fruits and vegetables, but also on ornamental plants.

Table 3.2--1: Details of the active substance in GLOB2106cF

Active substance	Propamocarb-HCL	Mandipropamid
Concentration	450 g/L (=378 g/L propamocarb)	75 g/L
Chemical group	Carbamates	Mandelic Acid Amides
Mode of action	Systemic fungicide (F4)	Translaminar fungicide (H5)
Biological action	Interference with oomycete membrane biosynthesis	Interference with oomycete membrane biosynthesis

Comments of zRMS:	The description of the two active substances (Propamocarb-HCL+ Mandipropamid) on which the GLOB2106cF, Revus Pro product is based, is correct and contains the required information .
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Description of the plant protection product

Information on the detailed composition of GLOB2106cF can be found in the confidential dossier of this submission (Registration Report - Part C).

GLOB2106cF contains 450 g/L propamocarb-HCl and 75 g/L mandipropamid, and is formulated as a suspension concentrate (SC). It is used against *Phytophthora infestans* (late blight) on potato. Its technical characteristics are acceptable for a suspension concentration formulation, no particular problems are expected when GLOB2106cF is used as recommended.

More information can be found in Part B1, B2 and B4 of this submission.

The classification proposal for GLOB2106cF according to Regulation (EC) 1272/2008 (CLP Regulation) can be found in Part A of this submission.

Table 3.2-2: Simplified table of requested uses for GLOB2106cF

Uses		Member State	Requested rate(s)	Comments / Other relevant details on GAPs
Crop(s)	Target(s)			
Potato	Late blight (<i>Phytophthora infestans</i>)	zRMS + all cMS	1.9 L/ha	1-3 applications 7 day interval 14 day PHI

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

Comments of zRMS:	The description of the Plant Protection Product the Revus Pro, GLOB2106cF
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	which contains 450 g/L propamocarb-HCl and 75 g/L mandipropamid, is formulated as a suspension concentrate (SC), is enough. It is used against <i>Phytophthora infestans</i> (late blight) on potato. The characteristics of the agent are acceptable although it contains many references.
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Description of the target pests

GLOB2106cF is used as a fungicide against *Phytophthora infestans* on potato. Currently, the most dangerous potato disease. It limits the assimilation surface of plants and deteriorates the quality and yield of tubers by up to 50%. This disease spreads easily and quickly, especially in favorable conditions: 100% humidity and a temperature of 21⁰ C, when spores develop very quickly. Infection of potato crops may occur throughout the entire growing season of the plants.

Table 3.2--2: Glossary of pests mentioned in the dossier.

EPPO code	Scientific name, common name
PHYTIN	<i>Phytophthora infestans</i> , late blight

Level of control 3.2-3:

Claim level	Level of control
Control (C)	> 80 %
Moderate control (MC)	60 - 80 %
Some control (SC)	40 - 60 %

Table 3.2--3: Major / minor status of intended uses (for all cMS and zRMS).

Crop and/or situation	Crop status		Pests or group of pests controlled	Pest status	
	Major	minor		Major	minor
Potatoes	zRMS + all cMS	-	Late blight (<i>Phytophthora infestans</i>)	zRMS + all cMS	-

Compliance with the Uniform Principles

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

Comments of zRMS:	Disease status and crop are properly determined. The data presented in this dRR are consistent with the Uniform Principles .
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Information on trials submitted (3.1 Efficacy data)

The list of individual trials is presented under 3.2.3 Efficacy tests.

Table 3.2--4: Presentation of reference standards used in the efficacy trials

Crop(s)	Reference standard	Countries where the product is registered	Authorization number	Active substance(s)	Formulation		Registered application rate	Application rate in trials (per trt.)	Comments / Other relevant details on GAPs
					Type	Concentration of a.s.			
Potato	Revus	CZ	4608	Mandipropamid	SC	250 g/L	0.6 L/ha	0.6 L/ha	
		DE	026221-00	Mandipropamid	SC	250 g/L	0.6 L/ha	0.6 L/ha	
		DK	1-195	Mandipropamid	SC	250 g/L	0.6 L/ha	0.6 L/ha	
		ES	25186	Mandipropamid	SC	250 g/L	0.6 L/ha	0.6 L/ha	
		FR	2080098	Mandipropamid	SC	250 g/L	0.6 L/ha	0.6 L/ha	
		HU	02.5/2622	Mandipropamid	SC	250 g/L	0.6 L/ha	0.6 L/ha	
		NL	12969	Mandipropamid	SC	250 g/L	0.6 L/ha	0.6 L/ha	
		RO	2718/ 25.10.2007	Mandipropamid	SC	250 g/L	0.6 L/ha	0.6 L/ha	
	Revus 250 SC	LV	0312	Mandipropamid	SC	250 g/L	0.6 L/ha	0.6 L/ha	
		PL	R-12/2009	Mandipropamid	SC	250 g/L	0.6 L/ha	0.6 L/ha	
	Pergado SC	IT	13382	Mandipropamid	SC	250 g/L	0.6 L/ha	0.6 L/ha	
	Revus Top	LV	0453	Mandipropamid Difenoconazole	SC	250 g/L 250 g/L	0.6 L/ha	0.6 L/ha	
	Shirlan	DE	034092-00	Fluazinam	SC	500 g/L	0.4 L/ha	0.4 L/ha	
	Shirlan Gold	NL	14744	Fluazinam	SC	500 g/L	0.4 L/ha	0.4 L/ha	
	Frownicide (=Shirlan)	FR	9100636	Fluazinam	SC	500 g/L	0.4 L/ha	0.4 L/ha	
	Winby (=Shirlan)	PL	R-134/2018	Fluazinam	SC	500 g/L	0.4 L/ha	0.4 L/ha	
	Ranman Top	CZ	4592-0	Cyazofamid	SC	160 g/L	0.5 L/ha	0.5 L/ha	
		DE	006860-00	Cyazofamid	SC	160 g/L	0.5 L/ha	0.5 L/ha	
		FR	2110012	Cyazofamid	SC	160 g/L	0.5 L/ha	0.5 L/ha	
		NL	13467	Cyazofamid	SC	160 g/L	0.5 L/ha	0.5 L/ha	
		SE	4995	Cyazofamid	SC	160 g/L	0.5 L/ha	0.5 L/ha	
	Ranman Top 160 SC	PL	R-12/2012 wu	Cyazofamid	SC	160 g/L	0.5 L/ha	0.5 L/ha	
	Infinito	CZ	4602-2	Fluopicolid Propamocarb	SC	62.5 g/L 625 g/L	1.6 L/ha	1.6 L/ha	
		DE	025876-00	Fluopicolid Propamocarb	SC	62.5 g/L 625 g/L	1.6 L/ha	1.6 L/ha	
		FR	2090136	Fluopicolid Propamocarb	SC	62.5 g/L 625 g/L	1.6 L/ha	1.6 L/ha	
		HU	04.2/3959	Fluopicolid Propamocarb	SC	62.5 g/L 625 g/L	1.6 L/ha	1.6 L/ha	
		LV	0302	Fluopicolid Propamocarb	SC	62.5 g/L 625 g/L	1.6 L/ha	1.6 L/ha	
		NL	12927	Fluopicolid Propamocarb	SC	62.5 g/L 625 g/L	1.6 L/ha	1.6 L/ha	
		SE	5072	Fluopicolid	SC	62.5 g/L	1.6 L/ha	1.6 L/ha	

Crop(s)	Reference standard	Countries where the product is registered	Authorization number	Active substance(s)	Formulation		Registered application rate	Application rate in trials (per trt.)	Comments / Other relevant details on GAPS
					Type	Concentration of a.s.			
				Propamocarb		625 g/L			
		UK	16335	Fluopicolid Propamocarb	SC	62.5 g/L 625 g/L	1.6 L/ha	1.6 L/ha	
	Infinito 687.5 SC	PL	R-37/2011	Fluopicolid Propamocarb	SC	62.5 g/L 625 g/L	1.6 L/ha	1.6 L/ha	
	Volare	ES	25351	Fluopicolid Propamocarb	SC	62.5 g/L 625 g/L	1.6 L/ha	1.6 L/ha	
		IT	13592	Fluopicolide Propamocarb	SC	62.5 g/L 625 g/L	1.6 L/ha	1.6 L/ha	

Comments of zRMS:	The reference standard are appropriately selected. The data presented in this report are consistent with the Uniform Principles .
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Table 3.2--5: Presentation of efficacy trials

Crop	Target(s)	Country	Years	Type of trial**	Number of trials per EPPO Zone*				GEP, non-GEP, official***		
					MAR	N-E	MED	S-E			
Potato	PHYTIN	CZ	2019	P	3				Prelim. trials		
			2020	P	3						
		DE	2020	P	3						
		NL	2019	P	1						
			2020	P	1						
		FR	2020	P	1						
		PL	2019	P		2					
			2020	P		2					
		TOTAL					12	4			16
		CZ	2021	E, MED	3						
			2022	E, MED	2						
		DE	2022	E, MED	1						
		FR	2021	E, MED	2						
		NL	2022	E, MED	2						
		SE	2022	E, MED	2						
		UK	2021	E, MED	1						
		PL	2021	E, MED		4					
			2022	E, MED		2					
		LV	2021	E, MED		3					
			2022	E, MED		2					
		IT	2021	E, MED			3				
			2022	E, MED			1				
		ES	2021	E, MED			1				
			2022	E, MED			1				
		HU	2021	E, MED				3			
			2022	E, MED				2			
		RO	2021	E, MED				1			
		TOTAL					13	11	6	6	36

* MAR: Maritime / N-E: North-East / MED: Mediterranean / S-E: South-East EPPO Zone

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

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

Comments of zRMS:	Efficacy experiments are presented in an appropriate way. The data presented in this report are consistent with the Uniform Principles .
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3.2.1 Preliminary tests (KCP 6.1)

To test the combination of the active substances propamocarb-HCl and mandipropamid, a tank mix of Sporax / Propamocarb 722 SL (722 g/L propamocarb; owned by Globachem N.V.) and Revus 250 SC (250 g/L mandipropamid; owned by Syngenta) was tested. They were applied at their registered dose rates (1.4 L/ha and 0.6 L/ha, respectively) in countries of the Maritime and North-East EPPO Zones. The preliminary trial program (ref. Table 3.2--5) was mainly focused around the Czech Republic (6 trials) and Germany (3 trials), with trials performed in neighbouring countries Poland (4 trials) and the Netherlands (2 trials). One (1) additional trial was performed in the Maritime part of France.

All preliminary tests were performed by GEP certified research institutes in accordance with EPPO Guidelines. Detailed information on these trials is included in the tables describing the regular efficacy trials under section 3.2.3.1.

For individual trial data reference is made to Appendix 3 of the BAD – Preliminary trial data.

Pest severity (PESSEV) was assessed multiple times throughout the season. In all trials applications started preventatively, but depending on the specific weather conditions there is a lot of variation in the time between the start of the applications and the first observation of the disease between the trials. To demonstrate the impact of the tested treatments on disease development, all assessment data was grouped according to the number of days since the disease was first observed in each trial as follows:

- First symptoms (0 days, first symptoms)
- 1 week after symptoms (6-10 days after first symptoms)
- 2 weeks after symptoms (11-14 days after first symptoms)
- 3 weeks after symptoms (15-21 days after first symptoms)
- 4 weeks after symptoms (22-28 days after first symptoms)
- 5 weeks after symptoms (29-35 days after first symptoms)
- 6 weeks after symptoms (36-42 days after first symptoms)
- 7 weeks after symptoms (43-49 days after first symptoms)
- 8 weeks after symptoms (52-56 days after first symptoms)

The Area Under the Disease Progress Curve (AUDPC) is a summarizing value for the efficacy of the treatments across the season. Therefore all assessment data is presented together.

The geographical distribution of the preliminary trials (ref. Table 3.2--5) is shown in Figure 3.2--1 below.

Because of the limited spread of the trials (11 out of 16 trials are within a 200km radius from Trutnov, CZ) the applicant ought it acceptable to summarize all gathered data together to be able to draw stronger conclusions, as opposed to splitting the data set according to the EPPO Zone they are performed in.

Figure 3.2--1 Geographical distribution of preliminary trials



The table below summarizes the efficacy data found in Appendix 3 of the BAD.

Table 3.2--6 Summary of preliminary efficacy trials performed with tank mix of Sporax and Revus

Assessment date (Days after infestation)	Nr of trials n	Infestation			① 1.4 L/ha Sporax Propamocarb 722 SL			② 0.6 L/ha Revus			①+②		
		Untreated	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
0	5	6.3	5.3	7.5	79.3	47.9	100.0	84.5	59.3	100.0	87.8	65.0	100.0
6-10	8	18.3	7.0	43.8	73.0	30.0	100.0	74.1	25.0	100.0	79.1	30.0	100.0
11-14	7	25.7	7.3	60.0	75.1	46.3	100.0	79.9	32.5	100.0	83.8	48.8	100.0
15-21	11	29.9	5.3	90.0	70.3	30.4	96.5	78.9	36.3	100.0	83.1	53.8	100.0
22-28	12	37.4	7.5	97.5	62.5	22.5	100.0	73.9	17.7	100.0	78.2	32.7	100.0
29-35	9	44.5	7.5	78.8	60.4	22.1	91.8	70.9	24.0	98.1	73.9	25.1	99.1
36-42	10	77.0	11.3	100.0	58.7	25.5	100.0	65.9	16.7	100.0	73.3	32.1	100.0
43-49	7	77.2	16.3	100.0	41.0	9.1	87.5	58.4	16.8	91.3	65.6	22.0	96.1
52-56	7	76.1	40.0	100.0	59.5	2.2	100.0	44.5	10.0	78.9	72.3	13.8	100.0
AUDPC	16	1595.0	99.3	4340.2	63.4	29.8	97.3	70.4	26.4	100.0	72.8	36.0	100.0

Conclusion

The results obtained in the preliminary studies demonstrate a clear benefit in combining propamocarb-HCl and mandipropamid. The performance gain compared to the solo treatments becomes greater as disease pressure increases.

The list of preliminary trials is presented in the table: Table 3.2-7: Summary form of information concerning trial sites and application details of the efficacy trials.(KCP 6.2-01 - KCP 6.2-20).

A study¹ published by Aarhus University in Denmark showed evidence of mandipropamid resistance in multiple samples taken in Denmark in 2022. The results of this study indicate it is very likely there is cross-resistance between mandipropamid and other members of the carboxylic acid amides fungicides, including dimethomorph, bentiavalicarb and valifenalate. It will therefore be essential to combine

¹ <https://dca.au.dk/en/current-news/news/show/artikel/kartoffelproduktionen-trues-af-stigende-resistens-hos-kartoffelskimmel-mod-kemiske-bekaempelsesmidler>

actives with different modes of action in order to fully control late blight². This provides further support for the combination of mandipropamid with propamocarb-HCl.

Comments of zRMS:	<p>Preliminary trials</p> <p>The 16 preliminary trials were conducted in the Czech Republic (6 trials), Germany (3 trials), Poland (4 trials) and the Netherlands (2 trials). One additional trial was performed in the Maritime part of France (1).</p> <p>The combination of the active substances propamocarb-HCl and mandipropamid, as a tank- mix of Sporax / Propamocarb 722 SL (722 g/L propamocarb; owned by Globachem N.V.) and Revus 250 SC (250 g/L mandipropamid: owned by Syngenta) was tested. They were applied at their registered dose rates (1.4 L/ha and 0.6 L/ha, respectively) in the Maritime and North-East EPPO Zones. The average effectiveness (after all applications) of the discussed mixture of agents was 72.8% (and achieved effectiveness 100%). The effectiveness of the agents used individually in the first three treatments was: Sporax 75.8%, Revus 79.5%, and when used together it was higher and amounted to 83.5%. The results of preliminary experiments using propamocarb-HCl and mandipropamid against Late blight (<i>Phytophthora infestans</i>) indicated the practical benefit of the combined use of both active substances.</p> <p>Preliminary trials provided preliminary information indicating the benefit of the combined use of a.s. Propamocarb-HCl and a.s. Mandipropamid.</p>
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3.2.2 Minimum effective dose (MED) tests (KCP 6.2)

The first efficacy trials were performed with formulation GLOB2106aF (500 g/L propamocarb, 75 g/L mandipropamid) at 2 L/ha, resulting in the same amount of active substances as the full rate of Sporax (722 g/L propamocarb, 1.4 L/ha) combined with Revus (250 g/L mandipropamid, 0.6 L/ha), as tested in the preliminary tests (section 3.2.1).

Mandipropamid predominantly has a protective action against *Phytophthora infestans*, while propamocarb-HCl mainly has a curative effect. The actions of these active substances are therefore complementary. In order to assure the protective action of the mixture, the amount of mandipropamid applied should remain in line with the current registration of the solo product (0.6 L/ha Revus: 150 g/ha).

Because the protective action of mandipropamid is maintained, the potential for lowering the amount of propamocarb-HCl in the product was tested. For this, another formulation of the mixture containing 10% less propamocarb-HCl was included (GLOB2106cF: 450 g/L propamocarb, 75 g/L mandipropamid) in the first trial year (2021).

A comparison between the different formulations is made based on AUDPC, which is a summarizing value that takes into account all pest severity data gathered throughout the season. In **Błąd! Nie można odnaleźć źródła odwołania.** of Appendix 4 of the BAD, the raw data comparing the efficacy of both formulations at a dose rate of 2 L/ha can be found. Table 3.2-8 below provides a summary of all gathered data.

² <https://www.fwi.co.uk/arable/crop-management/disease-management/what-the-new-fungicide-resistant-blight-strain-means-for-uk-farmers>

Table 3.2-8 Summary of comparison between GLOB2106aF and GLOB2106cF

Rating Type	SUMMARY ALL							SUMMARY MARITIME						SUMMARY NORTH-EAST					
	AUDPC							AUDPC						AUDPC					
	n	Mean	Min	Max	Median	Stdev	n	Mean	Min	Max	Media n	Stdev	n	Mean	Min	Max	Media n	Stdev	
UNTREATED	2	1258.	34.	3698.	716.0	1233.	5	1755.	504.	3422.	1320.0	1222.	8	1518.	383.	3698.	920.2	1341.	
GLOB2106aF	1. L/h 2 a	5	4	5	29.	0	4	68.4	47.5	90.8	67.7	18.4	6	63.0	29.3	87.8	65.6	21.2	
GLOB2106aF	2 a	0	80.1	1	100.0	81.0	5	79.5	49.7	100.0	82.5	20.2	8	75.0	40.1	96.3	75.3	17.1	
GLOB2106cF	2 a	2	27.	0	78.6	9	5	80.4	48.8	100.0	84.7	20.2	8	71.1	27.9	96.4	72.4	20.6	
Propamocarb 722 SL	1. L/h 4 a	8	68.3	9	98.1	68.5	1	98.1	98.1	98.1	98.1	-	5	54.0	21.9	74.1	62.6	20.1	
Revus /Pergado	0. L/h 6 a	1	36.	4	78.2	7	3	90.3	79.1	100.0	91.9	10.5	5	65.9	36.7	94.6	64.8	20.8	
Infinito/Volare	1. L/h 6 a	1	47.	1	78.9	9	3	73.2	47.9	100.0	71.8	26.1	5	72.2	64.1	89.4	69.2	10.3	
Rating Type	SUMMARY NORTH-EAST + CZ/DE							SUMMARY MEDITERRANEAN						SUMMARY SOUTH-EAST					
	AUDPC							AUDPC						AUDPC					
	n	Mean	Min	Max	Media n	Stdev	n	Mean	Min	Max	Media n	Stdev	n	Mean	Min	Max	Media n	Stdev	
UNTREATED	1	1508.	383.	3698.	922.6	1219.	4	803.7	34.	2753.9	213.2	1308.	3	343.3	223.	515.9	290.5	153.	
GLOB2106aF	1. L/h 2 a	1	0	9	5	5	8	66.3	29.3	90.8	65.6	20.5	3	77.9	67.	88.9	77.3	10.7	
GLOB2106aF	2 a	1	78.6	40.1	100.0	75.9	4	93.1	81.	98.5	96.2	7.7	3	77.7	55.4	97.3	80.4	21.1	
GLOB2106cF	2 a	1	76.1	27.9	100.0	74.4	4	91.9	82.	97.0	94.0	6.3	3	77.7	51.8	94.9	86.5	22.8	
Propamocarb 722 SL	1. L/h 4 a	6	61.4	21.9	98.1	62.7	1	98.0	98.	98.0	98.0	-	1	80.5	80.5	80.5	80.5	-	
Revus /Pergado	0. L/h 6 a	7	74.5	36.7	100.0	72.2	3	88.7	85.	92.8	87.5	3.7	3	75.8	46.7	98.6	82.1	26.5	
Infinito/Volare	1. L/h 6 a	7	76.1	64.1	100.0	71.8	2	98.5	97.	100.0	98.5	2.1	1	90.1	90.1	90.1	90.1	-	

The results in the table above demonstrate little to no difference in efficacy between GLOB2106aF and GLOB2106cF. Therefore the decision was made to continue with the GLOB2106cF formulation. Further lowering of the amount of propamocarb-HCl in the formulation is not advisable, because according to the FRAC (Fungicide Resistance Action Committee), reduced rates of active substances can contribute to accelerate the shift to less sensitive populations. Because there is no activity overlap between the two active substances with regards to the curative action (which is mainly attributed to propamocarb), the choice was made to continue with the GLOB2106cF formulation. Additionally it should be noted that after more than 30 years of use there is no resistance to propamocarb-HCl, while there are signs of emerging resistance to mandipropamid.

In trials season 2022 (KCP 6.2-46 to 63 = 16 trials) a reduced dose rate of 1.2 L/ha GLOB2106cF was included to confirm 2 L/ha as the minimum effective dose. These trials were performed in the Maritime EPPO Zone (the Czech Republic, Germany, France, the Netherlands and Sweden), the North-East EPPO Zone (Poland and Latvia), the Mediterranean EPPO Zone (Spain and Italy) and the South-East EPPO Zone (Hungary).

Sites and application details of these trials are presented in the tables under 3.2.3.1.

For individual trial data reference is made to Appendix 4 of the BAD.

For more information on the presentation of the results in Appendix 4 of the BAD, reference is made to section 3.2.3.2.

It should be noted that some efficacy trials tested GLOB2106cF at a dose rate of 1.9 L/ha (2022 trials) and others at 2 L/ha (2021 trials). For ease of comparison all efficacy data obtained at the 1.9 L/ha dose rate was extrapolated to the 2 L/ha rate as it can be expected that the higher dose rate will perform at least as good. Additionally, according to EPPO Guideline 1/307 differences of less than 10% are considered biologically insignificant. **Extrapolations** are underscored and in bold lettering in the tables found in Appendix 4 of the BAD.

First, the minimum effective dose is demonstrated for all trials presented in this dossier, this demonstrates the minimum effective dose across a wide variety of conditions. Next it is demonstrated for each EPPO Zone separately. For Poland an additional summary is made for all trials performed in the North-East EPPO Zone combined with the trials performed in the Czech Republic and Germany.

