

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

Product code: GLOB2011I

Product Name: Sankari

Chemical active substances:

Pelargonic acid, 650 g/L

Central Zone
Zonal Rapporteur Member State: Poland

CORE ASSESSMENT

Applicant: Globachem N.V.

Submission date: April 2023

RMS Assessment: 17/02/2024

After commenting period: 05/05/2024

Update list studies: 28/05/2024

BBCH correction: 07/10/2024

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Version history

When	What
February 2024	RMS assessment
May 2024	After commenting period
May 2024	Update list studies
October 2024	BBCH correction

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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)

The process chosen by the zRMS to transform the dRR into a RR should be explained. Options are to rewrite the document (with track change or not) or to use commenting boxes such as the following:

Comments of zRMS:	Comments of zRMS are presented in commenting boxes at the end of each chapter. The text of dRR was generally not changed or rewritten (small changes in the document are marked by grey colour).
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3.1 Summary and conclusions of zRMS on Section 3: Efficacy (KCP 6)

Abstract

The purpose of this section is to evaluate efficacy data submitted for authorisation of GLOB2011I for insect control on arable crops.

Conclusion – Preliminary range-finding tests

The results presented demonstrate some benefit of pelargonic acid in the mode of action and as effective dose rate of formulations on different insect species and life stages. The results suggest that concentrations between 1/300 and 1/100 provide good control in the laboratory depending on the target pest. ZRMS agrees with the applicant that the level of control in the field needs to be further investigated.

Conclusion – Minimum effective dose

The applicant has made no discussion of this section. The applicant stated that the trials submitted to support the MED of GLOB2011I are the same as the efficacy trials described under section 3.2.3. in which individual trial results including lower dose rates of GLOB2011I are presented. The submitted number of efficacy trials per individual EPPO zone and use to support the approval of individual pest was limited. A definitive conclusion regarding the minimum effective dose per individual EPPO zone cannot be made based on the available data. However, there is a trend suggesting that 1.5 L/ha could serve as the minimum effective dose for use on cereals, oilseed rape and potatoes. At the lower doses, control was more variable, resulting in high control variation between trials and between EPPO climate zones. On the other hand, control was more consistent at the proposed maximum individual dose (975 g a.s./ha), although it was not found to be sufficiently effective for all applications.

Conclusion – Efficacy tests

GLOB2011I, an insecticide containing the natural substance pelargonic acid, is considered a low-risk candidate. Although the number of trials submitted to evaluate its efficacy is limited, the data for the uses of GLOB2011I on cereals and potatoes may be considered acceptable by the Member States concerned, albeit not meeting the requirements of EPPO 1/226(3). The final decision on this issue is up to the Member States concerned.

Conclusion - Resistance risk assessment

GLOB2011I is an emulsifiable concentrate formulation (EC) containing the active ingredient pelargonic acid (650 g/L) for insect control on arable crops. The proposed maximum label rate is 2 L/ha in cereals, 1.5 L/ha on oilseed rape and potatoes and 3 L/ha on maize. The applicant has stated that in most crops

the product will not be used more than twice a season. No known cases of resistance to pelargonic acid as an insecticide have been recorded. The risk to develop resistance to pelargonic acid is considered to be low, since no inheritable target site modifications are directly involved in the pest/PPP interaction. The resistance risk is considered acceptable.

Conclusion – Phytotoxicity to host crop

It can be concluded that GLOB2011I at the maximum proposed dose rate of 2 L/ha in cereals, 1.5 L/ha on oilseed rape and potatoes and 3 L/ha on maize has no phytotoxic effects on potatoes when applied according to label recommendations and avoiding spray overlaps.

Conclusion – Effect on the yield of treated plants or plant products

Overall, GLOB2011I applied at the proposed maximum dose rates had no adverse effects on crop yield when applied on cereals, oilseed rape, potatoes and maize and could even slightly increase the mean total yield compared to the untreated control.

Conclusion – Effects on the quality of plants or plant products

Overall, GLOB2011I applied at proposed label rate showed no negative effects on quality of cereals, oilseed rape, potatoes and maize. Therefore, no impact of GLOB2011I on quality of yield is to be expected, when applied within proposed label rate range and according to label recommendations.

Conclusion – Impact on succeeding crops

It is concluded that there is negligible risk of pelargonic acid impacting negatively on succeeding crops under normal use and no limitations are proposed. The case presented by the applicant is acceptable and no further data are required.

Conclusion – Impact on other plants including adjacent crops

Overall, it is concluded that the use of GLOB2011I at the proposed maximum recommended dose will not lead to any deleterious effects on adjacent or other crops under normal conditions. No buffer zone or other mitigation measures are needed to protect non-target plants after application of GLOB2011I according to the intended use.

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

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. (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)	zRMS Conclusion (efficacy)
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	g as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
Zonal uses (field or outdoor uses, certain types of protected crops)														
1	PL	Cereals (winter wheat [TRZAW], winter durum wheat [TRZDW], spelt [TRZSP], winter barley [HORVW], winter rye [SECCW], winter triticale [TTLWI])	F	Aphids / <i>Rhopalosiphum padi</i> [RHOPPA], <i>Sitobion avenae</i> [MACASV]	downward spraying	At first infestation / BBCH 10-29 (autumn: end of September to end of December)	a) 2 (14) b) 2 (14)	14	a) 1.5 b) 3.0	a) 975 b) 1950	200-400	NA		winter barley [HORVW] winter wheat [TRZAW], winter durum wheat [TRZDW], spelt [TRZSP], winter rye [SECCW], winter triticale [TTLWI])
2	CZ, IE	Cereals (winter wheat [TRZAW], winter durum wheat [TRZDW], spelt [TRZSP], winter barley [HORVW], winter rye [SECCW], winter triticale [TTLWI])	F	Aphids / <i>Rhopalosiphum padi</i> [RHOPPA], <i>Sitobion avenae</i> [MACASV]	downward spraying	At first infestation / BBCH 10-29 (autumn: end of September to end of December)	a) 2 (14) b) 2 (14)	14	a) 1.5 b) 3.0	a) 975 b) 1950	200-400	NA		C
3	PL	Cereals (winter wheat [TRZAW], winter durum wheat [TRZDW], spelt [TRZSP], winter barley [HORVW], winter rye [SECCW], winter triticale [TTLWI])	F	Aphids / <i>Rhopalosiphum padi</i> [RHOPPA], <i>Sitobion avenae</i> [MACASV]	downward spraying	At first infestation / BBCH 21-49 (spring: March to May)	a) 2 (14) b) 2 (14)	14	a) 1.5 b) 3.0	a) 975 b) 1950	200-400	NA		winter barley [HORVW] winter wheat [TRZAW], winter durum wheat [TRZDW], spelt [TRZSP], winter rye [SECCW]

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. (e)	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F, Fn, 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 (t)	zRMS Conclusion (efficacy)
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	g as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
4	CZ, IE	Cereals (winter wheat [TRZAW], winter durum wheat [TRZDW], spelt [TRZSP], winter barley [HORVW], winter rye [SECCW], winter triticale [TTLWI])	F	Aphids / <i>Rhopalosiphum padi</i> [RHOPPA], <i>Sitobion avenae</i> [MACASV]	downward spraying	At first infestation / BBCH 21-49 (spring: March to May)	a) 2 (14) b) 2 (14)	14	a) 1.5 b) 3.0	a) 975 b) 1950	200-400	NA		C
5	PL	Cereals (winter and spring wheat [TRZAW & TRZAS], winter and spring durum wheat [TRZDW & TRZDS], spelt [TRZSP], winter and spring barley [HORVW & HORVS], winter and spring rye [SECCW & SECCS], winter and spring triticale [TTLWI & TTLSO])	F	Aphids / <i>Rhopalosiphum padi</i> [RHOPPA], <i>Sitobion avenae</i> [MACASV]	downward spraying	BBCH 51-77 (spring: May to beginning of July)	a) 2 (14) b) 2 (14)	14	a) 1.5 b) 3.0	a) 975 b) 1950	200-400	NA		(winter and spring wheat [TRZAW & TRZAS]) winter and spring durum wheat [TRZDW & TRZDS], spelt [TRZSP], winter and spring barley [HORVW & HORVS], winter and spring rye [SECCW & SECCS], winter and spring triticale [TTLWI & TTLSO])
6	CZ, IE	Cereals (winter and spring wheat [TRZAW & TRZAS], winter and spring durum	F	Aphids / <i>Rhopalosiphum padi</i> [RHOPPA], <i>Sitobion avenae</i> [MACASV]	downward spraying	BBCH 51-77 (spring: May to	a) 2 (14)	14	a) 1.5 b) 3.0	a) 975 b) 1950	200-400	NA		C

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. (e)	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F, Fn, 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)	zRMS Conclusion (efficacy)
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	g as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
		wheat [TRZDW & TRZDS], spelt [TRZSP], winter and spring barley [HORVW & HORVS], winter and spring rye [SECCW & SECCS], winter and spring triticales [TTLWI & TTLSO])				beginning of July)	b) 2 (14)							
7	PL	Cereals (winter wheat [TRZAW], winter durum wheat [TRZDW], spelt [TRZSP], winter barley [HORVW], winter rye [SECCW], winter triticales [TTLWI])	F	Aphids / <i>Rhopalosiphum padi</i> [RHOPPA], <i>Sitobion avenae</i> [MACASV]	downward spraying	At first infestation / BBCH 10-29 (autumn: end of September to end of December)	a) 2 (14) b) 2 (14)	14	a) 2.0 b) 4.0	a) 1300 b) 2600	200- 400	NA		winter barley [HORVW] winter wheat [TRZAW] winter durum wheat [TRZDW], spelt [TRZSP], winter rye [SECCW], winter triticales [TTLWI])
8	CZ, IE	Cereals (winter wheat [TRZAW], winter durum wheat [TRZDW], spelt [TRZSP], winter barley [HORVW], winter rye [SECCW], winter triticales [TTLWI])	F	Aphids / <i>Rhopalosiphum padi</i> [RHOPPA], <i>Sitobion avenae</i> [MACASV]	downward spraying	At first infestation / BBCH 10-29 (autumn: end of September to end of December)	a) 2 (14) b) 2 (14)	14	a) 2.0 b) 4.0	a) 1300 b) 2600	200- 400	NA		C
9	PL		F					14	a) 2.0	a) 1300		NA		winter barley [HORVW]

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. (e)	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F, Fn, 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)	zRMS Conclusion (efficacy)
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	g as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
		Cereals (winter wheat [TRZAW], winter durum wheat [TRZDW], spelt [TRZSP], winter barley [HORVW], winter rye [SECCW], winter triticale [TTLWI])		Aphids / <i>Rhopalosiphum padi</i> [RHOPPA], <i>Sitobion avenae</i> [MACASV]	downward spraying	At first infestation / BBCH 21-49 (spring: March to May)	a) 2 (14) b) 2 (14)		b) 4.0	b) 2600	200-400			winter wheat [TRZAW], winter durum wheat [TRZDW], spelt [TRZSP], winter rye [SECCW], winter triticale [TTLWI]
10	CZ, IE	Cereals (winter wheat [TRZAW], winter durum wheat [TRZDW], spelt [TRZSP], winter barley [HORVW], winter rye [SECCW], winter triticale [TTLWI])	F	Aphids / <i>Rhopalosiphum padi</i> [RHOPPA], <i>Sitobion avenae</i> [MACASV]	downward spraying	At first infestation / BBCH 21-49 (spring: March to May)	a) 2 (14) b) 2 (14)	14	a) 2.0 b) 4.0	a) 1300 b) 2600	200-400	NA		C
11	PL	Cereals (winter and spring wheat [TRZAW & TRZAS], winter and spring durum wheat [TRZDW & TRZDS], spelt [TRZSP], winter and spring barley [HORVW & HORVS], winter and spring rye [SECCW & SECCS], winter and spring triticale [TTLWI & TTLSO])	F	Aphids / <i>Rhopalosiphum padi</i> [RHOPPA], <i>Sitobion avenae</i> [MACASV]	downward spraying	BBCH 51-77 (spring: May to beginning of July)	a) 2 (14) b) 2 (14)	14	a) 2.0 b) 4.0	a) 1300 b) 2600	200-400	NA		winter and spring wheat [TRZAW & TRZAS] winter and spring durum wheat [TRZDW & TRZDS], spelt [TRZSP], winter and spring barley [HORVW & HORVS], winter and spring rye [SECCW & SECCS], winter and spring triticale [TTLWI & TTLSO]

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. (e)	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F, Fn, 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 (i)	zRMS Conclusion (efficacy)
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	g as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
12	CZ, IE	Cereals (winter and spring wheat [TRZAW & TRZAS], winter and spring durum wheat [TRZDW & TRZDS], spelt [TRZSP], winter and spring barley [HORVW & HORVS], winter and spring rye [SECCW & SECCS], winter and spring triticale [TTLWI & TTLSO])	F	Aphids / <i>Rhopalosiphum padi</i> [RHOPPA], <i>Sitobion avenae</i> [MACASV]	downward spraying	BBCH 51-77 (spring: May to beginning of July)	a) 2 (14) b) 2 (14)	14	a) 2.0 b) 4.0	a) 1300 b) 2600	200-400	NA		C
13	CZ, IE	Oilseed rape (winter) [BRSNN]	F	Cabbage stem flea beetle / <i>Psylliodes chrysocephala</i> [PSYICH]	downward spraying	At first infestation / BBCH 10-16 (summer-autumn: late August to end of October)	a) 2 (14) b) 2 (14)	14	a) 1.5 b) 3.0	a) 975 b) 1950	200-400	NA		C
14	PL	Oilseed rape (winter) [BRSNN]	F	Cabbage stem flea beetle / <i>Psylliodes chrysocephala</i> [PSYICH]	downward spraying	At first infestation / BBCH 10-16 (summer-autumn: late August to end of October)	a) 2 (14) b) 2 (14)	14	a) 1.5 b) 3.0	a) 975 b) 1950	200-400	NA		
15	CZ, IE	Oilseed rape (winter) [BRSNW]	F	Flea beetle / <i>Phyllotreta</i> sp. [PHYESP]	downward spraying	At first infestation / BBCH 10-16	a) 2 (14)	14	a) 1.5 b) 3.0	a) 975 b) 1950	200-400	NA		C

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. (e)	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F, Fn, 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)	zRMS Conclusion (efficacy)
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	g as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
						(summer- autumn: late August to end of October)	b) 2 (14)							
16	PL	Oilseed rape (winter) [BRSNW]	F	Flea beetle / <i>Phyllotreta</i> sp. [PHYESP]	downward spraying	At first infestation / BBCH 10-16 (summer- autumn: late August to end of October)	a) 2 (14) b) 2 (14)	14	a) 1.5 b) 3.0	a) 975 b) 1950	200- 400	NA		
17	CZ, IE	Oilseed rape (winter and spring) [BRSNW and BRSNS]	F	<i>Pollen beetle / Meligethes</i> <i>aeneus</i> [MELIAE]	downward spraying	At first infestation / BBCH 50-65 (spring: April to July)	a) 2 (14) b) 2 (14)	14	a) 1.5 b) 3.0	a) 975 b) 1950	200- 400	NA		C
18	PL	Oilseed rape (winter and spring) [BRSNW and BRSNS]	F	<i>Pollen beetle / Meligethes</i> <i>aeneus</i> [MELIAE]	downward spraying	At first infestation / BBCH 50-65 (spring: April to July)	a) 2 (14) b) 2 (14)	14	a) 1.5 b) 3.0	a) 975 b) 1950	200- 400	NA		
19	CZ, IE	Oilseed rape (winter and spring) [BRSNW and BRSNS]	F	Cabbage seed - pod weevil / <i>Ceutorhynchus</i> <i>obstrictus</i> [CEUTAS]	downward spraying	At first infestation / BBCH 50-65 (spring: April to July)	a) 2 (14) b) 2 (14)	14	a) 1.5 b) 3.0	a) 975 b) 1950	200- 400	NA	The treatment against pollen beetle also fights the cabbage seed/pod weevil	C

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
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 (i)	zRMS Conclusion (efficacy)
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													<i>Ceutorhynchus obstrictus</i> (CEUTAS)	
20	PL	Oilseed rape (winter and spring) [BRSNW and BRSNS]	F	Cabbage seed - pod weevil / <i>Ceutorhynchus obstrictus</i> [CEUTAS]	downward spraying	At first infestation / BBCH 50-65 (spring: April to July)	a) 2 (14) b) 2 (14)	14	a) 1.5 b) 3.0	a) 975 b) 1950	200- 400	NA	The treatment against pollen beetle also fights the cabbage seed/pod weevil <i>Ceutorhynchus obstrictus</i> (CEUTAS)	
21	CZ, IE	Potato [SOLTU]	F	Colorado beetle / <i>Leptinotarsa decemlineata</i> [LPTNDE]	downward spraying	At first infestation / BBCH 35-85 (spring-summer: May to August)	a) 2 (14) b) 2 (14)	14	a) 1.5 b) 3.0	a) 975 b) 1950	200- 400	NA		C
22	PL	Potato [SOLTU]	F	Colorado beetle / <i>Leptinotarsa decemlineata</i> [LPTNDE]	downward spraying	At first infestation / BBCH 35-85 (spring-summer: May to August)	a) 2 (14) b) 2 (14)	14	a) 1.5 b) 3.0	a) 975 b) 1950	200- 400	NA		
23	CZ, IE	Maize [ZEAMX]	F	Corn borer / <i>Ostrinia nubilalis</i> [PYRUNU]	downward spraying	At first infestation / BBCH 51-71 (summer: June to July)	a) 2 (14) b) 2 (14)	14	a) 2.0 b) 4.0	a) 1300 b) 2600	200- 600	NA		C

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
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 (t)	zRMS Conclusion (efficacy)
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	g as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
24	PL	Maize [ZEAMX]	F	Corn borer / <i>Ostrinia nubilalis</i> [PYRUNU]	downward spraying	At first infestation / BBCH 51-71 (summer: June to July)	a) 2 (14) b) 2 (14)	14	a) 2.0 b) 4.0	a) 1300 b) 2600	200- 600	NA		
25	CZ, IE	Maize [ZEAMX]	F	Corn borer / <i>Ostrinia nubilalis</i> [PYRUNU]	downward spraying	At first infestation / BBCH 51-71 (summer: June to July)	a) 2 (14) b) 2 (14)	14	a) 3.0 b) 6.0	a) 1950 b) 3900	200- 600	NA		C
26	PL	Maize [ZEAMX]	F	Corn borer / <i>Ostrinia nubilalis</i> [PYRUNU]	downward spraying	At first infestation / BBCH 51-71 (summer: June to July)	a) 2 (14) b) 2 (14)	14	a) 3.0 b) 6.0	a) 1950 b) 3900	200- 600	NA		

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

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

Column 15: zRMS conclusion.

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

3.2 Efficacy data (KCP 6)

Introduction

This core assessment dossier summarises the information related to the efficacy of the plant protection product GLOB2011I, an emulsifiable concentrate formulation (EC) containing the active ingredient pelargonic acid (650 g/L) for insect control on arable crops.

Poland is considered to be the zonal Rapporteur Member State (zRMS) of this submission for the Central zone, while France is considered to be the zRMS for the Southern zone according to the Regulation No. 1107/2009. At the time of submission, Czech Republic and Ireland are also included as concerned Member States (cMS) for the Central zone. No other cMS are included for the Southern zone. Trials included in this BAD were however performed across all climatic zones comprised in Central and South regulatory zones, including the Maritime, North-East, South-East and Mediterranean EPPO Zones according to the EPPO standard PP1/241.

The active ingredient was included into Annex I of Directive 91/414, repealed by Regulation (EC) No 1107/2009 (Directive 2008/127/EC3). The review report for pelargonic acid (Fatty Acids C7 to C20 - SANCO/2611/08 – rev. 2) finalised in the Standing Committee on the Food Chain and Animal Health at its meeting on 28 October 2008 and revised on 2013 is considered to provide the relevant review information or a reference to where such information can be found.

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

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

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

Moreover, pelargonic acid was ascribed on the draft list of low-risk active substance. It was expected to be renewed and officially listed as a low-risk active substance. SANKARI was planned to be submitted according to Article 47 as the active substance does not fulfil the criteria to be excluded as low-risk active substance as defined in point 5 of Annex II of Regulation 1109/2009 and SANKARI would not need specific risk mitigation measures. Nevertheless, renewal is still on-going and the low-risk status still under discussion. Yet, the natural profile of the substance and the indications of no harmful effects on human or animal health or on groundwater or any unacceptable influence on the environment should be kept in mind when evaluating the effectiveness compared to conventional plant protection products.

Description of active substances

Fatty acids (as pertains to their use as agrochemicals), are a heterogeneous group of typically un-branched, long chain organic acids varying from 7 to 18 carbons in length and comprising free acids, alkali salts and esters formed from short chain or low molecular weight alcohols such as methanol. Fatty acids were assumed to be low-risk compounds.

The active substance pelargonic acid is an old active substance, extracted for the first time from *Pelargonium roseum* leaves and registered in many EU countries and used for the weed control, especially in organic farming. plant death.

Mode of action

Pelargonic acid is a compound of natural occurrence in the environment, having rapid metabolism and degradation in soil.

When used as herbicide, the mechanism of action is not completely defined. It appears that at high dose rates, the primary effect of the chemical is to affect a sudden drop in intra-cellular pH which in turn causes degradation of membranes and ultimately cell death.

It has now been found that pelargonic acid (synonym: nonanoic acid) used at selected rates is also effective at controlling insect pests. Due to the favorable environmental profile of pelargonic acid and the fact that it provides an alternative mode of action compared to many insecticides currently widely used on arable crops, it represents an important new solution for farmers to control or prevent damage caused by insects.

Other fatty acids are known and currently authorized as contact insecticides. Mode of action and classification by IRAC is unknown (UNE - Botanical essence including synthetic, extracts and unrefined oils with unknown or uncertain MOA). They are believed to penetrate the external layers of the target pest, interacting with multiple vital metabolic processes.

Given the characteristics of the active substance, GLOB2011I is to be used when insects are present in a maximum of 2 applications.

Table 3.2-2: Details of the active substances in GLOB2011I

Active substance	pelargonic acid (synonym: nonanoic acid)
Concentration (Unit: g/kg or g/L...)	650 g/L
Chemical group	Fatty acids
Mode of action	Unknown
Biological action	Unknown. Most likely due to corrosive damage to tissues of the respiratory system

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Description of the plant protection product

The product GLOB2011I contains pelargonic acid (650 g/L). Information on the detailed composition can be found in the confidential dossier of this submission (Registration Report - Part C).

The appearance of the product is that of a uniform clear yellow liquid, with a faint solvent odour. It is not explosive, has no oxidising properties. The product is not flammable. The stability data indicate a shelf life of at least 2 years at ambient temperature when stored in *HDPE-PA*, *HDPE-EVOH* or *HDPE-F*. Its technical characteristics are acceptable for an *emulsifiable concentrate* formulation.

Compared to hebicidal formulations present of the market, the formulation of GLOB2011I for insect control is improved for a better spread and absorption.

The classification proposal GLOB2011I according to Regulation (EC) 1272/2008 (CLP Regulation) can be found in Part A of this submission.

Table 3.2-3: Simplified table of currently registered uses and requested uses for GLOB2011I in the Central Zone

Uses		Member State	Requested rate(s)	Comments / Other relevant details on GAPs
Crop(s)	Target(s)			
Cereals (winter and spring)	aphids	PL, CZ, IE	1.5-2 L/ha	Max. 2 applications Autumn: BBCH 10-29 Spring: BBCH 21-77
Oilseed rape (winter and spring)	Pollen beetle (<i>Meligethes aeneus</i>)	PL, CZ, IE	1.5 L/ha	Max. 2 applications Spring: BBCH 50-65
Oilseed rape (winter and spring)	Cabbage seed-pod weevil (<i>Ceutorhynchus obstrictus</i>)	PL, CZ, IE	1.5 L/ha	Max. 2 applications Spring: BBCH 50-65
Oilseed rape (winter)	CSFB (<i>Psylliodes chrysocephala</i>)	PL, CZ, IE	1.5 L/ha	Max. 2 applications Summer-Fall: BBCH 10-16
Oilseed rape (winter)	Flea beetles (<i>Phyllotreta</i> spp.)	PL, CZ, IE	1.5 L/ha	Max. 2 applications Summer-Fall: BBCH 10-16
Potato (SOLTU)	<i>Leptinotarsa decemlineata</i>	PL, CZ, IE	1.5 L/ha	Max. 2 applications Spring- summer: BBCH 35-85
Maize (ZEAMX)	<i>Ostrinia nubilalis</i>	PL, CZ, IE	2-3 L/ha	Max. 2 applications BBCH summer 51-71

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

Description of the target pests

Table 3.2-4: Glossary of pests mentioned in the dossier

EPPO code	Scientific name	Common name
APHISP	<i>Aphis</i> sp.	Aphids
MACSAV	<i>Sitobion avenae</i>	English grain aphid
RHOPPA	<i>Rhopalosiphum padi</i>	Bird cherry-oat aphid
MYZUPE	<i>Myzus persicae</i>	Green peach aphid
MELIAE	<i>Meligethes aeneus</i>	Blossom beetle
PSYICH	<i>Psylliodes chrysocephala</i>	cabbage stem flea beetle
PHYESP	<i>Phyllotreta</i> sp.	Flea beetles
PHYEAT	<i>Phyllotreta atra</i>	cabbage flea beetle
CEUTQU	<i>Ceutorhynchus pallidactylus</i>	cabbage stem weevil
CEUTPL	<i>Ceutorhynchus assimilis</i> (formerly known as <i>C. pleurostigma</i>)	cabbage gall weevil
CEUTAS	<i>Ceutorhynchus obstrictus</i> (formerly known as <i>C. assimilis</i>)	cabbage seed weevil
LPTNDE	<i>Leptinotarsa decemlineata</i>	Colorado potato beetle
PYRUNU	<i>Ostrinia nubilalis</i>	European corn borer

Table 3.2-5: 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
Cereals	PL, CZ, IE	-	aphids	PL, CZ, IE	-
Oilseed rape	PL, CZ, IE	-	Pollen beetle (<i>Meligethes aeneus</i>)	PL, CZ, IE	
			CSFB (<i>Psylliodes chrysocephala</i>)	PL, CZ, IE	
			Flea beetles (<i>Phyllotreta</i> spp.)	PL, CZ	IE
			Cabbage seed-pod weevil (<i>Ceutorhynchus obstrictus</i>)	PL, CZ, IE	
Potato (SOLTU)	PL, CZ, IE	-	<i>Leptinotarsa decemlineata</i>	PL, CZ, IE	
Maize (ZEAMX)	PL, CZ, IE	-	<i>Ostrinia nubilalis</i>	PL, CZ, IE	-

Compliance with the Uniform Principles

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

Information on trials submitted (3.2 Efficacy data)

The following table aims to give an overview of submitted trials.

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

Crop	Target(s)	Country	Years	Type of trial**	Number of trials				GEP, non-GEP, official***
					Marit. zone	North-East zone	South-East zone	Medit. Zone	
TRZAS	MACSAV	DEU	2022	MED+E	1				GEP
		SRB	2020	MED+E			1		officially
TRZAW		CZE	2022	MED+E	1				GEP
		DEU	2020	MED+E	1				GEP
		ESP	2022	MED+E				1	GEP
		HRV						1	GEP
		ITA						1	GEP
	BGR	2020	MED+E			1		GEP	
	CZE	2021	MED+E	1				GEP	
	ITA						2	GEP	
	NLD			1				GEP	
POL				2			GEP		
	SRB	2020	MED+E			1		officially	
TRZDW	APHISP						1	GEP	
	BRAYNO	ESP					1	GEP	
Aphids spring appl. Total					5	2	3	7	
HORVW	MACSAV	CZE	2022	MED+E	1				GEP
		DEU			2				GEP
		ESP						1	GEP
		FRA			1				GEP
		GBR			1			1	GEP
		HRV						1	GEP
		ITA						4	GEP
	MACSAV & MYZUPE	HRV					1	GEP	
	RHOPPA	NLD	2021	MED+E	1				GEP
		CZE	2021	MED+E	1				GEP
			2022	MED+E	2				GEP
		DEU	2021	MED+E	1				GEP
		GBR	2022	MED+E	1				GEP
		POL	2021	MED+E		1			GEP
TRZAW		DEU	2020	MED+E	1				GEP
Aphids autumn appl. Total					12	1	-	8	
BRSNW	PHYEAT & PSYICH	CZE	2022	MED+E	2				GEP
		DEU			2				GEP
		ESP						1	GEP
		EST				1			GEP
		FRA						1	GEP
		HRV						1	GEP
		ITA						1	GEP
BRSNW	PSYICH	BGR	2021	MED+E			1		GEP
		CZE	2022	MED+E	4				GEP
		DEU			3				GEP
		ESP						2	GEP
		FRA						1	GEP
		GBR			4				GEP
		HRV						2	GEP
		ITA						4	GEP
		LTU				3			GEP
		POL				2			GEP
PSYICH Total					15	6	1	13	

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Crop	Target(s)	Country	Years	Type of trial**	Number of trials				GEP, non-GEP, official***
					Marit. zone	North-East zone	South-East zone	Medit. Zone	
BRSNW	PHYEAT	LTU	2022	MED+E		1			GEP
	PHYEAT & PSYICH	CZE			2				GEP
		DEU			2				GEP
		ESP						1	GEP
		EST				1			GEP
		FRA						1	GEP
		HRV						1	GEP
		ITA						2	GEP
	PHYEAT Total					4	2	-	5
BRSNS	MELISP	NLD	2020	MED+E	1				GEP
BRSNS	MELIAE	DEU	2022	MED+E	1				GEP
		ITA					1	GEP	
BRSNW	MELIAE	CZE	2022	MED+E	3				GEP
		DEU	2021	MED+E	1				GEP
					2 ¹				
		ESP	2022	MED+E				2 ¹	GEP
		EST				1 ¹			GEP
		FRA	2021	MED+E	1				GEP
		HRV	2022	MED+E				1 ¹	GEP
		HUN					1		GEP
		ITA						2 ¹	GEP
		LVA				1 ¹			GEP
		POL		3 ²			GEP		
		MELIAE Total					9	5	1
BRSNW	CEUTAS	DEU	2021	MED+E	1				GEP
		ESP	2022	MED+E				1	GEP
		EST				1			GEP
		HRV						1	GEP
		ITA						2	GEP
		POL				3			GEP
	CEUTAS	LVA			1			GEP	
	CEUTAS Total					1	5	-	4
SOLTU	LPTNDE	CZE	2021	MED+E	1				GEP
			2022	MED+E	2				GEP
		DEU	2021	MED+E	1				GEP
		ESP						1	GEP
			2022	MED+E				2	GEP
		FRA						1	GEP
		HRV						1	GEP
		HUN				1			GEP
		ITA	2021	MED+E				1	GEP
			2022	MED+E				3	GEP
		NLD			1				GEP
POL	2021	MED+E		2			GEP		
LPTNDE Total					5	2	1	9	
ZEAMX	PYRUNU	ESP	2021	MED+E				2	GEP
			2022	MED+E				1	GEP
		FRA	2022	MED+E				1	GEP
		HUN				2			GEP
		ITA	2020	MED+E				1	GEP
			2021	MED+E				2	GEP
			2022	MED+E				1	GEP
PYRUNU Total					-	-	2	8	

¹ in one trial both MELIAE and CEUTAS occurred; ² in all trials both MELIAE and CEUTAS occurred

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

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

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

Separate tables with reference standards used in efficacy trials are presented in the following points per use.

Presentation of earlier formulations and formulation names

The final formulation code GLOB2011I is submitted for registration. In previous years, the tested formulation was identified under different names/codes namely:

Product code	Product name	a.s. and concentration	Remarks
-	Test compound	Pelargonic acid, 650 g/L	-
Globa-M.	-	Pelargonic acid, 650 g/L	-
GlobA	-	Pelargonic acid, 650 g/L	-
GlobA.M	-	Pelargonic acid, 650 g/L	MPG added to lower freezing point."
Globa	-	Pelargonic acid, 650 g/L	-
GLOB2011I	Sankari	Pelargonic acid, 650 g/L	-

3.2.1 Preliminary tests (KCP 6.1)

Pelargonic acid is a compound of natural occurrence in the environment, having rapid metabolism and degradation in soil with known use for weed control.

It has now been found that Pelargonic acid (synonym: Nonanoic acid) used at selected rates is also effective at controlling insect pests. Due to the favorable environmental profile of pelargonic acid and the fact that it provides an alternative mode of action compared to many insecticides currently widely used on arable crops, it represents an important new solution for farmers to control or prevent damage caused by insects.

Preliminary studies have been conducted by the applicant in its own laboratories in order to provide scientific background on the mode of action underlying the insecticidal effect of pelargonic acid using *Drosophila suzukii* as a model insect, as well as on the range of action and effective dose rate of pelargonic acid formulations on different insect species and life stages.

Results suggest that the insecticidal effect of pelargonic acid is most likely due to corrosive damage to tissues of the respiratory system. The optimised formulation of Pelargonic acid 650 g/L (named Sankari) showed effect on a large variety of insects. Results suggest that concentrations between 1/300 and 1/100 show good control in laboratory depending on the target pest. The control level in the field must be further investigated.

3.2.1.1 Preliminary studies on the mode of action

General materials and methods

Test item: Pelargonic acid (PA) 96,5%.

Test Species: *Drosophila suzukii*

Fly husbandry: *D. suzukii* initial flies were derived from a Belgian population that was caught in the wild and kept on standard Cornmeal-molasses food at 21°C, 60% humidity with a 12/12 day/ night cycle.

a) Observation of insect behavior upon contact with pelargonic acid

Aim: Gain insight into the effect of pelargonic acid (PA) by detailed observation of *D. suzukii* behavior upon treatment.

Experimental setup:

Adult *D. suzukii* (between 3 and 20 days after emergence) were transferred without sedation to vials with 1g instant *Drosophila* food (Formula 4-24® Instant *Drosophila* Medium, Blue, Carolina Biological Supply Company, PO Box 6010, Burlington, NC 27216-6010) mixed with 4 ml water containing 3% PA.

Dose was chosen based on previous survival studies. Insect behavior was observed using a stereomicroscope (Leica MZ6) and was recorded (Sony HDR-CX405). Control flies were placed on food without PA. The instant food has a blue color, this allows visual inspection of the flies abdomen to confirm eating and to exclude starvation effects.

Results:

After 1 minute, flies started to show coordination problems. Flies fell over, laid on their back and failed to climb the sides of the vial. Furthermore, flies showed extensive proboscis extension behavior. Finally, flies died. Visual inspection of dead flies showed blue intestines that could be observed through the cuticula indicating flies ate the food containing 3% PA.

Conclusion:

Pelargonic acid has a very fast effect on insect behavior and survival. Most pronounced effects are loss of coordination, proboscis extension and death. Although the tested flies were not starved they did eat the food with 3% PA suggesting that PA is not repellent.

b) Toxic route of administration of pelargonic acid

Aim: Gain insight in the administration route that results in the toxic effect of pelargonic acid (PA)

Experimental setup:

Adult *Drosophila suzukii* (3-20 days old) were placed in 4 different setups (n=10 each setup) to identify which administration routes result in toxicity.

- Inhalation: *D. suzukii* were placed in a tube with food containing 3% PA for 12h. Flies were separated from the food by a mesh, thus inhibiting direct contact. Control flies were placed in vials with standard food (Fig.1. A).
- Oral administration: *D. suzukii* were starved overnight and placed in a pipet tip with only their head sticking out. Water containing 3% PA and blue dye was offered by a wick. (Fig.1. B).
- Administration by contact with wings or legs: using a small paintbrush a drop of water with 3% PA and blue dye was put on legs or wings of CO₂ sedated flies. Administration by contact with legs: Whatman paper was soaked in water containing 3% PA, placed in a petri dish and dried for 10 min. Unsedated flies were placed on the paper. (Fig.1. C).
- Administration by cuticular contact: to prevent grooming behavior and accidental oral administration, flies were placed in a collar. Water solution containing 3% PA was applied to thorax and abdomen using a paint brush. (Fig.1. D).

Results:

- Inhalation had no effect on behavior or survival.
- Oral administration resulted in proboscis extension and refusal to drink again. If flies were released, most recovered and survived.
- Contact with wings or legs resulted in grooming behavior followed by proboscis extension behavior. The latter could be due to the flies spreading the solution over its body by grooming its wings and legs.
- Contact by cuticular administration resulted in death within minutes. Control flies treated with water had no problems when released from the collar.

		# flies dead	# flies alive
Inhalation	UTC	0	15
	Food with 3% PA	0	15
Oral administration	UTC	0	5
	Water solution with 3% PA	1	4
Contact with wings or legs	UTC	0	10
	Water solution with 3% PA	0	10
Cuticular administration	UTC	0	10
	Water solution with 3% PA	10	0

Conclusion:

Cuticular contact is required for pelargonic acid to exert its toxic effect. Oral administration has toxic effects, but flies mostly recover.

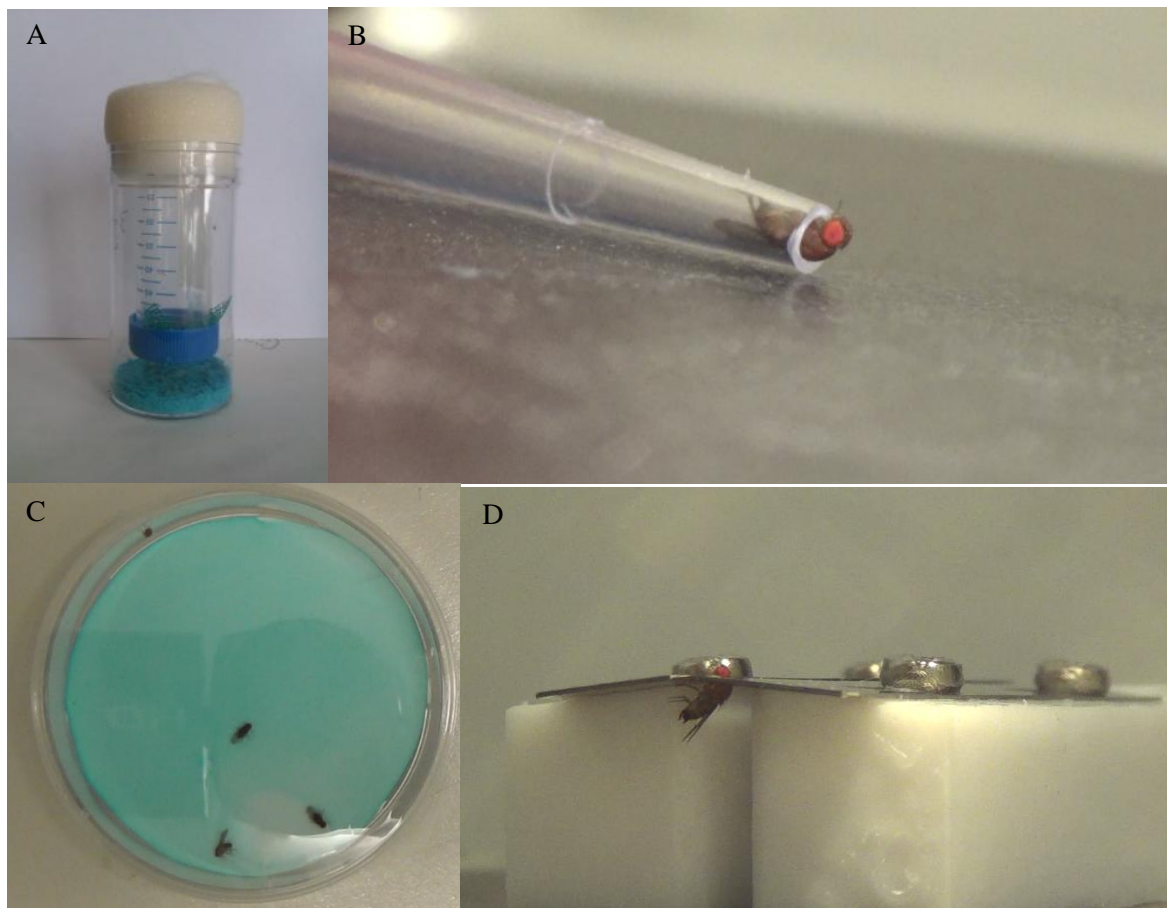


Fig.1. A) Flies were placed in middle tube. This tube is sealed on the bottom with mesh to inhibit direct contact with the food. B) Flies were fixed in a pipettip with only their head sticking out. They were offer liquid to drink using a wick. C) Flies were placed on dry Whatman paper in a petridish D) Flies were placed in a headcollar to allow treatment of the thorax and abdomen.

c) Morphological analysis

Aim: Investigate morphological alterations to gain insight in the physiological effects of pelargonic acid (PA)

Experimental setup:

Adult *D. suzukii* (3-20 days old) were placed on blue instant fly food containing 3% PA for 4 hours and subsequently dissected. General morphology of head, thorax and abdomen were investigated. Intestinal tissues, crop and tubes of Malpighi were stained using rhodamine phalloidine. Rhodamine phalloidine stains F-actin and allows to observe if tissues are intact or damaged. All tissue were compared to tissue from untreated flies (N=5 per tissue).

Results:

- Abdomen

Before dissection, air bubbles could be seen through the abdominal cuticula. After dissection, these air bubbles seemed to be located between the basal membrane and the muscle layers of the bowl and crop. Both crop and the first part of the bowl showed a blue color indicating the insects ate the food with 3% PA.

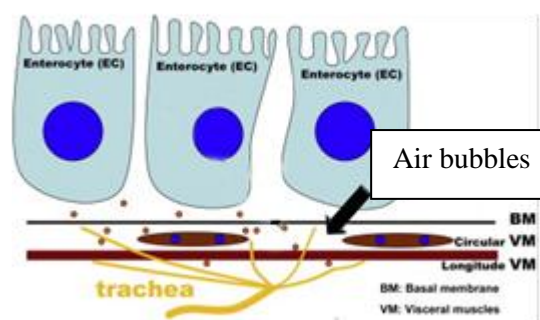


Fig. 2. Air bubbles could be observed through the cuticula. After dissection these bubbles seemed to be located between the basal membrane and the bowl muscles (Li et al. 2013).

To check the integrity of the crop, bowl and Malpighian tubuli tissues, we made use of a rhodamine phalloidine staining. These tissues did not show any obvious damage or irregularities.

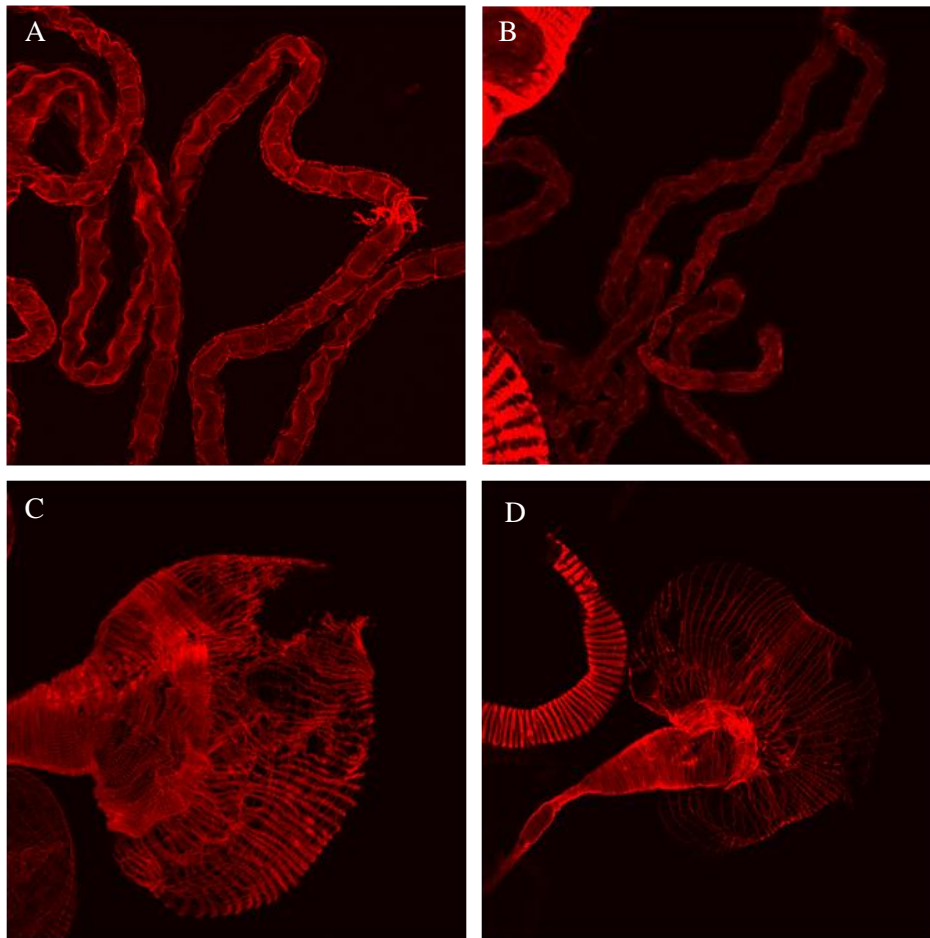


Fig. 3 A-B) Malpighian tubes A) untreated B) treated. C-D) crop tissue C) untreated D) treated

Also in the bowl we could observe intact longitudinal and circular muscle tissue. However, the lumen seemed to be less strict defined and the mucosa more swollen in flies treated with AP. We hypothesize this could be due to the air bubbles we observed between the muscle layers and the basal membrane which could push the tissues together and close the lumen. Although the crop of the treated flies was well filled with food, we can not exclude that the reduction in lumen diameter is not due to a reduction in food ingestion.

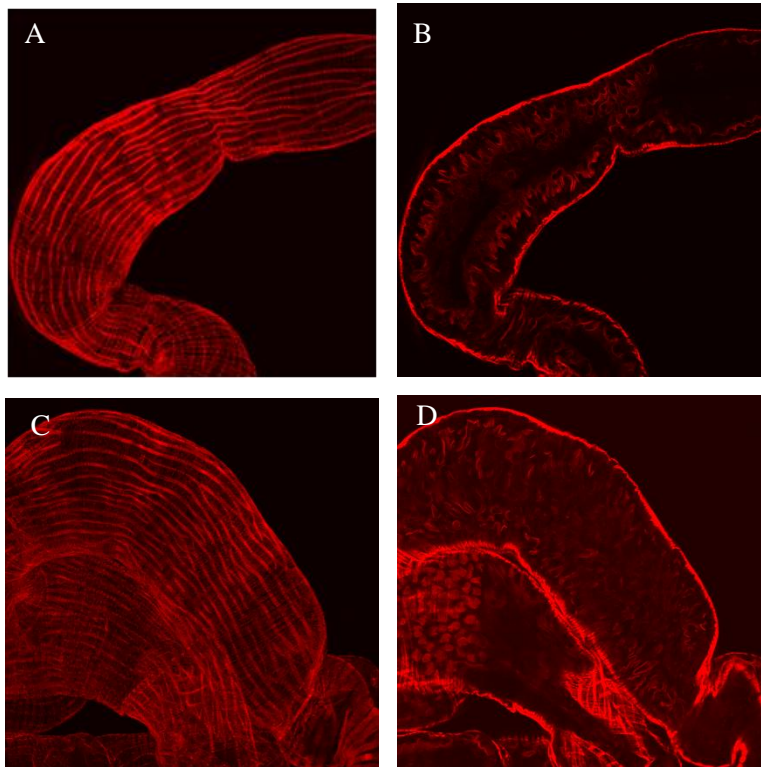


Fig. 4. A-B) untreated control A) overview of the bowl showing the longitudinal and circular muscles. B) Lumen lined by the mucosa. C-D) treated flies. C) overview of the bowl showing the longitudinal and circular muscles. D) Lumen is almost not visible, mucosa appears swollen.

- Head

When opening the cuticula around the head, we observed that the airsacks were not correctly inflated. Due to this, heads of treated flies sank in the dissection buffer while control heads floated.

The respiratory system of *Drosophila* sp. consists of a tracheal network that is connected with the outside air through 9 spiracles. The airsacks are part of the head trachea and connect to small cerebral branches that provide oxygen to the brain. The airsacks are mainly filled through the first spiracle that is located on the fly's shoulder. On its head, flies do not have a connection between the trachea and the outside air. Movement of air in and out the trachea happens both passive and active via opening and closing of the spiracles and using proboscis movement to pump the air around (Lehmann, 2001). We thus hypothesize that respiratory problems could be at the basis of the observed proboscis extension behavior in flies treated with PA.

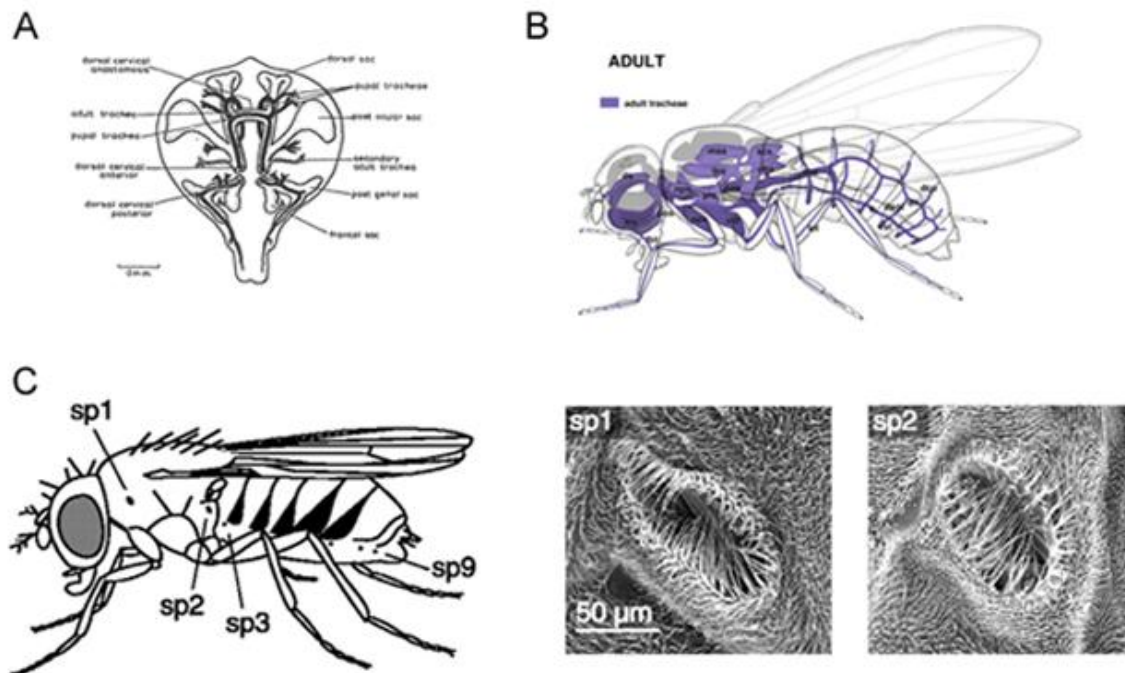


Fig. 5. A) head airsacks B) the tracheal network in the adult fly C) spiracle location and electron microscopy of sp1 and sp2. (Whitten, 1957; Lehmann, 2001)

In order to study the airsack morphology more into detail, heads were mounted in glycerol and placed on microscope slides. In the control flies, the airsacks close to the eyes were lightly inflated and we could observe inflated airsacks and smaller trachea in the middle of the head. In the heads of treated flies, the airsacks by the eyes were strongly inflated and we could not observe airsacks or trachea in the middle of the head. We also observed small bubbles under the cuticula.

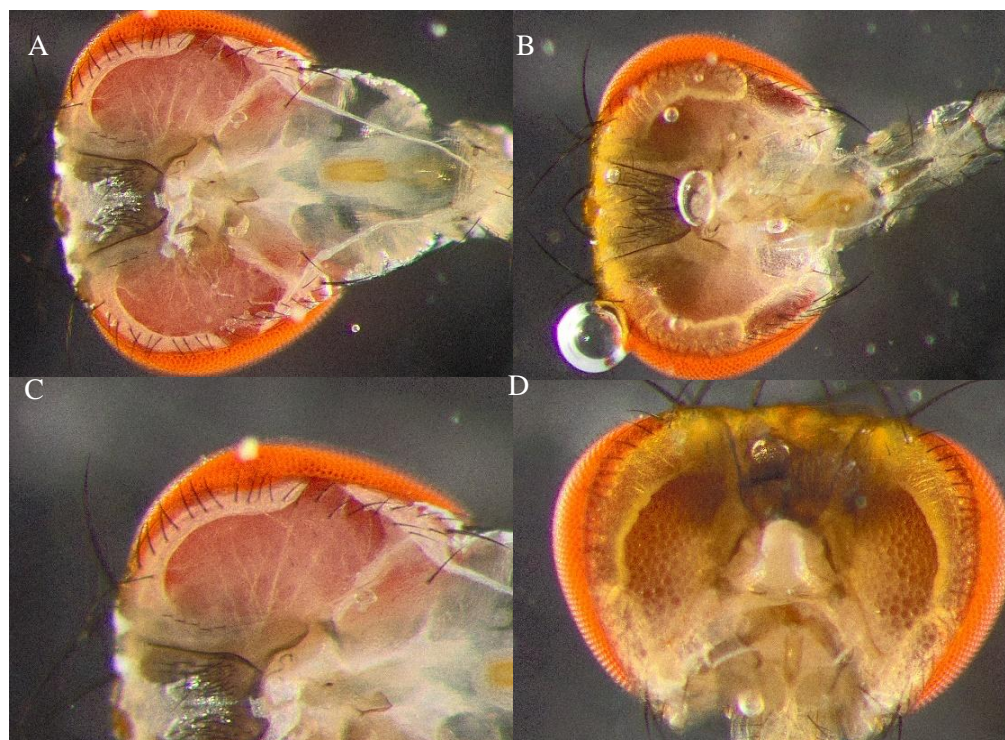


Fig. 6. A-B) overview of the head (bottom side) A) untreated. B) treated C-D) detail of the lower side of the head. C) untreated D) treated

Conclusion:

We could observe multiple tracheal problems in flies treated with PA. Both in the bowl and head we could observe air bubbles or morphological alterations to the trachea. This suggests that treatment with PA results in suffocation.

Furthermore, we observed morphological alterations to the bowl lumen. We hypothesize this could be caused by the corrosive effect of PA upon oral uptake. We cannot exclude this could be a secondary effect to the suffocation or respiratory problems.

d) Analysis of respiratory deficit

Aim:

Due to indications that pelargonic acid exerts its toxic effect through cuticular contact and that the head airsacks show abnormal morphology in treated flies, hypoxic response was further investigated in order to confirm whether respiratory failure and lack of oxygen is the cause of death.

Experimental setup:

D. suzukii adult flies (3-10 days old) were placed on instant food containing 3% PA. When flies started to show coordination problems and proboscis extension behavior, they were snap frozen in liquid nitrogen. Expression analysis was performed according to standard protocols: RNA was extracted using Trizol (Sigma); cDNA was produced using the SensiFast cDNA synthesis kit (GC Biotex), qRT-PCR was performed using FastGene 2x ICGreen mix (Nippon Genetics) with primers targeting *D. suzukii* *LDH*; *actine* and *ubiquitin* were used as reference genes. N= 3, one replicate consisted of 10 individual flies. Treated flies were compared to untreated flies of the same age and sex (mixed 50% female/ 50% male).

Results:

The hypoxic response in *D. melanogaster* is well described and characterized by the upregulation of the expression of the lactate dehydrogenase gene (*LDH*). We analyzed expression of *LDH* in *D. suzukii* upon contact with PA by means of qRT-PCR. We show that expression of *LDH* is upregulated in flies treated with PA.

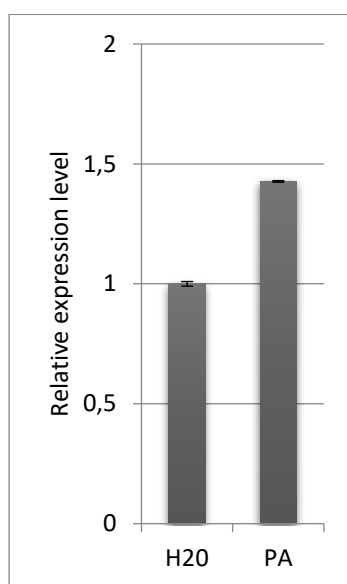


Fig. 7. Relative expression levels of *LDH* in untreated versus treated *D. suzukii*.

Conclusion:

Our expression analyses further suggest that the mortality of *D. suzukii* upon treatment with pelargonic acid is due to suffocation.

Conclusion

The insecticidal effect of pelargonic acid is most likely due to corrosive damage to tissues of the respiratory system. Behavioral, morphological and gene expression experiments indicate the flies treated with pelargonic acid are expected to die from suffocation. We cannot exclude that damage to other tissues also adds to the toxic effect of pelargonic acid.

The effect of pelargonic acid is direct and requires contact with the flies abdomen and thorax. Symptoms occur within seconds or minutes and flies die soon afterwards. Contact with dry pelargonic acid has no effect on the flies survival, suggesting there is no residual effect.

3.2.1.2 Preliminary studies on the effective dose rate

A number of studies have been conducted in order to determine the range of action and effective dose rate of pelargonic acid formulations on different insect species and life stages.

General materials and methods

Test item: Sankari (= Glob-iP) - Pelargonic acid (PA) 650g ai/L.

Test Species and rearing methods:

- *P. spumarius* (Hemiptera, spittlebug) nymphs were caught in the wild in Pellenberg, Belgium and transferred to rearing cages at room temperature containing *V. faba* plants or weeds that were transferred with the insects during collection.
- *S. avenae* (Hemiptera, English grain aphid) were obtained from an established laboratory colony. Insects are kept on *T. aestivum* plants at 22°C with a 10/14 light/dark cycle.
- *T. castaneum* (Coleoptera, red grain beetle) were obtained from an established laboratory colony. Insects are kept on wheat flour at 25°C with a 12/12 light/ dark cycle.
- *D. melanogaster* (Diptera, common fruit fly) were obtained from an established laboratory colony. Insects are kept on standard Drosophila medium at 25°C with a 12/12 light/ dark cycle.
- *S. exigua* (Lepidoptera, beet armyworm) were obtained from an established laboratory colony. Insects are kept on standard spodoptera medium at 25°C with a 10/14 light/ dark cycle.
- *Trialeurodes vaporariorum* (Hemiptera, whitefly) was obtained from an established laboratory colony.
- *Cacopsylla pyri* (Hemiptera, pear psyllid) were caught in orchards in Sint-Truiden, Belgium and reared on small pear trees in rearing cages at room temperature.
- *Thrips tabaci* (Thysanoptera, onion trips) were caught in the field and reared on onion plants in rearing cages at room temperature.
- *Coccoidea* (Hemiptera, scale insects) were caught on pear trees in orchards in Sint-Truiden, Belgium and reared on small pear trees in rearing cages at room temperature.
- *Hypoaspis miles* (Mesostigmata, mites) were order at Biobest, Ilse Velden 18, 2260 Westerlo, Belgium and tested upon arrival.
- *Halyomorpha halys* (Hemiptera, brown marmorated stinkbug) was tested in collabartion with Agrigeos S.R.L, Via Giordano Bruno, 136 – 95131 Catania (CT) – Italy
- *Meligethes aeneus* (Coleoptera, pollen beetle) was caught in the field in Sint-Truiden, Belgium and reared on oil seed rape in rearing cages at room temperature.

Product formulation – preparation of spraying solution

Pellargonic acid (PA) was tested in formulations with different additives. Each formulation was further diluted in water before application. The most efficient formulation, Sankari = Glob-iP, was selected for further experiments. Dilutions were prepared freshly before each application. Multiple concentrations were tested.

Test design and Result Evaluation

a) Optimization of PA formulation and effect of Sankari on *S. avenae* (topical application)

Formulations with PA in combination with different solvents and additives (adjuvants (Ad)) were tested in a 1/500 concentration on *S. avenae* using topical application (Fig. 12). The optimal formulation (Sankari = Glob-iP) showed a synergistic effect resulting in 100% mortality compared to 50% mortality of the solo ingredients. Glob-Ad7 increased the effect of the solo product, but had no extra value in combination with Glob-Ad2.

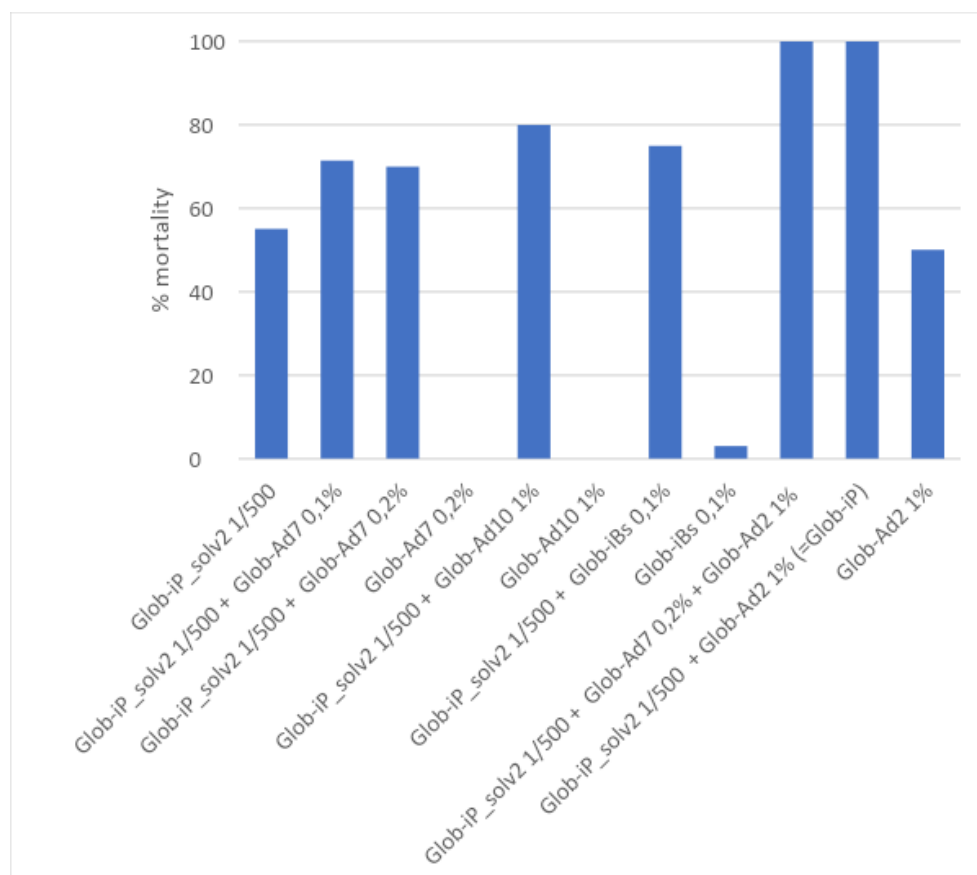


Fig. 12 Effect of different formulations of PA with adjuvants (Ad) (1/500) on *S. avenae* (N=20)

b) Optimization of PA formulation and effect of Sankari on *T. castaneum* (spray application)

Formulations with different solvents and additives were tested in a range of concentrations on *T. castaneum* using spray application (Fig. 13). The optimal formulation (Sankari= Glob-iP) showed a synergistic effect resulting in 100% mortality in a 1/10 concentration.

