

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

Product code: GLOB2112dH

Product name: Walkover Trio

Chemical active substances:

Mesotrione, 375 g/L

Thiencarbazone-methyl, 75 g/L

Central Zone

Zonal Rapporteur Member State: Poland

CORE ASSESSMENT

Applicant: Globachem N.V.

Submission date: September 2024

zRMS Assessment : 31/03/2025

Version after commenting: 03/07/2025

List of references update: 10/07/2025

Version history

When	What
September 2024	Initial dossier submission by applicant for approval of new product.
March 2025	zRMS assessment
July 2025	After commenting round
July 2025	List of references update

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

Abstract

This document summarises information related to the efficacy of the plant protection product GLOB2112dH with brand name Walkover Trio, supporting its registration process under Article 33 of Regulation 1107/2009. Authorisation is sought for use as a post-emergence (BBCH 10-18) herbicide in maize for the control of a range of annual and perennial broadleaved weeds and annual grasses. GLOB2112dH has a proposed maximum individual dose of 0.2 l/ha (to deliver 15 g a.s/ha thien carbazonemethyl, and 75 g a.s/ha mesotrione). This product is applied with a water volume of 100-300 l/ha. Only 1 application may be made per crop and season.

Preliminary range-finding tests

The ratio of thien carbazonemethyl (15 g/ha) and mesotrione (75 g/ha) can be justified. Field trials demonstrated superior control efficacy against key weed species (CHEAL, ECHCG, SOLNI, DIGSA, and AMBEL) compared to alternative ratio combinations.

Minimum effective dose

The minimum effective dose (MED) of GLOB2112dH was assessed for two major weed species in maize across all Eppo zones: CHEAL and ECHCG. Regardless of the weed species or climatic zone, the data demonstrated a dose-response relationship, with 0.2 L/ha proving to be the optimal dose across all assessment timings, while efficacy at 0.13 L/ha was slightly lower. However, an exception to this trend was discussed in section 3.2.2, where the efficacy of GLOB2112dH at 0.2 L/ha in the south-eastern zone did not follow the expected dose-response trend observed in the maritime and northeaster zones.

Whilst the applicant did not present the MED data, the results tables Section 3.2.3 indicate that the lower dose of 0.13 L/ha can still be considered the minimum effective dose for a limited range of annual dicotyledonous weeds. Under optimal conditions in the maritime and north-eastern zones, this reduced herbicide rate provides sufficient efficacy against susceptible weeds CAPBP, POLCO and THLAR, achieving consistent control levels of $\geq 88.6\%$. In the south-eastern zone, a lower dose rate it also gave good efficacy with control levels of $\geq 88.8\%$ for AMARE, AMBEL and CHEAL.

In conclusion, the proposed dose rate of 0.13 L/ha can be considered the minimum effective dose for controlling a limited spectrum of annual dicotyledonous weeds.

Efficacy tests

Overall, GLOB2112dH shows better efficacy at the 0.2 L/ha rate than at 0.13 L/ha in the Maritime and North-East zones. The proposed rate of 0.13 L/ha can be considered the minimum effective dose for control of a limited range of annual dicotyledonous weeds in maize.

In the **North East zone**, GLOB2112dH provides sufficient control of the following weed species:

	Dose rate of 0.13 L/ha	Dose rate of 0.2 L/ha
(S) (>85%)	CAPBP, POLCO, THLAR	POLCO , THLAR , CAPBP, SOLNI.
(MS) < 85%	-	ECHCG, CHEAL, VERPE, STEME, VIOAR, AMARE, MATCH

In the **Maritime zone**, GLOB2112dH provides sufficient control of the following weed species:

	Dose rate of 0.13 L/ha	Dose rate of 0.2 L/ha
(S) (>85%)	CAPBP, POLCO, THLAR	MATCH, CAPBP, POLCO, SOLNI, THLAR, POAAN
(MS) < 85%	-	CHEAL, STEME, VERPE, VIOAR , AMARE

In the **South-East zone**, GLOB2112dH provides sufficient control of the following weed species:

	Dose rate of 0.13 L/ha	Dose rate of 0.2 L/ha
(S) (>85%)	AMARE, AMBEL, CHEAL	-
(MS) < 85%		AMARE, AMBEL, CHEAL

Possible development of resistance or cross-resistance

According to the applicant, the risk of development of resistance is considered to be acceptable and no further specific management strategies are required. This conclusion can generally be followed and the resistance risk of GLOB2112dH is therefore assessed as being low to moderate.

Phytotoxicity to host crop

Phytotoxicity was not observed in any of the 91 efficacy trials but was reported in 8 out of 63 selectivity trials. In one trial at the N rate and two trials at the 2N rate, phytotoxic symptoms exceeded 10%. However, the calculated mean yields for all trials where GLOB2112dH caused phytotoxic symptoms were 100.4% at the N rate and 100.45% at the 2N rate relative to the untreated control. The zRMS considers these values as evidence that phytotoxicity did not impact yield.

Effects on the quality of plants or plant products

Overall, the data indicate that neither the proposed dose of GLOB2112dH nor 2N is likely to have a significant negative impact on MOICON (%), TKW (Thousand Kernel Weight), or WTS (Weight per Thousand Seeds) in maize. The results suggest that crop quality is generally maintained or slightly improved, with no evidence of adverse effects. Based on these findings, the zRMS concludes that the proposed use of GLOB2112dH is unlikely to have a significant negative impact on crop quality.

Effects on transformation processes and impact on treated plants or plant products to be used for propagation

No evidence was presented to support an absence of effects on plant parts for propagation and processing and transformation.

Impact on succeeding crops

The applicant considered it acceptable to sow maize as the only replacement crop in case of crop failure. However, if the crop is harvested as normal (i.e. in the autumn after application), winter oilseed rape can be sown after cultivating the soil to a depth of 20 cm.

In the following spring, peas, sugar beet, spring oilseed rape, sunflowers, winter and spring wheat, winter and spring barley, ryegrass, and onions may be sown after deep cultivation (20 cm).

Impact on other plants including adjacent crops

The risk to non-target terrestrial plant is acceptable when applying GLOB2112dH according to the intended uses and taking into account the following mitigation measures: a buffer zone of 1 m in combination with 50% drift reducing techniques or a buffer zone of 5 m.

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

PPP (product name/code):	Walkover Trio/GLOB2112dH	Formulation type:	GAP rev. 1.0, date: 2024-06-10 SC ^(a, b)
Active substance 1:	Thiencarbazone-methyl	Conc. of as 1:	75 g/L ^(c)
Active substance 2:	Mesotrione	Conc. of as 2:	375 g/L ^(c)
Safener:	Cyprosulfamide	Conc. of safener:	112 g/L ^(c)
Synergist:	/	Conc. of synergist:	/
Applicant:	Globachem NV	Professional use:	<input checked="" type="checkbox"/>
Zone(s):	central ^(d)	Non professional use:	<input type="checkbox"/>
Verified by MS:	yes/no		

Field of use: herbicide

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			

Zonal uses (field or outdoor uses, certain types of protected crops)														
1	PL	Maize (ZEAMX)	F	POLCO , THLAR , CAPBP, SOLNI.	Downwards spraying – Broadcast application	BBCH 10-18	a) 1 b) 1	/	a) 0.2 b) 0.2	a) Thien carbazole- methyl: 15 + Mesotrione: 75 b) Thien carbazole- methyl 15 + Mesotrione: 75	100 – 300	N/A	Safener: 22.4 g/ha cyprosulfamide	
2	RO, HU, SK	Maize (ZEAMX)	F	< 85% (MS): AMARE, AMBEL, CHEAL	Downwards spraying – Broadcast application	BBCH 10-18	a) 1 b) 1	/	a) 0.2 b) 0.2	a) Thien carbazole- methyl: 15 + Mesotrione: 75 b) Thien carbazole- methyl 15 + Mesotrione: 75	100 – 300	N/A	Safener: 22.4 g/ha cyprosulfamide	
3	PL	Maize (ZEAMX)	F	CAPBP, POLCO, THLAR	Downwards spraying – Broadcast application	BBCH 10-18	a) 1 b) 1	/	a) 0.13 b) 0.13	a) Thien carbazole- methyl: 9.75 + Mesotrione: 48.75 b) Thien carbazole- methyl 9.75 + Mesotrione: 48.75	100 – 300	N/A	Safener: 14.6 g/ha cyprosulfamide Optional lower rate as backup or dose range.	
4	RO, HU, SK	Maize (ZEAMX)	F	AMARE, AMBEL, CHEAL	Downwards spraying – Broadcast application	BBCH 10-18	a) 1 b) 1	/	a) 0.13 b) 0.13	a) Thien carbazole- methyl: 9.75 + Mesotrione: 48.75 b) Thien carbazole- methyl 9.75 + Mesotrione: 48.75	100 – 300	N/A	Safener: 14.6 g/ha cyprosulfamide Optional lower rate as backup or dose range.	
5	PL,	Maize (ZEAMX)	F	POLCO , THLAR , CAPBP, SOLNI.	Downwards spraying – Banded application (50% of field)	BBCH 10-18	a) 1 b) 1	/	a) 0.2 b) 0.2	a) Thien carbazole- methyl: 15 + Mesotrione: 75 b) Thien carbazole- methyl 15 + Mesotrione: 75	100 – 300	N/A	Safener: 22.4 g/ha cyprosulfamide Dose rate is concentration within the band.	
6	RO, HU, SK	Maize (ZEAMX)		< 85% (MS): AMARE, AMBEL, CHEAL)	Downwards spraying – Banded application (50% of field)	BBCH 10-18	a) 1 b) 1	/	a) 0.2 b) 0.2	a) Thien carbazole- methyl: 15 + Mesotrione: 75 b) Thien carbazole- methyl 15 + Mesotrione: 75	100 – 300	N/A	Safener: 22.4 g/ha cyprosulfamide Dose rate is concentration within the band.	

7	PL	Maize (ZEAMX)	F	CAPBP, POLCO, THLAR	Downwards spraying – Banded application (50% of field)	BBCH 10-18	a) 1 b) 1	/	a) 0.13 b) 0.13	a) Thiencarbazone-methyl: 9.75 + Mesotrione: 48.75 b) Thiencarbazone-methyl 9.75 + Mesotrione: 48.75	100 – 300	N/A	Safener: 14.6 g/ha cyprosulfamide Optional lower rate as backup or dose range. Dose rate is concentration within the band.	
8	RO, HU, SK	Maize (ZEAMX)	F	AMARE, AMBEL, CHEAL	Downwards spraying – Banded application (50% of field)	BBCH 10-18	a) 1 b) 1	/	a) 0.13 b) 0.13	a) Thiencarbazone-methyl: 9.75 + Mesotrione: 48.75 b) Thiencarbazone-methyl 9.75 + Mesotrione: 48.75	100 – 300	N/A	Safener: 14.6 g/ha cyprosulfamide Optional lower rate as backup or dose range. Dose rate is concentration within the band.	

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

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

Column 15: zRMS conclusion.

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

3.2 Efficacy data (KCP 6)

Introduction

This document summarises the information related to the efficacy of the plant protection product GLOB2112dH with brand name Walkover Trio.

Thiencarbazone-methyl was included into Annex I of Directive 91/414 by directive 2008/566/EC on July 1st 2008 and its registration was last extended on February 14th 2014. The SANCO report for thiencarbazone-methyl (SANCO/221/2000 – Final – 25/02/2003) is considered to provide the relevant review information or a reference to where such information can be found.

Mesotrione was included into Annex I of Directive 91/414 by directive 2003/68/EC on July 11th of 2003 and its registration was last extended on April 24th 2017. The SANCO report for mesotrione (SANCO/1416/2001 – Final – 14/04/2003) is considered to provide the relevant review information or a reference to where such information can be found.

The Annex I Inclusion Directives for thiencarbazone-methyl and mesotrione provide 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.

Description of active substances

The mixture of mesotrione and thiencarbazone-methyl in GLOB2112dH is only used for post-emergence control of a range of annual broad-leaved and grass weeds species in maize. Mesotrione was developed and initially registered by Syngenta, who has approval for similar products in many EU countries. Thiencarbazone-methyl was developed and initially registered by Bayer, who has approval for several mixtures of thiencarbazone-methyl and other active substances in many EU countries.

Mode of action

Table 3.2-1 Details of the active substances

Active substance	Mesotrione	Thiencarbazone-methyl
Concentration	375 g/L	75 g/L
Chemical group	Triketones	Triazolinones
Mode of action	Inhibition of Hydroxyphenyl Pyruvate Dioxygenase (HPPD) HRAC group 27	Inhibition of Acetolactate Synthase (ALS) HRAC group 2
Biological action	Disruption of carotenoid biosynthesis	Disruption of growth, leading to deformation

Description of the plant protection product

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

Table 3.2-2 Simplified table of currently registered uses and requested uses for GLOB2112dH

Uses		Member State	Requested rate(s)	Comments / Other relevant details on GAPs
Crop	Target(s)			
Maize Post-emergence application (BBCH 10-14)	Annual broadleaved weeds (BBBAN) Annual grasses (GGGAN)	zRMS + cMS	0.13 L/ha	Highly susceptible weeds THLAR Susceptible weeds CAPBP POLCO
			0.2 L/ha	Highly susceptible weeds AMARE (MED) AMBEL (MED) POLCO THLAR Susceptible weeds CAPBP CHEAL POAAN

Description of the target pests

The table below describes all target pests mentioned in this dossier.

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

EPPO code	Scientific name
AMARE	<i>Amaranthus retroflexus</i>
AMBEL	<i>Ambrosia artemisiifolia</i>
CAPBP	<i>Capsella bursa-pastoris</i>
CHEAL	<i>Chenopodium album</i>
DIGSA	<i>Digitaria sanguinalis</i>
ECHCG	<i>Echinochloa crus-galli</i>
MATCH	<i>Matricaria chamomilla</i>
POAAN	<i>Poa annua</i>
POLCO	<i>Fallopia convolvulus</i>
SOLNI	<i>Solanum nigrum</i>
STEME	<i>Stellaria media</i>
THLAR	<i>Thlaspi arvense</i>
VERPE	<i>Veronica persica</i>
VIOAR	<i>Viola arvensis</i>

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

Crop and/or situation	Crop status		Pests or group of pests controlled	Pest status	
	Major	minor		Major	minor
Maize	zRMS + cMS	-	Annual broadleaved weeds Annual grasses	zRMS + cMS	-

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)

All trials presented in this dossier were carried out by the applicant.

Table 3.2-5 Presentation of trials (efficacy trials, preliminary trials...)

Crop	Target	Country	Years	Type of trial**	Number of trials (number of valid trials)				GEP, non-GEP, official***	Comments (any other relevant information)
					MAR ¹	NE ²	MED ³	SE ⁴		
Maize	Annual broadleaved weeds Annual grasses APPLIED POST-CROP EMERGENCE	FR	2022	MED + E	1					Only used for ratio determ.
		IT	2023	MED + E			1			
		PL	2023	MED + E		1				
					1	1	1			3
		AT	2023	MED + E	1					
		BE	2023	MED + E	7					
		CZ	2023	MED + E	9					
		DE	2023	MED + E	4					
		DK	2022, 2023	MED + E	3					
		ES	2023	MED + E			1			
		GR	2023	MED + E			1			
		HR	2023	MED + E			17	4		
		HU	2023	MED + E				4		
		IE	2022	MED + E	3					
		IT	2023	MED + E			3			
		LT	2022, 2023	MED + E		3				
		LV	2022	MED + E		1				
		PL	2022, 2023	MED + E		5				
		PT	2022, 2023	MED + E			13			
		RO	2022, 2023	MED + E				4		
		SE	2023	MED + E	2					
		SI	2022, 2023	MED + E			2	2		
		UK	2023	MED + E	1					
				TOTAL	30	9	37	14		90

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

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

¹Maritime EPPO Zone / ²North-East EPPO Zone / ³Mediterranean EPPO Zone / ⁴South-East EPPO Zone

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

Table 3.2-6 Presentation of reference standards used in trials (efficacy trials, preliminary trials...)

Crop	Reference standard	Country (ies) where the product is registered ⁽¹⁾	Authorization number	Active substance(s)	Formulation		Registered application rate ⁽³⁾	Application rate in trials (per treatment)	Remark ⁽⁴⁾
					Type ⁽²⁾	Conc. of a.s.			
Maize	Adengo	CZ	4699-1	Isoxaflutole Thiencarbazone-methyl Cyprosulfamide (safener)	SC	225 g/L 90 g/L 150 g/L	0.33-0.44 L/ha	0.33-0.44 L/ha	
		HU	02.5/568/2/2009	Isoxaflutole Thiencarbazone-methyl Cyprosulfamide (safener)	SC	225 g/L 90 g/L 150 g/L	0.44 L/ha	0.44 L/ha	
		IT	17128	Isoxaflutole Thiencarbazone-methyl Cyprosulfamide (safener)	SC	225 g/L 90 g/L 150 g/L	0.44 L/ha	0.44 L/ha	
		PT	1023	Isoxaflutole Thiencarbazone-methyl Cyprosulfamide (safener)	SC	225 g/L 90 g/L 150 g/L	0.44 L/ha	0.44 L/ha	
		SI	34330	Isoxaflutole Thiencarbazone-methyl Cyprosulfamide (safener)	SC	225 g/L 90 g/L 150 g/L	0.44 L/ha	0.44 L/ha	
	Adengo 315 SC	DE	026525-00	Isoxaflutole Thiencarbazone-methyl Cyprosulfamide (safener)	SC	225 g/L 90 g/L 150 g/L	0.33 L/ha	0.33 L/ha	
		ES	00020	Isoxaflutole Thiencarbazone-methyl Cyprosulfamide (safener)	SC	225 g/L 90 g/L 150 g/L	0.33 L/ha	0.33 L/ha	
		HR	UP/I-320-20/13-01/379	Isoxaflutole Thiencarbazone-methyl Cyprosulfamide (safener)	SC	225 g/L 90 g/L 150 g/L	0.44 L/ha	0.44 L/ha	
		PL	R-14/2011	Isoxaflutole Thiencarbazone-methyl Cyprosulfamide (safener)	SC	225 g/L 90 g/L 150 g/L	0.44 L/ha	0.44 L/ha	
	Adengo 465 SC	RO	282407	Isoxaflutole Thiencarbazone-methyl Cyprosulfamide (safener)	SC	225 g/L 90 g/L 150 g/L	0.33-0.44 L/ha	0.33-0.44 L/ha	
	Adengo TC MAX	BE	9974P/B	Isoxaflutole Thiencarbazone-methyl Cyprosulfamide (safener)	SC	225 g/L 90 g/L 150 g/L	0.33 L/ha	0.33 L/ha	
	Callisto 100 SC	SC	5854	Mesotrione	SC	100 g/L	1.5 L/ha	1.5 L/ha	
	Camix	UK	17722	S-metolachlor Mesotrione	SE	500 g/L 60 g/L	1.8 L/ha	1.8 L/ha	
	Camix 560 SE	ES	00492	S-metolachlor Mesotrione	SE	500 g/L 60 g/L	2 L/ha	2 L/ha	
		IE	PCS04439	S-metolachlor Mesotrione	SE	500 g/L 60 g/L	1.8 L/ha	1.8 L/ha	
	Capreno	AT	3683-0	Tembotrione Thiencarbazone-methyl Isoxadifen-ethyl (safener)	SC	345 g/L 68 g/L 134 g/L	0.29 L/ha	0.29 L/ha	
		BE	10456P/B	Tembotrione Thiencarbazone-methyl Isoxadifen-ethyl (safener)	SC	345 g/L 68 g/L 134 g/L	0.29 L/ha	0.29 L/ha	
		CZ	5381-0	Tembotrione Thiencarbazone-methyl Isoxadifen-ethyl (safener)	SC	345 g/L 68 g/L 134 g/L	0.29 L/ha	0.29 L/ha	

Crop	Reference standard	Country (ies) where the product is registered ⁽¹⁾	Authorization number	Active substance(s)	Formulation		Registered application rate ⁽³⁾	Application rate in trials (per treatment)	Remark ⁽⁴⁾
					Type ⁽²⁾	Conc. of a.s.			
		DE	00A197-00	Tembotrione Thiencarbazone-methyl Isoxadifen-ethyl (safener)	SC	345 g/L 68 g/L 134 g/L	0.29 L/ha	0.29 L/ha	
		GR	70179	Tembotrione Thiencarbazone-methyl Isoxadifen-ethyl (safener)	SC	345 g/L 68 g/L 134 g/L	0.29 L/ha	0.29 L/ha	
		HR	UP/I-320-20/15-01/510	Tembotrione Thiencarbazone-methyl Isoxadifen-ethyl (safener)	SC	345 g/L 68 g/L 134 g/L	0.29 L/ha	0.29 L/ha	
		HU	04.2/6516-1/2015	Tembotrione Thiencarbazone-methyl Isoxadifen-ethyl (safener)	SC	345 g/L 68 g/L 134 g/L	0.29 L/ha	0.29 L/ha	
		PL	R - 154/2016	Tembotrione Thiencarbazone-methyl Isoxadifen-ethyl (safener)	SC	345 g/L 68 g/L 134 g/L	0.29 L/ha	0.29 L/ha	
		PT	1149	Tembotrione Thiencarbazone-methyl Isoxadifen-ethyl (safener)	SC	345 g/L 68 g/L 134 g/L	0.29 L/ha	0.29 L/ha	
	Isard	FR	9900251	Dimethenamid-P	EC	720 g/L	1.4 L/ha	1.4 L/ha	
	Spectrum	DE	024803-00	Dimethenamid-P	EC	720 g/L	1.4 L/ha	1.4 L/ha	
		ES	24742	Dimethenamid-P	EC	720 g/L	1.4 L/ha	1.4 L/ha	
		HU	300/2905-1/2021	Dimethenamid-P	EC	720 g/L	1.4 L/ha	1.4 L/ha	
		IT	12954	Dimethenamid-P	EC	720 g/L	1.4 L/ha	0.76-1.4 L/ha	
	Stomp CS	DK	19-205	Pendimethalin	CS	455 g/L	1 L/ha	1 L/ha	
		LT	AS2-15H	Pendimethalin	CS	455 g/L	2.9 L/ha	2.9 L/ha	
	Temsa 100 SC	UK	18261	Mesotrione	SC	100 g/L	1.5 L/ha	1.5 L/ha	
	Temsa SC	DE	008124-00	Mesotrione	SC	100 g/L	1 L/ha	1 L/ha	
		DK	613-13	Mesotrione	SC	100 g/L	1.5 L/ha	1.5 L/ha	
		LT	AS2-56H	Mesotrione	SC	100 g/L	0.7-1.5 L/ha	0.7-1.5 L/ha	
		LV	0563	Mesotrione	SC	100 g/L	1.5 L/ha	1.5 L/ha	
	Wing P 462.5 EC	PL	R-40/2012	Dimethenamid-P Pendimethalin	EC	212.5 g/L 250 g/L	4 L/ha	4 L/ha	

- (1) only on use(s) applied for (with the test product).
 (2) e.g. WP (wetable powder), EC (emulsifiable concentrate), etc.
 (3) dose(s) / dose range authorized on that use in the country.
 (4) Other relevant information (e.g. uses, number of applications, spray volume, method of application, etc.).

3.2.1 Preliminary tests (KCP 6.1)

Thiencarbazone-methyl and mesotrione have both been used for weed control in maize for many years in combination with other active substances (ref. Table 3.2-6) or as solo products (mesotrione). GLOB2112dH proposes a novel combination of the two active substances that does not exist in the market.

In total, 6 trials were performed in 2022 and 2023 across different climatic zones to determine the ideal ratio between thiencarbazone-methyl (TCM) and mesotrione (MES) for post-emergence weed control on maize.

In these trials different ratios of TCM and MES were tested in the form of GLOB2107H (200 g/L TCM) and Temsa 100 SC (100 g/L MES), respectively. Both GLOB2107H and Temsa 100 SC are products developed and owned by the applicant.

The most important target weed for GLOB2112dH is considered CHEAL, but data obtained on other weeds is also presented to further support the ratio between the actives.

