

FINAL REGISTRATION REPORT

Part B

Section 3

Efficacy Data and Information

Concise summary

Product code: SHA 6100 A

Product name(s): ALIVE

Chemical active substance:

Propaquizafop 100 g/l

Central Zone

Zonal Rapporteur Member State: Poland

CORE ASSESSMENT

Applicant: Sharda Cropchem España

Submission date: August/2020

MS Finalisation date: 12/2021; 03/2022 06/2022

Version history

When	What
May 2021	Applicant updated document
December 2021	ZRMS evaluated the dRR updated by Applicant.
March 2022	The Final Registration Report
June 2022	The Final Registration Report supplemented with the required endorsements by MRiRW

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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). The Final Registration Report supplemented with the required endorsements by MRiRW (changes marked by green).
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3.1 Summary and conclusions of zRMS on Section 3: Efficacy (KCP 6)

Abstract

Comments of zRMS: Overall summaries are not necessary here. It was provided at the end of each chapter of the dRR.

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

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. ^(e)	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F, Fn, Fpn G, Gn, Gpn or I	Pests or Group of pests controlled (additionally: develop- mental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g safen- er/synergist per ha (^(f))	zRMS Conclusion (efficacy)
					Method / Kind	Timing / Growth stage of crop & season	Max. num- ber a) per use b) per crop/ season	Min. inter- val between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. ^(e)	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F, Fn, G, Gn, Gpn or I	Pests or Group of pests controlled (additionally: develop- mental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g safen- er/synergist per ha ^(f)	zRMS Conclusion (efficacy)
					Method / Kind	Timing / Growth stage of crop & season	Max. num- ber a) per use b) per crop/ season	Min. inter- val between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	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	Sugar beet	F	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>); Red fingergrass (<i>Digitaria sanguinalis</i>); Yellow bristlegrass (<i>Setaria pumila</i>); Green bristlegrass (<i>Setaria viridis</i>); Perennial ryegrass (<i>Lolium perenne</i>)	Broadcast spraying	BBCH 13-29* BBCH 12-35**	a) 1 b) 1	-	a) 0.6 b) 0.6	a) 0.060 b) 0.060	200- 300	28	*weeds grow stage **crop grow stage	Acceptable
2	PL	Sugar beet	F	Silky bentgrass (<i>Apera spica-venti</i>); self-seeding of cereals	Broadcast spraying	BBCH 13-21* BBCH 25-30** BBCH 12-35***	a) 1 b) 1	-	a) 0.5-0.7 b) 0.5-0.7	a) 0.050-0.070 b) 0.050-0.070	200- 300	28	*weeds grow stage for dose rate 0.5 L/ha ** weeds grow stage for dose rate 0.7 L/ha ***crop grow stage	Acceptable
3	PL	Sugar beet	F	Couch grass (<i>Agropyron repens</i>)	Broadcast spraying	BBCH 13-16* BBCH 12-35**	a) 1 b) 1 OR a) 1 b) 2	12	a) 1.25-1.5 b) 1.25-1.5 OR a) 0.6 b) 1.2	a) 0.125-0.150 b) 0.125-0.150 OR a) 0.060 b) 0.120	200- 300	28	*weeds grow stage **crop grow stage	Acceptable

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. ^(e)	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F, Fn, G, Gn, Gpn or I	Pests or Group of pests controlled (additionally: develop- mental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g safen- er/synergist per ha ^(f)	zRMS Conclusion (efficacy)
					Method / Kind	Timing / Growth stage of crop & season	Max. num- ber a) per use b) per crop/ season	Min. inter- val between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
4.	PL	Winter oilseed rape	F	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>); Red fingergrass (<i>Digitaria sanguinalis</i>); Yellow bristlegrass (<i>Setar- ia pumila</i>); Green bristlegrass (<i>Setaria viridis</i>); Perennial ryegrass (<i>Lolium perenne</i>)	Broadcast spraying	BBCH 13-29* BBCH 12-30**	a) 1 b) 1	-	a) 0.6 b) 0.6	a) 0.060 b) 0.060	200- 300	42	*weeds grow stage **crop grow stage Proposal mix- ture against self- seeding of cereals and annual weeds: Agil-S 100 EC 0,5 - 0,7 l/ha + Olejan 85 EC/Olemix 84 EC 1,5 l/ha	Accepta- ble
5.	PL	Winter oilseed rape	F	Silky bentgrass (<i>Apera spica-venti</i>); self-seeding of cereals	Broadcast spraying	BBCH 13-21* BBCH 25-30*** BBCH 12-30****	a) 1 b) 1	-	a) 0.5-0.7 b) 0.5-0.7	a) 0.050-0.070 b) 0.050-0.070	200- 300	42	*weeds grow stage for dose rate 0.5 L/ha ** weeds grow stage for dose rate 0.7 L/ha ***crop grow stage	Accepta- ble
6.	PL	Winter oilseed rape	F	Couch grass (<i>Agropyron repens</i>)	Broadcast spraying	BBCH 13-16* BBCH 12-30**	a) 1 b) 1 OR a) 1 b) 2	12	a) 1.25-1.5 b) 1.25-1.5 OR a) 0.6 b) 1.2	a) 0.125-0.150 b) 0.125-0.150 OR a) 0.060 b) 0.120	200- 300	42	*weeds grow stage **crop grow stage	Accepta- ble
7.	PL	Potato	F	Common barnyardgrass	Broadcast	BBCH 13-29*	a) 1	-	a) 0.6	a) 0.060	200-	40	*weeds grow	Accepta-

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. ^(e)	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F, Fn, G, Gn, Gpn or I	Pests or Group of pests controlled (additionally: develop- mental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g safen- er/synergist per ha ^(f)	zRMS Conclusion (efficacy)
					Method / Kind	Timing / Growth stage of crop & season	Max. num- ber a) per use b) per crop/ season	Min. inter- val between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
				(<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>); Red fingergrass (<i>Digitaria sanguinalis</i>); Yellow bristlegrass (<i>Setaria pumila</i>); Green bristlegrass (<i>Setaria viridis</i>); Perennial ryegrass (<i>Lolium perenne</i>)	spraying	BBCH 10-35**	b) 1		b) 0.6	b) 0.060	300		stage **crop grow stage	ble

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. ^(e)	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F, Fn, G, Gn, Gpn or I	Pests or Group of pests controlled (additionally: develop- mental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g safen- er/synergist per ha ^(f)	zRMS Conclusion (efficacy)
					Method / Kind	Timing / Growth stage of crop & season	Max. num- ber a) per use b) per crop/ season	Min. inter- val between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
8.	PL	Potato	F	Silky bentgrass (<i>Apera spica-venti</i>); self-seeding of cereals	Broadcast spraying	BBCH 13-21* BBCH 25-30** BBCH 10-35***	a) 1 b) 1	-	a) 0.5-0.7 b) 0.5-0.7	a) 0.050-0.070 b) 0.050-0.070	200- 300	40	*weeds grow stage for dose rate 0.5 L/ha ** weeds grow stage for dose rate 0.7 L/ha ***crop grow stage	Accepta- ble
9.	PL	Potato	F	Couch grass (<i>Agropyron repens</i>)	Broadcast spraying	BBCH 13-16* BBCH 10-35**	a) 1 b) 1 OR a) 1 b) 2	12	a) 1.25-1.5 b) 1.25-1.5 OR a) 0.6 b) 1.2	a) 0.125-0.150 b) 0.125-0.150 OR a) 0.060 b) 0.120	200- 300	40	*weeds grow stage **crop grow stage	Accepta- ble
10.	PL	Onion	F	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>); Red fingergrass (<i>Digitaria sanguinalis</i>); Yellow bristlegrass (<i>Setaria pumila</i>); Green bristlegrass (<i>Setaria viridis</i>); Perennial ryegrass (<i>Lolium perenne</i>)	Broadcast spraying	BBCH 13-29* BBCH 11-12** BBCH 09-53***	a) 1 b) 1	-	a) 0.6 b) 0.6	a) 0.060 b) 0.060	200- 300	30	*weeds grow stage **crop grow stage *** grow stage crop for seeds	Accepta- ble
11.	PL	Onion	F	Silky bentgrass (<i>Apera</i>	Broadcast	BBCH 13-21*	a) 1	-	a) 0.5-0.7	a) 0.050-0.070	200-	30	*weeds grow	Accepta-

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. ^(e)	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F, Fn, G, Gn, Gpn or I	Pests or Group of pests controlled (additionally: develop- mental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g safen- er/synergist per ha ^(f)	zRMS Conclusion (efficacy)
					Method / Kind	Timing / Growth stage of crop & season	Max. num- ber a) per use b) per crop/ season	Min. inter- val between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
				<i>spica-venti</i>); self-seeding of cereals	spraying	BBCH 25-30** BBCH 11-12*** BBCH 09-53****	b) 1		b) 0.5-0.7	b) 0.050-0.070	300		stage for dose rate 0.5 L/ha ** weeds grow stage for dose rate 0.7 L/ha ***crop grow stage ****grow stage crop for seeds	ble

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. ^(e)	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F, Fn, G, Gn, Gpn or I	Pests or Group of pests controlled (additionally: develop- mental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g safen- er/synergist per ha ^(f)	zRMS Conclusion (efficacy)
					Method / Kind	Timing / Growth stage of crop & season	Max. num- ber a) per use b) per crop/ season	Min. inter- val between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
12.	PL	Onion	F	Couch grass (<i>Agropyron repens</i>)	Broadcast spraying	BBCH 13-16* BBCH 11-12** BBCH 09-53***	a) 1 b) 1 OR a) 1 b) 2	12	a) 1.25-1.5 b) 1.25-1.5 OR a) 0.6 b) 1.2	a) 0.125-0.150 b) 0.125-0.150 OR a) 0.060 b) 0.120	200- 300	30	*weeds grow stage **crop grow stage *** grow stage crop for seeds	Accepta- ble
13.	PL	Bean	F	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>); Red fingergrass (<i>Digitaria sanguinalis</i>); Yellow bristlegrass (<i>Setar- ia pumila</i>); Green bristlegrass (<i>Setaria viridis</i>); Perennial ryegrass (<i>Lolium perenne</i>)	Broadcast spraying	BBCH 13-29* min. BBCH 13**	a) 1 b) 1	-	a) 0.6 b) 0.6	a) 0.060 b) 0.060	200- 300	45	*weeds grow stage **crop grow stage	Accepta- ble
14.	PL	Bean	F	Silky bentgrass (<i>Apera spica-venti</i>); self-seeding of cereals	Broadcast spraying	BBCH 13-21* BBCH 25-30** min. BBCH 13***	a) 1 b) 1	-	a) 0.5-0.7 b) 0.5-0.7	a) 0.050-0.070 b) 0.050-0.070	200- 300	45	*weeds grow stage for dose rate 0.5 L/ha ** weeds grow stage for dose rate 0.7 L/ha ***crop grow stage	Accepta- ble
15.	PL	Bean	F	Couch grass (<i>Agropyron</i>)	Broadcast	BBCH 13-16*	a) 1		a) 1.25-1.5	a) 0.125-0.150	200-	45	*weeds grow	Accepta-