Table 3.2--9 Minimum effective dose of GLOB2106cF across all EPPO Zones

Rating type	Part rated	Timing	n	Untreated control			% control GLOB2106cF									
				Mean	Min	Max	1.2 L/ha					2 L/ha				
							Mean	Min	Max	Med.	Stdev	Mean	Min	Max	Med.	Stdev
AUDPC	LEAF	season	15	950.5	104.4	2852.5	73.2	34.7	100.0	69.2	23.7	77.4	42.7	100.0	75.4	21.6
PESINC	TUBER	harvest	3	6.7	5.0	9.0	65.2	37.5	100.0	58.0	31.9	63.9	43.8	100.0	47.9	31.3
PESSEV	LEAF	first symptoms	2	12.6	11.3	13.8	55.4	45.0	65.8	55.4	14.7	62.5	52.5	72.5	62.5	14.1
PESSEV	LEAF	5-10 days after symptoms	4	12.9	7.0	17.5	74.2	52.2	100.0	72.2	20.0	79.5	62.5	100.0	77.8	17.4
PESSEV	LEAF	12-16 days after symptoms	7	16.8	5.0	42.5	72.9	52.8	100.0	57.5	22.5	72.6	42.4	100.0	64.6	23.6
PESSEV	LEAF	17-21 days after symptoms	10	29.4	5.5	80.0	66.8	39.3	100.0	57.7	24.9	74.1	37.4	100.0	74.5	23.1
PESSEV	LEAF	23-28 days after symptoms	11	39.4	6.5	98.0	66.7	18.4	100.0	70.3	29.8	71.9	38.4	100.0	70.0	25.6
PESSEV	LEAF	29-36 days after symptoms	9	42.1	9.2	97.5	82.5	42.5	100.0	81.4	19.1	85.8	47.5	100.0	86.7	17.1
PESSEV	LEAF	37-45 days after symptoms	8	39.4	12.4	93.8	67.6	28.8	100.0	70.1	26.2	70.8	33.0	100.0	75.1	25.5
PESSEV	LEAF	46-52 days after symptoms	4	41.3	9.5	100.0	84.9	40.0	100.0	99.9	30.0	85.5	42.5	100.0	99.8	28.7

Table 3.2-10 Minimum effective dose of GLOB2106cF in the Maritime EPPO Zone

Rating type	Part rated	Timing	n	Untreated control			% control GLOB2106cF									
				Mean	Min	Max	1.2 L/ha					2 L/ha				
							Mean	Min	Max	Med.	Stdev	Mean	Min	Max	Med.	Stdev
AUDPC	LEAF	season	7	653.4	104.4	1440.8	88.3	59.6	100.0	99.3	18.3	91.0	68.5	100.0	99.8	14.7
PESINC	TUBER	harvest	1	9.0	9.0	9.0	58.0	58.0	58.0	58.0	-	43.8	43.8	43.8	43.8	-
PESSEV	LEAF	12-16 days after symptoms	2	11.3	5.0	17.5	95.0	90.0	99.9	95.0	7.0	94.9	90.0	99.8	94.9	6.9
PESSEV	LEAF	17-21 days after symptoms	3	20.1	6.3	46.3	84.2	52.5	100.0	100.0	27.4	90.8	72.5	100.0	100.0	15.9
PESSEV	LEAF	23-28 days after symptoms	5	23.6	6.5	82.0	84.3	47.5	100.0	99.9	23.4	87.3	67.5	100.0	99.2	17.0
PESSEV	LEAF	29-35 days after symptoms	5	33.9	9.2	95.3	84.1	42.5	100.0	99.7	25.1	85.8	47.5	100.0	99.8	22.8
PESSEV	LEAF	37-45 days after symptoms	3	41.1	13.3	93.8	84.5	53.5	100.0	100.0	26.8	86.5	59.4	100.0	100.0	23.4
PESSEV	LEAF	48-52 days after symptoms	3	21.7	9.5	35.5	99.9	99.8	100.0	99.9	0.1	99.9	99.8	100.0	99.8	0.1

Table 3.2-11 Minimum effective dose of GLOB2106cF in the North-East EPPO Zone

Rating type	Part rated	Timing	n	Untreated control			% control GLOB2106cF									
				Mean	Min	Max	1.2 L/ha					2 L/ha				
							Mean	Min	Max	Med.	Stdev	Mean	Min	Max	Med.	Stdev
AUDPC	LEAF	season	4	1504.2	403.6	2852.5	60.8	34.7	74.2	67.1	17.8	67.5	42.7	80.2	73.5	16.9
PESSEV	LEAF	first symptoms	1	13.8	13.8	13.8	65.8	65.8	65.8	65.8	-	52.5	52.5	52.5	52.5	-
PESSEV	LEAF	5-10 days after symptoms	2	14.4	11.3	17.5	72.2	67.5	76.9	72.2	6.6	75.0	62.5	87.5	75.0	17.7
PESSEV	LEAF	12-14 days after symptoms	1	21.3	21.3	21.3	56.3	56.3	56.3	56.3	-	56.3	56.3	56.3	56.3	-
PESSEV	LEAF	17-21 days after symptoms	3	25.5	17.7	30.0	59.4	39.3	76.1	62.8	18.6	71.3	49.9	87.6	76.5	19.4
PESSEV	LEAF	23-28 days after symptoms	2	46.8	38.8	54.7	51.0	31.7	70.3	51.0	27.3	60.0	38.4	81.6	60.0	30.5
PESSEV	LEAF	29-35 days after symptoms	3	37.4	25.4	55.6	75.8	66.8	81.4	79.3	7.9	81.6	78.4	86.7	79.6	4.5
PESSEV	LEAF	38-42 days after symptoms	4	44.8	27.0	69.7	62.2	28.8	80.0	70.1	22.8	68.6	38.8	85.4	75.1	20.7
PESSEV	LEAF	46-52 days after symptoms	1	100.0	100.0	100.0	40.0	40.0	40.0	40.0	-	42.5	42.5	42.5	42.5	-

Table 3.2-12 Minimum effective dose of GLOB2106cF in the North-East Eppo Zone + CZ/DE

Rating type	Part rated	Timing	n	Untreated control			% control GLOB2106cF									
				Mean	Min	Max	1.2 L/ha					2 L/ha				
							Mean	Min	Max	Med.	Stdev	Mean	Min	Max	Med.	Stdev
AUDPC	LEAF	season	6	1231.8	215.3	2852.5	61.1	34.7	74.2	64.4	13.8	68.1	42.7	80.2	71.0	13.1
PESINC	TUBER	harvest	1	9.0	9.0	9.0	58.0	58.0	58.0	58.0	-	43.8	43.8	43.8	43.8	-
PESSEV	LEAF	first symptoms	1	13.8	13.8	13.8	65.8	65.8	65.8	65.8	-	52.5	52.5	52.5	52.5	-
PESSEV	LEAF	5-10 days after symptoms	2	14.4	11.3	17.5	72.2	67.5	76.9	72.2	6.6	75.0	62.5	87.5	75.0	17.7
PESSEV	LEAF	12-15 days after symptoms	2	13.2	5.0	21.3	73.2	56.3	90.0	73.2	23.8	73.2	56.3	90.0	73.2	23.8
PESSEV	LEAF	17-21 days after symptoms	4	20.7	6.3	30.0	57.7	39.3	76.1	57.7	15.6	71.6	49.9	87.6	74.5	15.8
PESSEV	LEAF	23-28 days after symptoms	4	28.7	8.8	54.7	55.9	31.7	74.0	58.9	19.9	64.4	38.4	81.6	68.8	18.4
PESSEV	LEAF	29-35 days after symptoms	5	33.5	17.5	55.6	69.7	42.5	81.4	78.3	16.2	74.8	47.5	86.7	79.6	15.6
PESSEV	LEAF	38-45 days after symptoms	5	54.6	27.0	93.8	60.5	28.8	80.0	68.4	20.1	66.7	38.8	85.4	71.1	18.4
PESSEV	LEAF	46-52 days after symptoms	1	100.0	100.0	100.0	40.0	40.0	40.0	40.0	-	42.5	42.5	42.5	42.5	-

Table 3.2-13 Minimum effective dose of GLOB2106cF in the Mediterranean Eppo Zone

Rating type	Part rated	Timing	n	Untreated control			% control GLOB2106cF									
				Mean	Min	Max	1.2 L/ha					2 L/ha				
							Mean	Min	Max	Med.	Stdev	Mean	Min	Max	Med.	Stdev
AUDPC	LEAF	season	2	312.5	272.1	352.9	48.9	46.1	51.7	48.9	4.0	46.3	44.5	48.0	46.3	2.5
PESINC	TUBER	harvest	1	5.0	5.0	5.0	100.0	100.0	100.0	100.0	-	100.0	100.0	100.0	100.0	-
PESSEV	LEAF	13-13 days after symptoms	2	7.2	5.8	8.5	55.7	53.9	57.5	55.7	2.5	48.8	42.4	55.1	48.8	9.0
PESSEV	LEAF	18-20 days after symptoms	2	10.4	5.5	15.3	44.3	40.7	47.9	44.3	5.1	43.0	37.4	48.6	43.0	7.9
PESSEV	LEAF	25-28 days after symptoms	2	15.6	7.2	23.9	48.1	44.0	52.2	48.1	5.8	45.3	43.5	47.1	45.3	2.5
PESSEV	LEAF	41-42 days after symptoms	1	12.4	12.4	12.4	38.7	38.7	38.7	38.7	-	33.0	33.0	33.0	33.0	-

Table 3.2-14 Minimum effective dose of GLOB2106cF in the South-East Eppo Zone

Rating type	Part rated	Timing	n	Untreated control			% control GLOB2106cF									
				Mean	Min	Max	1.2 L/ha					2 L/ha				
							Mean	Min	Max	Med.	Stdev	Mean	Min	Max	Med.	Stdev
AUDPC	LEAF	season	2	1521.0	1389.5	1652.5	69.9	42.8	96.9	69.9	38.3	80.7	62.0	99.4	80.7	26.4
PESINC	TUBER	harvest	1	6.0	6.0	6.0	37.5	37.5	37.5	37.5	-	47.9	47.9	47.9	47.9	-
PESSEV	LEAF	first symptoms	1	11.3	11.3	11.3	45.0	45.0	45.0	45.0	-	72.5	72.5	72.5	72.5	-
PESSEV	LEAF	7-7 days after symptoms	2	11.4	7.0	15.8	76.1	52.2	100.0	76.1	33.8	84.1	68.1	100.0	84.1	22.6
PESSEV	LEAF	14-15 days after symptoms	2	29.8	17.0	42.5	76.4	52.8	100.0	76.4	33.4	82.3	64.6	100.0	82.3	25.0
PESSEV	LEAF	21-21 days after symptoms	2	68.2	56.3	80.0	74.3	50.0	98.5	74.3	34.3	84.4	68.8	99.9	84.4	22.0
PESSEV	LEAF	28-28 days after symptoms	2	95.3	92.5	98.0	57.1	18.4	95.8	57.1	54.7	71.7	43.9	99.5	71.7	39.3
PESSEV	LEAF	35-36 days after symptoms	1	97.5	97.5	97.5	94.7	94.7	94.7	94.7	-	98.5	98.5	98.5	98.5	-

Summary

When comparing the mean efficacy of GLOB2106cF at the 1.2 L/ha and the 2 L/ha dose rate it can be observed that the benefit of using the higher dose rate becomes apparent from around 2 weeks after the first observation of the disease.

As already discussed above, drastically lowering the amount of active substances applied compared to their currently registered dose rates (1000 g/ha propamocarb-HCl and 150 g/ha mandipropamid) is not advisable, because according to the FRAC (Fungicide Resistance Action Committee) reduced rates of active substances can contribute to accelerate the shift to less sensitive populations. This further supports the use of the 2 L/ha dose rate for GLOB2106cF.

Conclusion

All data presented above supports a minimum effective dose of 2 L/ha for GLOB2106cF. However, to pass the risk assessment for other parts of the dRR the dose rate had to be lowered to 1.9 L/ha. Most of the efficacy trials performed in 2022 tested GLOB2106cF at a dose rate of 1.9 L/ha, the efficacy obtained at this rate was extrapolated to 2 L/ha and summarized as such in the above tables.

Because the difference in dose rate between 2 L/ha and 1.9 L/ha is only 5%, all of the results shown above are in support of the 1.9 L/ha dose rate for GLOB2106cF.

Comments of zRMS:	<p><u>Minimum effective dose</u></p> <p>Experiments using the formulation GLOB106aF (500g/lapropacomarb,75g/l mandipropamid) contain the same amount of active substances as the full rate of Sporax and Revus should also be considered as a preliminary experiments.</p> <p>In eight experiments in three EPPO climatic zones, treatments with doses of 1.2 l/ha and 1.9 l/ha were used, this allows for the assessment of the minimum effective dose.</p> <p>In these experiments, a dose of 1.9 l/ha was used for the GLOB2016cF formulation, which is intended for registration -GAP table, label. The trials for minimum dose assessment were performed in the Maritime EPPO Zone (the Czech Republic, Germany, the Netherlands), the North-East EPPO Zone (Poland and Latvia) and the South-East EPPO Zone (Hungary) in 2022.</p> <p>The effectiveness of a reduced dose of GLOB2106cF of 1.2 l/ha was compared to a dose of 1.9 l/ha for the assessment of the minimum effective dose when using 5-13 applications in the vegetation season. The intensity of <i>Phytophthora infestans</i> occurrence was at the level of infection, on average 9-54% of the potato leaf area.</p> <p>The effectiveness of the all treatments was analysed. <i>Phytophthora infestans</i> was the most intense. All EPPO Zones, average effectiveness of GLOB2016cF - in reduced dose 1.2 l/ha: 69,2 % and in 1.9 l/ha 76.3%. - Standards in full dose: Revus 63.2 % and Infinito 77.27%.</p> <p>The presented average effectiveness of the GLOB2106cF agent from all tested EPPO zones indicates a clearly better effect of this agent at a dose of 1.9 l/ha than 1.2 l/ha in combating <i>Phytophthora infestans</i> in potato cultivation. A dose of 1.9l/ha is the minimum effective dose for the use of GLOB2106cF in potato against <i>Phytophthora infestans</i>.</p> <p>Summary</p>
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	<p>-The Applicant properly explained the creation of a new formulation GLOB2016cF based on a lower content of a.s. propamocarb.</p> <p>- A sufficient number of representative experiments carried out in 2022 in N-E, MAR, S-E EPPO zones, on a different potato varieties and in various agrotechnical conditions allow us to consider 1.9 l/ha as the minimum effective dose of GLOB 2106cF to control late blight in potatoes.</p> <p>The proposed application rate 1.9 l/ha of GLOB 2106cF for potato protection against <i>Phytophthora infestans</i> is justified as minimum effective dose.</p> <p>This is consistent with the GAP table and label and is the basis for registering this product at a dose of 1.9 l/ha.</p>
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3.2.3 Efficacy tests (KCP 6.2)

3.2.3.1 Use on potatoes

GLOB2106cF is used in potatoes for the control of a late blight (*Phytophthora infestans*) at a dose rate of 1.9 L/ha.

The trials presented in this dossier were conducted by contractor companies and official Research Institutes, all of which followed the EPPO standards and are officially recognized by the competent authorities to carry out field registration trials in accordance with the principles of Good Experimental Practice (GEP). Trials were conducted across a wide range of sites. The trials are therefore representative of a wide range of environmental conditions likely to be encountered in practice in the area of proposed use.

It should be noted that all trials performed for this project are included in this submission, this includes trials performed in the Maritime, North-East, Mediterranean and South-East EPPO Zone (ref. Table 3.2--5). The applicant is aware that not all submitted data is accepted by the countries where registration is requested, however data from other EPPO Zones can be considered confirmatory data that demonstrates the performance of GLOB2106cF under a wide range of climatic and edaphic conditions.

The trials package of GLOB2106cF includes 13 trials performed in the Maritime EPPO Zone (the Czech Republic, Germany, France, the Netherlands, Sweden and the UK), 11 trials performed in the North-East EPPO Zone (Poland and Latvia), 6 trials performed in the Mediterranean EPPO Zone (Italy and Spain) and 6 trials performed in the South-East EPPO Zone (Hungary and Romania). All trials were performed in 2021 and 2022.

It is important to note that more than the requested 3 applications were performed in the submitted trials, applications were continued at a 5-10 day interval until harvest. Assessments were made before every new application to assess the efficacy of each application.

In

Table 3.2-15 below, the trial methodology and details of the individual trials is shown.

Table 3.2-15: Details on trial methodology

Guidelines	General guidelines	EPPO PP 1/152 (4), 1/135 (4), 1/181 (4)
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	Specific guidelines	EPPO PP 1/2 (4)
Experimental design	Plot design	RCBD
	Plot size	18-30 m ²
	Number of replications	4
Crop	Trials per crop (varieties)	All submitted data: 36 trials (27 varieties) Maritime EPPO Zone → Czech/German trials 13 trials (12 varieties) 6 trials (6 varieties) North-East EPPO Zone 11 trials (7 varieties) Mediterranean EPPO Zone: 6 trials (5 varieties) South-East EPPO Zone: 6 trials (5 varieties)
Application	Crop stage at first application	BBCH 13-70
	Pest stage at first application	First application was preventative or at the latest at the start of the disease.
	First application-Final application	Maritime EPPO Zone → Czech/German trials June 13 th – September 20 th June 21 st – September 9 th North-East EPPO Zone June 14 th – September 22 nd Mediterranean EPPO Zone March 29 th – November 20 th South-East EPPO Zone June 17 th – October 14 th
	Application interval, Application number	Applications were continued at 5-10 day interval until one week before harvest, 5-13 applications per season
	Spray volumes	150-300 L/ha
Assessment	Assessment types	Pest severity: from start of trial Phytotoxicity; from 7 DA-A Yield: total weight, weight per class, total number of tubers, number of tubers per class, starch concentration Pest incidence on tubers after 4-8 weeks in storage
	e.g. Field / Greenhouse...	Field trials

Table 3.2-16: Summary form of information concerning trial sites and application details of the efficacy trials

Type of trials

Crop

Harmful organism

Responsible body for reporting trial

Effectiveness

Potato

Phytophthora infestans

Reference is made to the BAD.

Trial reference	Soil type	Trial location	Test method Plot size	Application details		Crop variety
				First applic. Final applic.	Applic. Amount (method)	
KCP 6.2-01 Preliminary trial		Trutnov (CZ) sandy loam	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 27 m ²	Jul-25-2019 Sep-6-2019	300 L/ha (Downward spraying)	Dali
KCP 6.2-02 Preliminary trial		Krasne Udoli (CZ) sandy loam	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 25.8 m ²	Jun-27-2019 Aug-6-2019	300 L/ha (Downward spraying)	Marianka
KCP 6.2-03 Preliminary trial		Kujavy (CZ) loam	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 30 m ²	Jun-25-2019 Aug-24-2019	200 L/ha (Downward spraying)	Antonie
KCP 6.2-04 Preliminary trial		Zwaagdijk (NL) sandy clay	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 22.5 m ²	Jun-20-2019 Aug-12-2019	300 L/ha (Downward spraying)	Regina
KCP 6.2-05 Preliminary trial		Bożydar (PL) loamy sand	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 24 m ²	Jun-28-2019 Aug-30-2019	300 L/ha (Downward spraying)	Gala
KCP 6.2-06 Preliminary trial		Gola Górowska (PL) sandy clay	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 24 m ²	Jul-8-2019 Aug-30-2019	300 L/ha (Downward spraying)	Gala
KCP 6.2-11 Preliminary trial		Šumperk (CZ) clay loam	PP 1/135(4) PP 1/152(4) PP 181(4)	Jun-23-2020 Aug-16-2020	200 L/ha (Downward spraying)	Milva

Trial reference	Trial location Soil type	Test method Plot size	Application details		Crop variety
			First applic. Final applic.	Applic. Amount (method)	
		PP 1/2(2) 24 m ²			
KCP 6.2-12 Preliminary trial	Kujavy (CZ) loam	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 30 m ²	Jun-25-2020 Aug-20-2020	200 L/ha (Downward spraying)	Antonie
KCP 6.2-13 Preliminary trial	Mandelsloh (DE) sandy loam	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 24 m ²	Jun-24-2020 Aug-19-2020	200 L/ha (Downward spraying)	Euroviva
KCP 6.2-14 Preliminary trial	Rosenow (DE) sandy loam	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 19.5 m ²	Jun-12-2020 Sep-5-2020	200 L/ha (Downward spraying)	Wendy
KCP 6.2-15 Preliminary trial	Budin (CZ) loamy clay	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 25 m ²	Jun-22-2020 Aug-15-2020	200 L/ha (Downward spraying)	Antonie
KCP 6.2-16 Preliminary trial	Adinfer (FR) silt	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 24 m ²	Jul-15-2020 Sep-10-2020	200 L/ha (Downward spraying)	Bintje
KCP 6.2-17 Preliminary trial	Angeren (NL) light clay	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 27 m ²	Jul-11-2020 Sep-4-2020	250 L/ha (Downward spraying)	Bintje
KCP 6.2-18 Preliminary trial	Nochowo (PL) sandy loam	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 24 m ²	Jun-24-2020 Aug-14-2020	200 L/ha (Downward spraying)	Gala
KCP 6.2-19 Preliminary trial	Nowojowice (PL) sandy loam	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 24 m ²	Jun-23-2020 Aug-18-2020	200 L/ha (Downward spraying)	Lady Claire

Trial reference	Trial location Soil type	Test method Plot size	Application details		Crop variety
			First applic. Final applic.	Applic. Amount (method)	
9KCP 6.2-20 Preliminary trial	Grimma (DE) silt loam	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 27 m ²	Jul-9-2020 Aug-29-2020	200 L/ha (Downward spraying)	Gala
KCP 6.2-21	Ligatne (LV) loamy sand	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 24 m ²	Jul-7-2021 Aug-9-2021	250 L/ha (Downward spraying)	Lady Claire
KCP 6.2-22	Czame Piątkowo (PL) loamy sand	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 24 m ²	Jun-18-2021 Aug-20-2021	200 L/ha (Downward spraying)	Denar
KCP 6.2-23	Feliksów (PL) sandy clay loam	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 24 m ²	Jul-16-2021 Sep-3-2021	200 L/ha (Downward spraying)	Melody
KCP 6.2-24	Balastya (HU) sandy loam	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 24 m ²	Aug-26-2021 Oct-14-2021	200 L/ha (Downward spraying)	Balaton Rózsa
KCP 6.2-25	Krasne Udoli (CZ) sandy loam	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 25.8 m ²	Jul-13-2021 Aug-10-2021	150 L/ha (Downward spraying)	Anuschka
KCP 6.2-27	Aumenancourt (FR) clay loam	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 18.4 m ²	Jun-21-2021 Aug-11-2021	200 L/ha (Downward spraying)	Orchestra
KCP 6.2-28	Portas (ES) sandy clay loam	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 24 m ²	Jul-22-2021 Aug-30-2021	200 L/ha (Downward spraying)	Kenebec
KCP 6.2-30	Zapponeta (IT) sand	PP 1/135(4) PP 1/152(4)	Sep-28-2021 Nov-10-2021	200 L/ha (Downward spraying)	Agata

Trial reference	Trial location Soil type	Test method Plot size	Application details		Crop variety
			First applic. Final applic.	Applic. Amount (method)	
		PP 181(4) PP 1/2(2) 20 m ²			
KCP 6.2-32	Sinteu (RO) sandy clay loam	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 24 m ²	Jun-17-2021 Aug-2-2021	200 L/ha (Downward spraying)	Margaret
KCP 6.2-33	Bystrice nad Pernštejnem (CZ) loamy sand	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 24 m ²	Jul-13-2021 Sep-9-2021	200 L/ha (Downward spraying)	Vysocina
KCP 6.2-35	Zirc (HU) clay loam	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 24 m ²	Jun-29-2021 Aug-12-2021	200 L/ha (Downward spraying)	Agria
KCP 6.2-36	San Benedetto dei Marsi (IT) clay loam	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 24 m ²	Jun-16-2021 Aug-23-2021	200 L/ha (Downward spraying)	Agria
KCP 6.2-37	Renceles (LV) loamy sand	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 24 m ²	Jul-5-2021 Aug-18-2021	250 L/ha (Downward spraying)	Alouette
KCP 6.2-39	Wielgie (PL) loamy sand	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 20 m ²	Jul-1-2021 Aug-13-2021	200 L/ha (Downward spraying)	Denar
KCP 6.2-40	Olaszfału (HU) sandy clay	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 28 m ²	Jul-22-2021 Sep-16-2021	200 L/ha (Downward spraying)	Delila
KCP 6.2-41	Kromeriz (CZ) silty clay loam	PP 1/135(4) PP 1/152(4) PP 181(4)	Jun-25-2021 Aug-16-2021	200 L/ha (Downward spraying)	Marabel

Trial reference	Trial location Soil type	Test method Plot size	Application details		Crop variety
			First applic. Final applic.	Applic. Amount (method)	
		PP 1/2(2) 24 m ²			
KCP 6.2-42	Zapponeta (IT) sand	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 20 m ²	Sep-24-2021 Nov-20-2021	200 L/ha (Downward spraying)	Spunta
KCP 6.2-43	Ligatne (LV) loamy sand	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 24 m ²	Jul-5-2021 Aug-20-2021	250 L/ha (Downward spraying)	Sorentina
KCP 6.2-44	Liskeard (GB) clay	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 18 m ²	Jun-15-2021 Aug-17-2021	150 L/ha (Downward spraying)	Sagitta
KCP 6.2-45	Pieruszyce (PL) sandy loam	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 24 m ²	Jun-24-2021 Aug-12-2021	200 L/ha (Downward spraying)	Vineta
KCP 6.2-46	Kristianstad (SE) sandy loam	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 30 m ²	Jun-29-2022 Aug-16-2022	200 L/ha (Downward spraying)	Saprodi
KCP 6.2-47	Forráskút (HU) sandy loam	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 24 m ²	Jul-28-2022 Sep-15-2022	200 L/ha (Downward spraying)	Bella Rosa
KCP 6.2-48	Csengele (HU) sandy clay loam	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 24 m ²	Aug-23-2022 Oct-11-2022	200 L/ha (Downward spraying)	Balatoni Rózsa
KCP 6.2-49	Ligatne (LV) loamy clay sand	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 27 m ²	Jul-1-2022 Aug-9-2022	200 L/ha (Downward spraying)	Lady Clair

Trial reference	Trial location Soil type	Test method Plot size	Application details		Crop variety
			First applic. Final applic.	Applic. Amount (method)	
KCP 6.2-50	Kristianstad (SE) sand	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 30 m ²	Jun-21-2022 Aug-16-2022	200 L/ha (Downward spraying)	Kuras
KCP 6.2-51	Kujavy (CZ) loam	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 30 m ²	Jun-29-2022 Aug-15-2022	200 L/ha (Downward spraying)	Antonie
KCP 6.2-52	Stachy-Chalupy (CZ) loamy sand	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 25.2 m ²	Jun-27-2022 Aug-1-2022	150 L/ha (Downward spraying)	Red Sonia
KCP 6.2-53	Ilsfeld (DE) clay loam	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 24 m ²	Jun-21-2022 Aug-9-2022	200 L/ha (Downward spraying)	Antonia
KCP 6.2-54	Blairville (FR)	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 18 m ²	Jul-21-2022 Sep-19-2022	200 L/ha (Downward spraying)	Kaptah
KCP 6.2-56	Hoogkarspel (NL) sandy clay	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 24 m ²	Jun-22-2022 Sep-22-2022	200 L/ha (Downward spraying)	Binthe
KCP 6.2-57	Międzychód (PL) loamy sand	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 24 m ²	Jun-14-2022 Aug-3-2022	200 L/ha (Downward spraying)	Bella Rosa
KCP 6.2-58	Jabłowo Pałuckie (PL) clay loam	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 24 m ²	Jul-25-2022 Sep-22-2022	300 L/ha (Downward spraying)	Melody
KCP 6.2-59	Ligatne (LV) loamy clay sand	PP 1/135(4) PP 1/152(4)	Jul-1-2022 Aug-17-2022	200 L/ha (Downward spraying)	Sorentina

Trial reference	Trial location Soil type	Test method Plot size	Application details		Crop variety
			First applic. Final applic.	Applic. Amount (method)	
		PP 181(4) PP 1/2(2) 27 m ²			
KCP 6.2-61	Los Palacios (ES) silt loam	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 24 m ²	Mar-29-2022 May-4-2022	200 L/ha (Downward spraying)	Soprano
KCP 6.2-62	Hoogkarspel (NL) sandy clay	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 24 m ²	Jun-22-2022 Sep-20-2022	200 L/ha (Downward spraying)	Bintje
KCP 6.2-63	Augusta (IT) sandy clay loam	PP 1/135(4) PP 1/152(4) PP 181(4) PP 1/2(2) 24 m ²	Apr-15-2022 May-9-2022	200 L/ha (Downward spraying)	Soprano

Details on the treatments included in each trial are provided in Table 3.2-17 and Table 3.2-18. It should be noted that the names of the reference products can differ (slightly) between the different countries. For country-specific information reference is made to Table 3.2--4. However, all identical reference products were summarized together.

