FINAL REGISTRATION REPORT

Part B

Section 3

Efficacy Data and Information

Concise summary

Product code: H-01-2022

Product name(s): Terbutylazyna 500 SC

Chemical active substance:

terbuthylazine 500 g/L

Central Zone

Zonal Rapporteur Member State: Poland

CORE ASSESSMENT

(authorization)

Applicant: ProAgri International Sp. z o.o.

Submission date: April 2024

MS Finalisation date: 11.2024; 03.2025

Version history

When	What
March 2024	Submission of application for extension of authorization
November 2024	ZRMs evaluated dRR submitted by Applicant
March 2025	The final Registration Report

Table of Contents

KCP 6. Efficacy Data 4

Summary and conclusions of zRMS on Section 3: Efficacy (KCP 6) 4

KCP 6.1 Preliminary tests 12
KCP 6.2 Testing effectiveness 12
KCP 6.2.1 Minimum effective dose tests 12
KCP 6.2.2 Efficacy tests 76
KCP 6.3 Information on the occurrence or possible occurrence of the development of resistance 148
KCP 6.3.1 Evidence of resistance 150
KCP 6.3.2 Mechanism of resistance 150
KCP 6.3.3 Determination of Inherent Risk for Resistance of Targeted Pathogens 151
KCP 6.3.4 Risk of resistance development 152
KCP 6.3.5 Resistance management strategy 152
KCP 6.4 Adverse effects on treated crops 155
KCP 6.4.1 Phytotoxicity to target plants (including different cultivars) 156
KCP 6.4.2 Effect on the yield of treated plants or plant product 160
KCP 6.4.3 Effects on the quality of plants or plant products 165
KCP 6.4.4 Effects on transformation processes 174
KCP 6.4.5 Impact on treated plants or plant products to be used for propagation 174
KCP 6.4.6 Summary and conclusions- adverse effects on treated crop 175
KCP 6.4.7 Impact on succeeding crops 175
KCP 6.4.8 Impact on other plants including adjacent crops 176
KCP 6.4.9 Effects on beneficial and other non-target organisms 176
KCP 6.5 Other/special studies 177
KCP 6.6 List of test facilities including the corresponding certificates 177
KCP 6.7 Appendices 182

KCP 6. Efficacy Data

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

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

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

Comments of zRMS:	Comments of ZRMs are presented in commenting boxes at the end of each chapter. The text of dRR was generally not changed or rewritten (small changes in the document are marked by grey colour).

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

Abstract

Comments of ZRMs Detailed assessment is presented in commenting boxes after each chapter. In briefly summary, Terbutylazyna 500 SC can be granted in Poland for pre-emergence (BBCH 00) or early post-emeregcne use (BBCH 12-16) use against weeds on maize at recommended dose 1,0 L/ha and 1,5 L/ha. Accepted water volume is 150-300 L/ha. Product can be used only once a season.

Table 6-1: Acceptability of intended uses (and respective fall-back GAPs, if applicable)

GAP rev. 1, date: 2023-03-29

PPP (product name/code):	Terbutylazyna 500 SC	Formulation type:	SC [a, b]
Active substance 1:	terbuthylazine	Conc. of as 1:	500 g/L [c]
Active substance 2:		Conc. of as 2:	[c]
Active substance….:	active substance ...	Conc. of as ….:	conc. [c]
Safener:	safener	Conc. of safener:	conc. [c]
Synergist:	synergist	Conc. of synergist:	conc. [c]l
Applicant:	company	Professional use:	☐
Zone(s):	northern/central/southern/interzonal [d]	Non professional use:	☐
Verified by MS:	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	Maize	F	weeds	overall	BBCH 00	a) 1 b) 1	n/a	a) 1-1.5 b) 1-1.5	a) 500-750 b) 500-750	~~100-400~~ 150-300	n/a	Targeted range: 1.0-1.5 L/ha
2	PL	Maize	F	weeds	overall	BBCH 12-16	a) 1 b) 1	n/a	a) 1-1.5 b) 1-1.5	a) 500-750 b) 500-750	~~100-400~~ 150-300	n/a	Targeted range: 1.0-1.5 L/ha

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

* Use number(s) in accordance with the list of all intended GAPs in Part B, Section 0 should be given in column 1.
** F: professional field use, Fn: non-professional field use, Fpn: professional and non-professional field use, G: professional greenhouse use, Gn: non-professional greenhouse use, Gpn: professional and non-professional greenhouse use, I: indoor application

Column 15: zRMS conclusion.

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

Introduction

This document summarizes the information related to the efficacy and selectivity data of the plant protection product Terbutylazyna 500 SC containing active substance: terbuthylazine, which according to the HRAC classification is included in group 5 (Legacy of C1).

The aim of the data presented in this dossier is to support the registration of Terbutylazyna 500 SC for the control of a broad spectrum of weeds of maize in Poland.

Terbutylazyna 500 SC is a selective herbicide formulated as a suspension concentrate (SC) for foliar spray applications that contains active substance terbuthylazine at dose 500 g/l. This active substance is commonly used pre-emergence and post-emergence to control weeds of maize and cereals.

This dRR describes the biological studies and results achieved in 8 GEP efficacy and 5 selectivity trials conducted in the 2022 seasons against of annual dicotyledonous weeds in several variety of maize. All trials were carried out in North East EPPO Zone (Poland) in open field conditions. Data have been generated in accordance with Commission Regulation (EU) No 284/2013 and European and Mediterranean Plant Protection Organisation (EPPO) guidance documents, where applicable.

Terbuthylazine was approved in accordance with Commission Implementing Regulation (EU) No 820/2011 of 16 August 2011 approving the active substance terbuthylazine, in accordance with Regulation (EC) No 1107/2009 of the European Parliament and of the Council concerning the placing of plant protection products on the market, and amending the Annex to Commission Implementing Regulation (EU) No 540/2011 and Commission Decision 2008/934/EC.

Moreover, terbuthylazine is a major component of herbicides in Europe using to control of a monocotyledonous and dicotyledonous weeds, especially in maize. Approximately 60% of the combined area in maize production in Europe received terbuthylazine, including Germany, Italy, and Belgium. Terbuthylazine is used in more than 45 countries and remains a key weed control tool in crops such as maize, sorghum, pea, bean, lupin, grape, pome fruit, citrus, and vine.

Detailed information on intended label extension uses for Terbutylazyna 500 SC is included in the GAP table reported in Table 6-1.

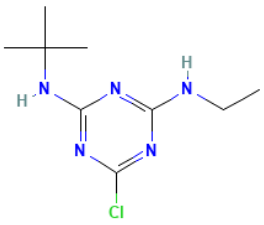
The list of references included in this document for support of the evaluation is contained in Appendix 1.

Description of active substance

Terbuthylazine was first described in 1966. Research conducted in the USA showed that the herbicidal effectiveness of terbuthylazine is lower than that of atrazine, which meant that it was not used on agricultural fields in this country for many years (in 1986 it was registered as a preparation for combating algae). This substance has become very important in some parts of Europe and South Africa, especially where maize was infested with weeds of the Tagetes species, which were not controlled by atrazine. Terbuthylazine is an active substance recommended for combating dicotyledonous weeds in maize cultivation.

Terbuthylazine is a chemical compound with the molecular formula C11H18ClN5S. It is a white crystalline solid that is sparingly soluble in water. Some more details about the chemical properties of terbuthylazine are presented below:

General and chemical data on active substance

Active substance (ISO common name)	Terbuthylazine
Chemical name (IUPAC)	2-N-tert-butyl-6-chloro-4-N-ethyl-1,3,5-triazine-2,4-diamine
CIPAC No	234
CAS No	5915-41-3
Function	Herbicide
Chemical family	Triazine
HRAC group	C1
Minimum purity	930 g/kg, typically 960-980 /kg
Molecular formula	C9H16ClN5
Molecular mass	229.71 g/mol
Structural formula	

Mode of action

Terbuthylazine is an active substance commonly used as an herbicide in agriculture. It belongs to the group of triazine herbicides and acts by inhibiting photosynthesis in plants. By blocking this essential process, terbuthylazine ultimately causes damage to the plant tissues and inhibits its ability to synthesize essential carbohydrates. Specifically, it inhibits the electron transport chain in photosystem II, leading to a disruption in the production of ATP and NADPH necessary for plant growth. This disruption of photosynthesis ultimately leads to the death of the target weeds, making terbuthylazine an effective herbicide for the control of a broad spectrum of monocotyledonous and dicotyledonous weeds in agriculture.

Description of the plant protection product

Terbuthylazine is a systemic herbicide. It disrupts the photosynthesis process (inhibition of electron flow in photosystem II). Chlorosis appears on the leaves, which later turns into necrosis. Chlorosis appears mainly in the interveinal spaces, as well as on the edges and tops of leaves. After foliar treatment, symptoms are first visible on the leaves that came into contact with the herbicide, and after soil treatment, on the oldest leaves (after soil spraying, weeds often die at the stage of emergence). Thanks to the soil-removing effect of terbuthylazine, weed emergence is limited for 6-8 weeks after spraying.

Description of the target pests

A list of the target organisms on which Terbutylazyna 500 SC was tested upon in the trials presented in this dossier, is reported in the table below.

Table 6-2: Glossary of pests mentioned in the dossier.

CODE	Name	English name	Minor/major
CAPBP	*Capsella bursa-pastoris*	blind weed	~~major~~ minor
GALAP	*Galium aparine*	cleavers	~~major~~ minor
MATIN	*Tripleurospermum inodorum*	horse daisy	~~major~~ minor
AMARE	*Amaranthus retroflexus*	pigweed	major
CHEAL	*Chenopodium album*	goosefoot	major
SOLNI	*Solanum nigrum*	black nightshade	major
STEME	*Stellaria media*	chickweed	~~major~~ minor
VERHE	*Veronica hederifolia*	ivy-leaved speedwell	~~major~~ minor
GASPA	*Galinsoga parviflora*	kew weed	~~major~~ minor
VIOAR	*Viola arvensis*	heartsease	~~major~~ minor
POLCO	*Fallopia convolvulus*	bearbind	major
SINAR	*Sinapis arvensis*	kedlock	~~major~~ minor
CENCY	*Centaurea cyanus*	cornflower	~~major~~ minor
THLAR	*Thlaspi arvense*	fanweed	~~major~~ minor

A brief description of the target pests occuring in the conducted trials can be found in Biological Assessment Dossier.

Compliance with the Uniform Principles

All presented trials on selectivity and efficacy have been performed as to the relevant EPPO guidelines. The trials were performed in Poland by GEP acknowledged contract research organizations under GEP conditions. The overall assessment was conducted according to uniform principles.

References to following EPPO standards were made in trial reports:
General 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 GEP”
- PP 1/225 (2) “Minimum effective dose”

Specific guideline:
- PP 1/50 (3) “Weeds in maize“

Information on trials submitted (3.1 Efficacy data)

This dRR summarises information related to efficacy data for one terbuthylazine-based formulation. The

trials presented in this dossier were conducted in accordance with Good Experimental Practice (GEP) to evaluate the herbicidal activity of terbuthylazine applied to maize pre- and post-emergence.

The following section describes the biological trials and results obtained in 8 efficacy trials conducted in the 2022 seasons against a broad spectrum of annual weeds in several maize varieties: DKC3595, Salamandra, Ulan, Subito, Leonido, DKC3088, Amavit, Danubio. All trials were conducted in the North-East EPPO zone(Poland) under field conditions.

In all trials, the tested product Terbutylazyna 500 SC was applied at 0.8 L/ha (400 g s.a./ha), 1.0 L/ha (500 g s.a./ha) and 1.5 L/ha (750 g s.a./ha) and compared to the reference product Tezosar 500 SC which was applied at 1.0 L/ha (500 g s.a./ha).

Terbutylazyna 500 SC and reference products were additionally tested for possible phytotoxic effects (phytotoxicity and vigour) in all efficacy trials in order to thoroughly investigate the effect obtained by the product tested.

A summary of the maize trials conducted in 2022 to confirm the efficacy of the tested product is presented in Table 6-3.

Overall, this dRR contains the results of 8 efficacy trials. All the trials were set up (in Poland) within regions where maize is commonly grown and data are presented on weed species that are also indigenous to the area covered. Trials included a range of soil types and locations to determine crop tolerance and efficacy on a number of commercially grown varieties, under a range of conditions.

Table 6-3: Presentation of trials (efficacy trials)

Crop(s) *	Target(s)*	Country	Years	Type of trial**	Number of trials (number of valid trials)	GEP	Assessments performed****
					North-East climatic zone		
Maize	*Amaranthus retroflexus (AMARE)* Capsella bursa-pastoris (CAPBP) *Chenopodium album (CHEAL)* *Tripleurospermum inodorum (MATIN)* *Fallopia convolvulus (POLCO)* *Cirsium arvense (CIRAR)* *Sinapis arvensis (SINAR)* *Solanum nigrum (SOLNI)* *Stellaria media (STEME)* *Veronica hederifolia (VERHE)* *Centaurea cyanus (CENCY)* *Myosotis arvensis (MYOAR)* *Thlaspi arvense (THLAR)* *Galinsoga parviflora (GASPA)* *Viola arvensis (VIOAR)* *Galeopsis tetrahit (GAETE)* *Galium aparine (GALAP)*	Poland	2022	MED + E	8 (8)	GEP	E, S
TOTAL	**-**	**-**	**2022**	**-**	**8 (8)**	**-**	**-**

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

** PRE = preliminary trial, MED = minimum effective dose, E = efficacy trial.
*** GEP: Good Experimental Practices. Official: carried out by a national official organisation.
**** E= efficacy, S= selectivity (phytotoxicity), Y= yield, Q=, quality parameters.

For a detailed summary of methods and materials, refer to the relevant parts of the dRR (and BAD) for efficacy (KCP 6.2).

Comments of ZRMs: Terbuthylazine is a triazine herbicide commonly used for controlling broadleaf and grassy weeds in maize farming. It works by inhibiting photosynthesis in susceptible plant species effectively managing unwanted vegetation that competes with maize for nutrients, water and sunlight. Commonly applied either pre-emergence or post-emergence, it helps maintain clean fields and supports higher crop yields. Terbuthylazine's mode of action involves interfering with photosynthesis in susceptible plants, specifically targeting the photosystem II complex. As a result of these disruptions, treated weeds fail to produce the necessary energy and compounds needed for growth, ultimately leading to their death.

Terbuthylazine is highly effective in controlling a wide range of broadleaf and grassy weeds, helping to reduce competition for sunlight, nutrient and water. Flexibility (pre- and/or post-emergence use) depending on the growth stage of the maize and the specific weed pressures. By effectively managing weed populations, terbuthylazine supports higher maize yields as the crop can grow more vigorously without competing weeds. With effective weed control, the need for mechanical cultivation is reduced, which can help prevent soil erosion and preserve soil structure. It can be part of an integrated weed management strategy that helps manage herbicide resistance by rotating different herbicide modes of action. However, terbuthylazine can persist in soil and water, leading to potential contamination of groundwater and non-target areas. Through aimed at weeds, terbuthylazine can affect non-target plants if not applied carefully, potentially harming beneficial vegetation. Continuous use can lead to the development of resistant weed species, diminishing its effectiveness over time. There are potential risks to aquatic life if runoff occurs, affecting surrounding ecosystems and biodiversity. There are potential health risks to humans and animals through exposure, necessitating careful handling and application.

For effective usage, integrated weed management approaches recommend combining chemical control with mechanical methods and crop rotation to boost sustainability and reduce potential resistance development.

This document summarizes the information related to the efficacy of the plant protection product – Terbutylazyna 500 SC (product cod: H-01-2022). Terbutylazyna 500 SC is a suspension concentrate (SC) formulation containing 500 g/L of terbuthylazine. For now, this mentioned active substance is on the list of approved active substances. What is important, a large-scale efficacy trials are available to evaluate the effectiveness of products containing this active compound (terbuthylazine).

All necessary information's about tested plant protection product, active substance, studied weed species, reference products, etc. are correctly presented in this dRR by Applicant. In Poland 21 PPPs with terbuthylazine as an active compound are registered on the basis on Ministry Registry dated 16.10.2024.

The PPP – Terbutylazyna 500 SC by ProAgri international was evaluated by Poland as ZRMs. No cMS was included in B0 .

KCP 6.1 Preliminary tests

No preliminary trials with Terbutylazyna 500 SC are submitted with this dossier. Terbutylazyna 500 SC and similar formulations contained terbuthylazine are well known in Europe and beyond. Moreover its herbicidal spectrum of activity and efficacy has been established for years and confirmed under practical conditions.

Therefore, the submission of preliminary trials is not considered necessary.

Comments of ZRMs: Terbuthylazine has been used as a herbicide since the 1960s. It is primarily used in maize and other crops to control broadleaf weeds and some grasses. Its effectiveness and relatively low cost have made it a popular choice for farmers over the decades. Like other triazine herbicides, it works by inhibiting photosynthesis in susceptible plants, making it a valuable tool in integrated weed management approaches. Generally, chemicals like terbuthylazine became more broadly available in European agriculture in the 1970s and 1980s. In Poland, 21 PPPs with terbuthylazine are registered in Poland and commonly used (on the basis on Ministry Register dated 16.10.2024). So, terbuthylazine is registered and have been commonly used in agricultural practice for many years. Large scale efficacy trials are available to evaluate the effectiveness of products containing this active compound. **Preliminary tests were not necessary in this case in the opinion of ZRMs.**

KCP 6.2 Testing effectiveness

All efficacy trials tested simultaneously the minimum effective dose and the efficacy of Terbutylazyna 500 SC and providing comparison of the effectiveness to the reference product (TEZOSAR 500 SC). Data from the different trials are presented together in following summary tables.

KCP 6.2.1 Minimum effective dose tests

Setting appropriate minimum effective dose is very important, especially in the case of foliar preventive treatment, because of prophylactic nature of such treatment and several weeds that are usually targeted.

All efficacy trials composing this dossier were designed according to EPPO standard PP 1/225 Minimum effective dose. The results from the efficacy trials are presented in this section to provide evidence of Terbutylazyna 500 SC minimum effective dose and support proposed label dose. Trials methodology and comparison of the tested product with reference products are described in detail in section 6.2.2 Efficacy tests.

In this section are presented the results for Minimum Effective Dose (MED) rate against annual dicotyledonous weeds conducted in 2022. All 8 efficacy trials were carried out in Poland (North-East EPPO zone) in several variety of maize: DKC3595, Salamandra, Ułan, Subito, Leonido, DKC3088, Amavit, Danubio.

For MED determination, the validity criteria for the inclusion of 8 trials were: DENSITY of weeds should be at/or above 5 plants/m2 or ground coverage of the target weeds. Only the efficacies of test product Terbutylazyna 500 SC are shown in the summary tables presented in this Section. Please refer to Section 6.2.2 for a comparison of tested vs. reference product efficacy.

Only weeds observed at relevant abundances in at least 2 locations are summarized in details in this section. For the purpose of completeness, data on weeds observed at relevant abundances in 1 site only were presented as supporting data.

KCP 6.2.1.1 Minimum effective dose for control of blind weed (*Capsella bursa-pastoris)* CAPBP

Four trials have been carried out in 2022 to support of demonstrating the minimum effective dose of Terbutylazyna 500 SC against blind weed in maize. All four efficacy trials were conducted in Poland on four different varieties of maize: DKC3595, Ułan, DKC3088 and Amavit.

In each trial, the tested product Terbutylazyna 500 SC was applied at pre-emergence (BBCH 00) and post-emergence (BBCH 11-14) at the rates of 0,8 L/ha (400g a.s./ha), 1,0 L/ha (500 g a.s./ha) and 1,5 L/ha (750 g a.s./ha).
Data generated on the efficacy of Terbutylazyna 500 SC against blind weed in maize are used to justify the dose of 1,0 L/ha (500 g a.s./ha) as the minimum effective dose.

The results of trials conducted to support minimum effective dose of tested product against CAPBP on maize applied at pre-emergence and post-emergence are presented and discussed individually in tables: Table 6.2.1-1 and Table 6.2.1-2.

Individual trial details and results are located in Appendix 3 and 4, respectively.

Table 6.2.1-1: Minimum effective dose of Terbutylazyna 500 SC applied at pre-emergence against CAPBP in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC					
Dose rate					-	0,8 L/ha		1.0 L/ha		1,5 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202201	BBCH ~~17~~ 00	27.06.2022 31 DA-A	CAPBP BBCH 17	6	89,80	b	99,30	a	100,00	a
PL	044GPSE202203	BBCH ~~18~~ 00	29.06.2022 34 DA-A	CAPBP BBCH 32	7	90,30	bc	93,00	ab	96,00	a
PL	044_GPSE2022_06	BBCH ~~16~~ 00	18.06.2022 32 DA-A	CAPBP BBCH 18	8	100,00	a	100,00	a	100,00	a
PL	044GPSE202207	BBCH ~~16~~ 00	24.06.2022 35 DA-A	CAPBP BBCH 18	5	90,50	b	100,00	a	100,00	a
Average efficacy evaluated at 31-35 DA-A				**Mean**	-	**92,65**		**98,08**		**99,00**	
				Min	-	89,80		93,00		96,00	
				Max	-	100,00		100,00		100,00	
				StDev	-	4,91		3,40		2,00	
PL	044GPSE202201	BBCH ~~26~~ 00	11.07.2022 45 DA-A	CAPBP BBCH 55	6	91,00	e	98,50	ab	100,00	a
PL	044GPSE202203	BBCH ~~27~~ 00	13.07.2022 48 DA-A	CAPBP BBCH 65	7	90,50	bc	93,50	ab	98,00	a

PL	044_GPSE2022_06	BBCH ~~35~~ 00	02.07.2022	CAPBP	8	100,00	a	100,00	a	100,00	a
			46 DA-A	BBCH 61							
PL	044GPSE202207	BBCH ~~35~~ 00	08.07.2022	CAPBP	5	94,30	b	100,00	a	100,00	a
			49 DA-A	BBCH 55							
Average efficacy evaluated at 45-49 DA-A				**Mean**	-	**93,95**		**98,00**		**99,50**	
				Min	-	90,50		93,50		98,00	
				Max	-	100,00		100,00		100,00	
				StDev	-	4,37		3,08		1,00	

Table 6.2.1-1: Minimum effective dose of Terbutylazyna 500 SC applied at post-emergence against CAPBP in maize.

Treatments					**Untreated Check**	**Terbutylazyna 500 SC**					
Dose rate					-	**0,8 L/ha**		**1.0 L/ha**		**1,5 L/ha**	
Trials Data					**DENSITY plants/m2**	**Efficacy %**					
Country	**Trial Code**	**Crop Stage Majority at application**	**Rating Date**	**Weed species**							
			Trt-Eval	**Weed Stage Majority**							
			Interval								
PL	044GPSE202201	BBCH ~~17~~ 11-13	27.06.2022	CAPBP	6	60,00	d	70,00	c	73,80	c
			14 DA-B	BBCH 17							
PL	044GPSE202203	BBCH ~~18~~ 13-14	29.06.2022	CAPBP	7	80,00	d	86,30	c	88,50	bc
			14 DA-B	BBCH 32							
PL	044_GPSE2022_06	BBCH ~~16~~ 12-13	18.06.2022	CAPBP	8	81,30	b	81,80	b	83,00	b
			13 DA-B	BBCH 18							
PL	044GPSE202207	BBCH ~~16~~ 11-13	24.06.2022	CAPBP	5	85,50	c	89,30	bc	92,50	b
			14 DA-B	BBCH 18							

Average efficacy evaluated at 13-14 DA-B				**Mean**	-	**76,70**		**81,85**		**84,45**	
				Min	-	60,00		70,00		73,80	
				Max	-	85,50		89,30		92,50	
				StDev	-	11,38		8,48		8,10	
PL	044GPSE202201	BBCH ~~36~~ 11-13	11.07.2022	CAPBP	6	85,50	f	95,50	c	96,50	bc
			28 DA-B	BBCH 55							
PL	044GPSE202203	BBCH ~~37~~ 13-14	13.07.2022	CAPBP	7	81,80	d	87,30	c	90,50	bc
			28 DA-B	BBCH 65							
PL	044_GPSE2022_06	BBCH ~~25~~ 12-13	02.07.2022	CAPBP	8	86,30	b	100,00	a	100,00	a
			27 DA-B	BBCH 61							
PL	044GPSE202207	BBCH ~~35~~ 11-13	08.07.2022	CAPBP	5	86,80	c	100,00	a	100,00	a
			28 DA-B	BBCH 55							
Average efficacy evaluated at 27-28 DA-B				**Mean**	-	**85,10**		**95,70**		**96,75**	
				Min	-	81,80		87,30		90,50	
				Max	-	86,80		100,00		100,00	
				StDev	-	2,26		5,99		4,48	

In accordance with the results displayed in the table above, Terbutylazyna 500 SC showed the best control at the two highest doses of 1.0 l/ha and 1.5 l/ha in both pre-emergence and post-emergence applications.

In the pre-emergence application, the mean efficacy of the tested product of the two highest doses was very similar 98% (at the dose 1.0 l/ha) and 99 -99.5% (at the dose1.5 l/ha). At the lowest dose of 0.8 l/ha, the efficacy of Terbutylazyna 500 SC was slightly lower 92.65 - 93.95 %.

In the post-emergence application, differences in efficacy between the lowest and highest doses were more pronounced and statistically significant in most trials. At the dose 1.0 l/ha, the mean efficacy of the tested product was within 81.85-95.70 %, whereas at the dose 1.5 l/ha it was 84.45-96.75 %. The mean efficacy of the tested product at 0.8 l/ha was lower in the range 76.7-85.1%.

Based on these data, it can be concluded that the minimum effective dose for control of CAPBP is 1.0 l/ha.

KCP 6.2.1.2 Minimum effective dose for control of cleavers (*Galium aparine)* GALAP

In 2022, three trials (3) were conducted to demonstrate the minimum effective dose of Terbutylazyna 500 SC in the control of cleavers in maize. Each of the three efficacy trials was conducted in Poland on three different maize varieties, Leonido, Danubio and Amavit.

The tested product Terbutylazyna 500 SC was applied pre-emergence (BBCH 00) and post-emergence (BBCH 11-15) in each trial at rates of 0.8 l/ha (400 g DM/ha), 1.0 l/ha (500 g DM/ha) and 1.5 l/ha (750 g DM/ha).
Data on the efficacy of Terbutylazyna 500 SC for the control of cleavers in maize were used to justify 1.0 l/ha (500 g s.a./ha) as the minimum effective dose.

For confirmation of the minimum effective dose of the test product against GALAP on maize applied pre-emergence and post-emergence, the results are presented and discussed individually in the tables: Table 6.2.1-3 and Table 6.2.1-4.

Details and results of the individual trials can be found in Appendix 3 and 4 respectively.

Table 6.2.1-3: Minimum effective dose of Terbutylazyna 500 SC applied at pre-emergence against GALAP in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC					
Dose rate					-	0,8 L/ha		1.0 L/ha		1,5 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202205	BBCH ~~34~~ 00	27.06.2022 40 DA-A	GALAP BBCH 23	5	57,50	b	76,30	a	80,00	a
PL	044GPSE202207	BBCH ~~16~~ 00	24.06.2022 35 DA-A	GALAP BBCH 22	6	79,30	b	91,80	a	94,80	a
PL	044GPSE202208	BBCH ~~15~~ 00	16.06.2022 28 DA-A	GALAP BBCH 23	7	97,50	a	100,00	a	100,00	a
Average efficacy evaluated at 28-40 DA-A				**Mean**	-	**78,10**		**89,37**		**91,60**	
				Min	-	57,50		76,30		80,00	
				Max	-	97,50		100,00		100,00	
				StDev	-	20,03		12,04		10,38	
PL	044GPSE202205	BBCH ~~55~~ 00	12.07.2022 55 DA-A	GALAP BBCH 35	5	62,50	b	73,80	a	81,00	a
PL	044GPSE202207	BBCH ~~35~~ 00	08.07.2022 49 DA-A	GALAP BBCH 36	6	80,50	d	92,50	ab	96,00	a
PL	044GPSE202208	BBCH ~~34~~ 00	30.06.2022 42 DA-A	GALAP BBCH 34	7	96,30	a	100,00	a	100,00	a
Average efficacy evaluated at 42-55 DA-A				**Mean**	-	**79,77**		**88,77**		**92,33**	

	Min	-	62,50		73,80		81,00	
	Max	-	96,30		100,00		100,00	
	StDev	-	16,91		13,49		10,02	

Table 6.2.1-2: Minimum effective dose of Terbutylazyna 500 SC applied at post-emergence against GALAP in maize.

Treatments					**Untreated Check**	**Terbutylazyna 500 SC**					
Dose rate					-	**0,8 L/ha**		**1.0 L/ha**		**1,5 L/ha**	
Trials Data					**DENSITY plants/m2**	**Efficacy %**					
Country	**Trial Code**	**Crop Stage Majority**	**Rating Date** / **Trt-Eval** / **Interval**	**Weed species** / **Weed Stage Majority**							
PL	044GPSE202205	BBCH ~~34~~ 13-15	27.06.2022 / 15 DA-B	GALAP / BBCH 23	5	47,50	c	70,00	a	75,00	a
PL	044GPSE202207	BBCH ~~16~~ 11-13	24.06.2022 / 14 DA-B	GALAP / BBCH 22	6	77,50	b	80,50	b	81,80	b
PL	044GPSE202208	BBCH ~~15~~ 11-13	16.06.2022 / 14 DA-B	GALAP / BBCH 23	7	88,00	d	91,80	bc	93,80	b
Average efficacy evaluated at 14-15 DA-B				**Mean**	-	**71,00**		**80,77**		**83,53**	
				Min	-	47,50		70,00		75,00	
				Max	-	88,00		91,80		93,80	
				StDev	-	21,02		10,90		9,52	
PL	044GPSE202205	BBCH ~~55~~ 13-15	12.07.2022 / 30 DA-B	GALAP / BBCH 35	5	50,00	c	76,30	a	78,80	a
PL	044GPSE202207	BBCH ~~35~~ 11-13	08.07.2022	GALAP	6	78,80	d	86,00	c	88,80	bc

			28 DA-B	BBCH 36							
PL	044GPSE202208	BBCH ~~34~~ 11-13	30.06.2022	GALAP	7	91,30	b	100,00	a	100,00	a
			28 DA-B	BBCH 34							
Average efficacy evaluated at 28-30 DA-B				**Mean**	-	**73,37**		**87,43**		**89,20**	
				Min	-	50,00		76,30		78,80	
				Max	-	91,30		100,00		100,00	
				StDev	-	21,18		11,91		10,61	

According to the results shown in the tables above, Terbutylazyna 500 applied pre-emergence provided good control (mean efficacy 89.37%) in the 1st assessment and slightly lower control in the 2nd assessment (mean efficacy 88.77%) against GALAP when a dose of 1.0 L/ha was applied. A slightly higher control (mean efficacy in the range 84.4-89.1%) was observed when the applied dose was 1.5 L/ha. The lowest efficacy values were obtained at the lowest dose of 0,8 L/ha (mean efficacy 78.1-79.77 %).

Similarly, in trials where the tested product Terbutylazyna 500 was applied post-emergence, the highest efficacy was observed at doses of 1.0 l/ha (mean efficacy 80.77-87.43%) and 1.5 l/ha (mean efficacy 83.53-89.2%). Meanwhile, the lowest efficacy was observed at the lowest dose of 0.8 l/ha (mean efficacy 71.0-73.37%).

Based on the results, it can be concluded that the minimum effective dose for GALAP control is 1.0 l/ha.

KCP 6.2.1.3 Minimum effective dose for control of horse daisy (*Tripleurospermum inodorum)* MATIN

During 2022, three trials (3) were conducted to demonstrate the minimum effective dose of Terbutylazyna 500 against horse daisy in maize. All three efficacy trials were carried out in Poland on three different maize varieties: DKC3595, Leonido and Danubio.

There was a pre-emergence (BBCH 00) and post-emergence (BBCH 11-15) application of Terbutylazyna 500 at doses 0.8 l/ha (400 g a.s./ha), 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha) in each trial. Data on the efficacy of Terbutylazyna 500 for the control of horse daisy in maize are used to justify 1.0 l/ha (500 g s.a./ha) as the minimum effective dose.

The results of the trials conducted to confirm the minimum effective dose of the tested product against MATIN on maize applied pre-emergence and post-emergence are presented and discussed individually in the tables: Table 6.2.1-5 and Table 6.2.1-6.

Details and results of the individual trials can be found in Appendix 3 and 4 respectively.

Table 6.2.1-5: Minimum effective dose of Terbutylazyna 500 SC applied at pre-emergence against MATIN in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC					
Dose rate					-	0,8 L/ha		1.0 L/ha		1,5 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202201	BBCH ~~17~~ 00	27.06.2022 31 DA-A	MATIN BBCH 23	5	71,30	b	83,00	a	83,50	a
PL	044GPSE202205	BBCH ~~24~~ 00	27.06.2022 40 DA-A	MATIN BBCH 32	6	67,50	c	80,50	ab	84,30	a
PL	044GPSE202208	BBCH ~~15~~ 00	16.06.2022 28 DA-A	MATIN BBCH 17	5	78,00	c	86,00	b	88,50	a
Average efficacy evaluated at 28-40 DA-A				**Mean**	-	**72,27**		**83,17**		**85,43**	
				Min	-	67,50		80,50		83,50	
				Max	-	78,00		86,00		88,50	
				StDev	-	5,32		2,75		2,69	
PL	044GPSE202201	BBCH ~~36~~ 00	11.07.2022 45 DA-A	MATIN BBCH 23	9	73,80	c	80,50	ab	83,00	a
PL	044GPSE202205	BBCH ~~55~~ 00	12.07.2022 55 DA-A	MATIN BBCH 65	6	68,80	c	81,80	ab	85,00	a
PL	044GPSE202208	BBCH ~~24~~ 00	30.06.2022 42 DA-A	MATIN BBCH 36	5	79,80	c	88,00	ab	90,00	a

Average efficacy evaluated at 42-55 DA-A	**Mean**	-	**74,13**		**83,43**		**86,00**	
	Min	-	68,80		80,50		83,00	
	Max	-	79,80		88,00		90,00	
	StDev	-	5,51		4,01		3,61	

Table 6.2.1-6: Minimum effective dose of Terbutylazyna 500 SC applied at post-emergence against MATIN in maize.

Treatments					**Untreated Check**	**Terbutylazyna 500 SC**					
Dose rate					-	**0,8 L/ha**		**1.0 L/ha**		**1,5 L/ha**	
Trials Data					**DENSITY plants/m2**	**Efficacy %**					
Country	**Trial Code**	**Crop Stage Majority at application**	**Rating Date**	**Weed species**							
			Trt-Eval	**Weed Stage Majority**							
			Interval								
PL	044GPSE202201	BBCH ~~17~~ 11-13	27.06.2022	MATIN	5	62,50	b	62,50	b	65,00	b
			14 DA-B	BBCH 23							
PL	044GPSE202205	BBCH ~~24~~ 13-15	27.06.2022	MATIN	6	55,00	d	68,80	c	75,00	bc
			15 DA-B	BBCH 32							
PL	044GPSE202208	BBCH ~~15~~ 11-13	16.06.2022	MATIN	5	70,00	d	80,00	c	80,00	c
			14 DA-B	BBCH 17							
Average efficacy evaluated at 14-15 DA-B				**Mean**	-	**62,50**		**70,43**		**73,33**	
				Min	-	55,00		62,50		65,00	
				Max	-	70,00		80,00		80,00	
				StDev	-	7,50		8,86		7,64	
PL	044GPSE202201	BBCH ~~36~~ 11-13	11.07.2022	MATIN	9	70,00	d	77,50	b	82,30	ab

			28 DA-B	BBCH 23							
PL	044GPSE202205	BBCH ~~55~~ 13-15	12.07.2022	MATIN	6	62,50	d	76,30	b	78,80	ab
			30 DA-B	BBCH 65							
PL	044GPSE202208	BBCH ~~24~~ 11-13	30.06.2022	MATIN	5	75,00	d	83,00	bc	86,00	ab
			28 DA-B	BBCH 36							
Average efficacy evaluated at 28-30 DA-B				**Mean**	-	**69,17**		**78,93**		**82,37**	
				Min	-	62,50		76,30		78,80	
				Max	-	75,00		83,00		86,00	
				StDev	-	6,29		3,57		3,60	

As indicated by the results in the tables above, Terbutylazyna 500 applied pre-emergence provided good control (mean efficacy 83-17-83.43%) at the dose of 1.0 l/ha. Slightly higher control of MATIN (85.43-86%) was observed when the tested product was applied at the dose of 1.5 l/ha. Whereas the lowest efficacy values (72.27-74.13%) were obtained at the lowest dose of 0.8 l/ha.

Analogously, in the trials where the tested product was applied post-emergence, moderate efficacy was observed when the dose of 1.0 l/ha (70.43-78.93%) and the dose of 1.5 l/ha (73.33-82.37%) were applied. At the lowest dose of 0.8 L/ha, the efficacy was lower (62.5-69.17%) than the efficacy at higher doses and these differences were statistically significant.

It can be said that 1,0 L/ha can be considered the minimum effective dose for MATIN control.

KCP 6.2.1.4 Minimum effective dose for control of pigweed (*Amaranthus retroflexus*) AMARE

Three trials have been carried out in 2022 (3) in support of demonstrating the minimum effective dose of Terbutylazyna 500 SC against pigweed in maize. All three efficacy trials were conducted in Poland on three different varieties of maize: DKC3595, Leonido and Danubio.

In each trial, the tested product Terbutylazyna 500 SC was applied at pre-emergence (BBCH 00) and post-emergence (BBCH 11-15) at the rates of 0,8L/ha (400g a.s./ha), 1,0 L/ha (500 g a.s./ha) and 1,5 L/ha (750 g a.s./ha).

