REGISTRATION REPORT
Part B
Section 3
Efficacy Data and Information

Concise summary

Product code: RNB 072 A

Product name(s): **MATLAM**

Chemical active substance:

Florasulam, 50 g/L

Central Zone

Zonal Rapporteur Member State: Poland

CORE ASSESSMENT

Applicant: XXXX

Submission date: June 2024

Evaluation date: February 2025

MS Finalisation date: May 2025

Version history

When	What
August 2024	Section was updated due to comments on completeness check. Corrected information are highlighted in yellow.
November 2024	Added tables with quantity and quality of yield
February 2025	ZRMS evaluation

Abbreviations:

a.s.	Active substance
BBCH	Phenological growth stage based on Biologische Bundesanstalt Bundessortenamt CHemische Industrie scale
DAA	Days after application
GEP	Good experimental practice
n/a	Not applicable

Formulation types:

SC	Suspension concentrate

EPPO codes

Group	EPPO code	Common name	Scientific name
Crop	TRZAW	Winter wheat	*Triticum aestivum*
Crop		Winter spelt	*Triticum aestivum subs. spelta*
Crop	HORVW	Winter barley	*Hordeum vulgare*
Crop	TTLWI	Winter triticale	*Triticosecale*
Crop	SECCW	Winter rye	*Secale cereale*
Crop	AVESW	Winter oat	*Avena sativa*
Crop	TRZAS	Spring wheat	*Triticum aestivum*
Crop	HORVS	Spring barley	*Hordeum vulgare*
Crop	TTLSO	Spring triticale	*Triticosecale*
Crop	AVESP	Spring oat	*Avena sativa*

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

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

Comments of zRMS:	This is the version of dRR from June 2024, submitted in the framework of Art. 33, using Art. 34 of Regulation (EC) 1107/2009. ZRMS comments and conclusions are placed in commenting boxes shaded in grey at the end of each chapter. Amendments in the text are highlighted in yellow

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

Abstract

This report concerns the authorization of Matlam (RNB 072 A), containing the active substance florasulam (50 g/L), under art. 33, using art. 34 of Regulation (EC) 1107/2009, in Poland, for broadleaf weeds control in cereal crops (wheat, barley, triticale, rye, oat). The studies supporting Martlam registration were conducted in Poland, in winter wheat (15 efficacy trials - 14 varieties) and spring barley (15 efficacy trials -14 varieties) in 2022. The herbicide was used at the rates of 0.5, 0.8, and 0.1 L/ha, at the growth stages of cereals BBCH 12-33. The registration of Matlam covers its use at the rate of 0.1 L/ha in all cereal crops, so the weed control and weed species sensitivity are discussed only for the rate provided for registration. The efficacy and crop safety of the tested product were compared to the reference products including florasulam (Upton 050 SC, Saracen 050 SC – 50 g/L). In winter wheat, the mean control of weed species (classified as susceptible) by Matlam was within the range 90.2-100%, except for Veronica persica (75.1%) and Viola arvensis (76.8%), while in spring barley was within the range 85-100%, except Chenopodium album (72.7%), and Viola arvensis (35%).

Following the Extrapolation Table, adopted for Poland, for weed species the extrapolation is allowed from one species of winter cereals to another species of winter cereals, as well as from one species of spring cereals to other species of spring cereals, assuming their positive assessment, whereby efficacy studies are not required for the crops to which we are carrying out extrapolation. These recommendations apply to Matlam for which the results from winter wheat can be extrapolated to winter barley, winter triticale, and winter rye, and the results from spring barley can be extrapolated to spring wheat, spring triticale, spring oats.

In support the Matlam registration, the unprotected data for Kantor 050 EC (florasulam – 50 g/l) authorization can be used. For Kantor 050 EC registration, the data from winter wheat (25 trials, including 4 trials in DE), winter barley (1 trial in DE), triticale (1 trial in FR), spring wheat (5 trials, including 4 trials in FR and 1 in DE), and spring barley (10 trials, including 3 trials in DE, 2 in FR) were submitted in the report. Currently, Kantor 050 EC is recommended post-emergence, at the rate of 0.8-0.1 L/ha in winter wheat and winter triticale, at the growth stages BBCH 13-32. The application of both herbicides is comparable, so the data for Kantor 050 EC registration can support Matlam registration. The high efficacy of weed control by Kantor 050 EC in the presented data was obtained.

Adverse effects of Matlam (RNB 072 A) on treated crops were tested in crop safety trials carried out in Poland, in 2022 and 2023: in winter wheat (6 trials), spelt wheat (4), winter triticale (4), winter rye (4), winter barley (4), spring wheat (4), spring triticale (4), spring oat (4) and spring barley (6). In these trials, the selectivity of the tested product, the yield, and the quality of the yield were tested.

Phytotoxicity of Matlam was evaluated in 30 efficacy trials (doses 0.05 to 0.1 L/ha), and in 40 crop safety trials (doses 0.1 and 0.2 L/ha - 1N and 2N), from application to harvest (BBCH 89). The number of trials on Matlam phytotoxicity to host crops meets the registration requirements for Poland. No phytotoxicity symptoms or adverse effects on vigor were observed in all efficacy and selectivity trials. There were no differences between the tested product and the standards.

Effect on yield. The influence of Matlam on grain yield was evaluated in 40 crop safety trials. The high

yield was obtained in all crops. The results indicate that neither the tested product Matlam nor the standard products did not affect the quantity of cereal crop yield.

Effect on the yield quality. The impact of Matlam on grain weight, hectolitre weight, protein content, and moisture content of the harvested yield was evaluated in 12 trials conducted in 2022 (6 on winter wheat, 6 on spring barley), and 28 trials conducted in 2023 (4 on spelt wheat, 4 on winter triticale, 4 on winter rye, 4 on winter barley, 4 on spring wheat, 4 on spring triticale and 4 on spring oat. The data indicate that Matlam applied at the rate of 0.1 L/ha, does not influence the quality of cereal grains. A tiny difference in the quality parameters of grains was observed, but there was no clear trend of changes. The Matlam registration supports the data on grain quality from the trials for Kantor 050 EC (EF-1343) registration. This herbicide also did not affect the quality of cereal grains.

Effects on transformation processes. The applicant did not present data on the impact of Matlam on transformation processes. However, states that florasulam has been applied for many years in European countries, and the trials conducted earlier were previously evaluated, and are still adequate to support the registration.

<u>CONCLUSIONS</u>. Matlam can be authorized based on the efficacy and safety data presented in this registration report, with usage of the unprotected data of Kantor 050 SC, assessed during its registration. The activity of Matlam is very high, this product is safe for cereal crops and does not influence the yield and quality of grain, transformation processes, succeeding, and adjacent crops. The results of Matlam were comparable to standard products. The proposed label claims the use of Matlam in one foliar application in the spring, for broadleaf weed control, in winter and spring wheat, winter spelt, winter and spring barley, winter and spring triticale, winter rye and spring oat, at the rates of 0.1 L/ha, at the growth stages BBCH 12-33, with 200–400 L/ha of water volume.

<u>The sensitivity of weed species on Matlam in winter cereal crops</u>:

Susceptible: *Anthemis arvensis*, *Brassica napus* voluntiers, *Capsella bursa-pastoris*, Descurainia sophia, *Galium aparine*, *Tripleurospermum inodorum*, *Myosotis arvensis*, *Papaver rhoeas*, *Fallopia convolvulus*, *Sinapsis arvensis*, *Stellaria media*, *Thlaspi arvense*

Moderately susceptible: *Veronica persica*, *Viola arvensis*

<u>The sensitivity of weed species on Matlam in spring cereal crops</u>:

Susceptible: *Amaranthus retroflexus*, *Anthemis arvensis*, *Brassica napus* volunteers, *Capsella bursa-pastoris*, *Descurainia sophia*, *Galium aparine*, *Galinsoga parviflora*, *Tripleurospermum inodorum*, *Silene latifolia* subsp. *alba*, Myosotis arvensis, Polygonum aviculare, Fallopia convolvulus, Persicaria maculosa, Sinapsis arvensis, *Stellaria media*, *Thlaspi arvense*, *Veronica persica*

Moderately susceptible: *Chenopodium album*, *Galium tendae*

Tolerant: *Viola arvensis*

<u>Minor uses</u>

ZRMS also accepts the minor uses of Matlam in winter wheat durum, spring wheat durum and winter oat, according to Article 51.

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

PPP (product name/code):	MATLAM	Formulation type:	SC [a, b]
Active substance 1:	Florasulam	Conc. of as 1:	50 g/L [c]
Safener:	-	Conc. of safener:	- [c]
Synergist:	-	Conc. of synergist:	- [c]
Applicant:	XXXX	Professional use:	☒
Zone(s):	CEU	Non professional use:	☐
Verified by MS:	yes/no		

Field of use: herbicide

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Use-No. [e]	**Member state(s)**	**Crop and/ or situation** **(crop destination / purpose of crop)**	**F, Fn, Fpn G, Gn, Gpn or I**	**Pests or Group of pests controlled** (additionally: developmental stages of the pest or pest group)	**Application**				**Application rate**			**PHI** (days)	**Remarks:** e.g. g safener/synergist per ha [f]
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	kg or L product / ha a) max. rate per appl. b) max. total rate per crop/season	g or kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max		
Zonal uses (field or outdoor uses, certain types of protected crops)													
1.	PL	**Winter wheat Winter spelt, Winter barley, Winter triticale, Winter rye**	F	dicotyledonous weeds (TTTDS)	Broadcast spray	BBCH 12-33 (spring application)	a) 1 b) 1	NA	a) 0.1 b) 0.1	a) 5.0 b) 5.0	200-400	60	
2.	PL	**Spring barley Spring wheat Spring triticale, Spring oat**	F	dicotyledonous weeds (TTTDS)	Broadcast spray	BBCH 12-33 (spring application)	a) 1 b) 1	NA	a) 0.1 b) 0.1	a) 5.0 b) 5.0	200-400	55	

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Use-No. [(e)]	**Member state(s)**	**Crop and/ or situation** **(crop destination / purpose of crop)**	**F, Fn, Fpn G, Gn, Gpn or I**	**Pests or Group of pests controlled** (additionally: developmen-tal stages of the pest or pest group)	**Application**				**Application rate**			**PHI** (days)	**Remarks:** e.g. g safener/synergist per ha [(f)]
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	kg or L product / ha a) max. rate per appl. b) max. total rate per crop/season	g or kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max		
Interzonal uses (use as seed treatment, in greenhouses (or other closed places of plant production), as post-harvest treatment or for treatment of empty storage rooms)													
3													
4													
Minor uses according to Article 51 (zonal uses)													
5	PL	Winter wheat durum	F	dicotyledonous weeds (TTTDS)	Broadcast spray	BBCH 12-33 (spring applica-tion)	a) 1 b) 1	NA	a) 0.1 b) 0.1	a) 5.0 b) 5.0	200-400	60	
6	PL	Winter oat	F	dicotyledonous weeds (TTTDS)	Broadcast spray	BBCH 12-33 (spring applica-tion)	a) 1 b) 1	NA	a) 0.1 b) 0.1	a) 5.0 b) 5.0	200-400	60	
7	PL	Spring wheat durum	F	dicotyledonous weeds (TTTDS)	Broadcast spray	BBCH 12-33 (spring applica-tion)	a) 1 b) 1	NA	a) 0.1 b) 0.1	a) 5.0 b) 5.0	200-400	55	
Minor uses according to Article 51 (interzonal uses)													
7													
8													

Remarks table heading:

(a) e.g. wettable powder (WP), emulsifiable concentrate (EC), granule (GR)
(b) Catalogue of pesticide formulation types and international coding system CropLife International Technical Monograph n°2, 6th Edition Revised May 2008
(c) g/kg or g/l
(d) Select relevant
(e) Use number(s) in accordance with the list of all intended GAPs in Part B, Section 0 should be given in column 1
(f) No authorization possible for uses where the line is highlighted in grey, Use should be crossed out when the notifier no longer supports this use.

Remarks columns:

1 Numeration necessary to allow references
2 Use official codes/nomenclatures of EU Member States
3 For crops, the EU and Codex classifications (both) should be used; when relevant, the use situation should be described (e.g. fumigation of a structure)
4 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
5 Scientific names and EPPO-Codes of target pests/diseases/ weeds or, when relevant, the common names of the pest groups (e.g. biting and sucking insects, soil born insects, foliar fungi, weeds) and the developmental stages of the pests and pest groups at the moment of application must be named.
6 Method, e.g. high volume spraying, low volume spraying, spreading, dusting, drench
Kind, e.g. overall, broadcast, aerial spraying, row, individual plant, between the plants - type of equipment used must be indicated.
7 Growth stage at first and last treatment (BBCH Monograph, Growth Stages of Plants, 1997, Blackwell, ISBN 3-8263-3152-4), including where relevant, information on season at time of application
8 The maximum number of application possible under practical conditions of use must be provided.
9 Minimum interval (in days) between applications of the same product
10 For specific uses other specifications might be possible, e.g.: g/m³ in case of fumigation of empty rooms. See also EPPO-Guideline PP 1/239 Dose expression for plant protection products.
11 The dimension (g, kg) must be clearly specified. (Maximum) dose of a.s. per treatment (usually g, kg or L product / ha).
12 If water volume range depends on application equipments (e.g. ULVA or LVA) it should be mentioned under “application: method/kind”.
13 PHI - minimum pre-harvest interval
14 Remarks may include: Extent of use/economic importance/restrictions

Column 14: zRMS conclusion.

A	Acceptable
R	Acceptable with further restriction
C	To be confirmed by cMS
1N	Not acceptable / evaluation not possible
n.r.	Not relevant for section 3

3.2 Efficacy data (KCP 6)

Introduction

This document summarizes the information related to the efficacy of the product MATLAM containing active substance florasulam. The composition of the product is comparable to plant protection product Kantor 050 SC Dow AgroSciences
North-east EPPO Zone
MATLAM applies in the North-east Zone for the registration of in winter and spring cereals at spring BBCH 12-33, applied once per season at the maximum rate of 5 g a.s./ha florasulam in winter and spring for the control of dicotyledonous weeds. (In reports MATLAM was tested as Florasulam 50 SC or Floras 50 SC). The objective of this Biological Assessment Dossier is to provide data on the efficacy, crop safety and other Section 3 data points in support of the registration of MATLAM, a Suspension concentrate product (SC) formulation containing 50 g/l florasulam in the EU for use as a herbicide to control dicots weeds in winter and spring cereals of this document.
Information on the detailed composition of MATLAM can be found in the confidential dossier of this submission (Registration Report - Part C).

This application is submitted by XXXX. For the authorization of the product ‚MATLAM in Poland. The product is a herbicide formulated as suspension concentrate [SC] containing 50 g/L of Florasulam. The product MATLAM (in all reports MATLAM was tested as code FLORAS) was not a representative formulation during EU review of the active substance.

Appendix 1 of this document contains the list of references included in this document for support of the evaluation.

The detailed assessment of the individual trial and study data is located in the following report:

Report:	**KCP 6.0/001 Biological Assessment Dossier MATLAM, Central**

Description of active substance florasulam
Active substances
Florasulam 100 g/l
Chemical name (IUPAC): 2′,6′,8-trifluoro-5-methoxy[1,2,4]triazolo[1,5-c] pyrimidine-2-sulfonanilide
CIPAC No.: 616
CAS No.: 145701-23-1

According to Florasulam_RAR_01_Volume_1_2013-11-25_san.pdf
Effects on harmful organisms
Florasulam is a post emergent herbicide and is taken up by the leaves. The active ingredient is rapidly degraded in soil and poorly taken up by the roots, thus providing very little soil activity. After foliar absorption, florasulam is translocated to the meristematic tissue, where it inhibits the plant enzyme acetolactate synthase (ALS) which is essential for amino acid synthesis. Inhibition of amino acid production inhibits cell division and results in plant death.
Florasulam is a herbicide which is active against broadleaf weeds in winter and spring cereals by inhibiting the plant enzyme, acetolactate synthase (ALS). This result in complete desiccation of susceptible plants in 7-10 days under ideal growing conditions, however, this may take up to 6-8 weeks under less ideal conditions. Florasulam provides activity on a range of weeds of the Caryophyllaceae, Convonvulaceae, Amaranthaceae, Malvaceae, Compositeae, Polygonaceae and is highly activeon Galium aparine, Stellaria media, Matricaria spp and various cruciferae at very low rates. The herbicide is taken up by the roots or foliage of plants; the rate of Florasulam metabolism in G. aparine is slow and affords ample time for parent herbicide to translocate through – out the plant, compared with the rapid

metabolism in wheat. It is considered extremely unlikely that resistance to Florasulam will develop; G. aparine may be controlled by products with alternative modes of action in both the cereal crop and rotational crops. Procedures for handling, storage, transport and fire for destruction and decontamination, and for emergency measures in case of accident have been recommended. Florasulam, as EF-1343, is applied up to maximum rate of 6.25 g a.s./ha, between growth stage BBCH 12-49 of the cereal, usually once per season, in 100-400 l water/ha.

Table 2 gives a summary of all currently authorised, commercially available products containing florasulam registered for use as herbicide on winter and spring cereals in EU countries relevant to this submission.

Table 2: Details of products containing florasulam currently authorised for use as herbicide on winter and spring cereals in EU countries relevant to this submission.

Country	Product name	a.s. content	Formulation type	National registration no.	Max. no. appl'ns	Appl'n rate (product/ha)
Poland	Duster	50g/l	SC	R-133/2020 h.r.	1	0,1 l/ha
	FlorasuGuard	50g/l	SC	R-59/2019	1	0,075l/ha, 0,1 l/ha
	Flyer	50g/l	SC	R-167/2020	1	0,1l/ha,0,15 l/ha
	Globus SC	50g/l	SC	R-93/2020	1	0,1 l/ha
	Kantor 050 SC	50g/l	SC	R-56/2011	1	0,08 l/ha, 0,1 l/ha
	Laserto 050 SC	50g/l	SC	R-68/2020 h.r.	1	0,08 l/ha, 0,1l/ha
	Linnea	50g/l	SC	R-20/2021 h.r.	1	0,1 l/ha
	Matrican 100 SC	100g/l	SC	R-71/2019	1	50 ml/ha
	Plonarius 100 SC	100g/l	SC	R-72/2019	1	50 ml/ha
	Saracen 050 SC	50g/l	SC	R-71/2015	1	0,08 l/ha,0,1 l/ha
	Scriven 050 SC	50g/l	SC	R-8/2020	1	0,1 l/ha
	Sunlight 50 SC	50g/l	SC	R-11/2021	1	0,1 l/ha
	Ultegra 050 SC	50g/l	SC	R-9/2020	1	0,075 l/ha, 0,1 l/ha
	Upton 050 SC	50g/l	SC	R-7/2019	1	0,075 l/ha, 0,1 l/ha
Germany	Flyer	50g/l	SC	00A797-00	1	0,15l/ha
	InnoProtect Primus	50g/l	SC	044622-60	1	0,1l/ha; 0,125l/ha; 0,075l/ha
	Matrican 100 SC	50g/l	SC	00A711-00	1	0,05l/ha
	Phytavis Primus	50g/l	SC	044622-62	1	0,1l/ha; 0,125l/ha; 0,075l/ha
	Plonarius 100 SC	100g/l	SC	00A711-60	1	0,05l/ha
	Primus	50g/l	SC	044622-00	1	0,1l/ha; 0,125l/ha; 0,075l/ha
	Saracen	50g/l	SC	027767-00	1	0,1l/ha; 0,15l/ha; 0,075l/ha
	Sumir	50g/l	SC	028452-00	1	0,1l/ha; 0,125l/ha; 0,075l/ha
France	Yolao	250kg/ha		17/12/2021	1	15-25g/ha
	STERCO	250kg/ha		20/07/2009	1	15-25g/ha
	SONIK+	50g/l	SC	06/02/2004	1	0,075l/ha; 0,125l/ha
	Saracen	50g/l	SC	01/01/2014	1	0,08 – 0,15l/ha
	Primus	50g/l	SC	01/07/2014	1	0,075l/ha; 0,125l/ha
	Picpic	50g/l	SC	05/11/2020	1	0,075l/ha; 0,125l/ha
	Prbiter	50g/l	SC	10/07/2019	1	0,08 – 0,15l/ha
	Globus	50g/l	SC	15/12/2015	1	0,08 – 0,15l/ha
	Florasuneti	50g/l	SC	14/06/2016	1	0,08 – 0,15l/ha
	FLORASTAR 50	50g/l	SC	23/06/2015	1	0,08 – 0,15l/ha
	Florabust	250kg/ha		17/12/2021	1	25g/ha
	Clyde	250kg/ha		11/02/2021	1	25g/ha
Czech Republic	Kantor	50 g/l	SC	5888-0	1	0,075, 0,08,0,1 l/ha
	Globus	50 g/l	SC	5293-0	1	0,1,0,08 l/ha
	Matrican 100 SC	100 g/l	SC	5850-1	1	50 ml/ha

*registration according to EPPO PP1/224 (2) Principles of efficacy evaluation for minor uses (data extrapolation from the original registered uses)

Mode of action

Table 3:Details of the active substance

Active substance	Florasulam
Concentration (Unit: g/kg or g/L...)	50 g/L
Chemical group	triazolopyrimidine group, group B
Mode of action	inhibits the plant enzyme acetolactate synthase (ALS)
Biological action	Florasulam is a herbicide which is active against broadleaf weeds in winter and spring cereals by inhibiting the plant enzyme, acetolactate synthase (ALS). This result in complete desiccation of susceptible plants in 7-10 days under ideal growing conditions, however, this may take up to 6-8 weeks under less ideal conditions. Florasulam provides activity on a range of weeds of the Caryophyllaceae, Convonvulaceae, Amaranthaceae, Malvaceae, Compositeae, Polygonaceae and is highly activeon Galium aparine, Stellaria media, Matricaria spp and various cruciferae at very low rates. The herbicide is taken up by the roots or foliage of plants; the rate of Florasulam metabolism in G. aparine is slow and affords ample time for parent herbicide to translocate through – out the plant, compared with the rapid metabolism in wheat. It is considered extremely unlikely that resistance to Florasulam will develop; G. aparine may be controlled by products with alternative modes of action in both the cereal crop and rotational crops. Procedures for handling, storage, transport and fire for destruction and decontamination, and for emergency measures in case of accident have been recommended.

Table 3.2-4: Simplified table of currently registered uses and requested uses for the product code.

Uses		Member State	Currently registered rate(s)		Requested rate(s)		Comments / Other relevant details on GAPs
Crop(s)	Target(s)		max. rate per appl	max. total rate per crop/season	max. rate per appl	max. total rate per crop/season	

Winter wheat Winter spelt, Winter barley, Winter triticale, Winter rye	Anthemis arvensis Brassica napus Capsella bursa-pastoris Centaurea cyanus Chenopodium album Descurainia sophia Fumaria officinalis Galium aparine Geranium pusillum Lamium amplexicaule Buglossoides arvensis Tripleurospermum inodorum Myosotis arvensis Papaver rhoeas Fallopia convolvulus Sinapis arvensis Sonchus arvense Stellaria media Thlaspi arvense Veronica hederifolia Veronica persica Viola arvensis	PL			0.1 L/ha	0.1 L/ha	Spring use, one application per season BBCH 12-33
Spring barley Spring wheat Spring triticale, Spring oat	Amaranthus retroflexus Anthemis arvensis Brassica napus Capsella bursa-pastoris Centaurea cyanus Chenopodium album Convolvulus arvensis Descurainia sophia Galeopsis tetrahit Galium aparine Galium tendae Galinsoga parviflora Buglossoides arvensis Matricaria chamomilla Tripleurospermum inodorum Silene latifolia subs. alba Myosotis arvensis Papaver rhoeas Polygonum aviculare Fallopia convolvulus Persicaria maculosa Sinapis arvensis Stellaria media Thlaspi arvense Veronica persica Viola arvensis	PL			0.1 L/ha	0.1 L/ha	Spring use, one application per season BBCH 12-33

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

Description of the target pests

All the listed weeds are present throughout or in parts of the Central zone and in relevant EPPO zones. These weed species compete with the crops for light, moisture and nutrients, reducing crop yields and may obstruct harvestability.

Table 3.2-5: Glossary of pests mentioned in the dossier.

Spectrum of activity of the plant protection product

Nort-east EPPO Zone

Winter wheat – Post-emergence application

EPPO code	Scientific name	Common name*
ANTAR	Anthemis arvensis	corn chamomile
BRSNW	Brassica napus	winter oilseed rape
CAPBP	Capsella bursa-pastoris	shepherd's purse
CENCY	Centaurea cyanus	cornflower
CHEAL	Chenopodium album	common lambsquarters
DESSO	Descurainia sophia	flixweed
FUMOF	Fumaria officinalis	common fumitory
GALAP	Galium aparine	cleavers
GERPU	Geranium pusillum	small-flowered cranesbill
LAMAM	Lamium amplexicaule	common deadnettle
LITAR	Buglossoides arvensis	pigeonweed
MATIN	Tripleurospermum inodorum	scentless false mayweed
MYOAR	Myosotis arvensis	field forget-me-not
PAPRH	Papaver rhoeas	common poppy
POLCO	Fallopia convolvulus	black knotweed
SINAR	Sinapis arvensis	kedlock
SONAR	Sonchus arvense	corn sowthistle
STEME	Stellaria media	common chickweed
THLAR	Thlaspi arvense	field pennycress
VERHE	Veronica hederifolia	ivyleaf speedwell
VERPE	Veronica persica	common speedwell
VIOAR	Viola arvensis	field violet

Spring barley– Post emergence application

EPPO code	Scientific name	Common name*
AMARE	Amaranthus retroflexus	common amaranth
ANTAR	Anthemis arvensis	corn chamomile
BRSNW	Brassica napus	winter oilseed rape
CAPBP	Capsella bursa-pastoris	shepherd's purse
CENCY	Centaurea cyanus	cornflower
CHEAL	Chenopodium album	common lambsquarters
CONAR	Convolvulus arvensis	field bindweed
DESSO	Descurainia sophia	flixweed
GAETE	Galeopsis tetrahit	common hemp-nettle
GALAP	Galium aparine	cleavers
GALTE	Galium tendae	Swiss bedstraw
GASPA	Galinsoga parviflora	small-flowered quickweed
LITAR	Buglossoides arvensis	pigeonweed
MATCH	Matricaria chamomilla	matchweed
MATIN	Tripleurospermum inodorum	scentless false mayweed
MELAL	Silene latifolia subs. alba	evening campion
MYOAR	Myosotis arvensis	field forget-me-not
PAPRH	Papaver rhoeas	common poppy
POLAV	Polygonum aviculare	common knotgrass
POLCO	Fallopia convolvulus	black knotweed
POLPE	Persicaria maculosa	ladysthumb
SINAR	Sinapis arvensis	kedlock
STEME	Stellaria media	common chickweed
THLAR	Thlaspi arvense	field pennycress
VERPE	Veronica persica	common speedwell
VIOAR	Viola arvensis	field violet

Table 3.2-6: Major / minor status of intended uses (for all cMS and zRMS).

North-east EPPO Zone

Winter wheat

Crop and/or situation	Crop status		Pests or group of pests controlled	Pest status	
	Major	minor		Major	minor
winter wheat	PL	-	Anthemis arvensis	-	x
			Brassica napus	X	-
			Capsella bursa-pastoris	X	-
			Centaurea cyanus	X	-
			Chenopodium album	X	-
			Descurainia sophia	X	-
			Fumaria officinalis	X	-
			Galium aparine	X	
			Geranium pusillum	X	
			Lamium amplexicaule	X	
			Buglossoides arvensis	-	x
			Tripleurospermum inodorum	X	
			Myosotis arvensis	X	
			Papaver rhoeas	X	
			Fallopia convolvulus	X	
			Sinapsis arvensis	X	
			Sonchus arvense	X	
			Stellaria media	X	
			Thlaspi arvense	X	
			Veronica hederifolia	X	
			Veronica persica	X	
			Viola arvensis	X	

Table 3.2-7:

Spring barley

Crop and/or situation	Crop status		Pests or group of pests controlled	Pest status	
	Major	minor		Major	minor
Spring barley	PL	-	Amaranthus retroflexus	-	x
			Anthemis arvensis	-	x
			Brassica napus	X	-
			Capsella bursa-pastoris	X	-
			Centaurea cyanus	X	-
			Chenopodium album	X	-
			Convolvulus arvensis	X	-
			Descurainia sophia	X	-
			Galeopsis tetrahit	X	-
			Galium aparine	x	-
			Galium tendae	-	x
			Galinsoga parviflora	X	
			Buglossoides arvensis	-	x
			Matricaria chamomilla	X	-
			Tripleurospermum inodorum	X	-
			Silene latifolia subsp. alba	X	-
			Myosotis arvensis	X	-
			Papaver rhoeas	X	-
			Polygonum aviculare	X	-
			Fallopia convolvulus	X	-
			Persicaria maculosa	X	-
			Sinapis arvensis	X	-
			Stellaria media	X	-
			Thlaspi arvense	X	-
			Veronica persica	X	-
			Viola arvensis	X	-

Compliance with the Uniform Principles

This overall assessment has been performed according to the uniform principles. All summarised data are from trials carried out to GEP and in accordance with relevant EPPO guidelines.