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. ^(e)	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F, Fn, G, Gn, Gpn or I	Pests or Group of pests controlled (additionally: develop- mental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g safen- er/synergist per ha ^(f)	zRMS Conclusion (efficacy)
					Method / Kind	Timing / Growth stage of crop & season	Max. num- ber a) per use b) per crop/ season	Min. inter- val between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
				<i>repens</i>)	spraying	min. BBCH 13**	b) 1 OR a) 1 b) 2	12	b) 1.25-1.5 OR a) 0.6 b) 1.2	b) 0.125-0.150 OR a) 0.060 b) 0.120	300		stage **crop grow stage	ble

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. ^(e)	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F, Fn, G, Gn, Gpn or I	Pests or Group of pests controlled (additionally: develop- mental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g safen- er/synergist per ha ^(f)	zRMS Conclusion (efficacy)
					Method / Kind	Timing / Growth stage of crop & season	Max. num- ber a) per use b) per crop/ season	Min. inter- val between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
16.	PL	Green peas; Peas for dry seeds	F	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>); Red fingergrass (<i>Digitaria sanguinalis</i>); Yellow bristlegrass (<i>Setar- ia pumila</i>); Green bristlegrass (<i>Setaria viridis</i>); Perennial ryegrass (<i>Lolium perenne</i>)	Broadcast spraying	BBCH 13-29* min. BBCH 12**	a) 1 b) 1	-	a) 0.6 b) 0.6	a) 0.060 b) 0.060	200- 300	45	*weeds grow stage **crop grow stage	Accepta- ble
17.	PL	Green peas; Peas for dry seeds	F	Silky bentgrass (<i>Apera spica-venti</i>); self-seeding of cereals	Broadcast spraying	BBCH 13-21* BBCH 25-30*** min. BBCH 12***	a) 1 b) 1	-	a) 0.5-0.7 b) 0.5-0.7	a) 0.050-0.070 b) 0.050-0.070	200- 300	45	*weeds grow stage for dose rate 0.5 L/ha ** weeds grow stage for dose rate 0.7 L/ha ***crop grow stage	Accepta- ble
18.	PL	Green peas; Peas for dry seeds	F	Couch grass (<i>Agropyron repens</i>)	Broadcast spraying	BBCH 13-16* min. BBCH 12**	a) 1 b) 1 OR a) 1 b) 2	12	a) 1.25-1.5 b) 1.25-1.5 OR a) 0.6 b) 1.2	a) 0.125-0.150 b) 0.125-0.150 OR a) 0.060 b) 0.120	200- 300	45	*weeds grow stage **crop grow stage	Accepta- ble
19.	PL	Cabbage	F	Common barnyardgrass	Broadcast	BBCH 13-29*	a) 1	-	a) 0.6	a) 0.060	200-	Growth	*weeds grow	Accepta-

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. ^(e)	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F, Fn, G, Gn, Gpn or I	Pests or Group of pests controlled (additionally: develop- mental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g safen- er/synergist per ha ^(f)	zRMS Conclusion (efficacy)
					Method / Kind	Timing / Growth stage of crop & season	Max. num- ber a) per use b) per crop/ season	Min. inter- val between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
				(<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>); Red fingergrass (<i>Digitaria sanguinalis</i>); Yellow bristlegrass (<i>Setar- ia pumila</i>); Green bristlegrass (<i>Setaria viridis</i>); Perennial ryegrass (<i>Lolium perenne</i>)	spraying	min. BBCH 13**	b) 1		b) 0.6	b) 0.060	300	stage restricted	stage **crop grow stage	ble

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. ^(e)	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F, Fn, G, Gn, Gpn or I	Pests or Group of pests controlled (additionally: develop- mental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g safen- er/synergist per ha ^(f)	zRMS Conclusion (efficacy)
					Method / Kind	Timing / Growth stage of crop & season	Max. num- ber a) per use b) per crop/ season	Min. inter- val between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
20.	PL	Cabbage	F	Silky bentgrass (<i>Apera spica-venti</i>) ; self-seeding of cereals	Broadcast spraying	BBCH 13-21* BBCH 25-30** min. BBCH 13***	a) 1 b) 1	-	a) 0.5-0.7 b) 0.5-0.7	a) 0.050-0.070 b) 0.050-0.070	200- 300	28	*weeds grow stage for dose rate 0.5 L/ha ** weeds grow stage for dose rate 0.7 L/ha ***crop grow stage	Accepta- ble
21.	PL	Cabbage	F	Couch grass (<i>Agropyron repens</i>)	Broadcast spraying	BBCH 13-16* min. BBCH 13**	a) 1 b) 1 OR a) 1 b) 2	12	a) 1.25-1.5 b) 1.25-1.5 OR a) 0.6 b) 1.2	a) 0.125-0.150 b) 0.125-0.150 OR a) 0.060 b) 0.120	200- 300	28	*weeds grow stage **crop grow stage	Accepta- ble
22.	PL	Carrot; Parsley	F	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>) ; Red fingergrass (<i>Digitaria sanguinalis</i>) ; Yellow bristlegrass (<i>Setar- ia pumila</i>) ; Green bristlegrass (<i>Setaria viridis</i>) ; Perennial ryegrass (<i>Lolium perenne</i>)	Broadcast spraying	BBCH 13-29* min. BBCH 12**	a) 1 b) 1	-	a) 0.6 b) 0.6	a) 0.060 b) 0.060	200- 300	28	*weeds grow stage **crop grow stage	Accepta- ble
23.	PL	Carrot;	F	Silky bentgrass (<i>Apera</i>	Broadcast	BBCH 13-21*	a) 1	-	a) 0.5-0.7	a) 0.050-0.070	200-	28	*weeds grow	Accepta-

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. ^(e)	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F, Fn, G, Gn, Gpn or I	Pests or Group of pests controlled (additionally: develop- mental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g safen- er/synergist per ha ^(f)	zRMS Conclusion (efficacy)
					Method / Kind	Timing / Growth stage of crop & season	Max. num- ber a) per use b) per crop/ season	Min. inter- val between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
		Parsley		<i>spica-venti</i> ; self-seeding of cereals	spraying	BBCH 25-30** min. BBCH 12***	b) 1		b) 0.5-0.7	b) 0.050-0.070	300		stage for dose rate 0.5 L/ha ** weeds grow stage for dose rate 0.7 L/ha ***crop grow stage	ble

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. ^(e)	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F, Fn, G, Gn, Gpn or I	Pests or Group of pests controlled (additionally: develop- mental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g safen- er/synergist per ha ^(f)	zRMS Conclusion (efficacy)
					Method / Kind	Timing / Growth stage of crop & season	Max. num- ber a) per use b) per crop/ season	Min. inter- val between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
24.	PL	Carrot; Parsley	F	Couch grass (<i>Agropyron repens</i>)	Broadcast spraying	BBCH 13-16* min. BBCH 12**	a) 1 b) 1 OR a) 1 b) 2	12	a) 1.25-1.5 b) 1.25-1.5 OR a) 0.6 b) 1.2	a) 0.125-0.150 b) 0.125-0.150 OR a) 0.060 b) 0.120	200- 300	28	*weeds grow stage **crop grow stage	Accepta- ble
25.	PL	Strawberry	F	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>); Red fingergrass (<i>Digitaria sanguinalis</i>); Yellow bristlegrass (<i>Setar- ia pumila</i>); Green bristlegrass (<i>Setaria viridis</i>); Perennial ryegrass (<i>Lolium perenne</i>)	Broadcast spraying	BBCH 13-29* BBCH 91-92**	a) 1 b) 1	-	a) 0.6 b) 0.6	a) 0.060 b) 0.060	200- 300	N.A.	*weeds grow stage **crop grow stage	Accepta- ble
26.	PL	Strawberry	F	Silky bentgrass (<i>Apera spica-venti</i>); self-seeding of cereals	Broadcast spraying	BBCH 13-21* BBCH 25-30** BBCH 91-92***	a) 1 b) 1	-	a) 0.5-0.7 b) 0.5-0.7	a) 0.050-0.070 b) 0.050-0.070	200- 300	N.A.	*weeds grow stage for dose rate 0.5 L/ha ** weeds grow stage for dose rate 0.7 L/ha ***crop grow stage	Acceptable
27.	PL	Strawberry	F	Couch grass (<i>Agropyron</i>)	Broadcast	BBCH 13-16*	a) 1		a) 1.25-1.5	a) 0.125-0.150	200-	N.A>	*weeds grow	Acceptable

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. ^(e)	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F, Fn, G, Gn, Gpn or I	Pests or Group of pests controlled (additionally: develop- mental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g safen- er/synergist per ha ^(f)	zRMS Conclusion (efficacy)
					Method / Kind	Timing / Growth stage of crop & season	Max. num- ber a) per use b) per crop/ season	Min. inter- val between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
				<i>repens</i>)	spraying	BBCH 91-92**	b) 1 OR a) 1 b) 2	12	b) 1.25-1.5 OR a) 0.6 b) 1.2	b) 0.125-0.150 OR a) 0.060 b) 0.120	300		stage **crop grow stage	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. ^(e)	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F, Fn, Fpn G, Gn, Gpn or I	Pests or Group of pests controlled (additionally: develop- mental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g safen- er/synergist per ha ^(f)	zRMS Conclusion (efficacy)
					Method / Kind	Timing / Growth stage of crop & season	Max. num- ber a) per use b) per crop/ season	Min. inter- val between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
28.	CEU	OSR	F	Annual and perennial grass weeds	Spray	Post emergence BBCH 12-39	a) 1 c) b) 1	NA	a) 1.2 b) 1.2	a) 0.12 b) 0.12	200- 400	90	Weeds max BBCH 20	To be confirmed by cMS
Minor uses according to Article 51														
29.	PL	Spring oilseed rape	F	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>); Red fingergrass (<i>Digitaria sanguinalis</i>); Yellow bristlegrass (<i>Setar- ia pumila</i>); Green bristlegrass (<i>Setaria viridis</i>); Perennial ryegrass (<i>Lolium perenne</i>)	Broadcast spraying	BBCH 13-29* BBCH 12-30**	a) 1 b) 1	-	a) 0.6 b) 0.6	a) 0.060 b) 0.060	200- 300	90	*weeds grow stage **crop grow stage	Acceptable
30.	PL	Spring oilseed rape	F	Silky bentgrass (<i>Apera spica-venti</i>); self-seeding of cereals	Broadcast spraying	BBCH 13-21* BBCH 25-30** BBCH 12-30***	a) 1 b) 1	-	a) 0.5-0.7 b) 0.5-0.7	a) 0.050-0.070 b) 0.050-0.070	200- 300	90	*weeds grow stage for dose rate 0.5 L/ha ** weeds grow stage for dose rate 0.7 L/ha ***crop grow stage	Acceptable
31.	PL	Spring oilseed rape	F	Couch grass (<i>Agropyron repens</i>)	Broadcast spraying	BBCH 13-16* BBCH 12-30**	a) 1 b) 1 OR		a) 1.25-1.5 b) 1.25-1.5 OR	a) 0.125-0.150 b) 0.125-0.150 OR	200- 300	90	*weeds grow stage **crop grow stage	Acceptable