Table 3.2-17: Formulations included in efficacy trials

Product	Active substance	Active substance content	Formulation type
GLOB2106cF	Mandipropamid Propamocarb	75 g/L 450 g/L	SC
GLOB2106aF	Mandipropamid Propamocarb	75 g/L 500 g/L	SC
GLOB2013F*	Reference is made to the BAD		
GLOB2007bF*			
GLOB178F*			
Propamocarb 722 SL / GLOB2008F	Propamocarb-HCl	722 g/L	SL
Revus (250 SC) / Pergado SC	Mandipropamid	250 g/L	SC
Revus Top	Mandipropamid Difenoconazole	250 g/L 250 g/L	SC
Ranman Top (160 SC)	Cyazofamid	160 g/L	SC
Shirlan (Gold) / Winby / Frowncide	Fluazinam	500 g/L	SC
Infito (687.5 SC) / Volare	Fluopicolid Propamocarb	62.5 g/L 6.25 g/L	SC

*Not of importance for this dossier

Table 3.2-18: Treatments included in trials

Trial ref.	Product	Application details		
		g/ha	L/ha	interval
1-6 Prelim. trials	UNTREATED			
	Propamocarb 722 SL	720	1	10 days
	Propamocarb 722 SL	1010	1.4	10 days
	Propamocarb 722 SL+ Revus 250 SC	720 +150	1 + 0.6	10 days
	Propamocarb 722 SL + Revus 250 SC	1010 + 150	1.4 + 0.6	10 days
	Propamocarb 722 SL + Shirlan 500 SC	1010 + 200	1.4 + 0.4	10 days
	Propamocarb 722 SL + Ranman Top 160 SC	1010 + 80	1.4 + 0.5	10 days
	Revus 250 SC	150	0.6	10 days
	Shirlan 500 SC	200	0.4	10 days
Ranman Top 160 SC	80	0.5	10 days	
11, 16, 17, 19 Prelim. trials	UNTREATED			
	Propamocarb 722 SL	1010	1.4	7-10 days
	Propamocarb 722 SL	1010	1.4	5-7 days
	Propamocarb 722 SL + Revus 250 SC	1010 + 150	1.4 + 0.6	7-10 days
	Propamocarb 722 SL + Shirlan 500 SC	1010 + 200	1.4 + 0.4	7-10 days
	Propamocarb 722 SL + Ranman Top 160 SC	1010 + 80	1.4 + 0.5	7-10 days
	Revus 250 SC	150	0.6	7-10 days
	Shirlan 500 SC	200	0.4	7-10 days
Ranman Top 160 SC	80	0.5	7-10 days	
12-15, 18, 20 Prelim. trials	UNTREATED			
	Propamocarb 722 SL	722	1	7-10 days
	Propamocarb 722 SL	1011	1.4	7-10 days
	Propamocarb 722 SL	1011	1.4	5-7 days
	Propamocarb 722 SL + Revus 250 SC	1011 + 150	1.4 + 0.6	7-10 days
	Propamocarb 722 SL + Shirlan 500 SC	1011 + 200	1.4 + 0.4	7-10 days
	Propamocarb 722 SL + Ranman Top 160 SC	1011 + 80	1.4 + 0.5	7-10 days
	Revus 250 SC	150	0.6	7-10 days
	Shirlan 500 SC	200	0.4	7-10 days
Ranman Top 160 SC	80	0.5	7-10 days	
21-23	UNTREATED			
	GLOB2013F	81	0.18	5-7 days
	GLOB2013F	135	0.3	5-7 days
	GLOB2013F	149	0.33	5-7 days

	GLOB2106aF GLOB2106aF GLOB2106cF GLOB2007bF GLOB2007bF Propamocarb 722 SL Revus 250 SC	690 1150 1050 620 1040 1010 150	1.2 2 2 1.2 2 1.4 0.6	5-7 days 5-7 days 5-7 days 5-7 days 5-7 days 5-7 days 5-7 days
24-32	UNTREATED GLOB2013F GLOB2013F GLOB2013F GLOB2106aF GLOB2106aF GLOB2106cF GLOB2007bF GLOB2007bF Revus 250 SC / Pergado SC (IT)	81 135 149 690 1150 1050 620 1040 150	0.18 0.3 0.33 1.2 2 2 1.2 2 0.6	5-7 days 5-7 days 5-7 days 5-7 days 5-7 days 5-7 days 5-7 days 5-7 days 5-7 days
33-39	UNTREATED GLOB2013F GLOB2013F GLOB2106aF GLOB2106cF GLOB2007bF GLOB2007bF Propamocarb 722 SL Revus 250 SC / Pergado SC Infinito / Volare	135 149 1150 1050 1040 620 1010 150 1100	0.3 0.33 2 2 2 1.2 1.4 0.6 1.6	5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* *Low pressure: 8-10d. *High pressure: 5-7d.
40-45	UNTREATED GLOB2013F GLOB2013F GLOB2013F GLOB2106aF GLOB2106aF GLOB2106cF GLOB2007bF GLOB2007bF Infinito / Volare	81 135 149 690 1150 1040 1040 620 1100	0.18 0.3 0.33 1.2 2 2 2 1.2 1.6	5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* *Low pressure: 8-10d. *High pressure: 5-7d.
46-50	UNTREATED GLOB2013F GLOB2013F GLOB2013F GLOB2106cF GLOB2106cF GLOB2007bF GLOB2007bF GLOB2008F Revus Infinito	81 135 149 630 998 621 1035 1010 150 1100	0.18 0.3 0.33 1.2 1.9 1.2 2 1.4 0.6 1.6	5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* *Low pressure: 8-10d. *High pressure: 5-7d.
51-58	UNTREATED GLOB2013F GLOB2013F GLOB2106cF GLOB2106cF GLOB2007bF GLOB2007bF GLOB178F GLOB178F Revus Infinito	81 135 630 998 621 1035 540 900 150 1100	0.18 0.3 1.2 1.9 1.2 2 1.2 2 0.6 1.6	5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* *Low pressure: 8-10d.

59	UNTREATED GLOB2013F GLOB2013F GLOB2106cF GLOB2106cF GLOB2007bF GLOB2007bF GLOB2008F GLOB178F GLOB178F Revus Top Infinito	81 135 630 998 / 1050 621 1035 1010 540 900 300 1100	0.18 0.3 1.2 1.9 / 2 1.2 2 1.4 1.2 2 0.6 1.6	*High pressure: 5-7d. 5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* *Low pressure: 8-10d. *High pressure: 5-7d.
60-63	UNTREATED GLOB2013F GLOB2013F GLOB2013F GLOB2106cF GLOB2106cF GLOB2007bF GLOB2007bF Revus / Pergado SC Infinito / Volare	81 135 149 630 998 / 1050 621 1035 150 1100	0.18 0.3 0.33 1.2 1.9 / 2 1.2 2 0.6 1.6	5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* 5-10 days* *Low pressure: 8-10d. *High pressure: 5-7d.

Assessment methods

The following assessments were made in accordance with EPPO Guideline 1/2 (5):

- Phytotoxicity (and description of the symptoms) was assessed by visual estimation of the intensity on an overall plot basis on a percentage scale 0-100% (0% = no damage).
- The assessment of efficacy in the treated plots was made in relation to the untreated plot on an overall plot basis (scale 0-100%, 0% = no efficacy). Efficacy was recorded by estimation of the intensity (severity) of the disease on the leaves during the growing season and the frequency (incidence) of the disease on the tubers after harvest.

Area Under the Disease Progress Curve (AUDPC)

At the end of the growing season the AUDPC is calculated from the individual assessment data (pest severity at several time points). This value summarizes the plant disease infestation over the trials. Because of the discrete nature of assessments in an efficacy trial, the AUDPC is estimated using the trapezoidal method. In this method the total surface area under the curve between adjacent assessments is calculated.

Statistical analysis

Data were analysed using a two-way analysis of variance (ANOVA). The probability of no significant differences occurring between treatment means is calculated as the F probability value (Prob(F)). Student-Newman-Keuls test was then applied to separate any treatment differences that may be implied by the ANOVA TEST (Prob(F) < 0.05) and these are indicated by the LSD-value and by a letter-test. The ANOVA data and the plot data are included in the appendices of the study reports.

3.2.3.2 Presentation of the results

For individual trial data reference is made to Appendix 4 of the BAD, more information on the presentation of individual assessment data is can also be found in section 3.2.3.2 of the BAD.

Pest severity (PESSEV) was assessed multiple times throughout the season. Applications started preventatively, but depending on the specific weather conditions there is a lot of variation in the time between the start of the applications and the first observation of the disease between the trials.

In the efficacy trials presented in this dossier the days after first application at which the first symptoms were observed are shown below:

Maritime EPPO Zone:	7-57 DA-A	(average of 28 days, 19 days stdev.)
Czech/German trials:	7-24 DA-A	(average of 15 days, 8 days stdev.)
North-East EPPO Zone:	5-30 DA-A	(average of 13 days, 8 days stdev.)
Mediterranean EPPO Zone:	8-57 DA-A	(average of 30 days, 22 days stdev.)
South-East EPPO Zone:	18-35 DA-A	(average of 26 days, 8 days stdev.)

This means that if the assessment data were to be sorted by the number of days after first application this would result in highly variably results. Because of the different stages of disease development between the trials at a given time after trial initiation this would make it impossible to demonstrate the impact of the tested treatments on disease progression.

Therefore, in order to have the best presentation of the impact of tested treatments on the disease development, the moment of first observation was used as the reference point for the grouping of the data.

The individual assessment data (pest severity) for all trials was grouped by the number of days after the first symptoms of *Phytophthora infestans* infection were observed, indicated in the tables by ‘Days after symptoms’. The following groupings were made based on the number days after the first observation of symptoms:

0 days		first observation of symptoms
5-10 days	~	1 week after symptoms
12-16 days	~	1-2 weeks after symptoms
17-21 days	~	2-3 weeks after symptoms
22-28 days	~	3-4 weeks after symptoms
29-36 days	~	4-5 weeks after symptoms
37-45 days	~	5-6 weeks after symptoms
46-52 days	~	6-7 weeks after symptoms

For GLOB2106cF results obtained with 1.9 L/ha were extrapolated to 2 L/ha, because it can be expected that the higher dose rate will perform at least as good. This allows to summarize all results obtained with both the 1.9 L/ha and 2 L/ha dose rate together. According to EPPO Guideline 1/307 differences of less than 10% are considered biologically insignificant. **Extrapolations** are underscored and in bold lettering

Comments of zRMS:	<p><u>Methodology</u></p> <p>The Applicant presented research in which two different doses of 1.9 l/ha and 2.0 l/ha of the GLOB2106cF formulation were used.</p> <p>The effectiveness of GLOB2106cF of 1.9 l/ha was compared to a dose of 2.0 l/ha for the assessment of the effectiveness. In several experiments where both doses were used, differences in effectiveness were insignificant.</p> <p>Evaluator’s note: BAD Append. 4. Table 3.7-12, KCP 6.2-48, KCP 6.2-49, KCP 6.2-50, KCP 6.2-51, KCP 6.2-52, KCP 6.2-54, KCP 6.2-56, KCP 6.2-57, KCP 6.2-58, KCP 6.2-62.</p> <p>Appendix 4 contains lists of treatments that cannot be found in the reports.</p> <p>No complete set of treatments with the use GLOB2016cF agent in doses of 1.2l/ha, 1.9l/ha and 2.0l/ha used in one experiment was found in any report.</p> <p>The combination of results from experiments using a dose of 1.9 l/ha with the use of a dose of 2.0 l/ha of GLOB 2106cF can be considered acceptable. This is</p>
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in line with EPPO PP 1/307 rules when the difference in content of a. s. is less than 10% and is biologically insignificant. (The word “extrapolation” is inappropriate).

The 36 field trials were performed in the Maritime EPPO Zone (the Czech Republic, Germany, France, the Netherlands and Sweden), the North-East EPPO Zone (Poland and Latvia), the Mediterranean EPPO Zone (Spain and Italy) and the South-East EPPO Zone (Hungary).

The experiments were carried out in two growing seasons, 2021 and 2022, on 27 potato varieties under various agrotechnical conditions. Assessments of potatoes infection by *Phytophthora infestans* were carried out in accordance with outdated EPPO, current EPPO is PP1/002(5). The Applicant should refer to this. The first application was made in plant growth stage BBCH 13-70, a spray volume of 150-300 l/ha was used.

The phytotoxicity of the GLOB2106cF agent used was assessed, and the overall yield weight was assessed after all applications. Required yield parameters assessed. The assessment methods used are compliant with the relevant EPPO, however the Applicant did not refer anywhere to the number of applications used. The amount of water used to apply the agent is consistent with the GAP table and label.

A statistical analysis of the obtained data was performed. The Applicant did not comment on the statistical analysis of the results.

Summary
The experimental methods and number of trials are consistent (but with outdated EPPO) with the requirements, but there is no evidence of the impact of the three applications on the effectiveness of potato crop protection and on the yield. Three treatments of GLOB2106cF are indicated as intended use in the GAP Table and label.

he tables below summarize the results obtained in the presented efficacy trials. First, summaries are provided for all EPPO Zones combined, followed by separate summaries per EPPO Zone.

All EPPO Zones

To provide an overview of all obtained efficacy data, Table 3.2-19 below summarizes the efficacy of GLOB2106cF at the 2 L/ha dose rate (including efficacy data extrapolated from the 1.9 L/ha dose rate) and allows comparison to the best performing reference product within each trial. This table is followed by an orthogonal comparison between GLOB2106cF at 2L/ha to the reference products Revus (Table 3.2-20) and Infinito/Volare (Table 3.2-21), separately.

Table 3.2-19 Efficacy of GLOB2106cF - All EPPO Zones

Rating type	Part rated	Timing	n	Infestation in the untreated			% control									
				Mean	Min	Max	GLOB2106cF 2 L/ha					Best reference				
							Mean	Min	Max	Med.	Stdev	Mean	Min	Max	Med.	Stdev
AUDPC	LEAF	season	35	1126.5	34.4	3698.5	78.1	27.9	100.0	80.2	19.9	77.7	36.7	100.0	77.6	19.7
PESINC	TUBER	harvest	10	11.9	5.0	30.0	79.4	43.8	100.0	87.5	22.0	79.6	32.4	100.0	87.6	21.2
PESSEV	LEAF	first symptoms	8	11.4	5.3	25.0	83.5	52.5	100.0	90.9	18.9	85.0	57.5	100.0	91.7	17.0
PESSEV	LEAF	5-10 days after symptoms	16	20.3	5.0	82.5	83.6	49.0	100.0	89.6	16.9	85.0	45.7	100.0	92.3	16.9
PESSEV	LEAF	12-16 days after symptoms	19	25.5	5.0	100.0	81.0	42.4	100.0	90.0	19.5	83.1	46.9	100.0	93.4	18.5
PESSEV	LEAF	17-21 days after symptoms	26	31.7	5.0	98.8	77.5	37.4	100.0	82.1	21.3	75.5	37.5	100.0	77.9	21.7
PESSEV	LEAF	23-28 days after symptoms	26	42.2	6.5	100.0	75.2	38.4	100.0	80.2	21.7	75.5	23.5	100.0	82.5	23.5
PESSEV	LEAF	29-36 days after symptoms	22	49.9	9.2	100.0	81.1	12.5	100.0	85.9	21.2	80.1	5.0	100.0	83.9	21.5
PESSEV	LEAF	37-45 days after symptoms	19	44.5	12.4	100.0	74.6	33.0	100.0	82.5	20.9	74.0	27.5	100.0	73.3	20.9
PESSEV	LEAF	46-52 days after symptoms	8	48.0	9.5	100.0	81.3	42.5	100.0	93.4	23.2	80.9	42.5	100.0	90.9	23.4

Table 3.2-20 Orthogonal comparison between GLOB2106cF and Revus - All EPPO Zones

Rating type	Part rated	Timing	n	Infestation in the untreated			% control									
				Mean	Min	Max	GLOB2106cF 2 L/ha					Revus 0.6 L/ha				
							Mean	Min	Max	Med.	Stdev	Mean	Min	Max	Med.	Stdev
AUDPC	LEAF	season	28	1279.9	59.3	3698.5	78.6	27.9	100.0	83.8	21.1	74.0	36.7	100.0	72.8	19.7
PESINC	TUBER	harvest	7	12.9	5.0	30.0	73.6	43.8	100.0	86.5	24.1	72.4	29.8	100.0	85.2	25.5
PESSEV	LEAF	first symptoms	8	11.4	5.3	25.0	83.5	52.5	100.0	90.9	18.9	83.5	45.8	100.0	91.7	20.0
PESSEV	LEAF	5-10 days after symptoms	14	22.3	5.0	82.5	85.2	54.6	100.0	89.6	15.0	85.2	55.0	100.0	88.1	14.6

PESSEV	LEAF	12-16 days after symptoms	18	26.7	5.0	100.0	79.9	42.4	100.0	88.1	19.5	78.4	41.0	100.0	87.1	20.3
PESSEV	LEAF	17-21 days after symptoms	22	34.2	5.5	98.8	79.0	37.4	100.0	88.2	21.3	74.9	37.5	100.0	79.2	22.3
PESSEV	LEAF	23-28 days after symptoms	22	43.4	6.5	100.0	77.7	38.4	100.0	81.2	21.7	76.8	13.3	100.0	88.4	25.3
PESSEV	LEAF	29-36 days after symptoms	18	56.7	9.2	100.0	80.6	12.5	100.0	88.8	23.5	79.3	2.5	100.0	85.2	24.8
PESSEV	LEAF	37-45 days after symptoms	14	51.4	12.4	100.0	73.3	33.0	100.0	81.6	23.9	73.9	27.5	100.0	78.6	24.0
PESSEV	LEAF	46-52 days after symptoms	6	49.2	9.5	100.0	83.8	42.5	100.0	96.8	24.0	63.4	40.1	89.5	67.5	19.0

Table 3.2-21 Orthogonal comparison between GLOB2106cF and Infinito/Volare - All EPPO Zones

Rating type	Part rated	Timing	n	Infestation in the untreated			% control									
				Mean	Min	Max	GLOB2106cF 2 L/ha					Infinito / Volare 1.6 L/ha				
							Mean	Min	Max	Med.	Stdev	Mean	Min	Max	Med.	Stdev
AUDPC	LEAF	season	26	840.4	34.4	2852.5	78.1	42.7	100.0	75.3	18.6	75.5	31.6	100.0	73.4	22.2
PESINC	TUBER	harvest	7	11.3	5.0	30.0	79.6	43.8	100.0	86.5	23.8	78.4	32.4	100.0	89.6	25.2
PESSEV	LEAF	first symptoms	4	9.7	6.3	13.8	81.3	52.5	100.0	86.3	23.1	82.5	57.5	100.0	86.3	21.1
PESSEV	LEAF	5-10 days after symptoms	9	81.7	45.7	100.0	81.4	49.0	100.0	87.5	18.2	81.7	45.7	100.0	92.9	20.4
PESSEV	LEAF	12-16 days after symptoms	11	16.6	5.0	42.5	78.8	42.4	100.0	86.2	20.9	81.8	50.4	100.0	90.9	20.4
PESSEV	LEAF	17-21 days after symptoms	18	27.8	5.0	90.0	76.4	37.4	100.0	76.3	21.0	72.1	35.5	100.0	71.7	23.4
PESSEV	LEAF	23-28 days after symptoms	20	37.5	6.5	100.0	72.7	38.4	100.0	74.9	21.8	69.4	23.5	100.0	69.9	26.8
PESSEV	LEAF	29-36 days after symptoms	15	39.8	9.2	100.0	81.0	12.5	100.0	85.1	23.4	76.5	5.0	100.0	78.6	26.3
PESSEV	LEAF	37-45 days after symptoms	14	35.3	12.4	93.8	74.9	33.0	100.0	80.8	21.4	70.1	21.0	100.0	72.2	23.7
PESSEV	LEAF	46-52 days after symptoms	6	42.4	9.5	100.0	81.6	42.5	100.0	96.4	26.0	79.8	37.5	100.0	96.1	28.7

Summary

The results shown in the tables above confirm the good efficacy of GLOB2106cF at the 2 L/ha dose rate (including efficacy data extrapolated from the 1.9 L/ha dose rate).

To pass the risk assessment for other parts of the dRR the dose rate had to be lowered to 1.9 L/ha. Most of the efficacy trials performed in 2022 tested GLOB2106cF at a dose rate of 1.9 L/ha, the efficacy obtained at this rate was extrapolated to 2 L/ha and summarized as such in the above tables.

Because the difference in dose rate between 2 L/ha and 1.9 L/ha is only 5%, all of the results shown above are in support of the 1.9 L/ha dose rate for GLOB2106cF (according to EPPO Guideline 1/307 differences of less than 10% are considered biologically insignificant).

Maritime EPPO Zone

Table 3.2-22 below summarizes the efficacy of GLOB2106cF at the 2 L/ha dose rate (including efficacy data extrapolated from the 1.9 L/ha dose rate) and allows comparison to the best performing reference product within each trial. This table is followed by an orthogonal comparison between GLOB2106cF at 2L/ha to the reference products Revus (Table 3.2-23) and Infinito/Volare (Table 3.2-24), separately.