The effect of Sankari seemed to be mostly immediate, almost no extra insects died during the 3 days after treatment.

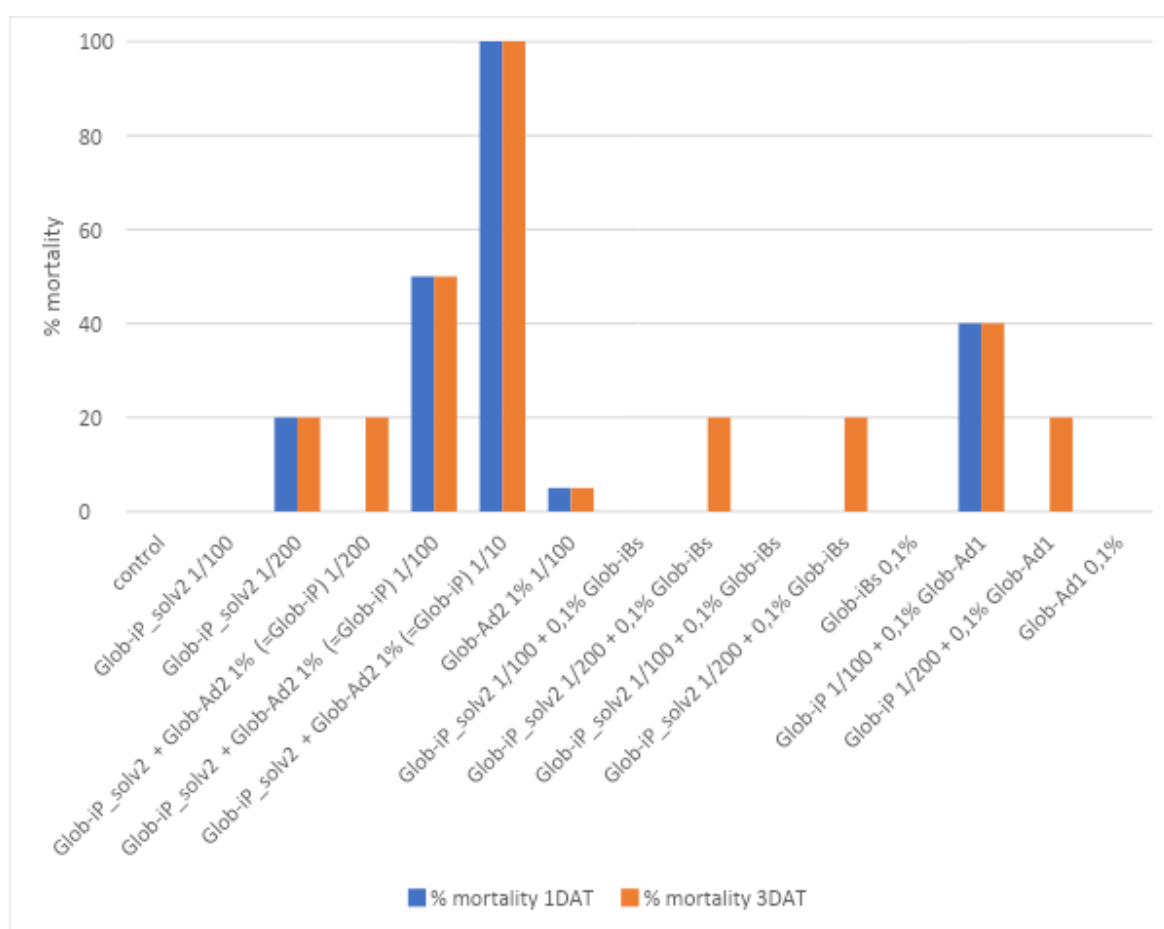


Fig. 13 Effect of different Sankari (Glob-iP) formulations on *T. castaneum* (N=10)

Sankari was tested by spray and topical application in two concentrations (Fig. 14). When applying the product topical, thus ensuring optimal coverage of the cuticula of each individual insect, the mortality of Sankari increased strongly. These results highlight the importance of a good spraying technique when applying a contact insecticide such as Sankari.

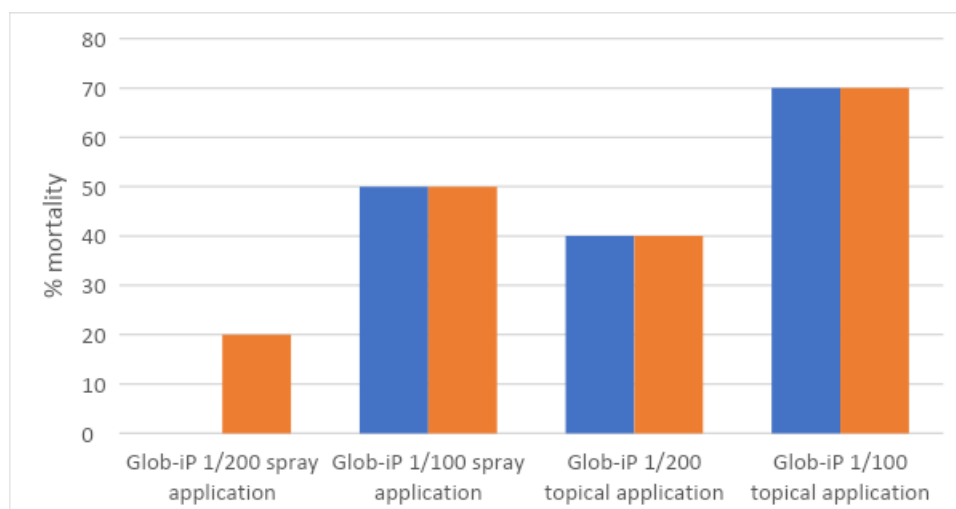


Fig. 14 Effect of Sankari (Glob-iP) on *T. castaneum* upon spray or topical application (N=10)

c) Effect of Sankari on *P. spumarius*

Effect on nymphs (mixed stages – topical application)

Sankari was tested by topical application in different concentrations on *P. spumarius* nymphs (mixed stages) (Fig. 15). Concentrations of 1/300 and higher resulted in 100% mortality within 30 minutes after treatment.

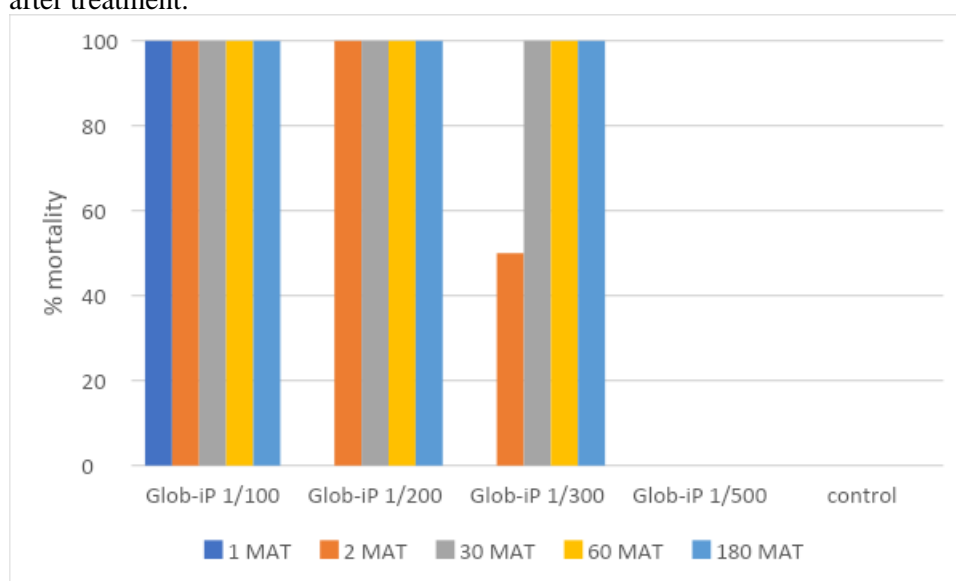


Fig. 15 Effect of Sankari (Glob-iP) on *P. spumarius* nymphs (N= 15)

Effect on adults (topical application)

Sankari was tested by topical application in different concentrations on *P. spumarius* adults (Fig. 16). Concentrations of 1/200 and higher resulted in 100% mortality within 60 minutes after treatment. Sankari 1/300 reaches 90% mortality.

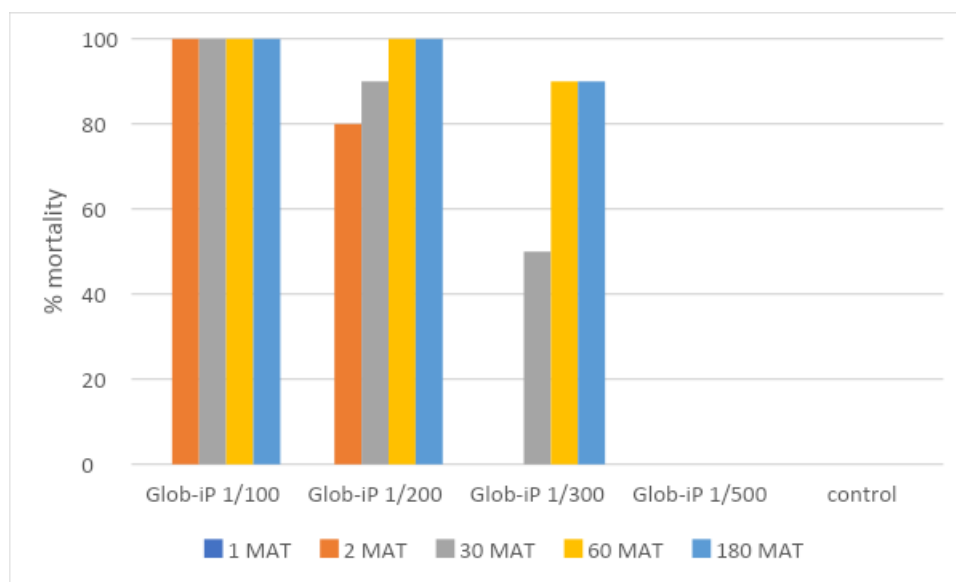


Fig. 16 Effect of Sankari (Glob-iP) on *P. spumarius* adults (N=20)

d) Effect of Sankari on *Cacopsylla pyri*

Topically treated eggs

Sankari was tested by topical application in a 1/300 concentration on *C. pyri* eggs (fig. 17). No eggs eclosed upon treatment with Sankari 1/300.

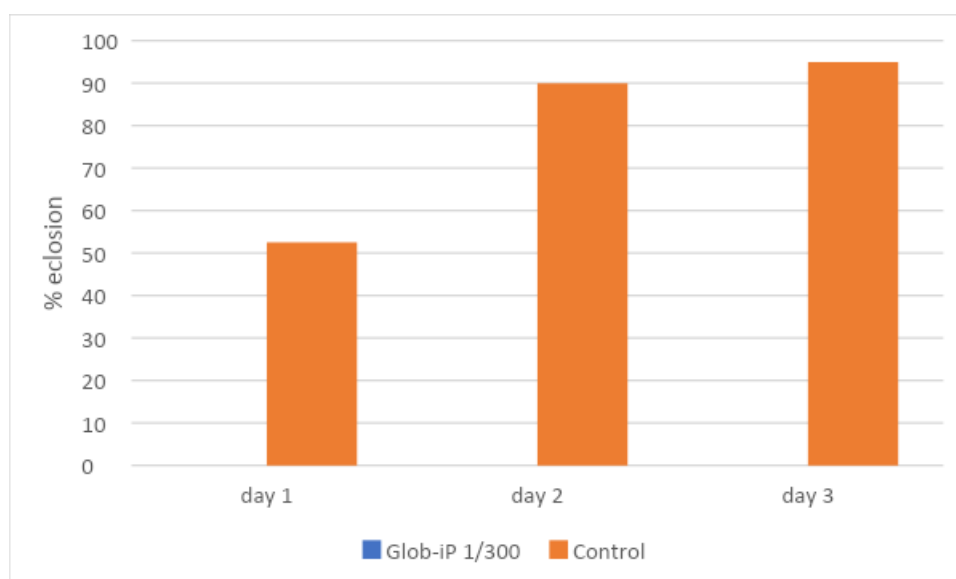


Fig. 17 Effect of Sankari (Glob-iP) on *C. pyri* eggs (N=40)

Adults (spray application)

Sankari was tested by spray application in a 1/300 and 1/500 concentration on *C. pyri* adults using different amounts of spray solutions. Increasing the total volume of spray solution results in higher mortality. This again highlights the importance of a good spraying technique when applying the contact insecticide.

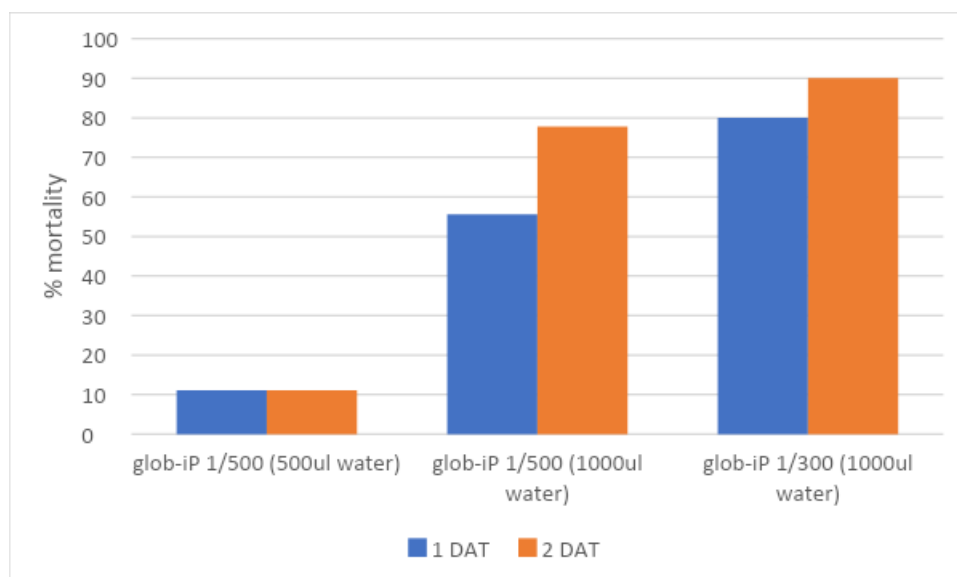


Fig. 18 Effect of spray application of Sankari (Glob-iP) on *C. pyri* adults (N=15)

e) Effect of Sankari on *D. melanogaster* larvae

Sankari was tested by oral application in a 1/500 concentration on *D. melanogaster* larvae (Fig. 19). We observed a small increase in mortality. Further experiments (data not shown) showed a repellent effect of Sankari when offered in a choice assay. Thus we cannot exclude that the seen mortality is due to starvation by larvae that refuse to eat from the treated food.

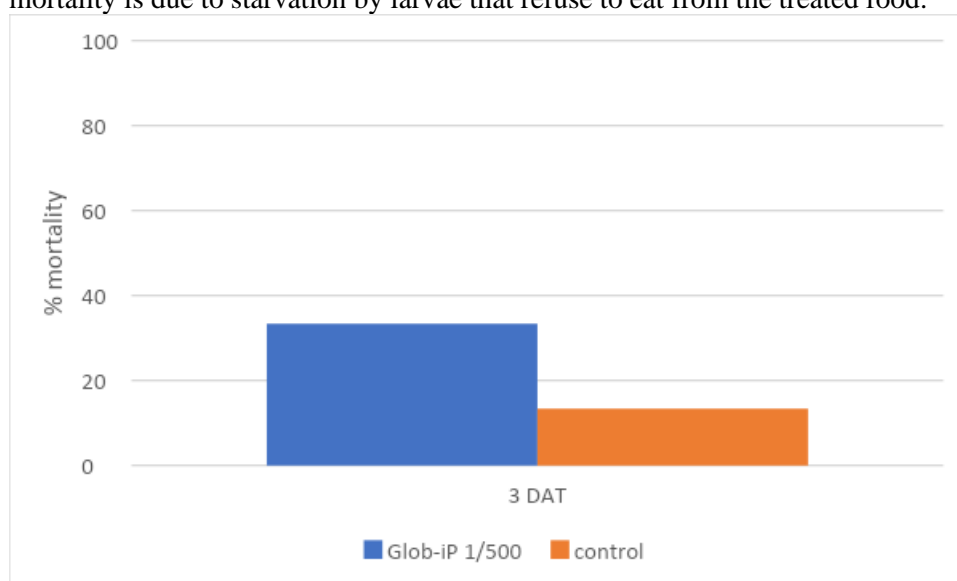


Fig. 19 Effect of oral application of Sankari (Glob-iP) on *D. melanogaster* larvae (N=22)

f) Effect of Sankari on *Thrips tabaci* (topical application)

Sankari was tested by topical application in different concentrations on *T. tabaci* (Fig. 20). All tested concentrations showed 100% mortality.

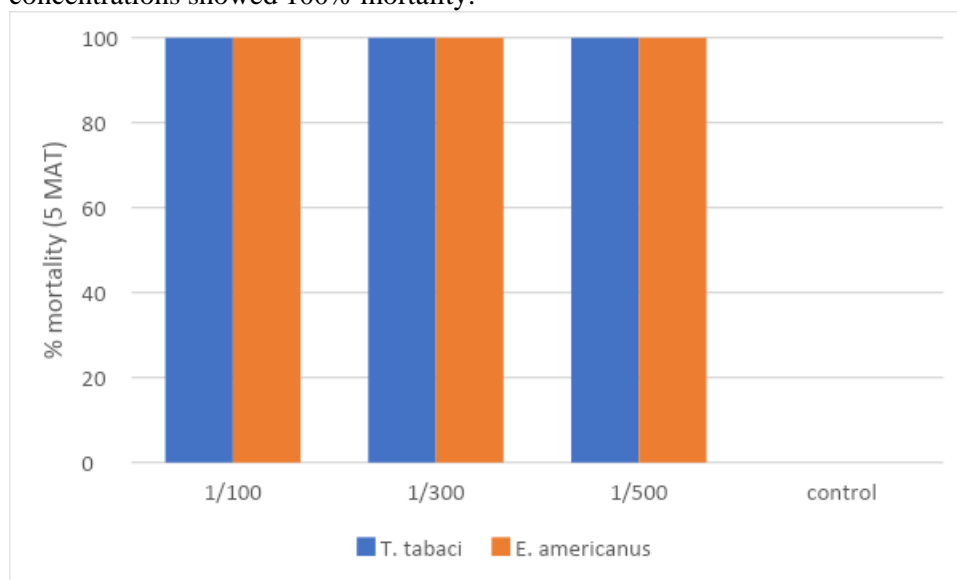


Fig. 20 Effect of topical application of Sankari (Glob-iP) on *T. tabaci* (N=5)

g) Effect of Sankari on Coccoidea (spray application)

Sankari was tested by topical application in different concentrations on Coccoidea collected from pear trees (Fig. 21). The tested concentration of 1/100 induced 100% mortality two hours after application.

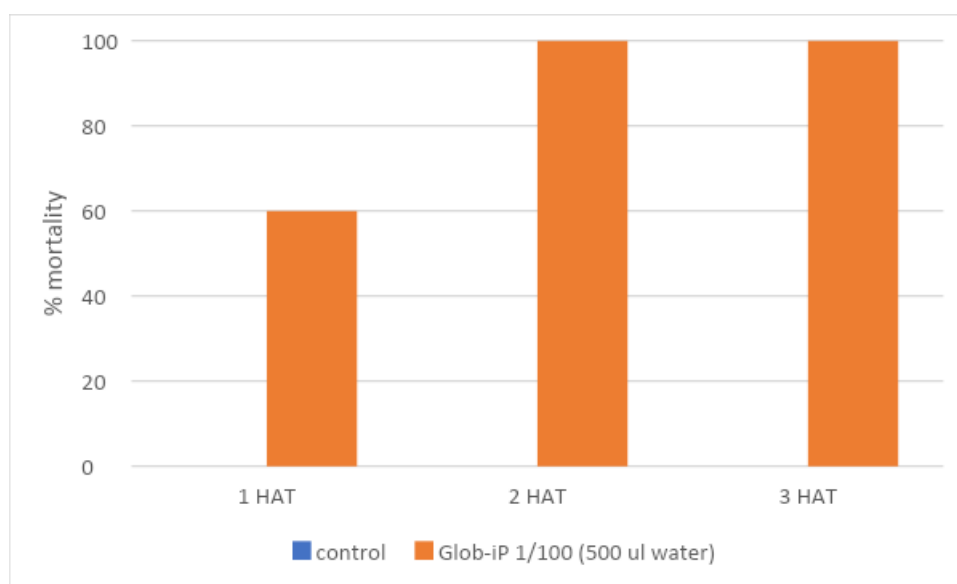


Fig. 21 Effect of topical application of Sankari (Glob-iP) on scale insects (N=20)

h) Effect of Sankari on *Hypoaspis miles* (topical application)

Sankari was tested by topical application in different concentrations on *H. miles* (Fig. 22). Sankari 1/300 induced 100% mortality two minutes after application.

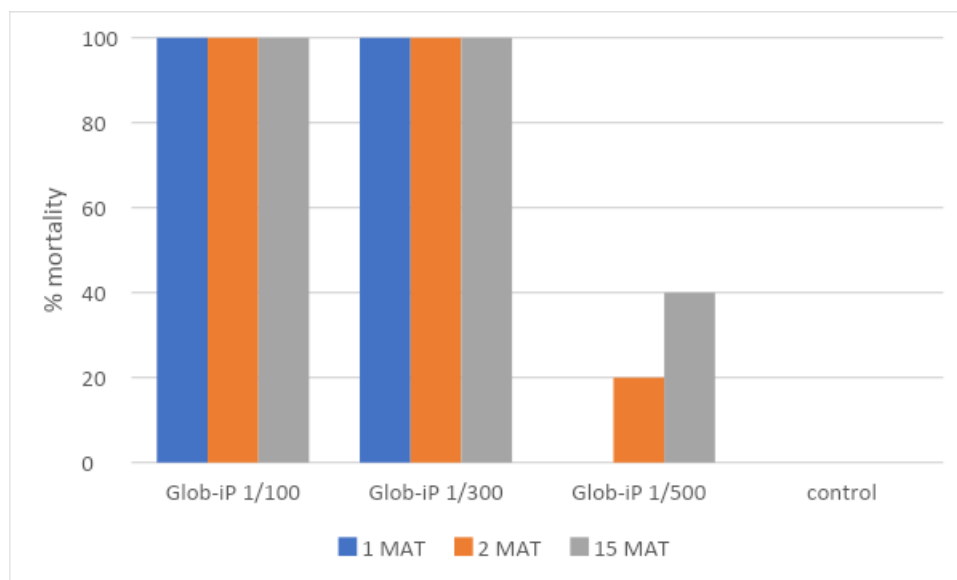


Fig. 22 Effect of topical application of Sankari (Glob-iP) on *H. miles* (N=20)

i) Effect of Sankari on *Halyomorpha halys*

Effect on *H. halys* eggs (topical application)

Sankari was tested by topical application in different concentrations on *H. halys* eggs (Fig. 23). Concentrations of 1/200 and more result in 45-50% mortality in eggs and 15-25% mortality of newly eclosed nymphs from treated eggs. In total Sankari induces 65%-70% mortality.

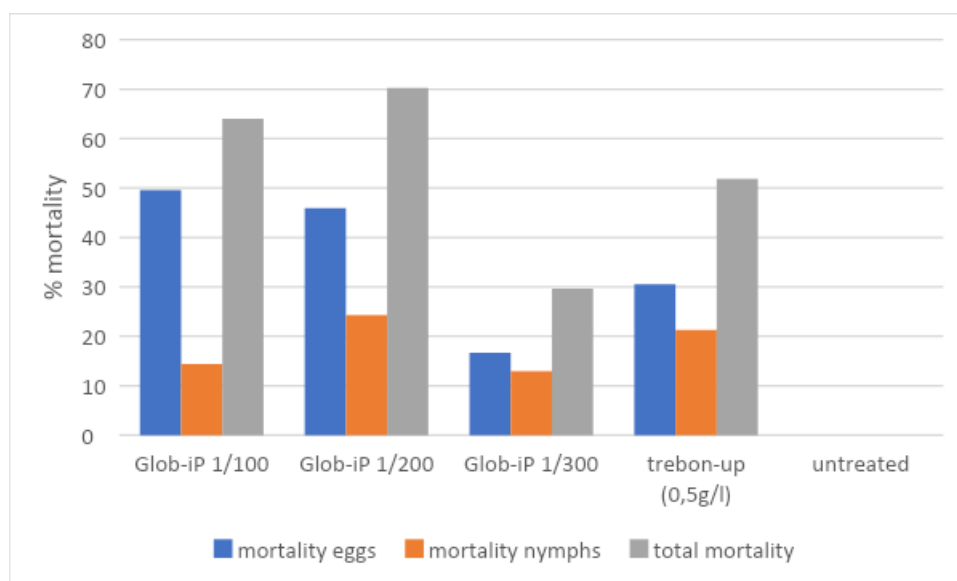


Fig. 23 Effect of topical application of Sankari (Glob-iP) on *H. halys* eggs

Effect on *H. halys* nymphs (topical application)

Sankari was tested by spray application in different concentrations on *H. halys* nymphs (early stages) (Fig. 24). Sankari had no or a very limited effect on nymph survival.

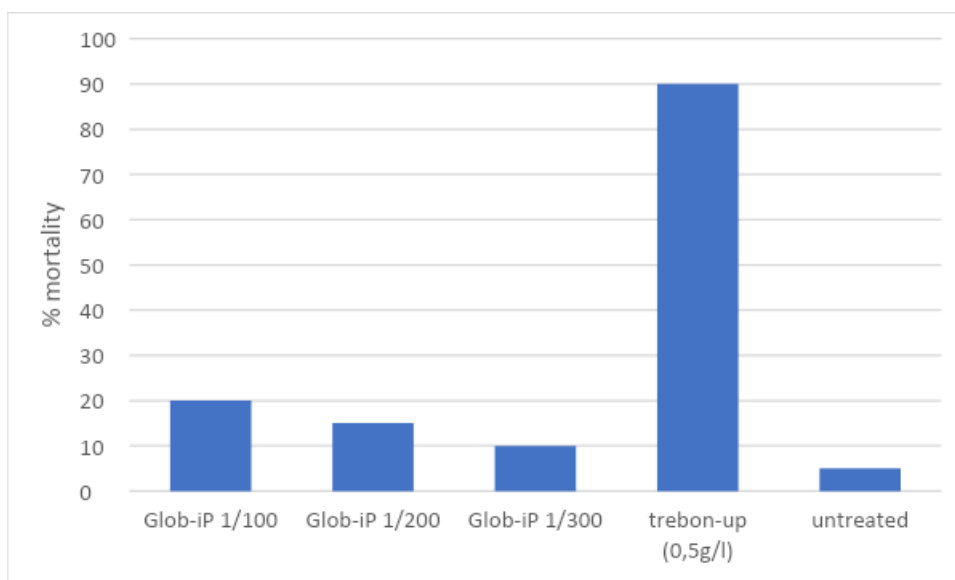


Fig. 24 Effect of Sankari (Glob-iP) on early stage *H. halys* nymphs

j) Effect of Sankari on *S. exigua*

Treatment of eggs

Sankari (Glob-iP) was tested by topical application in different concentrations on *S. exigua* eggs (Fig. 25). Sankari 1/200 induced 100% mortality while Sankari 1/100 only reached 55%-60% mortality. The egg clusters tested in Sankari 1/100 contained clearly more protective felt-like setae compared to Sankari 1/200 which most likely protects the eggs against the product.

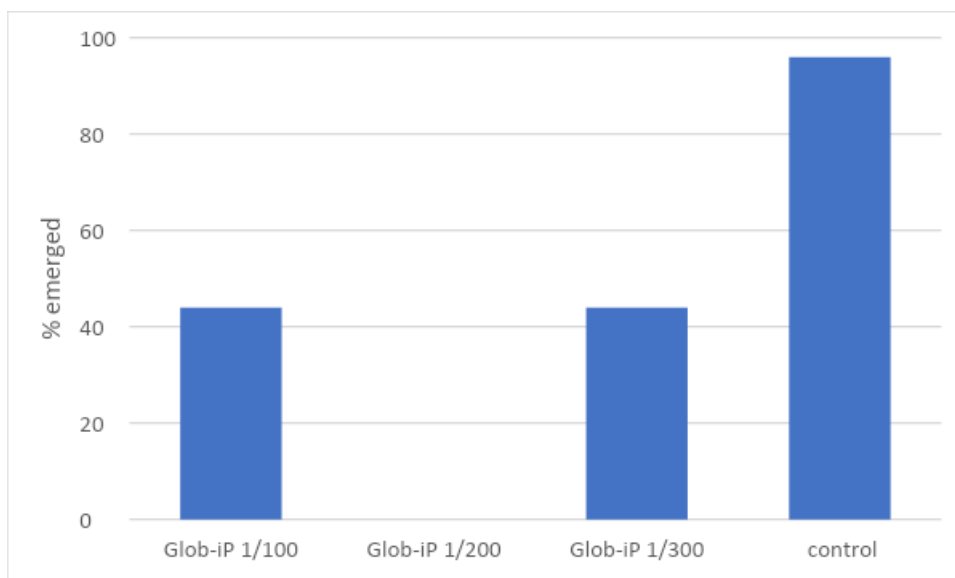


Fig. 25 Effect of topical application of Sankari (Glob-iP) on *S. exigua* eggs (N=50)

Treatment on L1 Larvae (topical application)

Sankari (Glob-iP) was tested by topical application in different concentrations on *S. exigua* L1 larvae (Fig. 26). All tested concentrations induced 100% mortality.

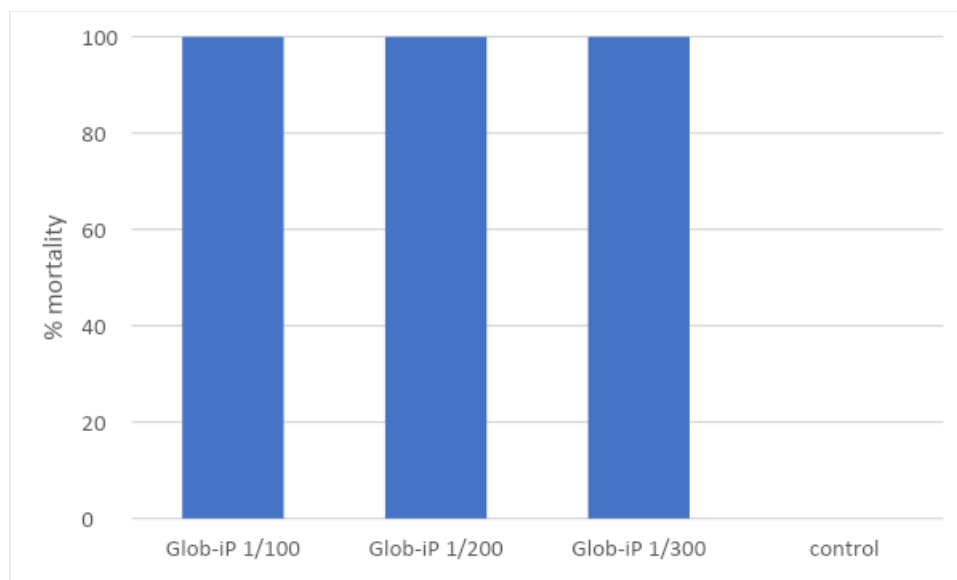


Fig. 26 Effect of topical application of Sankari (Glob-iP) on *S. exigua* L1 larvae (N=10)

Treatment of L4-5 Larvae (topical application)

Sankari (Glob-iP) was tested by topical application in different concentrations on *S. exigua* L4-5 larvae. Glob-iP had no effect on survival.

k) Effect of Sankari on *M. aeneus*

Sankari (Glob-iP) was tested by topical application in different concentrations on *M. aeneus* adults (Fig. 27). Sankari 1/200 induced 50% mortality, Sankari 1/100 induced 100% mortality.

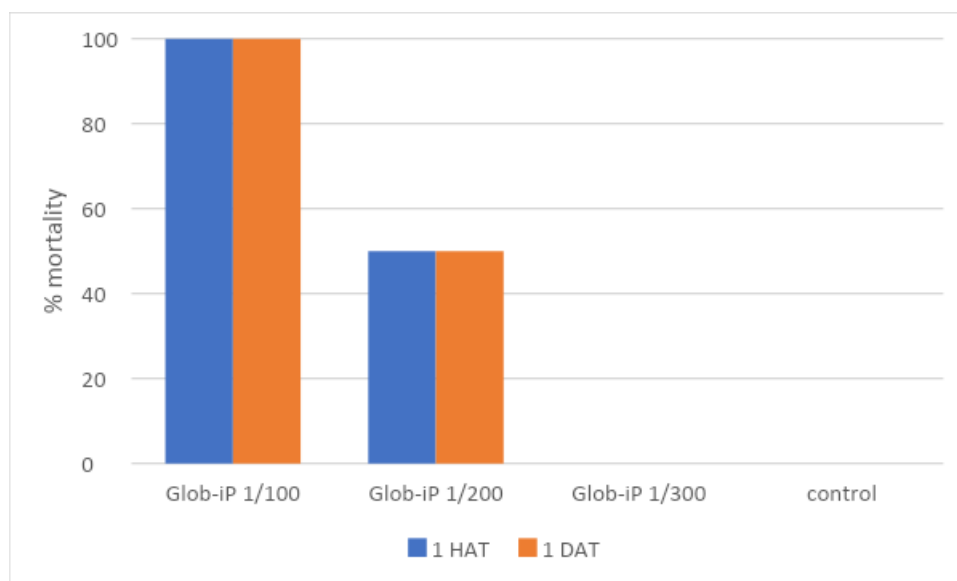


Fig. 27 effect of topical application of Sankari (Glob-iP) on *M. aeneus*

Conclusion

The formulation of Pelargonic acid was optimised. The final formulation (named Sankari) showed a strong increase in insecticidal effect. This effect was present shortly after application.

Sankari has an effect on a large variety of insects. Results suggest that concentrations between 1/300 and 1/100 show good control in laboratory depending on the target pest. The control level in the field must be further investigated.

Conclusion – Preliminary range-finding tests

The results presented above demonstrate some benefit of pelargonic acid in the mode of action and as effective dose rate of formulations on different insect species and life stages. The results suggest that concentrations between 1/300 and 1/100 provide good control in the laboratory depending on the target pest. ZRMS agrees with the applicant that the level of control in the field needs to be further investigated.

3.2.2 Minimum effective dose tests (KCP 6.2)

Reference is made to section 3.2.3 in which individual trial results including lower dose rates of GLOB2011I are presented. Field trials were carried out across several countries of the Central, Southern and Northern Zones to fully reflect the range of climatic and agronomic conditions. Sites and application details of these trials and results are presented in Appendix 3 of the Biological Assessment Dossier.

A lower dose rate was included in all trials and therefore detailed results are presented under point 3.2.3 Efficacy tests.

Conclusion – Minimum effective dose

The applicant has made no discussion of this section. The applicant stated that the trials submitted to support the MED of GLOB2011I are the same as the efficacy trials described under section 3.2.3. in which individual trial results including lower dose rates of GLOB2011I are presented. The submitted number of efficacy trials per individual EPPO zone and use to support the approval of individual pest was limited. A definitive conclusion regarding the minimum effective dose per individual EPPO zone cannot be made based on the available data. However, there is a trend suggesting that 1.5 L/ha could serve as the minimum effective dose for use on cereals, oilseed rape and potatoes. At the lower doses, control was more variable, resulting in high control variation between trials and between EPPO climate zones. On the other hand, control was more consistent at the proposed maximum individual dose (975 g a.s./ha), although it was not found to be sufficiently effective for all uses. This is further discussed in section 3.2.3.

3.2.3 Efficacy tests (KCP 6.2)

At the time of submission, the renewal of pelargonic acid is still on-going and the low-risk status still under discussion. Still, given the natural profile of the substance and the fact that it fulfills the criteria in Annex VI Reg. 2229/2004, which indicates no harmful effects (low-risk), the principles of efficacy evaluation for low-risk plant protection products described in the EPPO Standard PP 1/296 (1) should also be taken into account. To demonstrate the effectiveness of low-risk plant protection products, less data is generally required than for conventional plant protection products.

Data is required to demonstrate that use of the low-risk product according to the instructions for use can give a benefit to the user. The minimum number of direct efficacy trials in an area of similar conditions required for low-risk plant protection products is 6 trials for a major pest or group of pests, 3 for minor. Two-years' data should normally be provided, but where justified, with additional information to ensure robust field performance including distribution of trials across relevant EPPO zones, trial data from 1 year may be considered sufficient.

The primary criterion of acceptable efficacy is that the product should show results that are significantly superior to those recorded in the untreated control. The low-risk product does not need to show the same level of efficacy as the conventional reference product, but the latter is used to be able to assess the quality of the trial.

Low-risk plant protection products may in some cases deliver moderate levels of control or more variable control than might be expected for a conventional chemical plant protection product. However, provided the level of effectiveness is beneficial this may be acceptable.

Information on trial methodology according to specific EPPO standards and reference standards used in the trials is summarized in the following sections for each crop/pest combination. Trial site information and application details are presented in Appendix 3 of the Biological Assessment Dossier.

All trials in this dossier were carried out by testing facilities, or organisations, officially recognised as competent to perform efficacy testing in accordance with the requirements of Directive 93/71/EEC, and with the principles of GEP. Copies of certificates can be found in Appendix 4 of the Biological Assessment dossier.

Efficacy levels obtained after application were in general calculated following Abbott's formula, which takes into account the mortality associated with the insecticide treatment corrected for the natural mortality seen in the untreated check group. In some trials efficacy was calculated through Henderson Tilton's formula, especially in case of non-uniform initial population or natural decreasing populations as e.g. aphids.

Data were subjected to analysis of variance (ANOVA) at the 95% confidence level. When significant differences were found a Student-Newman-Keuls (SNK) Post-Hoc test was applied to separate the means. Treatment means with no letters in common are significantly different according to SNK test.

The number of trials where product is significantly (statistically) superior (>) compared to untreated plots is provided. Means are also compared orthogonally between tested product and reference standard or group of reference standards.

As there is no common EU scale for the level of control after an insecticide application, the insect control levels used for evaluation are recorded as a percentage and are displayed in summary tables reflecting HSE Data Requirement Handbook (ver. 2.2 June 2012, chapter 8, table 8.2 Levels of pest control expected for effectiveness claims):

Table 3.2-7: Levels of pest control and claims

Appropriate Label Claim	Level of Effectiveness
Control	Consistently control commonly above 80%
Partial/Moderate/Useful level of control	Control, between 60 and 80%
Some control/ Reduction (in population numbers, or damage)	Lower levels of control, for example 40-60%, or lower in exceptional cases. Terms of 'reduction' are particularly relevant when the primary objective is to reduce plant damage (at crop establishment).

Data are gathered per EPPO Zone. In the detailed tables presented in the Biological Assessment Dossier, trials performed in the Maritime EPPO Zone have their trial number highlighted in blue, but the ones which are also valid for Poland (Czech and German trials) are dark blue. Trials performed in the North-East EPPO Zone have their trial numbers marked in yellow, in Mediterranean zone marked in green and in the South-East EPPO zone are marked in amber as shown below. A concise summary is presented in this dRR.

Maritime EPPO Zone
Czech and German trials (Maritime EPPO Zone), valid for Poland
North-East EPPO Zone
Mediterranean EPPO Zone
South-East EPPO Zone

3.2.3.1 Product efficacy against aphids on cereals

Spring application against ear aphids

In total, 17 efficacy trials were submitted to demonstrate the efficacy of GLOB2011I for the use against spring aphids on cereals. These trials were carried out between 2020 and 2022 by GEP certified research institutions in the Czech Republic, Germany, the Netherlands (in total 5 trials belonging to the Maritime EPPO Zone), in Poland (2 trials belonging to the North-East EPPO Zone), in Serbia and Bulgaria (3 trials belonging to the South-East EPPO Zone), as well as in Croatia, Italy and Spain (7 trials belonging to the Mediterranean EPPO Zone).

Trial methodology

All trials were carried out by testing facilities, or organisations, officially recognised as competent to perform efficacy testing in accordance with the requirements of Directive 93/71/EEC, and with the principles of GEP. Copies of certificates can be found in Appendix 4 of the Biological Assessment dossier. GEP certification in Serbia has started from 2021. For the trials conducted in Serbia in 2020 the test facility was officially recognized at country level by the Ministry of Agriculture to perform efficacy trials and evaluations of plant protection products, including registrative trials.

Applications were performed in spring, from 05/05 until 10/07 when first insects were observed. At the first year of trials, 2020, only one application was performed. Data is summarized accordingly.

In all trials except in the South-East EPPO zone, 2 spray volumes were tested, 200 and 400 L/ha.

According to the EPPO Standard PP 1/20 (3), targeted for aphids on cereals, assessments were performed on a sample size of 25 tillers per plot. The main assessments performed were pest severity in terms of count the number of living insects on the upper area of the tiller (ear and flag leaf), in part of the trials in the lower leaf levels, as well as on the whole tillers. Assessment timings should be 1-3 days and 7-9 days after application. These and eventually later assessments, 2 weeks after application were summarized (± 2 to 3 days). When data were available at 1 and 3 days after application, in general the assessment of 3 days was selected for summarization as pressure was higher. Data not considered for means calculation are shaded in grey in the BAD.

As from EPPO Standard PP 1/20 (3), indicator crops are all cereal crops (NNNGG)

Data were subjected to analysis of variance (ANOVA) at the 95% confidence level. When significant differences were found a Student-Newman-Keuls (SNK) Post-Hoc test was applied to separate the means. Treatment means with no letters in common are significantly different according to SNK test.

Representative results were summarized below, specifically the number of living insects on the upper area of the tiller (ear and flag leaf).

A pyrethroid reference product was included in all trials. Due to different formulations and slightly different authorized application rates, the pyrethroid reference products were gathered given that their practical performance is known and the working spectrum, time and method of application, mode of action are close related. References were applied at same timings as test product.

The following table reports an overview of chemical standards and test products used in efficacy trials against aphids on cereals.

GLOB2011I
Part B – Section 3
Globachem NV/Central Zone

Table 3.2-8: Presentation of reference standards used in efficacy trials

Crop (s)	Reference standard	Country where the product is registered	Auth. number	Active substance(s)	Formulation		Registered application rate ⁽³⁾	Application rate in trials (per treatment)	Remark
					Type	Concentration of a.s.			
Cereals	DECIS	IT	4426	deltamethrin	EC	25 g/L	0.3-0.5 l/ha	0.5 l/ha	
	DECIS	ES	25100	deltamethrin	EC	25 g/L	0,03 - 0,05 %	0.5 l/ha	
	DECIS 100 EC	HR	UP/I-320-20/13-01/383	deltamethrin	EC	100 g/L	0,075-0,125 l/ha	0.125 l/ha	
	Decis Forte	CZ	5450-0	deltamethrin	EC	100 g/L	62.5 ml/ha	62.5 ml/ha	
	Decis Forte	DE	007418-00	deltamethrin	EC	100 g/L	0.05 l/ha	0.05 l/ha	
		NL	15889	deltamethrin	EW	15 g/L	0.42 l/ha	0.42 l/ha	
	DECIS PROTECH 15 EW	NL	15889	deltamethrin	EW	15 g/L	0.84 l/ha	0.83 l/ha	worst case, rate on flowers
	Markate 50	CZ	4728-0	lambda-chyalothrin	EC	50 g/L	0.1 l/ha	0.1 l/ha	
	Karate Zeon	ES	22398	lambda-chyalothrin	CS	100 g/L	0,01 - 0,02 %	0.2 l/ha	
	Karate Zeon (5 CS)	Serbia	10944 (IT) 321-01-2501/2018-11	lambda-chyalothrin	CS	50 g/L	0.3 l/ha	0.3 l/ha	
	Karate Zeon	BG	01017-IIP3*	lambda-chyalothrin	CS	50 g/L	0.3 l/ha	0.3 l/ha	
	Karate Zeon	DE	024675-00	lambda-chyalothrin	CS	100 g/L	0.075 l/ha	0.075 l/ha	
	Scatto	PL	R-522/2017d	deltamethrin	EC	25 g/L	Max. 0.3 l/ha	0.25 L/HA	

Information on trial methodology is summarized below. Trial site information and application details are presented in Appendix 3 of the Biological Assessment Dossier.

Table 3.2-9: Details on trial methodology – spring aphids on cereals - Maritime EPPO zone

Guidelines	General guidelines	PP 1/135(4), EPPO PP 1/152 (4), PP 1/181(4)
	Specific guidelines	EPPO PP 1/20(3)
Experimental design	Plot design	RCBD (5)
	Plot size	10-24 m ²
	Number of replications	4 (5)
Crop	Trials per crop	TRZAW (4), TRZAS (1)
	Varieties per crop	TRZAW: RGT Reform, Viriato, Calgary, Dagmar, TRZAS: Starlight
	Sowing period	TRZAW:1-16/10, TRZAS: 02/03
Application	Crop stage (BBCH) at application	41-75
	Timing	
	Pest stage at application	Mixed stages (mainly adult)
	Number of applications	1 (1 trial), 2 (4 trials)
	Intervals between applications	14-15
Assessment	Spray volumes	200 & 400 L/ha
	Assessment types	PESINC, COUINS(summarized), PHYGEN
	Assessment dates	pre-assessment at application, 1-3, 7, 14 days after each application (June-July)

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Other relevant information	Soil types	silt loam, sandy clay, silt loam, sandy clay loam
	Natural / artificial inoculation...	Natural infestation
	Field / Greenhouse...	Field

Table 3.2-10: Details on trial methodology – spring aphids on cereals - North-East EPPO zone

Guidelines	General guidelines	PP 1/135(4), EPPO PP 1/152 (4), PP 1/181(4)
	Specific guidelines	EPPO PP 1/20(3)
Experimental design	Plot design	RCBD (2)
	Plot size	20-24 m ²
	Number of replications	4 (2)
Crop	Trials per crop	TRZAW (2)
	Varieties per crop	Findus, Fidelius
	Sowing period	22-23/09
Application	Crop stage (BBCH) at application	73-75
	Timing Pest stage at application	Mixed stages and apterous
	Number of applications Intervals between applications	2 (2 trials) 14
	Spray volumes	200 & 400 L/ha
	Assessment types	PESINC, COUINS(summarized), PHYGEN
Assessment	Assessment dates	pre-assessment at application, 1-3, 7, 14 days after each application (June-July)
	Soil types	sandy loam
Other relevant information	Natural / artificial inoculation...	Natural infestation
	Field / Greenhouse...	Field

Table 3.2-11: Details on trial methodology – spring aphids on cereals - South-East EPPO zone

Guidelines	General guidelines	PP 1/135(4), EPPO PP 1/152 (4), PP 1/181(4)
	Specific guidelines	EPPO PP 1/20(3)
Experimental design	Plot design	RCBD (3)
	Plot size	15 m ²
	Number of replications	4 (3)
Crop	Trials per crop	TRZAS (1), TRZAW (2)
	Varieties per crop	TRZAS: Venera, TRZAW: Euklid, Sadovo 772
	Sowing period	TRZAS: 27/03, TRZAW: 25-31/10
Application	Crop stage (BBCH) at application	71-73
	Timing Pest stage at application	Mixed stages

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	Number of applications	1
	Intervals between applications	-
	Spray volumes	100-200 L/ha
Assessment	Assessment types	PESINC, COUINS(summarized), PHYGEN
	Assessment dates	pre-assessment at application, 1-3, 7, 14 days after each application (May-June)
Other relevant information	Soil types	clay
	Natural / artificial inoculation...	Natural infestation
	Field / Greenhouse...	Field

Table 3.2-12: Details on trial methodology – spring aphids on cereals - Mediterranean EPPO zone

Guidelines	General guidelines	PP 1/135(4), EPPO PP 1/152 (4), PP 1/181(4)
	Specific guidelines	EPPO PP 1/20(3)
Experimental design	Plot design	RCBD (7)
	Plot size	12-18 m ²
	Number of replications	4 (7)
Crop	Trials per crop	TRZDW (2), TRZAW (5)
	Varieties per crop	TRZDW: Athoris, Galera, TRZAW: Bologna, Altavista, Soledad, Ingenio, Panda
	Sowing period	09/10-28/01
Application	Crop stage (BBCH) at application	51-77
	Timing	
	Pest stage at application	Mixed stages
	Number of applications	1 (3 trials), 2 (4 trials)
	Intervals between applications	14
Assessment	Spray volumes	200 & 400 L/ha
	Assessment types	PESINC, COUINS(summarized), PHYGEN
Other relevant information	Assessment dates	pre-assessment at application, 1-3, 7, 14 days after each application (May-June) and at harvest
	Soil types	loamy sand, sandy clay loam, sandy loam, loamy sand, clay
	Natural / artificial inoculation...	Natural infestation
	Field / Greenhouse...	Field

Results

Maritime EPPO zone

A total of 5 trials were carried out in the Maritime EPPO Zone to evaluate the efficacy of GLOB2011I for the control of spring aphids on cereals. Those trials have been conducted between 2020 and 2022 in the Czech Republic, Germany, the Netherlands. During the trials, the presence of 2 aphid species was verified, the English grain aphid (MACSAV, *Sitobion avenae*) and the Apple bud aphid (RHOPPA, *Rhopalosiphum padi*)

As a lower dose rate was included in all trials, these results are also presented in detail under point 3.2.3 Efficacy tests and support the Minimum effective dose.

Decis or Karate was included in the majority of trials as a uniform reference, applied at authorized label rates. Table headers report the active substance/family and range of a.s. amount applied. Details are listed in right column in raw data tables in the BAD.

The color scheme used to classify the levels of control are described above in section 3.2.3 Efficacy tests (KCP 6.2).

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Table 3.2-13: Efficacy of GLOB2011I against MACSAV –PESSEV (number of aphids/25 ear and flag leaf) - Maritime EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	DAA-A	DAA-B	Nb. trials	Infestation in the untreated control (nb. aphids/25)			GLOB2011I at 0.9 L/ha			GLOB2011I at 1.5 L/ha			GLOB2011I at 1.5 (high volume) L/ha			GLOB2011I at 2 L/ha			Decis/DTM ref at 5-6.25 g as/ha			Karate/LCHY ref at 7.5 g as/ha			No of trials where product is > to UTC
										Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MAR	MACSAV	TRZAW	All vs. LCHY	EAR	COUINS (per ear)	69	1-3	-	1	6.2	-	-	65.3	-	-	80.8	-	-	-	-	-	88.8	-	-	-	-	-	90.6	-	-	1
						73	7	-	1	0.7	-	-	37.5	-	-	93.1	-	-	-	-	-	91.7	-	-	-	-	-	97.9	-	-	1
MAR	MACSAV	TRZAW	All vs. DTM	LEAUPP	COUINS	75	1-3	-	1	152.0	-	-	10.0	-	-	22.6	-	-	20.1	-	-	19.1	-	-	38.8	-	-	-	-	-	-
						77	14	-	1	148.3	-	-	49.9	-	-	58.8	-	-	80.0	-	-	80.5	-	-	79.4	-	-	-	-	-	1
						77	-	1-3	1	127.5	-	-	70.4	-	-	79.1	-	-	90.1	-	-	90.5	-	-	90.6	-	-	-	-	-	1
MAR	MACSAV	TRZAS	All vs. DTM	LEAUPP	COUINS	71	1-3	-	1	104.5	-	-	71.0	-	-	90.1	-	-	92.3	-	-	98.8	-	-	94.3	-	-	-	-	-	1
						73	7	-	1	270.3	-	-	86.7	-	-	94.3	-	-	96.1	-	-	98.9	-	-	96.3	-	-	-	-	-	1
						75	14	-	1	284.3	-	-	97.6	-	-	98.5	-	-	98.4	-	-	99.4	-	-	99.6	-	-	-	-	-	1
						75	-	1-3	1	298.3	-	-	100.0	-	-	100.0	-	-	100.0	-	-	100.0	-	-	100.0	-	-	-	-	-	1
						77	-	7	1	9.3	-	-	100.0	-	-	100.0	-	-	100.0	-	-	100.0	-	-	100.0	-	-	-	-	-	1

Number of trials summarized: 3

Table 3.2-14: Efficacy of GLOB2011I against RHOPA – PESSEV (number of aphids/25 ear and flag leaf) - Maritime EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	DAA-A	DAA-B	Nb. trials	Infestation in the untreated control (nb. aphids/25)			GLOB2011I at 0.9 L/ha			GLOB2011I at 1.5 L/ha			GLOB2011I at 1.5 (high volume) L/ha			GLOB2011I at 2 L/ha			Decis/DTM ref at 6.25-12.5 g as/ha			No of trials where product is > to UTC
										Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MAR	RHOPPA	TRZAW	All vs. DTM	LEAUPP	COUINS	73-73	1-3	-	1	23.3	23.3-23.3	23.3	55.4	55.4-55.4	55.4	63.8	63.8-63.8	63.8	65.2	65.2-65.2	65.2	59.7	59.7-59.7	59.7	76.0	76.0-76.0	76.0	1
						51-75	7	-	2	21.5	19-24	21.5	57.8	37.7-77.9	57.8	73.5	63.2-83.8	73.5	74.4	53.7-95.1	74.4	75.2	50.4-100	75.2	87.0	82.9-91.1	87.0	-
						54-77	14	-	2	13.2	10.5-15.8	13.2	36.3	11.7-60.8	36.3	51.3	16.4-86.2	51.3	47.4	10-84.7	47.4	65.4	34.2-96.6	65.4	57.3	49.4-65.2	57.3	1
						54-79	-	1-3	2	11.9	11-12.8	11.9	53.7	31.5-75.8	53.7	61.9	29.2-94.6	61.9	76.2	58-94.4	76.2	58.2	16.3-100	58.2	87.1	77.8-96.4	87.1	2
						56-82	-	7	2	5.8	1.5-10	5.8	58.1	31.3-84.8	58.1	83.5	75-91.9	83.5	79.7	63.5-95.8	79.7	87.5	75-100	87.5	60.3	50-70.5	60.3	1

Number of trials summarized: 2

Conclusion

A total of 5 trials were carried out in the Maritime EPPO Zone to evaluate the efficacy of GLOB2011I for the control of spring aphids on cereals. Those trials have been conducted between 2020 and 2022 in the Czech Republic, Germany, the Netherlands. During the trials, the presence of 2 aphid species was verified, the English grain aphid (MACSAV, *Sitobion avenae*) and the Apple bud aphid (RHOPPA, *Rhopalosiphum padi*)

Data demonstrated that the efficacy of GLOB2011I at the maximum proposed rate of 2 L/ha was in general useful and significantly superior to those recorded in the untreated control showing a benefit from a product with low risks. Moreover, in part of the assessments it was even comparable with conventional pyrethroid reference products. At a lower rate of 1.5 L/ha, similar control could still be observed, especially on early assessments, however the control tends to show a less long lasting effect compared to 2 L/ha. Dose rates starting from 1.5 L/ha are needed for a broad range of target aphids, especially for the control of *Rhopalosiphum padi*. Best results were obtained after a second application.

Higher water volumes provided a slightly higher control, probably linked to a better crop coverage.

Generally, these results also confirm the results obtained from other EPPO climatic zones.

Table 3.2-15 shows the overall mean efficacy results of GLOB2011I in maximum 2 application of 1.5-2 L/ha against spring aphids on cereals.

Extrapolation of results achieved

Considering agronomic similarities between crops and biological and behavioral similarities between pests, data presented in this section on *Rhopalosiphum padi* and on *Sitobion avenae* on cereals (including spring and winter cereals), support by extrapolation the use of GLOB2011I against the whole group of aphids on cereals.

Control of spring/summer populations is recommended if aphids are present above local thresholds. Pyrethroid insecticides have provided relatively low cost control but resistance to them is evolving and growers should look for alternative modes of action. Two main aphid species were covered in the field trials and show that GLOB2011I can be a valid alternative.

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Efficacy results on *Sitobion avenae* and *Rhopalosiphum padi*

A total of 5 trials MACSAV, *Sitobion avenae* (3) and RHOPPA, *Rhopalosiphum padi* (2) were conducted in the EPPO Maritime Zone to evaluate the efficacy of GLOB2011I for the control of spring aphids in wheat. GLOB2011I applied twice (BBCH 41-75) at both 1.5 and 2.0 L/ha gave acceptable mean control of *Sitobion avenae* 84.6% at 1.5 L/ha (range 20.1-100%) and 86.8% at 2.0 L/ha (range 19.1-100%) and *Rhopalosiphum padi* 68.6 % at 1.5 L/ha (range 47.4-79.7%) and 69.2% at 2.0 L/ha (range 58.2-87.5%) similar to the two pyrethroid chemical reference products. The limited results showed that, control remained good at the early assessments, and the dose rate of 2.0 L/ha showed a better long-lasting effect compared to a dose of 1.5 L/ha. A second application given better results.

Although the number of trials submitted does not meet the requirements of EPPO guideline 1/226 (3), a positive aspect of the use of GLOB2011I (containing a natural substance pelargonic acid) against *Rhopalosiphum padi* and *Sitobion avenae* in wheat is observed. Therefore, concerned CMS may consider at a national level to accept this use based on the data provided.

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Table 3.2-15: Overall efficacy and susceptibility level to GLOB2011I on cereals against ear aphids - PESSEV (number of aphids/25 ear and flag leaf) - Maritime EPPO zone

The table below shows for the different aphid species, the weighted mean from different cereal crops and assessment timings and regardless of the reference product used for the original grouping of means as presented in the tables above. In order to calculate an overall control level against all targets, an average from the total number of trials is further provided.

EPPO zone	Target code	Crop Code	Type/ unit	Nb. trials	Infestation in the untreated control	GLOB2011I at 0.9 L/ha	GLOB2011I at 1.5 L/ha	GLOB2011I L/ha at 1.5 (high volume)	GLOB2011I at 2 L/ha	PYR ref.
					W. Mean	W. Mean	W. Mean	W. Mean	W. Mean	W. Mean
MAR	MACSAV	TRZAW/TRZAS	nb. aphids/25	3	140.1	68.8	81.7	84.6	86.8	87.4
MAR	RHOPPA	TRZAW	nb. aphids/25	2	14.2	51.9	67.1	69.0	70.3	73.3
Average control of ear aphids on cereals				5	77.2	60.4	74.4	76.8	78.5	80.3

North-East EPPO Zone

A total of 2 trials were carried out in the North-East EPPO Zone to evaluate the efficacy of GLOB2011I for the control of spring aphids on cereals. Those trials have been conducted during 2021 in Poland. Those were combined with the results of the German and Czech trials (4 trials) since these are neighboring countries and considered as valid to the cMS Poland. The combined results from 6 trials are thus shown in the tables below.

During the trials, the presence of 2 aphid species was verified, the English grain aphid (MACSAV, *Sitobion avenae*) and the Apple bud aphid (RHOPPA, *Rhopalosiphum padi*)

As a lower dose rate was included in all trials, these results are also presented in detail under point 3.2.3 Efficacy tests and support the Minimum effective dose.

Decis or Karate was included in the majority of trials as a uniform reference, applied at authorized label rates. Table headers report the active substance/family and range of a.s. amount applied. Details are listed in right column in raw data tables in the BAD.

The color scheme used to classify the levels of control are described above in section 3.2.3 Efficacy tests (KCP 6.2).

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Table 3.2-16: Efficacy of GLOB2011I against MACSAV –PESSEV (number of aphids/25 ear and flag leaf) - North-East EPPO Zone

Means valid for Poland (when available, CZ and DE trials included in mean calculation)

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	DAA- A	DAA- B	Nb. trials	Infestation in the untreated control (nb. aphids/25)			GLOB2011I at 0.9 L/ha			GLOB2011I at 1.5 L/ha			GLOB2011I at 1.5 (high volume) L/ha			GLOB2011I at 2 L/ha			Decis/DTM ref at 5-6.25 g as/ha			Karate/LCHY ref at 7.5 g as/ha			No of trials where product is > to UTC
										Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MAR	MACSAV	TRZAW	All vs. LCHY	EAR	COUINS	69	1-3	-	1	6.2	-	-	65.3	-	-	80.8	-	-	-	-	-	88.8	-	-	-	-	-	90.6	-	-	1
						73	7	-	1	0.7	-	-	37.5	-	-	93.1	-	-	-	-	-	91.7	-	-	-	-	-	97.9	-	-	1
MAR	MACSAV	TRZAW	All vs. DTM	LEAUPP	COUINS	75	1-3	-	1	152.0	-	-	10.0	-	-	22.6	-	-	20.1	-	-	19.1	-	-	38.8	-	-	-	-	-	-
						77	14	-	1	148.3	-	-	49.9	-	-	58.8	-	-	80.0	-	-	80.5	-	-	79.4	-	-	-	-	-	1
						77	-	1-3	1	127.5	-	-	70.4	-	-	79.1	-	-	90.1	-	-	90.5	-	-	90.6	-	-	-	-	-	1
MAR	MACSAV	TRZAS	All vs. DTM	LEAUPP	COUINS	71	1-3	-	1	104.5	-	-	71.0	-	-	90.1	-	-	92.3	-	-	98.8	-	-	94.3	-	-	-	-	-	1
						73	7	-	1	270.3	-	-	86.7	-	-	94.3	-	-	96.1	-	-	98.9	-	-	96.3	-	-	-	-	-	1
						75	14	-	1	284.3	-	-	97.6	-	-	98.5	-	-	98.4	-	-	99.4	-	-	99.6	-	-	-	-	-	1
						75	-	1-3	1	298.3	-	-	100.0	-	-	100.0	-	-	100.0	-	-	100.0	-	-	100.0	-	-	-	-	-	1
						77	-	7	1	9.3	-	-	100.0	-	-	100.0	-	-	100.0	-	-	100.0	-	-	100.0	-	-	-	-	-	1

Number of trials summarized: 3

Table 3.2-17: Efficacy of GLOB2011I against RHOPA –PESSEV (number of aphids/25 ear and flag leaf) - North-East EPPO Zone

Means valid for Poland (when available, CZ and DE trials included in mean calculation)

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	DAA-A	DAA-B	Nb. trials	Infestation in the untreated control (nb. aphids/25)			GLOB2011I at 0.9 L/ha			GLOB2011I at 1.5 L/ha			GLOB2011I at 1.5 (high volume) L/ha			GLOB2011I at 2 L/ha			Decis/DTM ref at 5-6.25 g as/ha			No of trials where product is > to UTC
										Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MAR+PL (+CZ,DE)	RHOPPA	TRZAW	All vs. DTM	LEAUPP	COUINS	73-77	1-3	-	3	88.4	23.3-163.3	78.5	36.5	0-55.4	54.1	59.1	47.3-66.3	63.8	61.7	37.7-82.3	65.2	47.2	28-79.1	59.7	79.4	69.2-93.1	76.0	2
						75-83	7	-	3	51.9	24-74	57.8	32.5	0-59.7	37.7	55.7	39.2-64.7	63.2	67.0	53.7-83.9	63.5	59.7	45.6-83.2	50.4	82.3	74.7-89.3	82.9	2
						77-85	14	-	3	20.8	10.5-29.3	22.5	20.2	0-48.8	11.7	37.6	16.4-49.3	47.0	49.9	10-71.2	68.4	51.9	34.2-80.5	41.0	63.3	49.4-86.8	53.8	1
						79-87	-	1-3	3	11.5	6.8-16.8	11.0	44.9	22.2-80.9	31.5	50.8	29.2-82.4	40.7	77.4	58-92.8	81.5	60.7	16.3-95.5	70.4	89.9	74.1-99.3	96.4	2
						82-89	-	7	3	2.4	1.5-2.8	2.8	48.2	31.3-67.9	45.5	68.9	50-81.8	75.0	79.5	63.5-100	75.0	80.3	75-90.9	75.0	59.8	50-75	54.5	1

Number of trials summarized: 3

Conclusion

A total of 2 trials were carried out in the North-East EPPO Zone to evaluate the efficacy of GLOB2011I for the control of spring aphids on cereals. Those trials have been conducted during 2021 in Poland. Those were combined with the results of the German and Czech trials (4 trials) since these are neighboring countries and considered as valid to the cMS Poland. The combined results from 6 trials are thus shown in the tables above.