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. ^(e)	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F, Fn, G, Gn, Gpn or I	Pests or Group of pests controlled (additionally: develop- mental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g safen- er/synergist per ha ^(f)	zRMS Conclusion (efficacy)
					Method / Kind	Timing / Growth stage of crop & season	Max. num- ber a) per use b) per crop/ season	Min. inter- val between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
							a) 1 b) 2	12	a) 0.6 b) 1.2	a) 0.060 b) 0.120				

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. ^(e)	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F, Fn, Fpn G, Gn, Gpn or I	Pests or Group of pests controlled (additionally: develop- mental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g safen- er/synergist per ha ^(f)	zRMS Conclusion (efficacy)
					Method / Kind	Timing / Growth stage of crop & season	Max. num- ber a) per use b) per crop/ season	Min. inter- val between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
32.	PL	Opium poppy; Common flax; Linen flax; Broccoli; Brussels sprouts; Broad beans; Faba bean; Field peas; White lupine; Yellow lupine; Narrow-leaved lupine	F	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>); Red fingergrass (<i>Digitaria sanguinalis</i>); Yellow bristlegrass (<i>Setar- ia pumila</i>); Green bristlegrass (<i>Setaria viridis</i>); Perennial ryegrass (<i>Lolium perenne</i>)	Broadcast spraying	BBCH 13-29* BBCH 13**	a) 1 b) 1	-	a) 0.6 b) 0.6	a) 0.060 b) 0.060	200- 300	Poppy, common flax -90. Broccoli; Brussels sprouts- 28. Broad beans; Faba bean; Field peas; White lupine; Yellow lupine; Narrow- leaved lupine - 45.	*weeds grow stage **crop grow stage	Acceptable
33.	PL	Opium poppy; Common flax; Linen flax; Broccoli; Brussels sprouts; Broad beans; Faba bean; Field peas; White lupine; Yellow lupine; Narrow-leaved lupine	F	Silky bentgrass (<i>Apera spica-venti</i>); self-seeding of cereals	Broadcast spraying	BBCH 13-21* BBCH 25-30** BBCH 13***	a) 1 b) 1	-	a) 0.5-0.7 b) 0.5-0.7	a) 0.050-0.070 b) 0.050-0.070	200- 300	Poppy, common flax -90. Broccoli; Brussels sprouts- 28. Broad beans; Faba bean; Field peas; White lupine; Yellow	*weeds grow stage for dose rate 0.5 L/ha ** weeds grow stage for dose rate 0.7 L/ha ***crop grow stage	Acceptable

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. ^(e)	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F, Fn, G, Gn, Gpn or I	Pests or Group of pests controlled (additionally: develop- mental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g safen- er/synergist per ha ^(f)	zRMS Conclusion (efficacy)
					Method / Kind	Timing / Growth stage of crop & season	Max. num- ber a) per use b) per crop/ season	Min. inter- val between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
												lupine; Narrow- leaved lupine - 45.		

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. ^(e)	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F, Fn, Fpn G, Gn, Gpn or I	Pests or Group of pests controlled (additionally: develop- mental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g safen- er/synergist per ha ^(f)	zRMS Conclusion (efficacy)
					Method / Kind	Timing / Growth stage of crop & season	Max. num- ber a) per use b) per crop/ season	Min. inter- val between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
34.	PL	Opium poppy; Common flax; Linen flax; Broccoli; Brussels sprouts; Broad beans; Faba bean; Field peas; White lupine; Yellow lupine; Narrow-leaved lupine	F	Couch grass (<i>Agropyron repens</i>)	Broadcast spraying	BBCH 13-16* BBCH 13**	a) 1 b) 1 OR a) 1 b) 2	12	a) 1.25-1.5 b) 1.25-1.5 OR a) 0.6 b) 1.2	a) 0.125-0.150 b) 0.125-0.150 OR a) 0.060 b) 0.120	200- 300	Poppy, common flax -90. Broccoli; Brussels sprouts- 28. Broad beans; Faba bean; Field peas; White lupine; Yellow lupine; Narrow- leaved lupine - 45.	*weeds grow stage **crop grow stage	Acceptable
35.	PL	Root celery; Parsnip; Swede	F	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>); Red fingergrass (<i>Digitaria sanguinalis</i>); Yellow bristlegrass (<i>Setar- ia pumila</i>); Green bristlegrass (<i>Setaria viridis</i>); Perennial ryegrass (<i>Lolium</i>	Broadcast spraying	BBCH 13-29* BBCH 12**	a) 1 b) 1	-	a) 0.6 b) 0.6	a) 0.060 b) 0.060	200- 300	28	*weeds grow stage **crop grow stage	Acceptable

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. ^(e)	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F, Fn, G, Gn, Gpn or I	Pests or Group of pests controlled (additionally: develop- mental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g safen- er/synergist per ha ^(f)	zRMS Conclusion (efficacy)
					Method / Kind	Timing / Growth stage of crop & season	Max. num- ber a) per use b) per crop/ season	Min. inter- val between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
				<i>perenne</i>										

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. ^(e)	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F, Fn, G, Gn, Gpn or I	Pests or Group of pests controlled (additionally: develop- mental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g safen- er/synergist per ha ^(f)	zRMS Conclusion (efficacy)
					Method / Kind	Timing / Growth stage of crop & season	Max. num- ber a) per use b) per crop/ season	Min. inter- val between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
36.	PL	Root celery; Parsnip; Swede	F	Silky bentgrass (<i>Apera spica-venti</i>); self-seeding of cereals	Broadcast spraying	BBCH 13-21* BBCH 25-30** BBCH 12***	a) 1 b) 1	-	a) 0.5-0.7 b) 0.5-0.7	a) 0.050-0.070 b) 0.050-0.070	200- 300	28	*weeds grow stage for dose rate 0.5 L/ha ** weeds grow stage for dose rate 0.7 L/ha ***crop grow stage	Acceptable
37.	PL	Root celery; Parsnip; Swede	F	Couch grass (<i>Agropyron repens</i>)	Broadcast spraying	BBCH 13-16* BBCH 12**	a) 1 b) 1 OR a) 1 b) 2	12	a) 1.25-1.5 b) 1.25-1.5 OR a) 0.6 b) 1.2	a) 0.125-0.150 b) 0.125-0.150 OR a) 0.060 b) 0.120	200- 300	28	*weeds grow stage **crop grow stage	Acceptable
38.	PL	Garlic; Shallot	F	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>); Red fingergrass (<i>Digitaria sanguinalis</i>); Yellow bristlegrass (<i>Setar- ia pumila</i>); Green bristlegrass (<i>Setaria viridis</i>); Perennial ryegrass (<i>Lolium perenne</i>)	Broadcast spraying	BBCH 13-29* BBCH 11-12**	a) 1 b) 1	-	a) 0.6 b) 0.6	a) 0.060 b) 0.060	200- 300	30	*weeds grow stage **crop grow stage	Acceptable
39.	PL	Garlic;	F	Silky bentgrass (<i>Apera</i>	Broadcast	BBCH 13-21*	a) 1	-	a) 0.5-0.7	a) 0.050-0.070	200-	30	*weeds grow	Acceptable

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. ^(e)	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F, Fn, G, Gn, Gpn or I	Pests or Group of pests controlled (additionally: develop- mental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g safen- er/synergist per ha ^(f)	zRMS Conclusion (efficacy)
					Method / Kind	Timing / Growth stage of crop & season	Max. num- ber a) per use b) per crop/ season	Min. inter- val between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
		Shallot		<i>spica-venti</i> ; self-seeding of cereals	spraying	BBCH 25-30** BBCH 11-12***	b) 1		b) 0.5-0.7	b) 0.050-0.070	300		stage for dose rate 0.5 L/ha ** weeds grow stage for dose rate 0.7 L/ha ***crop grow stage	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. ^(e)	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F, Fn, Fpn G, Gn, Gpn or I	Pests or Group of pests controlled (additionally: develop- mental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g safen- er/synergist per ha ^(f)	zRMS Conclusion (efficacy)
					Method / Kind	Timing / Growth stage of crop & season	Max. num- ber a) per use b) per crop/ season	Min. inter- val between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
40.	PL	Garlic; Shallot	F	Couch grass (<i>Agropyron repens</i>)	Broadcast spraying	BBCH 13-16* BBCH 11-12**	a) 1 b) 1 OR a) 1 b) 2	12	a) 1.25-1.5 b) 1.25-1.5 OR a) 0.6 b) 1.2	a) 0.125-0.150 b) 0.125-0.150 OR a) 0.060 b) 0.120	200- 300	30	*weeds grow stage **crop grow stage	Acceptable
41.	PL	Fodder beet; Beetroot	F	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>); Red fingergrass (<i>Digitaria sanguinalis</i>); Yellow bristlegrass (<i>Setar- ia pumila</i>); Green bristlegrass (<i>Setaria viridis</i>); Perennial ryegrass (<i>Lolium perenne</i>)	Broadcast spraying	BBCH 13-29* BBCH 12-35**	a) 1 b) 1	-	a) 0.6 b) 0.6	a) 0.060 b) 0.060	200- 300	28	*weeds grow stage **crop grow stage	Acceptable
42.	PL	Fodder beet; Beetroot	F	Silky bentgrass (<i>Apera spica-venti</i>); self-seeding of cereals	Broadcast spraying	BBCH 13-21* BBCH 25-30** BBCH 12-35***	a) 1 b) 1	-	a) 0.5-0.7 b) 0.5-0.7	a) 0.050-0.070 b) 0.050-0.070	200- 300	28	*weeds grow stage for dose rate 0.5 L/ha ** weeds grow stage for dose rate 0.7 L/ha ***crop grow stage	Acceptable
43.	PL	Fodder beet;	F	Couch grass (<i>Agropyron</i>)	Broadcast	BBCH 13-16*	a) 1		a) 1.25-1.5	a) 0.125-0.150	200-	28	*weeds grow	Acceptable

