FINAL REGISTRATION REPORT

Part B

Section 3

Efficacy Data and Information

Concise summary

Product code: CHR/H/CPD 300 SL

Product name(s): Major 300 SL/Cloe 300 SL/ProSto 300 SL

Chemical active substance: clopyralid, 300 g/L

Central Zone

Zonal Rapporteur Member State: Poland

CORE ASSESSMENT

(reneval of authorization)

Applicant: INNVIGO Sp. z o.o.

Submission date: November 2021

MS Finalisation date: November 2022; March 2023

Version history

When	What
November 2022	ZRMs evaluated submitted by Applicant dRR
March 2023	ZRMs made changes according to reviewed comments.

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

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

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

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

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

Abstract

The data presented in this dossier fully support the renewal under Article 43 of CHR/H/CPD 300 SL in Poland. cMS from CZ, LT, LV, RO, SLO, HU and SK should check if submitted GAP table by Applicant is in line with the registrations obtained and made decision if CHR/H/CPD 300 SL can be re-registered according to Article 43.

3.2 Intended uses (only NATIONAL GAP)

GAP rev.1.0, date: 2021-11-16

PPP (product name/code):	CHR/H/CPD 300 SL/Major 300 SL/Cloe 300 SL/ProSto 300 SL	Formulation type:	SL
Active substance 1:	clopyralid	Conc. of as 1:	300 g/L
Active substance 2:	n/a	Conc. of as 2:	n/a
Active substance….:	n/a	Conc. of as ….:	n/a
Safener:	n/a	Conc. of safener:	n/a
Synergist:	n/a	Conc. of synergist:	n/a
Applicant:	INNVIGO Sp. z o.o.	Professional use:	☒
Zone(s):	Central zone	Non professional use:	☐
Verified by MS:			

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, CZ	Winter oilseed rape *Brassica napus* (BRSNW)	F	broadleaf weeds	Spray medium sprayer	**Spring** BBCH 30–50	a) 1 b) 1	n/a	a) 0.3 – 0.4 b) 0.3 – 0.4	a) 0.09 – 0.12 b) 0.09 – 0.12	200 – 300	n/a	~~n/a~~ To be confirmed by cMS Acceptable in PL
2.	PL, CZ	Winter oilseed rape *Brassica napus*	F	broadleaf weeds	Spray medium sprayer	**Spring** BBCH 30–50	a) 1 b) 1	n/a	a) CHR/H/PCR* 0.078 + CHR/H/CPD* 0.3 b) CHR/H/PCR* 0.078 + CHR/H/CPD* 0.3	a) CHR/H/PCR* 0.0234 + CHR/H/CPD* 0.09 b) CHR/H/PCR* 0.0234 + CHR/H/CPD* 0.09	200 – 300	n/a	~~n/a~~ To be confirmed Acceptable in PL