Data demonstrated that the efficacy of GLOB2011I at the maximum proposed rate of 2 L/ha was in general useful and significantly superior to those recorded in the untreated control showing a benefit from a product with low risks. Moreover, in part of the assessments it was even comparable with conventional pyrethroid reference products. At a lower rate of 1.5 L/ha, similar control could still be observed, especially on early assessments, however the control tends to show a less long lasting effect compared to 2 L/ha. Dose rates starting from 1.5 L/ha are needed for a broad range of target aphids, especially for the control of *Rhopalosiphum padi*. Best results were obtained after a second application.

Higher water volumes provided a slightly higher control, probably linked to a better crop coverage.

Generally, these results also confirm the results obtained from other EPPO climatic zones.

Table 3.2-18 shows the overall mean efficacy results of GLOB2011I in maximum 2 application of 1.5-2 L/ha against spring aphids on cereals.

Extrapolation of results achieved

Considering agronomic similarities between crops and biological and behavioral similarities between pests, data presented in this section on *Rhopalosiphum padi* and on *Sitobion avenae* on cereals (including spring and winter cereals), support by extrapolation the use of GLOB2011I against the whole group of aphids on cereals.

Control of spring/summer populations is recommended if aphids are present above local thresholds. Pyrethroid insecticides have provided relatively low cost control but resistance to them is evolving and growers should look for alternative modes of action. Two main aphid species were covered in the field trials and show that GLOB2011I can be a valid alternative.

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Efficacy results on *Sitobion avenae* and *Rhopalosiphum padi*

A total 6 combined results from trials (MACSAV, *Sitobion avenae* (3) and RHOPPA, *Rhopalosiphum padi* (3) conducted in Poland (2), and neighboring countries German and Czech trials (4 trials) were provided. GLOB2011I applied twice (BBCH 41-75) at both 1.5 and 2.0 L/ha gave acceptable mean control of *Sitobion avenae* 84.6% at 1.5 L/ha (range 20.1-100%) and 86.8% at 2.0 L/ha (range 19.1-100%) and *Rhopalosiphum padi* 67.1 % at 1.5 L/ha (range 49.9-79.5%) and 60.0% at 2.0 L/ha (range 47.2-80.3%) similar to the two pyrethroid chemical reference products. The limited results showed that, control remained good at the early assessments, and the dose rate of 2.0 L/ha showed a better long-lasting effect compared to a dose of 1.5 L/ha. A second application yielded better results.

Although the number of trials submitted does not meet the requirements of EPPO guideline 1/226 (3), a positive aspect of the use of GLOB2011I (containing a natural substance pelargonic acid) against *Rhopalosiphum padi* and *Sitobion avenae* in wheat is observed.

Pelargonic acid is not currently registered as an insecticide in Poland. A conditional registration for this use in wheat may be considered acceptable provided that the applicant submits at least three efficacy trials for each pest as part of the post-registration process. These trials must be carried out in Poland.

No data were submitted on winter and spring durum wheat [TRZDW & TRZDS], spelt [TRZSP], winter and spring barley [HORVW & HORVS], winter and spring rye [SECCW & SECCS], winter and spring triticale [TTLWI & TTLSO]. Pelargonic acid as an insecticide is a new use in Poland and therefore full data are needed to demonstrate efficacy on the claimed cereal crops. Extrapolation of data from wheat to other cereals is not acceptable.

Table 3.2-18: Overall efficacy and susceptibility level to GLOB2011I on cereals against ear aphids - PESSEV (number of aphids/25 ear and flag leaf) - North-East EPPO zone

The table below shows for the different aphid species, the weighted mean from different cereal crops and assessment timings and regardless of the reference product used for the original grouping of means as presented in the tables above. In order to calculate an overall control level against all targets, an average from the total number of trials is further provided.

EPPO zone	Target code	Crop Code	Type/ unit	Nb. trials	Infestation in the untreated control	GLOB2011I at 0.9 L/ha	GLOB2011I at 1.5 L/ha	GLOB2011I L/ha at 1.5 (high volume)	GLOB2011I at 2 L/ha	PYR ref.
					W. Mean	W. Mean	W. Mean	W. Mean	W. Mean	W. Mean
NE (+CZ,DE)	MACSAV	TRZAW/TRZAS	nb. aphids/25	3	140.1	68.8	81.7	84.6	86.8	87.4
NE (+CZ,DE)	RHOPPA	TRZAW	nb. aphids/25	3	35.0	36.5	54.4	67.1	60.0	74.9
Average control of ear aphids on cereals				6	87.6	52.7	68.1	75.9	73.4	81.2

South-East EPPO Zone

A total of 3 trials were carried out in the South-East EPPO Zone to evaluate the efficacy of GLOB2011I for the control of spring aphids on cereals. Those trials have been conducted during 2020 in Serbia and Bulgaria. During the trials, the presence of 2 aphid species was verified, the English grain aphid (MACSAV, *Sitobion avenae*) and the Apple bud aphid (RHOPPA, *Rhopalosiphum padi*).

As a lower dose rate was included in all trials, these results are also presented in detail under point 3.2.3 Efficacy tests and support the Minimum effective dose.

In the South-East EPPO Zone, the test product (identified in trial reports as GLOBA) was applied only once, and assessments performed on sample sizes of 25 were reported to a 1 plant basis.

Karate was included as a uniform reference, applied at authorized label rates. Table headers report the active substance/family and range of a.s. amount applied. Details are listed in right column in raw data tables in the BAD.

The color scheme used to classify the levels of control are described above in section 3.2.3 Efficacy tests (KCP 6.2).

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Table 3.2-19: Efficacy of GLOB2011I against MACSAV –PESSEV (number of aphids/plant) - South-East EPPO Zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	DAA-A	DAA-B	Nb. trials	Infestation in the untreated control (nb. aphids/plant)			GLOB2011I at 0.9 L/ha			GLOB2011I at 1.5 L/ha			GLOB2011I at 2 L/ha			Karate/LCHY ref at 15g as/ha			No of trials where product is > to UTC
										Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
S-E	MACSAV	TRZAS	All vs. LCHY	PLANT	COUINS	73	1-3	-	1	5.8	-	-	51.8	-	-	-	-	-	63.1	-	-	84.9	-	-	1
						74	7	-	1	5.4	-	-	51.3	-	-	-	-	-	64.2	-	-	79.7	-	-	1

Number of trials summarized: 1

Table 3.2-20: Efficacy of GLOB2011I against RHOPA –PESSEV (number of aphids/plant) - - South-East EPPO Zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	DAA-A	DAA-B	Nb. trials	Infestation in the untreated control (nb. aphids/plant)			GLOB2011I at 0.9 L/ha			GLOB2011I at 1.5 L/ha			GLOB2011I at 2 L/ha			Karate/LCHY ref at 15g as/ha			No of trials where product is > to UTC
										Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
S-E	RHOPPA	TRZAW	All vs. LCHY	PLANT	COUINS	71-73	1-3	-	2	2.4	1.5-3.2	2.4	35.7	32.4-38.9	35.7	49.9	35.7-64	49.9	65.8	51.7-79.8	65.8	61.4	45.5-77.2	61.4	1
						73-75	7	-	2	3.1	2.1-4.1	3.1	48.7	47.1-50.3	48.7	51.9	46.3-57.4	51.9	66.4	60.9-71.9	66.4	56.8	47.6-66	56.8	2

Number of trials summarized: 2

Conclusion

A total of 3 trials were carried out in the South-East EPPO Zone to evaluate the efficacy of GLOB2011I for the control of spring aphids on cereals. Those trials have been conducted during 2020 in Serbia and Bulgaria. During the trials, the presence of 2 aphid species was verified, the English grain aphid (MACSAV, *Sitobion avenae*) and the Apple bud aphid (RHOPPA, *Rhopalosiphum padi*)

Data demonstrated that the efficacy of GLOB2011I at the maximum proposed rate of 2 L/ha was in general useful and significantly superior to those recorded in the untreated control showing a benefit from a product with low risks.

In trials against *Rhopalosiphum padi* where a lower rate of 1.5 L/ha was tested, slightly lower control was observed, but still significantly higher than on untreated plots. Moreover, the product was even comparable with conventional pyrethroid reference product.

Moderate control was achieved even after one single application. Dose rates starting from 1.5 L/ha are needed for a broad range of target aphids, especially for the control of *Rhopalosiphum padi*.

Generally, these results also confirm the results obtained from other EPPO climatic zones.

Table 3.2-21 shows the overall mean efficacy results of GLOB2011I in maximum 2 application of 1.5-2 L/ha against spring aphids on cereals.

Extrapolation of results achieved

Considering agronomic similarities between crops and biological and behavioral similarities between pests, data presented in this section on *Rhopalosiphum padi* and on *Sitobion avenae* on cereals (including spring and winter cereals), support by extrapolation the use of GLOB2011I against the whole group of aphids on cereals.

Control of spring/summer populations is recommended if aphids are present above local thresholds. Pyrethroid insecticides have provided relatively low cost control but resistance to them is evolving and growers should look for alternative modes of action. Two main aphid species were covered in the field trials and show that GLOB2011I can be a valid alternative.

Spring application against ear aphids

Efficacy results on *Sitobion avenae* (1 trial) and *Rhopalosiphum padi* (2 trials)

A total of 3 trials were conducted in the south-eastern EPPO zone to evaluate the efficacy of GLOB2011I for the control of spring aphids in wheat. The applicant showed that GLOB2011I at 2.0 l/ha provided some reduction and was comparable to pyrethroid chemical reference products against *Rhopalosiphum padi* and *Sitobion avenae*. The dose of 1.5 l/ha was clearly less effective. Although the number of trials submitted does not meet the requirements of EPPO Guideline 1/226 (3), there is a positive aspect to the use of GLOB2011I (containing the natural substance pelargonic acid) at dose rate of 2.0 l/ha against *Rhopalosiphum padi* and *Sitobion avenae* in wheat. Therefore, concerned CMS may consider accepting this use at national level based on the data provided.

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Table 3.2-21: Overall efficacy and susceptibility level to GLOB2011I on cereals against ear aphids - PESSEV (number of aphids/plant) - South-East EPPO Zone

The table below shows for the different aphid species, the weighted mean from different cereal crops and assessment timings and regardless of the reference product used for the original grouping of means as presented in the tables above. In order to calculate an overall control level against all targets, an average from the total number of trials is further provided.

EPPO zone	Target code	Crop Code	Type/ unit	Nb. trials	Infestation in the untreated control	GLOB2011I at 0.9 L/ha	GLOB2011I at 1.5 L/ha	GLOB2011I L/ha at 1.5 (high volume)	GLOB2011I at 2 L/ha	PYR ref.
					W. Mean	W. Mean	W. Mean	W. Mean	W. Mean	W. Mean
S-E	MACSAV	TRZAS	nb. aphids/plant	1	5.6	51.6	-	-	63.7	82.3
S-E	RHOPPA	TRZAW	nb. aphids/plant	2	2.8	42.2	50.9	-	66.1	59.1
Average control of ear aphids on cereals				3	4.2	46.9	50.9 (n=2)	-	64.9	70.7

Mediterranean EPPO Zone

A total of 7 trials were carried out in the Mediterranean EPPO Zone to evaluate the efficacy of GLOB2011I for the control of spring aphids on cereals. Those trials have been conducted between 2020 and 2022 in Croatia, Italy and Spain. During the trials, the presence of 2 key aphid species was verified in most of the trials, the English grain aphid (MACSAV, *Sitobion avenae*) and the Apple bud aphid (RHOPPA, *Rhopalosiphum padi*) as well a species identified as *Aphis* sp. (APHISP) and the barley aphid *Diuraphis noxia* (BRAYNO) in one trial each.

As a lower dose rate was included in all trials, these results are also presented in detail under point 3.2.3 Efficacy tests and support the Minimum effective dose.

In one trial (KCP 6.2-09) only one application was performed because the crop's development stage was in an advanced stage due to a warm wave that hit the trial location and it was not possible to carry out the second application.

Decis or Karate was included in the majority of trials as a uniform reference, applied at authorized label rates. Table headers report the active substance/family and range of a.s. amount applied. Details are listed in right column in raw data tables in the BAD.

The color scheme used to classify the levels of control are described above in section 3.2.3 Efficacy tests (KCP 6.2).

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Table 3.2-22: Efficacy of GLOB2011I against MACSAV –PESSEV (number of aphids/25 ear and flag leaf) – Mediterranean EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	DAA-A	DAA-B	Nb. trials	Infestation in the untreated control (nb. aphids/25)			GLOB2011I at 0.9 L/ha			GLOB2011I at 1.5 L/ha			GLOB2011I at 1.5 (high volume) L/ha			GLOB2011I at 2 L/ha			Decis/DTM ref at 12.5 g as/ha			No of trials where product is > to UTC
										Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MED	MACSAV	TRZAW	All vs. DTM	LEAUPP	COUINS	53-69	1-3	-	3	65.9	30.5-112	55.3	39.4	14.3-71.4	32.5	54.1	27.6-77.6	57.2	58.0	31.1-77.8	65.1	63.7	42.8-81.9	66.5	75.8	66.9-91.7	68.7	3
						58-69	7	-	3	82.1	29-150.8	66.5	47.2	27.5-64.8	49.3	62.8	55.3-76.9	56.3	64.8	55.9-75.2	63.2	69.3	61.3-81.2	65.3	74.3	52.7-93.6	76.5	3
						65-75	14	-	3	98.5	30.8-211.5	53.3	46.0	32.9-66.4	38.8	58.7	41.6-73	61.4	60.7	42.6-76	63.6	68.0	59.6-77.4	67.0	73.2	60.8-90.3	68.5	3
						65-77	-	1-3	3	103.4	32-240.8	37.5	58.2	29.7-83.9	60.9	75.8	58.3-86.8	82.2	77.0	56.7-89.3	85.1	79.9	65.6-90	84.0	92.0	83.3-99.2	93.5	3
						69-77	-	7	3	129.3	32.5-321	34.5	66.4	43-91.6	64.7	76.5	55.3-92.7	81.5	83.0	68-93.7	87.3	84.4	73.6-94.5	85.0	94.0	90.2-99.2	92.5	3

Number of trials summarized: 3

Table 3.2-23: Efficacy of GLOB2011I against RHOPA –PESSEV (number of aphids/25 ear and flag leaf) – Mediterranean EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	DAA-A	DAA-B	Nb. trials	Infestation in the untreated control (nb. aphids/25)			GLOB2011I at 0.9 L/ha			GLOB2011I at 1.5 L/ha			GLOB2011I at 1.5 (high volume) L/ha			GLOB2011I at 2 L/ha			Decis/DTM ref at 6.25-12.5 g as/ha			No of trials where product is > to UTC
										Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MED	RHOPPA	TRZAW	All vs. DTM	LEAUPP	COUINS	75-79	1-3	-	2	73.6	51.3-95.8	73.6	31.6	30.1-33	31.6	35.2	34.6-35.8	35.2	49.6	49.1-50	49.6	53.7	52.9-54.5	53.7	39.2	0-78.4	39.2	n.a.
						77-83	7	-	2	47.0	28.5-65.5	47.0	30.6	30.5-30.6	30.6	33.8	33.3-34.3	33.8	48.8	48.1-49.5	48.8	53.3	53-53.5	53.3	60.1	38.8-81.3	60.1	n.a.
						83	14	-	1	25.5	-	-	33.8	-	-	34.7	-	-	49.8	-	-	52.8	-	-	59.7	-	-	n.a.
						85	-	1-3	1	5.0	-	-	82.8	-	-	60.5	-	-	67.3	-	-	71.8	-	-	69.2	-	-	n.a.

Number of trials summarized: 2

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Table 3.2-24: Efficacy of GLOB2011I against other species (BRAYNO and APHISP) – PESSEV (number of aphids/25 ears) – Mediterranean EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	DAA-A	DAA-B	Nb. trials	Infestation in the untreated control (nb. aphids/25)			GLOB2011I at 0.9 L/ha			GLOB2011I at 1.5 L/ha			GLOB2011I at 1.5 (high volume) L/ha			GLOB2011I at 2 L/ha			Karate/LCHY ref at 20 g as/ha			No of trials where product is > to UTC
										Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MED	BRAYNO	TRZDW	All vs. LCHY	EAR	COUINS	71	1-3	-	1	4.7	-	-	43.0	-	-	43.3	-	-	-	-	-	57.8	-	-	58.2	-	-	1
						71	7	-	1	6.8	-	-	70.3	-	-	80.8	-	-	-	-	-	81.5	-	-	78.1	-	-	1
MED	APHISP	TRZDW	All vs. LCHY	EAR	COUINS	71	1-3	-	1	2.5	-	-	41.6	-	-	49.9	-	-	-	-	-	59.0	-	-	57.0	-	-	1
						73	7	-	1	11.4	-	-	76.2	-	-	84.1	-	-	-	-	-	86.5	-	-	85.8	-	-	1

Number of trials summarized: 2

Conclusion

A total of 7 trials were carried out in the Mediterranean EPPO Zone to evaluate the efficacy of GLOB2011I for the control of spring aphids on cereals. Those trials have been conducted between 2020 and 2022 in Croatia, Italy and Spain. During the trials, the presence of 2 key aphid species was verified in most of the trials, the English grain aphid (MACSAV, *Sitobion avenae*) and the Apple bud aphid (RHOPPA, *Rhopalosiphum padi*) as well as a species identified as *Aphis* sp. (APHISP) and the barley aphid *Diuraphis noxia* (BRAYNO) in one trial each.

Data demonstrated that the efficacy of GLOB2011I at the maximum proposed rate of 2 L/ha was good and in general significantly superior to those recorded in the untreated control showing a benefit from a product with low risks. Moreover, in part of the assessments it was even comparable with conventional pyrethroid reference products. At a lower rate of 1.5 L/ha, similar control could still be observed, especially on early assessments, however the control tends to show a less long lasting effect compared to 2 L/ha. Dose rates starting from 1.5 L/ha are needed for a broad range of target aphids. Best results were obtained after a second application.

Higher water volumes provided a slightly higher control, probably linked to a better crop coverage.

Generally, these results also confirm the results obtained from other EPPO climatic zones.

Table 3.2-25 shows the overall mean efficacy results of GLOB2011I in maximum 2 application of 1.5-2 L/ha against spring aphids on cereals.

Extrapolation of results achieved

Considering agronomic similarities between crops and biological and behavioral similarities between pests, data presented in this section on major aphids *Rhopalosiphum padi* and *Sitobion avenae* as well as *Aphis* sp. and *Diuraphis noxia* on cereals (including spring and winter cereals), support by extrapolation the use of GLOB2011I against the whole group of aphids on cereals.

Control of spring/summer populations is recommended if aphids are present above local thresholds. Pyrethroid insecticides have provided relatively low cost control but resistance to them is evolving and growers should look for alternative modes of action. Two main aphid species were covered in the field trials and show that GLOB2011I can be a valid alternative.

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Table 3.2-25: Overall efficacy and susceptibility level to GLOB2011I on cereals against ear aphids - PESSEV (number of aphids/25 ear and flag leaf) - Mediterranean EPPO zone

The table below shows for the different aphid species, the weighted mean from different cereal crops and assessment timings and regardless of the reference product used for the original grouping of means as presented in the tables above. In order to calculate an overall control level against all targets, an average from the total number of trials is further provided.

EPPO zone	Target code	Crop Code	Type/ unit	Nb. trials	Infestation in the untreated control	GLOB2011I at 0.9 L/ha	GLOB2011I at 1.5 L/ha	GLOB2011I L/ha at 1.5 (high volume)	GLOB2011I at 2 L/ha	PYR ref.
					W. Mean	W. Mean	W. Mean	W. Mean	W. Mean	W. Mean
MED	MACSAV	TRZAW	nb. aphids/25	3	95.8	51.4	65.6	68.7	73.1	81.9
MED	RHOPPA	TRZAW	nb. aphids/25	2	45.3	40.2	38.9	52.3	56.4	54.6
MED	BRAYNO APHISP	TRZDW	nb. aphids/25	2	6.4	57.8	64.5	-	71.2	69.8
Average control of ear aphids on cereals				7	49.2	49.8	56.3	60.5 (n=5)	66.9	68.7

Autumn application against aphids as virus vectors

Grain aphid (*Sitobion avenae*), bird-cherry oat aphid (*Rhopalosiphum padi*), the rose-grain aphid (*Metopolophium dirhodum*) are the main aphid pests of cereals, being potential vectors of barley yellow dwarf virus (BYDV). All three species (especially grain aphid) can also cause direct damage through feeding. The Insecticide Resistance Action Committee (IRAC) reports¹ that the pyrethroid resistant grain aphids are a challenge for cereal growers in the UK and Ireland and the concern is that the problem may spread to other areas of Europe. At present, there are very few registered insecticides with different modes of action available to farmers for the control of cereal aphids. This makes it difficult to rotate insecticides with different modes of action, which is the most commonly recommended form of resistance and pest management. GLOB2011I can be a valid alternative in the IPM.

In total, 21 efficacy trials were submitted to demonstrate the efficacy of GLOB2011I for the use against autumn aphids on cereals.

These trials were carried out between 2020 and 2022 by GEP certified research institutions in the Czech Republic, Germany, the northern part of France, the United Kingdom and the Netherlands (in total 12 trials belonging to the Maritime EPPO Zone), in Poland (1 trial belonging to the North-East EPPO Zone), as well as in Croatia, southern part of France, Italy and Spain (8 trials belonging to the Mediterranean EPPO Zone).

Trial methodology

All trials were carried out by testing facilities, or organisations, officially recognised as competent to perform efficacy testing in accordance with the requirements of Directive 93/71/EEC, and with the principles of GEP. Copies of certificates can be found in Appendix 4 of the Biological Assessment dossier.

Applications were performed in autumn, from 07/10 until 25/11 when first insects were observed. In the Maritime zone, at the first year of trials, 2020, only one application was performed (1 trial), as well as on 2 trials performed during 2021 due to low infestation at the time of second planned application. Data is summarized accordingly.

In all but 1 trial, 2 spray volumes were tested, 200 and 400 L/ha.

According to the EPPO Standard PP 1/70 (3) targeted for Aphid vectors of Barley yellow dwarf virus, assessments were performed on a sample size of 5 random groups of 10 plants. The main assessments performed were pest severity in terms of count the number of living insects on the 50 plants. Assessment timings should be 1-3 days and 7-14 days after application. Data were summarized after 1-3, 7 and 14 days separately (± 2 to 3 days). When data were available at 1 and 3 days after application, in general the assessment of 3 days was selected for summarization as pressure was higher. Data not considered for means calculation are shaded in grey in the BAD.

As from EPPO Standard PP 1/20 (3), indicator crops are barley *Hordeum vulgare* (HORVX), wheat *Triticum aestivum* (TRZAX), oat *Avena sativa* (AVESA) and other field cereals (winter and spring, NNNGG) or sensitive grasses.

¹ IRAC NEWSLETTER ISSUE 35 OCTOBER 2014. Available at <https://irac-online.org/content/uploads/econnection35.pdf>

Data were subjected to analysis of variance (ANOVA) at the 95% confidence level. When significant differences were found a Student-Newman-Keuls (SNK) Post-Hoc test was applied to separate the means. Treatment means with no letters in common are significantly different according to SNK test.

Representative results were summarized below, specifically the number of insects on 50 plants.

In the 2021 trials, BYDV was analysed using ELISA. In spring, foci with visible symptoms as dwarfing and discoloration were counted and/or their area estimated. However, as no significant presence of the virus was identified in the trials except one trial in Czech Republic, the tests were not replicated in 2022 trials. Results of the ELISA tests are presented for the Maritime zone.

A pyrethroid reference product was included in all trials. Due to different formulations and slightly different authorized application rates, the pyrethroid reference products were gathered given that their practical performance is known and the working spectrum, time and method of application, mode of action are close related. References were applied at same timings as test product.

The following table reports an overview of chemical standards and test products used in efficacy trials against aphids on cereals.

Table 3.2-26: Presentation of reference standards used in efficacy trials

Crop (s)	Reference standard	Country where the product is registered	Auth. number	Active substance(s)	Formulation		Registered application rate ⁽³⁾	Application rate in trials (per treatment)	Remark
					Type	Concentration of a.s.			
Cereals	DECIS	IT	4426	deltamethrin	EC	25 g/L	0,3-0,5 l/ha	0,5 l/ha	
	DECIS	ES	25100	deltamethrin	EC	25 g/L	0,03 - 0,05 %	0,5 l/ha	
	DECIS 100 EC	HR	UP/I-320-20/13-01/383	deltamethrin	EC	100 g/L	0,075-0,125 l/ha	0,125 l/ha	
	Decis Forte	CZ	5450-0	deltamethrin	EC	100 g/L	62,5 ml/ha	62,5 ml/ha	
		DE	007418-00	deltamethrin	EC	100 g/L	0,05 l/ha	0,05 l/ha	
		UK	16110	deltamethrin	EC	100 g/L	Max 62,5 ml/ha	50 ml/ha (BYDV) 62,5 ml/ha (ear)	
	DECIS PROTECH 15 EW	NL	15889	deltamethrin	EW	15 g/L	0,42 l/ha	0,42 l/ha	
		NL	15889	deltamethrin	EW	15 g/L	0,84 l/ha	0,83 l/ha	worst case, rate on flowers
	DECIS PROTECH	FR	2010023	deltamethrin	EW	15 g/L	0,42 L/ha (ear) 0,5 L/ha (leaves)	0,5 l/ha	
	Fury 100 EW	PL	R- 12/2016	<i>zeta-cypermethrin</i>	EW	100 g/L	0,1 l/ha	0,1 l/ha	aphid vectors of BYDV
	Markate 50	CZ	4728-0	lambda-chyalothrin	EC	50 g/L	0,1 l/ha	0,1 l/ha	
	Karate Zeon	ES	22398	lambda-chyalothrin	CS	100 g/L	0,01 - 0,02 %	0,2 l/ha	
	Karate Zeon	DE	024675-00	lambda-chyalothrin	CS	100 g/L	0,075 l/ha	0,075 l/ha	
	Karate Zeon	FR	9800336	lambda-chyalothrin	CS	100 g/L	0,075 l/ha	0,075 l/ha	
	Fastac ME	DE	007473-00	alpha-Cypermethrin	ME	50G/L	0,3l/ha	0,3l/ha	
	Scatto	PL	R- 522/2017d	deltamethrin	EC	25 g/L	Max. 0,3 l/ha	0,25 L/HA	

Information on trial methodology is summarized below. Trial site information and application details are presented in Appendix 3 of the Biological Assessment Dossier.

Table 3.2-27: Details on trial methodology – autumn aphids on cereals - Maritime EPPO zone

Guidelines	General guidelines	PP 1/135(4), EPPO PP 1/152 (4), PP 1/181(4)
	Specific guidelines	EPPO PP 1/70 (3) EPPO PP 1/20(3) (1 trial)
Experimental design	Plot design	RCBD (12)
	Plot size	15-36 m ²
	Number of replications	4 (12)
Crop	Trials per crop	TRZAW (1), HORVW (11)
	Varieties per crop	TRZAW: Benchmark, HORVW: Zoro, Quadriga, KWS Kosmos, Rumcajs, Yatzy, Lomerit, KWS Cassia, KWS FARO, Kingsbarn
	Sowing period	13/09-13/10
Application	Crop stage (BBCH) at application	11-14
	Timing	
	Pest stage at application	Mixed stages
	Number of applications	1 (3 trials), 2 (9 trials)
	Intervals between applications	14-21
Assessment	Spray volumes	200 & 400 L/ha
	Assessment types	COUINS(summarized), PHYGEN, ELISA, nb/area of discoloured/dwarf foci
	Assessment dates	pre-assessment at application, 1-3, 7, 14 days after each application (Oct-Dec), BYDV (Apr-May)
Other relevant information	Soil types	loamy sand, silt loam, sandy clay, loam, silty clay loam, clay loam, clay
	Natural / artificial inoculation...	Natural infestation
	Field / Greenhouse...	Field

Table 3.2-28: Details on trial methodology – autumn aphids on cereals - North-East EPPO zone

Guidelines	General guidelines	PP 1/135(4), EPPO PP 1/152 (4), PP 1/181(4)
	Specific guidelines	EPPO PP 1/70 (3)
Experimental design	Plot design	RCBD (1)
	Plot size	15 m ²
	Number of replications	4 (1)
Crop	Trials per crop	HORVW
	Varieties per crop	KWS KOSMOS
	Sowing period	25/09

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Application	Crop stage (BBCH) at application	12
	Timing	
	Pest stage at application	Mixed stages
	Number of applications	2 (1 trial)
	Intervals between applications	14
Assessment	Spray volumes	200 & 400 L/ha
	Assessment types	COUINS(summarized), PHYGEN, ELISA, nb/area of discoloured/dwarf foci
Other relevant information	Assessment dates	pre-assessment at application, 1-3, 7, 14 days after each application (Oct-Nov), BYDV (Apr-May)
	Soil types	sandy loam
	Natural / artificial inoculation...	Natural infestation
	Field / Greenhouse...	Field

Table 3.2-29: Details on trial methodology – autumn aphids on cereals - Mediterranean EPPO zone

Guidelines	General guidelines	PP 1/135(4), EPPO PP 1/152 (4), PP 1/181(4)
	Specific guidelines	EPPO PP 1/70 (3)
Experimental design	Plot design	RCBD (8)
	Plot size	15-21 m ²
	Number of replications	4 (8)
Crop	Trials per crop	HORVW (8)
	Varieties per crop	Signora, MARGAUX, Sandra (RWA), IDRA, Meseta, COMETA
	Sowing period	20/09-02/11
Application	Crop stage (BBCH) at application	11-23
	Timing	
	Pest stage at application	Mixed stages (mainly adult)
	Number of applications	2 (8 trials)
	Intervals between applications	13-14
Assessment	Spray volumes	200 & 400 L/ha
	Assessment types	COUINS(summarized), PHYGEN
Other relevant information	Assessment dates	pre-assessment at application, 1-3, 7, 14 days after each application (Oct-Dec)
	Soil types	sandy clay loam, silty sand, clay, loam
	Natural / artificial inoculation...	Natural infestation
	Field / Greenhouse...	Field

Results

Maritime EPPO zone

A total of 12 trials were carried out in the Maritime EPPO Zone to evaluate the efficacy of GLOB2011I for the control of autumn aphids on cereals. Those trials have been conducted between 2020 and 2022 in the Czech Republic, Germany, the northern part of France, the United Kingdom and the Netherlands. During the trials, the presence of 2 aphid species was verified in most of the trials, the English grain aphid (MACSAV, *Sitobion avenae*) and the Apple bud aphid (RHOPPA, *Rhopalosiphum padi*) as well as the peach-potato aphid (MYZUPE, *Myzus persicae*) in one trial.

As a lower dose rate was included in all trials, these results are also presented in detail under point 3.2.3 Efficacy tests and support the Minimum effective dose.

Decis or Karate was included in the majority of trials as a uniform reference, applied at authorized label rates. Table headers report the active substance/family and range of a.s. amount applied. Details are listed in right column in raw data tables in the BAD.

The color scheme used to classify the levels of control are described above in section 3.2.3 Efficacy tests (KCP 6.2).

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Table 3.2-30: Efficacy of GLOB2011I against MACSAV in autumn –PESSEV (number of aphids/50plants) - Maritime EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (nb. aphids/50 pl.)			GLOB2011I at 0.9-1 l/ha			GLOB2011I at 1.5 l/ha			GLOB2011I at 1.5 l/ha (high volume)			GLOB2011I at 2 l/ha			PYR ref at 5-7.5 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MAR	MACSAV	HORVW	All vs. PYR	PLANT	COUINS	11-21	1-3 DA-A	5	16.5	1-37.8	16.5	55.1	25-100	43.4	48.1	25-70.1	46.3	54.7	2.4-100	49.7	61.1	25-100	62.4	47.1	10-96.3	36.4	2
			All vs. PYR	PLANT	COUINS	12-21	7DA-A	5	25.0	2-62.8	6.5	60.7	25-94.9	46.4	65.7	1.5-100	84.4	57.8	0-100	65.7	62.8	11.5-100	75.0	75.6	0-100	93.5	2
			All vs. PYR	PLANT	COUINS	12-22	14 DA-A	4	36.7	4.3-58.3	42.0	83.6	67-100	83.8	80.6	46.2-100	88.0	65.8	41.2-100	60.9	83.6	66.3-100	84.0	84.8	47.1-100	96.0	3
			All vs. PYR	PLANT	COUINS	21-24	1-3 DA-B	3	29.4	19.5-45	23.8	71.4	37.2-100	76.9	75.7	54.1-100	73.1	59.3	31.8-100	46.2	67.9	46.2-100	57.4	100.0	100-100	100.0	2
			All vs. PYR	PLANT	COUINS	14-24	7 DA-B	4	23.1	5.8-45	20.8	76.9	47.6-100	80.0	78.1	59.8-100	76.3	77.0	38-100	85.0	81.6	60-100	83.2	95.7	82.6-100	100.0	3

Number of trials summarized: 5

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Table 3.2-31: Efficacy of GLOB2011I against RHOPPA in autumn –PESSEV (number of aphids/50plants) - -- Maritime EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (nb. aphids/50 pl.)			GLOB2011I at 0.9-1 l/ha			GLOB2011I at 1.5 l/ha			GLOB2011I at 1.5 l/ha (high volume)			GLOB2011I at 2 l/ha			PYR ref at 5-15 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MAR	RHOPPA	TRZAW	All vs. PYR	PLANT	COUINS (per plant)	12	1-3 DA-A	1	0.3	-	-	40.4	-	-	3.4	-	-	-	-	-	41.9	-	-	20.1	-	-	-
			All vs. PYR	PLANT	COUINS (per plant)	13	7DA-A	1	0.7	-	-	56.8	-	-	55.9	-	-	-	-	-	79.0	-	-	87.0	-	-	1
MAR	RHOPPA	HORVW	All vs. PYR	PLANT	COUINS	11-21	1-3 DA-A	3	38.9	16.3-71	29.3	19.6	10.7-30.7	17.3	26.3	8.8-59	11.1	26.1	13.5-50	14.9	38.6	23.8-59.4	32.6	75.8	60.1-88.9	78.3	1
			All vs. PYR	PLANT	COUINS	12-22	7DA-A	5	25.6	1.8-76	8.8	37.6	17-75	34.1	41.0	16.1-75	38.9	53.9	33.1-75	52.0	66.0	39.4-100	69.8	79.1	57.7-100	78.3	4
			All vs. PYR	PLANT	COUINS	12-23	14 DA-A	3	57.7	11-90	72.0	22.4	17.3-28.3	21.6	26.4	14.8-33.4	30.9	29.0	18-44.1	25.0	30.2	23.8-42	24.9	52.6	34.2-72.5	51.1	-
			All vs. PYR	PLANT	COUINS	12-23	1-3 DA-B	3	46.8	7-69.3	64.0	33.7	29.4-38.6	33.1	47.0	20.7-70.8	49.6	45.2	28.7-54.1	52.9	55.8	48.3-69.9	49.1	86.2	80.5-92.7	85.3	3
			All vs. PYR	PLANT	COUINS	12-24	7 DA-B	3	42.0	7-67	52.0	33.3	26.3-38.1	35.4	43.1	18.9-58.2	52.3	44.7	32.2-62.3	39.7	57.8	44.2-70.9	58.2	84.2	71.6-92.1	88.8	3
			All vs. PYR	PLANT	COUINS	12	14 DA-B	1	1.8	-	-	35.8	-	-	75.0	-	-	44.8	-	-	75.0	-	-	50.7	-	-	1

Number of trials summarized: 6

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Table 3.2-32: Efficacy of GLOB2011I against MYZUPE in autumn –PESSEV (number of aphids/50plants) - -- Maritime EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (nb. aphids/50 pl.)			GLOB2011I at 0.9-1 l/ha			GLOB2011I at 1.5 l/ha			GLOB2011I at 1.5 l/ha (high volume)			GLOB2011I at 2 l/ha			PYR ref at 5-6.3 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MAR	MYZUPE	HORVW	All vs. PYR	PLANT	COUINS	14	1-3 DA-A	1	58.0	-	-	57.0	-	-	80.3	-	-	94.7	-	-	73.0	-	-	83.6	-	-	1
			All vs. PYR	PLANT	COUINS	16	7DA-A	1	32.5	-	-	42.3	-	-	80.4	-	-	98.6	-	-	98.3	-	-	96.1	-	-	1

Number of trials summarized: 1

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Table 3.2-33: Efficacy of GLOB2011I against BYDV in autumn –ELISA INDEX – Maritime EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Days after appl.	Nb. trials	Infestation in the untreated control (Index)			GLOB2011I at 0.9-1 l/ha			GLOB2011I at 1.5 l/ha			GLOB2011I at 1.5 l/ha (high volume)			GLOB2011I at 2 l/ha			PYR ref at 5-15 g as/ha			No of trials where product is > to UTC
								Mean*	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MAR	BYDVM0	HORVW	All vs. PYR	PLANT	VIRBYD INDEX	136 DA-B	1	2.4	-	-	28.4	-	-	79.6	-	-	100.0	-	-	95.1	-	-	49.9	-	-	1

**2.4 Index. Initial infestation 64.3 aphids/50 plants

Number of trials summarized: 3 (1 valid)

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Table 3.2-34: Efficacy of GLOB2011I against BYDV in autumn – BYDV symptoms – Maritime EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Days after appl.	Nb. trials	Infestation in the untreated control			GLOB2011I at 0.9-1 l/ha			GLOB2011I at 1.5 l/ha			GLOB2011I at 1.5 l/ha (high volume)			GLOB2011I at 2 l/ha			PYR ref at 5 g as/ha			No of trials where product is > to UTC
								Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MAR	BYDVM0	HORVW	All vs. PYR	PLANT	# of dwarf plants	180 DA-B	1	0.8	-	-	25.0	-	-	75.0	-	-	75.0	-	-	75.0	-	-	75.0	-	-	-
					discol foci #	180 DA-B	1	3.8	-	-	60.8	-	-	72.1	-	-	57.5	-	-	100.0	-	-	100.0	-	-	1
					discol foci area m2	180 DA-B	1	19.0	-	-	56.3	-	-	79.6	-	-	51.9	-	-	100.0	-	-	95.8	-	-	1
					dwarf foci area m2	180 DA-B	1	4.0	-	-	36.7	-	-	60.0	-	-	45.0	-	-	100.0	-	-	100.0	-	-	1
				EAR	ster. ear foci area	200 DA-B	1	18.0	-	-	67.9	-	-	67.5	-	-	72.9	-	-	98.8	-	-	100.0	-	-	1
					steril ear foci #	200 DA-B	1	1.5	-	-	75.0	-	-	50.0	-	-	75.0	-	-	100.0	-	-	100.0	-	-	1

Number of trials summarized: 1

Conclusion

A total of 12 trials were carried out in the Maritime EPPO Zone to evaluate the efficacy of GLOB2011I for the control of autumn aphids on cereals. Those trials have been conducted between 2020 and 2022 in the Czech Republic, Germany, the northern part of France, the United Kingdom and the Netherlands. During the trials, the presence of 2 aphid species was verified in most of the trials, the English grain aphid (MACSAV, *Sitobion avenae*) and the Apple bud aphid (RHOPPA, *Rhopalosiphum padi*) as well as the peach-potato aphid (MYZUPE, *Myzus persicae*) in one trial.

Data demonstrated that the efficacy of GLOB2011I at the maximum proposed rate of 2 L/ha was in general useful and significantly superior to those recorded in the untreated control showing a benefit from a product with low risks. Moreover, in part of the assessments it was even comparable with conventional pyrethroid reference products. Best results were obtained after a second application.

Higher water volumes did not provide a higher control and a lower rate of 1.5 L/ha provided slightly lower control, but still often significantly higher than on untreated plots, providing some control.

Control of *Myzus persicae* was high at rates starting at 1.5 L/ha and was even comparable with conventional pyrethroid.

Generally, these results also confirm the results obtained from other EPPO climatic zones.

In addition, despite low presence of virus (significant in only one trial with RHOPPA), results suggest a good effect also on BYDV control when aphids infest young plants in autumn.

Table 3.2-35 shows the overall mean efficacy results of GLOB2011I in maximum 2 application of 1.5-2 L/ha against autumn aphids on cereals.

Extrapolation of results achieved

Considering agronomic similarities between crops and biological and behavioral similarities between pests, data presented in this section on *Rhopalosiphum padi* and on *Sitobion avenae* on cereals (including winter wheat and winter barley), as well as on *Myzus persicae* support by extrapolation the use of GLOB2011I against the whole group of aphids on cereals.

Pyrethroids are the only foliar-applied products approved for use against cereal aphids in autumn and winter to reduce BYDV risk. Where grain aphid is identified as the main aphid pest present in the crop, pyrethroid sprays may not be effective, as it has been shown to have moderate levels of resistance to this class of chemistry in laboratory assays² and thus growers should look for alternative modes of action. Two main aphid species were covered in the field trials and show that GLOB2011I can be a valid alternative.

Autumn application against aphids as virus vectors

Efficacy results on *Sitobion avenae*

A total of 5 trials were conducted to evaluate the efficacy of GLOB2011I at 1.5 and 2.0 l/ha (975 - 1300 g a.s./ha), which gave good control of *Sitobion avenae* compared to both Karate Zeon and Decis applied at the beginning of the infestation. GLOB2011I with a mean reduction in aphid numbers of 68.1% (48.1-

² Insecticide resistance status in UK cereal crops. Available at <https://ahdb.org.uk/knowledge-library/the-insecticide-resistance-action-group-irag>

80.6%) at 1.5 L/ha and 70.7 % (61.1-83.6%) at 2.0 L/ha respectively, compared to 77.9% (47.1-100%) for the standard products, 1-3 DAA – 7 DA-B. It should be noted that control remained high for both doses until the final assessments 14 days after application. In this case, higher water volumes of 400 L/ha did not result in higher control. Consequently, a lower rate of 1.5 L/ha gave a slightly lower control.

Although the number of trials submitted (5) does not meet the requirements of EPPO Guideline 1/226 (3), there is a positive aspect to the use of GLOB2011I (containing the natural substance pelargonic acid) against *Sitobion avenae* in winter barley. Therefore, concerned CMS may consider accepting this use at national level based on the data provided.

Efficacy results on *Rhopalosiphum padi*

A total of 6 trials were conducted to evaluate the efficacy of GLOB2011I at 1.5 and 2.0 l/ha (975 - 1300 g a.s./ha), which gave low control of *Rhopalosiphum padi* compared to both Karate Zeon and Decis applied at the beginning of the infestation. The effectiveness of the product is in general very low, even at the highest dose of 2 L/ha. GLOB2011I with a mean reduction in aphid numbers of 38.4% (3.4-75.0%) at 1.5 L/ha and 53.7% (30.2-79.0%) at 2.0 L/ha respectively, compared to 72.5% (20.1-87.0%) for the standard products, 1-3 DAA – 7 DA-B. In this case, higher water volumes of 400 L/ha did not result in higher control.

Efficacy results on *Myzus persicae*

The result of the single trial showed that the control of *Myzus persicae* was good at 96.7% and 85.7% respectively and comparable to the chemical pyrethroid. However, this result cannot be used to determine the actual level of efficacy.

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Table 3.2-35: Overall efficacy and susceptibility level to GLOB2011I on cereal against autumn aphids - PESSEV (number of aphids/50 plants) and virus symptoms - Maritime EPPO zone

The table below shows for the different aphid species, the weighted mean from different cereal crops and assessment timings and regardless of the reference product used for the original grouping of means as presented in the tables above. In order to calculate an overall control level against all targets, an average from the total number of trials is further provided.

EPPO zone	Target code	Crop Code	Type/ unit	Nb. trials	Infestation in the untreated control	GLOB2011I at 0.9 L/ha	GLOB2011I at 1.5 L/ha	GLOB2011I L/ha at 1.5 (high volume)	GLOB2011I at 2 L/ha	PYR ref.
					W. Mean	W. Mean	W. Mean	W. Mean	W. Mean	W. Mean
MAR	MACSAV	HORVW	nb. aphids/50	5	25.5	68.3	68.1	62.5	70.7	77.9
MAR	RHOPPA	CEREALS W	nb. aphids/50	6	34.4	32.4	38.4	41.6 (n=5)	53.7	72.5
MAR	RHOPPA	HORVW	virus symptoms+ ELISA	1	-	50.0	69.1	68.2	95.6	88.7
MAR	MYZUPE	HORVW	nb. aphids/50	1	45.3	49.7	80.4	96.7	85.7	89.9
Average control of autumn aphids on cereals				12	35.0	50.1	64.0	67.2	76.4	82.2

North-East EPPO Zone

A total of 1 trial was carried out in the North-East EPPO Zone to evaluate the efficacy of GLOB2011I for the control of autumn aphids on cereals. This trial was conducted during 2021 in Poland. Those were combined with the results of the German and Czech trials (8 trials) since these are neighboring countries and considered as valid to the cMS Poland. The combined results from 9 trials are thus shown in the tables below.

During the trials, the presence of 2 aphid species was verified, the English grain aphid (MACSAV, *Sitobion avenae*) and the Apple bud aphid (RHOPPA, *Rhopalosiphum padi*)

As a lower dose rate was included in all trials, these results are also presented in detail under point 3.2.3 Efficacy tests and support the Minimum effective dose.

Decis or Karate was included in the majority of trials as a uniform reference, applied at authorized label rates. Table headers report the active substance/family and range of a.s. amount applied. Details are listed in right column in raw data tables in the BAD.

The color scheme used to classify the levels of control are described above in section 3.2.3 Efficacy tests (KCP 6.2).

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Table 3.2-36: Efficacy of GLOB2011I against MACSAV in autumn –PESSEV (number of aphids/50plants) - North-East EPPO Zone
Means valid for Poland (when available, CZ and DE trials included in mean calculation)

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (nb. aphids/50 pl.)			GLOB2011I at 0.9-1 l/ha			GLOB2011I at 1.5 l/ha			GLOB2011I at 1.5 l/ha (high volume)			GLOB2011I at 2 l/ha			PYR ref at 5-7.5 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
PL (+CZ,DE)	MACSAV	HORVW	All vs. PYR	PLANT	COUINS	11-21	1-3 DA-A	3	18.9	2.5-37.8	16.5	69.9	43.4-100	66.4	52.1	40-70.1	46.3	73.8	40.8-100	80.6	72.6	33.3-100	84.6	47.6	10-96.3	36.4	1
			All vs. PYR	PLANT	COUINS	12-21	7DA-A	3	20.0	2-51.5	6.5	70.7	25-94.9	92.3	67.2	1.5-100	100.0	57.7	0-100	73.1	69.2	11.5-100	96.2	61.5	0-100	84.6	2
			All vs. PYR	PLANT	COUINS	12-22	14 DA-A	3	29.4	4.3-55	29.0	87.9	67-100	96.8	92.0	76-100	100.0	71.9	41.2-100	74.4	88.8	66.3-100	100.0	81.8	47.1-100	98.2	2
			All vs. PYR	PLANT	COUINS	21-24	1-3 DA-B	2	32.3	19.5-45	32.3	88.5	76.9-100	88.5	86.6	73.1-100	86.6	73.1	46.2-100	73.1	73.1	46.2-100	73.1	100.0	100-100	100.0	1
			All vs. PYR	PLANT	COUINS	14-24	7 DA-B	3	22.8	5.8-45	17.5	86.6	68.6-100	91.3	84.2	74.3-100	78.3	90.0	78.6-100	91.3	85.2	60-100	95.7	94.2	82.6-100	100.0	2

Number of trials summarized: 3

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Table 3.2-37: Efficacy of GLOB2011I against RHOPPA in autumn –PESSEV (number of aphids/50plants) - North-East EPPO Zone
Means valid for Poland (when available, CZ and DE trials included in mean calculation)

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (nb. aphids/50 pl.)			GLOB2011I at 0.9-1 l/ha			GLOB2011I at 1.5 l/ha			GLOB2011I at 1.5 l/ha (high volume)			GLOB2011I at 2 l/ha			PYR ref at 5-15 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
PL (+CZ,DE)	RHOPPA	TRZAW	All vs. PYR	PLANT	COUINS (per plant)	12	1-3 DA-A	1	0.3	-	-	40.4	-	-	3.4	-	-	-	-	-	41.9	-	-	20.1	-	-	-
			All vs. PYR	PLANT	COUINS (per plant)	13	7DA-A	1	0.7	-	-	56.8	-	-	55.9	-	-	-	-	-	79.0	-	-	87.0	-	-	1
PL (+CZ,DE)	RHOPPA	HORVW	All vs. PYR	PLANT	COUINS	11-21	1-3 DA-A	4	46.4	16.3-71	49.1	18.3	10.7-30.7	15.8	23.3	8.8-59	12.7	22.5	11.6-50	14.2	33.3	17.3-59.4	28.2	62.4	22.3-88.9	69.2	1
			All vs. PYR	PLANT	COUINS	12-22	7DA-A	5	31.1	1.8-76	36.0	32.8	11.6-75	26.3	34.3	14.7-75	27.0	40.8	9.1-75	35.0	48.6	12.8-75	45.8	66.0	34.5-84.3	75.0	3
			All vs. PYR	PLANT	COUINS	12-23	14 DA-A	4	53.3	11-90	56.0	20.8	15.8-28.3	19.5	22.8	12.2-33.4	22.9	25.4	14.4-44.1	21.5	24.6	7.7-42	24.4	46.0	26-72.5	42.7	-
			All vs. PYR	PLANT	COUINS	12-23	1-3 DA-B	4	42.2	7-69.3	46.2	27.9	10.6-38.6	31.3	36.1	3.2-70.8	35.2	37.4	13.8-54.1	40.8	44.4	10.4-69.9	48.7	82.9	73.2-92.7	82.9	3
			All vs. PYR	PLANT	COUINS	12-24	7 DA-B	4	35.4	7-67	33.8	26.2	5-38.1	30.9	33.9	6.2-58.2	35.6	38.9	21.3-62.3	36.0	45.6	9-70.9	51.2	83.0	71.6-92.1	84.1	3
			All vs. PYR	PLANT	COUINS	12	14 DA-B	1	1.8	-	-	35.8	-	-	75.0	-	-	44.8	-	-	75.0	-	-	50.7	-	-	1

Number of trials summarized: 6

Conclusion

A total of 1 trial was carried out in the North-East EPPO Zone to evaluate the efficacy of GLOB2011I for the control of autumn aphids on cereals. This trial was conducted during 2021 in Poland. Those were combined with the results of the German and Czech trials (8 trials) since these are neighboring countries and considered as valid to the cMS Poland. The combined results from 9 trials are thus shown in the tables above. During the trials, the presence of 2 aphid species was verified, the English grain aphid (MACSAV, *Sitobion avenae*) and the Apple bud aphid (RHOPPA, *Rhopalosiphum padi*).

Data demonstrated that the efficacy of GLOB2011I at the maximum proposed rate of 2 L/ha was good and significantly superior to those recorded in the untreated control showing a benefit from a product with low risks especially against MACSAV. Moreover, in part of the assessments it was even comparable with conventional pyrethroid reference products. Best results were obtained after a second application. More variable results were observed against RHOPPA but still providing moderate levels of control.

Higher water volumes did not provide a higher control. Control of MACSAV was high at rates starting at 1.5 L/ha.

Generally, these results also confirm the results obtained from other EPPO climatic zones.

Table 3.2-38 shows the overall mean efficacy results of GLOB2011I in maximum 2 application of 1.5-2 L/ha against autumn aphids on cereals.

Extrapolation of results achieved

Considering agronomic similarities between crops and biological and behavioral similarities between pests, data presented in this section on *Rhopalosiphum padi* and on *Sitobion avenae* on cereals (including winter wheat and winter barley), support by extrapolation the use of GLOB2011I against the whole group of aphids on cereals.

Pyrethroids are the only foliar-applied products approved for use against cereal aphids in autumn and winter to reduce BYDV risk. Where grain aphid is identified as the main aphid pest present in the crop, pyrethroid sprays may not be effective, as it has been shown to have moderate levels of resistance to this class of chemistry in laboratory assays³ and thus growers should look for alternative modes of action. Two main aphid species were covered in the field trials and show that GLOB2011I can be a valid alternative.

Autumn application against aphids as virus vectors

Efficacy results on *Sitobion avenae*

A total 3 combined results from trials conducted neighboring countries German and Czech trials were provided to evaluate the efficacy of GLOB2011I at 1.5 and 2.0 l/ha (975 - 1300 g a.s./ha), which gave good control of *Sitobion avenae* on winter barley compared to both Karate Zeon and Decis applied at the beginning of the infestation. GLOB2011I with a mean reduction in aphid numbers of 75.7% (57.7-90.0%) at 1.5 L/ha and 78.1% (69.2-88.8%) at 2.0 L/ha respectively, compared to 75.4% (47.6 -100%)

³ Insecticide resistance status in UK cereal crops. Available at <https://ahdb.org.uk/knowledge-library/the-insecticide-resistance-action-group-irag>

for the standard products, 1-3 DAA – 7 DA-B. It should be noted that control remained high for both doses until the final assessments 14 days after application. In this case, higher water volumes of 400 L/ha did not result in higher control. Consequently, a lower rate of 1.5 L/ha gave a slightly lower control.

Pelargonic acid is not currently registered as an insecticide in Poland. A conditional registration for this use may be considered acceptable provided that the applicant submits at least three efficacy trials - autumn application against *Sitobion avenae* on winter barley as part of the post-registration process. These trials have to be conducted in Poland.

Efficacy results on *Rhopalosiphum padi*

A total of 6 trials were conducted to evaluate the efficacy of GLOB2011I at 1.5 and 2.0 l/ha (975 - 1300 g a.s./ha), which gave low control of *Rhopalosiphum padi* compared to both Karate Zeon and Decis applied at the beginning of the infestation. The effectiveness of the product is in general low, even at the highest dose of 2 L/ha. GLOB2011I with an overall mean reduction in aphid numbers of 33.9% (22.5-44.8%) at (1.5 L/ha) and 42.9% (24.6 -79.0%) (2.0 L/ha) respectively, compared to 62.3% (20.1-87.0% for the standard products, 1-3 DAA – 14 DA-B. In this case, higher water volumes of 400 L/ha did not result in higher control. The trials showed that the 1.5 l/ha dose was ineffective in controlling *Rhopalosiphum padi*, while the 2.0 l/ha dose provided some reduction of this pathogen.

No data were submitted on winter wheat, spelt, winter rye, winter triticale. Pelargonic acid as an insecticide is a new use in Poland and therefore full data are needed to demonstrate efficacy on the claimed cereal crops. Extrapolation of data from barley to other cereals is not acceptable.

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Table 3.2-38: Overall efficacy and susceptibility level to GLOB2011I on cereals against autumn aphids - PESSEV (number of aphids/50 plants) - North-East EPPO zone

The table below shows for the different aphid species, the weighted mean from different cereal crops and assessment timings and regardless of the reference product used for the original grouping of means as presented in the tables above. In order to calculate an overall control level against all targets, an average from the total number of trials is further provided.

EPPO zone	Target code	Crop Code	Type/ unit	Nb. trials	Infestation in the untreated control	GLOB2011I at 0.9 L/ha	GLOB2011I at 1.5 L/ha	GLOB2011I L/ha at 1.5 (high volume)	GLOB2011I at 2 L/ha	PYR ref.
					W. Mean	W. Mean	W. Mean	W. Mean	W. Mean	W. Mean
NE (+CZ,DE)	MACSAV	HORVW	nb. aphids/50	3	24.1	80.2	75.7	73.3	78.1	75.4
NE (+CZ,DE)	RHOPPA	CEREALS W	nb. aphids/50	6	36.1	27.9	32.1	33.9 (n=5)	42.9	66.0
Average control of autumn aphids on cereals				9	30.1	54.0	53.9	53.6	60.5	70.7

Mediterranean EPPO Zone

A total of 8 trials were carried out in the Mediterranean EPPO Zone to evaluate the efficacy of GLOB2011I for the control of autumn aphids on cereals. Those trials have been conducted during 2022 in Croatia, southern part of France, Italy and Spain. During the trials, the presence of 2 aphid species was verified, the English grain aphid (MACSAV, *Sitobion avenae*) and the Apple bud aphid (RHOPPA, *Rhopalosiphum padi*). Both species were present at the same time in one trial.

As a lower dose rate was included in all trials, these results are also presented in detail under point 3.2.3 Efficacy tests and support the Minimum effective dose.

Decis was included in the majority of trials as a uniform reference, applied at authorized label rates. Table headers report the active substance/family and range of a.s. amount applied. Details are listed in right column in raw data tables in the BAD.

The color scheme used to classify the levels of control are described above in section 3.2.3 Efficacy tests (KCP 6.2).

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Results

Table 3.2-39: Efficacy of GLOB2011I against MACSAV in autumn –PESSEV (number of aphids/50plants) -- Mediterranean EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (nb. aphids/50 pl.)			GLOB2011I at 0.9-1 l/ha			GLOB2011I at 1.5 l/ha			GLOB2011I at 1.5 l/ha (high volume)			GLOB2011I at 2 l/ha			PYR ref at 7.5-12.5 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MED	MACSAV	HORVW	All vs. PYR	PLANT	COUINS	11-23	1-3 DA-A	8	78.9	6.8-182.5	75.3	43.8	11-67.4	44.3	49.1	12.4-82.3	50.3	53.5	12.8-78.7	60.9	59.0	20.8-100	57.6	76.2	17.9-95.7	84.3	6
						11-25	7DA-A	8	82.4	1.3-195	73.0	40.9	0-79	41.6	42.4	0-83.4	50.2	45.3	0-80.2	56.9	49.9	0-88.3	51.6	74.4	0-91.5	88.4	5
						14-29	14 DA-A	6	106.5	1.8-244.5	103.6	48.6	1.8-77.3	54.3	63.3	43.1-80.9	63.6	58.5	34.7-79.1	58.5	66.1	21.9-86.6	77.0	82.0	67.9-90.3	85.3	4
						15-29	1-3 DA-B	5	130.4	26.8-279.8	126.0	61.1	27.3-91.3	61.8	61.6	13.3-93.4	63.8	62.4	22-90.7	71.3	72.6	30.2-95.4	76.4	95.2	92.1-99.1	95.7	4
						16-29	7 DA-B	5	141.8	36.5-297.3	117.0	57.9	29.7-92.9	48.7	60.7	25.9-94.5	58.9	52.1	2.8-93.2	63.3	72.9	22.5-95.9	82.6	96.0	94.5-97.7	95.8	4

Number of trials summarized: 8

Table 3.2-40: Efficacy of GLOB2011I against RHOPPA in autumn –PESSEV (number of aphids/50plants) -- Mediterranean EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (nb. aphids/50 pl.)			GLOB2011I at 0.9-1 l/ha			GLOB2011I at 1.5 l/ha			GLOB2011I at 1.5 l/ha (high volume)			GLOB2011I at 2 l/ha			PYR ref at 12.5 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MED	RHOPPA	HORVW	All vs. PYR	PLANT	COUINS	13	1-3 DA-A	1	18.8	-	-	62.6	-	-	63.8	-	-	63.8	-	-	75.2	-	-	91.3	-	-	1
						14	7DA-A	1	24.8	-	-	73.4	-	-	70.9	-	-	72.5	-	-	78.3	-	-	91.6	-	-	1
						15	14 DA-A	1	31.0	-	-	68.3	-	-	70.0	-	-	71.6	-	-	76.4	-	-	88.5	-	-	1
						15	1-3 DA-B	1	36.8	-	-	89.4	-	-	91.3	-	-	87.6	-	-	91.7	-	-	96.4	-	-	1
						16	7 DA-B	1	41.0	-	-	84.7	-	-	85.2	-	-	84.3	-	-	88.0	-	-	95.3	-	-	1

Number of trials summarized: 1

Conclusion

A total of 8 trials were carried out in the Mediterranean EPPO Zone to evaluate the efficacy of GLOB2011I for the control of autumn aphids on cereals. Those trials have been conducted during 2022 in Croatia, southern part of France, Italy and Spain. During the trials, the presence of 2 aphid species was verified, the English grain aphid (MACSAV, *Sitobion avenae*) and the Apple bud aphid (RHOPPA, *Rhopalosiphum padi*).

Data demonstrated that the efficacy of GLOB2011I at the maximum proposed rate of 2 L/ha was in general useful and significantly superior to those recorded in the untreated control showing a benefit from a product with low risks. Moreover, in part of the assessments it was even comparable with conventional pyrethroid reference products. At a lower rate of 1.5 L/ha, similar control could still be observed, however the control tends to show a less long lasting effect compared to 2 L/ha. Best results were obtained after a second application.

Higher water volumes did not provide a higher control.

Generally, these results also confirm the results obtained from other EPPO climatic zones.

Table 3.2-41 shows the overall mean efficacy results of GLOB2011I in maximum 2 application of 1.5-2 L/ha against autumn aphids on cereals.

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Table 3.2-41: Overall efficacy and susceptibility level to GLOB2011I on cereals against autumn aphids - PESSEV (number of aphids/50 plants) - Mediterranean EPPO zone

The table below shows for the different aphid species, the weighted mean from different cereal crops and assessment timings and regardless of the reference product used for the original grouping of means as presented in the tables above. In order to calculate an overall control level against all targets, an average from the total number of trials is further provided.