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. ^(e)	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F, Fn, G, Gn, Gpn or I	Pests or Group of pests controlled (additionally: develop- mental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g safen- er/synergist per ha ^(f)	zRMS Conclusion (efficacy)
					Method / Kind	Timing / Growth stage of crop & season	Max. num- ber a) per use b) per crop/ season	Min. inter- val between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
		Beetroot		<i>repens</i>)	spraying	BBCH 12-35**	b) 1 OR a) 1 b) 2	12	b) 1.25-1.5 OR a) 0.6 b) 1.2	b) 0.125-0.150 OR a) 0.060 b) 0.120	300		stage **crop grow stage	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. ^(e)	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F, Fn, G, Gn, Gpn or I	Pests or Group of pests controlled (additionally: develop- mental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g safen- er/synergist per ha ^(f)	zRMS Conclusion (efficacy)
					Method / Kind	Timing / Growth stage of crop & season	Max. num- ber a) per use b) per crop/ season	Min. inter- val between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
44.	PL	Jerusalem Arti- chokes; Horseradish; Black radish; Japanese radish (daikon); Radish; Salsify; White turnip; Black turnip	F	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>); Red fingergrass (<i>Digitaria sanguinalis</i>); Yellow bristlegrass (<i>Setar- ia pumila</i>); Green bristlegrass (<i>Setaria viridis</i>); Perennial ryegrass (<i>Lolium perenne</i>)	Broadcast spraying	BBCH 13-29* min. BBCH 12**	a) 1 b) 1	-	a) 0.6 b) 0.6	a) 0.060 b) 0.060	200- 300	28	*weeds grow stage **crop grow stage	Acceptable
45.	PL	Jerusalem Arti- chokes; Horseradish; Black radish; Japanese radish (daikon); Radish; Salsify; White turnip; Black turnip	F	Silky bentgrass (<i>Apera spica-venti</i>); self-seeding of cereals	Broadcast spraying	BBCH 13-21* BBCH 25-30*** min. BBCH 12***	a) 1 b) 1	-	a) 0.5-0.7 b) 0.5-0.7	a) 0.050-0.070 b) 0.050-0.070	200- 300	28	*weeds grow stage for dose rate 0.5 L/ha ** weeds grow stage for dose rate 0.7 L/ha ***crop grow stage	Acceptable
46	PL	Jerusalem Arti- chokes; Horseradish; Black radish; Daikon; Radish; Salsify; White turnip; Black turnip	F	Couch grass (<i>Agropyron repens</i>)	Broadcast spraying	BBCH 13-16* min. BBCH 12**	a) 1 b) 1 OR a) 1 b) 2	12	a) 1.25-1.5 b) 1.25-1.5 OR a) 0.6 b) 1.2	a) 0.125-0.150 b) 0.125-0.150 OR a) 0.060 b) 0.120	200- 300	28	*weeds grow stage **crop grow stage	Acceptable

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. ^(e)	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F, Fn, G, Gn, Gpn or I	Pests or Group of pests controlled (additionally: develop- mental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g safen- er/synergist per ha ^(f)	zRMS Conclusion (efficacy)
					Method / Kind	Timing / Growth stage of crop & season	Max. num- ber a) per use b) per crop/ season	Min. inter- val between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
47.	PL	Alfalfa; Yellow alfalfa; Black medic; Red clover; White clover; Crimson clover; Common sainfoin; Vetch; Little white bird's- foot; Lentil; White melilot; Yellow melilot; Grass pea	F	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>); Red fingergrass (<i>Digitaria sanguinalis</i>); Yellow bristlegrass (<i>Setar- ia pumila</i>); Green bristlegrass (<i>Setaria viridis</i>); Perennial ryegrass (<i>Lolium perenne</i>)	Broadcast spraying	BBCH 13-29* min. BBCH 13**	a) 1 b) 1	-	a) 0.6 b) 0.6	a) 0.060 b) 0.060	200- 300	45	*weeds grow stage **crop grow stage	Acceptable
48.	PL	Alfalfa; Yellow alfalfa; Black medic; Red clover; White clover; Crimson clover; Common sainfoin; Vetch; Little white bird's- foot; Lentil; White melilot; Yellow melilot; Grass pea	F	Silky bentgrass (<i>Apera spica-venti</i>); self-seeding of cereals	Broadcast spraying	BBCH 13-21* BBCH 25-30** min. BBCH 13***	a) 1 b) 1	-	a) 0.5-0.7 b) 0.5-0.7	a) 0.050-0.070 b) 0.050-0.070	200- 300	45	*weeds grow stage for dose rate 0.5 L/ha ** weeds grow stage for dose rate 0.7 L/ha ***crop grow stage	Acceptable
49.	PL	Alfalfa; Yellow alfalfa; Black medic; Red clover; White clover;	F	Couch grass (<i>Agropyron repens</i>)	Broadcast spraying	BBCH 13-16* min. BBCH 13**	a) 1 b) 1 OR		a) 1.25-1.5 b) 1.25-1.5 OR	a) 0.125-0.150 b) 0.125-0.150 OR	200- 300	45	*weeds grow stage **crop grow stage	Acceptable

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. ^(e)	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F, Fn, G, Gn, Gpn or I	Pests or Group of pests controlled (additionally: develop- mental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g safen- er/synergist per ha ^(f)	zRMS Conclusion (efficacy)
					Method / Kind	Timing / Growth stage of crop & season	Max. num- ber a) per use b) per crop/ season	Min. inter- val between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
		Crimson clover; Common sainfoin; Vetch; Little white bird's- foot; Lentil; White melilot; Yellow melilot; Grass pea					a) 1 b) 2	12	a) 0.6 b) 1.2	a) 0.060 b) 0.120				

Column 15: zRMS conclusion.

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

3.2 Efficacy data (KCP 6)

Introduction

This document summarises the information related to the efficacy data of the new plant protection product Propaquizafop 10% EC (ALIVE; Product code: SHA 6100 A) containing the active substance propaquizafop, which was included into Annex I of Council Directive 91/414/EEC.

The SANCO report for propaquizafop (SANCO/222/2000 rev 6) is considered to provide the relevant review information or a reference to where such information can be found.

For the implementation of the uniform principles of Annex VI, the conclusions of the review report on propaquizafop, and in particular Appendices I and II thereof, as finalised in the Standing Committee on the Food Chain and Animal Health on 17 June 2011 shall be taken into account. Consideration of active substances for Annex I inclusion does not include an evaluation of efficacy. Therefore there are no concerns to address arising from the inclusion directive of propaquizafop relating to efficacy.

These concerns have been addressed within the current submission.

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

Appendix 2 of this document is the table of intended uses for propaquizafop.

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

Report:	CP 6.0/001 Biological Assessment Dossier Propaquizafop 10% EC
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Description of active substance propaquizafop

Propaquizafop have been marketed for more than 30 years. It belongs to the chemical group of aryloxy-phenoxy-propionates. It is absorbed by foliage predominantly.

Today, Propaquizafop is registered and commercialised in several formulations around the world.

Table 3.2-1: Current approvals of propaquizafop in the EU South and Central zone

Country	Product	Active ingredient	Approval number
France	Agil	Propaquizafop 100g/L	8800199
	Claxon	Propaquizafop 100g/L	9800458
	Ambition	Propaquizafop 100g/L	2020014
Greece	Agil	Propaquizafop 100g/L	70095
	Zetrola 10 EC	Propaquizafop 100g/L	70250
Italy	Agil	Propaquizafop 100g/L	009005
	Shogun	Propaquizafop 100g/L	011660
	Falcon MK	Propaquizafop 100g/L	015253
	Zetrola	Propaquizafop 100g/L	017115
	Liga	Propaquizafop 100g/L	017206
Spain	Agil	Propaquizafop 100g/L	19140
	Shogun	Propaquizafop 100g/L	23651
Portugal	Agil 100 EC	Propaquizafop 100g/L	3827
	Agil	Propaquizafop 100g/L	3830
Denmark	Agil 100 EC	Propaquizafop 100g/L	396-12
	LFS Propaquizafop 10% EC	Propaquizafop 100g/L	318-33
Germany	Agil-S	Propaquizafop 100g/L	034107-00

	Zetrola	Propaquizafop 100g/L	034107-60
Austria	Agil-S	Propaquizafop 100g/L	2928-0
	Zetrola	Propaquizafop 100g/L	2928-901
Czech Republic	Agil 100 EC	Propaquizafop 100g/L	4239-9
Ireland	Claw 100	Propaquizafop 100g/L	05444
	Falcon	Propaquizafop 100g/L	04740
	Farmco Zealot	Propaquizafop 100g/L	05299
	Zetrona	Propaquizafop 100g/L	05936
Netherlands	Agil 100 EC	Propaquizafop 100g/L	15291
Poland	Agil-S 100 EC	Propaquizafop 100g/L	R-208/2014
Switzerland	Agil	Propaquizafop 100g/L	W-6647
	Agil	Propaquizafop 100g/L	W-6969
	Obsidio Rex	Propaquizafop 100g/L	W-6647-1
	Propaq	Propaquizafop 100g/L	W-6870
	Napaqui	Propaquizafop 100g/L	F-5430
	Shogun	Propaquizafop 100g/L	I-3784

Mode of action

Propaquizafop acts by the inhibition of acetyl CoA carboxylase (ACCCase). Due to its primary target site and its chemical family, in the HRAC mode of action classification it is classified as group A (WSSA group 1) herbicide:

- Mode of Action: Inhibition of acetyl CoA carboxylase (ACCCase)
- Chemical families: Aryloxyphenoxy-propionate 'FOPs', Cyclohexanedione 'DIMs'.

Table 3.2-2: Details of the formulation and the active substance

Proposed trade name	Propaquizafop 10% EC
A.S. content:	propaquizafop 100 g/L
Formulation type:	EC
<A.S. 1>	Propaquizafop
IUPAC name:	2-isopropylidenamino-oxyethyl (R)-2-[4-(6-chloro- quinoxalin-2-yloxy)phenoxy]propionate
Chemical group:	Aryloxyphenoxy- propionate
Mode of action:	inhibition of acetyl CoA carboxylase (ACCCase)
Plant translocation:	Absorbed primarily by leaves
Biological action:	Selective

For further physico-chemical properties, please refer to Registration Report Part B Section 1: Identity, physical and chemical properties, other information.

Description of the plant protection product

Propaquizafop 10% EC is an Emulsion Concentrate (EC) containing 100 grams per liter (g/L) propaquizafop for use in a range of crops.

According to the GAP, the proposed application rate of PROPAQUIZAFOP 10% EC is 1.2 liter per hectare (L/ha), dependent on the grass weed, with one application per season which is applied post-emergence. This will deliver 120 g propaquizafop per hectare. In the treated crops, the dose rates tested against equivalent dose rates of currently marketed propaquizafop reference products were ranging between 0.6 and 1.0 L/ha.

The data presented in this dossier fully support the label claim for propaquizafop for the control of annual and perennial grass weeds in a wide range of crops.

Uses (from 1 to 49) with exception of Use 28 requested for propaquizafop 10% EC are identical to those of the reference product Agil S 100 EC (reg nr R208/2014) registered in POLAND for more than 10 years and, therefore, not in a scope of data protection anymore.

Table 3.2-3: Simplified table of currently registered uses and requested uses for the product code.