Tabel 3.2-1 Results of ratio determination trials

Trial ref.	KCP 6.2-222 MAR (FR)			KCP 6.2-223 MED (IT)		KCP 6.2-224 NE (PL)		KCP 6.2-226 MED (HR)		KCP 6.2-227 SE (HR)		KCP 6.2-228 NE (PL)		Summary			
EPPO Zone (country)																	
Rating Date	9/06/2022			8/06/2022		28/06/2022		14/06/2023		24/06/2023		19/06/2023					
Crop Stage Majority	32			32		33		18		31		31					
Pest Code	CHEAL			CHEAL		CHEAL		CHEAL		CHEAL		CHEAL					
Pest Stage Majority	55			32		71		19		39		59					
Trt-Eval Interval	28 DA-A			28 DA-A		28 DA-A		28 DA-A		28 DA-A		32 DA-A		n	Mean	Min	Max
UNTREATED (#/m ² ; % cov.)	10.7 8.3			33.7 24.7		15.0 10.0		15.0 20.0		163.3 56.7		52.0 50.0		6	48.3	10.7	163.3
GLOB2107H 0.025 L/ha 5 TCM	100.0 a			76.7 b		81.7 a								3	86.1	76.7	100.0
Temsa 100 SC 0.5 L/ha 50 MES																	
GLOB2107H 0.05 L/ha 10 TCM	100.0 a			76.7 b		86.7 a		75.0 d		96.7 a		56.7 a		6	82.0	56.7	100.0
Temsa 100 SC 0.5 L/ha 50 MES																	
GLOB2107H 0.075 L/ha 15 TCM	100.0 a			78.3 ab		88.3 a		95.0 a		97.3 a		61.7 a		6	86.8	61.7	100.0
Temsa 100 SC 0.5 L/ha 50 MES																	
GLOB2107H 0.1 L/ha 20 TCM	100.0 a			78.3 ab		86.7 a								3	88.3	78.3	100.0
Temsa 100 SC 0.5 L/ha 50 MES																	
GLOB2107H 0.025 L/ha 5 TCM	100.0 a			80.0 ab		83.3 a								3	87.8	80.0	100.0
Temsa 100 SC 0.75 L/ha 75 MES																	
GLOB2107H 0.05 L/ha 10 TCM	100.0 a			80.0 ab		93.3 a		90.0 b		98.0 a		80.0 a		6	90.2	80.0	100.0
Temsa 100 SC 0.75 L/ha 75 MES																	
GLOB2107H 0.075 L/ha 15 TCM	100.0 a			81.7 ab		100.0 a		95.0 a		98.7 a		78.3 a		6	92.3	78.3	100.0
Temsa 100 SC 0.75 L/ha 75 MES																	
GLOB2107H 0.1 L/ha 20 TCM	100.0 a			83.3 a		91.7 a								3	91.7	83.3	100.0
Temsa 100 SC 0.75 L/ha 75 MES																	
Trial ref.	KCP 6.2-223 MED (IT)			KCP 6.2-224 NE (PL)		KCP 6.2-226 MED (HR)		KCP 6.2-227 SE (HR)						Summary			
EPPO Zone (country)																	
Rating Date	8/06/2022			28/06/2022		14/06/2023		24/06/2023									
Crop Stage Majority	32			33		18		31									
Pest Code	ECHCG			ECHCG		ECHCG		ECHCG									
Pest Stage Majority	27			37		19		37									
Trt-Eval Interval	28 DA-A			28 DA-A		28 DA-A		28 DA-A						n	Mean	Min	Max
UNTREATED (#/m ² ; % cov.)	13.7 12.3			56.7 50.0		8.7 15.0		156.7 35.0						4	59.0	8.7	156.7
GLOB2107H 0.025 L/ha 5 TCM	30.0 b			36.7 ab										2	33.4	30.0	36.7
Temsa 100 SC 0.5 L/ha 50 MES																	
GLOB2107H 0.05 L/ha 10 TCM	30.0 b			10.0 b		85.0 b		75.0 bc						4	50.0	10.0	85.0
Temsa 100 SC 0.5 L/ha 50 MES																	
GLOB2107H 0.075 L/ha 15 TCM	30.0 b			6.7 b		90.0 a		90.0 ab						4	54.2	6.7	90.0
Temsa 100 SC 0.5 L/ha 50 MES																	
GLOB2107H 0.1 L/ha 20 TCM	30.0 b			33.3 ab										2	31.7	30.0	33.3
Temsa 100 SC 0.5 L/ha 50 MES																	
GLOB2107H 0.025 L/ha 5 TCM	33.3 b			23.3 ab										2	28.3	23.3	33.3
Temsa 100 SC 0.75 L/ha 75 MES																	
GLOB2107H 0.05 L/ha 10 TCM	33.3 b			23.3 ab		80.0 c		73.3 c						4	52.5	23.3	80.0
Temsa 100 SC 0.75 L/ha 75 MES																	
GLOB2107H 0.075 L/ha 15 TCM	40.0 a			50.0 a		90.0 a		89.0 ab						4	67.3	40.0	90.0
Temsa 100 SC 0.75 L/ha 75 MES																	
GLOB2107H 0.1 L/ha 20 TCM	43.3 a			30.0 ab										2	36.7	30.0	43.3
Temsa 100 SC 0.75 L/ha 75 MES																	

Trial ref.	KCP 6.2-222	KCP 6.2-223	KCP 6.2-224		
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GLOB2112dH
dRR Part B3 – Core Assessment
Globachem NV / PL

EPPO Zone (country)					MAR (FR)		MED (IT)		NE (PL)		Summary			
Rating Date					9/06/2022		8/06/2022		28/06/2022		SOLNI			
Crop Stage Majority					32		32		33					
Pest Code					SOLNI		SOLNI		SOLNI					
Pest Stage Majority					33		16		51					
Trt-Eval Interval					28 DA-A		28 DA-A		28 DA-A		n	Mean	Min	Max
UNTREATED (#/m ² ; % cov.)					14.3	13.3	13.3	15.0	7.0	3.0	3	11.5	7.0	14.3
GLOB2107H	0.025	L/ha	5 TCM		100.0	a	100.0	a	23.3	cde	3	74.4	23.3	100.0
Temsa 100 SC	0.5	L/ha	50 MES											
GLOB2107H	0.05	L/ha	10 TCM		100.0	a	100.0	a	23.3	cde	3	74.4	23.3	100.0
Temsa 100 SC	0.5	L/ha	50 MES											
GLOB2107H	0.075	L/ha	15 TCM		100.0	a	100.0	a	40.0	bcd	3	80.0	40.0	100.0
Temsa 100 SC	0.5	L/ha	50 MES											
GLOB2107H	0.1	L/ha	20 TCM		100.0	a	100.0	a	43.3	bcd	3	81.1	43.3	100.0
Temsa 100 SC	0.5	L/ha	50 MES											
GLOB2107H	0.025	L/ha	5 TCM		99.7	a	100.0	a	46.7	bc	3	82.1	46.7	100.0
Temsa 100 SC	0.75	L/ha	75 MES											
GLOB2107H	0.05	L/ha	10 TCM		100.0	a	100.0	a	60.0	ab	3	86.7	60.0	100.0
Temsa 100 SC	0.75	L/ha	75 MES											
GLOB2107H	0.075	L/ha	15 TCM		100.0	a	100.0	a	66.7	ab	3	88.9	66.7	100.0
Temsa 100 SC	0.75	L/ha	75 MES											
GLOB2107H	0.1	L/ha	20 TCM		100.0	a	100.0	a	73.3	a	3	91.1	73.3	100.0
Temsa 100 SC	0.75	L/ha	75 MES											
Trial ref.					KCP 6.2-223		KCP 6.2-226				Summary			
EPPO Zone (country)					MED (IT)		MED (HR)							
Rating Date					8/06/2022		14/06/2023				DIGSA			
Crop Stage Majority					32		18							
Pest Code					DIGSA		DIGSA							
Pest Stage Majority					26		19							
Trt-Eval Interval					28 DA-A		28 DA-A				n	Mean	Min	Max
UNTREATED (#/m ² ; % cov.)					47.0	27.0	8.3	15.0			2	27.7	8.3	47.0
GLOB2107H	0.025	L/ha	5 TCM		50.0	b					1	50.0	50.0	50.0
Temsa 100 SC	0.5	L/ha	50 MES											
GLOB2107H	0.05	L/ha	10 TCM		50.0	b	70.0	c			2	60.0	50.0	70.0
Temsa 100 SC	0.5	L/ha	50 MES											
GLOB2107H	0.075	L/ha	15 TCM		50.0	b	88.3	a			2	69.2	50.0	88.3
Temsa 100 SC	0.5	L/ha	50 MES											
GLOB2107H	0.1	L/ha	20 TCM		50.0	b					1	50.0	50.0	50.0
Temsa 100 SC	0.5	L/ha	50 MES											
GLOB2107H	0.025	L/ha	5 TCM		53.3	b					1	53.3	53.3	53.3
Temsa 100 SC	0.75	L/ha	75 MES											
GLOB2107H	0.05	L/ha	10 TCM		53.3	b	80.0	b			2	66.7	53.3	80.0
Temsa 100 SC	0.75	L/ha	75 MES											
GLOB2107H	0.075	L/ha	15 TCM		60.0	a	90.0	a			2	75.0	60.0	90.0
Temsa 100 SC	0.75	L/ha	75 MES											
GLOB2107H	0.1	L/ha	20 TCM		61.7	a					1	61.7	61.7	61.7
Temsa 100 SC	0.75	L/ha	75 MES											
Trial ref.					KCP 6.2-226		KCP 6.2-227				Summary			
EPPO Zone (country)					MED (HR)		SE (HR)							
Rating Date					14/06/2023		24/06/2023				AMBEL			
Crop Stage Majority					18		31							
Pest Code					AMBEL		AMBEL							
Pest Stage Majority					19		25							
Trt-Eval Interval					28 DA-A		28 DA-A				n	Mean	Min	Max
UNTREATED (#/m ² ; % cov.)					14.3	20	7	8.3			2	10.7	7.0	14.3
GLOB2107H	0.05	L/ha	10 TCM		70	e	100	a			2	85.0	70.0	100.0
Temsa 100 SC	0.5	L/ha	50 MES											
GLOB2107H	0.075	L/ha	15 TCM		75	d	100	a			2	87.5	75.0	100.0
Temsa 100 SC	0.5	L/ha	50 MES											
GLOB2107H	0.05	L/ha	10 TCM		75	d	99.3	a			2	87.2	75.0	99.3
Temsa 100 SC	0.75	L/ha	75 MES											
GLOB2107H	0.075	L/ha	15 TCM		80	c	100	a			2	90.0	80.0	100.0
Temsa 100 SC	0.75	L/ha	75 MES											

Conclusion

For the control against CHEAL, it is clear that on average the best control is obtained with 15 g/ha TCM combined with 75 g/ha MES. Even though acceptable levels of control were reached at lower concentration of one or both of the active substances, the applicant is of the opinion that the dose rate should not drop too far compared to the currently registered products to avoid the emergence of resistance.

MES: 100-150 g/ha (Temsä / Callisto)

TCM: 30-40 g/ha (Adengo) 20 g/ha (Capreno)

Although the mean efficacy against ECHCG was too low in 2 out of the 4 trials, this ratio still offered the most reliable control out of the tested ratios. Finally, this ratio also proved most efficacious against SOLNI, DIGSA and AMBEL.

Conclusion – Preliminary range-finding tests

For the control of CHEAL, ECHCG, SOLNI, DIGSA, and AMBEL, the combination of 15 g/ha thiencarbazone-methyl (TCM) + 75 g/ha mesotrione (MES) provided the highest level of weed control in the trials conducted. This combination consistently demonstrated superior mean efficacy compared to the other tested ratios, establishing it as the most effective formulation for controlling the targeted weed species. Therefore, it is concluded that the combination of thiencarbazone-methyl (TCM) and mesotrione (MES), at the rates delivered when GLOB2112dH is applied at the proposed label rates, is fully justified. This formulation consistently achieves optimal efficacy against the target weed species in maize.

3.2.2 Minimum effective dose tests (KCP 6.2)

Many of the efficacy trials presented in this dossier (ref. section 3.2.3) included treatments with GLOB2112dH at multiple dose rates to establish the minimum effective dose (MED).

For post-emergence applications of herbicides in maize, the final mandatory assessment for weed control is performed at 3-4 weeks after application, according to EPPO 1/50(3)¹. Therefore, this assessment timing was used to demonstrate the minimum effective dose.

The applicant is aware that not all submitted data is relevant for this submission, but all trials performed for this project were included to demonstrate the performance of GLOB2112dH in a wide range of climatic and edaphic conditions and against a wide range of weeds.

The tables below summarize all available MED data obtained in the presented trials. For individual assessment data, reference is made to Appendix 4 of the Biological Assessment Dossier (BAD). First, a summary is made for submitted trials, no matter what climatic zone they were performed in. This is followed by separate groupings of data.

Tabel 3.2-2 Minimum effective dose of GLOB2112dH - all EPPO Zones

Target	n	Infestation of the untreated control (#/m ²)			% control with GLOB2112dH								
					0.08 L/ha			0.13 L/ha			0.2 L/ha		
		Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
CHEAL	22	13.6	5.3	41.3	68.3	0.0	100.0	81.7	57.5	100.0	86.7	68.8	100.0
DIGSA	8	12.7	8.3	30.5	73.0	50.0	83.8	78.8	68.8	85.0	84.2	75.0	91.3
	15	12.2	8.0	30.5				75.2	63.8	85.0	82.9	75.0	91.3
ECHCG	19	17.2	5.3	78.5	65.8	30.0	95.0	70.7	17.5	100.0	75.4	32.5	100.0
	37	17.8	5.0	87.5				65.6	2.5	100.0	72.4	7.5	100.0

¹ Efficacy evaluation of herbicides - Weeds in Maize, European and Mediterranean Plant Protection Organization

Tabel 3.2-3 Minimum effective dose of GLOB2112dH – Maritime EPPO Zone

Target	n	Infestation of the untreated control (#/m ²)			% control with GLOB2112dH								
					0.08 L/ha			0.13 L/ha			0.2 L/ha		
		Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
CHEAL	3	14.6	6.8	22.5	32.5	0.0	52.5	80.4*	57.5	95.0	78.8	68.8	95.0
ECHCG	4	7.3	5.3	9.3	58.5	35.0	77.5	56.9	17.5	80.0	67.5	42.5	90.0
	11	21.4	5.3	87.5				52.1	2.5	100.0	58.8	7.5	100.0

Tabel 3.2-4 Minimum effective dose of GLOB2112dH – North-East EPPO Zone + CZ/DE

Target	n	Infestation of the untreated control (#/m ²)			% control with GLOB2112dH								
					0.08 L/ha			0.13 L/ha			0.2 L/ha		
		Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
CHEAL	1	22.5	22.5	22.5	0.0	0.0	0.0	57.5	57.5	57.5	72.5	72.5	72.5
ECHCG	1	6.3	6.3	6.3	77.5	77.5	77.5	80.0	80.0	80.0	90.0	90.0	90.0
	8	23.4	5.5	87.5				65.3	30.0	100.0	69.8	30.0	100.0

Tabel 3.2-5 Minimum effective dose of GLOB2112dH – Mediterranean EPPO Zone

Target	n	Infestation of the untreated control (#/m ²)			% control with GLOB2112dH								
					0.08 L/ha			0.13 L/ha			0.2 L/ha		
		Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
CHEAL	15	14.6	7.5	41.3	70.8	30.0	100.0	79.5	65.0	100.0	86.6	72.5	100.0
DIGSA	8	12.7	8.3	30.5	73.0	50.0	83.8	78.8	68.8	85.0	84.2	75.0	91.3
	15	12.2	8.0	30.5				75.2	63.8	85.0	82.9	75.0	91.3
ECHCG	11	17.0	7.8	63.3	67.9	35.0	95.0	75.2	46.3	100.0	79.1	38.8	100.0
	19	15.0	7.8	63.3				70.4	40.0	100.0	79.3	38.8	100.0

Tabel 3.2-6 Minimum effective dose of GLOB2112dH – South-East EPPO Zone

Target	n	Infestation of the untreated control (#/m ²)			% control with GLOB2112dH								
					0.08 L/ha			0.13 L/ha			0.2 L/ha		
		Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
CHEAL	4	9.0	5.3	11.0	85.6	71.8	98.0	91.0	81.3	98.0	93.3	85.0	98.0
ECHCG	4	27.3	6.0	78.5	67.3	30.0	92.5	72.1	31.3	95.0	73.2	32.5	95.0
	6	22.2	5.0	78.5				69.3	31.3	95.0	71.1	32.5	95.0

Conclusion

The minimum effective dose data summarized above, demonstrates that without the use of an adjuvant a dose rate of 0.2 L/ha provides higher and more consistent levels of control against the key species *Chenopodium album* and *Echinochloa crus-galli* in all climatic conditions. However, it is important to note that the efficacy of the 0.13 L/ha also provided sufficient levels of control, allowing for the dose rate to be lowered under conditions of low pest pressure.

Conclusion – Minimum effective dose

The minimum effective dose (MED) of GLOB2112dH was assessed for two major weed species in maize across all EPPO zones: CHEAL and ECHCG. Regardless of the weed species or climatic zone, the data demonstrated a dose-response relationship, with 0.2 L/ha proving to be the optimal dose across all assessment timings, while efficacy at 0.13 L/ha was slightly lower. However, an exception to this trend was discussed in section 3.2.2, where the efficacy of GLOB2112dH at 0.2 L/ha in the south-eastern zone did not follow the expected dose-response trend observed in the maritime and northeaster zones.

Whilst the applicant did not present the MED data, the results tables Section 3.2.3 indicate that the lower dose of 0.13 L/ha can still be considered the minimum effective dose for a limited range of annual dicotyledonous weeds. Under optimal conditions in the maritime and north-eastern zones, this reduced herbicide rate provides sufficient efficacy against susceptible weeds (CAPBP, POLCO, THLAR), achieving consistent control levels of $\geq 88.6\%$. In the south-eastern zone, a lower dose rate it also gave good efficacy with control levels of $\geq 88.8\%$ for AMARE, AMBEL and CHEAL.

In conclusion, the proposed dose rate of 0.13 L/ha can be considered the minimum effective dose for controlling a limited spectrum of annual dicotyledonous weeds.

3.2.3 Efficacy tests (KCP 6.2)

In total, 90 efficacy trials were carried out by GEP certified research institutions in trial years 2022 and 2023: 30 in the Maritime EPPO Zone (Austria, Belgium, the Czech Republic, Germany, Denmark, Ireland, Sweden, the UK), 9 in the North-East EPPO Zone (Lithuania, Latvia, Poland), 37 in the Mediterranean EPPO Zone (Croatia, Spain, Greece, Italy, Portugal, Slovenia), 14 in the South-East EPPO Zone (Croatia, Hungary, Romania, Slovenia). For a complete overview reference is made to Table 3.2-5.

The trial methodology, crop species, trial site information, application details, location and soil type are presented in Table 3.2-7 and Table 3.2-8.

Table 3.2-7 Details on trial methodology

Guidelines	General guidelines	EPPO PP 1/152 (4), 1/135 (4), 1/181 (4)
	Specific guidelines	EPPO PP 1/50(3)
Experimental design	Plot design	RCBD (4 replications)
	Plot size	12-26m ²
Crop	Trials per crop	Maritime EPPO Zone: 30 (CZ/DE: 13) North-East EPPO Zone: 9 Mediterranean EPPO Zone: 37 South-East EPPO Zone: 14
	Varieties per crop	Maritime EPPO Zone: 24 (CZ/DE: 10) North-East EPPO Zone: 9 Mediterranean EPPO Zone: 22 South-East EPPO Zone: 9
	Sowing period	Maritime EPPO Zone: April 26 th – July 26 th (CZ/DE: April 29 th – July 12 th) North-East EPPO Zone: April 27 th – June 19 th Mediterranean EPPO Zone: March 29 th – July 30 th South-East EPPO Zone: April 16 th – July 23 rd
Application	Pest stage (BBCH) at application (1 application)	AMARE: BBCH 10-16 AMBEL: BBCH 12-15 CAPBP: BBCH 12-29 ¹ CHEAL: BBCH 10-21 ² DIGSA: BBCH 11-16 ECHCG: BBCH 10-23 MATCH: BBCH 14-17 ³ POAAN: BBCH 11-15 ⁴ POLCO: BBCH 10-18 SOLNI: BBCH 10-18 STEME: BBCH 11-15 ⁵ THLAR: BBCH 12-16 VERPE: BBCH 11-31 VIOAR: BBCH 11-18 ⁶ ¹ Exception: KCP 6.2-212: BBCH 45 ² Exception: KCP 6.2-122: BBCH 30 ³ Exception: KCP 6.2-212: BBCH 63 ⁴ Exceptions: KCP 6.2-128, 170: BBCH 50, 55 (resp.) ⁵ Exceptions: KCP 6.2-159, 195: BBCH 0, 31 (resp.)

		⁶ Exception: KCP 6.2-129: BBCH 0
	Spray volumes	150-400 L/ha
Assessment	Assessment types	% of weed coverage, number of weeds/m ² , phytotoxicity
	Assessment dates	<u>Pre-emergence</u> BBCH 11-12 21-28 days after application BBCH 51-59 (selectivity only) Shortly before harvest (weed control only) – optional <u>Post-emergence</u> Up to 14 days after treatment 21- 28 days after treatment BBCH 51-59 (selectivity only) Shortly before harvest (weed control only) - optional
	Field / Greenhouse...	Field
	GEP	All trials were performed according to GEP

Table 3.2-8 Summary form of information concerning trial sites and application details

Type of trials Effectiveness
Crop: Maize
Harmful organism Annual broadleaved weeds and grasses
Responsible body for reporting trial see column testing unit
Date of submission July 2024

Trial ref. KCP 6.2-...	Testing unit	Trial location Soil type Plot size	Applic. date Appl. amount Appl. method	Variety Planting date BBCH stage at applic.
088	Crop Research	Ballyhooly (IE) clay loam 21 m ²	Jun-21-2022 200 L/ha Downward spray	P8200 May-26-2022 BBCH 14
090	Crop Research	Glentane (IE) clay loam 21 m ²	Jun-22-2022 200 L/ha Downward spray	P8200 May-28-2022 BBCH 14
091	SGS IE	Ardfinnan (IE) loam 30 m ²	May-19-2022 150 L/ha Downward spray	P8201 Apr-26-2022 BBCH 12
092	Agrolab DK	Billeshavevej 41 (DK) loamy sand 15 m ²	Jun-8-2022 200 L/ha Downward spray	KWS Avitus May-12-2022 BBCH 13
093	Agrolab DK	Rudmevej 58 (DK) loamy sand 15 m ²	Jun-10-2022 150 L/ha Downward spray	Wizard May-8-2022 BBCH 14
094	LRCAF	Kedainiai (LT) loam 21 m ²	Jun-7-2022 200 L/ha Downward spray	P8000 May-6-2022 BBCH 13
095	LAAPC	Sesava parish (LV) loam 12 m ²	Jun-11-2022 200 L/ha Downward spray	Scudetto May-7-2022 BBCH 14
097	Biochem agrar	Urbanowice (PL) silt 30 m ²	May-13-2022 150 L/ha Downward spray	KWS Ricardinio Apr-27-2022 BBCH 12
099	Pest-Pro	Biograd na Moru (HR) clay loam 16.8 m ²	Jun-1-2022 200 L/ha Downward spray	P9911 May-3-2022 BBCH 16
100	Pest-Pro	Biograd na Moru (HR) clay loam 16.8 m ²	Jun-1-2022 200 L/ha Downward spray	P9903 May-9-2022 BBCH 15
101	Eurofins PT	Ganfei-Valença do Minho (PT) sandy loam 18 m ²	Jun-10-2022 200 L/ha Downward spray	MAS 300B May-25-2022 BBCH 12
102	Eurofins AT	Ajdovščina (SI) loamy sand 15 m ²	May-12-2022 200 L/ha Downward spray	P1242 Apr-19-2022 BBCH 12
103	Syntech RO	Simand (RO) clay 21 m ²	May-16-2022 200 L/ha Downward spray	P9590 Apr-20-2022 BBCH 12
115	Verify	Sint Laureins (BE) sandy clay 15 m ²	Jun-7-2023 200 L/ha Downward spray	P8333 May-23-2023 BBCH 12
118	Verify	Wachtebeke (BE) sandy clay 15 m ²	May-25-2023 200 L/ha Downward spray	P8666 May-6-2023 BBCH 12
119	Redebel	Gottignies (BE) silt loam 18 m ²	Jun-16-2023 200 L/ha Downward spray	P58 May-25-2023 BBCH 14
120	OAT	Limpsfield (UK) sandy loam 18 m ²	Jun-22-2023 200 L/ha Downward spray	KWS Keops May-8-2023 BBCH 13

Trial ref. KCP 6.2-...	Testing unit	Trial location Soil type Plot size	Applic. date Appl. amount Appl. method	Variety Planting date BBCH stage at applic.
122	ZS Krasne Udoli	Krasne Udoli (CZ) sandy loam 25.8 m ²	May-25-2023 200 L/ha Downward spray	MAS 10.A Apr-29-2023 BBCH 11
125	FRS DE	Düdinghausen (DE) sand 12 m ²	Jul-28-2023 200 L/ha Downward spray	KWS Editio Jul-12-2023 BBCH 13
126	Eurofins DE	Burweg (DE) loamy sand 18 m ²	Jul-25-2023 200 L/ha Downward spray	DKC2990 Jul-11-2023 BBCH 12
128	HS Husec	Stora Mellösa (SE) sandy loam 18 m ²	Sep-15-2023 200 L/ha Downward spray	Duke Jul-26-2023 BBCH 13
129	Agrolab DK	Ejby (DK) sandy loam 15 m ²	May-24-2023 200 L/ha Downward spray	Papageno May-8-2023 BBCH 12
138	FRS PL	Czarkowo (PL) sandy loam 15 m ²	Jun-29-2023 200 L/ha Downward spray	Opoka Jun-1-2023 BBCH 15
139	Green & Property	Labiszyn (PL) sandy loam 15 m ²	Jun-28-2023 200 L/ha Downward spray	Amavit May-26-2023 BBCH 14
140	Green & Property	Blonie (PL) clayey sand 12 m ²	Jun-29-2023 200 L/ha Downward spray	Talisman May-28-2023 BBCH 16
141	Pest-Pro	Deklići (HR) loamy clay 15 m ²	May-9-2023 200 L/ha Downward spray	P9911 Apr-15-2023 BBCH 12
142	Pest-Pro	Biograd na Moru (HR) loam 15 m ²	Apr-13-2023 200 L/ha Downward spray	P9903 Mar-31-2023 BBCH 11
143	Pest-Pro	Biograd na Moru (HR) loam 15 m ²	Apr-13-2023 200 L/ha Downward spray	P9903 Mar-30-2023 BBCH 11
144	Pest-Pro	Biograd na Moru (HR) loam 15 m ²	Apr-13-2023 200 L/ha Downward spray	P9911 Mar-29-2023 BBCH 11
145	Pest-Pro	Biograd na Moru (HR) loam 15 m ²	Apr-13-2023 200 L/ha Downward spray	P9911 Mar-31-2023 BBCH 11
146	Pest-Pro	Antenal (HR) clay loam 15 m ²	May-4-2023 200 L/ha Downward spray	P9911 Apr-19-2023 BBCH 11
147	Pest-Pro	Biograd na Moru (HR) loam 15 m ²	Apr-13-2023 200 L/ha Downward spray	P9903 Mar-30-2023 BBCH 12
148	Pest-Pro	Biograd na Moru (HR) loam 15 m ²	Apr-14-2023 200 L/ha Downward spray	P9911 Apr-1-2023 BBCH 12
149	Eurofins PT	Maia (PT) sandy loam 21 m ²	May-30-2023 200 L/ha Downward spray	P9911 May-15-2023 BBCH 13
150	Sagea PT	Serpa (PT) clay loam 21 m ²	Jun-14-2023 200 L/ha Downward spray	P0937 Jun-2-2023 BBCH 13
151	Syntech PT	Golegã (PT) clay 21 m ²	Jun-19-2023 200 L/ha Downward spray	MAS 59.K May-19-2023 BBCH 13
152	Sagea PT	Montemor-o-Novo (PT) loam 21 m ²	Jun-26-2023 200 L/ha Downward spray	P9911 Jun-15-2023 BBCH 12

Trial ref. KCP 6.2-...	Testing unit	Trial location Soil type Plot size	Applic. date Appl. amount Appl. method	Variety Planting date BBCH stage at applic.
153	Sagea PT	Elvas (PT) loamy clay 21 m ²	Jun-12-2023 200 L/ha Downward spray	PR34B39 May-31-2023 BBCH 12
154	Sagea PT	Arraiolos (PT) clay loam 21 m ²	Jun-23-2023 200 L/ha Downward spray	SY Zephir Jun-16-2023 BBCH 11
155	Pest-Pro	Kučan Ludbreški (HR) clay loam 15 m ²	May-20-2023 200 L/ha Downward spray	P9911 Apr-28-2023 BBCH 12
156	CPRP	Hódmezővásárhely (HU) clay loam 15 m ²	May-9-2023 200 L/ha Downward spray	RGT Noemixx Apr-16-2023 BBCH 12
158	Syntech RO	Darmanesti (RO) loam 21 m ²	May-30-2023 200 L/ha Downward spray	DKC4712 May-2-2023 BBCH 14
159	Eurofins AT	Hoce (SI) sandy clay loam 21 m ²	May-28-2023 200 L/ha Downward spray	Talisman May-6-2023 BBCH 12
160	SIHRB	Trnovlje by Celje (SI) fine silty loam 21 m ²	Jun-9-2023 200 L/ha Downward spray	P9757 May-23-2023 BBCH 12
161	Verify	Sint Laureins (BE) sandy clay 15 m ²	Jun-16-2023 100 L/ha Downward spray	P8333 May-23-2023 BBCH 16
163	Redebel	Marbais (BE) sandy loam 24 m ²	Aug-9-2023 200 L/ha Downward spray	DKC3169 Jul-10-2023 BBCH 17
165	Oseva Pro	Zubri (CZ) sandy loam 21 m ²	Jun-15-2023 100 L/ha Downward spray	ICARE May-23-2023 BBCH 14
166	ZZS Kluky	Kluky (CZ) sandy loam 24 m ²	Jun-5-2023 200 L/ha Downward spray	Friendly May-5-2023 BBCH 16
167	ZS Kujavy	Kujavy (CZ) loam 27.48 m ²	Jun-13-2023 200 L/ha Downward spray	Ashley May-9-2023 BBCH 16
168	FRS DE	Düdinghausen (DE) sand 12 m ²	Aug-9-2023 200 L/ha Downward spray	KWS Editio Jul-12-2023 BBCH 16
170	HS Husec	Stora Mellösa (SE) sandy loam 18 m ²	Sep-25-2023 200 L/ha Downward spray	Duke Jul-26-2023 BBCH 18
173	LRCAF	Babtai (LT) clay loam 27 m ²	Jun-14-2023 200 L/ha Downward spray	Nevo May-12-2023 BBCH 15
177	Pest-Pro	Deklići (HR) loamy clay 15 m ²	May-19-2023 100 L/ha Downward spray	P9903 Apr-20-2023 BBCH 14
178	Pest-Pro	Biograd na Moru (HR) loam 15 m ²	May-11-2023 200 L/ha Downward spray	P9903 Mar-31-2023 BBCH 16
179	Pest-Pro	Biograd na Moru (HR) loam 15 m ²	May-25-2023 200 L/ha Downward spray	P8816 May-8-2023 BBCH 14
180	Pest-Pro	Biograd na Moru (HR) loam 15 m ²	May-4-2023 200 L/ha Downward spray	P9911 Mar-29-2023 BBCH 15
181	Pest-Pro	Antenal (HR) clay 15 m ²	May-18-2023 200 L/ha Downward spray	P9911 Apr-9-2023 BBCH 15