EPPO zone	Target code	Crop Code	Type/ unit	Nb. trials	Infestation in the untreated control	GLOB2011I at 0.9 L/ha	GLOB2011I at 1.5 L/ha	GLOB2011I L/ha at 1.5 (high volume)	GLOB2011I at 2 L/ha	PYR ref.
					W. Mean	W. Mean	W. Mean	W. Mean	W. Mean	W. Mean
MED	MACSAV	HORVW	nb. aphids/50	8	102.8	48.9	53.9	53.6	62.4	82.9
MED	RHOPPA	HORVW	nb. aphids/50	1	30.5	75.7	76.2	76.0	81.9	92.6
Average control of autumn aphids on cereals				8*	66.7	62.3	65.0	64.8	72.1	87.8

* Both species were present at the same time in one trial.

3.2.3.2 Product efficacy against cabbage-stem flea beetle *Psylliodes chrysocephala*

In total, 35 efficacy trials were submitted to demonstrate the efficacy of GLOB2011I for the use against cabbage-stem flea beetle (CSFB) on oilseed rape. These trials were carried out between 2021 and 2022 by GEP certified research institutions in the Czech Republic, Germany and the United Kingdom (in total 15 trials belonging to the Maritime EPPO Zone), in Poland, Estonia and Lithuania (6 trials belonging to the North-East EPPO Zone), in Bulgaria (1 trial belonging to the South-East EPPO Zone), as well as in Croatia, Italy and Spain and the southern part of France (13 trials belonging to the Mediterranean EPPO Zone).

Trial methodology

All trials were carried out by testing facilities, or organisations, officially recognised as competent to perform efficacy testing in accordance with the requirements of Directive 93/71/EEC, and with the principles of GEP. Copies of certificates can be found in Appendix 4 of the Biological Assessment dossier.

Applications were performed in autumn, from 02/09 until 24/10 when first insects were observed. In part of the trials a second application 14 days after the first application was not performed due to natural drop on the level of insects in untreated plots. Data is summarized accordingly.

According to the EPPO Standard PP 1/73(3) targeted specifically for *Psylliodes chrysocephala*, assessments were performed on the number of plants damaged and later on, on larvae in stems. In addition, although not a requirement, the percentage of leaf damaged was also assessed.

In particular the number of plants damaged was counted (usually in 4 rows 2 m length) and this was used to calculate the percentage of incidence (PESINC). Several assessments were performed and summarized at different timings as 2-10 DA-A (1st assessment), 11-18 DA-A and 5-7 DA-B. The leaf area damaged was assessed when larvae were readily found in untreated plots, which coincided with November/December months. Leaf damage levels above 5% at the first assessment (2-10 DA-A) and at the last one after the 2nd application (5-12 DA-B) were summarized. Data not considered for means calculation (including e.g. 0 DA-A, very extreme values as 0 or 100% incidence) are shaded in grey in the BAD. Representative results were summarized below.

Data were subjected to analysis of variance (ANOVA) at the 95% confidence level. When significant differences were found a Student-Newman-Keuls (SNK) Post-Hoc test was applied to separate the means. Treatment means with no letters in common are significantly different according to SNK test.

A pyrethroid reference product (deltamethrin) was included in all trials. Due to different formulations and slightly different authorized application rates, the pyrethroid reference products were gathered given that their practical performance is known and the working spectrum, time and method of application, mode of action are close related. Table headers report the active substance/family and range of a.s. amount applied. Details are listed in right column in raw data tables in the BAD. References were applied at same timings as test product.

The following table reports an overview of chemical standards and test products used in efficacy trials against CSFB on oilseed rape.

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Table 3.2-42: Presentation of reference standards used in efficacy trials

Reference standard	Country where the product is registered	Auth. Number	Active substance(s)	Formulation		Registered application rate	Application rate in trials (per treatment)	Remark
				Type	Concentration of a.s.			
DECIS	IT	4426	deltamethrin	EC	25 g/L	0.3 L/HA	0.3 L/HA	
DECIS EVO	ES	25838	deltamethrin	EW	2.50%	0.3 L/HA	0.3 L/HA	
DECIS 100 EC	HR	UP/I-320-20/13-01/383	deltamethrin	EC	100 g/L	Psylliodes chrysocephala 0.0625 l/ha	0.0625-0.075L/HA	
Decis Forte	DE	007418-00	deltamethrin	EC	100 g/L	0.05-0.075 L/HA	75 ML/HA	
Decis Forte	EE	698	deltamethrin	EC	100 g/L	75 ML/HA	75 ML/HA	
Decis Forte	CZ	5450-0	deltamethrin	EC	100 g/L	62.5 ml/ha	62.5 ml/ha	
Decis Mega 50 EW	PL	R-369/2016d	deltamethrin	EW	50 g/L	0.15 l/ha	0.15 L/HA	
Decis Protech 15 EW	FR	2010023	deltamethrin	EW	15 g/L	0.33 L/HA	0.33 L/HA	
Delmetros 100 SC	LT	AS2-81I	deltamethrin	SC	100 g/L	0.05L/HA	0.05L/HA	
Scatto	DE	008485-00	deltamethrin	EC	25 g/L	0.2 L/HA	0.2 L/HA	
Decis 100	BG	01180	deltamethrin	SC	100 g/L	0.05L/HA	0.05L/HA	
Decis Forte	UK	16110	deltamethrin	EC	100 g/L	Max 75 ml/ha	62.5 ml/ha	
Decis Protech	UK	16160	deltamethrin	EW	15 g/L	Max 500 ml/ha	420 ml/ha	

Information on trial methodology is summarized below. Trial site information and application details are presented in Appendix 3 of the Biological Assessment Dossier.

Table 3.2-43: Details on trial methodology – CSFB on oilseed rape - Maritime EPPO zone

Guidelines	General guidelines	PP 1/135(4), EPPO PP 1/152 (4), PP 1/181(4)
	Specific guidelines	EPPO PP 1/73 (4)
Experimental design	Plot design	RCBD (15)
	Plot size	25-50 m ²
	Number of replications	4 (15)
Crop	Trials per crop	BRSNW (15)
	Varieties per crop	Kuga; RNX193206; Heiner; KWS Ivo; DK Exsteel; Campus; DK Exception; DK Excited; Ludger; Picard; FACTOR KWS; Smaragd; Amarone; Aspire; DK Exlibris
	Sowing period	17/08-30/09
Application	Crop stage (BBCH) at application	10-16
	Timing Pest stage at application	Adult
	Number of applications	1 (2 trials), 2 (11 trials), 3 (2 trials targeted for PHYEAT with one additional application as from local common practice against PSYICH larvae, spraying fields since half until end of October, at migration of larvae)
	Intervals between applications	10-26 for 2 applications. About 1 month for 2 trials targeted for PHYEAT with 2nd target PSYICH larvae
	Spray volumes	200-300 L/ha
Assessment	Assessment types	Incidence of adults on plants, incidence of larvae on stems, % leaf area damaged (PESSEV), phytotoxicity
	Assessment dates	pre-assessment at application, around 7 and 14 days after each application. The leaf area damaged was assessed when larvae were readily found in untreated plots.
Other relevant information	Soil types	loam; silty sand; silt loam; silty clay loam; clay; silty clay; sandy clay loam; clay loam; sandy loam

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	Natural / artificial inoculation...	Natural infestation
	Field / Greenhouse...	Field

Table 3.2-44: Details on trial methodology – CSFB on oilseed rape - North-East EPPO zone

Guidelines	General guidelines	PP 1/135(4), EPPO PP 1/152 (4), PP 1/181(4)
	Specific guidelines	EPPO PP 1/73 (4)
Experimental design	Plot design	RCBD (6)
	Plot size	25-50 m ²
	Number of replications	4 (6)
Crop	Trials per crop	BRSNW
	Varieties per crop	Harry; BACHUS; Sundance; Sy Alibaba; Arnold; Exspiro
	Sowing period	08/08-04/09
Application	Crop stage (BBCH) at application	10-12
	Timing Pest stage at application	Adult
	Number of applications Intervals between applications	2 (5 trials), 1 (1 trial) 11-15
	Spray volumes	200-300 L/ha
Assessment	Assessment types	Incidence of adults on plants, incidence of larvae on stems, % leaf area damaged (PESSEV), phytotoxicity
	Assessment dates	pre-assessment at application, around 7 and 14 days after each application. The leaf area damaged was assessed when larvae were readily found in untreated plots.
Other relevant information	Soil types	sandy loam; calcareous clay loam
	Natural / artificial inoculation...	Natural infestation
	Field / Greenhouse...	Field

Table 3.2-45: Details on trial methodology – CSFB on oilseed rape - South-East EPPO zone

Guidelines	General guidelines	PP 1/135(4), EPPO PP 1/152 (4), PP 1/181(4)
	Specific guidelines	EPPO PP 1/73 (4)
Experimental design	Plot design	RCBD (1)
	Plot size	27 m ²
	Number of replications	4 (1)
Crop	Trials per crop	BRSNN (winter)
	Varieties per crop	DC Imminent CL
	Sowing period	25/09
Application	Crop stage (BBCH) at application	13
	Timing	

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	Pest stage at application	mixed
	Number of applications	2 (1 trial)
	Intervals between applications	7
	Spray volumes	300 L/ha
Assessment	Assessment types	count of larvae and count of adults per plant
	Assessment dates	pre-assessment at application, 1-3, 7 days after each application
Other relevant information	Soil types	sandy clay
	Natural / artificial inoculation...	Natural infestation
	Field / Greenhouse...	Field

Table 3.2-46: Details on trial methodology – CSFB on oilseed rape - Mediterranean EPPO zone

Guidelines	General guidelines	PP 1/135(4), EPPO PP 1/152 (4), PP 1/181(4)
	Specific guidelines	EPPO PP 1/73 (4)
Experimental design	Plot design	RCBD (13)
	Plot size	24-50 m ²
	Number of replications	4 (13)
Crop	Trials per crop	BRSNW (13)
	Varieties per crop	Trezzor; Dekalb Implement CL; AMBASSADOR; Umberto KWS; PX 128; DK EXCEPTION; SY MATTEO; Albatros; DK EXPECTATION; KWS Gordon; RICCARDO KWS; Alvaro (KWS)
	Sowing period	25/09-24/10
Application	Crop stage (BBCH) at application	10-16
	Timing Pest stage at application	mainly adult
	Number of applications Intervals between applications	1 (7 trials), 2 (6 trials) 13-14
	Spray volumes	200-400 L/ha
Assessment	Assessment types	Incidence of adults on plants, incidence of larvae on stems, % leaf area damaged (PESSEV), phytotoxicity
	Assessment dates	pre-assessment at application, around 7 and 14 days after each application. The leaf area damaged was assessed when larvae were readily found in untreated plots.
Other relevant information	Soil types	clay; sandy loam; loamy clay sand; loam; sandy silt; clay loam
	Natural / artificial inoculation...	Natural infestation
	Field / Greenhouse...	Field

Results

Maritime EPPO zone

A total of 15 trials were carried out in the Maritime EPPO Zone to evaluate the efficacy of GLOB2011I for the control of CSFB on oilseed rape. Those trials have been conducted during 2022 in the Czech Republic, Germany and the United Kingdom.

As a lower dose rate was included in all trials, these results are also presented in detail under point 3.2.3 Efficacy tests and support the Minimum effective dose.

The test product was applied once in 2 trials, 2 times (in 11 trials) or 3 times (in 2 trials targeted for PHYEAT with PSYICH not present at first 2 applications. One additional application was then performed as from local common practice against PSYICH larvae, spraying fields since half until end of October at migration of larvae).

Decis (deltamethrin) was included in all trials as a uniform reference, applied at authorized label rates. Table headers report the active substance/family and range of a.s. amount applied. Details are listed in right column in raw data tables in the BAD.

The color scheme used to classify the levels of control are described above in section 3.2.3 Efficacy tests (KCP 6.2).

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Table 3.2-47: Efficacy of GLOB2011I against CSFB – PESINC % (plants damaged by adults) - Maritime EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (PESINC %)			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			Decis/DTM ref at 5-6.25 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MAR	PSYICH	BRSNW	All vs. DTM	PLANT	PESINC	11-16	2-10 DA-A	10	68.1	9-97.4	70.7	16.0	0.1-27.2	22.7	13.9	0-38.6	13.8	27.3	1.4-71.7	26.1	3
						12-19	11-18 DA-A	10	72.8	11-99.4	79.2	20.5	1-65.8	17.6	22.7	1-49.4	24.6	33.0	0-67.5	41.6	5
						15-18	5-7 DA-B	5	73.6	31.3-99.4	82.4	29.5	5.1-75.3	19.1	26.0	3.6-58.9	16.6	27.1	3.6-54	15.6	3

Number of trials summarized: 11 (10 valid)

Table 3.2-48: Efficacy of GLOB2011I against CSFB – PESINC % (stems with larvae) - Maritime EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (Larvae PESINC %)			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			Decis/DTM ref at 6.25 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MAR	PSYICH	BRSNW	All vs. DTM	LARVA	PESINC	16-21	when larvae are found in UTC Nov/Dec	13	77.9	24-100	92.0	14.3	0-62.6	9.4	14.7	0-79.5	6.5	31.2	0-91.7	28.1	c

Number of trials summarized: 13

Table 3.2-49: Efficacy of GLOB2011I against CSFB –PESSEV % (leaf area) - Maritime EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (PESSEV -% dam. leaf area)			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			Decis/DTM ref at 5-6.25 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MAR	PSYICH	BRSNW	All vs. DTM	LEAF	PESSEV	11-16	2-10 DA-A	9	11.8	5-28.8	9.3	36.9	5-79.3	40.0	35.3	0-77.6	26.9	51.3	13.5-80.1	60.0	7
MAR	PSYICH	BRSNW	All vs. DTM	LEAF	PESSEV	14-18	5-12 DA-B	8	14.3	5-33	12.4	35.5	0-80	41.3	44.9	16.3-80	43.7	64.9	23.8-92.3	64.1	4

Number of trials summarized: 11 (10 valid)

Table 3.2-50: Efficacy of GLOB2011I against CSFB –Count of larvae per plant (late application at larvae migration) - Maritime EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (nb. larvae/plant)			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			Decis/DTM ref at 5-6.25 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MAR	PSYICH	BRSNW	All vs. DTM	LARVA	COUINS x plant	18	20-23 DA-C (Nov-Dic)	2	4.6	2.8-6.3	4.6	11.2	1.6-20.8	11.2	22.9	13.3-32.5	22.9	44.9	34.3-55.4	44.9	-

Conclusion

A total of 15 trials were carried out in the Maritime EPPO Zone to evaluate the efficacy of GLOB2011I for the control of CSFB on oilseed rape. Those trials have been conducted during 2022 in the Czech Republic, Germany and the United Kingdom.

Data demonstrated that the efficacy of GLOB2011I at the maximum proposed rate of 1.5 L/ha was not remarkable in direct assessments of the pest incidence, but was able to reduce the damage observed in terms of leaf area eaten, particularly relevant at the crop establishment, and often significantly inferior to the damage recorded in the untreated control showing a benefit from a product with low risks. Moreover, in part of the assessments it was even comparable with conventional pyrethroid reference products. Best results were obtained after a second application.

Efficacy results on *Psylliodes chrysocephala*

The results clearly indicate that the insecticide GLOB2011I is ineffective against *Psylliodes chrysocephala* at the proposed dose rates, regardless of the life stages tested. The average efficacy across all trials is less than 50%, which is considered insufficient efficacy according to EPPO standard PP 1/214. It can be concluded that the data submitted by the applicant cannot be accepted. The applicant has not demonstrated efficacy against *Psylliodes chrysocephala* on oilseed rape.

North-East EPPO Zone

A total of 6 trials were carried out in the North-East EPPO Zone to evaluate the efficacy of GLOB2011I for the control of CSFB on oilseed rape. Those trials have been conducted during 2022 in Poland, Estonia and Lithuania. Those were combined with the results of the German and Czech trials (11 trials) since these are neighboring countries and considered as valid to the cMS Poland. The combined results from 17 trials are thus shown in the tables below.

As a lower dose rate was included in all trials, these results are also presented in detail under point 3.2.3 Efficacy tests and support the Minimum effective dose.

Decis (deltamethrin) was included in all trials as a uniform reference, applied at authorized label rates. Table headers report the active substance/family and range of a.s. amount applied. Details are listed in right column in raw data tables in the BAD.

The color scheme used to classify the levels of control are described above in section 3.2.3 Efficacy tests (KCP 6.2).

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Table 3.2-51: Efficacy of GLOB2011I against CSFB – PESINC % (plants damaged by adults) - North-East EPPO Zone

Means valid for Poland (when available, CZ and DE trials included in mean calculation)

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (PESINC %)			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			Decis/DTM ref at 5-7.5 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
NE (+CZ,DE)	PSYICH	BRSNW	All vs. DTM	PLANT	PESINC	10-16	2-10 DA-A	11	59.2	5.3-97.4	58.0	16.1	2.9-27.2	20.5	20.1	0.8-38.6	17.7	26.6	1.7-51.7	25.7	4
						12-19	11-18 DA-A	11	57.7	14.3-99.4	63.3	22.8	3.3-65.8	22.7	24.1	2-49.4	24.0	38.6	4-61.6	42.5	5
						13-18	5-7 DA-B	9	49.1	7.8-99.4	34.3	22.2	0-75.3	15.3	24.6	3.6-58.9	16.6	28.4	3.6-57	15.6	3

Number of trials summarized: 12 (11 valid)

Table 3.2-52: Efficacy of GLOB2011I against CSFB – PESINC % (stems with larvae) - North-East EPPO Zone

Means valid for Poland (when available, CZ and DE trials included in mean calculation)

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (Larvae PESINC %)			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			Decis/DTM ref at 5-7.5 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
NE (+CZ,DE)	PSYICH	BRSNW	All vs. DTM	LARVA	PESINC	16-21	when larvae are found in UTC Nov/Dec	13	63.4	24-100	55.0	16.9	2.1-62.6	11.0	20.8	0-79.5	10.8	42.9	5.2-91.7	38.4	3

Number of trials summarized: 13

Table 3.2-53: Efficacy of GLOB2011I against CSFB –PESSEV % (leaf area) - North-East EPPO Zone

Means valid for Poland (when available, CZ and DE trials included in mean calculation)

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (PESSEV -% dam. leaf area)			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			Decis/DTM ref at 5-7.5 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
NE (+CZ,DE)	PSYICH	BRSNW	All vs. DTM	LEAF	PESSEV	11-15	2-10 DA-A	6	11.6	5-17.7	12.6	36.2	12.5-62.1	39.0	40.0	9.2-65	46.1	61.9	13.5-80.1	69.9	5
						14-18	5-12 DA-B	6	19.8	5-34	17.5	38.6	10.2-80	36.6	48.2	16.6-80	48.3	74.9	55.1-92.3	78.6	4

Number of trials summarized: 12 (7 valid)

Conclusion

A total of 6 trials were carried out in the North-East EPPO Zone to evaluate the efficacy of GLOB2011I for the control of CSFB on oilseed rape. Those trials have been conducted during 2022 in Poland, Estonia and Lithuania. Those were combined with the results of the German and Czech trials (11 trials) since these are neighboring countries and considered as valid to the cMS Poland. The combined results from 17 trials are thus shown in the tables above.

Data demonstrated that the efficacy of GLOB2011I at the maximum proposed rate of 1.5 L/ha was not remarkable in direct assessments of the pest incidence, but was able to reduce the damage observed in terms of leaf area eaten, particularly relevant at the crop establishment, and often significantly inferior to the damage recorded in the untreated control showing a benefit from a product with low risks. Moreover, in part of the assessments it was even comparable with conventional pyrethroid reference products. Best results were obtained after a second application.

Efficacy results on *Psylliodes chrysocephala*

The results clearly indicate that the insecticide GLOB2011I is ineffective against *Psylliodes chrysocephala* at the proposed dose rates, regardless of the life stages tested. The average efficacy across all trials is less than 50%, which is considered insufficient efficacy according to EPPO standard PP 1/214. It can be concluded that the data submitted by the applicant cannot be accepted. The applicant has not demonstrated efficacy against *Psylliodes chrysocephala* on oilseed rape.

South-East EPPO Zone

One trial was carried out in the South-East EPPO Zone to evaluate the efficacy of GLOB2011I for the control of CSFB on oilseed rape. This was conducted during 2021 in Bulgaria.

As a lower dose rate was included, these results are also presented in detail under point 3.2.3 Efficacy tests and support the Minimum effective dose.

In the South-East EPPO Zone, the test product was applied 2 times with 7 days interval and assessments performed on sample sizes of 10 plants were reported to a 1 plant basis.

Decis 100 was included as a uniform reference, applied at authorized label rate. Table headers report the active substance/family and range of a.s. amount applied. Details are listed in right column in raw data tables in the BAD.

The color scheme used to classify the levels of control are described above in section 3.2.3 Efficacy tests (KCP 6.2).

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Table 3.2-54: Efficacy of GLOB2011I against CSFB – count of adults or larvae per plant - South-East EPPO Zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (nb./plant)			GLOB2011I at 1 l/ha			GLOB2011I at 1.5 l/ha			Decis/DTM ref at 5 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
S-E	PSYICH	BRSNW	All vs. DTM	ADULT	COUINS	13	1 DA-A	1	0.5	-	-	45.3	-	-	61.6	-	-	77.3	-	-	1
						13	3 DA-A	1	0.7	-	-	28.6	-	-	56.2	-	-	80.8	-	-	1
						14	7 DA-A	1	0.9	-	-	18.2	-	-	40.1	-	-	75.0	-	-	1
						15	3 DA-B	1	1.1	-	-	18.4	-	-	36.3	-	-	90.6	-	-	1
						22	7 DA-B	1	1.3	-	-	15.9	-	-	27.1	-	-	88.8	-	-	1
S-E	PSYICH	BRSNW	All vs. DTM	LARVA	COUINS	13	1 DA-A	1	0.9	-	-	29.1	-	-	28.9	-	-	52.8	-	-	1
						13	3 DA-A	1	1.2	-	-	34.6	-	-	43.5	-	-	66.6	-	-	1
						14	7 DA-A	1	1.4	-	-	42.7	-	-	43.8	-	-	65.9	-	-	1
						15	3 DA-B	1	1.5	-	-	44.6	-	-	39.2	-	-	74.2	-	-	1
						22	7 DA-B	1	1.3	-	-	31.0	-	-	29.1	-	-	67.9	-	-	1

Number of trials summarized: 1

Conclusion

One trial was carried out in the South-East EPPO Zone to evaluate the efficacy of GLOB2011I for the control of CSFB on oilseed rape. This was conducted during 2021 in Bulgaria.

Data demonstrated that the efficacy of GLOB2011I at the maximum proposed rate of 1.5 L/ha was useful on the control of both adults and larvae and significantly superior to those recorded in the untreated control showing a benefit from a product with low risks.

Efficacy results on *Psylliodes chrysocephala*

A single result cannot be used to determine the actual level of efficacy. It can be concluded that the data submitted by the applicant cannot be accepted. The applicant has not demonstrated efficacy against *Psylliodes chrysocephala* on oilseed rape.

Mediterranean EPPO Zone

A total of 13 trials were carried out in the Mediterranean EPPO Zone to evaluate the efficacy of GLOB2011I for the control of CSFB on oilseed rape. Those trials have been conducted during 2022 in Croatia, Italy and Spain and the southern part of France.

As a lower dose rate was included in all trials, these results are also presented in detail under point 3.2.3 Efficacy tests and support the Minimum effective dose.

Applications were performed in autumn, from 22/09 until 17/11 when first insects were observed. In 7 trials only one application was performed due to natural drop of infestation at the time of second planned application. Data is summarized accordingly.

Decis (deltamethrin) was included in all trials as a uniform reference, applied at authorized label rates. Table headers report the active substance/family and range of a.s. amount applied. Details are listed in right column in raw data tables in the BAD.

The color scheme used to classify the levels of control are described above in section 3.2.3 Efficacy tests (KCP 6.2).

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Table 3.2-55: Efficacy of GLOB2011I against CSFB – PESINC % (plants damaged by adults) – Mediterranean EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (PESINC %)			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			Decis/DTM ref at 5-7.5 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MED	PSYICH	BRSNW	All vs. DTM	PLANT	PESINC	11-17	5-7 DA-A	9	32.9	8.2-71.3	23.6	38.9	4.3-65.9	42.3	46.8	5.3-73.1	59.8	57.5	14.1-85.9	69.6	6
						12-23	14-23 DA-A	10	35.9	11.5-69.6	31.0	42.2	5.2-66.2	50.4	52.3	4.3-100	64.7	56.9	7.4-90	75.4	7
						14-19	5-7 DA-B	4	40.9	21.7-63	39.5	52.9	9.8-69.9	65.9	59.0	15.6-77.8	71.4	63.5	19.3-81.9	76.4	3

Number of trials summarized: 10

Table 3.2-56: Efficacy of GLOB2011I against CSFB – PESINC % (stems with larvae) - Mediterranean EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (Larvae PESINC %)			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			Decis/DTM ref at 5-7.5 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MED	PSYICH	BRSNW	All vs. DTM	LARVA	PESINC	16-30	when larvae are found in UTC Nov/Dec	12	41.8	2.5-100	37.0	39.3	0-72.3	43.2	50.5	2-78.6	55.5	55.0	1-89.2	64.1	7

Number of trials summarized: 12

Table 3.2-57: Efficacy of GLOB2011I against CSFB –PESSEV % (leaf area) - Mediterranean EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (PESSEV -% dam. leaf area)			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			Decis/DTM ref at 5-7.5 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MED	PSYICH	BRSNW	All vs. DTM	LEAF	PESSEV	11-17	2-10 DA-A	6	23.5	4.9-76.3	9.8	55.1	33.8-67.6	56.8	64.0	37.6-85.1	64.7	77.7	61.3-96	78.2	6
MED	PSYICH	BRSNW	All vs. DTM	LEAF	PESSEV	14-19	5-12 DA-B	4	28.0	9.9-80	11.0	64.1	45.8-79.6	65.5	75.4	56.9-85.2	79.7	83.3	67.9-93.7	85.9	4

Number of trials summarized: 9 (7 valid)

Conclusion

A total of 13 trials were carried out in the Mediterranean EPPO Zone to evaluate the efficacy of GLOB2011I for the control of CSFB on oilseed rape. Those trials have been conducted during 2022 in Croatia, Italy and Spain and the southern part of France.

Data demonstrated that the efficacy of GLOB2011I at the maximum proposed rate of 1.5 L/ha was moderate in direct assessments of the pest incidence, but was able to remarkably reduce the damage observed in terms of leaf area eaten, particularly relevant at the crop establishment, being often significantly inferior to the damage recorded in the untreated control showing a benefit from a product with low risks. Moreover, in part of the assessments it was even comparable with conventional pyrethroid reference products. Best results were obtained after a second application.

3.2.3.3 Product efficacy against flea beetles *Phyllotreta* spp.

In total, 11 efficacy trials were submitted to demonstrate the efficacy of GLOB2011I for the use against flea beetles (*Phyllotreta* spp.) in autumn on oilseed rape. These trials were carried out during 2022 by GEP certified research institutions in the Czech Republic and Germany (in total 4 trials belonging to the Maritime EPPO Zone), in Estonia and Lithuania (2 trials belonging to the North-East EPPO Zone), as well as in Croatia, Italy, Spain and the southern part of France (5 trials belonging to the Mediterranean EPPO Zone).

Trial methodology

All trials were carried out by testing facilities, or organisations, officially recognised as competent to perform efficacy testing in accordance with the requirements of Directive 93/71/EEC, and with the principles of GEP. Copies of certificates can be found in Appendix 4 of the Biological Assessment dossier.

Applications were performed in autumn, from 25/08 until 14/11 when first insects were observed. In the Maritime zone however, initial incidence levels were already very high. In 1 trial in the North-East EPPO zone and 2 trials in the Mediterranean zone, a second application about 14 days after the first application was not performed due to natural drop on the level of insects in untreated plots. Data is summarized accordingly.

According to the EPPO Standard PP 1/218 (2) *Phyllotreta* spp. on rape, the main assessments performed were the pest incidence on 50 plants. Alternative assessment on leaf damage percentage was also performed and summarized (considered plants with more than 2% of leaf area eaten) as from EPPO standard.

For spray applications plant damage should normally be recorded at the time of application and then 8-10 days after application. For better representation of the results achieved, our data was summarized at 7-11 days after applications. Data not considered for means calculation (including e.g. 0 DA-A or extremely low pressures) are shaded in grey in the BAD. Representative results were summarized below.

Data were subjected to analysis of variance (ANOVA) at the 95% confidence level. When significant differences were found a Student-Newman-Keuls (SNK) Post-Hoc test was applied to separate the means. Treatment means with no letters in common are significantly different according to SNK test.

A pyrethroid reference product (deltamethrin) was included in all trials. Due to different formulations and slightly different authorized application rates, the pyrethroid reference products were gathered given that their practical performance is known and the working spectrum, time and method of application, mode of action are close related. Table headers report the active substance/family and range of a.s. amount applied. Details are listed in right column in raw data tables in the BAD. References were applied at same timings as test product.

The following table reports an overview of chemical standards and test products used in efficacy trials against *Phyllotreta* spp. on oilseed rape.

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Table 3.2-58: Presentation of reference standards used in efficacy trials

Reference standard	Country where the product is registered	Auth. Number	Active substance(s)	Formulation		Registered application rate	Application rate in trials (per treatment)	Remark
				Type	Concentration of a.s.			
DECIS	IT	4426	deltamethrin	EC	25 g/L	0.3 L/HA	0.3 L/HA	
DECIS EVO	ES	25838	deltamethrin	EW	2.50%	0.3 L/HA	0.3 L/HA	
DECIS 100 EC	HR	UP/I-320-20/13-01/383	deltamethrin	EC	100 g/L	0.075L/HA	0.075L/HA	
Decis Forte	DE	007418-00	deltamethrin	EC	100 g/L	0.05-0.075 L/HA	75 ML/HA	
Decis Forte	CZ	5450-0	deltamethrin	EC	100 g/L	62.5 ml/ha	62.5 ml/ha	
Decis Protech 15 EW	FR	2010023	deltamethrin	EW	15 g/L	0.33 L/HA	0.33 L/HA	
Decis Mega 50 EW	LT	0336I/07	deltamethrin	EW	50 g/L	0.125-0.15 l/ha	0.15 L/HA	
Decis Forte	EE	698	deltamethrin	EC	100 g/L	75 ML/HA	75 ML/HA	
Scatto	DE	008485-00	deltamethrin	EC	25 g/L	0.2 L/HA	0.2 L/HA	

Information on trial methodology is summarized below. Trial site information and application details are presented in Appendix 3 of the Biological Assessment Dossier.

Table 3.2-59: Details on trial methodology – *Phyllotreta* spp. on oilseed rape - Maritime EPPO zone

Guidelines	General guidelines	PP 1/135(4), EPPO PP 1/152 (4), PP 1/181(4)
	Specific guidelines	EPPO PP 1/218(2)
Experimental design	Plot design	RCBD (4)
	Plot size	25-50 m ²
	Number of replications	4 (4)
Crop	Trials per crop	BRSNW (4)
	Varieties per crop	DK Exception; DK Excited; Ludger; Picard
	Sowing period	25/08-08/09
Application	Crop stage (BBCH) at application	10-14
	Timing	
	Pest stage at application	Adults
	Number of applications Intervals between applications	2 (4 trials) 14
Assessment	Spray volumes	200-300 L/ha
	Assessment types	PESINC (pest incidence, %), PESSEV (% leaf area damaged)
Other relevant information	Assessment dates	pre-assessment at application, 7-11 days after each application
	Soil types	loam; silty clay; clay; sandy clay loam
	Natural / artificial inoculation...	Natural infestation
	Field / Greenhouse...	Field

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Table 3.2-60: Details on trial methodology – *Phyllotreta* spp. on oilseed rape - North-East EPPO zone

Guidelines	General guidelines	PP 1/135(4), EPPO PP 1/152 (4), PP 1/181(4)
	Specific guidelines	EPPO PP 1/218(2)
Experimental design	Plot design	RCBD (2)
	Plot size	25-50 m ²
	Number of replications	4 (2)
Crop	Trials per crop	BRSNW (2)
	Varieties per crop	Sundance; Sy Alibaba
	Sowing period	08-11/08
Application	Crop stage (BBCH) at application	12
	Timing	
	Pest stage at application	Adults
	Number of applications	1 (1 trial), 2 (1 trial)
	Intervals between applications	13
Assessment	Spray volumes	200-300 L/ha
	Assessment types	PESINC (pest incidence, %), PESSEV (% leaf area damaged)
	Assessment dates	pre-assessment at application, 7-11 days after each application
Other relevant information	Soil types	calcareous clay loam; sandy loam
	Natural / artificial inoculation...	Natural infestation
	Field / Greenhouse...	Field

Table 3.2-61: Details on trial methodology – *Phyllotreta* spp. on oilseed rape - Mediterranean EPPO zone

Guidelines	General guidelines	PP 1/135(4), EPPO PP 1/152 (4), PP 1/181(4)
	Specific guidelines	EPPO PP 1/218(2)
Experimental design	Plot design	RCBD (5)
	Plot size	24-50 m ²
	Number of replications	4 (5)
Crop	Trials per crop	BRSNW (5)
	Varieties per crop	Albatros; DK EXPECTATION; Umberto KWS; Diffusion; KWS Gordon
	Sowing period	05/09-18/10
Application	Crop stage (BBCH) at application	10-16
	Timing	
	Pest stage at application	Adults
	Number of applications	1 (2 trials), 2 (3 trials)
	Intervals between applications	13-15
Assessment	Spray volumes	200-400 L/ha
	Assessment types	PESINC (pest incidence, %), PESSEV (% leaf area damaged)
	Assessment dates	pre-assessment at application, 7-11 days after each application

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Other relevant information	Soil types	sandy loam; sandy silt; clay; loamy clay; clay loam
	Natural / artificial inoculation...	Natural infestation
	Field / Greenhouse...	Field

Results

Maritime EPPO zone

A total of 4 trials were carried out in the Maritime EPPO Zone to evaluate the efficacy of GLOB2011I for the control of *Phyllotreta* spp. on oilseed rape. Those trials have been conducted during 2022 in the Czech Republic and Germany.

As a lower dose rate was included in all trials, these results are also presented in detail under point 3.2.3 Efficacy tests and support the Minimum effective dose. The test product was applied 2 times against *Phyllotreta* spp. with 14 days interval.

Decis (deltamethrin) was included in all trials as a uniform reference, applied at authorized label rates. Table headers report the active substance/family and range of a.s. amount applied. Details are listed in right column in raw data tables in the BAD.

The color scheme used to classify the levels of control are described above in section 3.2.3 Efficacy tests (KCP 6.2).

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Table 3.2-62: Efficacy of GLOB2011I against *Phyllotreta* spp. in winter oilseed rape – PESINC % - Maritime EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (PESINC%/50 plants)			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			Decis/DTM ref at 5-7.5 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MAR	PHYEAT	BRSNW	All vs. LCHY	LEAF	PESINC	11-15	7-10 DA-A	4	100.0	100-100	100.0	7.0	0-28	0.0	10.8	0-43	0.0	21.5	0-75	5.5	1
MAR	PHYEAT	BRSNW	All vs. LCHY	LEAF	PESINC	14-17	7-11 DA-B	4	95.8	83-100	100.0	6.0	0-21.5	1.2	5.6	0-13.5	4.4	12.5	0-29.4	10.3	1

Number of trials summarized: 4

Table 3.2-63: Efficacy of GLOB2011I against *Phyllotreta* spp. in winter oilseed rape –PESSEV % (leaf area) - Maritime EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (PESSEV -% dam. leaf area)			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			Decis/DTM ref at 5-7.5 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MAR	PHYEAT	BRSNW	All vs. DTM	LEAF	PESSEV	11-15	7-10 DA-A	4	13.7	3.1-23.8	14.0	34.1	8.2-49.1	39.6	46.1	6.6-68.6	54.7	66.9	48.9-92.3	63.2	3
MAR	PHYEAT	BRSNW	All vs. DTM	LEAF	PESSEV	14-17	7-11 DA-B	3	8.3	6.5-10	8.3	40.8	9.4-65.8	47.2	43.0	15.8-62.6	50.7	65.6	55.5-75.5	65.8	2

Number of trials summarized: 4

Conclusion

A total of 4 trials were carried out in the Maritime EPPO Zone to evaluate the efficacy of GLOB2011I for the control of *Phyllotreta* spp. on oilseed rape. Those trials have been conducted during 2022 in the Czech Republic and Germany.

Data demonstrated that the efficacy of GLOB2011I at the maximum proposed rate of 1.5 L/ha was not remarkable in direct assessments of the pest incidence. It's worthy to mention that initial incidence levels were already very high. Nevertheless, the test product was able to reduce the damage observed in terms of leaf area eaten, particularly relevant at the crop establishment, and often significantly inferior to the damage recorded in the untreated control showing a benefit from a product with low risks. Moreover, in part of the assessments it was even comparable with conventional pyrethroid reference products. Best results were obtained at the target dose rate of 1.5 L/ha, especially at first assessments.

Efficacy results on *Phyllotreta* spp.

The number of trials submitted (4) did not meet the requirements of EPPO Guideline 1/226 (3) and were conducted in only one growing season. The results clearly indicate that the insecticide GLOB2011I is ineffective at the proposed dose rates against *Phyllotreta* spp. regardless of tested life stages. The average of all trials together is less than 50%. Considering the EPPO standard PP 1/214, the trials do not show sufficient efficacy.

It can be concluded that the data submitted by the applicant cannot be accepted. The applicant has not demonstrated efficacy against *Phyllotreta* spp. on oilseed rape.

North-East EPPO Zone

A total of 2 trials were carried out in the North-East EPPO Zone to evaluate the efficacy of GLOB2011I for the control of *Phyllotreta* spp. on oilseed rape. Those trials have been conducted during 2022 in Estonia and Lithuania. Those were combined with the results of the German and Czech trials (4 trials) since these are neighboring countries and considered as valid to the cMS Poland. The combined results from 6 trials are thus shown in the tables below.

As a lower dose rate was included in all trials, these results are also presented in detail under point 3.2.3 Efficacy tests and support the Minimum effective dose. The test product was applied 2 times against *Phyllotreta* spp. with 13-14 days interval in all except 1 trial where only 1 application was performed as the level of insects in untreated plots did not justify a further application.

Decis (deltamethrin) was included in all trials as a uniform reference, applied at authorized label rates. Table headers report the active substance/family and range of a.s. amount applied. Details are listed in right column in raw data tables in the BAD.

The color scheme used to classify the levels of control are described above in section 3.2.3 Efficacy tests (KCP 6.2).

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Table 3.2-64: Efficacy of GLOB2011I against *Phyllotreta* spp. in winter oilseed rape – PESINC % - North-East EPPO Zone

Means valid for Poland (when available, CZ and DE trials included in mean calculation)

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (PESINC%/50 plants)			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			Decis/DTM ref at 5-7.5 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
NE (+CZ,DE)	PHYEAT	BRSNW	All vs. LCHY	LEAF	PESINC	11-15	7-10 DA-A	6	78.2	9.5-100	100.0	16.4	0-45.8	12.3	22.4	0-72.9	9.2	33.5	0-75	30.6	2
NE (+CZ,DE)	PHYEAT	BRSNW	All vs. LCHY	LEAF	PESINC	14-17	7-11 DA-B	5	89.7	65.5-100	100.0	13.3	0-42.7	2.3	14.3	0-49.4	8.8	20.3	0-51.8	20.5	2

Number of trials summarized: 6

Table 3.2-65: Efficacy of GLOB2011I against *Phyllotreta* spp. in winter oilseed rape –PESSEV % (leaf area) - North-East EPPO Zone

Means valid for Poland (when available, CZ and DE trials included in mean calculation)

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (PESSEV -% dam. leaf area)			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			Decis/DTM ref at 5-7.5 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
NE (+CZ,DE)	PHYEAT	BRSNW	All vs. DTM	LEAF	PESSEV	11-15	7-10 DA-A	4	13.7	3.1-23.8	14.0	34.1	8.2-49.1	39.6	46.1	6.6-68.6	54.7	66.9	48.9-92.3	63.2	3
NE (+CZ,DE)	PHYEAT	BRSNW	All vs. DTM	LEAF	PESSEV	14-17	7-11 DA-B	3	8.3	6.5-10	8.3	40.8	9.4-65.8	47.2	43.0	15.8-62.6	50.7	65.6	55.5-75.5	65.8	2

Number of trials summarized: 6 (4 valid)

Conclusion

A total of 2 trials were carried out in the North-East EPPO Zone to evaluate the efficacy of GLOB2011I for the control of *Phyllotreta* spp. on oilseed rape. Those trials have been conducted during 2022 in Estonia and Lithuania. Those were combined with the results of the German and Czech trials (4 trials) since these are neighboring countries and considered as valid to the cMS Poland. The combined results from 6 trials are thus shown in the tables below.

Data demonstrated that the efficacy of GLOB2011I at the maximum proposed rate of 1.5 L/ha was not remarkable in direct assessments of the pest incidence. It's worthy to mention that in most of the trials initial incidence levels were already very high. Nevertheless, the test product was able to reduce the damage observed in terms of leaf area eaten, particularly relevant at the crop establishment, and often significantly inferior to the damage recorded in the untreated control showing a benefit from a product with low risks. Moreover, in part of the assessments it was even comparable with conventional pyrethroid reference products. Best results were obtained at the target dose rate of 1.5 L/ha, especially at first assessments.

Efficacy results on *Phyllotreta* spp.

The number of trials submitted (2) did not meet the requirements of EPPO Guideline 1/226 (3) and were conducted in only one growing season. The results clearly indicate that the insecticide GLOB2011I is ineffective at the proposed dose rates against *Phyllotreta* spp regardless of tested life stages. The average efficacy across all trials is less than 50%, which does not meet the threshold for sufficient efficacy according to EPPO standard PP 1/214.

It can be concluded that the data submitted by the applicant cannot be accepted. The applicant has not demonstrated efficacy against *Phyllotreta* spp. on oilseed rape.

South-East EPPO Zone

No trials were performed on oilseed rape against *Phyllotreta* spp. in this zone.

Mediterranean EPPO Zone

A total of 5 trials were carried out in the Mediterranean EPPO Zone to evaluate the efficacy of GLOB2011I for the control of *Phyllotreta* spp. on oilseed rape. Those trials have been conducted during 2022 in Croatia, Italy, Spain and the southern part of France.

As a lower dose rate was included in all trials, these results are also presented in detail under point 3.2.3 Efficacy tests and support the Minimum effective dose. In 2 out of 5 trials only 1 application was performed as the level of insects in untreated plots did not justify a further application.

Decis (deltamethrin) was included in all trials as a uniform reference, applied at authorized label rates. Table headers report the active substance/family and range of a.s. amount applied. Details are listed in right column in raw data tables in the BAD.

The color scheme used to classify the levels of control are described above in section 3.2.3 Efficacy tests (KCP 6.2).

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Table 3.2-66: Efficacy of GLOB2011I against Phyllotreta spp. in winter oilseed rape – PESINC % – Mediterranean EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (PESINC%/50 plants)			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			Decis/DTM ref at 5-7.5 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MED	PHYEAT	BRSNW	All vs. LCHY	LEAF	PESINC	11-18	7-10 DA-A	5	47.4	18-81	33.5	20.2	6.1-54.6	10.8	30.4	10.2-79.3	19.8	33.9	15.6-80.5	26.7	3
MED	PHYEAT	BRSNW	All vs. LCHY	LEAF	PESINC	14-19	7-11 DA-B	3	64.0	35-79	78.0	26.5	4.4-63.2	11.9	27.1	0-72.5	8.7	51.3	22.9-70.7	60.2	1

Number of trials summarized: 5

Table 3.2-67: Efficacy of GLOB2011I against Phyllotreta spp. in winter oilseed rape –PESSEV % (leaf area) - Mediterranean EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (PESSEV -% dam. leaf area)			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			Decis/DTM ref at 5-7.5 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MED	PHYEAT	BRSNW	All vs. DTM	LEAF	PESSEV	11-18	7-10 DA-A	5	6.3	2.9-12.6	5.3	43.5	14.9-72.6	30.9	53.9	15.6-95	50.5	65.7	49.8-95.1	53.3	3
MED	PHYEAT	BRSNW	All vs. DTM	LEAF	PESSEV	14-19	7-11 DA-B	3	6.3	3.5-8.8	6.6	36.3	6.1-86.1	16.7	38.0	9.1-92.3	12.7	69.2	42.2-91.3	74.1	1

Number of trials summarized: 5

Conclusion

A total of 5 trials were carried out in the Mediterranean EPPO Zone to evaluate the efficacy of GLOB2011I for the control of *Phyllotreta* spp. on oilseed rape. Those trials have been conducted during 2022 in Croatia, Italy, Spain and the southern part of France.

Data demonstrated that the efficacy of GLOB2011I at the maximum proposed rate of 1.5 L/ha was not remarkable in direct assessments of the pest incidence. Nevertheless, the test product was able to reduce the damage observed in terms of leaf area eaten, particularly relevant at the crop establishment, and often significantly inferior to the damage recorded in the untreated control showing a benefit from a product with low risks. Moreover, in part of the assessments it was even comparable with conventional pyrethroid reference products. Best results were obtained at the target dose rate of 1.5 L/ha, especially at first assessments.

3.2.3.4 Product efficacy against pollen beetle *Brassicogethes aeneus* and the cabbage seed-pod weevil *Ceutorhynchus obstrictus*

In total, 21 efficacy trials were submitted to demonstrate the efficacy of GLOB2011I for the use against pollen beetle (*Brassicogethes aeneus*) on oilseed rape. These trials were carried out between 2020 and 2022 by GEP certified research institutions in the Czech Republic, Germany, northern part of France and the Netherlands (in total 9 trials belonging to the Maritime EPPO Zone), in Poland, Estonia and Latvia (5 trials belonging to the North-East EPPO Zone), in Hungary (1 trial belonging to the South-East EPPO Zone), as well as in Croatia, Italy and Spain (6 trials belonging to the Mediterranean EPPO Zone).

During 10 trials, also the presence of the cabbage seed-pod weevil *Ceutorhynchus obstrictus* (CEUTAS) was observed (1 in Germany, belonging to the Maritime EPPO Zone), in Poland, Estonia and Latvia (5 trials belonging to the North-East EPPO Zone), as well as in Croatia, Italy and Spain (4 trials belonging to the Mediterranean EPPO Zone).

Trial methodology

All trials were carried out by testing facilities, or organisations, officially recognised as competent to perform efficacy testing in accordance with the requirements of Directive 93/71/EEC, and with the principles of GEP. Copies of certificates can be found in Appendix 4 of the Biological Assessment dossier.

Applications were performed in spring, from April until June, at the beginning of infestation or when local thresholds were observed. In a few trials a second application 14 days after the first application was not performed due to natural drop on the level of insects in untreated plots. Data is summarized accordingly.

According to the EPPO Standard PP 1/178 (3) targeted specifically for '*Meligethes aeneus* on rape' the main assessment performed was the pest severity in terms of count the number of adults on a sample size of 50 plants.

Several assessments were performed and summarized at different timings as 1-2, 4-5 and 6-8 DA-A, as well as 1-2, 4-5, 6-7 DA-B. Data not considered for means calculation (including e.g. 0 DA-A or extremely low pressures) are shaded in grey in the BAD. Representative results were summarized below.

There is a lot of taxonomic confusion between *C. assimilis*, *C. pleurostigma* and *C. obstrictus*. For these species EPPO website even reports this historical confusion and says that "It is currently considered that the turnip gall weevil is *C. assimilis* (formerly known as *C. pleurostigma*) and that the cabbage seed weevil is *C. obstrictus* (formerly known as *C. assimilis*).

It is known that some insecticides applied against pollen beetle may also have a positive effect on the control of weevils. Data from trials presented against *Brassicogethes aeneus* will also support a side effect on the cabbage seed-pod weevil *Ceutorhynchus obstrictus* (CEUTAS). In some countries, e.g. PL, similar effect is reported in reference insecticides as Decis Mega 50 EW (see reference standards table below).

Data were subjected to analysis of variance (ANOVA) at the 95% confidence level. When significant differences were found a Student-Newman-Keuls (SNK) Post-Hoc test was applied to separate the means. Treatment means with no letters in common are significantly different according to SNK test.

A pyrethroid reference product (deltamethrin) was included in all trials. Due to different formulations and slightly different authorized application rates, the pyrethroid reference products were gathered given that their practical performance is known and the working spectrum, time and method of application, mode of action are close related. Table headers report the active substance/family and range of a.s. amount applied. Details are listed in right column in raw data tables in the BAD. References were applied at same timings as test product.

The following table reports an overview of chemical standards and test products used in efficacy trials against pollen beetle on oilseed rape.

Table 3.2-68: Presentation of reference standards used in efficacy trials

Reference standard	Country where the product is registered	Auth. Number	Active substance(s)	Formulation		Registered application rate	Application rate in trials (per treatment)	Remark
				Type	Concentration of a.s.			
DECIS	IT	4426	deltamethrin	EC	25 g/L	0.3 L/HA	0.3 L/HA	
DECIS EVO	ES	25838	deltamethrin	EW	2.50%	0.3 L/HA	0.3 L/HA	
DECIS 100 EC	HR	UP/I-320-20/13-01/383	deltamethrin	EC	100 g/L	75 ML/HA	75 ML/HA	
Decis Forte	DE	007418-00	deltamethrin	EC	100 g/L	0.05-0.075 L/HA	0.2 L/ha	
Decis Forte	EE	698	deltamethrin	EC	100 g/L	75 ML/HA	75 ML/HA	
Decis Forte	CZ	5450-0	deltamethrin	EC	100 g/L	75 ml/ha	75 ml/ha	
Decis Mega 50 EW	PL	R-369/2016d	deltamethrin	EW	50 g/L	0.1 L/HA	0.1 L/HA	the treatment against pollen beetle also fights <i>Ceutorhynchus pallidactylus</i>
Decis Protech 15 EW	FR	2010023	deltamethrin	EW	15 g/L	0.33 L/HA	0.33 L/HA	
Decis Forte	LV	0703	deltamethrin	EC	100 g/L	75 ML/HA	75 ML/HA	
Scatto	DE	008485-00	deltamethrin	EC	25 g/L	0.2 L/HA	0.2 L/HA	
Decis Mega 50 EW	HU	02.5/2000/4/2008	deltamethrin	EW	50 g/L	0.15 L/HA	0.15 L/HA	
Decis EC	NL	7774 N	deltamethrin	EC	25 g/L	0.2 L/HA	0.2 L/HA	

Information on trial methodology is summarized below. Trial site information and application details are presented in Appendix 3 of the Biological Assessment Dossier.

Table 3.2-69: Details on trial methodology – *Brassicoglyphus aeneus* on oilseed rape - Maritime EPPO zone

Guidelines	General guidelines	PP 1/135(4), EPPO PP 1/152 (4), PP 1/181(4)
	Specific guidelines	EPPO PP 1/178(3)
Experimental design	Plot design	RCBD (9)
	Plot size	25-54 m ²

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	Number of replications	4 (9)
Crop	Trials per crop	BRSNS (1); BRSNW (8)
	Varieties per crop	BRSNS: Campino; BRSNW: LG AVIRON; MELODIE; Architect; Miami; Ludger; LG AVIRON; Kuga; DSV motherline CMS 508 A21
	Sowing period	BRSNS: 15/04; BRSNW: 15-26/08
Application	Crop stage (BBCH) at application	BRSNS: 39; BRSNW: 52-65
	Timing Pest stage at application	adults
	Number of applications Intervals between applications	1 (2 trials), 2 (7 trials) 13-20
	Spray volumes	200-300 L/ha
Assessment	Assessment types	count of adults, phytotoxicity, yield
	Assessment dates	pre-assessment at application, 1-2, 4-5, 6-8 and eventually 14 days after each application and at harvest
Other relevant information	Soil types	sandy clay; loamy sand; loam; sandy clay loam; sandy loam
	Natural / artificial inoculation...	Natural infestation
	Field / Greenhouse...	Field

Table 3.2-70: Details on trial methodology – *Brassicogethes aeneus* on oilseed rape - North-East EPPO zone

Guidelines	General guidelines	PP 1/135(4), EPPO PP 1/152 (4), PP 1/181(4)
	Specific guidelines	EPPO PP 1/178(3)
Experimental design	Plot design	RCBD (5)
	Plot size	25-50 m ²
	Number of replications	4 (5)
Crop	Trials per crop	BRSNW (5)
	Varieties per crop	Ambasador; Ilona; Sundance; Absolut; Alexander
	Sowing period	17/08-02/09
Application	Crop stage (BBCH) at application	53-61
	Timing Pest stage at application	adults
	Number of applications Intervals between applications	1 (1 trial), 2 (4 trials) 14 (3 trials), 34 (1 trial)
	Spray volumes	200-300 L/ha
Assessment	Assessment types	count of adults, phytotoxicity, yield
	Assessment dates	pre-assessment at application, 1-2, 4-5, 6-8 and eventually 14 days after each application and at harvest
Other relevant information	Soil types	loamy sand; sandy clay; sandy clay loam; loamy clay; sandy loam
	Natural / artificial inoculation...	Natural infestation
	Field / Greenhouse...	Field

Table 3.2-71: Details on trial methodology – *Brassicogethes aeneus* on oilseed rape - South-East EPPO zone

Guidelines	General guidelines	PP 1/135(4), EPPO PP 1/152 (4), PP 1/181(4)
	Specific guidelines	EPPO PP 1/178(3)
Experimental design	Plot design	RCBD (1)
	Plot size	42-42 m ²
	Number of replications	4 (1)
Crop	Trials per crop	BRSNW (1)
	Varieties per crop	Dariot
	Sowing period	10/09
Application	Crop stage (BBCH) at application	59
	Timing	
	Pest stage at application	adults
	Number of applications	2 (1 trials)
	Intervals between applications	14
Assessment	Spray volumes	300 L/ha
	Assessment types	count of adults, phytotoxicity
	Assessment dates	pre-assessment at application, 1-2, 4-5, 6-8 and eventually 14 days after each application and at harvest
Other relevant information	Soil types	clay loam
	Natural / artificial inoculation...	Natural infestation
	Field / Greenhouse...	Field

Table 3.2-72: Details on trial methodology – *Brassicogethes aeneus* on oilseed rape - Mediterranean EPPO zone

Guidelines	General guidelines	PP 1/135(4), EPPO PP 1/152 (4), PP 1/181(4)
	Specific guidelines	EPPO PP 1/178(3)
Experimental design	Plot design	RCBD (6)
	Plot size	24-49 m ²
	Number of replications	4 (6)
Crop	Trials per crop	BRSNW (6)
	Varieties per crop	Amadeo; Decibel; PT271; Kws Alvaro; PX128
	Sowing period	06/09-02/10
Application	Crop stage (BBCH) at application	55-59
	Timing	
	Pest stage at application	adults
	Number of applications	2 (6 trials)
	Intervals between applications	13-14
Assessment	Spray volumes	200-400 L/ha
	Assessment types	count of adults, phytotoxicity
	Assessment dates	pre-assessment at application, 1-2, 4-5, 6-8 and eventually 14 days after each application and at harvest

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Other relevant information	Soil types	clay loam; clay; loam
	Natural / artificial inoculation...	Natural infestation
	Field / Greenhouse...	Field

Results

Maritime EPPO zone

A total of 9 trials were carried out in the Maritime EPPO Zone to evaluate the efficacy of GLOB2011I for the control of pollen beetle on oilseed rape. Those trials have been conducted between 2020 and 2022 in the Czech Republic, Germany, northern part of France and the Netherlands.

As a lower dose rate was included in all trials, these results are also presented in detail under point 3.2.3 Efficacy tests and support the Minimum effective dose.

During one of the trials carried out during 2022, also the presence of the cabbage seed-pod weevil *Ceutorhynchus obstrictus* (CEUTAS) was registered.

Decis (deltamethrin) was included in all trials as a uniform reference, applied at authorized label rates. Table headers report the active substance/family and range of a.s. amount applied. Details are listed in right column in raw data tables in the BAD.

The color scheme used to classify the levels of control are described above in section 3.2.3 Efficacy tests (KCP 6.2).

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Table 3.2-73: Efficacy of GLOB2011I against MELIAE –PESSEV (number of adults) - Maritime EPPO Zone

EPPO zone	Target code	Crop Code	Grouping	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (nb. adults/50plants)			GLOB2011I at 0.9-1 l/ha			GLOB2011I at 1.5 l/ha			Decis/DTM ref at 5-7.5** g as/ha			No of trials where product is > to UTC
								Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MAR	MELISP	BRSNS	All vs. DTM	COUINS*	39	1-2 DA-A	1	38.3	-	-	34.6	-	-	79.2	-	-	59.8	-	-	1
					39	4-5 DA-A	1	38.0	-	-	91.2	-	-	100.0	-	-	98.1	-	-	1
					39	6-8 DA-A	1	29.8	-	-	88.5	-	-	100.0	-	-	100.0	-	-	1
	MELIAE	BRSNW	All vs. DTM	COUINS	52-65	1-2 DA-A	8	196.6	5-520.3	73.3	32.5	9.5-57.2	27.0	23.1	5-50.8	24.9	34.6	9.5-58.9	35.1	2
					53-65	4-5 DA-A	8	169.8	6.8-418.8	91.8	34.6	15.3-60.5	34.1	33.9	20.8-62.9	27.0	42.2	21.3-78.6	43.9	4
					53-65	6-8 DA-A	8	136.3	3.8-374.3	57.8	32.3	4.7-73.7	23.7	33.9	6.5-83.3	19.1	32.7	0-82.5	28.4	2
					59-67	1-2 DA-B	6	159.7	2.3-315.3	169.1	21.0	0-55.2	15.8	23.6	4.3-50.7	23.3	29.8	2.2-52.1	37.4	2
					60-74	4-5 DA-B	5	188.6	14.8-332.8	233.3	26.2	5.7-62.4	21.0	28.9	11.7-58.8	18.9	29.9	7.6-55.6	31.7	2
					65-75	6-7 DA-B	5	165.3	11.8-269.5	252.8	24.9	6.5-52.1	16.2	24.4	4.9-46	29.2	29.6	6.7-43.1	33.8	2

* on 25 plants

**in 1 trial there was a deviation and reference was applied at 20 g a.s./ha.

Number of trials summarized: 9

Table 3.2-74: Efficacy of GLOB2011I against CEUTAS –PESSEV (number of adults/20 plants) - Maritime EPPO Zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (nb. adults/20 plants)			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			Decis/DTM ref at 20 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MAR	CEUTAS	BRSNW	All vs. DTM	ADULT	COUINS	63-63	4-7DA-A	1	9.3	-	-	56.6	-	-	50.1	-	-	50.3	-	-	1
MAR	CEUTAS	BRSNW	All vs. DTM	ADULT	COUINS	67-67	2-7 DA-B	1	18.8	-	-	20.7	-	-	33.6	-	-	12.4	-	-	-

Number of trials summarized: 1

* there was a deviation and reference was applied at 20 g a.s./ha.

Conclusion

A total of 9 trials were carried out in the Maritime EPPO Zone to evaluate the efficacy of GLOB2011I for the control of pollen beetle on oilseed rape. Those trials have been conducted between 2020 and 2022 in the Czech Republic, Germany, northern part of France and the Netherlands.

Data demonstrated that the efficacy of GLOB2011I at the maximum proposed rate of 1.5 L/ha provided some reduction on the population in the Maritime EPPO zone. Reference pyrethroids achieved as well only some reduction of population. Very good results were observed in one trial on spring oilseed rape with early infestation.

Given the low-risk profile of the product, data from other zones should also be taken into account. In the Mediterranean EPPO zone, higher levels of control were observed, being a mean control of 56% for GLOB2011I and 71% for the reference products.

Moreover, although not required, yield data is available from some trials (presented below in point 3.4.2.) and show increased levels up to 130% in the Maritime EPPO zone.

Although many cases of resistance to Pyrethroids in pollen beetle are known, where there is no evidence that populations are resistant, this mode of action is still used and contributes to the increasing resistance pressure and shorten lifecycle of such products. Growers should look for alternative modes of action to be used in an IPM strategy. Results show that GLOB2011I can be used as an alternative to pyrethroids providing slightly lower levels of control under the same conditions and thus reducing resistance pressure.

During one of the trials, also the presence of the cabbage seed-pod weevil *Ceutorhynchus obstrictus* (CEUTAS) was registered with significant control compared to untreated plots and comparable to the reference product. Additional results are available from other EPPO zones.

As presented during the EPPO Workshop on integrated management of insect pests in oilseed rape (Berlin, 2017), the resistance status of pollen beetles to insecticides complicates the control of weevils, as due to lack of control on the first ones, pyrethroids were, at that time, being replaced by more aggressive PPPs (e.g. chlorpyrifos in CZ, not approved anymore) posing a threat to parasitoids and making it difficult the IPM. With less and less available alternatives, where resistant populations of PB to Pyrethroids exist, the crops are left with no PPPs that could control also weevils.

Efficacy results on *Brassicogethes aeneus*

The results of 8 trials suggest that the maximum dose of 1.5 L/ha is insufficient to achieve effective control of the major oilseed rape pest, *Brassicogethes aeneus*. The results obtained showed inconsistent levels of control with high variability, with overall means ranging from 23.1% to 33.9%, which does not justify registration of GLOB2011I for this use.

Efficacy results on *Ceutorhynchus obstrictus*

A single result cannot be used to determine the actual level of efficacy. It can be concluded that the data submitted by the applicant cannot be accepted. The applicant has not demonstrated efficacy against *Ceutorhynchus obstrictus* on oilseed rape.

North-East EPPO Zone

A total of 5 trials were carried out in the North-East EPPO Zone to evaluate the efficacy of GLOB2011I for the control of pollen beetle on oilseed rape. Those trials have been conducted during 2022 in Poland, Estonia and Latvia. Those were combined with the results of the German and Czech trials (7 trials 2021-2022) since these are neighboring countries and considered as valid to the cMS Poland. The combined results from 12 trials are thus shown in the tables below.

As a lower dose rate was included in all trials, these results are also presented in detail under point 3.2.3 Efficacy tests and support the Minimum effective dose.

During all of the trials carried out during 2022 in the N-E EPPO zone (5) and 1 trial conducted in Germany, also the presence of the cabbage seed-pod weevil *Ceutorhynchus obstrictus* (CEUTAS) was registered.

Decis (deltamethrin) was included in all trials as a uniform reference, applied at authorized label rates. Table headers report the active substance/family and range of a.s. amount applied. Details are listed in right column in raw data tables in the BAD.

The color scheme used to classify the levels of control are described above in section 3.2.3 Efficacy tests (KCP 6.2).