Uses		Member State	Requested rate(s)	Comments / Other relevant details on GAPs
Crop(s)	Target(s)			
Sugarbeet	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>) ; Red fingergrass (<i>Digitaria sanguinalis</i>) ; Yellow bristlegrass (<i>Setaria pumila</i>) ; Green bristlegrass (<i>Setaria viridis</i>) ; Perennial ryegrass (<i>Lolium perenne</i>)	CEU	0.6 kg/ha	
Sugarbeet	Silky bentgrass (<i>Apera spica-venti</i>); self-seeding of cereals	CEU	0.5-0.7 kg/ha	
Sugarbeet	Couch grass (<i>Agropyron repens</i>)	CEU	1.25-1.5 kg/ha	or 2 x 0.6 kg/ha
Winter oilseed rape	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>) ; Red fingergrass (<i>Digitaria sanguinalis</i>) ; Yellow bristlegrass (<i>Setaria pumila</i>) ; Green bristlegrass (<i>Setaria viridis</i>) ; Perennial ryegrass (<i>Lolium perenne</i>)	CEU	0.6 kg/ha	
Winter oilseed rape	Silky bentgrass (<i>Apera spica-venti</i>) ; self-seeding of cereals	CEU	0.5-0.7 kg/ha	
Winter oilseed rape	Couch grass (<i>Agropyron repens</i>)	CEU	1.25-1.5 kg/ha	or 2 x 0.6 kg/ha
Potato	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>) ; Red fingergrass (<i>Digitaria sanguinalis</i>) ;	CEU	0.6 kg/ha	

Uses		Member State	Requested rate(s)	Comments / Other relevant details on GAPs
Crop(s)	Target(s)			
	Yellow bristlegrass (<i>Setaria pumila</i>) ; Green bristlegrass (<i>Setaria viridis</i>) ; Perennial ryegrass (<i>Lolium perenne</i>)			
Potato	Silky bentgrass (<i>Apera spica-venti</i>) ; self-seeding of cereals	CEU	0.5-0.7 kg/ha	
Potato	Couch grass (<i>Agropyron repens</i>)	CEU	1.25-1.5 kg/ha	or 2 x 0.6 kg/ha
Onion	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>) ; Red fingergrass (<i>Digitaria sanguinalis</i>) ; Yellow bristlegrass (<i>Setaria pumila</i>) ; Green bristlegrass (<i>Setaria viridis</i>) ; Perennial ryegrass (<i>Lolium perenne</i>)	CEU	0.6 kg/ha	
Onion	Silky bentgrass (<i>Apera spica-venti</i>) ; self-seeding of cereals	CEU	0.5-0.7 kg/ha	
Onion	Couch grass (<i>Agropyron repens</i>)	CEU	1.25-1.5 kg/ha	or 2 x 0.6 kg/ha
Bean	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>) ; Red fingergrass (<i>Digitaria sanguinalis</i>) ; Yellow bristlegrass (<i>Setaria pumila</i>) ; Green bristlegrass (<i>Setaria viridis</i>) ; Perennial ryegrass (<i>Lolium perenne</i>)	CEU	0.6 kg/ha	
Bean	Silky bentgrass (<i>Apera spica-venti</i>) ; self-seeding of cereals	CEU	0.5-0.7 kg/ha	
Bean	Couch grass (<i>Agropyron repens</i>)	CEU	1.25-1.5 kg/ha	or 2 x 0.6 kg/ha
Green peas; Peas for dry seeds	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>) ; Red fingergrass (<i>Digitaria sanguinalis</i>) ; Yellow bristlegrass (<i>Setaria pumila</i>) ;	CEU	0.6 kg/ha	

Uses		Member State	Requested rate(s)	Comments / Other relevant details on GAPs
Crop(s)	Target(s)			
	Green bristlegrass (<i>Setaria viridis</i>) ; Perennial ryegrass (<i>Lolium perenne</i>)			
Green peas; Peas for dry seeds	Silky bentgrass (<i>Apera spica-venti</i>) ; self-seeding of cereals	CEU	0.5-0.7 kg/ha	
Green peas; Peas for dry seeds	Couch grass (<i>Agropyron repens</i>)	CEU	1.25-1.5 kg/ha	or 2 x 0.6 kg/ha
Cabbage	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>) ; Red fingergrass (<i>Digitaria sanguinalis</i>) ; Yellow bristlegrass (<i>Setaria pumila</i>) ; Green bristlegrass (<i>Setaria viridis</i>) ; Perennial ryegrass (<i>Lolium perenne</i>)	CEU	0.6 kg/ha	
Cabbage	Silky bentgrass (<i>Apera spica-venti</i>) ; self-seeding of cereals	CEU	0.5-0.7 kg/ha	
Cabbage	Couch grass (<i>Agropyron repens</i>)	CEU	1.25-1.5 kg/ha	or 2 x 0.6 kg/ha
Carrot; Parsley	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>) ; Red fingergrass (<i>Digitaria sanguinalis</i>) ; Yellow bristlegrass (<i>Setaria pumila</i>) ; Green bristlegrass (<i>Setaria viridis</i>) ; Perennial ryegrass (<i>Lolium perenne</i>)	CEU	0.6 kg/ha	
Carrot; Parsley	Silky bentgrass (<i>Apera spica-venti</i>) ; self-seeding of cereals	CEU	0.5-0.7 kg/ha	
Carrot; Parsley	Couch grass (<i>Agropyron repens</i>)	CEU	1.25-1.5 kg/ha	or 2 x 0.6 kg/ha
Strawberry	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>) ; Red fingergrass (<i>Digitaria sanguinalis</i>) ; Yellow bristlegrass (<i>Setaria pumila</i>) ;	CEU	0.6 kg/ha	

Uses		Member State	Requested rate(s)	Comments / Other relevant details on GAPs
Crop(s)	Target(s)			
	Green bristlegrass (<i>Setaria viridis</i>) ; Perennial ryegrass (<i>Lolium perenne</i>)			
Strawberry	Silky bentgrass (<i>Apera spica-venti</i>) ; self-seeding of cereals	CEU	0.5-0.7 kg/ha	
Strawberry	Couch grass (<i>Agropyron repens</i>)	CEU	1.25-1.5 kg/ha	or 2 x 0.6 kg/ha
OSR	Annual and perennial grass weeds	CEU	1.2 kg/ha	
Spring oilseed rape	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>) ; Red fingergrass (<i>Digitaria sanguinalis</i>) ; Yellow bristlegrass (<i>Setaria pumila</i>) ; Green bristlegrass (<i>Setaria viridis</i>) ; Perennial ryegrass (<i>Lolium perenne</i>)	CEU	0.6 kg/ha	
Spring oilseed rape	Silky bentgrass (<i>Apera spica-venti</i>) ; self-seeding of cereals	CEU	0.5-0.7 kg/ha	
Spring oilseed rape	Couch grass (<i>Agropyron repens</i>)	CEU	1.25-1.5 kg/ha	or 2 x 0.6 kg/ha
Opium poppy; Common flax; Linen flax; Broccoli; Brussels sprouts; Broad beans; Faba bean; Field peas; White lupine; Yellow lupine; Narrow-leaved lupine	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>) ; Red fingergrass (<i>Digitaria sanguinalis</i>) ; Yellow bristlegrass (<i>Setaria pumila</i>) ; Green bristlegrass (<i>Setaria viridis</i>) ; Perennial ryegrass (<i>Lolium perenne</i>)	CEU	0.6 kg/ha	
Opium poppy; Common flax; Linen flax; Broccoli; Brussels sprouts; Broad beans; Faba bean; Field peas; White lupine; Yellow lupine; Narrow-leaved lupine	Silky bentgrass (<i>Apera spica-venti</i>) ; self-seeding of cereals	CEU	0.5-0.7 kg/ha	
Opium poppy; Common flax; Linen flax;	Couch grass (<i>Agropyron repens</i>)	CEU	1.25-1.5 kg/ha	or 2 x 0.6 kg/ha

Uses		Member State	Requested rate(s)	Comments / Other relevant details on GAPS
Crop(s)	Target(s)			
Broccoli; Brussels sprouts; Broad beans; Faba bean; Field peas; White lupine; Yellow lupine; Narrow-leaved lupine				
Root celery; Parsnip; Swede	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>) ; Red fingergrass (<i>Digitaria sanguinalis</i>) ; Yellow bristlegrass (<i>Setaria pumila</i>) ; Green bristlegrass (<i>Setaria viridis</i>) ; Perennial ryegrass (<i>Lolium perenne</i>)	CEU	0.6 kg/ha	
Root celery; Parsnip; Swede	Silky bentgrass (<i>Apera spica-venti</i>) ; self-seeding of cereals	CEU	0.5-0.7 kg/ha	
Root celery; Parsnip; Swede	Couch grass (<i>Agropyron repens</i>)	CEU	1.25-1.5 kg/ha	or 2 x 0.6 kg/ha
Garlic; Shallot	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>) ; Red fingergrass (<i>Digitaria sanguinalis</i>) ; Yellow bristlegrass (<i>Setaria pumila</i>) ; Green bristlegrass (<i>Setaria viridis</i>) ; Perennial ryegrass (<i>Lolium perenne</i>)	CEU	0.6 kg/ha	
Garlic; Shallot	Silky bentgrass (<i>Apera spica-venti</i>) ; self-seeding of cereals	CEU	0.5-0.7 kg/ha	
Garlic; Shallot	Couch grass (<i>Agropyron repens</i>)	CEU	1.25-1.5 kg/ha	or 2 x 0.6 kg/ha
Fodder beet; Beetroot	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>) ; Red fingergrass (<i>Digitaria sanguinalis</i>) ; Yellow bristlegrass (<i>Setaria pumila</i>) ;	CEU	0.6 kg/ha	

Uses		Member State	Requested rate(s)	Comments / Other relevant details on GAPs
Crop(s)	Target(s)			
	Green bristlegrass (<i>Setaria viridis</i>); Perennial ryegrass (<i>Lolium perenne</i>)			
Fodder beet; Beetroot	Silky bentgrass (<i>Apera spica-venti</i>); self-seeding of cereals	CEU	0.5-0.7 kg/ha	
Fodder beet; Beetroot	Couch grass (<i>Agropyron repens</i>)	CEU	1.25-1.5 kg/ha	or 2 x 0.6 kg/ha
Jerusalem Artichokes; Horseradish; Black radish; Japanese radish (dai-kon); Radish; Salsify; White turnip; Black turnip	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>); Red fingergrass (<i>Digitaria sanguinalis</i>); Yellow bristlegrass (<i>Setaria pumila</i>); Green bristlegrass (<i>Setaria viridis</i>); Perennial ryegrass (<i>Lolium perenne</i>)	CEU	0.6 kg/ha	
Jerusalem Artichokes; Horseradish; Black radish; Japanese radish (dai-kon); Radish; Salsify; White turnip; Black turnip	Silky bentgrass (<i>Apera spica-venti</i>); self-seeding of cereals	CEU	0.5-0.7 kg/ha	
Jerusalem Artichokes; Horseradish; Black radish; Japanese radish (dai-kon); Radish; Salsify; White turnip; Black turnip	Couch grass (<i>Agropyron repens</i>)	CEU	1.25-1.5 kg/ha	or 2 x 0.6 kg/ha
Alfalfa; Yellow alfalfa; Black medic; Red clover; White clover; Crimson clover; Common sainfoin; Vetch; Little white bird's-foot; Lentil; White melilot; Yellow melilot;	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>); Red fingergrass (<i>Digitaria sanguinalis</i>); Yellow bristlegrass (<i>Setaria pumila</i>); Green bristlegrass (<i>Setaria viridis</i>); Perennial ryegrass (<i>Lolium perenne</i>)	CEU	0.6 kg/ha	

Uses		Member State	Requested rate(s)	Comments / Other relevant details on GAPs
Crop(s)	Target(s)			
Grass pea				
Alfalfa; Yellow alfalfa; Black medic; Red clover; White clover; Crimson clover; Common sainfoin; Vetch; Little white bird's-foot; Lentil; White melilot; Yellow melilot; Grass pea	Silky bentgrass (<i>Apera spica-venti</i>); self-seeding of cereals	CEU	0.5-0.7 kg/ha	
Alfalfa; Yellow alfalfa; Black medic; Red clover; White clover; Crimson clover; Common sainfoin; Vetch; Little white bird's-foot; Lentil; White melilot; Yellow melilot; Grass pea	Couch grass (<i>Agropyron repens</i>)	CEU	1.25-1.5 kg/ha	or 2 x 0.6 kg/ha