Data generated on the efficacy of Terbutylazyna 500 SC against pigweed in maize are used to justify the dose of 1,0 L/ha (500 g a.s./ha) as the minimum effective dose.

The results of trials conducted to support minimum effective dose of tested product against AMARE on maize applied at pre-emergence and post-emergence are presented and discussed individually in tables: Table 6.2.1-7 and Table 6.2.1-8.

Individual trial details and results are located in Appendix 3 and 4, respectively.

Table 6.2.1-7: Minimum effective dose of Terbutylazyna 500 SC applied at pre-emergence against AMARE in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC					
Dose rate					-	0,8 L/ha		1.0 L/ha		1,5 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202201	BBCH ~~17~~ 00	27.06.2022 31 DA-A	AMARE BBCH 33	7	77,50	c	88,50	b	93,50	a
PL	044GPSE202204	BBCH ~~18~~ 00	18.07.2022 34 DA-A	AMARE BBCH 34	5	88,50	b	100,00	a	100,00	a
PL	044GPSE202205	BBCH ~~24~~ 00	27.06.2022 40 DA-A	AMARE BBCH 32	5	83,50	bc	89,30	b	95,50	a
Average efficacy evaluated at 31-40 DA-A				**Mean**	-	**83,17**		**92,60**		**96,33**	
				Min	-	77,50		88,50		93,50	
				Max	-	88,50		100,00		100,00	
				StDev	-	5,51		6,42		3,33	
PL	044GPSE202201	BBCH ~~36~~ 00	11.07.2022 45 DA-A	AMARE BBCH 55	7	78,80	e	89,30	ab	92,30	a
PL	044GPSE202204	BBCH ~~37~~ 00	02.08.2022 45 DA-A	AMARE BBCH 59	5	83,50	b	100,00	a	100,00	a
PL	044GPSE202205	BBCH ~~55~~ 00	12.07.2022 55 DA-A	AMARE BBCH 57	5	81,80	c	86,80	bc	92,30	a

Average efficacy evaluated at 45-55 DA-A	**Mean**	-	**81,37**		**92,03**		**94,87**	
	Min	-	78,80		86,80		92,30	
	Max	-	83,50		100,00		100,00	
	StDev	-	2,38		7,01		4,45	

Table 6.2.1-8: Minimum effective dose of Terbutylazyna 500 SC applied at post-emergence against AMARE in maize.

Treatments					**Untreated Check**	**Terbutylazyna 500 SC**					
Dose rate					-	**0,8 L/ha**		**1.0 L/ha**		**1,5 L/ha**	
Trials Data					**DENSITY plants/m2**	**Efficacy %**					
Country	**Trial Code**	**Crop Stage Majority at application**	**Rating Date**	**Weed species**							
			Trt-Eval	**Weed Stage Majority**							
			Interval								
PL	044GPSE202201	BBCH ~~17~~ 11-13	27.06.2022	AMARE	7	52,50	e	57,50	de	60,00	d
			14 DA-B	BBCH 33							
PL	044GPSE202204	BBCH ~~18~~ 12-14	18.07.2022	AMARE	5	60,00	d	75,00	c	76,30	c
			15 DA-B	BBCH 34							
PL	044GPSE202205	BBCH ~~24~~ 13-15	27.06.2022	AMARE	5	65,00	d	76,30	c	78,80	c
			15 DA-B	BBCH 32							
Average efficacy evaluated at 14-15 DA-B				**Mean**	-	**59,17**		**69,60**		**71,70**	
				Min	-	52,50		57,50		60,00	
				Max	-	65,00		76,30		78,80	
				StDev	-	6,29		10,50		10,21	
PL	044GPSE202201	BBCH ~~26~~ 11-13	11.07.2022	AMARE	7	71,30	f	84,80	cd	86,50	bcd

			28 DA-B	BBCH 55							
PL	044GPSE202204	BBCH ~~27~~ 12-14	02.08.2022	AMARE	5	66,30	c	81,80	b	83,50	b
			30 DA-B	BBCH 59							
PL	044GPSE202205	BBCH ~~55~~ 13-15	12.07.2022	AMARE	5	71,30	d	81,80	c	83,50	bc
			30 DA-B	BBCH 57							
Average efficacy evaluated at 28-30 DA-B				**Mean**	-	**69,63**		**82,80**		**84,50**	
				Min	-	66,30		81,80		83,50	
				Max	-	71,30		84,80		86,50	
				StDev	-	2,89		1,73		1,73	

Following the results presented in the table above, Terbutylazyna 500 SC showed the best protection at the two highest doses of 1.0 l/ha and 1.5 l/ha in both pre-emergence and post-emergence applications.

In the pre-emergence application, the mean efficacy of the tested product at the two highest doses was very similar with approximately 92.6% (at 1.0 l/ha) and 96.33% (at 1.5 l/ha) in the 1st assessment. During the second assessment, the efficacy of the tested product was also comparable but slightly lower at 92.03% (at 1.0 l/ha) and 94.87% (at 1.5 l/ha). A statistically significant decrease in efficacy was observed at the lowest dose of 0.8 l/ha: 83.17% in the first assessment and 81.37% in the second assessment.

In the post-emergence application, the lowest efficacy was observed in trials where the tested product was used at the lowest dose of 0.8 l/ha (59.17-69.63 %). Whereas at the highest doses, efficacy against AMARE was higher at 69-96-82.8 % (at 1.0 l/ha) and 71.7-84.5 % (at 1.5 l/ha).

Based on the above data, it can be concluded that the minimum effective dose for the control of AMARE in pre- and post-emergence applications is 1.0 l/ha.

KCP 6.2.1.1 Minimum effective dose for control of goosefoot (*Chenopodium album*) CHEAL

There were three trials (3) set up in 2022 to demonstrate the minimum effective dose of Terbutylazyna 500 SC against goosefoot in maize. All three efficacy trials were conducted in Poland on three different maize varieties: DKC3595, Leonido and Danubio.

The tested product, Terbutylazyna 500 SC, was applied pre-emergence (BBCH 00) and post-emergence (BBCH 11-14) at rates of 0.8 l/ha (400 g a.s./ha), 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha).

Efficacy data for Terbutylazyna 500 SC in the control of goosefoot in maize are used to justify 1.0 l/ha (500 g a.s./ha) as the minimum effective dose.

As a confirmation of the minimum effective dose of the test product against CHEAL on maize applied pre-emergence and post-emergence, the results of the trials are presented and discussed individually in the tables: Table 6.2.1-9 and Table 6.2.1-10.

Individual trial details and results are located in Appendix 3 and 4, respectively.

Table 6.2.1-9: Minimum effective dose of Terbutylazyna 500 SC applied at pre-emergence against CHEAL in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC					
Dose rate					-	0,8 L/ha		1.0 L/ha		1,5 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202201	BBCH ~~17~~ 00	27.06.2022 31 DA-A	CHEAL BBCH 32	9	79,80	b	83,50	a	86,50	a
PL	044GPSE202203	BBCH ~~18~~ 00	29.06.2022 34 DA-A	CHEAL BBCH 33	12	65,00	b	85,30	a	86,00	a
PL	044GPSE202204	BBCH ~~18~~ 00	18.07.2022 34 DA-A	CHEAL BBCH 33	14	72,50	c	86,00	a	86,00	a
Average efficacy evaluated at 31-34 DA-A				**Mean**	-	**72,43**		**84,93**		**86,17**	
				Min	-	65,00		83,50		86,00	
				Max	-	79,80		86,00		86,50	
				StDev	-	7,40		1,29		0,29	
PL	044GPSE202201	BBCH ~~26~~ 00	11.07.2022 45 DA-A	CHEAL BBCH 59	9	80,00	b	85,00	a	85,00	a
PL	044GPSE202203	BBCH ~~27~~ 00	13.07.2022 48 DA-A	CHEAL BBCH 63	12	68,80	b	85,30	a	87,30	a
PL	044GPSE202204	BBCH ~~27~~ 00	02.08.2022 45 DA-A	CHEAL BBCH 61	14	70,00	b	85,50	a	86,30	a
Average efficacy evaluated at 45-48 DA-A				**Mean**	-	**72,93**		**85,27**		**86,20**	

		Min	-	68,80		85,00		85,00	
		Max	-	80,00		85,50		87,30	
		StDev	-	6,15		0,25		1,15	

Table 6.2.1-10: Minimum effective dose of Terbutylazyna 500 SC applied at post-emergence against CHEAL in maize.

Treatments					**Untreated Check**	**Terbutylazyna 500 SC**					
Dose rate					-	**0,8 L/ha**		**1.0 L/ha**		**1,5 L/ha**	
Trials Data					**DENSITY plants/m2**	**Efficacy %**					
Country	**Trial Code**	**Crop Stage Majority at application**	**Rating Date** / **Trt-Eval** / **Interval**	**Weed species** / **Weed Stage Majority**							
PL	044GPSE202201	BBCH ~~17~~ 11-13	27.06.2022 / 14 DA-B	CHEAL / BBCH 32	9	67,50	c	70,00	c	70,00	c
PL	044GPSE202203	BBCH ~~18~~ 13-14	29.06.2022 / 14 DA-B	CHEAL / BBCH 33	12	60,00	c	82,30	a	84,80	a
PL	044GPSE202204	BBCH ~~18~~ 12-14	18.07.2022 / 15 DA-B	CHEAL / BBCH 33	14	67,50	d	77,50	bc	70,00	b
Average efficacy evaluated at 14-15 DA-B				**Mean**	-	**65,00**		**76,60**		**74,93**	
				Min	-	60,00		70,00		70,00	
				Max	-	67,50		82,30		84,80	
				StDev	-	4,33		6,20		8,54	
PL	044GPSE202201	BBCH ~~36~~ 11-13	11.07.2022 / 28 DA-B	CHEAL / BBCH 59	9	77,50	c	83,00	a	85,00	a
PL	044GPSE202203	BBCH ~~37~~ 13-14	13.07.2022	CHEAL	12	65,00	b	83,50	a	86,00	a

			28 DA-B	BBCH 63							
PL	044GPSE202204	BBCH ~~27~~ 12-14	02.08.2022	CHEAL	14	62,50	c	83,50	a	85,00	a
			30 DA-B	BBCH 61							
Average efficacy evaluated at 28-30 DA-B				**Mean**	-	**68,33**		**83,33**		**85,33**	
				Min	-	62,50		83,00		85,00	
				Max	-	77,50		83,50		86,00	
				StDev	-	8,04		0,29		0,58	

According to the results in the tables above, Terbutylazyna 500 SC applied pre-emergence provided good control (mean efficacy 84.93-85.27%) at 1.0 l/ha. Slightly higher CHEAL control (86.17-86.2%) was observed when the tested product was applied at 1.5 l/ha. In contrast, the lowest efficacy levels (72.43-72.93 l/ha) were obtained at the lowest dose of 0.8 l/ha.

Similarly, in trials where the tested product was applied post-emergence, moderate efficacy was observed at the 1.0 l/ha dose (76.6-83.33%) and the 1.5 l/ha dose (74.93-85.33%). At the lowest dose of 0.8 L/ha, efficacy was lower (65-68.33%) than at the higher doses, and these differences were statistically significant.

It can be said that 1.0 L/ha can be considered the minimum effective dose for CHEAL control.

KCP 6.2.1.1 Minimum effective dose for control of black nightshade (*Solanum nigrum*) SOLNI

Three trials have been carried out in 2022 (3) in support of demonstrating the minimum effective dose of Terbutylazyna 500 SC against black nightshade in maize. All three efficacy trials were conducted in Poland on three different varieties of maize: Salamandra, Subito and Danubio.

In each trial, the tested product Terbutylazyna 500 SC was applied at pre-emergence (BBCH 00) and post-emergence (BBCH 10-14) at the rates of 0,8L/ha (400g a.s./ha), 1,0 L/ha (500 g a.s./ha) and 1,5 L/ha (750 g a.s./ha).

Data generated on the efficacy of Terbutylazyna 500 SC against black nightshade in maize are used to justify the dose of 1,0 L/ha (500 g a.s./ha) as the minimum effective dose.

The results of trials conducted to support minimum effective dose of tested product against SOLNI on maize applied at pre-emergence and post-emergence are presented and discussed individually in tables: Table 6.2.1-11 and Table 6.2.1-12.

Individual trial details and results are located in Appendix 3 and 4, respectively

Table 6.2.1-11: Minimum effective dose of Terbutylazyna 500 SC applied at pre-emergence against SOLNI in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC					
Dose rate					-	0,8 L/ha		1.0 L/ha		1,5 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202202	BBCH ~~16~~ 00	27.06.2022 28 DA-A	SOLNI BBCH 16	5	78,80	b	86,00	a	87,30	a
PL	044GPSE202204	BBCH ~~18~~ 00	18.07.2022 34 DA-A	SOLNI BBCH 32	6	57,50	c	80,00	a	83,00	a
PL	044GPSE202208	BBCH ~~15~~ 00	16.06.2022 28 DA-A	SOLNI BBCH 16	5	81,80	b	86,80	a	88,80	a
Average efficacy evaluated at 28-34 DA-A				**Mean**	-	**72,70**		**84,27**		**86,37**	
				Min	-	57,50		80,00		83,00	
				Max	-	81,80		86,80		88,80	
				StDev	-	13,25		3,72		3,01	
PL	044GPSE202202	BBCH ~~35~~ 00	11.07.2022 42 DA-A	SOLNI BBCH 35	5	80,50	c	87,30	ab	88,00	a
PL	044GPSE202204	BBCH ~~37~~ 00	02.08.2022 45 DA-A	SOLNI BBCH 65	6	65,00	b	81,80	a	85,00	a
PL	044GPSE202208	BBCH ~~24~~ 00	30.06.2022 42 DA-A	SOLNI BBCH 35	5	83,00	c	89,30	ab	91,80	a
Average efficacy evaluated at 42-45 DA-A				**Mean**	-	**76,17**		**86,13**		**88,27**	

	Min	-	65,00		81,80		85,00	
	Max	-	83,00		89,30		91,80	
	StDev	-	9,75		3,88		3,41	

Table 6.2.1-12: Minimum effective dose of Terbutylazyna 500 SC applied at pre-emergence against SOLNI in maize.

Treatments					**Untreated Check**	**Terbutylazyna 500 SC**					
Dose rate					-	**0,8 L/ha**		**1.0 L/ha**		**1,5 L/ha**	
Trials Data					**DENSITY plants/m2**	**Efficacy %**					
Country	**Trial Code**	**Crop Stage Majority at application**	**Rating Date** / **Trt-Eval Interval**	**Weed species** / **Weed Stage Majority**							
PL	044GPSE202202	BBCH ~~16~~ 10-11	27.06.2022 / 14 DA-B	SOLNI / BBCH 16	5	71,30	c	79,30	b	81,00	b
PL	044GPSE202204	BBCH ~~18~~ 12-14	18.07.2022 / 15 DA-B	SOLNI / BBCH 32	6	45,00	d	70,00	b	70,00	b
PL	044GPSE202208	BBCH ~~15~~ 11-12	16.06.2022 / 14 DA-B	SOLNI / BBCH 16	5	77,50	b	80,00	b	81,80	b
Average efficacy evaluated at 14-15 DA-B				**Mean**	-	**64,60**		**76,43**		**77,60**	
				Min	-	45,00		70,00		70,00	
				Max	-	77,50		80,00		81,80	
				StDev	-	17,25		5,58		6,59	
PL	044GPSE202202	BBCH ~~25~~ 10-11	11.07.2022	SOLNI	5	75,00	d	83,50	bc	86,00	ab

			28 DA-B	BBCH 35							
PL	044GPSE202204	BBCH ~~37~~ 12-14	02.08.2022	SOLNI	6	55,00	c	78,80	a	81,80	a
			30 DA-B	BBCH 65							
PL	044GPSE202208	BBCH ~~34~~ 11-12	30.06.2022	SOLNI	5	78,00	d	88,50	ab	88,50	ab
			28 DA-B	BBCH 35							
Average efficacy evaluated at 28-30 DA-B				**Mean**	-	**69,33**		**83,60**		**85,43**	
				Min	-	55,00		78,80		81,80	
				Max	-	78,00		88,50		88,50	
				StDev	-	12,50		4,85		3,39	

The results in the above tables indicate that Terbutylazyna 500 SC applied pre-emergence provided good control (mean efficacy 84.27-86.13%) at 1.0 l/ha. Slightly higher SOLNI control (86.37-88.27%) was observed when the tested product was applied at 1.5 l/ha. Meanwhile, the lowest efficacy levels (72.7-76.17 l/ha) were obtained at the lowest dose of 0.8 l/ha.

In trials where the tested product was applied post-emergence, moderate efficacy was observed at the 1.0 l/ha rate (76.43-83.6%) and at the 1.5 l/ha rate (77.6-85.43%). However, at the lowest dose of 0.8 L/ha, efficacy was lower (64.6-69.33%) than at the higher doses, and these differences were statistically significant.

Therefore, it can be said that 1.0 L/ha can be considered the minimum effective dose for SOLNI control.

KCP 6.2.1.1 Minimum effective dose for control of chickweed (*Stellaria media*) STEME

There were three trials (3) carried out in 2022 to demonstrate the minimum effective dose of Terbutylazyna 500 SC against chickweed in maize. All three efficacy trials were conducted in Poland on three different maize varieties, Salamandra, Subito and DKC3088.

The tested product Terbutylazyna 500 SC was applied pre-emergence (BBCH 00) and post-emergence (BBCH 10-14) in each trial at rates of 0.8 l/ha (400 g a.s./ha), 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha).
The efficacy data for Terbutylazyna 500 SC in the control of chickweed in maize are used to justify 1.0 l/ha (500 g s.a./ha) as the minimum effective dose.

To confirm the minimum effective dose of the test product against STEME on pre-emergence and post-emergence maize, the results of the trials conducted are presented and discussed individually in the tables: Table 6.2.1-13 and Table 6.2.1-14.

Details and results of the individual trials can be found in Appendix 3 and 4 respectively

Table 6.2.1-13: Minimum effective dose of Terbutylazyna 500 SC applied at pre-emergence against STEME in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC					
Dose rate					-	0,8 L/ha		1.0 L/ha		1,5 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at appplication	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202202	BBCH ~~16~~ 00	27.06.2022 28 DA-A	STEME BBCH 23	6	100,00	a	100,00	a	100,00	a
PL	044GPSE202204	BBCH ~~18~~ 00	18.07.2022 34 DA-A	STEME BBCH 32	7	100,00	a	100,00	a	100,00	a
PL	044_GPSE2022_06	BBCH ~~16~~ 00	18.06.2022 32 DA-A	STEME BBCH 23	5	83,00	b	100,00	a	100,00	a
Average efficacy evaluated at 28-34 DA-A				**Mean**	-	**94,33**		**100,00**		**100,00**	
				Min	-	83,00		100,00		100,00	
				Max	-	100,00		100,00		100,00	
				StDev	-	9,81		0,00		0,00	
PL	044GPSE202202	BBCH ~~35~~ 00	11.07.2022 42 DA-A	STEME BBCH 57	6	100,00	a	100,00	a	100,00	a
PL	044GPSE202204	BBCH ~~37~~ 00	02.08.2022 45 DA-A	STEME BBCH 63	7	100,00	a	100,00	a	100,00	a
PL	044_GPSE2022_06	BBCH ~~35~~ 00	02.07.2022 46 DA-A	STEME BBCH 53	5	84,30	c	100,00	a	100,00	a
Average efficacy evaluated at 42-46 DA-A				**Mean**	-	**94,77**		**100,00**		**100,00**	

	Min	-	84,30		100,00		100,00	
	Max	-	100,00		100,00		100,00	
	StDev	-	9,06		0,00		0,00	

Table 6.2.1-14: Minimum effective dose of Terbutylazyna 500 SC applied at post-emergence against STEME in maize.

Treatments					**Untreated Check**	**Terbutylazyna 500 SC**					
Dose rate					-	**0,8 L/ha**		**1.0 L/ha**		**1,5 L/ha**	
Trials Data					**DENSITY plants/m2**	**Efficacy %**					
Country	**Trial Code**	**Crop Stage Majority at application**	**Rating Date**	**Weed species**							
			Trt-Eval	**Weed Stage Majority**							
			Interval								
PL	044GPSE202202	BBCH ~~16~~ 10-11	27.06.2022	STEME	6	81,80	d	83,80	c	86,00	b
			14 DA-B	BBCH 23							
PL	044GPSE202204	BBCH ~~18~~ 12-14	18.07.2022	STEME	7	80,00	d	86,30	c	86,00	c
			15 DA-B	BBCH 32							
PL	044_GPSE2022_06	BBCH ~~16~~ 12-13	18.06.2022	STEME	5	73,80	c	80,00	b	80,50	b
			13 DA-B	BBCH 23							
Average efficacy evaluated at 13-15 DA-B				**Mean**	-	**78,53**		**83,37**		**84,17**	
				Min	-	73,80		80,00		80,50	
				Max	-	81,80		86,30		86,00	
				StDev	-	4,20		3,17		3,18	
PL	044GPSE202202	BBCH ~~25~~ 10-11	11.07.2022	STEME	6	84,80	c	91,30	b	91,80	b
			28 DA-B	BBCH 57							
PL	044GPSE202204	BBCH ~~37~~ 12-14	02.08.2022	STEME	7	81,50	d	88,00	c	92,50	b

			30 DA-B	BBCH 63							
PL	044_GPSE2022_06	BBCH ~~35~~ 12-13	02.07.2022	STEME	5	80,00	d	87,50	b	90,50	b
			27 DA-B	BBCH 53							
Average efficacy evaluated at 27-30 DA-B				**Mean**	-	**82,10**		**88,93**		**91,60**	
				Min	-	80,00		87,50		90,50	
				Max	-	84,80		91,30		92,50	
				StDev	-	2,46		2,06		1,01	

In accordance with the results displayed in the table above, Terbutylazyna 500 SC showed the best protection at the two highest doses of 1.0 l/ha and 1.5 l/ha in both pre-emergence and post-emergence applications.

In the pre-emergence application, the mean efficacy of the tested product at all doses was very high and equalled 100% (at doses of1.0 l/ha and 1.5 l/ha). Whereas the efficacy at the lowest dose (0.8 l/ha) was 94.33-94.77%.

In the post-emergence application, the lowest efficacy was observed in trials where the tested product was used at the lowest dose of 0.8 l/ha (78.53-82.1 %). Meanwhile, at the highest doses, efficacy against STEME was higher and ranged between 83.37-88.93 % (at 1.0 l/ha) and 84.17-91.6 % (at 1.5 l/ha).

Based on the above data, it can be concluded that the minimum effective dose for STEME control in pre- and post-emergence applications is 1.0 l/ha.

KCP 6.2.1.1 Minimum effective dose for control of ivy-leaved speedwell (*Veronica hederifolia*) VERHE

During 2022, three trials (3) were conducted to demonstrate the minimum effective dose of Terbutylazyna 500 SC against ivy-leaved speedwell in maize. All three efficacy trials were conducted in Poland on three different maize varieties, Salamandra, Subito and DKC3088.

For each trial, the tested product Terbutylazyna 500 SC was applied pre-emergence (BBCH 00) and post-emergence (BBCH 10-13) at rates of 0.8 l/ha (400 g a.s./ha), 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha).
The efficacy data for Terbutylazyna 500 SC in the control of ivy-leaved speedwell in maize were used to justify 1.0 l/ha (500 g s.a./ha) as the minimum effective dose.

To confirm the minimum effective dose of the test product against VERHE on pre-emergence and post-emergence maize, the results of the trials conducted are presented and discussed individually in the tables: Table 6.2.1-15 and Table 6.2.1-16.

Details and results of the individual trials can be found in Appendix 3 and 4 respectively

Table 6.2.1-15: Minimum effective dose of Terbutylazyna 500 SC applied at pre-emergence against VERHE in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC					
Dose rate					-	0,8 L/ha		1.0 L/ha		1,5 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202202	BBCH ~~16~~ 00	27.06.2022 28 DA-A	VERHE BBCH 23	6	94,00	bc	99,30	a	100,00	a
PL	044GPSE202207	BBCH ~~16~~ 00	24.06.2022 35 DA-A	VERHE BBCH 16	5	92,30	b	100,00	a	100,00	a
PL	044GPSE202208	BBCH ~~15~~ 00	16.06.2022 28 DA-A	VERHE BBCH 22	6	93,00	b	100,00	a	100,00	a
Average efficacy evaluated at 28-35 DA-A				**Mean**	-	**93,10**		**99,77**		**100,00**	
				Min	-	92,30		99,30		100,00	
				Max	-	94,00		100,00		100,00	
				StDev	-	0,85		0,40		0,00	
PL	044GPSE202202	BBCH ~~25~~ 00	11.07.2022 42 DA-A	VERHE BBCH 53	6	95,50	b	100,00	a	100,00	a
PL	044GPSE202207	BBCH ~~35~~ 00	08.07.2022 49 DA-A	VERHE BBCH 53	5	91,00	b	100,00	a	100,00	a
PL	044GPSE202208	BBCH ~~24~~ 00	30.06.2022 42 DA-A	VERHE BBCH 33	5	91,00	b	100,00	a	100,00	a

Average efficacy evaluated at 42-49 DA-A	**Mean**	-	**92,50**		**100,00**		**100,00**	
	Min	-	91,00		100,00		100,00	
	Max	-	95,50		100,00		100,00	
	StDev	-	2,60		0,00		0,00	

Table 6.2.1-16: Minimum effective dose of Terbutylazyna 500 SC applied at post-emergence against VERHE in maize.

Treatments					**Untreated Check**	**Terbutylazyna 500 SC**					
Dose rate					-	**0,8 L/ha**		**1.0 L/ha**		**1,5 L/ha**	
Trials Data					**DENSITY plants/m2**	**Efficacy %**					
Country	**Trial Code**	**Crop Stage Majority at application**	**Rating Date** / **Trt-Eval Interval**	**Weed species** / **Weed Stage Majority**							
PL	044GPSE202202	BBCH ~~16~~ 10-11	27.06.2022 / 14 DA-B	VERHE / BBCH 23	6	86,80	d	91,30	bc	95,50	ab
PL	044GPSE202207	BBCH ~~16~~ 11-13	24.06.2022 / 14 DA-B	VERHE / BBCH 16	5	80,50	d	83,80	c	85,50	c
PL	044GPSE202208	BBCH ~~15~~ 11-12	16.06.2022 / 14 DA-B	VERHE / BBCH 22	6	81,00	c	85,30	c	84,80	c
Average efficacy evaluated at 14 DA-B				**Mean**	-	**82,77**		**86,80**		**88,60**	
				Min	-	80,50		83,80		84,80	
				Max	-	86,80		91,30		95,50	
				StDev	-	3,50		3,97		5,99	
PL	044GPSE202202	BBCH ~~25~~ 10-11	11.07.2022	VERHE	6	85,50	d	89,30	c	93,50	b

			28 DA-B	BBCH 53							
PL	044GPSE202207	BBCH ~~25~~ 11-13	08.07.2022	VERHE	5	84,30	c	91,30	b	95,30	ab
			28 DA-B	BBCH 53							
PL	044GPSE202208	BBCH ~~24~~ 11-12	30.06.2022	VERHE	5	82,30	c	88,00	b	90,50	b
			28 DA-B	BBCH 33							
Average efficacy evaluated at 28 DA-B				**Mean**	-	**84,03**		**89,53**		**93,10**	
				Min	-	82,30		88,00		90,50	
				Max	-	85,50		91,30		95,30	
				StDev	-	1,62		1,66		2,42	

Following the results displayed in the table above, Terbutylazyna 500 SC showed very high efficacy against VERHE at all doses of 1.0 l/ha and 1.5 l/ha in both pre-emergence and post-emergence applications.

In the pre-emergence application, the mean efficacy of the tested product at all doses was very high, with a range of 99.77-100% (at 1.0 l/ha) and 100% (at 1.5 l/ha). While at the lowest dose of 0.8 l/ha, the mean efficacy was 93.1% in the 1st assessment and 92.5% in the 2nd assessment.

Similar, in the post-emergence application, a slightly lower efficacy was observed in trials where the tested product was used at the lowest dose of 0.8 l/ha (82.77-84.03%). On the other hand, at the highest dose, the efficacy against VERHE was higher at 86.8-89.53% (at 1.0 l/ha) and 88.6-93.1% (at 1.5 l/ha).

Based on the above data, it can be concluded that the minimum effective dose for the control of VERHE in pre- and post-emergence applications is 1.0 l/ha.

KCP 6.2.1.1 Minimum effective dose for control of kew weed (*Galinsoga parviflora*) GASPA

Two trials have been carried out in 2022 (2) in support of demonstrating the minimum effective dose of Terbutylazyna 500 SC against kew weed in maize. All two efficacy trials were conducted in Poland on two different varieties of maize: Subito and Amavit.

In each trial, the tested product Terbutylazyna 500 SC was applied at pre-emergence (BBCH 00) and post-emergence (BBCH 11-14) at the rates of 0,8L/ha (400g a.s./ha), 1,0 L/ha (500 g a.s./ha) and 1,5 L/ha (750 g a.s./ha).

Data generated on the efficacy of Terbutylazyna 500 SC against kew weed in maize are used to justify the dose of 1,0 L/ha (500 g a.s./ha) as the minimum effective dose.

The results of trials conducted to support minimum effective dose of tested product against GASPA on maize applied at pre-emergence and post-emergence are presented and discussed individually in tables: Table 6.2.1-17 and Table 6.2.1-18.

Individual trial details and results are located in Appendix 3 and 4, respectively

Table 6.2.1-17: Minimum effective dose of Terbutylazyna 500 SC applied at pre-emergence against GASPA in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC					
Dose rate					-	0,8 L/ha		1.0 L/ha		1,5 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202204	BBCH ~~18~~ 00	18.07.2022 34 DA-A	GASPA BBCH 32	11	100,00	a	100,00	a	100,00	a
PL	044GPSE202207	BBCH ~~16~~ 00	24.06.2022 35 DA-A	GASPA BBCH 18	7	81,30	b	100,00	a	100,00	a
Average efficacy evaluated at 34-35 DA-A				**Mean**	-	**90,65**		**100,00**		**100,00**	
				Min	-	81,30		100,00		100,00	
				Max	-	100,00		100,00		100,00	
				StDev	-	13,22		0,00		0,00	
PL	044GPSE202204	BBCH ~~37~~ 00	02.08.2022 45 DA-A	GASPA BBCH 63	11	100,00	a	100,00	a	100,00	a
PL	044GPSE202207	BBCH ~~35~~ 00	08.07.2022 49 DA-A	GASPA BBCH 35	7	82,30	c	100,00	a	100,00	a
Average efficacy evaluated at 45-49 DA-A				**Mean**	-	**91,15**		**100,00**		**100,00**	
				Min	-	82,30		100,00		100,00	
				Max	-	100,00		100,00		100,00	
				StDev	-	12,52		0,00		0,00	

Table 6.2.1-13: Minimum effective dose of Terbutylazyna 500 SC applied at post-emergence against GASPA in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC					
Dose rate					-	0,8 L/ha		1.0 L/ha		1,5 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202204	BBCH ~~18~~ 12-14	18.07.2022 15 DA-B	GASPA BBCH 32	11	77,50	c	81,30	b	82,50	b
PL	044GPSE202207	BBCH ~~16~~ 11-13	24.06.2022 14 DA-B	GASPA BBCH 18	7	75,00	c	81,00	b	82,30	b
Average efficacy evaluated at 14-15 DA-B				**Mean**	-	**76,25**		**81,15**		**82,40**	
				Min	-	75,00		81,00		82,30	
				Max	-	77,50		81,30		82,50	
				StDev	-	1,77		0,21		0,14	
PL	044GPSE202204	BBCH ~~37~~ 12-14	02.08.2022 30 DA-B	GASPA BBCH 63	11	92,50	b	100,00	a	100,00	a
PL	044GPSE202207	BBCH ~~35~~ 11-13	08.07.2022 28 DA-B	GASPA BBCH 35	7	79,30	d	94,80	b	99,30	a
Average efficacy evaluated at 28-30 DA-B				**Mean**	-	**85,90**		**97,40**		**99,65**	
				Min	-	79,30		94,80		99,30	
				Max	-	92,50		100,00		100,00	
				StDev	-	9,33		3,68		0,49	

Based on the results display in the table above, Terbutylazyna 500 SC showed the best protection at the two highest doses of 1.0 l/ha and 1.5 l/ha in both pre-emergence and post-emergence applications.

In the pre-emergence application, the mean efficacy of the tested product at all doses was very high and equal 100% (at 1.0 l/ha and 1.5 l/ha). While at the lowest dose of 0.8 l/ha the mean efficacy was between 90.65-91.15%.

Similar, in the post-emergence application, lower efficacy was observed in trials where the tested product was applied at the lowest dose of 0.8 l/ha (76.25-85.90%). Whereas, at the highest doses, the efficacy against GASPA was higher at 81.15-97.4% (at 1.0 l/ha) and 82.4-99.65% (at 1.5 l/ha) and the differences were statistically significant.

From the above data, it can be concluded that the minimum effective dose for the control of GASPA in pre- and post-emergence applications is 1.0 l/ha.

KCP 6.2.1.1 Minimum effective dose for control of heartsease (*Viola arvensis*) VIOAR

During 2022, two trials (2) were conducted to demonstrate the minimum effective dose of Terbutylazyna 500 SC against heartsease in maize. Both two efficacy trials were carried out in Poland on two different maize varieties, Leonido and DKC3088.

In each study, the tested product, Terbutylazyna 500 SC, was applied pre-emergence (BBCH 00) and post-emergence (BBCH 12-15) at rates of 0.8 l/ha (400 g a.s./ha), 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha).
Efficacy data for Terbutylazyna 500 SC against heartsease in maize are used to justify 1.0 L/ha (500 g s.a./ha) as the minimum effective dose.

The results of the trials conducted to confirm the minimum effective dose of the tested product against VIOAR on maize applied pre-emergence and post-emergence are presented and discussed individually in the tables: Table 6.2.1-19 and Table 6.2.1-20.

Details and results of the individual trials can be found in Appendix 3 and 4 respectively

Table 6.2.1-19: Minimum effective dose of Terbutylazyna 500 SC applied at pre-emergence against VOIAR in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC					
Dose rate					-	0,8 L/ha		1.0 L/ha		1,5 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202205	BBCH 24 00	27.06.2022 40 DA-A	VIOAR BBCH 33	8	72,50	b	83,50	a	85,30	a
PL	044_GPSE2022_06	BBCH 16 00	18.06.2022 32 DA-A	VIOAR BBCH 17	10	75,00	c	86,00	a	86,80	a
Average efficacy evaluated at 32-40 DA-A				**Mean**	-	**73,75**		**84,75**		**86,05**	
				Min	-	72,50		83,50		85,30	
				Max	-	75,00		86,00		86,80	
				StDev	-	1,77		1,77		1,06	
PL	044GPSE202205	BBCH 55 00	12.07.2022 55 DA-A	VIOAR BBCH 61	8	75,00	b	82,50	a	85,30	a
PL	044_GPSE2022_06	BBCH 35 00	02.07.2022 46 DA-A	VIOAR BBCH 63	10	73,80	b	86,50	a	86,50	a
Average efficacy evaluated at 46-55 DA-A				**Mean**	-	**74,40**		**84,50**		**85,90**	
				Min	-	73,80		82,50		85,30	
				Max	-	75,00		86,50		86,50	
				StDev	-	0,85		2,83		0,85	

Table 6.2.1-20: Minimum effective dose of Terbutylazyna 500 SC applied at post-emergence against VOIAR in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC					
Dose rate					-	0,8 L/ha		1.0 L/ha		1,5 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202205	BBCH ~~34~~ 13-15	27.06.2022 15 DA-B	VIOAR BBCH 33	8	70,00	b	82,30	a	83,50	a
PL	044_GPSE2022_06	BBCH ~~16~~ 12-13	18.06.2022 13 DA-B	VIOAR BBCH 17	10	70,00	d	79,30	b	85,00	a
Average efficacy evaluated at 13-15 DA-B				**Mean**	-	**70,00**		**80,80**		**84,25**	
				Min	-	70,00		79,30		83,50	
				Max	-	70,00		82,30		85,00	
				StDev	-	0,00		2,12		1,06	
PL	044GPSE202205	BBCH ~~55~~ 13-15	12.07.2022 30 DA-B	VIOAR BBCH 61	8	72,50	b	79,80	a	84,00	a
PL	044_GPSE2022_06	BBCH ~~35~~ 12-13	02.07.2022 27 DA-B	VIOAR BBCH 63	10	73,80	b	81,80	a	85,50	a
Average efficacy evaluated at 27-30 DA-B				**Mean**	-	**73,15**		**80,80**		**84,75**	
				Min	-	72,50		79,80		84,00	
				Max	-	73,80		81,80		85,50	
				StDev	-	0,92		1,41		1,06	

According to the results in the tables above, Terbutylazyna 500 SC applied pre-emergence provided good control (mean efficacy 84.75-84.5%) at 1.0 l/ha. Slightly

higher VIOAR control (86.05% at the first assessment and 85.9% at the second assessment) was observed when the tested product was applied at 1.5 l/ha. Meanwhile, the lowest efficacy values (73.75-74.4 l/ha) were obtained at the lowest dose of 0.8 l/ha.
Similarly, in studies where the test product was applied post-emergence, moderate efficacy was observed at 1.0 l/ha (80.8) and 1.5 l/ha (84.25-84.75%). At the lowest dose of 0.8 l/ha, efficacy was lower (70-73.15%) than at the higher doses, and these differences were statistically significant.

It can be said that 1.0 l/ha can be considered as the minimum effective dose for VIOAR control.