Information on trials submitted (3.1 Efficacy data)

Trials in this dossier were carried out by contractor companies and Official Research institutes, all of which follow the EPPO guidelines and are officially recognized by the competent authorities to carry out field registration trials in accordance with the principles of Good Experimental Practice (GEP).

In general, the trials were conducted according to the respective EPPO guidelines.

Table 3.2-8: Presentation of efficacy trials (efficacy trials, preliminary trials...)

Post-emergence application

Crop(s) *	Target(s)*	Country	Years	Type of trial**	Number of trials (number of valid trials)		GEP, non-GEP, official***	Comments (any other relevant information)
					North-east Zone	-		
Winter wheat post emergence BBCH 12-33	Anthemis arvensis	Poland	2022	E+MED	2 (2)	-	GEP	-
	TOTAL	-	2022	E+MED	2 (2)	-	GEP	-
Winter wheat post emergence BBCH 12-33	Brassica napus	Poland	2022	E+MED	6 (6)	-	GEP	-
	TOTAL	-		E+MED	6 (6)	-	GEP	-
Winter wheat post emergence BBCH 12-33	Capsella bursa-pastoris	Poland	2022	E+MED	7 (7)	-	GEP	-
	TOTAL	-	2022	E+MED		-	GEP	-
Winter wheat post emergence BBCH 12-33	Centaurea cyanus	Poland	2022	E+MED	1 (1)	-	GEP	-
	TOTAL		2022	E+MED		-	GEP	-
Winter wheat post emergence BBCH 12-33	Descurainia sophia	Poland	2022	E+MED	4 (4)	-	GEP	-
	TOTAL	-	2022	E+MED		-	GEP	-
Winter wheat post emergence BBCH 12-33	Fumaria officinalis	Poland	2022	E+MED	1 (1)	-	GEP	-
	TOTAL	-	2022	E+MED		-	-	-
Winter wheat post emergence BBCH 12-33	Galium aparine	Poland	2022	E+MED	8 (8)	-	GEP	-
	TOTAL	-	2022	E+MED		-	-	-
Winter wheat post emergence BBCH 12-33	Geranium pusillum	Poland	2022	E+MED	1 (1)	-	GEP	-
	TOTAL			E+MED				

Winter wheat post emergence BBCH 12-32	Lamium amplexicau-le	Poland	2022	E+MED	1 (1)	-	GEP	-
	TOTAL			E+MED				
Winter wheat post emergence BBCH 12-33	Buglossoides arven-sis	Poland	2022	E+MED	1 (1)	-	GEP	
	TOTAL			E+MED				
Winter wheat post emergence BBCH 12-33	Tripleurospermum inodorum	Poland	2022	E+MED	7 (7)	-	GEP	
	TOTAL			E+MED				
Winter wheat post emergence BBCH 12-33	Myosotis arvensis	Poland	2022	E+MED	5 (5)	-	GEP	
	TOTAL			E+MED				
Winter wheat post emergence BBCH 12-33	Papaver rhoeas	Poland	2022	E+MED	8 (8)	-	GEP	
	TOTAL			E+MED				
Winter wheat post emergence BBCH 12-33	Fallopia convolvulus	Poland	2022	E+MED	4 (4)	-	GEP	
	TOTAL			E+MED				
Winter wheat post emergence BBCH 12-33	Sinapsis arvensis	Poland	2022	E+MED	2 (2)	-	GEP	
	TOTAL			E+MED				
Winter wheat post emergence BBCH 12-33	Sonchus arvense	Poland	2022	E+MED	1 (1)	-	GEP	
	TOTAL			E+MED				
Winter wheat post emergence BBCH 12-33	Stellaria media	Poland	2022	E+MED	9 (9)	-	GEP	
	TOTAL			E+MED				
Winter wheat post emergence BBCH 12-33	Thlaspi arvense	Poland	2022	E+MED	8 (8)	-	GEP	
	TOTAL			E+MED				
Winter wheat post emergence BBCH 12-33	Veronica hederifolia	Poland	2022	E+MED	1 (1)	-	GEP	
	TOTAL			E+MED				
Winter wheat post emergence BBCH 12-33	Veronica persica	Poland	2022	E+MED	5 (5)	-	GEP	
	TOTAL			E+MED				
Winter wheat post emergence BBCH 12-33	Viola arvensis	Poland	2022	E+MED	3 (3)	-	GEP	
	TOTAL			E+MED				

North-east Post-emergence application

Table 3.2-9: **Presentation of trials (efficacy trials) spring barley**

Crop(s) *	Target(s)*	Country	Years	Type of trial**	Number of trials (number of valid trials)		GEP, non-GEP, official***	Comments (any other relevant information)
					North -east Zone	-		
Spring barley BBCH 12-33	Amaranthus retro-flexus	PL	2022	E+MED	2 (2)	-	GEP	
	TOTAL		2022	E +MED		-	GEP	-
Spring barley BBCH 12-33	Anthemis arvensis	PL	2022	E +MED	2 (2)	-	GEP	-
	TOTAL		2022	E +MED		-	GEP	-
Spring barley BBCH 12-33	Brassica napus	PL	2022	E +MED	4 (4)	-	GEP	-
	TOTAL		202	E +MED		-	GEP	-
Spring barley BBCH 12-33	Capsella bursa-pastoris	PL	2022	E +MED	6 (6)	-	GEP	-
	TOTAL		2022	E +MED		-	GEP	-
Spring barley BBCH 12-33	Centaurea cyanus	PL	2022	E +MED	1 (1)	-	GEP	-
	TOTAL		2022	E +MED		-	GEP	-
Spring barley BBCH 12-33	Chenopodium album	PL	2022	E +MED	4 (4)	-	GEP	-
	TOTAL		2022	E +MED		-	GEP	-
Spring barley BBCH 12-33	Convolvulus arven-sis	PL	2022	E +MED	1 (1)	-	GEP	-
	TOTAL		2022	E +MED		-	GEP	-
Spring barley BBCH 12-33	Descurainia sophia	PL	2022	E +MED	2 (2)	-	GEP	-
	TOTAL		2022	E +MED		-	GEP	-
Spring barley BBCH 12-33	Galeopsis tetrahit	PL	2022	E +MED	2 (2)	-	GEP	-
	TOTAL		2022	E +MED		-	GEP	-
Spring barley BBCH 12-33	Galium aparine	PL	2022	E +MED	4 (4)		GEP	-
	TOTAL		2022	E +MED		-	GEP	-
Spring barley BBCH 12-33	Galium tendae	PL	2022	E +MED	2 (2)		GEP	-
	TOTAL		2022	E +MED		-	GEP	-
Spring barley BBCH 12-33	Galinsoga parviflo-ra	PL	2022	E +MED	2 (2)		GEP	-
	TOTAL		2022	E +MED			GEP	

Spring barley BBCH 12-33	Buglossoides arvensis	PL	2022	E +MED	1 (1)		GEP	
	TOTAL		2022	E +MED			GEP	
Spring barley BBCH 12-33	Matricaria chamomilla	PL	2022	E +MED	1 (1)		GEP	
	TOTAL		2022	E +MED			GEP	
Spring barley BBCH 12-33	Tripleurospermum inodorum	PL	2022	E +MED	2 (2)		GEP	
	TOTAL		2022	E +MED			GEP	
Spring barley BBCH 12-33	Silene latifolia subs. alba	PL	2022	E +MED	2 (2)		GEP	
	TOTAL		2022	E +MED			GEP	
Spring barley BBCH 12-33	Myosotis arvensis	PL	2022	E +MED	3 (3)		GEP	
	TOTAL		2022	E +MED			GEP	
Spring barley BBCH 12-33	Papaver rhoeas	PL	2022	E +MED	1 (1)		GEP	
	TOTAL		2022	E +MED			GEP	
Spring barley BBCH 12-33	Polygonum aviculare	PL	2022	E +MED	2 (2)		GEP	
	TOTAL		2022	E +MED			GEP	
Spring barley BBCH 12-33	Fallopia convolvulus	PL	2022	E +MED	9 (9)		GEP	
	TOTAL		2022	E +MED			GEP	
Spring barley BBCH 12-33	Persicaria maculosa	PL	2022	E +MED	2 (2)		GEP	
	TOTAL		2022	E +MED			GEP	
Spring barley BBCH 12-33	Sinapis arvensis	PL	2022	E +MED	4 (4)		GEP	
	TOTAL		2022	E +MED			GEP	
Spring barley BBCH 12-32	Stellaria media	PL	2022	E +MED	7 (7)		GEP	
	TOTAL		2022	E +MED			GEP	
Spring barley BBCH 12-33	Thlaspi arvense	PL	2022	E +MED	9 (9)		GEP	
	TOTAL		2022	E +MED			GEP	
Spring barley BBCH 12-33	Veronica persica	PL	2022	E +MED	6 (6)		GEP	
	TOTAL		2022	E +MED			GEP	
Spring barley BBCH 12-33	Viola arvensis	PL	2022	E +MED	2 (2)		GEP	
	TOTAL		2022	E +MED			GEP	

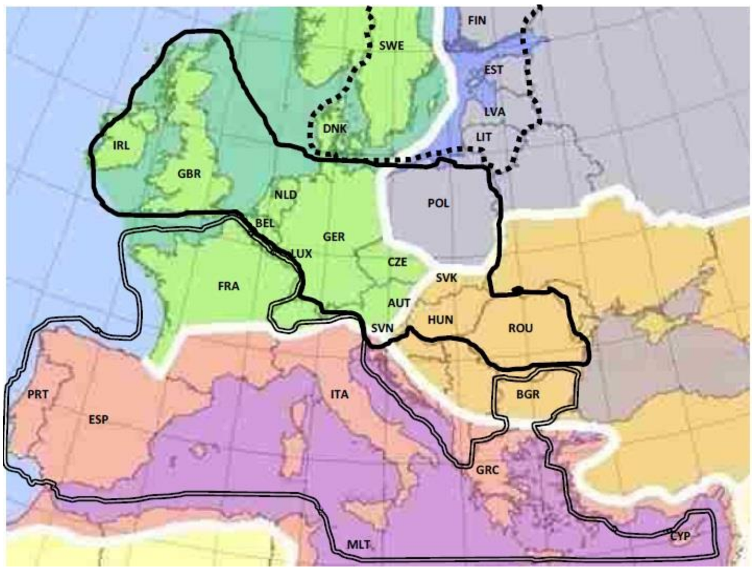
* According to the GAP table
** P = preliminary trial, MED = minimum effective dose, E = efficacy trial, Y = trial with yield assessment in presence of target(s), Q = trial with quality assessment in presence of target(s)
*** GEP: Good Experimental Practices. Official: carried out by a national official organisation

Climatic zones

Europe is divided into four climatic zones, according to EPPO standard PP 1/241 (1). Besides providing guidance in determining comparability of climatic conditions between geographical areas where efficacy evaluation trials are performed, the standard also supports the use of data generated in one country to support registration in another country[1].

Trials were conducted only in Poland which is located in North-east EPPO Zone

Figure 3.2-1: Representation of EPPO climatic zones (in colour: EPPO Standard PP1/241, Guidance on comparable climates) superimposed with the 3 European zones (EC Regulation 1107/2009) (Source: EPPO)



This document is prepared to support the submission of MATLAM /florasulam throughout the Central Registration zone.

Efficacy and crop safety trials were carried out with MATLAM in comparison to the reference florasulam 50 g/L product (i.e. Upton 050 SC and Saracen 050 SC) All trials were carried out on winter and spring cereals.

[1] Development of Comparable Agro-Climatic Zones for the International Exchange of Data on the Efficacy and Crop Safety of Plant Protection Products, E. Bouma, 2005 OEPP/EPPO, Bulletin OEPP/EPPO Bulletin 35, 233-238.

Table 3.2-10: Presentation of reference standards used in trials (efficacy trials, preliminary trials...)

Crop(s)	Reference standard	Country(ies) where the product is registered (1)	Authorization number	Active substance(s)	Formulation		Registered application rate(3)	Application rate in trials (per treatment)	Remark(4)
					Type(2)	Concentration of a.s.			
Winter wheat Spring barley	Upton 050 SC	PL	R - 71/2015	florasulam	SC	50 g/l	0.08-0.1 l/ha	0.1 l/ha	
Winter wheat Spring barley	Saracen 050 SC	PL	R - 7/2019	florasulam	SC	50 g/l	0.075-0.1 l/ha	0.1 l/ha	

Comments of zRMS:	The presented report concerns the authorization of Matlam (RNB 072 A) herbicide, containing the active substance florasulam (50 g/L), for the control of broadleaved weeds in winter and spring cereals (wheat, barley, triticale, rye, oats), in Poland. ZRMS states that the active substance florasulam, its mode of action, details of products containing florasulam currently authorized for use on winter and spring cereals in EU countries, and the lists of weeds occurring in the trials in winter wheat and winter barley are well described by the applicant. The applicant also presented the status of crops and weeds (major/minor) for intended uses. Florasulam is included in some herbicides authorized in Poland, as a single active substance or in mixtures, and is widely used, so its effectiveness is well-known. Table 1 presents herbicides containing florasulam registered in the EU countries, for Poland, this list is currently extended with Rassel 100 SC. **Information on trials submitted** The applicant presented information on the trials (for Minimum effective dose and efficacy), carried out in winter wheat and spring barley, including the type of trials, the years of conducting, the number of trials for each weed species, and details on methodology. ZRMS confirms that the trials presented in this report were carried out by contractor companies and Official Research Institutes, under principles of Good Experimental Practice (GEP) and with relevant EPPO guidelines or CEB methods. The assessment was made following the Uniform Principle.

3.2.1 Preliminary tests (KCP 6.1)

Preliminary studies on product MATLAM were not carried out because this herbicide contains florasulam which is a well-known active substance that has been used for many years in agricultural practice.

No specific studies were conducted to fill this data point

Comments of zRMS:	ZRMS accepts the applicant's explanation. In addition, it should be noted that preliminary tests were presented in the report for Kantor 050 EC herbicide (unprotected data), which clearly indicated the herbicidal properties of florasulam and initially determined the dose range.

3.2.2 Minimum effective dose tests (KCP 6.2)

MATLAM was tested at a range of dose rates, but to demonstrate minimum effective dose rate, the control obtained with applied at 0.05, 0.08, 0.1 L/ha in post-emergence application. The dose rates tested reflects 50%, 80%, 100% of proposed dose rate. Minimum effective dose rate was evaluated in 30 trials for the control of the broadleaved and grass weeds present in the trials. in accordance with the EPPO guideline PP 1/225(2) “Minimum effective dose”.

To determine the minimum effective dose rate, 30 trials conducted in winter wheat (15 trials) and in spring barley (15 trials).

The same trials used to determine minimum effective dose were also conducted to assess efficacy, therefore, for additional information on the Materials and methods, please see section Efficacy tests.

In the 30 trials, the level of control obtained by MATLAM was assessed on dicotyledonous weeds present in the trials.

Control of annual grasses and broadleaved weeds in Winter wheat

POST EMERGENCY APPLICATION

In order to prove and to support the requested dose rates of 0.1 L/ha MATLAM [5 g florasulam per hectare] for the control of broadleaved weeds in winter wheat, the assessment results of 15 efficacy post-emergence trials performed in the North-east EPPO zone in 2022 are reported. MATLAM was included in these trials at 0.1 L/ha to demonstrate the recommended dose rate as well as at two lower dose rates (0.05, and 0.08 L/ha). As the most accurate representation of whole plot product performance, the assessment data at 49-60 days after the application, obtained by visually estimating control obtained by the applied products are summarized and presented in the results tables.

North-east Zone

When evaluating the overall mean level of control obtained in plots treated one application with 0.05 and 0.08 L/ha and comparing with results obtained with 0.1 L/ha, a dose response was observed especially for 4 weeds species: *Capsella bursa-pastoris*, *Descurainia sophia*, *Galium aparine*, *Thlaspi arvense*. To achieve 85% control MATLAM has to be applied in the spring at 0.1 L/ha. At dose 0.05 L/ha none of weeds achieved 85%. At doses 0.08 l/ha: *Anthemis arvensis*, *Brassica napus*, *Tripleurospermum inodorum*, *Myosotis arvensis*, *Papaver rhoeas*, *Fallopia convolvulus*, *Sinapsis arvensis*, *Stellaria media*, achieved 85% control. Thus it can be conducted that for dicots weeds treated at the recommended growth stages in winter wheat, the intended use rate for use 0.1 L/ha is required.

Details of efficacy, number of trials for North-east EPPO zone show table Table 3.2-8

Table 3.2-8.– Minimum effective dose – Efficacy of MATLAM at proposed label rate – winter wheat

Minimum effective dose. Efficacy of MATLAM at proposed label rate, at 0.05-0.1 dose rates against Dicotyledonous weeds species in winter wheat													
Grouping	**Number of trials**	**Infestation of the un-treated control (unit)**		**% control with product**									**Statistically significant differences**
Weeds				**0.05 l/ha (50% recommended dose rate)**			**0.08 (80% recommended dose rate)**			**0.1 (100% recommended dose rate)**			
		Mean	**Min & Max**	**Mean**	**Min & Max**		**Mean**	**Min & Max**		**Mean**	**Min & Max**		
North-east Zone													
Anthemis arvensis	6.0	5.5	6.5	78.3	77.5	79.0	100.0	100.0	100.0	100.0	100.0	100.0	no
Brassica napus	20.3	5.0	78.0	79.6	70.0	88.0	89.7	85.0	96.0	95.8	91.0	100.0	no
Capsella bursa-pastoris	9.2	5.3	13.0	66.6	44.5	84.0	80.5	66.3	90.0	91.2	86.0	100.0	no
Descurainia sophia	23.0	5.5	74.0	66.8	47.5	86.0	80.3	71.5	90.0	91.2	86.3	100.0	no
Galium aparine	16.0	5.0	80.0	60.5	35.0	85.0	79.2	67.5	100.0	90.4	84.5	100.0	no
Tripleurospermum inodorum	17.0	5.0	78.0	77.5	50.0	90.0	89.4	78.0	97.5	96.7	92.0	100.0	no
Myosotis arvensis	7.9	5.0	14.0	76.6	65.0	90.5	90.2	86.0	100.0	96.6	90.0	100.0	no
Papaver rhoeas	9.5	5.0	28.0	71.2	62.3	80.0	85.5	76.3	100.0	93.8	85.8	100.0	no
Fallopia convol-vulus	23.0	5.0	75.0	67.9	55.0	80.0	87.3	80.0	95.0	90.2	82.0	97.5	no
Sinapsis arvensis	5.5	5.0	6.0	78.5	75.0	82.0	86.0	86.0	86.0	93.0	86.0	100.0	no
Stellaria media	15.2	5.0	78.0	73.2	55.0	85.0	89.1	82.0	96.0	94.4	87.0	100.0	no
Thlaspi arvense	14.5	5.0	78.0	64.3	50.0	85.0	81.7	75.0	88.0	95.6	88.0	100.0	no
Veronica persica	8.5	5.0	15.0	36.3	0.0	77.0	51.9	0.0	86.0	75.1	60.0	88.0	no
Viola arvensis	9.4	6.3	12.0	29.2	0.0	47.5	41.9	0.0	65.8	76.8	50.0	96.3	no

Control of annual grasses and broadleaved weeds in Spring barley

POST EMERGENCY APPLICATION

In order to prove and to support the requested dose rates of 0.1 L/ha MATLAM [5 g florasulam per hectare] for the control of broadleaved weeds in spring barley, the assessment results of 15 efficacy post-emergence trials performed in the North-east EPPO zone in 2022 are reported. MATLAM was included in these trials at 0.1 L/ha to demonstrate the recommended dose rate as well as at two lower dose rates (0.05 and 0.08 L/ha). As the most accurate representation of whole plot product performance, the assessment data at 41-56 days after the application, obtained by visually estimating control obtained by the applied products are summarised and presented in the results tables .

When evaluating the overall mean level of control obtained in plots treated one application with 0.05 and 0.08 L/ha and comparing with results obtained with 0.1 L/ha, a dose response was observed especially for 9 weeds species: *Amaranthus retroflexus*, *Brassica napus*, *Capsella bursa-pastoris*, *Galium aparin*e, *Fallopia convolvulus*, *Silene latifolia* subsp. *alba*, *Myosotis arvensis*, *Thlaspi arvense*, *Veronica persica*.
To achieve of 85% control MATLAM in many cases has to be applied in the spring at 0.1 L/ha. At dose 0.05 none of weeds achived 85%. At doses 0.08 l/ha *Anthemis arvensis*, *Descurainia sophia*, *Galinsoga parviflora*, *Tripleurospermum inodorum*, *Polygonum aviculare*, *Fallopia convolvulus*, *Persicaria maculosa*, *Sinapis arvensis*, *Stellaria media*, achieved 85% control. Thus it can be conducted that for dicots weeds treated at the recommended growth stages in spring barley, the intended use rate for use 0.1 l/ha is required.

Details of efficacy, number of trials for North-east EPPO zone show table Table 3.2-9

Table 3.2 9– Minimum effective dose – Efficacy of MATLAM at proposed label rate – Spring barley

Minimum effective dose. Efficacy of MATLAM at proposed label rate, at 0.05-0.1 dose rates against Dicotyledonous weeds species in winter barley

Grouping / Weeds	Number of trials	Infestation of the untreated control (unit) Mean	Infestation Min	Infestation Max	0.05 l/ha (50% recommended dose rate) Mean	0.05 Min	0.05 Max	0.08 (80% recommended dose rate) Mean	0.08 Min	0.08 Max	0.1 (100% recommended dose rate) Mean	0.1 Min	0.1 Max	Statistically significant differences
					% control with product									
		Mean	Min & Max		Mean	Min & Max		Mean	Min & Max		Mean	Min & Max		
Amaranthus retroflexus	2	6.5	5.0	8.0	59.4	53.8	65.0	77.8	76.0	79.5	85.5	85.5	85.5	no
Anthemis arvensis	2	7.9	7.3	8.5	79.6	78.3	80.8	96.5	95.0	98.0	100.0	100.0	100.0	no
Brassica napus	4	5.0	5.0	5.0	62.5	55.0	65.0	76.0	68.8	78.8	94.2	86.3	100.0	no
Capsella bursa-pastoris	6	10.0	6.0	14.0	74.6	42.5	85.0	84.7	76.3	90.0	91.3	88.0	95.0	no
Chenopodium album	4	9.0	5.0	17.5	28.7	0.0	57.0	52.4	22.5	72.8	72.7	50.0	82.0	no
Descurainia sophia	2	7.0	6.0	8.0	83.5	82.0	85.0	87.5	85.0	90.0	92.0	90.0	94.0	no
Galeopsis tetrahit	2	6.5	6.0	7.0	77.5	75.0	80.0	82.5	80.0	85.0	85.0	82.0	88.0	no
Galium aparine	4	6.5	5.0	7.0	61.2	40.0	81.0	77.7	67.5	87.0	89.8	87.3	92.0	no
Galium tendae	2	6.5	6.0	7.0	77.5	75.0	80.0	82.5	80.0	85.0	85.0	82.0	88.0	no
Galinsoga parviflora	2	7.4	6.3	8.5	76.5	75.5	77.5	93.7	88.0	99.3	99.7	99.3	100.0	no
Tripleurospermum inodorum	2	7.65	6	9.3	77.2	76.8	77.5	91.3	90.0	92.5	100.0	100.0	100.0	no
Silene latifolia subsp. alba	2	7	6	8	38.8	37.5	40.0	66.3	65.0	67.5	97.5	97.5	97.5	no
Myosotis arvensis	3	6	5	7	65.0	47.5	80.0	80.0	65.0	90.0	92.9	88.8	100.0	no
Polygonum aviculare	2	6.5	5.5	7.5	77.4	75.0	79.8	89.4	89.3	89.5	100.0	100.0	100.0	no
Fallopia convolvulus	9	6.53	5	8	68.9	52.5	80.0	81.8	63.8	100.0	93.7	86.3	100.0	no
Persicaria maculosa	2	6.75	5.5	8	76.9	75.5	78.3	90.2	88.3	92.0	100.0	100.0	100.0	no
Sinapis arvensis	4	12.8	6	20	81.8	80.0	84.0	87.0	85.0	90.0	92.0	88.0	95.0	no
Stellaria media	6	8.83	8	12	79.4	68.8	85.0	85.4	77.5	90.0	92.1	88.0	95.0	no
Thlaspi arvense	9	6.76	5	9	73.9	55.0	83.0	84.9	76.3	92.0	91.7	85.5	95.0	no
Veronica persica	6	6.5	5	9	63.9	0.0	84.0	78.4	50.0	93.0	92.2	87.5	97.5	no
Viola arvensis	2	7.5	7	8	0.0	0.0	0.0	0.0	0.0	0.0	35.0	0.0	70.0	no

Summary and conclusions on the minimum effective dose

MATLAM applied at 0.1 L/ha, in one post-emergence application in winter wheat and spring barley, to control broadleaved weed, showed good or very good control of the target weeds. As weeds often occur as a complex of several weed species with different susceptibility towards Florasulam, one application of MATLAM at the recommended rate of 0.1 L/ha should be used to efficiently control all weeds claimed on the label.

~~MATLAM applied at 1.5 L/ha in maize to control annual grasses and broadleaved weeds in pre and postemergence application achieved good to *excellent* control of all target weeds. As grasses and broadleaved weeds often occur as a complex of several weed species with different susceptibility towards Florasulam, one application of MATLAM at the recommended rate should be used to efficiently control all weeds claimed on the label.~~

Comments of zRMS:	<u>**Minimum effective dose**</u> To determine the Minimum effective dose of Matlam for weed control in cereals, 15 post-emergence trials were conducted in winter wheat and 15 trials in spring barley in Poland (N-E zone), in the year 2022. Matlam was used at the rates of 0.05, 0.08, and 0.1 L/ha, corresponding to 50%, 80%, and 100% of the proposed dose rate for registration of 0.1 L/ha. The effectiveness was assessed 49-60 days after application in winter wheat and 41-56 days in spring barley. In winter wheat, to achieve the mean control of *Anthemis arvensis*, *Brassica napus*, *Tripleurospermum inodorum*, *Myosotis arvensis*, *Papaver rhoeas*, *Fallopia convolvulus*, *Sinapis arvensis*, *Stellaria media*, at a minimum of 85%, Matlam should be applied in the spring at the rate of 0.08 l/ha, and for control of *Capsella bursa-pastoris*, *Descurainia sophia*, *Galium aparine*, and *Thlaspi arvense* it should be used at the rate of 0.1 L/ha. In spring barley, after the use of Matlam at the rate of 0.08 l/ha, the mean level control of *Anthemis arvensis*, *Descurainia sophia*, *Galinsoga parviflora*, *Tripleurospermum inodorum*, *Polygonum aviculare*, *Persicaria maculosa*, *Sinapis arvensis*, *Stellaria media* was be achieved at a minimum of 85%, while after the use of the rate 0.1 L/ha such level of control can be achieved in case of *Amaranthus retroflexus*, *Brassica napus*, *Capsella bursa-pastoris*, *Galium aparine*, *Silene latifolia* subsp. *alba*, *Myosotis arvensis*, *Fallopia convolvulus*, *Thlaspi arvense*, *Veronica persica*. After the use of 0.05 L/ha none of the weeds was controlled over 85%. **Conclusion**. Matlam (RNB 072 A) applied post-emergence at the rate of 0.1 L/ha gave good to very good control of broadleaved weeds and this dose can be recognized as the Minimum effective dose for weed control in cereals.