Trial ref. KCP 6.2-...	Testing unit	Trial location Soil type Plot size	Applic. date Appl. amount Appl. method	Variety Planting date BBCH stage at applic.
182	Pest-Pro	Biograd na Moru (HR) loam 15 m ²	May-11-2023 200 L/ha Downward spray	P9903 Mar-30-2023 BBCH 16
183	Syntech FR	Santarém (PT) silt loam 21 m ²	Jul-3-2023 200 L/ha Downward spray	P-700 Jun-16-2023 BBCH 12
184	Sagea PT	Azambja (PT) loamy clay 21 m ²	May-18-2023 200 L/ha Downward spray	P0937 Apr-24-2023 BBCH 15
185	Sagea PT	Monforte (PT) clay loam 21 m ²	May-11-2023 200 L/ha Downward spray	P1441 Apr-19-2023 BBCH 15
186	Sagea PT	Benavente (PT) loamy sand 21 m ²	Jun-9-2023 200 L/ha Downward spray	P0937 May-9-2023 BBCH 16
187	Sagea PT	Montemor-o-Novo (PT) clay sandy loam 21 m ²	Jun-12-2023 200 L/ha Downward spray	P0937 May-5-2023 BBCH 15
188	Sagea PT	Abrantes (PT) clay loam 21 m ²	Jun-6-2023 200 L/ha Downward spray	P2105 May-5-2023 BBCH 15
189	Agrobiotest HR	Oborovo (HR) silt loam 12 m ²	Jun-26-2023 200 L/ha Downward spray	P9241 Jun-3-2023 BBCH 15
190	CPRP	Hódmezővásárhely (HU) clay loam 21 m ²	May-22-2023 200 L/ha Downward spray	RGT Noemixx Apr-16-2023 BBCH 16
191	Syntech RO	Darmanesti (RO) clay loam 21 m ²	May-31-2023 200 L/ha Downward spray	DKC4712 May-4-2023 BBCH 14
192	SIHRB	Parížlje by Braslovče (SI) fine silty loam 21 m ²	Jun-20-2023 200 L/ha Downward spray	P9757 May-23-2023 BBCH 16
193	Verify	Sint Gillis Waas (BE) sandy clay 15 m ²	Jun-27-2023 150 L/ha Downward spray	P8904 Jun-6-2023 BBCH 16
194	Eurofins AT	Gleisdorf (AT) clayey silt 15 m ²	Jul-6-2023 200 L/ha Downward spray	Gx193422 Jun-13-2023 BBCH 17
195	ZS Rymarov	Rymarov (CZ) sandy loam 21 m ²	Jun-20-2023 200 L/ha Downward spray	LG31217 May-5-2023 BBCH 15
197	Eurofins DE	Agathenburg (DE) loamy sand 15 m ²	Jul-4-2023 200 L/ha Downward spray	KWS Johaninio Jun-13-2023 BBCH 15
198	LRCAF	Akademija (LT) loam 27 m ²	Jul-5-2023 200 L/ha Downward spray	Nevo Jun-19-2023 BBCH 13
199	GMW Biosciences	Alpera (ES) sandy clay 12 m ²	Aug-10-2023 200 L/ha Downward spray	Redigo M Jul-12-2023 BBCH 15
200	Magma-Agro	Irakleio (GR) sandy loam 21 m ²	Aug-21-2023 200 L/ha Downward spray	Capuzi Jul-30-2023 BBCH 16
201	Sagea IT	Ruffia (IT) loam 12 m ²	Jul-10-2023 200 L/ha Downward spray	SIV4590 Jun-22-2023 BBCH 12
202	Agrigeos	Aci Catena (IT) loamy sand 12 m ²	Aug-4-2023 200 L/ha Downward spray	Shaniya Jul-25-2023 BBCH 13

Trial ref. KCP 6.2-...	Testing unit	Trial location Soil type Plot size	Applic. date Appl. amount Appl. method	Variety Planting date BBCH stage at applic.
203	Agri 2000 Net	Mesola (IT) sand 15 m ²	Jun-26-2023 200 L/ha Downward spray	P9241 Jun-17-2023 BBCH 12
204	Plant-Art.	Neszmély (HU) sandy clay loam 21 m ²	Jun-21-2023 200 L/ha Downward spray	RAGT Zenetixx Jun-3-2023 BBCH 13
205	Agrobiotest HR	Oborovo (HR) silt loam 12 m ²	Jun-26-2023 200 L/ha Downward spray	P9241 Jun-3-2023 BBCH 15
206	Syntech RO	Sanpetru Mare (RO) sandy clay loam 21 m ²	Aug-11-2023 200 L/ha Downward spray	Fundulea 376 Jul-23-2023 BBCH 12
207	Plant-Art.	Tata (HU) silty clay loam 18 m ²	Jun-28-2023 200 L/ha Downward spray	DKC 4098 Jun-5-2023 BBCH 15
208	Vertify	Sint Gillis Waas (BE) sandy clay 15 m ²	May-27-2023 200 L/ha Downward spray	KWS Corazon May-3-2023 BBCH 13
209	Zvu Kromeriz	Kromeriz (CZ) silty clay loam 21 m ²	Jun-5-2023 200 L/ha Downward spray	DKC 4098 May-9-2023 BBCH 14
210	Zemservis	Bystrice nad Pernštejnem (CZ) loamy sand 20 m ²	Jun-13-2023 200 L/ha Downward spray	P8201 May-16-2023 BBCH 14
211	ZZS Kluky	Kluky (CZ) sandy loam 24 m ²	May-29-2023 200 L/ha Downward spray	Friendly May-5-2023 BBCH 13
212	Oseva Pro	Zubri (CZ) sandy loam 21 m ²	Jun-20-2023 200 L/ha Downward spray	ICARE May-23-2023 BBCH 14
226	Pest-Pro	Biograd na Moru (HR) loam 15 m ²	May-17-2023 200 L/ha Downward spray	P8816 May-8-2023 BBCH 12
227	Agrobiotest HR	Koprivnica (HR) silt loam 12 m ²	May-27-2023 200 L/ha Downward spray	P9911 May-12-2023 BBCH 12
228	FRS PL	Czarkowo (PL) sandy loam 15 m ²	May-18-2023 200 L/ha Downward spray	Asunto Apr-26-2023 BBCH 12

Details of the formulations tested are provided in Table 3.2-9 while details of application rates are provided in Table 3.2-10, note that only treatments relevant to this dossier were included in the tables below.

Table 3.2-9 Formulation included in the efficacy trials

Test product	Active substance(s)	Concentration of a.s.	Formulation type
GLOB2107H	Thiencarbazone-methyl Cyprosulfamide (safener)	200 g/L 258 g/L	SC
GLOB2112aH	Mesotrione Cyprosulfamide (safener) Thiencarbazone-methyl	100 g/L 30 g/L 20 g/L	SC
GLOB2112dH	Mesotrione Cyprosulfamide (safener) Thiencarbazone-methyl	375 g/L 112 g/L 75 g/L	SC
Adengo 315 SC Adengo 465 SC Adengo TC MAX	Isoxaflutole Thiencarbazone-methyl Cyprosulfamide (safener)	225 g/L 90 g/L 150 g/L	SC
Callisto 100 SC	S-metolachlor	100 g/L	SC
Camix 560 SE	S-metolachlor Mesotrione	500 g/L 60 g/L	SE
Capreno	Tembotrione Thiencarbazone-methyl Isoxadifen-ethyl (safener)	345 g/L 68 g/L 134 g/L	SC
Stomp CS	Pendimethalin	455 g/L	CS
Temsa 100 SC	Mesotrione	100 g/L	SC
Wing P 462.5 EC	Dimethenamid-P Pendimethalin	212.5 g/L 250 g/L	EC
Adigor	Methylated rapeseed oil based adjuvant		
Actirob	Esterified rapeseed oil based adjuvant		
Assist	Paraffin base mineral oil adjuvant		

Table 3.2-10 Application rates

Trial reference number	Product	Application rate	
		kg as/ha	Product L/ha
088-103	GLOB2112aH GLOB2112aH Camix (ref) Temsa (ref) Adengo (ref)	75 MESO + 15 TCM 100 MESO + 20 TCM 900 SMOC + 108 MES 70 / 150 MES 74.25 / 78.75 / 99 ISF 29.7 / 31.5 / 39.6 TCM	0.75 1 1.8 0.7 / 1.5 0.33 / 0.35 / 0.44
115-129	GLOB2112aH GLOB2112aH GLOB2112dH GLOB2112dH GLOB2112dH Stomp CS (ref) Camix (ref) Callisto 100 SC (ref) Adengo (ref)	75 MES + 15 TCM ¹ 100 MES + 20 TCM 30 MES + 6 TCM ² 48.75 MES + 9.75 TCM ² 75 MES + 15 TCM ² 455 / 1319.5 PND 900 SMOC + 108 MES 150 MES 74.25 / 99 ISF + 29.7 / 39.6 TCM ¹ 115, 118, 120, 122-124, 126, 127, 130, 132, 133, 136, 137 ² 115-118, 121-124, 127-137	0.75 1 0.08 0.13 0.2 1 / 2.9 1.8 1.5 0.33 / 0.44
138-140	GLOB2112aH GLOB2121dH GLOB2112dH + Adigor GLOB2121dH + Adigor GLOB2112dH + Actirob GLOB2121dH + Assist Adengo (ref)	75 MES + 15 TCM 75 MES + 15 TCM 48.75 MES + 9.75 TCM 75 MES + 15 TCM 75 MES + 15 TCM 75 MES + 15 TCM 99 ISF + 39.6 TCM	0.75 0.2 0.13 + 0.5% 0.2 + 0.5% 0.2 + 1 0.2 + 0.25% 0.44

Trial reference number	Product	Application rate	
		kg as/ha	Product L/ha
141-160	GLOB2112aH	75 MES + 15 TCM ¹	0.75
	GLOB2112dH	30 MES + 6 TCM	0.08
	GLOB2112dH	48.75 MES + 9.75 TCM	0.13
	GLOB2112dH	75 MES + 15 TCM	0.2
	Stomp CS (ref)	455 / 1319.5 PND	1 / 2.9
	Camix (ref)	900 SMOC + 108 MES	1.8
	Callisto 100 SC (ref)	150 MES	1.5
	Adengo (ref)	74.25 / 99 ISF + 29.7 / 39.6 TCM	0.33 / 0.44
¹ 141-154			
161-192	GLOB2112aH	75 MES + 15 TCM ¹	0.75
	GLOB2112aH + Adigor	75 MES + 15 TCM ²	0.75 + 0.5%
	GLOB2112dH	48.75 MES + 9.75 TCM ³	0.13
	GLOB2112dH	75 MES + 15 TCM ⁴	0.2
	GLOB2112dH + Adigor	48.75 MES + 9.75 TCM ⁵	0.13 + 0.5%
	GLOB2112dH + Adigor	75 MES + 15 TCM ⁵	0.2 + 0.5%
	Temsa / Callisto (ref)	150 MES ⁶	1.5
	Capreno + Actirob / Mero (ref)	100.05 TBT + 19.72 TCM	0.29 + 2
¹ 161, 162, 165, 168, 171, 174, 175, 180-183, 186, 188, 189, 191 ² 170 ³ 162, 164, 166, 167, 169, 171-182, 184-188, 190, 191 ⁴ 161-164, 166, 167, 169, 171-182, 184-188, 190, 191 ⁵ 163, 165, 167, 168, 170, 183, 189, 192 ⁶ 164, 169-174,			
193-207	GLOB2112aH	75 MES + 15 TCM	0.75
	GLOB2112dH	75 MES + 15 TCM	0.2
	GLOB2112dH + Adigor	48.75 MES + 75 TCM	0.13 + 0.5%
	GLOB2112dH + Adigor	75 MES + 15 TCM	0.2 + 0.5%
	GLOB2112dH + Actirob	75 MES + 15 TCM	0.2 + 1
	GLOB2112dH + Assist	75 MES + 15 TCM	0.2 + 0.25%
	Temsa (ref)	75 MES ²	0.75
	Adengo (ref)	74.25 / 99 ISF + 29.7 / 39.6 TCM ³	0.33 / 0.44
	Capreno + Actirob / Mero (ref)	100.05 TBT + 19.72 TCM ⁴	0.29 + 2
¹ 194, 196-204, 206, 207 ² 198 ³ 196, 199, 201-203 ⁴ 193-195, 197, 200, 204, 205, 207			
208-212	GLOB2112dH	48.75 MES + 75 TCM	0.13
	GLOB2112dH	75 MES + 15 TCM	0.2
	GLOB2112dH + Adigor	48.75 MES + 75 TCM ¹	0.13 + 0.5%
	GLOB2112dH + Adigor	75 MES + 15 TCM ¹	0.2 + 0.5%
	GLOB2112dH + Actirob	48.75 MES + 75 TCM	0.13 + 1
	GLOB2112dH + Actirob	75 MES + 15 TCM	0.2 + 1
	Capreno + Actirob / Mero (ref)	100.05 TBT + 19.72 TCM	0.29 + 2
		¹ 212	
226-228	GLOB2112dH	15 TCM + 75 MES	0.2
	GLOB2112dH + Actirob	15 TCM + 75 MES	0.2 + 1
	Temsa (ref)	50 MES	0.5
	Temsa (ref)	75 MES	0.75
	Capreno + Actirob / Mero (ref)	100.05 TBT + 19.72 TCM	0.29 + 2

3.2.3.1 Presentation of individual assessment (efficacy) data (BAD Appendix 4)

For individual efficacy trial data reference is made to Appendix 4.

It should be noted that the results of all trials included in this dossier are presented together for each of the requested uses, regardless of the EPPO Zone they were performed in. An overall summary is provided across all EPPO Zones, followed by a summary for each EPPO Zone, separately.

In the presentation of the data, the colour of the KCP numbers is used to indicate the EPPO Zone each trial was performed in:

Maritime EPPO Zone:		+	
North-East EPPO Zone:		+	
Mediterranean EPPO Zone:			
South-East EPPO Zone:			

¹Trials performed in the Czech Republic or Germany are valid for Poland

²Trials performed in Poland are valid for Austria and Germany

The applicant is aware that not all submitted data is relevant for this submission, but all trials performed for this project were included to demonstrate the performance of GLOB2112dH in a wide range of climatic and edaphic conditions and against a wide range of weeds.

For all individual assessment data found in Appendix 4, rating date, crop stage at the time of assessment, pest stage at the time of assessment and the number of days after application are included in the tables.

For post-emergence applications of herbicides in maize, the final mandatory assessment for weed control is performed at 3-4 weeks after application, according to EPPO 1/50(3)². Therefore, this assessment timing was used to demonstrate the minimum effective dose.

For the presented assessment data to be valid for further analysis, there should be at least 5 plants per square meter in the untreated control, this number is given for all assessments. If this minimum requirement was not reached the weed ground coverage, which should be at least 2%, is also shown for the untreated control.

² Efficacy evaluation of herbicides - Weeds in Maize, European and Mediterranean Plant Protection Organization

3.2.3.2 Equivalence of GLOB2112aH and GLOB2112dH

In the trials performed in 2022, the same ratio of mesotrione, thienencarbazone-methyl and cyprosulfamide (safener) as GLOB2112dH was tested, but the test product (GLOB2112aH) contained these substances at the same ratio, but at lower concentrations. The table below provides a comparison between the composition of both test products at the tested dose rates.

Tabel 3.2-7 Comparison of GLOB2112aH vs. GLOB2112dH

Test product	Active substances	Concentration of a.s.	Formulation type	Tested dose rate	
GLOB2112aH	Mesotrione Cyprosulfamide (safener) Thienencarbazone-methyl	100 g/L 30 g/L 20 g/L	SC	0.75 L/ha	75 g/ha 22.5 g/ha 15 g/ha
GLOB2112dH	Mesotrione Cyprosulfamide (safener) Thienencarbazone-methyl	375 g/L 112 g/L 75 g/L	SC	0.2 L/ha	75 g/ha 22.4 g/ha 15 g/ha

As demonstrated in the table above, the amount of active substances applied per hectare is identical, apart from a very small decrease in the amount of cyprosulfamide (-0.4%), which is considered a minor change according to EPPO 1/307(2)³, especially because it is a safener and therefore won't contribute to the efficacy of the product against target weeds. For the trial year 2023, the concentration of active substances in the formulated products was increased in order to improve the practicality and transport and the ease of use for the end user (lower volumes required).

To allow for the use of efficacy data gathered with GLOB2112aH to support the registration of GLOB2112dH, both formulations were tested together in 2023. The tables below provide a direct orthogonal comparison between both products. First, a summary is made for submitted trials, no matter what climatic zone they were performed in. This is followed by separate groupings of data.

Tabel 3.2-8 Orthogonal comparison GLOB2112aH and GLOB2112dH – All EPPO Zones

Target	n	Infestation in the untreated control (#/m ²)			% control						Δ
					0.75 L/ha GLOB2112aH			0.2 L/ha GLOB2112dH			
		Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	
CHEAL	39	16.9	5.8	73.3	75.1	10.0	100.0	76.8	12.5	100.0	1.7
DIGSA	12	19.7	8.3	94.0	78.2	35.0	86.3	79.0	40.0	91.3	0.8
ECHCG	32	19.7	5.3	159.5	66.0	0.0	99.0	65.1	10.0	99.0	1.0

Tabel 3.2-9 Orthogonal comparison GLOB2112aH and GLOB2112dH – Maritime EPPO Zone

Target	n	Infestation in the untreated control (#/m ²)			% control						Δ
					0.75 L/ha GLOB2112aH			0.2 L/ha GLOB2112dH			
		Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	
CHEAL	8	14.6	6.8	24.0	63.0	10.0	100.0	67.8	15.0	95.0	4.9
ECHCG	7	32.7	5.3	159.5	56.4	10.0	87.5	59.8	22.5	90.0	3.4

Tabel 3.2-10 Orthogonal comparison GLOB2112aH and GLOB2112dH – North-East EPPO Zone

Target	n	Infestation in the untreated control (#/m ²)			% control						Δ
					0.75 L/ha GLOB2112aH			0.2 L/ha GLOB2112dH			
		Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	
CHEAL	4	20.7	5.8	51.8	66.0	25.0	95.0	66.0	32.5	95.0	0.0
ECHCG	4	11.0	8.3	16.0	81.7	70.0	99.0	77.3	62.5	99.0	4.4

³ Efficacy considerations and data generation when making changes to the chemical composition or formulation type of plant protection products, European and Mediterranean Plant Protection Organization

Tabel 3.2-11 Orthogonal comparison GLOB2112aH and GLOB2112dH – Mediterranean EPPO Zone

Target	n	Infestation in the untreated control (#/m ²)			% control						Δ
					0.75 L/ha GLOB2112aH			0.2 L/ha GLOB2112dH			
		Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	
CHEAL	23	14.8	7.3	41.3	81.2	55.0	100.0	84.6	67.5	100.0	3.4
DIGSA	12	19.7	8.3	94.0	78.2	35.0	86.3	79.0	40.0	91.3	0.8
ECHCG	17	14.8	7.8	53.0	76.7	35.0	97.5	73.4	25.0	95.0	3.3

Conclusion

With only very small differences (<5%) in average efficacy between the GLOB2112aH and GLOB2112dH formulations over a large number of trials across all different EPPO Zones, the above tables clearly demonstrate the equivalence of these formulations against the major target weeds.

Conclusion – Equivalence of GLOB2112aH and GLOB2112dH

The amount of active substances applied per hectare is essentially the same for both GLOB2112aH and GLOB2112dH, with only a small reduction (-0.4%) in the amount of cyprosulfamide in GLOB2112dH. This small difference is unlikely to have a significant impact on the overall efficacy of the product, so the two formulations can be considered equivalent in terms of the amount of active ingredient applied.

3.2.3.3 Efficacy of GLOB2112dH combined with supportive data of GLOB2112aH

As supported by the evidence in the previous section the performance of GLOB2112aH and the (higher concentrated) GLOB2112dH is equivalent (same amount of active substance applied per hectare). The tables below provide a summary of all efficacy data gathered with GLOB2112dH at 0.2 L/ha ('23 trials) and the equivalent dose rate of 0.75 L/ha of GLOB2112aH ('22 trials), followed by an overall summary of the consolidated results (Comb.). An overall summary is provided across all EPPO Zones, followed by a summary for each EPPO Zone, separately.

Table 3.2-11 Efficacy of GLOB2112dH - All EPPO Zones

Target	Test product	Dose	n	Infestation in the untreated control (#/m ²)			% control						
							Test product				Best ref		
				Mean	Min	Max	Mean	Min	Max	Susc.	Mean	Min	Max
AMARE	GLOB2112dH	0.2 L/ha	9	23.0	3.3	85.3	85.3	45.0	100.0	S	97.2	92.5	100.0
	GLOB2112aH	0.75 L/ha	1	40.0	-	-	97.3	-	-	HS	98.8	-	-
	Comb.		10	24.7	3.3	85.3	86.5	45.0	100.0	S	97.3	92.5	100.0
AMBEL	GLOB2112dH	0.2 L/ha	10	13.0	6.5	29.0	84.8	57.5	100.0	MS	86.2	66.3	100.0
	GLOB2112aH	0.75 L/ha	1	22.3	-	-	100.0	-	-	HS	90.0	-	-
	Comb.		11	13.9	6.5	29.0	86.2	57.5	100.0	S	86.5	66.3	100.0
CAPBP	GLOB2112dH	0.2 L/ha	4	9.8	5.3	15.8	89.6	78.5	100.0	S	95.3	89.8	100.0
	GLOB2112aH	0.75 L/ha	1	26.0	-	-	99.0	-	-	HS	99.0	-	-
	Comb.		5	13.0	5.3	26.0	91.5	78.5	100.0	S	96.0	89.8	100.0
CHEAL	GLOB2112dH	0.2 L/ha	63	17.5	5.0	163.3	78.7	12.5	100.0	MS	90.1	0.0	100.0
	GLOB2112aH	0.75 L/ha	18	23.5	5.5	63.7	90.6	75.0	100.0	S	94.5	78.8	100.0
	Comb.		81	18.8	5.0	163.3	81.3	12.5	100.0	MS	91.0	0.0	100.0
CHEAL*	GLOB2112dH	0.2 L/ha	51	13.8	5.0	51.8	87.0	60.0	100.0	S	89.8	0.0	100.0
	GLOB2112aH	0.75 L/ha	18	23.5	5.5	63.7	90.6	75.0	100.0	S	94.5	78.8	100.0
	Comb.		69	16.3	5.0	63.7	88.0	60.0	100.0	S	91.0	0.0	100.0
DIGSA	GLOB2112dH	0.2 L/ha	17	16.8	8.0	94.0	80.2	40.0	91.3	MS	80.4	25.0	91.3
	GLOB2112aH	0.75 L/ha	2	10.9	9.0	12.8	85.7	85.0	86.3	S	93.2	92.5	93.8
	Comb.		19	16.2	8.0	94.0	80.8	40.0	91.3	MS	81.7	25.0	93.8
ECHCG	GLOB2112dH	0.2 L/ha	55	23.1	5.0	159.5	68.0	7.5	100.0	MT	87.0	32.5	100.0
	GLOB2112aH	0.75 L/ha	12	12.1	5.0	22.0	83.7	32.5	100.0	MS	92.8	75.0	100.0
	Comb.		67	21.2	5.0	159.5	70.8	7.5	100.0	MS	88.0	32.5	100.0
MATCH	GLOB2112dH	0.2 L/ha	6	6.4	3.5	15.5	85.9	62.5	100.0	S	96.4	78.5	100.0
	GLOB2112dH	0.2 L/ha	1	81.3	-	-	80.0	-	-	MS	80.0	-	-
	GLOB2112aH	0.75 L/ha	3	50.2	10.0	123.0	88.5	73.4	97.0	S	87.5	72.5	100.0
POAAN	GLOB2112dH	0.2 L/ha	4	58.0	10.0	123.0	86.4	73.4	97.0	S	85.6	72.5	100.0
	GLOB2112dH	0.2 L/ha	7	7.9	5.0	14.0	94.3	86.3	100.0	S	94.4	81.8	100.0
	GLOB2112aH	0.75 L/ha	2	8.2	6.5	9.8	98.2	96.3	100.0	HS	100.0	100.0	100.0
POLCO	GLOB2112dH	0.2 L/ha	9	8.0	5.0	14.0	95.1	86.3	100.0	HS	95.7	81.8	100.0
	GLOB2112dH	0.2 L/ha	3	12.4	7.0	21.8	83.8	60.0	100.0	MS	85.4	65.0	100.0
	GLOB2112aH	0.75 L/ha	4	17.9	10.8	32.5	99.0	97.0	100.0	HS	98.3	95.0	100.0

GLOB2112dH
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	Comb.		7	15.5	7.0	32.5	92.5	60.0	100.0	S	92.8	65.0	100.0
STEME	GLOB2112dH	0.2 L/ha	4	8.0	6.0	10.8	87.8	71.0	100.0	S	95.8	83.0	100.0
	GLOB2112aH	0.75 L/ha	1	24.0	-	-	79.7	-	-	MS	82.5	-	-
	Comb.		5	11.2	6.0	24.0	86.1	71.0	100.0	S	93.1	82.5	100.0
THLAR	GLOB2112dH	0.2 L/ha	4	8.5	5.0	13.3	100.0	100.0	100.0	HS	100.0	100.0	100.0
VERPE	GLOB2112dH	0.2 L/ha	4	15.1	10.5	25.0	76.6	50.0	88.8	MS	65.6	20.0	100.0
VIOAR	GLOB2112dH	0.2 L/ha	4	6.7	5.8	7.5	76.7	64.5	93.5	MS	88.6	74.0	100.0
	GLOB2112aH	0.75 L/ha	1	22.5	-	-	100.0	-	-	HS	100.0	-	-
	Comb.		5	9.8	5.8	22.5	81.4	64.5	100.0	MS	90.9	74.0	100.0

¹HS: highly susceptible; S: susceptible; MS: Moderately susceptible; MT: Moderately tolerant