KCP 6.2.1.1 Minimum effective dose for control of bearbind (*Fallopia convolvulus*) POLCO

Two trials have been carried out in 2022 (2) in support of demonstrating the minimum effective dose of Terbutylazyna 500 SC against bearbind in maize. All two efficacy trials were conducted in Poland on two different varieties of maize: DKC3595 and Leonido.

In each trial, the tested product Terbutylazyna 500 SC was applied at pre-emergence (BBCH 00) and post-emergence (BBCH 11-15) at the rates of 0,8L/ha (400g a.s./ha), 1,0 L/ha (500 g a.s./ha) and 1,5 L/ha (750 g a.s./ha).

Data generated on the efficacy of Terbutylazyna 500 SC against bearbind in maize are used to justify the dose of 1,0 L/ha (500 g a.s./ha) as the minimum effective dose.

The results of trials conducted to support minimum effective dose of tested product against POLCO on maize applied at pre-emergence and post-emergence are presented and discussed individually in tables: Table 6.2.1-21 and Table 6.2.1-22.

Individual trial details and results are located in Appendix 3 and 4, respectively

Table 6.2.1-21: Minimum effective dose of Terbutylazyna 500 SC applied at pre-emergence against POLCO in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC					
Dose rate					-	0,8 L/ha		1.0 L/ha		1,5 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202201	BBCH ~~17~~ 00	27.06.2022 31 DA-A	POLCO BBCH 23	5	80,50	b	95,50	a	100,00	a
PL	044GPSE202205	BBCH ~~24~~ 00	27.06.2022 40 DA-A	POLCO BBCH 33	6	86,80	b	100,00	a	100,00	a
Average efficacy evaluated at 31-40 DA-A				**Mean**	-	**83,65**		**97,75**		**100,00**	
				Min	-	80,50		95,50		100,00	
				Max	-	86,80		100,00		100,00	
				StDev	-	4,45		3,18		0,00	
PL	044GPSE202201	BBCH ~~26~~ 00	11.07.2022 45 DA-A	POLCO BBCH 35	5	80,00	e	95,30	ab	99,30	a
PL	044GPSE202205	BBCH ~~55~~ 00	12.07.2022 55 DA-A	POLCO BBCH 53	6	88,00	b	100,00	a	100,00	a
Average efficacy evaluated at 45-55 DA-A				**Mean**	-	**84,00**		**97,65**		**99,65**	
				Min	-	80,00		95,30		99,30	
				Max	-	88,00		100,00		100,00	
				StDev	-	5,66		3,32		0,49	

Table 6.2.1-21: Minimum effective dose of Terbutylazyna 500 SC applied at post-emergence against POLCO in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC					
Dose rate					-	0,8 L/ha		1.0 L/ha		1,5 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202201	BBCH ~~17~~11-13	27.06.2022 14 DA-B	POLCO BBCH 23	5	52,50	e	60,00	d	67,50	c
PL	044GPSE202205	BBCH ~~24~~ 13-15	27.06.2022 15 DA-B	POLCO BBCH 33	6	81,00	c	82,80	c	84,30	bc
Average efficacy evaluated at 14-15 DA-B				**Mean**	-	**66,75**		**71,40**		**75,90**	
				Min	-	52,50		60,00		67,50	
				Max	-	81,00		82,80		84,30	
				StDev	-	20,15		16,12		11,88	
PL	044GPSE202201	BBCH ~~26~~ 11-13	11.07.2022 28 DA-B	POLCO BBCH 35	5	75,00	f	89,80	cd	93,00	bc
PL	044GPSE202205	BBCH ~~55~~ 13-15	12.07.2022 30 DA-B	POLCO BBCH 53	6	83,50	c	89,30	b	90,00	b
Average efficacy evaluated at 28-30 DA-B				**Mean**	-	**79,25**		**89,55**		**91,50**	
				Min	-	75,00		89,30		90,00	
				Max	-	83,50		89,80		93,00	
				StDev	-	6,01		0,35		2,12	

In accordance with the results displayed in the table above, Terbutylazyna 500 SC showed the best protection at the two highest doses of 1.0 l/ha and 1.5 l/ha in both pre-emergence and post-emergence applications.

In the pre-emergence application, the mean efficacy of the tested product at all doses was very high at around 97% (at 1.0 l/ha) and almost 100% at 1.5 l/ha. While at the lowest dose of 0.8 l/ha, the mean efficacy was 83.65-84%.

In the post-emergence application, lower efficacy was observed in trials where the test product was used at the lowest dose of 0.8 l/ha (66.75-79.25 %). Whereas, at the highest dose, the efficacy against POLCO was higher at 71.4-89.55% (at 1.0 l/ha) and 75.9-91.5% (at 1.5 l/ha). The difference between the lowest dose and higher doses was statistically significant.

Based on the above data, it can be concluded that the minimum effective dose for the control of GASPA in pre- and post-emergence applications is 1.0 l/ha.

KCP 6.2.1.1 Minimum effective dose for control of kedlock (*Sinapis arvensis*) SINAR

In 2022, two trials (2) were conducted to demonstrate the minimum effective dose of Terbutylazyna 500 SC against kedlock in maize. All two efficacy trials were conducted in Poland on two different maize varieties: Salamandra and DKC3088.

For each trial, the tested product Terbutylazyna 500 SC was applied pre-emergence (BBCH 00) and post-emergence (BBCH 10-13) at rates of 0.8 l/ha (400 g a.s./ha), 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha).
The efficacy data for Terbutylazyna 500 SC in the control of kedlock of maize are used to justify 1.0 L/ha (500 g s.a./ha) as the minimum effective dose.

To confirm the minimum effective dose of the tested product against SINAR on pre-emergence and post-emergence maize, the results of the trials are presented and discussed individually in the tables: Table 6.2.1-23 and Table 6.2.1-24.

For details and results of the individual trials, see Annex 3 respectively

Table 6.2.1-23: Minimum effective dose of Terbutylazyna 500 SC applied at pre-emergence against SINAR in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC					
Dose rate					-	0,8 L/ha		1.0 L/ha		1,5 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202202	BBCH ~~16~~ 00	27.06.2022 28 DA-A	SINAR BBCH 17	8	100,00	a	100,00	a	100,00	a
PL	044_GPSE2022_06	BBCH ~~16~~ 00	18.06.2022 32 DA-A	SINAR BBCH 17	7	100,00	a	100,00	a	100,00	a
Average efficacy evaluated at 28-32 DA-A				**Mean**	-	**100,00**		**100,00**		**100,00**	
				Min	-	100,00		100,00		100,00	
				Max	-	100,00		100,00		100,00	
				StDev	-	0,00		0,00		0,00	
PL	044GPSE202202	BBCH ~~35~~ 00	11.07.2022 42 DA-A	SINAR BBCH 61	8	100,00	a	100,00	a	100,00	a
PL	044_GPSE2022_06	BBCH ~~35~~ 00	02.07.2022 46 DA-A	SINAR BBCH 59	7	100,00	a	100,00	a	100,00	a
Average efficacy evaluated at 42-46 DA-A				**Mean**	-	**100,00**		**100,00**		**100,00**	
				Min	-	100,00		100,00		100,00	
				Max	-	100,00		100,00		100,00	
				StDev	-	0,00		0,00		0,00	

Table 6.2.1-24: Minimum effective dose of Terbutylazyna 500 SC applied at post-emergence against SINAR in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC					
Dose rate					-	0,8 L/ha		1.0 L/ha		1,5 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202202	BBCH ~~16~~ 10-11	27.06.2022 14 DA-B	SINAR BBCH 17	8	90,00	c	95,50	b	96,00	b
PL	044_GPSE2022_06	BBCH ~~16~~ 12-13	18.06.2022 13 DA-B	SINAR BBCH 17	7	83,80	c	86,00	b	87,30	b
Average efficacy evaluated at 13-14 DA-B				**Mean**	-	**86,90**		**90,75**		**91,65**	
				Min	-	83,80		86,00		87,30	
				Max	-	90,00		95,50		96,00	
				StDev	-	4,38		6,72		6,15	
PL	044GPSE202202	BBCH ~~25~~ 10-11	11.07.2022 28 DA-B	SINAR BBCH 61	8	88,00	c	96,00	b	97,80	a
PL	044_GPSE2022_06	BBCH ~~25~~ 12-13	02.07.2022 27 DA-B	SINAR BBCH 59	7	85,50	d	96,00	c	100,00	a
Average efficacy evaluated at 27-28 DA-B				**Mean**	-	**86,75**		**96,00**		**98,90**	
				Min	-	85,50		96,00		97,80	
				Max	-	88,00		96,00		100,00	
				StDev	-	1,77		0,00		1,56	

As the results in the above tables show, in pre-emergence application, the efficacy of the tested product against SINAR at all doses was very high at 100%.

In trials where the tested product was applied post-emergence, high efficacy was also observed at the dose of 1.0 l/ha (90.75-96.0%) and the dose of 1.5 l/ha (91.65-98.9%). At the lowest dose of 0.8 L/ha, efficacy was lower (86.9-86.75%) than at higher doses, and the differences were statistically significant.

It can be said that 1.0 L/ha can be considered as the minimum effective dose for SINAR control.

KCP 6.2.1.1 Minimum effective dose for control of cornflower (*Centaurea cyanus*) CENCY

There were two trials (2) conducted in 2022 to demonstrate the minimum effective dose of Terbutylazyna 500 SC against cornflower in corn. All two efficacy trials were conducted in Poland on two different maize varieties: Ulan and Amavit.

In each trial, the tested product Terbutylazyna 500 SC was applied pre-emergence (BBCH 00) and post-emergence (BBCH 11-14) at rates of 0.8 l/ha (400 g a.s./ha), 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha).
The data obtained on the efficacy of Terbutylazyna 500 SC in the control of cornflower in maize are used to justify the dose of 1.0 L/ha (500 g s.a./ha) as the minimum effective dose.

The results of the tests conducted to justify the minimum effective dose of the test product against CENCY on pre-emergence and post-emergence maize are presented and discussed individually in the tables: Table 6.2.1-25 and Table 6.2.1-26.

Details and results of each trial can be found in Appendix 3 and 4, respectively

Table 6.2.1-23: Minimum effective dose of Terbutylazyna 500 SC applied at pre-emergence against CENCY in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC					
Dose rate					-	0,8 L/ha		1.0 L/ha		1,5 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202203	BBCH ~~18~~00	29.06.2022 34 DA-A	CENCY BBCH 32	5	72,50	c	89,30	a	93,00	a
PL	044GPSE202207	BBCH ~~16~~ 00	24.06.2022 35 DA-A	CENCY BBCH 17	5	87,50	b	98,80	a	100,00	a
Average efficacy evaluated at 34-35 DA-A				**Mean**	-	**80,00**		**94,05**		**96,50**	
				Min	-	72,50		89,30		93,00	
				Max	-	87,50		98,80		100,00	
				StDev	-	10,61		6,72		4,95	
PL	044GPSE202203	BBCH ~~37~~ 00	13.07.2022 48 DA-A	CENCY BBCH 61	5	75,00	d	91,00	ab	93,50	a
PL	044GPSE202207	BBCH ~~35~~ 00	08.07.2022 49 DA-A	CENCY BBCH 53	5	88,50	b	100,00	a	100,00	a
Average efficacy evaluated at 48-49 DA-A				**Mean**	-	**81,75**		**95,50**		**96,75**	
				Min	-	75,00		91,00		93,50	
				Max	-	88,50		100,00		100,00	
				StDev	-	9,55		6,36		4,60	

Table 6.2.1-24: Minimum effective dose of Terbutylazyna 500 SC applied at post-emergence against CENCY in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC					
Dose rate					-	0,8 L/ha		1.0 L/ha		1,5 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202203	BBCH ~~18~~ 13-14	29.06.2022 14 DA-B	CENCY BBCH 32	5	62,50	d	80,50	b	83,00	b
PL	044GPSE202207	BBCH ~~16~~ 11-13	24.06.2022 14 DA-B	CENCY BBCH 17	5	76,30	c	78,80	c	80,00	c
Average efficacy evaluated at 14 DA-B				**Mean**	-	**69,40**		**79,65**		**81,50**	
				Min	-	62,50		78,80		80,00	
				Max	-	76,30		80,50		83,00	
				StDev	-	9,76		1,20		2,12	
PL	044GPSE202203	BBCH ~~27~~ 13-14	13.07.2022 28 DA-B	CENCY BBCH 61	5	70,00	e	85,50	c	87,30	bc
PL	044GPSE202207	BBCH ~~25~~ 11-13	08.07.2022 28 DA-B	CENCY BBCH 53	5	79,80	c	85,00	b	87,50	b
Average efficacy evaluated at 28 DA-B				**Mean**	-	**74,90**		**85,25**		**87,40**	
				Min	-	70,00		85,00		87,30	
				Max	-	79,80		85,50		87,50	
				StDev	-	6,93		0,35		0,14	

According to the results presented in the table above, Terbutylazyna 500 SC showed the best protection at the two highest doses of 1.0 l/ha and 1.5 l/ha in both pre-emergence and post-emergence applications.

In the pre-emergence application, the mean efficacy of the tested product at all doses was very high at around 94.05-95.5% at 1.0 l/ha and 96.5-96.75 at 1.5 l/ha. However, at the lowest dose of 0.8 l/ha, the mean efficacy was 80-81.75%.

Similar in the post-emergence application, lower efficacy was observed in experiments where the tested product was used at the lowest dose of 0.8 l/ha (69.4-74.9%). Whereas at the highest doses, the efficacy against CENCY was higher 79.65-85.25% (at 1.0 l/ha) and 781.5-87.4% (at 1.5 l/ha) and the difference between the lowest dose and higher dose was statistically significant.

Based on the above data, it can be concluded that the minimum effective dose in the control of CENCY in pre- and post-emergence application is the dose of 1.0 l/ha.

KCP 6.2.1.1 Minimum effective dose for control of fanweed (*Thlaspi arvense*) THLAR

Two trials have been carried out in 2022 (3) in support of demonstrating the minimum effective dose of Terbutylazyna 500 SC against fanweed in maize. All two efficacy trials were conducted in Poland on two different varieties of maize: Ułan and Danubio.

In each trial, the tested product Terbutylazyna 500 SC was applied at pre-emergence (BBCH 00) and post-emergence (BBCH 11-14) at the rates of 0,8L/ha (400g a.s./ha), 1,0 L/ha (500 g a.s./ha) and 1,5 L/ha (750 g a.s./ha).

Data generated on the efficacy of Terbutylazyna 500 SC against fanweed in maize are used to justify the dose of 1,0 L/ha (500 g a.s./ha) as the minimum effective dose.

The results of trials conducted to support minimum effective dose of tested product against THLAR on maize applied at pre-emergence and post-emergence are presented and discussed individually in tables: Table 6.2.1-25 and Table 6.2.1-26.

Individual trial details and results are located in Appendix 3 and 4, respectively

Table 6.2.1-25: Minimum effective dose of Terbutylazyna 500 SC applied at pre-emergence against THLAR in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC					
Dose rate					-	0,8 L/ha		1.0 L/ha		1,5 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202203	BBCH ~~18~~00	29.06.2022 34 DA-A	THLAR BBCH 31	6	81,80	ab	85,00	a	85,00	a
PL	044GPSE202208	BBCH ~~15~~ 00	16.06.2022 28 DA-A	THLAR BBCH 18	5	100,00	a	100,00	a	100,00	a
Average efficacy evaluated at 28-34 DA-A				**Mean**	-	**90,90**		**92,50**		**92,50**	
				Min	-	81,80		85,00		85,00	
				Max	-	100,00		100,00		100,00	
				StDev	-	12,87		10,61		10,61	
PL	044GPSE202203	BBCH ~~37~~ 00	13.07.2022 48 DA-A	THLAR BBCH 63	6	80,50	b	85,50	a	85,30	a
PL	044GPSE202208	BBCH ~~24~~ 00	30.06.2022 42 DA-A	THLAR BBCH 51	5	100,00	a	100,00	a	100,00	a
Average efficacy evaluated at 42-48 DA-A				**Mean**	-	**90,25**		**92,75**		**92,65**	
				Min	-	80,50		85,50		85,30	
				Max	-	100,00		100,00		100,00	
				StDev	-	13,79		10,25		10,39	

Table 6.2.1-26: Minimum effective dose of Terbutylazyna 500 SC applied at post-emergence against THLAR in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC					
Dose rate					-	0,8 L/ha		1.0 L/ha		1,5 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202203	BBCH ~~18~~ 13-14	29.06.2022 14 DA-B	THLAR BBCH 31	6	76,30	b	79,30	ab	81,80	ab
PL	044GPSE202208	BBCH ~~15~~ 11-12	16.06.2022 14 DA-B	THLAR BBCH 18	5	85,00	b	86,30	b	88,00	b
Average efficacy evaluated at 14 DA-B				Mean	-	**80,65**		**82,80**		**84,90**	
				Min	-	76,30		79,30		81,80	
				Max	-	85,00		86,30		88,00	
				StDev	-	6,15		4,95		4,38	
PL	044GPSE202203	BBCH ~~37~~ 13-14	13.07.2022 28 DA-B	THLAR BBCH 63	6	78,80	b	84,30	a	86,00	a
PL	044GPSE202208	BBCH ~~34~~ 11-12	30.06.2022 28 DA-B	THLAR BBCH 51	5	85,50	c	90,50	b	93,00	b
Average efficacy evaluated at 28 DA-B				Mean	-	**82,15**		**87,40**		**89,50**	
				Min	-	78,80		84,30		86,00	
				Max	-	85,50		90,50		93,00	
				StDev	-	4,74		4,38		4,95	

In accordance with the results shown in the table above, Terbutylazyna 500 SC showed the best protection at the two highest doses of 1.0 l/ha and 1.5 l/ha in both pre-emergence and post-emergence applications.
In pre-emergence applications, the mean efficacy of the tested product at all doses was high at around 92.5% at 1.0 l/ha and 1.5 l/ha. While at the lowest dose of 0.8 l/ha the mean efficacy was about 90%.

In post-emergence application, lower efficacy was observed in trials where the tested product was used at the lowest dose of 0.8 l/ha (80.65-82.15%). Meanwhile, at the highest doses, efficacy against THLAR was higher at 82.8-87.4% (at 1.0 l/ha) and 84.9-89.5% (at 1.5 l/ha). The differences between the efficacy at the lowest dose and higher doses were statistically significant.

It can be concluded based on the above data that the minimum effective dose for THLAR control in pre- and post-emergence applications is 1.0 l/ha.

KCP 6.2.1.1 Minimum effective dose for control of other weeds (supporting data)

For the purpose of completeness, data on weeds observed at relevant abundances in 1 site only were presented as supporting data.

In each trial, the tested product Terbutylazyna 500 SC was applied at pre-emergence (BBCH 00) and post-emergence (BBCH 10-15) at the rates of 0,8L/ha (400g a.s./ha), 1,0 L/ha (500 g a.s./ha) and 1,5 L/ha (750 g a.s./ha).

The results of trials conducted to support minimum effective dose of tested product against CIRAR, MYOAR, and GAETE on maize applied at pre-emergence and post-emergence are presented and discussed individually in tables: Table 6.2.1-27 and Table 6.2.1-28.

Individual trial details and results are located in Appendix 3 and 4, respectively

Table 6.2.1-27: Minimum effective dose of Terbutylazyna 500 SC applied at pre-emergence against weeds in maize.

Treatments					Untreated Check	28 - 34 DA-A					
Dose rate					-	Terbutylazyna 500 SC					
Trials Data						0,8 L/ha		1.0 L/ha		1,5 L/ha	
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority	DENSITY plants/m2	Efficacy %					
PL	044GPSE202202	BBCH ~~16~~ 00	27.06.2022 28 DA-A	CIRAR BBCH 16	7	77,50	b	85,00	a	86,00	a
PL	044GPSE202203	BBCH ~~18~~ 00	29.06.2022 34 DA-A	MYOAR BBCH 24	5	98,00	a	100,00	a	100,00	a
PL	044_GPSE2022_06	BBCH ~~16~~ 00	18.06.2022 32 DA-A	GAETE BBCH 16	5	71,30	ab	72,50	ab	75,00	a
						35 - 37 DA-A					
PL	044GPSE202202	BBCH ~~25~~ 00	11.07.2022 42 DA-A	CIRAR BBCH 53	7	76,80	b	86,00	a	86,50	a
PL	044GPSE202203	BBCH ~~37~~ 00	13.07.2022 48 DA-A	MYOAR BBCH 59	5	98,80	a	100,00	a	100,00	a
PL	044_GPSE2022_06	BBCH ~~35~~ 00	02.07.2022 46 DA-A	GAETE BBCH 57	5	73,80	b	81,00	a	83,50	a

Table 6.2.1-28: Minimum effective dose of Terbutylazyna 500 SC applied at post-emergence against weeds in maize.

Treatments					Untreated Check	13 - 14 DA-B					
Dose rate					-	Terbutylazyna 500 SC					
Trials Data						0,8 L/ha		1.0 L/ha		1,5 L/ha	
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority	DENSITY plants/m2	Efficacy %					
PL	044GPSE202202	BBCH ~~16~~ 10-11	27.06.2022 14 DA-B	CIRAR BBCH 16	7	70,00	c	77,50	b	83,00	a
PL	044GPSE202203	BBCH ~~18~~ 13-14	29.06.2022 14 DA-B	MYOAR BBCH 24	5	80,00	c	82,50	c	87,30	b
PL	044_GPSE2022_06	BBCH ~~16~~ 12-13	18.06.2022 13 DA-B	GAETE BBCH 16	5	65,00	b	65,00	b	70,00	ab
						35 - 37 DA-B					
PL	044GPSE202202	BBCH ~~35~~ 10-11	11.07.2022 28 DA-B	CIRAR BBCH 53	7	75,00	b	83,00	a	85,00	a
PL	044GPSE202203	BBCH ~~37~~ 13-14	13.07.2022 28 DA-B	MYOAR BBCH 59	5	88,80	b	100,00	a	100,00	a
PL	044_GPSE2022_06	BBCH ~~35~~ 12-13	02.07.2022 27 DA-B	GAETE BBCH 57	5	67,50	c	78,80	a	82,80	a

According to the results shown in the table above, Terbutylazyna 500 SC showed the best protection at the two highest doses of 1.0 l/ha and 1.5 l/ha in both pre-emergence and post-emergence applications in three different weeds.

In pre-emergence applications, the mean efficacy of the tested product at all doses was high at around 92.5% at 1.0 l/ha and 1.5 l/ha. While at the lowest dose of 0.8 l/ha the mean efficacy was about 90%.

Similar in the post-emergence application, lower efficacy was observed in trials where the tested product was used at the lowest dose of 0.8 l/ha (80.65-82.15%). In contrast, at the highest doses, the efficacy against THLAR was higher 82.8-87.4% (at 1.0 l/ha) and 84.9-89.5% (at 1.5 l/ha). The differences between the effectiveness of the lowest dose and the highest doses were statistically significant.

Based on the above data, it can be concluded that the minimum effective dose for THLAR control in pre- and post-emergence application is 1.0 l/ha.

Minimum effective dose – Conclusion

The aim of the data presented in this dossier is to support the registration of Terbutylazyna 500 SC for the control of a broad spectrum of maize weeds.

Terbutylazyna 500 SC is a selective herbicide in the form of a suspension concentrate (SC) for foliar application, which contains the active ingredient terbuthylazine at a dose of 500 g/l. This active ingredient is commonly used pre-emergence and post-emergence for weed control in maize and cereals.

Determining the appropriate minimum effective dose is very important, especially for foliar preventive treatment, due to the preventive nature of such treatment and the broad spectrum of weeds that are usually targeted.

In each presented study, the tested product Terbutylazyna 500 SC was applied pre-emergence and post-emergence at rates of 0.8 l/ha (400 g a.s./ha), 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha).

Below is a simplified summary table of efficacy results from all efficacy tests to prove the minimum effective dose.

The product EFFICACY was assessed as a visual evaluation of % weed control in comparison to the untreated checks.
Weed susceptibility and claim of control statements are based upon guidance provided in SAN-CO/10055/2013 rev. 4 (3 October 2014), as shown below in the table: Table 6.2.1-.

Table 6.2.1-29: Weed susceptibility levels based on SAN-CO/10055/2013 rev. 4

Label claim	Control level range (%)
Highly susceptible (HS)	**95 to 100 %**
Susceptible (S)	**85 to 94 %**
Moderately susceptible (MS)	**70 to 84 %**
Moderately tolerant (MT)	**50 to 69 %**
Tolerant (T)	**< 50 %**

Below it is presented summary of the obtained results per each intended weed in Table 6.2.1-30 and Table 6.2.1-31:

Table 6.2.1-4: Summary of minimum effective dose tests per weed at first (28-40 DA-A) and second (42-55 DA-A) assessment timing - after application A (pre-emergence application)

Weed EPPO code	Number of trials	28-40 DA-A									42-55 DA-A								
		Mean % efficacy of Terbutylazyna 500 SC									Mean % efficacy of Terbutylazyna 500 SC								
		0,8 L/ha			1.0 L/ha			1,5 L/ha			0,8 L/ha			1.0 L/ha			1,5 L/ha		
		MEAN	MIN	MAX	MEAN	MIN	MAX	MEAN	MIN	MAX	MEAN	MIN	MAX	MEAN	MIN	MAX	MEAN	MIN	MAX
CAPBP	4	92,7	89,8	100,0	98,1	93,0	100,0	99,0	96,0	100,0	94,0	90,5	100,0	98,0	93,5	100,0	99,5	98,0	100,0
GALAP	3	78,1	57,5	97,5	89,4	76,3	100,0	91,6	80,0	100,0	79,8	62,5	96,3	88,8	73,8	100,0	92,3	81,0	100,0
MATIN	3	72,3	67,5	78,0	83,2	80,5	86,0	85,4	83,5	88,5	74,1	68,8	79,8	83,4	80,5	88,0	86,0	83,0	90,0
AMARE	3	83,2	77,5	88,5	92,6	88,5	100,0	96,3	93,5	100,0	81,4	78,8	83,5	92,0	86,8	100,0	94,9	92,3	100,0
CHEAL	3	72,4	65,0	79,8	84,9	83,5	86,0	86,2	86,0	86,5	72,9	68,8	80,0	85,3	85,0	85,5	86,2	85,0	87,3
SOLNI	3	72,7	57,5	81,8	84,3	80,0	86,8	86,4	83,0	88,8	76,2	65,0	83,0	86,1	81,8	89,3	88,3	85,0	91,8
STEME	3	94,3	83,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	94,8	84,3	100,0	100,0	100,0	100,0	100,0	100,0	100,0
VERHE	3	93,1	92,3	94,0	99,8	99,3	100,0	100,0	100,0	100,0	92,5	91,0	95,5	100,0	100,0	100,0	100,0	100,0	100,0
GASPA	2	90,7	81,3	100,0	100,0	100,0	100,0	100,0	100,0	100,0	91,2	82,3	100,0	100,0	100,0	100,0	100,0	100,0	100,0
VIOAR	2	73,8	72,5	75,0	84,8	83,5	86,0	86,1	85,3	86,8	74,4	73,8	75,0	84,5	82,5	86,5	85,9	85,3	86,5
POLCO	2	83,7	80,5	86,8	97,8	95,5	100,0	100,0	100,0	100,0	84,0	80,0	88,0	97,7	95,3	100,0	99,7	99,3	100,0
SINAR	2	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0
CENCY	2	80,0	72,5	87,5	94,1	89,3	98,8	96,5	93,0	100,0	81,8	75,0	88,5	95,5	91,0	100,0	96,8	93,5	100,0
THLAR	2	90,9	81,8	100,0	92,5	85,0	100,0	92,5	85,0	100,0	90,3	80,5	100,0	92,8	85,5	100,0	92,7	85,3	100,0
CIRAR	1	77,5	-	-	85,0	-	-	86,0	-	-	76,8	-	-	86,0	-	-	86,5	-	-
MYOAR	1	98,0	-	-	100,0	-	-	100,0	-	-	98,8	-	-	100,0	-	-	100,0	-	-
GAETE	1	71,3	-	-	72,5	-	-	75,0	-	-	73,8	-	-	81,0	-	-	83,5	-	-

Table 6.2.1-31: Summary of minimum effective dose tests per weed at first (14 DA-B) and second (28 DA-B) assessment timing - after application B (post-emergence application).

Weed EPPO code	Number of trials	14 DA-B									28 DA-B								
		Mean % efficacy of Terbutylazyna 500 SC									Mean % efficacy of Terbutylazyna 500 SC								
		0,8 L/ha			1.0 L/ha			1,5 L/ha			0,8 L/ha			1.0 L/ha			1,5 L/ha		
		MEAN	MIN	MAX	MEAN	MIN	MAX	MEAN	MIN	MAX	MEAN	MIN	MAX	MEAN	MIN	MAX	MEAN	MIN	MAX
CAPBP	4	76,7	60,0	85,5	81,9	70,0	89,3	84,5	73,8	92,5	85,1	81,8	86,8	95,7	87,3	100,0	96,8	90,5	100,0
GALAP	3	71,0	47,5	88,0	80,8	70,0	91,8	83,5	75,0	93,8	73,4	50,0	91,3	87,4	76,3	100,0	89,2	78,8	100,0
MATIN	3	62,5	55,0	70,0	70,4	62,5	80,0	73,3	65,0	80,0	69,2	62,5	75,0	78,9	76,3	83,0	82,4	78,8	86,0
AMARE	3	59,2	52,5	65,0	69,6	57,5	76,3	71,7	60,0	78,8	69,6	66,3	71,3	82,8	81,8	84,8	84,5	83,5	86,5
CHEAL	3	65,0	60,0	67,5	76,6	70,0	82,3	74,9	70,0	84,8	68,3	62,5	77,5	83,3	83,0	83,5	85,3	85,0	86,0
SOLNI	3	64,6	45,0	77,5	76,4	70,0	80,0	77,6	70,0	81,8	69,3	55,0	78,0	83,6	78,8	88,5	85,4	81,8	88,5
STEME	3	78,5	73,8	81,8	83,4	80,0	86,3	84,2	80,5	86,0	82,1	80,0	84,8	88,9	87,5	91,3	91,6	90,5	92,5
VERHE	3	82,8	80,5	86,8	86,8	83,8	91,3	88,6	84,8	95,5	84,0	82,3	85,5	89,5	88,0	91,3	93,1	90,5	95,3
GASPA	2	76,3	75,0	77,5	81,2	81,0	81,3	82,4	82,3	82,5	85,9	79,3	92,5	97,4	94,8	100,0	99,7	99,3	100,0
VIOAR	2	70,0	70,0	70,0	80,8	79,3	82,3	84,3	83,5	85,0	73,2	72,5	73,8	80,8	79,8	81,8	84,8	84,0	85,5
POLCO	2	66,8	52,5	81,0	71,4	60,0	82,8	75,9	67,5	84,3	79,3	75,0	83,5	89,6	89,3	89,8	91,5	90,0	93,0
SINAR	2	86,9	83,8	90,0	90,8	86,0	95,5	91,7	87,3	96,0	86,8	85,5	88,0	96,0	96,0	96,0	98,9	97,8	100,0
CENCY	2	69,4	62,5	76,3	79,7	78,8	80,5	81,5	80,0	83,0	74,9	70,0	79,8	85,3	85,0	85,5	87,4	87,3	87,5
THLAR	2	80,7	76,3	85,0	82,8	79,3	86,3	84,9	81,8	88,0	82,2	78,8	85,5	87,4	84,3	90,5	89,5	86,0	93,0
CIRAR	1	70,0	-	-	77,5	-	-	83,0	-	-	75,0	-	-	83,0	-	-	85,0	-	-
MYOAR	1	80,0	-	-	82,5	-	-	87,3	-	-	88,8	-	-	100,0	-	-	100,0	-	-
GAETE	1	65,0	-	-	65,0	-	-	70,0	-	-	67,5	-	-	78,8	-	-	82,8	-	-

Due to the broad activity of against number of weeds, on the basis of performed efficacy trials, as well as on the experience with other herbicides containing the same active substance, which are commonly used for many years, it is anticipated that recommended rate 1,0 L/ha for maize at pre- and postemergence can be regarded as minimum effective dose.

Comments of ZRMs: The minimum effective dose of terbuthylazine for controlling weeds in maize typically ranges from 1 to 2 kilograms per hectare. However, the exact dosage can vary based on several factors. Different weed have varying levels of susceptibility to terbuthylazine. The soil's organic matter and texture can affect the herbicide's effectiveness. Weather conditions prior to and following application may influence effectiveness. It is always crucial to follow label instructions.

The Applicant has proposed doses of Terbutylazyna 500 SC that reflect those of currently authorised terbuthylazine products across the EU. To provide information to establish the minimum effective dose (MED), some of the trials conducted to demonstrate efficacy should include at least two lower dose(s) than recommended dose. In the appropriate research of efficacy were tested differ doses and to register was chosen the lowest effective, which is in line to EPPO 1/225(2).

Applicant did not present separately MED trials. MED dose was studied in efficacy trials (8) carried out in one EPPO zone (N-E) in Poland in one growing season (2022). Applicant studied different doses: 0.8 L/ha; 1.0 L/ha and 1.5 L/ha during 8 efficacy trials. Applicant studied pre-emergence use (BBCH 00) and post-emergence use (BBCH 12-16) at the same 8 trials. All trials were carried out on different varieties of maize.

Following varieties of maize were studied: DKC3595 (for grain and silage), Salamandra (for silage), Ulan (for grain and silage) , Subito (for silage), Leonido (for grain and silage), DKC3088 (for grain), Amavit (for grain and bioethanol) and Danubio (for grain).

Below, ZRMs presented results for MED dose against Terbutylazyna 500 SC used pre-emergence (BBCH 00):

EPPO code	Number of trials	28-40 DA-A			42-55 DA-A		
		0,8 L/ha	1,0 L/ha	1,5 L/ha	0,8 L/ha	1,0 L/ha	1,5 L/ha
CAPBP	4	92,7	98,1	99,0	94,0	98,0	99,5
GALAP	3	78,1	89,4	91,6	79,8	88,8	92,3
MATIN	3	72,3	83,2	85,4	74,1	83,4	86,0
AMARE	3	83,2	92,6	96,3	81,4	92,0	94,9
CHEAL	3	72,4	84,9	86,2	72,9	85,3	86,2
SOLNI	3	72,7	84,3	86,4	76,2	86,1	88,3
STEME	3	94,3	100,0	100,0	94,8	100,0	100,0
VERHE	3	93,1	99,8	100,0	92,5	100,0	100,0
GASPA	2	90,7	100,0	100,0	91,2	100,0	100,0
VIOAR	2	73,8	84,8	86,1	74,4	84,5	85,9
POLCO	2	83,7	97,8	100,0	84,0	97,7	99,7
SINAR	2	100,0	100,0	100,0	100,0	100,0	100,0
CENCY	2	80,0	94,1	96,5	81,8	95,5	96,8
THLAR	2	90,9	92,5	92,5	90,3	92,8	92,7
CIRAR	1	77,5	85,0	86,0	76,8	86,0	86,5
MYOAR	1	98,0	100,0	100,0	98,8	100,0	100,0
GAETE	1	71,3	72,5	75,0	73,8	81,0	83,5

On the basis on obtained results it has been noted that:

- ✓ *for dose 0,8 L/ha* at 28-40 DA-A and 42-55 DA-A the efficacy was comparable. For dose 0,8 L/ha lack of tolerant and moderately tolerant weeds. Ten weeds (GALAP, MATIN, AMARE, CHEAL, SOLNI, VIOAR, POLCO CENCY, CIRAR and GAETE) were classified as a moderately sensitive at 28-40 DA-A and 42-55 DA-A and 7 weeds were classified as a sensitive (CAPBP, STEME, VERHE, GASPA, SINAR, THLAR, MYOAR).
- ✓ *for dose 1,0 L/ha* at 28-40 DA-A and 42-55 DA-A the efficacy was comparable, in the exception of two weeds (CHEAL and SOLNI). At 28-40 DA-A and 42-55 DA-A lack of tolerant and moderately tolerant weeds. Five weeds were classified as a moderately sensitive (MATIN, CHEAL, SOLNI, VIOAR and GAETE) and twelve weeds were sensitive (CAPBP, GALAP, AMARE, STEME, VERHE, GASPA, POLCO, SINAR, CENCY, THLAR, CIRAR and MYOAR) at 28-40 DA-A. Three weeds were classified as a moderately sensitive (MATIN, VIOAR and GAETE) and fourteen weeds were sensitive (CAPBP, CHEAL, GALAP, AMARE, STEME, VERHE, GASPA, POLCO, SINAR, SOLNI, CENCY, THLAR, CIRAR and MYOAR) at 42-55 DA-A.
- ✓ *for dose 1,5 L/ha* at 28-40 DA-A and 42-55 DA-A the efficacy was comparable. Lack of tolerant

and moderately tolerant weeds. One weed was classified as a moderately sensitive (GAETE) and sixteen weeds were sensitive (CAPBP, CHEAL, GALAP, AMARE, STEME, VERHE, GASPA, POLCO, SINAR, SOLNI, CENCY, THLAR, CIRAR, MYOAR, MATIN and VIOAR).