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

Description of the target pests

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

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

EPPO code	Scientific name	Common name
ALOMY	<i>Alopecurus myosuroides</i>	Blackgrass
AGRRE	<i>Elymus repens</i>	Quackgrass
AGSST	<i>Agrostis stolonifera</i>	Creeping bentgrass
AVESS	<i>Avena sp</i>	Oats
BROSS	<i>Bromus sp.</i>	Brome grasses
CYNDA	<i>Cynodon dactylon</i>	Bermuda grass
CLMEP	<i>Calamagrostis epigeios</i>	Bushgrass

EPP0 code	Scientific name	Common name
DIGSA	<i>Digitaria sanguinalis</i>	Crabgrass
ECHCG	<i>Echinochloa crus-galli</i>	Barnyard grass
FESOV	<i>Festuca ovina</i>	Sheep fescue
HOLLA	<i>Holcus lanatus</i>	Common velvet grass
HORVX	<i>Hordeum vulgare</i>	Volunteer barley
LOLSS	<i>Lolium sp.</i>	Ryegrass
LOLMU	<i>Lolium multiflorum</i>	Bearded ryegrass
PHASS	<i>Phalaris sp.</i>	Canarygrass
POAPR	<i>Poa pratensis</i>	Kentucky bluegrass
POAAN	<i>Poa annua</i>	Annual bluegrass
SETSS	<i>Setaria sp.</i>	Foxtails
SORHA	<i>Sorghum halepense</i>	Johnson grass
TRZAX	<i>Triticum aestivum</i>	Volunteer wheat

Table 3.2-5: Major / minor status of intended uses (for all cMS and zRMS).

Crop and/or situation	Crop status		Pests or group of pests controlled	Pest status	
	Major	minor		Major	minor
Sugarbeet	CEU		Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>); Red fingergrass (<i>Digitaria sanguinalis</i>); Yellow bristlegrass (<i>Setaria pumila</i>); Green bristlegrass (<i>Setaria viridis</i>); Perennial ryegrass (<i>Lolium perenne</i>)	CEU	
Sugarbeet	CEU		Silky bentgrass (<i>Apera spica-venti</i>); self-seeding of cereals	CEU	
Sugarbeet	CEU		Couch grass (<i>Agropyron repens</i>)	CEU	

Winter oilseed rape	CEU		Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>); Red fingergrass (<i>Digitaria sanguinalis</i>); Yellow bristlegrass (<i>Setaria pumila</i>); Green bristlegrass (<i>Setaria viridis</i>); Perennial ryegrass (<i>Lolium perenne</i>)	CEU	
Winter oilseed rape	CEU		Silky bentgrass (<i>Apera spica-venti</i>); self-seeding of cereals	CEU	
Winter oilseed rape	CEU		Couch grass (<i>Agropyron repens</i>)	CEU	
Potato	CEU		Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>); Red fingergrass (<i>Digitaria sanguinalis</i>); Yellow bristlegrass (<i>Setaria pumila</i>); Green bristlegrass (<i>Setaria viridis</i>); Perennial ryegrass (<i>Lolium perenne</i>)	CEU	
Potato	CEU		Silky bentgrass (<i>Apera spica-venti</i>); self-seeding of cereals	CEU	
Potato	CEU		Couch grass (<i>Agropyron repens</i>)	CEU	

Onion	CEU		Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>); Red fingergrass (<i>Digitaria sanguinalis</i>); Yellow bristlegrass (<i>Setaria pumila</i>); Green bristlegrass (<i>Setaria viridis</i>); Perennial ryegrass (<i>Lolium perenne</i>)	CEU	
Onion	CEU		Silky bentgrass (<i>Apera spica-venti</i>); self-seeding of cereals	CEU	
Onion	CEU		Couch grass (<i>Agropyron repens</i>)	CEU	
Bean	CEU		Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>); Red fingergrass (<i>Digitaria sanguinalis</i>); Yellow bristlegrass (<i>Setaria pumila</i>); Green bristlegrass (<i>Setaria viridis</i>); Perennial ryegrass (<i>Lolium perenne</i>)	CEU	
Bean	CEU		Silky bentgrass (<i>Apera spica-venti</i>); self-seeding of cereals	CEU	
Bean	CEU		Couch grass (<i>Agropyron repens</i>)	CEU	

Green peas; Peas for dry seeds	CEU		Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>); Red fingergrass (<i>Digitaria sanguinalis</i>); Yellow bristlegrass (<i>Setaria pumila</i>); Green bristlegrass (<i>Setaria viridis</i>); Perennial ryegrass (<i>Lolium perenne</i>)	CEU	
Green peas; Peas for dry seeds	CEU		Silky bentgrass (<i>Apera spica-venti</i>); self-seeding of cereals	CEU	
Green peas; Peas for dry seeds	CEU		Couch grass (<i>Agropyron repens</i>)	CEU	
Cabbage	CEU		Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>); Red fingergrass (<i>Digitaria sanguinalis</i>); Yellow bristlegrass (<i>Setaria pumila</i>); Green bristlegrass (<i>Setaria viridis</i>); Perennial ryegrass (<i>Lolium perenne</i>)	CEU	
Cabbage	CEU		Silky bentgrass (<i>Apera spica-venti</i>); self-seeding of cereals	CEU	
Cabbage Carrot;	CEU		Couch grass (<i>Agropyron repens</i>)	CEU	-

Carrot; Parsley	CEU		Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>); Red fingergrass (<i>Digitaria sanguinalis</i>); Yellow bristlegrass (<i>Setaria pumila</i>); Green bristlegrass (<i>Setaria viridis</i>); Perennial ryegrass (<i>Lolium perenne</i>)	CEU	
Carrot; Parsley	CEU		Silky bentgrass (<i>Apera spica-venti</i>); self-seeding of cereals	CEU	
Strawberry	CEU		Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>); Red fingergrass (<i>Digitaria sanguinalis</i>); Yellow bristlegrass (<i>Setaria pumila</i>); Green bristlegrass (<i>Setaria viridis</i>); Perennial ryegrass (<i>Lolium perenne</i>)	CEU	
Strawberry	CEU		Silky bentgrass (<i>Apera spica-venti</i>); self-seeding of cereals	CEU	
Strawberry	CEU		Couch grass (<i>Agropyron repens</i>)	CEU	
OSR	CEU		Annual and perennial grass weeds	CEU	

Spring oilseed rape		CEU	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>); Red fingergrass (<i>Digitaria sanguinalis</i>); Yellow bristlegrass (<i>Setaria pumila</i>); Green bristlegrass (<i>Setaria viridis</i>); Perennial ryegrass (<i>Lolium perenne</i>)	CEU	
Spring oilseed rape		CEU	Silky bentgrass (<i>Apera spica-venti</i>); self-seeding of cereals	CEU	
Spring oilseed rape		CEU	Couch grass (<i>Agropyron repens</i>)	CEU	
Opium poppy; Common flax; Linen flax; Broccoli; Brussels sprouts; Broad beans; Faba bean; Field peas; White lupine; Yellow lupine; Narrow-leaved lupine		CEU	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>); Red fingergrass (<i>Digitaria sanguinalis</i>); Yellow bristlegrass (<i>Setaria pumila</i>); Green bristlegrass (<i>Setaria viridis</i>); Perennial ryegrass (<i>Lolium perenne</i>)	CEU	
Opium poppy; Common flax; Linen flax; Broccoli; Brussels sprouts; Broad beans; Faba bean; Field peas; White lupine; Yellow lupine; Narrow-leaved lupine		CEU	Silky bentgrass (<i>Apera spica-venti</i>); self-seeding of cereals	CEU	

Opium poppy; Common flax; Linen flax; Broccoli; Brussels sprouts; Broad beans; Faba bean; Field peas; White lupine; Yellow lupine; Narrow-leaved lupine		CEU	Couch grass (<i>Agropyron repens</i>)	CEU	
Root celery; Parsnip; Swede		CEU	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>); Red fingergrass (<i>Digitaria sanguinalis</i>); Yellow bristlegrass (<i>Setaria pumila</i>); Green bristlegrass (<i>Setaria viridis</i>); Perennial ryegrass (<i>Lolium perenne</i>)	CEU	
Root celery; Parsnip; Swede		CEU	Silky bentgrass (<i>Apera spica-venti</i>); self-seeding of cereals	CEU	
Root celery; Parsnip; Swede		CEU	Couch grass (<i>Agropyron repens</i>)	CEU	
Garlic; Shallot		CEU	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>); Red fingergrass (<i>Digitaria sanguinalis</i>); Yellow bristlegrass (<i>Setaria pumila</i>); Green bristlegrass (<i>Setaria viridis</i>); Perennial ryegrass (<i>Lolium perenne</i>)	CEU	
Garlic; Shallot		CEU	Silky bentgrass (<i>Apera spica-venti</i>); self-seeding of cereals	CEU	

Garlic; Shallot		CEU	Couch grass (<i>Agropyron repens</i>)	CEU	
Fodder beet; Beetroot		CEU	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>); Red fingergrass (<i>Digitaria sanguinalis</i>); Yellow bristlegrass (<i>Setaria pumila</i>); Green bristlegrass (<i>Setaria viridis</i>); Perennial ryegrass (<i>Lolium perenne</i>)	CEU	
Fodder beet; Beetroot		CEU	Silky bentgrass (<i>Apera spica-venti</i>); self-seeding of cereals	CEU	
Fodder beet; Beetroot		CEU	Couch grass (<i>Agropyron repens</i>)	CEU	
Jerusalem Artichokes; Horseradish; Black radish; Japanese radish (dai-kon); Radish; Salsify; White turnip; Black turnip		CEU	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>); Red fingergrass (<i>Digitaria sanguinalis</i>); Yellow bristlegrass (<i>Setaria pumila</i>); Green bristlegrass (<i>Setaria viridis</i>); Perennial ryegrass (<i>Lolium perenne</i>)	CEU	
Jerusalem Artichokes; Horseradish; Black radish; Japanese radish (dai-kon); Radish; Salsify; White turnip; Black turnip		CEU	Silky bentgrass (<i>Apera spica-venti</i>); self-seeding of cereals	CEU	

Jerusalem Artichokes; Horseradish; Black radish; Japanese radish (dai-kon); Radish; Salsify; White turnip; Black turnip		CEU	Couch grass (<i>Agropyron repens</i>)	CEU	
Alfalfa; Yellow alfalfa; Black medic; Red clover; White clover; Crimson clover; Common sainfoin; Vetch; Little white bird's-foot; Lentil; White melilot; Yellow melilot; Grass pea		CEU	Common barnyardgrass (<i>Echinochloa crus-galli</i>); Spring wild-oat (<i>Avena fatua</i>); Red fingergrass (<i>Digitaria sanguinalis</i>); Yellow bristlegrass (<i>Setaria pumila</i>); Green bristlegrass (<i>Setaria viridis</i>); Perennial ryegrass (<i>Lolium perenne</i>)	CEU	
Alfalfa; Yellow alfalfa; Black medic; Red clover; White clover; Crimson clover; Common sainfoin; Vetch; Little white bird's-foot; Lentil; White melilot; Yellow melilot; Grass pea		CEU	Silky bentgrass (<i>Apera spica-venti</i>); self-seeding of cereals	CEU	
Alfalfa; Yellow alfalfa; Black medic; Red clover; White clover; Crimson clover; Common sainfoin; Vetch; Little white bird's-foot; Lentil; White melilot; Yellow melilot; Grass pea		CEU	Couch grass (<i>Agropyron repens</i>)	CEU	

Compliance with the Uniform Principles

Comprehensive field trials were conducted in Italy, Spain, France, Poland, Latvia, Lithuania, United Kingdom, Germany and Czech Republic in 2016, 2017 and 2018. The trials followed the corresponding EPPO guidelines. The GEP-requirement and the Uniform Principles are taken care of.