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Table 3.2-75: Efficacy of GLOB2011I against MELIAE –PESSEV (number of adults) - North-East EPPO Zone

Means valid for Poland (when available, CZ and DE trials included in mean calculation)

EPPO zone	Target code	Crop Code	Grouping	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (nb. adults/50plants)			GLOB2011I at 0.9-1 l/ha			GLOB2011I at 1.5 l/ha			Decis/DTM ref at 5-7.5** g as/ha			No of trials where product is > to UTC
								Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
NE (+CZ,DE)	MELIAE	BRSNW	All vs. DTM	COUINS	52-65	1-2 DA-A	12	120.5	2.3-479.3	73.3	30.4	9.5-57.2	27.0	26.9	5-56.4	24.9	39.5	9.5-70.7	40.9	4
					53-65	4-5 DA-A	12	111.2	6.8-394.3	65.9	30.7	15.3-60.5	23.5	33.7	6.6-76	27.0	40.8	21.3-85.1	41.2	4
					55-65	6-8 DA-A	12	87.4	3.8-364.3	40.2	32.6	4.7-71.9	23.7	32.2	1.4-83.3	15.2	34.5	0-86.1	30.0	3
					59-67	1-2 DA-B	8	110.4	2.3-315.3	89.4	20.8	0-52.6	15.8	28.3	4.3-69.6	23.4	38.4	2.2-83.1	37.4	3
					60-74	4-5 DA-B	7	110.6	7.3-296	70.8	21.7	5.7-51	21.0	27.0	8.8-73.3	18.9	33.3	7.6-80.8	31.7	2
					65-75	6-7 DA-B	7	94.5	7-269.5	34.5	23.0	0-49.1	16.2	26.7	4.9-63.7	29.2	37.0	6.7-70.2	33.8	2

Number of trials summarized: 12

**in 1 trial there was a deviation and reference was applied at 20 g a.s./ha.

Table 3.2-76: Efficacy of GLOB2011I against CEUTAS –PESSEV (number of adults/50 shoots) – North-East EPPO Zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (nb. adults/50 shoots)			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			Decis/DTM ref at 5-7.5** g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
NE (+DE)	CEUTAS	BRSNW	All vs. DTM	ADULT	COUINS	57-63	4-7DA-A	3	10.5	8.3-14	9.3	28.8	11.3-56.6	18.5	55.0	50.1-60.7	54.2	48.0	24.4-69.3	50.3	2
NE (+DE)	CEUTAS	BRSNW	All vs. DTM	ADULT	COUINS	66-69	2-7 DA-B	5	29.6	15-49	19.8	24.9	7.7-47.1	20.7	32.4	21.7-47.9	30.5	41.5	12.4-78.2	25.3	-

Number of trials summarized: 6

**in 1 trial there was a deviation and reference was applied at 20 g a.s./ha.

Conclusion

A total of 5 trials were carried out in the North-East EPPO Zone to evaluate the efficacy of GLOB2011I for the control of pollen beetle on oilseed rape. Those trials have been conducted during 2022 in Poland, Estonia and Latvia. Those were combined with the results of the German and Czech trials (7 trials 2021-2022) since these are neighboring countries and considered as valid to the cMS Poland. The combined results from 12 trials are thus shown in the tables below.

Data demonstrated that the efficacy of GLOB2011I at the maximum proposed rate of 1.5 L/ha provided some reduction on the population in the North-East EPPO zone. Reference pyrethroids achieved as well only some reduction of population. Slightly more long-lasting effect was observed at the target rate of 1.5 L/ha compared to the lower rate tested.

Given the low-risk profile of the product, data from other zones should also be taken into account. In the Mediterranean EPPO zone, higher levels of control were observed, being a mean control of 56% for GLOB2011I and 71% for the reference products.

Moreover, although not required, yield data is available from some trials (presented below in point 3.4.2.) and show increased levels up to 116% in the North-East EPPO zone and 130% in the Maritime EPPO zone.

Although many cases of resistance to Pyrethroids in pollen beetle are known, where there is no evidence that populations are resistant, this mode of action is still used and contributes to the increasing resistance pressure and shorten lifecycle of such products. Growers should look for alternative modes of action to be used in an IPM strategy. Results show that GLOB2011I can be used as an alternative to pyrethroids providing slightly lower levels of control under the same conditions and thus reducing resistance pressure.

During some of the trials, also the presence of the cabbage seed-pod weevil *Ceutorhynchus obstrictus* (CEUTAS) was registered with significant control compared to untreated plots and comparable to the reference product. Additional results are available from other EPPO zones.

As presented during the EPPO Workshop on integrated management of insect pests in oilseed rape (Berlin, 2017), the resistance status of pollen beetles to insecticides complicates the control of weevils, as due to lack of control on the first ones, pyrethroids were, at that time, being replaced by more aggressive PPPs (e.g. chlorpyrifos in CZ, not approved anymore) posing a threat to parasitoids and making it difficult the IPM. With less and less available alternatives, where resistant populations of PB to Pyrethroids exist, the crops are left with no PPPs that could control also weevils.

Efficacy results on *Brassicogethes aeneus*

The results obtained from 12 trials suggest that the maximum dose of 1.5 L/ha is insufficient to achieve effective control of the major oilseed rape pest, *Brassicogethes aeneus*. The results obtained showed the large variation in levels of control, with overall means ranging from 26.9% to 33.7%, which does not justify registration of GLOB2011I for this use.

Efficacy results on *Ceutorhynchus obstrictus*

The results obtained from 6 trials showed inconsistent levels of control with high variability, with overall means ranging from 32.4% to 55%, which does not justify the registration of GLOB2011I for this use.

South-East EPPO Zone

One trial was carried out in the South-East EPPO Zone to evaluate the efficacy of GLOB2011I for the control of pollen beetle on oilseed rape. This was conducted during 2022 in Hungary.

As a lower dose rate was included, these results are also presented in detail under point 3.2.3 Efficacy tests and support the Minimum effective dose.

In this trial, the presence of the cabbage seed-pod weevil *Ceutorhynchus obstrictus* (CEUTAS) was not registered.

Decis Mega 50 EW was included as a uniform reference, applied at authorized label rate. Table headers report the active substance/family and range of a.s. amount applied. Details are listed in right column in raw data tables in the BAD.

The color scheme used to classify the levels of control are described above in section 3.2.3 Efficacy tests (KCP 6.2).

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Table 3.2-77: Efficacy of GLOB2011I against MELIAE –PESSEV (number of adults) - South-East EPPO Zone

EPPO zone	Target code	Crop Code	Grouping	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (nb. adults/50 shoots)			GLOB2011I at 0.9-1 l/ha			GLOB2011I at 1.5 l/ha			Decis/DTM ref at 7.5 g as/ha			No of trials where product is > to UTC
								Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
S-E	MELIAE	BRSNW	All vs. DTM	COUINS	59	1-2 DA-A	1	163.8	-	-	14.0	-	-	44.8	-	-	85.0	-	-	1
					61	4-5 DA-A	1	158.0	-	-	7.0	-	-	41.1	-	-	78.3	-	-	1
					63	6-8 DA-A	1	165.8	-	-	10.3	-	-	19.0	-	-	55.6	-	-	1
					65	1-2 DA-B	1	145.0	-	-	10.5	-	-	39.5	-	-	84.3	-	-	1
					67	4-5 DA-B	1	136.5	-	-	9.9	-	-	39.5	-	-	81.2	-	-	1
					69	6-7 DA-B	1	143.8	-	-	9.7	-	-	20.5	-	-	56.2	-	-	1

Number of trials summarized: 1

Conclusion

One trial was carried out in the South-East EPPO Zone to evaluate the efficacy of GLOB2011I for the control of pollen beetle on oilseed rape. This was conducted during 2022 in Hungary.

Data demonstrated that the efficacy of GLOB2011I at the maximum proposed rate of 1.5 L/ha provided some reduction on the population in the South-East EPPO zone being always significantly different from untreated plots. Reference pyrethroids achieved lower control on early assessments.

Given the low-risk profile of the product, data from other zones should also be taken into account. In the Mediterranean EPPO zone, higher levels of control were observed, being a mean control of 56% for GLOB2011I and 71% for the reference products.

Although many cases of resistance to Pyrethroids in pollen beetle are known, where there is no evidence that populations are resistant, this mode of action is still used and contributes to the increasing resistance pressure and shorten lifecycle of such products. Growers should look for alternative modes of action to be used in an IPM strategy. Results show that GLOB2011I can be used as an alternative to pyrethroids providing slightly lower levels of control under the same conditions and thus reducing resistance pressure.

In this trial, the presence of the 2nd target cabbage seed-pod weevil *Ceutorhynchus obstrictus* (CEUTAS) was not registered. Nevertheless, a clear effect could be seen also on this pest from additional results available from other EPPO zones.

As presented during the EPPO Workshop on integrated management of insect pests in oilseed rape (Berlin, 2017), the resistance status of pollen beetles to insecticides complicates the control of weevils, as due to lack of control on the first ones, pyrethroids were, at that time, being replaced by more aggressive PPPs (e.g. chlorpyrifos in CZ, not approved anymore) posing a threat to parasitoids and making it difficult the IPM. With less and less available alternatives, where resistant populations of PB to Pyrethroids exist, the crops are left with no PPPs that could control also weevils.

Efficacy results on *Ceutorhynchus obstrictus*

A single result cannot be used to determine the actual level of efficacy. It can be concluded that the data submitted by the applicant cannot be accepted. The applicant has not demonstrated efficacy against *Ceutorhynchus obstrictus* on oilseed rape.

Mediterranean EPPO Zone

A total of 6 trials were carried out in the Mediterranean EPPO Zone to evaluate the efficacy of GLOB2011I for the control of pollen beetle on oilseed rape. Those trials have been conducted during 2022 in Croatia, Italy and Spain.

As a lower dose rate was included in all trials, these results are also presented in detail under point 3.2.3 Efficacy tests and support the Minimum effective dose.

During 4 of the trials carried out during 2022, also the presence of the cabbage seed-pod weevil *Ceutorhynchus obstrictus* (CEUTAS) was registered.

Decis (deltamethrin) was included in all trials as a uniform reference, applied at authorized label rates. Table headers report the active substance/family and range of a.s. amount applied. Details are listed in right column in raw data tables in the BAD.

The color scheme used to classify the levels of control are described above in section 3.2.3 Efficacy tests (KCP 6.2).

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Results

Table 3.2-78: Efficacy of GLOB2011I against MELIAE –PESSEV (number of adults) – Mediterranean EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (nb. adults/50 shoots)			GLOB2011I at 0.9-1 l/ha			GLOB2011I at 1.5 l/ha			Decis/DTM ref at 7.5 g as/ha			No of trials where product is > to UTC
								Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MED	MELIAE	BRSNW	All vs. DTM	COUINS	55-61	1-2 DA-A	6	93.8	32.5-149.3	104.3	30.4	3.4-55.3	32.4	37.4	2.6-70.5	39.3	57.4	2.7-94.5	77.2	3
					57-62	4-5 DA-A	6	88.9	33.8-120.8	102.9	38.5	5.9-65.3	45.4	51.5	15.6-79.5	59.6	63.2	20.2-93.8	76.3	4
					60-63	6-8 DA-A	6	80.2	21-126.5	88.9	41.9	9.5-68.2	45.4	53.3	0-79.7	62.1	63.4	1.2-96.2	71.3	4
					63-65	1-2 DA-B	6	68.9	10.8-150.8	58.3	47.5	4.5-80.1	49.9	60.2	0-87.6	68.2	80.3	62.1-100	78.9	5
					65-67	4-5 DA-B	6	55.6	6.5-178.3	14.4	49.8	20.8-85	44.1	62.8	0-87.5	72.7	83.7	70.1-100	82.0	5
					67-69	6-7 DA-B	4	70.3	5.5-172.3	51.7	60.3	44.7-82.4	57.1	74.9	57.4-90.2	76.0	83.4	74.7-95.6	81.6	4

Number of trials summarized: 6

Table 3.2-79: Efficacy of GLOB2011I against CEUTAS –PESSEV (number of adults/50 shoots) – Mediterranean EPPO Zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (nb. adults/50 shoots)			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			Decis/DTM ref at 7.5 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MED	CEUTAS	BRSNW	All vs. DTM	ADULT	COUINS	61-63	4-7DA-A	4	20.7	10.5-34.5	18.9	46.7	33.5-71.1	41.0	55.9	31.2-76.2	58.2	55.8	34.6-86.2	51.2	3
MED	CEUTAS	BRSNW	All vs. DTM	ADULT	COUINS	65-65	2-7 DA-B	2	28.3	5.3-51.3	28.3	56.5	32.8-80.2	56.5	43.4	2.9-83.8	43.4	71.4	51.6-91.2	71.4	1

Number of trials summarized: 4

Conclusion

A total of 6 trials were carried out in the Mediterranean EPPO Zone to evaluate the efficacy of GLOB2011I for the control of pollen beetle on oilseed rape. Those trials have been conducted during 2022 in Croatia, Italy and Spain.

Data demonstrated that the efficacy of GLOB2011I at the maximum proposed rate of 1.5 L/ha provided useful levels of control, especially after a second application, being close to the levels achieved by the reference pyrethroids and often significantly different from untreated plots showing a benefit from a product with low risks. Higher and more long-lasting effects were observed at the target rate of 1.5 L/ha compared to the lower rate tested.

Although many cases of resistance to Pyrethroids in pollen beetle are known, where there is no evidence that populations are resistant, this mode of action is still used and contributes to the increasing resistance pressure and shorten lifecycle of such products. Growers should look for alternative modes of action to be used in an IPM strategy. Results show that GLOB2011I can be used as an alternative to pyrethroids providing slightly lower levels of control under the same conditions and thus reducing resistance pressure.

During some of the trials, also the presence of the cabbage seed-pod weevil *Ceutorhynchus obstrictus* (CEUTAS) was registered with significant control compared to untreated plots and comparable to the reference product especially at early assessments. Additional results are available from other EPPO zones.

As presented during the EPPO Workshop on integrated management of insect pests in oilseed rape (Berlin, 2017), the resistance status of pollen beetles to insecticides complicates the control of weevils, as due to lack of control on the first ones, pyrethroids were, at that time, being replaced by more aggressive PPPs (e.g. chlorpyrifos in CZ, not approved anymore) posing a threat to parasitoids and making it difficult the IPM. With less and less available alternatives, where resistant populations of PB to Pyrethroids exist, the crops are left with no PPPs that could control also weevils.

3.2.3.5 Product efficacy against Colorado Potato Beetle *Leptinotarsa decemlineata*

In total, 17 efficacy trials were submitted to demonstrate the efficacy of GLOB2011I for the use against the Colorado Potato Beetle (CPB) *Leptinotarsa decemlineata* on potato. These trials were carried out between 2021 and 2022 by GEP certified research institutions in the Czech Republic, Germany and the Netherlands (in total 5 trials belonging to the Maritime EPPO Zone), in Poland (2 trials belonging to the North-East EPPO Zone), in Hungary (1 trial belonging to the South-East EPPO Zone), as well as in Croatia, Italy, Spain and the southern part of France (9 trials belonging to the Mediterranean EPPO Zone).

Trial methodology

All trials were carried out by testing facilities, or organisations, officially recognised as competent to perform efficacy testing in accordance with the requirements of Directive 93/71/EEC, and with the principles of GEP. Copies of certificates can be found in Appendix 4 of the Biological Assessment dossier.

Applications were performed from 12/05 until 01/08 when first insects were observed. A second application around 14 days after the first application was performed. Data is summarized accordingly. In 2 trials per zone (except in the South-East EPPO zone), 2 spray volumes were tested, 200 and 400 L/ha.

In the experiments conducted against the target pest, according to the EPPO guideline PP 1/12 (4) '*Leptinotarsa decemlineata*' the main assessments performed were the pest severity in terms of count the living larvae present in 10 plants. The larvae were distinguished in two categories, young or small (L1-L3) and old or large larvae (L4). The percentage damaged leaf area (pest severity) was also assessed. Although not required, yield data was also assessed in part of the trials and is presented in section 3.4.2.

Several assessments were performed and summarized at different timings as 3, 7 and 14 DA-A and 3 and 7 DA-B (± 3 days) for the larvae. Leaf damage levels above 5% after the first application (7 DA-A and 14 DA-A) and after the 2nd application (7 DA-B) were summarized, as control of the damage is not immediately observed. Data not considered for means calculation (including e.g. low pressure or 0-3 DA-A for leaf damage) are shaded in grey in the BAD. Representative results were summarized below.

Data were subjected to analysis of variance (ANOVA) at the 95% confidence level. When significant differences were found a Student-Newman-Keuls (SNK) Post-Hoc test was applied to separate the means. Treatment means with no letters in common are significantly different according to SNK test.

A pyrethroid reference product (deltamethrin) was included in nearly all trials. In part of the trials, a chlorantraniliprole based product (Coragen) was also used as additional reference product and 4 trials used spinosad based products (Spintor) as reference. Due to different formulations and slightly different authorized application rates, the pyrethroid reference products were gathered given that their practical performance is known and the working spectrum, time and method of application, mode of action are close related. Table headers report the active substance/family and range of a.s. amount applied. Details are listed in right column in raw data tables in the BAD. References were applied at same timings as test product.

The following table reports an overview of chemical standards and test products used in efficacy trials against CPB on potato.

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Table 3.2-80: Presentation of reference standards used in efficacy trials

Reference standard	Country where the product is registered	Auth. Number	Active substance(s)	Formulation		Registered application rate ⁽³⁾	Application rate in trials (per treatment)	Remark
				Type	Concentration of a.s.			
Coragen 20/200 SC	ES	ES: 25334	chlorantraniliprole	SC	200 g/L	0.06 l/ha	0.06 l/ha	
	CZ	4870-2	chlorantraniliprole	SC	200 g/L	50-60 ml/ha	0.06 l/ha	
	FR	2100121	chlorantraniliprole	SC	200 g/L	60 ml/ha	0.06 l/ha	
	HR	UP/I-320-20/14-01/793	chlorantraniliprole	SC	200 g/L	50-60 ml/ha	0.06 l/ha	
	HU	02.5/1126/5/2008	chlorantraniliprole	SC	200 g/L	50-60 ml/ha	0.06 l/ha	
	NL	13555	chlorantraniliprole	SC	200 g/L	50-60 ml/ha	0.06 l/ha	
	IT	13981	chlorantraniliprole	SC	200 g/L	50-60 ml/ha	0.06 l/ha	
DECIS/DECIS EVO	IT	4426/15059	deltamethrin	EC	25 g/L	0.3-0.5 l/ha	0.5 l/ha	
DECIS	ES	25100	deltamethrin	EC	25 g/L	0,03 - 0,05 %	0.5 l/ha	
DECIS	NL	7774 N	deltamethrin	EC	25 g/L	0.3 l/ha	0.3 l/ha	
DECIS EVO	ES	25838	deltamethrin	EW	2.50%	0.3-0.5 l/ha	0.3 & 0.5 l/ha	
DECIS 100 EC	HR	UP/I-320-20/13-01/383	deltamethrin	EC	100 g/L	0,125 l/ha	0.125l/ha	
Decis Forte	CZ	5450-0	deltamethrin	EC	100 g/L	75 ml/ha	0.075 l/ha	
DECIS PROTECH 15 EW	FR	2010023	deltamethrin	EW	15 g/L	0.5 l/ha	0.5 l/ha	
Deltam	HU	04.2/2585-1/2018	deltamethrin	EW	15 g/L	8 ml/100m2	0.8 l/ha	against aphids
Spintor 240 SC	CZ	4515-0D/1	spinosad	SC	240G/L	0.15 l/ha	0.15 l/ha	
Spintor 480 SC	DE	005314-00/05-001	spinosad	SC	480 g/L	0.05 l/ha	0.05 l/ha	
Spintor 480 SC	ES	22839	spinosad	SC	480 g/L	50 - 75 cc/ha	0.075 l/ha	
Spintor 480 SC	IT	12654	spinosad	SC	480 g/L	50 ml/ha	0.075 l/ha	
Scatto	PL	R-522/2017d	deltamethrin	EC	25 g/L	0.3 l/ha	0.3 l/ha	

Information on trial methodology is summarized below. Trial site information and application details are presented in Appendix 3 of the Biological Assessment Dossier.

Table 3.2-81: Details on trial methodology – CPB – Maritime EPPO zone

Guidelines	General guidelines	PP 1/135(4), EPPO PP 1/152 (4), PP 1/181(4)
	Specific guidelines	PP 1/12 (4)
Experimental design	Plot design	RCBD (5)
	Plot size	25-27 m ²
	Number of replications	4 (5)
Crop	Trials per crop	SOLTU (5)
	Varieties per crop	Antonia; Lady Amarilla; Miranda; Adela
	Sowing period	04/04-10/05
Application	Crop stage (BBCH) at application	33-59
	Timing	
	Pest stage at application	larvae
	Number of applications	2 (5 trials)
	Intervals between applications	14-16
Assessment	Spray volumes	200-300 L/ha
	Assessment types	count of adults, count of larvae, leaf area damaged, phytotoxicity, yield

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	Assessment dates	pre-assessment at application, 1-3, 7, 14 days after each application and at harvest
Other relevant information	Soil types	loamy sand; sand
	Natural / artificial inoculation...	Natural infestation
	Field / Greenhouse...	Field

Table 3.2-82: Details on trial methodology – CPB – North-East EPPO zone

Guidelines	General guidelines	PP 1/135(4), EPPO PP 1/152 (4), PP 1/181(4)
	Specific guidelines	PP 1/12 (4)
Experimental design	Plot design	RCBD (2)
	Plot size	25.5-27 m ²
	Number of replications	4 (2)
Crop	Trials per crop	SOLTU (2)
	Varieties per crop	LILLY; Albatros NN
	Sowing period	22-24/04
Application	Crop stage (BBCH) at application	36-38
	Timing	
	Pest stage at application	mixed
	Number of applications	2 (2 trials)
	Intervals between applications	7-14
Assessment	Spray volumes	200 L/ha (200&400 L/ha in 2 trials)
	Assessment types	count of adults, count of larvae, leaf area damaged, phytotoxicity
Other relevant information	Assessment dates	pre-assessment at application, 1-3, 7, 14 days after each application
	Soil types	sandy loam; loamy sand
	Natural / artificial inoculation...	Natural infestation
	Field / Greenhouse...	Field

Table 3.2-83: Details on trial methodology – CPB – South-East EPPO zone

Guidelines	General guidelines	PP 1/135(4), EPPO PP 1/152 (4), PP 1/181(4)
	Specific guidelines	PP 1/12 (4)
Experimental design	Plot design	RCBD (1)
	Plot size	24-24 m ²
	Number of replications	4 (1)
Crop	Trials per crop	SOLTU (1)
	Varieties per crop	Bella Rosa
	Sowing period	04/07
Application	Crop stage (BBCH) at application	21
	Timing	
	Pest stage at application	larvae 1st instar
	Number of applications	2
	Intervals between applications	14
	Spray volumes	300 L/ha

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Assessment	Assessment types	count of adults, count of larvae, leaf area damaged, phytotoxicity, yield
	Assessment dates	pre-assessment at application, 1-3, 7, 14 days after each application and at harvest
Other relevant information	Soil types	clay sandy loam
	Natural / artificial inoculation...	Natural infestation
	Field / Greenhouse...	Field

Table 3.2-84: Details on trial methodology – CPB – Mediterranean EPPO zone

Guidelines	General guidelines	PP 1/135(4), EPPO PP 1/152 (4), PP 1/181(4)
	Specific guidelines	PP 1/12 (4)
Experimental design	Plot design	RCBD (9)
	Plot size	24-30 m ²
	Number of replications	4 (9)
Crop	Trials per crop	SOLTU (9)
	Varieties per crop	Turia; Sound; Spunta; Artemis; Liseta; Primura; Bintje; Agria
	Sowing period	01/02-10/05
Application	Crop stage (BBCH) at application	38-69
	Timing	
	Pest stage at application	mixed
	Number of applications	2 (9 trials)
	Intervals between applications	13-14
Assessment	Spray volumes	200-400 L/ha (200&400 L/ha in 2 trials)
	Assessment types	count of adults, count of larvae, leaf area damaged, phytotoxicity, yield
Other relevant information	Assessment dates	pre-assessment at application, 1-3, 7, 14 days after each application and at harvest
	Soil types	sand; loamy silt; loamy sand; sandy loam; clay loam; sandy clay loam
	Natural / artificial inoculation...	Natural infestation
	Field / Greenhouse...	Field

Results

Maritime EPPO zone

A total of 5 trials were carried out in the Maritime EPPO Zone to evaluate the efficacy of GLOB2011I for the control of CPB on potato. Those trials have been conducted during 2021 and 2022 in Czech Republic, Germany and the Netherlands.

As a lower dose rate was included in all trials, these results are also presented in detail under point 3.2.3 Efficacy tests and support the Minimum effective dose.

Decis (deltamethrin) was included in the majority of trials as a uniform reference, applied at authorized label rates. Table headers report the active substance/family and range of a.s. amount applied. Details

are listed in right column in raw data tables in the BAD. Same trials also applied a chlorantraniliprole based product (Coragen). Two trials used spinosad based products (Spintor) as sole reference.

The color scheme used to classify the levels of control are described above in section 3.2.3 Efficacy tests (KCP 6.2).

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Results

Table 3.2-85: Efficacy of GLOB2011I against CPB – Pest severity - count of small larvae (L1-L3) on 10 plants - Maritime EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (nb./10 plants)			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			Coragen 20 SC at 0.06 l/ha			Spintor at 24-36 g as/ha			Decis/DTM ref at 7.5 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MAR	LPTNDE	SOLTU	All	LARSMA	COUINS	39-65	3 DA-A	5	45.8	10-83.5	41.5	45.8	20.2-77.8	34.3	54.5	6.7-85.4	62.7	-	-	-	-	-	-	-	-	-	2
						39-67	7DA-A	5	30.5	14.5-41	34.8	46.1	6.6-100	37.0	58.4	18-100	69.0	-	-	-	-	-	-	-	-	-	3
						39-70	14 DA-A	5	19.5	5-29.3	26.3	47.8	24.4-67.1	50.0	44.0	0-72.6	49.1	-	-	-	-	-	-	-	-	-	1
						39-70	3 DA-B	4	19.0	13.5-25	18.8	45.3	0-64.3	58.4	52.0	20.4-78.2	54.6	-	-	-	-	-	-	-	-	-	1
						39-72	7DA-B	5	13.4	4.3-25	13.5	66.9	42.2-92.2	63.3	57.3	17.6-100	63.0	-	-	-	-	-	-	-	-	-	2
MAR	LPTNDE	SOLTU	All vs. DTM & CTPR	LARSMA	COUINS	55-65	3 DA-A	3	44.9	10-83.5	41.3	57.8	20.2-77.8	75.5	67.8	33.1-85.4	84.8	97.8	95.4-100	98.0				70.1	18.8-97.9	93.5	
						59-67	7DA-A	3	37.7	34.8-41	37.3	62.3	11.5-100	75.4	68.3	19.4-100	85.5	96.8	93.9-100	96.5				72.0	22-100	94.1	
						61-70	14 DA-A	3	20.2	5-29.3	26.3	49.2	37-60.7	50.0	57.2	49.1-72.6	50.0	82.9	50-100	98.7				59.7	39.9-89.2	50.0	
						65-70	3 DA-B	2	18.8	13.8-23.8	18.8	61.4	58.4-64.3	61.4	63.1	47.9-78.2	63.1	100.0	100-100	100.0				69.0	50.8-87.2	69.0	
						65-72	7DA-B	3	17.5	13.5-25	14.0	68.1	48.8-92.2	63.3	82.0	63-100	83.1	91.1	76.5-100	96.7				90.1	81.2-100	89.1	
MAR	LPTNDE	SOLTU	All vs. SPIN	LARSMA	COUINS	39-59	3 DA-A	2	47.2	41.5-52.8	47.2	27.7	21.1-34.3	27.7	34.7	6.7-62.7	34.7	-	-	-	97.5	95.6-99.4	97.5	-	-	-	
						39-59	7DA-A	2	19.8	14.5-25	19.8	21.8	6.6-37	21.8	43.5	18-69	43.5	-	-	-	81.1	62.1-100	81.1	-	-	-	
						39-65	14 DA-A	2	18.6	10.3-26.8	18.6	45.8	24.4-67.1	45.8	24.1	0-48.2	24.1	-	-	-	65.9	58.6-73.2	65.9	-	-	-	
						39-65	3 DA-B	2	19.3	13.5-25	19.3	29.2	0-58.4	29.2	40.9	20.4-61.3	40.9	-	-	-	96.3	92.6-100	96.3	-	-	-	
						39-69	7DA-B	2	7.2	4.3-10	7.2	65.2	42.2-88.2	65.2	20.3	17.6-23	20.3	-	-	-	97.1	94.1-100	97.1	-	-	-	

Number of trials summarized: 5

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Table 3.2-86: Efficacy of GLOB2011I against CPB – Pest severity - count of large larvae (L4) on 10 plants - Maritime EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (nb./10 plants)			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			Coragen 20 SC at 0.06 l/ha			Spintor at 24-36 g as/ha			Decis/DTM ref at 7.5 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MAR	LPTNDE	SOLTU	All	LARLAR	COUINS	39-65	3 DA-A	4	35.8	15.8-77	25.3	39.4	12.1-76.9	34.4	55.1	22.5-91.2	53.4	-	-	-	-	-	-	-	-	-	2
						39-67	7DA-A	4	38.0	19-51.8	40.7	63.4	36.5-84.8	66.2	58.7	22-82.1	65.4	-	-	-	-	-	-	-	-	-	2
						39-70	14 DA-A	5	15.9	4.3-24.5	16.0	43.2	0-100	36.7	34.2	0-100	8.2	-	-	-	-	-	-	-	-	-	2
						39-70	3 DA-B	4	17.9	16-19.3	18.2	58.9	31.3-100	52.1	70.2	64.4-75	70.7	-	-	-	-	-	-	-	-	-	2
						39-72	7DA-B	5	11.7	4.8-18.8	10.0	68.6	45-100	64.8	68.2	57.9-91	63.4	-	-	-	-	-	-	-	-	-	2
MAR	LPTNDE	SOLTU	All vs. DTM & CTPR	LARLAR	COUINS	55-65	3 DA-A	3	36.3	15.8-77	16.0	48.5	12.1-76.9	56.4	66.0	31.5-91.2	75.3	98.0	93.9-100	100.0	-	-	-	65.3	37-83.6	75.3	
						59-67	7DA-A	3	37.0	19-51.8	40.3	63.0	36.5-84.8	67.8	71.0	55.4-82.1	75.4	100.0	100-100	100.0	-	-	-	63.6	23.6-89.2	78.1	
						61-70	14 DA-A	3	16.9	10.5-24.3	16.0	59.8	19.1-100	60.2	54.3	0-100	62.9	98.3	95-100	100.0	-	-	-	49.8	4.5-75	69.9	
						65-70	3 DA-B	3	17.7	16-19.3	17.8	66.3	31.3-100	67.7	70.1	64.4-75	71.0	100.0	100-100	100.0	-	-	-	72.1	40-100	76.2	
						65-72	7DA-B	3	11.9	6.8-18.8	10.0	69.9	45-100	64.8	72.5	63.1-91	63.4	100.0	100-100	100.0	-	-	-	81.8	70-100	75.4	
MAR	LPTNDE	SOLTU	All vs. SPIN	LARLAR	COUINS	39-59	3 DA-A	1	34.5	34.5-34.5	34.5	12.3	12.3-12.3	12.3	22.5	22.5-22.5	22.5	-	-	-	100.0	100-100	100.0	-	-	-	
						39-59	7DA-A	1	41.0	41-41	41.0	64.6	64.6-64.6	64.6	22.0	22-22	22.0	-	-	-	98.8	98.8-98.8	98.8	-	-	-	
						39-65	14 DA-A	2	14.4	4.3-24.5	14.4	18.4	0-36.7	18.4	4.1	0-8.2	4.1	-	-	-	73.4	52.9-93.9	73.4	-	-	-	
						39-65	3 DA-B	1	18.5	18.5-18.5	18.5	36.5	36.5-36.5	36.5	70.3	70.3-70.3	70.3	-	-	-	100.0	100-100	100.0	-	-	-	
						39-69	7DA-B	2	11.6	4.8-18.3	11.6	66.6	57.9-75.3	66.6	61.9	57.9-65.8	61.9	-	-	-	94.8	89.5-100	94.8	-	-	-	

Number of trials summarized: 5

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Table 3.2-87: Efficacy of GLOB2011I against CPB – Pest severity (% leaf area damaged) - Maritime EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (% leaf area damaged)			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			Coragen 20 SC at 0.06 l/ha			Spintor at 24-36 g as/ha			Decis/DTM ref at 7.5 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MAR	LPTNDE	SOLTU	All	LEAF	PESSEV	39-67	7DA-A	5	8.9	4.8-18.8	6.3	45.8	26.7-59.2	52.5	49.2	25.1-62.1	51.4	-	-	-	-	-	-	-	-	-	3
						39-70	14 DA-A	5	20.5	7.5-47.5	11.3	43.7	20.1-64.6	50.8	50.4	23.9-68.8	48.6	-	-	-	-	-	-	-	-	-	5
						39-72	7 DA-B	5	24.5	7.5-58.8	12.5	37.4	3.5-82.2	22.5	41.3	15.8-85.3	20.2	-	-	-	-	-	-	-	-	-	4
MAR	LPTNDE	SOLTU	All vs. DTM & CTPR	LEAF	PESSEV	59-67	7DA-A	3	11.1	5.3-18.8	9.3	46.1	26.7-59.2	52.5	58.1	51.4-62.1	60.8	76.9	70-85.4	75.3	-	-	-	58.8	49.2-65	62.1	
						61-70	14 DA-A	3	14.5	7.5-26.8	9.3	49.1	24.2-64.6	58.6	59.9	48.6-68.8	62.4	81.4	75.3-89.6	79.4	-	-	-	61.6	46.4-76	62.4	
						65-72	7 DA-B	3	18.8	8.8-35	12.5	48.9	3.5-82.2	61.1	57.0	20.2-85.3	65.4	85.5	81.2-91	84.2	-	-	-	66.7	46.5-85.3	68.2	
MAR	LPTNDE	SOLTU	All vs. SPIN	LEAF	PESSEV	39-59	7DA-A	2	5.6	4.8-6.3	5.6	45.4	33.4-57.3	45.4	35.9	25.1-46.7	35.9	-	-	-	63.6	44.5-82.6	63.6	-	-	-	
						39-65	14 DA-A	2	29.4	11.3-47.5	29.4	35.5	20.1-50.8	35.5	36.1	23.9-48.3	36.1	-	-	-	75.5	60.6-90.4	75.5	-	-	-	
						39-69	7 DA-B	2	33.2	7.5-58.8	33.2	20.2	17.9-22.5	20.2	17.9	15.8-20	17.9	-	-	-	64.9	62.5-67.3	64.9	-	-	-	

Number of trials summarized: 5

Conclusion

A total of 5 trials were carried out in the Maritime EPPO Zone to evaluate the efficacy of GLOB2011I for the control of CPB on potato. Those trials have been conducted during 2021 and 2022 in Czech Republic, Germany and the Netherlands.

Data demonstrated that GLOB2011I at the maximum proposed rate of 1.5 L/ha provided a consistent reduction on the number of larvae and finally on the leaf damage. Particularly good results were observed in the number of large larvae, likely as a consequence of the reduction of small larvae that did not reach the last larval stage. Trials which assessed yield (2 trials) presented under section 3.4.2 revealed a 4 to 5 % increase. The lower rate of 0.9 L/ha showed a lower control in early assessments, and in general up to 10% less control compared to 1.5 L/ha.

The level of control was often significantly superior to those recorded in the untreated control especially regarding leaf damage and showing a benefit from a product with low risks. Moreover, in part of the assessments it was even comparable with conventional pyrethroid reference products. Best results were obtained after a second application.

Higher water volumes i.e. 400 L /ha (2 trials, data not shown) provided similar control as the lower volume tested, i.e. 200 L/ha.

Generally, these results also confirm the results obtained from other EPPO climatic zones.

Efficacy results on *Leptinotarsa decemlineata* on potatoes

A total of 5 trials were carried out in the Maritime EPPO Zone to evaluate the efficacy of GLOB2011I for the control of CPB on potato. Those trials have been conducted during 2021 and 2022 in Czech Republic, Germany and the Netherlands. All trials have been carried out according to EPPO Standards EPPO PP 1/152 (4), 1/135 (4), 1/181 (4) and EPPO PP 1/12 (4) with the principles of Good Experimental Practice (GEP). The number of trials submitted (5) is below the requirement outlined in EPPO PP1/226. As major crops and diseases are claimed, a minimum of 6 trial data is required.

Data from 5 trials showed that the control of *Leptinotarsa decemlineata* on potatoes achieved by GLOB2011I was significantly inferior to that achieved by standard products. As a result, the reduction in defoliation of plants after application of the standard products was significantly better than that after application of GLOB2011I. Mean larval control (L1-L4) was 52.3% with a range of 4.1%-82.0% for the 1.5 l/ha dose of GLOB2011I (3 DAA-7 DAB). This compares to 93.4% (65.9%-100%) control of L1-L4 larvae with the 24-36 g as/ha dose of the biological insecticide SPINTOR (3 DAA-7 DAB). The concerned cMS are kindly asked to decide themselves whether to accept the reduced data for *Leptinotarsa decemlineata* in the maritime EPPO or not.

North-East EPPO Zone

A total of 2 trials were carried out in the North-East EPPO Zone to evaluate the efficacy of GLOB2011I for the control of CPB on potato. Those trials have been conducted during 2021 in Poland. Those were combined with the results of the German and Czech trials (4 trials) since these are neighboring countries and considered as valid to the cMS Poland. The combined results from 6 trials are thus shown in the tables below.

As a lower dose rate was included in all trials, these results are also presented in detail under point 3.2.3 Efficacy tests and support the Minimum effective dose.

Decis (deltamethrin) was included in the majority of trials as a uniform reference, applied at authorized label rates. Table headers report the active substance/family and range of a.s. amount applied. Details are listed in right column in raw data tables in the BAD. Some trials also applied a chlorantraniliprole based product (Coragen) as additional reference. Two trials used spinosad based products (Spintor) as sole reference.

The color scheme used to classify the levels of control are described above in section 3.2.3 Efficacy tests (KCP 6.2).

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Results

Table 3.2-88: Efficacy of GLOB2011I against CPB – Pest severity - count of small larvae (L1-L3) on 10 plants - North-East EPPO zone

Means valid for Poland (when available, CZ and DE trials included in mean calculation)

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (nb./10 plants)			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			Coragen 20 SC at 0.06 l/ha			Spintor at 24-36 g as/ha			Decis/DTM ref at 7.5 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
NE (+CZ,DE)	LPTNDE	SOLTU	All	LARSMA	COUINS	36-59	3 DA-A	6	93.3	39.8-301	47.2	29.2	0-75.5	22.5	37.7	6.7-85.4	30.8	-	-	-	-	-	-	-	-	-	2
						39-61	7DA-A	6	66.3	14.5-254.5	31.4	25.4	0-75.4	16.6	37.3	0-85.5	25.6	-	-	-	-	-	-	-	-	-	3
						39-69	14 DA-A	5	22.8	10.3-29.3	26.3	37.8	0-67.1	37.0	34.0	0-72.6	48.2	-	-	-	-	-	-	-	-	-	1
						39-69	3 DA-B	6	39.6	13.5-141.8	21.7	34.8	0-64.3	43.0	37.1	0-78.2	34.2	-	-	-	-	-	-	-	-	-	1
						39-71	7DA-B	6	15.7	4.3-31.5	11.8	63.9	42.2-94.9	56.1	49.2	17.6-83.1	46.1	-	-	-	-	-	-	-	-	-	1
NE (+CZ,DE)	LPTNDE	SOLTU	All vs. DTM	LARSMA	COUINS	36-59	3 DA-A	4	116.4	39.8-301	62.4	29.9	0-75.5	22.0	39.3	10.1-85.4	30.8	-	-	-	-	-	-	46.0	17-93.5	36.8	
						39-61	7DA-A	4	89.6	25.5-254.5	39.2	27.1	0-75.4	16.6	34.2	0-85.5	25.6	-	-	-	-	-	-	37.4	0-94.1	27.7	
						51-69	14 DA-A	4	54.7	21.5-141.8	27.8	31.3	0-60.7	32.3	34.1	0-72.6	31.9	-	-	-	-	-	-	56.7	39.5-89.2	49.1	
						51-69	3 DA-B	4	49.7	13.8-141.8	21.7	37.6	0-64.3	43.0	35.2	0-78.2	31.3	-	-	-	-	-	-	49.7	2.6-87.2	54.6	
						51-71	7DA-B	4	20.0	9.8-31.5	19.3	63.3	46.2-94.9	56.1	63.7	29.1-83.1	71.3	-	-	-	-	-	-	65.3	13.8-89.1	79.1	
NE (+CZ,DE)	LPTNDE	SOLTU	All vs. CTPR	LARSMA	COUINS	55-59	3 DA-A	2	62.4	41.3-83.5	62.4	47.9	20.2-75.5	47.9	59.3	33.1-85.4	59.3	96.7	95.4-98	96.7	-	-	-	-	-	-	
						59-61	7DA-A	2	39.2	37.3-41	39.2	43.5	11.5-75.4	43.5	52.5	19.4-85.5	52.5	95.2	93.9-96.5	95.2	-	-	-	-	-	-	
						61-69	14 DA-A	2	27.8	26.3-29.3	27.8	48.9	37-60.7	48.9	60.9	49.1-72.6	60.9	99.4	98.7-100	99.4	-	-	-	-	-	-	
						65-69	3 DA-B	2	18.8	13.8-23.8	18.8	61.4	58.4-64.3	61.4	63.1	47.9-78.2	63.1	100.0	100-100	100.0	-	-	-	-	-	-	
						65-71	7DA-B	2	19.3	13.5-25	19.3	56.1	48.8-63.3	56.1	73.1	63-83.1	73.1	98.4	96.7-100	98.4	-	-	-	-	-	-	

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EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (nb./10 plants)			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			Coragen 20 SC at 0.06 l/ha			Spintor at 24-36 g as/ha			Decis/DTM ref at 7.5 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
NE (+CZ,DE)	LPTNDE	SOLTU	All vs. SPIN	LARSMA	COUINS	39-59	3 DA-A	2	47.2	41.5-52.8	47.2	27.7	21.1-34.3	27.7	34.7	6.7-62.7	34.7	-	-	-	97.5	95.6-99.4	97.5	-	-	-	
						39-59	7DA-A	2	19.8	14.5-25	19.8	21.8	6.6-37	21.8	43.5	18-69	43.5	-	-	-	81.1	62.1-100	81.1	-	-	-	
						39-65	14 DA-A	2	18.6	10.3-26.8	18.6	45.8	24.4-67.1	45.8	24.1	0-48.2	24.1	-	-	-	65.9	58.6-73.2	65.9	-	-	-	
						39-65	3 DA-B	2	19.3	13.5-25	19.3	29.2	0-58.4	29.2	40.9	20.4-61.3	40.9	-	-	-	96.3	92.6-100	96.3	-	-	-	
						39-69	7DA-B	2	7.2	4.3-10	7.2	65.2	42.2-88.2	65.2	20.3	17.6-23	20.3	-	-	-	97.1	94.1-100	97.1	-	-	-	

Number of trials summarized: 6

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Table 3.2-89: Efficacy of GLOB2011I against CPB – Pest severity - count of large larvae (L4) on 10 plants - North-East EPPO zone

Means valid for Poland (when available, CZ and DE trials included in mean calculation)

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (nb./10 plants)			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			Coragen 20 SC at 0.06 l/ha			Spintor at 24-36 g as/ha			Decis/DTM ref at 7.5 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
NE (+CZ,DE)	LPTNDE	SOLTU	All	LARLAR	COUINS	36-59	3 DA-A	5	38.9	15.8-91.8	34.5	30.8	12.1-56.4	24.1	35.7	22.1-75.3	27.1	-	-	-	-	-	-	-	-	-	1
						39-61	7DA-A	5	63.6	19-198	40.3	40.1	0-67.8	36.5	52.9	22-75.4	55.4	-	-	-	-	-	-	-	-	-	2
						39-69	14 DA-A	5	17.2	4.3-30.5	16.0	23.2	0-60.2	19.1	14.2	0-62.9	0.0	-	-	-	-	-	-	-	-	-	1
						39-69	3 DA-B	5	40.3	16-127.3	18.5	33.6	0-67.7	32.5	47.6	0-71	64.4	-	-	-	-	-	-	-	-	-	2
						39-71	7DA-B	6	17.9	4.8-48.5	14.2	60.5	45-75.3	61.4	57.8	34.3-65.8	62.8	-	-	-	-	-	-	-	-	-	1
NE (+CZ,DE)	LPTNDE	SOLTU	All vs. DTM	LARLAR	COUINS	36-59	3 DA-A	4	40.0	15.8-91.8	26.2	35.4	12.1-56.4	36.5	39.0	22.1-75.3	29.3	-	-	-	-	-	-	61.7	37-75.3	67.2	
						39-61	7DA-A	4	69.3	19-198	30.1	34.0	0-67.8	34.1	60.6	39.4-75.4	63.8	-	-	-	-	-	-	42.2	0-78.1	45.3	
						51-69	14 DA-A	4	46.1	10.5-127.3	23.3	28.0	0-60.2	25.8	23.8	0-62.9	16.1	-	-	-	-	-	-	35.5	0-69.9	36.0	
						51-69	3 DA-B	4	45.7	16-127.3	19.8	32.9	0-67.7	31.9	41.9	0-71	48.3	-	-	-	-	-	-	45.9	0-76.2	53.8	
						51-71	7DA-B	4	21.0	6.8-48.5	14.4	57.5	45-65	59.9	55.8	34.3-63.4	62.8	-	-	-	-	-	-	49.5	12.5-75.4	55.0	
NE (+CZ,DE)	LPTNDE	SOLTU	All vs. CTPR	LARLAR	COUINS	55-59	3 DA-A	2	15.9	15.8-16	15.9	34.3	12.1-56.4	34.3	53.4	31.5-75.3	53.4	97.0	93.9-100	97.0	-	-	-	-	-	-	
						59-61	7DA-A	2	29.7	19-40.3	29.7	52.2	36.5-67.8	52.2	65.4	55.4-75.4	65.4	100.0	100-100	100.0	-	-	-	-	-	-	
						61-69	14 DA-A	2	13.3	10.5-16	13.3	39.7	19.1-60.2	39.7	31.5	0-62.9	31.5	97.5	95-100	97.5	-	-	-	-	-	-	
						65-69	3 DA-B	2	16.9	16-17.8	16.9	49.5	31.3-67.7	49.5	67.7	64.4-71	67.7	100.0	100-100	100.0	-	-	-	-	-	-	
						65-71	7DA-B	2	12.8	6.8-18.8	12.8	54.9	45-64.8	54.9	63.3	63.1-63.4	63.3	100.0	100-100	100.0	-	-	-	-	-	-	
NE (+CZ,DE)	LPTNDE	SOLTU	All vs. SPIN	LARLAR	COUINS	39-59	3 DA-A	1	34.5	34.5-34.5	34.5	12.3	12.3-12.3	12.3	22.5	22.5-22.5	22.5	-	-	-	100.0	100-100	100.0	-	-	-	
						39-59	7DA-A	1	41.0	41-41	41.0	64.6	64.6-64.6	64.6	22.0	22-22	22.0	-	-	-	98.8	98.8-98.8	98.8	-	-	-	
						39-65	14 DA-A	2	14.4	4.3-24.5	14.4	18.4	0-36.7	18.4	4.1	0-8.2	4.1	-	-	-	73.4	52.9-93.9	73.4	-	-	-	
						39-65	3 DA-B	1	18.5	18.5-18.5	18.5	36.5	36.5-36.5	36.5	70.3	70.3-70.3	70.3	-	-	-	100.0	100-100	100.0	-	-	-	
						39-69	7DA-B	2	11.6	4.8-18.3	11.6	66.6	57.9-75.3	66.6	61.9	57.9-65.8	61.9	-	-	-	94.8	89.5-100	94.8	-	-	-	

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Table 3.2-90: Efficacy of GLOB2011I against CPB – Pest severity (% leaf area damaged) - North-East EPPO zone

Means valid for Poland (when available, CZ and DE trials included in mean calculation)

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (% leaf area damaged)			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			Coragen 20 SC at 0.06 l/ha			Spintor at 24-36 g as/ha			Decis/DTM ref at 7.5 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
NE (+CZ,DE)	LPTNDE	SOLTU	All	LEAF	PESSEV	39-61	7DA-A	6	19.4	4.8-71.3	7.8	34.8	9.4-59.2	30.1	39.4	15.6-62.1	41.0	-	-	-	-	-	-	-	-	-	3
						39-69	14 DA-A	4	23.7	9.3-47.5	19.1	38.4	20.1-58.6	37.5	45.8	23.9-62.4	48.5	-	-	-	-	-	-	-	-	-	4
						39-71	7 DA-B	6	37.1	7.5-96.3	23.8	21.8	3.5-61.1	15.9	26.7	15.8-65.4	20.1	-	-	-	-	-	-	-	-	-	3
NE (+CZ,DE)	LPTNDE	SOLTU	All vs. DTM & CTPR	LEAF	PESSEV	39-61	7DA-A	4	26.4	6-71.3	14.1	29.5	9.4-59.2	24.8	41.1	15.6-62.1	43.4	72.7	70-75.3	72.7	-	-	-	50.6	25-66.1	55.7	
						61-69	14 DA-A	2	18.1	9.3-26.8	18.1	41.4	24.2-58.6	41.4	55.5	48.6-62.4	55.5	77.4	75.3-79.4	77.4	-	-	-	54.4	46.4-62.4	54.4	
						51-71	7 DA-B	4	39.1	12.5-96.3	23.8	22.5	3.5-61.1	12.8	31.1	16.7-65.4	21.1	82.7	81.2-84.2	82.7	-	-	-	53.1	40-68.2	52.2	
NE (+CZ,DE)	LPTNDE	SOLTU	All vs. SPIN	LEAF	PESSEV	39-59	7DA-A	2	5.6	4.8-6.3	5.6	45.4	33.4-57.3	45.4	35.9	25.1-46.7	35.9	-	-	-	63.6	44.5-82.6	63.6	-	-	-	
						39-65	14 DA-A	2	29.4	11.3-47.5	29.4	35.5	20.1-50.8	35.5	36.1	23.9-48.3	36.1	-	-	-	75.5	60.6-90.4	75.5	-	-	-	
						39-69	7 DA-B	2	33.2	7.5-58.8	33.2	20.2	17.9-22.5	20.2	17.9	15.8-20	17.9	-	-	-	64.9	62.5-67.3	64.9	-	-	-	

Conclusion

A total of 2 trials were carried out in the North-East EPPO Zone to evaluate the efficacy of GLOB2011I for the control of CPB on potato. Those trials have been conducted during 2021 in Poland. Those were combined with the results of the German and Czech trials (4 trials) since these are neighboring countries and considered as valid to the cMS Poland. The combined results from 6 trials are thus shown in the tables above.

Data demonstrated that GLOB2011I at the maximum proposed rate of 1.5 L/ha provided a consistent reduction on the number of larvae and finally on the leaf damage. Particularly good results were observed in the number of large larvae, likely as a consequence of the reduction of small larvae that did not reach the last larval stage. Trials which assessed yield (2 trials in CZ) presented under section 3.4.2 revealed a 4 to 5 % increase. The lower rate of 0.9 L/ha showed a lower control in early assessments compared to 1.5 L/ha.

The level of control was often significantly superior to those recorded in the untreated control especially regarding leaf damage and showing a benefit from a product with low risks. Moreover, in part of the assessments it was even comparable with conventional pyrethroid reference products. Best results were obtained after a second application.

Higher water volumes i.e. 400 L /ha (2 trials, data not shown) provided similar control as the lower volume tested, i.e. 200 L/ha.

Generally, these results also confirm the results obtained from other EPPO climatic zones.

Efficacy results on *Leptinotarsa decemlineata* on potatoes

A total of 6 trials were carried out in the Maritime EPPO Zone to evaluate the efficacy of GLOB2011I for the control of CPB on potato. Those trials have been conducted during 2021 and 2022 in Czech Republic, Germany and Poland. All trials have been carried out according to EPPO Standards EPPO PP 1/152 (4), 1/135 (4), 1/181 (4) and EPPO PP 1/12 (4) with the principles of Good Experimental Practice (GEP).

Data from 6 trials showed that the control of *Leptinotarsa decemlineata* on potatoes achieved by GLOB2011I was significantly inferior to that achieved by standard products. As a result, the reduction in defoliation of plants after application of the standard products was significantly better than that after application of GLOB2011I. Mean larval control (L1-L4) was 44.5% with a range of 4.1%-70.3% for the 1.5 l/ha dose of GLOB2011I (3 DAA-7 DAB). This compares to 93.4% (65.9%-100%) control of L1-L4 larvae with the 24-36 g as/ha dose of the biological insecticide SPINTOR (3 DAA-7 DAB). The obtained results indicated a low level of control with high variability, which does not justify the registration of GLOB2011I for this use.

South-East EPPO Zone

One trial was carried out in the South-East EPPO Zone to evaluate the efficacy of GLOB2011I for the control of CPB on potato. This was conducted during 2022 in Hungary.

As a lower dose rate was included in all trials, these results are also presented in detail under point 3.2.3 Efficacy tests and support the Minimum effective dose.

Decis (deltamethrin) was used as a uniform reference, applied at authorized label rate. Table headers report the active substance/family and range of a.s. amount applied. Details are listed in right column in raw data tables in the BAD. The trial also applied a chlorantraniliprole based product (Coragen).

The color scheme used to classify the levels of control are described above in section 3.2.3 Efficacy tests (KCP 6.2).

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Results

Table 3.2-91: Efficacy of GLOB2011I against CPB – Pest severity - count of small larvae (L1-L3) on 10 plants - South-East EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (nb./10 plants)			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			Coragen 20 SC at 0.06 l/ha			Spintor at 24-36 g as/ha			Decis/DTM ref at 12 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
S-E	LPTNDE	SOLTU	All	LARSMA	COUINS	21-21	3 DA-A	1	140.0	140-140	140.0	5.2	5.2-5.2	5.2	4.4	4.4-4.4	4.4	0.0	0-0	0.0	-	-	-	3.8	3.8-3.8	3.8	-
						25-25	7DA-A	1	118.0	118-118	118.0	65.7	65.7-65.7	65.7	62.3	62.3-62.3	62.3	60.5	60.5-60.5	60.5	-	-	-	62.2	62.2-62.2	62.2	1
						35-35	14 DA-A	1	107.8	107.8-107.8	107.8	76.0	76-76	76.0	74.5	74.5-74.5	74.5	72.9	72.9-72.9	72.9	-	-	-	75.0	75-75	75.0	1
						37-37	3 DA-B	1	81.3	81.3-81.3	81.3	88.7	88.7-88.7	88.7	91.4	91.4-91.4	91.4	94.4	94.4-94.4	94.4	-	-	-	92.9	92.9-92.9	92.9	1
						57-57	7DA-B	1	23.0	23-23	23.0	29.7	29.7-29.7	29.7	29.1	29.1-29.1	29.1	72.2	72.2-72.2	72.2	-	-	-	49.4	49.4-49.4	49.4	-

Number of trials summarized: 1

Table 3.2-92: Efficacy of GLOB2011I against CPB – Pest severity - count of large larvae (L4) on 10 plants - South-East EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (nb./10 plants)			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			Coragen 20 SC at 0.06 l/ha			Spintor at 24-36 g as/ha			Decis/DTM ref at 7 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
S-E	LPTNDE	SOLTU	All	LARLAR	COUINS	57-57	7DA-B	1	11.0	11-11	11.0	52.1	52.1-52.1	52.1	45.8	45.8-45.8	45.8	78.8	78.8-78.8	78.8	-	-	-	69.2	69.2-69.2	69.2	-

Number of trials summarized: 1

Table 3.2-93: Efficacy of GLOB2011I against CPB – Pest severity (% leaf area damaged) - South-East EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (% leaf area damaged)			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			Coragen 20 SC at 0.06 l/ha			Decis/DTM ref at 12 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
S-E	LPTNDE	SOLTU	All	LEAF	PESSEV	25-25	7DA-A	1	14.8	-	-	54.7	-	-	55.1	-	-	51.5	-	-	52.9	-	-	1
						35-35	14 DA-A	1	17.2	-	-	62.5	-	-	62.1	-	-	57.6	-	-	62.4	-	-	1
						57-57	7DA-B	1	13.5	-	-	28.2	-	-	29.7	-	-	60.2	-	-	42.9	-	-	-

Number of trials summarized: 1

Conclusion

One trial was carried out in the South-East EPPO Zone to evaluate the efficacy of GLOB2011I for the control of CPB on potato. This was conducted during 2022 in Hungary.

Data demonstrated that GLOB2011I at the maximum proposed rate of 1.5 L/ha provided a useful control on the number of small larvae and finally on the leaf damage. The yield results presented under section 3.4.2 revealed a 15 % increase. The lower rate of 0.9 L/ha showed a similar control under the circumstances of this 1 trial.

The level of control was significantly superior to those recorded in the untreated control especially regarding small larvae and leaf damage, showing a benefit from a product with low risks. Moreover, it was even comparable with conventional pyrethroid reference product and Coragen. Best results were obtained after a second application.

Generally, these results also confirm the results obtained from other EPPO climatic zones.

Efficacy results on *Leptinotarsa decemlineata* on potatoes

A single result cannot be used to determine the actual level of efficacy. It can be concluded that the data submitted by the applicant cannot be accepted. The applicant has not demonstrated efficacy against *Leptinotarsa decemlineata* on potatoes.

Mediterranean EPPO Zone

A total of 9 trials were carried out in the Mediterranean EPPO Zone to evaluate the efficacy of GLOB2011I for the control of CPB on potato. Those trials have been conducted during 2021 and 2022 in Croatia, Italy, Spain and the southern part of France.

As a lower dose rate was included in all trials, these results are also presented in detail under point 3.2.3 Efficacy tests and support the Minimum effective dose.

Decis (deltamethrin) was included in the majority of trials as a uniform reference, applied at authorized label rates. Table headers report the active substance/family and range of a.s. amount applied. Details are listed in right column in raw data tables in the BAD. Same trials also applied a chlorantraniliprole based product (Coragen). Two trials used spinosad based products (Spintor) as reference.

In 5 out of 9 trials, GLOB2011I was applied also in an IPM strategy. One application of a pyrethroid (A) was followed by one application of the test product (B) with and interval of 14 days in the same plots and compared to 2 applications of test and reference product (AB).

The color scheme used to classify the levels of control are described above in section 3.2.3 Efficacy tests (KCP 6.2).