Below, ZRMs presented results for MED dose against Terbutylazyna 500 SC used post-emergence (BBCH 12-16):

EPPO code	Number of trials	14 DA-B			28 DA-B		
		0,8 L/ha	1,0 L/ha	1,5 L/ha	0,8 L/ha	1,0 L/ha	1,5 L/ha
CAPBP	4	76,7	81,9	84,5	85,1	95,7	96,8
GALAP	3	71,0	80,8	83,5	73,4	87,4	89,2
MATIN	3	62,5	70,4	73,3	69,2	78,9	82,4
AMARE	3	59,2	69,6	71,7	69,6	82,8	84,5
CHEAL	3	65,0	76,6	74,9	68,3	83,3	85,3
SOLNI	3	64,6	76,4	77,6	69,3	83,6	85,4
STEME	3	78,5	83,4	84,2	82,1	88,9	91,6
VERHE	3	82,8	86,8	88,6	84,0	89,5	93,1
GASPA	2	76,3	81,2	82,4	85,9	97,4	99,7
VIOAR	2	70,0	80,8	84,3	73,2	80,8	84,8
POLCO	2	66,8	71,4	75,9	79,3	89,6	91,5
SINAR	2	86,9	90,8	91,7	86,8	96,0	98,9
CENCY	2	69,4	79,7	81,5	74,9	85,3	87,4
THLAR	2	80,7	82,8	84,9	82,2	87,4	89,5
CIRAR	1	70,0	77,5	83,0	75,0	83,0	85,0
MYOAR	1	80,0	82,5	87,3	88,8	100,0	100,0
GAETE	1	65,0	65,0	70,0	67,5	78,8	82,8

On the basis on obtained results it has been noted that:

- ✓ *for dose 0,8 L/ha* at 14 DA-B and 28 DA-B the efficacy slightly differ. One weed was tolerant (AMARE), six were moderately tolerant (MATIN, CHEAL, SOLNI, POLCO, CENCY, GAEYE), nine weeds were moderately sensitive (CAPBP, GALAP, STEME, VERHE, GASPA, VIOAR, THLAR, CIRAR, MYOAR) and one weed was sensitive (SINAR) at 14 DA-B. Lack of tolerant weeds, five weeds were moderately tolerant (AMARE, MATIN, CHEAL, SOLNI and GAETE), eight weeds were moderately sensitive (GALAP, STEME, VERHE, VIOAR, POLCO, CENCY, THLAR, CIRAR) and three weeds were sensitive (CAPBP, GASPA and MYOAR) at 28 DA-B.
- ✓ *for dose 1,0 L/ha* at 14 DA-B and 28 DA-B the efficacy slightly differ. Lack of tolerant weeds, two weeds were moderately tolerant (AMARE and GAETE), thirteen weeds were moderately susceptible (CAPBP, GALAP, MATIN, CHEAL, SOLNI, STEME, GASPA, VIOAR, POLCO, CENCY, THLAR, CIRAR and MYOAR) and two weeds were sensitive (VERHE and SINAR) at 14 DA-B. Lack of tolerant and moderately tolerant weeds, seven weeds were moderately susceptible (MATIN, AMARE, CHEAL, SOLNI, VIOAR, CIRAR and GAETE) and ten weed were sensitive (CAPBP, GALAP, STEME, VERHE, GASPA, POLCO, SINAR, CENCY, THLAR, and MYOAR) at 28 DA-B.
- ✓ *for dose 1,5 L/ha* at 14 DA-B and 28 DA-B efficacy results differ. Lack of tolerant and moderately tolerant weeds, fourteen weeds were classified as a moderately sensitive (CAPBP, GALAP, MATIN, AMARE, CHEAL, SOLNI, STEME, GASPA, VIOAR, POLCO, CENCY, THLAR, CIRAR and GAETE) and three weeds were sensitive (VERHE, SINAR and MYOAR) at 14 DA-B. Lack of tolerant and moderately tolerant weeds, four weeds were moderately sensitive (AMARE, MATIN, VIOAR and GAETE) and thirteen weeds were sensitive (CAPBP, GALAP, CHEAL, SOLNI, STEME, VERHE, GASPA, POLCO, SINAR, CENCY, THLAR, CIRAR and MYOAR).

Based on the results achieved on studied weeds during 8 maize trials for pre-emergence use and post-emergence use, it can be concluded that to consistently control frequently occurred weeds in maize, Terbutylazyna 500 SC should be applied once pre-emergence (BBCH 00) or post-emergence (BBCH 12-16) at dose 1.0-1.5 L/ha. Higher dose should be applied in the case of high infestation, high majority of weeds or worse weather conditions (ex. drought).

KCP 6.2.2 Efficacy tests

Terbutylazyna 500 SC is a selective herbicide formulated as a suspension concentrate (SC) for foliar spray applications that contains active substance terbuthylazine at dose 500 g/l. This active substance is commonly used pre-emergence and post-emergence to control weeds of maize or cereals in Poland and in other European countries.

The aim of the application is to support registration of Terbutylazyna 500 SC for the control of a broad spectrum of weeds of maize in Poland. The Applicant provides a robust data set of the efficacy data of the plant protection product Terbutylazyna 500 SC and providing comparison of the effectiveness to the reference product (TEZOSAR 500 SC).

This Section describes the biological studies and results achieved in 8 GEP efficacy trials conducted in the 2022 seasons against of annual dicotyledonous weeds in several variety of maize: DKC3595, Salamandra, Ułan, Subito, Leonido, DKC3088, Amavit, Danubio. All tirlas were carried out in North East EPPO Zone (Poland) in open field conditions.

Terbutylazyna 500 SC and reference products were additionaly examined for possible occurance of phytotoxic effect (phytotoxicity and vigor) in all of the the efficacy trials to deeply investigate effect achieved by tested product.

All the efficacy trials were carried out by contract research organizations officially recognized in each country by the competent authorities to carry out field registration trials in accordance with the principles of Good Experimental Practices (GEP) and with general EPPO standards. Details on the contractor companies that have conducted the studies included in this biological dossier are reported in point 3.7 along with the corresponding GEP certificates.

Material and methods

The following is a summary of the methodology followed in trials. A detailed presentation of the efficacy trials (trial site, guidelines, application condition, trial design etc.) is given in Appendix 3 of the BAD (Core assessment).

In all efficacy trials, the effectiveness of the test product Terbutylazyna 500 SC was compared to reference product TEZOSAR 500 SC.

Table 6.2.2-1: Presentation of reference standards used in efficacy 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)
					Type(2)	Concentration of a.s.		
Maize	TEZOSAR 500 S.C.	Poland	R - 146/2018	terbuthylazine	S.C.	500 g/l	1,0 L/ha	1,0 L/ha

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

Application rates

To ensure relevant efficacy evaluation and comparison of effectiveness of the Terbutylazyna 500 SC to the reference product, wide range of rates (0,8 – 1,5 L/ha for Terbutylazyna 500 SC have been tested to provide broad data set.

All tested rates in particular trials are presented in the Appendix 3 and 4 of the BAD (Core assessment) and in individual trial reports.

Application method

Applications on all efficacy trials were made using small plot sprayers designed to simulate application using commercial sprayers representative of those used to apply herbicide in maize.

During the trials, Terbuthylazine 500 SC as well as the reference product were tested in pre-emergence (A) and post-emergence (B) applications. On the sites where pre-emergence use of products were tested, application A (pre-emergence) was done at BBCH 00 as a preventive application. On the sites where post-emergence use of the products were tested, application B (post-emergence) was done after a minimum 14-day interval from application A with timing between BBCH 11-14. Therefore, both applications are representative of the proposed label range for Terbuthylazine 500 SC applications.

Across trials, treatments were applied in water volumes 300 l/ha and therefore fully representative and supportive of the proposed 100-400 l/ha range for the application of Terbutylazyna 500 SC.

Assessment details

The evaluation of the effectiveness of the test product Terbutylazyna 500 SC was performed according to EPPO guidelines. General standards were followed during the course of the trials: PP 1/225(2) Minimum effective dose; PP 1/152(4) Design and analysis of efficacy evaluation trials; PP 1/181(4) Conduct and reporting of efficacy evaluation trials including GEP; PP 1/135(4) Phytotoxicity assessment; PP 1/50(3) Weeds in maize.

Crop growth stages were recorded using the appropriate BBCH codes.

Statistical analysis – Individual trial results

Assessment data were analysed using an analysis of variance (ANOVA) followed by a statistical comparison of means and the smallest significant difference was presented at a confidence level of 0.05. All data were first tested using Bartlett’s test for homogeneity.

Further details on the trial sites, method and timing of application used in individual trials are summarized in in Appendix 3 and in individual trial reports.
The main details on trial methodology for efficacy trials for each crop tested are summarized in the Table 6.2.2-2.

Table 6.2.2-2: Details on trial methodology –Efficacy trials in maize

Guidelines	General guidelines	EPPO PP 1/225(2), PP 1/152(4), PP 1/181(4), PP 1/135(4), PP 1/50(3)
Experimental design	Plot design	RACOBL (8)
	Plot size	15 m2 (8)
	Number of replications	4 (8)
Crop	Trials per crop	Maize
	Varieties per crop	DKC3595, Salamandra, Ułan, Subito, Leonido, DKC3088, Amavit, Danubio
	Sowing period	May-June 2022 (8)
Application	Crop stage (BBCH) at application	Pre-emergence (A) Post-emergence (B) A - BBCH 00 (8) B - BBCH 11-15 ~~14~~ (8)
	Timing Pest stage at application	Pre-emergence (A) Post-emergence (B) *Amaranthus retroflexus* BBCH 00 (A); BBCH 12-14 (B) *Capsella bursa-pastoris* BBCH 00 (A); BBCH 12-14 (B) *Chenopodium album* BBCH 00 (A); BBCH 12-14 (B) *Tripleurospermum inodorum* BBCH 00 (A); BBCH 10-13 (B) *Fallopia convolvulus* BBCH 00 (A); BBCH 11-12 (B) *Cirsium arvense* BBCH 00 (A); BBCH 10 (B) *Sinapis arvensis* BBCH 00 (A); BBCH 12 (B) *Solanum nigrum* BBCH 00 (A); BBCH 10-13 (B) *Stellaria media* BBCH 00 (A); BBCH 11-14 (B) *Veronica hederifolia* BBCH 00 (A); BBCH 10-12 (B) *Centaurea cyanus* BBCH 00 (A); BBCH 10-12 (B) *Myosotis arvensis* BBCH 00 (A); BBCH 13 (B) *Thlaspi arvense* BBCH 00 (A); BBCH 12-13 (B) *Galinsoga parviflora* BBCH 00 (A); BBCH 10-14 (B) *Viola arvensis* BBCH 00 (A); BBCH 11-13 (B) *Galeopsis tetrahit* BBCH 00 (A); BBCH 10 (B) *Galium aparine* BBCH 00 (A); BBCH 12-14 (B)

	Number of applications Intervals between applications	2 (8) 13-15 (8)
	Spray volumes	300L/ha (8)
	Method	backpack boom sprayer
Assessment	Assessment types	2022 trials: - Weed control (% UNCK) - Number of plants/m2 - Ground cover (%) - Phytotoxicity symptoms (%)
	Assessment dates	14-25 DA-A, 28-40 DA-A/14 DA-B, 42-55 DA-A/28 DA-B
Other relevant information	e.g. Soil type, pH (in case of soil active substance …)	loamy sand (3) sandy loam (2) clayey sand (2) sandy clay loam (1)
	e.g. Natural / artificial innoculation…	Natural (8)
	e.g. Field / Greenhouse...	Field (8)

Validity

Validity criteria were defined in order to select data to present. The first criterion is the absence of major deviation from the GAP table. The second validity criterion relates to weeds DENSITY was determined by counting the number of plants per square meter at each assessment. Although there is currently no recognized specific threshold for treatment of these or other weeds in maize, for most weed species it is generally held that a DENSITY of weeds at or above 5 plants/m2 (or 5% surface coverage) has the capacity to reduce crop yields by economically relevant levels. This general criterion has therefore been used to assist in the interpretation of weed densities found in trials. In general, only data supported by weed densities of ≥5 plants/m2 has been considered.

The product EFFICACY was assessed as a visual evaluation of % weed control in comparison to the untreated checks.

Weed susceptibility and claim of control statements are based upon guidance provided in SANCO/10055/2013 rev. 4 (3 October 2014), as shown below.

Table 6.2.2-3: Weed susceptibility levels based on SAN-CO/10055/2013 rev. 4

Label claim	Control level range (%)
Highly susceptible (HS)	**95 to 100 %**
Susceptible (S)	**85 to 94 %**
Moderately susceptible (MS)	**70 to 84 %**
Moderately tolerant (MT)	**50 to 69 %**
Tolerant (T)	**< 50 %**

KCP 6.2.2.1 Efficacy against blind weed (*Capsella bursa-pastoris)* CAPBP

Four studies were conducted in 2022 and provided data on the effectiveness of Terbutylazyna 500 SC in the control of blind weed in maize. All four efficacy trials were conducted in Poland on four different maize varieties: DKC3595, Ulan, DKC3088 and Amavit.

In each trial, the tested product Terbutylazyna 500 SC was applied pre-emergence and post-emergence at rates of 0.8 l/ha (400 g a.s./ha)1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha). Terbutylazyna 500 SC was compared to the reference product (Tezosar 500 SC) applied at 1.0 l/ha (500g a.s./ha).

The results of the trials conducted to confirm the efficacy of the tested product against CAPBP on pre-emergence and post-emergence applied on maize are presented and discussed individually in the tables: Table 6.2.2-4 and Table 6.2.2-5.

Two assessments were carried out in pre-emergence and post-emergence trials to obtain information on the efficacy of Terbutylazyna 500 SC against CAPBP in maize. Efficacy data from these trials were used to support the registration application for 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha) according to the GAP.

Details and results of each trial can be found in Appendix 3 and 4 respectively.

Detailed results for efficacy against CAPBP on maize are shown in the table below

Table 6.2.2-4: Mean percentage efficacy of Terbutylazyna 500 SC applied at pre-emergence against CAPBP in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC				Tezosar 500 SC	
Dose rate					-	1.0 L/ha		1,5 L/ha		1,0 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202201	BBCH ~~17~~ 00	27.06.2022 31 DA-A	CAPBP BBCH 17	6	99,30	a	100,00	a	96,50	a
PL	044GPSE202203	BBCH ~~18~~ 00	29.06.2022 34 DA-A	CAPBP BBCH 32	7	93,00	ab	96,00	a	92,30	ab
PL	044_GPSE2022_06	BBCH ~~16~~ 00	18.06.2022 32 DA-A	CAPBP BBCH 18	8	100,00	a	100,00	a	100,00	a
PL	044GPSE202207	BBCH ~~16~~ 00	24.06.2022 35 DA-A	CAPBP BBCH 18	5	100,00	a	100,00	a	100,00	a
Average efficacy evaluated at 31-35 DA-A				**Mean**	-	**98,08**		**99,00**		**97,20**	
				Min	-	93,00		96,00		92,30	
				Max	-	100,00		100,00		100,00	
				StDev	-	3,40		2,00		3,66	
PL	044GPSE202201	BBCH ~~26~~ 00	11.07.2022 45 DA-A	CAPBP BBCH 55	6	98,50	ab	100,00	a	97,80	abc
PL	044GPSE202203	BBCH ~~27~~ 00	13.07.2022 48 DA-A	CAPBP BBCH 65	7	93,50	ab	98,00	a	94,30	ab
PL	044_GPSE2022_06	BBCH ~~35~~ 00	02.07.2022 46 DA-A	CAPBP BBCH 61	8	100,00	a	100,00	a	100,00	a

PL	044GPSE202207	BBCH ~~25~~ 00	08.07.2022	CAPBP	5	100,00	a	100,00	a	100,00	a
			49 DA-A	BBCH 55							
Average efficacy evaluated at 45-49 DA-A				**Mean**	-	**98,00**		**99,50**		**98,03**	
				Min	-	93,50		98,00		94,30	
				Max	-	100,00		100,00		100,00	
				StDev	-	3,08		1,00		2,69	

Table 6.2.2-5: Mean percentage efficacy of Terbutylazyna 500 SC applied at post-emergence against CAPBP in maize.

Treatments					**Untreated Check**	**Terbutylazyna 500 SC**				**Tezosar 500 SC**	
Dose rate					-	**1.0 L/ha**		**1,5 L/ha**		**1,0 L/ha**	
Trials Data					**DENSITY plants/m2**	**Efficacy %**					
Country	**Trial Code**	**Crop Stage Majority at application**	**Rating Date**	**Weed species**							
			Trt-Eval	**Weed Stage Majority**							
			Interval								
PL	044GPSE202201	BBCH ~~17~~ 11-13	27.06.2022	CAPBP	6	70,00	c	73,80	c	70,00	c
			14 DA-B	BBCH 17							
PL	044GPSE202203	BBCH ~~18~~ 13-14	29.06.2022	CAPBP	7	86,30	c	88,50	bc	86,50	c
			14 DA-B	BBCH 32							
PL	044_GPSE2022_06	BBCH ~~16~~ 12-13	18.06.2022	CAPBP	8	81,80	b	83,00	b	82,80	b
			13 DA-B	BBCH 18							
PL	044GPSE202207	BBCH ~~16~~ 11-13	24.06.2022	CAPBP	5	89,30	bc	92,50	b	88,50	bc
			14 DA-B	BBCH 18							
Average efficacy evaluated at 13-14 DA-B				**Mean**	-	**81,85**		**84,45**		**81,95**	
				Min	-	70,00		73,80		70,00	
				Max	-	89,30		92,50		88,50	

				StDev	-	8,48		8,10		8,31	
PL	044GPSE202201	BBCH ~~26~~ 11-13	11.07.2022	CAPBP	6	95,50	c	96,50	bc	93,50	d
			28 DA-B	BBCH 55							
PL	044GPSE202203	BBCH ~~27~~ 13-14	13.07.2022	CAPBP	7	87,30	c	90,50	bc	88,00	c
			28 DA-B	BBCH 65							
PL	044_GPSE2022_06	BBCH ~~25~~ 12-13	02.07.2022	CAPBP	8	100,00	a	100,00	a	100,00	a
			27 DA-B	BBCH 61							
PL	044GPSE202207	BBCH ~~25~~ 11-13	08.07.2022	CAPBP	5	100,00	a	100,00	a	100,00	a
			28 DA-B	BBCH 55							
Average efficacy evaluated at 27-28 DA-B				**Mean**	-	**95,70**		**96,75**		**95,38**	
				Min	-	87,30		90,50		88,00	
				Max	-	100,00		100,00		100,00	
				StDev	-	5,99		4,48		5,79	

The efficacy of Terbutylazyna 500 SC in pre-emergence application against CABP was evaluated during two assessments (31-35 DA-A and an additional 45-49 DA-A).

In the 4 presented trials where the tested product was applied pre-emergence, the mean efficacy of Terbutylazyna 500 SC was very high 98.08-98% at the dose 1.0 l/ha and 99-99.5% at the dose of 1.5 l/ha. Meanwhile, the mean efficacy of the reference product was slightly lower with a range of 97.2-98.03%.

The efficacy of Terbutylazyna 500 SC in post-emergence application against CABP was evaluated during two assessments (13-14 DA-B) and an additional 27-28 DA-B).

In four trials, the mean efficacy of the tested product was good and ranged between 81.85-95.7% at a dose 1.0 l/ha and 84.45-96.75% at a dose 1.5 l/ha. The mean efficacy of the reference product was slightly lower or comparable to efficacy of tested product 81.95-95.38%.

The tested product Terbutylazyna 500 SC applied both pre-emergence and post-emergence at 1.0 l/ha and 1.5 l/ha showed comparable or better efficacy than the reference product against CABP and can be considered effective against this weed.

KCP 6.2.2.2 Efficacy against cleavers (*Galium aparine)* GALAP

In 2022, three studies were conducted that provided data on the efficacy of Terbutylazyna 500 SC in controlling cleavers in maize. All three efficacy trials were conducted in Poland on three different maize varieties: Leonido, Danubio and Amavit.

During each trial, the tested product Terbutylazyna 500 SC was applied pre-emergence and post-emergence at rates of 0.8 l/ha (400 g a.s./ha), 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha). Terbutylazyna 500 SC was compared with the reference product (Tezosar 500 SC) applied at 1.0 l/ha (500 g s.a./ha).

Accordingly, the results of the trials conducted to confirm the efficacy of the tested product against GALAP on pre-emergence and post-emergence maize are presented and discussed individually in the tables: Table 6.2.2-6 and Table 6.2.2-7.

Two evaluations were carried out in pre-emergence and post-emergence applications to obtain information on the efficacy of Terbutylazyna 500 SC against GALAP in maize. Efficacy data from these trials were used to support the registration application for 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha).

Full details and results of each study are available in Appendix 3 and 4 respectively.

Detailed results for efficacy against GALAP on maize are shown in the table below.

Table 6.2.2-6: Mean percentage efficacy of Terbutylazyna 500 SC applied at pre-emergence against GALAP in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC				Tezosar 500 SC	
Dose rate					-	1.0 L/ha		1,5 L/ha		1,0 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202205	BBCH ~~34~~ 00	27.06.2022	GALAP	5	76,30	a	80,00	a	78,00	a
			40 DA-A	BBCH 23							
PL	044GPSE202207	BBCH ~~16~~ 00	24.06.2022	GALAP	6	91,80	a	94,80	a	92,30	a
			35 DA-A	BBCH 22							
PL	044GPSE202208	BBCH ~~15~~ 00	16.06.2022	GALAP	7	100,00	a	100,00	a	100,00	a
			28 DA-A	BBCH 23							
Average efficacy evaluated at 28-40 DA-A				**Mean**	-	**89,37**		**91,60**		**90,10**	
				Min	-	76,30		80,00		78,00	
				Max	-	100,00		100,00		100,00	
				StDev	-	12,04		10,38		11,16	
PL	044GPSE202205	BBCH ~~55~~ 00	12.07.2022	GALAP	5	73,80	a	81,00	a	77,50	a
			55 DA-A	BBCH 35							
PL	044GPSE202207	BBCH ~~35~~ 00	08.07.2022	GALAP	6	92,50	ab	96,00	a	91,80	ab
			49 DA-A	BBCH 36							
PL	044GPSE202208	BBCH ~~34~~ 00	30.06.2022	GALAP	7	100,00	a	100,00	a	100,00	a
			42 DA-A	BBCH 34							
Average efficacy evaluated at 42-55 DA-A				**Mean**	-	**88,77**		**92,33**		**89,77**	
				Min	-	73,80		81,00		77,50	

	Max	-	100,00		100,00		100,00	
	StDev	-	13,49		10,02		11,39	

Table 6.2.2-7: Mean percentage efficacy of Terbutylazyna 500 SC applied at post-emergence against GALAP in maize.

Treatments					**Untreated Check**	**Terbutylazyna 500 SC**				**Tezosar 500 SC**	
Dose rate					-	**1.0 L/ha**		**1,5 L/ha**		**1,0 L/ha**	
Trials Data					**DENSITY plants/m2**	**Efficacy %**					
Country	**Trial Code**	**Crop Stage Majority at application**	**Rating Date**	**Weed species**							
			Trt-Eval	**Weed Stage Majority**							
			Interval								
PL	044GPSE202205	BBCH ~~34~~ 13-15	27.06.2022	GALAP	5	70,00	a	75,00	a	71,30	a
			15 DA-B	BBCH 23							
PL	044GPSE202207	BBCH ~~16~~ 11-13	24.06.2022	GALAP	6	80,50	b	81,80	b	82,30	b
			14 DA-B	BBCH 22							
PL	044GPSE202208	BBCH ~~15~~ 11-13	16.06.2022	GALAP	7	91,80	bc	93,80	b	89,80	cd
			14 DA-B	BBCH 23							
Average efficacy evaluated at 14-15 DA-B				**Mean**	-	**80,77**		**83,53**		**81,13**	
				Min	-	70,00		75,00		71,30	
				Max	-	91,80		93,80		89,80	
				StDev	-	10,90		9,52		9,31	
PL	044GPSE202205	BBCH ~~55~~ 13-15	12.07.2022	GALAP	5	76,30	a	78,80	a	73,80	a
			30 DA-B	BBCH 35							
PL	044GPSE202207	BBCH ~~35~~ 11-13	08.07.2022	GALAP	6	86,00	c	88,80	bc	85,30	c
			28 DA-B	BBCH 36							
PL	044GPSE202208	BBCH ~~34~~ 11-13	30.06.2022	GALAP	7	100,00	a	100,00	a	100,00	a

			28 DA-B	BBCH 34							
Average efficacy evaluated at 28-30 DA-B				**Mean**	-	**87,43**		**89,20**		**86,37**	
				Min	-	76,30		78,80		73,80	
				Max	-	100,00		100,00		100,00	
				StDev	-	11,91		10,61		13,13	

The efficacy of Terbutylazyna 500 SC in the pre-emergence application against GALAP was evaluated during two assessments (28-40 DA-A and additionally 42-55 DA-A).

According to the 3 trials presented, where the tested product was applied pre-emergence, the efficacy of Terbutylazyna 500 SC was very high 89.37-88.77% at 1.0 l/ha and 91.60-92.33% at 1.5 l/ha and comparable to the reference product where the mean efficacy was 90.1-89.77%.

The efficacy of Terbutylazyna 500 SC in the post-emergence application against GALAP was also evaluated during two assessments (14-15 DA-B and an additional 28-30 DA-B).In the post-emergence application, the efficacy of the tested product was good and ranged from 80.77-87.43% at the dose 1.0 l/ha and 83.53-89.2% at the dose 1.5 l/ha. The efficacy of the reference product in this case was slightly lower 81.13-86.37%.

Terbuthylazine 500 SC in both pre-emergence and post-emergence applications at rates of 1.0 l/ha and 1.5 l/ha showed comparable or better efficacy than the reference product against GALAP and can be considered effective against this weed.

KCP 6.2.2.3 Efficacy against horse daisy (*Tripleurospermum inodorum)* MATIN

During 2022, three studies were carried out to provide data on the efficacy of Terbutylazyna 500 SC in controlling the horse daisy in maize. All three efficacy trials were conducted in Poland on three different maize varieties: DKC3595, Leonido and Danubio.

For each trial, the tested product Terbutylazyna 500 SC was applied pre-emergence and post-emergence at rates of 0.8 l/ha (400 g a.s./ha), 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha). Terbutylazyna 500 SC was compared with the reference product (Tezosar 500 SC) applied at 1.0 l/ha (500 g s.a./ha).

Accordingly, the results of the trials carried out to confirm the efficacy of the tested product against MATIN on pre-emergence and post-emergence maize are presented and discussed individually in the tables: Table 6.2.2-8 and table 6.2.2-9.

There have been two assessments in pre-emergence and post-emergence applications to obtain information on the efficacy of Terbutylazyna 500 SC against MATIN in maize. Efficacy data from these trials were used to support the registration application for 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha).

Full details and results of each trial can be found in Appendix 3 and 4 respectively.

Detailed results for efficacy against MATIN on maize are shown in the table below.

Table 6.2.2-8: Mean percentage efficacy of Terbutylazyna 500 SC applied at pre-emergence against MATIN in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC				Tezosar 500 SC	
Dose rate					-	1.0 L/ha		1,5 L/ha		1,0 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202201	BBCH ~~17~~ 00	27.06.2022 31 DA-A	MATIN BBCH 23	5	83,00	a	83,50	a	83,50	a
PL	044GPSE202205	BBCH ~~24~~ 00	27.06.2022 40 DA-A	MATIN BBCH 32	6	80,50	ab	84,30	a	81,00	ab
PL	044GPSE202208	BBCH ~~15~~ 00	16.06.2022 28 DA-A	MATIN BBCH 17	5	86,00	b	88,50	a	85,50	b
Average efficacy evaluated at 28-40 DA-A				**Mean**	-	**83,17**		**85,43**		**83,33**	
				Min	-	80,50		83,50		81,00	
				Max	-	86,00		88,50		85,50	
				StDev	-	2,75		2,69		2,25	
PL	044GPSE202201	BBCH ~~26~~ 00	11.07.2022 45 DA-A	MATIN BBCH 23	9	80,50	ab	83,00	a	81,30	ab
PL	044GPSE202205	BBCH ~~55~~ 00	12.07.2022 55 DA-A	MATIN BBCH 65	6	81,80	ab	85,00	a	82,30	ab
PL	044GPSE202208	BBCH ~~24~~ 00	30.06.2022 42 DA-A	MATIN BBCH 36	5	88,00	ab	90,00	a	86,30	ab
Average efficacy evaluated at 42-55 DA-A				**Mean**	-	**83,43**		**86,00**		**83,30**	

	Min	-	80,50		83,00		81,30	
	Max	-	88,00		90,00		86,30	
	StDev	-	4,01		3,61		2,65	

Table 6.2.2-9: Mean percentage efficacy of Terbutylazyna 500 SC applied at post-emergence against MATIN in maize.

Treatments					**Untreated Check**	**Terbutylazyna 500 SC**				**Tezosar 500 SC**	
Dose rate					-	**1.0 L/ha**		**1,5 L/ha**		**1,0 L/ha**	
Trials Data					**DENSITY plants/m2**	**Efficacy %**					
Country	**Trial Code**	**Crop Stage Majority at application**	**Rating Date** / **Trt-Eval** / **Interval**	**Weed species** / **Weed Stage Majority**							
PL	044GPSE202201	BBCH ~~17~~ 11-13	27.06.2022 / 14 DA-B	MATIN / BBCH 23	5	62,50	b	65,00	b	62,50	b
PL	044GPSE202205	BBCH ~~24~~ 13-15	27.06.2022 / 15 DA-B	MATIN / BBCH 32	6	68,80	c	75,00	bc	67,50	c
PL	044GPSE202208	BBCH ~~15~~ 11-12	16.06.2022 / 14 DA-B	MATIN / BBCH 17	5	80,00	c	80,00	c	80,00	c
Average efficacy evaluated at 14-15 DA-B				**Mean**	-	**70,43**		**73,33**		**70,00**	
				Min	-	62,50		65,00		62,50	
				Max	-	80,00		80,00		80,00	
				StDev	-	8,86		7,64		9,01	
PL	044GPSE202201	BBCH ~~26~~ 11-13	11.07.2022 / 28 DA-B	MATIN / BBCH 23	9	77,50	b	82,30	ab	79,30	ab

PL	044GPSE202205	BBCH ~~55~~ 13-15	12.07.2022	MATIN	6	76,30	b	78,80	ab	77,50	b
			30 DA-B	BBCH 65							
PL	044GPSE202208	BBCH ~~24~~ 11-12	30.06.2022	MATIN	5	83,00	bc	86,00	ab	83,50	bc
			28 DA-B	BBCH 36							
Average efficacy evaluated at 28-30 DA-B				**Mean**	-	**78,93**		**82,37**		**80,10**	
				Min	-	76,30		78,80		77,50	
				Max	-	83,00		86,00		83,50	
				StDev	-	3,57		3,60		3,08	

Efficacy of Terbutylazyna 500 SC in pre-emergence application against MATIN was evaluated during two assessments (28-40 DA-A and additionally 42-55 DA-A).

In the 3 trials presented where the tested product was applied pre-emergence, the efficacy of Terbutylazyna 500 SC was good 83.17-83.43% (at 1.0 l/ha) and 85.43-86% (at 1.5 l/ha). This was comparable to the efficacy of the reference product where the mean efficacy was 83.33-83.3%.

The efficacy of Terbutylazyna 500 SC in the post-emergence application against MATIN was also evaluated during two assessments (14-15 DA-B and an additional 28-30 DA-B).In the post-emergence application, the efficacy of the tested product was good and ranged from 70.43 to 78.93% at the dose o 1.0 l/ha and 73.33-82.37% at the dose 1.5 l/ha, which was comparable to the efficacy of the reference product (70-80.1%).

The tested product Terbuthylazine 500 SC in pre-emergence as well as post-emergence applications at doses of 1.0 l/ha and 1.5 l/ha showed comparable or better efficacy than the reference product against MATIN and can be considered effective against this weed.

KCP 6.2.2.4 Efficacy against pigweed (*Amaranthus retroflexus*) AMARE

A total of three trials were conducted in 2022, providing data on the efficacy of Terbutylazyna 500 SC in controlling the pigweed in maize. All three efficacy trials were conducted in Poland on three different maize varieties: DKC3595, Leonido and Danubio.

In each trial, the tested product Terbutylazyna 500 SC was applied pre-emergence and post-emergence at rates of 0.8 l/ha (400 g a.s./ha), 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha). Terbutylazyna 500 SC was compared with the reference product (Tezosar 500 SC) which was applied at 1.0 l/ha (500 g s.a./ha).

Accordingly, the results of the trials conducted to confirm the efficacy of the tested product against AMARE on pre-emergence and post-emergence maize are presented and discussed individually in the tables: Table 6.2.2-10 and Table 6.2.2-11.

Two assessments were carried out in pre-emergence and post-emergence applications to obtain information on the efficacy of Terbutylazyna 500 SC against AMARE in maize. Efficacy data from these trials were used to support the registration application for 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha).

Full details and results of each study can be found in Appendix 3 and 4 respectively.

Detailed results for efficacy against AMARE on maize are shown in the table below..

Table 6.2.2-10: Mean percentage efficacy of Terbutylazyna 500 SC applied at pre-emergence against AMARE in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC				Tezosar 500 SC	
Dose rate					-	1.0 L/ha		1,5 L/ha		1,0 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202201	BBCH ~~17~~ 00	27.06.2022 31 DA-A	AMARE BBCH 33	7	88,50	b	93,50	a	87,30	b
PL	044GPSE202204	BBCH ~~18~~ 00	18.07.2022 34 DA-A	AMARE BBCH 34	5	100,00	a	100,00	a	100,00	a
PL	044GPSE202205	BBCH ~~24~~ 00	27.06.2022 40 DA-A	AMARE BBCH 32	5	89,30	b	95,50	a	87,30	b
Average efficacy evaluated at 31-40 DA-A				**Mean**	-	**92,60**		**96,33**		**91,53**	
				Min	-	88,50		93,50		87,30	
				Max	-	100,00		100,00		100,00	
				StDev	-	6,42		3,33		7,33	
PL	044GPSE202201	BBCH ~~36~~ 00	11.07.2022 45 DA-A	AMARE BBCH 55	7	89,30	ab	92,30	a	88,80	abc
PL	044GPSE202204	BBCH ~~37~~ 00	02.08.2022 45 DA-A	AMARE BBCH 59	5	100,00	a	100,00	a	100,00	a
PL	044GPSE202205	BBCH ~~55~~ 00	12.07.2022 55 DA-A	AMARE BBCH 57	5	86,80	bc	92,30	a	88,00	b
Average efficacy evaluated at 45-55 DA-A				**Mean**	-	**92,03**		**94,87**		**92,27**	

	Min	-	86,80		92,30		88,00	
	Max	-	100,00		100,00		100,00	
	StDev	-	7,01		4,45		6,71	

Table 6.2.2-11: Mean percentage efficacy of Terbutylazyna 500 SC applied at post-emergence against AMARE in maize.

Treatments					**Untreated Check**	**Terbutylazyna 500 SC**				**Tezosar 500 SC**	
Dose rate					-	**1.0 L/ha**		**1,5 L/ha**		**1,0 L/ha**	
Trials Data					**DENSITY plants/m2**	**Efficacy %**					
Country	**Trial Code**	**Crop Stage Majority at application**	**Rating Date** / **Trt-Eval** / **Interval**	**Weed species** / **Weed Stage Majority**							
PL	044GPSE202201	BBCH ~~17~~ 11-13	27.06.2022 / 14 DA-B	AMARE / BBCH 33	7	57,50	de	60,00	d	57,50	de
PL	044GPSE202204	BBCH ~~18~~ 12-14	18.07.2022 / 15 DA-B	AMARE / BBCH 34	5	75,00	c	76,30	c	76,30	c
PL	044GPSE202205	BBCH ~~34~~ 13-15	27.06.2022 / 15 DA-B	AMARE / BBCH 32	5	76,30	c	78,80	c	76,30	c
Average efficacy evaluated at 14-15 DA-B				**Mean**	-	**69,60**		**71,70**		**70,03**	
				Min	-	57,50		60,00		57,50	
				Max	-	76,30		78,80		76,30	
				StDev	-	10,50		10,21		10,85	
PL	044GPSE202201	BBCH ~~36~~ 11-13	11.07.2022 / 28 DA-B	AMARE / BBCH 55	7	84,80	cd	86,50	bcd	84,30	d

PL	044GPSE202204	BBCH ~~27~~ 12-14	02.08.2022	AMARE	5	81,80	b	83,50	b	82,80	b
			30 DA-B	BBCH 59							
PL	044GPSE202205	BBCH ~~55~~ 13-15	12.07.2022	AMARE	5	81,80	c	83,50	bc	83,50	bc
			30 DA-B	BBCH 57							
Average efficacy evaluated at 28-30 DA-B				**Mean**	-	**82,80**		**84,50**		**83,53**	
				Min	-	81,80		83,50		82,80	
				Max	-	84,80		86,50		84,30	
				StDev	-	1,73		1,73		0,75	

The efficacy of Terbutylazyna 500 SC in the pre-emergence application against AMARE was evaluated during two assessments (31-40 DA-A and additionally 45-55 DA-A).

Within the 3 submitted trials where the tested product was applied pre-emergence, the efficacy of Terbutylazyna 500 SC was good 92.03-92.6% at the dose 1.0 l/ha. At the highest dose of 1.5 l/ha, the efficacy was slightly higher 94.87-96.33%. Whereas the efficacy of the reference product was 91.53-94.27%.

The efficacy of Terbutylazyna 500 SC in the post-emergence application against AMARE was also evaluated during two assessments (14-15 DA-B and an additional 28-30 DA-B).

In the post-emergence application, the efficacy of the tested product was also good and ranged from 69.6-82.8% at 1.0 l/ha and was slightly lower than the efficacy at the dose of 1.5 l/ha (71.7-84.5%). Efficacy of the reference product was comparable or slightly lower (70.03-83.53), but the differences were not statistically significant.

Terbutylazyna 500 SC in both pre-emergence and post-emergence applications at doses of 1.0 l/ha and 1.5 l/ha showed comparable efficacy to the reference product and can be considered effective to control AMARE.

KCP 6.2.2.1 Efficacy against goosefoot (*Chenopodium album*) CHEAL

Three trials were conducted in 2022, providing data on the efficacy of Terbutylazyna 500 SC in controlling the goosefoot in maize. All three efficacy trials were conducted in Poland on three different maize varieties: DKC3595, Leonido and Danubio.