3.2.3 Efficacy tests (KCP 6.2)

<u>**Winter cereals EXTRAPOLATION - Broadleaved weeds, annual dicotyledonous weeds species:**</u> **winter spelt, winter barley, winter triticale, winter rye**

Extrapolation of studies performed in 2022 from winter wheat to winter spelt, winter barley, winter triticale, winter rye

In reference to **EPPO norm PP 1/226(4) "Efficacy evaluation of plant protection products Number of efficacy trials"**, according to point: Number of trials for direct efficacy (effectiveness) - "The number of trials is primarily determined by the importance of the crop and the pest (major or minor), and the possibility of extrapolation between crops and pests".

Under point: Reduced number of trials – the following information is available:

"In some situations, there may be the opportunity to reduce the number of trials done, and a case may be made for this as follows:
• Where there is a large amount of supporting evidence from use of the product, or of similar products with the same active substance, on closely related pests or against the same pests on different crops, the number of trials necessary will be determined by the amount of supporting evidence and the similarity of the pests and crops sought". In making extrapolations between crops or pests, it is important to explain and justify the reasoning for the extrapolation.
According to **COMMISSION REGULATION (EU) No. 545/2011 of 10 June 2011 implementing Regulation (EC) No. 1107/2009 of the European Parliament and of the Council as regards the data requirements for plant protection products** [14, 17]**, point 6. Efficacy data:**
"If to the opinion of the applicant the trials from the first season adequately confirm the validity of claims made on the basis of extrapolation of results from other crops, commodities or situations or from tests with closely similar preparations, a justification, which is acceptable to the competent authority for not carrying out a second season's work must be provided."
CRD - PROPOSALS FOR EXTENDING AND HARMONIZING EFFICACY AND CROP SAFETY EXTRAPOLATIONS TO REDUCE THE NEED FOR EFFICACY TRIALS ON MINOR CROPS
The following document was prepared by the Chemicals Regulation Directorate (CRD, formerly PSD), the UK pesticide regulatory authority, under the European Commission (DG SANCO) contract [15]. It presents lists of specific extrapolations for efficacy and crop safety trials. The proposals in the lists are intended as a framework for evaluators, to be used alongside expert judgment and regulatory experience.
One of main strategies proposed in order to address efficacy data requirements is to extrapolate from extant registered uses, and this was elaborated in a EPPO standard (PP1/257) [16] published in the Bulletin OEPP/EPPO Bulletin Vol. 37(3), December 2007. The EPPO standard is based on the extrapolation document developed by Chemicals Regulation Directorate (CRD, formerly PSD).
Although, this document refers to minor uses, it shall be noted that pt. 1.1. paragraph 3. contains the following information:
„3. Extrapolations will normally only be used to support the authorization of products for use on minor crops. Authorizations for the use of PPPs on major crops must always be supported by data. **However, the amount of data required to support a use on a major crop may be reduced from that normally required, by extrapolating data from similar crops or targets."**

According to paragraph 5.:

"5. Extrapolations may only be accepted for the extension of use of a given PPP used at the same rate and dose applied at similar timings and with similar equipment."

Under pt. 2.2. of this document the following graph is found: a decision-making scheme designed to act as a prompt when considering extrapolations of weed control claims between crops. The list of factors is not exhaustive and the mode of action, conditions of use, and extent of existing product knowledge will affect whether extrapolation is appropriate in each case.

Following the flowchart and considering the product MATLAM with a view to possible extrapolation from **winter wheat to winter spelt, winter barley, winter triticale, winter rye**
the following pathway applies:

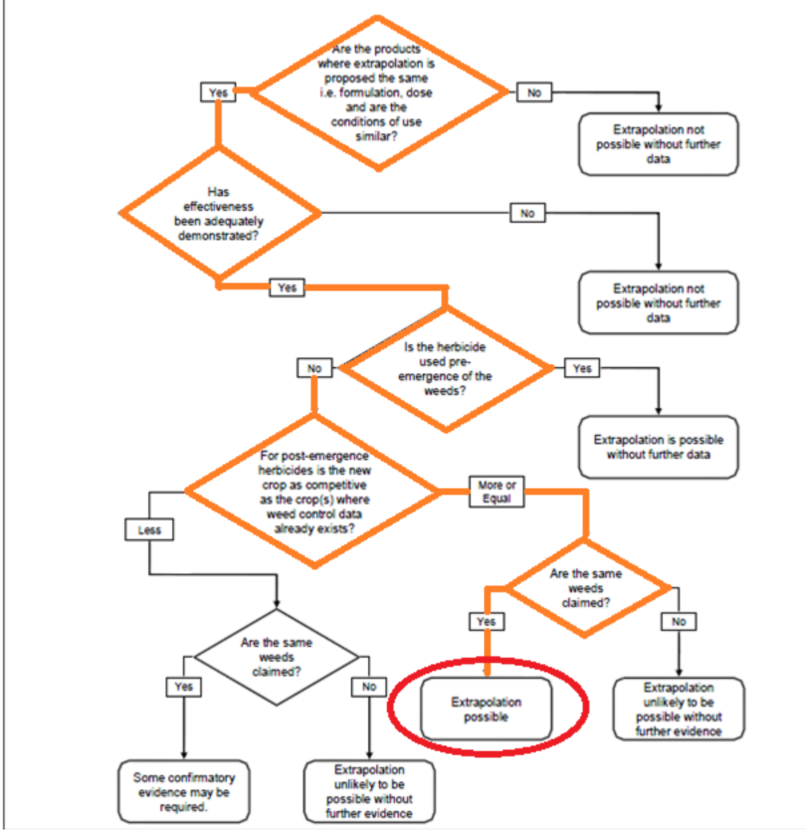


Figure 2; Effectiveness extrapolations between crops for the same target weed

The following table is derived from the document prepared by CRD. It presents a list of specific extrapolations for efficacy and crop safety. The proposals in the lists are intended as a framework for evaluators, to be used alongside expert judgment and regulatory experience (pt. 2.3.2.1.)

HERBICIDES

Table 9 Extrapolations between crops for the same target weed Test crop:	**Can extrapolate to:**
Pre-emergence, pre-sowing or pre-planting application of one crop	Pre-emergence, pre-sowing or pre-planting application of another crop (only if growing conditions are the same).
Any drilled flower, tree nursery or perennial crop.	Planted crop of the same species
Any planted flower, tree nursery or perennial crop.	Drilled crop of the same species
Any non-competitive crop e.g. Orchards, HONS, amenity vegetation, land not intended to bear vegetation.	Any other non-competitive crop, poorly competitive crop e.g. Sugar beet, peas, onions, linseed, horticultural brassicas, or competitive crop e.g. Cereals, grassland, oilseed rape (contact herbicides only)
Any poorly competitive crop e.g. Sugar beet, peas, onions, linseed, horticultural brassicas	Any other poorly competitive crop or competitive crop e.g. Cereals, grassland, oilseed rape (contact herbicides only)
Any competitive crop e.g. cereals, grassland, oilseed rape	**Any other competitive crop (contact herbicides only)**
Outside open field culture of tulip, narcissus or hyacinth (spring flowering crops)	Outside and protected cultures in open field of other spring flowering flower bulb- and bulb flower crops
Outside open field culture of lily or gladiolus (summer flowering crops)	Outside and protected cultures in open field of other summer flowering flower bulb- and bulb flower crops
Protected culture of bulb flowers in trays or containers (contact herbicide only)	Protected open field culture of bulb flowers (contact herbicide only)
Protected open field culture of bulb flowers (contact herbicide only)	Protected culture of bulb flowers in trays or containers (contact herbicide only)
Outside open field culture of flower bulb culture	Outside open field culture of bulb flower culture
Outside open field culture of bulb flower culture	Outside open field culture of flower bulb culture
Newly sown grass	Established grass (except where target weed is a perennial weed that is beyond the seedling stage)

(http://www.pesticides.gov.uk/uploadedfiles/Web_Assets/PSD/SANCO_D3_S12-395857.pdf)

SUMMARY:

In reference to the above listed documents and information, applicant have extrapolated 15 efficacy trials performed on winter wheat in 2022 to **winter spelt, winter barley, winter triticale, winter rye**

The extrapolation was performed in view of using the results of studies against harmful organism (weeds) on one crop (winter wheat for the purpose of analyzing efficacy against the same harmful organism on another crop (winter spelt, winter barley, winter triticale, winter rye)

The rates of product applied in the studies are the same - YES	
Winter wheat	**winter spelt, winter barley, winter triticale, winter rye**
Post-emergence use – 0.1 L/ha	Post-emergence use – 0.1 L/ha
the amount of spray solution used is the same - YES	
Winter wheat	**winter spelt, winter barley, winter triticale, winter rye**
200-400 L/ha	200-400 L/ha
the timing of application is the same - YES	
Winter wheat	**winter spelt, winter barley, winter triticale, winter rye**
Postemergence	Postemergence
crop development phases during application are comparable - YES	
Spring barley	**winter spelt, winter barley, winter triticale, winter rye**
Postemergence: BBCH 12-33	Postemergence: BBCH 12-33

In view of the above, authors of his report find it fully justified to extrapolate the results of efficacy trials performed on product MATLAM from winter wheat to winter barley, winter triticale,winter barley, winter rye.

Spring cereals EXTRAPOLATION : Broadleaved weeds, annual dicotyledonous weeds species: spring wheat, spring triticale, spring oat

Extrapolation of studies performed in 2022 from spring barley to spring wheat, spring triticale and spring oat

In reference to **EPPO norm PP 1/226(4) "Efficacy evaluation of plant protection products Number of efficacy trials"**, according to point: Number of trials for direct efficacy (effectiveness) - "The number of trials is primarily determined by the importance of the crop and the pest (major or minor), and the possibility of extrapolation between crops and pests".

Under point: Reduced number of trials – the following information is available:

"In some situations, there may be the opportunity to reduce the number of trials done, and a case may be made for this as follows:

• Where there is a large amount of supporting evidence from use of the product, or of similar products with the same active substance, on closely related pests or against the same pests on different crops, the number of trials necessary will be determined by the amount of supporting evidence and the similarity of the pests and crops sought". In making extrapolations between crops or pests, it is important to explain and justify the reasoning for the extrapolation.

According to **COMMISSION REGULATION (EU) No. 545/2011 of 10 June 2011 implementing Regulation (EC) No. 1107/2009 of the European Parliament and of the Council as regards the data requirements for plant protection products** [14, 17]**, point 6. Efficacy data:**

"If to the opinion of the applicant the trials from the first season adequately confirm the validity of claims made on the basis of extrapolation of results from other crops, commodities or situations or from tests with closely similar preparations, a justification, which is acceptable to the competent authority for not carrying out a second season's work must be provided."

CRD - PROPOSALS FOR EXTENDING AND HARMONIZING EFFICACY AND CROP SAFETY EXTRAPOLATIONS TO REDUCE THE NEED FOR EFFICACY TRIALS ON MINOR CROPS

The following document was prepared by the Chemicals Regulation Directorate (CRD, formerly PSD), the UK pesticide regulatory authority, under the European Commission (DG SANCO) contract [15]. It presents lists of specific extrapolations for efficacy and crop safety trials. The proposals in the lists are intended as a framework for evaluators, to be used alongside expert judgment and regulatory experience.

One of main strategies proposed in order to address efficacy data requirements is to extrapolate from extant registered uses, and this was elaborated in a EPPO standard (PP1/257) [16] published in the Bulletin OEPP/EPPO Bulletin Vol. 37(3), December 2007. The EPPO standard is based on the extrapolation document developed by Chemicals Regulation Directorate (CRD, formerly PSD).
Although, this document refers to minor uses, it shall be noted that pt. 1.1. paragraph 3. contains the following information:
„3. Extrapolations will normally only be used to support the authorization of products for use on minor crops. Authorizations for the use of PPPs on major crops must always be supported by data. **However, the amount of data required to support a use on a major crop may be reduced from that normally required, by extrapolating data from similar crops or targets.”**

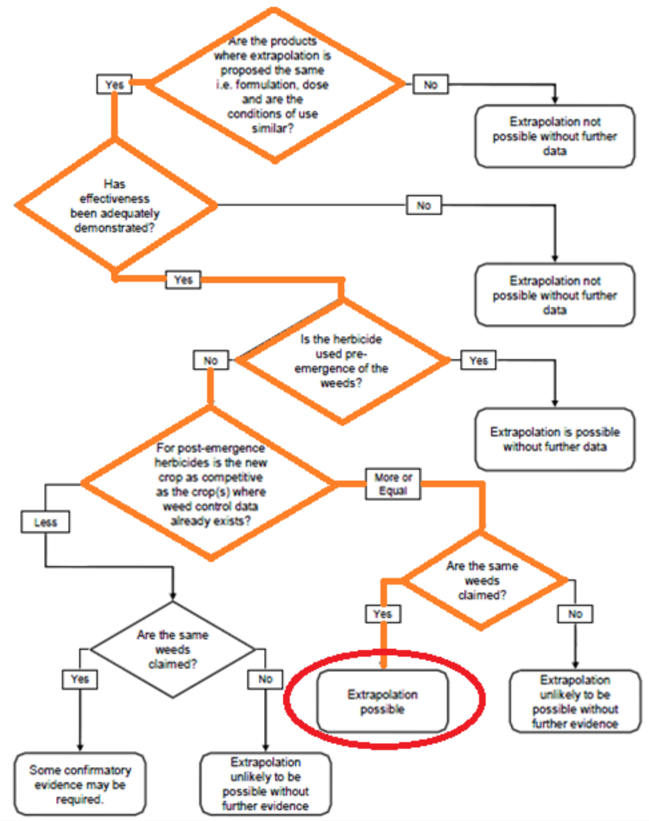
According to paragraph 5.:

“5. Extrapolations may only be accepted for the extension of use of a given PPP used at the same rate and dose applied at similar timings and with similar equipment.”

Under pt. 2.2. of this document the following graph is found: a decision-making scheme designed to act as a prompt when considering extrapolations of weed control claims between crops. The list of factors is not exhaustive and the mode of action, conditions of use, and extent of existing product knowledge will affect whether extrapolation is appropriate in each case.

Following the flowchart and considering the product MATLAM with a view to possible extrapolation from spring barley to spring wheat, spring triticale, spring oat the following pathway applies:

Figure 2; Effectiveness extrapolations between crops for the same target weed



The following table is derived from the document prepared by CRD. It presents a list of specific extrapolations for efficacy and crop safety. The proposals in the lists are intended as a framework for evaluators, to be used alongside expert judgment and regulatory experience (pt. 2.3.2.1.)

HERBICIDES

Table 9 Extrapolations between crops for the same target weed Test crop:	**Can extrapolate to:**
Pre-emergence, pre-sowing or pre-planting application of one crop	Pre-emergence, pre-sowing or pre-planting application of another crop (only if growing conditions are the same).
Any drilled flower, tree nursery or perennial crop.	Planted crop of the same species
Any planted flower, tree nursery or perennial crop.	Drilled crop of the same species
Any non-competitive crop e.g. Orchards, HONS, amenity vegetation, land not intended to bear vegetation.	Any other non-competitive crop, poorly competitive crop e.g. Sugar beet, peas, onions, linseed, horticultural brassicas, or competitive crop e.g. Cereals, grassland, oilseed rape (contact herbicides only)
Any poorly competitive crop e.g. Sugar beet, peas, onions, linseed, horticultural brassicas	Any other poorly competitive crop or competitive crop e.g. Cereals, grassland, oilseed rape (contact herbicides only)
Any competitive crop e.g. cereals, grassland, oilseed rape	**Any other competitive crop (contact herbicides only)**
Outside open field culture of tulip, narcissus or hyacinth (spring flowering crops)	Outside and protected cultures in open field of other spring flowering flower bulb- and bulb flower crops
Outside open field culture of lily or gladiolus (summer flowering crops)	Outside and protected cultures in open field of other summer flowering flower bulb- and bulb flower crops
Protected culture of bulb flowers in trays or containers (contact herbicide only)	Protected open field culture of bulb flowers (contact herbicide only)
Protected open field culture of bulb flowers (contact herbicide only)	Protected culture of bulb flowers in trays or containers (contact herbicide only)
Outside open field culture of flower bulb culture	Outside open field culture of bulb flower culture
Outside open field culture of bulb flower culture	Outside open field culture of flower bulb culture
Newly sown grass	Established grass (except where target weed is a perennial weed that is beyond the seedling stage)

(http://www.pesticides.gov.uk/uploadedfiles/Web_Assets/PSD/SANCO_D3_S12-395857.pdf)

SUMMARY:

In reference to the above listed documents and information, applicant have extrapolated 15 efficacy trials performed on spring barley in 2022 to spring wheat, spring triticale and spring oat.

The extrapolation was performed in view of using the results of studies against harmful organism (weeds) on one crop (spring barley) for the purpose of analyzing efficacy against the same harmful organism on another crop (spring wheat, spring triticale, spring oat)

The rates of product applied in the studies are the same - YES	
Spring barley	**spring wheat, spring triticale, spring oat**
Post-emergence use – 0.1 L/ha	Post-emergence use – 0.1 L/ha
the amount of spray solution used is the same - YES	
Spring barley	**spring wheat, spring triticale, spring oat**
200-400l/ha	200-400 L/ha
the timing of application is the same - YES	
Spring barley	**spring wheat, spring triticale, spring oat**
Postemergence	Postemergence
crop development phases during application are comparable - YES	
Spring barley	**spring wheat, spring triticale, spring oat**
Postemergence: BBCH 12-33	Postemergence: BBCH 12-33

Data from 30 efficacy trials conducted in the North-east EPPO zone (30; i.e. Poland have been included in this biological assessment dossier to support the label claims and recommendations on efficacy and selectivity in the EU Central Registration zone.

In the 30 trials, the level of control obtained by MATLAM was assessed on dicotyledonous weeds present in the trials.

The efficacy trials were conducted to prove the following label claims:

- Post-emergence application for control of **broadleaved weeds** in winter and spring cereals

Data on each individual weed species is only included from trials in which a minimum of 5 plants per m² or 1% ground cover were seen at the timing of the assessment.

Crop(s) 1 AND/OR Target(s) 1 - "Winter wheat – Dicotyledonous weeds species"

Crop(s) 2 AND/OR Target(s) 1 - "Spring barley – Dicotyledonous weeds species"

The applicant submitted 30 reports (in total) showing the results in research into product efficacy carried out in 2022 in winter wheat (15) and spring barley (15). Trials were conducted in North-east EPPO Zone in Poland

The efficacy trials were designed, conducted and reported according to the following EPPO guidelines:
- PP 1/135 (4) Phytotoxicity assessment
- PP 1/152 (4) Design and analysis of efficacy evaluation trials
- PP 1/181 (4) Conduct and reporting of efficacy evaluation trials including good experimental practice

They were carried out on the field in the conditions of natural agrofag infestation. The efficacy trials were concluded according to the EPPO standards:

The product MATLAM has been used:
SPRING USE
in winter wheat at the following rates of 0.05, 0.08, 0.1 L/ha
in spring barley at the following rates of 0.05, 0.08, 0.1 L/ha
Upton 050 SC was used as a reference product in winter wheat and in spring barley

Assessment methods

Statistical Analysis

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

Statistical analysis was carried out with the use of statistic pack of ARM 9.0. The trial results were statistically analyzed using Student&Newman&Keuls Test (p=0.05).

Results were analyzed by the means of Student and Newman & Keuls (p=0.05). Results were calculated statistically according to ARM 9.0 and ARM 2019.4.

Statistical preparation of the results was based on the analysis of variance for the randomized block experiment design. Differences significance was tested using Tukey's semi-interval confidence, while the least significant difference was given at the significance level LSDα=0.05. Experimental data were calculated using the statistical program AWAR, version 2.0. Data from the statistical analyses were placed into result tables.

Assessment of efficacy

The assessment of efficacy in the treated plots was made in relation to the untreated plot on an overall plot basis (scale 0-100 %, 0 % =no efficacy). The assessment date was determined by the speed of action and period of efficacy of the test items.

The number of weeds/m² was counted in 5 x 0,1 m² quadrats with the measuring scale 'Göttinger Zähl- und Schätzrahmen‘. The coverage level (ground cover) of the weed population by species was assessed by visual estimation using a scale 0-100 % (100 %=total ground cover).

An efficacy was evaluated through assessments of damage weeds on plots treated compared to untreated (check) plots. The results was presented in percentage of efficacy (%). On untreated plots estimated number of weeds on 1 square meter.

The effectiveness of weed control were evaluated visually by comparing the state of individual weed species on plots treated by herbicides and untreated plots. The results are shown as a percentage of destruction. Before application and at each assessment were determined also the number of weeds, on the surface of 1m2.

Assessment of phytotoxicity

Phytotoxicity (chlorosis and necrosis), stunting and thinning were assessed by visual estimation of the intensity on an overall plot basis on a percentage scale 0-100 % (0=no damage). The assessment date was determined by the speed of action and period of efficacy of the test substances.

The selectivity was assessed by a visual estimation of an intensity of chlorosis, necrosis, leave curling etc. found on overall areas of treated plots, with references to untreated plots. Results were described in percent of destruction injury of plant for herbicides treatment compared in comparison to plant from untreated, where 0% means no phytotoxicity and 100% - complete crop destruction.

Phytotoxicity assessments of tested preparations were done by a visual estimation of an intensity of chlorosis, necrosis, leave curling, reduction in turgor of plants etc. found on overall areas of treated plots and by comparison of each treated plot with untreated plot. Assessments were done directly on plantation.

Results were shown using 0-100 scale, where: 0 – lack of phytotoxicity, 100 – total plant destruction.

Phytotoxicity (F) of tested herbicides was evaluated in %, by determination crop state and comparison to untreated plots and standard product activity.

phytotoxicity - susceptibility of plants to herbicides in % where:

0 - no reaction of crop

100 - crop damaged

Table 3.2-11: Details on trial methodology

Guidelines	General guidelines	EPPO PP 1/152 (4), PP 1/181 (5), PP 1/135(4), PP 225 (2)
	Specific guidelines	PP 1/93 (3)
Experimental design	Plot design	RCBD (30)
	Plot size	15-25,5 m²
	Number of replications	4 (30)
Crop	Trials per crop	**Spring barley (15)** **Winter wheat (15)**
	Varieties per crop	**Spring barley (15):** KWS Atrika, Pilote, Charles, Feedway, KWS Irina KWS Vermont, Focus, Radek, Focus (2), Trofeum, Wirtuoz ,Ella, Extase, Soldo **Winter wheat (15):** Joker, Patras, JOKER, Aposte, Ahoj RTG Kilimangaro, Linus, Euforia, Plejada (2), Symetria, Arkadia, Hondia, Kometa, Matronom
	Sowing period	Spring barley: 05/03/22-20/04/22 Winter wheat: 30/09/21-25/10/21
Application	Application period	Spring barley: 28/04/22-/02/06/22 Winter wheat: 27/09/21-28/10/22
	Crop stage (BBCH)* at application	Spring barley: 13-32 Winter wheat: 23-32
	Number of appl. Intervals between appl.	1 (30)
	Spray volumes	300 L/ha
Assessment	Assessment types	- Efficacy was evaluated through assessments of damage weeds on plots treated compared to untreated (check) plots. The results was presented in percentage of efficacy (%). On untreated plots estimated number of weeds on 1 square meter. - Visual estimation of crop injury and crop stand reduction (thinning) compared to ‘untreated’ (‘untreated’ = 0% crop injury; 100% crop injury = total crop destruction). Where appropriate, this overall score was substituted or supplemented by assessments of individual symptoms. - crop vigour
	Assessment dates	
Other relevant information	Soil type	sandy loam, silt loam, loamy sand, Eutric Fluvisols, good wheat soil complex, class Illa, Albic Luvisols, good wheat soil complex, class IIla Albic Podzols, good wheat soil complex, class IIa, "Eutric Fluvisols, good wheat soil complex, class Ila, loam silt loam, Albic Luvisols, good rye soil complex, class III, Albic Luvisols, good rye soil complex, class Ifa Albic Luvisols, good rye soil complex, class Ila, sandy clay clay loam, sandy clay loam
	Organic matter content	1.7-3.8
	Natural / artificial innoculation…	N
	Field / Greenhouse...	Field

Control of broadleaved weeds in Winter wheat

The summary of efficacy results obtained with the application of MATLAM at the proposed dose 0.1 L/ha on broadleaves weeds in winter wheat are listed in Table 3.2.11.
In the North-east EPPO zone MATLAM was evaluated against 14 weeds

To demonstrate the effectiveness of the test product at the recommended dose rate against broadleaved weeds following post-emergence application in winter cereals as well as compare it to the reference product included in the trials, results are presented from the last assessment, after growth of weeds and crops had commenced.

When applied at 0.1 L/ha post-emergence MATLAM achieved good to excellent control of annual broadleaved commonly found in winter wheat. In all species evaluated, the effect achieved after applied tested product was similar to the effect obtained with the standard reference product applied in the trials.

Table 3.2.11 North-east EPPO zone: Efficacy of 0.1 L/ha MATLAM and reference product at equivalent dose rate in the efficacy tests 2022 – winter wheat

Grouping Weeds	Weed growth stage at application [BBCH]	Number of trials	Infestation of the untreated control (unit) no of weeds/m2	% control				No. of trials where MATLAM at 0.1 L/ha is >, < or =, compared to the Florasulam Ref. product at 5 g ai/ha		
				0.1 L/ha			reference product 0.1 L/ha	= : ± 5% control		
			Mean (Min.&Max)	Mean	Min & Max		Mean (Min & Max)	>	=	<
Anthemis arvensis	14-17	2	6 (5.5-6.5)	100	100	100	100 (100-100)		2	
Brassica napus	14-27	6	20.3 (5-78)	95.8	91	100	96 (90-100)		6	
Capsella bursa-pastoris	13-24	7	9.2 (5.3-13)	91.2	86	100	90.3 (86-98)		7	
Descurainia sophia	12-23	4	23 (5.5-74)	91.2	86.3	100	89.7 (85.3-98)		4	
Galium aparine	13-30	6	16 (5-80)	90.4	84.5	100	88.05 (84.5-100)		6	
Tripleurospermum inodorum	14-51	7	17 (5-78)	96.7	92	100	95.54 (91-100)		7	
Myosotis arvensis	23-30	5	7.9 (5-14)	96.6	90	100	97 (91-100)		5	
Papaver rhoeas	12-30	8	9.5 (5-28)	93.8	85.8	100	93.39 (86-100)		8	
Fallopia convolvulus	10-28	4	23 (5-75)	90.2	82	97.5	91.25 (82-98)		4	
Sinapis arvensis	23-28	2	5.5 (5-6)	93	86	100	91.5 (85-98)		2	
Stellaria media	12-65	9	15.2 (5-78)	94.4	87	100	93.96 (85-100)		9	
Thlaspi arvense	13-61	8	14.5 (5-78)	95.6	88	100	93.70 (86.3-100)		8	
Veronica persica	21-61	5	8.5 (5-15)	75.1	60	88	71.66 (50-85)		5	
Viola arvensis	13-51	3	9.4 (6.3-12)	76.8	50	96.3	74.27 (55-85)	1	2	

Weeds CENCY, CHEAL, FUMOF, GERPU, LAMAM, LITAR, SONAR,VERHE were evaluated but not showed in conclusions and weeds sensitivity, because it occurs only in one trial.

Control of broadleaved weeds in Spring barley

The summary of efficacy results obtained with the application of MATLAM at all proposed doses 0.1 L/ha on broadleaves weeds in winter ~~wheat~~ barley are listed in Table 3.2.12.
In the North-east EPPO zone MATLAM was evaluated against 20 weeds

The applicant submitted 15 reports (in total) showing the results in research into product efficacy carried out in 2022 in spring barley. Trials were conducted in 1 EPPO Zones: North-east.

To demonstrate the effectiveness of the test product at the recommended dose rate against broadleaved weeds following post-emergence application in spring cereals as well as compare it to the reference product included in the trials, results are presented from the last assessment (Table 3.2.12), after growth of weeds and crops had commenced.

When applied at 0.1 L/ha post-emergence MATLAM achieved good to excellent control of annual broadleaved commonly found in spring barley. In all species evaluated, the effect achieved after applied tested product was similar to the effect obtained with the standard reference product applied in the trials.