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Results

Table 3.2-94: Efficacy of GLOB2011I against CPB – Pest severity - count of small larvae (L1-L3) on 10 plants - Mediterranean EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (nb./10 plants)			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			Coragen 20 SC at 0.06 l/ha			Spintor at 36 g as/ha			Decis/DTM ref at 7.5-12.5 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MED	LPTNDE	SOLTU	All	LARSMA	COUINS	39-69	3 DA-A	9	29.3	6.5-68	20.0	52.6	7.9-95.4	55.6	56.0	16.3-93.7	55.1	-	-	-	-	-	-	-	-	-	5
						41-81	7DA-A	9	34.9	13.3-76.8	25.5	45.2	17.1-76.8	50.2	52.6	13.6-90.7	60.5	-	-	-	-	-	-	-	-	-	6
						43-85	14 DA-A	9	36.3	4-90.3	35.8	40.0	13.6-83	32.6	50.9	11.3-91.1	60.9	-	-	-	-	-	-	-	-	-	6
						43-85	3 DA-B	9	37.4	6-100.5	30.5	61.6	16.1-100	72.2	64.7	14.4-100	78.2	-	-	-	-	-	-	-	-	-	5
						43-89	7DA-B	9	37.4	4.5-117.5	29.9	54.4	9.9-100	50.9	57.7	14.1-100	59.9	-	-	-	-	-	-	-	-	-	5
MED	LPTNDE	SOLTU	All vs. DTM	LARSMA	COUINS	39-69	3 DA-A	7	29.7	6.5-68	20.0	51.7	7.9-84.3	55.6	56.3	28.5-93.7	55.1	-	-	-	-	-	-	65.0	38.1-98.6	69.0	-
						41-81	7DA-A	7	35.8	13.3-76.8	25.5	46.6	19.2-76.8	50.2	54.4	13.6-90.7	60.5	-	-	-	-	-	-	69.1	36.6-91.6	77.6	-
						43-85	14 DA-A	7	36.4	4-90.3	35.8	42.4	13.6-83	32.6	54.4	11.3-91.1	65.7	-	-	-	-	-	-	61.8	26.6-90.4	77.1	-
						43-85	3 DA-B	7	38.5	6-100.5	30.5	66.1	16.1-100	75.8	69.5	14.4-100	84.9	-	-	-	-	-	-	82.2	55.5-100	78.8	-
						43-89	7DA-B	7	38.7	4.5-117.5	29.5	58.0	9.9-100	68.6	59.8	14.1-100	76.0	-	-	-	-	-	-	77.3	32.2-100	80.9	-
MED	LPTNDE	SOLTU	All vs. CTPR	LARSMA	COUINS	39-67	3 DA-A	7	35.4	11-68	37.0	48.1	7.9-95.4	36.1	53.6	16.3-93.7	42.3	87.1	59.1-98.3	88.8	-	-	-	-	-	-	-
						41-62	7DA-A	7	39.9	13.3-76.8	42.0	46.2	17.1-76.8	50.2	52.1	13.6-90.7	72.5	89.0	72.1-100	93.6	-	-	-	-	-	-	-
						43-66	14 DA-A	7	38.9	4-90.3	37.8	40.4	13.6-83	32.6	48.7	11.3-91.1	60.9	85.9	67.4-100	87.2	-	-	-	-	-	-	-
						43-67	3 DA-B	7	37.8	6-100.5	30.5	58.1	16.1-100	71.4	59.6	14.4-100	77.6	96.2	83.7-100	100.0	-	-	-	-	-	-	-
						43-69	7DA-B	7	38.5	4.5-117.5	28.8	50.2	9.9-100	28.4	52.6	14.1-100	43.8	91.9	52.4-100	99.6	-	-	-	-	-	-	-
MED	LPTNDE	SOLTU	All vs. SPIN	LARSMA	COUINS	45-67	3 DA-A	2	27.9	18.8-37	27.9	55.6	15.8-95.4	55.6	54.7	16.3-93	54.7	-	-	-	82.4	68.3-96.4	82.4	-	-	-	-
						42-46	7DA-A	2	32.0	22-42	32.0	40.3	17.1-63.4	40.3	46.2	19.2-73.2	46.2	-	-	-	72.6	69.2-75.9	72.6	-	-	-	-
						45-47	14 DA-A	2	35.7	33.5-37.8	35.7	31.9	16.3-47.5	31.9	38.7	16.4-60.9	38.7	-	-	-	61.1	58.6-63.6	61.1	-	-	-	-
						46-47	3 DA-B	2	33.7	30.5-36.8	33.7	45.9	20.3-71.4	45.9	48.0	18.4-77.6	48.0	-	-	-	75.8	68.2-83.3	75.8	-	-	-	-
						47-48	7DA-B	2	29.2	21.8-36.5	29.2	23.7	19-28.4	23.7	31.2	18.5-43.8	31.2	-	-	-	62.2	57.5-66.9	62.2	-	-	-	-

Number of trials summarized: 9

GLOB2011I

Part B – Section 3

Globachem NV/Central Zone

Table 3.2-95: Efficacy of GLOB2011I against CPB – Pest severity - count of large larvae (L4) on 10 plants - Mediterranean EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (nb./10 plants)			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			Coragen 20 SC at 0.06 l/ha			Spintor at 36 g as/ha			Decis/DTM ref at 7.5-12.5 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MED	LPTNDE	SOLTU	All	LARLAR	COUINS	39-69	3 DA-A	9	30.6	2.5-66.5	16.3	45.3	11.1-72.2	57.1	44.4	18.7-83.3	34.6	-	-	-	-	-	-	-	-	-	5
						41-81	7DA-A	9	33.6	7.8-74.5	20.3	41.9	11-77.7	45.0	48.5	18.1-79.5	41.9	-	-	-	-	-	-	-	-	-	5
						43-85	14 DA-A	9	39.5	20.8-93.5	28.5	45.9	8.9-90.3	49.5	48.9	15.7-89.7	39.4	-	-	-	-	-	-	-	-	-	6
						43-85	3 DA-B	9	41.0	13.5-78.8	34.3	58.9	12.1-98.4	68.1	61.7	14.5-91.3	78.7	-	-	-	-	-	-	-	-	-	6
						43-89	7DA-B	9	41.8	6-68	39.4	55.5	8.7-94	63.5	57.0	8.1-93	63.0	-	-	-	-	-	-	-	-	-	5
MED	LPTNDE	SOLTU	All vs. DTM	LARLAR	COUINS	39-69	3 DA-A	7	28.2	2.5-66.5	13.5	46.2	11.1-70	57.1	43.6	19.9-83.3	34.6	-	-	-	-	-	-	55.8	10-100	54.3	
						41-81	7DA-A	7	31.1	7.8-74.5	20.3	44.7	11.5-77.7	45.0	50.5	18.1-79.5	41.9	-	-	-	-	-	-	67.4	30.6-100	71.2	
						43-85	14 DA-A	7	36.9	20.8-93.5	25.3	49.3	8.9-90.3	49.5	51.8	15.8-89.7	39.4	-	-	-	-	-	-	68.6	26.5-95.6	65.3	
						43-85	3 DA-B	7	37.0	13.5-78.8	29.5	64.2	12.1-98.4	74.0	65.6	14.5-91.3	83.9	-	-	-	-	-	-	70.6	19.2-100	75.7	
						43-89	7DA-B	7	36.6	6-61.3	37.5	57.3	8.7-93.5	64.2	58.1	8.1-93	63.5	-	-	-	-	-	-	75.3	28.5-100	87.9	
MED	LPTNDE	SOLTU	All vs. CTPR	LARLAR	COUINS	39-67	3 DA-A	7	37.0	4.8-66.5	41.8	41.5	11.1-72.2	44.1	49.3	18.7-83.3	41.1	87.7	65.9-100	92.5	-	-	-	-	-	-	
						41-62	7DA-A	7	39.2	8.8-74.5	39.5	42.9	11-77.7	53.3	51.4	18.1-79.5	63.2	89.9	61.6-100	96.1	-	-	-	-	-	-	
						43-66	14 DA-A	7	43.7	20.8-93.5	30.5	45.9	8.9-90.3	55.0	51.8	15.7-89.7	61.7	88.9	63.7-97.8	91.3	-	-	-	-	-	-	
						43-67	3 DA-B	7	41.6	13.5-78.8	34.3	54.4	12.1-98.4	65.7	56.0	14.5-91.3	72.8	95.9	79.1-100	99.5	-	-	-	-	-	-	
						43-69	7DA-B	7	40.9	6-68	41.3	47.8	8.7-93.5	50.4	48.3	8.1-93	52.6	94.1	64.1-100	99.6	-	-	-	-	-	-	
MED	LPTNDE	SOLTU	All vs. SPIN	LARLAR	COUINS	45-67	3 DA-A	2	38.8	16.3-61.3	38.8	42.2	12.1-72.2	42.2	47.5	18.7-76.2	47.5	-	-	-	65.1	63.6-66.6	65.1	-	-	-	
						42-46	7DA-A	2	42.2	19.3-65	42.2	32.2	11-53.3	32.2	41.5	19.7-63.2	41.5	-	-	-	60.0	56.9-63.1	60.0	-	-	-	
						45-47	14 DA-A	2	48.8	30.5-67	48.8	34.0	13-55	34.0	38.7	15.7-61.7	38.7	-	-	-	60.5	60.1-60.9	60.5	-	-	-	
						46-47	3 DA-B	2	54.8	39.8-69.8	54.8	40.5	15.2-65.7	40.5	47.8	22.8-72.8	47.8	-	-	-	76.6	74.3-78.8	76.6	-	-	-	
						47-48	7DA-B	2	52.2	36.3-68	52.2	30.0	9.6-50.4	30.0	35.7	18.8-52.6	35.7	-	-	-	68.8	65.4-72.1	68.8	-	-	-	

Number of trials summarized: 9

GLOB2011I

Part B – Section 3

Globachem NV/Central Zone

Table 3.2-96: Efficacy of GLOB2011I against CPB – Pest severity (% leaf area damaged) - Mediterranean EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Crop BBCH at ass.	Days after appl.	Nb. trials	Infestation in the untreated control (% leaf area damaged)			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			Coragen 20 SC at 0.06 l/ha			Spintor at 36 g as/ha			Decis/DTM ref at 7.5-12.5 g as/ha			No of trials where product is > to UTC
									Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	
MED	LPTNDE	SOLTU	All	LEAF	PESSEV	41-81	7DA-A	9	20.3	5.5-38.8	19.6	35.5	3.7-74	31.4	33.5	9-79.7	31.1	-	-	-	-	-	-	-	-	-	4
						43-85	14 DA-A	9	28.4	12.5-52.5	28.9	37.3	3.9-85.2	43.1	39.3	6-86.6	41.7	-	-	-	-	-	-	-	-	-	5
						43-69	7DA-B	8	40.0	16.3-71.8	33.2	32.8	5.3-84.5	29.4	36.8	6.8-87.4	35.3	-	-	-	-	-	-	-	-	-	5
MED	LPTNDE	SOLTU	All vs. DTM	LEAF	PESSEV	41-81	7DA-A	7	22.3	5.5-38.8	22.5	38.0	6.9-74	31.4	35.9	9-79.7	31.1	-	-	-	-	-	-	49.3	8.1-76.2	46.5	
						43-85	14 DA-A	7	30.6	12.5-52.5	30.0	39.9	6.2-85.2	43.1	43.5	6.2-86.6	41.7	-	-	-	-	-	-	53.9	32.9-85.4	52.6	
						43-69	7DA-B	7	45.2	18.8-71.8	40.1	36.5	5.3-84.5	29.4	41.2	6.8-87.4	36.2	-	-	-	-	-	-	51.2	29.9-96.1	44.6	
MED	LPTNDE	SOLTU	All vs. CTPR	LEAF	PESSEV	41-62	7DA-A	7	20.7	7.5-38.8	19.6	37.6	3.7-74	38.5	33.9	9-79.7	30.4	68.4	57.5-80.3	64.5	-	-	-	-	-	-	
						43-66	14 DA-A	7	27.2	12.5-46.3	28.9	35.5	3.9-85.2	43.1	37.9	6-86.6	41.7	69.2	60-85.9	67.5	-	-	-	-	-	-	
						43-69	7DA-B	7	35.4	16.3-68	32.5	29.4	5.3-84.5	24.3	33.4	6.8-87.4	30.6	70.6	57.2-96.1	68.2	-	-	-	-	-	-	
MED	LPTNDE	SOLTU	All vs. SPIN	LEAF	PESSEV	42-46	7DA-A	2	13.6	7.5-19.6	13.6	26.9	3.7-50	26.9	24.8	9.6-40	24.8	61.0	57.5-64.5	61.0	50.6	45-56.1	50.6	-	-	-	
						45-47	14 DA-A	2	20.7	12.5-28.9	20.7	28.2	3.9-52.5	28.2	24.7	6-43.3	24.7	63.8	60-67.5	63.8	45.6	37-54.2	45.6	-	-	-	
						47-48	7DA-B	2	24.2	16.3-32	24.2	21.8	5.6-37.9	21.8	23.8	7.6-40	23.8	60.7	57.2-64.2	60.7	42.8	32.3-53.3	42.8	-	-	-	

Number of trials summarized: 9

GLOB2011I

Part B – Section 3

Globachem NV/Central Zone

Table 3.2-97: Efficacy of GLOB2011I in IPM strategy against CPB – Pest severity (% leaf area damaged) - Mediterranean EPPO zone

EPPO Zone	KCP	Pest Code	Crop Code	Rating Date	Part Rated	Rating Type	Crop BBCH at ass.	Trt-Eval Interval	Crop BBCH at appl.	UNTREATED	GLOB2011I 650 g/L EC 1.5 l/ha 975 g as/ha		Decis/DTM ref		DTM		GLOB2011I 650 g/L EC 1.5l/ha 975 g as/ha
										assessed value	SNK	7.5-12.5 g as/ha		7.5-12.5 g as/ha		7.5-12.5 g as/ha	
										Appl. code	A+B	A+B	A	B			
EPOMED	KCP 6.2-119	LPTNDE	SOLTU	02/06/22	LEAF	CONTROL	53	7 DA-B	41	46.3	30.6	b	36.8	b	12.5g	39.2	b
	KCP 6.2-120	LPTNDE	SOLTU	27/06/22	LEAF	CONTROL	49	9 DA-B	45	18.8	19.6	def	48.3	bc	7.5g	58.6	ab
	KCP 6.2-121	LPTNDE	SOLTU	16/06/22	LEAF	CONTROL	69	7 DA-B	39	32.5	87.4	c	96.1	a	12.5g	92.3	b
	KCP 6.2-122	LPTNDE	SOLTU	17/06/22	LEAF	CONTROL	46	7 DA-B	43	33.9	6.8	cd	29.9	b	12.5g	27.1	b
	KCP 6.2-123	LPTNDE	SOLTU	22/06/22	LEAF	CONTROL	43	9 DA-B	38	68	41.8	bc	55.2	b	12.5g	47.2	bc

Number of trials summarized: 5

Conclusion

A total of 9 trials were carried out in the Mediterranean EPPO Zone to evaluate the efficacy of GLOB2011I for the control of CPB on potato. Those trials have been conducted during 2021 and 2022 in Croatia, Italy, Spain and the southern part of France.

Data demonstrated that GLOB2011I at the maximum proposed rate of 1.5 L/ha provided a reduction on the number of larvae and at a lesser extent of the damage. It is important to notice that pressure in the Mediterranean trials was very high. Even in these challenging conditions, trials which assessed yield (7 trials) presented under section 3.4.2 revealed an average increase of 16% increase.

The lower rate of 0.9 L/ha showed a less long-lasting effect on small larvae, with about 10% less control at the time of the second application (14 DA-A) confirming that the target rate and interval provide the best results.

The level of control was often significantly superior to those recorded in the untreated control for all assessment types, showing a benefit from a product with low risks. Moreover, in part of the assessments it was even comparable with conventional pyrethroid reference products. Best results were obtained after a second application.

GLOB2011I applied even once in an IPM strategy, after one pyrethroid application (tested interval 14 days) is able to maintain the same level of control of 2 pyrethroid applications, reducing exposure to conventional PPPs. In one trial, KCP 6.2-120, even a synergistic effect could be observed with increase of at least 10% of the control compared to products applied alone.

Higher water volumes i.e. 400 L /ha (2 trials, data not shown) provided similar control as the lower volume tested, i.e. 200 L/ha.

Generally, these results also confirm the results obtained from other EPPO climatic zones.

3.2.3.6 Product efficacy against *Ostrinia nubilalis* on maize

In total, 10 efficacy trials were submitted to demonstrate the efficacy of GLOB2011I for the use on maize against the European corn borer *Ostrinia nubilalis*. These trials were carried out between 2020 and 2022 by GEP certified research institutions in key maize production countries as Italy, Spain and France (8 trials belonging to the Mediterranean EPPO Zone), as well as in Hungary (2 trials belonging to the South-East EPPO Zone). No trials are presented for the Maritime and North-East EPPO zones. Data generated in the most relevant maize production countries and where *O. nubilalis* pressure is known to be high were presented and claimed to support authorization in other zones.

Trial methodology

According to the EPPO Standard PP 1/13(3) *Ostrinia nubilalis*, assessments were performed on a sample size of 20 plants per plot). The assessments were performed at the stage of milky ripeness (at the latest BBCH 75, exception trial IE-21-G-GLOB2011I-ES01, BBCH 78) and shortly before harvest (at BBCH >79). Assessments not considered for means calculation (e.g. no damage on the assessed part) are presented shaded in grey in the BAD and are not considered for means calculation.

Representative results at each of the key timings were summarized below, specifically:

- at milky ripeness: the number of holes per plant

At the time of the assessment, as it is linked to the crop BBCH, in part of the trials 1 application had occurred while for other trials 2 applications had occurred.

- shortly before harvest: the number of plants damaged, number of plants with the husk damaged itself (only 2 trials in each zone had damage on the husk) and with regards to the damage above or below the husk, only assessments on damage above the husk are presented as this was the place with higher damage level.

A deltamethrin reference product was included in all trials. In part of the trials, a chlorantraniliprole based product (Coragen) was also used as additional reference product. The following table reports an overview of chemical standards and test products used in efficacy trials against *Ostrinia nubilalis*. References were applied at same timings as test product.

Table 3.2-98: Presentation of reference standards used in efficacy trials

Crop(s)	Reference standard	Country where the product is registered	Authorization number	Active substance(s)	Formulation		Registered application rate ⁽³⁾	Application rate in trials (per treatment)	Remark ⁽⁴⁾
					Type	Concentr. of a.s.			
Maize	Coragen 20/200 SC	ES	25334	chlorantraniliprole	SC	200 g/L	0.1 - 0.15 L/ha	0.15 L/ha	
		IT	13981	chlorantraniliprole	SC	200 g/L	0.1 - 0.15 L/ha	0.15 L/ha	
		FR	2100121	chlorantraniliprole	SC	200 g/L	0.125 L/ha	0.15 L/ha	
		HU	02.5/1126/5/2008	chlorantraniliprole	SC	200 g/L	0.1 - 0.15 L/ha	0.15 L/ha	
	Audace	ES	ES-00012	deltamethrin	EC	25 g/L	Max. 500 mL/ha	0.5 L/ha	
	Decis Evo	IT	015059	deltamethrin	EW	25 g/L	0.3-0.5 L/ha	0.5 L/ha	
	DECIS PROTECH 15 EW	FR	2010023	deltamethrin	EW	15 g/L	0.83 L/ha	0.83 L/ha	
	Decis Mega 50 EW	HU	02.5/2000/4/2008	deltamethrin	EW	50 g/L	0.2 L/ha	0.2 L/ha	

Information on trial methodology is summarized below. Trial site information and application details are presented in Appendix 3 of the Biological Assessment Dossier.

Table 3.2-99: Details on trial methodology –*Ostrinia nubilalis* - Mediterranean EPPO zone

Guidelines	General guidelines	PP 1/135(4), EPPO PP 1/152 (4), PP 1/181(4)
	Specific guidelines	EPPO PP 1/13(3)
Experimental design	Plot design	RCBD (8),
	Plot size	25-33.6 m ²
	Number of replications	4 (8)
Crop	Trials per crop	Maize (8)
	Varieties per crop	P0933Y Pioneer 1049 P2015 P0933 P867 Antex P0933Y P1921
	Sowing period	25/03-01/06
Application	Crop stage (BBCH) at application	18-19 (2 trials), 65-73
	Timing Pest stage at application	Mixed stages
	Number of applications Intervals between applications	1 (1 trial) 2 (7 trials) with intervals of 7 (1 trial) and 13-17 days (6 trials).
	Spray volumes	300 – 600 L/ha
Assessment	Assessment types	number of larvae, number of plants with larvae, number of holes per plant, number of plants damaged, number of plants with stem broken above the husk, below the husk or with husk itself broken, number of plants lying on the soil
	Assessment dates	7 DA-A , 14 DA-A, BBCH 75, shortly before harvest, at harvest
Other relevant information	Soil types	Loam, clay loam, silty clay, sandy loam, loamy clay, silt loam
	Natural / artificial inoculation...	Natural infestation
	Field / Greenhouse...	Field

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Table 3.2-100: Details on trial methodology –*Ostrinia nubilalis* – South-East EPPO zone

Guidelines	General guidelines	PP 1/135(4), EPPO PP 1/152 (4), PP 1/181(4)
	Specific guidelines	EPPO PP 1/13(3)
Experimental design	Plot design	RCBD (2),
	Plot size	45 m ²
	Number of replications	4 (2)
Crop	Trials per crop	Maize (2)
	Varieties per crop	P9911 Limanova
	Sowing period	06/04-25/04
Application	Crop stage (BBCH) at application	51/71
	Timing Pest stage at application	Mixed stages
	Number of applications Intervals between applications	2, 14-15 days
	Spray volumes	300 – 500 L/ha
Assessment	Assessment types	number of larvae, number of plants with larvae, number of holes per plant, number of plants damaged, number of plants with stem broken above the husk, below the husk or with husk itself broken, number of plants lying on the soil
	Assessment dates	7 DA-A , 14 DA-A, BBCH 75, shortly before harvest, at harvest
Other relevant information	Soil types	clay loam, sandy loam
	Natural / artificial inoculation...	Natural infestation
	Field / Greenhouse...	Field

* BBCH for weeds, pre-emergence, preventive / curative application, insect stage...

Results

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Mediterranean EPPO Zone

Table 3.2-101: Efficacy of GLOB2011I against *Ostrinia nubilalis* (PYRUNU) – number of holes per plant - Mediterranean EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type	Nb. trials	DAA-A	DAA-B	Crop BBCH at appl.	Infestation in the untreated control (nb. Holes/plant)			GLOB2011I at 2 l/ha			GLOB2011I at 3 l/ha			Decis/DTM ref at 12.5 g a.s./ha			Coragen at 0.15 l/ha			No of trials where product is = or compared to standard	No of trials where product is > to UTC
										Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn		
EPOMED	PYRUNU	ZEAMX	All vs. DTM	HOLE	COUNT	5	7-14 (2 TRIALS)	13-35 (3 TRIALS)	18-71	1.0	0.3-1.9	1.0	54.0	31.2-65.6	58.6	68.3	57.9-100	60.2	74.7	43.3-93.8	78.2	-	-	-	5	5
EPOMED	PYRUNU	ZEAMX	vs CTPR	HOLE	COUNT	2	14 (1 trial)	35 (1 trial)	18-69	0.7	0.3-1.1	0.7	62.1	58.6-65.6	62.1	58.8	57.9-59.7	58.8	68.5	43.3-93.8	68.5	76.1	60.7-91.4	76.1	2	2

Number of trials summarized: 6 (5 valid)

Table 3.2-102: Efficacy of GLOB2011I against *Ostrinia nubilalis* (PYRUNU) – number of damaged plants/20 plants at BBCH >79 - Mediterranean EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Nb. trials	DAA-A	DAA-B	Crop BBCH at appl.	Infestation in the untreated control (nb. damaged plants/20 plants)			GLOB2011I at 2 l/ha			GLOB2011I at 3 l/ha			Decis/DTM ref at 12.5 g a.s./ha			Coragen at 0.15 l/ha			No of trials where product is = or > compared to standard	No of trials where product is > to UTC
										Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn		
EPOMED	PYRUNU	ZEAMX	All vs. DTM	PLADAM	COUNT	6	41-116	26-102	18-73	12.9	2.5-18.8	13.1	37.5	18.2-52.7	41.2	42.8	25-52.9	47.2	52.6	25-79.5	53.1	-	-	-	5	4
EPOMED	PYRUNU	ZEAMX	vs CTPR	PLADAM	COUNT	3	61-116	48-102	18-73	11.9	2.5-18.8	14.3	41.5	40.7-42.2	41.7	41.5	25-52.9	46.6	40.1	25-50.2	45.0	58.1	52.3-66.7	55.3	3	2

Number of trials summarized: 7 (6 valid)

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Table 3.2-103: Efficacy of GLOB2011I against *Ostrinia nubilalis* (PYRUNU) -- nb. damaged husks/20 plants - Mediterranean EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Nb. trials	DAA-A	DAA-B	Crop BBCH at appl.	Infestation in the untreated control (nb. damaged husks/20 plants)			GLOB2011I at 2 l/ha			GLOB2011I at 3 l/ha			Decis/DTM ref at 12.5 g a.s./ha			Coragen at 0.15 l/ha			No of trials where product is = or > compared to standard	No of trials where product is > to UTC
										Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn		
EPOMED	PYRUNU	ZEAMX	All vs. DTM	HUSK	COUDIS	3	41-116	26-102	18-73	11.3	8.5-14.8	10.8	42.5	36.8-50	40.8	53.0	35.6-68.8	54.5	57.4	53.3-62.5	56.3	-	-	-	2	3
EPOMED	PYRUNU	ZEAMX	vs CTPR	HUSK	COUDIS	2	61-116	48-102	18-73	9.6	8.5-10.8	9.6	45.4	40.8-50	45.4	61.7	54.5-68.8	61.7	54.8	53.3-56.3	54.8	67.0	58.7-75.2	67.0	2	2

Number of trials summarized: 7 (3 valid)

Table 3.2-104: Efficacy of GLOB2011I against *Ostrinia nubilalis* (PYRUNU) -- nb. Plants damaged above husks/20 plants - Mediterranean EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Nb. trials	DAA-A	DAA-B	Crop BBCH at appl.	Infestation in the untreated control (nb. damaged plants above husk/20 plants)			GLOB2011I at 2 l/ha			GLOB2011I at 3 l/ha			Decis/DTM ref at 12.5 g a.s./ha			Coragen at 0.15 l/ha			No of trials where product is = or > compared to standard	No of trials where product is > to UTC
										Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn		
EPOMED	PYRUNU	ZEAMX	All vs. DTM	STECL1	COUDIS	6	41-116	26-102	18-73	6.9	1.3-12.8	6.5	44.3	25-79.6	34.7	57.6	25-97.2	54.5	55.4	33.3-97.2	41.2	-	-	-	4	3
EPOMED	PYRUNU	ZEAMX	vs CTPR	STECL1	COUDIS	3	61-116	48-102	18-73	6.8	2-12.5	5.8	31.5	25-39.7	29.7	50.3	42-58.3	50.6	38.0	33.3-44.8	35.7	51.1	41.7-66.7	45.0	3	1

Number of trials summarized: 7 (6 valid)

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South-East EPPO Zone

Table 3.2-105: Efficacy of GLOB2011I against *Ostrinia nubilalis* (PYRUNU) – number of holes per plant – South-East EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type	Nb. trials	DAA-A	DAA-B	Crop BBCH at appl.	Infestation in the untreated control (nb. Holes/plant)			GLOB2011I at 2 l/ha			GLOB2011I at 3 l/ha			Decis Mega 50 EW at 0.2 l/ha			Coragen at 0.15 l/ha			No of trials where product is = or compared to standard	No of trials where product is > to UTC
										Mean	Min Max	Mdn	Mean	Min Max	Mdn	Mean	Min Max	Mdn	Mean	Min Max	Mdn	Mean	Min Max	Mdn		
EPPOSE	PYRUNU	ZEAMX	All vs. DTM &CTPR	HOLE	COUNT	2	14 (1 trial)	7 (1 trial)	51-71	0.3	0.3-0.4	0.3	27.3	16.1-38.5	27.3	40.4	38.5-42.3	40.4	65.1	42.3-87.9	65.1	47.2	3.8-90.6	47.2	1	-

Number of trials summarized: 2

Table 3.2-106: Efficacy of GLOB2011I against *Ostrinia nubilalis* (PYRUNU) – number of damaged plants at BBCH >79 - South-East EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/unit	Nb. trials	DAA-A	DAA-B	Crop BBCH at appl.	Infestation in the untreated control (nb. damaged plants/20 plants)			GLOB2011I at 2 l/ha			GLOB2011I at 3 l/ha			Decis Mega 50 EW at 0.2 l/ha			Coragen at 0.15 l/ha			No of trials where product is = or > compared to standard	No of trials where product is > to UTC
										Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn		
EPPOSE	PYRUNU	ZEAMX	All vs. DTM &CTPR	PLADAM	COUNT	2	63-68	48-54	51-71	7.3	7-7.5	7.3	25.0	13.2-36.8	25.0	25.1	24.6-25.6	25.1	64.6	59-70.2	64.6	81.7	74-89.3	81.7	1	1

Number of trials summarized: 2

Table 3.2-107: Efficacy of GLOB2011I against *Ostrinia nubilalis* (PYRUNU) — nb. damaged husks/20 plants - South-East EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/unit	Nb. trials	DAA-A	DAA-B	Crop BBCH at appl.	Infestation in the untreated control (nb. damaged husks/20 plants)			GLOB2011I at 2 l/ha			GLOB2011I at 3 l/ha			Decis Mega 50 EW at 0.2 l/ha			Coragen at 0.15 l/ha			No of trials where product is = or > compared to standard	No of trials where product is > to UTC
										Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn		
EPPOSE	PYRUNU	ZEAMX	All vs. DTM &CTPR	HUSK	COUDIS	1	63-68	48-54	51-71	2.3	2.3-2.3	2.3	100.0	100-100	100.0	36.1	36.1-36.1	36.1	36.1	36.1-36.1	36.1	66.7	66.7-66.7	66.7	1	-

Number of trials summarized: 2 (1 valid)

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Table 3.2-108: Efficacy of GLOB2011I against *Ostrinia nubilalis* (PYRUNU) — nb. Plants damaged above husks/20 plants - South-East EPPO zone

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Nb. trials	DAA-A	DAA-B	Crop BBCH at appl.	Infestation in the untreated control (nb. damaged plants above husk/20 plants)			GLOB2011I at 2 l/ha			GLOB2011I at 3 l/ha			Decis Mega 50 EW at 0.2 l/ha			Coragen at 0.15 l/ha			No of trials where product is = or > compared to standard	No of trials where product is > to UTC
										Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn		
EPPOSE	PYRUNU	ZEAMX	All vs. DTM &CTPR	STECL1	COUDIS	1	63-68	48-54	51-71	2.3	2.3-2.3	2.3	16.7	16.7-16.7	16.7	37.5	37.5-37.5	37.5	66.7	66.7-66.7	66.7	91.7	91.7-91.7	91.7	1	-

Number of trials summarized: 2 (1 valid)

Conclusion

In total, 10 efficacy trials were submitted to demonstrate the efficacy of GLOB2011I for the use on maize against the European corn borer *Ostrinia nubilalis*. These trials were carried out between 2020 and 2022 by GEP certified research institutions in key maize production countries as Italy, Spain and France (8 trials belonging to the Mediterranean EPPO Zone), as well as in Hungary (2 trials belonging to the South-East EPPO Zone).

Data demonstrated that the efficacy of GLOB2011I at the maximum proposed rate of 3 L/ha was in general useful and significantly superior to those recorded in the untreated control showing a benefit from a product with low risks. Moreover, in part of the trials it was even comparable with conventional reference products, especially deltamethrin based products and to a lesser extent to chlorantraniliprole based products. At a lower rate of 2 L/ha, some control could still be observed, especially regarding the number of holes per plant.

A higher pest pressure was observed in Mediterranean zone trials and support extrapolation to other zones.

Extrapolation of results achieved

The occurrence of the European corn borer was initially limited to warmer regions (Mediterranean countries). In the last decades, the insect has spread out more and more to regions with less favourable climatic conditions. A typical example is the south of Germany. According to the Bayern Institute for Plant Protection LfL⁴, since 2005 it can be found in almost every maize field in Bavaria.

Also in Poland, maize is one of the most important crops with growing harvested area. In recent years, the economic importance of pests has been growing rapidly. The European corn borer is currently the most dangerous maize pest in Poland. In regions, where maize is intensively cultivated, larvae of this moth damage 50–80%, and locally up to 100% of plants⁵.

No trials are presented for the Maritime and North-East EPPO zones. Data generated in the most relevant maize production countries and where *O. nubilalis* pressure is known to be high were presented and claimed to support authorization in other zones.

The number of trials (2) carried out in the southeast EPPO zone in 2022 was understated according to the EPPO Standard PP 1/226 (*Number of efficacy trials*).
A two results provided cannot be used to determine the actual level of efficacy. It can be concluded that the data submitted by the applicant cannot be accepted. The applicant has not demonstrated efficacy against *Ostrinia nubilalis* on maize.

⁴ Available at <https://www.lfl.bayern.de/ips/blattfruechte/052075/index.php>

⁵ Bereś P. K., Kucharczyk H., and Górski D. 2016. Effects of insecticides used against the European corn borer on thrips abundance on maize. Plant Prot. Sci. 53: 44–49.

Minor use

Efficacy data from trials conducted on cereals (including the major crops winter wheat and winter barley) are deemed to be sufficient to cover the use also on the minor cereals as durum wheat, spelt, triticales and rye, as the pest biology, crop growth stage and interception at application is comparable.

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

GLOB2011I is an emulsifiable concentrate formulation (EC) containing the active ingredient pelargonic acid (650 g/L) for insect control on arable crops. The proposed maximum label rate is 2 L/ha in cereals, 1.5 L/ha on oilseed rape and potatoes and 3 L/ha on maize.

A resistance risk analysis is carried out in accordance with the EPPO guideline 1/213 (4).

Mode of action

Although the mechanisms behind the insecticidal effect of pelargonic acid are still not fully understood, it is proposed that it is associated with suffocation.

Pelargonic acid is a compound of natural occurrence in the environment, having rapid metabolism and degradation in soil. When used as herbicide, the mechanism of action is not completely defined. It appears that at high dose rates, the primary effect of the chemical is to affect a sudden drop in intra-cellular pH which in turn causes degradation of membranes and ultimately cell death.

Other fatty acids are known and currently authorized as contact insecticides. Mode of action and classification by IRAC is unknown (UNE - Botanical essence including synthetic, extracts and unrefined oils with unknown or uncertain MOA). They are believed to penetrate the external layers of the target pest, interacting with multiple vital metabolic processes.

Laboratory essays undertaken by the applicant indicate that the insecticidal effect of pelargonic acid is most likely due to corrosive damage to tissues of the respiratory system. Behavioral, morphological and gene expression experiments indicate the insects treated with pelargonic acid are expected to die from suffocation. We cannot exclude that damage to other tissues also adds to the toxic effect of pelargonic acid.

Evidence of resistance

There is no known resistance to pelargonic acid as an insecticide.

In addition, IRAC states that the use of non-specific mode of action products (like pelargonic acid) helps to prevent the development of resistance, being a tool for the resistance management.

Resistance cases involving the target pests of GLOB2011I are reported in the EPPO resistance cases database regarding other active substances than pelargonic acid. All cases regard the group of pyrethroids.

Country	MoA code	Chemical group(s)	Active substance(s)	Pest common name(s)	Mechanism of resistance	Details of the mechanism of resistance	Occurrence	Year of first detection	Resistance factor
Denmark	3A	Pyrethroids /Pyrethrins	Lambda-Cyhalothrin	Psylliodes chrysocephala	Target-site resistance (TSR)	Target-site mutation in the voltage-gated sodium channel gene, known as kdr (L1014F)	Very high	2014	Medium
Netherlands	3A	Pyrethroids /Pyrethrins	Acrinathrin, Allethrin, Beta-Cyfluthrin, Bifenthrin, Bioallethrin, Bioresmethrin, Cyfluthrin, Cyhalothrin, Cypermethrin, Deltamethrin, Esfenvalerate, Etofenprox, Fenpropathrin, Fenvalerate,	pollen beetle	Unknown	IRAC website - suspected metabolic resistance but not proven	Unknown	2008	Unknown

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Country	MoA code	Chemical group(s)	Active substance(s)	Pest common name(s)	Mechanism of resistance	Details of the mechanism of resistance	Occurrence	Year of first detection	Resistance factor
			Flucythrinate, Permethrin, Resmethrin, Silafluofen, Tefluthrin, Tetramethrin, Tralomethrin, Imiprothrin, Halfenprox, Gamma-Cyhalothrin, Flumethrin, Empenthrin (EZ)- (1R)- isomers], D-trans Allethrin, D-cis-trans Allethrin, Cycloprothrin, Bioallethrin S-cyclopentenyl isomer, Beta-Cypermethrin, Alpha-Cypermethrin, Cyphenothrin (1R)-trans-isomers], Zeta-Cypermethrin, Transfluthrin, Theta-cypermethrin, Tetramethrin [(1R)-isomers], Tau-Fluvalinate, Pyrethrins (pyrethrum), Prallethrin, Phenothrin [(1R)-trans- isomer], Lambda-Cyhalothrin, Kadethrin						
Belgium	3A	Pyrethroids /Pyrethrins	Cyhalothrin	pollen beetle	Unknown	IRAC website - suspected metabolic resistance but not proven	Very high	2007	High
France	3A	Pyrethroids /Pyrethrins	Acrinathrin, Allethrin, Beta-Cyfluthrin, Bifenthrin, Bioallethrin, Bioresmethrin, Cyfluthrin, Cyhalothrin, Cypermethrin, Deltamethrin, Esfenvalerate, Etofenprox, Fenpropathrin, Fenvalerate, Flucythrinate, Permethrin, Resmethrin, Silafluofen, Tefluthrin, Tetramethrin, Tralomethrin, Imiprothrin, Halfenprox,	Cabbage stem flea beetle	Both (TSR and NTSR)	detoxP450	Unknown	2010	High

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Country	MoA code	Chemical group(s)	Active substance(s)	Pest common name(s)	Mechanism of resistance	Details of the mechanism of resistance	Occurrence	Year of first detection	Resistance factor
			Gamma-Cyhalothrin, Flumethrin, Empenthrin (EZ)-(1R)- isomers], D-trans Allethrin, D-cis-trans Allethrin, Cycloprothrin, Bioallethrin S-cyclopentenyl isomer, Beta-Cypermethrin, Alpha-Cypermethrin, Cyphenothrin (1R)-trans-isomers], Zeta-Cypermethrin, Transfluthrin, Theta-cypermethrin, Tetramethrin [(1R)-isomers], Tau-Fluvalinate, Pyrethrins (pyrethrum), Prallethrin, Phenothrin [(1R)-trans- isomer], Lambda-Cyhalothrin, Kadethrin						
France	3A	Pyrethroids /Pyrethrins	Acrinathrin, Allethrin, Beta-Cyfluthrin, Bifenthrin, Bioallethrin, Bioresmethrin, Cyfluthrin, Cyhalothrin, Cypermethrin, Deltamethrin, Esfenvalerate, Etofenprox, Fenpropathrin, Fenvalerate, Flucythrinate, Permethrin, Resmethrin, Silafluofen, Tefluthrin, Tetramethrin, Tralomethrin, Imiprothrin, Halfenprox, Gamma-Cyhalothrin, Flumethrin, Empenthrin (EZ)-(1R)- isomers], D-trans Allethrin, D-cis-trans Allethrin, Cycloprothrin, Bioallethrin S-cyclopentenyl isomer, Beta-Cypermethrin, Alpha-Cypermethrin,	Pollen beetles	Both (TSR and NTSR)	detox P450	Unknown	1999	High

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Country	MoA code	Chemical group(s)	Active substance(s)	Pest common name(s)	Mechanism of resistance	Details of the mechanism of resistance	Occurrence	Year of first detection	Resistance factor
			Cyphenothrin [(1R)-trans-isomers], Zeta-Cypermethrin, Transfluthrin, Theta-cypermethrin, Tetramethrin [(1R)-isomers], Tau-Fluvalinate, Pyrethrins (pyrethrum), Prallethrin, Phenothrin [(1R)-trans-isomer], Lambda-Cyhalothrin, Kadethrin						
Germany	3A	Pyrethroids /Pyrethrins	Lambda-Cyhalothrin	Pollen beetle	Non-target-site resistance (NTSR)	metabolic resistance	Very high	2001	High
Denmark	3A	Pyrethroids /Pyrethrins	Tau-Fluvalinate, Lambda-Cyhalothrin	Pollen beetle	Target-site resistance (TSR)	Metabolic	Moderate	2001	Medium
France	3A	Pyrethroids /Pyrethrins	Deltamethrin, Lambda-Cyhalothrin	European corn borer	Both (TSR and NTSR)	Detoxification	Unknown	2009	Medium
Austria	3A	Pyrethroids /Pyrethrins	Lambda-Cyhalothrin	Colorado potato beetle	Target-site resistance (TSR)		High		High
Austria	3A	Pyrethroids /Pyrethrins	Lambda-Cyhalothrin	Pollen beetle	Non-target-site resistance (NTSR)	metabolic resistance	Very high	2006	High
United Kingdom	3A	Pyrethroids /Pyrethrins	Cypermethrin, Deltamethrin, Etofenprox, Alpha-Cypermethrin, Zeta-Cypermethrin, Tau-Fluvalinate, Lambda-Cyhalothrin	Pollen beetle	Non-target-site resistance (NTSR)	metabolic	Unknown	2006	Unknown
United Kingdom	3A	Pyrethroids /Pyrethrins	Acrinathrin, Allethrin, Beta-Cyfluthrin, Bifenthrin, Bioallethrin, Bioresmethrin, Cyfluthrin, Cyhalothrin, Cypermethrin, Deltamethrin, Esfenvalerate, Etofenprox, Fenpropathrin, Fenvalerate, Flucythrinate, Permethrin, Resmethrin, Silafluofen, Tefluthrin, Tetramethrin, Tralomethrin, Imiprothrin, Halfenprox, Gamma-	Grain aphid	Target-site resistance (TSR)	kdr	Unknown	2011	Unknown

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Country	MoA code	Chemical group(s)	Active substance(s)	Pest common name(s)	Mechanism of resistance	Details of the mechanism of resistance	Occurrence	Year of first detection	Resistance factor
			Cyhalothrin, Flumethrin, Empenthrin (EZ)-(1R)- isomers], D-trans Allethrin, D-cis-trans Allethrin, Cycloprothrin, Bioallethrin S-cyclopentenyl isomer, Beta-Cypermethrin, Alpha-Cypermethrin, Cyphenothrin (1R)-trans-isomers], Zeta-Cypermethrin, Transfluthrin, Theta-cypermethrin, Tetramethrin [(1R)-isomers], Tau-Fluvalinate, Pyrethrins (pyrethrum), Prallethrin, Phenothrin [(1R)-trans- isomer], Lambda-Cyhalothrin, Kadethrin						
United Kingdom	3A	Pyrethroids /Pyrethrins	Beta-Cyfluthrin, Cypermethrin, Deltamethrin, Alpha-Cypermethrin, Zeta-Cypermethrin, Tau-Fluvalinate, Lambda-Cyhalothrin	Stem flea beetle	Non-target-site resistance (NTSR)	metabolic (undefined), and target side resistance (kdr)	Unknown	2014	Unknown
Switzerland	3A	Pyrethroids /Pyrethrins	Cypermethrin, Deltamethrin, Alpha-Cypermethrin, Zeta-Cypermethrin, Lambda-Cyhalothrin	Pollen beetle	Non-target-site resistance (NTSR)	Metabolic	High	2001	High
Norway	3A	Pyrethroids /Pyrethrins	Lambda-Cyhalothrin	Pollen beetle, Brassicogethes viridescens, Meligethes sp., Pollenia sp.	Unknown		Unknown	2007	Variable
Germany	3A	Pyrethroids /Pyrethrins	Lambda-Cyhalothrin	Stem flea beetle	Target-site resistance (TSR)	target side resistance (kdr)	Moderate	2004	Medium
Germany	3A	Pyrethroids /Pyrethrins	Etofenprox, Tau-Fluvalinate	Pollen beetle	Non-target-site resistance (NTSR)	metabolic resistance	High	2008	Medium
Germany	3A	Pyrethroids /Pyrethrins	Lambda-Cyhalothrin	English grain aphid	Target-site resistance (TSR)	target side resistance (kdr), metabolic resistance	Isolated cases	2014	Low
Germany	3A	Pyrethroids /Pyrethrins	Lambda-Cyhalothrin	Colorado potato beetle	Target-site resistance (TSR)	target side resistance (kdr)	High	2015	High

Cross-resistance

No cross resistance of pelargonic acid to any of the other insecticide is known.

Sensitivity data

No studies on baseline sensitivity data are available to the applicant.

Use pattern

The use pattern is detailed in the GAP table: maximum 2 applications per season with 14 days interval are to be made and started at insect appearance.

Resistance risk assessment of unrestricted use pattern & Acceptability of the resistance risk

The insecticidal activity of pelargonic acid implies the direct inhibition of a target pest. Therefore, the risk to develop resistance to pelargonic acid is considered to be very low, since no inheritable target site modifications are directly involved in the pest/PPP interaction.

Considering that the product can be used in an IPM strategy and that according to IRAC, non-specific Modes of Action are good resistance management tools and that resistance is evolving in most target pests of GLOB2011I specially to pyrethroids, GLOB2011I can be a valid alternative with low risks.

Based on this information, it is considered that the risk of resistance development to GLOB2011I is negligible for all targets.

Management strategy

In view of the very low risk, it is considered that no specific resistance risk management should be followed for GLOB2011I. However, sequences of insecticides with differing modes of action are important specially to prevent or overcome resistance based on target site differences. Crop rotations may allow different insecticides or cultivation techniques to be used.

Proposed resistance management strategy

The main resistance management strategies currently recommended are: monitoring the field regularly, follow the conditions indicated in the product label (do not apply at a rate higher or lower than the recommended rate or too early or too late), integrating chemical and agronomical methods, rotating crops. Wherever feasible, several strategies should be used together.

Thus the proposed resistance strategy should follow the general principles of insect resistance management: (source: IRAC website):

1. Consult an advisor for insecticide resistance management and IPM strategies.
2. Before planting, consider the options for minimizing insecticide use by selecting early maturing varieties or varieties that are resistant to insect attack.
3. Consider an integrated approach incorporating as many different control mechanisms as possible.
4. Where possible, control strategies should include beneficial insects. Apply insecticides of the same mode of action group within a window to avoid exposure of consecutive insect pest generations to the same mode of action. If feasible, rotate products from different classes from year to year to reduce selection pressure when only one application is being made. Use label rates and spray intervals. Use optimal spray volume, maintain, and calibrate spray equipment

5. Regularly monitor fields to identify pests and natural enemies, estimate insect populations and track stage of development. Time applications against the most susceptible life stages to gain maximum benefit from the product.
6. At the end of the season remove crop residues, as appropriate, to eliminate food sources and overwintering habitats for pests. Consider next years IPM/Insecticide Resistance Management plans while planning and preparing for next year's crops.
7. Prevention is the best strategy, but if you suspect resistance, first eliminate other possible causes. In many instances, lack of control can be attributed to application error, equipment failure, or less-than-optimal environmental conditions. If these possibilities have been ruled out, work with local agricultural advisors and the manufacturer to confirm actual resistance to the compound applied. In the event of a control failure due to resistance, do not repeat the application with an insecticide of the same chemical class.

Conclusion - Resistance risk assessment

GLOB2011I is an emulsifiable concentrate formulation (EC) containing the active ingredient pelargonic acid (650 g/L) for insect control on arable crops. The proposed maximum label rate is 2 L/ha in cereals, 1.5 L/ha on oilseed rape and potatoes and 3 L/ha on maize. The applicant has stated that in most crops the product will not be used more than twice a season. No known cases of resistance to pelargonic acid as an insecticide have been recorded. The risk to develop resistance to pelargonic acid is considered to be low, since no inheritable target site modifications are directly involved in the pest/PPP interaction. The resistance risk is considered acceptable.

3.4 Adverse effects on treated crops (KCP 6.4)

According to EPPO PP 1/135(3), for non-systemic insecticides, observations for phytotoxic effects including those on quantity and quality of the yield should be made in the direct efficacy (effectiveness) trials. The efficacy trials are described above in 3.2.3 (KCP 6.2), with information on trial distribution, methodology and reference standards.

Specific selectivity trials are also presented on certain cereals and oilseed rape.

Information on specific selectivity trials submitted is presented in the tables below. The trials were carried out by officially recognised organisations in accordance with the principles of Good Experimental Practice.

Table 3.4-1 Presentation of selectivity trials on cereals

Crop	Country	Years	Type of trial**	Number of trials				GEP, non-GEP, official***
				Marit. zone	North-East zone	South-East zone	Medit. Zone	
SECCW		2022	S		2			GEP
TTLWI		2022	S		2			GEP
BRSNW		2022	S	1	1			GEP
Overall total				1	5	-	-	

** S= selectivity trial, Y= trial with yield assessment, Q= trial with quality assessment

Both the highest target dose and the double dose rate of GLOB2011I were tested. Information on trial methodology is summarized below for each crop group and EPPO climatic zones. Trial site information and application details are presented in Appendix 3 of the Biological Assessment Dossier. No reference insecticides were applied as those are not expected to elicit phytotoxicity.

Trial methodology

Table 3.4-2 Details on trial methodology from selectivity trials on cereals – North-East EPPO zone

Guidelines	General guidelines	PP 1/135(4), EPPO PP 1/152 (4), PP 1/181(4)
	Specific guidelines	-
Experimental design	Plot design	RCBD (4)
	Plot size	12 m ²
	Number of replications	4 (4)
Crop	Trials per crop	SECCW (2); TTLWI (2)
	Varieties per crop	SECCW: Dańkowskie Diament; TUR; TTLWI: TADEUS; ROTONDO
	Sowing period	SECCW: 15/09; TTLWI: 27/09
Application	Crop stage (BBCH) at application	SECCW: 51, 69; TTLWI: 51, 69
	Timing	
	Pest stage at application	pest-free
	Number of applications	2 (4 trials)
	Intervals between applications	14-14
Assessment	Spray volumes	200 L/ha
	Assessment types	PHYGEN = phytotoxicity - general / injury PHYNLS = phytotoxicity - necrosis, leaf spot
Other relevant information	Assessment dates	7, 14 days after each application
	Soil types	sandy loam
	Natural / artificial inoculation...	-
	Field / Greenhouse...	Field

Table 3.4-3 Details on trial methodology from selectivity trials on oilseed rape – Maritime and North-East EPPO zone

Guidelines	General guidelines	PP 1/135(4), EPPO PP 1/152 (4), PP 1/181(4)
	Specific guidelines	-
Experimental design	Plot design	RCBD (2)
	Plot size	15 m ²
	Number of replications	4 (2)
Crop	Trials per crop	BRSNW (2 – 1 Mar. zone, 1 N-E zone)
	Varieties per crop	RAP601; MURPHY
	Sowing period	13-15/07
Application	Crop stage (BBCH) at application	10 & 14 (timing AB) or 12 timing (C)
	Timing	
	Pest stage at application	pest free
	Number of applications	1 or 2 (2 trials)
	Intervals between applications	14
Assessment	Spray volumes	200 L/ha
	Assessment types	PHYGEN = phytotoxicity - general / injury PHYBLE = phytotoxicity - bleaching PHYNEC = phytotoxicity - necrosis PHYCHL = phytotoxicity - chlorosis
	Assessment dates	7, 14 days after each application
Other relevant information	Soil types	silt loam; sandy loam
	Natural / artificial inoculation...	-
	Field / Greenhouse...	Field

Data are gathered per EPPO Zone. Trials performed in the Maritime EPPO Zone have their trial number highlighted in blue, but the ones which are also valid for Poland (Czech and German trials) are dark blue. Trials performed in the North-East EPPO Zone have their trial numbers marked in yellow, in Mediterranean zone marked in green and in the South-East EPPO zone are marked in amber as shown below.

Results from trials conducted in Poland were combined with the results of the German and Czech trials since these are neighbouring countries and considered as valid to the cMS Poland. The combined results, or reference to such results, are thus shown below under the North-East EPPO zone section.

Maritime EPPO Zone
Czech and German trials (Maritime EPPO Zone), valid for Poland
North-East EPPO Zone
Mediterranean EPPO Zone
South-East EPPO Zone

3.4.1 Phytotoxicity to host crop (KCP 6.4.1)

The phytotoxicity of GLOB2011I was assessed according to EPPO PP 1/135 (4). This guideline states that for insecticides observations for phytotoxic effects should be made in the direct efficacy (effectiveness) trials at the N dose rate. Consequently, reference is made to the efficacy trials (KCP 6.2). Given the known uses of the active substance as an herbicide, a 2N dose rate was included in most of the efficacy trials and the effect on yield was also investigated in part of the efficacy trials presented in section 3.2, including 2N dose rates. In addition, some specific selectivity trials were set up on cereals and oilseed rape.

It's known from experience that pelargonic acid has herbicidal properties at much higher rates. To avoid the risk of phytotoxicity when used as an insecticide, even at low rates, the applicant proposed the following sentence to be inserted on the label: *avoid spray overlaps*.

Cereals - Spring application

In total, 4 specific selectivity trials (North-east EPPO zone) and 17 efficacy trials were submitted for the use on cereals with spring applications. These trials were carried out between 2020 and 2022 by GEP certified research institutions in the Czech Republic, Germany, the Netherlands (in total 5 trials belonging to the Maritime EPPO Zone), in Poland (2 trials belonging to the North-East EPPO Zone), in Serbia and Bulgaria (3 trials belonging to the South-East EPPO Zone), as well as in Croatia, Italy and Spain (7 trials belonging to the Mediterranean EPPO Zone) on a wide range of commercially grown varieties. Reference products applied at label rate are presented in section 3.2.3.

Given the known uses of the active substance as an herbicide, further to the proposed rates of 1.5-2 L/ha (N) a 2N dose rate or higher was included in 11 of the efficacy trials at 4 L/ha (2N+).

In the selectivity trials GLOB2011I was applied to rye and triticale (2 trials each) to confirm selectivity also towards these cereals, with 2 applications at the rates of 2 (N) and 4 L/ha (2N). No reference insecticides were applied as those are not expected to elicit phytotoxicity.

Maritime EPPO Zone

Table 3.4-4 Phytotoxicity of GLOB2011I in cereals (winter wheat): highest phytotoxicity and phytotoxicity at final assessment - Maritime EPPO Zone

Number of trials with...		Efficacy trials (4)			
		GLOB2011I			Reference
		N (1.5 L/ha)	N (2 L/ha)	2N+ (4L/ha – 3 trials)	N
Maximum of phytotoxicity recorded during the trials	0% to 5%	4	4	3	4
	>5% to 10%				
	>10% to 15%				
	>15 %				
Level of symptoms at the last assessments	0% to 5%	4	4	3	4
	>5% to 10%				
	>10% to 15%				
	>15 %				

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Table 3.4-5 Phytotoxicity of GLOB2011I in cereals (spring wheat): highest phytotoxicity and phytotoxicity at final assessment - Maritime EPPO Zone

Number of trials with...		Efficacy trials (1)			
		GLOB2011I			Reference
		N (1.5 L/ha)	N (2 L/ha)	2N+ (4L/ha – x trials)	N
Maximum of phytotoxicity recorded during the trials	0% to 5%	1	1	1	1
	>5% to 10%				
	>10% to 15%				
	>15 %				
Level of symptoms at the last assessments	0% to 5%	1	1	1	1
	>5% to 10%				
	>10% to 15%				
	>15 %				

No phytotoxicity symptom caused by GLOB2011I at the proposed rates of 1.5-2 L/ha neither at the double rate was recorded in all trials.

Reference is also made to the results of 2 trials on rye and 2 trials on triticale presented below for the North-East EPPO zone where no negative symptoms were observed.

It can be concluded that the product is safe towards cereals when applied according to label recommendations.

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North-East EPPO Zone

Specific selectivity trials on SECCW and TTLWI

KCP	Crop Code	Variety	Rating Date	Rating Type	Crop BBCH at ass.	Trt-Eval Interval	Crop BBCH at appl.	UNTREATED assessed value	SNK	GLOB2011I 650 g/L EC 2 l/ha 1300 g as/ha	GLOB2011I 650 g/L EC 4 l/ha 2600 g as/ha
KCP 6.4-01	SECCW	Dańkowskie Diamant	13/05/22	PHYGEN	59	7 DA-A	51	0	b	0.3 b	2.3 a
			20/05/22	PHYGEN	65	14 DA-A	51	0	b	0.3 b	2 a
			27/05/22	PHYGEN	69	7 DA-B	51	0	-	0.7 -	1 -
			03/06/22	PHYGEN	73	14 DA-B	51	0	-	0 -	0.3 -
			13/05/22	PHYNLS	59	7 DA-A	51	0	b	0.3 b	2.3 a
			20/05/22	PHYNLS	65	14 DA-A	51	0	b	0.3 b	2 a
			27/05/22	PHYNLS	69	7 DA-B	51	0	-	0.7 -	1.3 -
KCP 6.4-02	SECCW	TUR	03/06/22	PHYNLS	73	14 DA-B	51	0	-	0 -	0.3 -
			01/06/22	PHYGEN	69	7 DA-A	69	0	b	1.7 ab	5 a
			08/06/22	PHYGEN	73	14 DA-A	69	0	b	1.3 a	2 a
			15/06/22	PHYGEN	75	7 DA-B	69	0	b	0.7 ab	2 a
			22/06/22	PHYGEN	83	14 DA-B	69	0	-	0.3 -	0.3 -
			01/06/22	PHYNLS	69	7 DA-A	69	0	b	1.7 ab	5 a
			08/06/22	PHYNLS	73	14 DA-A	69	0	b	1.3 a	2 a
KCP 6.4-03	TTLWI	TADEUS	15/06/22	PHYNLS	75	7 DA-B	69	0	b	0.7 ab	2 a
			22/06/22	PHYNLS	83	14 DA-B	69	0	-	0.3 -	0.3 -
			23/05/22	PHYGEN	51	7 DA-A	51	0	-	0.3 -	1.3 -
			30/05/22	PHYGEN	65	14 DA-A	51	0	b	0.3 b	2.7 a
			06/06/22	PHYGEN	69	7 DA-B	51	0	b	3 a	5 a
			13/06/22	PHYGEN	73	14 DA-B	51	0	b	2.3 ab	4.3 a
			23/05/22	PHYNLS	51	7 DA-A	51	0	-	0.3 -	1.3 -
KCP 6.4-04	TTLWI	ROTONDO	30/05/22	PHYNLS	65	14 DA-A	51	0	b	0.3 b	2.3 a
			06/06/22	PHYNLS	69	7 DA-B	51	0	b	3 a	5 a
			13/06/22	PHYNLS	73	14 DA-B	51	0	b	2.3 ab	4.3 a
			08/06/22	PHYGEN	69	7 DA-A	69	0	b	1.7 b	4.3 a
			15/06/22	PHYGEN	73	14 DA-A	69	0	-	0 -	1.3 -
			22/06/22	PHYGEN	75	7 DA-B	69	0	c	1.3 b	2.7 a
			29/06/22	PHYGEN	77	14 DA-B	69	0	-	0.7 -	1.3 -
			08/06/22	PHYNLS	69	7 DA-A	69	0	b	1.7 b	4.3 a
			15/06/22	PHYNLS	73	14 DA-A	69	0	-	0 -	1.3 -
			22/06/22	PHYNLS	75	7 DA-B	69	0	c	1.3 b	2.7 a
			29/06/22	PHYNLS	77	14 DA-B	69	0	-	0.7 -	1.3 -

PHYGEN = phytotoxicity - general / injury

PHYNLS = phytotoxicity - necrosis, leaf spot

Efficacy trials on TRZAW with spring application

Table 3.4-6 Phytotoxicity of GLOB2011I in cereals (winter wheat): highest phytotoxicity and phytotoxicity at final assessment - North-East EPPO Zone

Number of trials with...		Efficacy trials (2)			
		GLOB2011I			Reference
		N (1.5 L/ha)	N (2 L/ha)	2N+ (4L/ha)	N
Maximum of phytotoxicity recorded during the trials	0% to 5%	2	2	2	2
	>5% to 10%				
	>10% to 15%				
	>15 %				
Level of symptoms at the last assessments	0% to 5%	2	2	2	2
	>5% to 10%				
	>10% to 15%				
	>15 %				

No phytotoxicity symptom caused by GLOB2011I at the proposed rates of 1.5-2 L/ha neither at the double rate was recorded in all trials.

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Reference is also made to the results of 3 trials on winter wheat and 1 trial on spring wheat presented above for the Maritime EPPO zone, conducted in Czech Republic and Germany, neighboring countries and considered as valid to the cMS Poland where no negative symptoms were observed.

It can be concluded that the product is safe towards cereals when applied according to label recommendations.

South-East EPPO Zone

In the South-East EPPO zone no 2N rate was tested in efficacy trials.

Table 3.4-7 **Phytotoxicity of GLOB2011I in cereals (winter wheat): highest phytotoxicity and phytotoxicity at final assessment - South-East EPPO Zone**

Number of trials with...		Efficacy trials (2)		
		GLOB2011I		Reference
		N (1.5 L/ha)	N (2 L/ha)	N
Maximum of phytotoxicity recorded during the trials	0% to 5%	2	2	2
	>5% to 10%			
	>10% to 15%			
	>15 %			
Level of symptoms at the last assessments	0% to 5%	2	2	2
	>5% to 10%			
	>10% to 15%			
	>15 %			

Table 3.4-8 **Phytotoxicity of GLOB2011I in cereals (spring wheat): highest phytotoxicity and phytotoxicity at final assessment - South-East EPPO Zone**

Number of trials with...		Efficacy trials (1)		
		GLOB2011I		Reference
		N (1.5 L/ha)	N (2 L/ha)	N
Maximum of phytotoxicity recorded during the trials	0% to 5%	-	1	1
	>5% to 10%			
	>10% to 15%			
	>15 %			
Level of symptoms at the last assessments	0% to 5%	-	1	1
	>5% to 10%			
	>10% to 15%			
	>15 %			

No phytotoxicity symptom caused by GLOB2011I at the proposed rates of 1.5-2 L/ha was recorded in all trials.

It can be concluded that the product is safe towards cereals when applied according to label recommendations.

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Mediterranean EPPO Zone

Table 3.4-9 Phytotoxicity of GLOB2011I in cereals (winter wheat): highest phytotoxicity and phytotoxicity at final assessment - Mediterranean EPPO Zone

Number of trials with...		Efficacy trials (5)			
		GLOB2011I			Reference
		N (1.5 L/ha)	N (2 L/ha)	2N+ (4L/ha – 3 trials)	N
Maximum of phytotoxicity recorded during the trials	0% to 5%	5	4		5
	>5% to 10%		1		
	>10% to 15%			1	
	>15 %			2	
Level of symptoms at the last assessments	0% to 5%	5	5	1	5
	>5% to 10%				
	>10% to 15%				
	>15 %			2	

Table 3.4-10 Phytotoxicity of GLOB2011I in cereals (winter durum wheat): highest phytotoxicity and phytotoxicity at final assessment - Mediterranean EPPO Zone

Number of trials with...		Efficacy trials (2)		
		GLOB2011I		Reference
		N (1.5 L/ha)	N (2 L/ha)	N
Maximum of phytotoxicity recorded during the trials	0% to 5%	2	2	2
	>5% to 10%			
	>10% to 15%			
	>15 %			
Level of symptoms at the last assessments	0% to 5%	2	2	2
	>5% to 10%			
	>10% to 15%			
	>15 %			

No phytotoxicity symptom caused by GLOB2011I at the maximum proposed dose rates of 1.5-2 L/ha was recorded in the vast majority of trials.

In 3 trials where a maximum double rate of 4 L/ha was tested on soft wheat, some symptoms as bleaching and necrosis were observed at the double rate of 4 L/ha and remained at the last assessment timing in 2 trials. Trial KCP 6.2-08 var. Bologna had first application at BBCH , KCP 6.2-09 var. Altavista at BBCH 77 and KCP 6.2-12 var. Panda at BBCH 65.

It's worthy to mention that assessments were performed only up to 7 days after 1 or 2 applications and likely the effect disappeared in time as yield, assessed in trial KCP 6.2-12 revealed no negative effect, on the contrary, an increase of 8 to 10% and comparable to plots with no symptoms.

It can be concluded that the product is safe towards cereals when applied according to label recommendations.

Conclusion

It can be concluded that GLOB2011I at the maximum proposed dose rate of 2 L/ha has no phytotoxic effects on cereals when applied in spring according to label recommendations and avoiding spray overlaps.

Extrapolation of results achieved

No specific crop safety extrapolation tables are proposed for the target crops of this submission, as referred to PP1/257(2) - Efficacy and crop safety extrapolations for minor uses. Nevertheless, a sound data set has been provided on major crops as winter wheat and winter barley (see below autumn application) as well as confirmatory data on spring wheat, spring barley, rye and triticale. Therefore, extrapolation regarding crop safety is claimed to all spring and winter forms of crops requested on the table “All intended uses” in Part B - Section 0.

Cereals - Autumn application

In total, 21 efficacy trials were submitted for the use on cereals with autumn applications. These trials were carried out between 2020 and 2022 by GEP certified research institutions in the Czech Republic, Germany, the northern part of France, the United Kingdom and the Netherlands (in total 12 trials belonging to the Maritime EPPO Zone), in Poland (1 trial belonging to the North-East EPPO Zone), as well as in Croatia, southern part of France, Italy and Spain (8 trials belonging to the Mediterranean EPPO Zone) on a wide range of commercially grown varieties. Reference products applied at label rate are presented in section 3.2.3.

Maritime EPPO Zone

From the 12 trials belonging to the Maritime EPPO Zone, 11 were performed in winter barley with N and 2N rates and one on winter soft wheat with no 2 N rate.

Table 3.4-11 **Phytotoxicity of GLOB2011I in cereals (winter wheat): highest phytotoxicity and phytotoxicity at final assessment - Maritime EPPO Zone**

Number of trials with...		Efficacy trials (1)		
		GLOB2011I		Reference
		N (1.5 L/ha)	N (2 L/ha)	N
Maximum of phytotoxicity recorded during the trials	0% to 5%	1	1	1
	>5% to 10%			
	>10% to 15%			
	>15 %			
Level of symptoms at the last assessments	0% to 5%	1	1	1
	>5% to 10%			
	>10% to 15%			
	>15 %			

Table 3.4-12 **Phytotoxicity of GLOB2011I in cereals (winter barley): highest phytotoxicity and phytotoxicity at final assessment - Maritime EPPO Zone**

Number of trials with...		Efficacy trials (11)		
		GLOB2011I		
		N (1.5 L/ha)	N (2 L/ha)	2N+ (4L/ha)
Maximum of phytotoxicity recorded during the trials	0% to 5%	11	10	6
	>5% to 10%		1	1
	>10% to 15%			
	>15 %			4
Level of symptoms at the last assessments	0% to 5%	11	11	9
	>5% to 10%			
	>10% to 15%			
	>15 %			2

No phytotoxicity symptom caused by GLOB2011I at the maximum proposed dose rates of 1.5-2 L/ha was recorded in the vast majority of trials. Light symptoms were observed in one trial at 2 L/ha but these disappeared already some days after the 2nd application.