In each trial, the tested product Terbutylazyna 500 SC was applied pre-emergence and post-emergence at rates of 0.8 l/ha (400 g a.s./ha), 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha). Terbutylazyna 500 SC was compared with the reference product (Tezosar 500 SC) which was applied at 1.0 l/ha (500 g s.a./ha).

Therefore, the results of the trials carried out to confirm the efficacy of the tested product against CHEAL on pre-emergence and post-emergence maize are presented and discussed individually in the tables: Table 6.2.2-12 and Table 6.2.2-13.

Two assessments were carried out in pre-emergence and post-emergence applications to obtain information on the efficacy of Terbutylazyna 500 SC against CHEAL in maize. Efficacy data from these trials were used to support the registration application for 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha).

Full details and results of each study can be found in Appendix 3 and 4 respectively.

Detailed results for efficacy against CHEAL on maize are shown in the table below.

Table 6.2.2-12: Mean percentage efficacy of Terbutylazyna 500 SC applied at pre-emergence against CHEAL in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC				Tezosar 500 SC	
Dose rate					-	1.0 L/ha		1,5 L/ha		1,0 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202201	BBCH ~~17~~ 00	27.06.2022 31 DA-A	CHEAL BBCH 32	9	83,50	a	86,50	a	85,00	a
PL	044GPSE202203	BBCH ~~18~~ 00	29.06.2022 34 DA-A	CHEAL BBCH 33	12	85,30	a	86,00	a	85,50	a
PL	044GPSE202204	BBCH ~~18~~ 00	18.07.2022 34 DA-A	CHEAL BBCH 33	14	86,00	a	86,00	a	85,50	a
Average efficacy evaluated at 31-34 DA-A				**Mean**	-	**84,93**		**86,17**		**85,33**	
				Min	-	83,50		86,00		85,00	
				Max	-	86,00		86,50		85,50	
				StDev	-	1,29		0,29		0,29	
PL	044GPSE202201	BBCH ~~26~~ 00	11.07.2022 45 DA-A	CHEAL BBCH 59	9	85,00	a	85,00	a	83,50	a
PL	044GPSE202203	BBCH ~~27~~ 00	13.07.2022 48 DA-A	CHEAL BBCH 63	12	85,30	a	87,30	a	84,80	a
PL	044GPSE202204	BBCH ~~27~~ 00	02.08.2022 45 DA-A	CHEAL BBCH 61	14	85,50	a	86,30	a	86,50	a
Average efficacy evaluated at 45-48 DA-A				**Mean**	-	**85,27**		**86,20**		**84,93**	

	Min	-	85,00		85,00		83,50	
	Max	-	85,50		87,30		86,50	
	StDev	-	0,25		1,15		1,50	

Table 6.2.2-13: Mean percentage efficacy of Terbutylazyna 500 SC applied at post-emergence against CHEAL in maize.

Treatments					**Untreated Check**	**Terbutylazyna 500 SC**				**Tezosar 500 SC**	
Dose rate					-	**1.0 L/ha**		**1,5 L/ha**		**1,0 L/ha**	
Trials Data					**DENSITY plants/m2**	**Efficacy %**					
Country	**Trial Code**	**Crop Stage Majority at application**	**Rating Date** / **Trt-Eval** / **Interval**	**Weed species** / **Weed Stage Majority**							
PL	044GPSE202201	BBCH ~~17~~ 11-13	27.06.2022 / 14 DA-B	CHEAL / BBCH 32	9	70,00	c	70,00	c	70,00	c
PL	044GPSE202203	BBCH ~~18~~ 13-14	29.06.2022 / 14 DA-B	CHEAL / BBCH 33	12	82,30	a	84,80	a	84,00	a
PL	044GPSE202204	BBCH ~~18~~ 12-14	18.07.2022 / 15 DA-B	CHEAL / BBCH 33	14	77,50	bc	70,00	b	70,00	b
Average efficacy evaluated at 14-15 DA-B				**Mean**	-	**76,60**		**74,93**		**74,67**	
				Min	-	70,00		70,00		70,00	
				Max	-	82,30		84,80		84,00	
				StDev	-	6,20		8,54		8,08	
PL	044GPSE202201	BBCH ~~26~~ 11-13	11.07.2022 / 28 DA-B	CHEAL / BBCH 59	9	83,00	a	85,00	a	82,30	ab
PL	044GPSE202203	BBCH ~~27~~ 13-14	13.07.2022	CHEAL	12	83,50	a	86,00	a	84,00	a

			28 DA-B	BBCH 63							
PL	044GPSE202204	BBCH ~~27~~ 12-14	02.08.2022	CHEAL	14	83,50	a	85,00	a	82,30	a
			30 DA-B	BBCH 61							
Average efficacy evaluated at 28-30 DA-B				**Mean**	-	**83,33**		**85,33**		**82,87**	
				Min	-	83,00		85,00		82,30	
				Max	-	83,50		86,00		84,00	
				StDev	-	0,29		0,58		0,98	

The efficacy of Terbutylazyna 500 SC in the pre-emergence application against CHEAL was evaluated during two assessments (31-34 DA-A and additionally 45-48 DA-A).

In the 3 presented trials where the tested product was applied pre-emergence, the efficacy of Terbutylazyna 500 SC was high at all doses and comparable to the reference product. The mean efficacy of Terbutylazine 500 SC was 84.93-85.27% at the dose 1.0 l/ha and 86.17-86.2% at the dose 1.5 l/ha. The mean efficacy of the reference product was 85.33-84.93%.

The efficacy of Terbutylazyna 500 SC in the post-emergence application against CHEAL was also evaluated during two assessments (14-15 DA-B and an additional 28-30 DA-B).

In the post-emergence application, the efficacy of the tested product was moderate and ranged from 76.6-83.33% at the dose 1.0 l/ha and 74.93-85.33% at the dose of 1.5 l/ha. The efficacy of the reference product in this case was slightly lower 74.67-82.87%.

The tested product Terbutylazyna 500 SC in both pre-emergence and post-emergence applications at doses of 1.0 l/ha and 1.5 l/ha showed comparable or better efficacy than the reference product against CHEAL and can be considered as effective to control this weed.

KCP 6.2.2.2 Efficacy against black nightshade (*Solanum nigrum*) SOLNI

In 2022, three trials were conducted to provide data on the efficacy of Terbutylazyna 500 SC in controlling the black nightshade in maize. All three efficacy trials were conducted in Poland on three different maize varieties: Salamandra, Subito and Danubio.

For each trial, the tested product Terbutylazyna 500 SC was applied pre-emergence and post-emergence at rates of 0.8 l/ha (400 g a.s./ha), 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha). Terbutylazyna 500 SC was compared with the reference product (Tezosar 500 SC) applied at 1.0 l/ha (500 g a.s./ha).

Accordingly, the results of trials carried out to confirm the efficacy of the tested product against SOLNI on pre-emergence and post-emergence maize are presented and discussed individually in the tables: Table 6.2.2-14 and Table 6.2.2-15.

Two assessments were carried out in pre-emergence and post-emergence applications to obtain information on the efficacy of Terbutylazyna 500 SC against SOLNI in maize. Efficacy data from these trials were used to support the registration application for 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha).

Full details and results of each study can be found in Appendix 3 and 4 respectively.

Detailed results for efficacy against SOLNI on maize are shown in the table below.

Table 6.2.2-14: Mean percentage efficacy of Terbutylazyna 500 SC applied at pre-emergence against SOLNI in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC				Tezosar 500 SC	
Dose rate					-	1.0 L/ha		1,5 L/ha		1,0 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202202	BBCH ~~16~~ 00	27.06.2022 28 DA-A	SOLNI BBCH 16	5	86,00	a	87,30	a	87,80	a
PL	044GPSE202204	BBCH ~~18~~ 00	18.07.2022 34 DA-A	SOLNI BBCH 32	6	80,00	a	83,00	a	45,00	d
PL	044GPSE202208	BBCH ~~15~~ 00	16.06.2022 28 DA-A	SOLNI BBCH 16	5	86,80	a	88,80	a	89,30	a
Average efficacy evaluated at 28-34 DA-A				**Mean**	-	**84,27**		**86,37**		**74,03**	
				Min	-	80,00		83,00		45,00	
				Max	-	86,80		88,80		89,30	
				StDev	-	3,72		3,01		25,15	
PL	044GPSE202202	BBCH ~~35~~ 00	11.07.2022 42 DA-A	SOLNI BBCH 35	5	87,30	ab	88,00	a	89,30	a
PL	044GPSE202204	BBCH ~~37~~ 00	02.08.2022 45 DA-A	SOLNI BBCH 65	6	81,80	a	85,00	a	81,00	a
PL	044GPSE202208	BBCH ~~34~~ 00	30.06.2022 42 DA-A	SOLNI BBCH 35	5	89,30	ab	91,80	a	91,80	a
Average efficacy evaluated at 42-45 DA-A				**Mean**	-	**86,13**		**88,27**		**87,37**	

	Min	-	81,80		85,00		81,00	
	Max	-	89,30		91,80		91,80	
	StDev	-	3,88		3,41		5,65	

Table 6.2.2-15: Mean percentage efficacy of Terbutylazyna 500 SC applied at post-emergence against SOLNI in maize.

Treatments					**Untreated Check**	**Terbutylazyna 500 SC**				**Tezosar 500 SC**	
Dose rate					-	**1.0 L/ha**		**1,5 L/ha**		**1,0 L/ha**	
Trials Data					**DENSITY plants/m2**	**Efficacy %**					
Country	**Trial Code**	**Crop Stage Majority at application**	**Rating Date** / **Trt-Eval** / **Interval**	**Weed species** / **Weed Stage Majority**							
PL	044GPSE202202	BBCH ~~16~~ 10-11	27.06.2022 / 14 DA-B	SOLNI / BBCH 16	5	79,30	b	81,00	b	80,00	b
PL	044GPSE202204	BBCH ~~18~~ 12-14	18.07.2022 / 15 DA-B	SOLNI / BBCH 32	6	70,00	b	70,00	b	70,00	b
PL	044GPSE202208	BBCH ~~15~~-11-12	16.06.2022 / 14 DA-B	SOLNI / BBCH 16	5	80,00	b	81,80	b	80,50	b
Average efficacy evaluated at 14-15 DA-B				**Mean**	-	**76,43**		**77,60**		**76,83**	
				Min	-	70,00		70,00		70,00	
				Max	-	80,00		81,80		80,50	
				StDev	-	5,58		6,59		5,92	
PL	044GPSE202202	BBCH ~~35~~ 10-11	11.07.2022 / 28 DA-B	SOLNI / BBCH 35	5	83,50	bc	86,00	ab	83,00	bc

PL	044GPSE202204	BBCH ~~27~~ 12-14	02.08.2022 30 DA-B	SOLNI BBCH 65	6	78,80	a	81,80	a	77,50	a
PL	044GPSE202208	BBCH ~~24~~ 11-12	30.06.2022 28 DA-B	SOLNI BBCH 35	5	88,50	ab	88,50	ab	86,00	bc
Average efficacy evaluated at 28-30 DA-B				**Mean**	-	**83,60**		**85,43**		**82,17**	
				Min	-	78,80		81,80		77,50	
				Max	-	88,50		88,50		86,00	
				StDev	-	4,85		3,39		4,31	

The efficacy of Terbutylazyna 500 SC in pre-emergence application against SOLNI was evaluated during two assessments (28-34 DA-A and additionally 42-45 DA-A).

Within the 3 trials presented where the tested product was applied pre-emergence, the efficacy of Terbutylazyna 500 SC was good 84.27-86.13% at the dose 1.0 l/ha and 86.37-88.27% at the dose 1.5 l/ha. In contrast, the efficacy of the reference product in the first evaluation was slightly lower than the efficacy of the tested product (76.83%). But in the second evaluation, the efficacy of Tezosar 500 SC increased (87.37%) and was comparable to efficacy of Terbutylazyna 500 SC.

The efficacy of Terbutylazyna 500 SC in the post-emergence application against SOLNI was also evaluated during two assessments (14-15 DA-B and additionally 28-30 DA-B).

In the post-emergence application, the efficacy of the tested product was moderate and ranged from 76.43 to 83.6% at the dose 1.0 l/ha and 77.6-85.43% at the dose 1.5 l/ha. The efficacy of the reference product in this case was slightly lower 76.83-82.17%.

The tested product Terbutylazyna 500 SC in both pre-emergence and post-emergence applications at doses of 1.0 l/ha and 1.5 l/ha showed comparable or better efficacy than the test product against SOLNI and can be considered effective in the control of this weed.

KCP 6.2.2.3 Efficacy against chickweed (*Stellaria media*) STEME

Three trials were conducted in 2022, providing data on the efficacy of Terbutylazyna 500 SC in controlling the chickweed in maize. All three efficacy trials were conducted in Poland on three different maize varieties: Salamandra, Subito and DKC3088.

During each trial, the tested product Terbutylazyna 500 SC was applied pre-emergence and post-emergence at rates of 0.8 l/ha (400 g a.s./ha), 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha). Terbutylazyna 500 SC was compared with the reference product (Tezosar 500 SC) applied at 1.0 l/ha (500 g s.a./ha).

Therefore, the results of the tests carried out to confirm the efficacy of the test product against STEME on pre-emergence and post-emergence maize are presented and discussed individually in the tables: Table 6.2.-16 and Table 6.2.2-17.

There were two assessments in pre-emergence and post-emergence applications to obtain information on the efficacy of Terbutylazyna 500 SC against STEME in maize. Efficacy data from these trials were used to support the registration application for 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha).

Full details and results of each study can be found in Appendix 3 and 4 respectively.

Detailed results for efficacy against STEME on maize are shown in the table below.

Table 6.2.2-16: Mean percentage efficacy of Terbutylazyna 500 SC applied at pre-emergence against STEME in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC				Tezosar 500 SC	
Dose rate					-	1.0 L/ha		1,5 L/ha		1,0 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202202	BBCH ~~16~~ 00	27.06.2022 28 DA-A	STEME BBCH 23	6	100,00	a	100,00	a	100,00	a
PL	044GPSE202204	BBCH ~~18~~ 00	18.07.2022 34 DA-A	STEME BBCH 32	7	100,00	a	100,00	a	100,00	a
PL	044_GPSE2022_06	BBCH ~~16~~ 00	18.06.2022 32 DA-A	STEME BBCH 23	5	100,00	a	100,00	a	100,00	a
Average efficacy evaluated at 28-34 DA-A				**Mean**	-	**100,00**		**100,00**		**100,00**	
				Min	-	100,00		100,00		100,00	
				Max	-	100,00		100,00		100,00	
				StDev	-	0,00		0,00		0,00	
PL	044GPSE202202	BBCH ~~35~~ 00	11.07.2022 42 DA-A	STEME BBCH 57	6	100,00	a	100,00	a	100,00	a
PL	044GPSE202204	BBCH ~~37~~ 00	02.08.2022 45 DA-A	STEME BBCH 63	7	100,00	a	100,00	a	100,00	a
PL	044_GPSE2022_06	BBCH ~~35~~ 00	02.07.2022 46 DA-A	STEME BBCH 53	5	100,00	a	100,00	a	100,00	a
Average efficacy evaluated at 42-46 DA-A				**Mean**	-	**100,00**		**100,00**		**100,00**	

	Min	-	100,00		100,00		100,00	
	Max	-	100,00		100,00		100,00	
	StDev	-	0,00		0,00		0,00	

Table 6.2.2-17: Mean percentage efficacy of Terbutylazyna 500 SC applied at post-emergence against STEME in maize.

Treatments					**Untreated Check**	**Terbutylazyna 500 SC**				**Tezosar 500 SC**	
Dose rate					-	**1.0 L/ha**		**1,5 L/ha**		**1,0 L/ha**	
Trials Data					**DENSITY plants/m2**	**Efficacy %**					
Country	**Trial Code**	**Crop Stage Majority at application**	**Rating Date** / **Trt-Eval** / **Interval**	**Weed species** / **Weed Stage Majority**							
PL	044GPSE202202	BBCH ~~16~~ 10-11	27.06.2022 / 14 DA-B	STEME / BBCH 23	6	83,80	c	86,00	b	84,00	c
PL	044GPSE202204	BBCH ~~18~~ 12-14	18.07.2022 / 15 DA-B	STEME / BBCH 32	7	86,30	c	86,00	c	86,00	c
PL	044_GPSE2022_06	BBCH ~~16~~ 12-13	18.06.2022 / 13 DA-B	STEME / BBCH 23	5	80,00	b	80,50	b	80,00	b
Average efficacy evaluated at 13-15 DA-B				**Mean**	-	**83,37**		**84,17**		**83,33**	
				Min	-	80,00		80,50		80,00	
				Max	-	86,30		86,00		86,00	
				StDev	-	3,17		3,18		3,06	
PL	044GPSE202202	BBCH ~~35~~ 10-11	11.07.2022 / 28 DA-B	STEME / BBCH 57	6	91,30	b	91,80	b	91,00	b

PL	044GPSE202204	BBCH ~~27~~ 12-14	02.08.2022	STEME	7	88,00	c	92,50	b	88,00	c
			30 DA-B	BBCH 63							
PL	044_GPSE2022_06	BBCH ~~25~~ 12-13	02.07.2022	STEME	5	87,50	b	90,50	b	88,00	b
			27 DA-B	BBCH 53							
Average efficacy evaluated at 27-30 DA-B				**Mean**	-	**88,93**		**91,60**		**89,00**	
				Min	-	87,50		90,50		88,00	
				Max	-	91,30		92,50		91,00	
				StDev	-	2,06		1,01		1,73	

The efficacy of Terbutylazyna 500 SC in the pre-emergence application against STEME was evaluated during two assessments (28-34 DA-A and additionally 42-46 DA-A).

Within the 3 presented trials where the tested product was applied pre-emergence, the efficacy of Terbutylazyna 500 SC and the refrence product was 100% in all doses and all assessments.

The efficacy of Terbutylazyna 500 SC in the post-emergence application against STEME was also evaluated during two assessments (14-15 DA-B and an additional 28-30 DA-B).

In the post-emergence application, the efficacy of the tested product was good and ranged from 83.37-88.93% at the dose 1.0 l/ha and 84.17-91.6% at the dose 1.5 l/ha. The efficacy of the reference product was slightly lower 83.33-89.0%.

The test product Terbutylazyna 500 SC in both pre-emergence and post-emergence applications at doses of 1.0 l/ha and 1.5 l/ha showed comparable or better efficacy than the test product against STEME and can be considered effective in the control of this weed.

KCP 6.2.2.4 Efficacy against ivy-leaved speedwell (*Veronica hederifolia*) VERHE

In 2022, three trials were conducted that provided data on the efficacy of Terbutylazyna 500 SC in controlling the ivy-leaved speedwell in maize. All three efficacy trials were conducted in Poland on three different maize varieties: Salamandra, Subito and DKC3088.

During each trial, the tested product Terbutylazyna 500 SC was applied pre-emergence and post-emergence at rates of 0.8 l/ha (400 g a.s./ha), 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha). Terbutylazyna 500 SC was compared with the reference product (Tezosar 500 SC) applied at 1.0 l/ha (500 g a.s./ha).

Accordingly, the results of the trials conducted to confirm the efficacy of the tested product against VERHE on pre-emergence and post-emergence maize are presented and discussed individually in the tables: Table 6.2.2-18 and Table 6.2.2-19.

Two assessments were conducted in pre-emergence and post-emergence applications to obtain information on the efficacy of Terbutylazyna 500 SC against VERHE in maize. Efficacy data from these trials were used to support the registration application for a dose of 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha).

Details and results of each study can be found in Appendix 3 and 4 respectively.

Detailed results on efficacy against VERHE on maize are shown in the table below.

Table 6.2.2-18: Mean percentage efficacy of Terbutylazyna 500 SC applied at pre-emergence against VERHE in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC				Tezosar 500 SC	
Dose rate					-	1.0 L/ha		1,5 L/ha		1,0 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202202	BBCH ~~16~~ 00	27.06.2022 28 DA-A	VERHE BBCH 23	6	99,30	a	100,00	a	100,00	a
PL	044GPSE202207	BBCH ~~16~~ 00	24.06.2022 35 DA-A	VERHE BBCH 16	5	100,00	a	100,00	a	100,00	a
PL	044GPSE202208	BBCH ~~15~~ 00	16.06.2022 28 DA-A	VERHE BBCH 22	6	100,00	a	100,00	a	100,00	a
Average efficacy evaluated at 28-35 DA-A				**Mean**	-	**99,77**		**100,00**		**100,00**	
				Min	-	99,30		100,00		100,00	
				Max	-	100,00		100,00		100,00	
				StDev	-	0,40		0,00		0,00	
PL	044GPSE202202	BBCH ~~25~~ 00	11.07.2022 42 DA-A	VERHE BBCH 53	6	100,00	a	100,00	a	100,00	a
PL	044GPSE202207	BBCH ~~25~~ 00	08.07.2022 49 DA-A	VERHE BBCH 53	5	100,00	a	100,00	a	100,00	a
PL	044GPSE202208	BBCH ~~24~~ 00	30.06.2022 42 DA-A	VERHE BBCH 33	5	100,00	a	100,00	a	100,00	a
Average efficacy evaluated at 42-49 DA-A				**Mean**	-	**100,00**		**100,00**		**100,00**	

	Min	-	100,00		100,00		100,00	
	Max	-	100,00		100,00		100,00	
	StDev	-	0,00		0,00		0,00	

Table 6.2.2-19: Mean percentage efficacy of Terbutylazyna 500 SC applied at post-emergence against VERHE in maize.

Treatments					**Untreated Check**	**Terbutylazyna 500 SC**				**Tezosar 500 SC**	
Dose rate					-	**1.0 L/ha**		**1,5 L/ha**		**1,0 L/ha**	
Trials Data					**DENSITY plants/m2**	**Efficacy %**					
Country	**Trial Code**	**Crop Stage Majority at application**	**Rating Date** / **Trt-Eval** / **Interval**	**Weed species** / **Weed Stage Majority**							
PL	044GPSE202202	BBCH ~~16~~ 10-11	27.06.2022 / 14 DA-B	VERHE / BBCH 23	6	91,30	bc	95,50	ab	89,80	cd
PL	044GPSE202207	BBCH ~~16~~ 11-13	24.06.2022 / 14 DA-B	VERHE / BBCH 16	5	83,80	c	85,50	c	84,80	c
PL	044GPSE202208	BBCH ~~15~~ 11-12	16.06.2022 / 14 DA-B	VERHE / BBCH 22	6	85,30	c	84,80	c	84,30	c
Average efficacy evaluated at 14 DA-B				**Mean**	-	**86,80**		**88,60**		**86,30**	
				Min	-	83,80		84,80		84,30	
				Max	-	91,30		95,50		89,80	
				StDev	-	3,97		5,99		3,04	
PL	044GPSE202202	BBCH ~~25~~ 10-11	11.07.2022 / 28 DA-B	VERHE / BBCH 53	6	89,30	c	93,50	b	88,50	c
PL	044GPSE202207	BBCH ~~25~~ 11-13	08.07.2022	VERHE	5	91,30	b	95,30	ab	92,30	b

			28 DA-B	BBCH 53							
PL	044GPSE202208	BBCH ~~34~~ 11-12	30.06.2022	VERHE	5	88,00	b	90,50	b	88,00	b
			28 DA-B	BBCH 33							
Average efficacy evaluated at 28 DA-B				**Mean**	-	**89,53**		**93,10**		**89,60**	
				Min	-	88,00		90,50		88,00	
				Max	-	91,30		95,30		92,30	
				StDev	-	1,66		2,42		2,35	

The efficacy of Terbutylazyna 500 SC in the pre-emergence application against VERHE was evaluated during two assessments (28-35 DA-A and additionally 42-49 DA-A).

In the 3 experiments presented where the tested product was applied pre-emergence, the efficacy of Terbutylazyna 500 SC was very high 99.77-100% at the dose of 1.0 l/ha and 100% at the dose 1.5 l/ha as well as in the trials where the reference product was used.

The efficacy of Terbutylazyna 500 SC in the post-emergence application against VERHE was also evaluated during two assessments (14 DA-B and additionally 28 DA-B).

In the post-emergence application, the efficacy of the tested product was also very good, ranging from 86.8 to 89.53% at the dose 1.0 l/ha and 88.6-93.1% at the dose 1.5 l/ha. The efficacy of the reference product in this case was slightly lower 86.3-89.6%.

The tested product Terbutylazyna 500 SC in both pre-emergence and post-emergence applications at doses of 1.0 l/ha and 1.5 l/ha showed comparable or better efficacy than the test product against VERHE and can be considered effective in the control of this weed.

KCP 6.2.2.5 Efficacy against kew weed (*Galinsoga parviflora*) GASPA

Two trials were conducted in 2022, providing data on the efficacy of Terbutylazyna 500 SC in controlling the kew weed in maize. All two efficacy trials were conducted in Poland on two different maize varieties: Subito and Amavit.

In each trial, the tested product Terbutylazyna 500 SC was applied pre-emergence and post-emergence at rates of 0.8 l/ha (400 g a.s./ha), 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha). Terbutylazyna 500 SC was compared with the reference product (Tezosar 500 SC) applied at 1.0 l/ha (500 g a.s./ha).

Accordingly, the results of trials conducted to confirm the efficacy of the tested product against GASPA on pre-emergence and post-emergence maize are presented and discussed individually in the tables: Table 6.2.2-20 and 6.2.2-21.

Two assessments were carried out in pre-emergence and post-emergence applications to obtain information on the efficacy of Terbutylazyna 500 SC against GASPA in maize. Efficacy data from these trials were used to support the registration application for 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha).

Full details and results of each study can be found in Appendix 3 and 4 respectively.

Detailed results for efficacy against GASPA on maize are shown in the table below

Table 6.2.2-20: Mean percentage efficacy of Terbutylazyna 500 SC applied at pre-emergence against GASPA in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC				Tezosar 500 SC	
Dose rate					-	1.0 L/ha		1,5 L/ha		1,0 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202204	BBCH ~~18~~ 00	18.07.2022 34 DA-A	GASPA BBCH 32	11	100,00	a	100,00	a	100,00	a
PL	044GPSE202207	BBCH ~~16~~ 00	24.06.2022 35 DA-A	GASPA BBCH 18	7	100,00	a	100,00	a	100,00	a
Average efficacy evaluated at 34-35 DA-A				**Mean**	-	**100,00**		**100,00**		**100,00**	
				Min	-	100,00		100,00		100,00	
				Max	-	100,00		100,00		100,00	
				StDev	-	0,00		0,00		0,00	
PL	044GPSE202204	BBCH ~~27~~ 00	02.08.2022 45 DA-A	GASPA BBCH 63	11	100,00	a	100,00	a	100,00	a
PL	044GPSE202207	BBCH ~~25~~ 00	08.07.2022 49 DA-A	GASPA BBCH 35	7	100,00	a	100,00	a	100,00	a
Average efficacy evaluated at 45-49 DA-A				**Mean**	-	**100,00**		**100,00**		**100,00**	
				Min	-	100,00		100,00		100,00	
				Max	-	100,00		100,00		100,00	
				StDev	-	0,00		0,00		0,00	

Table 6.2.2-21: Mean percentage efficacy of Terbutylazyna 500 SC applied at post-emergence against GASPA in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC				Tezosar 500 SC	
Dose rate					-	1.0 L/ha		1,5 L/ha		1,0 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202204	BBCH ~~18~~ 12-14	18.07.2022 15 DA-B	GASPA BBCH 32	11	81,30	b	82,50	b	81,80	b
PL	044GPSE202207	BBCH ~~16~~ 11-13	24.06.2022 14 DA-B	GASPA BBCH 18	7	81,00	b	82,30	b	81,80	b
Average efficacy evaluated at 14-15 DA-B				**Mean**	-	**81,15**		**82,40**		**81,80**	
				Min	-	81,00		82,30		81,80	
				Max	-	81,30		82,50		81,80	
				StDev	-	0,21		0,14		0,00	
PL	044GPSE202204	BBCH ~~37~~ 12-14	02.08.2022 30 DA-B	GASPA BBCH 63	11	100,00	a	100,00	a	100,00	a
PL	044GPSE202207	BBCH ~~35~~ 11-13	08.07.2022 28 DA-B	GASPA BBCH 35	7	94,80	b	99,30	a	93,00	b
Average efficacy evaluated at 28-30 DA-B				**Mean**	-	**97,40**		**99,65**		**96,50**	
				Min	-	94,80		99,30		93,00	
				Max	-	100,00		100,00		100,00	
				StDev	-	3,68		0,49		4,95	

The efficacy of Terbutylazyna 500 SC in the pre-emergence application against GASPA was evaluated during two assessments (34-35 DA-A and additionally 42-

49 DA-A).

In the 2 trials presented where the tested product was applied pre-emergence, the efficacy of Terbutylazyna 500 SC and the reference product was 100% at all doses and evaluations.

The efficacy of Terbutylazine 500 SC in the post-emergence application against GASPA was also evaluated during two assessments (14-15 DA-B and an additional 28-30 DA-B).

In the post-emergence application, the efficacy of the tested product was good and ranged from 81.15-97.40% at a dose 1.0 l/ha and 82.4-99.65% at a dose 1.5 l/ha. The efficacy of the reference product in this case was slightly lower 81.8-96.5%.

Terbutylazyna 500 SC in both pre-emergence and post-emergence applications at doses of 1.0 l/ha and 1.5 l/ha showed comparable or better efficacy than the reference product against GASPA and can be considered effective in the control of this weed.

KCP 6.2.2.6 Efficacy against heartsease (*Viola arvensis*) VIOAR

Two trials were conducted in 2022, providing data on the efficacy of Terbutylazyna 500 SC in controlling the heartsease in maize. All two efficacy trials were conducted in Poland on two different maize varieties: Leonido and DKC3088.

During each trial, the tested product Terbutylazyna 500 SC was applied pre-emergence and post-emergence at rates of 0.8 l/ha (400 g a.s./ha), 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha). Terbutylazyna 500 SC was compared with the reference product (Tezosar 500 SC) applied at 1.0 l/ha (500 g a.s./ha).

Accordingly, the results of tests carried out to confirm the efficacy of the tested product against VIOAR on pre-emergence and post-emergence maize are presented and discussed individually in the tables: Table 6.2.2-22 and Table 6.2.2-23.

Two assessments were carried out in pre-emergence and post-emergence applications to obtain information on the efficacy of Terbutylazyna 500 SC against VIOAR in maize. Efficacy data from these trials were used to support the registration application for 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha).

Full details and results of each study can be found in Appendix 3 and 4 respectively.

Detailed results for efficacy against VIOAR on maize are shown in the table below

Table 6.2.2-22: Mean percentage efficacy of Terbutylazyna 500 SC applied at pre-emergence against VIOAR in maize

Treatments					Untreated Check	Terbutylazyna 500 SC				Tezosar 500 SC	
Dose rate					-	1.0 L/ha		1,5 L/ha		1,0 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202205	BBCH ~~34~~ 00	27.06.2022 40 DA-A	VIOAR BBCH 33	8	83,50	a	85,30	a	83,00	a
PL	044_GPSE2022_06	BBCH ~~16~~ 00	18.06.2022 32 DA-A	VIOAR BBCH 17	10	86,00	a	86,80	a	86,00	a
Average efficacy evaluated at 32-40 DA-A				**Mean**	-	**84,75**		**86,05**		**84,50**	
				Min	-	83,50		85,30		83,00	
				Max	-	86,00		86,80		86,00	
				StDev	-	1,77		1,06		2,12	
PL	044GPSE202205	BBCH ~~55~~ 00	12.07.2022 55 DA-A	VIOAR BBCH 61	8	82,50	a	85,30	a	85,30	a
PL	044_GPSE2022_06	BBCH ~~35~~ 00	02.07.2022 46 DA-A	VIOAR BBCH 63	10	86,50	a	86,50	a	86,50	a
Average efficacy evaluated at 46-55 DA-A				**Mean**	-	**84,50**		**85,90**		**85,90**	
				Min	-	82,50		85,30		85,30	
				Max	-	86,50		86,50		86,50	
				StDev	-	2,83		0,85		0,85	

Table 6.2.2-23: Mean percentage efficacy of Terbutylazyna 500 SC applied at post-emergence against VIOAR in maize

Treatments					Untreated Check	Terbutylazyna 500 SC				Tezosar 500 SC	
Dose rate					-	1.0 L/ha		1,5 L/ha		1,0 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202205	BBCH ~~34~~ 13-15	27.06.2022 15 DA-B	VIOAR BBCH 33	8	82,30	a	83,50	a	81,30	a
PL	044_GPSE2022_06	BBCH ~~16~~ 12-13	18.06.2022 13 DA-B	VIOAR BBCH 17	10	79,30	b	85,00	a	80,00	b
Average efficacy evaluated at 13-15 DA-B				**Mean**	-	**80,80**		**84,25**		**80,65**	
				Min	-	79,30		83,50		80,00	
				Max	-	82,30		85,00		81,30	
				StDev	-	2,12		1,06		0,92	
PL	044GPSE202205	BBCH ~~55~~ 13-15	12.07.2022 30 DA-B	VIOAR BBCH 61	8	79,80	a	84,00	a	82,30	a
PL	044_GPSE2022_06	BBCH ~~35~~ 12-13	02.07.2022 27 DA-B	VIOAR BBCH 63	10	81,80	a	85,50	a	84,30	a
Average efficacy evaluated at 27-30 DA-B				**Mean**	-	**80,80**		**84,75**		**83,30**	
				Min	-	79,80		84,00		82,30	
				Max	-	81,80		85,50		84,30	
				StDev	-	1,41		1,06		1,41	

The efficacy of Terbutylazyna 500 SC in the pre-emergence application against VIOAR was evaluated during two assessments (32-40 DA-A and additionally 46-55 DA-A).

In the two trials presented where the tested product was applied pre-emergence, the efficacy of Terbutylazyna 500 SC was good 84.75-84.5% at the dose 1.0 l/ha, 86.05-85.9% at the dose 1.5 l/ha and comparable to the efficacy of the reference product where the mean efficacy was 84.5-85.9%.

The efficacy of Terbutylazyna 500 SC in the pre-emergence application against VIOAR was also evaluated during two assessments (13-15 DA-B and an additional 27-30 DA-B).

In the post-emergence application, the efficacy of the tested product was good 80.8% at the dose 1.0 l/ha and 84.25-84.75% at the dose 1.5 l/ha. The efficacy of the reference product in this case was slightly lower 80.65-83.3%.

The tested product Terbutylazyna 500 SC in both pre-emergence and post-emergence applications at doses of 1.0 l/ha and 1.5 l/ha showed comparable or better efficacy than the reference product against VIOAR and can be considered effective in the control of this weed.

KCP 6.2.2.7 Efficacy against bearbind (*Fallopia convolvulus*) POLCO

Two trials were conducted in 2022, providing data on the efficacy of Terbutylazyna 500 SC in controlling the bearbind in maize. All two efficacy trials were conducted in Poland on two different maize varieties: DKC3595 and Leonido.

During each trial, the tested product Terbutylazyna 500 SC was applied pre-emergence and post-emergence at rates of 0.8 l/ha (400 g a.s./ha), 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha). Terbutylazyna 500 SC was compared with the reference product (Tezosar 500 SC) applied at 1.0 l/ha (500 g a.s./ha).

Therefore, the results of the tests carried out to confirm the efficacy of the tested product against POLCO on pre-emergence and post-emergence maize are presented and discussed individually in the tables: Table 6.2.2-24 and Table 6.2.2-25.

Two assessments were carried out in pre-emergence and post-emergence applications to obtain information on the efficacy of Terbutylazyna 500 SC against POLCO in maize. Efficacy data from these experiences were used to support the registration application for 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha).

Full details and results of each study can be found in Appendix 3 and 4 respectively.

Detailed results for efficacy against POLCO on maize are shown in the table below

Table 6.2.2-24: Mean percentage efficacy of Terbutylazyna 500 SC applied at pre-emergence against POLCO in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC				Tezosar 500 SC	
Dose rate					-	1.0 L/ha		1,5 L/ha		1,0 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202201	BBCH ~~17~~ 00	27.06.2022 31 DA-A	POLCO BBCH 23	5	95,50	a	100,00	a	96,00	a
PL	044GPSE202205	BBCH ~~24~~ 00	27.06.2022 40 DA-A	POLCO BBCH 33	6	100,00	a	100,00	a	100,00	a
Average efficacy evaluated at 31-40 DA-A				**Mean**	-	**97,75**		**100,00**		**98,00**	
				Min	-	95,50		100,00		96,00	
				Max	-	100,00		100,00		100,00	
				StDev	-	3,18		0,00		2,83	
PL	044GPSE202201	BBCH ~~26~~ 00	11.07.2022 45 DA-A	POLCO BBCH 35	5	95,30	ab	99,30	a	96,00	ab
PL	044GPSE202205	BBCH ~~55~~ 00	12.07.2022 55 DA-A	POLCO BBCH 53	6	100,00	a	100,00	a	100,00	a
Average efficacy evaluated at 45-55 DA-A				**Mean**	-	**97,65**		**99,65**		**98,00**	
				Min	-	95,30		99,30		96,00	
				Max	-	100,00		100,00		100,00	
				StDev	-	3,32		0,49		2,83	

Table 6.2.2-25: Mean percentage efficacy of Terbutylazyna 500 SC applied at post-emergence against POLCO in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC				Tezosar 500 SC	
Dose rate					-	1.0 L/ha		1,5 L/ha		1,0 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202201	BBCH ~~17~~ 11-13	27.06.2022 14 DA-B	POLCO BBCH 23	5	60,00	d	67,50	c	60,00	d
PL	044GPSE202205	BBCH ~~34~~ 13-15	27.06.2022 15 DA-B	POLCO BBCH 33	6	82,80	c	84,30	bc	82,30	c
Average efficacy evaluated at 14-15 DA-B				**Mean**	-	**71,40**		**75,90**		**71,15**	
				Min	-	60,00		67,50		60,00	
				Max	-	82,80		84,30		82,30	
				StDev	-	16,12		11,88		15,77	
PL	044GPSE202201	BBCH ~~36~~ 11-13	11.07.2022 28 DA-B	POLCO BBCH 35	5	89,80	cd	93,00	bc	88,50	d
PL	044GPSE202205	BBCH ~~55~~ 13-15	12.07.2022 30 DA-B	POLCO BBCH 53	6	89,30	b	90,00	b	85,30	c
Average efficacy evaluated at 28-30 DA-B				**Mean**	-	**89,55**		**91,50**		**86,90**	
				Min	-	89,30		90,00		85,30	
				Max	-	89,80		93,00		88,50	
				StDev	-	0,35		2,12		2,26	

The efficacy of Terbutylazyna 500 SC in pre-emergence application against POLCO was evaluated during two assessments (31-40 DA-A and additionally 45-55 DA-A).