Table 3.2.12 North-east EPPO zone: Efficacy of 0.1 L/ha MATLAM and reference product at equivalent dose rate in the efficacy tests 2022 – spring barley

Grouping Weeds	Weed Growth stage at applica-tion [BBCH]	Number of trials	Infestation of the untreated control (unit) no of weeds/m2 Mean (Min&Max)	% control: 0.1 L/ha Mean	% control: 0.1 L/ha Min & Max		% control: reference product 0.1 L/ha Mean (Min & Max)	No. of trials where MATLAM at 0.1 L/ha is >, < or =, compared to the Florasulam Ref. product at 5 g ai/ha (= : ± 5% control) >	=	<
Amaranthus retroflexus	12-18	2	6.5 (5-8)	85.5	85.5	85.5	85.5 (85-86)		2	
Anthemis arvensis	11-17	2	7.9 (7.3-8.5)	100	100	100	100 (100-100)		2	
Brassica napus	10-55	4	5 (5-5)	94.2	86.3	100	94.08 (86.3-100)		4	
Capsella bursa-pastoris	12-23	6	10 (6-14)	91.3	88	95	90.17 (85-95)		6	
Chenopodium album	10-17	4	9 (5-17.5)	72.7	50	82	69.4 (52.5-80.8)		4	
Descurainia sophia	21	2	7 (6-8)	92	90	94	92.0 (90-94)		2	
Galium aparine	12-22	4	6.5 (5-7)	89.8	87.3	92	89.95 (86.8-93)		4	
Galium tendae	23	2	6.5 (6-7)	85	82	88	85 (82-88)		2	
Galinsoga parviflora	14-24	2	7.4 (6.3-8.5)	99.7	99.3	100	99.25 (98.5-100)		2	
Tripleurospermum inodorum	11-16	2	7.65 (6-9.3)	100	100	100	100 (100-100)		2	
Silene latifolia subsp. alba	10-14	2	7 (6-8)	97.5	97.5	97.5	85.05 (83.8-86.3)		2	
Myosotis arvensis	12-22	3	6 (5-7)	92.9	88.8	100	92.27 (88-100)		3	
Polygonum aviculare	12-23	2	6.5 (5.5-7.5)	100	100	100	100 (100-100)		2	
Fallopia convolvulus	10-23	9	6.53 (5-8)	93.7	86.3	100	93.33 (85-100)	1	8	
Persicaria maculosa	13-16	2	6.75 (5.5-8)	100	100	100	100 (100-100)		2	
Sinapis arvensis	21-23	4	12.8 (6-20)	92	88	95	92.0 (88-95)		4	
Stellaria media	12-23	6	8.83 (8-12)	92.1	88	95	91.04 (90-95)		6	
Thlaspi arvense	11-23	9	6.76 (5-9)	91.7	85.5	95	90.80 (83.8-93.8)		9	
Veronica persica	10-23	6	6.5 (5-9)	92.2	87.5	97.5	89.30 (75-95)	1	5	
Viola arvensis	10-14	2	7.5 (7-8)	35	0	70	33.75 (0-67.5)		2	

Weeds CENCY, CONAR, GAETE, MATCH, LITAR, PAPRH were evaluated but not showed in conclusions and weeds sensitivity, because it occurs only in one trial.

North-east Zone

The submitted efficacy data (reports from 30 field trials) and additional information fulfill requirements and conditions determined in the following EPPO guidelines:

- PP 1/135 (4) Phytotoxicity assessment
- PP 1/152 (4) Design and analysis of efficacy evaluation trials
- PP 1/181 (4) Conduct and reporting of efficacy evaluation trials including good experimental practice

They were carried out on the field in the conditions of natural agrofag infestation. The efficacy trials were concluded according to the EPPO standards:

The studies fulfill also requirements of the Commission Regulation (EU) No 540/2011 of 25 May 2011 implementing Regulation (EC) No 1107/2009 of the European Parliament and of the Council as regards the data requirements for plant protection products.
The formulation of MATLAM is suspension concentrate (SC) and it comprises active substance florasulam 50 g a.s./l. The applicant submitted 30 reports in total (at spring: 15 in winter wheat and 15 in spring barley) showing the results in research into product efficacy carried out in 2022.

The obtained data in performed trials show that MATLAM 50 SC provides benefits against the most important weeds in winter wheat and spring barley as shown in the table below.

The following table describes the effectiveness of weeds

S (Susceptible)	> 85%
MS (Moderately Susceptible)	70 – 85%
MT (Moderately Tolerant)	60 – 70%
T (Tolerant)	< 60%

The following table shows the average sensitivity of weeds in winter wheat:

Product dose l/ha	EPPO code	Scientific name	DA-A	pest stage	Average	Efficacy
MATLAM 50 SC 0.05 L/ha	ANTAR	Anthemis arvensis	50-56	14-17	78.25	MS
	BRSNW	Brassica napus	49-56	14-27	79.55	MS
	CAPBP	Capsella bursa-pastoris	49-56	13-24	66.6	MT
	DESSO	Descurainia sophia	46-56	12-23	66.83	MT
	GALAP	Galium aparine	49-56	13-30	61.52	MT
	MATIN	Tripleurospermum inodorum	49-56	14-51	77.56	MS
	MYOAR	Myosotis arvensis	49-60	23-30	76.6	MS
	PAPRH	Papaver rhoeas	49-56	12-30	71.2	MS
	POLCO	Fallopia convolvulus	49-60	10-28	67.88	MT
	SINAR	Sinapsis arvensis	49	23-28	78.5	MS
	STEME	Stellaria media	49-60	12-65	73.18	MS
	THLAR	Thlaspi arvense	49-56	13-61	64.29	MT
	VERPE	Veronica persica	49-56	21-61	36.3	T
	VIOAR	Viola arvensis	50-55	13-51	29.17	T
MATLAM 50 SC 0.08 L/ha	ANTAR	Anthemis arvensis	50-56	14-17	100	S
	BRSNW	Brassica napus	49-56	14-27	98.72	S
	CAPBP	Capsella bursa-pastoris	49-56	13-24	80.5	MS
	DESSO	Descurainia sophia	46-56	12-23	80.25	MS
	GALAP	Galium aparine	49-56	13-30	77.62	MS
	MATIN	Tripleurospermum inodorum	49-56	14-51	89.36	S
	MYOAR	Myosotis arvensis	49-60	23-30	90.16	S
	PAPRH	Papaver rhoeas	49-56	12-30	85.49	S
	POLCO	Fallopia convolvulus	49-60	10-28	87.25	S
	SINAR	Sinapsis arvensis	49	23-28	86.0	S
	STEME	Stellaria media	49-60	12-65	89.07	S
	THLAR	Thlaspi arvense	49-56	13-61	81.68	MS
	VERPE	Veronica persica	49-56	21-61	51.86	T
	VIOAR	Viola arvensis	50-55	13-51	41.93	T
MATLAM 50 SC 0.1 L/ha	ANTAR	Anthemis arvensis	50-56	14-17	100	S
	BRSNW	Brassica napus	49-56	14-27	95.83	S
	CAPBP	Capsella bursa-pastoris	49-56	13-24	91.2	S
	DESSO	Descurainia sophia	46-56	12-23	91.15	S
	GALAP	Galium aparine	49-56	13-30	88.82	S
	MATIN	Tripleurospermum inodorum	49-56	14-51	96.71	S
	MYOAR	Myosotis arvensis	49-60	23-30	96.6	S
	PAPRH	Papaver rhoeas	49-56	12-30	93.76	S
	POLCO	Fallopia convolvulus	49-60	10-28	90.20	S
	SINAR	Sinapsis arvensis	49	23-28	93	S
	STEME	Stellaria media	49-60	12-65	94.37	S
	THLAR	Thlaspi arvense	49-56	13-61	95.55	S
	VERPE	Veronica persica	49-56	21-61	75.1	MS
	VIOAR	Viola arvensis	50-55	13-51	76.77	MS

Upton 050 SC 0.1 L/ha	ANTAR	Anthemis arvensis	50-56	14-17	100	S
	BRSNW	Brassica napus	49-56	14-27	96.0	S
	CAPBP	Capsella bursa-pastoris	49-56	13-24	90.3	S
	DESSO	Descurainia sophia	46-56	12-23	89.7	S
	GALAP	Galium aparine	49-56	13-30	88.85	S
	MATIN	Tripleurospermum inodorum	49-56	14-51	95.54	S
	MYOAR	Myosotis arvensis	49-60	23-30	97.0	S
	PAPRH	Papaver rhoeas	49-56	12-30	93.39	S
	POLCO	Fallopia convolvulus	49-60	10-28	91.25	S
	SINAR	Sinapis arvensis	49	23-28	91.5	S
	STEME	Stellaria media	49-60	12-65	93.96	S
	THLAR	Thlaspi arvense	49-56	13-61	93.70	S
	VERPE	Veronica persica	49-56	21-61	71.66	MS
	VIOAR	Viola arvensis	50-55	13-51	74.27	MS

Based on the submitted research, it is possible to state that the MATLAM, used in the spring, controlled weeds in of winter and spring cereals crops (different doses) at level:

Spring use

Winter wheat, winter spelt, winter barley, winter triticale, winter rye

Dose MATLAM 0.05 l/ha

Moderately Susceptible: Anthemis arvensis (ANTAR), Brassica napus volunteers (BRSNW), Tripleurospermum inodorum (MATIN), Myosotis arvensis (MYOAR), Papaver rhoeas (PAPRH), Sinapis arvensis (SINAR), Stellaria media (STEME),

Moderately Tolerant:

Capsella bursa-pastoris, Descurainia sophia (DESSO), Galium aparine (GALAP), Thlaspi arvense (THLAR), Fallopia convolvulus (POLCO)

Tolerant: Veronica persica (VERPE), Viola arvensis (VIOAR)

Dose MATLAM 0.08 l/ha

Susceptible: Anthemis arvensis (ANTAR), Brassica napus volunteers (BRSNW), Tripleurospermum inodorum (MATIN), Myosotis arvensis (MYOAR), Papaver rhoeas (PAPRH), Fallopia convolvulus (POLCO), Sinapis arvensis (SINAR), Stellaria media (STEME),

Moderately Susceptible: Capsella bursa-pastoris, Thlaspi arvense (THLAR), Galium aparine (GALAP)

Tolerant: Veronica persica (VERPE), Viola arvensis (VIOAR)

Dose MATLAM 0.1 l/ha

Susceptible: Anthemis arvensis (ANTAR), Brassica napus volunteers (BRSNW), Capsella bursa-pastoris (CAPBP), Galium aparine (GALAP), Tripleurospermum inodorum (MATIN), Myosotis arvensis (MYOAR), Papaver rhoeas (PAPRH), Fallopia convolvulus (POLCO), Sinapis arvensis (SINAR), Stellaria media (STEME), Thlaspi arvense (THLAR),

Moderately Susceptible: Veronica persica (VERPE), Viola arvensis (VIOAR).

The following table shows the average sensitivity of weeds in spring barley:

Product dose l/ha	EPPO code	Scientific name	DA-A	pest stage	Average	Efficacy
MATLAM 50 SC 0.05 L/ha	AMARE	Amaranthus retroflexus	48-56	12-18	59.4	T
	ANTAR	Anthemis arvensis	48-56	11-17	79.55	MS
	BRSNW	Brassica napus	44	10-55	62.5	MT
	CAPBP	Capsella bursa-pastoris	41-43	12-23	74.58	MS
	CHEAL	Chenopodium album	48-50	10-17	28.65	T
	DESSO	Descurainia sophia	43	21	83.5	MS
	GALAP	Galium aparine	41-56	12-22	61.2	MT
	GALTE	Galium tendae	43	23	77.5	MS
	GASPA	Galinsoga parviflora	48-56	14-24	76.5	MS
	MATIN	Tripleurospermum ino-dorum	48-56	11-16	77.15	MS
	MELAL	Silene latifolia subsp. alba	44-50	10-14	38.75	T
	MYOAR	Myosotis arvensis	41-50	12-22	65	MT
	POLAV	Polygonum aviculare	49-56	12-23	77.4	MS
	POLCO	Fallopia convolvulus	41-56	10-23	68.94	MT
	POLPE	Persicaria maculosa	48-56	13-16	76.90	MS
	SINAR	Sinapis arvensis	43	21-23	81.8	MS
	STEME	Stellaria media	43	12-23	79.40	MS
	THLAR	Thlaspi arvense	43	11-23	73.94	MS
	VERPE	Veronica persica	43-56	10-23	63.88	MT
	VIOAR	Viola arvensis	41-50	10-14	0	T
MATLAM 50 SC 0.08 L/ha	AMARE	Amaranthus retroflexus	48-56	12-18	77.75	MS
	ANTAR	Anthemis arvensis	48-56	11-17	96.5	S
	BRSNW	Brassica napus	44	10-55	75.98	MS
	CAPBP	Capsella bursa-pastoris	41-43	12-23	84.72	MS
	CHEAL	Chenopodium album	48-50	10-17	52.4	T
	DESSO	Descurainia sophia	43	21	87.5	S
	GALAP	Galium aparine	41-56	12-22	77.7	MS
	GALTE	Galium tendae	43	23	82.5	MS
	GASPA	Galinsoga parviflora	48-56	14-24	93.65	S
	MATIN	Tripleurospermum ino-dorum	48-56	11-16	91.25	S
	MELAL	Silene latifolia subsp. alba	44-50	10-14	66.25	MT
	MYOAR	Myosotis arvensis	41-50	12-22	80	MS
	POLAV	Polygonum aviculare	49-56	12-23	89.4	S
	POLCO	Fallopia convolvulus	41-56	10-23	81.76	MS
	POLPE	Persicaria maculosa	48-56	13-16	90.15	S
	SINAR	Sinapis arvensis	43	21-23	87.0	S
	STEME	Stellaria media	43	12-23	85.36	S
	THLAR	Thlaspi arvense	43	11-23	84.88	MS
	VERPE	Veronica persica	43-56	10-23	78.42	MS
	VIOAR	Viola arvensis	41-50	10-14	0	T
MATLAM 50 SC 0.1 L/ha	AMARE	Amaranthus retroflexus	48-56	12-18	85.5	S
	ANTAR	Anthemis arvensis	48-56	11-17	100	S
	BRSNW	Brassica napus	44	10-55	94.2	S

	CAPBP	Capsella bursa-pastoris	41-43	12-23	91.33	S
	CHEAL	Chenopodium album	48-50	10-17	72.7	MS
	DESSO	Descurainia sophia	43	21	92	S
	GALAP	Galium aparine	41-56	12-22	89.83	S
	GALTE	Galium tendae	43	23	85.0	MS
	GASPA	Galinsoga parviflora	48-56	14-24	99.65	S
	MATIN	Tripleurospermum ino-dorum	48-56	11-16	100	S
	MELAL	Silene latifolia subsp. alba	44-50	10-14	97.5	S
	MYOAR	Myosotis arvensis	41-50	12-22	92.93	S
	POLAV	Polygonum aviculare	49-56	12-23	100	S
	POLCO	Fallopia convolvulus	41-56	10-23	93.70	S
	POLPE	Persicaria maculosa	48-56	13-16	100	S
	SINAR	Sinapis arvensis	43	21-23	92.0	S
	STEME	Stellaria media	43	12-23	92.14	S
	THLAR	Thlaspi arvense	43	11-23	91.72	S
	VERPE	Veronica persica	43-56	10-23	92.17	S
	VIOAR	Viola arvensis	41-50	10-14	35	T
Upton 050 SC 0.1 L/ha	AMARE	Amaranthus retroflexus	48-56	12-18	85.5	S
	ANTAR	Anthemis arvensis	48-56	11-17	100	S
	BRSNW	Brassica napus	44	10-55	94.08	S
	CAPBP	Capsella bursa-pastoris	41-43	12-23	90.17	S
	CHEAL	Chenopodium album	48-50	10-17	69.4	MT
	DESSO	Descurainia sophia	43	21	92.0	S
	GALAP	Galium aparine	41-56	12-22	89.95	S
	GALTE	Galium tendae	43	23	85.0	MS
	GASPA	Galinsoga parviflora	48-56	14-24	99.25	S
	MATIN	Tripleurospermum ino-dorum	48-56	11-16	100	S
	MELAL	Silene latifolia subsp. alba	44-50	10-14	85.05	S
	MYOAR	Myosotis arvensis	41-50	12-22	92.27	S
	POLAV	Polygonum aviculare	49-56	12-23	100	S
	POLCO	Fallopia convolvulus	41-56	10-23	93.3	S
	POLPE	Persicaria maculosa	48-56	13-16	100	S
	SINAR	Sinapis arvensis	43	21-23	92.0	S
	STEME	Stellaria media	43	12-23	91.04	S
	THLAR	Thlaspi arvense	43	11-23	90.80	S
	VERPE	Veronica persica	43-56	10-23	89.30	S
	VIOAR	Viola arvensis	41-50	10-14	33.75	T

Spring barley, spring wheat, spring barley, spring triticale, spring oat

Dose MATLAM 0.05 L/ha
Moderately Susceptible: Anthemis arvensis (ANTAR), Capsella bursa-pastoris (CAPBP), Descurainia sophia (DESSO), Galium tendae (GALTE), Galinsoga parviflora (GASPA), Tripleurospermum inodorum (MATIN), Polygonum aviculare (POLAV), Persicaria maculosa (POLPE), Sinapis arvensis (SINAR), Stellaria media (STEME), Thlaspi arvense (THLAR), Papaver rhoeas (PAPRH),
Moderately Tolerant: Brassica napus volunteers (BRSNW), Galium aparine (GALAP), Myosotis arvensis (MYOAR), Fallopia convolvulus (POLCO), Veronica persica (VERPE)
Tolerant: Amaranthus retroflexus (AMARE), Chenopodium album (CHEAL), Viola arvensis (VIOAR), Silene latifolia subsp. alba (MELAL)

Dose MATLAM 0.08 L/ha
Susceptible: Anthemis arvensis (ANTAR), Descurainia sophia (DESSO), Galinsoga parviflora (GASPA), Tripleurospermum inodorum (MATIN), Polygonum aviculare (POLAV), Persicaria maculosa (POLPE), Sinapis arvensis (SINAR), Stellaria media (STEME),
Moderately Susceptible: Amaranthus retroflexus (AMARE), Brassica napus volunteers (BRSNW), Capsella bursa-pastoris (CAPBP), Galium aparine (GALAP), Galium tendae (GALTE), Myosotis arvensis (MYOAR), Fallopia convolvulus (POLCO), Thlaspi arvense (THLAR),Veronica persica (VERPE)
Moderately Tolerant: Silene latifolia subsp. alba (MELAL),
Tolerant: Chenopodium album (CHEAL), Viola arvensis (VIOAR)

Dose MATLAM 0.1 L/ha
Susceptible: Amaranthus retroflexus (AMARE), Anthemis arvensis (ANTAR), Brassica napus volunteers (BRSNW), Capsella bursa-pastoris (CAPBP), Descuriania sophia (DESSO), Galium aparine (GALAP), Galinsoga parviflora (GASPA), Tripleurospermum inodorum (MATIN), Myosotis arvensis (MYOAR), Polygonum aviculare (POLAV), Fallopia convolvulus (POLCO), Persicaria maculosa (POLPE), Sinapis arvensis (SINAR), Stellaria media (STEME), Thlaspi arvense (THLAR),Veronica persica (VERPE), Silene latifolia subsp.alba (MELAL),
Moderately Susceptible: Chenopodium album (CHEAL), Galium tendae (GALTE)
Tolerant: Viola arvensis (VIOAR)

Herbicide MATLAM has demonstrated good crop tolerance to winter wheat and spring barley, therefore concluded that MATLAM is safe usage at proposed rate and this support the label claim for the use in winter wheat and spring barley.
Undesirable effects are not expected on succeeding crops, adjacent crop, part of plants used for propagating purposes and beneficial organisms.

Summary and conclusion

Based on the results of 30 field trials carried out in 2022, the following can be concluded for the intended use '*Control of broadleaved weeds*' from MATLAM applied post-emergence at the dose rate of 0.1 L/ha in winter and spring cereals

- MATLAM provides a high level control of dicotyledonous weeds.
- As weeds often occur as a complex of several weeds with different susceptibility towards florasulam, one application of MATLAM at the recommended rate should be used to efficiently control all weeds claimed on the label.
- A high level of control may also be obtained against less susceptible weed species if treated with the recommended dose rate under optimal conditions, i.e. early growth stages and good weather conditions.
- Compared to the florasulam reference product, the efficacy obtained with MATLAM is comparable against all weed species.
- The trial results are considered valid for all intended EU Central zone countries.

MATLAM is suitable for the control of broadleaved weeds in winter and spring cereals

According to the above, the plant protection product MATLAM 50 SC can be approved to the market and use in North-east EPPO zone according to proposed range of use – GAP
Based on submitted data the following regulation on the label is proposed:

Winter wheat, winter spelt, winter barley, winter triticale, winter rye

Spring use

BBCH 12-33

Dose MATLAM 0.1 L/ha
Susceptible:
Anthemis arvensis (ANTAR), Brassica napus volunteers (BRSNW), Capsella bursa-pastoris, Galium aparine (GALAP), Tripleurospermum inodorum (MATIN), Myosotis arvensis (MYOAR), Papaver rhoeas (PAPRH), Fallopia convolvulus (POLCO), Sinapis arvensis (SINAR), Stellaria media (STEME), Thlaspi arvense (THLAR), Descuriania sophia (DESSO),Veronica hederifolia (VERHE)
Moderately Susceptible:
Veronica persica (VERPE), Viola arvensis (VIOAR)

Spring wheat, spring barley, spring triticale, spring oat

BBCH 12-33

Dose MATLAM 0.1 L/ha
Susceptible: Amaranthus retroflexus (AMARE), Anthemis arvensis (ANTAR), Brassica napus volunteers (BRSNW), Capsella bursa-pastoris (CAPBP), Descurainia sophia (DESSO), Galium aparine (GALAP), Galinsoga parviflora (GASPA), Tripleurospermum inodorum (MATIN), Myosotis arvensis (MYOAR), Polygonum aviculare (POLAV), Fallopia convolvulus (POLCO), Persicaria maculosa (POLPE), Sinapis arvensis (SINAR), Stellaria media (STEME), Thlaspi arvense (THLAR),Veronica persica (VERPE), Silene latifolia subsp.alba (MELAL)
Moderately Susceptible: Chenopodium album (CHEAL), Galium tendae (GALTE)
Tolerant: Viola arvensis (VIOAR)

Spring use BBCH 12-33
Winter spelt, Winter barley, Winter triticale, Winter rye, Spring wheat, Spring barley
Spring triticale, Spring oat

Recommended dose at:
MATLAM 0.1 L/ha

Recommended volume of water 200-400 l/ha
Recommended medium droplet spraying

The product MATLAM should be use once per season post–emergence. To avoid resistance, products contain active substance with the same group shouldn't be used year after year on the same field.

Use of MATLAM 50 SC according to the proposed GAP does not represent a hazard to rotational crops and does not justify a specific labelling. MATLAM is not persistent in soil nor is it taken up by succeeding crops.

Comments of zRMS:	**Efficacy** The presented report concerns the authorization of Matlam (RNB 072 A) herbicide, containing the active substance florasulam (50 g/L) for broadleaved weed control in winter and spring cereals (wheat, barley, triticale, rye, oat), in Poland. Florasulam is included in some herbicides authorized in Poland, as a single active substance or in mixtures, and is widely used in other countries, so its effectiveness is well-known. The applicant presents herbicides containing florasulam registered in the EU countries, for Poland, this list is currently extended with Rassel 100 SC. The studies supporting the registration of Martlam were conducted in Poland, in winter wheat and spring barley, in the year 2022. This herbicide was used at the rates of 0.5, 0.8, and 0.1 L/ha, at the growth stages of cereals BBCH 12-33. The efficacy and crop safety of the tested product were compared to the reference products including florasulam (Upton 050 SC and Saracen 050 SC – 50 g/L). The trials were conducted in Poland for one year, and 2-year trials are required for registration. However, if the results from one-year trials show very good efficacy in all locations, they can be considered sufficient. ZRMS accepted one-year experiments due to the good results of the studies and good knowledge of the efficiency of the active substance florasulam, resulting from many years of use in various crops, especially since the results of the trials used for Kantor 050 EC registration (the same active ingredient) provide support for Matlam registration. ZRMS confirms that the trials presented in this dossier were carried out by contractor companies and Official Research Institutes, following the principles of Good Experimental Practice (GEP) and with relevant EPPO guidelines or CEB methods. The assessment was made under Uniform Principles. The applicant presented in the tables the list of tests for each weed species that occurred in the experiments, separately for winter wheat and spring barley, and assessed the efficacy of Matlam in their control. Matlam was applied at different dose rates, therefore the efficacy results show considerable variation in the weed sensitivity for these doses. The registration of Matlam covers the use at the rate of 0.1 L/ha in all crops so the weed sensitivity will be discussed only at the rate provided for registration, separately for winter wheat and spring barley. In the trials, a good to very good weed control by Matlam at the rate of 0.1 L/ha was obtained. In winter wheat, the mean control of weed species by Matlam (classified as susceptible) was within the range 90.2-100%, except for Veronica persica (75.1%) and Viola arvensis (76.8%), while in spring barley was within the range 85-100%, except Chenopodium album (72.7%), and Viola arvensis (35%).