Table 3.2-22 Efficacy of GLOB2106cF - Maritime EPPO Zone

Rating type	Part rated	Timing	n	Infestation in the untreated			% control									
							GLOB2106cF 2 L/ha					Best reference				
				Mean	Min	Max	Mean	Min	Max	Med.	Stdev	Mean	Min	Max	Med.	Stdev
AUDPC	LEAF	season	12	1112.7	104.4	3422.5	86.6	48.8	100.0	96.4	17.2	85.2	47.9	100.0	95.9	18.4
PESINC	TUBER	harvest	3	11.4	9.0	16.0	79.6	43.8	100.0	94.9	31.1	57.3	32.4	85.2	54.4	26.5
PESSEV	LEAF	first symptoms	2	19.7	14.3	25.0	95.0	90.0	100.0	95.0	7.1	95.0	90.0	100.0	95.0	7.1
PESSEV	LEAF	7-10 days after symptoms	4	41.4	8.0	82.5	86.1	49.0	100.0	97.7	24.8	85.4	45.7	100.0	97.9	26.5
PESSEV	LEAF	12-16 days after symptoms	5	43.3	5.0	100.0	95.8	90.0	100.0	94.9	4.2	96.7	94.0	100.0	95.0	3.0
PESSEV	LEAF	17-21 days after symptoms	7	34.9	5.0	98.8	88.6	54.9	100.0	100.0	18.0	84.7	50.1	100.0	100.0	23.1
PESSEV	LEAF	23-28 days after symptoms	9	40.0	6.5	100.0	82.0	40.0	100.0	93.0	21.5	82.4	42.5	100.0	90.0	21.9
PESSEV	LEAF	29-35 days after symptoms	8	52.4	9.2	100.0	86.8	47.5	100.0	95.3	18.6	84.9	60.0	100.0	92.5	17.7
PESSEV	LEAF	37-45 days after symptoms	6	50.6	13.3	100.0	78.7	47.5	100.0	82.7	24.0	73.9	27.5	100.0	81.2	30.8
PESSEV	LEAF	48-52 days after symptoms	3	21.7	9.5	35.5	99.9	99.8	100.0	99.8	0.1	100.0	99.9	100.0	100.0	0.1

Table 3.2-23 Orthogonal comparison between GLOB2106cF and Revus - Maritime EPPO Zone

Rating type	Part rated	Timing	n	Infestation in the untreated			% control									
							GLOB2106cF 2 L/ha					Revus 0.6 L/ha				
				Mean	Min	Max	Mean	Min	Max	Med.	Stdev	Mean	Min	Max	Med.	Stdev
AUDPC	LEAF	season	10	1193.1	104.4	3422.5	91.6	68.5	100.0	99.2	12.6	80.6	57.1	100.0	80.0	16.8
PESINC	TUBER	harvest	2	12.5	9.0	16.0	69.4	43.8	94.9	69.4	36.1	57.5	29.8	85.2	57.5	39.2
PESSEV	LEAF	first symptoms	2	19.7	14.3	25.0	95.0	90.0	100.0	95.0	7.1	95.0	90.0	100.0	95.0	7.1
PESSEV	LEAF	7-10 days after symptoms	3	52.5	10.0	82.5	98.5	96.6	100.0	98.8	1.7	98.6	97.6	100.0	98.1	1.3
PESSEV	LEAF	12-16 days after symptoms	4	52.8	5.0	100.0	94.8	90.0	99.8	94.7	4.0	94.6	90.0	99.8	94.2	4.0
PESSEV	LEAF	17-21 days after symptoms	5	36.8	6.3	98.8	93.1	72.5	100.0	100.0	11.9	88.5	52.5	100.0	100.0	20.6
PESSEV	LEAF	23-28 days after symptoms	7	34.7	6.5	100.0	90.0	67.5	100.0	99.2	14.7	89.2	47.5	100.0	99.5	19.1
PESSEV	LEAF	29-35 days after symptoms	8	52.4	9.2	100.0	86.8	47.5	100.0	95.3	18.6	83.9	52.5	100.0	92.4	19.4
PESSEV	LEAF	37-45 days after symptoms	5	54.7	13.3	100.0	81.4	47.5	100.0	100.0	25.8	76.2	27.5	100.0	99.8	33.8
PESSEV	LEAF	48-52 days after symptoms	3	21.7	9.5	35.5	99.9	99.8	100.0	99.8	0.1	58.3	40.1	69.3	65.6	15.9

Table 3.2-24 Orthogonal comparison between GLOB2106cF and Infinito/Volare - Maritime EPPO Zone

Rating type	Part rated	Timing	n	Infestation in the untreated			% control									
							GLOB2106cF 2 L/ha					Infinito / Volare 1.6 L/ha				
				Mean	Min	Max	Mean	Min	Max	Med.	Stdev	Mean	Min	Max	Med.	Stdev
AUDPC	LEAF	season	10	731.5	104.4	1440.8	86.0	48.8	100.0	99.2	18.8	81.8	31.6	100.0	99.8	25.7
PESINC	TUBER	harvest	2	9.2	9.0	9.3	71.9	43.8	100.0	71.9	39.7	43.4	32.4	54.4	43.4	15.6
PESSEV	LEAF	7-10 days after symptoms	2	72.9	45.7	100.0	74.5	49.0	100.0	74.5	36.1	72.9	45.7	100.0	72.9	38.4
PESSEV	LEAF	12-16 days after symptoms	3	9.2	5.0	17.5	96.6	90.0	100.0	99.8	5.7	98.3	95.0	100.0	99.9	2.9
PESSEV	LEAF	17-21 days after symptoms	6	24.2	5.0	55.0	87.9	54.9	100.0	100.0	19.6	82.5	45.0	100.0	100.0	27.1
PESSEV	LEAF	23-28 days after symptoms	8	32.5	6.5	100.0	80.6	40.0	100.0	84.6	22.6	74.6	32.5	100.0	82.2	28.7
PESSEV	LEAF	29-35 days after symptoms	6	36.6	9.2	95.3	88.2	47.5	100.0	99.9	21.2	83.0	38.3	100.0	99.8	27.1
PESSEV	LEAF	37-45 days after symptoms	5	40.7	13.3	93.8	85.0	59.4	100.0	100.0	20.7	76.7	21.0	100.0	100.0	35.1
PESSEV	LEAF	48-52 days after symptoms	3	21.7	9.5	35.5	99.9	99.8	100.0	99.8	0.1	100.0	99.9	100.0	100.0	0.1

Summary

The results shown in the tables above confirm the good efficacy of GLOB2106cF at the 2 L/ha dose rate (including efficacy data extrapolated from the 1.9 L/ha dose rate).

To pass the risk assessment for other parts of the dRR the dose rate had to be lowered to 1.9 L/ha. Most of the efficacy trials performed in 2022 tested GLOB2106cF at a dose rate of 1.9 L/ha, the efficacy obtained at this rate was extrapolated to 2 L/ha and summarized as such in the above tables.

Because the difference in dose rate between 2 L/ha and 1.9 L/ha is only 5%, all of the results shown above are in support of the 1.9 L/ha dose rate for GLOB2106cF (according to EPPO Guideline 1/307 differences of less than 10% are considered biologically insignificant).

North-East EPPO Zone

Table 3.2-25 and Table 3.2-26 below summarize the efficacy of GLOB2106cF at the 2 L/ha dose rate (including efficacy data extrapolated from the 1.9 L/ha dose rate) and allow comparison to the best performing reference product within each trial. This table is followed by an orthogonal comparison between GLOB2106cF at 2L/ha to the reference products Revus (Table 3.2-27 and Table 3.2-28) and Infinito/Volare (Table 3.2-29 and Table 3.2-30), separately.

Table 3.2-25 Efficacy of GLOB2106cF - North-East EPPO Zone

Rating type	Part rated	Timing	n	Infestation in the untreated			% control									
							GLOB2106cF 2 L/ha					Best reference				
				Mean	Min	Max	Mean	Min	Max	Med.	Stdev	Mean	Min	Max	Med.	Stdev
AUDPC	LEAF	season	12	1513.7	383.9	3698.5	69.9	27.9	96.4	72.7	18.7	68.3	36.7	94.6	69.9	16.4
PESINC	TUBER	harvest	4	14.6	5.0	30.0	79.8	53.8	93.7	85.8	17.7	85.2	71.0	94.1	87.9	10.0
PESSEV	LEAF	first symptoms	3	8.5	5.3	13.8	71.4	52.5	100.0	61.6	25.2	74.6	57.5	100.0	66.4	22.4
PESSEV	LEAF	5-10 days after symptoms	6	15.3	6.4	30.0	79.9	54.6	100.0	85.4	17.6	80.6	61.7	100.0	81.6	15.0
PESSEV	LEAF	12-14 days after symptoms	5	23.8	10.0	42.5	74.8	56.3	100.0	65.9	20.9	77.2	62.5	99.2	65.5	17.6
PESSEV	LEAF	17-21 days after symptoms	10	27.4	5.6	90.0	72.4	49.9	99.4	73.4	17.2	70.5	49.3	95.7	69.6	17.2
PESSEV	LEAF	23-28 days after symptoms	9	40.6	11.2	100.0	69.6	38.4	97.2	70.0	18.8	67.8	38.4	95.9	70.0	18.9
PESSEV	LEAF	29-35 days after symptoms	11	41.5	10.3	100.0	73.1	12.5	96.0	79.6	23.4	72.0	5.0	95.5	78.6	23.9
PESSEV	LEAF	38-42 days after symptoms	10	40.2	16.6	100.0	73.9	38.8	95.0	80.8	17.8	72.7	41.3	93.5	72.2	14.8
PESSEV	LEAF	46-52 days after symptoms	5	63.9	28.0	100.0	70.1	42.5	93.8	66.7	22.9	69.4	42.5	92.3	73.5	22.8

Table 3.2-26 Efficacy of GLOB2106cF - North-East EPPO Zone + CZ/DE

Rating type	Part rated	Timing	n	Infestation in the untreated			% control									
							GLOB2106cF 2 L/ha					Best reference				
				Mean	Min	Max	Mean	Min	Max	Med.	Stdev	Mean	Min	Max	Med.	Stdev
AUDPC	LEAF	season	17	1410.5	215.3	3698.5	73.3	27.9	100.0	73.7	18.0	71.5	36.7	100.0	70.5	16.6
PESINC	TUBER	harvest	6	13.9	5.0	30.0	76.3	43.8	94.9	85.8	21.9	65.5	0.0	94.1	85.2	35.7
PESSEV	LEAF	first symptoms	5	9.4	5.3	14.3	81.2	52.5	100.0	91.7	22.5	83.4	57.5	100.0	93.3	20.1
PESSEV	LEAF	5-10 days after symptoms	8	20.9	6.4	65.0	84.8	54.6	100.0	89.6	17.4	85.2	61.7	100.0	88.7	15.3
PESSEV	LEAF	12-15 days after symptoms	8	27.2	5.0	88.8	82.4	56.3	100.0	92.2	19.1	84.4	62.5	100.0	93.9	16.7
PESSEV	LEAF	17-21 days after symptoms	14	29.2	5.0	98.8	77.8	49.9	100.0	76.3	18.0	74.8	49.3	100.0	71.7	19.3
PESSEV	LEAF	23-28 days after symptoms	13	33.0	8.8	100.0	71.7	38.4	100.0	70.0	17.6	70.8	38.4	100.0	70.0	18.9
PESSEV	LEAF	29-35 days after symptoms	15	44.1	10.3	100.0	75.0	12.5	100.0	81.5	22.6	73.9	5.0	100.0	78.6	22.0
PESSEV	LEAF	38-45 days after symptoms	13	44.3	16.6	100.0	74.1	38.8	100.0	79.0	17.8	72.5	41.3	100.0	71.0	16.3
PESSEV	LEAF	46-52 days after symptoms	5	63.9	28.0	100.0	70.1	42.5	93.8	66.7	22.9	69.4	42.5	92.3	73.5	22.8

Table 3.2-27 Orthogonal comparison between GLOB2106cF and Revus - North-East EPPO Zone

Rating type	Part rated	Timing	n	Infestation in the untreated			% control									
							GLOB2106cF 2 L/ha					Revus 0.6 L/ha				
				Mean	Min	Max	Mean	Min	Max	Med.	Stdev	Mean	Min	Max	Med.	Stdev
AUDPC	LEAF	season	8	2003.5	434.7	3698.5	65.8	27.9	96.4	70.3	21.4	64.4	36.7	94.6	67.7	18.4
PESINC	TUBER	harvest	2	19.3	8.5	30.0	70.2	53.8	86.5	70.2	23.1	78.6	71.0	86.1	78.6	10.7
PESSEV	LEAF	first symptoms	3	8.5	5.3	13.8	71.4	52.5	100.0	61.6	25.2	70.7	45.8	100.0	66.4	27.4
PESSEV	LEAF	5-10 days after symptoms	6	15.3	6.4	30.0	79.9	54.6	100.0	85.4	17.6	79.5	55.0	100.0	81.6	16.8
PESSEV	LEAF	12-14 days after symptoms	5	23.8	10.0	42.5	74.8	56.3	100.0	65.9	20.9	75.3	56.3	99.2	65.2	19.5
PESSEV	LEAF	17-21 days after symptoms	8	32.7	9.6	90.0	75.2	49.9	99.4	76.3	17.7	69.9	44.3	95.7	66.7	18.4
PESSEV	LEAF	23-28 days after symptoms	7	48.9	11.2	100.0	69.8	38.4	97.2	70.0	20.5	68.2	31.7	95.9	70.0	21.7
PESSEV	LEAF	29-35 days after symptoms	7	54.2	16.1	100.0	67.3	12.5	96.0	77.1	28.2	66.3	2.5	95.5	70.5	30.2
PESSEV	LEAF	38-42 days after symptoms	6	50.7	22.5	100.0	68.7	38.8	95.0	69.9	21.3	69.9	41.3	93.5	70.8	18.4
PESSEV	LEAF	46-52 days after symptoms	3	76.7	30.0	100.0	67.7	42.5	93.8	66.7	25.7	68.5	42.5	89.5	73.5	23.9

Table 3.2-28 Orthogonal comparison between GLOB2106cF and Revus - North-East EPPO Zone + CZ/DE

Rating type	Part rated	Timing	n	Infestation in the untreated			% control									
							GLOB2106cF 2 L/ha					Revus 0.6 L/ha				
				Mean	Min	Max	Mean	Min	Max	Med.	Stdev	Mean	Min	Max	Med.	Stdev
AUDPC	LEAF	season	12	1778.1	215.3	3698.5	71.6	27.9	100.0	71.0	20.9	69.4	36.7	100.0	67.7	19.3
PESINC	TUBER	harvest	4	15.9	8.5	30.0	69.8	43.8	94.9	70.2	24.8	68.0	29.8	86.1	78.1	26.4
PESSEV	LEAF	first symptoms	5	9.4	5.3	14.3	81.2	52.5	100.0	91.7	22.5	81.1	45.8	100.0	93.3	24.1
PESSEV	LEAF	5-10 days after symptoms	8	20.9	6.4	65.0	84.8	54.6	100.0	89.6	17.4	84.4	55.0	100.0	88.7	16.9
PESSEV	LEAF	12-15 days after symptoms	7	30.4	5.0	88.8	79.9	56.3	100.0	90.0	19.1	80.1	56.3	99.2	90.0	18.0
PESSEV	LEAF	17-21 days after symptoms	11	35.6	6.3	98.8	78.8	49.9	100.0	76.5	17.3	72.9	44.3	100.0	69.1	19.7
PESSEV	LEAF	23-28 days after symptoms	10	38.8	8.8	100.0	72.6	38.4	100.0	70.0	19.3	71.2	31.7	100.0	72.4	22.5
PESSEV	LEAF	29-35 days after symptoms	11	53.1	16.1	100.0	71.9	12.5	100.0	78.4	26.0	70.3	2.5	100.0	71.7	26.4
PESSEV	LEAF	38-45 days after symptoms	8	56.0	22.5	100.0	71.5	38.8	100.0	69.9	21.6	71.6	41.3	100.0	70.8	20.2
PESSEV	LEAF	46-52 days after symptoms	3	76.7	30.0	100.0	67.7	42.5	93.8	66.7	25.7	68.5	42.5	89.5	73.5	23.9

Table 3.2-29 Orthogonal comparison between GLOB2106cF and Infinito/Volare - North-East EPPO Zone

Rating type	Part rated	Timing	n	Infestation in the untreated			% control									
							GLOB2106cF 2 L/ha					Infinito / Volare 1.6 L/ha				
				Mean	Min	Max	Mean	Min	Max	Med.	Stdev	Mean	Min	Max	Med.	Stdev
AUDPC	LEAF	season	9	1138.2	383.9	2852.5	72.2	42.7	91.0	73.7	12.9	68.6	43.4	89.4	69.2	12.6
PESINC	TUBER	harvest	3	16.7	5.0	30.0	88.4	85.0	93.7	86.5	4.7	89.4	84.4	94.1	89.6	4.9
PESSEV	LEAF	first symptoms	2	10.1	6.3	13.8	76.3	52.5	100.0	76.3	33.6	78.8	57.5	100.0	78.8	30.1
PESSEV	LEAF	5-10 days after symptoms	3	75.1	61.7	92.9	80.6	62.5	91.7	87.5	15.8	75.1	61.7	92.9	70.6	16.1
PESSEV	LEAF	12-14 days after symptoms	2	31.9	21.3	42.5	75.4	56.3	94.4	75.4	26.9	78.2	65.5	90.9	78.2	18.0
PESSEV	LEAF	17-21 days after symptoms	7	26.8	5.6	90.0	72.1	49.9	92.1	76.0	16.2	68.9	49.3	94.4	70.1	15.0
PESSEV	LEAF	23-28 days after symptoms	6	38.0	11.2	100.0	69.3	38.4	87.5	75.8	18.7	65.4	38.4	87.9	69.9	18.7
PESSEV	LEAF	29-35 days after symptoms	8	35.1	10.3	100.0	73.5	12.5	87.3	80.6	25.0	68.8	5.0	84.8	76.3	26.1
PESSEV	LEAF	38-42 days after symptoms	8	34.9	16.6	69.7	73.8	38.8	89.6	80.8	16.8	69.3	38.8	89.3	72.2	14.5
PESSEV	LEAF	46-52 days after symptoms	3	63.1	28.0	100.0	63.3	42.5	92.9	54.5	26.3	59.6	37.5	92.3	49.1	28.9

Table 3.2-30 Orthogonal comparison between GLOB2106cF and Infinito/Volare - North-East EPPO Zone + CZ/DE

Rating type	Part rated	Timing	n	Infestation in the untreated			% control									
							GLOB2106cF 2 L/ha					Infinito / Volare 1.6 L/ha				
				Mean	Min	Max	Mean	Min	Max	Med.	Stdev	Mean	Min	Max	Med.	Stdev
AUDPC	LEAF	season	13	1034.0	215.3	2852.5	74.1	42.7	100.0	73.7	13.1	68.3	31.6	100.0	69.2	17.4
PESINC	TUBER	harvest	4	14.8	5.0	30.0	77.3	43.8	93.7	85.8	22.6	75.1	32.4	94.1	87.0	28.8
PESSEV	LEAF	first symptoms	2	10.1	6.3	13.8	76.3	52.5	100.0	76.3	33.6	78.8	57.5	100.0	78.8	30.1
PESSEV	LEAF	5-10 days after symptoms	4	81.3	61.7	100.0	85.4	62.5	100.0	89.6	16.1	81.3	61.7	100.0	81.8	18.1
PESSEV	LEAF	12-15 days after symptoms	4	18.5	5.0	42.5	85.2	56.3	100.0	92.2	19.7	87.9	65.5	100.0	93.0	15.4
PESSEV	LEAF	17-21 days after symptoms	10	22.4	5.0	90.0	77.7	49.9	100.0	76.3	17.7	72.7	45.0	100.0	71.7	20.3
PESSEV	LEAF	23-28 days after symptoms	10	29.2	8.8	100.0	72.1	38.4	100.0	70.0	17.1	64.7	32.5	100.0	64.8	21.3
PESSEV	LEAF	29-35 days after symptoms	11	35.0	10.3	100.0	74.3	12.5	100.0	81.5	24.1	68.1	5.0	100.0	74.9	26.0
PESSEV	LEAF	38-45 days after symptoms	11	41.2	16.6	93.8	74.1	38.8	100.0	79.0	17.1	67.0	21.0	100.0	71.0	21.8
PESSEV	LEAF	46-52 days after symptoms	3	63.1	28.0	100.0	63.3	42.5	92.9	54.5	26.3	59.6	37.5	92.3	49.1	28.9

Summary

The results shown in the tables above confirm the good efficacy of GLOB2106cF at the 2 L/ha dose rate (including efficacy data extrapolated from the 1.9 L/ha dose rate).

To pass the risk assessment for other parts of the dRR the dose rate had to be lowered to 1.9 L/ha. Most of the efficacy trials performed in 2022 tested GLOB2106cF at a dose rate of 1.9 L/ha, the efficacy obtained at this rate was extrapolated to 2 L/ha and summarized as such in the above tables.

Because the difference in dose rate between 2 L/ha and 1.9 L/ha is only 5%, all of the results shown above are in support of the 1.9 L/ha dose rate for GLOB2106cF (according to EPPO Guideline 1/307 differences of less than 10% are considered biologically insignificant).

Mediterranean EPPO Zone

Table 3.2-31 below summarizes the efficacy of GLOB2106cF at the 2 L/ha dose rate (including efficacy data extrapolated from the 1.9 L/ha dose rate) and allows comparison to the best performing reference product within each trial. This table is followed by an orthogonal comparison between GLOB2106cF at 2L/ha to the reference products Revus (Table 3.2-32) and Infinito/Volare (Table 3.2-33), separately.

Table 3.2-31 Efficacy of GLOB2106cF - Mediterranean EPPO Zone

Rating type	Part rated	Timing	n	Infestation in the untreated			% control									
							GLOB2106cF 2 L/ha					Best reference				
				Mean	Min	Max	Mean	Min	Max	Med.	Stdev	Mean	Min	Max	Med.	Stdev
AUDPC	LEAF	season	6	639.9	34.4	2753.9	76.7	44.5	97.0	88.1	24.1	82.5	55.0	100.0	89.3	18.5
PESINC	TUBER	harvest	2	10.3	5.0	15.5	94.2	88.4	100.0	94.2	8.2	94.5	89.0	100.0	94.5	7.8
PESSEV	LEAF	first symptoms	2	7.5	7.5	7.5	95.9	91.7	100.0	95.9	5.9	96.7	93.3	100.0	96.7	4.7
PESSEV	LEAF	7-10 days after symptoms	3	13.1	5.0	24.3	88.7	77.4	96.0	92.7	9.9	95.9	91.7	100.0	96.0	4.2
PESSEV	LEAF	13-13 days after symptoms	4	17.6	5.8	43.8	67.8	42.4	95.4	66.6	23.6	81.2	60.2	100.0	82.3	18.3
PESSEV	LEAF	18-20 days after symptoms	4	24.6	5.5	71.3	68.5	37.4	96.5	70.0	29.8	72.2	40.3	94.4	77.1	23.2
PESSEV	LEAF	25-28 days after symptoms	4	34.6	7.2	91.3	66.9	43.5	96.4	63.9	25.8	74.7	48.4	100.0	75.2	25.9
PESSEV	LEAF	35-35 days after symptoms	1	100.0	100.0	100.0	93.8	93.8	93.8	93.8	-	92.3	92.3	92.3	92.3	-
PESSEV	LEAF	41-42 days after symptoms	2	56.2	12.4	100.0	61.5	33.0	90.0	61.5	40.3	71.1	51.8	90.3	71.1	27.2

Table 3.2-32 Orthogonal comparison between GLOB2106cF and Revus - Mediterranean EPPO Zone

Rating type	Part rated	Timing	n	Infestation in the untreated			% control									
							GLOB2106cF 2 L/ha					Revus 0.6 L/ha				
				Mean	Min	Max	Mean	Min	Max	Med.	Stdev	Mean	Min	Max	Med.	Stdev
AUDPC	LEAF	season	5	761.0	59.3	2753.9	72.6	44.5	94.6	82.8	24.6	77.1	55.0	92.8	85.8	16.4
PESINC	TUBER	harvest	2	10.3	5.0	15.5	94.2	88.4	100.0	94.2	8.2	94.5	89.0	100.0	94.5	7.8
PESSEV	LEAF	first symptoms	2	7.5	7.5	7.5	95.9	91.7	100.0	95.9	5.9	96.7	93.3	100.0	96.7	4.7
PESSEV	LEAF	7-10 days after symptoms	2	17.1	9.9	24.3	85.1	77.4	92.7	85.1	10.8	85.9	80.1	91.7	85.9	8.2
PESSEV	LEAF	13-13 days after symptoms	4	17.6	5.8	43.8	67.8	42.4	95.4	66.6	23.6	76.8	58.4	92.4	78.2	14.8
PESSEV	LEAF	18-20 days after symptoms	4	24.6	5.5	71.3	68.5	37.4	96.5	70.0	29.8	72.2	40.3	94.4	77.1	23.2
PESSEV	LEAF	25-28 days after symptoms	4	34.6	7.2	91.3	66.9	43.5	96.4	63.9	25.8	71.6	48.4	93.7	72.2	22.4
PESSEV	LEAF	35-35 days after symptoms	1	100.0	100.0	100.0	93.8	93.8	93.8	93.8	-	92.3	92.3	92.3	92.3	-
PESSEV	LEAF	41-42 days after symptoms	2	56.2	12.4	100.0	61.5	33.0	90.0	61.5	40.3	71.1	51.8	90.3	71.1	27.2

Table 3.2-33 Orthogonal comparison between GLOB2106cF and Infinito/Volare - Mediterranean EPPO Zone

Rating type	Part rated	Timing	n	Infestation in the untreated			% control									
							GLOB2106cF 2 L/ha					Infinito / Volare 1.6 L/ha				
				Mean	Min	Max	Mean	Min	Max	Med.	Stdev	Mean	Min	Max	Med.	Stdev
AUDPC	LEAF	season	4	256.6	34.4	367.0	68.1	44.5	97.0	65.4	25.9	72.7	44.4	100.0	73.3	29.9
PESINC	TUBER	harvest	1	5.0	5.0	5.0	100.0	100.0	100.0	100.0	-	100.0	100.0	100.0	100.0	-
PESSEV	LEAF	first symptoms	1	7.5	7.5	7.5	100.0	100.0	100.0	100.0	-	100.0	100.0	100.0	100.0	-
PESSEV	LEAF	7-10 days after symptoms	2	98.0	96.0	100.0	86.7	77.4	96.0	86.7	13.2	98.0	96.0	100.0	98.0	2.8
PESSEV	LEAF	13-13 days after symptoms	3	8.9	5.8	12.4	58.5	42.4	78.1	55.1	18.1	70.2	50.4	100.0	60.2	26.3
PESSEV	LEAF	18-20 days after symptoms	2	10.4	5.5	15.3	43.0	37.4	48.6	43.0	7.9	40.9	35.5	46.2	40.9	7.6
PESSEV	LEAF	25-28 days after symptoms	3	15.7	7.2	23.9	57.1	43.5	80.7	47.1	20.5	61.8	41.3	100.0	44.1	33.1
PESSEV	LEAF	41-42 days after symptoms	1	12.4	12.4	12.4	33.0	33.0	33.0	33.0	-	44.5	44.5	44.5	44.5	-

Summary

The results shown in the tables above confirm the good efficacy of GLOB2106cF at the 2 L/ha dose rate (including efficacy data extrapolated from the 1.9 L/ha dose rate).