According to the 2 presented trials, where the tested product was applied pre-emergence, the efficacy of Terbutylazyna 500 SC was very high (97.25-97.75%) at the doses 1.0 l/ha and 1.5 l/ha (99.65-100%). The efficacy of the reference product was comparable to or slightly better and the mean efficacy was 98%.

The efficacy of Terbutylazyna 500 SC in the post-emergence application against POLCO was also evaluated during two assessments (14-15 DA-B and an additional 28-30 DA-B).

In the post-emergence application, the efficacy of the tested product was moderate and ranged from 71.4-89.55% at the dose 1.0 l/ha and 75.9-91.5% at the dose 1.5 l/ha. The efficacy of the reference product in this case was slightly lower 71.15-86.9%.

The tested product Terbutylazyna 500 SC in both pre-emergence and post-emergence applications at doses of 1.0 l/ha and 1.5 l/ha showed showed comparable or better efficacy than the reference product against POLCO and can be considered effective in the control of this weed.

KCP 6.2.2.8 Efficacy against kedlock (*Sinapis arvensis*) SINAR

During 2022, two trials were conducted to provide data on the efficacy of Terbutylazyna 500 SC in controlling the kedlock in maize. All two efficacy trials were conducted in Poland on two different maize varieties: Salamandra and DKC3088.

During each trial, the tested product Terbutylazyna 500 SC was applied pre-emergence and post-emergence at rates of 0.8 l/ha (400 g a.s./ha), 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha). Terbutylazyna 500 SC was compared with the reference product (Tezosar 500 SC) applied at 1.0 l/ha (500 g a.s./ha).

Accordingly, the results of trials carried out to confirm the efficacy of the tested product against SINAR on pre-emergence and post-emergence maize are presented and discussed individually in the tables: Table 6.2.2-26 and Table 6.2.2-27.

Two assessments were carried out in pre-emergence and post-emergence applications to obtain information on the efficacy of Terbutylazyna 500 SC against SINAR in maize. Efficacy data from these trials were used to support the registration application for 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha).

Full details and results of each study can be found in Appendix 3 and 4 respectively.

Detailed results for efficacy against SINAR on maize are shown in the table below.

Table 6.2.2-26: Mean percentage efficacy of Terbutylazyna 500 SC applied at pre-emergence against SINAR in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC				Tezosar 500 SC	
Dose rate					-	1.0 L/ha		1,5 L/ha		1,0 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202202	BBCH ~~16~~ 00	27.06.2022 28 DA-A	SINAR BBCH 17	8	100,00	a	100,00	a	100,00	a
PL	044_GPSE2022_06	BBCH ~~16~~ 00	18.06.2022 32 DA-A	SINAR BBCH 17	7	100,00	a	100,00	a	100,00	a
Average efficacy evaluated at 28-32 DA-A				**Mean**	-	**100,00**		**100,00**		**100,00**	
				Min	-	100,00		100,00		100,00	
				Max	-	100,00		100,00		100,00	
				StDev	-	0,00		0,00		0,00	
PL	044GPSE202202	BBCH ~~35~~ 00	11.07.2022 42 DA-A	SINAR BBCH 61	8	100,00	a	100,00	a	100,00	a
PL	044_GPSE2022_06	BBCH ~~35~~ 00	02.07.2022 46 DA-A	SINAR BBCH 59	7	100,00	a	100,00	a	100,00	a
Average efficacy evaluated at 42-46 DA-A				**Mean**	-	**100,00**		**100,00**		**100,00**	
				Min	-	100,00		100,00		100,00	
				Max	-	100,00		100,00		100,00	
				StDev	-	0,00		0,00		0,00	

Table 6.2.2-27: Mean percentage efficacy of Terbutylazyna 500 SC applied at post-emergence against SINAR in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC				Tezosar 500 SC	
Dose rate					-	1.0 L/ha		1,5 L/ha		1,0 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202202	BBCH ~~16~~ 10-11	27.06.2022 14 DA-B	SINAR BBCH 17	8	95,50	b	96,00	b	95,00	b
PL	044_GPSE2022_06	BBCH ~~16~~ 12-13	18.06.2022 13 DA-B	SINAR BBCH 17	7	86,00	b	87,30	b	85,50	b
Average efficacy evaluated at 13-14 DA-B				**Mean**	-	**90,75**		**91,65**		**90,25**	
				Min	-	86,00		87,30		85,50	
				Max	-	95,50		96,00		95,00	
				StDev	-	6,72		6,15		6,72	
PL	044GPSE202202	BBCH ~~35~~ 10-11	11.07.2022 28 DA-B	SINAR BBCH 61	8	96,00	b	97,80	a	95,50	b
PL	044_GPSE2022_06	BBCH ~~25~~ 12-13	02.07.2022 27 DA-B	SINAR BBCH 59	7	96,00	c	100,00	a	97,00	b
Average efficacy evaluated at 27-28 DA-B				**Mean**	-	**96,00**		**98,90**		**96,25**	
				Min	-	96,00		97,80		95,50	
				Max	-	96,00		100,00		97,00	
				StDev	-	0,00		1,56		1,06	

The efficacy of Terbutylazyna 500 SC in pre-emergence application against SINAR was evaluated during two assessments (28-32 DA-A and additionally 42-46 DA-A).
Within the 2 presented trials where the tested product was applied pre-emergence, the efficacy of Terbutylazyna 500 SC as well as the reference product was very high (100%) at all doses and all assessments.

The efficacy of Terbutylazine 500 SC in the post-emergence application against SINAR was also evaluated during two assessments (13-14 DA-B and additionally 27-28 DA-B).

In the post-emergence application, the efficacy of the tested product ranged from 90.75-96% at 1.0 l/ha and 91.65-98.9% at 1.5 l/ha. The efficacy of the reference product in this case was comparable to the test product 90.25-96.25%.

The Terbutylazyna 500 SC in both pre-emergence and post-emergence applications at doses of 1.0 l/ha and 1.5 l/ha showed comparable to the reference product against SINAR and can be considered effective in the control of this weed.

KCP 6.2.2.9 Efficacy against cornflower (*Centaurea cyanus*) CENCY

Two trials were conducted in 2022, providing data on the efficacy of Terbutylazyna 500 SC in controlling the cornflower in maize. All two efficacy trials were conducted in Poland on two different varieties of maize: Ulan and Amavit.

During each trial, the tested product Terbutylazyna 500 SC was applied pre-emergence and post-emergence at rates of 0.8 l/ha (400 g a.s./ha), 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha). Terbutylazyna 500 SC was compared with the reference product (Tezosar 500 SC) applied at 1.0 l/ha (500 g a.s./ha).

The results of the trials conducted to confirm the efficacy of the tested product against CENCY on pre-emergence and post-emergence maize are presented and discussed individually in the tables: Table 6.2.2-28 and Table 6.2.2-29.

Two assessments were carried out in pre-emergence and post-emergence applications to obtain information on the efficacy of Terbutylazyna 500 SC against CENCY in maize. Efficacy data from these trials were used to support the registration application for 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha).

Full details and results of each trial can be found in Appendix 3 and 4 respectively.

Detailed results for efficacy against CENCY on maize are shown in the table below.

Table 6.2.2-28: Mean percentage efficacy of Terbutylazyna 500 SC applied at pre-emergence against CENCY in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC				Tezosar 500 SC	
Dose rate					-	1.0 L/ha		1,5 L/ha		1,0 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202203	BBCH ~~18~~00	29.06.2022 34 DA-A	CENCY BBCH 32	5	89,30	a	93,00	a	93,50	a
PL	044GPSE202207	BBCH ~~16~~ 00	24.06.2022 35 DA-A	CENCY BBCH 17	5	98,80	a	100,00	a	100,00	a
Average efficacy evaluated at 34-35 DA-A				**Mean**	-	**94,05**		**96,50**		**96,75**	
				Min	-	89,30		93,00		93,50	
				Max	-	98,80		100,00		100,00	
				StDev	-	6,72		4,95		4,60	
PL	044GPSE202203	BBCH ~~37~~ 00	13.07.2022 48 DA-A	CENCY BBCH 61	5	91,00	ab	93,50	a	91,80	a
PL	044GPSE202207	BBCH ~~35~~ 00	08.07.2022 49 DA-A	CENCY BBCH 53	5	100,00	a	100,00	a	100,00	a
Average efficacy evaluated at 48-49 DA-A				**Mean**	-	**95,50**		**96,75**		**95,90**	
				Min	-	91,00		93,50		91,80	
				Max	-	100,00		100,00		100,00	
				StDev	-	6,36		4,60		5,80	

Table 6.2.2-29: Mean percentage efficacy of Terbutylazyna 500 SC applied at post-emergence against CENCY in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC				Tezosar 500 SC	
Dose rate					-	1.0 L/ha		1,5 L/ha		1,0 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202203	BBCH ~~18~~ 13-14	29.06.2022 14 DA-B	CENCY BBCH 32	5	80,50	b	83,00	b	80,00	b
PL	044GPSE202207	BBCH ~~16~~ 11-13	24.06.2022 14 DA-B	CENCY BBCH 17	5	78,80	c	80,00	c	77,50	c
Average efficacy evaluated at 14 DA-B				**Mean**	-	**79,65**		**81,50**		**78,75**	
				Min	-	78,80		80,00		77,50	
				Max	-	80,50		83,00		80,00	
				StDev	-	1,20		2,12		1,77	
PL	044GPSE202203	BBCH ~~37~~ 13-14	13.07.2022 28 DA-B	CENCY BBCH 61	5	85,50	c	87,30	bc	86,80	bc
PL	044GPSE202207	BBCH ~~25~~ 11-13	08.07.2022 28 DA-B	CENCY BBCH 53	5	85,00	b	87,50	b	85,50	b
Average efficacy evaluated at 28 DA-B				**Mean**	-	**85,25**		**87,40**		**86,15**	
				Min	-	85,00		87,30		85,50	
				Max	-	85,50		87,50		86,80	
				StDev	-	0,35		0,14		0,92	

The efficacy of Terbutylazyna 500 SC in the pre-emergence application against CENCY was evaluated during two assessments (34-35 DA-A and additionally 48-49 DA-A).
In the 2 presented trials where the tested product was applied pre-emergence, the efficacy of Terbutylazyna 500 SC was very high 94.05-95.5% at 1.0 l/ha and 96.5-96.75% at 1.5 l/ha and comparable to the efficacy of the reference product where the mean efficacy was 96.75-95.9%.

The efficacy of Terbutylazyna 500 SC in the post-emergence application against CENCY was also evaluated during two assessments (14 DA-B and an additional 28 DA-B).

In the post-emergence application, the efficacy of the tested product was good at 79.65-82.25% at 1.0 l/ha and 81.5-87.4% at 1.5 l/ha and comparable to the efficacy of the reference product where the mean efficacy was 78.75-86.15%.

Terbutylazyna 500 SC in both pre-emergence and post-emergence applications at doses of 1.0 l/ha and 1.5 l/ha showed comparable or better efficacy than the referenca product against CENCY and can be considered effective in the control of this weed.

KCP 6.2.2.10 Efficacy against fanweed (*Thlaspi arvense*) THLAR

During 2022, two trials were conducted that provided data on the efficacy of Terbutylazyna 500 SC in controlling the fanweed in maize. All two efficacy trials were conducted in Poland on two different maize varieties: Ulan and Danubio.

For each trial, the tested product Terbutylazyna 500 SC was applied pre-emergence and post-emergence at rates of 0.8 l/ha (400 g a.s./ha), 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha). Terbutylazyna 500 SC was compared with the reference product (Tezosar 500 SC) applied at 1.0 l/ha (500 g a.s./ha).

Accordingly, the results of trials conducted to confirm the efficacy of the tested product against THLAR on pre-emergence and post-emergence maize are presented and discussed individually in the tables: Table 6.2.2-30 and Table 6.2.2-31.

Two assessments were carried out in pre-emergence and post-emergence applications to obtain information on the efficacy of Terbutylazyna 500 SC against THLAR in maize. Efficacy data from these trials were used to support the registration application for 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha).

Full details and results of each study can be found in Appendix 3 and 4 respectively.

Detailed results for efficacy against THLAR on maize are shown in the table below

Table 6.2.2-30: Mean percentage efficacy of Terbutylazyna 500 SC applied at pre-emergence against THLAR in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC				Tezosar 500 SC	
Dose rate					-	1.0 L/ha		1,5 L/ha		1,0 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202203	BBCH ~~18~~ 00	29.06.2022 34 DA-A	THLAR BBCH 31	6	85,00	a	85,00	a	84,30	a
PL	044GPSE202208	BBCH ~~15~~ 00	16.06.2022 28 DA-A	THLAR BBCH 18	5	100,00	a	100,00	a	100,00	a
Average efficacy evaluated at 28-34 DA-A				**Mean**	-	**92,50**		**92,50**		**92,15**	
				Min	-	85,00		85,00		84,30	
				Max	-	100,00		100,00		100,00	
				StDev	-	10,61		10,61		11,10	
PL	044GPSE202203	BBCH ~~37~~ 00	13.07.2022 48 DA-A	THLAR BBCH 63	6	85,50	a	85,30	a	86,80	a
PL	044GPSE202208	BBCH ~~34~~ 00	30.06.2022 42 DA-A	THLAR BBCH 51	5	100,00	a	100,00	a	100,00	a
Average efficacy evaluated at 42-48 DA-A				**Mean**	-	**92,75**		**92,65**		**93,40**	
				Min	-	85,50		85,30		86,80	
				Max	-	100,00		100,00		100,00	
				StDev	-	10,25		10,39		9,33	

Table 6.2.2-31: Mean percentage efficacy of Terbutylazyna 500 SC applied at post-emergence against THLAR in maize.

Treatments					Untreated Check	Terbutylazyna 500 SC				Tezosar 500 SC	
Dose rate					-	1.0 L/ha		1,5 L/ha		1,0 L/ha	
Trials Data					DENSITY plants/m2	Efficacy %					
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority							
PL	044GPSE202203	BBCH ~~18~~ 13-14	29.06.2022 14 DA-B	THLAR BBCH 31	6	79,30	ab	81,80	ab	78,00	b
PL	044GPSE202208	BBCH ~~15~~ 11-12	16.06.2022 14 DA-B	THLAR BBCH 18	5	86,30	b	88,00	b	86,30	b
Average efficacy evaluated at 14 DA-B				**Mean**	-	**82,80**		**84,90**		**82,15**	
				Min	-	79,30		81,80		78,00	
				Max	-	86,30		88,00		86,30	
				StDev	-	4,95		4,38		5,87	
PL	044GPSE202203	BBCH ~~37~~ 13-14	13.07.2022 28 DA-B	THLAR BBCH 63	6	84,30	a	86,00	a	83,80	a
PL	044GPSE202208	BBCH ~~34~~ 11-12	30.06.2022 28 DA-B	THLAR BBCH 51	5	90,50	b	93,00	b	90,50	b
Average efficacy evaluated at 28 DA-B				**Mean**	-	**87,40**		**89,50**		**87,15**	
				Min	-	84,30		86,00		83,80	
				Max	-	90,50		93,00		90,50	
				StDev	-	4,38		4,95		4,74	

The efficacy of Terbutylazyna 500 SC in the pre-emergence application against THLAR was evaluated during two assessments (28-34 DA-A and additionally 42-48 DA-A).
Within the 2 presented trials where the tested product was applied pre-emergence, the efficacy of Terbutylazyna 500 SC was very high 92.5-92.75% at 1.0 l/ha and 92.5-92.65% at 1.5 l/ha and comparable to that of the reference product where the mean efficacy was 92.15-93.4%.

The efficacy of Terbutylazyna 500 SC in the post-emergence application against THLAR was also evaluated during two assessments (14 DA-B and an additional 28 DA-B).

In the post-emergence application, the efficacy of the tested product was good and ranged from 82.8-87.4% at 1.0 l/ha and 84.9-89.5% at 1.5 l/ha. The efficacy of the reference product in this case was comparable to the efficacy of the tested product (82.15-87.15%).

The tested product Terbutylazyna 500 SC in both pre-emergence and post-emergence applications at doses of 1.0 l/ha and 1.5 l/ha showed comparable or better efficacy than the reference product against THLAR and can be considered effective in the control of this weed.

KCP 6.2.2.11 Efficacy against other weeds (supporting data)

For the purpose of completeness, data on weeds observed at relevant abundances in 1 site only were presented as supporting data

During each trial, the tested product Terbutylazyna 500 SC was applied pre-emergence and post-emergence at rates of 0.8 l/ha (400 g a.s./ha), 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha). Terbutylazyna 500 SC was compared with the reference product (Tezosar 500 SC) applied at 1.0 l/ha (500 g a.s./ha).

The results of trials conducted to support efficacy of tested product against CIRAR, MYOAR, and GAETE on maize applied at pre-emergence and post-emergence are presented and discussed individually in tables: Table 6.2.2-32 and Table 6.2.2-33.

Full details and results of each study can be found in Appendix 3 and 4, respectively.

Detailed results for efficacy against this three weeds on maize are shown below in the table

Table 6.2.2-32: Mean efficacy of Terbutylazyna 500 SC applied at pre-emergence against weeds in maize.

Treatments					Untreated Check	28 - 34 DA-A					
Dose rate					-	Terbutylazyna 500 SC				Tezosar 500 SC	
Trials Data					DENSITY plants/m2	1.0 L/ha		1,5 L/ha		1,0 L/ha	
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority		Efficacy %					
PL	044GPSE202202	BBCH ~~16~~ 00	27.06.2022 28 DA-A	CIRAR BBCH 16	7	85,00	a	86,00	a	85,00	a
PL	044GPSE202203	BBCH ~~18~~ 00	29.06.2022 34 DA-A	MYOAR BBCH 24	5	100,00	a	100,00	a	100,00	a
PL	044_GPSE2022_06	BBCH ~~16~~ 00	18.06.2022 32 DA-A	GAETE BBCH 16	5	72,50	ab	75,00	a	72,50	ab
35 - 37 DA-A											
PL	044GPSE202202	BBCH ~~35~~ 00	11.07.2022 42 DA-A	CIRAR BBCH 53	7	86,00	a	86,50	a	86,00	a
PL	044GPSE202203	BBCH ~~37~~ 00	13.07.2022 48 DA-A	MYOAR BBCH 59	5	100,00	a	100,00	a	100,00	a
PL	044_GPSE2022_06	BBCH ~~35~~ 00	02.07.2022 46 DA-A	GAETE BBCH 57	5	81,00	a	83,50	a	82,30	a

Table 6.2.2-33: Mean efficacy of Terbutylazyna 500 SC applied at post-emergence against weeds in maize.

Treatments					Untreated Check	13 - 14 DA-B					
Dose rate					-	Terbutylazyna 500 SC				Tezosar 500 SC	
Trials Data						1.0 L/ha		1,5 L/ha		1,0 L/ha	
Country	Trial Code	Crop Stage Majority at application	Rating Date Trt-Eval Interval	Weed species Weed Stage Majority	DENSITY plants/m2	Efficacy %					
PL	044GPSE202202	BBCH ~~16~~ 10-11	27.06.2022 14 DA-B	CIRAR BBCH 16	7	77,50	b	83,00	a	78,80	b
PL	044GPSE202203	BBCH ~~18~~ 13-14	29.06.2022 14 DA-B	MYOAR BBCH 24	5	82,50	c	87,30	b	83,00	c
PL	044_GPSE2022_06	BBCH ~~16~~ 12-13	18.06.2022 13 DA-B	GAETE BBCH 16	5	65,00	b	70,00	ab	65,00	b
27-28 DA-B											
PL	044GPSE202202	BBCH ~~35~~ 10-11	11.07.2022 28 DA-B	CIRAR BBCH 53	7	83,00	a	85,00	a	84,30	a
PL	044GPSE202203	BBCH ~~37~~ 13-14	13.07.2022 28 DA-B	MYOAR BBCH 59	5	100,00	a	100,00	a	100,00	a
PL	044_GPSE2022_06	BBCH ~~35~~ 12-13	02.07.2022 27 DA-B	GAETE BBCH 57	5	78,80	a	82,80	a	80,00	a

According to the results displayed in the table above, the efficacy of Terbutylazyna 500 SC in pre-emergence application was evaluated during two assessments (28-34 DA-A and an additional 35-37 DA-A) on 3 different weeds.

In pre-emergence applications, the efficacy of the product tested was between 75.5-100% at 1.0 l/ha and 75-100% at 1.5 l/ha. While the efficacy of the reference product in these trials ranged from 72.5 to100%.

The efficacy of Terbutylazyna 500 SC in the post-emergence application was also evaluated during two assessments (13-14 DA-B and an additional 27-28 DAB).

As in the case of the post-emergence application, the efficacy against CIRAR,MYOAR AND GAETE was good and ranged from 65 to100% at 1.0 l/ha and 82.8-100% at 1.5 l/ha. The efficacy of the reference product in these trials was comparable and between 65-100%.

Based on the above data, it can be concluded that the efficacy of the tested product at doses of 1.0 l/ha and 1.5 l/ha in both pre- and post-emergence application was comparable to efficacy of the reference product.

Efficacy – Conclusion

The data presented in this dossier is in support of the registration of Terbutylazyna 500 SC for the control of a broad spectrum of maize weeds.

Terbutylazyna 500 SC is a selective herbicide in the form of a suspension concentrate (SC) for foliar application, which contains the active ingredient terbuthylazine at 500 g/l. This active ingredient is commonly used pre-emergence and post-emergence for weed control in maize and cereals.

In each of the presented efficacy trials, the tested product Terbutylazyna 500 SC was applied pre-emergence and post-emergence at rates of 0.8 l/ha (400 g a.s./ha), 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha). For all efficacy trials, the efficacy of the tested product Terbutylazyna 500 SC was compared with the reference product TEZOSAR 500 SC which was applied at 1.0 l/ha (500 g a.s./ha).

Efficacy assessments were carried out in both applications. In the pre-emergence application, the first assessment was conducted between 24-40 DA-A and the second between 42-55 DA-A. Whereas in the post-emergence application, the first assessment was carried out after 14 DA-B and the second after 28 DA-B.

EFFECTIVENESS of the product was evaluated as a visual assessment of % weed control compared to untreated controls.
The weed sensitivity and control statement is based on the guidance in SAN-CO/10055/2013 rev. 4 (3 October 2014), as shown in the table below: Table 6.2.2-34.

Weed invasion in all trials was above 5% ground cover and therefore all trials are considered valid.

Below is a simplified table summarising the efficacy results from all efficacy trials to prove the efficacy of Terbutylazyna 500 SC applied at 1.0 l/ha (500 g a.s./ha) and 1.5 l/ha (750 g a.s./ha).

The weed susceptibility and control statement is based on the guidance in CRD EFFICACY GUIDELINE 407: CEREAL AND MAIZE PESTS (version 1.0, March 2019) and the Polish Regulation on Evaluation or Comments on Plant Protection Products, as shown below in Table 6.2.2 61.

Table 6.2.2-34: Weed susceptibility levels based on SAN-CO/10055/2013 rev. 4

Label claim	Control level range (%)
Highly susceptible (HS)	95 to 100 %
Susceptible (S)	85 to 94 %
Moderately susceptible (MS)	70 to 84 %
Moderately tolerant (MT)	50 to 69 %
Tolerant (T)	< 50 %

Below it is presented summary of the obtained results per each intened weed in Table 6.2.1-4 - **Błąd! Nie można odnaleźć źródła odwołania.**.

Table 6.2.2-35: Summary of mean efficacy per weed at first (28-40 DA-A) and second (42-55 DA-A) assessment timing - after application A (pre-emergence application)

Weed EPPO code	Number of trials	28-40 DA-A									42-55 DA-A								
		Mean % efficacy of Terbutylazyna 500 SC						Tezosar 500 SC			Mean % efficacy of Terbutylazyna 500 SC						Tezosar 500 SC		
		1.0 L/ha			1,5 L/ha			1,0 L/ha			1.0 L/ha			1,5 L/ha			1,0 L/ha		
		MEAN	MIN	MAX	MEAN	MIN	MAX	MEAN	MIN	MAX	MEAN	MIN	MAX	MEAN	MIN	MAX	MEAN	MIN	MAX
CAPBP	4	98,1	93,0	100,0	99,0	96,0	100,0	97,2	92,3	100,0	98,0	93,5	100,0	99,5	98,0	100,0	98,0	94,3	100,0
GALAP	3	89,4	76,3	100,0	91,6	80,0	100,0	90,1	78,0	100,0	88,8	73,8	100,0	92,3	81,0	100,0	89,8	77,5	100,0
MATIN	3	83,2	80,5	86,0	85,4	83,5	88,5	83,3	81,0	85,5	83,4	80,5	88,0	86,0	83,0	90,0	83,3	81,3	86,3
AMARE	3	92,6	88,5	100,0	96,3	93,5	100,0	91,5	87,3	100,0	92,0	86,8	100,0	94,9	92,3	100,0	92,3	88,0	100,0
CHEAL	3	84,9	83,5	86,0	86,2	86,0	86,5	85,3	85,0	85,5	85,3	85,0	85,5	86,2	85,0	87,3	84,9	83,5	86,5
SOLNI	3	84,3	80,0	86,8	86,4	83,0	88,8	74,0	45,0	89,3	86,1	81,8	89,3	88,3	85,0	91,8	87,4	81,0	91,8
STEME	3	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0
VERHE	3	99,8	99,3	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0
GASPA	2	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0
VIOAR	2	84,8	83,5	86,0	86,1	85,3	86,8	84,5	83,0	86,0	84,5	82,5	86,5	85,9	85,3	86,5	85,9	85,3	86,5
POLCO	2	97,8	95,5	100,0	100,0	100,0	100,0	98,0	96,0	100,0	97,7	95,3	100,0	99,7	99,3	100,0	98,0	96,0	100,0
SINAR	2	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0
CENCY	2	94,1	89,3	98,8	96,5	93,0	100,0	96,8	93,5	100,0	95,5	91,0	100,0	96,8	93,5	100,0	95,9	91,8	100,0
THLAR	2	92,5	85,0	100,0	92,5	85,0	100,0	92,2	84,3	100,0	92,8	85,5	100,0	92,7	85,3	100,0	93,4	86,8	100,0
CIRAR	1	85,0	-	-	86,0	-	-	85,0	-	-	86,0	-	-	86,5	-	-	86,0	-	-
MYOAR	1	100,0	-	-	100,0	-	-	100,0	-	-	100,0	-	-	100,0	-	-	100,0	-	-
GAETE	1	72,5	-	-	75,0	-	-	72,5	-	-	81,0	-	-	83,5	-	-	82,3	-	-

Table 6.2.2-36: Summary of mean efficacy per weed at first (14 DA-B) and second (28 DA-B) assessment timing - after application B (post-emergence application).

Weed EPPO code	Number of trials	14 DA-B									28 DA-B								
		Mean % efficacy of Terbutylazyna 500 SC						Tezosar 500 SC			Mean % efficacy of Terbutylazyna 500 SC						Tezosar 500 SC		
		1.0 L/ha			1,5 L/ha			1,0 L/ha			1.0 L/ha			1,5 L/ha			1,0 L/ha		
		MEAN	MIN	MAX	MEAN	MIN	MAX	MEAN	MIN	MAX	MEAN	MIN	MAX	MEAN	MIN	MAX	MEAN	MIN	MAX
CAPBP	4	81,9	70,0	89,3	84,5	73,8	92,5	82,0	70,0	88,5	95,7	87,3	100,0	96,8	90,5	100,0	95,4	88,0	100,0
GALAP	3	80,8	70,0	91,8	83,5	75,0	93,8	81,1	71,3	89,8	87,4	76,3	100,0	89,2	78,8	100,0	86,4	73,8	100,0
MATIN	3	70,4	62,5	80,0	73,3	65,0	80,0	70,0	62,5	80,0	78,9	76,3	83,0	82,4	78,8	86,0	80,1	77,5	83,5
AMARE	3	69,6	57,5	76,3	71,7	60,0	78,8	70,0	57,5	76,3	82,8	81,8	84,8	84,5	83,5	86,5	83,5	82,8	84,3
CHEAL	3	76,6	70,0	82,3	74,9	70,0	84,8	74,7	70,0	84,0	83,3	83,0	83,5	85,3	85,0	86,0	82,9	82,3	84,0
SOLNI	3	76,4	70,0	80,0	77,6	70,0	81,8	76,8	70,0	80,5	83,6	78,8	88,5	85,4	81,8	88,5	82,2	77,5	86,0
STEME	3	83,4	80,0	86,3	84,2	80,5	86,0	83,3	80,0	86,0	88,9	87,5	91,3	91,6	90,5	92,5	89,0	88,0	91,0
VERHE	3	86,8	83,8	91,3	88,6	84,8	95,5	86,3	84,3	89,8	89,5	88,0	91,3	93,1	90,5	95,3	89,6	88,0	92,3
GASPA	2	81,2	81,0	81,3	82,4	82,3	82,5	81,8	81,8	81,8	97,4	94,8	100,0	99,7	99,3	100,0	96,5	93,0	100,0
VIOAR	2	80,8	79,3	82,3	84,3	83,5	85,0	80,7	80,0	81,3	80,8	79,8	81,8	84,8	84,0	85,5	83,3	82,3	84,3
POLCO	2	71,4	60,0	82,8	75,9	67,5	84,3	71,2	60,0	82,3	89,6	89,3	89,8	91,5	90,0	93,0	86,9	85,3	88,5
SINAR	2	90,8	86,0	95,5	91,7	87,3	96,0	90,3	85,5	95,0	96,0	96,0	96,0	98,9	97,8	100,0	96,3	95,5	97,0
CENCY	2	79,7	78,8	80,5	81,5	80,0	83,0	78,8	77,5	80,0	85,3	85,0	85,5	87,4	87,3	87,5	86,2	85,5	86,8
THLAR	2	82,8	79,3	86,3	84,9	81,8	88,0	82,2	78,0	86,3	87,4	84,3	90,5	89,5	86,0	93,0	87,2	83,8	90,5
CIRAR	1	77,5	-	-	83,0	-	-	78,8	-	-	83,0	-	-	85,0	-	-	84,3	-	-
MYOAR	1	82,5	-	-	87,3	-	-	83,0	-	-	100,0	-	-	100,0	-	-	100,0	-	-
GAETE	1	65,0	-	-	70,0	-	-	65,0	-	-	78,8	-	-	82,8	-	-	80,0	-	-

As indicated by the above data, Terbutylazyna 500 SC applied at the doses of 1.0 l/ha and 1.5 l/ha in both pre-emergence and post-emergence applications showed high efficacy against the presented weeds. Moreover, the efficacy of Terbutylazyna 500 SC in all trials was comparable or slightly better than the efficacy of the reference product.

It may be noted that in post-emergence application, the efficacy of both the tested and the reference product was lower than efficacy in pre-emergence application. This is because the assessments of the pre-emergence and post-emergence applications were carried out at different intervals from the date of the last application, so we cannot compare the efficacy of the products between these applications. Therefore, in the section above, the efficacy of pre- and postemergence applications are presented and discussed separately.

Summarising, in all trials, in the pre- and postemergence application, the tested product Terbutylazyna 500 SC applied at the rates of 1.0 l/ha and 1.5 l/ha showed high efficacy against weeds in maize.

Therefore, it is considered that the submitted efficacy data for Terbutylazyna 500 SC are sufficient to justify the registration of this product in the presented dose range (1.0 l/ha and 1.5 l/ha) against weeds in maize.

Comments of ZRMs: Terbuthylazine is generally considered effective in controlling a broad spectrum of broadleaf and grassy weeds in maize cultivation. Terbuthylazine effectively manages a wide range of weed species, including many annual grasses and broadleaf weeds that commonly affect maize fields. It can be applied before weed emergence or shortly after, allowing for flexibility in managing weed growth stages. The herbicide provides residual control, meaning it continues to suppress weeds for period after application, reducing competition, during the critical growth stages of maize.

All detail's about efficacy methodology used during efficacy trials are presented above by Applicant. Submitted reports from field trials (8 in total) carried out in one EPPO zone (N-E) in Poland in one growing season (2022). Applicant studied different doses: 0.8 L/ha; 1.0 L/ha and 1.5 L/ha during 8 efficacy trials. Applicant studied pre-emergence use (BBCH 00) and post-emergence use (BBCH 12-16) at the same 8 efficacy trials. All trials were carried out on different varieties of maize. Those trials include a detailed data on soil and field conditions, agro-technological procedures, fore-crop as well as meteorological conditions and technical details of the sprying, etc.

Following varieties of maize were studied: DKC3595 (for grain and silage), Salamandra (for silage), Ulan (for grain and silage), Subito (for silage), Leonido (for grain and silage), DKC3088 (for grain), Amavit (for grain and bioethanol) and Danubio (for grain). Applicant properly presented results separately for pre-emergence and post-emergence use. Only trials with greater than 4-5 weeds/m^2 or over 2% ground cover should be taken for assessment. According to EPPO PP 1/226 at least 6 fully supportive results for major weeds and 2 trials for minor weeds should be required. According to Polish rules for major weeds – at least 4 trials are required and for minor weeds – at least 2 trials.

Submitted efficacy trials are correctly performed according to appropriate EPPO standards. Only one exception was noted (conducting studies during one growing season). Applicant presented explanations about this. In the opinion of ZRMs, trials from one growing season for known active substance such as terbuthylazine should be accepted.

Applicant classified the sensitivity of weeds by SANCO scale. However, weeds should be classified in line to sensitivity scale accepted by Polish harmonization agreements and in line with the farmers' habit. So, ZRMs used following weed scale: sensitivity weeds (S) >85% eff; moderately sensitivity (MS) 70-85%; moderately tolerant (MT) 60-70% and tolerant weeds (T) <60%.

Applicant studied following weeds species during trials for pre-emergence and post-emergence use: CAPBP (4 trials), GALAP (3), MATIN (3), AMARE (3), CHEAL (3), SOLNI (3), STEME (3), VERHE (3), GASPA (2), VIOAR (2), POLCO (2), SINAR (2), CENCY (2), THLAR (2), CIRAR (1), MYOAR (1) and GAETE (1).

Weeds studied only in one trials (CIRAR, MYOAR and GAETE) should be not taken to assessment due to not acceptable number of trials. Those major weeds in maize: AMARE (3 trials), CHEAL (3 trials), SOLNI (3 trials) and POLCO (2 trials) were characterized by not sufficient number of trials (at least 4 are required), so they should be excluded from GAP table and label project.

Following weeds can be acceptable in GAP table and label project: CAPBP, GALAP, MATIN, STEME, VERHE, GASPA, VIOAR, SINAR, CENCY and THLAR.

Pre-emergence use:

EPPO code	Number of trials	28-40 DA-A			42-55 DA-A		
		1,0 L/ha	1,5 L/ha	st. ref. product	1,0 L/ha	1,5 L/ha	st. ref. product
CAPBP	4	98,1	99,0	97,2	98,0	99,5	98,0
GALAP	3	89,4	91,6	90,1	88,8	92,3	89,8
MATIN	3	83,2	85,4	83,3	83,4	86,0	83,3
STEME	3	100,0	100,0	100,0	100,0	100,0	100,0
VERHE	3	99,8	100,0	100,0	100,0	100,0	100,0
GASPA	2	100,0	100,0	100,0	100,0	100,0	100,0
VIOAR	2	84,8	86,1	84,5	84,5	85,9	85,9
SINAR	2	100,0	100,0	100,0	100,0	100,0	100,0
CENCY	2	94,1	96,5	96,8	95,5	96,8	95,9
THLAR	2	92,5	92,5	92,2	92,8	92,7	93,4

On the basis of noted results it can be concluded that MATIN and VIOAR are moderately weeds and

CAPBP, GALAP, STEME, VERHE, GASPA, SINAR, CENCY and THLAR are sensitive weeds at dose 1,0 L/ha of Terbutylazyna 500 SC. All studied weeds were sensitive against dose 1,5 L/ha. Results were comparable to st. ref. product (Tezosar 500 SC used at dose 1,0 L/ha).

Post-emergence use:

EPPO code	Number of trials	14 DA-B			28 DA-B		
		1,0 L/ha	1,5 L/ha	st. ref. product	1,0 L/ha	1,5 L/ha	st. ref. product
CAPBP	4	81,9	84,5	82,0	95,7	96,8	95,4
GALAP	3	80,8	83,5	81,1	87,4	89,2	86,4
MATIN	3	70,4	73,3	70,0	78,9	82,4	80,1
STEME	3	83,4	84,2	83,3	88,9	91,6	89,0
VERHE	3	86,8	88,6	86,3	89,5	93,1	89,6
GASPA	2	81,2	82,4	81,8	97,4	99,7	96,5
VIOAR	2	80,8	84,3	80,7	80,8	84,8	83,3
SINAR	2	90,8	91,7	90,3	96,0	98,9	96,3
CENCY	2	79,7	81,5	78,8	85,3	87,4	86,2
THLAR	2	82,8	84,9	82,2	87,4	89,5	87,2

On the basis of noted results it can be concluded that CAPBP, GALAP, STEME, VERHE, GASPA, SINAR, CENCY and THLAR are sensitive weeds at dose 1,0 L/ha and 1,5 L/ha of Terbutylazyna 500 SC. MATIN and VIOAR are moderately sensitive against Terbutylazyna 500 SC used at dose 1,0 L/ha and 1,5 L/ha. Results were comparable to st. ref. product (Tezosar 500 SC used at dose 1,0 L/ha).