		(BRSNW)											by cMS	
3.	PL, CZ	Winter oilseed rape *Brassica napus* (BRSNW)	F	broadleaf weeds	Spray medium sprayer	**Autumn** BBCH 20–21	a) 1 b) 1	n/a	a) 0.2 b) 0.2	a) 0.06 b) 0.06	200 – 300	n/a	~~n/a~~ To be con-firmed by cMS	Ac-cepta-ble in PL
4.	PL~~, CZ~~	Winter oilseed rape *Brassica napus* (BRSNW)	F	broadleaf weeds	Spray medium sprayer	**Autumn** BBCH 20–21	a) 1 b) 1	n/a	a) 0.2 b) 0.2	a) 0.06 + Asystent+ b) 0.06 + Asystent+	200 – 300	n/a	~~n/a~~ To be con-firmed by cMS	Ac-cepta-ble in PL
5.	PL, CZ	Winter oilseed rape *Brassica napus* (BRSNW)	F	annual and perennial broadleaf weeds	Spray medium sprayer	**Autumn** BBCH 20–21	a) 1 b) 1	n/a	a) CHR/H/PCR* 0.078 + CHR/H/CPD* 0.2 b) CHR/H/PCR* 0.078 + CHR/H/CPD* 0.2	a) CHR/H/PCR* 0.0234 + CHR/H/CPD* 0.06 b) CHR/H/PCR* 0.0234 + CHR/H/CPD* 0.06	200 – 300	n/a	~~n/a~~ To be con-firmed by cMS	Ac-cepta-ble in PL
6.	PL, CZ	Winter oilseed rape *Brassica napus* (BRSNW)	F	annual and perennial broadleaf weeds	Spray medium sprayer	**Autumn** BBCH 13–14	a) 1 b) 1	n/a	a) CHR/H/PCR* 0.078 + CHR/H/CPD* 0.3 b) CHR/H/PCR* 0.078 + CHR/H/CPD* 0.3	a) CHR/H/PCR* 0.0234 + CHR/H/CPD* 0.09 b) CHR/H/PCR* 0.0234 + CHR/H/CPD* 0.09	200 – 300	n/a	~~n/a~~ To be con-firmed by cMS	Ac-cepta-ble in PL
7.	PL, CZ	Winter oilseed rape *Brassica napus* (BRSNW)	F	annual and perennial broadleaf weeds	Spray medium sprayer	**Autumn** BBCH 13–14	a) 1 b) 1	n/a	a) CHR/H/PCR* 0.078 + CHR/H/CPD* 0.3 + CHR/H/MTC* 1.5 b) CHR/H/PCR* 0.078 + CHR/H/CPD* 0.3 + CHR/H/MTC* 1.5	a) CHR/H/PCR* 0.0234 + CHR/H/CPD* 0.09 + CHR/H/MTC* 0.750 b) CHR/H/PCR* 0.0234 + CHR/H/CPD* 0.09 + CHR/H/MTC* 0.750	200 – 300	n/a	~~n/a~~ To be con-firmed by cMS	Ac-cepta-ble in PL
8.	PL, CZ, SK	Winter wheat *Triticum aes-tivum* (TRZAW)	F	broadleaf weeds	Spray medium sprayer	**Spring** PL, SK: BBCH 20–29 CZ: BBCH 21–29	a) 1 b) 1	n/a	a) 0.3 – 0.4 b) 0.3 – 0.4	a) 0.09 – 0.12 b) 0.09 – 0.12	200 – 300	n/a	~~n/a~~ To be con-firmed by cMS	Ac-cepta-ble in PL
9.	PL, CZ, SK	Sugar beet *Beta vulgaris*	F	broadleaf weeds	Spray medium sprayer	BBCH 12–14	a) 1	n/a	a) 0.3 – 0.4 b) 0.3 – 0.4	a) 0.09 – 0.12 b) 0.09 – 0.12	200 – 300	n/a	~~n/a~~ To be	Ac-cepta-

		(BEAVP)					b) 1						con-firmed by cMS	ble in PL
10.	PL, CZ, SK	Sugar beet *Beta vulgaris* (BEAVP)	F	broadleaf weeds	Spray medium sprayer	BBCH 12–14	a) 3 b) 3	6–10	a) 0.2 b) 0.2	a) 0.06 b) 0.06	200 – 300	6-10	~~n/a~~ To be con-firmed by cMS	Ac-cepta-ble in PL
11.	RO	Winter oilseed rape *Brassica napus* (BRSNW)	F	broadleaf weeds	Spray medium sprayer	**Autumn** BBCH 20–21	a) 1 b) 1	n/a	a) 0.2 b) 0.2	a) 0.06 b) 0.06	200 – 300	n/a	~~n/a~~ To be con-firmed by cMS	
12.	RO	Winter oilseed rape *Brassica napus* (BRSNW)	F	broadleaf weeds	Spray medium sprayer	**Autumn** BBCH 20–21	a) 1 b) 1	n/a	a) 0.2 b) 0.2	a) 0.06 + Asystent+ b) 0.06 + Asystent+	200 – 300	n/a	~~n/a~~ To be con-firmed by cMS	
13.	RO	Winter oilseed rape *Brassica napus* (BRSNW)	F	annual and perennial broadleaf weeds	Spray medium sprayer	**Autumn** BBCH 20–21	a) 1 b) 1	n/a	a) CHR/H/PCR* 0.078 + CHR/H/CPD* 0.2 b) CHR/H/PCR* 0.078 + CHR/H/CPD* 0.2	a) CHR/H/PCR* 0.0234 + CHR/H/CPD* 0.06 b) CHR/H/PCR* 0.0234 + CHR/H/CPD* 0.06	200 – 300	n/a	~~n/a~~ To be con-firmed by cMS	
14.	RO, SLO	Winter oilseed rape *Brassica napus* (BRSNW)	F	broadleaf weeds	Spray medium sprayer	**Spring** till BBCH 50	a) 1 b) 1	n/a	a) 0.3 – 0.4 b) 0.3 – 0.4	a) 0.09 – 0.12 b) 0.09 – 0.12	200 – 300	n/a	~~n/a~~ To be con-firmed by cMS	
15.	RO	Winter oilseed rape *Brassica napus* (BRSNW)	F	annual and perennial broadleaf weeds	Spray medium sprayer	**Spring** till BBCH 50	a) 1 b) 1	n/a	a) CHR/H/PCR* 0.078 + CHR/H/CPD* 0.3 b) CHR/H/PCR* 0.078 + CHR/H/CPD* 0.3	a) CHR/H/PCR* 0.0234 + CHR/H/CPD* 0.09 b) CHR/H/PCR* 0.0234 + CHR/H/CPD* 0.09	200 – 300	n/a	~~n/a~~ To be con-firmed by cMS	
16.	RO	Winter oilseed rape *Brassica napus* (BRSNW)	F	annual and perennial broadleaf weeds	Spray medium sprayer	**Autumn** BBCH 13–14	a) 1 b) 1	n/a	a) CHR/H/PCR* 0.078 + CHR/H/CPD* 0.3 + CHR/H/MTC* 1.5 b) CHR/H/PCR* 0.078 + CHR/H/CPD* 0.3 + CHR/H/MTC* 1.5	a) CHR/H/PCR* 0.0234 + CHR/H/CPD* 0.09 + CHR/H/MTC* 0.750 b) CHR/H/PCR* 0.0234 + CHR/H/CPD* 0.09 + CHR/H/MTC* 0.750	200 – 300	n/a	~~n/a~~ To be con-firmed by cMS	