*Reference is made to section 3.2.3.5

Table 3.2-12 Efficacy of GLOB2112dH - Maritime EPPO Zone

Target	Test product	Dose	n	Infestation in the untreated control (#/m ²)			% control						
							Test product (see 2 nd column)				Best ref		
				Mean	Min	Max	Mean	Min	Max	Susc. ¹	Mean	Min	Max
AMARE	GLOB2112dH	0.2 L/ha	1	6.3	6.3	6.3	87.5	87.5	87.5	S	100.0	100.0	100.0
CAPBP	GLOB2112dH	0.2 L/ha	4	9.8	5.3	15.8	89.6	78.5	100.0	S	95.3	89.8	100.0
CHEAL	GLOB2112dH	0.2 L/ha	16	12.2	5.3	24.0	73.7	15.0	100.0	MS	89.9	0.0	100.0
	GLOB2112aH	0.75 L/ha	9	26.3	5.5	48.8	92.8	75.0	100.0	S	93.2	78.8	100.0
	Comb.		25	17.3	5.3	48.8	80.6	15.0	100.0	MS	91.1	0.0	100.0
CHEAL*	GLOB2112dH	0.2 L/ha	11	12.5	5.3	22.5	88.1	68.8	100.0	S	86.9	0.0	100.0
	GLOB2112aH	0.75 L/ha	9	26.3	5.5	48.8	92.8	75.0	100.0	S	93.2	78.8	100.0
	Comb.		20	18.7	5.3	48.8	90.2	68.8	100.0	S	89.8	0.0	100.0
ECHCG	GLOB2112dH	0.2 L/ha	16	28.6	5.3	159.5	60.9	7.5	100.0	MT	85.4	32.5	100.0
	GLOB2112aH	0.75 L/ha	5	9.0	5.0	12.5	85.7	70.0	100.0	S	94.2	75.0	100.0
	Comb.		21	23.9	5.0	159.5	66.8	7.5	100.0	MT	87.5	32.5	100.0
MATCH	GLOB2112dH	0.2 L/ha	5	7.0	4.0	15.5	83.6	62.5	100.0	MS	95.7	78.5	100.0
POAAN	GLOB2112dH	0.2 L/ha	1	81.3	-	-	80.0	-	-	MS	80.0	-	-
	GLOB2112aH	0.75 L/ha	3	50.2	10.0	123.0	88.5	73.4	97.0	S	87.5	72.5	100.0
	Comb.		4	58.0	10.0	123.0	86.4	73.4	97.0	S	85.6	72.5	100.0
POLCO	GLOB2112dH	0.2 L/ha	5	7.3	5.0	10.5	96.7	90.0	100.0	HS	93.9	81.8	100.0
	GLOB2112aH	0.75 L/ha	1	6.5	6.5	6.5	100.0	100.0	100.0	HS	100.0	100.0	100.0
	Comb.		6	7.1	5.0	10.5	97.3	90.0	100.0	HS	94.9	81.8	100.0
SOLNI	GLOB2112aH	0.75 L/ha	2	13.6	10.8	16.3	98.5	97.0	100.0	HS	99.7	99.3	100.0
STEME	GLOB2112dH	0.2 L/ha	3	8.6	7.3	10.8	83.7	71.0	100.0	MS	94.3	83.0	100.0
	GLOB2112aH	0.75 L/ha	1	24.0	-	-	79.7	-	-	MS	82.5	-	-
	Comb.		4	12.5	7.3	24.0	82.7	71.0	100.0	MS	91.4	82.5	100.0
THLAR	GLOB2112dH	0.2 L/ha	4	8.5	5.0	13.3	100.0	100.0	100.0	HS	100.0	100.0	100.0
VERPE	GLOB2112dH	0.2 L/ha	4	15.1	10.5	25.0	76.6	50.0	88.8	MS	65.6	20.0	100.0
VIOAR	GLOB2112dH	0.2 L/ha	3	6.9	5.8	7.5	78.5	64.5	93.5	MS	89.8	74.0	100.0
	GLOB2112aH	0.75 L/ha	1	22.5	-	-	100.0	-	-	HS	100.0	-	-
	Comb.		4	10.8	5.8	22.5	83.9	64.5	100.0	MS	92.3	74.0	100.0

¹HS: highly susceptible; S: susceptible; MS: Moderately susceptible; MT: Moderately tolerant

*Reference is made to section 3.2.3.5

Table 3.2-13 Efficacy of GLOB2112dH - Maritime EPPO Zone + PL (applicable to DE/AT)

Target	Test product	Dose	n	Infestation in the untreated control (#/m ²)			% control						
							Test product				Best ref		
				Mean	Min	Max	Mean	Min	Max	Susc.	Mean	Min	Max
AMARE	GLOB2112dH	0.2 L/ha	2	6.2	6.0	6.3	77.5	67.5	87.5	MS	96.3	92.5	100.0
CAPBP	GLOB2112dH	0.2 L/ha	4	9.8	5.3	15.8	89.6	78.5	100.0	S	95.3	89.8	100.0
CHEAL	GLOB2112dH	0.2 L/ha	20	13.9	5.3	52.0	70.2	15.0	100.0	MS	88.7	0.0	100.0
	GLOB2112aH	0.75 L/ha	10	26.1	5.5	48.8	91.8	75.0	100.0	S	93.3	78.8	100.0
	Comb.		30	18.0	5.3	52.0	77.4	15.0	100.0	MS	90.2	0.0	100.0
CHEAL*	GLOB2112dH	0.2 L/ha	11	12.5	5.3	22.5	88.1	68.8	100.0	S	86.9	0.0	100.0
	GLOB2112aH	0.75 L/ha	10	26.1	5.5	48.8	91.8	75.0	100.0	S	93.3	78.8	100.0
	Comb.		21	19.0	5.3	48.8	89.8	68.8	100.0	S	90.0	0.0	100.0
ECHCG	GLOB2112dH	0.2 L/ha	19	25.9	5.3	159.5	62.4	7.5	100.0	MT	86.7	32.5	100.0
	GLOB2112aH	0.75 L/ha	5	9.0	5.0	12.5	85.7	70.0	100.0	S	94.2	75.0	100.0
	Comb.		24	22.3	5.0	159.5	67.2	7.5	100.0	MT	88.3	32.5	100.0
MATCH	GLOB2112dH	0.2 L/ha	6	6.4	3.5	15.5	85.9	62.5	100.0	S	96.4	78.5	100.0
POAAN	GLOB2112dH	0.2 L/ha	1	81.3	-	-	80.0	-	-	MS	80.0	-	-
	GLOB2112aH	0.75 L/ha	3	50.2	10.0	123.0	88.5	73.4	97.0	S	87.5	72.5	100.0
	Comb.		4	58.0	10.0	123.0	86.4	73.4	97.0	S	85.6	72.5	100.0
POLCO	GLOB2112dH	0.2 L/ha	7	7.9	5.0	14.0	94.3	86.3	100.0	S	94.4	81.8	100.0
	GLOB2112aH	0.75 L/ha	2	8.2	6.5	9.8	98.2	96.3	100.0	HS	100.0	100.0	100.0
	Comb.		9	8.0	5.0	14.0	95.1	86.3	100.0	HS	95.7	81.8	100.0
SOLNI	GLOB2112dH	0.2 L/ha	1	7.0	7.0	7.0	91.3	91.3	91.3	S	91.3	91.3	91.3
	GLOB2112aH	0.75 L/ha	2	13.6	10.8	16.3	98.5	97.0	100.0	HS	99.7	99.3	100.0
	Comb.		3	11.4	7.0	16.3	96.1	91.3	100.0	HS	96.9	91.3	100.0
STEME	GLOB2112dH	0.2 L/ha	3	8.6	7.3	10.8	83.7	71.0	100.0	MS	94.3	83.0	100.0
	GLOB2112aH	0.75 L/ha	1	24.0	-	-	79.7	-	-	MS	82.5	-	-
	Comb.		4	12.5	7.3	24.0	82.7	71.0	100.0	MS	91.4	82.5	100.0
THLAR	GLOB2112dH	0.2 L/ha	4	8.5	5.0	13.3	100.0	100.0	100.0	HS	100.0	100.0	100.0

VERPE	GLOB2112dH	0.2 L/ha	4	15.1	10.5	25.0	76.6	50.0	88.8	MS	65.6	20.0	100.0
VIOAR	GLOB2112dH	0.2 L/ha	4	6.7	5.8	7.5	76.7	64.5	93.5	MS	88.6	74.0	100.0
	GLOB2112aH	0.75 L/ha	1	22.5	-	-	100.0	-	-	HS	100.0	-	-
	Comb.		5	9.8	5.8	22.5	81.4	64.5	100.0	MS	90.9	74.0	100.0

¹HS: highly susceptible; S: susceptible; MS: Moderately susceptible; MT: Moderately tolerant

^{*}Reference is made to section 3.2.3.5

Table 3.2-14 Efficacy of GLOB2112dH - North-East EPPO Zone

Target	Test product	Dose	n	Infestation in the untreated control (#/m ²)			% control						
							Test product				Best ref		
				Mean	Min	Max	Mean	Min	Max	Susc.	Mean	Min	Max
AMARE	GLOB2112dH	0.2 L/ha	1	6.0	6.0	6.0	67.5	67.5	67.5	MT	92.5	92.5	92.5
CAPBP	GLOB2112aH	0.75 L/ha	1	26.0	-	-	99.0	-	-	HS	99.0	-	-
CHEAL	GLOB2112dH	0.2 L/ha	6	23.7	5.8	52.0	68.4	32.5	95.0	MT	87.0	67.5	100.0
	GLOB2112aH	0.75 L/ha	3	33.2	11.8	63.7	84.1	75.0	94.8	MS	96.1	94.5	98.5
	Comb.		9	26.8	5.8	63.7	73.6	32.5	95.0	MS	90.0	67.5	100.0
CHEAL*	GLOB2112dH	0.2 L/ha	2	29.4	7.0	51.8	92.4	89.8	95.0	S	93.8	92.0	95.5
	GLOB2112aH	0.75 L/ha	3	33.2	11.8	63.7	84.1	75.0	94.8	MS	96.1	94.5	98.5
	Comb.		5	31.7	7.0	63.7	87.4	75.0	95.0	S	95.2	92.0	98.5
ECHCG	GLOB2112dH	0.2 L/ha	5	10.1	6.3	16.0	81.5	62.5	99.0	MS	94.2	82.5	100.0
	GLOB2112aH	0.75 L/ha	1	14.0	14.0	14.0	95.0	95.0	95.0	S	88.3	88.3	88.3
	Comb.		6	10.7	6.3	16.0	83.8	62.5	99.0	MS	93.2	82.5	100.0
MATCH	GLOB2112dH	0.2 L/ha	1	3.5	3.5	3.5	97.5	97.5	97.5	HS	100.0	100.0	100.0
POLCO	GLOB2112dH	0.2 L/ha	2	9.5	5.0	14.0	88.2	86.3	90.0	S	95.9	95.0	96.7
	GLOB2112aH	0.75 L/ha	1	9.8	9.8	9.8	96.3	96.3	96.3	HS	100.0	100.0	100.0
	Comb.		3	9.6	5.0	14.0	90.9	86.3	96.3	S	97.2	95.0	100.0
SOLNI	GLOB2112dH	0.2 L/ha	1	7.0	7.0	7.0	91.3	91.3	91.3	S	91.3	91.3	91.3
VIOAR	GLOB2112dH	0.2 L/ha	1	5.8	5.8	5.8	71.3	71.3	71.3	MS	85.0	85.0	85.0

¹HS: highly susceptible; S: susceptible; MS: Moderately susceptible; MT: Moderately tolerant

²Reference is made to section 3.2.3.5

Table 3.2-15 Efficacy of GLOB2112dH - North-East EPPO Zone + CZ/DE (applicable to PL)

Target	Test product	Dose	n	Infestation in the untreated control (#/m ²)			% control						
							Test product				Best ref		
				Mean	Min	Max	Mean	Min	Max	Susc.	Mean	Min	Max
AMARE	GLOB2112dH	0.2 L/ha	2	6.2	6.0	6.3	77.5	67.5	87.5	MS	96.3	92.5	100.0
CAPBP	GLOB2112dH	0.2 L/ha	4	9.8	5.3	15.8	89.6	78.5	100.0	S	95.3	89.8	100.0
	GLOB2112aH	0.75 L/ha	1	26.0	-	-	99.0	-	-	HS	99.0	-	-
	Comb.		5	13.0	5.3	26.0	91.5	78.5	100.0	S	96.0	89.8	100.0
CHEAL	GLOB2112dH	0.2 L/ha	15	16.3	5.3	52.0	76.8	32.5	100.0	MS	87.6	0.0	100.0
	GLOB2112aH	0.75 L/ha	6	33.2	5.5	63.7	85.6	75.0	100.0	S	93.5	80.0	100.0
	Comb.		21	21.2	5.3	63.7	79.3	32.5	100.0	MS	89.3	0.0	100.0
CHEAL*	GLOB2112dH	0.2 L/ha	9	16.1	5.3	51.8	88.3	72.5	100.0	S	86.7	0.0	100.0
	GLOB2112aH	0.75 L/ha	6	33.2	5.5	63.7	85.6	75.0	100.0	S	93.5	80.0	100.0
	Comb.		15	22.9	5.3	63.7	87.2	72.5	100.0	S	89.4	0.0	100.0
ECHCG	GLOB2112dH	0.2 L/ha	14	28.3	5.3	159.5	70.3	30.0	100.0	MS	95.4	82.5	100.0
	GLOB2112aH	0.75 L/ha	4	12.2	10.5	14.0	82.2	70.0	95.0	MS	90.1	75.0	100.0
	Comb.		18	24.7	5.3	159.5	73.0	30.0	100.0	MS	94.2	75.0	100.0
MATCH	GLOB2112dH	0.2 L/ha	5	6.7	3.5	15.5	83.1	62.5	97.5	MS	95.7	78.5	100.0
POAAN	GLOB2112aH	0.75 L/ha	1	123.0	123.0	123.0	73.4	73.4	73.4	MS	72.5	72.5	72.5
POLCO	GLOB2112dH	0.2 L/ha	6	7.5	5.0	14.0	94.2	86.3	100.0	S	96.5	90.0	100.0
	GLOB2112aH	0.75 L/ha	1	9.8	9.8	9.8	96.3	96.3	96.3	HS	100.0	100.0	100.0
	Comb.		7	7.8	5.0	14.0	94.5	86.3	100.0	S	97.0	90.0	100.0
SOLNI	GLOB2112dH	0.2 L/ha	1	7.0	7.0	7.0	91.3	91.3	91.3	S	91.3	91.3	91.3
	GLOB2112aH	0.75 L/ha	1	10.8	10.8	10.8	100.0	100.0	100.0	HS	100.0	100.0	100.0
	Comb.		2	8.9	7.0	10.8	95.7	91.3	100.0	HS	95.7	91.3	100.0
STEME	GLOB2112dH	0.2 L/ha	2	9.3	7.8	10.8	75.5	71.0	80.0	MS	91.5	83.0	100.0
	GLOB2112aH	0.75 L/ha	1	24.0	-	-	79.7	-	-	MS	82.5	-	-
	Comb.		3	14.2	7.8	24.0	76.9	71.0	80.0	MS	88.5	82.5	100.0
THLAR	GLOB2112dH	0.2 L/ha	4	8.5	5.0	13.3	100.0	100.0	100.0	HS	100.0	100.0	100.0
VERPE	GLOB2112dH	0.2 L/ha	4	15.1	10.5	25.0	76.6	50.0	88.8	MS	65.6	20.0	100.0
VIOAR	GLOB2112dH	0.2 L/ha	3	6.9	5.8	7.5	71.1	64.5	77.5	MS	86.3	74.0	100.0

¹HS: highly susceptible; S: susceptible; MS: Moderately susceptible; MT: Moderately tolerant

²Reference is made to section 3.2.3.5

Table 3.2-16 Efficacy of GLOB2112dH - Mediterranean EPPO Zone

Target	Test product	Dose	n	Infestation in the untreated control (#/m ²)			% control						
							Test product (see 2 nd column)				Best ref		
				Mean	Min	Max	Mean	Min	Max	Susc. ¹	Mean	Min	Max
AMARE	GLOB2112dH	0.2 L/ha	4	44.3	7.0	85.3	95.0	87.5	100.0	S	96.8	95.0	100.0
	GLOB2112aH	0.75 L/ha	1	40.0	-	-	97.3	-	-	HS	98.8	-	-
	Comb.		5	43.4	7.0	85.3	95.5	87.5	100.0	HS	97.2	95.0	100.0
AMBEL	GLOB2112dH	0.2 L/ha	5	10.4	8.3	14.3	86.4	81.7	92.5	S	83.4	72.5	91.3
	GLOB2112aH	0.75 L/ha	1	22.3	-	-	100.0	-	-	HS	90.0	-	-
	Comb.		6	12.4	8.3	22.3	88.6	81.7	100.0	S	84.5	72.5	91.3
CHEAL	GLOB2112dH	0.2 L/ha	31	14.3	7.3	41.3	84.5	60.0	100.0	MS	88.6	71.3	100.0
	GLOB2112aH	0.75 L/ha	5	14.3	5.5	24.8	90.0	80.0	100.0	S	94.6	90.6	100.0
	Comb.		36	14.3	5.5	41.3	85.3	60.0	100.0	S	89.5	71.3	100.0
DIGSA	GLOB2112dH	0.2 L/ha	17	16.8	8.0	94.0	80.2	40.0	91.3	MS	80.4	25.0	91.3
	GLOB2112aH	0.75 L/ha	2	10.9	9.0	12.8	85.7	85.0	86.3	S	93.2	92.5	93.8
	Comb.		19	16.2	8.0	94.0	80.8	40.0	91.3	MS	81.7	25.0	93.8
ECHCG	GLOB2112dH	0.2 L/ha	24	16.1	7.8	63.3	75.7	25.0	100.0	MS	83.4	57.5	100.0
	GLOB2112aH	0.75 L/ha	4	11.0	5.3	20.5	88.5	85.0	93.8	S	92.3	87.5	97.3
	Comb.		28	15.4	5.3	63.3	77.6	25.0	100.0	MS	84.7	57.5	100.0
SOLNI	GLOB2112dH	0.2 L/ha	2	15.2	8.5	21.8	80.0	60.0	100.0	MS	82.5	65.0	100.0
	GLOB2112aH	0.75 L/ha	1	11.8	11.8	11.8	100.0	100.0	100.0	HS	95.0	95.0	95.0
	Comb.		3	14.0	8.5	21.8	86.7	60.0	100.0	S	86.7	65.0	100.0
STEME	GLOB2112dH	0.2 L/ha	1	6.0	6.0	6.0	100.0	100.0	100.0	HS	100.0	100.0	100.0

¹HS: highly susceptible; S: susceptible; MS: Moderately susceptible; MT: Moderately tolerant

Table 3.2-17 Efficacy of GLOB2112dH – South-East EPPO Zone

Target	Test product	Dose	n	Infestation in the untreated control (#/m ²)			% control						
							Test product (see 2 nd column)				Best ref		
				Mean	Min	Max	Mean	Min	Max	Susc. ¹	Mean	Min	Max
AMARE	GLOB2112dH	0.2 L/ha	3	5.8	3.3	7.0	77.7	45.0	98.0	MS	98.3	95.0	100.0
AMBEL	GLOB2112dH	0.2 L/ha	5	15.7	6.5	29.0	83.3	57.5	100.0	MS	88.9	66.3	100.0
CHEAL	GLOB2112dH	0.2 L/ha	10	32.5	5.0	163.3	74.6	12.5	100.0	MS	96.6	86.3	100.0
	GLOB2112aH	0.75 L/ha	1	14.8	14.8	14.8	93.8	93.8	93.8	S	100.0	100.0	100.0
	Comb.		11	30.9	5.0	163.3	76.3	12.5	100.0	MS	96.9	86.3	100.0
CHEAL*	GLOB2112dH	0.2 L/ha	7	9.0	5.0	11.5	94.8	85.0	100.0	S	98.2	90.6	100.0
	GLOB2112aH	0.75 L/ha	1	14.8	14.8	14.8	93.8	93.8	93.8	S	100.0	100.0	100.0
	Comb.		8	9.7	5.0	14.8	94.6	85.0	100.0	S	98.5	90.6	100.0
ECHCG	GLOB2112dH	0.2 L/ha	10	37.8	5.0	156.7	53.7	10.0	95.0	MT	94.7	85.5	100.0
	GLOB2112aH	0.75 L/ha	2	21.0	20.0	22.0	63.5	32.5	94.5	MT	92.3	90.0	94.5
	Comb.		12	35.0	5.0	156.7	55.4	10.0	95.0	MT	94.3	85.5	100.0

¹HS: highly susceptible; S: susceptible; MS: Moderately susceptible; MT: Moderately tolerant

*Reference is made to section 3.2.3.5

Conclusion

The summarizing tables presented above provide support for the effective control offered by GLOB2112dH at the maximum requested dose rate of 0.2 L/ha against a variety of target weeds.

The good efficacy against *Chenopodium album* (CHEAL), *Echinochloa crus-galli* (ECHCG), and *Fallopia convolvulus* (POLCO) is well-supported in all EPPO Zones (≥6 supportive trials⁴). These three weeds are considered the most important annual target weeds in maize⁵ together with *Amaranthus retroflexus* (AMARE), which occurred in 5 trials performed in the Mediterranean EPPO Zone. The well-supported efficacy against other major weeds and the fact that GLOB2112dH provided at least 87.5% of control against AMARE in all (5) trials should be taken into account to also grant a registration against this weed in the Mediterranean EPPO Zone.

⁴ PP 1/226 (3) Number of efficacy trials - European and Mediterranean Plant Protection Organization, Bulletin OEPP/EPPO Bulletin(2018)0(0), 1–4

⁵Głowacka, Aleksandra. (2011). Dominant weeds in maize (*Zea mays* L.) cultivation and their competitiveness under conditions of various methods of weed control. Acta Agrobotanica. 64. 10.5586/aa.2011.023.

3.2.3.4 Efficacy of GLOB2112dH at the 0.13 L/ha dose rate

As was already mentioned in section 3.2.2 (Minimum Effective Dose), the 0.13 L/ha dose rate of GLOB2112dH can provide sufficient control under certain conditions and/or against certain weeds. Therefore, the following tables summarized the efficacy results of all trials that tested GLOB2112dH at the 0.13 L/ha and 0.2 L/ha dose rates.

Table 3.2-18 Orthogonal comparison of GLOB2112dH at 0.13 L/ha and 0.2 L/ha - All EPPO Zones

Target	n	Infestation in the untreated control (#/m ²)			% control									
					0.13 L/ha GLOB2112dH			Δ	0.2 L/ha GLOB2112dH			Best ref		
		Mean	Min	Max	Mean	Min	Max		Mean	Min	Max	Mean	Min	Max
AMARE	7	28.2	6.3	85.3	87.2	75.0	100.0	6.4	93.6	87.5	100.0	98.1	95.0	100.0
AMBEL	6	11.0	6.5	21.8	81.4	68.8	91.3	8.2	89.6	83.8	95.0	85.6	72.5	95.0
CAPBP	3	7.8	5.3	10.8	88.6	75.8	100.0	4.2	92.8	78.5	100.0	93.7	89.8	100.0
CHEAL	41	12.3	5.0	41.3	75.3	38.8	100.0	8.4	83.7	35.0	100.0	88.4	0.0	100.0
CHEAL*	38	12.6	5.0	41.3	77.5	38.8	100.0	8.4	85.9	60.0	100.0	87.5	0.0	100.0
DIGSA	15	12.2	8.0	30.5	75.2	63.8	85.0	7.7	82.9	75.0	91.3	83.4	72.5	91.3
ECHCG	37	17.8	5.0	87.5	65.6	2.5	100.0	6.8	72.4	7.5	100.0	86.9	32.5	100.0
MATCH	3	8.6	5.0	15.5	74.3	64.0	83.8	10.9	85.2	67.8	94.0	92.8	78.5	100.0
POLCO	5	7.3	5.0	10.5	93.1	85.0	100.0	3.7	96.7	90.0	100.0	93.9	81.8	100.0
STEME	3	7.0	6.0	7.8	88.7	68.5	100.0	1.7	90.3	71.0	100.0	94.3	83.0	100.0
THLAR	4	8.5	5.0	13.3	97.5	90.0	100.0	2.5	100.0	100.0	100.0	100.0	100.0	100.0
VERPE	3	15.8	10.5	25.0	62.5	50.0	77.5	12.9	75.4	50.0	88.8	54.2	20.0	92.5
VIOAR	3	6.9	5.8	7.5	71.9	60.0	91.8	6.6	78.5	64.5	93.5	89.8	74.0	100.0

*Reference is made to section 3.2.3.5

Table 3.2-19 Orthogonal comparison of GLOB2112dH at 0.13 L/ha and 0.2 L/ha - Maritime EPPO Zone

Target	n	Infestation in the untreated control (#/m ²)			% control									
					0.13 L/ha GLOB2112dH			Δ	0.2 L/ha GLOB2112dH			Best ref		
		Mean	Min	Max	Mean	Min	Max		Mean	Min	Max	Mean	Min	Max
AMARE	1	6.3	6.3	6.3	76.3	76.3	76.3	11.2	87.5	87.5	87.5	100.0	100.0	100.0
CAPBP	3	7.8	5.3	10.8	88.6	75.8	100.0	4.2	92.8	78.5	100.0	93.7	89.8	100.0
CHEAL	10	10.4	5.3	22.5	62.3	38.8	95.0	15.0	77.2	35.0	100.0	85.9	0.0	100.0
CHEAL*	7	11.1	5.3	22.5	68.6	38.8	95.0	18.0	86.6	68.8	100.0	79.8	0.0	100.0
ECHCG	11	21.4	5.3	87.5	52.1	2.5	100.0	6.7	58.8	7.5	100.0	86.2	32.5	100.0
MATCH	3	8.6	5.0	15.5	74.3	64.0	83.8	10.9	85.2	67.8	94.0	92.8	78.5	100.0
POLCO	5	7.3	5.0	10.5	93.1	85.0	100.0	3.7	96.7	90.0	100.0	93.9	81.8	100.0
STEME	2	7.5	7.3	7.8	83.0	68.5	97.5	2.5	85.5	71.0	100.0	91.5	83.0	100.0
THLAR	4	8.5	5.0	13.3	97.5	90.0	100.0	2.5	100.0	100.0	100.0	100.0	100.0	100.0
VERPE	3	15.8	10.5	25.0	62.5	50.0	77.5	12.9	75.4	50.0	88.8	54.2	20.0	92.5
VIOAR	3	6.9	5.8	7.5	71.9	60.0	91.8	6.6	78.5	64.5	93.5	89.8	74.0	100.0

*Reference is made to section 3.2.3.5

Table 3.2-20 Orthogonal comparison of GLOB2112dH at 0.13 L/ha and 0.2 L/ha - Maritime EPPO Zone + PL (applicable to DE/AT)

Target	n	Infestation in the untreated control (#/m ²)			% control									
					0.13 L/ha GLOB2112dH			Δ	0.2 L/ha GLOB2112dH			Best ref		
		Mean	Min	Max	Mean	Min	Max		Mean	Min	Max	Mean	Min	Max
AMARE	1	6.3	6.3	6.3	76.3	76.3	76.3	11.2	87.5	87.5	87.5	100.0	100.0	100.0
CAPBP	3	7.8	5.3	10.8	88.6	75.8	100.0	4.2	92.8	78.5	100.0	93.7	89.8	100.0
CHEAL	10	10.4	5.3	22.5	62.3	38.8	95.0	15.0	77.2	35.0	100.0	85.9	0.0	100.0
CHEAL*	7	11.1	5.3	22.5	68.6	38.8	95.0	18.0	86.6	68.8	100.0	79.8	0.0	100.0
ECHCG	11	21.4	5.3	87.5	52.1	2.5	100.0	6.7	58.8	7.5	100.0	86.2	32.5	100.0
MATCH	3	8.6	5.0	15.5	74.3	64.0	83.8	10.9	85.2	67.8	94.0	92.8	78.5	100.0
POLCO	5	7.3	5.0	10.5	93.1	85.0	100.0	3.7	96.7	90.0	100.0	93.9	81.8	100.0
STEME	2	7.5	7.3	7.8	83.0	68.5	97.5	2.5	85.5	71.0	100.0	91.5	83.0	100.0
THLAR	4	8.5	5.0	13.3	97.5	90.0	100.0	2.5	100.0	100.0	100.0	100.0	100.0	100.0
VERPE	3	15.8	10.5	25.0	62.5	50.0	77.5	12.9	75.4	50.0	88.8	54.2	20.0	92.5
VIOAR	3	6.9	5.8	7.5	71.9	60.0	91.8	6.6	78.5	64.5	93.5	89.8	74.0	100.0

*Reference is made to section 3.2.3.5

Table 3.2-21 Orthogonal comparison of GLOB2112dH at 0.13 L/ha and 0.2 L/ha - North-East EPPO Zone