Information on trials submitted (3.1 Efficacy data)

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

On the basis of the EPPO guideline 1/241(1) "Guidance on comparable climates", the trials included in this dossier have been grouped and summarized by EPPO zones. EPPO zones have been defined by taking into account differences between the agro-climatic sub-areas of the EPPO region.

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

In support of the current application, 33 efficacy trials were conducted in the Mediterranean (9), the Maritime (11) and the North-East (13) EPPO in 2016, 2017 and 2018.

Table 3.2-6: Presentation of efficacy trials

Crop(s) *	Target(s)*	Country	Years	Type of trial**	Number of trials (number of valid trials for efficacy)				GEP, non-GEP, official***	Comments (any other relevant information)
					EPPO zone					
					MAR	MED	S-E	N-E		
Oilseed rape	Annual and Perennial weeds	France	2016	MED + E	3 (3)	-	-	-	GEP	
		United Kingdom	2016	MED + E	2 (2)	-	-	-	GEP	
		Germany	2016	MED + E	2 (2)	-	-	-	GEP	
		Czech Republic	2016	MED + E	2 (2)	-	-	-	GEP	
		Latvia	2016	MED + E	-	-	-	2 (2)	GEP	
		Lithuania	2016	MED + E	-	-	-	4 (4)	GEP	
		Poland	2016	MED + E	-	-	-	1 (1)	GEP	
			2017	MED + E	-	-	-	3 (3)	GEP	
			2018	MED + E	-	-	-	3 (3)	GEP	
Total Oilseed rape;					9 (9)	-	-	13 (13)		
Sunflower	Annual and Perennial weeds	Spain	2016	MED + E	-	1 (1)	-	-	GEP	
		France	2016	MED + E	1 (1)	1 (1)	-	-	GEP	
Total Sunflower;					1 (1)	2 (2)	-	-		
Tomato	Annual and Perennial weeds	Italy	2016	MED + E	-	2 (2)	-	-	GEP	
		Spain	2016	MED + E	-	1 (1)	-	-	GEP	
Total tomato;					-	3 (3)	-	-		
Soybean	Annual and Perennial weeds	Spain	2016	MED + E	-	1 (1)	-	-	GEP	
		Italy	2016	MED + E	-	2 (2)	-	-	GEP	
		France	2016	MED + E	1 (1)	1 (1)	-	-	GEP	
Total Soybean;					1 (1)	4 (4)	-	-		
TOTAL		-	2016	-	11 (11)	9 (9)	-	7 (7)	-	

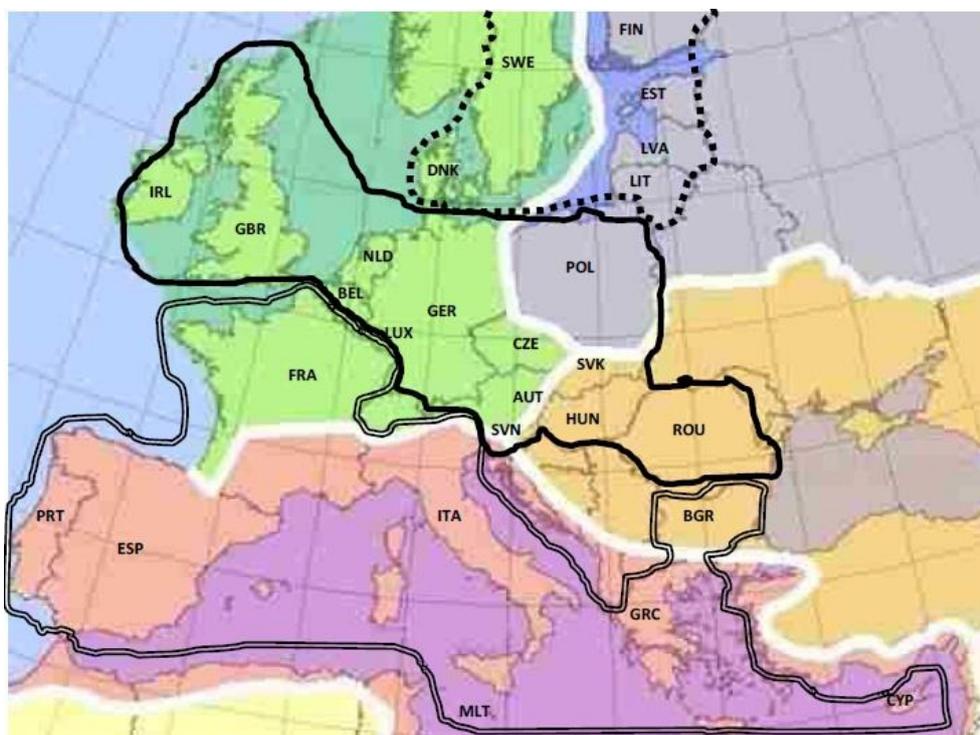
- * According to the GAP table. Timing of the application(s) can be added if relevant (e.g. Pre-mergence vs post-emergence, spring vs autumn).
- ** P = preliminary trial, MED = minimum effective dose, E = efficacy trial.
- *** GEP: Good Experimental Practices. Official: carried out by a national official organisation.

Climatic zones

Europe is divided into four climatic zones, according to EPPO standard PP 1/241 (1). Besides providing guidance in determining comparability of climatic conditions between geographical areas where efficacy evaluation trials are performed, the standard also supports the use of data generated in one country to support registration in another country¹.

The Southern part of France, Spain and Italy are all located in the Mediterranean EPPO zone; the Northern part of France, Germany, United Kingdom and Czech Republic are all located in the Maritime EPPO zone and Poland, Latvia and Lithuania are located in the North-East EPPO zone (Figure 3.2-1).

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



This document is prepared to support the submission of PROPAQUIZAFOP 10% EC throughout the Central Registration zone, therefore data from the Maritime and the North-East zone, as well as the Mediterranean EPPO zones are included, however the data from each climatic zone is summarised separately.

Agronomic conditions

Cultural conditions of the different crops and agronomy (e.g. cultivations used, application methods, cultivars, fertilizer regime, relative times of planting and harvest) do not differ significantly between Spain, Italy, France, Germany, Latvia, Poland, United Kingdom, Lithuania and Czech Republic. The same propaquizafop containing herbicides are already registered and used in all countries to control the same

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

key grass weed species. In each country these are used at similar application timings when the weeds and crops are at similar growth stages.

(i) *Weed physiology*

In each country the weeds claimed on label are very common and can cause large reductions in yield.

(ii) *Site selection*

Although trials were performed throughout the EU, in each country the sites were carefully selected to ensure that for each weed species the level of control was assessed on a range of populations and application timings. To exert maximum control pressure and to exacerbate treatment differences in each country this included some trials which contained high weed densities. No differences in the level of control were apparent between the different countries or regions in which the trials were conducted.

(iii) *Agronomic practices*

Agronomic practices for the crops claimed on label are similar throughout the Central zone. These are sown in the spring and levels of inorganic fertilizers and other crop inputs are similar between the countries.

(iv) *Varieties*

Although crop varieties tend to differ between countries the crop safety of PROPAQUIZAFOP 10% EC has been tested on a wide range of varieties in both the selectivity and efficacy trials. The results from these trials show that there are no particularly sensitive varieties. Crop tolerance and yield data generated in one country is therefore relevant in another Member state.

(v) *Trial methodology*

Similar trial methodology was used in all countries. All trials were conducted to GEP by officially recognised testing organisations and in accordance with relevant EPPO standards.

(vi) *Locations*

Trials were performed in the major crop growing areas in each respective country. These areas have been found to be particularly suitable for production due to their innate similarity in terms of soil type and climate.

(vii) *Soil*

Propaquizafop is a foliar acting herbicide. In each country, trials have been conducted on a range of soil types with no difference seen in the level of control.

On the basis that the above factors do not influence the overall performance of PROPAQUIZAFOP 10% EC, it is the applicant's contention that data from Spain, Italy, France, Poland, Germany, United Kingdom, Latvia, Lithuania and Czech Republic is equally valid in demonstrating the products performance throughout the Central EU zone.

Efficacy and crop safety trials were carried out with PROPAQUIZAFOP 10% EC in comparison to the reference propaquizafop 10% EC product (Agil and Falcon) in Spain, Italy, France, Germany, Czech Republic, United Kingdom, Latvia, Lithuania and Poland. Trials were carried out on various field crops (oilseed rape, sunflower, tomato and soybean).

Table 3.2-7: Presentation of reference standards used in efficacy trials

Trade name	Formulation	Active Ingredient	AI content	Use rates	Countries where used and targets
Propaquizafop reference product					
AGIL	EC	propaquizafop	100 g/l	0.60 L/ha 0.80 L/ha 1.00 L/ha 1.20 L/ha 1.50 L/ha 2.40 L/ha 3.00 L/ha	Italy, Spain, France, Poland, Latvia, Lithuania, Germany, Czech Republic
FALCON	EC	propaquizafop	100 g/l	0.60 L/ha 0.80 L/ha 1.00 L/ha 1.20 L/ha 2.40 L/ha	United Kingdom

Comments of zRMS:	<p>This document summarizes the information related to the efficacy of the plant protection product – ALIVE (product code: SHA 6100 A).</p> <p>ALIVE is an emulsifiable concentrate (EC) formulation containing 100 g/l propaquizafop. For now, this mentioned active substances 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 (propaquizafop).</p> <p>All necessary information's about tested plant protection products, active substances, studied weeds, reference products, etc. are correctly presented in this drp by Applicant. In Poland 9 plant protection products propaquizafop are already registered.</p> <p>The product – ALIVE containing propaquizafop by Sharda Cropchem España has not been previously evaluated in any country according to Uniform Principles. Poland is a ZRMs.</p>
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3.2.1 Preliminary tests (KCP 6.1)

The activity of propaquizafop is well known, as it has been marketed for more than 30 years by e.g. ADAMA for used in field crops and a wide range of other crops to control monocotyledonous weeds. Based on the knowledge about the active substance (+30 years) and the experiences with Propaquizafop 10% EC in the label claimed crops, the necessary application rates to obtain sufficient control of the pest organism are already known. Therefore, preliminary tests in glasshouses and field trials to assess the biological activity of the active substance or dose range for the plant protection product were not deemed necessary.