To pass the risk assessment for other parts of the dRR the dose rate had to be lowered to 1.9 L/ha. Most of the efficacy trials performed in 2022 tested GLOB2106cF at a dose rate of 1.9 L/ha, the efficacy obtained at this rate was extrapolated to 2 L/ha and summarized as such in the above tables.

Because the difference in dose rate between 2 L/ha and 1.9 L/ha is only 5%, all of the results shown above are in support of the 1.9 L/ha dose rate for GLOB2106cF (according to EPPO Guideline 1/307 differences of less than 10% are considered biologically insignificant).

South-East EPPO Zone

Table 3.2-34 below summarizes the efficacy of GLOB2106cF at the 2 L/ha dose rate (including efficacy data extrapolated from the 1.9 L/ha dose rate) and allows comparison to the best performing reference product within each trial. This table is followed by an orthogonal comparison between GLOB2106cF at 2L/ha to the reference products Revus (Table 3.2-35) and Infinito/Volare (Table 3.2-36), separately.

Table 3.2-34 Efficacy of GLOB2106cF - South-East EPPO Zone

Rating type	Part rated	Timing	n	Infestation in the untreated			% control									
							GLOB2106cF 2 L/ha					Best reference				
				Mean	Min	Max	Mean	Min	Max	Med.	Stdev	Mean	Min	Max	Med.	Stdev
AUDPC	LEAF	season	5	814.4	223.6	1652.5	78.9	51.8	99.4	86.5	20.9	76.4	46.7	99.6	90.1	27.3
PESINC	TUBER	harvest	1	6.0	6.0	6.0	47.9	47.9	47.9	47.9	-	93.8	93.8	93.8	93.8	-
PESSEV	LEAF	first symptoms	1	11.3	11.3	11.3	72.5	72.5	72.5	72.5	-	72.5	72.5	72.5	72.5	-
PESSEV	LEAF	7-7 days after symptoms	3	9.3	5.0	15.8	82.7	68.1	100.0	80.0	16.1	82.7	68.1	100.0	80.0	16.1
PESSEV	LEAF	14-15 days after symptoms	5	15.9	5.0	42.5	82.8	63.1	100.0	86.2	18.2	76.9	46.9	100.0	84.7	25.5
PESSEV	LEAF	21-21 days after symptoms	4	39.3	10.5	80.0	89.4	68.8	100.0	94.3	14.7	84.6	50.0	100.0	94.3	23.7
PESSEV	LEAF	28-28 days after symptoms	4	58.2	17.5	98.0	80.8	43.9	100.0	89.6	26.3	78.2	23.5	100.0	94.7	36.8
PESSEV	LEAF	35-36 days after symptoms	2	60.7	23.8	97.5	95.9	93.3	98.5	95.9	3.7	99.6	99.1	100.0	99.6	0.6
PESSEV	LEAF	42-42 days after symptoms	1	28.8	28.8	28.8	84.2	84.2	84.2	84.2	-	92.8	92.8	92.8	92.8	-

Table 3.2-35 Orthogonal comparison between GLOB2106cF and Revus - South-East EPPO Zone

Rating type	Part rated	Timing	n	Infestation in the untreated			% control									
							GLOB2106cF 2 L/ha					Revus 0.6 L/ha				
				Mean	Min	Max	Mean	Min	Max	Med.	Stdev	Mean	Min	Max	Med.	Stdev
AUDPC	LEAF	season	5	814.4	223.6	1652.5	78.9	51.8	99.4	86.5	20.9	73.2	39.3	99.5	82.1	28.6
PESINC	TUBER	harvest	1	6.0	6.0	6.0	47.9	47.9	47.9	47.9	-	45.8	45.8	45.8	45.8	-
PESSEV	LEAF	first symptoms	1	11.3	11.3	11.3	72.5	72.5	72.5	72.5	-	72.5	72.5	72.5	72.5	-
PESSEV	LEAF	7-7 days after symptoms	3	9.3	5.0	15.8	82.7	68.1	100.0	80.0	16.1	82.7	68.1	100.0	80.0	16.1
PESSEV	LEAF	14-15 days after symptoms	5	15.9	5.0	42.5	82.8	63.1	100.0	86.2	18.2	69.7	41.0	100.0	60.4	28.6
PESSEV	LEAF	21-21 days after symptoms	4	39.3	10.5	80.0	89.4	68.8	100.0	94.3	14.7	79.9	43.8	100.0	87.9	26.6
PESSEV	LEAF	28-28 days after symptoms	4	58.2	17.5	98.0	80.8	43.9	100.0	89.6	26.3	75.6	13.3	100.0	94.5	41.8
PESSEV	LEAF	35-36 days after symptoms	2	60.7	23.8	97.5	95.9	93.3	98.5	95.9	3.7	99.4	98.7	100.0	99.4	0.9
PESSEV	LEAF	42-42 days after symptoms	1	28.8	28.8	28.8	84.2	84.2	84.2	84.2	-	92.8	92.8	92.8	92.8	-

Table 3.2-36 Orthogonal comparison between GLOB2106cF and Infinito/Volare - South-East EPPO Zone

Rating type	Part rated	Timing	n	Infestation in the untreated			% control									
							GLOB2106cF 2 L/ha					Infinito / Volare 1.6 L/ha				
				Mean	Min	Max	Mean	Min	Max	Med.	Stdev	Mean	Min	Max	Med.	Stdev
AUDPC	LEAF	season	3	1088.5	223.6	1652.5	82.6	62.0	99.4	86.5	19.0	78.8	46.8	99.6	90.1	28.1
PESINC	TUBER	harvest	1	6.0	6.0	6.0	47.9	47.9	47.9	47.9	-	93.8	93.8	93.8	93.8	-
PESSEV	LEAF	first symptoms	1	11.3	11.3	11.3	72.5	72.5	72.5	72.5	-	72.5	72.5	72.5	72.5	-
PESSEV	LEAF	7-7 days after symptoms	2	84.1	68.1	100.0	84.1	68.1	100.0	84.1	22.6	84.1	68.1	100.0	84.1	22.6
PESSEV	LEAF	14-15 days after symptoms	3	21.6	5.3	42.5	83.6	64.6	100.0	86.2	17.8	79.1	52.8	99.9	84.7	24.0
PESSEV	LEAF	21-21 days after symptoms	3	48.9	10.5	80.0	85.8	68.8	99.9	88.7	15.8	79.5	50.0	99.9	88.6	26.2
PESSEV	LEAF	28-28 days after symptoms	3	71.7	24.6	98.0	74.4	43.9	99.5	79.7	28.2	71.0	23.5	99.6	89.8	41.4
PESSEV	LEAF	35-36 days after symptoms	1	97.5	97.5	97.5	98.5	98.5	98.5	98.5	-	99.1	99.1	99.1	99.1	-

Summary

The results shown in the tables above confirm the good efficacy of GLOB2106cF at the 2 L/ha dose rate (including efficacy data extrapolated from the 1.9 L/ha dose rate).

To pass the risk assessment for other parts of the dRR the dose rate had to be lowered to 1.9 L/ha. Most of the efficacy trials performed in 2022 tested GLOB2106cF at a dose rate of 1.9 L/ha, the efficacy obtained at this rate was extrapolated to 2 L/ha and summarized as such in the above tables.

Because the difference in dose rate between 2 L/ha and 1.9 L/ha is only 5%, all of the results shown above are in support of the 1.9 L/ha dose rate for GLOB2106cF (according to EPPO Guideline 1/307 differences of less than 10% are considered biologically insignificant)

Comments of zRMS:	<p><u>Efficacy experiments</u></p> <p>36 experiments were carried out to determine the effectiveness of the agent GLOB2106cF against <i>Phytophthora infestans</i> in potatoes.</p> <p>The efficacy trials of GLOB2106cF includes 13 trials performed in the Maritime EPPO Zone (the Czech Republic, Germany, France, the Netherlands, Sweden and the UK), 11 trials performed in the North-East EPPO Zone (Poland and Latvia), 6 trials performed in the Mediterranean EPPO Zone (Italy and Spain) and 6 trials performed in the South-East EPPO Zone (Hungary and Romania). All trials were performed in 2021 and 2022.</p> <p>The number of experiments performed and the representativeness of each zone are appropriate.</p> <p>The applicant presented data on the effectiveness of GLOB2106cF in tables 3.2-19 – 36.</p> <p>The dRR presents experiments on the effectiveness of GLOB2106cF used at various doses of 1.9l/ha and 2.0l/ha. The Applicant did not provide an analysis for statistical comparisons of the effectiveness of the GLOB2106cF agent, but only referred it to BAD (raw data).</p> <p>Due to significant ambiguities in the presented dRR, the Evaluator compiled the data in the tables below.</p> <p>Intended use in GAP table concerns the performing of 3 applications of GLOB2106cF. Data regarding the effectiveness of three applications are not specified in the dRR.</p> <p>Evaluator compared data from reports in order to compare differences in the effectiveness of the tested product used at 1.9 l/ha and 2.0 l/ha and presented this data for each zone.</p> <p>Table : <i>North- East + CZ, DE</i> Efficacy of GLOB2106cF applied in 3 applications in dose 1.9l/ha or 2.0l/ha in combating of <i>Phytophthora infestans</i> on potatoes.</p> <table border="1"> <thead> <tr> <th rowspan="2">Trial number, 2022</th> <th rowspan="2">Number of applications</th> <th rowspan="2">Untreated PESSEV %</th> <th colspan="3">PESSEV %UNCK</th> </tr> <tr> <th>GLOB2106cF 1.9 l/ha</th> <th>Revus 250 SC 0.6 l/ha</th> <th>Infinito 1.6 l/ha</th> </tr> </thead> <tbody> <tr> <td>FE-22-A-GLOB2013F-2106F-2007F-LV04</td> <td>3</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>FE-22-B-GLOB2013F-2106F-2007F-CZ01</td> <td>3</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>FE-22-B-GLOB2013F-2106F-2007F-CZ02</td> <td>3</td> <td>5.0</td> <td>90.0</td> <td>90.0</td> <td>95.0</td> </tr> <tr> <td>FE-22-B-GLOB2013F-2106F-2007F-DE04</td> <td>3</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>FE-22-B-GLOB2013F-2106F-2007F-PL08</td> <td>3</td> <td>13.8</td> <td>52.5</td> <td>45.8</td> <td>57.5</td> </tr> <tr> <td>FE-22-B-GLOB2013F-2106F-2007F-PL09</td> <td>3</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td><i>Average</i></td> <td></td> <td><i>9.4</i></td> <td><i>71.3</i></td> <td><i>67.9</i></td> <td><i>76.3</i></td> </tr> </tbody> </table>	Trial number, 2022	Number of applications	Untreated PESSEV %	PESSEV %UNCK			GLOB2106cF 1.9 l/ha	Revus 250 SC 0.6 l/ha	Infinito 1.6 l/ha	FE-22-A-GLOB2013F-2106F-2007F-LV04	3	-	-	-	-	FE-22-B-GLOB2013F-2106F-2007F-CZ01	3	-	-	-	-	FE-22-B-GLOB2013F-2106F-2007F-CZ02	3	5.0	90.0	90.0	95.0	FE-22-B-GLOB2013F-2106F-2007F-DE04	3	-	-	-	-	FE-22-B-GLOB2013F-2106F-2007F-PL08	3	13.8	52.5	45.8	57.5	FE-22-B-GLOB2013F-2106F-2007F-PL09	3	-	-	-	-	<i>Average</i>		<i>9.4</i>	<i>71.3</i>	<i>67.9</i>	<i>76.3</i>
Trial number, 2022	Number of applications				Untreated PESSEV %	PESSEV %UNCK																																														
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FE-22-A-GLOB2013F-2106F-2007F-LV04	3	-	-	-	-																																															
FE-22-B-GLOB2013F-2106F-2007F-CZ01	3	-	-	-	-																																															
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FE-22-B-GLOB2013F-2106F-2007F-DE04	3	-	-	-	-																																															
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Trial number, 2021, 2022	Number of applications	Untreated PESSEV %	PESSEV %UNCK			
			GLOB2106cF 2.0 l/ha	Propamocarb 722 SL 1.4 l/ha	Revus 250 SC 0.6 l/ha	Infinito 1.6 l/ha
FE-21-A-GLOB2013F-2106F-2007F-LV02	3	15.0	65.9	63.3	65.2	-
FE-21-A-GLOB2013F-2106F-2007F-PL03	3	9.3	54.6	67.9	65.7	-
FE-21-A-GLOB2013F-2106F-2007F-PL04	3	30.0	100.0	75.0	99.2	-
FE-21-B-GLOB2013F-2106F-2007F-CZ02	3	89.0	94.9	-	94.4	-
FE-21-C-GLOB2013F-2106F-2007F-CZ01	3	10.0	100.0	100.0	100.0	100.0
FE-21-C-GLOB2013F-2106F-2007F-LV05	3	-	-	-	-	-
FE-21-C-GLOB2013F-2106F-2007F-PL07	3	30.0	91.7	91.7	92.9	92.9
FE-21-D-GLOB2013F-2106F-2007F-CZ02	3	-	-	-	-	-
FE-21-D-GLOB2013F-2106F-2007F-LV04	3	5.6	51.8	-	-	53.1
FE-21-D-GLOB2013F-2106F-2007F-PL06	3	6.0	70.8	-	-	70.1
FE-22-C-GLOB2013F-2106F-2007F-LV01	3	-	-	-	-	-
<i>Average</i>		<i>24.4</i>	<i>78.7</i>	<i>79.6</i>	<i>86.2</i>	<i>79.0</i>

Efficacy of GLOB2106cF applied in 5-10 applications in dose 1.9l/ha or 2.0l/ha in combating of *Phytophthora infestans* on potatoes

Trial number, 2022	Number of applications	Untreated* PESSEV %	PESSEV* %UNCK		
			GLOB2106cF 1.9 l/ha	Revus 250 SC 0.6 l/ha	Infinito 1.6 l/ha
FE-22-A-GLOB2013F-2106F-2007F-LV04	7	33.7	78.9	71.9	72.6
FE-22-B-GLOB2013F-2106F-2007F-CZ01	8	47.9	70.4	70.9	30.6
FE-22-B-GLOB2013F-2106F-2007F-CZ02	5	9.4	69.4	60.6	64.4
FE-22-B-GLOB2013F-2106F-2007F-DE04	8	0.0	-	-	-
FE-22-B-GLOB2013F-2106F-2007F-PL08	8	28.1	50.5	45.7	51.9
FE-22-B-GLOB2013F-2106F-2007F-PL09	7	41.3	77.9	76.3	66.7
<i>Average</i>		<i>32.1</i>	<i>69.4</i>	<i>65.1</i>	<i>57.2</i>

* Average of the assessments in which the leave infection was at least 5%

Trial number, 2021, 2022	Number of applications	Untreated* PESSEV %	PESSEV* %UNCK			
			GLOB2106cF 2.0 l/ha	Propamocarb 722 SL 1.4 l/ha	Revus 250 SC 0.6 l/ha	Infinito 1.6 l/ha
FE-21-A- GLOB2013F-2106F- 2007F-LV02	6	29.6	68.7	65.0	65.6	-
FE-21-A- GLOB2013F-2106F- 2007F-PL03	10	24.7	52.2	51.9	59.9	-
FE-21-A- GLOB2013F-2106F- 2007F-PL04	8	68.0	97.4	57.9	95.6	-
FE-21-B- GLOB2013F-2106F- 2007F-CZ02	5	73.4	95.5	-	93.5	-
FE-21-C- GLOB2013F-2106F- 2007F-CZ01	8	32.0	100.0	98.4	100.0	100.0
FE-21-C- GLOB2013F-2106F- 2007F-LV05	7	16.6	75.4	73.9	73.7	74.5
FE-21-C- GLOB2013F-2106F- 2007F-PL07	6	67.0	71.9	66.7	68.4	67.2
FE-21-D- GLOB2013F-2106F- 2007F-CZ02	8	14.4	83.3	-	-	81.7
FE-21-D- GLOB2013F-2106F- 2007F-LV04	7	17.9	69.0	-	-	64.2
FE-21-D- GLOB2013F-2106F- 2007F-PL06	8	23.6	75.7	-	-	69.7
FE-22-C- GLOB2013F-2106F- 2007F-LV01	7	29.0	74.2	-	74.0	76.1
<i>Average</i>			77.5	69.0	78.7	76.2

* Average of the assessments in which the leave infection was at least 5%

Maritime

Efficacy of GLOB2106cF applied in 3 applications in dose 1.9l/ha or 2.0l/ha in combating of *Phytophthora infestans* on potatoes.

Trial number, 2022	Number of applications	Untreated* PESSEV %	PESSEV* %UNCK		
			GLOB2106cF 1.9 l/ha	Revus 250 SC 0.6 l/ha	Infinito 1.6 l/ha
FE-22-B-GLOB2013F- 2106F-2007F-CZ01	3	-	-	-	-
FE-22-B-GLOB2013F- 2106F-2007F-CZ02	3	5.0	90.0	90.0	95.0
FE-22-B-GLOB2013F- 2106F-2007F-DE04	3	-	-	-	-
FE-22-B-GLOB2013F- 2106F-2007F-FR05	3	-	-	-	-
FE-22-B-GLOB2013F- 2106F-2007F-NL07	3	-	-	-	-
FE-22-D-GLOB2013F- 2106F-2007F-NL04	3	-	-	-	-
FE-22-A-GLOB2013F- 2106F-2007F-SE01	3	-	-	-	-
FE-22-A-GLOB2013F- 2106F-2007F-SE05	3	-	-	-	-
<i>Average</i>		5.0	90.0	90.0	95.0

Trial number, 2021	Number of applications	Untreated PESSEV %	PESSEV %UNCK			
			GLOB2106cF 2.0 l/ha	Propamocarb 722 SL 1.4 l/ha	Revus 250 SC 0.6 l/ha	Infinito 1.6 l/ha
FE-21-B- GLOB2013F-2106F- 2007F-CZ02	3	89.0	94.9	-	94.4	-
FE-21-C- GLOB2013F-2106F- 2007F-CZ01	3	10.0	100.0	100.0	100.0	100.0
FE-21-D- GLOB2013F-2106F- 2007F-CZ02	3	-	-	-	-	-
FE-21-B- GLOB2013F-2106F- 2007F-FR04	3	25	90.0	-	90.0	-
FE-21-D- GLOB2013F-2106F- 2007F-UK05	3	-	-	-	-	-
<i>Average</i>		<i>41.3</i>	<i>95.0</i>	<i>100.0</i>	<i>95.0</i>	<i>100.0</i>

Efficacy of GLOB2106cF applied in 5-13 applications in dose 1.9l/ha or 2.0l/ha in combating of *Phytophthora infestans* on potatoes

Trial number, 2022	Number of applications	Untreated* PESSEV %	PESSEV* %UNCK		
			GLOB2106cF 1.9 l/ha	Revus 250 SC 0.6 l/ha	Infinito 1.6 l/ha
FE-22-B-GLOB2013F- 2106F-2007F-CZ01	8	47.9	70.4	70.9	30.6
FE-22-B-GLOB2013F- 2106F-2007F-CZ02	5	9.4	69.4	60.6	64.4
FE-22-B-GLOB2013F- 2106F-2007F-DE04	8	0.0	-	-	-
FE-22-B-GLOB2013F- 2106F-2007F-FR05	9	0.9	-	-	-
FE-22-B-GLOB2013F- 2106F-2007F-NL07	13	10.5	100	100	100
FE-22-D-GLOB2013F- 2106F-2007F-NL04	12	1.6	-	-	-
FE-22-A-GLOB2013F- 2106F-2007F-SE01	8	23.7	98.6	66.4	99.9
FE-22-A-GLOB2013F- 2106F-2007F-SE05	8	1.3	-	-	-
<i>Average</i>		<i>22.9</i>	<i>84.6</i>	<i>74.5</i>	<i>81.2</i>

* Average of the assessments in which the leave infection was at least 5%

Trial number, 2021	Number of applications	Untreated* PESSEV %	PESSEV* %UNCK			
			GLOB2106cF 2.0 l/ha	Propamocarb 722 SL 1.4 l/ha	Revus 250 SC 0.6 l/ha	Infinito 1.6 l/ha
FE-21-B-GLOB2013F- 2106F-2007F-CZ02	5	73.4	95.5	-	93.5	-
FE-21-C-GLOB2013F- 2106F-2007F-CZ01	8	32.0	100.0	98.4	100.0	100.0
FE-21-D-GLOB2013F- 2106F-2007F-CZ02	8	14.4	83.3	-	-	81.7
FE-21-B-GLOB2013F- 2106F-2007F-FR04	8	76.9	93.5	-	92.9	-
FE-21-D-GLOB2013F- 2106F-2007F-UK05	8	54.3	54.6	-	-	51.1
<i>Average</i>		<i>50.2</i>	<i>85.4</i>	<i>98.4</i>	<i>95.5</i>	<i>77.6</i>

* Average of the assessments in which the leave infection was at least 5%

Mediterraneanen

Efficacy of GLOB2106cF applied in 3 applications in dose 2.0l/ha in combating of *Phytophthora infestans* on potatoes.

Trial number, 2021 2022	Number of applications	Untreated PESSEV %	PESSEV %UNCK				
			GLOB2106cF 2.0 l/ha	Propamocarb 722 SL 1.4 l/ha	Pergado SC 0.6 l/ha	Revus 250 SC 0.6 l/ha	Volare 1.6 l/ha
FE-21-B-GLOB2013F-2106F-2007F-IT07	3	-	-	-	-	-	-
FE-21-C-GLOB2013F-2106F-2007F-IT04	3	-	-	-	-	-	-
FE-21-D-GLOB2013F-2106F-2007F-IT03	3	-	-	-	-	-	-
FE-22-D-GLOB2013F-2106F-2007F-IT05	3	-	-	-	-	-	-
FE-21-B-GLOB2013F-2106F-2007F-ES05	3	24.3	92.7	-	-	91.7	-
FE-22-D-GLOB2013F-2106F-2007F-ES03	3	5.8	42.2	-	-	58.4	60.2
<i>Average</i>		<i>15.1</i>	<i>67.5</i>	<i>-</i>	<i>-</i>	<i>75.1</i>	<i>60.2</i>

Efficacy of GLOB2106cF applied in 5-8 applications in dose 2.0l/ha in combating of *Phytophthora infestans* on potatoes

Trial number, 2021 2022	Number of applications	Untreated* PESSEV %	PESSEV* %UNCK				
			GLOB2106cF 2.0 l/ha	Propamocarb 722 SL 1.4 l/ha	Pergado SC 0.6 l/ha	Revus 250 SC 0.6 l/ha	Volare 1.6 l/ha
FE-21-B-GLOB2013F-2106F-2007F-IT07	8	6.3	91.3	-	82.5	-	-
FE-21-C-GLOB2013F-2106F-2007F-IT04	8	11.4	84.4	98.4	88.0	-	100.0
FE-21-D-GLOB2013F-2106F-2007F-IT03	8	1.0	-	-	-	-	-
FE-22-D-GLOB2013F-2106F-2007F-IT05	5	8.5	55.1	-	72.2	-	50.4
FE-21-B-GLOB2013F-2106F-2007F-ES05	7	62.5	93.8	-	-	92.6	-
FE-22-D-GLOB2013F-2106F-2007F-ES03	6	7.7	39.1	-	-	49.7	46.2
<i>Average</i>		<i>19.2</i>	<i>72.7</i>	<i>98.4</i>		<i>81.8</i>	<i>65.6</i>

* Average of the assessments in which the leave infection was at least 5%

South-East

Efficacy of GLOB2106cF applied in 7-8 applications in dose 1.9l/ha or 2.0l/ha in combating of *Phytophthora infestans* on potatoes

Trial number 2022	Number of applications	Untreated* PESSEV %	PESSEV* %UNCK		
			GLOB2106cF 1.9 l/ha	Revus 250 SC 0.6 l/ha	Infinito 1.6 l/ha
FE-22-A-GLOB2013F-2106F-2007F-HU02	8	49.5	63.6	47.7	53.4
FE-22-A-GLOB2013F-2106F-2007F-HU03	8	54.1	99.6	99.6	99.7
<i>Average</i>		<i>51.8</i>	<i>81.6</i>	<i>73.3</i>	<i>76.6</i>

* Average of the assessments in which the leave infection was at least 5%

Trial number, 2021	Number of applications	Untreated* PESSEV %	PESSEV* %UNCK		
			GLOB2106cF 2.0 l/ha	Revus 250 SC 0.6 l/ha	Infinito 1.6 l/ha
FE-21-B-GLOB2013F- 2106F-2007F-HU01	8	21.5	61.0	54.8	-
FE-21-C-GLOB2013F- 2106F-2007F-HU03	7	13.5	85.0	75.2	87.7
FE-21-D-GLOB2013F- 2106F-2007F-HU01	8	18.2	89.9	-	88.2
FE-21-B-GLOB2013F- 2106F-2007F-RO09	8	14.2	98.3	100.0	-
<i>Average</i>		<i>16.9</i>	<i>83.6</i>	<i>76.7</i>	<i>88.0</i>

* Average of the assessments in which the leave infection was at least 5%

The effectiveness of the first three treatments was analysed by the Evaluator. The analysis of the effectiveness of the agent in question in three applications using separate doses of 1.9 l/ha or 2l/ha showed effectiveness :

	<u>Three applications</u>	<u>All applications</u>
North- East :	1.9 l/ha 71.3 %, 2.0l/ha 78.7%	1.9l/ha 69.4%, 2.0l/ha 77.5%
Maritime	1.9l/ha 90 %, 2.0l/ha 95%	1.9l/ha 84.6 %, 2.0l/ha 85.4%
Mediterranean	1.9l/ha - , 2.0l/ha 67.5%	1.9l/ha -, 2.0l/ha 72.7%
South-East	- , -	1.9l/ha 81.6%, 2.0l/ha 83.6%

The level of plant infection was sufficient to assess the effectiveness of GLOB2106cF after 3 treatments. Infestation in the untreated control was at an average level: N-E 9.4-24.4%, MED 15.1-19.2%, S-E - no ratings, MAR 5-41%.