In 5 trials, symptoms as necrosis, bleaching, thinning or chlorosis were observed at the maximum double rate of 4 L/ha on winter barley and tended to disappear at the last assessment timing. No yield was assessed

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in autumn application trials. Varieties concerned were Rumcajs, Yatzy, Zoro, KWS Faro AND Kingsbarn. BBCH at first application was 11-13. It's worthy to mention that assessments were performed only up to 8 days after 2nd application at the time of writing. In only 2 of these trials an assessment during regrowth time in spring was already performed and symptoms totally disappeared.

It can be concluded that the product is safe towards cereals when applied according to label recommendations and avoiding spray overlaps.

North-East EPPO Zone

Table 3.4-13 Phytotoxicity of GLOB2011I in cereals (winter barley): highest phytotoxicity and phytotoxicity at final assessment - North-East EPPO Zone

Number of trials with...		Efficacy trials (1)			
		GLOB2011I			Reference
		N (1.5 L/ha)	N (2 L/ha)	2N+ (4L/ha)	N
Maximum of phytotoxicity recorded during the trials	0% to 5%	1	1		1
	>5% to 10%			1	
	>10% to 15%				
	>15 %				
Level of symptoms at the last assessments	0% to 5%	1	1	1	1
	>5% to 10%				
	>10% to 15%				
	>15 %				

In 1 efficacy trial with 1st application at BBCH 12 on var. KWS KOSMOS, light phytotoxic effects were observed only at the maximum double rate of 4 L/ha, specified as necrosis, but these disappeared at the end of the trial.

Reference is also made to the results of 8 trials presented above for the Maritime EPPO zone, conducted in Czech Republic and Germany, neighboring countries and considered as valid to the cMS Poland where no significant symptoms were observed.

It can be concluded that the product is safe towards cereals when applied according to label recommendations and avoiding spray overlaps.

South-East EPPO Zone

No trials were performed on cereals with autumn application in this zone.

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Mediterranean EPPO Zone

Table 3.4-14 **Phytotoxicity of GLOB2011I in cereals (winter barley): highest phytotoxicity and phytotoxicity at final assessment - Mediterranean EPPO Zone**

Number of trials with...		Efficacy trials (8)			
		GLOB2011I			Reference
		N (1.5 L/ha)	N (2 L/ha)	2N+ (4L/ha)	N
Maximum of phytotoxicity recorded during the trials	0% to 5%	7	6	3	8
	>5% to 10%			3	
	>10% to 15%	1	2	1	
	>15 %			1	
Level of symptoms at the last assessments	0% to 5%	8	6	3	8
	>5% to 10%		1	4	
	>10% to 15%		1		
	>15 %			1	

No phytotoxicity symptom caused by GLOB2011I at the maximum proposed dose rates of 1.5-2 L/ha was recorded in the vast majority of trials. Light symptoms were observed in 2 trials at up to 2 L/ha, disappearing already some days after the 2nd application when applied at 1.5 L/ha.

In 5 trials, symptoms as necrosis or chlorosis were observed at the maximum double rate of 4 L/ha on winter barley and remained at the last assessment timing. No yield was assessed in autumn application trials. Varieties concerned were Margaux, Idra, Meseta, Cometa. BBCH at first application was 11-23. It's worthy to mention that assessments were performed only up to 8 days after 2nd application at the time of writing. In only one of these trials an assessment during regrowth time in spring was already performed and symptoms were reduced.

It can be concluded that the product is safe towards cereals when applied according to label recommendations and avoiding spray overlaps.

Conclusion

In conclusion it can be observed that transient phytotoxic effects could be observed on cereals but rarely and at low levels at the proposed rates. It can be concluded that GLOB2011I at the maximum proposed dose rate of 2 L/ha has no phytotoxic effects on cereals. In autumn applications at early BBCH stages, it is recommended to avoid spray overlaps.

Extrapolation of results achieved

No specific crop safety extrapolation tables are proposed for the target crops of this submission, as referred to PP1/257(2) - Efficacy and crop safety extrapolations for minor uses. Nevertheless, a sound data set has been provided on major crops as winter wheat (spring applications) and winter barley as well as confirmatory data on spring wheat, spring barley, rye and triticale (spring applications). Therefore, extrapolation regarding crop safety is claimed to all spring and winter forms of crops requested on the table "All intended uses" in Part B - Section 0.

Oilseed rape

In total, 2 specific selectivity trials (1 in Maritime zone and 1 in North-east EPPO zone) and 58 efficacy trials evaluated the adverse effects on oilseed rape (15 trials in the Maritime, 7 in the North-East, 1 in the South-east and 14 in the Mediterranean EPPO zones for autumn applications in crop early stages and 9 trials in the Maritime, 5 in the North-East, 1 in the South-east and 6 in the Mediterranean EPPO zones). Trials were carried out between 2020 and 2022 on a wide range of commercially grown varieties.

In the selectivity trials GLOB2011I was applied as a worst case situation to plantlets, with 2 applications being the first one at BBCH 10 and second one after 14 days or once at BBCH 12 at the rates of 1.5 (N) and 3 L/ha (2N). No reference insecticides were applied as those are not expected to elicit phytotoxicity.

As GLOB2011I has also herbicidal properties, there could be an additional effect at the early post-emergence of the crop. The same trials tested also a mixture with the herbicide Butisan Gold (composed of 3 different active ingredients, dimethenamid-P, metazachlor and quinmerac).

In the efficacy trials, GLOB2011I was applied according to different GAP proposed uses, either with early autumn application, either spring applications. A double dose rate was always included to check for phytotoxicity.

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Specific selectivity trials on BRSNW with application to plantlets

KCP	Variety	Rating Date	Rating Type	Crop BBCH at ass.	Trt-Eval Interval	Days After Emergence	Crop BBCH at appl.	UNTREATED	GLOBAL2011I	GLOBAL2011I	GLOBAL2011I	GLOBAL2011I	GLOBAL2011I + Butisan Gold	GLOBAL2011I + Butisan Gold
								assessed SNK value	650 g/L EC 1.5 l/ha 975 g as/ha	650 g/L EC 1.5 l/ha 975 g as/ha	650 g/L EC 3 l/ha 1950 g as/ha	650 g/L EC 3 l/ha 1950 g as/ha	650 g/L EC 1.5l/ha 2.5l/ha 975 g as/ha 1250 g as/ha	650 g/L EC 1.5l/ha 2.5l/ha 975 g as/ha 1250 g as/ha
									A(BBCH 10) + B 14d	C = Crop BBCH 12	A(BBCH 10) + B 14d	C = Crop BBCH 12	GLOBAL2011I at A(BBCH 10) + B 14d Butisan Gold only at A	C = Crop BBCH 12
KCP 6.4-05	RAP601	02/08/22	PHYGEN	12	7 DA-A	13 DE-1	10	0 -	0 -	0 -	0 -	0 -	0 -	0 -
		02/08/22	PHYBLE	12	7 DA-A	13 DE-1	10	0 -	0 -	0 -	0 -	0 -	0 -	0 -
		02/08/22	PHYNEC	12	7 DA-A	13 DE-1	10	0 -	0 -	0 -	0 -	0 -	0 -	0 -
		09/08/22	PHYGEN	14	7 DA-C	20 DE-1	10	0 d	0 d	2.3 c	0 d	6.3 a	0 d	3.7 b
		09/08/22	PHYBLE	14	7 DA-C	20 DE-1	10	0 -	0 -	0 -	0 -	0 -	0 -	0 -
		09/08/22	PHYNEC	14	7 DA-C	20 DE-1	10	0 d	0 d	2.3 c	0 d	6.3 a	0 d	3.7 b
		16/08/22	PHYGEN	16	7 DA-B	27 DE-1	10	0 d	2.7 b	2 bc	6 a	2 bc	3 b	2 bc
		16/08/22	PHYNEC	16	7 DA-B	27 DE-1	10	0 c	2.7 b	1 c	6 a	1 c	3 b	1 c
		16/08/22	PHYCHL	16	7 DA-B	27 DE-1	10	0 -	0 -	1 -	0 -	1 -	0 -	1 -
		24/08/22	PHYGEN	17	15 DA-B	35 DE-1	10	0 d	1.3 bc	1.3 bc	3 a	1 bc	2.7 a	1.3 bc
		24/08/22	PHYNEC	17	15 DA-B	35 DE-1	10	0 c	1 b	1 b	2 a	1 b	1.3 b	1 b
		24/08/22	PHYCHL	17	15 DA-B	35 DE-1	10	0 b	0.3 b	0.3 b	1.7 a	0 b	1.3 ab	0.3 b

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Table 3.4-15 Phytotoxicity of GLOB2011I in oilseed rape: highest phytotoxicity and phytotoxicity at final assessment - Maritime EPPO Zone

Efficacy trials on BRSNS with spring application (BBCH 39)

Number of trials with...		Efficacy trials (1)		
		GLOB2011I		Reference
		N	2N	N
Maximum of phytotoxicity recorded during the trials	0% to 5%	1		1
	>5% to 10%		1	
	>10% to 15%			
	>15 %			
Level of symptoms at the last assessments	0% to 5%	1	1	1
	>5% to 10%			
	>10% to 15%			
	>15 %			

Efficacy trials on BRSNW with spring application (BBCH 52-65)

Number of trials with...		Efficacy trials (8)		
		GLOB2011I		Reference
		N	2N	N
Maximum of phytotoxicity recorded during the trials	0% to 5%	8	8	8
	>5% to 10%			
	>10% to 15%			
	>15 %			
Level of symptoms at the last assessments	0% to 5%	8	8	8
	>5% to 10%			
	>10% to 15%			
	>15 %			

Efficacy trials on BRSNW with autumn application (BBCH 10-16)

Number of trials with...		Efficacy trials (15)		
		GLOB2011I		Reference
		N	2N	N
Maximum of phytotoxicity recorded during the trials	0% to 5%	15	10	15
	>5% to 10%		2	
	>10% to 15%			
	>15 %		3	
Level of symptoms at the last assessments	0% to 5%	15	11	15
	>5% to 10%		2	
	>10% to 15%			
	>15 %		2	

No phytotoxicity symptom caused by GLOB2011I at the maximum proposed dose rate of 1.5 L/ha was recorded in all trials.

In 5 out of 15 efficacy trials with autumn applications at crop early stages, some phytotoxic effects were observed only at the 2N dose (3 L/ha), specified as necrosis, bleaching, depression and deformation, and mostly remained at the last assessment timing. It's worthy to mention that assessments were performed maximum up to 3 weeks after the last application and could recover with crop development.

It can be concluded that the product is safe towards oilseed rape when applied according to label recommendations and avoiding spray overlaps.

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North-East EPPO Zone

Specific selectivity trials on BRSNW with application to plantlets

KCP	Variety	Rating Date	Rating Type	Crop BBCH at ass.	Trt-Eval Interval	Days After Emergence	Crop BBCH at appl.	UNTREATED	GLOB2011I	GLOB2011I	GLOB2011I	GLOB2011I	GLOB2011I + Butisan Gold	GLOB2011I + Butisan Gold
								assessed SNK value	650 g/L EC 1.5 l/ha 975 g as/ha A(BBCH 10) + B 14d	650 g/L EC 1.5 l/ha 975 g as/ha C = Crop BBCH 12	650 g/L EC 3 l/ha 1950 g as/ha A(BBCH 10) + B 14d	650 g/L EC 3 l/ha 1950 g as/ha C = Crop BBCH 12	650 g/L EC 500 g/L SE 2.5l/ha 1250 g as/ha GLOB2011I at A(BBCH 10) + B 14d Butisan Gold only at A	650 g/L EC 500 g/L SE 2.5l/ha 1250 g as/ha C = Crop BBCH 12
KCP 6.4-05*	RAP601	02/08/22	PHYGEN	12	7 DA-A	13 DE-1	10	0 -	0 -	0 -	0 -	0 -	0 -	0 -
		02/08/22	PHYBLE	12	7 DA-A	13 DE-1	10	0 -	0 -	0 -	0 -	0 -	0 -	0 -
		02/08/22	PHYNEC	12	7 DA-A	13 DE-1	10	0 -	0 -	0 -	0 -	0 -	0 -	0 -
		09/08/22	PHYGEN	14	7 DA-C	20 DE-1	10	0 d	0 d	2.3 c	0 d	6.3 a	0 d	3.7 b
		09/08/22	PHYBLE	14	7 DA-C	20 DE-1	10	0 -	0 -	0 -	0 -	0 -	0 -	0 -
		09/08/22	PHYNEC	14	7 DA-C	20 DE-1	10	0 d	0 d	2.3 c	0 d	6.3 a	0 d	3.7 b
		16/08/22	PHYGEN	16	7 DA-B	27 DE-1	10	0 d	2.7 b	2 bc	6 a	2 bc	3 b	2 bc
		16/08/22	PHYNEC	16	7 DA-B	27 DE-1	10	0 c	2.7 b	1 c	6 a	1 c	3 b	1 c
		16/08/22	PHYCHL	16	7 DA-B	27 DE-1	10	0 -	0 -	1 -	0 -	1 -	0 -	1 -
		24/08/22	PHYGEN	17	15 DA-B	35 DE-1	10	0 d	1.3 bc	1.3 bc	3 a	1 bc	2.7 a	1.3 bc
		24/08/22	PHYNEC	17	15 DA-B	35 DE-1	10	0 c	1 b	1 b	2 a	1 b	1.3 b	1 b
		24/08/22	PHYCHL	17	15 DA-B	35 DE-1	10	0 b	0.3 b	0.3 b	1.7 a	0 b	1.3 ab	0.3 b
KCP 6.4-06	MURPHY	03/08/22	PHYGEN	12	7 DA-A	10 DE-1	10	0 -	0 -	0 -	0 -	0 -	0 -	0 -
		10/08/22	PHYGEN	14	7 DA-C	17 DE-1	10	0 c	0 c	4 b	0 c	7.3 a	0 c	6.3 a
		10/08/22	PHYNEC	14	7 DA-C	17 DE-1	10	0 c	0 c	4 b	0 c	7.3 a	0 c	6.3 a
		17/08/22	PHYGEN	14	7 DA-B	24 DE-1	10	0 b	2.7 b	2.3 b	7.3 a	2.7 b	2.3 b	2 b
		17/08/22	PHYNEC	14	7 DA-B	24 DE-1	10	0 b	2.7 b	2.3 b	7.3 a	2.7 b	2.3 b	2 b
		24/08/22	PHYGEN	14	14 DA-B	31 DE-1	10	0 -	0 -	0 -	0 -	0 -	0 -	0 -

* trial KCP 6.4-05 performed in Germany can be considered valid also for Poland

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Table 3.4-16 Phytotoxicity of GLOB2011I in oilseed rape: highest phytotoxicity and phytotoxicity at final assessment - North-East EPPO Zone

Efficacy trials on BRSNW with spring application (BBCH 52-65)

Number of trials with...		Efficacy trials (5)		
		GLOB2011I		Reference
		N	2N	N
Maximum of phytotoxicity recorded during the trials	0% to 5%	5	5	5
	>5% to 10%			
	>10% to 15%			
	>15 %			
Level of symptoms at the last assessments	0% to 5%	5	5	5
	>5% to 10%			
	>10% to 15%			
	>15 %			

Efficacy trials on BRSNW with autumn application (BBCH 10-16)

Number of trials with...		Efficacy trials (7)		
		GLOB2011I		Reference
		N	2N	N
Maximum of phytotoxicity recorded during the trials	0% to 5%	7	2	7
	>5% to 10%		1	
	>10% to 15%			
	>15 %		4	
Level of symptoms at the last assessments	0% to 5%		3	7
	>5% to 10%			
	>10% to 15%			
	>15 %		4	

No phytotoxicity symptom caused by GLOB2011I at the maximum proposed dose rate of 1.5 L/ha was recorded in all trials.

In 4 out of 7 efficacy trials with autumn applications at crop early stages, strong stunting was observed only at the 2N dose (3 L/ha) and remained at the last assessment timing. These trials were all performed in Lithuania and concerned varieties were Sy Alibaba, Arnold, Exspiro. All trial in N-E zone with autumn application were sprayed when crop was at BBCH 10-12. The only difference that could explain the phytotoxicity only in Lithuanian trials is that between crop emergence and application, in PL and EE 17 to 21 days have passed while in LT, 10 to 15 days have passed. It's worthy to mention that assessments were performed maximum up to 1 week after the last application and could recover with crop development.

Reference is also made to the results of 7 trials with spring application and 11 trials with autumn application presented above for the Maritime EPPO zone, conducted in Czech Republic and Germany, neighboring countries and considered as valid to the cMS Poland where no negative symptoms were observed at N rate and limited symptoms in a few trials at 2N.

It can be concluded that the product is safe towards oilseed rape when applied according to label recommendations and avoiding spray overlaps.

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South-East EPPO Zone

Table 3.4-17 **Phytotoxicity of GLOB2011I in oilseed rape: highest phytotoxicity and phytotoxicity at final assessment - South-East EPPO Zone**

Efficacy trials on BRSNW with spring application (BBCH 52-65)

Number of trials with...		Efficacy trials (1)		
		GLOB2011I		Reference
		N	2N	N
Maximum of phytotoxicity recorded during the trials	0% to 5%	1	1	1
	>5% to 10%			
	>10% to 15%			
	>15 %			
Level of symptoms at the last assessments	0% to 5%	1	1	1
	>5% to 10%			
	>10% to 15%			
	>15 %			

Efficacy trials on BRSNW with autumn application (BBCH 10-16)

Number of trials with...		Efficacy trials (1)		
		GLOB2011I		Reference
		N	2N	N
Maximum of phytotoxicity recorded during the trials	0% to 5%	1	1	1
	>5% to 10%			
	>10% to 15%			
	>15 %			
Level of symptoms at the last assessments	0% to 5%	1	1	1
	>5% to 10%			
	>10% to 15%			
	>15 %			

No phytotoxicity symptom caused by GLOB2011I at the maximum proposed dose rate of 1.5 L/ha neither at the double rate was recorded in all trials.

It can be concluded that the product is safe towards oilseed rape when applied according to label recommendations and avoiding spray overlaps.

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Mediterranean EPPO Zone

Table 3.4-18 Phytotoxicity of GLOB2011I in oilseed rape: highest phytotoxicity and phytotoxicity at final assessment - Mediterranean EPPO Zone

Efficacy trials on BRSNW with spring application (BBCH 52-65)

Number of trials with...		Efficacy trials (6)		
		GLOB2011I		Reference
		N	2N	N
Maximum of phytotoxicity recorded during the trials	0% to 5%	6	5	6
	>5% to 10%		1	
	>10% to 15%			
	>15 %			
Level of symptoms at the last assessments	0% to 5%	6	6	6
	>5% to 10%			
	>10% to 15%			
	>15 %			

Efficacy trials on BRSNW with autumn application (BBCH 10-16)

Number of trials with...		Efficacy trials (14)		
		GLOB2011I		Reference
		N	2N	N
Maximum of phytotoxicity recorded during the trials	0% to 5%	13	7	14
	>5% to 10%	1	5	
	>10% to 15%			
	>15 %		2	
Level of symptoms at the last assessments	0% to 5%	13	11	14
	>5% to 10%	1	1	
	>10% to 15%		1	
	>15 %		1	

No phytotoxicity symptom caused by GLOB2011I at the maximum proposed dose rate of 1.5 L/ha was recorded in the vast majority of trials.

In 1 out of 6 efficacy trials with spring applications, very light symptoms were observed at 2N. Those symptoms disappeared before last assessment.

Light symptoms at N were observed in 1 trial with autumn application to early crop stages, diminishing at the last assessment, not later than 14 days after the application, and could recover with crop development.

In 7 out of 14 efficacy trials with autumn application to early crop stages, some phytotoxic effects were observed at the 2N dose (3 L/ha), specified as necrosis or bleaching, and remained at the last assessment timing only in a few trials. It's worthy to mention that assessments were performed maximum up to 3 weeks after the last application and could recover with crop development.

It can be concluded that the product is safe towards oilseed rape when applied according to label recommendations and avoiding spray overlaps.

Conclusion

It can be concluded that GLOB2011I at the maximum proposed dose rate of 1.5 L/ha has no phytotoxic effects on oilseed rape when applied according to label recommendations and avoiding spray overlaps.

Potatoes

In total, 17 efficacy trials were submitted for the use on potato. These trials were carried out between 2021 and 2022 by GEP certified research institutions in the Czech Republic, Germany and the Netherlands (in total 5 trials belonging to the Maritime EPPO Zone), in Poland (2 trials belonging to the North-East EPPO Zone), in Hungary (1 trial belonging to the South-East EPPO Zone), as well as in Croatia, Italy, Spain and the southern part of France (9 trials belonging to the Mediterranean EPPO Zone). Reference products applied at label rate are presented in section 3.2.3.

Given the known uses of the active substance as an herbicide, further to the target rate of 1.5 (N) a 2N dose rate or higher was included in all the efficacy trials 3-4 L/ha (2N+).

Maritime EPPO Zone

Table 3.4-19 Phytotoxicity of GLOB2011I in potatoes: highest phytotoxicity and phytotoxicity at final assessment - Maritime EPPO Zone

Number of trials with...		Efficacy trials (5)		
		GLOB2011I		Reference
		N	2N+	N
Maximum of phytotoxicity recorded during the trials	0% to 5%	5	3	5
	>5% to 10%		2	
	>10% to 15%			
	>15 %			
Level of symptoms at the last assessments	0% to 5%	5	5	5
	>5% to 10%			
	>10% to 15%			
	>15 %			

No phytotoxicity symptom caused by GLOB2011I at the maximum proposed dose rate of 1.5 L/ha neither at the double rate was recorded in the vast majority of trials. In only 2 trials, light symptoms of necrosis were observed, but at the last assessment timing the symptom tend to disappear. Yield was not assessed in those trials.

It can be concluded that the product is safe towards potatoes when applied according to label recommendations.

North-East EPPO Zone

Table 3.4-20 Phytotoxicity of GLOB2011I in potatoes: highest phytotoxicity and phytotoxicity at final assessment - North-East EPPO Zone

Number of trials with...		Efficacy trials (2, one only comments)		
		GLOB2011I		Reference
		N	2N+ (4L/ha)	1
Maximum of phytotoxicity recorded during the trials	0% to 5%	1		
	>5% to 10%		1	
	>10% to 15%			
	>15 %			
Level of symptoms at the last assessments	0% to 5%	1		1
	>5% to 10%		1	
	>10% to 15%			
	>15 %			

In 1 out of 2 efficacy trials, light phytotoxic effects were observed only at a rate higher than 2N (4 L/ha). specified as leaf deformation, applied at BBCH 38.

In the one trial, no figures are given in the trial report, only a comment that phytotoxicity (necrosis) was observed only at 2 and 4 L/ha but assessments could not be made accurately because the % leaf damage by the Colorado beetle was large.

Reference is also made to the results of 4 trial presented above for the Maritime EPPO zone, conducted in Czech Republic and Germany, neighboring countries and considered as valid to the cMS Poland where no significant symptoms were observed.

It can be concluded that the product is safe towards potatoes when applied according to label recommendations.

South-East EPPO Zone

Table 3.4-21 Phytotoxicity of GLOB2011I in potatoes: highest phytotoxicity and phytotoxicity at final assessment - South-East EPPO Zone

Number of trials with...		Efficacy trials (1)		
		GLOB2011I		Reference
		N	2N	N
Maximum of phytotoxicity recorded during the trials	0% to 5%	1	1	1
	>5% to 10%			
	>10% to 15%			
	>15 %			
Level of symptoms at the last assessments	0% to 5%	1	1	1
	>5% to 10%			
	>10% to 15%			
	>15 %			

No phytotoxicity symptom caused by GLOB2011I at the maximum proposed dose rate of 1.5 L/ha neither at the double rate was recorded in the trial.

It can be concluded that the product is safe towards potatoes when applied according to label recommendations.

Mediterranean EPPO Zone

Table 3.4-22 Phytotoxicity of GLOB2011I in potatoes: highest phytotoxicity and phytotoxicity at final assessment - Mediterranean EPPO Zone

Number of trials with...		Efficacy trials (9)		
		GLOB2011I		Reference
		N	2N	N
Maximum of phytotoxicity recorded during the trials	0% to 5%	9	8	9
	>5% to 10%		1	
	>10% to 15%			
	>15 %			
Level of symptoms at the last assessments	0% to 5%	9	8	9
	>5% to 10%		1	
	>10% to 15%			
	>15 %			

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No phytotoxicity symptom caused by GLOB2011I at the maximum proposed dose rate of 1.5 L/ha neither at the double rate was recorded in the vast majority of trials.

In only one trial, light symptoms of chlorosis were observed at the double rate of 3 L/ha and remained at the last assessment timing. It's worthy to mention that assessments were performed only up to 9 days after the 2nd application and likely the effect disappeared as yield was also assessed in this trial (KCP 6.2-120) and revealed no negative effect. At 2N, a higher yield was observed compared to N rate, being the level of pest control similar among the plots with N and 2N.

It can be concluded that the product is safe towards potatoes when applied according to label recommendations.

Conclusion

It can be concluded that GLOB2011I at the maximum proposed dose rate of 1.5 L/ha has no phytotoxic effects on potatoes when applied according to label recommendations and avoiding spray overlaps..

Maize

In total, 10 efficacy trials were submitted for the use on maize. These trials were carried out between 2020 and 2022 by GEP certified research institutions in key maize production countries as Italy, Spain and France (8 trials belonging to the Mediterranean EPPO Zone), as well as in Hungary (2 trials belonging to the South-East EPPO Zone). No trials are presented for the Maritime and North-East EPPO zones. Data generated in the most relevant maize production countries and where *O. nubilalis* pressure is known to be high were presented and claimed to support authorization in other zones. Reference products applied at label rate are presented in section 3.2.3.

Given the known uses of the active substance as an herbicide, further to the proposed rates of 2-3 (N) a 2N dose rate or higher was included in all the efficacy trials 4-6 L/ha (2N+).

South-East EPPO Zone

Table 3.4-23 **Phytotoxicity of GLOB2011I in maize: highest phytotoxicity and phytotoxicity at final assessment - South-East EPPO Zone**

Number of trials with...		Efficacy trials (2)				
		GLOB2011I				Reference
		N (2L/ha)	N (3L/ha)	2N (4L/ha)	2N (6L/ha)	N
Maximum of phytotoxicity recorded during the trials	0% to 5%	2	2	2	1	2
	>5% to 10%				1	
	>10% to 15%					
	>15 %					
Level of symptoms at the last assessments	0% to 5%	2	2	2	1	2
	>5% to 10%				1	
	>10% to 15%					
	>15 %					

No phytotoxicity symptom caused by GLOB2011I at the proposed rates of 2-3 L/ha was recorded in all trials. In only one trial, applied at BBCH 51, some symptoms of necrosis were observed at the double maximum rate tested of 6 L/ha. It's worthy to mention that assessments were performed only up to 7 days

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after the 2nd application and at latest assessment maximum 8% of necrosis was observed. Yield was not assessed in this trial.

It can be concluded that the product is safe towards maize when applied according to label recommendations.

Mediterranean EPPO Zone

Table 3.4-24 Phytotoxicity of GLOB2011I in maize: highest phytotoxicity and phytotoxicity at final assessment - Mediterranean EPPO Zone

Number of trials with...		Efficacy trials (8)				
		GLOB2011I				Reference
		N (2L/ha)	N (3L/ha)	2N (4L/ha)	2N (6L/ha)	N
Maximum of phytotoxicity recorded during the trials	0% to 5%	8	7	7	6	8
	>5% to 10%		1	1		
	>10% to 15%				1	
	>15 %				1	
Level of symptoms at the last assessments	0% to 5%	8	8	7	6	8
	>5% to 10%			1	1	
	>10% to 15%				1	
	>15 %					

No phytotoxicity symptom caused by GLOB2011I at the maximum proposed dose rate of 3 L/ha neither at the double rate was recorded in the vast majority of trials. In only two trials, light symptoms of necrosis were observed.

One of the trials (KCP 6.2-131) had an early infestation and 1st application was performed at BBCH 18. Symptoms were observed only at 6 L/ha and were reduced at the last assessment timing (not assessed further than 7 days after 2nd application). Yield results were comparable to untreated plots and plots at lower rates with no phytotoxicity. In the other trial (KCP 6.2-132) 1st application was performed at BBCH 73, light symptoms at 3 L/ha disappeared at last assessment while remained at the higher rates. Yield results were also comparable to untreated plots and plots at lower rates with no phytotoxicity (see section 3.4.2).

It can be concluded that the product is safe towards maize when applied according to label recommendations.

Conclusion

It can be concluded that GLOB2011I at the maximum proposed dose rate of 3 L/ha has no phytotoxic effects on maize.

Conclusion – Phytotoxicity to host crop

Cereals - Spring application

In total, 4 specific selectivity trials (North-east EPPO zone) and 10 efficacy trials were submitted for the use on cereals with spring applications. These trials were carried out between 2020 and 2022 across all EPPO zones at the proposed rates of 1.5-2 L/ha (N) a 2N dose rate or higher was included in 10 of the efficacy trials at 4 L/ha (2N+).

The results of crop phytotoxicity resulted in nil phytotoxicity being recorded on the winter wheat, spring wheat, rye, and triticale tested.

Cereals - Autumn application

In total, 13 efficacy trials were submitted for the use on cereals with autumn applications. These trials were carried out between 2020 and 2022 by GEP certified research institutions in the Czech Republic, Germany, the northern part of France, the United Kingdom and the Netherlands (in total 12 trials belonging to the Maritime EPPO Zone), in Poland (1 trial belonging to the North-East EPPO Zone). These trials were carried out between 2020 and 2022 across all EPPO zones at the proposed rates of 1.5-2 L/ha (N) a 2N dose rate or higher was included in 10 of the efficacy trials at 4 L/ha (2N+).

The results of crop phytotoxicity resulted in nil phytotoxicity being recorded on the winter barley and winter wheat at the maximum proposed dose rates of 1.5-2 L/ha. In 5 trials, symptoms as necrosis, bleaching, thinning or chlorosis were observed at the maximum double rate of 4 L/ha on winter barley and tended to disappear at the last assessment timing. Therefore, a label warning should be proposed.

No trials were performed on cereals with autumn application in south-east EPPO zone.

Oilseed rape

In total, two specific selectivity trials (1 in the Maritime zone and 1 in the North-east EPPO zone) and twenty-three efficacy trials evaluated the adverse effects on oilseed rape (15 trials in the Maritime, 7 in the North-East, 1 in the South-east EPPO zones for autumn applications in crop early stages and nine trials in the Maritime, five in the North-East, and one in the South-east EPPO zones).

The results of crop phytotoxicity resulted in nil phytotoxicity being recorded on oilseed rape tested at the maximum proposed dose rate of 1.5 L/ha. Some phytotoxic effect in the Maritime and in the North-east EPPO zone were observed only at the 2N dose (3 L/ha) with autumn applications at crop early stages. Therefore, a label warning should be proposed.

Potatoes

In total, 8 efficacy trials with a target rate of 1.5 (N) and 2N dose rate or higher of 3-4 L/ha (2N+) were submitted for use on potatoes. These trials were carried out between 2021 and 2022 by GEP certified research institutions in the Czech Republic, Germany and the Netherlands (in total 5 trials belonging to the Maritime EPPO Zone), in Poland (2 trials belonging to the North-East EPPO Zone), in Hungary (1 trial belonging to the South-East EPPO Zone).

The results of crop phytotoxicity resulted in nil phytotoxicity being recorded on potatoes tested at the maximum proposed dose rate of 1.5 L/ha neither at the double rate was recorded in the vast majority of trials. In only 2 trials, light symptoms of necrosis were observed, but at the last assessment timing the symptom tend to disappear. Therefore, a label warning should be proposed.

Maize

No phytotoxicity symptom caused by GLOB2011I at the proposed rates of 2-3 L/ha was recorded in two provided trials. In only one trial, applied at BBCH 51, some symptoms of necrosis were observed at the double maximum rate tested of 6 L/ha. Therefore, a label warning should be proposed.

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

According to EPPO PP 1/135(3), for non-systemic insecticides, observations for phytotoxic effects including those on quantity and quality of the yield should be made in the direct efficacy (effectiveness) trials. In addition, reference is made to the specific PP 1 Standards for each use, whether specific yield data requirements apply. In general, for the requested uses, it is not a requirement. Only for *Ostrinia nubilalis* on maize, it may be advisable.

Given the known uses of the active substance as an herbicide, the effect on yield was investigated in part of the efficacy trials presented in section 3.2, including 2N dose rates.

Yield was evaluated in trials carried out on cereals (2 trials in the Mediterranean EPPO zone), as well as on oilseed rape (2 trials in the Maritime, 1 in the North-East EPPO zones), on potatoes (2 in the maritime, 1 in the South-east and 7 in the Mediterranean EPPO zones) and on maize (1 in the South-east and 2 in the Mediterranean EPPO zones). Trials were carried out between 2020 and 2022.

A list of varieties tested is provided below:

Crop	EPPO zone	Study nb.	Variety tested
TRZAW	EPOMED	KCP 6.2-10	Soledad
	EPOMED	KCP 6.2-12	Panda
BRSNS	EPOMAR	KCP 6.2-39	Campino
BRSNW	EPOMAR	KCP 6.2-49	Ludger
	EPPONE	KCP 6.2-68	Absolut
SOLTU	EPOMAR	KCP 6.2-115	Adela
	EPOMAR	KCP 6.2-111	Antonia
	EPOMED	KCP 6.2-119	Spunta
	EPOMED	KCP 6.2-120	Arthemis
	EPOMED	KCP 6.2-121	Liseta
	EPOMED	KCP 6.2-122	Primura
	EPOMED	KCP 6.2-123	Bintje
	EPOMED	KCP 6.2-124	Turia
	EPOMED	KCP 6.2-125	Primura
	EPPOSE	KCP 6.2-116	Bella Rosa
ZEAMX	EPOMED	KCP 6.2-131	P0933
	EPOMED	KCP 6.2-132	P867
	EPPOSE	KCP 6.2-135	Limanova

Cereals

The effect on yield was determined in part of the efficacy trials discussed in section 3.2 in accordance with the EPPO standard PP 1/135 requirements. Plots were harvested individually to give results in kg per plot, and then converted to metric tons per ha which is shown in the below tables for the untreated check. The percentage relative to the control is shown in the tables below and the absolute values assessed are reported for the untreated check in the tables below.

GLOB2011I was applied twice at the beginning of infestation at the rates of 1.5-2 L/ha (N) and 4 L/ha (2N), representing the target rates and the double target rate of application. Commercial standards were applied at N, as the 2N is not a requirement on insecticide efficacy trials.

Statistical analysis was made as letter test based on Student-Newman-Keuls ($P = 0.05$). Where no letter is presented (absent or '-') no difference was registered among treatments. Letters accompanying yield absolute values correspond to the post-hoc test result for the UTC value set at 100%.

Mediterranean EPPO Zone

In the Mediterranean EPPO Zone, yield was evaluated in 2 trials on winter wheat. Light phytotoxicity symptom (bleaching) caused by GLOB2011I at the maximum rate of 2 L/ha were observed in one trial. Slightly higher levels were observed at 2N confirming that the lower rates on the range are the safest for the crop. Differences were never statistically significant.

In the table below, the phytotoxic effects are compared to the effects on the yield of those trials. No effect was observed for the reference product.

GLOB2011I

Part B – Section 3

Globachem NV/Central Zone

Table 3.4-25: Relationship between phytotoxicity and yield on winter soft wheat (spring application) – Mediterranean EPPO zone

Test report	Variety	Maximum phyto. (bleaching %) at 2 L/ha (1N) rate (DAA)		Maximum phyto. (bleaching %) at 4 L/ha (2N) rate (DAA)		Yield in the untreated control Absolute figures (ton/ha)	Yield at 1N as % of untreated			Yield at 2N as % of untreated
		GLOB2011I	Standard*	GLOB2011I	Standard*		GLOB2011I 1.5 L/HA	GLOB2011I 2 L/HA	Standard*	
Winter wheat										
KCP 6.2-12	Panda	10 (7)	0 (7)	15 (7)	-	2.2	107.1	108.2	111.5	109.9

* deltamethrin ref

Detailed yield data - Mediterranean EPPO Zone**Table 3.4-26: Impact on yield compared to the UTC (set at 100%) on winter soft wheat in presence of pest (spring application) – Mediterranean EPPO zone**

KCP	Pest Code	Crop Code	Variety	Rating Date	Part Rated	Rating Type	Crop BBCH at appl.	UNTREATED			GLOB2011I 650 g/L EC 0.9 585 g as/ha			GLOB2011I 650 g/L EC 1.5 975 g as/ha			GLOB2011I 650 g/L EC 2 975 g as/ha			GLOB2011I 650 g/L EC 4 1300 g as/ha			GLOB2011I 650 g/L EC 2600 g as/ha			Decis/DTM ref			
KCP 6.2-12	MACSAV	TRZAW	Panda	05/07/22	YIELD	YIELD	65	2.2	100	-	108	-	107.1	-	200L/HA	105.7	-	400L/HA	108.2	-	109.9	-	111.5	-	12.5	-	12.5	-	12.5
KCP 6.2-10	MACSAV	TRZAW	Soledad	30/06/22	YIELD	YIELD	51	4	100	-	96.7	-	102.5	-	200L/HA	101.9	-	400L/HA	100.9	-	100.4	-	99.5	-	12.5	-	12.5	-	12.5

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Nb. trials	Assessed value in the untreated control (=100%)			GLOB2011I at 0.9 L/ha			GLOB2011I at 1.5 L/ha			GLOB2011I at 1.5 L/ha (high volume)			GLOB2011I at 2 L/ha			GLOB2011I at 4 L/ha			Decis/DTM ref at 12.5 g as/ha		
							Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn
MED	MACSAV	TRZAW	All vs. DTM	Yield	t/ha	2	3.1	2.2-4	3.1	102.4	96.7-108	102.4	104.8	102.5-107.1	104.8	103.8	101.9-105.7	103.8	104.6	100.9-108.2	104.6	105.2	100.4-109.9	105.2	105.5	99.5-111.5	105.5

Oilseed rape

The effect on yield was determined in part of the efficacy trials discussed in section 3.2 in accordance with the EPPO standard PP 1/135 requirements. Plots were harvested individually to give results in kg per plot, and then converted to metric tons per ha which is shown in the below tables for the untreated check. The percentage relative to the control is shown in the tables below and the absolute values assessed are reported for the untreated check in the tables below.

GLOB2011I was applied once or twice at the beginning of infestation at the rate of 1.5 L/ha (N) and 3 L/ha (2N), representing the target rate and the double target rate of application. Commercial standards were applied at N, as the 2N is not a requirement on insecticide efficacy trials.

Statistical analysis was made as letter test based on Student-Newman-Keuls ($P = 0.05$). Where no letter is presented (absent or '-') no difference was registered among treatments. Letters accompanying yield absolute values correspond to the post-hoc test result for the UTC value set at 100%.

Maritime EPPO Zone

In the Maritime EPPO Zone, yield was evaluated in 2 trials on oilseed rape against pollen beetle. No phytotoxicity caused by GLOB2011I at the target rate of 1.5 L/ha were observed. Slight levels were observed in 1 trial on spring oilseed rape at 2N (KCP 6.2-39, max 8.8.% up to 20 DA-A) which disappeared at the end of the trial confirming that the proposed rate is safe for the crop.

In the table below, the phytotoxic effects are compared to the effects on the yield of those trials. No effect was observed for the reference product.

GLOB2011I

Part B – Section 3

Globachem NV/Central Zone

Table 3.4-27: Relationship between phytotoxicity and yield on winter oilseed rape – Maritime EPPO zone

Test report	Variety	Maximum phyto. (%) at 1.5 L/ha (1N) rate (DAA)		Maximum phyto. (%) at 3 L/ha (2N) rate (DAA)		Yield in the untreated control Absolute figures (ton/ha)	Yield at 1N as % of untreated		Yield at 2N as % of untreated
		GLOB2011I	Standard*	GLOB2011I	Standard*		GLOB2011I 1.5 L/HA	Standard*	GLOB2011I 3 L/ha
Spring Oilseed rape									
KCP 6.2-39	Campino	0%	0%	8.8% (20)	-	2	130	130	120

* deltamethrin ref

Detailed yield data - Maritime EPPO Zone**Table 3.4-28: Impact on yield compared to the UTC (set at 100%) on winter oilseed rape in presence of pest – Maritime EPPO zone**

KCP	Pest Code	Crop Code	Variety	Rating Date	Rating Type	Crop BBCH at appl.	UNTREATED			GLOB2011I			GLOB2011I			GLOB2011I			Decis/DTM ref		
							assessed value	%control	SNK												
										650 g/L EC			650 g/L EC			650 g/L EC					
										0.9 l/ha			1.5 l/ha			3 l/ha					
										585 g as/ha			975 g as/ha			1950 g as/ha					
KCP 6.2-49	MELIAE	BRSNW	Ludger	16/07/22	YIELD	65	5.7	100	-	101.3	-	1 appl.	97.9	-	1 appl.	97.6	-	1 appl.	100.8	-	5g
KCP 6.2-39	MELIAE	BRSNS	Campino	21/08/20	YIELD	39	2	100	b	125	a	1 appl.	130	a	1 appl.	120	ab	1 appl.	130	a	5g

EPPO zone	Target code	Crop Code	Grouping	Type/ unit	Nb. trials	Absolut value in the untreated control			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			GLOB2011I at 3 l/ha			Decis/DTM ref at 5-12.5 g as/ha		
						Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn
MAR	MELIAE	BRSNW	All vs. DTM	Yield (t/ha)	2	3.9	-	-	113.2	-	-	114.0	-	-	108.8	-	-	115.4	-	-

Control achieved at 1.5 L/ha at best assessment:

KCP 6.2-49	83.3%
KCP 6.2-39	100%
KCP 6.2-68	67.6%

GLOB2011I
Part B – Section 3
Globachem NV/Central Zone

North-East EPPO Zone

In the North-East EPPO Zone, yield was evaluated in 1 trial on oilseed rape against pollen beetle. These results are combined with the results of 1 German trial since these are neighboring countries and considered as valid to the cMS Poland. No phytotoxicity caused by GLOB2011I at the target rate of 1.5 L/ha were observed, confirming that the proposed rate is safe for the crop.

Detailed yield data - North-East EPPO Zone

Table 3.4-29: Impact on yield compared to the UTC (set at 100%) on winter oilseed rape in presence of pest – North-East EPPO zone

KCP	Pest Code	Crop Code	Variety	Rating Date	Rating Type	Crop BBCH at appl.	UNTREATED			GLOB2011I			GLOB2011I			GLOB2011I			Decis/DTM ref		
							assessed value	%control	SNK												
										650 g/L EC			650 g/L EC			650 g/L EC					
										0.9 l/ha			1.5 l/ha			3 l/ha					
										585 g as/ha			975 g as/ha			1950 g as/ha					5-12.5 g as/ha
KCP 6.2-68	MELIAE	BRSNW	Absolut	05/08/22	YIELD	57	0.7	100	-	111.3	-		116.3	-		105.2	-		118.8	-	7.5g
KCP 6.2-49	MELIAE	BRSNW	Ludger	16/07/22	YIELD	65	5.7	100	-	101.3	-	1 appl.	97.9	-	1 appl.	97.6	-	1 appl.	100.8	-	5g

EPPO zone	Target code	Crop Code	Grouping	Type/unit	Nb. trials	Absolut value in the untreated control			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			GLOB2011I at 3 l/ha			Decis/DTM ref at 5-12.5 g as/ha		
						Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn
NE (+CZ,DE)	MELIAE	BRSNW	All vs. DTM	Yield (t/ha)	2	3.2	0.7-5.7	3.2	106.3	101.3-111.3	106.3	107.1	97.9-116.3	107.1	101.4	97.6-105.2	101.4	109.8	100.8-118.8	109.8

Control achieved at 1.5 L/ha at best assessment:

KCP 6.2-49	83.3%
KCP 6.2-68	67.6%

Potatoes

The effect on yield was determined in part of the efficacy trials discussed in section 3.2 in accordance with the EPPO standard PP 1/135 requirements. Plots were harvested individually to give results in kg per plot, and then converted to metric tons per ha which is shown in the below tables for the untreated check. The percentage relative to the control is shown in the tables below and the absolute values assessed are reported for the untreated check in the tables below.

GLOB2011I was applied twice at the beginning of infestation at the rate of 1.5 L/ha (N) and 3 L/ha (2N), representing the target rates and the double target rate of application. Commercial standards were applied at N, as the 2N is not a requirement on insecticide efficacy trials.

Statistical analysis was made as letter test based on Student-Newman-Keuls ($P = 0.05$). Where no letter is presented (absent or '-') no difference was registered among treatments. Letters accompanying yield absolute values correspond to the post-hoc test result for the UTC value set at 100%.

The studies revealed no negative impact on the yield of potatoes. Even a 4 to 29 % increase in yield was observed.

GLOB2011I
Part B – Section 3
Globachem NV/Central Zone

Maritime EPPO Zone

In the Maritime EPPO Zone, yield was evaluated in 2 trials on potatoes. As no phytotoxic effects were observed at the requested rates, no tables are presented with comparison between level of symptoms and effects on the yield. Detailed yield data are summarized below.

GLOB2011I at the proposed rate of 1.5 L/ha had no negative effect on the yield of potatoes nor at 2N confirming that target rates are safe for the crop. Even an increase in yield up to 12% was observed at target rate.

Detailed yield data - Maritime EPPO Zone

Table 3.4-30: Impact on yield compared to the UTC (set at 100%) on potato in presence of pest –Maritime EPPO zone

KCP	Pest Code	Crop Code	Variety	Rating Date	Part Rated	Rating Type	Crop BBCH at appl.	UNTREATED			GLOB2011I 650 g/L EC 0.9 l/ha 585 g as/ha			GLOB2011I 650 g/L EC 1.5 l/ha 975 g as/ha			GLOB2011I 650 g/L EC 3 l/ha 1950 g as/ha			Coragen 20 SC 200 g/L SC 0.06 l/ha 12 g as/ha			Spintor 240 or 480 g/L SC 36 g as/ha			Decis/DTM ref 7.5 g as/ha		
KCP 6.2-111	LPTNDE	SOLTU	Antonia	24/08/22	YIELD	%UNCK	59	23.9	100	c	106.8	bc	104.3	bc	111.9	b	127.9	a				111.8	b	7.5g				
KCP 6.2-115	LPTNDE	SOLTU	Adela	06/09/22	YIELD	%UNCK	51	37.5	100	b	105.4	ab	104.7	ab	104.5	ab	110.1	a				107.1	ab	7.5g				
EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Nb. trials	Absolut value in the untreated control			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			GLOB2011I at 3 l/ha			Coragen 20 SC at 0.06 l/ha			Spintor at 36 g as/ha			Decis/DTM ref at 7.5 g as/ha			
							Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean
MAR	LPTNDE	SOLTU	All	Yield	ton/ha	2	30.7	23.9-37.5	30.7		106.1	105.4-106.8	106.1	104.5	104.3-104.7	104.5	108.2	104.5-111.9	108.2	119.0	110.1-127.9	119.0	-	-	-	109.5	107.1-111.8	109.5

GLOB2011I
Part B – Section 3
Globachem NV/Central Zone

North-East EPPO Zone

Reference is made to results of 2 trials conducted in Czech Republic and presented above since it is a neighboring country and considered as valid to the cMS Poland. No negative impact on the yield of potatoes caused by GLOB2011I at the target rate of 1.5 L/ha or at double rate were observed, confirming that the proposed rate is safe for the crop. Even a 4.5 % increase in yield was observed.

GLOB2011I

Part B – Section 3

Globachem NV/Central Zone

South-East EPPO Zone

In the South-East EPPO Zone, yield was evaluated in 1 trial on potatoes. As no phytotoxic effects were observed at the requested rates, no tables are presented with comparison between level of symptoms and effects on the yield. Detailed yield data are summarized below.

GLOB2011I at the proposed rate of 1.5 L/ha had no negative effect on the yield of potatoes nor at 2N confirming that target rates are safe for the crop. Even an increase in yield up to 15% was observed at target rate.

Detailed yield data - South-East EPPO Zone

Table 3.4-31: Impact on yield compared to the UTC (set at 100%) on potato in presence of pest — South-East EPPO zone

KCP	Pest Code	Crop Code	Variety	Rating Date	Part Rated	Rating Type	Crop BBCH at appl.	UNTREATED			GLOB2011I			GLOB2011I			GLOB2011I			Coragen 20 SC			Spintor			Decis/DTM ref		
								650 g/L EC 0.9 l/ha 585 g as/ha			650 g/L EC 1.5 l/ha 975 g as/ha			650 g/L EC 3 l/ha 1950 g as/ha			200 g/L SC 0.06 l/ha 12 g as/ha			240 or 480 g/L SC 36 g as/ha			7.5-12.5 g as/ha					
KCP 6.2-116		SOLTU	Bella Rosa	07/10/22	YIELD	%UNCK	21	6.5	100	-	91.2	-	115	-	122.7	-	123	-					99.8	-	12g			

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Nb. trials	Absolut value in the untreated control			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			GLOB2011I at 3 l/ha			Coragen 20 SC at 0.06 l/ha			Spintor at 36 g as/ha			Decis/DTM ref at 7.5-12.5 g as/ha		
							Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn
S-E	LPTNDE	SOLTU	All	Yield	ton/ha	1	6.5	-	-	91.2	-	-	115.0	-	-	122.7	-	-	123.0	-	-	-	-	-	99.8	-	-

GLOB2011I

Part B – Section 3

Globachem NV/Central Zone

Mediterranean EPPO Zone

In the Mediterranean EPPO Zone, yield was evaluated in 7 trials on potatoes. As no phytotoxic effects were observed at the requested rates, no tables are presented with comparison between level of symptoms and effects on the yield. Detailed yield data are summarized below.

GLOB2011I at the proposed rate of 1.5 L/ha had no negative effect on the yield of potatoes nor at 2N confirming that target rates are safe for the crop. Even an increase in yield up to 29% was observed at target rate.

Detailed yield data - Mediterranean EPPO Zone**Table 3.4-32: Impact on yield compared to the UTC (set at 100%) on potato in presence of pest – Mediterranean EPPO zone**

KCP	Pest Code	Crop Code	Variety	Rating Date	Part Rated	Rating Type	Crop BBCH at appl.	UNTREATED			GLOB2011I 650 g/L EC 0.9 l/ha 585 g as/ha			GLOB2011I 650 g/L EC 1.5 l/ha 975 g as/ha			GLOB2011I 650 g/L EC 3 l/ha 1950 g as/ha			Coragen 20 SC 200 g/L SC 0.06 l/ha 12 g as/ha			Spintor 240 or 480 g/L SC 36 g as/ha			Decis/DTM ref 7.5-12.5 g as/ha			DTM 7.5-12.5 g as/ha			GLOB2011I 650 g/L EC 1.5l/ha 975 g as/ha
KCP 6.2-119	LPTNDE	SOLTU	Spunta	17/06/22	YIELD	%UNCK	41	41.6	100	-	117.3	-	132.5	-	108.6	-	115.3	-			106.4	-	12.5g	109.2	-							
KCP 6.2-120	LPTNDE	SOLTU	Arthemis	25/07/22	YIELD	%UNCK	45	37.8	100	-	101.6	-	108.7	-	111.6	-	122.7	-			114.1	-	7.5g	112.7	-							
KCP 6.2-121	LPTNDE	SOLTU	Liseta	15/07/22	YIELD	%UNCK	39	35.9	100	b	126.7	a	128.7	a	128.6	a	127.3	a			129.7	a	12.5g	128.3	a							
KCP 6.2-122	LPTNDE	SOLTU	Primura	20/07/22	YIELD	%UNCK	43	41.3	100	c	106.3	bc	111.8	b	113.9	ab	125.4	a			117.8	ab	12.5g	116.6	ab							
KCP 6.2-123	LPTNDE	SOLTU	Bintje	05/08/22	YIELD	%UNCK	38	34.7	100	b	112.7	a	116.7	a	117	a	117.5	a			112	a	12.5g	117.7	a							
KCP 6.2-124	LPTNDE	SOLTU	Turia	17/08/22	YIELD	%UNCK	67	11.4	100	-	108	-	110.4	-	115.2	-	119.2	-	106.8	-	36g											
KCP 6.2-125	LPTNDE	SOLTU	Primura	20/07/22	YIELD	%UNCK	45	39.5	100	c	106.9	bc	107.8	bc	107.6	bc	120	a	114.8	ab	36g											
EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Nb. trials	Absolut value in the untreated control			GLOB2011I at 0.9 l/ha AB			GLOB2011I at 1.5 l/ha AB			GLOB2011I a 3 l/ha AB			Coragen 20 SC at 0.06 l/ha AB			Spintor at 36 g as/ha AB			Decis/DTM ref at 7.5-12.5 g as/ha AB			DTM ref at 7.5-12.5 in A followed by GLOB2011I at 1.5 L/ha in B				
							Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max
MED	LPTNDE	SOLTU	All	Yield	ton/ha	7	34.6	11.4-41.6	37.8	111.4	101.6-126.7	108.0	116.7	107.8-132.5	111.8	114.6	107.6-128.6	113.9	-	-	-	-	-	-	-	-	-	-	-	-		
MED	LPTNDE	SOLTU	All vs. DTM & CTPR (also in IPM)	Yield	ton/ha	5	38.3	34.7-41.6	37.8	112.9	101.6-126.7	112.7	119.7	108.7-132.5	116.7	115.9	108.6-128.6	113.9	121.6	115.3-127.3	122.7	-	-	-	116.0	106.4-129.7	114.1	116.9	109.2-128.3	116.6		
MED	LPTNDE	SOLTU	All vs. SPIN	Yield	ton/ha	2	25.5	11.4-39.5	25.5	107.5	106.9-108	107.5	109.1	107.8-110.4	109.1	111.4	107.6-115.2	111.4	119.6	119.2-120	119.6	110.8	106.8-114.8	110.8	-	-	-	-	-			

Maize

The effect on yield was determined in part of the efficacy trials discussed in section 3.2 in accordance with the EPPO standard PP 1/135 requirements. Plots were harvested individually to give results in kg per plot, and then converted to metric tons per ha which is shown in the below tables for the untreated check. The percentage relative to the control is shown in the tables below and the absolute values assessed are reported for the untreated check in the tables below.

GLOB2011I was applied twice at the beginning of infestation at the rates of 2 and 3 L/ha (N) and 4 and 6 L/ha (2N), respectively representing the target rates and the double target rates of application. Commercial standards were applied at N, as the 2N is not a requirement on insecticide efficacy trials.

Statistical analysis was made as letter test based on Student-Newman-Keuls ($P = 0.05$). Where no letter is presented (absent or '-') no difference was registered among treatments. Letters accompanying yield absolute values correspond to the post-hoc test result for the UTC value set at 100%.

Mediterranean EPPO Zone

In the Mediterranean EPPO Zone, yield was evaluated in 2 trials on maize. Light phytotoxicity symptom (necrosis) caused by GLOB2011I at the proposed rates of 2-3 L/ha were observed. Slightly higher levels were observed at 2N confirming that the lower rates on the range are the safest for the crop.

In the table below, the phytotoxic effects are compared to the effects on the yield of those trials. Same effect was observed for the reference product and likely remain in the range of natural variation, since it was never statistically significant.

GLOB2011I
Part B – Section 3
Globachem NV/Central Zone

Table 3.4-33: Relationship between phytotoxicity and yield on maize – Mediterranean EPPO zone

Test report	Variety	Maximum phyto. (%)			Maximum phyto. (%)		Yield in the untreated control Absolute figures (ton/ha)	Yield at 1N as % of untreated			Yield at 2N as % of untreated	
		at 2 L/ha (1N rate) (DAA) GLOB2011I	at 3 L/ha (1N rate) (DAA) GLOB2011I	Standard (1N rate)	at 4 L/ha (2N rate) (DAA) GLOB2011I	at 6 L/ha (2N rate) (DAA) GLOB2011I		GLOB2011I 2 L/ha	GLOB2011I 3 L/ha	Standard*	GLOB2011I 4 L/ha	GLOB2011I 6 L/ha
Maize												
KCP 6.2-131	P0933	0 (7DAA)	1.5 (7DAA)	0 (7DAA)	5 (7DAA)	18.8 (7DAA)	12.3	89.0	110.1	105.8	105.3	98.9
KCP 6.2-132	P867	1.5 (7DAA)	8.5 (7DAA)	0 (7DAA)	10 (7DAA)	15 (7DAA)	5.0	95.6	97.2	92.5	101.9	95.3

* deltamethrin ref

Detailed yield data - Mediterranean EPPO Zone

Table 3.4-34: Impact on yield compared to the UTC (set at 100%) on maize – Mediterranean EPPO zone

KCP	Pest Code	Crop Code	Variety	Rating Date	Part Rated	Rating Type	Crop Stage at assessment	Days after First Appl.	Days After Last Appl.	Crop BBCH at appl.	UNTREATED			GLOB2011I			GLOB2011I			GLOB2011I			GLOB2011I			Decis/deltamethrin ref			Coragen		
											assessed %control value	SNK	g/L EC	l/ha	g/L EC	l/ha	g/L EC	l/ha	g/L EC	l/ha	g/L EC	l/ha	12.5 g a.s./ha	g/L SC	l/ha	200					
KCP 6.2-131	PYRUNU	ZEAMX	P0933	03/11/22	YIELD	YIELD	89	121	107	18	12.3	100.0	-	89.0	-	110.1	-	105.3	-	98.9	-	105.8	-	Audace	109.8	-					
KCP 6.2-132	PYRUNU	ZEAMX	P867	04/10/22	YIELD	YIELD	89	67	54	73	5.0	100.0	-	95.6	-	97.2	-	101.9	-	95.3	-	92.5	-	Decis Protech 0.83 L/ha	107.2	-					
EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/unit	Nb. trials	DAA-A	DAA-B	Crop BBCH at appl.	Assessed value in the untreated control (=100%)			GLOB2011I at 2 l/ha			GLOB2011I at 3 l/ha			GLOB2011I at 4 l/ha			GLOB2011I at 6 l/ha			Decis/deltamethrin ref at 12.5 g a.s./ha			Coragen at 0.15 l/ha			
										Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean
EPOMED	PYRUNU	ZEAMX	All vs. DTM & CTPR	YIELD	t/ha	2	67-121	54-107	18-73	8.7	5-12.3	8.7	92.3	89-95.6	92.3	103.7	97.2-110.1	103.7	103.6	101.9-105.3	103.6	97.1	95.3-98.9	97.1	99.2	92.5-105.8	99.2	108.5	107.2-109.8	108.5	

South-East EPPO Zone

In the South-East EPPO Zone, yield was evaluated in 1 trial on maize. No phytotoxicity symptoms caused by GLOB2011I at the proposed rates of 2-3 L/ha were observed.

As no phytotoxic effects were observed in the trial, no tables are presented with comparison between level of symptoms and effects on the yield. Detailed yield data are summarized below.

GLOB2011I at the proposed rates of 2-3 L/ha had no negative effect on the yield of maize nor at 2N confirming that target rates are safe for the crop.

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Detailed yield data - South-East EPPO Zone

Table 3.4-35: Impact on yield compared to the UTC (set at 100%) on maize – South-East EPPO zone

KCP	Pest Code	Crop Code	Variety	Rating Date	Part Rated	Rating Type	Crop Stage at assessm.	Days after First Appl.	Days After Last Appl.	Crop BBCH at appl.	UNTREATED			GLOB2011I 650			GLOB2011I 650			GLOB2011I 650			GLOB2011I 650			Decis Mega 50 EW 50			Coragen 200		
											assessed %control	SNK value	g/L EC	2	l/ha	g/L EC	3	l/ha	g/L EC	4	l/ha	g/L EC	6	l/ha	g/L EW	0.2	l/ha	g/L SC	0.15	l/ha	
KCP 6.2-135	PYRUNU	ZEAMX	Limanova	10/10/2022	YIELD	YIELD	89	74	60	71	6.8	100.0	-	103.8	-		102.1	-		104.1	-		101.1	-		103.4	-		102.8	-	
EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/ unit	Nb. trials	DAA- A	DAA- B	Crop BBCH at appl.	Assessed value in the untreated control (=100%)			GLOB2011I at 2 l/ha			GLOB2011I at 3 l/ha			GLOB2011I at 4 l/ha			GLOB2011I at 6 l/ha			Decis Mega 50 EW at 0.2 l/ha			Coragen at 0.15 l/ha			
										Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean
EPPOSE	PYRUNU	ZEAMX	All vs. DTM &CTPR	YIELD	t/ha	1	74	60	71	6.8	-	-	103.8	-	-	102.1	-	-	104.1	-	-	101.1	-	-	103.4	-	-	102.8	-	-	

Conclusion – Effect on the yield of treated plants or plant products

Overall, GLOB2011I applied at the proposed maximum dose rates had no adverse effects on crop yield when applied on cereals, oilseed rape, potatoes and maize and could even slightly increase the mean total yield compared to the untreated control.

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

According to EPPO PP 1/135(3), for non-systemic insecticides, observations for phytotoxic effects including those on quantity and quality of the yield should be made in the direct efficacy (effectiveness) trials. In addition, reference is made to the specific PP 1 Standards for each use, whether specific yield data requirements apply. In general, for the requested uses, it is not a requirement. Only for *Ostrinia nubilalis* on maize, it may be advisable.

Given the known uses of the active substance as an herbicide, the effect on quality was investigated in part of the efficacy trials presented in section 3.2, including 2N dose rates.

Quality was evaluated in trials carried out on cereals (2 trials in the Mediterranean EPPO zone), as well as on oilseed rape (1 trials in the Maritime, 1 in the North-East EPPO zones), on potatoes (2 in the Maritime, 1 in the South-East and 7 in the Mediterranean EPPO zones) and on maize (2 in the Mediterranean and 1 in the South-East EPPO zones). Trials were carried out between 2020 and 2022.

Cereals

The effect on quality was determined in part of the efficacy trials discussed in section 3.2 in accordance with the EPPO standard PP 1/135 requirements. Plots were harvested individually to assess the weight of 1000 kernels (TKW). The percentage relative to the control is shown in the tables below and the absolute values assessed are reported for the untreated check in the tables below.

GLOB2011I was applied twice at the beginning of infestation at the rates of 1.5-2 L/ha (N) and 4 L/ha (2N), representing the target rates and the double target rate of application. Commercial standards were applied at N, as the 2N is not a requirement on insecticide efficacy trials.

Statistical analysis was made as letter test based on Student-Newman-Keuls ($P = 0.05$). Where no letter is presented (absent or '-') no difference was registered among treatments. Letters accompanying yield absolute values correspond to the post-hoc test result for the UTC value set at 100%.

The studies revealed no negative impact on the quality of wheat.