Summary: The most effective for most studied weed species for pre- and post-emergence use on maize was dose 1,0 L/ha and 1,5 L/ha. The rate should be adjusted according to the development stage of the weeds and the weed species present in the field. The lower rate should be applied to weeds that are less developed, in the higher of the recommended dose should be applied when weeds are more advanced in development (post-emergence use) and worse agro-weather conditions (for ex. drought for pre- and post-emergence use).

In Polish label following weeds species can be included:

- ✓ ***Pre-emergence use***:

Dose 1,0 L/ha: susceptible weeds: CAPBP, GALAP, STEME, VERHE, GASPA, SINAR, CENCY and THLAR; moderately susceptible: MATIN and VIOAR

Dose 1,5 L/ha: susceptible weeds: CAPBP, GALAP, STEME, VERHE, GASPA, SINAR, CENCY, THLAR, MATIN and VIOAR.

- ✓ ***Post-emergence use***:

Dose 1,0 L/ha: *susceptible weeds*: CAPBP, GALAP, STEME, VERHE, GASPA, SINAR, CENCY and THLAR, *moderately susceptible*: MATIN and VIOAR.

Dose 1,5 L/ha: *susceptible weeds*: CAPBP, GALAP, STEME, VERHE, GASPA, SINAR, CENCY and THLAR; *moderately susceptible weeds*: MATIN, VIOAR.

ZRMs not accepted proposed by Applicant water volume: 100-400 L/ha. During trials only 300 L/ha was studied. Reference product (Tezosar 500 SC) is registered for use at 150-300 L/ha. So, ZRMs recommended also volume 150-300 L/ha for Terbutylazyna 500 SC.

ZRMs accepted proposed by Applicant application window for pre-emergence use (BBCH 00) and post-emergence use (BBCH 12-16) as in line to submitted and assessed trials.

KCP 6.3 Information on the occurrence or possible occurrence of the development of resistance

Terbuthylazine is a selective herbicide formulated as a suspension concentrate (SC) for foliar spray applications, containing active substance: terbuthylazine which, according to the HRAC classification, is included in group 5 (Legacy of C1) "Inhibition of photosynthesis at PS II". Terbuthylazine is a pre-emergence and post-emergence herbicide for the control of annual broadleaf weeds and partially of grasses. Terbuthylazine is registered for use in Europe in Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Germany, Greece, Estonia, Spain, France, Croatia, Hungary, Ireland, Italy, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, and Slovenia.[1]

Terbuthylazine was initially reported in 1966. Studies in the USA found that its herbicidal efficiency was lower than atrazine, thus it was not used in American agriculture until 1986 (when it was approved for algae control). It became significant in parts of Europe and South Africa, especially for controlling Tagetes spp. weeds in maize, resistant to atrazine. Terbuthylazine is recommended for targeting dicotyledonous weeds in maize farming.

KCP 6.3.1 Evidence of resistance

Terbutylazyna 500 SC containing active substance: terbuthylazine which, according to the HRAC classification, is included in group 5 (Legacy of C1) "Inhibition of photosynthesis at PS II". A list of all current recorded cases of field resistance to code ~~C1~~ 5 herbicides world-wide is given in BAD (Core assessment).

KCP 6.3.2 Mechanism of resistance

Resistance mechanism can be divided into two categories: referred to as target-site resistance (TSR) mechanisms and nontarget-site resistance (NTSR) mechanisms[2]:

1. NTSR mechanisms include all mechanisms that reduce the concentration of active herbicide remaining available to interact with the target site protein, as well as mechanisms that allow the plant to cope with inhibition of the target site. NTSR mechanisms include reduced herbicide absorption and translocation, increased herbicide sequestration, and enhanced degradation or metabolism of the herbicide to non-toxic components.
2. TSR mechanisms alter the amino acid sequence and/or expression level of the aim enzyme, reducing the herbicide's ability to inhibit the enzyme or requiring a higher herbicide concentration to achieve adequate inhibition.

An altered target site may mean that an herbicide no longer binds to its normal site of action (e.g. in ALS and triazine resistance).
Enhanced metabolism means that a resistant plant can degrade an herbicide to non-toxic metabolites faster than a sensitive plant (e.g. various herbicide types of -fop (part of aryloxphenoxy-propionates chemicals) resistance in *Alopecurus myosuroides* and in *Lolium rigidum*).

[1] https://ec.europa.eu/food/plant/pesticides/eu-pesticides-database/start/screen/active-substances/details/788 (February 2024)
[2] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7383398/ (February 2024)

Enhanced sequestration or compartmentalisation means that the herbicide is inactivated either through binding (often to a sugar moiety) or is removed from metabolically active regions of the cell, often in a vacuole (postulated for certain types of resistance to fops and paraquat).
Several resistance mechanisms can co-exist within a species, within a population, and even within a single individual.

Terbuthylazine is a member of the chloro-*s*-triazine group characterized by ethylamino and *tert*-butylamino side chains.[3] These kind of herbicides inhibit Photosystem II, part of the photosynthesis pathway, and are used in a variety of crops for control of grass and broadleaf weeds. Because of extensive use of triazine group chemicals for several decades, some weeds have developed resistance to these herbicides, especially atrazine and metribuzin.[4]

KCP 6.3.3 Determination of Inherent Risk for Resistance of Targeted Pathogens

1. Risk inherent to the weeds

Most of the weed species generally produce only one generation per year and the development of resistance is usually a comparatively slow process. It is intractable to determinate the inherently probability of a particular species of weed developing resistance to a particular plant protection product.

Whilst there are now a relatively high number of instances of resistance to terbuthylazine around the world, 154 have been recorded since 1977 in Europe. Recently case of resistance have occurred in 2020 in Switzerland (italian ryegrass – *Lolium perenne spp. multiflorum*). It was an isolated incident. Most terbuthylazine persistent weeds in central EPPO zone are from three species: black nightshade (*Solanum nigrum*), common groundsel (*Senecio vilgaris*) and horseweed (*Conyza canadensis*). This weeds appear commonly in Europe, but last known resistant cases from this three species date back to over twenty years earlier.

2. Risk inherent to the active substance

Taking into account widespread use of terbuthylazine and the growing numbers of instances of resistance all over the world, the risk for the unlimited use of terbuthylazine is considered to be temperate. On the other hand, moderate amount of cases occurred in Europe after widespread use over many years, terbuthylazine supposed to have a moderate inherent potential of resistance risk especially when used as a general herbicide.

3. Risk inherent to the agronomic practices

Numerous use of plant protection products with a similar mode of action could greatly increase a risk of developing herbicide resistance. Agricultural or non-herbicide weed control strategies integrated into an unified ways is also fundamental to the improvement of a balanced crop management system.
The crop rotation is significant in that. It will establish the number and type of herbicide that can be applied. It is also the main aspect in the choice of non-chemical weed control options. Furthermore, the cultivation season for the diverse crops will have a strong influence on the weed plants present.

[3] *Bruce J. Simoneaux, Thomas J. Gould, in The Triazine Herbicides, 2008*
[4] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7383398/ (February 2024)

KCP 6.3.4 Risk of resistance development

There is probability for resistance to develop for Terbuthylazine if the product is used alone in monoculture over a number of years. Terbuthylazine should not be used for more than 2 years in a row without a break in situations of continuous crop production as maize or sorghum. Terbuthylazine should be used mixed or in arrangement with herbicides with other mode of actions, especially in continuous maize or sorghum, as part of a weed resistance management plan. Crop rotation, in which using herbicides with different mode of action, can be practised as an alternative to reduce risk of development of resistance.

KCP 6.3.5 Resistance management strategy

The risk management strategy is based on current measures recommended by the HRAC[5]. Although strategies are presented individually and in the table below, the integrated use of combinations of different strategies is feasible, beneficial, and often implemented.

Table 2 Cropping System Evaluation - Risk of Resistance[6]

MANAGEMENT OPTION	LOW RISK	MODERATE RISK	HIGH RISK
Herbicide mix or rotation in cropping system	> 2 modes of action	2 modes of action	1 mode of action
Weed control in cropping system	Cultural*, mechanical and chemical	Cultural and chemical	Chemical only
Use of same mode of action per season	Once	More than once	Many times
Cropping system	Full rotation	Limited rotation	No rotation
Resistance status to mode of action	Unknown	Limited	Common
Weed infestation	Low	Moderate	High
Control in last three years	Good	Declining	Poor

**Cultural control can be by using cultivation, stubble burning, competitive crops, stale seedbeds, etc*.*

The three basic group of weed management are:

1. Crop management (Rotation of crops):

Crop rotation allows rotation of herbicides having a different site of action and the growth season of the weed can be avoided or disrupted. Crops with differing sowing times and different seedbed preparation can lead to a variety of cultural techniques being employed to manage a particular weed problem. Crops also differ in their inherent competitiveness against weeds. A strongly competitive crop will have a better chance to restrict weed seed production.

2. Chemical management:

It should be avoided to continue the use of the same herbicide or herbicides having the same site of action in a single growing season. Where possible, mixtures or sequential treatments of herbicides should be used having a different mode of action, but which are active on the same target weeds. Also non-selective herbicides should be used to control early flushes of weeds (Prior to crop emergence) and/or weed escapes.

In cases where metabolic resistance is already present, the site of action of the herbicide is not always the key criterion. In these cases, the mechanism of degradation can be very important and cross site of action groups and chemicals. No classification of herbicides relating to degradation is available and

[5] http://www.hracglobal.com/ ; http://www.weedscience.com (February 2024)
[6] https://hracglobal.com/prevention-management/best-management-practices (February 2024)

such examples need to be handled on a case by case basis. Mixtures can be a useful tool in managing or preventing the establishment of resistant weeds. For chemical mixtures to be effective, they should include active ingredients which both give high levels of control of the target weed, and they should include active ingredients from different site of action groups.
For using any chemicals, it is obligatory to follow label use instructions including recommended dose rates and application timing for the weeds cautiously.

3. Agricultural techniques:

Cultivation or ploughing prior to sowing can control emerged plants and bury non-germinated seeds. A delayed planting can also help, so that initial weed flushes can be controlled with a non-selective herbicide. Certified crop seed free of weeds can be used. Post-harvest grazing where practical. Stubble burning, where allowed, can limit weed seed fertility. And in extreme cases of confirmed resistance, fields can be cut for hay or silage to prevent weed seed set.

In conclusion, to minimalize the risk of appearance and expansion of weed resistance to herbicides, it is necessary to follow the Good Agricultural Practice principles:

- follow strictly the instructions contained in the label of the plant protection product – use the product in the recommended dose, at the recommended date ensuring optimal weed control,
- adapt the selection of herbicide and the decision to perform the treatment to the prevailing conditions (potential) weed infestation, taking into account the dominant species and harm thresholds,
- use the rotation of herbicides (active substances) or mode of actions,
- use a mixture of herbicides (active substances) with different mode of actions,
- use a herbicide with a given mode of action only once during the growing season of the crop
- use various weed control methods, including crop rotation
- use certified seed material
- clean agricultural machinery to prevent the transfer of weed propagating material for other positions.

Comments of ZRMs: Maize (*Zea mays* L.) production continues to grow globally, including in Central Europe (Andr et al., 2014), and this trend is expected to persist (Tatsumi et al., 2011). Maize is also the main crop for biogas production (Amon et al., 2007). Effective weed control is crucial for maize growth, as it has limited competitive ability (Ghanizadeh et al., 2014). Due to its sowing period in Europe, a diverse weed flora of grasses and broadleaf species is common (Baghestani et al., 2007; Kolářová et al., 2014; Pannacci & Tei, 2014). Traditionally, pre-emergence terbuthylazine applications have been used to control these weeds due to its broad spectrum, long-lasting effect, maize tolerance, and efficacy (Schulte et al., 2012). However, short rotations or maize monoculture with repeated herbicide use have increased difficult to control weeds, prompting farmers to use more diverse strategies (Meissle et al., 2010). In 2004, terbuthylazine continuous to be a major component of herbicide programs in Europe, especially in maize. At a country level, the Netherlands treats almost 100% of maize, while on the low end, Austria treats 35% of maize hectares with terbuthylazine. Approximately 60% of the combined area in maize production in Europe received terbuthylazine, including Germany, Italy and Belgium. Terbuthylazine is used in more than 45 countries and remains a key weed control tool in crops such as maize, sorghum, pea, bean, lupine, grape, pome fruit, citrus and vine (Bruce et al. 208). Like many herbicides, there is a concern about weeds developing resistance to terbuthylazine over time due to repeated and extensive use.

Terbuthylazine is a triazine herbicide that inhibits photosynthesis in target plants by binding to the photosystem II complex. Resistance to terbuthylazine and related triazine herbicides has been documented in some weed species. The development of resistance occurs primarily through genetic mutations in the weed population that alter the target site of the herbicide, reducing its effectiveness. Photosystem II inhibitors (C1/5) group comprises of very large number of herbicidal active ingredients and terbuthylazine is just one active substance out of 25. In spite of significant resistance of weeds to

herbicides representing photosystem II inhibitors group only 5 weed species and 6 cases were found to develop resistance directly to terbuthylazine. There is no report documenting weeds species resistant to terbuthylazine from Poland. Triazine resistance has been reported in several weed species worldwide, affecting crops where these herbicides are frequently used. Resistance can result in the need for higher doses or alternative weed management strategies.

Factors contributing to resistance: continuous and heavy reliance on terbuthylazine can select for resistant individuals within a weed population. Growing the same crops year after year can help resistant weeds to thrive and dominate.

Management strategies: Using herbicides with different modes of action can help prevent the development of resistance. Combining chemical, cultural and mechanical control methods. Regularly monitoring fields for signs of resistance and mapping resistant weed populations. Overall, while terbuthylazine is effective, prudent management and strategic use are critical to minimizing the risk of resistance development in weed populations.

The Applicant has provided a resistance risk assessment according to the standard: EPPO PP1 PP 1/213 (4) *resistance risk analysis*. Weeds are one of the most important reducing factors for crop yield reduction.

Terbuthylazine is a group code HRAC Group 5 (Legacy C1 herbicide (triazine). Any weed population may contain individual weeds naturally resistant to terbuthylazine and other group code 5 herbicides. Resistance of *Amaranthus* hybridus to the chemical family of triazine has been observed in South Africa and Europe (ex. Czech Republic). If a triazine treatment has been ineffective in the control of the above-mentioned weeds, do not retreat with a herbicide from the same chemical group. Resistant individuals can eventually dominate the weed population if these herbicides are used repeatedly. Resistant weeds may not be controlled by terbuthylazine or any other group code 5 herbicide. In line to weed.science org, six cases of resistance against terbuthylazine were noted. Four cases were noted in Czech Republic (*Polygonum lapathifolium*, *Amaranthus retroflexus*, *Chenopodium album* and *Senecio vulgaris*), one case in Italy (*Amaranthus retroflexus*) and one in New Zealand (*Solanum nigrum*). The probability of development of resistance or cross-resistance of weeds to terbuthylazine in EU and PL can be considered as a moderately high. The evaluation of the agronomic risk concludes that terbuthylazine bears a moderately to high risk of resistance in the EU.

The abidance of the requirements within the good agricultural practices is necessary. The resistance management is coordinated by HRAC recommendations. Applying the anti-resistance use recommendations, development of resistance can be considerably decreased or avoided. The restriction should be put on the label. ZRMs accepted the resistance strategy form label of Terbutylazyna 500 SC proposed by Applicant:

Resistance Management Strategy:

To reduce the risk of herbicide resistance in weeds, Best Agricultural Practices recommend:

- *strictly following the product label for the correct dosage and timing for optimal weed control.*
- *adjusting herbicide selection and application timing based on dominant weed species and infestation thresholds.*
- *rotating herbicides with different modes of action.*
- *using herbicide mixtures with diverse action mechanisms.*
- *applying herbicides with multiple action pathways.*
- *limiting a herbicide's use to once per growing season.*
- *adapting tillage to field and weed conditions.*
- *integrating crop rotation and certified seeds, cleaning equipment, reporting control failures, and consulting authorized advisors for guidance.*

KCP 6.4 Adverse effects on treated crops

Terbutylazyna 500 SC is a selective herbicide formulated as a suspension concentrate (SC) for foliar spray applications that contains active substance terbuthylazine at dose 500 g/l. This active substance is commonly used pre-emergence and post-emergence to control weeds of maize or cereals in Poland and in other European countries.

The possible adverse effects of the tested product Terbutylazyna 500 SC on maize when applied at the range doses of 0,8-1,5 L product/ha (400-750 ~~l~~g a.s./ha) were evaluated in ~~13~~ 8 efficacy and at the ranges of doses 1,5 L/ha (750 g a.s/ha) and 3,0 L/ha (1500 g a.s./ha) in 5 selectivity trials.

This Section describes the biological studies and results achieved in 8 efficacy and 5 selectivity trials conducted in the 2022 seasons against of annual dicotyledonous weeds in several variety of maize: DKC3595, Salamandra, Ułan, Subito, Leonido, DKC3088, Amavit, Danubio and Tonacja. All trials were carried out in North East EPPO Zone (Poland) in open field conditions.

Table 6.4-1 Overview of efficacy and specific selectivity trials presented in this section

Crop(s)	Year	Country	Type of trial**	No. of trials (number of valid trials) North-East climatic zone	GEP, non-GEP, official	Comments (any other relevant information)
Efficacy trials						
Maize (Zea mays)	2022	Poland	E + S	8 (8)	GEP	-
TOTAL				**8 (8)**		
Selectivity trials						
Maize (Zea mays)	2022	Poland	S + Y + Q	5 (5)	GEP	-
TOTAL				**5 (5)**		

Trials were performed the assessments of general phytotoxicity, volume and quality parameters of the yield for the Terbutylazyna 500 SC, according to EPPO guidline PP 1/135 (4) Phytotoxicity assessment.

Terbutylazyna 500 SC, applied at these range rate in presented trials, caused no phytotoxic damage or other adverse effects on the crop on any of the 13 trials so it can be considered as safe.

Results of these observations are presented in the chapter below.

A detailed summary of methodology, localisation and application method used in selectivity trials can be found in appropriate chapter of BAD (Core assessment).

KCP 6.4.1 Phytotoxicity to target plants (including different cultivars)

Phytotoxicity assessment

Data package of 13 GEP compliant efficacy (8) and selectivity trials (5) were carried out in 2022. All submitted trials were performed in Poland. The aim of the trials was to evaluate the potential adverse effects of Terbutylazyna 500 SC on maize, when applied at dose 0,8-1,5 L/ha in 8 eff. trials and 1,5 and 3,0 L/ha in 5 sel. trials at pre-emergence (preventive) application or post-emergence (BBCH ~~11-14~~ 12-16).

Assessments for phytotoxic symptoms have been carried out on 8 efficacy and 5 selectivity trials. All of these trials were conducted in 2022 in Poland.

Selectivity was evaluated in plots treated with Terbutylazyna 500 SC at the range rate of 0,8-1,5 L product/ha (400-750 ~~k~~g a.s./ha) in eff. trials and doses 1,5 L/ha (750 g a.s./ha) and 3,0 L/ha (1500 g a.s./ha) in 5 sel. trials against weeds where tested product was applied at pre- and post-emergence.
Trials were carried out on several different varieties of maize:
- efficacy trials: DKC3595, Salamandra, Ułan, Subito, Leonido, DKC3088, Amavit, Danubio
- selectivity trials: DKC3595, Amavit, Tonacja, Subito, Leonido

All trials carried out to demonstrate the crop safety of Terbutylazyna 500 SC in maize are summarized in Table 6.4.1-1 and Table 6.4.1-2.

Table 6.4.1-1: Summary of the crop safety of Terbutylazyna 500 SC applied pre- and post-emergence across all efficacy trials carried out in maize:

Year trials conducted	Country	Crop	Cultivar	Soil type	Phytotoxic symptoms or effects	Product	Appl'n rate (L/ha), (kg a.s./ha)	Mean % symptoms / reductions	
								Maximum (timing)	At final assessm't (timing)
044GPSE202201	Poland	Maize	DKC3595	loamy sand	none	Terbutylazyna 500 SC	0.8 (400), 1,0 (500), 1,5 (750)	0	0
044GPSE202202			Salamandra	sandy loam	none		0.8 (400), 1,0 (500), 1,5 (750)	0	0
044GPSE202203			Ułan	loamy sand	none		0.8 (400), 1,0 (500), 1,5 (750)	0	0
044GPSE202204			Subito	sandy loam	none		0.8 (400), 1,0 (500), 1,5 (750)	0	0
044GPSE202205			Leonido	clayey sand	none		0.8 (400), 1,0 (500), 1,5 (750)	0	0
044GPSE202206			DKC3088	loamy sand	none		0.8 (400), 1,0 (500), 1,5 (750)	0	0
044GPSE202207			Amavit	clayey sand	none		0.8 (400), 1,0 (500), 1,5 (750)	0	0
044GPSE202208			Danubio	sandy clay loam	none		0.8 (400), 1,0 (500), 1,5 (750)	0	0

Table 6.4.1-2: Summary of the crop safety of Terbutylazyna 500 SC applied pre- and post-emergence across all selectivity trials carried out in maize:

Year trials conducted	Country	Crop	Cultivar	Soil type	Phytotoxic symptoms or effects	Product	Appl'n rate (L/ha), (kg a.s./ha)	Mean % symptoms / reductions	
								Maximum (timing)	At final assessm't (timing)
045GPSS202201	Poland	Maize	DKC3595	loamy sand	none	Terbutylazyna 500 SC	~~0.8 (400), 1,0 (500),~~ 1,5 (750) and 3,0 (1500)	0	0

045GPSS202202			Amavit	sandy loam	none		~~0.8 (400), 1,0 (500),~~ 1,5 (750) and 3,0 (1500)	0	0
045GPSS202203			Tonacja	loamy sand	none		~~0.8 (400), 1,0 (500),~~ 1,5 (750) and 3,0 (1500)	0	0
045GPSS202204			Subito	sandy loam	none		~~0.8 (400), 1,0 (500),~~ 1,5 (750) and 3,0 (1500)	0	0
045GPSS202205			Leonido	clayey sand	none		~~0.8 (400), 1,0 (500),~~ 1,5 (750) and 3,0 (1500)	0	0

An overview of crop safety across all efficacy trials carried out in winter wheat is given in Table 6.4.1-3 and Table 6.4.1-4.

Table 6.4.1-3: Overall summary of the crop safety of Terbutylazyna 500 SC applied pre- and post-emergence across all efficacy and selectivity trials carried out in maize:

Levels of phytotoxicity	Number of trials					
	Terbutylazyna 500 SC				TEZOSAR 500 S.C.	
	0,8 L/ha	1,0 L/ha	1,5 L/ha	3,0 L/ha	1,0 L/ha	2,0 L/ha
	(400 ~~k~~g a.s./ha)	(500 ~~k~~g a.s./ha)	(750 ~~k~~g a.s./ha)	(1500 g a.s./ha)	(500 ~~k~~g a.s./ha)	(1000 g a.s./ha)
0%	~~13~~ 8	~~13~~ 8	13	5	13	5
0.1-5%						
>5-10%						
>10-15%						
>15%						

Table 6.4.1-4: Overall summary of maize vigor in all efficacy and selectivity trials conducted in maize where Terbuthylazine 500 SC was applied pre- and post-emergence:

Levels of vigor	Number of trials					
	Terbutylazyna 500 SC				TEZOSAR 500 S.C.	
	0,8 L/ha	1,0 L/ha	1,5 L/ha	3,0 L/ha	1,0 L/ha	2,0 L/ha
	(400 ~~k~~g a.s./ha)	(500 ~~k~~g a.s./ha)	(750 ~~k~~g a.s./ha)	(1500 g a.s./ha)	(500 ~~k~~g a.s./ha)	(1000 g a.s./ha)
10	~~13~~ 8	~~13~~ 8	13	5	13	5
9						
8						
7						
6						
5						
4						
3						
2						
1						
0						

Terbutylazyna 500 SC applied at the range rate of 0,8-1,5 L product/ha (400-750 ~~k~~g a.s./ha) caused no phytotoxic symptoms on any of these 8 efficacy and at the range rate of 1,5-3,0 L product/ha (750-1500 g a.s./ha) in 5 selectivity trials carried out in maize.

Comments of ZRMs: Terbutylazine, when applied to maize, can exhibit phytotoxicity effects under certain conditions. Phytotoxicity refers to the toxic effect a chemical substance can have on plants, which may manifest as growth inhibition, chlorosis, necrosis or even plant death. Over-application or incorrect dosage can increase the likehood of phytotoxicity. Soil type, pH, and organic matter content can influence the herbicide;s availability and hence its phytotoxic potential. Weather patterns, specifically temperature and rainfall, can affect how maize plants absorb and metabolize the herbicide. Understanding, the factors that influence terbuthylaine's phytotoxic effects can help in managing its application and minimizing any adverse impacts on maize crops.

In the evaluation process the fact that the active ingredient – terbuthylazine is used in many plant protection products and has been commonly used in crop protection for many years were taken into consideration. The Applicant submitted in total 5 selectivity trials conducted on herbicide (Terbutylazyna 500 SC) containing this active substance. The selectivity evaluation of the herbicide was performed according to appropriate EPPO guidelines. The evaluation of herbicide selectivity was carried out 4-5 per season. Results were described in percent of destruction of plant for herbicide treatment compared to plant for unwanted, where 0% means no phytotoxicity and 100% - complete destruction. Phytotoxicity assessment was carried out with the use of different cultivars of maize. Dosages N (1,5 L/ha) and 2N (3,0 L/ha) for Terbutylazyna 500 SC and dose N (1,0 L/ha) and 2N (2,0 L/ha) for st. ref. product (Tezosar 500 SC) were studied in 5 selectivity trials carried out in PL (N-E EPPO zone) in 2022. All treatments were sprayed broadcast foliar at spray volume 300 L/ha using a backpack boom sprayer (3.0 m boom length with 6flat fan nozzles) pre-emergence (A) of the crop and post-emergence (B) of the crop. No problems were encountered during mixing or application of the treatments. Experimental details and assessment methods were in accordance to EPPO standards. Results were comparable to standard reference products.

Overall summary of maize vigor in all selectivity trials conducted in maize where Terbuthylazine 500 SC was applied pre- and post-emergence:

Levels of phytotoxicity	Terbutylazyna 500 SC		TEZOSAR 500 S.C.	
	1,5 L/ha (N dose)	3,0 L/ha (2N dose)	1,0 L/ha (N dose)	2,0 L/ha (2N dose)
0%	5	5	5	5
0.1-5%	0	0	0	0
>5-10%	0	0	0	0
>10-15%	0	0	0	0
>15%	0	0	0	0

No phytotoxicity symptoms were observed for any tested dosage for all tested maize varieties. The crop developed normally and did not involve a loss in yield at harvest.

Also, phytotoxicity effects of Terbutylazyna 500 SC were assessed during 8 efficacy trials. No phytotoxicity effect was observed in any trial for recommended doses: 1,0 L/ha and 1,5 L/ha. Results were compared to st. ref. product.

In briefly summary, it can be stated that Terbutylazyna 500 SC is safe for maize crops at recommended doses (1,0 L/ha and 1,5 L/ha) when is used in line to label recommendations.

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

Yield results displayed in this section were obtained in the crop selectivity trials carried out in Poland in 2022.

The objective of these assessments was to identify if application of Terbutylazyna 500 SC at ~~dodes 0,8- 1,5 L/ha~~ 1,5 L/ha (N recommended) and 3,0 L/ha (2N) may negatively impact the yield of on maize.

During the trials, Terbutylazyna 500 SC was applied on several varieties of maize (DKC3595, Amavit, Tonacja, Subito, Leonido) at the range rate of ~~0,8 l/ha, 1,0 l/ha and~~ 1,5 l/ha (N dose) and 3,0 L/ha (2N dose). In all trials, the tested product Terbutylazyna 500 SC was compared to reference product TEZOSAR 500 S which was applied at dose 1,0 l/ha (N dose) and 2,0 L/ha (2N dose).

The assessment is based on the results of 5 GEP compliant field trials on maize carried out in Poland. In all conducted trials, the tested product Terbutylazyna 500 SC was applied pre-emergence as well as post-emergence. Therefore, the assessment on yield was done two times: for the pre-emergence application and for the post-emergence application.

The methodology used in the 5 selectivity trials have been covered in section KCP 6.4 and at the Table 6.4-2.

Yield was assessed in all the 5 selectivity trials and reported as fresh weight (kg, T or Q/ha). ~~For comparison purpose, the results were transformed to T/ha when necessary. The relative yield percentage (% Relative to UTC) vs. untreated has been calculated for treated plots.~~

Only those treatments deemed relevant to evaluate the potential adverse effects on yield of preventive application of Terbutylazyna 500 SC are included in this point.

Further results can be seen in Appendix 3 and 4.

A summary of mean crop yield data at 5 trials in maize is given in Table 6.4.2-1 - Table 6.4.2-2.

Table 6.4.2-1: Overall summary of mean crop yield a cross supporting selectivity trials carried out in maize at pre-emergence application

Trial number	Days after last appl'n		Mean yield (%)				
			Treatment	Terbutylazyna 500 S.C.			Tezosar 500 S.C.
			Active ingredient				terbuthylazine
			Dose FP	0,8 L/ha	1,0 L/ha	1,5 L/ha	1,0 L/ha
			Dose kg a.s./ha	(400 kg a.s./ha)	(500 kg a.s./ha)	(750 kg a.s./ha)	(500 kg a.s./ha)
045GPSS202201	154	DA-A	-	96%	99%	98%	101%
045GPSS202202	150	DA-A	-	102%	100%	98%	100%
045GPSS202203	172	DA-A	-	99%	100%	99%	101%
045GPSS202204	126	DA-A	-	102%	101%	102%	100%
045GPSS202205	161	DA-A	-	98%	99%	98%	99%
Mean yield (expressed as % relative to the untreated control)	126-172	DA-A	No. of trials	5	5	5	5
			Mean	99%	100%	99%	100%
			Min-Max	96-102 %	99-101 %	98-102 %	99-101 %
			S.D.	0,03	0,01	0,01	0,01

Trial number	Days after last appl'n		Mean yield (kg)/plot				
			Untretaed control	Terbutylazyna 500 SC		St. ref. product (Tezosar 500 SC)	
				1,5 L/ha (N dose)	3,0 L/ha (2N dose)	1,0 L/ha (N dose)	2,0 L/ha (2N dose)
045GPSS202201	154	DA-A	18,40a	17,65a	18,30a	18,50a	17,98a
045GPSS202202	150	DA-A	13,63a	13,88a	13,60a	13,93a	13,78a
045GPSS202203	172	DA-A	20,05a	19,93a	20,15a	20,50a	20,58a
045GPSS202204	126	DA-A	16,05a	16,35a	16,23a	16,13a	16,43a
045GPSS202205	161	DA-A	15,58a	15,33a	15,40a	15,75a	15,40a
Average yield	**150-172**	**DA-A**	**16,74**	**16,63**	**16,74**	**16,96**	**16,83**

Table 6.4.2-2: Overall summary of mean crop yield a cross supporting selectivity trials carried out in maize at post-emergence application

Trial number	Days after last appl'n		Mean yield (%)				
			Treatment	Terbutylazyna 500 S.C.			Tezosar 500 S.C.
			Active ingredient				terbuthylazine
			Dose FP	0,8 L/ha	1,0 L/ha	1,5 L/ha	1,0 L/ha
			Dose kg a.s./ha	(400 kg a.s./ha)	(500 kg a.s./ha)	(750 kg a.s./ha)	(500 kg a.s./ha)
045GPSS202201	137	DA-B	-	101%	98%	99%	96%
045GPSS202202	129	DA-B	-	102%	101%	99%	97%
045GPSS202203	157	DA-B	-	102%	103%	99%	101%
045GPSS202204	111	DA-B	-	100%	102%	100%	101%
045GPSS202205	136	DA-B	-	101%	99%	100%	100%
Mean yield (expressed as % relative to the untreated control)	111-157	DA-B	No. of trials	5	5	5	5
			Mean	100%	101%	99%	99%
			Min-Max	100-102 %	98-103 %	99-100%	96-101%
			S.D.	0,01	0,02	0,01	0,02

Trial number	Days after last appl'n		Mean yield (kg)/plot				
			Untretaed control	Terbutylazyna 500 SC		St. ref. product (Tezosar 500 SC)	
				1,5 L/ha (N dose)	3,0 L/ha (2N dose)	1,0 L/ha (N dose)	2,0 L/ha (2N dose)
045GPSS202201	137	DA-B	18,40a	18,08a	18,55a	18,18a	17,75a
045GPSS202202	129	DA-B	13,63a	13,35a	13,58a	13,50a	13,20a
045GPSS202203	157	DA-B	20,05a	19,93a	20,25a	19,85a	20,18a
045GPSS202204	111	DA-B	16,05a	16,30a	16,10a	16,03a	16,20a
045GPSS202205	136	DA-B	15,58a	15,30a	15,48a	15,60a	15,63a
Average yield	**111-157**	**DA-B**	**16,74**	**16,59**	**16,79**	**16,63**	**16,59**

Overall Conclusion on the effects on yield

Based on the 5 selectivity trials results, it is reasonable to conclude that test product, applied at the range rate of 0,8-1,5 L product/ha (400-750 kg a.s./ha) on maize at pre- and postemergence application has no adverse effects on the yield.

In some cases the applications of Terbutylazyna 500 SC had slight negative effect on yield was also observed but it was comparable to effect of reference product.

Based on the absence of effects across trials, it is reasonable to conclude that a pre- and post-emergence application of Terbutylazyna 500 SC at proposed label doses of 1,0-1,5L product/ha (500-750 kg a.s./ha), and applied according to label recommendations, has no adverse impact on crop yield in cultivars of maize and the use of this herbicide can be considered as acceptable.

Comments of ZRMs: Terbutylazine is effective in controlling a wide range of weed species, which can improve maize yield by reducing competition for nutrients, water and sunlight. When used correctly and under optimal conditions, terbuthylazine can help increase maize yield by effectively controlling weeds. However, careful management is required to avoid negative outcomes that may arise from its phytotoxic potential. It is crucial for users to adhere to recommended application guidelines and consider environmental and sol conditions to maximize the positive impacts on maize yield.

Applicant submitted in total 5 selectivity trials carried out on maize in Poland in 2022. To evaluate the selectivity of Terbutylazyna 500 SC when applied pre-emergence and post-emergence in maize. Submitted trials are sufficient in the opinion of ZRMs. Those evaluation was carried out in line to EPPO guideline. In all trials no detrimental effect on the yield was recorded at the proposed dose rate and even at the double dose rate. Application of Terbutylazyna 500 SC provided a yield similar to the untreated plots and to those treated with the reference product. No statistical differences were observed between untreated and treated plots and also between the tested product and the standard product.

KCP 6.4.3 Effects on the quality of plants or plant products

The possible effects of pre- and postemergence application of Terbutylazyna 500 SC on the quality of maize was assessed on 5 GEP-compliant selectivity trials already presented in KCP 6. adverse effect

All trials were performed across the Poland but in different regions.

According to general EPPO standards PP1/135(4) and specific EPPO standards, the following qualitative parameters were assessed:

- Hectoliter weight (HLW)
- Thousand grain weight (TGW)
- Moisture content (MOICON)

The methodology used in the 5 selectivity trials have been covered in section KCP 6.4 in Table 6.4-2.

KCP 6.4.3.1 Hectoliter weight (HLW)

The possible effects of Terbutylazyna 500 SC on HLW were evaluated in 5 selectivity trials carried out in 2022 in different regions of Poland.

The tested product Terbutylazyna 500 SC was applied pre- and post-emergence at the range doses of ~~0,8-1,5 L~~ 1,5-3,0 L product/ha (~~400-~~750-1500 ~~k~~g a.s./ha) on 5 different varieties of maize.

The results of HLW are summarized in Table 6.4.3-1 - Table 6.4.3-2**.**

Table 6.4.3-1: Hectoliter weight (HLW) of maize expressed as a mean % of control at pre-emergence application

Trial number	Days after last appl'n		Mean HLW (%)				
			Treatment	Terbutylazyna 500 S.C.			Tezosar 500 S.C.
			Active ingredient				terbuthylazine
			Dose FP	0,8 L/ha	1,0 L/ha	1,5 L/ha	1,0 L/ha
			Dose kg a.s./ha	(400 kg a.s./ha)	(500 kg a.s./ha)	(750 kg a.s./ha)	(500 kg a.s./ha)
045GPSS202201	154	DA-A	-	100%	99%	99%	99%
045GPSS202202	150	DA-A	-	100%	100%	99%	101%
045GPSS202203	172	DA-A	-	101%	101%	100%	102%
045GPSS202204	126	DA-A	-	101%	101%	99%	100%
045GPSS202205	161	DA-A	-	100%	99%	100%	100%
Mean yield (expressed as % relative to the untreated control)	126-172	DA-A	No. of trials	5	5	5	5
			Mean	100%	100%	99%	100%
			Min-Max	100-101 %	99-101 %	99-100 %	99-102 %
			S.D.	0,00	0,01	0,01	0,01

Trial number	Days after last appl'n		Mean HLW (%)				
			Untretaed control	Terbutylazyna 500 SC		St. ref. product (Tezosar 500 SC)	
				1,5 L/ha (N dose)	3,0 L/ha (2N dose)	1,0 L/ha (N dose)	2,0 L/ha (2N dose)
045GPSS202201	154	DA-A	79,00a	79,23a	78,10a	78,38a	79,78a
045GPSS202202	150	DA-A	81,60a	81,38a	81,25a	79,90a	81,73a
045GPSS202203	172	DA-A	80,15a	80,78a	81,00a	81,10a	79,73a
045GPSS202204	126	DA-A	81,43a	82,10a	82,25a	81,23a	83,50a
045GPSS202205	161	DA-A	79,70a	79,90a	78,55a	79,63a	78,95a
Average HLW	**126-172**	**DA-A**	**80,38**	**80,68**	**80,23**	**80,05**	**80,74**

Table 6.4.3-1: Hectoliter weight (HLW) of maize expressed as a mean % of control at post-emergence application

Trial number	Days after last appl'n	Mean HLW (%)		
		Treatment	Terbutylazyna 500 S.C.	Tezosar 500 S.C.