	The sensitivity of weeds was determined based on the sensitivity table adopted for Poland. In winter wheat weed species susceptible to Matlam at the rate of 0.1 L/ha include: *Anthemis arvensis* (ANTAR), *Brassica napus* voluntiers (BRSNW), *Capsella bursa-pastoris* (CAPBP), *Descurainia sophia* (DESSO), *Galium aparine* (GALAP), *Tripleurospermum inodorum* (MATIN), *Myosotis arvensis* (MYOAR), *Papaver rhoeas* (PAPRH), *Fallopia convolvulus* (POLCO), *Sinapsis arvensis* (SINAR), *Stellaria media* (STEME), *Thlaspi arvense* (THLAR), and to moderately susceptible species: *Veronica persica* (VERPE) and *Viola arvensis* (VIOAR). The sensitivity of these species was the same as that of the standard product Upton 050 SC (0.1 L/ha). In spring barley, the group of weed species susceptible to Matlam at the rate of 0.1 L/ha include: *Amaranthus retroflexus* (AMARE), *Anthemis arvensis* (ANTAR), *Brassica napus* voluntiers (BRSNW), *Capsella bursa-pastoris* (CAPBP), *Descurainia sophia* (DESSO), *Galium aparine* (GALAP), *Galinsoga parviflora* (GASPA), T*ripleurospermum inodorum* (MATIN), *Silene latifolia* subsp. *alba* (MELAL), *Myosotis arvensis* (MYOAR), *Polygonum aviculare* (POLAV), *Fallopia convolvulus* (POLCO), *Persicaria maculosa* (POLPE), *Sinapsis arvensis* (SINAR), *Stellaria media* (STEME), *Thlaspi arvense* (THLAR), *Veronica persica* (VERPE), as moderately sensitive species: *Chenopodium a*lbum (CHEAL), *Galium tendae* (GALTE), and tolerant species: *Viola arvensi*s (VIOAR). Differences between the composition of the weed population of winter wheat and spring barley were noted. In spring barley, in addition to the weed species found in winter wheat, the following weeds also appeared: *Amaranthus retroflexus* (AMARE), *Chenopodium album* (CHEAL), *Galium tendae* (GALTE), *Galinsoga parviflora* (GASPA), *Silene latifolia* subsp. *alba* (MELAL), *Polygonum aviculare* (POLAV), *Persicaria maculosa* (POLPE). The only species that appeared in winter wheat but did not appear in spring barley was *Papaver rhoeas* (PAPRH). The sensitivity of weed species occurring in winter wheat refers to the sensitivity of winter cereals, and those occurring in spring barley refer to the sensitivity of spring cereals. In the trials conducted in winter wheat and spring barley the susceptibility of weeds for Matlam was the same as for the standard product Upton 050 SC (0.1 L/ha), except Chenopodium album, which was moderately susceptible to Matlam and moderately tolerant to the standard product. According to the requirements adopted for Poland, for an active substance already permitted in Poland, weed species with high harmfulness may be classified in terms of sensitivity if they appear in 4 trials and species with less harmfulness in at least 2 trials, whereas for a new active substance and a new mixture of active substances, the number of studies should be increased to 6 and 4 trials, respectively. Florasulam is approved and used in Poland in many crops, therefore the assessment of weed sensitivity can be based on 4/2 studies. ZRMS confirms the sufficient number of trials for weed species presented in the report. Following Annex No. 2 – Extrapolation Table, adopted for Poland, to be used to register the product in PL (National Level), for weed species (harmful organism) extrapolation is allowed from one species of winter cereals to another species of winter cereals, as well as from one species of spring cereals to other species of spring cereals, assuming their positive assessment, whereby efficacy studies are required for the crops from which we are carrying out extrapolation. The above recommendations apply to Matlam because 15 trials were conducted in Poland for winter wheat and 15 for spring barley, therefore the results from winter wheat can be extrapolated to winter barley, winter triticale, and winter rye, and the results from spring barley to spring wheat, spring triticale, spring oats. Analyzing the number of efficacy trials for Matlam, submitted by the applicant, which constitute the basis for registration, the unprotected data for the Kantor 050 EC registration should also be taken into account. Kantor was approved in Poland based on

	the MRiRW permission No. R-56/2011 of 05.09.2011, which was renewed by the decision of the MRiRW No. R-708/2018d of 11.12.2018. This herbicide is recommended post-emergence, for autumn use in winter cereal crops (wheat, barley, triticale, and rye), at the rate of 0.075 L/ha (BBCH 13-29) and for spring use in winter wheat and winter triticale, at the rate of 0.8-0.1 L/ha (BBCH 13-32). In the registration report for Matlam, the applicant presented 15 efficacy trials on winter wheat and 15 efficacy trials on spring barley, performed in 2022. In the report for Kantor 050 EC registration, the trials conducted in 2010-2013 in winter wheat (25 trials, including 4 trials in DE), winter barley (1 trial in DE), triticale (1 trial in FR), spring wheat (5 trials, including 4 trials in FR and 1 in DE), and spring barley (10 trials, including 3 trials in DE, 2 in FR) support the registration of this herbicide. Weeds sensitivity to Kantor 050 EC, according to the product label: – **susceptible weeds**: *Stellaria media*, *Papaver rhoeas*, *Tripleurospermum inodorum*, *Veronica hederifolia*, *Galium aparine*, volunteer *Brassica napus* (rapeseed), *Descurainia sophia*, *Capsella bursa-pastoris*, *Thlaspi arvense*; – **moderately susceptible**: *Veronica persica*; – **resistant weeds** – Viola arvensis. **Conclusion**. Based on the results of efficacy trials, Matlam (RNB 072 A) can be registered for post-emergence application (BBCH 12-33), at the rate of 0.1 L/ha, for broad-leaved weeds control in winter cereals (wheat, spelt, barley, triticale, rye) and spring cereals (wheat, barley, triticale and oat). The registration is supported by unprotected data of Kantor 050 EC herbicide, which has been approved for use in Poland in 2011. In the label of Matlam the weed sensitivity should be indicated separately for winter and spring crops. **The sensitivity of weed species for Matlam in winter cereal crops**: **Susceptible**: *Anthemis arvensis*, *Brassica napus* voluntiers, *Capsella bursa-pastoris*, *Descurainia sophia*, *Galium aparine*, *Tripleurospermum inodorum*, *Myosotis arvensis*, *Papaver rhoeas*, *Fallopia convolvulus*, *Sinapsis arvensis*, *Stellaria media*, *Thlaspi arvense* **Moderately susceptible**: Veronica persica, Viola arvensis **The sensitivity of weed speciess for Matlam in spring cereal crops**: **Susceptible**: *Amaranthus retroflexus*, *Anthemis arvensis*, *Brassica napus* voluntiers, *Capsella bursa-pastoris*, *Descurainia sophia*, *Galium aparine*, *Galinsoga parviflora*, *Tripleurospermum inodorum*, *Silene latifolia* subsp. *alba*, *Myosotis arvensis*, *Polygonum aviculare*, *Fallopia convolvulus*, *Persicaria maculosa*, *Sinapsis arvensis*, *Stellaria media*, *Thlaspi arvense*, *Veronica persica* **Moderately susceptible**: *Chenopodium album*, *Galium tendae* **Tolerant**: *Viola arvensis* **<u>Minor uses</u>** ZRMS also accepts the minor uses of Matlam in winter wheat durum, spring wheat durum and winter oat, according to Article 51.

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

3.3.1 Summary and Conclusions

Resistance is a natural phenomenon embodied in the process of the evolution of biological systems and has been experienced over and over again in the past. According to Heap (2014[2]) resistance is the naturally occurring inheritable ability of some weed biotypes within a population to survive an herbicide treatment that would, under normal conditions of use, effectively control that weed population. Selection of resistant biotypes may eventually result in control failures.

3.3.2 Active ingredient

Florasulam is a member of the triazolopyrimidine sulfonamides, a class of herbicides known to inhibit the plant enzyme acetolactate synthase enzyme (ALS). HRAC group 2 (B). The inhibition of ALS results in a number of distinctive whole plant symptoms. Growth of sensitive species is retarded within a matter of hours of application although visible effects may not be observed for several days. Symptoms appear first in the upper meristematic region of the plants as chlorosis and necrosis. The effects then spread to the remaining parts of the plant. In some species there is a reddening of the midrib and veins. Complete desiccation of the plant may occur in 7-10 days in ideal growing conditions, but may take up to 6-8 weeks under less ideal conditions. Florasulam is a post emergent herbicide and is taken up by the leaves. The active ingredient is rapidly degraded in soil and poorly taken up by the roots, thus providing very little soil activity. After foliar absorption, florasulam is translocated to the meristematic tissue, where it inhibits the plant enzyme acetolactate synthase (ALS) which is essential for amino acid synthesis. Inhibition of amino acid production inhibits cell division and results in plant death.

Florasulam is a herbicide which is active against broadleaf weeds in winter and spring cereals by inhibiting the plant enzyme, acetolactate synthase (ALS). This result in complete desiccation of susceptible plants in 7-10 days under ideal growing conditions, however, this may take up to 6-8 weeks under less ideal conditions. Florasulam provides activity on a range of weeds of the Caryophyllaceae, Convonvulaceae, Amaranthaceae, Malvaceae, Compositeae, Polygonaceae and is highly activeon Galium aparine, Stellaria media, Matricaria spp. and various cruciferae at very low rates. The herbicide is taken up by the roots or foliage of plants; the rate of Florasulam metabolism in G. aparine is slow and affords ample time for parent herbicide to translocate through – out the plant, compared with the rapid metabolism in wheat. It is considered extremely unlikely that resistance to Florasulam will develop; G. aparine may be controlled by products with alternative modes of action in both the cereal crop and rotational crops.

3.3.3 Mode of action

Florasulam as an acetolactate synthase (ALS) inhibitor herbicide (HRAC group: 2 Inhibition of ALS, Legacy: B), which the mode of action is the inhibition of the plant enzyme acetolactate synthase, it has been classified as a high resistance risk.
According to https://weedscience.org/ :

[2] Heap, I. M., 2014: The International Survey of Herbicide Resistant Weeds. Web site visited Nov 2014. http://www.weedscience.com

3.3.4 Status

Currently, there are 33 reported cases of weed resistance to florasulam reported in EU (https://weedscience.org)

Table 3.. Herbicide resistance cases

No	Year	Species	Country	Actives	Crop
1	1991	*Stellaria media*	Denmark	chlorsulfuron, tribenuron-methyl, florasulam, iodosulfuron-methyl-Na	Spring Barley, Wheat
2	1995	*Stellaria media*	Sweden	chlorsulfuron, tribenuron-methyl, florasulam	Spring Barley, Spring wheat, Winter wheat
3	1998	*Papaver rhoeas*	Greece	pyrithiobac-sodium, thifensulfuron-methyl, chlorsulfuron, tribenuron-methyl, triasulfuron, imazamox, flo-rasulam	Winter wheat
4	2000	*Stellaria media*	United Kingdom	metsulfuron-methyl, florasulam	Cereals
5	2001	*Alopecurus myosuroides*	Denmark	clodinafop-propargyl, fenoxaprop-ethyl, cycloxydim, flupyrsulfuron-methyl-Na, pendimethalin, florasulam, iodosulfuron-methyl-Na, mesosulfuron-methyl, pyroxsulam	Winter wheat
6	2002	*Amaranthus retroflexus*	Canada (Manitoba)	florasulam	Wheat
7	2003	*Papaver rhoeas*	Denmark	tribenuron-methyl, florasulam, iodosul-furon-methyl-Na	Wheat
8	2005	*Apera spica-venti*	Germany	sulfosulfuron, chlorsulfuron, flupyrsul-furon-methyl-Na, sulfometuron-methyl, florasulam, iodosulfuron-methyl-Na, mesosulfuron-methyl, pyroxsulam	Wheat
9	2006	*Spergula arvensis*	Norway	tribenuron-methyl, florasulam	Winter wheat, Winter barley
10	2007	*Polygonum convolvulus (=Fallopia convolvulus)*	Canada (Alberta)	thifensulfuron-methyl, tribenuron-methyl, florasulam	Wheat, Peas
11	2007	*Lolium rigidum*	Israel	clodinafop-propargyl, imazapyr, chlor-sulfuron, tribenuron-methyl, sulfometu-ron-methyl, flumetsulam, metosulam, glyphosate, florasulam, iodosulfuron-methyl-Na, mesosulfuron-methyl, pinoxaden, propoxycarbazone-Na	Wheat
12	2009	*Senecio vulgaris*	France	tribenuron-methyl, prosulfuron, metsul-furon-methyl, flazasulfuron, imazamox, florasulam, iodosulfuron-methyl-Na, mesosulfuron-methyl, thiencarbazone-methyl	Grapes, Wheat
13	2010	*Tripleurospermum perfora-tum (=T. inodorum)*	Denmark	tribenuron-methyl, florasulam, iodosul-furon-methyl-Na	Spring Barley, Winter wheat
14	2010	*Lolium perenne ssp. multiflo-rum*	Denmark	clodinafop-propargyl, florasulam, iodosulfuron-methyl-Na, mesosulfuron-methyl, pyroxsulam	Winter wheat
15	2010	*Rapistrum rugosum*	Iran	bispyribac-sodium, tribenuron-methyl, florasulam, flucarbazone-Na	Winter wheat
16	2010	*Alopecurus myosuroides*	Netherlands	florasulam, iodosulfuron-methyl-Na, mesosulfuron-methyl, pyroxsulam	Winter wheat
17	2011	*Stellaria media*	Germany	thifensulfuron-methyl, amidosulfuron, triflusulfuron-methyl, tribenuron-methyl, nicosulfuron, imazamox, florasulam, iodosulfuron-methyl-Na,	Spring Barley, Wheat, Rapeseed

				tritosulfuron, mesosulfuron-methyl, pyroxsulam	
18	2012	*Capsella bursa-pastoris*	Denmark	tribenuron-methyl, florasulam	Spring Barley
19	2012	*Stellaria media*	France	thifensulfuron-methyl, metsulfuron-methyl, florasulam, iodosulfuron-methyl-Na, mesosulfuron-methyl	Wheat
20	2012	*Papaver rhoeas*	Germany	imazamox, florasulam	Cereals, Rapese-ed
21	2012	*Diplotaxis erucoides*	Israel	imazethapyr, tribenuron-methyl, flumetsulam, imazamox, florasulam	Wheat
22	2012	*Erucaria hispanica*	Israel	tribenuron-methyl, flumetsulam, flora-sulam	Wheat
23	2014	*Papaver rhoeas*	Belgium	metsulfuron-methyl, florasulam	Wheat
24	2014	*Rumex dentatus*	India	florasulam, iodosulfuron-methyl-Na, mesosulfuron-methyl, pyroxsulam	Wheat
25	2014	*Matricaria recutita (= M. chamomilla)*	Sweden	tribenuron-methyl, florasulam	Wheat
26	2015	*Tripleurospermum perfora-tum (=T. inodorum)*	Sweden	tribenuron-methyl, florasulam	Wheat
27	2016	*Apera spica-venti*	Denmark	fenoxaprop-ethyl, florasulam, iodosul-furon-methyl-Na, mesosulfuron-methyl, pinoxaden	Wheat
28	2017	*Rumex obtusifolius*	France	thifensulfuron-methyl, metsulfuron-methyl, florasulam	Wheat
29	2017	*Anthriscus caucalis*	Germany	thifensulfuron-methyl, tribenuron-methyl, metsulfuron-methyl, florasulam	Winter wheat
30	2019	*Lithospermum arvense*	China	imazethapyr, pyrithiobac-sodium, tribenuron-methyl, florasulam, py-roxsulam	Wheat
31	2021	*Tripleurospermum perfora-tum (=T. inodorum)*	Czech Republic	tribenuron-methyl, florasulam	Wheat
32	2022	*Galium spurium*	Greece	bensulfuron-methyl, metsulfuron-methyl, florasulam, pyroxsulam	Wheat
33	2022	*Chenopodium album*	Ukraine	thifensulfuron-methyl, tribenuron-methyl, flumetsulam, imazamox, flo-rasulam, iodosulfuron-methyl-Na, thiencarbazone-methyl	Corn (maize), Soybean, Wheat, Sunflower

3.3.5 Mechanism(s) of resistance

Non target site cross resistance is defined as cross resistance to dissimilar herbicide classes conferred by a mechanism(s) other than resistant enzyme target sites. Until recently documented for L. rigidum and A. myosuroides, non-target site cross resistance was largely unknown in herbicide-resistant weeds but is well known in the insecticide resistance literature (Brattsten et al., 1986; Georghiou, 1986).

Non target site cross resistance to ALS inhibiting herbicides The study of Heap and Knight (1986) and widespread farmer experience in Australia has been that many (but not all) L. rigidum populations that developed 6 resistance following selection with the ACCase inhibiting herbicide diclofop-methyl display resistance to cereal-selective ALS herbicides without any exposure to ALS herbicides (non-target site cross resistance). Similarly, a laboratory experiment Matthews and Powles (unpublished data) showed that an initially susceptible L. rigidum population when selected for three generations with diclofop-methyl developed resistance to diclofop-methyl and simultaneously exhibited resistance to the ALS inhibiting herbicide chlorsulfuron without any exposure to chlorsulfuron. This study and the field observations conclusively established that selection with an ACCase-inhibiting herbicide can lead to resistant populations that display non target site cross resistance to ALS-inhibiting herbicides without exposure to these herbicides. The mechanistic basis of non-target site cross resistance to ALS herbicides has been thoroughly investigated in L. rigidum. As expected, cross resistance to ALS herbicides from selection with AC-

Case herbicides is not due to resistance at the ALS target enzyme (Matthews et al., 1990). Instead these biotypes of L. rigidum are resistant as a result of an enhanced rate of herbicide metabolism, which endows resistance to certain ALS-inhibiting herbicides (Figures 1 and 2). It is likely that the increased metabolism in these L. rigidum biotypes is catalyzed by the same Cyt P450 enzyme-based mechanism operating in wheat (Christopher et al., 1991; 1992). Wheat is resistant to many ALS-inhibiting herbicides as a result of rapid metabolism of these herbicides by aryl-hydroxylation (Sweetser et al., 1992), catalyzed by a Cyt P450 mono-oxygenase. Some chlorsulfuronresistant L. rigidum biotypes with sensitive ALS and a resistance profile to ALS-inhibiting herbicides similar to wheat can oxidatively metabolize chlorsulfuron more rapidly than the susceptible biotype (Figures 1 and 2; Christopher et al., 1991; Cotterman and Saari, 1992; Burnet et al., 1994a). The products of metabolism of chlorsulfuron in L. rigidum and wheat are also similar (Christopher et al., 1991; Cotterman and Saari, 1992), with the major metabolite identified as glucose-conjugated hydroxy-chlorsulfuron (Cotterman and Saari, 1992). Malathion which has been shown to inhibit the Cyt P450-dependent detoxification of primisulfuron, a sulfonylurea herbicide, in microsome preparations from maize (Kreuz and Fonné-Pfister, 1992) can inhibit chlorsulfuron metabolism and reduce chlorsulfuron resistance in the cross-resistant biotype SLR31 if applied in conjunction with chlorsulfuron (Christopher et al., 1994). This reversal of resistance in SLR31 by malathion confirms that detoxification plays a major role in chlorsulfuron resistance in this biotype. Taken together, these studies clearly establish that enhanced metabolism is the basis of non-target site cross resistance of L. rigidum to ALS herbicides. Cyt P450s are clearly implicated in enhanced metabolism of chlorsulfuron in resistant L. rigidum, however, the in vitro demonstration of Cyt P450-dependent chlorsulfuron metabolism in isolated microsomes has to date proved elusive (Preston and Powles, unpublished).

Sensitivity data

Applicant didn’t conduct separately trials for sensitivity data, this data was evaluated in efficacy trials. The 30 field trials postemergence use were established in order to determine the sensitivity of weeds in the winter wheat (15 trials) and spring barley (15 trials). The MATLAM 50 SC was tested at doses: 0.05, 0,08 and 0,1 L/ha in winter wheat and spring barley at doses: 0.05, 0,08 and 0,1 L/ha for the control of dicot weeds. None of the tested weeds showed high tolerance to the product MATLAM 50 SC.

3.3.5.1 Cross-resistance

According to https://hracglobal.com/files/Herbicide-Cross-Resistance-and-Multiple-Resistance-in-Plants.pdf

Cross resistance is defined as the expression of a genetically-endowed mechanism conferring the ability to withstand herbicides from different chemical classes. There are two broad cross resistance categories; target site cross resistance and non-target site cross resistance. Cross resistance occurs mainly in the group of ALS inhibitors, including florasulam.

Target site cross resistance occurs when a change at the biochemical site of action of one herbicide also confers resistance to herbicides from a different chemical class that inhibit the same site of action in the plant. Target site cross resistance does not necessarily result in resistance to all herbicide classes with a similar mode of action or indeed all herbicides within a given herbicide class.

Target site cross resistance to acetolactate synthase (ALS)-inhibiting herbicides Over the past decade, the most important area of herbicide chemistry has been the discovery of herbicides inhibiting acetolactate synthase (ALS). There are 15 classes of chemistry which have been described as inhibitors of ALS (Saari et al., 1994). Of these, the chemically dissimilar sulfonylurea, imidazolinone and triazolopyrimidine herbicides have been commercialized and are in widespread use. The large scale adoption and often persistent use of these herbicides has led to the appearance of weed biotypes resistant to the ALS-inhibiting herbicides. As reviewed by Saari et al. (1994), there are now many biotypes within at least 15 weed species (especially Kochia scoparia and Lolium rigidum) which have developed resistance to ALS-inhibiting herbicides, mainly through selection with sulfonylurea herbicides (presumably because they have been in commercial use for the longest period). In the vast majority of cases of resistance following selection with sulfonylurea herbicides, the resistance mechanism is a change in the target site enzyme ALS (reviewed by Saari et al., 1994). In most cases, the sulfonylurea resistant biotypes with a resistant ALS enzyme exhibit varying levels of target site cross resistance to the chemically dissimilar, but ALS-inhibiting, imidazolinone and/or triazolopyrimidine herbicides (Table 3; Hall and Devine, 1990; Christopher et al., 1992; Saari et al., 1990; 1992; 1994). The considerable variation in the level of resistance across and within various ALS-inhibiting herbicide chemistries (Table 3) is likely to be due to subtly different binding by particular herbicides on the ALS enzyme and different mutations of ALS. Evidence from competitive binding studies show that the three classes of ALS-inhibiting herbicides bind to the same, or closely overlapping sites on ALS (Durner et al., 1991; Landstein et al., 1993). The wide variation in target site cross resistance amongst biotypes with resistant ALS enzyme (Table 3) implies that there are a number of different functional mutations of the ALS gene. Knowledge of specific mutations of ALS providing resistance is now emerging. ALS gene sequences from a number of resistant biotypes of higher plants which have been examined show a substitution at a proline residue (173) in a highly conserved region of the enzyme, known as domain A. However, the proline substitutions vary in that substitutions of threonine, alanine, serine, histidine and glutamine for this proline have all been observed. Guttieri et al. (1992) examined ALS from three resistant weed species and observed Thr substitution in Kochia scoparia and a His substitution in Lactuca serriola at Pro 173. No alteration was observed in 3 domain A of ALS for a resistant biotype of Salsola iberica. Five other resistant biotypes of K. scoparia were examined and only three contained a substitution at Pro 173. In addition to changes at the Pro 173 of domain A, at least two other mutations have been observed to give sulfonylurea and/or imidazolinone resistance in higher plants; Ser 653 Asn in Arabidopsis thaliana (Sathasivan et al., 1991), and Trp 573 Leu in Nicotiana tabacum (Lee et al., 1988), and a number of other mutations providing resistance are known from yeast (Mazur and Falco, 1989). Significantly, in the only case so far published of resistance selected by an imidazolinone herbicide, a biotype of Xanthium strumarium resistant to imidazolinone herbicides at the whole plant and ALS enzyme level is not cross resistant to sulfonylurea or triazolopyrimidine herbicides and possesses an ALS enzyme susceptible to these herbicides (Schmitzer et al., 1993). Therefore, it is clear that there are several possible mutations of the ALS gene which will confer resistance to sulfonylurea and imidazolinone herbicides and yet retain enzyme function. It is likely, although not yet established, that these different mutations in the ALS gene provide different levels of target site cross resistance within and between ALS inhibiting herbicide chemistries. The variations in target site cross resistance among herbicide-resistant mutants indicates that the binding domains for the various classes of ALS-inhibiting herbicides do not fully overlap. It is also clear from these studies that a number of different mutations can endow resistance to various ALS-inhibiting herbicides without any significant impairment of enzyme function in vivo. As discussed below, this is also likely to be the case for herbicide-resistant ACCase, but is not the case for herbicide-resistant PS2 in which very few mutations confer resistance and yet retain full enzyme functionality. Competitive fitness studies with ALS enzyme-based resistant biotypes of Kochia scoparia and Lactuca serriola indicate there is no fitness penalty to plants carrying a resistant ALS enzyme (Mallory-Smith et al., 1992).

Non target site cross resistance is defined as cross resistance to dissimilar herbicide classes conferred by a mechanism(s) other than resistant enzyme target sites. Until recently documented for L. rigidum and A. myosuroides, non-target site cross resistance was largely unknown in herbicide-resistant weeds but is well known in the insecticide resistance literature (Brattsten et al., 1986; Georghiou, 1986).

Non target site cross resistance to ALS inhibiting herbicides The study of Heap and Knight (1986) and widespread farmer experience in Australia has been that many (but not all) L. rigidum populations that developed 6 resistance following selection with the ACCase inhibiting herbicide diclofop-methyl display resistance to cereal-selective ALS herbicides without any exposure to ALS herbicides (non-target site cross resistance). Similarly, a laboratory experiment Matthews and Powles (unpublished data) showed that an initially susceptible L. rigidum population when selected for three generations with diclofop-methyl developed resistance to diclofop-methyl and simultaneously exhibited resistance to the ALS inhibiting herbicide chlorsulfuron without any exposure to chlorsulfuron. This study and the field observations conclusively established that selection with an ACCase-inhibiting herbicide can lead to resistant populations that display non target site cross resistance to ALS-inhibiting herbicides without exposure to these herbicides. The mechanistic basis of non-target site cross resistance to ALS herbicides has been thoroughly investigated in L. rigidum. As expected, cross resistance to ALS herbicides from selection with ACCase herbicides is not due to resistance at the ALS target enzyme (Matthews et al., 1990). Instead these biotypes of L. rigidum are resistant as a result of an enhanced rate of herbicide metabolism, which endows resistance to certain ALS-inhibiting herbicides (Figures 1 and 2). It is likely that the increased metabolism in these L. rigidum biotypes is catalyzed by the same Cyt P450 enzyme-based mechanism operating in wheat (Christopher et al., 1991; 1992). Wheat is resistant to many ALS-inhibiting herbicides as a

result of rapid metabolism of these herbicides by aryl-hydroxylation (Sweetser et al., 1992), catalyzed by a Cyt P450 mono-oxygenase. Some chlorsulfuronresistant L. rigidum biotypes with sensitive ALS and a resistance profile to ALS-inhibiting herbicides similar to wheat can oxidatively metabolize chlorsulfuron more rapidly than the susceptible biotype (Figures 1 and 2; Christopher et al., 1991; Cotterman and Saari, 1992; Burnet et al., 1994a). The products of metabolism of chlorsulfuron in L. rigidum and wheat are also similar (Christopher et al., 1991; Cotterman and Saari, 1992), with the major metabolite identified as glucose-conjugated hydroxy-chlorsulfuron (Cotterman and Saari, 1992). Malathion which has been shown to inhibit the Cyt P450-dependent detoxification of primisulfuron, a sulfonylurea herbicide, in microsome preparations from maize (Kreuz and Fonné-Pfister, 1992) can inhibit chlorsulfuron metabolism and reduce chlorsulfuron resistance in the cross-resistant biotype SLR31 if applied in conjunction with chlorsulfuron (Christopher et al., 1994). This reversal of resistance in SLR31 by malathion confirms that detoxification plays a major role in chlorsulfuron resistance in this biotype. Taken together, these studies clearly establish that enhanced metabolism is the basis of non-target site cross resistance of L. rigidum to ALS herbicides. Cyt P450s are clearly implicated in enhanced metabolism of chlorsulfuron in resistant L. rigidum, however, the in vitro demonstration of Cyt P450-dependent chlorsulfuron metabolism in isolated microsomes has to date proved elusive (Preston and Powles, unpublished).
Sensitivity data
Applicant didn’t conduct separately trials for sensitivity data, this data was evaluated in efficacy trials. The 30 field trials postemergence use were established in order to determine the sensitivity of weeds in the winter wheat (15 trials) and spring barley (15 trials). The MATLAM 50 SC was tested at doses: 0.05, 0,08 and 0,1 L/ha in winter wheat and spring barley at doses: 0.05, 0,08 and 0,1 L/ha for the control of dicot weeds. None of the tested weeds showed high tolerance to the product MATLAM 50 SC. Detailed studies on the weeds sensitivity are submitted and summarised in 3.2 Efficacy data (KCP 6).

Use pattern
Herbicide MATLAM 50 SC has demonstrated good crop tolerance to winter wheat and spring barley. Therefore concluded that MATLAM 50 SC is safe usage at proposed rate and this support the label claim for the use in winter and spring cereals

3.3.5.2 Baseline sensitivity

Weeds vary in their sensitivity towards herbicides both between and within populations, and this natural variation should be understood before shifts in sensitivity can be assessed. Synthetic auxins have been tested and used worldwide for almost 15 years, it is therefore difficult to find unexposed weed populations. No true base line sensitivity data can therefore be established.

3.3.6 Use pattern

MATLAM is based on the activity of florasulam which is a selective post-emergence herbicide. In the EU Central zone, the formulation is proposed for use against broadleaved weeds in winter and spring cereals. The recommended dose rate is 5 g ai/ha. The maximum number of applications is one application per growing season.

Florasulam has been used as straight product as well as in mixtures for many years.

3.3.7 Resistance management for MATLAM

Management strategy
According to Herbicide Resistance Action Committee (HRAC) (https://hracglobal.com/prevention-management/best-management-practices)
Integrated Weed Management (IWM) refers to using chemical, cultural, mechanical and biological methods, in an integrated fashion, to control weeds. It does not rely excessively on any one method. When used in a integrated approach, the following tools help reduce selection pressure and survival of resistant

weeds.

- Chemical - Applying herbicides to a crop.
- Mechanical - Includes measures such as hand-weeding using cultivation or ploughing to control emerged plants and bury non-germinated seed. It also includes harvest weed seed destruction such as stubble burning and cutting for hay or silage to prevent the weeds from setting seed.
- Cultural - Includes altering the crop planting date, row spacing and harvest timing to disrupt the weed cycle. It also includes planting crops that can out-compete weeds, buying certified seed that’s free of weeds and using a diverse crop rotation. Growers should also sanitize farm equipment when moving between fields.
- Biological - Includes introducing insects and pathogens that control target weed species and introducing post-harvest grazing of growing weeds.

Using a diversified crop rotation allows farmers to use these different weed techniques. Avoid successive crops that use herbicides with the same mechanism of action to control the same weed species in the same field.

Guidelines for the sustainable use of herbicide site of action groups:

- Use mixtures or sequential treatments of herbicides having different sites of action. Each herbicide in the mixture should target the same weed species.
- Consider all chemical control options before planting, in-crop and after harvest.
- Avoid continued use of the same herbicides, or herbicides with the same site of action in the same field, unless integrated with other weed control practices.
- Limit the number of applications of a single herbicide or herbicides with the same site of action in a single growing season.
- Herbicide mixtures and herbicide rotations alone are not enough to prevent resistance. They must be used in a diversified plan than also incorporates mechanical, cultural and biological practices.

Growers should also do the following:

- Follow label use instructions, such as application rates, timing and equipment recommendations.
- Know the weeds in their fields and nearby non-crop areas and tailor their weed control program to weed densities and economic thresholds.
- Monitor herbicide results and be aware of any trends or changes in weed populations.
- Maintain detailed field records to confirm cropping and herbicide history.