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Mediterranean EPPO Zone

Detailed quality data - Mediterranean EPPO Zone

Table 3.4-36: Impact on the quality (TKW) compared to the UTC (set at 100%) from GLOB2011I on winter soft wheat in presence of pest – Mediterranean EPPO zone

KCP	Pest Code	Crop Code	Variety	Rating Date	Part Rated	Rating Type	Crop BBCH at appl.	UNTREATED	GLOB2011I	GLOB2011I	GLOB2011I	GLOB2011I	GLOB2011I	Decis/DTM ref
								650 g/L EC 0.9 assessed % SNK value control	650 g/L EC 1.5 585 g as/ha	650 g/L EC 1.5 975 g as/ha	650 g/L EC 1.5 (high volume) 975 g as/ha	650 g/L EC 2 1300 g as/ha	650 g/L EC 4 2600 g as/ha	12.5 g as/ha
KCP 6.2-10	MACSAV	TRZAW	Soledad	30/06/22	YIELD	TKW	51	33.3 100 -	98.8 -	102.5 - 200L/HA	101.9 - 400L/HA	104.6 -	99.9 -	104.8 - 12.5g
KCP 6.2-12	MACSAV	TRZAW	Panda	05/07/22	YIELD	TKW	65	46.5 100 -	103.4 -	100.5 - 200L/HA	102.5 - 400L/HA	103.1 -	101.9 -	102.7 - 12.5g

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/unit	Nb. trials	Assessed value in the untreated control (=100%)			GLOB2011I at 0.9 L/ha			GLOB2011I at 1.5 L/ha			GLOB2011I at 1.5 L/ha (high volume)			GLOB2011I at 2 L/ha			GLOB2011I at 4 L/ha			Decis/DTM ref at 12.5 g as/ha		
							Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn
MED	MACSAV	TRZAW	All vs. DTM	TKW	g	2	39.9	33.3-46.5	39.9	101.1	98.8-103.4	101.1	101.5	100.5-102.5	101.5	102.2	101.9-102.5	102.2	103.9	103.1-104.6	103.9	100.9	99.9-101.9	100.9	103.8	102.7-104.8	103.8

Oilseed rape

The effect on quality was determined in part of the efficacy trials discussed in section 3.2 in accordance with the EPPO standard PP 1/135 requirements. Plots were harvested individually to assess the weight of 1000 kernels (TKW). The percentage relative to the control is shown in the tables below and the absolute values assessed are reported for the untreated check in the tables below.

GLOB2011I was applied once or twice at the beginning of infestation at the rate of 1.5 L/ha (N) and 3 L/ha (2N), representing the target rate and the double target rate of application. Commercial standards were applied at N, as the 2N is not a requirement on insecticide efficacy trials.

Statistical analysis was made as letter test based on Student-Newman-Keuls ($P = 0.05$). Where no letter is presented (absent or '-') no difference was registered among treatments. Letters accompanying yield absolute values correspond to the post-hoc test result for the UTC value set at 100%.

The studies revealed no negative impact on the quality of Oilseed rape

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Maritime EPPO Zone

Detailed quality data - Maritime EPPO Zone

Table 3.4-37: Impact on quality compared to the UTC (set at 100%) on winter oilseed rape in presence of pest – Maritime EPPO zone

KCP	Pest Code	Crop Code	Variety	Rating Date	Rating Type	Crop BBCH at appl.	UNTREATED			GLOB2011I			GLOB2011I			GLOB2011I			Decis/DTM ref		
							assessed value	%control	SNK	650 g/L EC	650 g/L EC	650 g/L EC	650 g/L EC	650 g/L EC	650 g/L EC	650 g/L EC	650 g/L EC	650 g/L EC	5-12.5 g as/ha		
KCP 6.2-49	MELIAE	BRSNW	Ludger	16/07/22	TKW	65	4.5	100	-	99.7	-	1 appl.	102.7	-	1 appl.	101.5	-	1 appl.	102	-	5g

EPPO zone	Target code	Crop Code	Grouping	Type/ unit	Nb. trials	Absolut value in the untreated control			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			GLOB2011I at 3 l/ha			Decis/DTM ref at 5-12.5 g as/ha		
						Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn
MAR	MELIAE	BRSNW	All vs. DTM	TKW (g)	1	4.5	-	-	99.7	-	-	102.7	-	-	101.5	-	-	102.0	-	-

North-East EPPO Zone

Detailed quality data - North-East EPPO Zone

Table 3.4-38: Impact on quality compared to the UTC (set at 100%) on winter oilseed rape in presence of pest – North-East EPPO zone

KCP	Pest Code	Crop Code	Variety	Rating Date	Rating Type	Crop BBCH at appl.	UNTREATED			GLOB2011I			GLOB2011I			GLOB2011I			Decis/DTM ref		
							assessed value	%control	SNK	650 g/L EC	650 g/L EC	650 g/L EC	650 g/L EC	650 g/L EC	650 g/L EC	650 g/L EC	650 g/L EC	650 g/L EC	5-12.5 g as/ha		
KCP 6.2-68	MELIAE	BRSNW	Absolut	05/08/22	TKW	57	5.7	100	-	104.4	-		102.4	-		104.5	-		106.7	-	7.5g
KCP 6.2-49	MELIAE	BRSNW	Ludger	16/07/22	TKW	65	4.5	100	-	99.7	-	1 appl.	102.7	-	1 appl.	101.5	-	1 appl.	102	-	5g

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EPPO zone	Target code	Crop Code	Grouping	Type/ unit	Nb. trials	Absolut value in the untreated control			GLOB2011I at 0.9 l/ha			GLOB2011I at 1.5 l/ha			GLOB2011I at 3 l/ha			Decis/DTM ref at 5-12.5 g as/ha		
						Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn
MAR	MELIAE	BRSNW	All vs. DTM	TKW (g)	2	5.1	4.5-5.7	5.1	102.1	99.7-104.4	102.1	102.6	102.4-102.7	102.6	103.0	101.5-104.5	103.0	104.4	102-106.7	104.4

Potatoes

The effect on yield was determined in part of the efficacy trials discussed in section 3.2 in accordance with the EPPO standard PP 1/135 requirements.

GLOB2011I was applied twice at the beginning of infestation at the rate of 1.5 L/ha (N) and 3 L/ha (2N), representing the target rates and the double target rate of application. Commercial standards were applied at N, as the 2N is not a requirement on insecticide efficacy trials.

In line with EPPO PP1/135, the number and weight of malformed tubers was assessed. Detailed quality data in terms of number of malformed tubers are summarized and presented below. Absolute values and the percentage relative to the untreated check set at 100% is shown in the tables. Trial where no significant number of malformed tubers were observed in intreated plots are shaded in grey in the BAD and are not considered for means calculation.

Statistical analysis was made as letter test based on Student-Newman-Keuls ($P = 0.05$). Where no letter is presented (absent or '-') no difference was registered among treatments. Letters accompanying yield absolute values correspond to the post-hoc test result for the UTC value set at 100%.

The studies revealed no negative impact on the quality of potatoes.

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Maritime EPPO Zone

Detailed quality data - Maritime EPPO Zone

Table 3.4-39: Impact on quality (number of malformed tubers per plot) from GLOB2011I on potatoes in presence of pest – Maritime EPPO zone

KCP	Crop Code	Variety	Rating Date	Part Rated	Rating Type	Rating Unit/Min/Max	Crop BBCH at ass.	Trt-Eval Interval	Crop BBCH at appl.	UNTREATED	GLOB2011I	GLOB2011I	GLOB2011I	Coragen 20 SC	Spintor	Decis/DTM ref
											650 g/L EC 0.9 l/ha 585 g as/ha AB	650 g/L EC 1.5 l/ha 975 g as/ha AB	650 g/L EC 3 l/ha 1950 g as/ha AB	200 g/L SC 0.06 l/ha 12 g as/ha AB	240 or 480 g/L SC 24-36 g as/h AB	
										assessed SNK value						
KCP 6.2-111	SOLTU	Antonia	24/08/22	TUBER	MAMDEF	NUMBER	99	43 DA-B	59	0 -	0 -	0 -	0 -	0 -		0 - 7.5g
						CONTROL					n.a.	n.a.	n.a.	n.a.		n.a.
KCP 6.2-115	SOLTU	Adela	06/09/22	TUBER	MAMDEF	NUMBER	99	50 DA-B	51	14.5 -	14 -	13.8 -	14.3 -	12.5 -		13.5 - 7.5g
						CONTROL				(100)	96.6	95.2	98.6	86.2		93.1

North-East EPPO Zone

Reference is made to results of 2 trials conducted in Czech Republic and presented above since it is a neighboring country and considered as valid to the cMS Poland. No negative impact on the quality of potatoes caused by GLOB2011I at the target rate of 1.5 L/ha or at double rate were observed, confirming that the proposed rate is safe for the crop.

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South-East EPPO Zone

Detailed quality data - South-East EPPO Zone

Table 3.4-40: Impact on quality (number of malformed tubers per plot) from GLOB2011I on potatoes in presence of pest – South-East EPPO zone

KCP	Crop Code	Variety	Rating Date	Part Rated	Rating Type	Rating Unit/Min/Max	Crop BBCH at ass.	Trt-Eval Interval	Crop BBCH at appl.	UNTREATED	GLOB2011I 650 g/L EC 0.9 l/ha 585 g as/ha AB	GLOB2011I 650 g/L EC 1.5 l/ha 975 g as/ha AB	GLOB2011I 650 g/L EC 3 l/ha 1950 g as/ha AB	Coragen 20 SC 200 g/L SC 0.06 l/ha 12 g as/ha AB	Spintor 240 or 480 g/L SC 24-36 g as/h AB	Decis/DTM ref 12 g as/ha AB
KCP 6.2-116	SOLTU	Bella Rosa	07/10/22	TUBER	MAMDEF	NUMBER	99	53 DA-B	21	11.3 -	8.8 -	10.5 -	8 -	10.5 -		8.8 - 12g
						CONTROL				(100)	77.9	92.9	70.8	92.9		77.9

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Mediterranean EPPO Zone

Detailed quality data - Mediterranean EPPO Zone

Table 3.4-41: Impact on quality (number of malformed tubers per plot) from GLOB2011I on potatoes in presence of pest – Mediterranean EPPO zone

KCP	Crop Code	Variety	Rating Date	Part Rated	Rating Type	Rating Unit/Min/Max	Crop BBCH at ass.	Trt-Eval Interval	Crop BBCH at appl.	UNTREATED <i>assessed SNK value</i>	GLOB2011I 650 g/L EC 0.9 l/ha 585 g as/ha AB	GLOB2011I 650 g/L EC 1.5 l/ha 975 g as/ha AB	GLOB2011I 650 g/L EC 3 l/ha 1950 g as/ha AB	Coragen 20 SC 200 g/L SC 0.06 l/ha 12 g as/ha AB	Spintor 240 or 480 g/L SC 24-36 g as/h AB	Decis/DTM ref 5-12.5 g as/ha AB	DTM 7.5-12.5 g as/ha A	GLOB2011I 650 g/L EC 1.5l/ha 975 g as/ha B
KCP 6.2-119	SOLU	Spunta	17/06/22	TUBER	MAMDEF	NUMBER CONTROL	99	22 DA-B	41	0 -	0 -	0 -	0 -	0 -		0 - 12.5g	0 -	
KCP 6.2-120	SOLU	Arthemis	25/07/22	TUBER	MAMDEF	NUMBER CONTROL	99	37 DA-B	45	0.1 -	0.3 -	0.2 -	0.3 -	0.3 -		0.4 - 7.5g	0.4 -	
KCP 6.2-121	SOLU	Liseta	15/07/22	TUBER	MAMDEF	NUMBER CONTROL	99	36 DA-B	39	12.5 a (100)	4.3 b 34.4	3.8 b 30.4	3.5 b 28.0	3.3 b 26.4		2.8 b 12.5g 22.4	3 b 24.0	
KCP 6.2-122	SOLU	Primura	20/07/22	TUBER	MAMDEF	NUMBER CONTROL	99	40 DA-B	43	0.5 -	1 -	0.5 -	0.3 -	0.8 -		0.8 - 12.5g	0.8 -	
KCP 6.2-123	SOLU	Bintje	05/08/22	TUBER	MAMDEF	NUMBER CONTROL	99	53 DA-B	38	21.5 - (100)	23.5 - 109.3	29.3 - 136.3	24 - 111.6	23.5 - 109.3		24 - 12.5g 111.6	24.8 - 115.3	
KCP 6.2-124	SOLU	Turia	17/08/22	TUBER	MAMDEF	NUMBER CONTROL	99	36 DA-B	67	18.5 - (100)	17.3 - 93.5	17 - 91.9	14 - 75.7	17.8 - 96.2	16.5 - 36g 89.2	-	-	
KCP 6.2-125	SOLU	Primura	20/07/22	TUBER	MAMDEF	NUMBER CONTROL	99	26 DA-B	45	0.5 -	1 -	1.8 -	0 -	0.8 -	1.5 - 36g	-	-	

Maize

The effect on quality was determined in part of the efficacy trials discussed in section 3.2 in accordance with the EPPO standard PP 1/135 requirements. Plots were harvested individually to assess the weight of 1000 kernels (TKW). The percentage relative to the control is shown in the tables below and the absolute values assessed are reported for the untreated check in the tables below.

GLOB2011I was applied twice at the beginning of infestation at the rates of 2 and 3 L/ha (N) and 4 and 6 L/ha (2N), respectively representing the target rates and the double target rates of application. Commercial standards were applied at N, as the 2N is not a requirement on insecticide efficacy trials.

Statistical analysis was made as letter test based on Student-Newman-Keuls ($P = 0.05$). Where no letter is presented (absent or '-') no difference was registered among treatments. Letters accompanying yield absolute values correspond to the post-hoc test result for the UTC value set at 100%.

The studies revealed no negative impact on the quality of maize.

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Mediterranean EPPO Zone

Detailed quality data - Mediterranean EPPO Zone

Table 3.4-42: Impact on quality compared to the UTC (set at 100%) on maize – Mediterranean EPPO zone

KCP	Pest Code	Crop Code	Variety	Rating Date	Part Rated	Rating Type	Crop Stage at assessm.	Days after First Appl.	Days After Last Appl.	Crop BBCH at appl.	UNTREATED			GLOB2011I			GLOB2011I			GLOB2011I			GLOB2011I			Decis/deltamethrin ref			Coragen		
											assessed value	%control	SNK	g/L EC	650	l/ha	g/L EC	650	l/ha	g/L EC	650	l/ha	g/L EC	650	l/ha	12.5 g a.s./ha	g/L SC	200	0.15		
KCP 6.2-131	PYRUNU	ZEAMX	P0933	03/11/22	YIELD	TKW	89	121	107	18	272.2	100.0	-	101.0	-		97.0	-		97.8	-		96.5	-		102.0	-	Audace	96.5	-	
KCP 6.2-132	PYRUNU	ZEAMX	P867	21/10/22	YIELD	TKW	99	84	71	73	187.3	100.0	-	101.3	-		101.9	-		101.7	-		97.0	-		104.3	-	Decis Protech 0.83 L/ha	103.4	-	

EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/unit	Nb. trials	DAA-A	DAA-B	Crop BBCH at appl.	Assessed value in the untreated control (=100%)			GLOB2011I at 2 l/ha			GLOB2011I at 3 l/ha			GLOB2011I at 4 l/ha			GLOB2011I at 6 l/ha			Decis/deltamethrin ref at 12.5 g a.s./ha			Coragen at 0.15 l/ha		
										Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn
EPOMED	PYRUNU	ZEAMX	All vs. DTM & CTPR	TKW	g	2	84-121	71-107	18-73	229.8	187.3-272.2	229.8	101.1	101-101.3	101.1	99.4	97-101.9	99.4	99.8	97.8-101.7	99.8	96.7	96.5-97	96.7	103.1	102-104.3	103.1	99.9	96.5-103.4	99.9

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South-East EPPO Zone

Detailed quality data - South-East EPPO Zone

Table 3.4-43: Impact on quality compared to the UTC (set at 100%) on maize – South-East EPPO zone

KCP	Pest Code	Crop Code	Variety	Rating Date	Part Rated	Rating Type	Crop Stage at assessment.	Days after First Appl.	Days After Last Appl.	Crop BBCH at appl.	UNTREATED			GLOB2011I 650			GLOB2011I 650			GLOB2011I 650			GLOB2011I 650			Decis Mega 50 EW 50			Coragen 200		
											assessed value	%control	SNK	g/L EC l/ha	2	g/L EC l/ha	3	g/L EC l/ha	4	g/L EC l/ha	6	g/L EW l/ha	0.2	g/L SC l/ha	0.15						
KCP 6.2-135	PYRUN U	ZEAMX	Limanova	10/10/2022	YIELD	TKW	89	74	60	71	320.2	100.0	-	100.4	-	-	101.3	-	-	103.5	-	-	100.7	-	-	101.3	-	-	102.0	-	-
EPPO zone	Target code	Crop Code	Grouping	Part rated	Type/unit	Nb. trials	DAA-A	DAA-B	Crop BBCH at appl.	Assessed value in the untreated control (=100%)			GLOB2011I at 2 l/ha			GLOB2011I at 3 l/ha			GLOB2011I at 4 l/ha			GLOB2011I at 6 l/ha			Decis Mega 50 EW at 0.2 l/ha			Coragen at 0.15 l/ha			
										Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean	Min & Max	Mdn	Mean
EPPOSE	PYRUN U	ZEAMX	All vs. DTM &CTPR	TKW	g	1	74	60	71	320.2	-	-	-	100.4	-	-	101.3	-	-	103.5	-	-	100.7	-	-	101.3	-	-	102.0	-	-

Conclusion – Effects on the quality of plants or plant products

Overall, GLOB2011I applied at proposed label rate showed no negative effects on quality of cereals, oilseed rape, potatoes and maize. Therefore, no impact of GLOB2011I on quality of yield is to be expected, when applied within proposed label rate range and according to label recommendations.

3.4.4 Effects on transformation processes (KCP 6.4.4)

According to EPPO PP1/243 “*Effects of plant protection products on transformation processes*”, wheat and barley are crops used for industrial processes (such as bread making or brewing) which include transformation (dependent on biological activity). On the other hand, potatoes usually do not follow transformation processes depending on biological activity but may follow physical processes.

Also, according to PP1/242(2) - Taint tests, there are no simple rules or cut-off criteria, to decide whether or not taint tests should be conducted, but based on information on the historical occurrence of taint, the risk can be classified as Low (with a taint test not usually required) for *a product used on fresh produce only, and/or an active substance not associated with taint problems or relatively similar in structure to active substances not associated with taint problems, and/or a product leaving no residues at harvest and/or a non-systemic compound not applied to harvestable plant parts.*

GLOB2011I is a formulated product based on a non-systemic active substance already authorised in EU and used since a long time in straight formulations on a wide range of crops with no negative effects known on transformation processes or taint.

In the RAR for the active substance, it is clearly demonstrated that pelargonic acid is present as a naturally occurring substance in various amounts in all crop species tested, including lettuce, potato, plums, oilseed rape and wheat. Traces of pelargonic acid were detected in lettuce, potato and plums, whereas intermediate to high levels (up to 2.2 mg/kg) could be found in wheat and oilseed rape matrices.

The study of the presence of residues at harvest is thus not required as it's a naturally occurring compound (also approved as a food additive according to Commission Regulation (EU) No 872/2012) for which no residue definition is set/required.

It is reasonable to consider that even in a worst case situation of using the highest requested rate for GLOB2011I of 3 L/ha with a 14 days interval and considering a DT50 value of 1.6 days, before 30 days of the initial application the presence of the active substance is virtually null.

Specifically for the crops in this submission that can be regarded as potentially used for processing:

- Cereals – the product can be applied to harvestable plant parts (ears) however not close to harvest (latest application possible at BBCH 77, about 1 month ahead of harvest) and due to the rapid metabolism and degradation of the active substance, virtually no residues will be present.
- Potatoes – the product is not applied directly to harvestable plant parts and not close to harvest and due to the rapid metabolism and degradation of the active substance, virtually no residues will be present. Also, the active substance, is used in potatoes as a dissecant at much higher rates, with no reported negative effects.

Therefore, no further data is deemed to be necessary. A safe use of GLOB2011I can be considered for all crops.

Conclusion – Effects on transformation processes

The case presented by the applicant is acceptable and no further data are required.

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

According to EPPO guideline PP 1/135 “*Phytotoxicity assessment*”, for insecticide products, data on plant parts for propagation are not normally required. Only where the plant protection product has systemic activity, is applied close to harvest and some phytotoxic effects are seen on some crops.

GLOB2011I has no systemic activity. In the RAR for the active substance, it is clearly demonstrated that pelargonic acid is present as a naturally occurring substance in various amounts in all crop species tested, including lettuce, potato, plums, oilseed rape and wheat. Traces of pelargonic acid were detected in lettuce, potato and plums, whereas intermediate to high levels (up to 2.2 mg/kg) could be found in wheat and oilseed rape matrices.

Specifically for the crops in this submission:

- Cereals – the product can be applied to harvestable plant parts (ears) however not close to harvest (latest application possible at BBCH 77, about 1 month ahead of harvest). Some phytotoxic effects were observed when the product is applied to the early stages of the crops and not at more advanced developing stages.
- Oilseed rape – the product can be applied up to BBCH 65, before pods are formed. Some phytotoxic effects were observed when the product is applied to the early stages of the crops and not at more advanced developing stages.
- Potatoes – the product is not applied directly to harvestable plant parts and not close to harvest. No phytotoxic effects were observed at the maximum target rate.
- Maize - the product can be applied to harvestable plant parts (ears) however not close to harvest (latest application possible at BBCH 71). No phytotoxic effects were observed at the maximum target rate.

Taking into account that the active substance is a naturally occurring substance known to have herbicidal properties only at much higher rates, that even the study of the presence of residues at harvest is not a requirement as pelargonic acid is a naturally occurring compound for which no residue definition is set/required and given that GLOB2011I is not applied close to harvest, no negative effects on seed or tuber germination is to be expected. A safe use of GLOB2011I can be considered for plant products to be used for propagation with no further data.

Conclusion – Impact on treated plants or plant products to be used for propagation

The case presented by the applicant is acceptable and no further data are required.

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

3.5.1 Impact on succeeding crops (KCP 6.5.1)

The impact on succeeding crops is calculated in accordance with the EPPO 1/207(2) - Effects on succeeding crops by comparing the PEC_{soil} values to the ER10 values from the seedling emergence study (KCP 6.5.1-1).

The seedling emergence study was performed with GLOB2011I in a worst-case scenario. In this seedling emergence study of non-target plants 6 different crops are tested.

<u>Plant species:</u>			
	Family	Species	Common Name
Dicotyledoneae	Brassicaceae	<i>Brassica napus</i>	Oilseed rape
Dicotyledoneae	Fabaceae	<i>Pisum sativum</i>	Garden pea
Dicotyledoneae	Amaranthaceae	<i>Beta vulgaris subsp. vulgaris var. altissima</i>	Sugar beet
Dicotyledoneae	Solanaceae	<i>Solanum lycopersicum</i>	Tomato
Monocotyledoneae	Amaryllidaceae	<i>Allium cepa</i>	Garden onion
Monocotyledoneae	Poaceae	<i>Avena sativa</i>	Oat

The worst case exposition scenario was calculated by a maximum rate of 2 applications of 3 L/ha (maximum proposed GAP rate of 3 L/ha on maize) and a minimum crop interception of 0% represented by cereals and oilseed rape at early development stage. All other crops would have a higher crop interception value.

Calculation of the PEC_{soil} for the intended use of GLOB2011I

The initial and actual PEC_{soil} are calculated with equation 1 and 2 respectively:

PEC_{initial}

$$PEC_{ini} = \frac{A \cdot (1 - f_{int})}{100 \cdot d \cdot bd} \quad (1)$$

where

A = application rate [g/ha]
 f_{int} = fraction intercepted by plant cover
 d = depth of the soil layer [cm]
 bd = bulk soil density [g/cm³]

PEC_{actual}

$$PEC_{act}(t) = PEC_{ini} \cdot e^{-kt} = PEC_{ini} \cdot e^{-\frac{t \ln 2}{DT50}} \quad (2)$$

PEC_{ini} was calculated for a dose rate of 3 L/ha of GLOB2011I and, as a worst case, supposing the 2 applications according to GAP would be applied at the same time (for a total amount of 3960 g a.s./ha) and considering the absence of crop interception as in the worst case of early stages of cereals and oilseed rape. The soil bulk density was set to 1.5 g/cm³. The depth of soil layer used was the standard 5 cm. Calculated worst case PEC result was 5.2 mg ai/kg soil.

A more realistic PEC could be considered 2.6 mg ai/kg soil, as a results of 2 applications of 3 L/ha with 14 days interval.

The maximum rate tested in the study was even superior to the initial worst case PEC_{soil} as, at the time of study planning, a higher rate was hypothesized.

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For the calculation of the PEC_{act} , the DT50 for pelargonic acid was set at 1.6 days.
The PEC_{soil} values over time for GLOB2011I are shown below.

Table 3.5-1: PEC_{soil} calculations for 6 L/ha (3+3 L/ha) of GLOB2011I

Days after application	GLOB2011I (mg ai/kg soil)
	PEC_{soil} 5 cm
0 (initial)	5.2000
1	3.3718
2	2.1863
4	0.9192
7	0.2506
14	0.0121
21	0.0006
28	0.0000

All six species had an ER₁₀, ER₂₅ and ER₅₀ value of > 9.54 mg product/ha and NOEC and LOEC values of 9.54 product/ha (equals to 6.2 mg a.i/kg soil) for both parameters, shoot fresh weight and visual injury. A summary of the results on shoot fresh weight are presented in the table below:

Table 3.5-2: Results of the study based on shoot fresh weight reduction

Species	ER ₁₀ # (mg GLOB2011I /kg of soil)	ER ₂₅ (mg GLOB2011I /kg of soil)	ER ₅₀ (mg GLOB2011I /kg of soil)	R-Sq.	NOEC (mg GLOB2011I /kg of soil)	LOEC (mg GLOB2011I /kg of soil)
Onion	> 9.54	> 9.54	> 9.54	N/A	9.54	9.54
Oats	> 9.54	> 9.54	> 9.54	N/A	9.54	9.54
Oilseed rape	> 9.54	> 9.54	> 9.54	N/A	9.54	9.54
Pea	> 9.54	> 9.54	> 9.54	N/A	9.54	9.54
Sugar beet	> 9.54	> 9.54	> 9.54	N/A	9.54	9.54
Tomato	> 9.54	> 9.54	> 9.54	N/A	9.54	9.54

ER₁₀ values should be treated with caution due to natural plant to plant variability.

Calculation of the TER for the intended use of GLOB2011I

The ER₁₀ was first converted from mg product/kg of soil into mg ai/kg soil and then divided by the PEC_{soil} at different timings for each possible following crop. The TER should be equal or higher as 1 in order to show an acceptable risk. The ER₁₀ values of the seedling emergence study are presented above in Table 3.5-1 based on shoot fresh weight reduction. Several species were tested representing plant families likely to be sown in case of crop failure. The TER calculations are presented in the table below. As the use has demonstrated to be safe at a 5cm depth, no TER calculation is presented for soil cultivation at 20cm.

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Table 3.5-3: PEC-values and TER-calculation of GLOB2011I based on EC10-values.

Days after application	GLOB2011I	Succeeding crop(1)					
		TER					
	PEC(2) mg ai/kg soil 5 cm	EC10/PEC product 5 cm					
		Onion	Oats	Oilseed rape	Pea	Sugar beet	Tomato
0 (initial)	5.2	1.1925	1.1925	1.1925	1.1925	1.1925	1.1925
1	3.3718	1.8391	1.8391	1.8391	1.8391	1.8391	1.8391
2	2.1863	2.8363	2.8363	2.8363	2.8363	2.8363	2.8363
4	0.9192	6.7461	6.7461	6.7461	6.7461	6.7461	6.7461
7	0.2506	24.7446	24.7446	24.7446	24.7446	24.7446	24.7446
14	0.0121	512.4793	512.4793	512.4793	512.4793	512.4793	512.4793
21	0.0006	10335.000	10335.000	10335.000	10335.000	10335.000	10335.000

¹ possible following crops in a regular crop rotation; ² PEC (soil depth 5 cm)

It can be seen from the above table that all crops can be sown immediately after application of GLOB2011I, even without soil cultivation.

For all crops, no visual injury was ever observed at any tested rate including the worst case PECini.

Summary and conclusion on the Impact on succeeding crops

The formulation GLOB2011I demonstrated to be safe for all succeeding crops and justify no label restrictions.

Conclusion – Impact on succeeding crops

It is concluded that there is negligible risk of pelargonic acid impacting negatively on succeeding crops under normal use and no limitations are proposed. The case presented by the applicant is acceptable and no further data are required.

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

The impact on adjacent crops is calculated in accordance with the EPPO 1/256(1) – Effects on adjacent crops by comparing the drift rates to the lowest EC₅₀ from the vegetative vigour study (KCP 10.6), discussed in Section B9 Ecotoxicology.

In the mentioned study, the test species consisted of four dicotyledonous and two monocotyledonous species were tested, representing five plant families: *Brassica napus*, *Pisum sativum*, *Cucumis sativus*, *Solanum lycopersicum*, *Allium cepa* and *Avena sativa*.

Based on both seedling emergence and vegetative vigour, all species had ER₅₀ values above the rate of 8000 mL/ha. Therefore, the value of ER₅₀ of > 5200 g a.s. (8000 ml PPP)/ha was then taken into account for the TER calculations.

Table 3.5-4: ED₅₀-values (mg/ha) of different test plants

Test plant Common name	Test plant Scientific name (lat.)	Exposure System	Results	Reference
Oilseed rape Peas Cucumber Tomato Onion Oats	<i>Brassica napus</i> d ¹⁾ <i>Pisum sativum</i> d ²⁾ <i>Cucumis sativus</i> d ³⁾ <i>Solanum lycopersicum</i> d ⁴⁾ <i>Allium cepa</i> m ⁵⁾ <i>Avena sativa</i> m ⁶⁾	21 d Seedling emergence	1,2,3,4,5,6) ER ₅₀ emergence > 8000 ml PPP/ha 1,2,3,4,5,6) ER ₅₀ plant fresh weight > 8000 ml PPP/ha	Bützler, R. (2022), study # 167841086
Oilseed rape Peas Cucumber Tomato Onion Oats	<i>Brassica napus</i> d ¹⁾ <i>Pisum sativum</i> d ²⁾ <i>Cucumis sativus</i> d ³⁾ <i>Solanum lycopersicum</i> d ⁴⁾ <i>Allium cepa</i> m ⁵⁾ <i>Avena sativa</i> m ⁶⁾	21 d Vegetative vigour	1,2,3,4,5,6) ER ₅₀ plant fresh weight > 8000 ml PPP/ha ¹⁾ ER ₅₀ plant phytotoxicity 8872 ml PPP/ha 2,3,4,5,6) ER ₅₀ plant phytotoxicity > 8000 ml PPP/ha	Bützler, R. (2022), study # 167841087

m: monocotyledonous; d: dicotyledonous

Table 3.5-5: TER calculation for non-target plants due to the use of GLOB2011I

Intended use		Maize also covering uses in cereals, oilseed rape and potatoes		
Active substance/product		Pelargonic acid / GLOB2011I		
Application rate (g a.s./ha)		2 × 1950		
MAF		1.7		
Test species	ER ₅₀ (g a.s./ha)	Drift rate	PER _{off-field} (g a.s./ha)	TER criterion: TER ≥ 5
<i>Brassica napus</i> <i>Pisum sativum</i> <i>Cucumis sativus</i> <i>Solanum lycopersicum</i> <i>Allium cepa</i> <i>Avena sativa</i>	> 5200 (8000 ml PPP)/ha (worst case value for all species)	2.38% (1m, 82 nd percentile for 2 applications)	210.4	> 24.7

MAF: Multiple application factor; PER: Predicted environmental rate; TER: toxicity to exposure ratio. TER values shown in bold fall below the relevant trigger.

It can be seen from the above table that the trigger value for the TER based on the worst case ER_{50} was reached.

Summary and conclusion on the Impact on other plants including adjacent crops

According to the intended GAP, no buffer zone or other mitigation measures are needed to protect non-target plants after application of GLOB2011I according to the intended use.

Conclusion – Impact on other plants including adjacent crops

Overall, it is concluded that the use of GLOB2011I at the proposed maximum recommended dose will not lead to any deleterious effects on adjacent or other crops under normal conditions. No buffer zone or other mitigation measures are needed to protect non-target plants after application of GLOB2011I according to the intended use.

Tank cleaning

The effectiveness of tank cleaning was assessed in the study to determine the physico-chemical properties of the product (Pomeroy D., 2021 (Study No: DNA6513, KCP 4.2) and summarised in Part B, Section 4 (Further information).

It was concluded that the formulation GLOB2011I (using pre-storage sample) has a mean effectiveness of cleaning result of 0.00332% residue for pelargonic acid using three Water rinses. This demonstrates that only a very limited amount of residue remains in the spray tank after cleaning.

Suppose a sprayer has a tank of 1000 L spray volume. The worst case dose rate is 3 L GLOB2011I per ha. If applied in 200 L/ha (worst case), the tank can be filled to spray 5 ha and thus will contain 15 L of GLOB2011I, equivalent to 9750 g active ingredient.

Suppose, as worst case approach, that after rinsing, an application is made to a new crop using the total capacity of 1000L per ha on the new crop, then 0.00332% of the original maximum 9750 g of pelargonic acid would be applied to one hectare of that new crop. This is equal to 0.3 g a.s., which is much lower than the NOER value of 2600 g a.s./ha of the most sensitive crops based on the studies on non-target plants discussed in Section B9 of the Registration Report, and thus it is clear that standard cleaning procedures are sufficient for GLOB2011I.

Conclusion – Tank cleaning

The applicants proposal of cleaning to Good Agricultural Practice is acceptable, this advice should be sufficient.

3.5.3 Effects on beneficial and other non-target organisms (KCP 6.5.3)

Detailed studies on the possible adverse effects to beneficial organisms are submitted and summarised in Part B, Section 9 (Ecotoxicology).

Conclusion - Effects on beneficial and other non-target organisms

No risk to other terrestrial organisms is identified following the use of GLOB2011I according to proposed GAPs.

Compatibility with current management practices including IPM

Five trials against Colorado Potato Beetle *Leptinotarsa decemlineata* where GLOB2011I was applied also in an IPM strategy are presented in point 3.2.3.5(Mediterranean zone). One application of a pyrethroid (A) was followed by one application of the test product (B) with an interval of 14 days in the same plots and compared to 2 applications of test and reference product (AB). The strategy showed similar levels of control compared to products applied alone. This is confirmed by yield data presented in point 3.4.2.

3.6 Other/special studies

No other studies were carried out.

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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)
Agri 2000 France SARL	22 Che de L'artisanat 26540 Mours-Saint-Eusebe, France	Yes
Agri 2000 Net S.r.l.	Via Marabini, 14/A Castel Maggiore (BO), Italy	Yes
Agricola 2000 S.C.p.A.	Via Trieste, 9 20067 Tribiano, Milano Italy	Yes
Agritec vyzkum slechteni a sluzby s.r.o.	Zemedelska 2520/16 Sumperk-787 01, Czech Republic	Yes
Agro Research Consulting	ul. Nadburzańska 32 99-400 Łowicz, Poland	Yes
Biochem agrar	Kupferstraße 6, 04827 Machern OT Gerichshain, Germany	Yes
Botany B.V. - Exploras	Doctor Droesenweg 7, 5964 NC Meterik, the Netherlands	Yes
CPRP	Török Ignác u. 30, Szombathely, Hungary	Yes
Estonian Crop Research Institute	J. Aamisepa 1, Jõgeva 48309 Jõgeva maakond (EE)	Yes
Eurofins Agrosience Services sp. z o.o.	Kazmierz, Parkowa street 6 PL-64-530 Kazmierz, Poland	Yes
Fertico Sp. z o.o.	Goliany 43 05-620 Błędów, Poland	Yes
Field Research Support (PL)	Ul Dworcowa 2, Kościan-64-000, Poland	Yes
Field Research Support (DE)	Max-Planck-Straße 5, D – 31515 Wunstorf (DE)	Yes
GMW Biosciences	Sepes C/Jornalers 35, Alberic, Spain	Yes
Institute of Plant Protection - National Research Institute IOR Sosniewice	ul. Gliwicka 29, 44-153 Sosniewice, Poland	Yes
Latvian Plant Protection Research Centre (LAAPC)	Struktoru 14a, Rīga, LV 1039, Latvia	Yes
Plant-Art Research Kft.	Ébner György köz 4, 2040 Budaörs, Hungary	Yes
Verify / Proeftuin Zwaagdijk	1681 ND Zwaagdijk-Oost, the Netherlands	
Staphyt Poland	Ziębicka 2, Poznań-60-164	Yes
SynTech Research Poland Sp. z o.o.	ul. Jagiellonska 69/1, 85-027 Bydgoszcz, Poland	Yes
ZS Kujawy	Kujawy 48, 742 44, Czech Republic	Yes
Agricultural Research Institute Kromeriz (Zemedelsky vyzkumny ustav Kromeriz, s. r. o.)	Havlíčkova 2787/121 Kroměříž-767 01, Czech Republic	Yes
FieldArm Limited	Willowfields, The Street, Ramsey, Essex, CO12 5HL, UK	Yes
Field Research Support Germany	Max-Planck-Straße 5 D-31515 Wunstorf, Germany	Yes
Institute of Agriculture, LAMMC	Lithuania Instituto al. 1, Akademija LT 58344 Kėdainiai distr., Lithuania	Yes
InTec Agro Trials, s.r.o.	Blatnická 179, 687 24 Uherský Ostroh (CZ)	Yes
Oxford Agricultural Trials Ltd.	West Farm Barn, Launton Rd, Stratton Audley, Bicester OX27 9AS, UK	Yes
Qualiphyt	80 Chemin de Riboulin, 26270 Loriol Sur Drome, France	Yes
Quintus GmbH	Liepen 7 Hohen Wangelin OT Liepen-17194, Germany	Yes
Pest Pro d.o.o.	Stjepana Gradica 5, Zagreb – 10010, Croatia	Yes
SAGEA Centro di Saggio s.r.l.	Via San Sudario, 15 12050 Castagnito d'Alba (CN), Italy	Yes
Sagea OOD	Ul. Kasta 22, S. Stargel, 2135 - Bulgaria	Yes
SAGEA Iberia S.L.	Polígono Industrial Novaparc-C/Herradores, 11 41820 Carrión de los Céspedes (Seville) Spain	Yes
SAGEA d.o.o. - Serbia	Lazara Mamuzica br. 16 11080 Zemun, Beograd Serbia	Yes*

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Test facility	Address	Certificate (Yes or No)
Staphyt Spain	Calle Sevilla, 21, 41960 Gines, Sevilla, Spain	Yes
Staphyt Italia	via della Meccanica 28 04011, Aprilia (LT), Italy	Yes
Staphyt France	23 route de Moeuvres Inchy en Artois - 62860, France	Yes
Staphyt Germany	Langenburger Str. 35 74572 Blaufelden, Germany	Yes
Zemservis Domaninek, zk. st. s.r.o.	K Zámečku 1231, Bystrice nad Pernštejnem-593 01, Czech Republic	Yes
Zkusebni stanice Kluky	Boys 201 Boys at Písek-398 19, Czech Republic	Yes

* Official certificate at country level by the Ministry of Agriculture to perform efficacy trials and evaluations of plant protection products, including registrative trials before GEP certification scheme in place.

Appendix 1 Lists of data considered in support of the evaluation

List of data submitted by the applicant and relied on

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2	Roberta Kolberg	2023	Biological Assessment Dossier: GLOB2011I Globachem NV	N	Y
KCP 6.2-01	Zöllner, H.	2020	Efficacy of globA (IPU) for aphid control of ear species in cereals FRS044-20-V2 Field Research Support GEP Unpublished	N	Globachem NV
KCP 6.2-02	Svacinova, I.	2021	Efficacy of Sankari on cereals. IE-21-D-GLOB2011I-CZ01 Zemelsky vyzkumny ustav Kromeriz, s. r. o. GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-03	de Vries, H.	2021	Efficacy of Sankari on cereals. IE-21-D-GLOB2011I-NL05 Verify GEP Unpublished	N	Globachem NV
KCP 6.2-04	Spitzer, T.	2022	Efficacy of Sankari on cereals. IE-22-A-GLOB2011I-CZ01 Agricultural Research Institute Kromeriz, Ltd. GEP Unpublished	N	Globachem NV
KCP 6.2-05	CAMUÑEZ, S.	2022	Efficacy of Sankari on cereals. Version 1 IE-22-A-GLOB2011I-DE02 STAPHYT GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-06	Tetuan, B.	2020	Determination of Efficacy of GLOB A Against Aphids in cereals under open field Conditions in One Site in Spain 035E20S GMW Bioscience GEP Unpublished	N	Globachem NV
KCP 6.2-07	Tetuan, B.	2020	Determination of Efficacy of GLOB A Against Aphids in cereals under open field Conditions in One Site in Spain 062E20S GMW Bioscience GEP Unpublished	N	Globachem NV
KCP 6.2-08	Russo, A.	2021	Efficacy of Sankari on cereals. IE-21-D-GLOB2011I-IT03 Agri 2000 Net S.r.l. GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-09	Russo, A.	2021	Efficacy of Sankari on cereals. IE-21-D-GLOB2011I-IT04 Agri 2000 Net S.r.l. GEP Unpublished	N	Globachem NV
KCP 6.2-10	Milosevic, L.	2022	Efficacy of Sankari on cereals. IE-22-A-GLOB2011I-ES03 SAGEA Centro di Saggio s.r.l. GEP Unpublished	N	Globachem NV
KCP 6.2-11	Zagi, H.	2022	Efficacy of Sankari on cereals. IE-22-A-GLOB2011I-HR04 Pest Pro d.o.o. GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-12	CAMUÑEZ, S.	2022	Efficacy of Sankari on cereals. Version 2 IE-22-A-GLOB2011I-IT05 STAPHYT GEP Unpublished	N	Globachem NV
KCP 6.2-13	Piotrowski, G.	2021	Efficacy of Sankari on cereals. IE-21-D-GLOB2011I-PL06 Syntech Research Poland Sp. zoo GEP Unpublished	N	Globachem NV
KCP 6.2-14	Drzewiecki, S.	2021	Efficacy of Sankari on cereals. IE-21-D-GLOB2011I-PL07 Institute of Plant Protection - National Research Institute GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-15	Desogus, S.	2020	Efficacy and selectivity evaluation of the contact effect of the test product GLOBA and GLOBA.M against the aphids on cereals - Serbia 2020 095.I.SAG.SRB20 SAGEA Centro di Saggio s.r.l. GEP Unpublished	N	Globachem NV
KCP 6.2-16	Desogus, S.	2020	Efficacy and selectivity evaluation of the contact effect of the test product GLOBE against the aphids on cereals - Serbia and Bulgaria 2020 7003.I.SAG19 SAGEA Centro di Saggio S.r.l. GEP Unpublished	N	Globachem NV
KCP 6.2-17	Desogus, S.	2020	Efficacy and selectivity evaluation of the contact effect of the test product GLOBE against the aphids on cereals - Serbia and Bulgaria 2019 7004.I.SAG19 Sagea Centro di Saggio s.r.l. GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-18	Zöllner, H.	2020	Efficacy of globA (IPU) for aphid control in cereals FRS044-20-V1 Field Research Support GEP Unpublished	N	Globachem NV
KCP 6.2-19	Svacinova, I.	2021	Efficacy of autumn use of Sankari on cereals. IE-21-J-GLOB2011I-CZ01 Zemedelsky vyzkumny ustav Kromeriz, s. r. o. GEP Unpublished	N	Globachem NV
KCP 6.2-20	Seifert, M.	2021	Efficacy of autumn use of Sankari on cereals. IE-21-J-GLOB2011I-DE02 BioChem agrar GmbH Niederlassung Agroplan GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-21	de Vries, H.	2021	Efficacy of autumn use of Sankari on cereals. IE-21-J-GLOB2011I-NL03 Verify GEP Unpublished	N	Globachem NV
KCP 6.2-22	Spitzer, T.	2022	Efficacy of Sankari on cereals. IE-22-F-GLOB2011I-CZ01 Agricultural Research Institute Kromeriz, Ltd. GEP Unpublished	N	Globachem NV
KCP 6.2-23	Bauer, T.	2022	Efficacy of Sankari on cereals. IE-22-F-GLOB2011I-CZ02 InTec Agro Trials, s.r.o. GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-24	Burger, P.	2022	Efficacy of Sankari on cereals. IE-22-F-GLOB2011I-DE03 QUINTUS GmbH GEP Unpublished	N	Globachem NV
KCP 6.2-25	Seifert, M.	2022	Efficacy of Sankari on cereals. IE-22-F-GLOB2011I-DE04 BioChem agrar GmbH Niederlassung Agroplan GEP Unpublished	N	Globachem NV
KCP 6.2-26	Beyreiss, S.	2022	Efficacy of Sankari on cereals. IE-22-F-GLOB2011I-UK11 OAT Ltd. GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-27	Bauer, T.	2022	Efficacy of Sankari on cereals. IE-22-Q-GLOB2011I-CZ01 InTec Agro Trials, s.r.o. GEP Unpublished	N	Globachem NV
KCP 6.2-28	LUNZENFICHTER, D.	2022	Efficacy of Sankari on cereals (France, 2022). IE-22-Q-GLOB2011I-FR04 QUALIPHYT GEP Unpublished	N	Globachem NV
KCP 6.2-29	Beyreiss, S.	2022	Efficacy of Sankari on cereals. IE-22-Q-GLOB2011I-UK06 OAT Ltd. GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-30	CAMUÑEZ, S.	2022	Efficacy of Sankari on cereals. Version 1 IE-22-F-GLOB2011I-ES06 STAPHYT GEP Unpublished	N	Globachem NV
KCP 6.2-31	CAMUÑEZ, S.	2022	Efficacy of Sankari on cereals. Version 1 IE-22-F-GLOB2011I-FR07 STAPHYT GEP Unpublished	N	Globachem NV
KCP 6.2-32	Zagi, H.	2022	Efficacy of Sankari on cereals. IE-22-F-GLOB2011I-HR08 Pest Pro d.o.o. GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-33	Zambon, D.	2022	Efficacy of Sankari on cereals. IE-22-F-GLOB2011I-IT05 SAGEA Centro di Saggio S.r.l. GEP Unpublished	N	Globachem NV
KCP 6.2-34	Russo, A.	2022	Efficacy of Sankari on cereals. IE-22-F-GLOB2011I-IT09 Agri 2000 Net S.r.l. GEP Unpublished	N	Globachem NV
KCP 6.2-35	Zambon, D.	2022	Efficacy of Sankari on cereals. IE-22-F-GLOB2011I-IT10 SAGEA Centro di Saggio S.r.l. GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-36	Zagi, H.	2022	Efficacy of Sankari on cereals. IE-22-Q-GLOB2011I-HR05 Pest Pro d.o.o. GEP Unpublished	N	Globachem NV
KCP 6.2-37	Russo, A.	2022	Efficacy of Sankari on cereals. IE-22-Q-GLOB2011I-IT03 Agri 2000 Net S.r.l. GEP Unpublished	N	Globachem NV
KCP 6.2-38	Piotrowski, G.	2021	Efficacy of autumn use of Sankari on cereals. IE-21-J-GLOB2011I-PL04 SynTech Research Poland Sp.zo.o. GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-39	de Vries, H.	2020	efficacy of test compound against meligethes in SORS 201392 Proeftuin Zwaagdijk GEP Unpublished	N	Globachem NV
KCP 6.2-43	Friedrich, F.	2021	Efficacy of foliar insecticides against pod weevils IE-21-C-GLOB2011I-DE01 QUINTUS GmbH GEP Unpublished	N	Globachem NV
KCP 6.2-44	CAMUÑEZ, S.	2021	Efficacy of foliar insecticides against pollen beetles. Version 1 IE-21-C-GLOB2011I-FR02 STAPHYT GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-47	Trnka, M.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-C-GLOB2011I-CZ01 Zemservis Domaninek, zk. st. s.r.o. GEP Unpublished	N	Globachem NV
KCP 6.2-48	Bauer, T.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-C-GLOB2011I-CZ02 InTec Agro Trials, s.r.o. GEP Unpublished	N	Globachem NV
KCP 6.2-49	Seifert, M.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-C-GLOB2011I-DE03 BioChem agrar GmbH Niederlassung Agroplan GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-50	Burger, P.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-C-GLOB2011I-DE04 QUINTUS GmbH GEP Unpublished	N	Globachem NV
KCP 6.2-51	Spitzer, T.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-J-GLOB2011I-CZ01 Agricultural Research Institute Kromeriz, Ltd. GEP Unpublished	N	Globachem NV
KCP 6.2-52	Burger, P.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-J-GLOB2011I-DE02 QUINTUS GmbH GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-55	CAMUÑEZ, S.	2022	Efficacy of Sankari on winter oilseed rape. Version 1 IE-22-C-GLOB2011I-ES05 STAPHYT GEP Unpublished	N	Globachem NV
KCP 6.2-56	D'Annunzio, G.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-C-GLOB2011I-ES06 Agri 2000 Net S.r.l. GEP Unpublished	N	Globachem NV
KCP 6.2-57	Zagi, H.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-C-GLOB2011I-HR08 Pest Pro d.o.o. GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-58	Russo, A.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-C-GLOB2011I-IT07 Agri 2000 Net S.r.l. GEP Unpublished	N	Globachem NV
KCP 6.2-59	Russo, A.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-C-GLOB2011I-IT10 Agri 2000 Net S.r.l. GEP Unpublished	N	Globachem NV
KCP 6.2-60	Milosevic, L.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-C-GLOB2011I-IT11 SAGEA Centro di Saggio s.r.l. GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-65	Gajek, D.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-C-GLOB2011I-PL13 Agro Research Consulting GEP Unpublished	N	Globachem NV
KCP 6.2-66	Szemendera, A.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-C-GLOB2011I-PL14 Fertico Sp. z o.o. GEP Unpublished	N	Globachem NV
KCP 6.2-67	Koppel, M.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-J-GLOB2011I-EE03 Estonian Crop Research Institute GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-68	Ozolina-Pole, L.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-J-GLOB2011I-LV04 0 GEP Unpublished	N	Globachem NV
KCP 6.2-69	CAMUÑEZ, S.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-J-GLOB2011I-PL05 STAPHYT GEP Unpublished	N	Globachem NV
KCP 6.2-71	Barasits, T.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-C-GLOB2011I-HU09 CPR Europe Kft. GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-72	Spitzer, T.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-G-GLOB2011I-CZ01 Agricultural Research Institute Kromeriz, Ltd. GEP Unpublished	N	Globachem NV
KCP 6.2-73	Dana, P.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-G-GLOB2011I-CZ03 ZZS Kujavy, s.r.o. GEP Unpublished	N	Globachem NV
KCP 6.2-74	Burger, P.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-G-GLOB2011I-DE04 QUINTUS GmbH GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-75	Zöllner, H.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-G-GLOB2011I-DE05 Field Research Support GEP Unpublished	N	Globachem NV
KCP 6.2-76	Beyreiss, S.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-G-GLOB2011I-UK15 OAT Ltd. GEP Unpublished	N	Globachem NV
KCP 6.2-77	Beyreiss, S.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-G-GLOB2011I-UK16 OAT Ltd. GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-78	Spitzer, T.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-H-GLOB2011I-CZ01 Agricultural Research Institute Kromeriz, Ltd. GEP Unpublished	N	Globachem NV
KCP 6.2-79	Bauer, T.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-H-GLOB2011I-CZ02 InTec Agro Trials, s.r.o. GEP Unpublished	N	Globachem NV
KCP 6.2-80	CAMUÑEZ, S.	2022	Efficacy of Sankari on winter oilseed rape. Version 1 IE-22-H-GLOB2011I-DE03 STAPHYT GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-81	Burger, P.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-H-GLOB2011I-DE04 QUINTUS GmbH GEP Unpublished	N	Globachem NV
KCP 6.2-82	Safar, J.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-R-GLOB2011I-CZ01 Agritec vyzkum slechteni a sluzby s.r.o. GEP Unpublished	N	Globachem NV
KCP 6.2-83	Zöllner, H.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-R-GLOB2011I-DE02 Field Research Support GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-84	Beyreiss, S.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-R-GLOB2011I-UK05 OAT Ltd. GEP Unpublished	N	Globachem NV
KCP 6.2-85	Haigh, I.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-R-GLOB2011I-UK06 FieldArm Limited GEP Unpublished	N	Globachem NV
KCP 6.2-86	Bernardová, M.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-G-GLOB2011I-CZ02 Zkusebni stanice Kluky GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-87	Gajek, D.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-G-GLOB2011I-PL13 Agro Research Consulting GEP Unpublished	N	Globachem NV
KCP 6.2-88	Umiński, P.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-G-GLOB2011I-PL14 Field Research Support GEP Unpublished	N	Globachem NV
KCP 6.2-89	Koppel, M.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-N-GLOB2011I-EE01-1 Estonian Crop Research Institute GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-90	Semaškienė, R.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-N-GLOB2011I-LT02 Institute of Agriculture, LAMMC GEP Unpublished	N	Globachem NV
KCP 6.2-91	Semaškienė, R.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-O-GLOB2011I-LT01 Institute of Agriculture, LAMMC GEP Unpublished	N	Globachem NV
KCP 6.2-92	Semaškiene, R.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-O-GLOB2011I-LT02 Institute of Agriculture, LAMMC GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-93	Semaškienė, R.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-O-GLOB2011I-LT03 Institute of Agriculture, LAMMC GEP Unpublished	N	Globachem NV
KCP 6.2-94	Mitev, A.	2021	Efficacy and selectivity evaluation of Globa against pests in oil seed rape 7495.I.SAG21 Sagea OOD GEP Unpublished	N	Globachem NV
KCP 6.2-95	Valli, F.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-G-GLOB2011I-ES06 Agri 2000 Net Srl GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-96	Ros, A.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-G-GLOB2011I-ES07 SAGEA Iberia S.L. GEP Unpublished	N	Globachem NV
KCP 6.2-97	CAMUÑEZ, S.	2022	Efficacy of Sankari on winter oilseed rape. Version 1 IE-22-G-GLOB2011I-FR08 STAPHYT GEP Unpublished	N	Globachem NV
KCP 6.2-98	Zagi, H.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-G-GLOB2011I-HR09 Pest Pro d.o.o. GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-99	Russo, A.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-G-GLOB2011I-IT10 Agri 2000 Net S.r.l. GEP Unpublished	N	Globachem NV
KCP 6.2-100	Zambon, D.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-G-GLOB2011I-IT11 SAGEA Centro di Saggio S.r.l. GEP Unpublished	N	Globachem NV
KCP 6.2-101	Zambon, D.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-G-GLOB2011I-IT12 SAGEA Centro di Saggio S.r.l. GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-102	CAMUÑEZ, S.	2022	Efficacy of Sankari on winter oilseed rape. Version 1 IE-22-HGLOB2011I-ES05 STAPHYT GEP Unpublished	N	Globachem NV
KCP 6.2-103	CAMUÑEZ, S.	2022	Efficacy of Sankari on winter oilseed rape. Version 1 IE-22-H-GLOB2011I-FR06 STAPHYT GEP Unpublished	N	Globachem NV
KCP 6.2-104	Zagi, H.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-H-GLOB2011I-HR07 Pest Pro d.o.o. GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-105	Russo, A.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-H-GLOB2011I-IT08 Agri 2000 Net S.r.l. GEP Unpublished	N	Globachem NV
KCP 6.2-106	Zambon, D.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-H-GLOB2011I-IT09 SAGEA Centro di Saggio S.r.l. GEP Unpublished	N	Globachem NV
KCP 6.2-107	Zagi, H.	2022	Efficacy of Sankari on winter oilseed rape. IE-22-R-GLOB2011I-HR04 Pest Pro d.o.o. GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-108	Muscarà, A.	2022	Efficacy of Sankari on winter oilseed rape. Italy, 2022. IE-22-R-GLOB2011I-IT03 Agricola 2000 S.C.p.A. GEP Unpublished	N	Globachem NV
KCP 6.2-109	Trnka, M.	2021	Efficacy of Sankari on potatoes. IE-21-F-GLOB2011I-CZ01 Zemservis Domaninek, zk. st. s.r.o. GEP Unpublished	N	Globachem NV
KCP 6.2-110	Zöllner, H.	2021	Efficacy of Sankari on potatoes. IE-21-F-GLOB2011I-DE02 Field Research Support GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-111	Trnka, M.	2022	Efficacy of Sankari on potatoes. IE-22-D-GLOB2011I-CZ01 Zemservis zkusebni stanice Domaninek s.r.o. GEP Unpublished	N	Globachem NV
KCP 6.2-112	De Cauwer, Y.	2022	Efficacy of Sankari on potatoes. IE-22-D-GLOB2011I-NL11 Botany B.V. GEP Unpublished	N	Globachem NV
KCP 6.2-113	Umiński, P.	2021	Efficacy of Sankari on potatoes. IE-21-F-GLOB2011I-PL05 Field Research Support GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-114	Piotrowski, G.	2021	Efficacy of Sankari on potatoes. IE-21-F-GLOB2011I-PL06 Syntech Research Poland Sp. zoo GEP Unpublished	N	Globachem NV
KCP 6.2-115	Fiala, T.	2022	Efficacy of Sankari on potatoes. IE-22-D-GLOB2011I-CZ02 0 GEP Unpublished	N	Globachem NV
KCP 6.2-116	Kussinszky, T.	2022	Efficacy of Sankari on potatoes. IE-22-D-GLOB2011I-HU07 EUROFINS AGROSCIENCE SERVICES GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-117	Suñer Torres, J.	2021	Efficacy of Sankari on potatoes. IE-21-F-GLOB2011I-ES03 GMWBioscience GEP Unpublished	N	Globachem NV
KCP 6.2-118	Calari, A.	2021	Efficacy of Sankari on potatoes. IE-21-F-GLOB2011I-IT04 SAGEA Centro di Saggio s.r.l GEP Unpublished	N	Globachem NV
KCP 6.2-119	Milosevic, L.	2022	Efficacy of Sankari on potatoes. IE-22-D-GLOB2011I-ES04 SAGEA Centro di Saggio s.r.l. GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-120	Barnabè, D.	2022	Efficacy of Sankari on potatoes. IE-22-D-GLOB2011I-FR05 Agri 2000 France SARL GEP Unpublished	N	Globachem NV
KCP 6.2-121	Zagi, H.	2022	Efficacy of Sankari on potatoes. IE-22-D-GLOB2011I-HR06 Pest Pro d.o.o. GEP Unpublished	N	Globachem NV
KCP 6.2-122	Russo, A.	2022	Efficacy of Sankari on potatoes. IE-22-D-GLOB2011I-IT08 Agri2000 NET GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-123	Calari, A.	2022	Efficacy of Sankari on potatoes. IE-22-D-GLOB2011I-IT09 SAGEA Centro di Saggio s.r.l. GEP Unpublished	N	Globachem NV
KCP 6.2-124	Tetuan, B.	2022	Efficacy of Sankari on potatoes. IE-22-K-GLOB2011I-ES01 GMW Bioscience S.L. GEP Unpublished	N	Globachem NV
KCP 6.2-125	Russo, A.	2022	Efficacy of Sankari on potatoes. IE-22-K-GLOB2011I-IT02 Agri2000 NET GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-126	Moizio, M.	2020	Efficacy evaluation of GLOBA-M against pests in Maize, Italy 2020 408.I.SAG20/e SAGEA Centro di Saggio S.r.l. GEP Unpublished	N	Globachem NV
KCP 6.2-127	Milosevic, L.	2021	Efficacy of Sankari on maize. IE-21-G-GLOB2011I-ES01 SAGEA Centro di Saggio s.r.l. GEP Unpublished	N	Globachem NV
KCP 6.2-128	Navarro Fernandez, D.	2021	Efficacy of Sankari on maize. IE-21-G-GLOB2011I-ES02 0 GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-129	Russo, A.	2021	Efficacy of Sankari on maize. IE-21-G-GLOB2011I-IT03 Agri 2000 Net S.r.l. GEP Unpublished	N	Globachem NV
KCP 6.2-130	Muscarà, A.	2021	Efficacy of Sankari on maize. IE-21-G-GLOB2011I-IT04 Agricola 2000 S.c.p.A. GEP Unpublished	N	Globachem NV
KCP 6.2-131	Milosevic, L.	2022	Efficacy of Sankari on maize. IE-22-E-GLOB2011I-ES01 SAGEA Centro di Saggio s.r.l. GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-132	CAMUÑEZ, S.	2022	Efficacy of Sankari on maize. Version 1 IE-22-E-GLOB2011I-FR02 STAPHYT GEP Unpublished	N	Globachem NV
KCP 6.2-133	Muscarà, A.	2022	Efficacy of Sankari on maize. Italy, 2022. IE-22-E-GLOB2011I-IT06 Agricola 2000 S.C.p.A. GEP Unpublished	N	Globachem NV
KCP 6.2-134	LANG, B.	2022	Efficacy of Sankari on maize. IE-22-E-GLOB2011I-HU03 Plant-Art Research Kft. GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.2-135	Barasits, T.	2022	Efficacy of Sankari on maize. IE-22-E-GLOB2011I-HU05 CPR Europe Kft. GEP Unpublished	N	Globachem NV
KCP 6.4-01	Umiński, P.	2022	Selectivity of Sankari on rye. IS-22-A-GLOB2011I-PL01 Field Research Support GEP Unpublished	N	Globachem NV
KCP 6.4-02	Umiński, P.	2022	Selectivity of Sankari on rye. IS-22-A-GLOB2011I-PL02 Field Research Support GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.4-03	Umiński, P.	2022	Selectivity of Sankari on triticales. IS-22-A-GLOB2011I-PL03 Field Research Support GEP Unpublished	N	Globachem NV
KCP 6.4-04	Umiński, P.	2022	Selectivity of Sankari on triticales. IS-22-A-GLOB2011I-PL04 Field Research Support GEP Unpublished	N	Globachem NV
KCP 6.4-05	Zöllner, H.	2022	Selectivity of Sankari on young OSR. IS-22-B-GLOB2011I-DE01 Field Research Support GEP Unpublished	N	Globachem NV

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Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 6.4-06	Umiński, P.	2022	Selectivity of Sankari on young OSR. IS-22-B-GLOB2011I-PL03 Field Research Support	N	Globachem NV

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

Data point	Author(s)	Year	Title Company Report No. Source (where or different GEP from company) status GLP Published or not	Vertebrate study Y/N	Owner
				N	SYN

The following tables are to be completed by MS

List of data submitted by the applicant and not relied on

Data point	Author(s)	Year	Title Company Report No. Source (where or different GEP from company) status GLP Published or not	Vertebrate study Y/N	Owner
KCP XX	Author	YYYY	Title Company Report N Source GLP/non GLP/GEP/non GEP Published/Unpublished	Y/N	Owner

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

Data point	Author(s)	Year	Title Company Report No. Source (where or different GEP from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP XX	Author	YYYY	Title Company Report N Source GLP/non GLP/GEP/non GEP Published/Unpublished	Y/N	Owner