17.	RO	Winter oilseed rape *Brassica napus* (BRSNW)	F	annual and perennial broadleaf weeds	Spray medium sprayer	**Autumn** BBCH 13–14	a) 1 b) 1	n/a	a) CHR/H/PCR* 0.078 + CHR/H/CPD* 0.3 b) CHR/H/PCR* 0.078 + CHR/H/CPD* 0.3	a) CHR/H/PCR* 0.0234 + CHR/H/CPD* 0.09 b) CHR/H/PCR* 0.0234 + CHR/H/CPD* 0.09	200 – 300	n/a	~~n/a~~ To be confirmed by cMS
18.	RO, SLO	Winter wheat *Triticum aestivum* (TRZAW)	F	broadleaf weeds	Spray medium sprayer	**Spring** BBCH 20–29	a) 1 b) 1	n/a	a) 0.3 – 0.4 b) 0.3 – 0.4	a) 0.09 – 0.12 b) 0.09 – 0.12	200 – 300	n/a	~~n/a~~ To be confirmed by cMS
19.	RO, SLO	Sugar beet *Beta vulgaris* (BEAVP)	F	broadleaf weeds	Spray medium sprayer	BBCH 12–14	a) 1 b) 1	n/a	a) 0.3 – 0.4 b) 0.3 – 0.4	a) 0.09 – 0.12 b) 0.09 – 0.12	200 – 300	n/a	~~n/a~~ To be confirmed by cMS
20.	RO, SLO	Sugar beet *Beta vulgaris* (BEAVP)	F	broadleaf weeds	Spray medium sprayer	BBCH 12–14	a) 3 b) 3	6–10	a) 0.2 b) 0.2	a) 0.06 b) 0.06	200 – 300	n/a	~~n/a~~ To be confirmed by cMS
21.	HU	Winter oilseed rape *Brassica napus* (BRSNW)	F	annual and perennial broadleaf weeds	Spray medium sprayer	**Spring** BBCH 33–51	a) 1 b) 1	n/a	a) 0.4 b) 0.4	a) 0.12 b) 0.12	200 – 300	n/a	~~n/a~~ To be confirmed by cMS
22.	SK	Winter oilseed rape *Brassica napus* (BRSNW)	F	broadleaf weeds	Spray medium sprayer	**Spring** BBCH 33–50	a) 1 b) 1	n/a	a) 0.4 b) 0.4	a) 0.12 b) 0.12	200 – 300	n/a	~~n/a~~ To be confirmed by cMS
23.	LT, LV	Winter oilseed rape *Brassica napus* (BRSNW)	F	broadleaf weeds	Spray medium sprayer	**Spring** BBCH 30–50	a) 1 b) 1	n/a	a) 0.3 – 0.4 b) 0.3 – 0.4	a) 0.09 – 0.12 b) 0.09 – 0.12	200 – 300	n/a	~~n/a~~ To be confirmed by cMS
24.	LT, LV	Winter wheat *Triticum aestivum* (TRZAW)	F	broadleaf weeds	Spray medium sprayer	**Spring** BBCH 20–29	a) 1 b) 1	n/a	a) 0.3 – 0.4 b) 0.3 – 0.4	a) 0.09 – 0.12 b) 0.09 – 0.12	200 – 300	n/a	~~n/a~~ To be confirmed by cMS
25.	LT, LV	Sugar beet *Beta vulgaris*	F	broadleaf weeds	Spray medium	BBCH 12–14	a) 1	n/a	a) 0.3 – 0.4 b) 0.3 – 0.4	a) 0.09 – 0.12 b) 0.09 – 0.12	200 – 300	n/a	~~n/a~~