Target	n	Infestation in the untreated control (#/m ²)			% control									
					0.13 L/ha GLOB2112dH			Δ	0.2 L/ha GLOB2112dH			Best ref		
		Mean	Min	Max	Mean	Min	Max		Mean	Min	Max	Mean	Min	Max
CHEAL	1	7.0	7.0	7.0	86.8	86.8	86.8	3.0	89.8	89.8	89.8	92.0	92.0	92.0
CHEAL*	1	7.0	7.0	7.0	86.8	86.8	86.8	3.0	89.8	89.8	89.8	92.0	92.0	92.0
ECHCG	1	6.3	6.3	6.3	99.0	99.0	99.0	-0.5	98.5	98.5	98.5	98.0	98.0	98.0

Table 3.2-22 Orthogonal comparison of GLOB2112dH at 0.13 L/ha and 0.2 L/ha - North-East EPPO Zone + CZ/DE (applicable to PL)

Target	n	Infestation in the untreated control (#/m²)			% control									
					0.13 L/ha GLOB2112dH			Δ	0.2 L/ha GLOB2112dH			Best ref		
		Mean	Min	Max	Mean	Min	Max		Mean	Min	Max	Mean	Min	Max
AMARE	1	6.3	6.3	6.3	76.3	76.3	76.3	11.2	87.5	87.5	87.5	100.0	100.0	100.0
CAPBP	3	7.8	5.3	10.8	88.6	75.8	100.0	4.2	92.8	78.5	100.0	93.7	89.8	100.0
CHEAL	8	10.1	5.3	22.5	60.5	38.8	86.8	22.4	82.9	62.5	100.0	85.6	0.0	100.0
CHEAL*	6	10.6	5.3	22.5	63.8	38.8	86.8	24.9	88.7	72.5	100.0	80.8	0.0	100.0
ECHCG	8	23.4	5.5	87.5	65.3	30.0	100.0	4.5	69.8	30.0	100.0	96.1	89.8	100.0
MATCH	3	8.6	5.0	15.5	74.3	64.0	83.8	10.9	85.2	67.8	94.0	92.8	78.5	100.0
POLCO	4	6.5	5.0	8.3	93.7	85.0	100.0	3.5	97.2	90.0	100.0	96.9	90.0	100.0
STEME	1	7.8	7.8	7.8	68.5	68.5	68.5	2.5	71.0	71.0	71.0	83.0	83.0	83.0
THLAR	4	8.5	5.0	13.3	97.5	90.0	100.0	2.5	100.0	100.0	100.0	100.0	100.0	100.0
VERPE	3	15.8	10.5	25.0	62.5	50.0	77.5	12.9	75.4	50.0	88.8	54.2	20.0	92.5
VIOAR	2	7.5	7.5	7.5	62.0	60.0	64.0	9.0	71.0	64.5	77.5	87.0	74.0	100.0

*Reference is made to section 3.2.3.5

Table 3.2-23 Orthogonal comparison of GLOB2112dH at 0.13 L/ha and 0.2 L/ha - Mediterranean EPPO Zone

Target	n	Infestation in the untreated control (#/m ²)			% control									
					0.13 L/ha GLOB2112dH			Δ	0.2 L/ha GLOB2112dH			Best ref		
		Mean	Min	Max	Mean	Min	Max		Mean	Min	Max	Mean	Min	Max
AMARE	4	44.3	7.0	85.3	88.1	75.0	100.0	6.9	95.0	87.5	100.0	96.8	95.0	100.0
AMBEL	4	9.5	8.3	10.5	77.2	68.8	85.0	10.3	87.5	83.8	92.5	82.8	72.5	91.3
CHEAL	25	14.1	7.5	41.3	77.3	65.0	100.0	6.9	84.2	60.0	100.0	87.5	71.3	100.0
CHEAL*	25	14.1	7.5	41.3	77.3	65.0	100.0	6.9	84.2	60.0	100.0	87.5	71.3	100.0
DIGSA	15	12.2	8.0	30.5	75.2	63.8	85.0	7.7	82.9	75.0	91.3	83.4	72.5	91.3
ECHCG	19	15.0	7.8	63.3	70.4	40.0	100.0	8.9	79.3	38.8	100.0	84.2	68.8	100.0
STEME	1	6.0	6.0	6.0	100.0	100.0	100.0	0.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 3.2-24 Orthogonal comparison of GLOB2112dH at 0.13 L/ha and 0.2 L/ha – South-East EPPO Zone

Target	n	Infestation in the untreated control (#/m ²)			% control									
					0.13 L/ha GLOB2112dH			Δ	0.2 L/ha GLOB2112dH			Best ref		
		Mean	Min	Max	Mean	Min	Max		Mean	Min	Max	Mean	Min	Max
AMARE	2	7.0	7.0	7.0	90.9	83.8	98.0	3.1	94.0	90.0	98.0	100.0	100.0	100.0
AMBEL	2	14.2	6.5	21.8	89.7	88.1	91.3	4.1	93.8	92.5	95.0	91.3	87.5	95.0
CHEAL	5	8.2	5.0	11.0	88.8	80.0	98.0	3.8	92.7	85.0	98.0	97.5	90.6	100.0
CHEAL*	5	8.2	5.0	11.0	88.8	80.0	98.0	3.8	92.7	85.0	98.0	97.5	90.6	100.0
ECHCG	6	22.2	5.0	78.5	69.3	31.3	95.0	1.8	71.1	32.5	95.0	94.9	90.0	100.0

Conclusion

The orthogonal comparisons made above demonstrate that against many target weeds >70% control can be obtained with the 0.13 L/ha dose rate of GLOB2112dH. Therefore, under conditions of low pest pressure and/or a low developmental stage of the pests at the time of application, this dose rate can be considered sufficient.

Conclusion – Efficacy tests

North-East zone

A total of 22 trials were conducted in maize between 2022 and 2023. These trials were carried out in two EPPO zones: the North East zone (9 trials) in Lithuania, Latvia, and Poland, and the Maritime EPPO zone (13 trials) in Germany and the Czech Republic. The objective of these trials was to evaluate the direct efficacy (effectiveness) of GLOB2112dH in controlling dicotyledonous weeds.

All trials were conducted in accordance with Good Experimental Practice (GEP) standards and followed EPPO guidelines, including: EPPO PP 1/152(4): Design and analysis of efficacy evaluation trials, EPPO PP 1/181(4): Conduct and reporting of efficacy evaluation trials, including GEP, EPPO PP 1/135(4): Phytotoxicity assessment, EPPO PP 1/225(2): Minimum effective dose and EPPO 1/50(4) Weeds in maize.

A single application was made at BBCH 11 – 16 with a 100 – 200 l/ha water volume.

In these trials, GLOB2112dH at the recommended rate of 0.2 L/ha gave good control (>85%) of the annual broadleaved weeds:

POLCO (94.5%, n=7),
THLAR (100.0%, n=4),
CAPBP (91.5%, n=5),
SOLNI (95.7%, n=2).

However, the following weed species showed less than 85% control at full GLOB2112dH doses, indicating moderate susceptibility:

ECHCG (73.0%, n=18)
CHEAL (79.3%, n=21),
VERPE (76.6%, n=4),
STEME (76.9%, n=3),
VIOAR (71.1%, n=3),
AMARE (77.5%, n=2),
MATCH (83.1%, n=5).

From the trial results collected, it is clear that the efficacy of GLOB2112dH at 0.13 L/ha is significantly lower than at 0.2 L/ha. Nevertheless, the proposed dose rate of 0.13 L/ha can be considered the minimum effective dose for a limited range of annual dicotyledonous weeds. Under optimal conditions, the lower application rate of GLOB2112dH may be sufficient to control weeds that are highly susceptible to the tested herbicide, such as CAPBP, POLCO, and THLAR, with control levels of 88.6% or higher.

MARITIME zone

A total of 35 trials were conducted in maize between 2022 and 2023. These trials were carried out in two EPPO zones: The Maritime EPPO zone (30 trials in Austria, Belgium, the Czech Republic, Germany, Denmark, Ireland, Sweden, and the UK) and North East zone (5 trials in Poland).

The objective of these trials was to evaluate the efficacy of GLOB2112dH in controlling both dicotyledonous and grass weeds. All trials were conducted in accordance with Good Experimental Practice (GEP) standards and followed EPPO guidelines, including: EPPO PP 1/152(4): Design and analysis of efficacy evaluation trials, EPPO PP 1/181(4): Conduct and reporting of efficacy evaluation trials, including GEP, EPPO PP 1/135(4): Phytotoxicity assessment, EPPO PP 1/225(2): Minimum effective dose and EPPO 1/50(4) Weeds in maize.

A single application was made at BBCH 12–17 with a water volume of 100–200 L/ha. In these trials, GLOB2112dH at the recommended rate of 0.2 L/ha provided good control (>85%) of the following annual broadleaved weeds and grasses:

MATCH: 85.9% (n = 6),
CAPBP: 89.6% (n = 4),
POLCO: 95.1% (n = 9),
SOLNI: 96.1% (n = 3),
THLAR: 100.0% (n = 4),

POAAN: 86.4% (n = 4).

However, for the following weed species, control was below 85%, indicating moderate susceptibility to GLOB2112dH at the full dose rate:

CHEAL: 77.4% (n = 30),

STEME: 82.7% (n = 4),

VERPE: 76.6% (n = 4),

VIOAR: 81.4% (n = 5),

AMARE (77.5%, n=2).

Additionally, ECHCG was insufficiently controlled at the dose rate of 0.2 L/ha, with an efficacy of only 67.2% (n = 24).

From the trial results collected, it is clear that the efficacy of GLOB2112dH at 0.13 L/ha is significantly lower than at 0.2 L/ha. Nevertheless, the proposed dose rate of 0.13 L/ha can be considered the minimum effective dose for a limited range of annual dicotyledonous weeds. Under optimal conditions, the lower application rate of GLOB2112dH may be sufficient to control weeds that are highly susceptible to the tested herbicide, such as CAPBP, POLCO, and THLAR, with control levels of 88.6% or higher.

South-East zone

A total of 14 trials were conducted in maize between 2022 and 2023. These trials were carried out in Croatia, Hungary, Romania, Slovenia.

The objective of these trials was to evaluate the efficacy of GLOB2112dH in controlling both dicotyledonous and grass weeds. All trials were conducted in accordance with Good Experimental Practice (GEP) standards and followed EPPO guidelines, including: EPPO PP 1/152(4): Design and analysis of efficacy evaluation trials, EPPO PP 1/181(4): Conduct and reporting of efficacy evaluation trials, including GEP, EPPO PP 1/135(4): Phytotoxicity assessment, EPPO PP 1/225(2): Minimum effective dose and EPPO 1/50(4) Weeds in maize.

A single application was made at BBCH 11–16 with a water volume of 100–200 L/ha.

In these trials, GLOB2112dH, applied at the recommended rate of 0.2 L/ha, provided a moderate level of control against:

AMARE (77.7%, n=3),

AMBEL (83.3%, n=5),

CHEAL (76.3%, n=11).

ECHCG was moderately tolerant, achieving a control level of 55.4%. The reference products demonstrated significantly higher efficacy than GLOB2112dH across all tested weed species. The largest differences were observed for ECHCG (38.9%), AMARE (20.6%), and CHEAL (20.6%), while the smallest difference was observed for AMBEL (5.6%).

A dose of 0.13 L/ha can be considered the minimum effective rate for controlling certain annual dicot weeds (e.g., AMARE, AMBEL, CHEAL), achieving $\geq 88.8\%$ control under optimal conditions. However, ECHCG was insufficiently controlled.

For CHEAL, differences in efficacy between doses may be linked to weed pressure: at 0.13 L/ha (lower infestation: 8.2 weeds/m²), control was high (88.8%), whereas at 0.2 L/ha (higher infestation: 32.5 weeds/m²), efficacy decreased (76.3%) despite the increased dose.

For AMARE and AMBEL, no clear factors explain the higher control at 0.13 L/ha (90.9% and 89.7%) compared to 0.2 L/ha (77.7% and 83.3%). The applicant has not addressed this discrepancy.

It is expected that the relevance of each weed will vary across the Central zone, and the zRMS cannot confirm how important each weed is in each cMS. Therefore, the cMS will need to consider if the number of trials is sufficient for each weed depending on the importance of that weed in their country. The concerned Member States belonging to the South-East zone may also consider extrapolating data from the North-East and Maritime zones.

3.2.3.5 Efficiency of GLOB2112dH against *Chenopodium album* in 2023 trial season

The weather in Europe from April to July of 2023 saw a quick progression from cool and variable weather in spring to exceptionally hot and dry weather from May to August. The whole continent was faced with high temperatures and dry conditions. Europe experienced a long period of extreme weather events that was characterized by higher-than-average temperatures, contributing to it being one of the warmest first halves of the year, even though the year did not start off extraordinarily hot. In June, the highest above-average temperatures were recorded in northwestern Europe; several countries (Ireland, the UK, Belgium, the Netherlands) experienced their warmest June in the ERA5 record⁶.

These extraordinary conditions not only impacted the growth of crops, but also the resilience of some weeds, especially *Chenopodium album*, which is known to be more challenging to control in drought conditions, because of the following adaptations:

- 1) Root System: *Chenopodium album* can develop a deep and extensive root system that allows it to access water from deeper soil layers, giving it an advantage over many crops and other weeds that have shallower root systems. (Long-term strategy)
- 2) Wax layer: in case of sudden extraordinarily high temperatures and/or water stress, *Chenopodium album* can develop a thick wax layer that serves to reduce water loss. (Short-term strategy)

It is important to note that, preferentially, drought stress is combatted through the development of a deep root system, rather than through the formation of a thick wax layer. Mainly because the consequence of a thick wax layer is a reduction of gas exchange (carbon dioxide and oxygen), which is essential for photosynthesis and respiration. This can potentially reduce the plant's overall photosynthetic efficiency and growth rate.

Plants developing in hot and dry climates (Mediterranean EPPO Zone) usually have a strongly developed root system (long-term strategy) running deep into the soil to assure access to water, because they gradually face more challenging conditions throughout the entire growing season. This survival strategy takes a relatively long time to deploy, but is a great competitive advantage in case of challenging conditions. Furthermore, it can omit the need for a thick wax layer to survive drought stress, because sufficient water (from deeper ground layers) is accessible to the plant.

In other regions, that typically have a more temperate climate (lower temperatures, more rain), plants generally have more shallow roots, because there is no need for this adaptation, allowing them to conserve the energy that would otherwise be spent on expanding the root system. However, when conditions occur suddenly (heat waves) the plant has no other option but to develop a thick wax layer (at the cost of photosynthetic efficiency).

⁶ European summer 2023: a season of contrasting extremes | Copernicus (<https://climate.copernicus.eu/european-summer-2023-season-contrasting-extremes>)

Impact of the wax layer on efficacy against *Chenopodium album*

The active substances mesotrione and thienencarbazone-methyl both act as contact and soil herbicides. To control emerged weeds (post-emergence application) these actives rely heavily on the direct absorption through the leaves. The thick wax layer that *Chenopodium album* develops under sudden drought stress can prove a difficult barrier to cross. The absence of precipitation can also make it more difficult for the active substances to reach the root system of the target weeds.

Adjuvants are known to help improve the efficacy of herbicides in such cases by aiding in the penetration through thick wax layers. They work by altering the surface tension and breaking down the wax layer, allowing the herbicides to enter the plant more effectively.

A lot of trials performed in the 2023 season included treatments of GLOB2112dH with and without adjuvants. Various types of adjuvants were tested, which are summarized in the table below.

Table 3.2-25 Adjuvants included in efficacy trials

Adigor	Methylated rapeseed oil based adjuvant
Actirob	Esterified rapeseed oil based adjuvant
Assist	Paraffin base mineral oil adjuvant

The table below is a comparison of the efficacy of GLOB2112dH 0.2 L/ha against *Chenopodium album*, with and without adjuvant, together with relevant information regarding maximum temperatures and the amount of rainfall in the week before application.

Table 3.2-26 Orthogonal comparison of GLOB2112dH with and without adjuvant against CHEAL

Trial ref. KCP 6.2-...	Country	Climatic zone	% control			BBCH at appl.	Rain			max. temperature 7 days before application
			0.2 L/ha GLOB2112dH	+ Adj.	Δ		Average weekly (June)	7 days before application	Δ	
163	BE	EPOMAR	100	100	0	12-16	15.0 mm	55.7 mm	+40.7 mm	21 °C
167	CZ		100	100	0	14-31	16.0 mm	32.6 mm	+16.6 mm	25.3 °C
194	AT		95	100	5	14	18.0 mm	22.7 mm	+4.7 mm	25 °C
195	CZ		80	90	10	18	16.0 mm	9.3 mm	-6.7 mm	26.4 °C
197	DE		87.5	100	12.5	10-14	15.0 mm	18.4 mm	+3.4 mm	26 °C
210	CZ		100	100	0	12-19	16.0 mm	16.8 mm	+0.8 mm	21.8 °C
212	CZ	EPPONE	84.8	90.5	5.7	17	16.0 mm	3.9 mm	-12.1 mm	31 °C
198	LT		95	94.3	-0.7	12-13	20.0 mm	19.2 mm	-0.8 mm	27.2 °C
199	ES	EPOMED	100	100	0	11-31	5.0 mm	0.0 mm	-5 mm	39.1 °C
200	GR		67.5	65	-2.5	10-14	3.0 mm	0.0 mm	-3 mm	37.7 °C
201	IT		73.8	75	1.2	12-13	8.0 mm	1.0 mm	-7 mm	35.8 °C
202	IT		82.5	82.5	0	12-14	8.0 mm	0.0 mm	-8 mm	32.75 °C
203	IT		100	100	0	10-12	8.0 mm	0.5 mm	-7.5 mm	35.25 °C
226	HR		91.7	97.5	5.8	13	12.0 mm	75.3 mm	+63.3 mm	20 °C
205	HR	EPPOSE	100	95	-5	16	12.0 mm	14.2 mm	+2.2 mm	35.7 °C
206	RO		100	100	0	12-15	14.0 mm	27.5 mm	+13.5 mm	37.7 °C
161	BE	EPOMAR	28.8	100	71.2	12-19	15.0 mm	0.0 mm	-15 mm	32.3 °C
193	BE		15	83.8	68.8	10-19	15.0 mm	18.0 mm	+3 mm	31.8 °C
208	BE		35	97.5	62.5	10-14	15.0 mm	0.0 mm	-15 mm	22.8 °C
209	CZ		68.8	94.5	25.7	16	16.0 mm	0.0 mm	-16 mm	22.1 °C
211	CZ		62.5	99.5	37	14	16.0 mm	1.4 mm	-14.6 mm	25.9 °C
138	PL	EPPONE	32.5	96.3	63.8	14	18.0 mm	0.0 mm	-18 mm	29.3 °C
139	PL		78.8	100	21.2	15	18.0 mm	39.8 mm	+21.8 mm	30.1 °C
140	PL		57.5	100	42.5	17	18.0 mm	9.9 mm	-8.1 mm	30 °C
228	PL		56.7	76.7	20	10-11	18.0 mm	13.0 mm*	-5 mm	22 °C
204	HU	EPPOSE	12.5	97.5	85	14	14.0 mm	no info	-14 mm	no info
207	HU		30	92.8	62.8	16	14.0 mm	2.2 mm	-11.8 mm	28.6 °C
227	HR		40	98	58	12	12.0 mm	2.5 mm	-9.5 mm	28.3 °C

*Last rainfall (2 nights before application) was preceded by 8 days of no rain

The first 16 trials in the above table (marked in green) show little to no difference in the efficacy of GLOB2112dH with and without adjuvant (any of the three tested). The last 12 trials (marked in dark orange) show bigger differences in efficacy in this comparison. The increase in performance from adding an adjuvant (in the trials marked in dark orange) supports the hypothesis that these differences can be explained through the presence of a thick wax layer on the target (*Chenopodium album*).

This hypothesis is further supported by the amount of rain and the maximum temperature in the week before treatment. All trials with big differences in performance share the following markers for drought, marked in dark grey in the above table:

- Severe below-average amounts of rainfall in the week before application (below 2mm and/or -10mm compared to average)
- Temperatures of 28°C and up

From Table 3.2-26 it is clear that the above markers are not applicable to the Mediterranean EPPO Zone. As explained earlier, plants developing in hot and dry climates (Mediterranean EPPO Zone) usually have a strongly developed root system (long-term strategy) running deep into the soil to assure access to water, because they gradually face more challenging conditions throughout the growing season. This allows them to omit the need for a thick wax layer to survive drought stress, because sufficient water is accessible to the plant. In addition to the above, countries of the Mediterranean EPPO Zone are expecting drought and therefore actively irrigate the field.

The BBCH stage of the weeds at application does not seem to be a predictor of less-than-expected efficacy of GLOB2112dH, when applied without adjuvant. Therefore this cannot serve as an explanation for the observed difference in efficacy.

Conclusion

Under average climate conditions GLOB2112dH, applied at a dose rate of 0.2 L/ha provides good control of *Chenopodium album*. However, under conditions of extreme drought, the addition of an adjuvant can increase its performance. The difference in performance of different types of adjuvants (methylated rapeseed oil, esterified rapeseed oil, and paraffin base mineral oil, respectively) is negligible (<5%).

Because the trials that were faced with extreme drought conditions (marked in red in Table 3.2-26) are not a good representation of the efficacy that can be expected from GLOB2112dH the applicant has included two different summaries for the efficacy of *Chenopodium album* in the Maritime, North-East and South-East EPPO Zones in sections 3.2.3.3 and 3.2.3.4. The first summary (CHEAL, without asterisk) summarizes all efficacy data available, the second one (CHEAL*) provides a summary of all trials except the ones that were faced with extreme weather conditions (KCP 6.2-138-140, 161, 193, 204, 207-209, 211, 227, 228).

For an overview of all individual trial results, reference is made to Appendix 4 of the Biological Assessment Dossier (BAD).

Conclusion

While the data confirm that adjuvant use enhances GLOB2112dH efficacy against CHEAL (particularly under drought conditions), this use has not been included in the GAP table. Consequently, it cannot be formally recommended as part of the proposed use.

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

The intended uses for are summarized in the table below.

Uses		Member State	Maximum requested rate	Comments / Other relevant details on GAPs
Crop(s)	Target(s)			
Maize	Annual broadleaved weeds Annual grasses	zRMS + cMS	0.2 L/ha	1 application per growing season

3.3.1 Mode of action and resistance mechanism

Mesotrione inhibits the enzyme 4-hydroxy-phenyl-pyruvate dioxygenase in the plastoquinone biosynthesis pathway, which in turn disrupts carotenoid biosynthesis. Mesotrione competes with, and is structurally similar to, the substrate (p-hydroxyphenyl pyruvate) of the target enzyme HPPD. The disruption of carotenoid biosynthesis leads to a disruption of chlorophyll synthesis causing bleaching and death in susceptible species.

Mesotrione belongs to the herbicides of HRAC/WSSA Group 27.

Thiencarbazone-methyl is an acetolactate synthase inhibitor, which prevents the production of three essential branched-chain amino acids. The active can move in the xylem and phloem to areas of new growth. Thiencarbazone-methyl belongs to the herbicides of HRAC/WSSA Group 2.

3.3.2 Evidence of resistance

Resistance information is reported in the EPPO Database on Resistance Cases⁷.

In this database, not a single case of resistance to either mesotrione or thiencarbazone-methyl was found.

Research performed in the United states⁸ on mesotrione-resistant grain sorghum, identified that a single dominant gene is the main contributor to mesotrione resistance. Several other genes only had a minor impact on mesotrione sensitivity.

Another US study⁹ performed on a waterhemp (*Amaranthus tuberculatus*) population resistant to mesotrione and atrazine identified that, at least in this specific population, mesotrione resistance was the results of an enhanced detoxification through the oxidative metabolism.

3.3.3 Inherent risk of target species

The absence of confirmed resistance events in Europe confirms there is no reason to assume an increased resistance risk for any of the target weeds.

3.3.4 Agronomic risk

Because the product is only applied once per year there is very limited selection pressure. Moreover,

⁷ EPPO (2024). EPPO Resistance Cases Database <https://resistance.eppo.int/>

⁸ Balaji et al., 2023. Journal of Agricultural and Food Chemistry 71 2023 (2), 1035-1045 DOI: 10.1021/acs.jafc.2c05865

⁹ Ma et al. 2013 Distinct detoxification mechanisms confer resistance to mesotrione and atrazine in a population of waterhemp. Plant Physiol. 2013 Sep;163(1):363-77. doi: 10.1104/pp.113.223156. Epub 2013 Jul 19. PMID: 23872617; PMCID: PMC3762656.

mesotrione and thien carbazone-methyl are typically used in a weed control scheme that consists of a mixture of different active ingredients that are applied together. This makes resistance very unlikely to occur.

3.3.5 Cross resistance

Thien carbazone-methyl

Several point mutation to the ALS (Acetolactate Synthase) gene can cause herbicide resistance to ALS inhibitors¹⁰. Although cross-resistance can occur within the group of ALS inhibitors, this is mainly limited to the sulfonylurea and imidazolinone subgroups. No cross-resistance has been found between the triazolinones (to which thien carbazone-methyl belongs) or the other groups.

Mesotrione

Although there are no confirmed cases of mesotrione resistance in Europe, weeds resistant to mesotrione outside Europe (Australia and the US) were often also resistant to other members of the F2 Group and/or other groups of herbicides¹¹.

3.3.6 Sensitivity data

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

3.3.7 Use pattern

The use pattern is detailed in the GAP table.

3.3.8 Resistance risk assessment of the unrestricted use pattern

Taking into account all of the above, the resistance risk is considered very low.

The general principles of good plant protection practice (OEPP/EPP, 1993) apply. The product should always be applied in accordance with the official label.

Conclusion - Information on possible occurrence of the development of resistance.

The applicant addresses all points of the EPPO Standard PP 1/213 (Resistance risk analysis) to evaluate the possible actual resistance risk of mesotrione and thien carbazone-methyl. Thien carbazone-methyl is grouped in HRAC/WSSA Group 2 (ALS inhibitor) while mesotrione is grouped in HRAC/WSSA Group 27 (HPPD inhibitor).