Between the three application of GLOB2106cF doses of 1.9 and 2.0 l/ha, the difference in effectiveness in the N-E zone was approximately 7% and in the MAR zone it was approximately 5%.

The effectiveness of combating *Phytophthora infestans* by GLOB2106cF used in the first 3 applications was in the N-E zone 71.3%, 78.7% and in the zone Maritime 90%, 95%, Mediterranean 67.5%. The obtained effectiveness of the agent in question varied, depending on the application zones and it qualifies as a means of moderate control (MC 60-80%) in NE and MED zones. In the Maritime zone it qualifies as a control (C >80%).

The differences in the effectiveness of GLOB2106cF at a dose of 1.9l/ha and 2.0l/ha when applied to harvest (at the end of the season) were smaller and amounted to 1-8%.

Comment on the GLOB2106cF Efficacy Tables presented in dRR

	<u>3 applications – 2,0l/ha</u>	<u>All applications- 2,0l/ha</u>	<u>3 Appl.Ref. Products,</u>	<u>All Appl.</u>
North-E	75,4 %	73.1%	77.5%	73.1%
NE+CZ,DE	82.8%	77.5%	84.3%	76.8%
MAR	92.3%	86.6 %	92.3%	85.2%
MED	84.1%	77.6%	90.0%	90,3%
South-E	79.3%	84.0%	77.4%	83.9%
ALL EPPO Zones	82.7 %	78,1%	84.37%	79.9%

The GLOB2106cF agent, when used at doses of 1.9l/ha or 2.0l/ha after three applications, showed the lowest effectiveness in the NE zone of 75.4% with at level of 15.8 % plant infection (UTC) and several percent higher in NE+CZ, DE Zone 82.8% with a level of 19.1 % plant infection (UTC). The obtained effectiveness qualifies the agent as a moderate control (MC 60-80%) in NE and SE, MED zones. In the MAR zone it qualifies as a control (C >80%). The average effectiveness of the standards was almost at the same level as that of the test product(table above).

After performing the first 3 treatments, the highest effectiveness of the GLOB2106cF agent was obtained in the EPPO Maritime zone, which amounted to 92 % and similarly for the reference agents 92% at a high level of *Phytophthora infestans* occurrence 35%(UTC)-qualifies the agent as a control (C) >80 %. The effectiveness of all treatments was lower 86.6 %. (In the experiments conducted in the Maritime zone, a large number of applications were carried out: 5-13.)

In the Mediterranean zone, the effectiveness of the agent in question after 3 treatments was 84.1 % and after 7 treatments 77.6% at the level of disease occurrence 12 % and 35% (UTC). The effectiveness of reference product was 7-13% higher in this EPPO Zone.

The GLOB2106cF agent after three applications, showed the effectiveness in the SE zone of 79.3% with a level of 15.8 % plant infection (UTC) and several percent higher after 7 treatments 84.0%, with a level of 13.0 % plant infection (UTC). The average effectiveness of the standards was almost at the same level as that of the test product(table above).

The results presented in the tables above indicate that three applications (not preceded by previous treatments) of GLOB2106cF show the higher effectiveness than the effectiveness of several subsequent applications. The obtained effectiveness of 3 application of the discussed agent is 75-92% in NE, SE zones, which classifies the GLOB2106cF agent as having moderate control of *Phytophthora infestans* in potatoes and control in NE+CZ+DE, MED 82-84%, MAR zone - 92% effectiveness.

In the experiments, both a dose of 1.9l/ha and a dose of 2.0l/ha were used, while in the GAP table of intended uses and in label is a dose of 1.9l/ha.

Data analysis performed by the Evaluator based on experiments using a dose of 1.9 l/ha and separately 2.0 l/ha allows for comparison of the effectiveness of the dose planned for registration. Only experiments with plant infection at least 5% were selected for analysis.

The differences in the qualifications of the tested agent GLO2106cF are more visible and allow for a reliable assessment of its effect.

The overall summary indicates a higher effectiveness of GLOB2016cF when used in the first 3 treatments than the effectiveness of *Phytophthora infestans* control in subsequent treatments. This is due to the increase in the severity of plant infection.

Revus Pro may be an important element of a potato crop protection program due to the content of two active substances with different mode of action. The possibility of using Revus Pro three times in one growing season is of great practical importance.

The results of experiments conducted in the NE and Maritime zones are representative and indicate the possibility of registering the product in the Central Registration Zone in the following countries: Poland, Belgium, Czech Republic, Germany, and the Netherlands.

Summary

- The compile results from experiments using a dose of 1.9 l/ha with the use of a dose of 2.0 l/ha of GLOB 2106cF can be considered acceptable on the basis of EPPO PP 1/307.

- A large number of experiments carried out in 2021 and 2022 in all required EPPO

<p>zones, on a large number of potato varieties and in various agrotechnical conditions allow us for the approval of the use of GLOB 2106cF at a dose of 1.9 l/ha to control <i>Phytophthora infestans</i> in potatoes in Poland.</p> <p>- The obtained efficacy of GLOB2106cF in controlling <i>Phytophthora infestans</i> ranged from 71% (NE) to 92 % (MAR), MED 67%. The effectiveness was on average for all zones 82 %-78%.</p> <p>The results of experiments conducted in the NE and Maritime zones are representative and indicate the possibility of registering the product in the Central Registration Zone in the following countries: Poland, Belgium, Czech Republic, Germany, and the Netherlands.</p> <p>The proposed application rate 1.9 l/ha of GLOB 2106cF for potato protection is justified as effective dose against <i>Phytophthora infestans</i> . The results obtained in the experiments justify the needed for registration of studied agent for <i>P.infestans</i> control in potatoes and is consistent with the GAP table and label. The data provided in dRR confirm the above application and authorize the registration of GLOB2106cF/Revus Pro in Poland.</p>
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3.3 Information on the occurrence or possible occurrence of the development of resistance (KCP 6.3)

3.3.1 Inherent risk of active substance

Propamocarb belongs to the group of the carbamates, which target the cell membrane permeability and fatty acids (F4, FRAC Code 28). After exposure to propamocarb-HCl disruption of the cellular membrane and/or function can be observed.

According to the FRAC Fungicide Resistance Action Committee (FRAC), group 28 fungicides are considered low to medium risk.

Mandipropamid is the only fungicide in the group of the mandelic acid amides, which is sub-group of the carboxylic acid amides (H5, FRAC Code 40) that target cellulose synthase and thereby inhibit oomycete pathogen growth and spore germination.

According to the FRAC, group 40 fungicides are considered low to medium risk.

3.3.2 Inherent risk of target pathogen

Phytophthora infestans was first considered a pathogen with a high risk of developing resistance, because it quickly developed resistance to phenylamide fungicides. However, although there is full cross-resistance among all members of the phenylamide (PA) fungicides there is no cross-resistance between PA fungicides and any of the other chemical classes, including carbamates. This resulted in a re-classification of *P. infestans*, making it a medium risk pathogen for all modes of action³. This means it poses a much lower risk because resistance is not a major problem or has been slow to develop.

3.3.3 Evidence of resistance

There are no reported cases of propamocarb-HCl resistance of *Phytophthora* spp. according to the FRAC list⁴ published in May 2020, there are no known resistance mechanisms.

Propamocarb-HCl has been used successfully to control potato late blight where metalaxyl-resistant populations presented an increasingly serious problem, which further underlines the need for propamocarb-HCl for the control of late blight.

In April of 2021 a study was published⁵ which tested the resistance of 32 *Phytophthora infestans* strains of different mating types isolated between 2004 and 2019 in affected organs of potato and tomato plants. No resistant strains had been found in the world up to that point, the study concluded the risk of resistance to mandipropamid is minimal.

However, in early 2023 a study⁶ published by Aarhus University in Denmark showed evidence of resistance in multiple samples taken in Denmark in 2022. Aarhus University has conducted research on late blight epidemiology and control for more than 25 years and Jens G. Hansen from the Department of Agroecology is one of the coordinators of EuroBlight – the Potato late blight network for Europe.

³ Pathogen Risk List, FRAC, September 2019

⁴ List of first confirmed cases of plant pathogenic organisms resistant to disease control agents, FRAC, May 2020.

⁵ Elansky *et al.* (2021). Resistance of *Phytophthora infestans* to Fungicide Mandipropamid. *Mikologiya I Fitopatologiya* 55(4):291-296

⁶ <https://dca.au.dk/en/current-news/news/show/artikel/kartoffelproduktionen-trues-af-stigende-resistens-hos-kartoffelskimmel-mod-kemiske-bekaempelsesmidler>

Most samples tested in the study belong to the genotype named EU43. This genotype was also detected in the Netherlands and Belgium.

3.3.4

3.3.5 Cross resistance

There are no reported cases of propamocarb-HCl -resistant isolates of *Phytophthora infestans* and there are no indications that cross-resistance between carbamates and other groups of fungicides is likely to occur.

It is very likely there's cross-resistance between mandipropamid and other members of the carboxylic acid amides fungicides, including dimethomorph, bentiavalicarb and valifenate. It will therefore be essential to combine actives with different modes of action in order to fully control late blight⁷.

3.3.6 Sensitivity data

Propamocarb-HCl sensitivity has been assessed on a variety of *Phytophthora* species at several stages of their life cycles⁸. Oospore formation by *P. infestans* was found to be very sensitive to propamocarb, with complete inhibition at 100 µg/ml.

Another study tested the sensitivity to propamocarb-HCl (among other active substances) of 12 isolates of *Phytophthora infestans* collected on infected potato leaves.⁹ The EC₅₀ values for were between 12.1 and 31.1 µg/mL for propamocarb-HCl.

In April of 2021 a study was published¹⁰ which tested the resistance of 32 *Phytophthora infestans* strains of different mating types isolated between 2004 and 2019 in affected organs of potato and tomato plants. The results showed that all isolated were sensitive to mandipropamid, with an EC₅₀ value of ≤ 0.07 mg/L.

No additional sensitivity data is available to the applicant.

3.3.7 Use pattern

The use pattern is detailed in the GAP table.

3.3.8 Acceptability of the resistance risk

In an unrestricted use pattern, the resistance risk 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.

⁷ <https://www.fwi.co.uk/arable/crop-management/disease-management/what-the-new-fungicide-resistant-blight-strain-means-for-uk-farmers>

⁸ Jiahuai Hu *et al.* (2007). Effects of Propamocarb Hydrochloride on Mycelial Growth, Sporulation, and Infection by *Phytophthora nicotianae* Isolates from Virginia Nurseries. The American Phytopathological Society. Plant Disease / Vol. 91 No. 4

⁹ Emil Rekanović *et al.* (2011). Sensitivity of *Phytophthora infestans* (Mont.) de Bary Isolates to Fluazinam, Fosetyl-Al and Propamocarb-hydrochloride. Pestic. Phytomed. (Belgrade), 26(2), 2011, 111–116

¹⁰ Elansky *et al.* (2021). Resistance of *Phytophthora infestans* to Fungicide Mandipropamid. Mikologiya I Fitopatologiya 55(4):291-296

3.3.9 Resistance management strategy

Any fungus population may contain individuals naturally less sensitive to propamocarb-HCl and mandipropamid (or other group code 30 fungicides, ref. section 3.3.4). Although resistance to both active substances is very unlikely to occur, resistant individuals can eventually dominate the fungus population if these fungicides are used repeatedly and exclusively in programs. To delay the onset (and spread) of fungicide resistance. It is in the best interest of all those involved in recommending and using these fungicides that they are utilised in such a way that their effectiveness is maintained.

The applicant suggests the following general guidelines;

- When multiple applications are required in a single growing season, use mixtures or alternate (in block sprays or in sequence) with effective non-cross-resistant fungicides.
- If performance of carbamates declines and less sensitive forms of the pathogen are detected, carbamates should only be used in mixture or alternated with effective non-cross-resistant fungicides.
- Avoid exclusive repeated use of fungicides from the same fungicide group code. Alternate with products from different fungicide group codes
- Complementary use of other fungicide classes with different modes of action should be maximised.
- Use as recommended on the label. Do not use reduced doses. This ensures good performance and reduces the risk of resistance development.
- Integrate other control methods (chemical, cultural, biological) into disease control programmes.
- Use other measures such as resistant varieties, good agronomic practice, plant hygiene.

Comments of zRMS:	<p><u>Risk of resistance</u></p> <p>GLOB2106cF contain two active substances: propamocarb-HCl (450g/l) and mandipropamid (75g/l).</p> <p>Propamocarb - belongs to the group of the carbamates, F4, FRAC Code 28. According to the FRAC Fungicide Resistance Action Committee (FRAC), group 28 fungicides are considered low to medium risk. There are no reported cases of propamocarb-HCl resistance of <i>Phytophthora</i> spp. according to the FRAC list¹¹ published in May 2020. There are no indications that cross-resistance between carbamates and other groups of fungicides is likely to occur.</p> <p>Mandipropamid is the fungicide in the group of the mandelic acid amides, which is sub-group of the carboxylic acid amides, H5, FRAC Code 40. According to the FRAC, group 40 fungicides are considered low to medium risk. No resistant strains had been found in the world up to 2019 in accordance with conducted research. The conducted study concluded the risk of resistance to mandipropamid is minimal.</p> <p><i>Phytophthora infestans</i> to mandipropamid -is considered as a low to medium resistance risk plant pathogen (FRAC Code List-2022).</p> <p><i>Phytophthora infestans</i> developed resistance to phenylamide fungicides but not at all to CAA fungicides, carbamates, etc.. Therefore, were re-classified as a medium risk pathogen. Hence resistance management is required. Principles regarding the use of anti-resistance strategies is necessary to be include in the label. The restriction as proposed by FRAC recommendation and limitation as well as the guidance provided in EPPO PP1/213(3). The anti-immune strategy is well presented in the dRR but this strategy is not included in the label.</p> <p>Since the agronomic factors influencing the risk of resistance development to vary between the member states, the individual assessment of the resistance risk has to be introduced on national level. The Polish label should include a strategy to prevent the development of resistance of the pathogen <i>Phytophthora infestans</i> to the GLOB2106cF /Revus Pro fungicide.</p>
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¹¹ List of first confirmed cases of plant pathogenic organisms resistant to disease control agents, FRAC, May 2020.

3.4 Adverse effects on treated crops (KCP 6.4)

3.4.1 Phytotoxicity to host crop (KCP 6.4.1)

Plant protection products containing propamocarb-HCl and mandipropamid have been applied to a wide variety of vegetables in different countries for many years without any reports of damage symptoms to the crops. Both active substances are considered safe.

In accordance with EPPO PP 1/135 (4), crop safety assessments were made in the efficacy trials presented in this dossier (3.2.3). This guideline states that for fungicides it is considered sufficient to demonstrate the crop safety at the N dose rate when no phytotoxicity is expected. No significant adverse effects were recorded at the proposed dose rate.

Number of trials with...		Efficacy trials (36 trials)	
		GLOB2106cF	Reference products
		1.9 / 2 L/ha	N
Maximum of phytotoxicity recorded during the trials	0% to 5%	13 Maritime trial (6 CZ/DE) 11 North-East trials 6 Mediterranean trials 6 South-East trials	13 Maritime trial (6 CZ/DE) 11 North-East trials 6 Mediterranean trials 6 South-East trials
	>5% to 10%		
	>10% to 15%		
	>15 %		
Level of symptoms at the last assessments	0% to 5%	13 Maritime trial (6 CZ/DE) 11 North-East trials 6 Mediterranean trials 6 South-East trials	13 Maritime trial (6 CZ/DE) 11 North-East trials 6 Mediterranean trials 6 South-East trials
	>5% to 10%		
	>10% to 15%		
	>15 %		

Conclusion

No Phytotoxic effects were observed in any of the efficacy trials presented in this dossier.
Therefore GLOB2106cF can be considered safe for use on potatoes.

Comments of zRMS:	<p>The Applicant did not present separate experiments on phytotoxicity - in the case of fungicides, it is in accordance with EPPO guidelines. Phytotoxicity was assessed in all efficacy experiments (13 Maritime trial -6 CZ/DE, 11 North-East trials, 6 Mediterranean trials, 6 South-East trials).</p> <p>GLOB2106cF fungicide was used in 2021 at a dose of 2.0 l/ha and 2022 at a dose of 1.9 and 2.0 l/ha - which was discussed in detail in the comment to the efficacy section</p> <p>The number of trials is sufficient and their location is appropriate for evaluation. The methods used in the presented experiments were appropriate, and the studies presented for evaluation are satisfactorily representative of the potato crop.</p> <p>In connection with the fact that no phytotoxic effects were observed in any of the efficacy trials presented in this dossier it can be concluded that fungicide GLOB2106cF is selective for potato crop</p>
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3.4.2 Effect on the yield of treated plants or plant product (KCP 6.4.2)

Yield amount was assessed in all efficacy trials presented in section 3.2.3 except KCP 6.2-53 and 61, performed in Germany (Maritime EPPO Zone) and Spain (Mediterranean EPPO Zone), respectively.

Plots were harvested individually and the recorded yield was then converted to metric tons per ha. The number of tubers per plot was also recorded. The absolute yield amount (t/ha and number of tubers per plot) is given for the untreated control. The results for the different treatments are given as a percentage of the untreated control (%UNCK).

For individual trial data reference is made to Appendix 5 of the BAD.

Comments of zRMS:	<p><u>Maritime EPPO Zone</u> The results presented by the applicant indicate that the GLOB2106cF fungicide applied 5 to 13 times at a dose of 1.9 l/ha (7 trials) and from 5 to 8 times at a dose of 2.0 l/ha (5 trials) significantly increases yield, at least to the same level as standard products. The applicant requests three applications of the GLOB2106cF fungicide. The presented results do not allow the conclusion that this fungicide applied three times increases the yield. However, it can be stated that if the fungicide did not have a negative impact on yield after 5-13 applications, it will not have a negative impact on potato yield after three applications.</p> <p><u>North-East EPP Zone</u> The results presented by the applicant indicate that the GLOB2106cF fungicide applied 7 to 8 times at a dose of 1.9 l/ha (3 trials) and from 6 to 10 times at a dose of 2.0 l/ha (8 trials) significantly increases yield, at least to the same level as standard products. The applicant requests three applications of the GLOB2106cF fungicide. The presented results do not allow the conclusion that this fungicide applied three times increases the yield. However, it can be stated that if the fungicide did not have a negative impact on yield after 6-10 applications, it will not have a negative impact on potato yield after three applications.</p> <p><u>North-East EPP Zone + Cz</u> The results presented by the applicant indicate that the GLOB2106cF fungicide applied 5 to 8 times at a dose of 1.9 l/ha (5 trials) and from 5 to 10 times at a dose of 2.0 l/ha (11 trials) significantly increases yield, at least to the same level as standard products. The applicant requests three applications of the GLOB2106cF fungicide. The presented results do not allow the conclusion that this fungicide applied three times increases the yield. However, it can be stated that if the fungicide did not have a negative impact on yield after 5-10 applications, it will not have a negative impact on potato yield after three applications.</p> <p><u>Mediterranean EPP Zone</u> The results presented by the applicant indicate that the GLOB2106cF fungicide applied 5 to 8 times at a dose of 2.0 l/ha (6 trials) significantly increases yield, at least to the same level as standard products. The applicant did not present any experience in which he used the GLOB2106cF fungicide at the requested dose of 1.9 l/ha The applicant requests three applications of the GLOB2106cF fungicide. The presented results do not allow the conclusion that this fungicide applied three times increases the yield. However, it can be stated that if the fungicide did not have a negative impact on yield after 5 - 8 applications in dose 2.0 l/ha, it will not have a negative impact on potato yield after three applications in dose 1.9 l/ha.</p> <p><u>South-East EPO Zone</u> The results presented by the applicant indicate that the GLOB2106cF fungicide applied 8 times at a dose of 1.9 l/ha (2 trials) and from 7 to 8 times at a dose of 2.0</p>
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	<p>l/ha (4 trials) significantly increases yield, at least to the same level as standard products.</p> <p>The applicant requests three applications of the GLOB2106cF fungicide.</p> <p>The presented results do not allow the conclusion that this fungicide applied three times increases the yield. However, it can be stated that if the fungicide did not have a negative impact on yield after 7-8 applications, it will not have a negative impact on potato yield after three applications.</p>
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Table 3.4-2 below summarizes the recorded yield amounts expressed in number of tubers per plot, gathered in the efficacy trials presented in section 3.2.3. For individual trial data reference is made to Appendix 5 of the BAD.
The absolute yield amount (number of tubers per plot) is given for the untreated control. The results for the different treatments are given as a percentage of the untreated control.

Table 3.4-2 Summary of yield amount (number of tubers per plot)

Rating Type Rating Unit	SUMMARY ALL YIELD (# TUBERS)						SUMMARY MARITIME YIELD (# TUBERS)						SUMMARY NORTH-EAST YIELD (# TUBERS)					
	n	Mean	Min	Max	Med.	Stdev.	n	Mean	Min	Max	Med.	Stdev.	n	Mean	Min	Max	Med.	Stdev.
UNTREATED (#)	34	460.5	76.0	1101.3	375.4	257.6	12	591.5	216.3	1101.3	526.2	304.3	11	487.0	222.0	913.5	421.8	225.1
GLOB2106cF 1.2 L/ha	14	109.9	97.3	129.2	106.8	10.8	7	107.1	97.3	127.0	105.8	9.7	4	110.3	104.0	123.7	106.7	9.3
GLOB2106cF 1.9 L/ha	12	114.1	88.8	145.1	112.4	16.5	7	108.3	88.8	121.7	109.0	11.5	3	123.3	114.2	140.5	115.3	14.9
GLOB2106cF 2 L/ha	22	125.1	93.0	290.2	109.7	52.2	5	140.4	94.9	274.9	111.7	75.5	8	113.1	102.2	143.8	109.7	13.6
Infinito 1.6 L/ha	22	111.5	93.5	137.6	108.4	11.8	10	110.5	93.5	126.3	108.4	10.5	8	111.7	99.8	131.3	107.5	10.6
Volare 1.6 L/ha	3	119.5	98.4	131.9	128.1	18.3												
Revus 250 SC 0.6 L/ha	24	123.5	92.6	263.7	112.5	44.3	10	124.0	93.9	261.3	106.9	49.5	8	118.1	106.1	137.6	115.3	10.9
Pergado SC 0.6 L/ha	3	113.9	100.9	120.4	120.3	11.2												
Revus Top 0.6 L/ha	1	111.5	111.5	111.5	111.5	-							1	111.5	111.5	111.5	111.5	-
Rating Type Rating Unit	SUMMARY NORTH-EAST + CZ/DE YIELD (# TUBERS)						SUMMARY MEDITERRANEAN YIELD (# TUBERS)						SUMMARY SOUTH-EAST YIELD (# TUBERS)					
	n	Mean	Min	Max	Med.	Stdev.	n	Mean	Min	Max	Med.	Stdev.	n	Mean	Min	Max	Med.	Stdev.
UNTREATED (#)	16	501.2	222.0	913.5	443.5	205.7	5	271.6	76.0	329.0	318.3	109.6	6	307.2	163.0	527.5	307.2	128.9
GLOB2106cF 1.2 L/ha	6	108.5	102.4	123.7	106.1	7.8	1	121.0	121.0	121.0	121.0	-	2	113.4	97.6	129.2	113.4	22.3
GLOB2106cF 1.9 L/ha	5	112.1	88.8	140.5	114.2	19.2							2	120.7	96.2	145.1	120.7	34.6
GLOB2106cF 2 L/ha	11	110.7	94.9	143.8	109.5	12.7	5	145.1	100.4	290.2	106.2	81.8	4	104.9	93.0	114.8	105.9	10.8
Infinito 1.6 L/ha	12	109.7	93.5	131.3	107.5	10.7							4	113.6	95.6	137.6	110.6	19.3
Volare 1.6 L/ha							3	119.5	98.4	131.9	128.1	18.3						
Revus 250 SC 0.6 L/ha	12	113.2	93.9	137.6	114.8	13.0	1	263.7	263.7	263.7	263.7	-	5	103.3	92.6	116.4	103.0	10.0
Pergado SC 0.6 L/ha							3	113.9	100.9	120.4	120.3	11.2						
Revus Top 0.6 L/ha	1	111.5	111.5	111.5	111.5	-												

Conclusion

From the results presented above, it can be concluded that GLOB2106cF has a positive effect on yield amount on potatoes compared to the untreated control. Furthermore, the results are highly comparable to the reference products. Overall these results fully support the authorization of GLOB2106cF at the requested dose rate.