		(BEAVP)			sprayer		b) 1						To be confirmed by cMS
26.	LT, LV	Sugar beet *Beta vulgaris* (BEAVP)	F	broadleaf weeds	Spray medium sprayer	BBCH 12–14	a) 3 b) 3	6–10	a) 0.2 b) 0.2	a) 0.06 b) 0.06	200 – 300	n/a	~~n/a~~ To be confirmed by cMS
Interzonal uses (use as seed treatment, in greenhouses (or other closed places of plant production), as post-harvest treatment or for treatment of empty storage rooms)													
27.													
28.													
Minor uses according to Article 51 (zonal uses)													
29.													
30.													
Minor uses according to Article 51 (interzonal uses)													
31.													
32.													

*CHR/H/PCR = Zorro 300 SL/ Raldico 300 SL/ Pikas 300 SL
*CHR/H/CPD = Major 300 SL/ Cloe 300 SL/ ProSto 300 SL
*CHR/H/MTC = Mezzo 500 SC/ Mezotop 500 SC/ Metax 500 SC

Remarks table heading:

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

Remarks columns:

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

Column 15: zRMS conclusion.

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

3.3 Efficacy data (KCP 6)

No new studies have been conducted. Please research to core dossier.

Comments of zRMS:	This is an Article 43 application (of Reg. (EC) 1107/2009) and as such only specific new data in order to comply with changes in the assessment of the active substance (new endpoints, new guidance applied, conditions or restrictions in the renewal regulation) can be considered (SANCO/2010/13170 rev 13). Plant protection products based on clopyralid are known and used for many years. In Poland many herbicides with clopyralid are registered and used to control weeds in crops. On the basis on the registry of plant protection products (dated 31.10.2022) – in Poland are registered 37 plant protection products containing clopyralid as active compound. The formulation of this product is a soluble concentrate (SL) and it is containing one active substance: clopyralid (100 g/l). For now, this active compound is on the list of approved active substances. All needed information's are presented by Applicant in core dossier. Major 300 SL/Cloe 300 SL/ProSto 300 SL (product code: CHR/H/CPD 300 SL) was submitted and positively evaluated during the authorization process of this product (permit of the Ministry of Agriculture and Rural Development No. R-237/2017 dated 20.11.2017; Last amended by MRiRW Decision No. R - 297/2020d dated 21.04.2020.). This report has been discontinued to re-registration of this product. The GAP has not been changed compared to current registration. Therefore, in intended uses, there has been no GAP change that impacts the previous efficacy evaluation of CHR/H/CPD 300 SL, and the effectiveness does not have to be reassessed (according to the regulations). No new efficacy and selectivity data trials of this product have been submitted and no new uses will be considered in this application. Thus, the conclusions of previous assessments are still considered valid and the only aspect that will be considered is the resistance risk assessment, which requires updating at renewal. All necessary information's were provided above by Applicant. This document summarises the information related to the efficacy of the plant protection product – Major 300 SL/Cloe 300 SL/ProSto 300 SL (product code: CHR/H/CPD 300 SL. **The data presented in this dossier fully support the renewal under Article 43 of CHR/H/CPD 300 SL in Poland. cMS from CZ, LT, LV, RO, SLO, HU and SK should check if submitted GAP by Applicant is in line with the registrations obtained and made decision if CHR/H/CPD 300 SL can be re-registered according to Article 43.**

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

According to Clopyralid_RAR_01_Volume_1_2017_05_31.pdf and *EFSA Journal*
Clopyralid is the ISO common name for 3,6-dichloropyridine-2-carboxylic acid or 3,6- dichloropicolinic acid (IUPAC). Clopyralid is used as a post emergence herbicide to control some broadleaf weeds in a range of dicotyledon and monocotyledon crops. The representative uses evaluated were broadcast foliar

spray against broad leaf weed species such as *Circium arvensis, Scenecio vulgaris*, *Matricaria chamomilla* and *Matricaria inodorum* in winter cereals and grass.