According to <http://www.weedscience.org> the following individual cases of resistance to mesotrione and thien carbazone-methyl have been reported:

#	Year	Species	Country	MOAs	Actives	Situations
1	2015	<i>Raphanus raphanistrum</i>	Australia (Western Australia)	Auxin Mimics HRAC Group 4 (Legacy O), Inhibition of Acetolactate Synthase HRAC Group 2 (Legacy B), Inhibition of Hydroxyphenyl Pyruvate Dioxygenase HRAC Group 27 (Legacy F2), Phytoene Desaturase inhibitors	chlorsulfuron, atrazine, diflufenican, fluridone, isoxaflutole, 2,4-D, mesotrione, tembotrione	Wheat

¹⁰ Tranel, P. J., & Terry R. Wright. (2002). Resistance of Weeds to ALS-Inhibiting Herbicides: What Have We Learned? Weed Science, 50(6), 700–712. <http://www.jstor.org/stable/4046642>

¹¹ Heap, I. The International Herbicide-Resistant Weed Database. www.weedscience.org

				HRAC Group 12 (Legacy F1), PSII inhibitors - Serine 264 Binders HRAC Group 5 (Legacy C1 C2)		
2	2020	<i>Raphanus raphanistrum</i>	Australia (Western Australia)	Auxin Mimics HRAC Group 4 (Legacy O), Inhibition of Acetolactate Synthase HRAC Group 2 (Legacy B), Inhibition of Hydroxyphenyl Pyruvate Dioxygenase HRAC Group 27 (Legacy F2)	metsulfuron-methyl, dicamba, 2,4-D, mesotrione, pyrasulfotole, topramezone	Wheat
3	2024	<i>Galium spurium</i>	Austria	Inhibition of Acetolactate Synthase HRAC Group 2 (Legacy B)	foramsulfuron, thiencazone-methyl	Sugar beets
4	2021	<i>Amaranthus tuberculatus</i> (=A. rudis)	Canada (Ontario)	Inhibition of Acetolactate Synthase HRAC Group 2 (Legacy B), Inhibition of Enolpyruvyl Shikimate Phosphate Synthase HRAC Group 9 (Legacy G), Inhibition of Hydroxyphenyl Pyruvate Dioxygenase HRAC Group 27 (Legacy F2), Inhibition of Protoporphyrinogen Oxidase HRAC Group 14 (Legacy E), PSII inhibitors - Serine 264 Binders HRAC Group 5 (Legacy C1 C2)	imazethapyr, atrazine, metribuzin, lactofen, glyphosate, mesotrione	Corn (maize), Soybean, Dry, bean, edible
5	2009	<i>Senecio vulgaris</i>	France	Inhibition of Acetolactate Synthase HRAC Group 2 (Legacy B)	tribenuron-methyl, prosulfuron, metsulfuron-methyl, flazasulfuron, imazamox, florasulam, iodosulfuron-methyl-Na, mesosulfuron-methyl, thiencazone-methyl	Grapes, Wheat
6	2019	<i>Ambrosia artemisiifolia</i>	Serbia	Inhibition of Acetolactate Synthase HRAC Group 2 (Legacy B)	tribenuron-methyl, imazamox, thiencazone-methyl	Corn (maize), Soybean, Sugar beets, Sunflower
7	2020	<i>Amaranthus retroflexus</i>	Ukraine	Inhibition of Acetolactate Synthase HRAC Group 2 (Legacy B)	imazethapyr, thifensulfuron-methyl, tribenuron-methyl, flumetsulam, imazamox, florasulam, iodosulfuron-methyl-Na, foramsulfuron, thiencazone-methyl	Corn (maize), Sunflower
8	2022	<i>Chenopodium album</i>	Ukraine	Inhibition of Acetolactate Synthase HRAC Group 2 (Legacy B)	thifensulfuron-methyl, tribenuron-methyl, flumetsulam, imazamox, florasulam, iodosulfuron-methyl-Na, thiencazone-methyl	Corn (maize), Soybean, Wheat, Sunflower
9	2023	<i>Ambrosia artemisiifolia</i>	Ukraine	Inhibition of Acetolactate Synthase HRAC Group 2 (Legacy B), Inhibition of Protoporphyrinogen Oxidase HRAC Group 14 (Legacy E)	imazapyr, amidosulfuron, nicosulfuron, flazasulfuron, flumetsulam, carfentrazone-ethyl, imazamox, iodosulfuron-methyl-Na, foramsulfuron, thiencazone-methyl	Sunflower
10	2009	<i>Amaranthus tuberculatus</i> (=A. rudis)	United States (Illinois)	Inhibition of Acetolactate Synthase HRAC Group 2 (Legacy B), Inhibition of Hydroxyphenyl Pyruvate Dioxygenase HRAC Group 27 (Legacy F2), PSII inhibitors - Serine 264 Binders HRAC Group 5 (Legacy C1 C2)	imazethapyr, chlorimuron-ethyl, atrazine, mesotrione, tembotrione, topamezone	Seed corn

11	2016	<i>Amaranthus tuberculatus</i> (= <i>A. rudis</i>)	United States (Illinois)	Auxin Mimics HRAC Group 4 (Legacy O), Inhibition of Acetolactate Synthase HRAC Group 2 (Legacy B), Inhibition of Hydroxyphenyl Pyruvate Dioxygenase HRAC Group 27 (Legacy F2), Inhibition of Protoporphyrinogen Oxidase HRAC Group 14 (Legacy E), PSII inhibitors - Serine 264 Binders HRAC Group 5 (Legacy C1 C2)	imazethapyr, chlorimuron-ethyl, atrazine, fomesafen, lactofen, acifluorfen, dicamba, 2,4-D, mesotrione, tembotrione, topramezone	Corn (maize), Soybean
12	2009	<i>Amaranthus tuberculatus</i> (= <i>A. rudis</i>)	United States (Iowa)	Inhibition of Acetolactate Synthase HRAC Group 2 (Legacy B), Inhibition of Hydroxyphenyl Pyruvate Dioxygenase HRAC Group 27 (Legacy F2), PSII inhibitors - Serine 264 Binders HRAC Group 5 (Legacy C1 C2)	thifensulfuron-methyl, rimsulfuron, atrazine, mesotrione, tembotrione, topramezone	Seed corn
13	2011	<i>Amaranthus tuberculatus</i> (= <i>A. rudis</i>)	United States (Iowa)	Inhibition of Acetolactate Synthase HRAC Group 2 (Legacy B), Inhibition of Enolpyruvyl Shikimate Phosphate Synthase HRAC Group 9 (Legacy G), Inhibition of Hydroxyphenyl Pyruvate Dioxygenase HRAC Group 27 (Legacy F2), PSII inhibitors - Serine 264 Binders HRAC Group 5 (Legacy C1 C2)	imazamethabenz-methyl, thifensulfuron-methyl, chlorimuron-ethyl, atrazine, isoxaflutole, glyphosate, mesotrione	Corn (maize), Soybean
14	2022	<i>Amaranthus palmeri</i>	United States (Iowa)	Inhibition of Acetolactate Synthase HRAC Group 2 (Legacy B), Inhibition of Enolpyruvyl Shikimate Phosphate Synthase HRAC Group 9 (Legacy G), Inhibition of Hydroxyphenyl Pyruvate Dioxygenase HRAC Group 27 (Legacy F2), PSII inhibitors - Serine 264 Binders HRAC Group 5 (Legacy C1 C2)	imazethapyr, atrazine, glyphosate, mesotrione	Corn (maize), Soybean
15	2009	<i>Amaranthus palmeri</i>	United States (Kansas)	Inhibition of Acetolactate Synthase HRAC Group 2 (Legacy B), Inhibition of Hydroxyphenyl Pyruvate Dioxygenase HRAC Group 27 (Legacy F2), PSII inhibitors - Serine 264 Binders HRAC Group 5 (Legacy C1 C2)	thifensulfuron-methyl, atrazine, mesotrione, pyrasulfotole, tembotrione, topramezone	Corn (maize), Sorghum
16	2011	<i>Conyza canadensis</i>	United States (Kansas)	Inhibition of Acetolactate Synthase HRAC Group 2 (Legacy B)	thifensulfuron-methyl, chlorsulfuron, tribenuron-methyl, metsulfuron-methyl, rimsulfuron, iodosulfuron-methyl-Na, thiencazone-methyl	Corn (maize), Cotton, Soybean, Wheat
17	2015	<i>Amaranthus palmeri</i>	United States (Kansas)	Auxin Mimics HRAC Group 4 (Legacy O), Inhibition of Acetolactate Synthase HRAC Group 2 (Legacy B), Inhibition of Enolpyruvyl Shikimate Phosphate Synthase HRAC Group 9 (Legacy G), Inhibition of Hydroxyphenyl Pyruvate Dioxygenase HRAC Group 27 (Legacy F2), PSII inhibitors - Serine 264 Binders HRAC Group 5 (Legacy C1 C2)	chlorsulfuron, atrazine, glyphosate, 2,4-D, mesotrione	Sorghum
18	2021	<i>Amaranthus palmeri</i>	United States (Kansas)	Auxin Mimics HRAC Group 4 (Legacy O), Inhibition of Acetolactate Synthase HRAC Group 2 (Legacy B), Inhibition of Enolpyruvyl Shikimate Phosphate Synthase HRAC Group 9 (Legacy G), Inhibition of Hydroxyphenyl Pyruvate Dioxygenase HRAC Group 27 (Legacy F2), Inhibition of Protoporphyrinogen Oxidase HRAC Group 14 (Legacy E),	imazethapyr, thifensulfuron-methyl, chlorsulfuron, atrazine, metribuzin, fomesafen, lactofen, glyphosate, 2,4-D, imazamox, mesotrione, pyrasulfotole, tembotrione	Sorghum

				PSII inhibitors - Serine 264 Binders HRAC Group 5 (Legacy C1 C2)		
19	2011	<i>Amaranthus tuberculatus</i> (= <i>A. rudis</i>)	United States (Nebraska)	Inhibition of Hydroxyphenyl Pyruvate Dioxygenase HRAC Group 27 (Legacy F2)	mesotrione, tembotrione, topramezone	Corn (maize)
20	2011	<i>Amaranthus palmeri</i>	United States (Nebraska)	Inhibition of Hydroxyphenyl Pyruvate Dioxygenase HRAC Group 27 (Legacy F2)	mesotrione, tembotrione, topramezone	Corn (maize)
21	2014	<i>Amaranthus palmeri</i>	United States (Nebraska)	Inhibition of Hydroxyphenyl Pyruvate Dioxygenase HRAC Group 27 (Legacy F2), PSII inhibitors - Serine 264 Binders HRAC Group 5 (Legacy C1 C2)	atrazine, mesotrione, tembotrione, topramezone	Corn (maize)
22	2016	<i>Amaranthus palmeri</i>	United States (North Carolina)	Inhibition of Hydroxyphenyl Pyruvate Dioxygenase HRAC Group 27 (Legacy F2)	mesotrione	Corn (maize)
23	2020	<i>Amaranthus tuberculatus</i> (= <i>A. rudis</i>)	United States (North Carolina)	Inhibition of Acetolactate Synthase HRAC Group 2 (Legacy B), Inhibition of Enolpyruvyl Shikimate Phosphate Synthase HRAC Group 9 (Legacy G), Inhibition of Hydroxyphenyl Pyruvate Dioxygenase HRAC Group 27 (Legacy F2), Inhibition of Protoporphyrinogen Oxidase HRAC Group 14 (Legacy E), PSII inhibitors - Serine 264 Binders HRAC Group 5 (Legacy C1 C2)	imazethapyr, atrazine, fomesafen, glyphosate, mesotrione	Soybean
24	2022	<i>Amaranthus retroflexus</i>	United States (North Carolina)	Inhibition of Acetolactate Synthase HRAC Group 2 (Legacy B), Inhibition of Hydroxyphenyl Pyruvate Dioxygenase HRAC Group 27 (Legacy F2), Inhibition of Protoporphyrinogen Oxidase HRAC Group 14 (Legacy E)	imazamethabenz- methyl, thifensulfuron- methyl, fomesafen, lactofen, mesotrione	Soybean

It is noted that there is currently no resistance to mesotrione in Europe and therefore any of the cMS. Furthermore, 6 cases of resistance have been reported in thien carbazon-methyl in Europe: *Galium spurium* (Austria), *Senecio vulgaris* (France), *Ambrosia artemisiifolia* (Serbia and Ukraine), *Amaranthus retroflexus* (Ukraine) and *Chenopodium album* (Ukraine).

The zRMS considers the inherent risk of resistance development to the HRAC/WSSA Group 2 (thien carbazon-methyl) to be high, whereas as no cases of resistance to HRAC/WSSA Group 27 have been reported in Europe, the inherent risk of the active substance mesotrione can be considered low. For key target weeds (e.g., CHEAL), the combined risk is assessed as moderate. Overall, the zRMS concludes that the inherent resistance risk posed by GLOB2112dH authorization is low to moderate, not 'very low' as claimed by the applicant.

The risk of development of resistance is considered to be acceptable and no further specific management strategies are required.

3.4 Adverse effects on treated crops (KCP 6.4)

Adverse effects on maize were assessed in separate weed-free selectivity trials and in some efficacy trials. The amount of trials per country, the type of trial and the year is was performed can be found in the table below.

Table 3.4-2 Presentation of selectivity trials

Crop	Application timing	Country	Years	Type of trial**	Number of trials (number of valid trials)				GEP, non-GEP, official** *	Comments (any other relevant information)
					MAR ¹	NE ²	MED ³	SE ⁴		
Maize	POST-CROP EMERGENCE	AT	2023	S + Y + Q	1					
		BE	2023	S + Y + Q	2					
		CZ	2023	S + Y + Q	7					
		DE	2023	S + Y + Q	2					
		DK	2022	S + Y + Q	1					GLOB2112aH
			2023	S + Y + Q	2					
		ES	2023	S + Y + Q			1			
		GR	2023	S + Y + Q			1			
		HR	2022	S + Y + Q			1			GLOB2112aH
			2023	S + Y + Q			3	3		
		HU	2022	S + Y + Q				1		GLOB2112aH
			2023	S + Y + Q				4		
		IE	2022	S + Y + Q	3					GLOB2112aH
			2023	S + Y + Q	2					
		IT	2023	S + Y + Q			3			
		LT	2023	S + Y + Q		5				
		LV	2022	S + Y + Q		2				GLOB2112aH
			2023	S + Y + Q		1				
		NL	2023	S + Y + Q	1					
		PL	2022	S + Y + Q		2				GLOB2112aH
			2023	S + Y + Q		4				
		PT	2022	S + Y + Q			2			GLOB2112aH
			2023	S + Y + Q			3			
		RO	2023	S + Y + Q				2		
		SI	2022	S + Y + Q			1			GLOB2112aH
		UK	2023	S + Y + Q	3					
				TOTAL	24	14	15	10		63

* According to the GAP table

** S = selectivity trial, Y = trial with yield assessment, Q = trial with quality assessment, T = trial on the basis of the study of impact on transformation process (TP: Physical transformation, TF: transformation involving microbial fermentation), P = trial with assessment of impact on propagation

*** Official: carried out by a national official organisation

In these trials crop safety, yield and yield quality were assessed. Country-specific information on the reference products can be found in the table below.

Table 3.4-3 Presentation of the reference product(s) used in selectivity trials

Crop	Reference standards	Country(ies) where the product is registered ⁽¹⁾	Authorization number	Active substance(s) (a.s)	Formulation		Registered max. application rate ⁽³⁾	Application rate in trials (per treatment)	Remark ⁽⁴⁾
					Type ⁽²⁾	Concentration of a.s.			
Maize	Callisto 100 SC	CZ	4514-0	Mesotrione	SC	100 g/L	1.5 L/ha	1.5-3 L/ha	
	Temsa SC	DE	008124-00	Mesotrione	SC	100 g/L	1.5 L/ha	1.5-3 L/ha	
	Calliprime Xtra	FR	2150012	Mesotrione	SC	480 g/L	0.33 L/ha	0.33-0.66 L/ha	
	ISARD	FR	9900251	Dimethenamid-p	EC	720 g/L	1.4 L/ha	1.4-2.8 L/ha	
	Spectrum	DE	024803-00	Dimethenamid-p	EC	720 g/L	1.4 L/ha	1.4-2.8 L/ha	

3.4.1 Crop safety trials

The trial methodology, crop species, trial site information, application details, location and soil type are presented in Table 3.4-8 and Table 3.4-9.

Table 3.4-8 Details on trial methodology

Guidelines	General guidelines	EPPO PP 1/152 (4), 1/135 (4), 1/181 (4)
	Specific guidelines	EPPO PP 1/50(3)
Experimental design	Plot design	RCBD
	Plot size	20-42m ²
	Number of replications	4
Crop	Trials per crop	Maritime EPPO Zone: 24 North-East EPPO Zone: 14 Mediterranean EPPO Zone: 15 South-East EPPO Zone: 10
	Varieties per crop	Overall: 50 Maritime EPPO Zone: 19 North-East EPPO Zone: 11 Mediterranean EPPO Zone: 13 South-East EPPO Zone: 9
	Sowing period	Maritime EPPO Zone: April 18 th – July 7 th North-East EPPO Zone: April 4 th – June 16 th Mediterranean EPPO Zone: March 30 th – July 30 th South-East EPPO Zone: March 29 th – June 9 th
Application	Crop stage (BBCH) at application	Maritime EPPO Zone: BBCH 10-17 North-East EPPO Zone: BBCH 10-16 Mediterranean EPPO Zone: BBCH 10-18 South-East EPPO Zone: BBCH 10-18
	Applications	1
	Spray volumes	200-300 L/ha
Assessment	Assessment types	Phytotoxicity, emergence, yield, yield quality
	Assessment dates	Phytotoxicity: from application until harvest Yield and yield quality: harvest
	Field / Greenhouse...	Field (weed-free)
	GEP	All trials were performed according to GEP

Table 3.4-9 Summary form of information concerning trial sites and application details

Type of trials

Selectivity

Crop:

Maize

Harmful organism

Annual broadleaved weeds and grasses

Responsible body for reporting trial

see column testing unit

Date of submission

July 2024

Trial ref. KCP 6.4-...	Testing unit	Trial location Soil type Plot size	Applic. date Appl. amount Appl. method	Variety Planting date BBCH stage at applic.
20	Crop Research	Ballyhooly (IE) clay loam 24 m ²	Jun-21-2022 150 L/ha Downward spray	P8200 May-26-2022 BBCH 14
21	SGS IE	Tourin (IE) loam 30 m ²	May-12-2022 200 L/ha Downward spray	P8201 Apr-22-2022 BBCH 12
22	SGS IE	Ardfinann (IE) loam 30 m ²	May-14-2022 200 L/ha Downward spray	P8201 Apr-26-2022 BBCH 12
23	Aarhus University	Slagelse (DK) fine clay loam 22.5 m ²	May-19-2022 150 L/ha Downward spray	LG majsmix 180.1 Apr-23-2022 BBCH 12
24	LAAPC	Auce parish (LV) loam 30 m ²	Jun-11-2022 150 L/ha Downward spray	Cester 230 May-17-2022 BBCH 13
25	LAAPC	Tervete parish (LV) loam 30 m ²	Jun-7-2022 200 L/ha Downward spray	Celuka May-13-2022 BBCH 13
26	FRS PL	Wonieść (PL) loamy sand 21 m ²	May-25-2022 200 L/ha Downward spray	Brigado May-7-2022 BBCH 14
27	Staphyt PL	Winna Góra (PL) sandy loam 24 m ²	May-26-2022 200 L/ha Downward spray	ES Hemingway May-10-2022 BBCH 12
28	Pest-Pro	Biograd na Moru (HR) clay loam 25.2 m ²	May-11-2022 200 L/ha Downward spray	P9903 Apr-28-2022 BBCH 12
29	Eurofins PT	Meãs (PT) loam 27 m ²	Jun-7-2022 200 L/ha Downward spray	Sandro May-18-2022 BBCH 13
30	Syntech PT	Alpiarça (PT) clay loam 21 m ²	May-31-2022 200 L/ha Downward spray	P0937 May-19-2022 BBCH 12
31	Eurofins AT	Ajdovščina (SI) sandy silt loam 30 m ²	May-12-2022 200 L/ha Downward spray	P1242 Apr-19-2022 BBCH 12
32	Plant-Art.	Tata (HU) sandy loam 21 m ²	Jun-13-2022 200 L/ha Downward spray	SY Batanga May-30-2022 BBCH 12
54	Redebel	Mellet (BE) silt loam 24 m ²	Jun-2-2023 200 L/ha Downward spray	DKC 3169 May-24-2023 BBCH 10
55	OAT	Melksham (UK) sandy loam 27 m ²	May-26-2023 200 L/ha Downward spray	P7948 May-4-2023 BBCH 11
56	OAT	Shellingford (UK) sandy clay loam 27 m ²	Jun-7-2023 100 L/ha Downward spray	P7948 May-4-2023 BBCH 13
57	InTec	Veseli nad Moravou (CZ) silty clay loam 42 m ²	Jun-10-2023 250 L/ha Downward spray	P9610 Jun-1-2023 BBCH 10
58	Zvu Kromeriz	Kromeriz (CZ) silty clay loam 24 m ²	May-26-2023 200 L/ha Downward spray	DKC 4098 May-9-2023 BBCH 11

Trial ref. KCP 6.4-...	Testing unit	Trial location Soil type Plot size	Applic. date Appl. amount Appl. method	Variety Planting date BBCH stage at applic.
59	ZS Krasne Udoli	Krasne Udoli (CZ) sandy loam 25.8 m ²	May-24-2023 200 L/ha Downward spray	MAS 10.A Apr-29-2023 BBCH 13
60	LRCAF	Akademija (LT) loam 27 m ²	Jun-5-2023 200 L/ha Downward spray	LG30179 May-17-2023 BBCH 13
61	LRCAF	Valinava (LT) sandy loam 27 m ²	Jun-1-2023 200 L/ha Downward spray	LG30179 May-15-2023 BBCH 13
62	LAAPC	Vecauce parish (LV) loam 30 m ²	May-29-2023 200 L/ha Downward spray	Simpatiko KWS May-11-2023 BBCH 12
63	FRS PL	Wonieść (PL) loamy sand 21 m ²	May-16-2023 200 L/ha Downward spray	Keltikus May-4-2023 BBCH 10
64	Pest-Pro	Biograd na Moru (HR) loam 21 m ²	May-19-2023 100 L/ha Downward spray	P8816 May-8-2023 BBCH 10
65	Pest-Pro	Biograd na Moru (HR) loam 21 m ²	Apr-13-2023 200 L/ha Downward spray	P9911 Mar-31-2023 BBCH 11
66	Pest-Pro	Biograd na Moru (HR) loam 21 m ²	Apr-14-2023 200 L/ha Downward spray	P9903 Mar-30-2023 BBCH 12
67	Sagea PT	Barcelos (PT) loamy sand 24 m ²	May-18-2023 250 L/ha Downward spray	PR34B39 May-6-2023 BBCH 12
68	Sagea PT	Coruche (PT) loamy sand 24 m ²	Jun-6-2023 200 L/ha Downward spray	P0937 May-25-2023 BBCH 13
69	Staphyt HU	Tápiószentmárton (HU) loam 24 m ²	May-11-2023 200 L/ha Downward spray	DKC5031WX Mar-29-2023 BBCH 12
70	Staphyt HU	Kunszentmárton (HU) loam 21 m ²	May-23-2023 200 L/ha Downward spray	P9944 May-16-2023 BBCH 10
71	Staphyt RO	Ulmeni (RO) clay loam 24 m ²	May-24-2023 200 L/ha Downward spray	P0943 May-4-2023 BBCH 13
72	Verify	Wachtebeke (BE) sandy clay 24 m ²	Jun-19-2023 200 L/ha Downward spray	P8666 May-24-2023 BBCH 16
73	Eurofins AT	Gleisdorf (AT) clayey silt 24 m ²	Jul-5-2023 200 L/ha Downward spray	Gx193422 Jun-13-2023 BBCH 16
74	SGS IE	Ardfinnan (IE) loam 24 m ²	Jun-19-2023 200 L/ha Downward spray	P8201 Apr-18-2023 BBCH 16
75	Verify	Wieringerwerf (NL) sandy clay 24 m ²	Jul-21-2023 200 L/ha Downward spray	Bio 31.207 Jun-27-2023 BBCH 14
76	Agrolab DK	Bogense (DK) sandy loam 24 m ²	Jun-22-2023 200 L/ha Downward spray	Cito KWS May-10-2023 BBCH 16
77	FieldArm	Darlton (UK) sandy clay loam 36 m ²	Jun-29-2023 200 L/ha Downward spray	Cito Jun-12-2023 BBCH 14
78	Crop Research	Ballyhooly (IE) clay loam 24 m ²	Jul-5-2023 200 L/ha Downward spray	P8200 Jun-15-2023 BBCH 14
79	Aarhus University	Slagelse (DK) clay 22.5 m ²	Jun-21-2023 200 L/ha Downward spray	Sheddar May-20-2023 BBCH 16

Trial ref. KCP 6.4-...	Testing unit	Trial location Soil type Plot size	Applic. date Appl. amount Appl. method	Variety Planting date BBCH stage at applic.
80	ZS Kujavy	Kujavy (CZ) loam 27.48 m ²	Jun-20-2023 200 L/ha Downward spray	Ashley May-9-2023 BBCH 17
81	Zemservis	Bystrice nad Pernštejnem (CZ) loamy sand 20.16 m ²	Jun-20-2023 200 L/ha Downward spray	P8201 May-16-2023 BBCH 16
82	ZS Rymarov	Rymarov (CZ) sandy loam 24 m ²	Jun-20-2023 200 L/ha Downward spray	LG31217 May-5-2023 BBCH 15
83	InTec	Veseli nad Moravou (CZ) silty clay loam 42 m ²	Jul-5-2023 200 L/ha Downward spray	P9610 Jun-1-2023 BBCH 17
84	FRS DE	Düdinghausen (DE) sand 24 m ²	Aug-1-2023 200 L/ha Downward spray	KWS Editio Jul-12-2023 BBCH 14
85	Eurofins DE	Dollern (DE) loamy sand 24 m ²	Jul-4-2023 200 L/ha Downward spray	KWS Johanningo Jun-13-2023 BBCH 15
86	FRS PL	Słonin (PL) sand 21 m ²	Jun-29-2023 200 L/ha Downward spray	Friendl CS Jun-1-2023 BBCH 16
87	Green & Property	Labiszyn (PL) sandy loam 24 m ²	Jun-17-2023 200 L/ha Downward spray	Amavit May-16-2023 BBCH 14
88	Green & Property	Błonie (PL) clayey sand 24 m ²	Jun-18-2023 200 L/ha Downward spray	Talisman May-18-2023 BBCH 14
89	LRCAF	Valinava (LT) loam 27 m ²	Jul-5-2023 200 L/ha Downward spray	Nevo Jun-16-2023 BBCH 14
90	LRCAF	Valinava (LT) loam 27 m ²	Jun-22-2023 200 L/ha Downward spray	LG30179 May-15-2023 BBCH 16
91	LRCAF	Babtai (LT) clay loam 27 m ²	Jun-22-2023 200 L/ha Downward spray	Nevo May-12-2023 BBCH 16
92	Agrobiotest HR	Rasinja (HR) silt loam 24 m ²	Jun-23-2023 200 L/ha Downward spray	SY Chorintos Jun-1-2023 BBCH 15
93	Pest-Pro	Sigetec Ludbreški (HR) clay loam 21 m ²	Jul-10-2023 200 L/ha Downward spray	P9903 May-25-2023 BBCH 17
94	Plant-Art.	Tata (HU) sandy loam 24 m ²	Jun-21-2023 200 L/ha Downward spray	DKC3972 May-27-2023 BBCH 16
95	Plant-Art.	Tata (HU) sandy loam 24 m ²	Jun-21-2023 200 L/ha Downward spray	KWS Casak May-30-2023 BBCH 15
96	Pest-Pro	Družbinec (HR) clay loam 21 m ²	Jul-12-2023 200 L/ha Downward spray	P9903 May-24-2023 BBCH 18
97	Syntech RO	Recas (RO) clay loam 24 m ²	Jul-18-2023 200 L/ha Downward spray	P1275-2120 Jun-9-2023 BBCH 17
98	GMW Biosciences	Alpera (ES) sandy clay 26.25 m ²	Aug-10-2023 200 L/ha Downward spray	Redigo-M Jul-12-2023 BBCH 14
99	Magma-Agro	Irakleio (GR) sandy loam 24 m ²	Aug-21-2023 200 L/ha Downward spray	Capuzi Jul-30-2023 BBCH 16

Trial ref. KCP 6.4-...	Testing unit	Trial location Soil type Plot size	Applic. date Appl. amount Appl. method	Variety Planting date BBCH stage at applic.
100	Agrigeos	Aci Catena (IT) loamy sand 21 m ²	Aug-8-2023 200 L/ha Downward spray	Shaniya Jul-28-2023 BBCH 14
101	Sagea IT	Castagnole Piemonte (IT) sandy loam 24 m ²	Jun-28-2023 200 L/ha Downward spray	DKC 6092 Jun-9-2023 BBCH 15
102	Agri 2000 Net	Dugliolo di Budrio (IT) sandy loam 24 m ²	Jul-18-2023 200 L/ha Downward spray	Eldorado Jun-23-2023 BBCH 18
103	Syntech PT	Santarém (PT) loamy sand 24 m ²	Jul-10-2023 200 L/ha Downward spray	P700 Jun-16-2023 BBCH 13

Details of the formulations included in the trials are provided in Table 3.4-9, note that only treatments relevant to this dossier were included in the table. The treatments included in the trials and their application rate are shown in Table 3.4-10.