3.4.3 Effects on the quality of plants or plant products (KCP 6.4.3)

Yield quality was assessed in all efficacy trials presented in section 3.2.3 except KCP 6.2-53 and 61, performed in Germany (Maritime EPPO Zone) and Spain (Mediterranean EPPO Zone), respectively.

In each trial the yield distribution was calculated as a % of total weight and as a percentage of total number of tubers.

The weight and amount of malformed tubers was also recorded.

For individual trial data reference is made to Appendix 5 of the BAD.

Comments of zRMS:	<p><u>Maritime EPPO Zone</u> The results presented by the applicant indicate that the GLOB2106cF fungicide applied 5 to 13 times at a dose of 1.9 l/ha (7 trials) and from 5 to 8 times at a dose of 2.0 l/ha (5 trials) did not show a negative effect on yield distribution, the number of malformed tubers and reduced the weight of deformed tubers. Based on this, it can be concluded that if we apply the Glob fungicide three times at a dose of 1.9 l/ha, it will be safe for potato crop.</p> <p><u>North-East EPP Zone</u> The results presented by the applicant indicate that the GLOB2106cF fungicide applied 7 to 8 times at a dose of 1.9 l/ha (3 trials) and from 6 to 10 times at a dose of 2.0 l/ha (8 trials) did not show a negative effect on yield distribution, the number of malformed tubers and reduced the weight of deformed tubers. Based on this, it can be concluded that if we apply the Glob fungicide three times at a dose of 1.9 l/ha, it will be safe for potato crop.</p> <p><u>North-East EPP Zone + Cz</u> The results presented by the applicant indicate that the GLOB2106cF fungicide applied 5 to 8 times at a dose of 1.9 l/ha (5 trials) and from 5 to 10 times at a dose of 2.0 l/ha (11 trials) did not show a negative effect on yield distribution, the number of malformed tubers and reduced the weight of deformed tubers. Based on this, it can be concluded that if we apply the Glob fungicide three times at a dose of 1.9 l/ha, it will be safe for potato crop.</p> <p><u>Mediterranean EPP Zone</u> The results presented by the applicant indicate that the GLOB2106cF fungicide applied 5 to 8 times at a dose of 2.0 l/ha (6 trials)</p> <p><u>South-East EPO Zone</u> The results presented by the applicant indicate that the GLOB2106cF fungicide applied 8 times at a dose of 1.9 l/ha (2 trials) and from 7 to 8 times at a dose of 2.0 l/ha (4 trials) did not show a negative effect on yield distribution, the number of malformed tubers and reduced the weight of deformed tubers. Based on this, it can be concluded that if we apply the Glob fungicide three times at a dose of 1.9 l/ha, it will be safe for potato crop.</p>
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Table 3.4-3 below summarizes the yield distribution data according to weight, gathered in the efficacy trials presented in section 3.2.3.

Because the sizing of potatoes is dependent on crop variety, no meaningful overall summary can be made from the percentages. However, the applicant calculated for each treatment the difference in percentage from the untreated. These ‘percent difference to untreated’ values were summarized in order to draw conclusions on possible shifts in yield distribution. For individual trial data (including the ‘percent difference to untreated’) reference is made to Appendix 5 of the BAD.

Table 3.4-3 Summary yield distribution differences (%) to untreated control based on weight

		SUMMARY ALL									SUMMARY MARITIME										
		Difference in yield distribution based on weight									Difference in yield distribution based on weight										
		n	COMPR1			COMPR2			COMPR3			n	COMPR1			COMPR2			COMPR3		
Mean	Min		Max	Mean	Min	Max	Mean	Min	Max	Mean	Min		Max	Mean	Min	Max	Mean	Min	Max		
UNTREATED (%)		34	15.3	0.0	59.7	52.6	0.0	80.5	32.1	0.0	100.0	12	11.3	0.0	35.2	57.9	0.0	80.5	30.8	0.0	100.0
GLOB2106cF	1.2 L/ha	14	-2.3	-8.4	1.5	-2.7	-15.8	5.0	5.0	-2.6	17.2	7	-1.9	-6.2	0.2	-2.0	-15.8	5.0	3.8	-0.7	17.2
GLOB2106cF	1.9 L/ha	12	-2.4	-8.7	4.6	-3.6	-11.6	2.7	5.9	-4.5	17.2	7	-2.2	-6.8	0.4	-2.1	-8.8	2.7	4.2	-1.1	10.5
GLOB2106cF	2 L/ha	22	-0.9	-22.1	25.0	0.5	-15.2	24.2	0.4	-15.2	17.3	5	-0.8	-1.4	0.0	2.5	0.0	6.8	-1.5	-5.1	0.0
Infinito	1.6 L/ha	22	-2.7	-9.4	6.0	-0.8	-14.8	9.1	3.5	-7.9	17.0	10	-2.3	-9.2	2.6	0.3	-14.8	6.9	2.1	-7.9	15.7
Volare	1.6 L/ha	3	-4.9	-8.5	1.3	9.0	-0.8	24.1	-4.1	-15.7	8.4										
Revus 250 SC	0.6 L/ha	24	0.0	-20.1	21.3	-2.0	-12.2	19.7	2.1	-9.1	18.1	10	-0.8	-3.3	1.5	0.4	-9.8	4.9	0.5	-4.4	10.7
Pergado SC	0.6 L/ha	3	-5.1	-13.6	2.7	6.6	5.9	7.1	-1.5	-9.9	6.7										
Revus Top	0.6 L/ha	1	-1.0	-1.0	-1.0	-7.9	-7.9	-7.9	8.9	8.9	8.9										
		SUMMARY NORTH-EAST									SUMMARY NORTH-EAST + CZ/DE										
		Difference in yield distribution based on weight									Difference in yield distribution based on weight										
		n	COMPR1			COMPR2			COMPR3			n	COMPR1			COMPR2			COMPR3		
			Mean	Min	Max	Mean	Min	Max	Mean	Min	Max		Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
UNTREATED (%)		11	15.8	1.1	38.8	53.9	15.0	78.9	30.3	8.1	83.9	16	14.0	1.1	38.8	56.0	15.0	80.5	30.0	6.1	83.9
GLOB2106cF	1.2 L/ha	4	-2.4	-4.7	0.6	-4.3	-6.8	2.0	6.6	-2.6	11.5	6	-2.0	-4.7	0.6	-3.4	-6.8	2.0	5.3	-2.6	11.5
GLOB2106cF	1.9 L/ha	3	-2.9	-5.2	0.8	-6.7	-11.6	1.1	9.7	-1.9	16.8	5	-2.8	-5.2	0.8	-4.5	-11.6	1.1	7.3	-1.9	16.8
GLOB2106cF	2 L/ha	8	1.6	-9.2	17.7	-2.1	-14.5	6.0	0.5	-3.6	3.5	11	0.9	-9.2	17.7	-0.5	-14.5	6.8	-0.4	-5.1	3.5
Infinito	1.6 L/ha	8	-2.1	-9.4	6.0	-2.1	-9.3	9.1	4.2	-3.3	13.2	12	-1.6	-9.4	6.0	-0.5	-9.3	9.1	2.2	-7.9	13.2
Volare	1.6 L/ha																				
Revus 250 SC	0.6 L/ha	8	1.6	-5.1	10.2	-5.1	-11.7	4.5	3.5	-4.9	13.6	12	0.8	-5.1	10.2	-2.9	-11.7	4.5	2.2	-4.9	13.6
Pergado SC	0.6 L/ha																				
Revus Top	0.6 L/ha	1	-1.0	-1.0	-1.0	-7.9	-7.9	-7.9	8.9	8.9	8.9	1	-1.0	-1.0	-1.0	-7.9	-7.9	-7.9	8.9	8.9	8.9
		SUMMARY MEDITERRANEAN									SUMMARY SOUTH-EAST										
		Difference in yield distribution based on weight									Difference in yield distribution based on weight										
		n	COMPR1			COMPR2			COMPR3			n	COMPR1			COMPR2			COMPR3		
			Mean	Min	Max	Mean	Min	Max	Mean	Min	Max		Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
UNTREATED (%)		5	20.0	15.2	30.4	57.6	43.5	78.6	22.4	4.9	37.8	6	18.6	0.9	59.7	35.1	20.6	50.9	46.3	19.7	71.0
GLOB2106cF	1.2 L/ha	1	1.5	1.5	1.5	-1.8	-1.8	-1.8	0.2	0.2	0.2	2	-5.8	-8.4	-3.2	-2.3	-8.5	3.9	8.2	-0.6	16.9
GLOB2106cF	1.9 L/ha											2	-2.1	-8.7	4.6	-4.3	-8.5	-0.1	6.4	-4.5	17.2
GLOB2106cF	2 L/ha	5	-9.0	-22.1	0.1	7.9	-2.7	24.2	1.0	-13.5	10.3	4	4.3	-6.1	25.0	-6.4	-15.2	1.0	2.1	-15.2	17.3
Infinito	1.6 L/ha											4	-4.6	-8.0	0.7	-1.1	-8.9	4.5	5.7	0.2	17.0
Volare	1.6 L/ha	3	-4.9	-8.5	1.3	9.0	-0.8	24.1	-4.1	-15.7	8.4										
Revus 250 SC	0.6 L/ha	1	-20.1	-20.1	-20.1	19.7	19.7	19.7	0.4	0.4	0.4	5	2.8	-8.4	21.3	-5.9	-12.2	2.0	3.2	-9.1	18.1
Pergado SC	0.6 L/ha	3	-5.1	-13.6	2.7	6.6	5.9	7.1	-1.5	-9.9	6.7										
Revus Top	0.6 L/ha																				

Table 3.4-4 below summarizes the yield distribution data according to the number of tubers, gathered in the efficacy trials presented in section 3.2.3.

Because the sizing of potatoes is dependent on crop variety, no meaningful overall summary can be made from the percentages. However, the applicant calculated for each treatment the difference in percentage from the untreated. These ‘percent difference to untreated’ values were summarized in order to draw conclusions on possible shifts in yield distribution. For individual trial data (including the ‘percent difference to untreated’) reference is made to Appendix 5 of the BAD.

Table 3.4-4 Summary of yield distribution differences (%) to untreated control based on number of tubers

		SUMMARY ALL									SUMMARY MARITIME										
		Difference in yield distribution based on number of tubers									Difference in yield distribution based on number of tubers										
		COMPR1			COMPR2			COMPR3			COMPR1			COMPR2			COMPR3				
		n	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	n	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
UNTREATED (%)		33	23.8	0.0	68.0	50.2	0.0	79.3	26.0	0.0	100.0	12	21.8	0.0	54.7	53.2	0.0	79.3	24.9	0.0	100.0
GLOB2106cF	1.2 L/ha	14	-3.7	-11.0	2.6	0.2	-9.5	8.6	3.4	-4.8	16.2	7	-3.0	-9.1	1.0	0.3	-9.5	8.6	2.7	-0.3	14.0
GLOB2106cF	1.9 L/ha	12	-3.8	-12.0	4.0	0.2	-6.0	8.9	3.6	-5.8	15.9	7	-3.5	-10.4	1.1	1.0	-6.0	8.9	2.4	-0.5	9.7
GLOB2106cF	2 L/ha	21	-1.6	-10.4	14.0	0.9	-17.7	13.3	0.8	-14.9	28.0	5	-0.3	-3.0	2.2	2.8	-2.4	12.1	-2.3	-11.1	0.4
Infinito	1.6 L/ha	21	-4.3	-13.5	2.2	2.1	-8.3	10.6	2.2	-9.2	13.9	10	-4.1	-13.5	0.8	3.3	-8.3	10.6	0.8	-9.2	12.5
Volare	1.6 L/ha	3	-5.0	-8.8	2.0	10.3	1.0	24.1	-5.3	-15.9	3.0										
Revus 250 SC	0.6 L/ha	23	-0.7	-10.8	9.8	-1.1	-10.5	7.0	1.9	-8.0	17.0	10	-1.1	-5.4	2.3	0.2	-5.0	5.8	0.9	-1.4	8.0
Pergado SC	0.6 L/ha	3	-5.4	-10.8	2.9	7.7	6.4	9.7	-2.3	-10.0	4.4										
Revus Top	0.6 L/ha	1	-0.5	-0.5	-0.5	-4.7	-4.7	-4.7	5.2	5.2	5.2										
		SUMMARY NORTH-EAST									SUMMARY NORTH-EAST + CZ/DE										
		Difference in yield distribution based on number of tubers									Difference in yield distribution based on number of tubers										
		n	COMPR1			COMPR2			COMPR3			n	COMPR1			COMPR2			COMPR3		
		n	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	n	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
UNTREATED (%)		10	27.4	6.5	68.0	51.8	23.6	68.3	20.9	3.0	57.0	15	23.5	0.5	68.0	53.3	23.6	79.3	23.1	1.1	64.9
GLOB2106cF	1.2 L/ha	4	-4.5	-10.5	2.6	0.7	-5.0	6.4	3.8	-4.8	9.0	6	-3.5	-10.5	2.6	0.4	-5.0	6.4	3.1	-4.8	9.0
GLOB2106cF	1.9 L/ha	3	-4.6	-9.3	3.5	-0.8	-4.5	1.3	5.4	-4.2	12.4	5	-4.0	-9.3	3.5	0.6	-4.5	6.3	3.5	-4.2	12.4
GLOB2106cF	2 L/ha	7	-1.2	-8.1	10.1	-0.3	-10.3	5.8	1.5	0.0	3.3	10	-0.7	-8.1	10.1	0.9	-10.3	12.1	-0.1	-11.1	3.3
Infinito	1.6 L/ha	7	-4.5	-9.6	2.1	1.5	-5.1	7.2	3.0	-3.1	11.7	11	-3.4	-9.6	2.1	2.5	-5.1	9.5	1.0	-9.2	11.7
Volare	1.6 L/ha																	0.0	-	0.0	0.0
Revus 250 SC	0.6 L/ha	7	-0.7	-10.8	6.7	-1.3	-10.5	7.0	1.9	-8.0	12.2	11	-0.5	-10.8	6.7	-1.0	-10.5	7.0	1.5	-8.0	12.2
Pergado SC	0.6 L/ha																	0.0	-	0.0	0.0
Revus Top	0.6 L/ha	1	-0.5	-0.5	-0.5	-4.7	-4.7	-4.7	5.2	5.2	5.2	1	-0.5	-0.5	-0.5	-4.7	-4.7	-4.7	5.2	5.2	5.2
		SUMMARY MEDITERRANEAN									SUMMARY SOUTH-EAST										
		Difference in yield distribution based on number of tubers									Difference in yield distribution based on number of tubers										
		n	COMPR1			COMPR2			COMPR3			n	COMPR1			COMPR2			COMPR3		
		n	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	n	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
UNTREATED (%)		5	25.0	17.5	30.5	57.3	43.8	71.8	17.7	3.0	38.7	6	20.8	2.5	34.3	35.7	20.0	49.9	43.5	25.6	63.9
GLOB2106cF	1.2 L/ha	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2	-6.2	-11.0	-1.3	-0.7	-5.1	3.7	6.9	-2.4	16.2
GLOB2106cF	1.9 L/ha											2	-4.0	-12.0	4.0	-1.1	-3.9	1.8	5.1	-5.8	15.9
GLOB2106cF	2 L/ha	5	-4.1	-10.4	1.2	4.5	-0.3	13.3	-0.4	-13.5	5.9	4	-1.0	-10.3	14.0	-4.1	-17.7	0.9	5.0	-14.9	28.0
Infinito	1.6 L/ha											4	-4.5	-9.2	2.2	0.3	-4.6	4.8	4.2	-2.6	13.9
Volare	1.6 L/ha	3	-5.0	-8.8	2.0	10.3	1.0	24.1	-5.3	-15.9	3.0										
Revus 250 SC	0.6 L/ha	1	1.6	1.6	1.6	-3.1	-3.1	-3.1	1.5	1.5	1.5	5	-0.6	-10.4	9.8	-3.1	-8.5	2.9	3.7	-7.3	17.0
Pergado SC	0.6 L/ha	3	-5.4	-10.8	2.9	7.7	6.4	9.7	-2.3	-10.0	4.4										
Revus Top	0.6 L/ha																				

Table 3.4-5 below summarizes the recorded amount of malformed tubers expressed in kg weight per plot, gathered in the efficacy trials presented in section 3.2.3. For individual trial data reference is made to Appendix 5 of the BAD.

The absolute yield amount (kg per plot) is given for the untreated control. The results for the different treatments are given as a percentage of the untreated control.

Table 3.4-5 Summary of amount of malformed tubers (weight per plot)

		SUMMARY ALL						SUMMARY MARITIME						SUMMARY NORTH-EAST					
Rating Type		MAMDEF (kg)						MAMDEF (kg)						MAMDEF (kg)					
Rating Unit		n	Mean	Min	Max	Med.	Stdev.	n	Mean	Min	Max	Med.	Stdev.	n	Mean	Min	Max	Med.	Stdev.
UNTREATED (#)		34	2.1	0.0	29.9	0.9	5.1	12	1.6	0.0	6.5	0.8	2.1	11	0.7	0.0	1.9	0.8	0.5
GLOB2106cF	1.2 L/ha	14	66.6	0.0	187.8	40.1	74.4	7	57.5	0.0	166.7	0.1	73.9	4	85.6	0.0	162.5	90.0	67.0
GLOB2106cF	1.9 L/ha	12	54.8	0.0	181.8	0.0	73.9	7	61.9	0.0	181.8	0.0	82.9	3	75.0	0.0	150.0	75.0	75.0
GLOB2106cF	2 L/ha	22	71.5	0.0	316.7	62.0	78.1	5	72.8	0.0	316.7	4.6	137.5	8	79.9	0.0	233.3	70.8	70.2
Infinito	1.6 L/ha	22	62.8	0.0	259.1	32.4	75.9	10	67.5	0.0	259.1	7.4	91.9	8	72.3	0.0	200.0	72.5	63.4
Volare	1.6 L/ha	3	73.5	52.2	112.2	56.3	33.5												
Revus 250 SC	0.6 L/ha	24	47.5	0.0	288.9	23.6	66.9	10	27.3	0.0	133.3	1.5	44.2	8	94.0	0.0	288.9	83.9	88.2
Pergado SC	0.6 L/ha	3	95.6	49.2	143.9	93.8	47.4												
Revus Top	0.6 L/ha	1	200.0	200.0	200.0	200.0	-							1	200.0	200.0	200.0	200.0	-
		SUMMARY NORTH-EAST + CZ/DE						SUMMARY MEDITERRANEAN						SUMMARY SOUTH-EAST					
Rating Type		MAMDEF (kg)						MAMDEF (kg)						MAMDEF (kg)					
Rating Unit		n	Mean	Min	Max	Med.	Stdev.	n	Mean	Min	Max	Med.	Stdev.	n	Mean	Min	Max	Med.	Stdev.
UNTREATED (#)		16	1.1	0.0	6.5	0.8	1.5	5	7.4	0.0	29.9	1.6	12.6	6	1.2	0.0	3.5	0.7	1.5
GLOB2106cF	1.2 L/ha	6	84.9	0.0	166.7	90.0	74.0	1	187.8	187.8	187.8	187.8	-	2	0.0	0.0	0.0	0.0	0.0
GLOB2106cF	1.9 L/ha	5	78.3	0.0	166.7	75.0	79.4						2	0.0	0.0	0.0	0.0	0.0	
GLOB2106cF	2 L/ha	11	87.3	0.0	316.7	66.7	101.0	5	66.6	0.0	134.1	62.5	47.7	4	59.2	0.0	119.2	58.8	49.8
Infinito	1.6 L/ha	12	70.4	0.0	200.0	72.5	65.1						4	31.7	0.0	126.9	0.0	63.5	
Volare	1.6 L/ha	3	73.5	52.2	112.2	56.3	33.5												
Revus 250 SC	0.6 L/ha	12	75.9	0.0	288.9	64.5	82.2	1	0.0	0.0	0.0	0.0	-	5	22.9	0.0	68.6	0.0	32.4
Pergado SC	0.6 L/ha	3	95.6	49.2	143.9	93.8	47.4												
Revus Top	0.6 L/ha	1	200.0	200.0	200.0	200.0	-							1	200.0	200.0	200.0	200.0	-

Table 3.4-6 below summarizes the recorded amount of malformed tubers expressed in number of tubers per plot, gathered in the efficacy trials presented in section 3.2.3. For individual trial data reference is made to Appendix 5 of the BAD.

The absolute yield amount (number of tubers per plot) is given for the untreated control. The results for the different treatments are given as a percentage of the untreated control.

Table 3.4-6 Summary of amount of malformed tubers (number of tubers per plot)

	SUMMARY ALL						SUMMARY MARITIME						SUMMARY NORTH-EAST					
Rating Type	YIELD (# TUBERS)						YIELD (# TUBERS)						YIELD (# TUBERS)					
Rating Unit	n	Mean	Min	Max	Med.	Stdev.	n	Mean	Min	Max	Med.	Stdev.	n	Mean	Min	Max	Med.	Stdev.
UNTREATED (#)	34	460.5	76.0	1101.3	375.4	257.6	12	591.5	216.3	1101.3	526.2	304.3	11	487.0	222.0	913.5	421.8	225.1
GLOB2106cF 1.2 L/ha	14	109.9	97.3	129.2	106.8	10.8	7	107.1	97.3	127.0	105.8	9.7	4	110.3	104.0	123.7	106.7	9.3
GLOB2106cF 1.9 L/ha	12	114.1	88.8	145.1	112.4	16.5	7	108.3	88.8	121.7	109.0	11.5	3	123.3	114.2	140.5	115.3	14.9
GLOB2106cF 2 L/ha	22	125.1	93.0	290.2	109.7	52.2	5	140.4	94.9	274.9	111.7	75.5	8	113.1	102.2	143.8	109.7	13.6
Infinito 1.6 L/ha	22	111.5	93.5	137.6	108.4	11.8	10	110.5	93.5	126.3	108.4	10.5	8	111.7	99.8	131.3	107.5	10.6
Volare 1.6 L/ha	3	119.5	98.4	131.9	128.1	18.3												
Revus 250 SC 0.6 L/ha	24	123.5	92.6	263.7	112.5	44.3	10	124.0	93.9	261.3	106.9	49.5	8	118.1	106.1	137.6	115.3	10.9
Pergado SC 0.6 L/ha	3	113.9	100.9	120.4	120.3	11.2												
Revus Top 0.6 L/ha	1	111.5	111.5	111.5	111.5	-							1	111.5	111.5	111.5	111.5	-
	SUMMARY NORTH-EAST + CZ/DE						SUMMARY MEDITERRANEAN						SUMMARY SOUTH-EAST					
Rating Type	YIELD (# TUBERS)						YIELD (# TUBERS)						YIELD (# TUBERS)					
Rating Unit	n	Mean	Min	Max	Med.	Stdev.	n	Mean	Min	Max	Med.	Stdev.	n	Mean	Min	Max	Med.	Stdev.
UNTREATED (#)	16	501.2	222.0	913.5	443.5	205.7	5	271.6	76.0	329.0	318.3	109.6	6	307.2	163.0	527.5	307.2	128.9
GLOB2106cF 1.2 L/ha	6	108.5	102.4	123.7	106.1	7.8	1	121.0	121.0	121.0	121.0	-	2	113.4	97.6	129.2	113.4	22.3
GLOB2106cF 1.9 L/ha	5	112.1	88.8	140.5	114.2	19.2							2	120.7	96.2	145.1	120.7	34.6
GLOB2106cF 2 L/ha	11	110.7	94.9	143.8	109.5	12.7	5	145.1	100.4	290.2	106.2	81.8	4	104.9	93.0	114.8	105.9	10.8
Infinito 1.6 L/ha	12	109.7	93.5	131.3	107.5	10.7							4	113.6	95.6	137.6	110.6	19.3
Volare 1.6 L/ha							3	119.5	98.4	131.9	128.1	18.3						
Revus 250 SC 0.6 L/ha	12	113.2	93.9	137.6	114.8	13.0	1	263.7	263.7	263.7	263.7	-	5	103.3	92.6	116.4	103.0	10.0
Pergado SC 0.6 L/ha							3	113.9	100.9	120.4	120.3	11.2						
Revus Top 0.6 L/ha	1	111.5	111.5	111.5	111.5	-												

Conclusion

The results summarized in above in Table 3.4-3 and Table 3.4-4 confirm GLOB2106cF has no impact on yield distribution.