Table 3.4-1. Summary information on the active substance: clopyralid

Active substance	clopyralid
IUPAC name	3,6-dichloropyridine-2-carboxylic acid or 3,6dichloropicolinic acid
Chemical group	Pyridine-carboxylates
CAS Number	1702-17-6
CIPAC number	455
Molecular formula	$C_6H_3Cl_2NO_2$
Plant translocation	Acropetal translocation of clopyralid in xylem into young meri-stem and youngest leaves as well as basipetal transport in phloem into roots is possible.
Biological action Harmful organism, plant, growth regulator, etc	Clopyralid will mainly be absorbed through green leaves, uptake through roots is of much less importance. The MoA is not yet completely understood. But it has been shown that clopyralid is being accumulated in merestemic tissue and influencing cell division, cell elongation and cell extension as well as RNA synthesis. Consequently, merestemic tissue dies off. Typical symptoms of susceptible plants are deformation and curling of young leaves and stem followed by growth stop and necrosis.
Root-uptake, foliar uptake, systemic etc	Root-uptake, Foliar uptake

Information on the occurrence or possible occurrence of the development of resistance and appropriate management strategies

According to Clopyralid_RAR_01_Volume_1_2017_05_31.pdf
Clopyralid has been in wide scale commercial use in Europe for the control of annual and perennial broad leaved weeds in a wide range of crops since the early 1970's. No reports of resistance in the Europe have been received.
The inherent risk of resistance is very low because of the complex mode of action and besides no cases of resistance to clopyralid have been reported despite being used globally for more than 30 years. Also, the agronomic risk is very low due to a diversity of available control measures for all the major target weeds including various modes of action. The other reason is that the normal rotation includes grass crops such as wheat. This allows a range of cultural and chemical methods to be employed.

According to Clopyralid_RAR_05_Volume_3CA_B-3_2017_05_31.pdf
Herbicides representing this mode of action have been used commercially for more than 35 years. Only two species that are sensitive to clopyralid have been shown to have developed resistance to two herbicides with a synthetic auxin mode of action. In Europe, these were creeping thistle (*Cirsium arvensis*) and scentless mayweed (*Matricaria perforata*). Both of these species have shown increased tolerance to MCPA and 2,4-D (International Survey of Herbicide Resistant Weeds). The level of resistance is generally low and restricted to a small area. Furthermore these weeds were detected between 1975 and 1985 and no increase in range has been reported.

Accroding to Herbicide Resistance Action Committee (HRAC) there are only three cases of clopyralid resistance (two in New Zealand and one in Canada) in the world. No cases of clopyralid resistance have been reported in Europe.

Table 3.4-2: Cases of clopyralid resistance indicated on the HRAC database

(http://www.weedscience.org)

Species Scientific name	Species Common Name(s)	Year	Country	Crop/Situation
Soliva sessilis	common soliva	1999	New Zealand	golf courses, turf
Chenopodium album	goosefoot	2005	New Zealand	maize
Centaurea stoebe ssp. *micranthos*	spotted knapweed	2013	Canada (British Columbia)	rangeland

According to Herbicide Resistance Action Committee (HRAC) (https://hracglobal.com/files/Weed-Resistance-to-Synthetic-Auxin-Herbicides.pdf, https://hracglobal.com/files/Synthetic-Auxin-Fact-Sheet-June-2016.pdf)

Synthetic auxins were the first highly effective, and selective organic herbicides. They have been used for over 60 years and are still being used extensively worldwide for control of broadleaf weeds in many crops and non-agricultural areas. Synthetic auxins are structurally similar to the natural plant hormone IAA and mimic their effects to kill weeds.