Implementation of the management strategy

The herbicide label provides all the necessary information for preventing weed resistance to herbicides.

Monitoring, reporting and reaction to changes in performance

Accroding to https://hracglobal.com/files/Monitoring-and-Mitigation-of-Herbicide-Resistance.pdf

Managing the risk of herbicide resistance (HR) is an area of strategic importance for leading herbicide technology providers and is the focus of the Global Herbicide Resistance Action Committee (HRAC), an organization comprised of 8 major companies working as a part of Crop Life International. Early detection of HR, understanding the scope of HR in a defined area, and potential mitigation of resistance through efforts to limit its spread are important aspects of managing the risk of HR. Monitoring for HR populations has been employed by public and private weed scientists for both early detection and defining the scope of resistance. The primary methods used to monitor for resistance include:

1) field surveys where seed from putative resistant plants are collected and tested in a controlled environment using bioassay procedures,

2) market research surveys of farmers and weed management experts, and

3) tracking farmer performance inquiries with appropriate follow up field evaluation and testing.

The most common monitoring method is the use of field surveys designed to either qualitatively (i.e., determine whether the level of resistance is high, medium, or low) or quantitatively (i.e., determine the area infested with HR populations) define existing HR. The primary method to detect resistance in new species and in new geographies is to track farmer performance inquiries. Once resistance is detected, steps may be taken to mitigate its impact. A critical aspect to mitigation is the implementation of best management practices (BMPs) which is facilitated by effective education and training programs. Education efforts can be enhanced with information obtained from monitoring studies and early detection of resistant populations using appropriate monitoring methods can improve the outcome of mitigation efforts

3.3.8 Implementation of the management strategy

The basic recommendations for resistance risk management (maximum 1 application) will be clearly recommended on the label. Additional recommendations for product alternations and cultural practices will be given on the label.

3.3.9 Monitoring, reporting and reaction to changes in performance

Allegations of weeds control failures in Europe and around the world are monitored.

RainbowAgro will inform the regulatory authorities of any new confirmed occurrence of resistance regarding the use of MATLAM.

Comments of zRMS:	**Resistance risk** The information on resistance is very important for the practice, as it may delay or prevent the development of resistance to the active substancs florasulam, included in Matlam herbicide. Florasulam belongs to triazolopyrimidine sulfonamides (group 2 (B), a class of herbicides known to inhibit the plant enzyme acetolactate synthase enzyme (ALS). Active substance florasulam is taken up by the leaves and is translocated to the meristematic tissue, where it inhibits the plant enzyme acetolactate synthase (ALS). Florasulam is rapidly degraded in soil and poorly taken up by the roots, thus providing very little soil activity. It has a great meaning for succeeding crops. According to HRAC, currently, there are 33 reported cases of weed resistance to florasulam in EU. The applicant presented the list of weeds that are resistant to florasulam and stated that cross-resistance to herbicides with other modes of action is also possible. To reduce the risk of resistance to florasulam, the resistance management strategy should be introduced to the label of this product. The management strategy should follow Good Agricultural Practices and Good Plant Protection Practices (EPPO Standard 2/1 (2)). Matlam should be used in alternation with herbicides comprising different modes of action to avoid the build-up of resistant biotypes and cross-resistance. It should be used once a year in the same field, according to recommendations on the label. For the use of Matlam, the key to resistance management is to reduce selection pressure by using a combination of the following techniques: crop rotation, cultural techniques (non-chemical control methods), and herbicide rotation. The management strategy to reduce the risk of resistance development to florasulam should be based on Good Agricultural Practices (GAP) and recommendations of HRAC to apply the label recommended rate, the proper application time relative to risk for resistance development, the use of herbicides with different mode of actions, checking the effects of weeds control to ensure adequate efficacy is achieved, and also the use the non-chemical methods of prevention and protection against weeds, including cultural and agronomic methods depending on the soil and climatic conditions. **Conclusion**. The label of Matlam should have a clear statement regarding resistance risk and the management strategy. The modified risk and the resistance management strategy allow us to manage the risk to an acceptable level.

3.4 Adverse effects on treated crops (KCP 6.4)

Information on trials submitted (3.4: Adverse effects on treated crops)

Table 3.4-1: Presentation of selectivity trials

Crop*	Country	Type of trial**	Number of trials EPPO zone				Years	GEP, non-GEP, official***	Comments (any other relevant information)
			MAR	MED	S-E	N-E			
Post emergence									
Winter wheat	Poland	S+Y + Q	-	-	-	6	2022	GEP	
Spelt wheat	Poland	S+Y + Q	-	-	-	4	2023	GEP	
Winter triticale	Poland	S+Y + Q	-	-	-	4	2023	GEP	
Winter rye	Poland	S+Y + Q	-	-	-	4	2023	GEP	
Winter barley	Poland	S+Y + Q	-	-	-	4	2023	GEP	
Spring wheat	Poland	S+Y + Q	-	-	-	4	2023	GEP	
Spring triticale	Poland	S+Y + Q	-	-	-	4	2023	GEP	
Spring oat	Poland	S+Y + Q	-	-	-	4	2023	GEP	
Spring barley	Poland	S+Y + Q	-	-	-	6	2022	GEP	
	(Post emergence)Total, cereals		**-**	**-**	**-**	**28**			

S-selectivity, Y-yield, Q-Quality of yield

Table 3.4-2: Details on selectivity trial methodology Please refer to Biodossier Appendix 4

In the selectivity trials, the performance of MATLAM was measured against a commercial standard formulation of Florasulam.

The reference products used in the trials are listed in Table 3.4-3.

Table 3.4-3: Presentation of reference standards used in trials (selectivity trials, transformation trials...)

Trade name	Formulation	Composition	Rates [L/ha]	Indication	Country
Post-emergence application					
Upton 050 S.C./Saracen 050 SC	SC	50 g/l Florasulam	0.1 l/ha	Control of broadleaved weeds	PL

Table 3.4-4:Details on trial methodology

Guidelines	General guidelines	EPPO PP 1/152 (4), PP 1/181 (5), PP 1/135(4),PP 225 (2)
	Specific guidelines	PP 1/93 (3)
Experimental design	Plot design	RCBD (40)
	Plot size	15-25,5 m²
	Number of replications	4 (30)
Crop	Trials per crop	Spring barley (6) Winter wheat (6) Winter spelt (wheat) (4) Winter triticale (4) Winter rye(4) Winter barley (4) Spring wheat (4) Spring triticale (4) Spring oat (4)
	Varieties per crop	Spring barley (6) Wirtuoz Stratus ,Melius, KWS Olof, KWS Vermont, Focus Winter wheat (6) Bogatka, Hondia, Euforia, Julius, Spence, RTG Kilimangaro Winter spelt (wheat) (4) Rokosz, SM Orkus, Szwabekorn Winter triticale (4) Twingo, Atletus,Tadeus Winter rye(4) Granat, KWS Igor Winter barley (4) Sandra, Concordia, KWS Kosmos, Tajfun Spring wheat (4) Atrakcja, Mandaryna, Zadra Spring triticale (4) Dublet, Mamut, Argus, Argus Spring oat (4) Figaro, Bingo, Kozak
	Sowing period	Spring barley (6)21.03-26.04.22 Winter wheat (6) 20.09-7.11.21 Winter spelt (wheat) (4) 22.10-28.11.22 Winter triticale (4) 20.09-27.10.22 Winter rye(4) 22.09-27.09.22 Winter barley (4) 16.09-20.09.22 Spring wheat (4) 03.04-18.05.23 Spring triticale (4) 7.04-30.05.23 Spring oat (4) 3.04-30.05.23
Application	Application period	Spring barley (6) 26.04-1.06.22 Winter wheat (6) 15.04-25.04.22 Winter spelt (wheat) (4) 12.04-10.05.23 Winter triticale (4) 13.04-28.04.23 Winter rye(4) 12-18.04.23 Winter barley (4) 18.04-20.04.23 Spring wheat (4) 21.04-2.06.23 Spring triticale (4) 17.04-09.05.23 Spring oat (4) 21.04-19.05.23
	Crop stage (BBCH)* at application	Spring barley (6) 12-24 BBCH Winter wheat (6) 22-32 BBCH Winter spelt (wheat) (4) 27-31 BBCH Winter triticale (4) 25-31 BBCH Winter rye(4) 26-31 BBCH Winter barley (4) 29-33 BBCH Spring wheat (4) 12-33 BBCH Spring triticale (4) 12-32 BBCH Spring oat (4) 12-24 BBCH

	Number of appl. Intervals between appl.	1 (40)
	Spray volumes	300 L/ha
Assessment	Assessment types	- Efficacy was evaluated through assessments of damage weeds on plots treated compared to untreated (check) plots. The results was presented in percentage of efficacy (%). On untreated plots estimated number of weeds on 1 square meter. - Visual estimation of crop injury and crop stand reduction (thinning) compared to ‘untreated’ (‘untreated’ = 0% crop injury; 100% crop injury = total crop destruction). Where appropriate, this overall score was substituted or supplemented by assessments of individual symptoms. - crop vigour
	Assessment dates	
Other relevant information	Soil type	sandy loam, silt loam, loamy sand, Eutric Fluvisols,good wheat soil complex,class Illa,Albic Luvisols,good wheat soil complex,class IIla, loam podzolic soils,very good wheat soil complex,class II,podzolic soils,very good wheat soil complex,class II,silt loam, clayey sand,sandy clay, clay loam, sandy clay
	Organic matter content	0.9-6.3
	Natural / artificial innoculation…	N
	Field / Greenhouse...	Field

3.4.1 Phytotoxicity to host crop (KCP 6.4.1)

The crop safety of MATLAM was assessed in winter and spring cereals in 30 efficacy trials (NE) where MATLAM was applied at 0.05 to 0.1 L/ha in post emergence trials emergence application, and in 40 crop safety trials (NE) where MATLAM was applied at 0,1 and 0.2 L/ha.

The trials were conducted ~~in the~~ to evaluate the crop safety~~ness~~ of MATLAM in winter and spring cereals. The trials were conducted in the North-east EPPO zone in Poland in 2022 and 2023.

Winter and spring cereals

Phytotoxicity was evaluated in trials presented in this dossier including efficacy and weed free trials.

Crop phytotoxicity was evaluated in efficacy and selectivity trials where MATLAM was applied post-emergence. The 0.2 L/ha dose rate corresponds to 200% of the proposed dose rate. Crop phytotoxicity was assessed in all trials at various intervals from application and up to harvest (BBCH 89).

A total of 30 efficacy trials and 40 selectivity trials were conducted in the North-east EPPO zone to assess the crop safety of MATLAM when applied as recommended in winter and spring cereals. The trials were conducted on commercially available varieties.

No adverse effects in regards to phytotoxicity and vigor were observed in any of the 30 efficacy trials as well as no adverse effects were observed in any of the 40 selectivity trials conducted in the North-east EPPO zone.

Furthermore, results from winter and spring cereals trials harvested demonstrated that the applied treatments did not have any detrimental effects on yield or quality of yield either.

3.4.1.1 Overall conclusion

Winter and spring cereals crops are claimed on the label. The claims of crop safety on these crops are supported with a total of 70 trials conducted in Poland. MATLAM applied at the proposed rate and 2N overlapping rate is safe when used post-emergence on winter and spring cereals. As this document also clearly demonstrates, then the efficacy and crop safety of MATLAM is equivalent to the standard Florasulam products to which it was compared.

North-east EPPO zone

Winter wheat, post-emergence application, 6 selectivity and 15 efficacy trials were carried out in Poland in 2022 and 2023 on a wide range of commercially grown varieties. There were not observed any phytotoxicity symptoms on tested product and standard in trials.

Table 3.4-5: Phytotoxicity (of product MATLAM) - winter wheat

Number of trials with		Selectivity trials (6)				Efficacy trials (15)	
		MATLAM		Standard Upton 050 SC		MATLAM	Standard Upton 050 SC
		N	2N (or other)	N	2N (or other)	N	N
Maximum of phytotoxicity recorded during the trials	0% to 5%	0	0	0	0	0	0
	>5% to 10%	0	0	0	0	0	0
	>10% to 15%	0	0	0	0	0	0
	>15 %	0	0	0	0	0	0
Level of symptoms at the last assessments	0% to 5%	0	0	0	0	0	0
	>5% to 10%	0	0	0	0	0	0
	>10% to 15%	0	0	0	0	0	0
	>15 %	0	0	0	0	0	0

Spelt wheat, post-emergence application, 4 selectivity trials were carried out in Poland in 2023 on a wide range of commercially grown varieties. There were not observed any phytotoxicity symptoms on tested product and standard in trials.

Table 3.4-6: Phytotoxicity (of product MATLAM) - spelt wheat

Number of trials with		Selectivity trials (4)			
		MATLAM		Standard Saracen 050 SC	
		N	2N (or other)	N	2N (or other)
Maximum of phytotoxicity recorded during the trials	0% to 5%	0	0	0	0
	>5% to 10%	0	0	0	0
	>10% to 15%	0	0	0	0
	>15 %	0	0	0	0
Level of symptoms at the last assessments	0% to 5%	0	0	0	0
	>5% to 10%	0	0	0	0
	>10% to 15%	0	0	0	0
	>15 %	0	0	0	0

Winter barley, post-emergence application, 4 selectivity trials were carried out in Poland in 2023 on a wide range of commercially grown varieties. There were not observed any phytotoxicity symptoms on tested product and standard in trials.

Table 3.4-7: Phytotoxicity (of product MATLAM) - winter barley

Number of trials with		Selectivity trials (4)			
		MATLAM		Standard Saracen 050 SC	
		N	2N (or other)	N	2N (or other)
Maximum of phytotoxicity recorded during the trials	0% to 5%	0	0	0	0
	>5% to 10%	0	0	0	0
	>10% to 15%	0	0	0	0
	>15 %	0	0	0	0
Level of symptoms at the last assessments	0% to 5%	0	0	0	0
	>5% to 10%	0	0	0	0
	>10% to 15%	0	0	0	0
	>15 %	0	0	0	0

Winter triticale, post-emergence application, 4 selectivity trials were carried out in Poland in 2023 on a wide range of commercially grown varieties. There were not observed any phytotoxicity symptoms on tested product and standard in trials.

Table 3.4-8: Phytotoxicity (of product MATLAM) - winter triticale

Number of trials with		Selectivity trials (4)			
		MATLAM		Standard Saracen 050 SC	
		N	2N (or other)	N	2N (or other)
Maximum of phytotoxicity recorded during the trials	0% to 5%	0	0	0	0
	>5% to 10%	0	0	0	0
	>10% to 15%	0	0	0	0
	>15 %	0	0	0	0
Level of symptoms at the last assessments	0% to 5%	0	0	0	0
	>5% to 10%	0	0	0	0
	>10% to 15%	0	0	0	0
	>15 %	0	0	0	0

Winter rye, post-emergence application, 4 selectivity trials were carried out in Poland in 2023 on a wide range of commercially grown varieties. There were not observed any phytotoxicity symptoms on tested product and standard in trials.

Table 3.4-9: Phytotoxicity (of product MATLAM) - winter rye

Number of trials with		Selectivity trials (4)			
		MATLAM		Standard Saracen 050 SC	
		N	2N (or other)	N	2N (or other)
Maximum of phytotoxicity recorded during the trials	0% to 5%	0	0	0	0
	>5% to 10%	0	0	0	0
	>10% to 15%	0	0	0	0
	>15 %	0	0	0	0
Level of symptoms at the last assessments	0% to 5%	0	0	0	0
	>5% to 10%	0	0	0	0
	>10% to 15%	0	0	0	0
	>15 %	0	0	0	0

Spring barley, post-emergence application, 6 selectivity and 15 efficacy trials were carried out in Poland in 2022 and 2023 on a wide range of commercially grown varieties. There were not observed any phytotoxicity symptoms on tested product and standard in trials.

Table 3.4-10: Phytotoxicity (of product MATLAM) - spring barley

Number of trials with		Selectivity trials (6)				Efficacy trials (15)	
		MATLAM		Standard Upton 050 SC		MATLAM	Standard Upton 050 SC
		N	2N (or other)	N	2N (or other)	N	N
Maximum of phytotoxicity recorded during the trials	0% to 5%	0	0	0	0	0	0
	>5% to 10%	0	0	0	0	0	0
	>10% to 15%	0	0	0	0	0	0
	>15 %	0	0	0	0	0	0
Level of symptoms at the last assessments	0% to 5%	0	0	0	0	0	0
	>5% to 10%	0	0	0	0	0	0
	>10% to 15%	0	0	0	0	0	0
	>15 %	0	0	0	0	0	0

Spring oat, post-emergence application 4 selectivity trials were carried out in Poland in 2023 on a wide range of commercially grown varieties. There were not observed any phytotoxicity symptoms on tested product and standard in trials.

Table 3.4-11: Phytotoxicity (of product MATLAM) - spring oat

Number of trials with		Selectivity trials (4)			
		MATLAM		Standard Saracen 050 SC	
		N	2N (or other)	N	2N (or other)
Maximum of phytotoxicity recorded during the trials	0% to 5%	0	0	0	0
	>5% to 10%	0	0	0	0
	>10% to 15%	0	0	0	0
	>15 %	0	0	0	0
Level of symptoms at the last assessments	0% to 5%	0	0	0	0
	>5% to 10%	0	0	0	0
	>10% to 15%	0	0	0	0
	>15 %	0	0	0	0

Spring wheat, post-emergence application 4 selectivity trials were carried out in Poland in 2023 on a wide range of commercially grown varieties. There were not observed any phytotoxicity symptoms on tested product and standard in trials.

Table 3.4-12: Phytotoxicity (of product MATLAM) - spring wheat

Number of trials with		Selectivity trials (4)			
		MATLAM		Standard Saracen 050 SC	
		N	2N (or other)	N	2N (or other)
Maximum of phytotoxicity recorded during the trials	0% to 5%	0	0	0	0
	>5% to 10%	0	0	0	0
	>10% to 15%	0	0	0	0
	>15 %	0	0	0	0
Level of symptoms at the last assessments	0% to 5%	0	0	0	0
	>5% to 10%	0	0	0	0
	>10% to 15%	0	0	0	0
	>15 %	0	0	0	0

Spring triticale, post-emergence application 4 selectivity trials were carried out in Poland in 2023 on a wide range of commercially grown varieties. There were not observed any phytotoxicity symptoms on tested product and standard in trials.

Table 3.4-13: Phytotoxicity (of product MATLAM) - spring triticale

Number of trials with		Selectivity trials (4)			
		MATLAM		Standard Saracen 050 SC	
		N	2N (or other)	N	2N (or other)
Maximum of phytotoxicity recorded during the trials	0% to 5%	0	0	0	0
	>5% to 10%	0	0	0	0
	>10% to 15%	0	0	0	0
	>15 %	0	0	0	0
Level of symptoms at the last assessments	0% to 5%	0	0	0	0
	>5% to 10%	0	0	0	0
	>10% to 15%	0	0	0	0
	>15 %	0	0	0	0

Comments of zRMS:	**<u>Adverse effcts</u>** Adverse effects of Matlam (RNB 072 A) on treated crops were tested in the trials carried out in Poland, in 2022, in winter wheat (6 trials), spelt wheat (4), winter triticale (4), winter rye (4), winter barley (4), spring wheat (4), spring triticale (4), spring oat (4) and spring barley (6). In these trials, the selectivity of the tested product, the yield, and the quality of the yield were tested. **<u>Phytotoxicity to host crop</u>** The crop safety of Matlam was assessed in 30 efficacy trials (NE) where it was applied at 0.05 to 0.1 L/ha in the post-emergence application, and in 40 crop safety trials

	(NE) where Matlam was applied at 0.1 and 0.2 L/ha (doses 1N, 2N). The trials were conducted on commercially available varieties (winter wheat – 6 varieties; winter spelt (wheat) – 4; winter barley – 4; winter triticale – 4; winter rye – 4; spring wheat – 4; spring barley – 6; spring triticale – 4; spring oat – 4. The results were compared to the reference products Upton 050 SC and Saracen 050 SC. Crop phytotoxicity was assessed in all trials at various intervals from application and up to the harvest (BBCH 89). The number of trials on the phytotoxicity of Matlam to host crops meets the registration requirements for Poland. All the trials were carried out by the contractor companies and the Research Institute, officially recognized for efficacy testing of plant protection products by the Polish authorities, according to GEP, following EPPO general guidelines: PP 1/135(4), PP 1/152(4), PP 1/181(4), PP 1/225(2), and specific guideline PP 1/93(4). ZRMS confirms that the trials were conducted with the proper methods and, there were no deviations from EPPO guidelines. No phytotoxicity symptoms and adverse effects on vigor were observed in any of the 30 efficacy trials or any of the 40 selectivity trials conducted in the North-East EPPO zone. There were no differences between the tested product and the standards. This confirms that Matlam is safe for cereal crops and can be authorized for broadleaved weed control in these crops in Poland. The number of trials on the phytotoxicity of Matlam to cereal crops is not sufficient for winter barley, winter triticale, winter rye, spring wheat, spring triticale, and spring oat. For phytotoxicity/selectivity for missing data, the extrapolation is possible but for each proposed species 3-4 studies for major crops and 2-3 studies for minor crops are required. For Matlam these requirement is met. The results from winter wheat can be extrapolated to winter barley, winter triticale, and winter rye, and the results from spring barley to spring wheat, spring triticale, and spring oats, so the registration requirements are met for Poland. **Conclusion**. The efficacy and crop safety trials did not show any phytotoxicity of Matlam (RNB 072 A) to cereal crops. The herbicide at the target dose rate, according to the GAP table, can be considered completely selective to wheat, barley, rye, triticale, and oats and these results confirm the registration of Matlam.

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

North-east EPPO Zone

Influence of MATLAM on the yield of grains was evaluated in selectivity research. The yield was evaluated on the basis of harvested grains quantity from one hectare (t/ha). The influence of the tested product on quantity of grain was evaluated in 40 field experiments - in winter wheat 6 trials, in spring barley 6 trials, in spelt wheat 4 trials, in winter barley 4 trials, in winter rye 4 trials, in winter triticale 4 trials, in spring wheat 4 trials, in spring triticale 4 trials, and in spring oat 4 trials in Poland in 2022 and 2023. There weren't difference between the treatment objects and standard.

3.4.2.1 Materials and methods

Plot yields, as fresh weight plant material, were measured at harvest and converted to t/ha. The data of the treated plots are presented as relative values in relation to the fresh- and/or dry weight for the untreated plots. For further information on materials and methods please refer to section KCP 6.4.2.

Table 3.4-14: The influence of the MATLAM on yield quantity [t/ha]
Winter wheat

	Report code				028GPSS202201	028GPSS202202	SGS/2022/046/PL01	SGS/2022/046/PL02	NUZ07/22-6	NUZ07/22-7
	Treatment	Dose	Unit	Code						
1	Untreated Check				6.30	6.00	6.54	6.85	7.2	6.9
2	Florasulam 50 SC	0.10	l/ha	A	6.20	5.90	6.54	6.86	6.9	6.8
3	Florasulam 50 SC	0.20	l/ha	A	6.30	6.00	6.50	6.82	7.4	6.7
4	UPTON 050 SC	0.10	l/ha	A	6.20	6.00	6.51	6.89	7.5	7.2
5	UPTON 050 SC	0.20	l/ha	A	6.20	6.00	6.54	6.88	7.4	7
				LSD	0.17	0.16	0.15	0.15	n.s.	n.s.

Table 3.4-15: The influence of the MATLAM on yield quantity [t/ha]
Winter spelt

	Report code				SGS/2023/077/PL01	SGS/2023/077/PL02	SGS/2023/077/PL03	SGS/2023/077/PL04
	Treatment	Dose	Unit	Code				
1	Untreated Check				5.22	4.98	5.80	4.98
2	Florasulam 50 SC	0.10	l/ha	A	5.25	4.97	5.93	5.13
3	Florasulam 50 SC	0.20	l/ha	A	5.37	5.02	6.39	5.18
4	Saracen 050SC	0.10	l/ha	A	5.22	5.01	6.26	5.38
5	Saracen 050SC	0.20	l/ha	A	5.34	5.06	6.22	4.84
				LSD	0.145	0.130	0.732	0.666

Table 3.4-16: The influence of the MATLAM on yield quantity [t/ha]
Winter barley

	Report code				SGS/2023/080/PL01	SGS/2023/080/PL02	SGS/2023/080/PL03	SGS/2023/080/PL04
	Treatment	Dose	Unit	Code				
1	Untreated Check				7.96	7.24	9.42	8.21
2	Florasulam 50 SC	0.10	l/ha	A	8.05	7.20	9.56	8.12
3	Florasulam 50 SC	0.20	l/ha	A	7.81	7.20	9.25	8.59
4	Saracen 050SC	0.10	l/ha	A	7.91	7.23	9.53	8.44
5	Saracen 050SC	0.20	l/ha	A	7.86	7.14	9.71	7.97
				LSD	0.271	0.169	0.848	0.710

Table 3.4-17: The influence of the MATLAM on yield quantity [t/ha]
Winter rye

	Report code				SGS/2023/079/PL01	SGS/2023/079/PL02	SGS/2023/079/PL03	SGS/2023/079/PL04
	Treatment	Dose	Unit	Code				
1	Untreated Check				5.71	6.01	5.34	6.78
2	Florasulam 50 SC	0.10	l/ha	A	5.64	6.08	5.17	6.53
3	Florasulam 50 SC	0.20	l/ha	A	5.71	5.94	5.33	6.38
4	Saracen 050SC	0.10	l/ha	A	5.73	6.04	5.67	6.30
5	Saracen 050SC	0.20	l/ha	A	5.69	6.01	5.67	6.33
				LSD	0.115	0.129	0.056	0.706

Table 3.4-18: The influence of the MATLAM on yield quantity [t/ha]
Winter triticale

	Report code				SGS/2023/078/PL01	SGS/2023/078/PL02	SGS/2023/078/PL03	SGS/2023/078/PL04
	Treatment	Dose	Unit	Code				
1	Untreated Check				7.14	7.84	7.91	6.45
2	Florasulam 50 SC	0.10	l/ha	A	7.15	7.73	8.27	6.72
3	Florasulam 50 SC	0.20	l/ha	A	7.18	7.84	8.19	6.35
4	Saracen 050SC	0.10	l/ha	A	7.20	7.79	7.47	6.98
5	Saracen 050SC	0.20	l/ha	A	7.21	7.78	7.81	6.44
				LSD	0.182	0.111	0.748	0.749

Table 3.4-19: The influence of the MATLAM on yield quantity [t/ha]
Spring barley

	Report code				030GPSS202201	030GPSS202202	SGS/2022/047/PL01	SGS/2022/047/PL02	NUZ07/22-13	NUZ07/22-14
	Treatment	Dose	Unit	Code						
1	Untreated Check				5.10	5.10	6.56	7.73	5.9	5.11
2	Florasulam 50 SC	0.10	l/ha	A	5.00	5.30	6.55	7.77	5.93	5.16
3	Florasulam 50 SC	0.20	l/ha	A	5.10	5.40	6.58	7.86	5.99	4.98
4	UPTON 050 SC	0.10	l/ha	A	5.10	5.20	6.55	7.81	6.01	5.14
5	UPTON 050 SC	0.20	l/ha	A	5.10	5.20	6.60	7.77	5.99	5.14
				LSD	0.25	0.40	0.13	0.17	n.s.	n.s.