Table 3.4-5 demonstrated that, based on weight, there is an overall trend towards lowered amounts of malformed tubers for all tested treatments.

The number of malformed tubers (Table 3.4-6) is very similar between all tested treatments, which on average all have a slight increase compared to the untreated control. However, the numbers of malformed tubers is less important than the weight of malformed tubers.

Taken together, all results presented above confirm that GLOB2106cF is safe at the requested dose rate of 1.9 L/ha.

3.4.4 Effects on transformation processes (KCP 6.4.4)

According to EPPO Guideline PP 1/243 (2) potato 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)

Propamocarb-HCl and mandipropamid are well-known active substances.

Other products containing propamocarb-HCl (Edipro/Proplant/Rival) have been registered at application rates higher than the one requested for GLOB2106cF (855 g propamocarb/ha) and have been used for many years on potatoes (and a wide range of other crops). These have proven safe when applied as recommended.

Similarly, Revus has been on the market for many years with an identical application rate slightly higher than the one requested for GLOB2106cF without any reported issues.

Products containing propamocarb-HCl and mandipropamid have been used together in fungicide programs against *Phytophthora infestans* on potatoes for many years, which supports that the combination of these active substances is safe.

Comments of zRMS:	The applicant did not submit additional studies aimed at transformation processes and determining the impact on treated plants or plant products to be used for propagation. Considering that the selectivity studies showed no negative effects on potato crop and the fact that propamocarb-HCl and mandipropamid are a known active substances, it can be concluded that GLOB2106cF has no negative effect on parts of plants used for transformation processes and propagating purposes.
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3.5 Observations on other undesirable or unintended side-effects (KCP 6.5)

Samples of two efficacy trials submitted in this dossier (FE-22-B-GLOB2013F-2106F-2007F-CZ02 and FE-22-B-GLOB2013F-2106F-2007F-DE04, KCP 6.2-52 and 53, respectively) were sent over to the National Institute of Horticultural Research (InHort) in Poland for organoleptic testing.

It should be noted there was no infestation in trial KCP 6.2-53.

The evaluation was carried out for the quality parameters characterizing the smell, colour and texture of boiled and fried potatoes. The results of the evaluation can be found in KCP 6.5.1-01 and 02 respectively and are shown below.

Table 3.5-1 Results of sensory analysis of boiled potatoes

Trial	Treatment	Dose rate	Odour of boiled potatoes	Off-odour	Colour	Consistency	Flavour of boiled potatoes	Sweet taste	Bitter taste	Off-flavour	Overall quality
			0-none 10-very intense	0-none 10-very intense	0-bright 10-yellow	0-loose 10-floury	0-none 10-very intense	0-none 10-very intense	0-none 10-very intense	0-none 10-very intense	0-low quality 10-high quality
FE-22-B-GLOB2013F-2106F-2007F-CZ02 Efficacy trial KCP 6.2-52 Variety: Red Sonia InHort Report 098/2022 KCP 6.5-01	Untreated		6.7	0	7.9	7.4	6.6	0.8	0	0.1	7.6
	GLOB2013F	0.3 L/ha	6.7	0.3	8.3	7.9	7.7	1.1	0.1	0	8.5
	GLOB2106cF	1.9 L/ha	6.4	0.1	7.8	7.3	6.9	0.9	0.1	0	7.3
	GLOB2007bF	2 L/ha	6.4	0.1	8.2	7.7	6.8	1.1	0.1	0.1	6.6
	GLOB178F	2 L/ha	6.2	0.2	8.4	7.8	7.4	1.2	0	0.1	8.1
	Revus 250 SC	0.6 L/ha	6.8	0.2	7.9	7.8	7.5	0.9	0.1	0.1	7.8
FE-22-B-GLOB2013F-2106F-2007F-DE04 Efficacy trial KCP 6.5-54 Variety: Antonia InHort Report 099/2022 KCP 6.5-02	Untreated		7.1	0.5	6.9	6.1	7	0.9	0.3	0.3	6.8
	GLOB2013F	0.3 L/ha	7.6	0.2	7.3	6.8	7.5	2.7	0.1	0	7.1
	GLOB2106cF	1.9 L/ha	6.6	0.1	7.1	6.6	7.7	0.7	0.1	0.1	7.1
	GLOB2007bF	2 L/ha	7	0.4	7.6	6.2	7.5	1.5	0.3	0.2	7.2
	GLOB178F	2 L/ha	6.2	0.2	7.7	6.6	7	2.2	0.1	0.4	7.5
	Revus 250 SC	0.6 L/ha	7.1	0.1	7.8	6.5	6.9	1.3	0.2	0.1	7.4

Table 3.5-2 Results of sensory evaluation of fried potatoes

Trial	Treatment	Dose rate	Odour of boiled potatoes		Colour	Crunchiness	Hardness	Flavour	Off-flavour	Overall quality
			0-none 10-very intense	0-none 10-very intense						
FE-22-B-GLOB2013F-2106F-2007F-CZ02 Efficacy trial KCP 6.2-52 Variety: Red Sonia InHort Report 098/2022 KCP 6.5-01	Untreated		7.1	0	4.9	6.2	4.8	7.3	0.1	7.1
	GLOB2013F	0.3 L/ha	7.4	0.4	3.5	4.9	3.5	6.9	0.3	7.8
	GLOB2106cF	1.9 L/ha	7.4	0	4.1	5.8	4.1	7.2	0	7.1
	GLOB2007bF	2 L/ha	7.2	0.1	4.1	5.9	4.4	7.2	0	7.6
	GLOB178F	2 L/ha	7.4	0	3.2	5.6	3.2	7.4	0.1	8.2
	Revus 250 SC	0.6 L/ha	7.6	0.2	3.2	6	3.4	7.3	0.1	7.7
FE-22-B-GLOB2013F-2106F-2007F-DE04 Efficacy trial KCP 6.5-54 Variety: Antonia InHort Report 099/2022 KCP 6.5-02	Untreated		7.5	0	3.9	7.7	6.3	7.7	0.1	8.1
	GLOB2013F	0.3 L/ha	7.8	0.1	4.1	6.7	5.9	8.1	0.1	8.5
	GLOB2106cF	1.9 L/ha	7.4	0.1	3.6	5.4	5.6	8	0.1	7.9
	GLOB2007bF	2 L/ha	6.9	0.1	4	7.2	5.7	7.4	0.1	7.9
	GLOB178F	2 L/ha	7	0.1	4.2	6.8	6.1	7.4	0.1	7.4
	Revus 250 SC	0.6 L/ha	7.7	0.1	3.4	6.2	5.4	7.7	0.1	7.6

It's important to note that even though there is some variance in the scores for the different parameters when comparing different treatments, all scores were very similar. Overall only minor differences were observed between the tested samples.

Comments of zRMS:	The results of two sensory evaluation tests for evaluation of cooked potatoes and fried potatoes in the form of fries presented by the applicant show that the GLOB2106cF fungicide does not affect the taste attributes of boiled potatoes but may slightly reduce the crispiness and firmness of fried potatoes.
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3.5.1 Impact on succeeding crops (KCP 6.5.1)

To assess the potential impact on succeeding crops a seedling emergence study and seedling growth test was performed where the product was incorporated into the soil (KCP 6.5-03).

According to a preliminary measurement the density of GLOB2106cF was estimated at 1.0801 g/ml, as a worst-case approach the applicant added an additional safety margin of 2%, which resulted in a product density of 1101.702 g/ml, this was used to determine the trial treatments.

According to the FOCUS Guidance document for groundwater assessments¹² the crop interception of ripening potatoes is estimated at 50%.

As a worst-case approach the applicant assumed all product was applied at once, so potential breakdown of the product in between separate treatments were not taken into account. Assuming a soil depth of 5 cm and a soil density of 1.5 kg/L the following 2 treatments were tested:

- 6 applications of 2 L/ha GLOB2106cF = 8.8136 mg product/kg soil
- 3 applications of 2 L/ha GLOB2106cF = 4.4068 mg product/kg soil

The test species consisted of two monocotyledon species (oat and wheat) and four dicotyledon species (cucumber, soybean, lettuce and radish). Species tested represented the plant families of Poaceae, Cucurbitaceae, Fabaceae, Asteraceae and Brassicaceae.

For none of the tested species any effect on fresh shoot weight or visual injury was measured, not even at the highest tested dose rate. Therefore it can be stated that GLOB2106cF is safe for succeeding crops, even when the equivalent of 6 applications at a dose rate of 2 L/ha are performed all at once (double the requested seasonal dose rate).

¹² Generic Guidance for Tier 1, Version 2.3, June 2021

Comments of zRMS:	The results of the seedling emergence study and seedling growth test presented by the Applicant after introducing the product into the soil confirm that the GLOB2106cF fungicide is safe for succeeding crops.
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3.5.2 Impact on other plants including adjacent crops (KCP 6.5.2)

Propamocarb-HCl and mandipropamid are well-known active substances applied that have been used together in fungicide programs against *Phytophthora infestans* on potatoes for many years, without any issues.

Comments of zRMS:	Both active substances included in the GLOB2106cF fungicide have been known for many years and are widely used without affecting adjacent crops. In this situation, it can be assessed that there is no adverse risk of exposure to adjacent crops. According to the guidelines contained in EPPO PP 1/256(1) - no further tests need to be performed and registration should be without restrictions.
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3.5.3 Effects on beneficial and other non-target organisms (KCP 6.5.3)

There are no known effects of on non-target organisms.

3.6 Other/special studies

No other studies were carried out.

3.7 List of test facilities including the corresponding certificates

Table 3.7-1: List of test facilities

Test facility	Address	Certificate (Yes or No)
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 relied on

Data point	Author(s)	Year	Title Company Report No. Company GLP or GEP status Published or not	Data protected (Y/N)	Owner
Reference is made to the Biological Assessment Dossier.					
KCP 6.2-01	Spurova R.	2019	Efficacy and selectivity of Propamocarb 722 SL against PHYTIN in potato. FE-19-A-PPCMB-CZ01 ZS Trutnov GEP, not published	Y	Globachem N.V.
KCP 6.2-02	Mareckova J.	2019	Efficacy and selectivity of Propamocarb 722 SL against PHYTIN in potato. FE-19-A-PPCMB-CZ02 ZS Krasne Udoli (Ing. Jitka Mareckova) GEP, not published	Y	Globachem N.V.
KCP 6.2-03	Dana P.	2019	Efficacy and selectivity of Propamocarb 722 SL against PHYTIN in potato. FE-19-A-PPCMB-CZ03 ZS Kujavy GEP, not published	Y	Globachem N.V.
KCP 6.2-04	de Vries H.	2019	Efficacy and selectivity of Propamocarb 722 SL against PHYTIN in potato. FE-19-A-PPCMB-NL05 Verify / Proeftuin Zwaagdijk GEP, not published	Y	Globachem N.V.

Data point	Author(s)	Year	Title Company Report No. Company GLP or GEP status Published or not	Data protected (Y/N)	Owner
KCP 6.2-04	de Vries H.	2019	Efficacy and selectivity of Propamocarb 722 SL against PHYTIN in potato. FE-19-A-PPCMB-NL05 Verify / Proeftuin Zwaagdijk GEP, not published	Y	Globachem N.V.
KCP 6.2-05	Olejnik H.	2019	Efficacy and selectivity of Propamocarb 722 SL against PHYTIN in potato. FE-19-A-PPCMB-PL06 Field Research Support (FRS) PL GEP, not published	Y	Globachem N.V.
KCP 6.2-06	Piotrowski G.	2019	Efficacy and selectivity of Propamocarb 722 SL against PHYTIN in potato. FE-19-A-PPMCB-PL07 Syntech PL GEP, not published	Y	Globachem N.V.
KCP 6.2-11	Šafář J.	2020	Efficacy of propamocarb against PHYTIN in potato. FE-20-A-PPMCB-CZ01 Agritec GEP, not published	Y	Globachem N.V.
KCP 6.2-12	Dana P.	2020	Efficacy of propamocarb against PHYTIN in potato. FE-20-A-PPMCB-CZ02 ZS Kujavy GEP, not published	Y	Globachem N.V.
KCP 6.2-13	Zöllner H.	2020	Efficacy of propamocarb against PHYTIN in potato. FE-20-A-PPMCB-DE03 Field Research Support (FRS) DE GEP, not published	Y	Globachem N.V.
KCP 6.2-14	Magyaróvári V.	2020	Efficacy of propamocarb against PHYTIN in potato. FE-20-A-PPMCB-DE04 Agrartest GEP, not published	Y	Globachem N.V.

Data point	Author(s)	Year	Title Company Report No. Company GLP or GEP status Published or not	Data protected (Y/N)	Owner
KCP 6.2-15	Vasatkova-Štanclova L.	2020	Efficacy of propamocarb against PHYTIN in potato. FE-20-A-PPMCB-CZ05 ZS Nechanice GEP, not published	Y	Globachem N.V.
KCP 6.2-16	Rivet J.	2020	Efficacy of propamocarb against PHYTIN in potato. FE-20-A-PPMCB-FR06 Essais+ GEP, not published	Y	Globachem N.V.
KCP 6.2-17	Kohrman E.	2020	Efficacy of propamocarb against PHYTIN in potato. FE-20-A-PPMCB-NL07 Cultus GEP, not published	Y	Globachem N.V.
KCP 6.2-18	Umiński P.	2020	Efficacy of propamocarb against PHYTIN in potato. FE-20-A-PPMCB-PL08 Field Research Support (FRS) PL GEP, not published	Y	Globachem N.V.
KCP 6.2-19	Piotrowski G.	2020	Efficacy of propamocarb against PHYTIN in potato. FE-20-A-PPMCB-PL09 Syntech PL GEP, not published	Y	Globachem N.V.
KCP 6.2-20	Kolditz M.	2020	Efficacy of propamocarb against PHYTIN in potato. FE-20-A-PPMCB-DE10 BioChem agrar GEP, not published	Y	Globachem N.V.
KCP 6.2-21	Gulbis K.	2021	Efficacy of fungicides based products against PHYTIN. FE-21-A-GLOB2013F-2106F-2007F-LV02 Latvian Plant Protection Research Centre (LAAPC) GEP, not published	Y	Globachem N.V.

Data point	Author(s)	Year	Title Company Report No. Company GLP or GEP status Published or not	Data protected (Y/N)	Owner
KCP 6.2-22	Umiński P.	2021	Efficacy of fungicides based products against PHYTIN. FE-21-A-GLOB2013F-2106F-2007F-PL03 Field Research Support (FRS) PL GEP, not published	Y	Globachem N.V.
KCP 6.2-23	Piotrowski G.	2021	Efficacy of fungicides based products against PHYTIN. FE-21-A-GLOB2013F-2106F-2007F-PL04 Syntech PL GEP, not published	Y	Globachem N.V.
KCP 6.2-24	Sipos P.	2021	Efficacy of fungicides based products against PHYTIN. FE-21-B-GLOB2013F-2106F-2007F-HU01 Eurofins Agrosience Services Kft. GEP, not published	Y	Globachem N.V.
KCP 6.2-25	Mareckova J.	2021	Efficacy of fungicides based products against PHYTIN. FE-21-B-GLOB2013F-2106F-2007F-CZ02 ZS Krasne Udoli (Ing. Jitka Mareckova) GEP, not published	Y	Globachem N.V.
KCP 6.2-27	Junglee S.	2021	Efficacy of fungicides based products against PHYTIN. FE-21-B-GLOB2013F-2106F-2007F-FR04 Promo-Vert FR GEP, not published	Y	Globachem N.V.
KCP 6.2-28	Junglee S.	2021	Efficacy of fungicides based products against PHYTIN. FE-21-B-GLOB2013F-2106F-2007F-ES05 Promo-Vert ES GEP, not published	Y	Globachem N.V.
KCP 6.2-30	Russo A.	2021	Efficacy of fungicides based products against PHYTIN. FE-21-B-GLOB2013F-2106F-2007F-IT07 Agri 2000 (Net) GEP, not published	Y	Globachem N.V.

Data point	Author(s)	Year	Title Company Report No. Company GLP or GEP status Published or not	Data protected (Y/N)	Owner
KCP 6.2-32	Dorotea Nagy C.	2021	Efficacy of fungicides based products against PHYTIN. FE-21-B-GLOB2013F-2106F-2007F-RO09 Biotek RO GEP, not published	Y	Globachem N.V.
KCP 6.2-33	Trnka M.	2021	Efficacy of fungicides based products against PHYTIN. FE-21-C-GLOB2013F-2106F-2007F-CZ01 Zemservis GEP, not published	Y	Globachem N.V.
KCP 6.2-35	Barasits T.	2021	Efficacy of fungicides based products against PHYTIN. FE-21-C-GLOB2013F-2106F-2007F-HU03 CPRF GEP, not published	Y	Globachem N.V.
KCP 6.2-36	Calari A.	2021	Efficacy of fungicides based products against PHYTIN. FE-21-C-GLOB2013F-2106F-2007F-IT04 Sagea GEP, not published	Y	Globachem N.V.
KCP 6.2-37	Gulbis K.	2021	Efficacy of fungicides based products against PHYTIN. FE-21-C-GLOB2013F-2106F-2007F-LV05 Latvian Plant Protection Research Centre (LAAPC) GEP, not published	Y	Globachem N.V.
KCP 6.2-39	Rezmerska-Pietka J.	2021	Efficacy of fungicides based products against PHYTIN. FE-21-C-GLOB2013F-2106F-2007F-PL07 PerfectBAD GEP, not published	Y	Globachem N.V.
KCP 6.2-40	Lang B.	2021	Efficacy of fungicides based products against PHYTIN. FE-21-D-GLOB2013F-2106F-2007F-HU01 Plant-Art GEP, not published	Y	Globachem N.V.

Data point	Author(s)	Year	Title Company Report No. Company GLP or GEP status Published or not	Data protected (Y/N)	Owner
KCP 6.2-41	Tvarůžek L.	2021	Efficacy of fungicides based products against PHYTIN. FE-21-D-GLOB2013F-2106F-2007F-CZ02 Zvu Kromeriz GEP, not published	Y	Globachem N.V.
KCP 6.2-42	Russo A.	2021	Efficacy of fungicides based products against PHYTIN. FE-21-D-GLOB2013F-2106F-2007F-IT03 Agri 2000 (Net) GEP, not published	Y	Globachem N.V.
KCP 6.2-43	Gulbis K.	2021	Efficacy of fungicides based products against PHYTIN. FE-21-D-GLOB2013F-2106F-2007F-LV04 Latvian Plant Protection Research Centre (LAAPC) GEP, not published	Y	Globachem N.V.
KCP 6.2-44	Beyreiss S.	2021	Efficacy of fungicides based products against PHYTIN. FE-21-D-GLOB2013F-2106F-2007F-UK05 Oxford Agricultural Trials (OAT) GEP, not published	Y	Globachem N.V.
KCP 6.2-45	Gajek D.	2021	Efficacy of fungicides based products against PHYTIN. FE-21-D-GLOB2013F-2106F-2007F-PL06 Agro Research Consulting (ARC) GEP, not published	Y	Globachem N.V.
KCP 6.2-46	Ewaldz T.	2022	Efficacy of fungicides based products against PHYTIN. FE-22-A-GLOB2013F-2106F-2007F-SE01 HUSEC GEP, not published	Y	Globachem N.V.
KCP 6.2-47	Sipos P.	2022	Efficacy of fungicides based products against PHYTIN. FE-22-A-GLOB2013F-2106F-2007F-HU02 Eurogins HU GEP, not published	Y	Globachem N.V.

Data point	Author(s)	Year	Title Company Report No. Company GLP or GEP status Published or not	Data protected (Y/N)	Owner
KCP 6.2-48	Barasits T.	2022	Efficacy of fungicides based products against PHYTIN. FE-22-A-GLOB2013F-2106F-2007F-HU03 CPRF GEP, not published	Y	Globachem N.V.
KCP 6.2-49	Gulbis K.	2022	Efficacy of fungicides based products against PHYTIN. FE-22-A-GLOB2013F-2106F-2007F-LV04 Latvian Plant Protection Research Centre (LAAPC) GEP, not published	Y	Globachem N.V.
KCP 6.2-50	Ewaldz T.	2022	Efficacy of fungicides based products against PHYTIN. FE-22-A-GLOB2013F-2106F-2007F-SE05 HUSEC GEP, not published	Y	Globachem N.V.
KCP 6.2-51	Dana P.	2022	Efficacy of fungicides based products against PHYTIN. FE-22-B-GLOB2013F-2106F-2007F-CZ01 ZS Kujavy GEP, not published	Y	Globachem N.V.
KCP 6.2-52	Bernardová M.	2022	Efficacy of fungicides based products against PHYTIN. FE-22-B-GLOB2013F-2106F-2007F-CZ02 ZZS Kluky GEP, not published	Y	Globachem N.V.
KCP 6.2-53	Burger P.	2022	Efficacy of fungicides based products against PHYTIN. FE-22-B-GLOB2013F-2106F-2007F-DE04 Quintus GEP, not published	Y	Globachem N.V.
KCP 6.2-54	Crepin D.	2022	Efficacy of fungicides based products against PHYTIN. FE-22-B-GLOB2013F-2106F-2007F-FR05 Essais+ GEP, not published	Y	Globachem N.V.

Data point	Author(s)	Year	Title Company Report No. Company GLP or GEP status Published or not	Data protected (Y/N)	Owner
KCP 6.2-56	de Vries H.	2022	Efficacy of fungicides based products against PHYTIN. FE-22-B-GLOB2013F-2106F-2007F-NL07 Vertify / Proeftuin Zwaagdijk GEP, not published	Y	Globachem N.V.
KCP 6.2-57	Umiński P.	2022	Efficacy of fungicides based products against PHYTIN. FE-22-B-GLBO2013F-2106F-2007F-PL08 Field Research Support (FRS) PL GEP, not published	Y	Globachem N.V.
KCP 6.2-58	Huszcza-Podgórska A.	2022	Efficacy of fungicides based products against PHYTIN. FE-22-B-GLBO2013F-2106F-2007F-PL09 Green & Property Consulting GEP, not published	Y	Globachem N.V.
KCP 6.2-59	Gulbis K.	2022	Efficacy of fungicides based products against PHYTIN. FE-22-C-GLOB2013F-2106F-2007F-LV01 Latvian Plant Protection Research Centre (LAAPC) GEP, not published	Y	Globachem N.V.
KCP 6.2-61	Ramos J.	2022	Efficacy of fungicides based products against PHYTIN. FE-22-D-GLOB2013F-2106F-2007F-ES03 BioChem AGROLOGIA SLU GEP, not published	Y	Globachem N.V.
KCP 6.2-62	Zappalà P.	2022	Efficacy of fungicides based products against PHYTIN. FE-22-D-GLOB2013F-2106F-2007F-IT05 Agrigeos GEP, not published	Y	Globachem N.V.
KCP 6.2-63	de Vries H.	2022	Efficacy of fungicides based products against PHYTIN. FE-22-D-GLOB2013F-2106F-2007F-NL04 Vertify / Proeftuin Zwaagdijk GEP, not published	Y	Globachem N.V.

Data point	Author(s)	Year	Title Company Report No. Company GLP or GEP status Published or not	Data protected (Y/N)	Owner
KCP 6.5-01	Mieszozka M.	2022	Comparative of sensory analysis of 6 potato samples from the Czech Republic. 098/2022 InHort Polish National Institute of Horticultural Research, not published.	Y	Globachem N.V.
KCP 6.5-02	Mieszozka M.	2022	Comparative of sensory analysis of 6 potato samples from Germany. 099/2022 InHort Polish National Institute of Horticultural Research, not published.	Y	Globachem N.V.
KCP 6.5-03	Stead A.	2022	GLOB2106cF: Seedling Emergence and Seedling Growth Test: Terrestrial Non-Target Plant Species following incorporation into soil. STC/22/E1577 GLP, not published	Y	Globachem N.V.