Despite synthetic auxin herbicides being used longer and on a greater area than any other herbicide mechanism of action the area infested with synthetic auxin resistant weeds is low in comparison to many other herbicide mechanisms of action. Twenty seven weeds have evolved resistance to synthetic auxins. This excludes grasses resistant to quinclorac since the biochemical mechanism of resistance in these cases appears to differ from other auxin resistance. Sixteen of the 27 species have documented resistance to 2,4-D, seven to MCPA, and six to dicamba. In the United States six weed species have evolved resistance to synthetic auxin herbicides, with only one, *Kochia scoparia*, being widespread and a serious economic problem. Globally the most important synthetic auxin resistant weeds are Kochia, Wild Radish, Corn poppy, and Wild Mustard. Synthetic auxin resistance in two other species, tall waterhemp and common lambsquarters, are not widespread yet, but have the potential to become serious problems in the United States if they are not managed properly.

Gressel and Segel (1982) suggested that the low incidence of synthetic auxin resistant weeds may be due to the auxinic herbicides having multiple sites of action, requiring multiple mutations within an individual to confer resistance. This seems a reasonable assumption, however in most cases (*Sinapis arvensis, Kochia scoparia, Centaurea solstitialis,* and *Galium spurium*) research have shown resistance to be due to a single mutation (single gene) with only one case where resistance was confirmed by two additive genes (*Galeopsis tetrahit*). Alternative theories for the paucity of synthetic auxin resistant weeds are that resistant mutations are extremely rare, or that mutations conferring resistance are lethal.

Diversity in weed control practices is key to delay and manage herbicide resistance in weeds. This involves:

1. Rotation or mixtures of herbicide mechanisms of action.
2. Using at least two herbicides a year from different herbicide mechanisms of action that are still effective on the particular population of the target weed. This may include use of preemergence herbicides.
3. Using cultural/mechanical weed control methods including shallow tillage in the spring, crop rotation, and cleaning equipment.
4. Using full herbicide rates applied at the correct weed size and to carefully monitor results.
5.Scouting fields after herbicide application and controlling escapes

Comments of zRMS:	Clopyralid belongs to the pyridine carboxylic acids group. Applied post-emergence, clopyralid is effective on a broad spectrum of broad-leaved weeds. Clopyralid belongs to the chemical group of the pyridine carboxylic acid herbicide

family, described as a synthetic auxin and classified by HRAC as Group 4 (Legacy HRAC Group O). It acts as systemic herbicide, absorbed by the leaves and roots, with translocation both acropetally and basipetally, and accumulation in meristematic tissue. This type of herbicide kills the target weed by mimicking the plant growth hormone auxin (indole acetic acid), and when administered at effective doses, cause uncontrolled and disorganized plant growth that leads to plant death in a few days or weeks, depending on the species. The exact mode of action of clopyralid has not been fully described but it is believed to acidify the cell wall, which results in cell elongation. Low concentrations of clopyralid can stimulate RNA, DNA, and protein synthesis leading to uncontrolled cell division and disorganized growth, and ultimately, vascular tissue destruction. High concentrations of clopyralid can inhibit cell division and growth.

Diversity in weed control practices is key to delay and manage herbicide resistance in weeds. This involves rotation or mixtures of herbicide mechanisms of action using at least two herbicides a year from different herbicide mechanisms of action that are still effective on the particular population of the target weed. This may include use of preemergence herbicides. Additionally, cultural/mechanical weed control methods including shallow tillage in the spring, crop rotation, and cleaning equipment can be applied. Generally, the full herbicide rate should be applied at the correct weed size. Fields shall be scouted after herbicide application in order to control any possible escapes.

Although clopyralid is used for many years the first evidence of resistance was observed in 1999 and the number of cases has risen only slightly without any obvious core area of distribution.

Clopyralid is rapidly degraded in soil (DT_{50} = 34 days) thus a prolonged exposure to weed populations does not occur which is a factor which decreases the resistance risk.

The risk of resistance was analysed following the EPPO-Standard (2003), the classification of the Herbicide Resistance Action Committee (HRAC) and the international Survey of Herbicide Resistant Weeds (Heap, 2016).

The probability of development of resistance or cross-resistance of weeds to CHR/H/CPD 300 SL is considered as low. The evaluation of the agronomic risk concludes that CHR/H/CPD 300 SL bears a low risk of resistance.

Plant protection products containing clopyralid are used from many years and no information's concerning weed resistance for this active substance was noted. However, the information on possible development of resistance or cross-resistance is provided by scientific literature from many different countries and describes different weed species. Product should be used in rates neither lower nor higher than recommended in the label due to prevent resistance development.

According to weedscience.org, 3 cases of resistance were reported.