Table 3.4-10 Formulation included in the selectivity trials

Test product	Active substance(s)	Concentration of a.s.	Formulation type
GLOB2107H	Thiencarbazone-methyl Cyprosulfamide (safener)	200 g/L 258 g/L	SC
GLOB2112aH	Mesotrione Cyprosulfamide (safener) Thiencarbazone-methyl	100 g/L 30 g/L 20 g/L	SC
GLOB2112dH	Mesotrione Cyprosulfamide (safener) Thiencarbazone-methyl	375 g/L 112 g/L 75 g/L	SC
Adengo	Isoxaflutole Thiencarbazone-methyl Cyprosulfamide (safener)	225 g/L 90 g/L 150 g/L	SC
Camix	S-metolachlor Mesotrione	500 g/L 60 g/L	SE
Temsa SC	Mesotrione	100 g/L	SC
Adigor	Methylated rapeseed oil based adjuvant		
Actirob	Esterified rapeseed oil based adjuvant		

Table 3.4-11 Application rates

Trial reference number	Product	Application rate	
		g as/ha	Product L/ha
20-22	GLOB2107H + Actirob	30 TCM	0.15 + 1
	GLOB2107H + Actirob	60 TCM	0.3 + 1
	GLOB2112aH	200 MES + 40 TCM	2
	Camix	900 SMOC + 108 MES	1.8
	Camix	1800 SMOC + 216 MES	3.6
23-25	GLOB2107H + Actirob	30 TCM	0.15 + 1
	GLOB2107H + Actirob	60 TCM	0.3 + 1
	GLOB2112aH	200 MES + 40 TCM	2
	Temsa SC	150 MES	1.5
	Temsa SC	300 MES	3
26-32	GLOB2107H + Actirob	30 TCM	0.15 + 1
	GLOB2107H + Actirob	60 TCM	0.3 + 1
	GLOB2112aH	200 MES + 40 TCM	2
	Adengo	99 ISF + 39.6 TCM	0.44
	Adengo	198 ISF + 79.2 TCM	0.88
54	GLOB2107H + Adigor	30 TCM	0.15 + 1.5
	GLOB2107H + Adigor	60 TCM	0.3 + 3
	GLOB2107H + Actirob	60 TCM	0.3 + 2
	GLOB2112aH	150 MES + 30 TCM	1.5
	GLOB2112dH	75 MES + 15 TCM	0.2
	GLOB2112dH	15 MES + 30 TCM	0.4
	GLOB2112dH + Adigor	75 MES + 15 TCM	0.2 + 1.5
	GLOB2112dH + Adigor	15 MES + 30 TCM	0.4 + 3
	Adengo	74.25 ISF + 29.7 TCM	0.33
	Adengo	78.5 ISF + 59.4 TCM	0.66
55, 56	GLOB2107H + Adigor	30 TCM	0.15 + 1.5
	GLOB2107H + Adigor	60 TCM	0.3 + 3
	GLOB2107H + Actirob	60 TCM	0.3 + 2
	GLOB2112aH	150 MES + 30 TCM	1.5
	GLOB2112dH	75 MES + 15 TCM	0.2
	GLOB2112dH	15 MES + 30 TCM	0.4
	Camix	405 ISF + 162 TCM	1.8
	Camix	810 ISF + 324 TCM	3.6

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Trial reference number	Product	Application rate	
		g as/ha	Product L/ha
57	GLOB2107H + Adigor	30 TCM	0.15 + 1.5
	GLOB2107H + Adigor	60 TCM	0.3 + 3
	GLOB2107H + Actirob	60 TCM	0.3 + 2
	GLOB2112aH	150 MES + 30 TCM	1.5
	GLOB2112dH + Adigor	75 MES + 15 TCM	0.2 + 1.5
	GLOB2112dH + Adigor	15 MES + 30 TCM	0.4 + 3
	Adengo	99 ISF + 39.6 TCM	0.44
	Adengo	198 ISF + 79.2 TCM	0.88
58, 59, 63-70	GLOB2107H + Adigor	30 TCM	0.15 + 1.5
	GLOB2107H + Adigor	60 TCM	0.3 + 3
	GLOB2107H + Actirob	60 TCM	0.3 + 2
	GLOB2112aH	150 MES + 30 TCM	1.5
	GLOB2112dH	75 MES + 15 TCM	0.2
	GLOB2112dH	15 MES + 30 TCM	0.4
	Adengo	99 ISF + 39.6 TCM	0.44
	Adengo	198 ISF + 79.2 TCM	0.88
60-62	GLOB2107H + Adigor	30 TCM	0.15 + 1.5
	GLOB2107H + Adigor	60 TCM	0.3 + 3
	GLOB2107H + Actirob	60 TCM	0.3 + 2
	GLOB2112aH	150 MES + 30 TCM	1.5
	GLOB2112dH	75 MES + 15 TCM	0.2
	GLOB2112dH	15 MES + 30 TCM	0.4
	Temsa SC	150 MES	1.5
	Temsa SC	300 MES	3
71	GLOB2107H + Adigor	30 TCM	0.15 + 1.5
	GLOB2107H + Adigor	60 TCM	0.3 + 3
	GLOB2107H + Actirob	60 TCM	0.3 + 2
	GLOB2112aH	150 MES + 30 TCM	1.5
	GLOB2112dH	75 MES + 15 TCM	0.2
	GLOB2112dH	15 MES + 30 TCM	0.4
	Adengo	78.75 ISF + 31.5 TCM	0.35
	Adengo	147.5 ISF + 63 TCM	0.7
72, 73, 80-85, 92, 93, 96, 98-103	GLOB2112dH + Adigor	75 MES + 15 TCM	0.2 + 1.5
	GLOB2112dH + Adigor	15 MES + 30 TCM	0.4 + 3
	Capreno + Actirob / Mero	100.05 TBT + 19.72 TCM	0.29 + 2
	Capreno + Actirob / Mero	200.1 TBT + 39.44 TCM	0.58 + 4
74, 78	GLOB2112dH + Adigor	75 MES + 15 TCM	0.2 + 1.5
	GLOB2112dH + Adigor	15 MES + 30 TCM	0.4 + 3
	Camix	405 ISF + 162 TCM	1.8
	Camix	810 ISF + 324 TCM	3.6
75-77, 79	GLOB2112dH + Adigor	75 MES + 15 TCM	0.2 + 1.5
	GLOB2112dH + Adigor	15 MES + 30 TCM	0.4 + 3
	Temsa SC / Callisto 100 SC	150 MES	1.5
	Temsa SC / Callisto 100 SC	300 MES	3
86-91	GLOB2112dH + Adigor	75 MES + 15 TCM	0.2 + 1.5
	GLOB2112dH + Adigor	15 MES + 30 TCM	0.4 + 3
	Temsa SC	75 MES	0.75
	Temsa SC	150 MES	1.5
94, 95	GLOB2112dH + Adigor	75 MES + 15 TCM	0.2 + 1.5
	GLOB2112dH + Adigor	15 MES + 30 TCM	0.4 + 3
	Adengo	99 ISF + 39.6 TCM	0.44
	Adengo	198 ISF + 79.2 TCM	0.88

Trial reference number	Product	Application rate	
		g as/ha	Product L/ha
97	GLOB2112dH + Adigor	75 MES + 15 TCM	0.2 + 1.5
	GLOB2112dH + Adigor	15 MES + 30 TCM	0.4 + 3
	Adengo	78.75 ISF + 31.5 TCM	0.35
	Adengo	147.5 ISF + 63 TCM	0.7

3.4.2 Phytotoxicity to host crop (KCP 6.4.1)

For the description of the trials, reference is made to the efficacy trials under section 3.2 and the selectivity trials under section 3.4.

Crop phytotoxicity was visually assessed during the season after application in efficacy and selectivity trials. For N stands for the maximum registered/registered dose rate of double that dose rate.

The summarized results of the selectivity and efficacy trials are summarized in Table 3.4-13 below.

Table 3.4-13 Phytotoxicity of GLOB2112dH; highest phytotoxicity and phytotoxicity at final assessment

Number of trials with...		Selectivity trials (63 trials) 24 MAR (9 CZ/DE), 14 NE, 15 MED, 10 SE					Efficacy trials (91 trials)		
		GLOB2112aH ('22) (13 trials) 4 MAR, 4 NE, 4 MED, 1 SE	GLOB2112dH ('23) (50 trials) 20 MAR, 10 NE, 11 MED		Ref. (63 trials) 24 MAR (9 CZ/DE), 14 NE, 15 MED, 10 SE		GLOB2112aH	GLOB2112dH	Ref.
		N	N	2N	N	2N	N	N	N
Max. phyto.	0% to 5%	12	48	45			14	77	91
	>5% - 10%	1 MAR ²⁰	1 MAR ⁷²	1 SE ⁹³ 1 MAR ⁸⁰ 1 MED ⁹⁸		1 SE ³² 1 MAR ⁵⁴ 1 SE ⁹³			
	>10% - 15%					1 SE ⁹⁶			
	>15 %		1 MAR ⁵⁴	2 MAR ^{54,72}	1 MAR ⁷²	2 MAR ^{72,80}			
Last ass.	0% to 5%	13	50	50	63	63	14	77	91
	>5% - 10%								
	>10% - 15%								
	>15 %								

KCP 6.4-20: GRORED
KCP 6.4-32: PHYBLE
KCP 6.4-54: PHYBLE + PHYCHL
KCP 6.4-72: PHYDEL
KCP 6.4-80: PHYLCU + PHYSTU
KCP 6.4-93: PHYTHI
KCP 6.4-96: PHYTHI
KCP 6.4-98: PHYTHI

Table 3.4-14: Relationship between phytotoxicity and yield.

Test report	Clim. Zone	Variety	Maximum phyto. N rate		Maximum phyto. 2N rate		Yield in the untreated control (ton/ha)	Yield at 1N rate compared to control		Yield at 2N rate compared to control	
			GLOB 2112dH	Ref	GLOB 2112dH	Ref		GLOB 2112dH	Ref	GLOB 2112dH	Ref
6.4-20	MAR	P8200	7.5%*	3.8%	-	3.8%	77.4	93.2%	93.0% ¹	-	93.5% ¹
6.4-32	S-E	SY Batanga	0.0%*	0.0%	-	7.0%	3.85	102.6%	101.9% ²	-	102.4% ²
6.4-54	MAR	DKC 3169	2.5%	2.5%	0.0%	5.3%	11.63	100.9%	99.3% ³	102.0%	98.0% ³
6.4-72	MAR	P8666	8.8%	20.0%	21.3%	21.3%	53.54	105.7%	100.3% ⁴	94.2%	101.0% ⁴
6.4-80	MAR	Ashley	0.0%	10.0%	10.0%	23.0%	12.38	103.1%	98.1% ⁵	105.0%	96.8% ⁵
6.4-93	S-E	P9903	0.0%	0.0%	6.3%	10.0%	9.73	103.7%	97.4% ⁶	106.0%	102.2% ⁶
6.4-96	S-E	P9903	0.0%	0.0%	5.0%	12.5%	11.26	101.0%	103.1% ⁶	107.6%	102.3% ⁶
6.4-98	MED	Redigo M	1.3%	0.0%	10.0%	0.0%	39.2	92.9%	101.4% ⁵	87.9%	96.6% ⁵

*Tested as GLOB2112aH equivalent GLOB2112dH at N rate

¹Camix 560 SE, N: 1.8 L/ha

²Adengo, N: 0.44 L/ha

³Adengo, N: 0.33 L/ha

⁴Adengo, N: 0.29 L/ha

⁵Capreno, N: 0.29 L/ha

⁶Capreno, N: 0.3 L/ha

Conclusion

Overall, no significant yield reduction was observed in any of the pre-emergence trials. In the (8) trials where phytotoxic effects were observed, only 3 trials resulted in more than 5% yield reduction. At the N dose rate nor more than 10% yield reduction was observed.

Conclusion – Phytotoxicity to host crop

Phytotoxicity in the crop was observed in none of the 91 efficacy trials and in 8 of the 63 selectivity trials. As shown in the table above, phytotoxic symptoms exceeding 10% were observed in 1 trial at the N and in 2 trials at the 2N. The data show that phytotoxic symptoms were observed in a similar number of trials following application with the reference products. Additionally, the maximum levels of phytotoxicity observed were comparable between the test and reference products. The vast majority of the phytotoxicity caused by GLOB2112dH was transient, with the damage reducing over time and completely disappearing at the last assessments.

Table 3.4-14 also shows the yield relative to the untreated control in the trials where phytotoxicity was observed. There were generally no large reductions in the yield in these trials with maximum yield losses of 7.1% at N and 12.1 at 2N. The zRMS calculated the mean yields for all of the trials in which GLOB2112dH caused phytotoxic symptoms. The mean yield in the 8 trials at N was 100.4% relative to the untreated and at 2N it was 100.45%. The zRMS considers that these values indicate that the phytotoxicity did not affect the yield.

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

Products with thiencazone and mesotrione have been used successfully for more than 10 years in many European countries at the same amount of active ingredient per hectare as the maximum requested dose rate for GLOB2112dH without any negative impact on yield quality. This is confirmed by the trial results shown below. All selectivity data gathered from selectivity trials are shown below.

An overall summary is provided across all EPPO Zones, followed by a summary for each EPPO Zone, separately.
In the presentation of the data, the colour of the KCP numbers is used to indicate the EPPO Zone each trial was performed in:

Maritime EPPO Zone:		+	
North-East EPPO Zone:		+	
Mediterranean EPPO Zone:			
South-East EPPO Zone:			

¹Trials performed in the Czech Republic or Germany are valid for Poland

²Trials performed in Poland are valid for Austria and Germany

The applicant is aware that not all submitted data is relevant for this submission, but all trials performed for this project were included to demonstrate the crop safety of GLOB2112dH in a wide range of climatic and edaphic conditions.

The tables below contain all yield quantity results obtained in the crop safety trials performed to support the pre-emergence application of GLOB2112dH. The absolute amount is given for the untreated control (tons/hectare), followed by the relative percentages for all tested treatments (%UNCK).

[illegible]

[illegible]

Trial ref.		KCP 6.4-65	KCP 6.4-66	KCP 6.4-67	KCP 6.4-68	KCP 6.4-69	KCP 6.4-70	KCP 6.4-71	KCP 6.4-72	KCP 6.4-73	KCP 6.4-74	KCP 6.4-75	KCP 6.4-76
Rating Type		YIELD (t/ha)	YIELD (t/ha)	YIELD (t/ha)	YIELD (t/ha)	YIELD (t/ha)	YIELD (t/ha)	YIELD (t/ha)	YIELD (t/ha)	YIELD (t/ha)	YIELD (t/ha)	YIELD (t/ha)	YIELD (t/ha)
Crop Variety		P9911	P9903	PR34B39	P0937	DKC5031WX	P9944	P0943	P8666	Gx193422	P8201	Bio 31.207	Cito
UNTREATED (t/ha)		6.5	6.9	13.5	15.1	13.2	4.3	9.7	53.5	7.6	4.1	32.5	8.2
GLOB2112bH	2 L/ha												
GLOB2112dH	0.2 L/ha	101.6 a	103.6 a	95.9 a	99.0 a	99.5 a	122.3 a	120.1 a					
GLOB2112dH	0.4 L/ha	102.1 a	101.5 a	97.0 a	99.1 a	100.8 a	101.4 a	121.4 a					
GLOB2112dH	0.2 L/ha								105.7 a	93.8 a	106.6 a	137.4 a	94.0
Adigor 440 EC	1.5 L/ha												
GLOB2112dH	0.4 L/ha								94.2 a	98.3 a	103.4 a	125.4 a	93.0
Adigor	3 L/ha												
Camix	1.8 L/ha										109.0 a		
Camix	3.6 L/ha										101.8 a		
Adengo	0.33/0.35 L/ha							112.1 a					
Adengo	0.44 L/ha	102.6 a	101.1 a	95.7 a	99.1 a	100.4 a	104.6 a						
Adengo	0.66 L/ha												
Adengo	0.7 L/ha							114.8 a					
Adengo	0.88 L/ha	111.8 a	101.5 a	95.7 a	99.4 a	106.3 a	117.4 a						
Temsa SC	0.75 L/ha												
'Temsa /													
Callisto	1.5 L/ha											118.4 a	94.0
'Temsa /													
Callisto	3 L/ha											115.6 a	94.1
Capreno SC	0.29 L/ha												
Capreno SC	0.58 L/ha												
Capreno Adj.	0.29 L/ha N								100.3 a	102.9 a			
Capreno Adj.	0.58 L/ha N								100.6 a	91.1 a			

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Trial ref.		KCP 6.4-100	KCP 6.4-101	KCP 6.4-102	KCP 6.4-103	
Rating Type		YIELD (t/ha)	YIELD (t/ha)	YIELD (t/ha)	YIELD (t/ha)	
Crop Variety		Shaniya	DKC 6092	Eldorado	P700	
UNTREATED (t/ha)		15.2	42.6	12.6	12.4	
GLOB2112bH	2 L/ha					
GLOB2112dH	0.2 L/ha					
GLOB2112dH	0.4 L/ha					
GLOB2112dH	0.2 L/ha	99.3 a	99.6 a	101.9 a	104.1 a	
Adigor 440 EC	1.5 L/ha					
GLOB2112dH	0.4 L/ha	99.4 a	103.5 a	100.9 a	108.7 a	
Adigor	3 L/ha					
Camix	1.8 L/ha					
Camix	3.6 L/ha					
Adengo	0.33/0.35 L/ha					
Adengo	0.44 L/ha					
Adengo	0.66 L/ha					
Adengo	0.7 L/ha					
Adengo	0.88 L/ha					
Temsa SC	0.75 L/ha					
Temsa /						
Callisto	1.5 L/ha					
Temsa /						
Callisto	3 L/ha					
Capreno SC	0.29 L/ha					
Capreno SC	0.58 L/ha					
Capreno	0.29 L/ha	101.9 a	99.3 a	101.9 a	113.0 a	
Adj.	N					
Capreno	0.58 L/ha	99.6 a	101.6 a	102.9 a	100.8 a	
Adj.	2 N					

			Summary ALL				Summary MAR				Summary NE				Summary NE+CZ/DE				Summary MED				Summary SE			
Rating Type			YIELD (t/ha)				YIELD (t/ha)				YIELD (t/ha)				YIELD (t/ha)				YIELD (t/ha)				YIELD (t/ha)			
Crop Variety			n	Mean	Min	Max	n	Mean	Min	Max	n	Mean	Min	Max	n	Mean	Min	Max	n	Mean	Min	Max	n	Mean	Min	Max
UNTREATED (t/ha)			64	21.3	3.4	77.4	24	30.2	3.7	77.4	14	20.5	6.0	54.2	23	21.4	6.0	54.2	16	16.6	3.4	42.6	10	8.3	3.9	13.2
GLOB2112bH	2	L/ha	13	133.3	90.7	496.7	4	105.8	90.7	118.8	4	101.0	94.6	107.3	4	101.0	94.6	107.3	4	201.0	100.8	496.7	1	101.7	101.7	101.7
GLOB2112dH	0.2	L/ha	17	103.9	93.0	122.3	5	101.3	93.0	108.0	4	101.9	98.6	109.9	6	102.0	98.6	109.9	5	102.1	95.9	110.2	3	114.0	99.5	122.3
GLOB2112dH	0.4	L/ha	17	102.9	94.0	121.4	5	101.1	94.0	104.7	4	102.8	97.8	108.5	6	102.9	97.8	108.5	5	101.7	97.0	108.9	3	107.9	100.8	121.4
GLOB2112dH	0.2	L/ha	35	100.9	89.8	137.4	16	101.6	89.8	137.4	6	100.1	98.2	103.0	13	99.3	89.8	104.3	7	98.2	92.3	104.1	6	103.1	96.4	113.8
Adigor 440 EC	1.5	L/ha																								
GLOB2112dH	0.4	L/ha	35	100.1	87.9	125.4	16	99.5	89.8	125.4	6	102.2	98.6	105.7	13	100.6	92.6	105.7	7	98.7	87.9	108.7	6	101.2	94.4	105.9
Adigor	3	L/ha																								
Camix	1.8	L/ha	7	104.7	91.8	117.8	7	104.7	91.8	117.8																
Camix	3.6	L/ha	7	105.8	91.0	133.4	7	105.8	91.0	133.4																
Adengo	0.33/0.35	L/ha	3	106.9	99.3	112.1	1	99.3	99.3	99.3													2	110.7	109.2	112.1
Adengo	0.44	L/ha	20	113.7	89.0	353.4	3	103.7	101.4	105.4	3	100.2	97.3	102.3	6	102.0	97.3	105.4	9	129.7	95.7	353.4	5	98.8	89.0	104.6
Adengo	0.66	L/ha	1	98.0	98.0	98.0	1	98.0	98.0	98.0																
Adengo	0.7	L/ha	2	114.6	114.4	114.8																	2	114.6	114.4	114.8
Adengo	0.88	L/ha	20	108.0	91.5	200.7	3	102.8	100.9	104.7	3	95.8	91.5	98.8	6	99.3	91.5	104.7	9	114.8	95.7	200.7	5	106.1	98.5	117.4
Temsa SC	0.75	L/ha	8	99.6	97.3	102.9					8	99.6	97.3	102.9	8	99.6	97.3	102.9								
'Temsa / Callisto	1.5	L/ha	16	100.0	93.4	118.4	5	101.1	93.5	118.4	11	99.5	93.4	111.6	11	99.5	93.4	111.6								
'Temsa / Callisto	3	L/ha	8	102.3	90.5	124.1	5	100.7	90.5	115.6	3	105.0	94.7	124.1	3	105.0	94.7	124.1								
Capreno SC	0.29	L/ha	2	99.4	97.3	101.4													2	99.4	97.3	101.4				
Capreno SC	0.58	L/ha	2	94.1	91.6	96.6													2	94.1	91.6	96.6				
Capreno Adj.	0.29	L/ha N	16	100.6	93.0	113.0	8	99.6	93.0	103.2					6	99.0	93.0	103.2	5	103.0	99.1	113.0	3	99.1	97.4	100.9
Capreno Adj.	0.58	L/ha N	16	98.9	89.8	105.9	8	96.5	89.8	101.3					6	96.8	89.8	101.3	5	100.8	99.2	102.9	3	101.8	97.2	105.9

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GLOB2112dH
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Rating Type Crop Variety	Summary ALL				Summary MAR				Summary NE				Summary NE+CZ/DE				Summary MED			
	WEIDRY (t/ha)				WEIDRY (t/ha)				WEIDRY (t/ha)				WEIDRY (t/ha)				WEIDRY (t/ha)			
	n	Mean	Min	Max	n	Mean	Min	Max	n	Mean	Min	Max	n	Mean	Min	Max	n	Mean	Min	Max
UNTREATED (t/ha)	22	14.9	2.5	25.3	14	15.8	2.5	25.3	4	16.2	14.1	18.4	8	14.9	11.4	18.4	4	10.6	4.7	16.1
GLOB2112bH 2 L/ha	6	105.0	87.2	146.2	4	109.1	87.2	146.2	2	96.7	96.2	97.1	2	96.7	96.2	97.1				
GLOB2112dH 0.2 L/ha	2	103.9	101.1	106.6	1	101.1	101.1	101.1	1	106.6	106.6	106.6	2	103.9	101.1	106.6				
GLOB2112dH 0.4 L/ha	2	100.6	97.6	103.5	1	103.5	103.5	103.5	1	97.6	97.6	97.6	2	100.6	97.6	103.5				
GLOB2112dH 0.2 L/ha	14	102.9	88.7	145.3	9	106.0	88.7	145.3	1	94.1	94.1	94.1	4	98.0	94.1	103.5	4	98.3	92.6	101.9
Adigor 440 EC 1.5 L/ha																				
GLOB2112dH 0.4 L/ha	14	100.0	88.6	131.0	9	99.4	89.2	131.0	1	108.3	108.3	108.3	4	99.4	89.2	108.3	4	99.0	88.6	105.7
Adigor 3 L/ha																				
Camix 1.8 L/ha	5	102.3	83.9	117.9	5	102.3	83.9	117.9												
Camix 3.6 L/ha	5	110.5	89.9	141.8	5	110.5	89.9	141.8												
Adengo 0.44 L/ha	1	100.4	100.4	100.4	1	100.4	100.4	100.4					1	100.4	100.4	100.4				
Adengo 0.88 L/ha	1	100.1	100.1	100.1	1	100.1	100.1	100.1					1	100.1	100.1	100.1				
Temsa SC 0.75 L/ha	1	104.6	104.6	104.6					1	104.6	104.6	104.6	1	104.6	104.6	104.6				
Temsa / Callisto 1.5 L/ha	8	99.9	87.1	123.4	4	103.6	91.6	123.4	4	96.2	87.1	99.8	4	96.2	87.1	99.8				
Temsa / Callisto 3 L/ha	7	102.1	86.0	121.7	4	103.5	86.0	121.7	3	100.2	93.2	109.8	3	100.2	93.2	109.8				
Capreno SC 0.29 L/ha	1	102.4	102.4	102.4													1	102.4	102.4	102.4
Capreno SC 0.58 L/ha	1	98.9	98.9	98.9													1	98.9	98.9	98.9
Capreno 0.29 L/ha	7	99.4	94.9	103.6	4	98.9	95.8	103.6					3	99.0	95.8	103.6	3	100.0	94.9	103.5
Adj. N																				
Capreno 0.58 L/ha	7	98.2	90.8	103.6	4	97.1	90.8	103.6					3	97.4	90.8	103.6	3	99.7	95.5	102.2
Adj. 2 N																				

Conclusion

On average, no negative impact on yield is to be expected after pre-emergence application of GLOB2112dH, not even at double the maximum requested dose rate.

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

The effect on yield of GLOB2112dH was observed in the selectivity trials. Based on the data provided it can be stated that GLOB2112dH is safe to be used as proposed in the GAP.

3.4.4 Effects on the quality of plants and plant products (KCP 6.4.3)

Products with thienencarbazone and mesotrione have been used successfully for more than 10 years in many European countries at the same amount of active ingredient per hectare as the maximum requested dose rate for GLOB2112dH without any negative impact on yield quality. This is confirmed by the trial results shown below. All selectivity data gathered from selectivity trials are shown below.

An overall summary is provided across all EPPO Zones, followed by a summary for each EPPO Zone, separately.

In the presentation of the data, the colour of the KCP numbers is used to indicate the EPPO Zone each trial was performed in:

Maritime EPPO Zone:		+	
North-East EPPO Zone:		+	
Mediterranean EPPO Zone:			
South-East EPPO Zone:			

¹Trials performed in the Czech Republic or Germany are valid for Poland

²Trials performed in Poland are valid for Austria and Germany

The applicant is aware that not all submitted data is relevant for this submission, but all trials performed for this project were included to demonstrate the crop safety of GLOB2112dH in a wide range of climatic and edaphic conditions.

The tables below contain all yield quality results obtained in the crop safety trials performed to support the pre-emergence application of GLOB2107H. The absolute amount is given for the untreated control (tons/hectare), followed by the relative percentages for all tested treatments (%UNCK).