			Active ingredient				terbuthylazine
			Dose FP	0,8 L/ha	1,0 L/ha	1,5 L/ha	1,0 L/ha
			Dose kg a.s./ha	(400 kg a.s./ha)	(500 kg a.s./ha)	(750 kg a.s./ha)	(500 kg a.s./ha)
045GPSS202201	137	DA-B	-	99%	101%	99%	100%
045GPSS202202	129	DA-B	-	98%	100%	99%	98%
045GPSS202203	157	DA-B	-	101%	99%	104%	99%
045GPSS202204	111	DA-B	-	100%	103%	100%	101%
045GPSS202205	136	DA-B	-	100%	99%	100%	101%
Mean yield (expressed as % relative to the untreated control)	111-157	DA-B	No. of trials	5	5	5	5
			Mean	100%	100%	100%	100%
			Min-Max	98-101 %	99-103 %	99-104 %	98-101 %
			S.D.	0,01	0,01	0,02	0,01

Trial number	Days after last appl'n		Untretaed control	Mean HLW (%)			
				Terbutylazyna 500 SC		St. ref. product (Tezosar 500 SC)	
				1,5 L/ha (N dose)	3,0 L/ha (2N dose)	1,0 L/ha (N dose)	2,0 L/ha (2N dose)
045GPSS202201	137	DA-B	79,00a	78,33a	78,40a	78,53a	78,90a
045GPSS202202	129	DA-B	81,60a	80,58a	82,73a	80,63a	79,75a
045GPSS202203	157	DA-B	80,15a	79,88a	81,38a	83,23a	79,55a
045GPSS202204	111	DA-B	81,43a	80,68a	81,23a	81,08a	81,93a
045GPSS202205	136	DA-B	79,70a	79,95a	79,78a	79,78a	80,20a
Average HLW	**111-157**	**DA-B**	**80,38**	**79,88**	**80,70**	**80,65**	**80,07**

Overall Conclusion on the effects on HLW

Overall, regardless of the dose, no effect of Terbutylazyna 500 SC and reference product was observed on HLW in both pre- and post-emergence applications.

All treatments obtained statistically similar results to the untreated control. Only in a few trials a slight negative effect of the tested product on HLW was observed, but this was not statistically significant and comparable to the effect of the reference product.

Due to the fact that no effect was observed in all 5 selectivity trials, it can be concluded that the evaluated treatments are unlikely to cause any reduction in HLW in both pre- and post-emergence applications.

KCP 6.4.3.2 Thousand kernel (grain) weight (TGW)

A potential effect of Terbutylazyna 500 SC on TGW was assessed in all 5 selectivity trials conducted in different regions of Poland in 2022.

The tested product Terbutylazyna 500 SC was applied pre- and post-emergence in the dose range of ~~0.8~~ 1.5-3,0 L of product/ha (~~400~~ 750-1500 ~~k~~g s.a./ha) on 5 different maize varieties.

The results of TGW are summarised in Tables 6.4.3.2-1 - 6.4.3.2-2.

Table 6.4.3.2-1: Thousand grain weight (TGW) of maize expressed as a mean % of control at pre-emergence application:

Trial number	Days after last appl'n		Mean TGW (%)				
			Treatment	Terbutylazyna 500 S.C.			Tezosar 500 S.C.
			Active ingredient				terbuthylazine
			Dose FP	0,8 L/ha	1,0 L/ha	1,5 L/ha	1,0 L/ha
			Dose kg a.s./ha	(400 kg a.s./ha)	(500 kg a.s./ha)	(750 kg a.s./ha)	(500 kg a.s./ha)
045GPSS202201	154	DA-A	-	99%	99%	100%	97%
045GPSS202202	150	DA-A	-	103%	101%	98%	102%
045GPSS202203	172	DA-A	-	99%	100%	100%	100%
045GPSS202204	126	DA-A	-	100%	99%	100%	100%
045GPSS202205	161	DA-A	-	101%	99%	100%	101%
Mean yield (expressed as % relative to the untreated control)	126-172	DA-A	No. of trials	5	5	5	5
			Mean	100%	100%	100%	100%
			Min-Max	99-103 %	99-101 %	98-100 %	97-102 %
			S.D.	0,02	0,01	0,01	0,02

Trial number	Days after last appl'n		Mean TGW (%)				
			Untretaed control	Terbutylazyna 500 SC		St. ref. product (Tezosar 500 SC)	
				1,5 L/ha (N dose)	3,0 L/ha (2N dose)	1,0 L/ha (N dose)	2,0 L/ha (2N dose)
045GPSS202201	154	DA-A	346,75a	341,83a	341,90a	348,95a	341,88a
045GPSS202202	150	DA-A	277,04a	285,11a	280,95a	279,92a	282,46a
045GPSS202203	172	DA-A	295,78a	293,24a	294,96a	296,14a	293,74a
045GPSS202204	126	DA-A	349,28a	350,25a	344,73a	351,00a	346,33a
045GPSS202205	161	DA-A	280,56a	282,15a	278,74a	280,08a	278,03a
Average TGW	**126-172**	**DA-A**	**309,88**	**310,52**	**308,26**	**311,22**	**308,49**

Table 6.4.3.2-2: Thousand grain weight (TGW) of maize expressed as a mean % of control at post-emergence application:

Trial number	Days after last appl'n	Mean TGW (%)		
		Treatment	Terbutylazyna 500 S.C.	Tezosar 500 S.C.

			Active ingredient				terbuthylazine
			Dose FP	0,8 L/ha	1,0 L/ha	1,5 L/ha	1,0 L/ha
			Dose kg a.s./ha	(400 kg a.s./ha)	(500 kg a.s./ha)	(750 kg a.s./ha)	(500 kg a.s./ha)
045GPSS202201	137	DA-B	-	101%	99%	101%	99%
045GPSS202202	129	DA-B	-	101%	102%	100%	99%
045GPSS202203	157	DA-B	-	100%	99%	100%	100%
045GPSS202204	111	DA-B	-	100%	99%	97%	98%
045GPSS202205	136	DA-B	-	100%	99%	101%	99%
Mean yield (expressed as % relative to the untreated control)	111-157	DA-B	No. of trials	5	5	5	5
			Mean	100%	100%	100%	99%
			Min-Max	100-101 %	99-102 %	97-101 %	98-100%
			S.D.	0,00	0,01	0,02	0,01

Trial number	Days after last appl'n		Mean TGW (%)				
			Untretaed control	Terbutylazyna 500 SC		St. ref. product (Tezosar 500 SC)	
				1,5 L/ha (N dose)	3,0 L/ha (2N dose)	1,0 L/ha (N dose)	2,0 L/ha (2N dose)
045GPSS202201	137	DA-B	346,75a	347,05a	338,05a	348,93a	344,93a
045GPSS202202	129	DA-B	277,04a	272,49a	282,15a	276,76a	274,36a
045GPSS202203	157	DA-B	295,78a	295,66a	296,11a	296,35a	295,53a
045GPSS202204	111	DA-B	349,28a	350,60a	349,40a	337,30a	341,70a
045GPSS202205	136	DA-B	280,56a	281,51a	283,50a	284,76a	278,98a
Average TGW	**111-157**	**DA-B**	**309.88**	**309,46**	**309,84**	**308,82**	**307,10**

Overall Conclusion on the effects on TGW

Overall, regardless of the dose, no effect of Terbutylazyna 500 SC and the reference treatments on TGW was observed. All trials obtained statistically similar results to the untreated control in both pre- and post-emergence applications.

Due to the fact that only a slightly or no effect was observed in all 5 trials, it can be concluded that the treatments evaluated are unlikely to cause any reduction in TGW in both pre- and post-emergence application.

KCP 6.4.3.3 Moisture content (MOICON)

Any potential effect of Terbutylazyna 500 SC on MOICON was evaluated in all 5 maize selectivity trials conducted in different regions of Poland in 2022.

The tested product Terbutylazyna 500 SC was applied pre- and post-emergence in the dose range of ~~0.8-~~ 1.5-3,0 l of product/ha (~~400-~~750-1500 ~~k~~g s.a./ha) on 5 different maize varieties.

The results of the MOICON trial are summarized in Tables 6.4.3.3-1 - 6.4.3.3-2.

Table 6.4.3.3-1: Moisture content (MOICON) of maize expressed as a mean % of control at pre-emergence application:

Trial number	Days after last appl'n		Mean MOICON (%)				
			Treatment	Terbutylazyna 500 S.C.			Tezosar 500 S.C.
			Active ingredient				terbuthylazine
			Dose FP	0,8 L/ha	1,0 L/ha	1,5 L/ha	1,0 L/ha
			Dose kg a.s./ha	(400 kg a.s./ha)	(500 kg a.s./ha)	(750 kg a.s./ha)	(500 kg a.s./ha)
045GPSS202201	154	DA-A	-	98%	98%	100%	97%
045GPSS202202	150	DA-A	-	101%	100%	100%	100%
045GPSS202203	172	DA-A	-	99%	101%	99%	101%
045GPSS202204	126	DA-A	-	101%	100%	99%	102%
045GPSS202205	161	DA-A	-	100%	100%	101%	100%
Mean yield (expressed as % relative to the untreated control)	126-172	DA-A	No. of trials	5	5	5	5
			Mean	100%	100%	100%	100%
			Min-Max	98-101 %	98-101 %	99-101 %	97-102 %
			S.D.	0,01	0,01	0,01	0,02

Trial number	Days after last appl'n		Mean MOICON (%)				
			Untretaed control	Terbutylazyna 500 SC		St. ref. product (Tezosar 500 SC)	
				1,5 L/ha (N dose)	3,0 L/ha (2N dose)	1,0 L/ha (N dose)	2,0 L/ha (2N dose)
045GPSS202201	154	DA-A	25,48a	25,03a	25,05a	24,98a	24,85a
045GPSS202202	150	DA-A	23,18a	23,35a	23,25a	23,10a	23,20a
045GPSS202203	172	DA-A	19,85a	19,73a	19,95a	20,30a	20,38a
045GPSS202204	126	DA-A	23,90a	24,13a	24,00a	24,10a	24,15a
045GPSS202205	161	DA-A	22,63a	22,73a	22,70a	22,60a	22,30a
Average moicon	**126-172**	**DA-A**	**23,01**	**22,99**	**22,99**	**23,02**	**22,98**

Table 6.4.3.3-2: Moisture content (MOICON) of maize expressed as a mean % of control at post-emergence application:

Trial number	Days after last appl'n	Mean MOICON (%)		
		Treatment	Terbutylazyna 500 S.C.	Tezosar 500 S.C.

			Active ingredient				terbuthylazine
			Dose FP	0,8 L/ha	1,0 L/ha	1,5 L/ha	1,0 L/ha
			Dose kg a.s./ha	(400 kg a.s./ha)	(500 kg a.s./ha)	(750 kg a.s./ha)	(500 kg a.s./ha)
045GPSS202201	137	DA-B	-	98%	98%	98%	98%
045GPSS202202	129	DA-B	-	100%	100%	100%	100%
045GPSS202203	157	DA-B	-	102%	103%	100%	102%
045GPSS202204	111	DA-B	-	101%	101%	101%	101%
045GPSS202205	136	DA-B	-	100%	99%	101%	100%
Mean yield (expressed as % relative to the untreated control)	111-157	DA-B	No. of trials	5	5	5	5
			Mean	100%	100%	100%	100%
			Min-Max	98-102 %	98-103 %	98-101 %	98-102%
			S.D.	0,02	0,02	0,01	0,02

Trial number	Days after last appl'n		Mean MOICON (%)				
			Untretaed control	Terbutylazyna 500 SC		St. ref. product (Tezosar 500 SC)	
				1,5 L/ha (N dose)	3,0 L/ha (2N dose)	1,0 L/ha (N dose)	2,0 L/ha (2N dose)
045GPSS202201	137	DA-B	25,48a	25,50a	24,83a	24,90a	24,93a
045GPSS202202	129	DA-B	23,18a	23,18a	23,25a	23,23a	23,28a
045GPSS202203	157	DA-B	19,85a	19,73a	20,05a	19,85a	20,18a
045GPSS202204	111	DA-B	23,90a	23,73a	24,45a	24,15a	24,25a
045GPSS202205	136	DA-B	22,63a	22,78a	22,63a	22,78a	22,55a
Average moicon	**111-157**	**DA-B**	**23,01**	**22,98**	**23,04**	**22,98**	**23,04**

Overall Conclusions on effects on MOICON

There were no generally observed effects of Terbutylazyna 500 SC and the reference treatments on MOICON, regardless of dose. In all trials, statistically similar results were obtained to the untreated control in both pre-emergence and post-emergence applications.

Due to the fact that only a small or no effect was observed in all 5 trials, it can be concluded that the treatments evaluated are unlikely to cause any reduction in MOICON in both pre- and post-emergence applications.

Comments of ZRMs: The quality of maize yield treated with terbuthylazine herbicide can be influenced in several ways, largely dependent on application practices and environmental conditions. The proper and regulated use of terbuthylzine can significantly benefit the quality of maize yield by promoting healthier plant growth and reducing weed-related competition. However, careful management is necessary to prevent any adverse effects that might arise from overuse or misuse, ensuring the quality of maize remain high.

Applicant submitted in total 5 selectivity trials carried out on maize in Poland in 2022. To evaluate the selectivity of Terbutylazyna 500 SC when applied pre-emergence and post-emergence in maize. Submitted trials are sufficient in the opinion of ZRMs. Those evaluation was carried out in line to EPPO guideline. Submitted trials are sufficient in the opinion of ZRMs. Impact of Terbutylazyna 500 SC on quantity and quality of yield was evaluated during selectivity trials. Following parameters were studied: moisture, TGW and HLW. In all trials no detrimental effect on the quality of yield was recorded at the proposed dose rate and even at the double dose rate. Application of Terbutylazyna 500 SC provided a quality yield similar to the untreated plots and to those treated with the reference product. No statistical differences were observed between untreated and treated plots and also between the tested product and the standard product.

KCP 6.4.4 Effects on transformation processes

According to EPPO guideline PP 1/243 (2) "Effects of plant protection products on transformation processes": No undesirable effects are expected on transformation processes.

Comments of ZRMs: Maize treated with terbuthylazine may influence transformation processes such as silage production, biofuel generation and alcohol fermentation.

Silage production: Terbuthylazine residues can affect the microbial flora responsible for fermentation in silage production. It is essential to monitor residue levels to avoid negative impacts on fermentation efficiency and to ensure nutritional value is maintained.

Biofuel production: residues might interfere with fermentation microorganisms, compromising ethanol yields. Ensuring low residue levels can help maintain efficient fermentation. Terbuthylazine might also impact anaerobic digestion processes used in biogas production, as chemical residues could inhibit microbial activity needed for effective gas yield.

Alcohol production: terbuthylazine residues could hinder yeast activity, prolonging fermentation time or reducing alcohol yield. Proper residue management ensures effective fermentation.

Strict adherence to herbicide application guidelines is crucial to minimize residues. While terbuthylazine treated maize can be still utilized in the production of silage, biofuels and alcohol, careful management of herbicide residues is critical to ensure these processes are efficient and yield high quality products.

In the opinion of ZRMs, considering that product is applied pre-emergence (BBCH 00) or early post-emergence (BBCH 12-16) of the crop and maize is not a typical crop used for subsequent processing, it could be agreed that no negative impact on processing is expected.

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

Neither from the agricultural use of terbuthylazine during the past years, nor from field trials there is any information that the application of terbuthylazine containing products has any influence on the propagation parameters of cereals.

Comments of ZRMs: Terbutylazyna 500 SC is a basically soil-applied, pre-emergence or early post-emergence herbicide of which decomposes in plants to non-toxic metabolites during the vegetation period. Information's about residues should be presented in the Residue Section.

The active substance: terbuthylazine, is commonly used for many years in many countries. No adverse effects on parts of plant used for propagating purposes were reported. Therefore, it can be assumed that application of Terbutylazyna 500 SC in maize will pose no risk for maize propagation capabilities.

KCP 6.4.6 Summary and conclusions- adverse effects on treated crop

Terbutylazyna 500 SC is a selective herbicide in the form of a suspension concentrate (SC) for foliar application, containing the active substance terbuthylazine at 500 g/l. This active substance is widely used pre-emergence and post-emergence for weed control of maize or cereals in Poland and other European countries.

The applicant in this dossier provides a data package to support intended uses of Terbutylazyna 500 SC. A total of 8 efficacy trials conducted on maize in pre- and post-emergence application in Poland in 2022.

Terbutylazyna 500 SC and the reference product were tested for possible phytotoxic effects in all efficacy studies and 5 selectivity studies. In addition, in this 5 selectivity studies, the impact of the applied products on yield quality was assessed.

All these studies confirmed the lack of a negative effect of the tested product on yield, quality parameters, and during which no phytotoxicity symptoms were observed in relation to the treated plants at doses 1,0 l/ha and 1,5 l/ha in every trial, therefore the tests, carried out in accordance to the EPPO guideline PP 1/135 (4), confirmed no negative effect of the tested and reference products at any of the assessments in the target doses 1,0 l/ha and 1,5 l/ha in both pre- and post-emergence application.

Taking into account the results of the studies presented in this dossier and the fact that terbuthylazine is a well-known and widely used active substance for the treatment of maize throughout Europe for many years, the safety of the use of Terbuthylazine 500 SC in maize crops has been confirmed and proven.

Comments of ZRMs: ZRMs agree with Applicant's statement that the safety of the use of Terbuthylazine 500 SC in maize crops has been confirmed and proven.

KCP 6.4.7 Impact on succeeding crops

No new data submitted in the framework of this application.

Comments of ZRMs: The effects of terbuthylazine on succeeding crops largely depends on factors such as soil type, environmental conditions, timing of application and subsequent crop selections. Implementing careful management can help mitigate adverse effects while benefiting from its weed control properties.

The EU requirements on plant protection products requires, that sufficient data must be reported to permit an evaluation of possible adverse effects of a treatment with the plant protection product on succeeding crops if studies and evaluations presented in the other part of the dossier, show that significant residues of the active substance, its metabolites or degradation products, which have or may have biological activity on succeeding crops, remain in soil or in plant materials up to sowing or planting time of possible succeeding crops. Therefore, the Applicant should present the assessment of the possible effect of Terbutylazyna 500 SC on crops grown as rotational or replacement crops following crops treated with that product, prepared in accordance to the EPPO Standard Efficacy evaluation of plant protection products.

Effects on succeeding crops (PP 1/207(2)). This standard is intended as a general standard on the methods used to examine whether the active substance of a plant protection product can cause negative effects on crops grown after a crop treated with that product. These crops can be grown as normal rotational crops as well as replacement crops in case of crop failure.

Applicant did not present any results and information's about impact on the succeeding crops. The half-life (DT_{50}) for terbuthylazine is 77-169 days. Product decomposes in the soil during the growing season without endangering crops. Therefore, it can be assumed that application of Terbutylazyna 500 SC in maize will pose no risk for succeeding crops. As regards effects on succeeding crops the applicant prosed the following label text which was accepted by ZRMs.

Necessary precautions to prevent the negative impact on succeeding crops should be included in the label claim: "*The PPP decomposes in the soil during the growing season to a level that does not pose a risk to subsequent crops. In the event of an early termination of the treated crop (due to plant damage from frost, disease, or pests), only corn can be cultivated after pre-sowing tillage."*

KCP 6.4.8 Impact on other plants including adjacent crops

No new data submitted in the framework of this application.

Comments of ZRMs: The application of terbuthylazine herbicide in maize cultivation can significantly impact adjacent crops. During application, terbuthylazine can drift to nearby fields, potentially harming adjacent crops that are more sensitive to the herbicide. Terbuthylazine can leach into neighbouring areas through soil movement or runoff, leading to residual herbicide affecting the germination and growth of nearby crops.

To minimize negative impacts on adjacent crops, should be consider:

- buffer zones: for protecting adjacent fields from drift and residue
- Application timing: use at optimal weather conditions for application to reduce the risk of drift to nearby crops.

Proper management practices are essential to safeguard neighbouring crops while still benefiting from the herbicide's effectiveness in weed control.

Generally, the product is a foliar herbicide effective on broadleaf weeds. Therefore, warning to avoid spray drift on adjacent crops should appear on the label. Terbutylazyna 500 SC effectively control broadleaf weeds therefore users must exercise caution to avoid drift or vapours which may cause stunting or discoloration and damage to non-target foliage.

Detailed assessment of predicted rates of Terbutylazyna 500 SC in off-field areas, the TER values describing the risk for non-target plants should be described in Ecotoxicological sections.

KCP 6.4.9 Effects on beneficial and other non-target organisms

No observations about effects of Terbutylazyna 500 SC on beneficial organisms or other non-target organisms were reported and there are also no indications of adverse effect on beneficial organisms from previous applications of terbuthylazine. No new data submitted in the framework of this application.

Comments of ZRMs: Detailed studies on the possible adverse effects to beneficial organisms are submitted and summarised in part B of Ecotoxicology Section.

The impact of terbuthylazine herbicide on beneficial and non-target organisms is a significant concern in agricultural practices. Exposure to terbuthylazine may lead to reduced earthworm populations. While terbuthylazine is not typically directly applied to flowering plants, drift or runoff can affect pollinator populations, such as bees. If terbuthylazine enters water bodies through runoff, it can harm aquatic organisms, including fish and amphibians.

To protect beneficial and non-target organisms, consider implementing the following strategies:

- *Integrated Pest Management*: use biological control agents and cultural practices alongside herbicides to maintain ecological balance.

- *Targeted application*: apply terbuthylazine in a manner that minimizes exposure to non-target organisms, such as applying during calm weather to reduce drift.
- *Buffer zones*: create buffer zones around sensitive habitats to protect beneficial organisms from herbicide exposure.

KCP 6.5 Other/special studies

No other / special studies are presented in this document.

Comments of ZRMs: Statement accepted by ZRMs.

KCP 6.6 List of test facilities including the corresponding certificates

Błąd! Nie można odnaleźć źródła odwołania. gives information of the testing facilities and corresponding certificates valid at the time of the trials were carried out.

All corresponding certificates are available in the GEP Certificate Database System (Certibase) (http://www.gepcertibase.eu) via the hyperlinks provided in the table.

Table 6-1 List of test facilities

Test facility	Address	Certificate (Yes or No)
Green & Property Consulting Anna Huszcza-Podgórska	Ul. Na stoku 6/6 26-601 Radom POLAND	Yes Link to the certificate: k8DNKe1pmA (gepcertibase.eu)

Główny Inspektor
Ochrony Roślin i Nasiennictwa

Andrzej Chodkowski

BORiN.510.9.2023.2 Warszawa, 4 sierpnia 2023 r.

DECYZJA Nr 10/2023

Na podstawie art. 155 ustawy z dnia 14 czerwca 1960 r. – Kodeks postępowania administracyjnego (Dz. U. z 2023 r. poz. 775, z późn. zm.) w związku z art. 17 ust. 8 pkt 2 ustawy z dnia 8 marca 2013 r. o środkach ochrony roślin (Dz. U. z 2023 r. poz. 340, z późn. zm.) po rozpatrzeniu wniosku Pani Anny Huszcza-Podgórskiej prowadzącej działalność gospodarczą pod firmą Green & Property Consulting Anna Huszcza-Podgórska (ul. Na stoku 6/6; 26-601 Radom) z dnia 19 kwietnia 2022 r., uzupełnionego wyjaśnieniami przekazanymi drogą elektroniczną w dniach 30 czerwca i 2 sierpnia 2023 r., dotyczącego zmiany zakresu upoważnienia do prowadzenia badań skuteczności działania środków ochrony roślin, zmieniam decyzję Nr 13/2021 z dnia 2 sierpnia 2021 r. w tej sprawie, zmienioną decyzjami Nr 14/2021 z dnia 12 sierpnia 2021 r. i Nr 7/2022 z dnia 12 maja 2022 r., w ten sposób, że rozstrzygnięciu decyzji nadaję następujące brzmienie:

„ Upoważniam Panią Annę Huszcza-Podgórską prowadzącą działalność gospodarczą pod firmą Green & Property Consulting Anna Huszcza-Podgórska (ul. Na stoku 6/6; 26-601 Radom) do prowadzenia badań skuteczności działania środków ochrony roślin z grupy fungicydów, herbicydów, insektycydów, regulatorów wzrostu oraz bakteriocydów w uprawach polowych zbóż (*pszenica jara i ozima, jęczmień jary i ozimy, pszenżyto jare i ozime, żyto ozime, owies,*), kukurydzy, rzepaku ozimego, słonecznika, soi, chmielu, tytoniu, roślin okopowych (*ziemniak, burak cukrowy*), w uprawach warzyw w gruncie i pod osłonami (*pomidor, ogórek, sałaty (różne gatunki), brokuł, kalafior, marchew, pietruszka, seler, rzodkiew, chrzan, kabaczek, cukinia, por, szparagi, cebula, czosnek, groch, fasola, bób, kapusta głowiasta*), w uprawach roślin sadowniczych (*jabłoń, grusza, wiśnia, czereśnia, śliwa, brzoskwinia, morela, truskawka, malina, winorośl*), w uprawach roślin ozdobnych w gruncie i pod osłonami (jednoroczne, dwuletnie, wieloletnie, drzewa i krzewy ozdobne liściaste i iglaste) oraz na terenach nieużytkowanych rolniczo."

Uzasadnienie

Wnioskiem z dnia 19 czerwca 2023 r., uzupełnionym wyjaśnieniami przekazanymi drogą elektroniczną w dniach 30 czerwca i 2 sierpnia 2023 r., pani Anna Huszcza-Podgórska prowadząca działalność gospodarczą pod firmą Green & Property Consulting Anna Huszcza-Podgórska (ul. Na stoku 6/6; 26-601 Radom) zwróciła się do Głównego Inspektora Ochrony Roślin i Nasiennictwa z prośbą o zmianę zakresu upoważnienia do prowadzenia badań skuteczności działania środków ochrony roślin wynikającego z decyzji Nr 13/2021 (z 02.08.2021 r.), zmienionego decyzjami Nr 14/2021 (z 12.08.2021 r.) i Nr 7/2022 (z 12.05.2022 r.). Wnioskowane zmiany dotyczą możliwości prowadzenia takich badań w uprawach polowych słonecznika, soi, chmielu, tytoniu, w uprawach warzyw w gruncie i pod osłonami (pomidor, ogórek, sałaty (różne gatunki), brokuł, kalafior, marchew,

al. Jana Pawła II 11 , 00-828 Warszawa
tel.: 22 652 92 90; email: gi@piorin.gov.pl

pietruszka, seler, rzodkiew, chrzan, kabaczek, cukinia, por, szparagi, cebula, czosnek, groch, fasola, bób), w uprawach roślin sadowniczych (brzoskwinia, morela, winorośl) oraz w uprawach roślin ozdobnych w gruncie i pod osłonami (jednoroczne, dwuletnie, wieloletnie, drzewa i krzewy ozdobne liściaste i iglaste).

W dniu 18 lipca 2023 r., na podstawie art. 17 ust. 6 w związku z ust. 8 pkt 2 ustawy o środkach ochrony roślin, przeprowadzona została kontrola w zakresie spełniania wymagań dobrej praktyki doświadczalnej w rozumieniu art. 3 pkt 20 rozporządzenia Parlamentu Europejskiego i Rady (WE) nr 1107/2009 z dnia 21 października 2009 r. dotyczącego wprowadzania do obrotu środków ochrony roślin i uchylającego dyrektywy Rady 79/117/EWG i 91/414/EWG (Dz. Urz. UE L 309 z 24.11.2009 r., str. 1 z późn. zm.) przez panią Annę Huszcza-Podgórską prowadzącą działalność gospodarczą pod firmą Green & Property Consulting Anna Huszcza-Podgórska. O realizacji zaleceń pokontrolnych Główny Inspektor Ochrony Roślin i Nasiennictwa został poinformowany przez stronę drogą elektroniczną w dniu 29 lipca 2023 r. Mając na uwadze powyższe należy uznać, że strona spełnia wymagania dobrej praktyki doświadczalnej.

Wobec powyższego orzeka się jak w rozstrzygnięciu.

Pouczenie

Od niniejszej decyzji odwołanie nie przysługuje. Strona niezadowolona z decyzji może zwrócić się do Głównego Inspektora Ochrony Roślin i Nasiennictwa z wnioskiem o ponowne rozpatrzenie sprawy, w terminie 14 dni od dnia doręczenia decyzji, zgodnie z art. 127 § 3 kpa.

W trakcie biegu terminu do złożenia wniosku ponowne rozpatrzenie sprawy strona może zrzec się tego prawa wobec organu administracji publicznej, który wydał decyzję. Z dniem doręczenia Głównemu Inspektorowi Ochrony Roślin i Nasiennictwa oświadczenia o zrzeczeniu się prawa do złożenia wniosku o ponowne rozpatrzenie sprawy, decyzja staje się ostateczna i prawomocna, co oznacza, iż decyzja podlega natychmiastowemu wykonaniu i brak jest możliwości zaskarżenia decyzji do Wojewódzkiego Sądu Administracyjnego.

Jeżeli strona nie uważa, że decyzja jest zgodna z jej wnioskiem, a nie chce skorzystać z prawa zwracania się z wnioskiem o ponowne rozpatrzenie sprawy, może wnieść do Wojewódzkiego Sądu Administracyjnego w Warszawie skargę na decyzję w terminie 30 dni od dnia doręczenia decyzji stronie. Skargę wnosi się za pośrednictwem Głównego Inspektora Ochrony Roślin i Nasiennictwa.

Zgodnie z § 2 ust. 1 pkt 2 rozporządzenia Rady Ministrów z dnia 16 grudnia 2003 r. w sprawie wysokości oraz szczegółowych zasad pobierania wpisu w postępowaniu przed sądami administracyjnymi (Dz. U. z 2021 r. poz. 535) wpis stały bez względu na przedmiot zaskarżonego aktu lub czynności w sprawach skarg na akty lub czynności z zakresu administracji publicznej dotyczące uprawnień lub obowiązków wynikających z przepisów prawa wynosi 200 zł.

Na wniosek strony złożony przed wszczęciem lub w toku postępowania sądowego może być stronie przyznane prawo pomocy, w zakresie całkowitego lub częściowego zwolnienia od kosztów sądowych oraz ustanowienia adwokata lub radcy prawnego, gdy strona wykaże, że nie jest w stanie ponieść jakichkolwiek lub pełnych kosztów postępowania.

Została pobrana opłata skarbowa w wysokości 1 000 zł .

Otrzymują:
1) Pani Anna Huszcza-Podgórska
ul. Na stoku 6/6
26-601 Radom
2) a/a

GŁÓWNY INSPEKTORAT OCHRONY ROŚLIN I NASIENNICTWA

Z upoważnienia
GŁÓWNEGO INSPEKTORA
Tadeusz Łączyński

Chief Inspector for
Plant Protection and Seeds
Andrzej Chodkowski

BORiN.510.9.2023.2

Warsaw, 4 August 2023

DECISION NO. 10/2023

Pursuant to Article 155 of the Act of 14 June 1960 - Code of Administrative Procedure (Journal of Laws of 2023, item 775, as amended) in conjunction with Article 17 paragraph 8 item 2 of the Act of 8 March 2013 on plant protection products (Journal of Laws of 2023, item 340, as amended), having considered the application of Ms Anna Huszcza-Podgórska conducting business activity under the name of Green & Property Consulting Anna Huszcza-Podgórska (Na stoku 6/6; 26-601 Radom) of 19 April 2022, supplemented by explanations provided electronically on 30 June and 2 August 2023, regarding the change in the scope of the authorization to conduct tests on the effectiveness of plant protection products, I hereby amend the Decision No. 13/2021 of 2 August 2021 in this case, amended by Decisions No. 14/2021 of 12 August 2021 and No. 7/2022 of 12 May 2022, Ion so far as it shall read as follows:

"I authorize Ms Anna Huszcza-Podgórska running a business under the name of Green & Property Consulting Anna Huszcza-Podgórska (Na stoku 6/6; 26-601 Radom) to conduct tests on the effectiveness of plant protection products from the group of fungicides, herbicides, insecticides, growth regulators and bactericides in field crops of cereals *(spring and winter wheat, spring and winter barley, spring and winter triticale, winter rye, oats,)*, maize, winter rape, sunflower, soybeans, hops, tobacco, root crops *(potato, sugar beet), in* vegetable crops in the ground and under cover *(tomato, cucumber, lettuce (various species), broccoli, cauliflower, carrot, parsley, celery, radish, horseradish, squash, zucchini, leek, asparagus, onion, garlic, peas, beans, broad beans, cabbage lettuce), in* fruit crops (apple tree, *pear tree, cherry, sweet cherry, plum, peach, apricot, strawberry, raspberry, vine),* in ornamental crops in the ground and under shelters (annual, biennial, perennial, deciduous and coniferous ornamental trees and shrubs) and on land not used for agriculture."

Justification

By application of 19 June 2023, supplemented by explanations provided electronically on 30 June and 2 August 2023, Ms Anna Huszcza-Podgórska conducting business activity under the name of Green & Property Consulting Anna Huszcza-Podgórska (Na stoku 6/6; 26-601 Radom) asked the Chief Inspector for Plant Protection and Seeds to change the scope of authorization to conduct tests on the effectiveness of plant protection products resulting from decision No. 13/2021 (of 02.08.2021), as amended by Decisions No. 14/2021 (of 12.08.2021) and No. 7/2022 (of 12.05.2022). The proposed amendments concern the possibility of conducting such tests in field crops of sunflower, soybean, hops, tobacco, in growing vegetables in the ground and under cover (tomato, cucumber, lettuce (various species), broccoli, cauliflower, carrots,

al. Jana Pawła II 11, 00-828 Warsaw
portfolio: 22 652 92 90; email: gi@piorin.gov.pl

parsley, celery, radish, horseradish, squash, zucchini, leek, asparagus, onion, garlic, peas, beans, broad beans), in fruit crops (peach, apricot, vine) and in ornamental crops in the ground and under cover (annual, biennial, perennial, deciduous and coniferous ornamental trees and shrubs).

On 18 July 2023, pursuant to Article 17(6) in conjunction with Article 8(2) of the Act on plant protection products, an inspection was carried out in the scope of compliance with the requirements of good experimental practice within the meaning of Article 3(20) of Regulation (EC) No 1107/2009 of the European Parliament and of the Council of 21 October 2009 concerning the placing of plant protection products on the market and repealing Council Directives 79/117/EEC and 91/414/EEC (Journal of Laws) UE L 309, 24.11.2009, p. 1 as amended) by Ms Anna Huszcza-Podgórska conducting business activity under the name of Green & Property Consulting Anna Huszcza-Podgórska. The Chief Inspector for Plant Protection and Seeds was informed about the implementation of post-inspection recommendations by the party electronically on 29 July 2023.
In view of the above, it should be considered that the party meets the requirements of good experimental practice.

Therefore, it is adjudicated as in the decision.

Instruction

This Decision shall not be subject to appeal. A party dissatisfied with the decision may apply to the Chief Inspector for Plant Protection and Seeds with a request to reconsider the case, within 14 days from the date of delivery of the decision, in accordance with Article 127 § 3 of the Code of Civil Procedure.

During the time limit for submitting the application for reconsideration, the party may waive this right against the public administration body that issued the decision. On the day of delivery to the Chief Inspector for Plant Protection and Seed of the statement on waiving the right to submit an application for reconsideration of the case, the decision becomes binding and final, which means that the decision is subject to immediate enforcement and there is no possibility of appealing against the decision to the Provincial Administrative Court.

If a party does not consider that the decision is consistent with its application and does not want to exercise the right to request reconsideration of the case, it may lodge a complaint with the Provincial Administrative Court in Warsaw against the decision within 30 days from the date of delivery of the decision to the party. The complaint shall be lodged through the Chief Inspector for Plant Protection and Seeds.

Pursuant to § 2 sec. 1 item 2 of the Regulation of the Council of Ministers of 16 December 2003 on the amount and detailed rules for collecting an entry in proceedings before administrative courts (Journal of Laws of 2021, item 535), a permanent entry, regardless of the subject of the challenged act or actions in cases of complaints against acts or activities in the field of public administration regarding rights or obligations arising from legal provisions, amounts to PLN 200.

On application by a party before or during court proceedings, a party may be granted the right to assistance in whole or in part with exemption from court costs and the appointment of a lawyer if the party proves that he or she is unable to meet any or full costs of the proceedings.

Stamp duty of PLN 1,000 was charged.

To be served upon:

1) Ms Anna Huszcza-Podgórska
   ul. Na stoku 6/6
   26-601 Radom
2) a/a

Index No. 3497/2023. Radom, 24 August 2023. 6658 zzs. Certified to be a true translation of the original document issued in Polish – Paweł Majchrzyk – sworn translator of English.

KCP 6.7 Appendices

Appendices are available in the Biological Assessment Dossier (Core assessment) document.