#	Year	Species	Country	MOAs	Actives	Situations
1	2013	*Centaurea stoebe ssp. micranthos*	Canada (British Columbia)	Auxin Mimics HRAC Group 4 (Legacy O)	clopyralid, picloram	Rangeland
2	1999	*Soliva sessilis*	New Zealand	Auxin Mimics HRAC Group 4 (Legacy O)	clopyralid, picloram, triclopyr	Golf courses, Turf
3	2005	*Chenopodium album*	New Zealand	Auxin Mimics HRAC Group 4 (Legacy O)	dicamba, clopyralid, aminopyralid	Corn (maize)

Lack of resistance cases for Europe, only one case from Canada (2013) and two

	cases from New Zealand (1999, 2005) have been already reported. Since no resistance to clopyralid has developed in Europe, there is no demonstrated cross resistant to other group 4 herbicides and that synthetic auxins have a multi-site mode of action the risk of practical resistance in unrestricted use is very low and the unmodified risk is acceptable. In view of the acceptable risk of unrestricted use no resistance management strategy is deemed necessary. In a crop rotation, herbicides belonging to HRAC group 4 can be applied in various crops and the agronomic practices may differ in the member states. To avoid inherent risk in group 4 herbicides the agronomic risk should be evaluated at member state level. Generally, evidence of resistance to HRAC Group 4 and specifically to clopyralid are well documented by Weed Science organization and Herbicide Resistance Action Committee. The risk of resistance development of weeds to substances belongs to Group 4 is defined as low. Three cases of weeds species resistance for clopyralid are reported worldwide, out of which none were reported in Europe so far. The resistance risk is really low if CHR/H/CPD 300 SL is used under adherence to the management strategy and label recommendations. To avoid resistance, it is important to have a reasonable crop rotation and respect the label recommended application rates and doses. The risk of resistance to clopyralid is believed to be low for the following reasons: - to minimize the risk of occurrence and development of weed resistance to herbicides, follow Good Agricultural Practice: - follow strictly the directions on the label of the plant protection product use the product at the recommended dose, at the recommended time to ensure optimal weed control, - adjust the choice of herbicide and the decision to carry out the treatment to the prevailing (possibly potential) weed infestation, taking into account the dominant species and damage thresholds, - use a rotation of herbicides (active substances) with different mechanisms of action, - use a mixture of herbicides (active substances) with different mechanism of action, - use in rotation and/or mixture herbicides acting on several life processes of weeds (with different mechanism of action), - use an herbicide with a given mechanism of action only once during the growing season of the crop, - inform the permit holder of unsatisfactory weed control, - contact your advisor, the permit holder or the permit holder's representative for more information. **Since no resistance to clopyralid has developed in Europe, there is no demonstrated cross resistant to other group 4 herbicides and that synthetic auxins have a multi-site mode of action the risk of practical resistance in unrestricted use is very low and the unmodified risk is acceptable. In view of the acceptable risk of unrestricted use no resistance management strategy is deemed necessary. In a crop rotation, herbicides belonging to HRAC group 4 can be applied in various crops and the agronomic practices may differ in the member states.**

3.5 Adverse effects on treated crops (KCP 6.4)

Please research to core dossier.

Comments of zRMS:	Statement accepted. In accordance with the Article 43 of Regulation (EC) No 1107/2009, the already submitted data will not be re-evaluated because the conclusions of previous assessments are still considered valid in the case of no significant change of the GAP table.

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

Please research to core dossier.

Comments of zRMS:	Statement accepted. In accordance with the Article 43 of Regulation (EC) No 1107/2009, the already submitted data will not be re-evaluated because the conclusions of previous assessments are still considered valid in the case of no significant change of the GAP table.

3.7 Other/special studies

Please research to core dossier.

Comments of zRMS:	Statement accepted. In accordance with the Article 43 of Regulation (EC) No 1107/2009, the already submitted data will not be re-evaluated because the conclusions of previous assessments are still considered valid in the case of no significant change of the GAP table.

3.8 List of test facilities including the corresponding certificates

Please research to core dossier.

Appendix 1 Lists of data considered in support of the evaluation

Not applicable.

List of data submitted or referred to by the applicant and relied on, but already evaluated at EU peer review

Not applicable.

List of data submitted by the applicant and not relied on

Not applicable.

List of data relied on not submitted by the applicant but necessary for evaluation

Not applicable.