Table 3.4-20: The influence of the MATLAM on yield quantity [t/ha]
Spring wheat

	Report code				SGS/2023/081/ PL01	SGS/2023/081/ PL02	SGS/2023/081/ PL03	SGS/2023/081/ PL04
	Treatment	Dose	Unit	Code				
1	Untreated Check				4.96	4.97	6.23	3.16
2	Florasulam 50 SC	0.10	l/ha	A	4.94	4.97	6.24	3.27
3	Florasulam 50 SC	0.20	l/ha	A	5.07	5.08	6.30	3.22
4	Saracen 050SC	0.10	l/ha	A	4.91	5.00	6.30	3.19
5	Saracen 050SC	0.20	l/ha	A	4.94	5.04	6.22	3.35
				LSD	0.115	0.131	0.051	0.262

Table 3.4-21: The influence of the MATLAM on yield quantity [t/ha]
Spring oat

	Report code				SGS/2023/083/ PL01	SGS/2023/083/ PL02	SGS/2023/083/ PL03	SGS/2023/083/ PL04
	Treatment	Dose	Unit	Code				
1	Untreated Check				3.24	3.68	3.30	3.06
2	Florasulam 50 SC	0.10	l/ha	A	3.25	3.65	3.40	2.90
3	Florasulam 50 SC	0.20	l/ha	A	3.25	3.67	3.26	2.86
4	Saracen 050SC	0.10	l/ha	A	3.26	3.65	3.49	2.73
5	Saracen 050SC	0.20	l/ha	A	3.23	3.72	3.39	3.06
				LSD	0.079	0.130	0.329	0.356

Table 3.4-22: The influence of the MATLAM on yield quantity [t/ha]
Spring triticale

	Report code				SGS/2023/082 /PL01	SGS/2023/082 /PL02	SGS/2023/082 /PL03	SGS/2023/082 /PL04
	Treatment	Dose	Unit	Code				
1	Untreated Check				6.07	6.81	3.55	4.68
2	Florasulam 50 SC	0.10	l/ha	A	5.98	6.74	3.60	4.39
3	Florasulam 50 SC	0.20	l/ha	A	5.97	6.81	3.42	4.61
4	Saracen 050SC	0.10	l/ha	A	6.09	6.76	3.73	4.57
5	Saracen 050SC	0.20	l/ha	A	6.03	6.82	3.86	4.90
				LSD	0.144	0.133	0.730	0.806

3.4.2.2 Summary and evaluation of the field trials conducted in winter and spring cereals treated post-emergence

A summary of the mean yield assessments expressed as %-relative of the untreated, from trials treated once, conducted in the North-east EPPO zone.

A total of 40 selectivity trials in winter and spring cereals were harvested. The trials were conducted in Poland. MATLAM was applied post-emergence at 0.1 L/ha and 0.2 L/ha in the selectivity trials.

Neither MATLAM nor the Florasulam reference products significantly affected the yield (when applied at the proposed dose rate (0,1 L/ha) as well as at the overlapping dose rate (0.2 L/ha) in any of the 40 trials.

Influence of MATLAM on the yield of grains was evaluated in selectivity research. The yield was evaluated on the basis of harvested grains quantity from one hectare (t/ha). The influence of the tested product on quantity of grain was evaluated in 40 field experiments - in winter wheat 6 trials, in spring barley 6 trials, in spelt wheat 4 trails, in winter barley 4 trials, in winter rye 4 trials, in winter triticale 4 trials, in spring oat 4 trials, and in spring wheat 4 trials in Poland in 2022 and 2023. There weren’t difference between the treatment objects and standard.

3.4.2.3 Conclusion

MATLAM applied at the proposed dose rate in winter and spring cereals did not affect crop yield nor the quality of the crop yield significantly in any of the 40 trials conducted on winter and spring cereals. In all trials, MATLAM applied at 0.1 L/ha and double rate did not significantly affect the crop yield.

Furthermore, the data obtained in trials harvested demonstrate that MATLAM is as safe to the crop as the reference product (Upton 050 SC and Saracen 050 SC) used in the trials.

As this document clearly demonstrates, the efficacy and crop safety of MATLAM is equivalent to the reference product.

Comments of zRMS:	**<u>Effect on the yield</u>** The influence of Matlam on the quantity of grain was evaluated in 40 selectivity trials, conducted in 2022 and 2023 in Poland – 6 trials in winter wheat, 4 in winter spelt wheat, 4 in winter barley, 4 in winter rye, 4 in winter triticale, 6 trials in spring barley, 4 in spring wheat, 4 in triticale, and 4 trials in spring oat. In the trials, Matlam was applied post-emergence at 0.1 L/ha (1N) and 0.2 L/ha (2N) and results were compared to standards Upton 050 EC and Saracen 050 EC (a.i. 50 g/L florasulam), used at the same rates. The high yields of cereals were obtained in the trials: winter wheat – 6.3-7.2 T/ha; winter spelt – 4.98-5.8 T/ha; winter barley – 7.24-9.42 T/ha; winter rye – 5.34-6.78 T/ha; winter triticale – 6.45-7.91 T/ha; spring barley – 5.1-7.73 T/ha; spring wheat – 3.16-6.23 T/ha; spring oat – 3.06-3.68 T/ha; spring triticale – 3.55-6.81 T/ha. Grain yields of cereal crops, compared to the untreated control and standard products, after application of Matlam at a dose of 0.1 L/ha, presents as follows: - winter wheat – the yield in 3 trials was slightly lower, and in 3 trials comparable to the yield from untreated control, as well as to the yield of the standard product, - winter spelt – the yield in 2 trials was comparable and in 2 trials slightly higher than in the untreated control, and comparable (2 trials) or slightly lower (2 trials) than to the standard product, - winter barley – the yield was higher or comparable to the yield from the untreated control and comparable to the yield of the standard products, except for 1 trial, which was slightly lower. - winter rye – the yield was slightly lower or comparable to the yield from the untreated control and standard product,

	- winter triticale – the yield was comparable to or slightly higher than in the untreated control, and slightly lower than from the standard product, - spring barley, spring wheat and spring oat – the yield was comparable to the yield from the untreated control and standard product, - spring triticale – the yield was comparable to the yield from untreated control and slightly lower than the yield of the standard product. It can be stated that neither the tested product Matlam, applied at the proposed dose rate of 0.1 L/ha and double dose 0.2 L/ha (2N) nor the standard products did not affect negativety on the yield of tested cereal crops. Assessing the effect of herbicide on crop yield, it should be noted that in selectivity trials, without weed presence, the crop yields are often slightly lower, compared to the untreated control, despite the lack of phytotoxicity symptoms. In the presented studies, the yields of cereal crops were comparable, sometimes even higher than in the untreated control, only in a few trials lower yield was obtained. Submitted data confirm the advisability of registering the Matlam herbicide in Poland in cereal crops. **Conclusion**. The results of the trials indicate that Matlam is safe to cereal crops and did not influence negatively on the yield. It supports and justifies the registration of Matlam in Poland, for weeds control in winter and spring wheat, winter spelt wheat, winter and spring barley, winter and spring triticale, winter rye, and spring oat.

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

40 selectivity trials treated with MATLAM were harvested and yields recorded. In these, assessments were conducted on the potential impact of treatment on grain weight, hectolitre, protein content and moisture content of the harvested crop.

North-east EPPO Zone
The 12 studies have been conducted in 2022 in Poland on winter wheat (6) and spring barley (6) and 28 trials conducted in 2023 in Poland (spelt wheat (4), winter triticale (4), winter rye (4), winter barley (4), spring wheat (4), spring triticale (4), spring oat (4).There were not negative impact of MATLAM on quality of plants.
Influence of MATLAM on the yield of grains was evaluated in selectivity research. The yield was evaluated on the basis of harvested grains quantity from one hectare (t/ha). There weren't difference between the treatment objects and standard. Details of the data shows tables below
Winter wheat
In the trials evaluated, MATLAM had no negative effect on the Thousand Grain Weight, hectolitre, protein content and moisture of the harvested winter and spring cereals. When comparing the results obtained with MATLAM against the results obtained with the Florasulam reference product at the applied dose rates, both products performed statistically similar.

Table 3.4-23: The influence of the MATLAM on quality of yield
Winter wheat - hectolitre weight [kg]

	Report code				028GPSS202201	028GPSS202202	SGS/2022/046/PL01	SGS/2022/046/PL02	NUZ07/22-6	NUZ07/22-7
	Treatment	Dose	Unit	Code						
1	Untreated Check				76.98	76.53	81.33	75.98	74.6	75
2	Florasulam 50 SC	0.10	l/ha	A	76.75	76.63	80.95	75.95	75.6	75.9

3	Florasulam 50 SC	0.20	l/ha	A	77.03	76.48	81.00	76.13	75.4	74.8
4	Upton 050 SC	0.10	l/ha	A	77.33	76.75	80.60	76.38	74.5	74.3
5	Upton 050 SC	0.20	l/ha	A	77.03	76.83	80.65	76.15	74.6	74.9
				LSD	0.561	0.607	0.717	0.600	n.s.	n.s.

Table 3.4-24: The influence of the MATLAM on quality of yield
Winter wheat - TGW [g]

	Report code				028GPSS202 201	028GPSS202 202	SGS/2022/04 6/PL01	SGS/2022/04 6/PL02	NUZ07/22-6	NUZ07/22-7
	Treatment	Dose	Unit	Code						
1	Untreated Check				50.28	49.95	46.76	42.87	43.6	40.1
2	Florasulam 50 SC	0.10	l/ha	A	50.43	49.68	47.08	44.32	43.8	40.9
3	Florasulam 50 SC	0.20	l/ha	A	50.28	50.00	46.95	43.45	43.9	41.5
4	Upton 050 SC	0.10	l/ha	A	50.15	49.88	47.57	42.32	43	41.3
5	Upton 050 SC	0.20	l/ha	A	50.13	49.90	47.11	43.19	43.2	41.0
				LSD	0.654	0.559	1.884	1.486	n.s.	n.s.

Table 3.4-25: The influence of the MATLAM on quality of yield
Winter wheat - protein content [%]

	Report code				028GPSS2022 01	028GPSS2022 02	SGS/2022/046 /PL01	SGS/2022/046 /PL02	NUZ07/22-6	NUZ07/22-7
	Treatment	Dose	Unit	Code						
1	Untreated Check				13.28	15.78	13.10	15.25	13.3	13.3
2	Florasulam 50 SC	0.10	l/ha	A	13.48	15.68	13.10	15.30	13.2	13.4
3	Florasulam 50 SC	0.20	l/ha	A	13.38	15.45	13.10	15.43	13.2	13.2
4	Upton 050 SC	0.10	l/ha	A	13.43	15.55	12.90	15.40	13.1	13.4
5	Upton 050 SC	0.20	l/ha	A	13.43	15.35	13.00	14.98	13.4	13.4
				LSD	0.244	0.328	0.250	0.278	n.s.	n.s.

Table 3.4-26: The influence of the MATLAM on quality of yield
Winter wheat - moisture [%]

	Report code				028GPSS202201	028GPSS202202	SGS/2022/046/PL 01	SGS/2022/046/PL 02	NUZ07/22-6	NUZ07/22-7
	Treatment	Dose	Unit	Code						
1	Untreated Check				13.33	13.25	13.70	13.30	13	13.5
2	Florasulam 50 SC	0.10	l/ha	A	13.30	13.33	13.90	13.20	13	13.5
3	Florasulam 50 SC	0.20	l/ha	A	13.15	13.15	14.00	13.30	13.1	13.6

4	Upton 050 SC	0.10	l/ha	A	13.30	13.18	13.80	13.20	13.3	13.2
5	Upton 050 SC	0.20	l/ha	A	13.23	13.23	13.80	13.30	13.2	13.3
				LSD	0.264	0.136	0.120	0.290	n.s.	n.s.

Table 3.4-27: The influence of the MATLAM on quality of yield
Winter spelt - hectolitre weight [kg]

	Report code				SGS/2023/077/ PL01	SGS/2023/077/ PL02	SGS/2023/077/ PL03	SGS/2023/077/ PL04
	Treatment	Dose	Unit	Code				
1	Untreated Check				76.53	77.03	76.23	75.73
2	Florasulam 50 SC	0.10	l/ha	A	76.59	76.78	76.03	75.73
3	Florasulam 50 SC	0.20	l/ha	A	76.86	77.06	76.60	75.63
4	Saracen 050 SC	0.10	l/ha	A	76.61	76.71	76.78	75.90
5	Saracen 050 SC	0.20	l/ha	A	76.39	77.30	76.68	75.60
				LSD	1.049	0.645	0.623	1.026

Table 3.4-28: The influence of the MATLAM on quality of yield
Winter spelt - TGW [g]

	Report code				SGS/2023/077/ PL01	SGS/2023/077/ PL02	SGS/2023/077/ PL03	SGS/2023/077/ PL04
	Treatment	Dose	Unit	Code				
1	Untreated Check				43.87	43.92	41.50	41.83
2	Florasulam 50 SC	0.10	l/ha	A	43.58	44.01	41.33	41.51
3	Florasulam 50 SC	0.20	l/ha	A	43.86	43.56	41.97	51.13
4	Saracen 050 SC	0.10	l/ha	A	43.93	43.53	42.22	51.59
5	Saracen 050 SC	0.20	l/ha	A	43.64	43.86	42.13	51.19
				LSD	0.753	1.207	0.743	1.021

Table 3.4-29: The influence of the MATLAM on quality of yield
Winter spelt - protein content [%]

	Report code				SGS/2023/077/ PL01	SGS/2023/077/ PL02	SGS/2023/077/ PL03	SGS/2023/077/ PL04
	Treatment	Dose	Unit	Code				
1	Untreated Check				16.00	15.83	15.35	15.18
2	Florasulam 50 SC	0.10	l/ha	A	16.10	15.83	15.23	15.15
3	Florasulam 50 SC	0.20	l/ha	A	16.08	15.95	15.23	15.15
4	Saracen 050 SC	0.10	l/ha	A	15.95	15.90	15.23	15.10

5	Saracen 050 SC	0.20	l/ha	A	16.03	15.80	15.10	15.00
				LSD	0.317	0.207	0.177	0.139

Table 3.4-30: The influence of the MATLAM on quality of yield
Winter barley - hectolitre weight [kg]

	Report code				SGS/2023/080/PL01	SGS/2023/080/PL02	SGS/2023/080/PL03	SGS/2023/080/PL04
	Treatment	Dose	Unit	Code				
1	Untreated Check				56.71	57.10	61.10	60.11
2	Florasulam 50 SC	0.10	l/ha	A	57.31	57.08	61.69	59.95
3	Florasulam 50 SC	0.20	l/ha	A	56.85	57.18	61.33	59.99
4	Saracen 050 SC	0.10	l/ha	A	57.10	57.65	61.53	60.04
5	Saracen 050 SC	0.20	l/ha	A	56.28	57.03	61.50	59.93
				LSD	1.348	0.772	0.520	0.927

Table 3.4-31: The influence of the MATLAM on quality of yield
Winter barley - TGW [g]

	Report code				SGS/2023/080/PL01	SGS/2023/080/PL02	SGS/2023/080/PL03	SGS/2023/080/PL04
	Treatment	Dose	Unit	Code				
1	Untreated Check				43.85	35.62	38.25	37.14
2	Florasulam 50 SC	0.10	l/ha	A	44.18	36.54	38.97	37.05
3	Florasulam 50 SC	0.20	l/ha	A	44.14	35.00	38.22	37.05
4	Saracen 050 SC	0.10	l/ha	A	44.29	35.90	38.54	37.49
5	Saracen 050 SC	0.20	l/ha	A	44.56	36.03	38.52	37.07
				LSD	0.861	1.499	0.559	0.907

table 3.4.3.10 The influence of the MATLAM on quality of yield
Winter barley - protein content [%]

	Report code				SGS/2023/080/PL01	SGS/2023/080/PL02	SGS/2023/080/PL03	SGS/2023/080/PL04
	Treatment	Dose	Unit	Code				
1	Untreated Check				12.83	13.08	13.33	14.00
2	Florasulam 50 SC	0.10	l/ha	A	12.78	13.38	13.18	13.90
3	Florasulam 50 SC	0.20	l/ha	A	13.00	13.25	13.33	14.00
4	Saracen 050 SC	0.10	l/ha	A	12.90	13.48	13.23	14.05
5	Saracen 050 SC	0.20	l/ha	A	12.85	13.13	13.25	14.08
				LSD	0.225	0.597	0.189	0.214

Table 3.4-32: The influence of the MATLAM on quality of yield
Winter rye - hectolitre weight [kg]

	Report code				SGS/2023/079/ PL01	SGS/2023/079/ PL02	SGS/2023/079/ PL03	SGS/2023/079/ PL04
	Treatment	Dose	Unit	Code				
1	Untreated Check				73.45	73.88	72.10	73.33
2	Florasulam 50 SC	0.10	l/ha	A	73.43	73.60	72.35	72.98
3	Florasulam 50 SC	0.20	l/ha	A	73.71	73.50	71.88	73.04
4	Saracen 050 SC	0.10	l/ha	A	73.16	73.80	72.43	72.98
5	Saracen 050 SC	0.20	l/ha	A	73.61	73.03	72.00	72.63
				LSD	0.905	0.812	0.556	0.998

Table 3.4-33: The influence of the MATLAM on quality of yield
Winter rye - TGW [g]

	Report code				SGS/2023/079 /PL01	SGS/2023/079 /PL02	SGS/2023/079 /PL03	SGS/2023/079 /PL04
	Treatment	Dose	Unit	Code				
1	Untreated Check				30.04	31.66	30.91	32.42
2	Florasulam 50 SC	0.10	l/ha	A	29.80	31.11	30.76	32.42
3	Florasulam 50 SC	0.20	l/ha	A	30.34	31.56	30.95	32.15
4	Saracen 050 SC	0.10	l/ha	A	32.59	31.52	31.10	32.06
5	Saracen 050 SC	0.20	l/ha	A	29.99	32.10	30.84	32.10
				LSD	3.736	1.605	0.902	0.903

Table 3.4-34: The influence of the MATLAM on quality of yield
Winter rye - protein content [%]

	Report code				SGS/2023/079/ PL01	SGS/2023/079/ PL02	SGS/2023/079/ PL03	SGS/2023/079/ PL04
	Treatment	Dose	Unit	Code				
1	Untreated Check				10.40	10.33	10.15	10.18
2	Florasulam 50 SC	0.10	l/ha	A	10.38	10.35	10.13	10.23
3	Florasulam 50 SC	0.20	l/ha	A	10.33	10.43	10.25	10.30
4	Saracen 050 SC	0.10	l/ha	A	10.43	10.28	10.23	10.18
5	Saracen 050 SC	0.20	l/ha	A	10.40	10.28	10.20	10.25
				LSD	0.152	0.165	0.139	0.128

Table 3.4-35: The influence of the MATLAM on quality of yield
Winter triticale - hectolitre weight [kg]

	Report code				SGS/2023/078/ PL01	SGS/2023/078/ PL02	SGS/2023/078/ PL03	SGS/2023/078/ PL04
	Treatment	Dose	Unit	Code				
1	Untreated Check				74.53	68.68	74.60	72.23
2	Florasulam 50 SC	0.10	l/ha	A	75.05	68.80	75.35	72.40
3	Florasulam 50 SC	0.20	l/ha	A	75.00	68.45	74.05	72.65
4	Saracen 050 SC	0.10	l/ha	A	75.08	68.85	73.80	72.73
5	Saracen 050 SC	0.20	l/ha	A	74.78	68.38	73.93	71.65
				LSD	0.918	1.001	1.204	1.242

Table 3.4-36: The influence of the MATLAM on quality of yield
Winter triticale - TGW [g]

	Report code				SGS/2023/078/ PL01	SGS/2023/078/ PL02	SGS/2023/078/ PL03	SGS/2023/078/ PL04
	Treatment	Dose	Unit	Code				
1	Untreated Check				41.82	42.94	44.83	40.99
2	Florasulam 50 SC	0.10	l/ha	A	41.96	42.76	45.27	41.23
3	Florasulam 50 SC	0.20	l/ha	A	42.23	42.54	45.24	40.71
4	Saracen 050 SC	0.10	l/ha	A	42.05	43.47	44.75	41.60
5	Saracen 050 SC	0.20	l/ha	A	41.99	43.01	45.05	41.52
				LSD	0.739	1.562	0.786	1.268

Table 3.4-37: The influence of the MATLAM on quality of yield
Winter rye - protein content [%]

	Report code				SGS/2023/078/ PL01	SGS/2023/078/ PL02	SGS/2023/078/ PL03	SGS/2023/078/ PL04
	Treatment	Dose	Unit	Code				
1	Untreated Check				14.25	14.20	14.25	14.20
2	Florasulam 50 SC	0.10	l/ha	A	14.23	14.23	14.20	14.30
3	Florasulam 50 SC	0.20	l/ha	A	14.15	14.30	14.25	14.35
4	Saracen 050 SC	0.10	l/ha	A	14.38	14.33	14.15	14.10
5	Saracen 050 SC	0.20	l/ha	A	14.23	14.20	14.16	14.13
				LSD	0.314	0.102	0.240	0.173

Table 3.4-38: The influence of the MATLAM on quality of yield
Spring barely - Hectolitre weight [kg]

	Report code				030GPSS20220 1	030GPSS20220 2	SGS/2022/047/ PL01	SGS/2022/047/ PL02	NUZ07/22-13	NUZ07/22-14
	Treatment	Dose	Unit	Code						
1	Untreated Check				69.98	73.38	61.93	63.63	74.5	73.2
2	Florasulam 50 SC	0.10	l/ha	A	70.15	72.90	61.95	63.33	75.2	73.5
3	Florasulam 50 SC	0.20	l/ha	A	70.15	72.90	61.68	63.38	75.9	73.8
4	Upton 050 SC	0.10	l/ha	A	70.78	73.05	61.70	63.31	75.3	73.9
5	Upton 050 SC	0.20	l/ha	A	71.10	72.35	61.45	63.10	75.4	72.9
				LSD	1.163	1.250	0.385	0.492	n.s.	n.s.

Table 3.4-39: The influence of the MATLAM on quality of yield
Spring barley - TGW [g]

	Report code				030GPSS2022 01	030GPSS2022 02	SGS/2022/047/ PL01	SGS/2022/047/ PL02	NUZ07/22-13	NUZ07/22-14
	Treatment	Dose	Unit	Code						
1	Untreated Check				48.33	43.65	45.00	46.49	43.1	44.5
2	Florasulam 50 SC	0.10	l/ha	A	47.18	43.55	45.34	46.35	43.4	44.8
3	Florasulam 50 SC	0.20	l/ha	A	48.13	43.75	44.74	46.48	43.4	45.1
4	Upton 050 SC	0.10	l/ha	A	47.78	44.15	44.39	45.89	43.6	44.2
5	Upton 050 SC	0.20	l/ha	A	47.68	43.90	45.40	46.71	42.9	44.8
				LSD	1.226	1.465	1.357	1.013	n.s.	n.s.

Table 3.4-40: The influence of the MATLAM on quality of yield
Spring barley - moisture [%]

	Report code				030GPSS2022 01	030GPSS2022 02	SGS/2022/047/ PL01	SGS/2022/047/ PL02	NUZ07/22-13	NUZ07/22-14
	Treatment	Dose	Unit	Code						
1	Untreated Check				14.70	13.18	12.30	12.00	12.8	12.5
2	Florasulam 50 SC	0.10	l/ha	A	14.83	13.08	12.30	12.00	12.6	12.7
3	Florasulam 50 SC	0.20	l/ha	A	14.73	13.08	12.20	12.00	12.8	12.5
4	Upton 050 SC	0.10	l/ha	A	14.80	13.23	12.20	12.00	12.7	12.3
5	Upton 050 SC	0.20	l/ha	A	14.93	13.05	12.20	12.10	12.4	12.7
				LSD	0.398	0.338	0.160	0.210	n.s.	n.s.

Table 3.4-41: The influence of the MATLAM on quality of yield
Spring wheat - hectolitre weight [kg]

	Report code				SGS/2023/081/ PL01	SGS/2023/081/ PL02	SGS/2023/081/ PL03	SGS/2023/081/ PL04
	Treatment	Dose	Unit	Code				
1	Untreated Check				68.33	70.53	76.23	70.13
2	Florasulam 50 SC	0.10	l/ha	A	68.18	71.20	76.58	69.58
3	Florasulam 50 SC	0.20	l/ha	A	68.13	70.63	76.68	70.58
4	Saracen 050 SC	0.10	l/ha	A	68.38	70.21	76.83	70.60
5	Saracen 050 SC	0.20	l/ha	A	68.73	71.13	76.40	70.20
				LSD	1.075	1.277	0.703	1.135

Table 3.4-42: The influence of the MATLAM on quality of yield
Spring wheat - TGW [g]

	Report code				SGS/2023/081/ PL01	SGS/2023/081/ PL02	SGS/2023/081/ PL03	SGS/2023/081/ PL04
	Treatment	Dose	Unit	Code				
1	Untreated Check				39.35	44.93	39.84	48.36
2	Florasulam 50 SC	0.10	l/ha	A	39.05	45.45	40.42	50.09
3	Florasulam 50 SC	0.20	l/ha	A	38.85	44.85	41.34	49.03
4	Saracen 050 SC	0.10	l/ha	A	38.69	44.73	39.96	49.81
5	Saracen 050 SC	0.20	l/ha	A	39.45	45.26	40.87	49.76
				LSD	0.755	0.686	1.159	3.330

Table 3.4-43: The influence of the MATLAM on quality of yield
Spring barley - protein content [%]

	Report code				SGS/2023/081/ PL01	SGS/2023/081/ PL02	SGS/2023/081/ PL03	SGS/2023/081/ PL04
	Treatment	Dose	Unit	Code				
1	Untreated Check				12.43	12.28	12.40	11.25
2	Florasulam 50 SC	0.10	l/ha	A	12.40	12.18	12.43	11.75
3	Florasulam 50 SC	0.20	l/ha	A	12.48	12.28	12.28	12.60
4	Saracen 050 SC	0.10	l/ha	A	12.43	12.25	12.43	11.80
5	Saracen 050 SC	0.20	l/ha	A	12.35	12.25	12.38	12.13
				LSD	0.192	0.299	0.114	0.915

Table 3.4-44: The influence of the MATLAM on quality of yield
Spring oat - hectolitre weight [kg]

	Report code				SGS/2023/083/ PL01	SGS/2023/083/ PL02	SGS/2023/083/ PL03	SGS/2023/083/ PL04
	Treatment	Dose	Unit	Code				
1	Untreated Check				48.15	49.85	46.98	45.60
2	Florasulam 50 SC	0.10	l/ha	A	48.31	49.90	47.65	45.38
3	Florasulam 50 SC	0.20	l/ha	A	49.08	49.20	47.36	45.60
4	Saracen 050 SC	0.10	l/ha	A	47.85	49.25	47.88	45.38
5	Saracen 050 SC	0.20	l/ha	A	48.14	48.93	47.43	45.53
				LSD	0.669	0.992	0.751	0.788

Table 3.4-45: The influence of the MATLAM on quality of yield
Spring oat - TGW [g]

	Report code				SGS/2023/083/ PL01	SGS/2023/083/ PL02	SGS/2023/083/ PL03	SGS/2023/083/ PL04
	Treatment	Dose	Unit	Code				
1	Untreated Check				32.22	36.72	31.16	30.80
2	Florasulam 50 SC	0.10	l/ha	A	32.93	34.71	31.51	30.52
3	Florasulam 50 SC	0.20	l/ha	A	32.85	34.48	31.22	30.11
4	Saracen 050 SC	0.10	l/ha	A	33.20	35.01	31.64	30.53
5	Saracen 050 SC	0.20	l/ha	A	32.39	34.36	31.72	30.95
				LSD	1.179	3.409	0.606	0.734

Table 3.4-46: The influence of the MATLAM on quality of yield
Spring oat - protein content [%]

	Report code				SGS/2023/083/ PL01	SGS/2023/083/ PL02	SGS/2023/083/ PL03	SGS/2023/083/ PL04
	Treatment	Dose	Unit	Code				
1	Untreated Check				13.53	13.80	13.20	13.13
2	Florasulam 50 SC	0.10	l/ha	A	13.45	13.78	13.28	13.15
3	Florasulam 50 SC	0.20	l/ha	A	13.45	13.70	13.25	13.23
4	Saracen 050 SC	0.10	l/ha	A	13.55	13.73	13.28	13.15
5	Saracen 050 SC	0.20	l/ha	A	13.53	13.75	13.23	13.23
				LSD	0.130	0.175	0.245	0.136

Table 3.4-47: The influence of the MATLAM on quality of yield
Spring triticale - hectolitre weight [kg]

	Report code				SGS/2023/082/PL01	SGS/2023/082/PL02	SGS/2023/082/PL03	SGS/2023/082/PL04
	Treatment	Dose	Unit	Code				
1	Untreated Check				76.13	76.90	68.30	72.55
2	Florasulam 50 SC	0.10	l/ha	A	75.76	76.70	67.83	72.15
3	Florasulam 50 SC	0.20	l/ha	A	76.76	76.83	67.90	72.53
4	Saracen 050 SC	0.10	l/ha	A	76.14	76.45	68.43	72.30
5	Saracen 050 SC	0.20	l/ha	A	76.59	76.48	68.60	72.63
				LSD	0.743	0.633	0.761	0.966

Table 3.4-48: The influence of the MATLAM on quality of yield
Spring triticale - TGW [g]

	Report code				SGS/2023/082/PL01	SGS/2023/082/PL02	SGS/2023/082/PL03	SGS/2023/082/PL04
	Treatment	Dose	Unit	Code				
1	Untreated Check				41.88	40.96	33.75	34.55
2	Florasulam 50 SC	0.10	l/ha	A	42.12	41.13	34.15	34.26
3	Florasulam 50 SC	0.20	l/ha	A	42.21	41.76	33.79	34.33
4	Saracen 050 SC	0.10	l/ha	A	42.07	41.99	34.10	34.55
5	Saracen 050 SC	0.20	l/ha	A	41.79	42.20	34.19	34.74
				LSD	0.672	2.275	0.862	1.048

Table 3.4-49: The influence of the MATLAM on quality of yield
Spring triticale - protein content [%]

	Report code				SGS/2023/082/PL01	SGS/2023/082/PL02	SGS/2023/082/PL03	SGS/2023/082/PL04
	Treatment	Dose	Unit	Code				
1	Untreated Check				13.33	12.93	12.45	12.15
2	Florasulam 50 SC	0.10	l/ha	A	13.45	13.00	12.53	12.25
3	Florasulam 50 SC	0.20	l/ha	A	13.35	13.00	12.53	12.23
4	Saracen 050 SC	0.10	l/ha	A	13.25	12.90	12.45	12.13
5	Saracen 050 SC	0.20	l/ha	A	13.40	12.85	12.35	12.15
				LSD	0.207	0.184	0.320	0.169

3.4.3.1 Conclusion

MATLAM applied at the proposed dose rate in winter and spring cereals did not affect crop yield nor the quality of the crop yield significantly in any of the 40 trials conducted on winter and spring cereals. In all trials. MATLAM applied at 0.2 L/ha – representative for sprayer overlap – did not significantly affect the crop yield.