[illegible]

[illegible]

[illegible]

Trial ref.	KCP 6.4-94	KCP 6.4-95	KCP 6.4-96	KCP 6.4-97	KCP 6.4-98	KCP 6.4-100	KCP 6.4-102	KCP 6.4-103	
Rating Type Crop Variety	MOICON (%) DKC3972	MOICON (%) Casak	MOICON (%) P9903	MOICON (%) P1275-2120	MOICON (%) Redigo-M	MOICON (%) Shaniya	MOICON (%) Eldorado	MOICON (%) P700	
UNTREATED (%) GLOB2112bH 2 L/ha GLOB2112dH 0.2 L/ha GLOB2112dH 0.4 L/ha	17.5	18.2	25.1	12.4	20.3	14.7	19.6	19.9	
GLOB2112dH 0.2 L/ha Adigor 440 EC 1.5 L/ha	100.9 a	99.5 a	102.4 a	100.2 ab	101.9 a	100.2 a	102.6 a	101.0 a	
GLOB2112dH 0.4 L/ha Adigor 3 L/ha	101.9 a	98.6 a	101.7 a	99.8 ab	100.7 a	99.0 a	103.7 a	97.8 a	
Camix 1.8 L/ha Camix 3.6 L/ha Adengo 0.33/0.35 L/ha Adengo 0.44 L/ha Adengo 0.66 L/ha Adengo 0.7 L/ha Adengo 0.88 L/ha Temsas SC 0.75 L/ha 'Temsa / Callisto 1.5 L/ha 'Temsa / Callisto 3 L/ha Capreno SC 0.29 L/ha Capreno SC 0.58 L/ha	100.6 a	98.4 a		100.4 a					
Capreno 0.29 L/ha Adj. N			102.5 a			100.9 a	101.8 a	99.1 a	
Capreno 0.58 L/ha Adj. 2 N			101.3 a			102.4 a	101.0 a	102.3 a	

	Summary ALL				Summary MAR				Summary NE				Summary NE+CZ/DE				Summary MED				Summary SE				
Rating Type	MOICON (%)				MOICON (%)				MOICON (%)				MOICON (%)				MOICON (%)				MOICON (%)				
Crop Variety	n	Mean	Min	Max	n	Mean	Min	Max	n	Mean	Min	Max	n	Mean	Min	Max	n	Mean	Min	Max	n	Mean	Min	Max	
UNTREATED (%)		44	23.8	11.8	39.8	11	29.4	23.3	39.8	10	28.7	20.9	37.1	15	27.9	20.9	37.1	13	19.2	14.7	22.7	10	18.9	11.8	28.8
GLOB2112bH	2 L/ha	7	98.1	87.3	102.6					2	100.8	99.0	102.6	2	100.8	99.0	102.6	4	96.3	87.3	100.5	1	99.9	99.9	99.9
GLOB2112dH	0.2 L/ha	15	99.8	93.9	105.3	4	100.5	96.1	103.5	3	99.4	96.3	102.3	4	100.5	96.3	103.5	5	100.0	93.9	105.3	3	99.1	96.9	101.0
GLOB2112dH	0.4 L/ha	15	99.0	89.7	105.5	4	98.9	93.5	104.3	3	97.4	89.7	102.1	4	99.1	89.7	104.3	5	100.3	92.6	105.5	3	98.8	97.8	100.7
GLOB2112dH	0.2 L/ha	22	100.1	95.5	102.6	7	99.9	96.2	102.5	5	100.1	98.6	101.5	9	99.4	96.2	101.5	4	101.4	100.2	102.6	6	99.5	95.5	102.4
Adigor 440 EC	1.5 L/ha																								
GLOB2112dH	0.4 L/ha	22	99.5	93.3	103.7	7	99.3	93.3	102.0	5	99.5	98.1	100.1	9	99.0	93.3	102.0	4	100.3	97.8	103.7	6	99.2	96.2	101.9
Adigor	3 L/ha																								
Camix	1.8 L/ha	3	99.7	96.6	104.9	3	99.7	96.6	104.9																
Camix	3.6 L/ha	3	96.2	93.1	99.1	3	96.2	93.1	99.1																
Adengo	0.33/0.35 L/ha	3	98.9	97.3	100.4	1	99.1	99.1	99.1													2	98.9	97.3	100.4
Adengo	0.44 L/ha	19	99.3	90.4	104.4	2	99.7	99.1	100.2	3	98.4	92.0	101.9	5	98.9	92.0	101.9	9	99.8	90.4	104.4	5	98.9	97.1	100.6
Adengo	0.66 L/ha	1	101.6	101.6	101.6	1	101.6	101.6	101.6																
Adengo	0.7 L/ha	2	99.3	98.9	99.6																	2	99.3	98.9	99.6
Adengo	0.88 L/ha	19	98.9	89.8	103.5	2	101.4	99.8	102.9	3	98.0	96.2	100.1	5	99.4	96.2	102.9	9	98.4	89.8	103.5	5	99.3	98.3	101.0
Temsa SC	0.75 L/ha	7	100.9	98.4	104.5					7	100.9	98.4	104.5	7	100.9	98.4	104.5								
'Temsa / Callisto	1.5 L/ha	8	102.0	97.5	106.6	1	101.2	101.2	101.2	7	102.1	97.5	106.6	7	102.1	97.5	106.6								
'Temsa / Callisto	3 L/ha	1	99.2	99.2	99.2	1	99.2	99.2	99.2																
Capreno SC	0.29 L/ha	1	98.9	98.9	98.9													1	98.9	98.9	98.9				
Capreno SC	0.58 L/ha	1	93.6	93.6	93.6													1	93.6	93.6	93.6				
Capreno Adj.	0.29 L/ha N	10	99.3	94.5	102.5	4	98.3	94.5	102.1					3	97.0	94.5	99.1	3	100.6	99.1	101.8	3	99.5	97.2	102.5
Capreno Adj.	0.58 L/ha 2 N	10	100.6	95.9	102.4	4	99.1	95.9	102.3					3	98.0	95.9	100.0	3	101.9	101.0	102.4	3	101.4	101.1	101.7

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[illegible]

Trial ref.	KCP 6.4-76	KCP 6.4-80	KCP 6.4-83	KCP 6.4-85	KCP 6.4-86	KCP 6.4-87	KCP 6.4-88	KCP 6.4-89	KCP 6.4-90	KCP 6.4-92	KCP 6.4-93	KCP 6.4-94
Rating Type Crop Variety	TKW (g) Cito	TKW (g) Ashley	TKW (g) P9610	TKW (g) Johaninio	TKW (g) Friendli CS	TKW (g) Amavit	TKW (g) Talisman	TKW (g) Nevo	TKW (g) LG30179	TKW (g) SY Chorintos	TKW (g) P9903	TKW (g) DKC3972
UNTREATED (g)												
GLOB2112bH 2 L/ha	340.4	387.3	315.6	232.1	290.5	347.7	269.3	217.2	317.7	392.6	364.1	400.4
GLOB2112dH 0.2 L/ha												
GLOB2112dH 0.4 L/ha												
GLOB2112dH 0.2 L/ha	99.5 a	101.4 a	99.4 a	99.2 a	101.7 a	94.8 a	101.0 a	97.9 a	102.2 a	98.5 a	101.3 a	99.8
Adigor 440 EC 1.5 L/ha												
GLOB2112dH 0.4 L/ha	96.4 a	102.1 a	101.3 a	99.9 a	99.2 a	93.0 a	98.3 a	91.3 a	102.5 a	102.6 a	102.3 a	98.8
Adigor 3 L/ha												
Camix 1.8 L/ha												
Camix 3.6 L/ha												
Adengo 0.33/0.35 L/ha												98.0
Adengo 0.44 L/ha												
Adengo 0.66 L/ha												
Adengo 0.7 L/ha												
Adengo 0.88 L/ha												100.8
Temsa SC 0.75 L/ha												
'Temsa / Callisto 1.5 L/ha	100.1 a				99.2 a	96.8 a	100.3 a	99.0 a	98.8 a			
'Temsa / Callisto 3 L/ha	94.1 a				100.2 a	95.2 a	101.9 a	91.7 a	102.6 a			
Capreno SC 0.29 L/ha												
Capreno SC 0.58 L/ha												
Capreno Adj. 0.29 N		100.0 a	99.7 a	101.0 a						101.0 a	101.1 a	
Capreno Adj. 0.58 N		100.1 a	102.2 a	103.3 a						102.4 a	101.5 a	

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Trial ref.		KCP 6.4-95	KCP 6.4-96	KCP 6.4-97	KCP 6.4-98	KCP 6.4-100	KCP 6.4-102	KCP 6.4-103	
Rating Type		TKW (g)	TKW (g)	TKW (g)	TKW (g)	TKW (g)	TKW (g)	TKW (g)	
Crop Variety		Casak	P9903	P1275-2120	Redigo-M	Shaniya	Eldorado	P700	
UNTREATED (g)		376.8	366.5	302.3	455.5	58.5	200.5	315.3	
GLOB2112bH	2 L/ha								
GLOB2112dH	0.2 L/ha								
GLOB2112dH	0.4 L/ha								
GLOB2112dH	0.2 L/ha	98.9 a	98.7 a	103.1 a	95.9 a	93.4 a	100.1 a	102.1 a	
Adigor 440 EC	1.5 L/ha								
GLOB2112dH	0.4 L/ha	99.6 a	101.2 a	102.2 a	93.3 a	90.3 a	99.9 a	99.8 a	
Adigor	3 L/ha								
Camix	1.8 L/ha								
Camix	3.6 L/ha								
Adengo	0.33/0.35 L/ha			102.5 a					
Adengo	0.44 L/ha	101.3 a							
Adengo	0.66 L/ha								
Adengo	0.7 L/ha			101.4 a					
Adengo	0.88 L/ha	101.0 a							
Temsa SC	0.75 L/ha								
*Temsa /									
Callisto	1.5 L/ha								
*Temsa /									
Callisto	3 L/ha								
Capreno SC	0.29 L/ha				96.5 a				
Capreno SC	0.58 L/ha				93.8 a				
Capreno	0.29 L/ha		101.1 a			98.7 a	100.8 a	99.8 a	
Adj.	N								
Capreno	0.58 L/ha		100.6 a			90.2 a	100.4 a	102.4 a	
Adj.	2 N								

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Trial ref.	KCP 6.4-20	KCP 6.4-21	KCP 6.4-22	KCP 6.4-23	KCP 6.4-24	KCP 6.4-25	KCP 6.4-59	KCP 6.4-62	KCP 6.4-72	KCP 6.4-74	KCP 6.4-75	KCP 6.4-77
Rating Type	WTS (%)	WTS (%)	WTS (%)	WTS (%)	WTS (%)	WTS (%)	WTS (%)	WTS (%)	WTS (%)	WTS (%)	WTS (%)	WTS (%)
Crop Variety	P8200	P8201	P8201	LG majsmix	Cester 230	Celuka	MAS 10.A	Simpatico	P8666	P8201	Bio 31.207	Cito
UNTREATED (%)	31.5	26.6	22.4	35.3	26.0	35.0	35.4	37.1	37.3	36.4	19.9	66.2
GLOB2112bH 2 L/ha	96.2 a	92.0 a	122.9 ab	97.8 a	93.1 a	89.3 a						
GLOB2112dH 0.2 L/ha							98.0 a	107.4 a				
GLOB2112dH 0.4 L/ha							98.8 a	99.8 a				
GLOB2112dH 0.2 L/ha									96.4 a	88.5 a	105.6 a	106.5 a
Adigor 440 EC 1.5 L/ha												
GLOB2112dH 0.4 L/ha									100.4 a	103.9 a	104.0 a	103.9 a
Adigor 3 L/ha												
Camix 1.8 L/ha	95.3 a	91.2 a	98.7 b							94.1 a		
Camix 3.6 L/ha	96.1 a	90.0 a	107.2 ab							87.3 a		
Adengo 0.44 L/ha							96.2 a					
Adengo 0.88 L/ha							95.4 a					
Temsa SC 0.75 L/ha												
'Temsa / Callisto 1.5 L/ha				101.0 a	97.5 a	88.9 a		91.2 a			104.4 a	101.8 a
'Temsa / Callisto 3 L/ha				100.4 a	98.3 a	88.7 a		102.8 a			105.9 a	103.9 a
Capreno SC 0.29 L/ha												
Capreno SC 0.58 L/ha												
Capreno Adj. 0.29 L/ha N									98.5 a			
Capreno Adj. 0.58 L/ha 2 N									95.5 a			

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GLOB2112dH
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Rating Type Crop Variety	Summary ALL				Summary MAR				Summary NE				Summary NE+CZ/DE				Summary MED			
	WTS (%)				WTS (%)				WTS (%)				WTS (%)				WTS (%)			
	n	Mean	Min	Max	n	Mean	Min	Max	n	Mean	Min	Max	n	Mean	Min	Max	n	Mean	Min	Max
UNTREATED (%)	21	33.2	17.8	66.2	14	33.3	17.8	66.2	4	32.8	26.0	37.1	8	31.7	17.8	38.2	3	33.4	31.3	37.6
GLOB2112bH 2 L/ha	6	98.6	89.3	122.9	4	102.2	92.0	122.9	2	91.2	89.3	93.1	2	91.2	89.3	93.1				
GLOB2112dH 0.2 L/ha	2	102.7	98.0	107.4	1	98.0	98.0	98.0	1	107.4	107.4	107.4	2	102.7	98.0	107.4				
GLOB2112dH 0.4 L/ha	2	99.3	98.8	99.8	1	98.8	98.8	98.8	1	99.8	99.8	99.8	2	99.3	98.8	99.8				
GLOB2112dH 0.2 L/ha	13	99.7	88.5	106.5	9	100.0	88.5	106.5	1	93.8	93.8	93.8	4	98.1	93.8	102.9	3	100.8	99.7	102.6
Adigor 440 EC 1.5 L/ha																				
GLOB2112dH 0.4 L/ha	13	100.4	89.2	104.0	9	100.4	89.2	104.0	1	102.1	102.1	102.1	4	97.8	89.2	103.1	3	99.9	97.9	101.0
Adigor 3 L/ha																				
Camix 1.8 L/ha	5	96.0	91.2	100.9	5	96.0	91.2	100.9												
Camix 3.6 L/ha	5	96.7	87.3	107.2	5	96.7	87.3	107.2												
Adengo 0.44 L/ha	1	96.2	96.2	96.2	1	96.2	96.2	96.2					1	96.2	96.2	96.2				
Adengo 0.88 L/ha	1	95.4	95.4	95.4	1	95.4	95.4	95.4					1	95.4	95.4	95.4				
Temsa SC 0.75 L/ha	1	102.4	102.4	102.4					1	102.4	102.4	102.4	1	102.4	102.4	102.4				
Temsa / Callisto 1.5 L/ha	8	98.0	88.9	104.4	4	101.5	98.9	104.4	4	94.5	88.9	100.3	4	94.5	88.9	100.3				
Temsa / Callisto 3 L/ha	7	100.4	88.7	105.9	4	103.3	100.4	105.9	3	96.6	88.7	102.8	3	96.6	88.7	102.8				
Capreno SC 0.29 L/ha	1	100.9	100.9	100.9													1	100.9	100.9	100.9
Capreno SC 0.58 L/ha	1	102.4	102.4	102.4													1	102.4	102.4	102.4
Capreno 0.29 L/ha	6	99.1	95.6	103.1	4	99.2	95.8	103.1					3	99.5	95.8	103.1	2	98.8	95.6	101.9
Adj. N																				
Capreno 0.58 L/ha	6	97.3	90.8	103.1	4	96.9	90.8	103.1					3	97.4	90.8	103.1	2	98.2	93.8	102.5
Adj. 2 N																				

Conclusion

On average, no negative impact on yield quality is to be expected after post-emergence application of GLOB2112dH, not even at double the maximum requested dose rate.

Conclusion – Effects on the quality of plants or plant products

Overall, the data indicate that neither the proposed dose of GLOB2112dH nor 2N is likely to have a significant negative impact on MOICON (%), TKW (Thousand Kernel Weight), or WTS (Weight per Thousand Seeds) in maize. The results suggest that crop quality is generally maintained or slightly improved, with no evidence of adverse effects. Based on these findings, the zRMS concludes that the proposed use of GLOB2112dH is unlikely to have a significant negative impact on crop quality.

3.4.5 Effects on transformation processes (KCP 6.4.4)

Not relevant for maize.

Conclusion – Effects on transformation processes

No data on effects on processing were provided. Currently registered products containing thien carbazon e and mesotrione have been in commercial use for many years. No effects on processing (e.g. maize silage) have been observed under practical conditions of use. Based on the results of the yield quality measurements reported in section 3.4.3, it can be concluded that GLOB2112dH has no obvious negative effect on the various yield quality parameters measured. It is therefore not expected to have any effect on processing procedures.

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

Products with thien carbazon e and mesotrione have been used successfully for more than 10 years in many European countries at the same amount of active ingredient per hectare as the maximum requested dose rate for GLOB2112dH without any negative impact on treated plant seeds used for propagation.

Conclusion – Impact on treated plants or plant products to be used for propagation

GLOB2112dH has a proposed maximum individual dose of 0.2 l/ha (to deliver 15 g a.s/ha thien carbazon e-methyl, and 75 g a.s/ha mesotrione). There are similar products authorised across the EU which deliver either comparable amounts or even more of these active substances in maize without any known problems or restrictions regarding propagation. These active substances have all been used in these crops for many years without any propagation issues.

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

There were no adverse effects on beneficial and other non-target organisms observed in any of the efficacy or selectivity trials.

3.5.1 Impact on succeeding crops (KCP 6.5.1)

TIER 1 – Seedling emergence study

The impact of GLOB2112dH on succeeding crops is calculated by comparing the PEC_{soil} values to EC_{10} values calculated from the seedling emergence study.

The seedling emergence study performed with GLOB2112H included two monocotyledon species (sunflower and ryegrass) and four dicotyledon species (sugar beet, rapeseed, garden pea, and onion). The following results were obtained when the final weight was measured. The results of the study, expressed in $\mu\text{g product/kg dry soil}$ were then converted to $\text{mg a.i./kg dry soil}$ (product density: 1.1583 g/ml).

Table 3.5-1 Results of seedling emergence study

Crop	NOEC	EC ₁₀	NOEC	EC ₁₀
	$\mu\text{g product/kg dry soil}$		$\text{mg a.i./kg dry soil}^*$	
BEAVA	0.004	>0.004	1.85E-03	1.85E-03
BRSRR	0.004	0.0053	1.85E-03	2.45E-03
HELAN	<0.004	0.0025	1.85E-03	1.16E-03
PIBSX	0.004	0.0093	1.85E-03	4.30E-03
LOLPE	0.004	0.0033	1.85E-03	1.53E-03
ALLCE	0.004	0.0014	1.85E-03	6.47E-04

*Including cyprosulfamide (562 g/L)

Calculation of the PEC_{soil} for the intended uses of GLOB2121dH

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}

$$PEC_{act}(t) = PEC_{ini} \cdot e^{-kt} = PEC_{ini} \cdot e^{-\frac{t \ln 2}{DT_{50}}} \quad (2)$$

A worst-case calculation was made using a dose rate of 0.15 L/ha with 25% crop interception (post-emergence application¹²). The soil bulk density was set to 1.5 g/cm³. For the depth of the soil layer a soil depth of 20 cm was used to simulate the impact of soil cultivation. As a worst-case approach, the DT_{50} of thiencazone-methyl¹³ (DT_{50} 53.2 days) was used, because the worst-case DT_{50} of mesotrione is only 28.7 days¹⁴.

¹² Generic Guidance for Tier 1 FOCUS Ground Water Assessments. Version 2.2, May 2014.

¹³ Conclusion on the peer review of the pesticide risk assessment of the active substance thiencazone-methyl. European Food Safety Authority (EFSA), 2013.

¹⁴ Peer review of the pesticide risk assessment of the active substance mesotrione. European Food Safety Authority (EFSA), 2016.

The table below shows the PEC_{soil} over time for the post-emergence application (25% interception) of the maximum requested dose rate of 0.2 L/ha of GLOB2112dH.

Table 3.5-2: PEC_{soil} calculations for the pre-emergence application of GLOB2112dH, with soil cultivation

Days after application	(mg a.i./kg soil)
	PEC_{soil} 25% interception 20cm
0 (initial)	2.81E-02
75	1.06E-02
100	7.64E-03
130	5.17E-03
150	3.98E-03
200	2.36E-03
240	1.82E-03
250	1.50E-03
265	1.08E-03
300	8.90E-04
330	6.42E-04
365	3.81E-04
400	2.42E-04

Calculation of the TER

The TER for any waiting period is calculated for each crop by dividing the EC_{10} by the respective PEC. When the TER is >1 , the toxicity exposure rate is considered acceptable.

Table 3.5-3 Waiting periods based on EC_{10} values for the post-emergence application of GLOB2112dH with soil cultivation

Species	EC_{10}	Soil cultivated		
		days	PEC	TER
BEAVA	1.85E-03	210	1.82E-03	1.0
BRSRR	2.45E-03	190	2.36E-03	1.0
HELAN	1.16E-03	250	1.08E-03	1.1
PIBSX	4.30E-03	150	3.98E-03	1.1
LOLPE	1.53E-03	225	1.50E-03	1.0
ALLCE	6.47E-04	290	6.42E-04	1.0

It is important to note that the above calculations were made with the EC_{10} which is calculated from the observed effects at the tested dose rates by assuming a linear regression. However, the NOEC (no observed effect concentration) is actually observed in the trials and is therefore confirmed to not have any (negative) effect. The NOEC (no effect) is expected to be lower than the EC_{10} (10% effect) and should therefore be considered worst-case. In instances where the EC_{10} is lower than the NOEC (ryegrass and onion; Table 3.5-1), the latter is preferred to calculate waiting times. For these crops, the waiting times are calculated again using the NOEC instead of the EC_{10} .

Table 3.5-4 **Waiting periods based on NOEC values for the post-emergence application of GLOB2107H with soil cultivation**

Species	NOEC	Soil cultivated		
		days	PEC	TER
HELAN	1.85E-03	210	1.82E-03	1.0
BEAVA	1.85E-03	210	1.82E-03	1.0

Summary

In case of crop failure, only maize can be sown as a replacement crop.

In case of a normal harvest (in the autumn after application), winter rape can be sown after soil cultivation (20cm).

In spring of the following year peas, sugar beet, spring rape, sunflower, ryegrass and onion can be sown after deep soil cultivation (20cm).

TIER 2 – Experience with comparable products

It is generally accepted that co-formulants have no significant effect once a formulation is present in the soil¹⁵. Therefore conclusions on the impact of an active substance on succeeding crops can be extrapolated from experience with other products containing thien carbazon-methyl or mesotrione. Below some label extracts are shown:

Capreno – registered at 0.29 L/ha

345 g/L tembotrione	→	100 g/ha tembotrione
68 g/L thien carbazon-methyl	→	19.72 g/ha thien carbazon-methyl
134 g/L isoxadifen-ethyl (safener)		

Succeeding crops (normal crop rotation)

If the soil is cultivated (at least 15cm) **winter and spring wheat, spring barley**, field beans, beets and maize can be sown as succeeding crops.

Replacement crops

Maize can be sown 1 month after application and after the soil is cultivated (at least 10cm).

Note

Tembotrione is very similar to mesotrione:

- HRAC Group 27: Inhibition of Hydroxyphenyl Pyruvate Dioxygenase.
- Subgroup of triketones.
- Both commonly used in maize to control a range of broadleaf weeds and grasses.
- Applied at similar dose rates (mesotrione: 75-150 g/ha; tembotrione: 50-100 g/ha).

Conviso One – registered at 1 L/ha

50 g/L foramsulfuron		
30 g/L thien carbazon-methyl	→	30 g/ha thien carbazon-methyl

Succeeding crops (normal crop rotation)

If the soil is cultivated (at least 20cm) **winter and spring wheat, winter and spring barley**, winter and spring oilseed rape, mustard (catch crop), maize, sunflowers, peas, and **rye-grass** may be sown.

Replacement crops

Maize can be sown 3 weeks after application and after the soil is cultivated (at least 20cm).

Winter wheat can be sown in the same year as application.

Do not plant: spring wheat, spring barley, spring oilseed rape, sunflower, peas, rye-grass, soybean or beans.

¹⁵ PP 1/307 (2) Efficacy considerations and data generation when making changes to the chemical composition or formulation type of plant protection products - European and Mediterranean Plant Protection Organization

Adengo – registered at 0.33 L/ha

225 g/L isofaflutole

90 g/L thien carbazone-methyl

→

30 g/ha thien carbazone-methyl

150 g/L cuprosulfamide (safener)

Succeeding crops (normal crop rotation)

If the soil is cultivated (at least 15cm) **winter wheat** and **winter barley** and **rye-grass** may be sown.

In the next spring following application **spring wheat** and **spring barley**, oilseed rape, potatoes and beets can be sown after soil cultivation (at least 15cm).

Replacement crops

Maize can be sown 1 week after application and after the soil is cultivated (at least 20cm).

Callisto – registered at 1.5 L/ha

100 g/L mesotrione

→

150 g/ha mesotrione

Succeeding crops (normal crop rotation)

In autumn following application **winter wheat** (including durum wheat), **winter barley** and **rye-grass** can be sown.

In the following spring grain maize, rye-grass, **spring wheat** and **spring barley** can be sown.

Replacement crops

Forage and grain maize can be sown immediately after application.

All of the above products containing thien carbazone-methyl or mesotrione have spring and winter wheat and barley on the label as succeeding crops after normal crop rotation, all but one (Capreno) also have rye-grass as a succeeding crop.

Conclusion

Based on the practical experience with the above products and the fact that many herbicides are applied in tank mixtures with several other products without a negative impact on succeeding crops, the applicant requests to add winter and spring wheat, winter and spring barley and rye-grass to the list of crops that can be sown as following crops in normal crop rotation.

Conclusion – Impact on succeeding crops

The applicant considered it acceptable to sow maize as the only replacement crop in case of crop failure. However, if the crop is harvested as normal (i.e. in the autumn after application), winter oilseed rape can be sown after cultivating the soil to a depth of 20 cm.

In the following spring, peas, sugar beet, spring oilseed rape, sunflowers, winter and spring wheat, winter and spring barley, ryegrass, and onions may be sown after deep cultivation (20 cm).

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

The impact of GLOB2112dH on adjacent crops is calculated by comparing the PEC_{soil} values to EC_{50} values calculated from the vegetative vigour study (KCP 6.5-2). This study included two monocotyledon species (sunflower and ryegrass) and four dicotyledon species (cabbage, cucumber, tomato, onion) were tested. The most sensitive species in the study is tomato ($ER_{50} = 29.2$ ml product/ha).

The risk to non-target plants is considered acceptable if the TER based on the most sensitive species is at least 1. The amount of drift that can be expected without drift reducing nozzles was calculated using the 90th percentile estimates derived by the BBA (2000) from the spray-drift predictions of Ganzelmeier & Rautmann (2000). It should be noted that at least 50% drift reducing nozzles are requested.

Table 3.5-5 TER calculations

Dose rate	Buffer zone	Drift at 1m (no drift reduction)	Drift reduction (nozzles)	PEC (ml/ha)	ER_{50} (ml/ha) tomato	TER
200 ml/ha	1m	2.77%	50%	2.77	28.2	10.2

Conclusion

The requested drift reduction measures and buffer zones are sufficient to allow for the safe use of GLOB2107H without any negative impact on adjacent crops.

Conclusion – Impact on other plants including adjacent crops

The risk to non-target terrestrial plant is acceptable when applying GLOB2112dH according to the intended uses and taking into account the following mitigation measures: a buffer zone of 1 m in combination with 50% drift reducing techniques or a buffer zone of 5 m.

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

Adverse effects on beneficial organisms are considered under the Ecotoxicology evaluation.

3.6 Other/special studies

No other/special studies were performed.

3.7 List of test facilities including the corresponding certificates

Reference is made to the Biological Assessment Dossier, all trials were performed by GEP-certified research organisations.

Appendix 1 Lists of data considered in support of the evaluation

Tables considered not relevant can be deleted as appropriate.
MS to blacken authors of vertebrate studies in the version made available to third parties/public.

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	Data protection claimed	Vertebrate study Y/N	Owner
BAD	Parent L.	2024	Biological Assessment Dossier for GLOB2112dH.	Y	N	Globachem N.V.

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 different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner

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 different 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

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 different 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