Furthermore. the data obtained in trials harvested demonstrate that MATLAM is as safe to the crop as the reference products (Saracen 050 SC and Upton 050 SC) used in the trials.

As this document clearly demonstrates. the efficacy and crop safety of MATLAM is equivalent to the standards Florasulam products to which it was compared.

Comments of zRMS:	**<u>Effect on the yield quality</u>** The impact of Matlam on grain weight, hectolitre weight, protein content, and moisture content of the harvested yield was evaluated in 12 trials conducted in Poland, in 2022 (6 on winter wheat, 6 on spring barley), and 28 trials conducted in 2023 (4 on spelt wheat, 4 on winter triticale, 4 on winter rye, 4 on winter barley, 4 on spring wheat, 4 on spring triticale and 4 on spring oat. The data presented in the tables indicate that Matlam applied at the rate proposed for registration 0.1 L/ha, does not influence the quality of cereal grains. A tiny difference in quality parameters of grains (grain weight, hectolitre weight, protein content, and moisture content) was observed between the crops treated with Matlam (40 trials) and untreated control and standard products Saracen 050 SC and Upton 050 SC, however, there was no clear trend of changes. There were also no differences between these treatments, after using Matlam at a double dose of 0.2 L/ha, which confirms the selectivity of Matlam and its suitability for weed control in cereal crops. To support the Matlam registration, the unprotected data on grain quality from 164 trials presented in the registration report for Kantor 050 EC (EF-1343) can also be used. In those trials, the protein, starch, and gluten contents in grains of cereal crops after autumn or spring herbicide application were determined. However, slightly different parameters were assessed than in the case of the Matlam application (grain weight, hectoliter weight, protein content, and moisture content), and Kantor 050 EC was used also at the rate of 0.125 l/ha (1N). The data showed that Kantor 050 EC at the rate of 0.125 l/ha is safe for all labeled cereals and does not affect the quality of plants and plant products. **Conclusion**. The results of the trials indicate that Matlam is safe for cereal crops and does not influence yield quality. It supports and justifies the registration of Matlam in Poland, for weeds control in winter and spring wheat, winter spelt wheat, winter and spring barley, winter and spring triticale, winter rye, and spring oat.

3.4.4 Effects on transformation processes (KCP 6.4.4)

Lack of additional tests in this range. Active substances comprising in this product has been applied for many years, not only in Poland but also in the other countries of Europe.
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The cereal trials conducted in barley and wheat that were previously evaluated in the first Annex I inclusion are still adecquate to support the GAP proposed for Annex I reneval. Additional residue trilas conducted on cereals (wheat and barley). maize and pasture grass to support Annex I reneval confirm that existing EU MRLs are adequate and that no revision is needed.
According EPPO PP 1/243(2) Effects of plant protection products on transformation processes: data on transformation processes should be addressed when there are residues. If the applicant can demonstrate that residues are undetectable. or that any residues will not affect yeasts. a reasoned case may be suffi-

cient to address these requirements. For details Please refer to Section 7. point 7.2.2 Nature of residues.

Comments of zRMS:	The applicant did not present data on the impact of Matlam on transformation processes. It states that florasulam has been applied for many years, not only in Poland but also in the other countries of Europe. The trials conducted earlier in barley and wheat, previously evaluated, are still adequate to support the registration. ZRMS accepts the applicant's explanation.

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

According to EPPO 1/135(4) propagation material taken from selectivity trials (of both normal and higher dose) should be assessed for any phytotoxic effects by comparison with the reference product and untreated control. The circumstances under which data on plant parts for propagation are required showed table 2 pt 9 (1/135). For herbicides postemergence use propagation data on plant parts are required when foliar applied treatments and when application is made at or after inflorescence initiation e.g. for cereals when the first node is detectable (BBCH GS 30) or where detectable residues occur in harvested seed. Note: Where data are not indicated as required. the applicant should justify this with a case for the particular product/active substance in question. The case should include reference to residue information as well as biological activity of any metabolites present. This is of particular importance for crops grown specifically as seed crops.

North-east EPPO Zone
There is no information available pointing to presence of any limitations to using of MATLAM in seed crops of winter and spring cereals
In the course of studies carried out in Poland in the season of 2022 and 2023 on product MATLAM the herbicide has not been observed to have any significant influence on yield.

Comments of zRMS:	ZRMS accept applicant explanation.

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

3.5.1 Impact on succeeding crops (KCP 6.5.1)

According to Florasulam_RAR_01_Volume_1_2013-11-25_san.pdf 2.4.2
No new study was submitted. A confined rotational crop / metabolism studies were conducted in four rotational crops (cabbage. carrot. sunflower and wheat) and were evaluated during the first Annex I inclusion. Based on the rate of dissipation of florasulam residues in soil and results from a confined rotational crop residue studies. it was concluded that residues in succeeding crops are not sufficient to reach measurable levels in monitoring (<0.01 mg/kg) and no specific plant-back restrictions related to florasulam were required.
Proposed Pre-harvest Intervals for Envisaged Uses. or Withholding Periods or Storage Periods. in the Case of Post Harvest Use
Pre-harvest interval: Cereals: None required; interval determined based on maximum growth stage at application (BBCH 45)
According to **Florasulam_RAR_06_Volume_3CA-CP_B-7_2013-11-25_san.pdf B.7.9 Residues in succeeding or rotational crops**
No new study is being submitted. A confined rotational crop / metabolism study was conducted in four rotational crops (cabbage. carrot. sunflower and what) and was evaluated during the first Annex I inclusion. Based on the rate of dissipation of florasulam residues in soil and results from a confined rotational crop residue study. it was concluded that residues in succeeding crops are not sufficient to reach measurable levels in monitoring (<0.01 mg/kg)

and no specific plant-back restrictions related to florasulam were required (EFSA Reasoned Opinion; EFSA Journal 2012;10(3):2626).

Comments of zRMS:	No new data were submitted. The applicant states that confined rotational crop/ metabolism studies were conducted in four rotational crops (cabbage, carrot, sunflower, and wheat) and evaluated during the first Annex I inclusion. These data can support Matlam registration. In addition, florasulam has been used for many years and its impact on successive crops is known. ZRMS accepts applicant's explanation.

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

During the conduct of efficacy trials and selectivity trials. no observations about negative or positive effects on other plants or neighbouring crops were reported.

No separate studies have been carried out concerning the influence of product MATLAM on adjacent plants. The owner of the product MATLAM and of its registration documentation is referring to available sources in literature treating on herbicide florasulam.

According to EPPO 1/256 - Decision-support scheme for the risk assessment for adjacent crops - Toxicity values are compared with predicted environmental concentrations to develop a Toxicity:Exposure-Ratio (TER is calculated as the ED50-value divided by the estimated drift value Appendix 2. Progression to the next tier is warranted if the safety margin is not met. while testing is stopped if the safety margin is met or exceeded.
Tier 0: If no adverse exposure of adjacent crops will occur under field conditions (e.g. seed treatment. use of granules. application by watering can) no further testing is necessary.
Tier 1: If a relevant exposure is likely. If the plant protection product causes no phytotoxic symptoms on the plant species tested. no further testing is necessary.
Tier 2: If phytotoxicity is observed. dose-response relationships for species representing plant families for which significant negative activity has been found should be generated to quantify the level of effect using both soil and foliar exposure scenarios.

MATLAM analise for decision if further testing is necessary.
According EPPO 1/256. Appendix 2 Decision-support scheme for the risk assessment for adjacent crops on green applicant marked path of analise. MATLAM is herbicide so there is risk for adverse exposure of adjacent crops. When analysing phytotoxity MATLAM in winter and spring cereals there was not any phytotoxicity symptoms in all phytotoxicity trials conducted in North-east EPPO Zone. What is more tested herbicide did not influence on yield. and quality of yield of 1000 grains. HL. protein content regardless of herbicide dose.

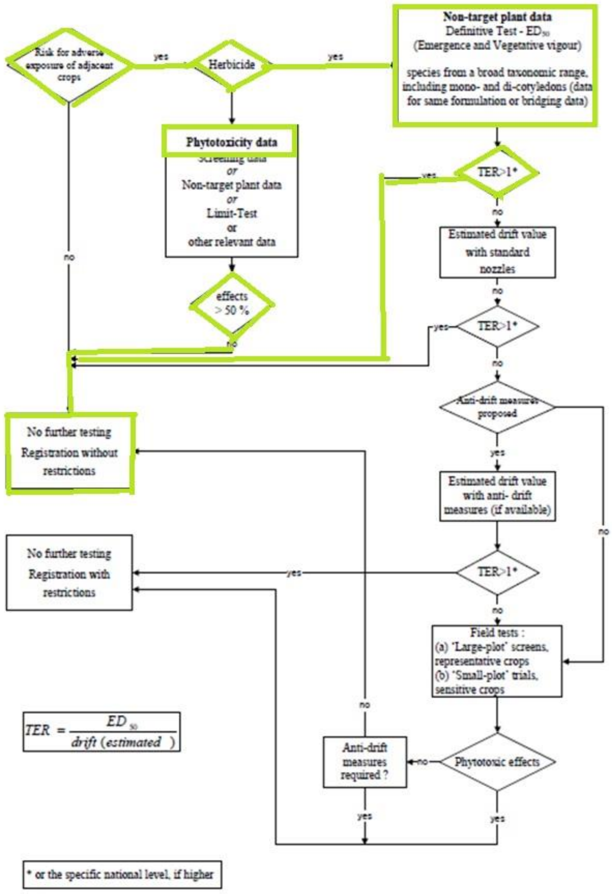
To protect aquatic organisms respect an unsprayed vegetated buffer zone of 15 m to surface water bodies.
To protect non-target plants respect an unsprayed buffer zone of 15m to non-agricultural land OR an unsprayed buffer zone of 10m to non-agricultural land with use 50% drift reducing nozzles OR an unsprayed buffer zone of 5m to non-agricultural land with use 75% drift reducing nozzles

When analising path for sheme in Non target plant data. TER for all mono and dicots plants is >1 so no further testing is needed.

For all data and details with assessment of the risk for non-target plants due to the use of MATLAM 50 SC please refer to section 9 Ecotoxicology point 9.10

When analising path for sheme in Non target plant data. TER for all mono and dicots plants is >1 so no further testing is needed.

Appendix 2 Decision-support scheme for the risk assessment for adjacent crops



When phytotoxicity effects are below 50% no further testing is needed. Registration without restrictions.
When Non target plant data TER >1 no further testing is needed. Registration without restrictions.

Comments of zRMS:	ZRMS accepts the applicant's explanation.

3.5.3 Effects on beneficial and other non-target organisms (KCP 6.5.3)

From the experimentation carried out with MATLAM in 2022 and 2023. no problems regarding adverse effects on beneficial organisms were reported.

Special tests to investigate this purpose are not required.

Comments of zRMS:	ZRMS accepts the applicant's explanation.

3.6 Other/special studies

No other studies were conducted

3.7 List of test facilities including the corresponding certificates

The following table gives information about the testing facilities where trials mentioned in this document were conducted. All facilities are certified and the trials were conducted according to GEP guidelines.

Table 3.7-1: List of test facilities

Overview of testing facilities with number of trials conducted in 2022 and 2023

Test facility	Address	Certificate (Yes or No)	Year and trial type		
			2022	2022	2023
			Eff	Sel	Sel
Green & Property Consulting	ul. Na Stoku. nr 6/6. 26-600 Radom. Poland	Yes	5	4	-
SGS Polska Sp. z o.o.	ul. Jana Kazimierza 3 01-248 Warszawa. Poland	Yes	5	4	28
Institute of Soil Science and Plant Cultivation	IUNG PIB Puławy. Poland ul.Czartoryskich 8. 24-100 Puławy	Yes	5	4	-

Appendix 1 Lists of data considered in support of the evaluation

List of data submitted by the applicant and relied on

Comments of zRMS:	The list of data considered to support the Matlam evaluation, presented below in the table, should be recognized as protected data, unless the applicant decides otherwise.

Ref. ID no. and Annex point	Author	Year	Title Source (where different from company) Company. Report No. GLP or GEP status (where relevant) Published or Unpublished	Data Vertebrate study Y/N	Owner
KCP 6.4.1-1	Mateusz Krawczuk	2023	Selectivity of Florasulam 50 SC when applied into winter spelt. Poland 2023 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2023/077/PL01 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.4.1-2	Mateusz Krawczuk	2023	Selectivity of Florasulam 50 SC when applied into winter spelt. Poland 2023 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2023/077/PL02 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.4.1-3	Mateusz Krawczuk	2023	Selectivity of Florasulam 50 SC when applied into winter spelt. Poland 2023 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2023/077/PL03 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.4.1-4	Mateusz Krawczuk	2023	Selectivity of Florasulam 50 SC when applied into winter spelt. Poland 2023	N	XXXX

			Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2023/077/PL04 RainbowAgro reference no.: - GEP. Unpublished		
KCP 6.4.1-5	Mateusz Krawczuk	2023	Selectivity of Florasulam 50 SC when applied into winter triticale. Poland 2023 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2023/078/PL01 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.4.1-6	Mateusz Krawczuk	2023	Selectivity of Florasulam 50 SC when applied into winter triticale. Poland 2023 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2023/078/PL02 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.4.1-7	Mateusz Krawczuk	2023	Selectivity of Florasulam 50 SC when applied into winter triticale. Poland 2023 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2023/078/PL03 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.4.1-8	Mateusz Krawczuk	2023	Selectivity of Florasulam 50 SC when applied into winter triticale. Poland 2023 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2023/078/PL04 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.4.1-9	Mateusz Krawczuk	2023	Selectivity of Florasulam 50 SC when applied into winter rye. Poland 2023 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2023/079/PL01 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX

KCP 6.4.1-10	Mateusz Krawczuk	2023	Selectivity of Florasulam 50 SC when applied into winter rye. Poland 2023 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2023/079/PL02 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.4.1-11	Mateusz Krawczuk	2023	Selectivity of Florasulam 50 SC when applied into winter rye. Poland 2023 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2023/079/PL03 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.4.1-12	Mateusz Krawczuk	2023	Selectivity of Florasulam 50 SC when applied into winter rye. Poland 2023 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2023/079/PL04 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.4.1-13	Mateusz Krawczuk	2023	Selectivity of Florasulam 50 SC when applied into winter barley. Poland 2023 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2023/080/PL01 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.4.1-14	Mateusz Krawczuk	2023	Selectivity of Florasulam 50 SC when applied into winter barley. Poland 2023 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2023/080/PL02 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.4.1-15	Mateusz Krawczuk	2023	Selectivity of Florasulam 50 SC when applied into winter barley. Poland 2023 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2023/080/PL03	N	XXXX

			RainbowAgro reference no.: - GEP. Unpublished		
KCP 6.4.1-16	Mateusz Krawczuk	2023	Selectivity of Florasulam 50 SC when applied into winter barley. Poland 2023 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2023/080/PL04 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.4.1-17	Mateusz Krawczuk	2023	Selectivity of Florasulam 50 SC when applied into spring wheat. Poland 2023 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2023/081/PL01 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.4.1-18	Mateusz Krawczuk	2023	Selectivity of Florasulam 50 SC when applied into spring wheat. Poland 2023 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2023/081/PL02 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.4.1-19	Mateusz Krawczuk	2023	Selectivity of Florasulam 50 SC when applied into spring wheat. Poland 2023 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2023/081/PL03 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.4.1-20	Mateusz Krawczuk	2023	Selectivity of Florasulam 50 SC when applied into spring wheat. Poland 2023 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2023/081/PL04 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.4.1-21	Mateusz Krawczuk	2023	Selectivity of Florasulam 50 SC when applied into spring	N	XXXX

			triticale. Poland 2023 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2023/082/PL01 RainbowAgro reference no.: - GEP. Unpublished		
KCP 6.4.1-22	Mateusz Krawczuk	2023	Selectivity of Florasulam 50 SC when applied into spring triticale. Poland 2023 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2023/082/PL02 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.4.1-23	Mateusz Krawczuk	2023	Selectivity of Florasulam 50 SC when applied into spring triticale. Poland 2023 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2023/082/PL03 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.4.1-24	Mateusz Krawczuk	2023	Selectivity of Florasulam 50 SC when applied into spring triticale. Poland 2023 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2023/082/PL04 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.4.1-25	Mateusz Krawczuk	2023	Selectivity of Florasulam 50 SC when applied into spring oat. Poland 2023 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2023/083/PL01 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.4.1-26	Mateusz Krawczuk	2023	Selectivity of Florasulam 50 SC when applied into spring oat. Poland 2023 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2023/083/PL02 RainbowAgro reference no.: -	N	XXXX

			GEP. Unpublished		
KCP 6.4.1-27	Mateusz Krawczuk	2023	Selectivity of Florasulam 50 SC when applied into spring oat. Poland 2023 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2023/083/PL03 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.4.1-28	Mateusz Krawczuk	2023	Selectivity of Florasulam 50 SC when applied into spring oat. Poland 2023 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2023/083/PL04 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.4.1-29	Mateusz Krawczuk	2022	Selectivity of Floras 50 SC when applied into spring barley. Poland 2022 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2022/047/PL01 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.4.1-30	Mateusz Krawczuk	2022	Selectivity of Floras 50 SC when applied into spring barley. Poland 2022 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2022/047/PL02 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.4.1-31	Prof. Assoc. Jerzy Grabiński PhD Marta Wyzińska	2022	The selectivity of Floras 50 SC in the spring barley (Hordeum vulgare)cultivation Laboratory: IUNG Puławy Poland Trial number: NUZ 07/22/13 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.4.1-32	Prof. Assoc. Jerzy Grabiński	2022	The selectivity of Floras 50 SC in the spring barley (Hordeum vulgare)cultivation	N	XXXX

	PhD Marta Wyzińska		Laboratory: IUNG Puławy Poland Trial number: NUZ 07/22/14 RainbowAgro reference no.: - GEP. Unpublished		
KCP 6.4.1-33	Mateusz Krawczuk	2022	Selectivity of Floras 50 SC when applied into winter wheat. Poland 2022 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2022/046/PL01 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.4.1-34	Mateusz Krawczuk	2022	Selectivity of Floras 50 SC when applied into winter wheat. Poland 2022 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2022/046/PL02 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.4.1-35	Prof. Assoc. Jerzy Grabiński PhD Marta Wyzińska	2022	The selectivity of Floras 50 SC on the winter wheat (Triticum aestivum) Laboratory: IUNG Puławy Poland Trial number: NUZ 07/22/6 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.4.1-36	Prof. Assoc. Jerzy Grabiński PhD Marta Wyzińska	2022	The selectivity of Floras 50 SC on the winter wheat (Triticum aestivum) Laboratory: IUNG Puławy Poland Trial number: NUZ 07/22/7 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.4.1-37	Krzysztof Ławiński	2023	Evaluation of selectivity and efficacy against weeds in cereals. Poland 2022 Laboratory: Green & Property. Poland Trial number: 029GPSE202201 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX

KCP 6.4.1-38	Krzysztof Ławiński	2023	Evaluation of selectivity and efficacy against weeds in cereals. Poland 2022 Laboratory: Green & Property. Poland Trial number: 029GPSE202202 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.4.1-39	Krzysztof Ławiński	2023	Evaluation of selectivity and efficacy against weeds in cereals. Poland 2022 Laboratory: Green & Property. Poland Trial number: 029GPSE202203 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.4.1-40	Krzysztof Ławiński	2023	Evaluation of selectivity and efficacy against weeds in cereals. Poland 2022 Laboratory: Green & Property. Poland Trial number: 029GPSE202204 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.1.2-1	Krzysztof Ławiński	2023	Evaluation of selectivity and efficacy against weeds in cereals. Poland 2022 Laboratory: Green & Property. Poland Trial number: 029GPSE202205 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.1.2-2	Mateusz Krawczuk	2022	Efficacy evaluation on Floras 50 SC when applied into spring barley for the control of broadleaves weeds. Poland 2022 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2022/049/PL01 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.1.2-3	Mateusz Krawczuk	2022	Efficacy evaluation on Floras 50 SC when applied into spring barley for the control of broadleaves weeds. Poland 2022	N	XXXX

			Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2022/049/PL02 RainbowAgro reference no.: - GEP. Unpublished		
KCP 6.1.2-4	Mateusz Krawczuk	2022	Efficacy evaluation on Floras 50 SC when applied into spring barley for the control of broadleaves weeds. Poland 2022 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2022/049/PL03 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.1.2-5	Mateusz Krawczuk	2022	Efficacy evaluation on Floras 50 SC when applied into spring barley for the control of broadleaves weeds. Poland 2022 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2022/049/PL04 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.1.2-6	Mateusz Krawczuk	2022	Efficacy evaluation on Floras 50 SC when applied into spring barley for the control of broadleaves weeds. Poland 2022 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2022/049/PL05 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.1.2-7	Prof. Assoc. Jerzy Grabiński PhD Marta Wyzińska	2022	The effectiveness of Floras 50 EC in spring barley (Hordeum vulgare) Laboratory: IUNG Puławy Poland Trial number: NUZ 07/22/8 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.1.2-8	Prof. Assoc. Jerzy Grabiński PhD Marta Wyzińska	2022	The effectiveness of Floras 50 EC in spring barley (Hordeum vulgare) Laboratory: IUNG Puławy Poland	N	XXXX

			Trial number: NUZ 07/22/9 RainbowAgro reference no.: - GEP. Unpublished		
KCP 6.1.2-9	Prof. Assoc. Jerzy Gra-biński PhD Marta Wyzińska	2022	The effectiveness of Floras 50 EC in spring barley (Hordeum vulgare) Laboratory: IUNG Puławy Poland Trial number: NUZ 07/22/10 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.1.2-10	Prof. Assoc. Jerzy Gra-biński PhD Marta Wyzińska	2022	The effectiveness of Floras 50 EC in spring barley (Hordeum vulgare) Laboratory: IUNG Puławy Poland Trial number: NUZ 07/22/11 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.1.2-11	Prof. Assoc. Jerzy Gra-biński PhD Marta Wyzińska	2022	The effectiveness of Floras 50 EC in spring barley (Hordeum vulgare) Laboratory: IUNG Puławy Poland Trial number: NUZ 07/22/12 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.1.2-12	Krzysztof Ławiński	2023	Evaluation of selectivity in cereals. Poland 2022 Laboratory: Green & Property. Poland Trial number: 030GPSS202201 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.1.2-13	Krzysztof Ławiński	2023	Evaluation of selectivity in cereals. Poland 2022 Laboratory: Green & Property. Poland Trial number: 030GPSS202202 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.1.2-14	Krzysztof Ławiński	2023	Evaluation of selectivity and efficacy against weeds in cereals. Poland 2022	N	XXXX

			Laboratory: Green & Property. Poland Trial number: 027GPSE202201 RainbowAgro reference no.: - GEP. Unpublished		
KCP 6.1.2-15	Krzysztof Ławiński	2023	Evaluation of selectivity and efficacy against weeds in cereals. Poland 2022 Laboratory: Green & Property. Poland Trial number: 027GPSE202202 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.1.2-16	Krzysztof Ławiński	2023	Evaluation of selectivity and efficacy against weeds in cereals. Poland 2022 Laboratory: Green & Property. Poland Trial number: 027GPSE202203 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.1.2-17	Krzysztof Ławiński	2023	Evaluation of selectivity and efficacy against weeds in cereals. Poland 2022 Laboratory: Green & Property. Poland Trial number: 027GPSE202204 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.1.2-18	Krzysztof Ławiński	2023	Evaluation of selectivity and efficacy against weeds in cereals. Poland 2022 Laboratory: Green & Property. Poland Trial number: 027GPSE202205 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.1.2-19	Mateusz Krawczuk	2022	Efficacy evaluation on Floras 50 SC when applied into winter wheat for the control of broadleaves weeds. Poland 2022 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2022/048/PL01 RainbowAgro reference no.: -	N	XXXX

			GEP. Unpublished		
KCP 6.1.2-20	Mateusz Krawczuk	2022	Efficacy evaluation on Floras 50 SC when applied into winter wheat for the control of broadleaves weeds. Poland 2022 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2022/048/PL02 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.1.2-21	Mateusz Krawczuk	2022	Efficacy evaluation on Floras 50 SC when applied into winter wheat for the control of broadleaves weeds. Poland 2022 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2022/048/PL03 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.1.2-22	Mateusz Krawczuk	2022	Efficacy evaluation on Floras 50 SC when applied into winter wheat for the control of broadleaves weeds. Poland 2022 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2022/048/PL04 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.1.2-23	Mateusz Krawczuk	2022	Efficacy evaluation on Floras 50 SC when applied into winter wheat for the control of broadleaves weeds. Poland 2022 Laboratory: SGS Polska Sp. z o.o. Trial number: SGS/2022/048/PL05 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.1.2-24	Prof. Assoc. Jerzy Grabiński PhD Marta Wyzińska	2022	The effectiveness of Floras 50 EC in winter wheat(Triticum aestivum) Laboratory: IUNG Puławy Poland Trial number: NUZ 07/22/1	N	XXXX

			RainbowAgro reference no.: - GEP. Unpublished		
KCP 6.1.2-25	Prof. Assoc. Jerzy Gra-biński PhD Marta Wyzińska	2022	The effectiveness of Floras 50 EC in winter wheat(Triticum aestivum) Laboratory: IUNG Puławy Poland Trial number: NUZ 07/22/2 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.1.2-26	Prof. Assoc. Jerzy Gra-biński PhD Marta Wyzińska	2022	The effectiveness of Floras 50 EC in winter wheat(Triticum aestivum) Laboratory: IUNG Puławy Poland Trial number: NUZ 07/22/3 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.1.2-27	Prof. Assoc. Jerzy Gra-biński PhD Marta Wyzińska	2022	The effectiveness of Floras 50 EC in winter wheat(Triticum aestivum) Laboratory: IUNG Puławy Poland Trial number: NUZ 07/22/4 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.1.2-28	Prof. Assoc. Jerzy Gra-biński PhD Marta Wyzińska	2022	The effectiveness of Floras 50 EC in winter wheat(Triticum aestivum) Laboratory: IUNG Puławy Poland Trial number: NUZ 07/22/5 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.1.2-29	Krzysztof Ławiński	2023	Evaluation of selectivity in cereals. Poland 2022 Laboratory: Green & Property. Poland Trial number: 028GPSS202201 RainbowAgro reference no.: - GEP. Unpublished	N	XXXX
KCP 6.1.2-30	Krzysztof Ławiński	2023	Evaluation of selectivity in cereals. Poland 2022 Laboratory: Green & Property. Poland	N	XXXX

			Trial number: 028GPSS202202 RainbowAgro reference no.: - GEP. Unpublished		