Comments of zRMS:	<p>The active substances of ALIVE – propaquizafop 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, so preliminary tests were not necessary in this case in our opinion.</p>
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3.2.2 Minimum effective dose tests (KCP 6.2)

To determine the minimum effective dose rate, trials conducted in field crops, i.e. 11 trials from the Maritime zone and 13 trials from the North-east have been included in this section. Finally, to give additional support to the minimum effective dose of Propaquizafop 10% EC in the Mediterranean zone, 9 trials conducted in field crops (Oilseed rape, Sunflower, Tomato and Soybean) have been added to the minimum effective dose section. Data from trials conducted on field crops has been added as Propaquizafop is a contact graminicide and it is assumed that there are no significant differences in the competition from the different crop types against the grass weeds in the time frame from application and up to the evaluation (one to two months after application) included in the summary tables. Data from each group has been summarized separately as well as together.

In the 33 trials, the level of control obtained by PROPAQUIZAFOP 10% EC was assessed on annual and perennial monocotyledonous weeds present in the trials.

Control of annual grassweeds

In order to prove and to support the requested dose rates of 1.2 L/ha Propaquizafop 10% EC [100 g propaquizafop per hectare] for the control of annual grassweeds in the GAP claimed crops, the assessment results of 30 efficacy trials performed in the Maritime (11), the North-east (11) and the Mediterranean (8) EPPO zone in 2016, 2017 and 2018, are reported. Propaquizafop 10% EC was included in these trials at 1.2 L/ha to demonstrate the recommended dose rate as well as at lower dose rates (0.6 L/ha, 0.8 L/ha or 1.0 L/ha).

A summary of the dose response results obtained in the Maritime, the North-East and the Mediterranean zone efficacy trails is provided in Table 3.2-8, Table 3.2-9 and Table 3.2-10, respectively.

Table 3.2-8: Minimum effective dose - Maritime zone - Efficacy of reduced rates of Propaquizafop 10% EC applied against frequently occurring annual grassweeds; evaluation: efficacy rating at 14-126 days after application; mean values [avg] and variation [min/max] across trials carried out in 2016 in % control.

EPPO Code	Total No. of trials	Untreated Weed infestation Pl/m2	Efficacy obtained with			
			Propaquizafop 10% EC at:			
			Mean (min-max)			
			0.6 L/ha	0.8 L/ha	1.0 L/ha	1.2 L/ha
Field crops						
ALOMY	3	7.7 (7.3-8.8)	72.9 (62.5-78.8)	71.7 (68.8-75.0)	75.6 (65.0-89.3)	84.9 (75.0-97.3)
LOLSS	2	28.9 (15.3-42.3)	72.6 (66.3-78.8)	75.9 (71.3-80.5)	77.6 (76.3-78.8)	86.6 (83.8-89.3)
TRZAW	4	15.6 (5.3-44.7)	53.6 (10.5-91.3)	68.1 (36.3-97.5)	78.9 (47.5-100)	84.7 (65.0-100)
HORVW	2	32.5 (10.5-54.4)	77.6 (66.3-88.8)	83.0 (72.5-93.5)	84.4 (76.3-92.5)	87.4 (80.0-94.8)
POAAN	1	57.8 (-)	60.0 (-)	57.5 (-)	75.0 (-)	66.3 (-)
AVEFA	1	13.0 (-)	81.3 (-)	87.5 (-)	87.5 (-)	91.3 (-)
ECHCX	1	43.5 (-)	97.0 (-)	87.5 (-)	92.0 (-)	100.0 (-)
APESV	1	12.5 (-)	37.5 (-)	75.0 (-)	98.8 (-)	98.8 (-)
Mean of all assessments	15	20.9 (5.3-57.8)	65.8 (10.5-97.0)	73.9 (36.2-97.5)	80.9 (47.5-100)	86.4 (65.0-100)

In the Maritime zone, in field crops the average combined control of all the assessed grassweeds at two weeks to four months after application was 65.8% following an application of PROPAQUIZAFOP 10% EC at 0.6 L/ha, 73.9% following an application of PROPAQUIZAFOP 10% EC at 0.8 L/ha, 80.9% following and application of PROPAQUIZAFOP 10% EC, compared to 86.4% achieved by 1.2 L/ha. When applied on the weed species present in the trials, PROPAQUIZAFOP 10% EC achieved 10.5% to 100% control at the lower than recommended dose rate (0.6-1.0 L/ha) and 65% to 100% control when applied at the recommended dose rate for single application against annual grassweeds (1.2 L/ha). In the trials where 1.2 L/ha was applied, the control results were significantly better than the lowest doses used against the annual grassweeds claimed in the GAP, PROPAQUIZAFOP 10% EC has to be applied at more than 1.2 L/ha on weeds that are not on too advanced growth stages.

Table 3.2-9: Minimum effective dose - North-east zone - Efficacy of reduced rates of Propaquizafop 10% EC applied against frequently occurring annual grassweeds; evaluation: efficacy rating at 14-208 days after application; mean values [avg] and variation [min/max] across trials carried out in 2016, 2017 and 2018 in % control.

Eppo Code	Total No. of trials	Untreated Weed infestation Pl/m2	Efficacy obtained with Propaquizafop 10% EC at:			
			Mean (min-max)			
			0.6 L/ha	0.8 L/ha	1.0 L/ha	1.2 L/ha
Field crops						
TRZAW	7	31.5 (21.0-56.0)	71.3 (47.5-95.0)	70.9 (57.5-95.5)	77.8 (42.5-95.5)	85.6 (83.8-96.0)
ECHCG	2	12.5 (9.0-16.0)	-	51.7 (17.5-86.0)	65.1 (41.3-89.0)	80.0 (65.0-94.0)
APESV	4	11.0 (6.0-15.0)	33.7 (-)	54.8 (7.5-86.0)	67.5 (40.0-91.0)	80.8 (56.0-94.0)
TTLWI	1	17.5	-	99.8	100	100
SETPF	1	10.0	-	21.3	35.0	61.3
VOLCE	1	17.0	-	88.0	87.0	92.0
ELYRE	1	6.0	-	71.0	77.0	87.0
VOLCE	1	18.0	-	86.0	87.0	96.0
LOLMU	1	5.0	91.3	96.5	95.3	95.3
Mean of all assessments	19	19.1 (5.0-56.0)	68.9 (33.7-95.0)	67.4 (7.5-99.8)	75.1 (40.0-100)	85.0 (56.0-100)

In the North-east zone, in field crops the average combined control of all the assessed grassweeds at 14-208 days after application was 68.9% following an application of PROPAQUIZAFOP 10% EC at 0.6 L/ha, 67.4% following an application of PROPAQUIZAFOP 10% EC at 0.8 L/ha, 75.1% following and application of PROPAQUIZAFOP 10% EC at 1.0 L/ha, compared to 85.0% achieved by 1.2 L/ha. When applied on the weed species present in the trials, PROPAQUIZAFOP 10% EC achieved 33.7% to 100% control at the lower than recommended dose rate (0.6-1.0 L/ha) and 65% to 100% control when applied at the recommended dose rate for single application against annual grassweeds (1.2 L/ha). In the trials where 1.2 L/ha was applied, the control results were significantly better than the lowest doses used against the annual grassweeds claimed in the GAP, PROPAQUIZAFOP 10% EC has to be applied at more than 1.2 L/ha on weeds that are not on too advanced growth stages.

Table 3.2-10: Minimum effective dose - Mediterranean zone - Efficacy of reduced rates of Propaquizafop 10% EC applied against frequently occurring annual grassweeds; evaluation: efficacy rating at 15-115 days after application; mean values [avg] and variation [min/max] across trials, in % control.

Eppo Code	Total No. of trials	Untreated Weed infestation Pl/m2	Efficacy obtained with Propaquizafop 10% EC at:			
			Mean (min-max)			
			0.6 L/ha	0.8 L/ha	1.0 L/ha	1.2 L/ha
Field crops						
ECHCG	6	37.2 (4.0-87.5)	87.5 (75.0-97.0)	93.9 (85.0-100)	95.4 (85.0-100)	96.6 (87.3-100)
DIGSA	5	34.3 (9.0-90.0)	80.0 (55.0-95.0)	90.7 (72.5-100)	93.0 (77.5-100)	92.9 (72.5-100)
SETVU	2	25.3 (6.8-43.8)	60.0 (37.5-82.5)	75.6 (67.5-83.8)	84.6 (83.8-85.5)	90.2 (85.3-95.0)
PHAMI	1	53.3 (-)	80.0 (-)	85.5 (-)	90.0 (-)	97.5 (-)
AVELU	1	29.5 (-)	82.5 (-)	90.0 (-)	90.0 (-)	92.5 (-)
YSTEG	1	8.0 (-)	65 (-)	82.5 (-)	82.5 (-)	82.5 (-)
Mean of all assessments	16	33.0 (4.0-90.0)	80.1 (37.5-97.0)	89.1 (67.5-100)	91.7 (82.5-100)	93.7 (90.2-100)

In the Mediterranean zone, in Field crops the average combined control of all the assessed grassweeds at one week to three months after application was 80.1% following an application of PROPAQUIZAFOP 10% EC at 0.6 L/ha, 89.1% following an application of PROPAQUIZAFOP 10% EC at 0.8 L/ha, 91.7% following and application of PROPAQUIZAFOP 10% EC, compared to 93.7% achieved by 1.2 L/ha. When applied on the weed species present in the trials, PROPAQUIZAFOP 10% EC achieved 37.5% to 100% control at the lower than recommended dose rate (0.6-1.0 L/ha) and 82.5% to 100% control when applied at the recommended dose rate for single application against annual grassweeds (1.2 L/ha). In the trials where 1.2 L/ha was applied, not less than 90% was obtained against weed species claimed in the GAP. For PROPAQUIZAFOP 10% EC to consistently achieve over 90% control against the annual grassweeds claimed in the GAP, PROPAQUIZAFOP 10% EC has to be applied at more than 1.2 L/ha on weeds that are not on too advanced growth stages.

Thus it can be concluded that for consistent control of frequently occurring annual grassweed species, the intended use rate of 1.2 L/ha is required.

Control of perennial grassweeds

In order to prove and to support the requested dose rates of 1.2 L/ha Propaquizafop 10% EC [100g propaquizafop per hectare] for the control of perennial grassweeds in the GAP claimed crops, the assessment results of 9 efficacy trials performed in the Mediterranean (1), the Maritime (2) EPPO zone and the North-East (6) EPPO zone in 2016 and 2017, are reported. PROPAQUIZAFOP 10% EC was included in these trials at 1.2 L/ha to demonstrate the recommended dose rate as well as at lower dose rates (0.6 L/ha, 0.8 L/ha or 1.0 L/ha).

A summary of the dose response results obtained in the Mediterranean, the Maritime and the North-east zone efficacy trails is provided in Table 3.2-11, Table 3.2-12 and Table 3.2-13, respectively.

Table 3.2-11: Minimum effective dose - Maritime zone - Efficacy of reduced rates of PROPAQUIZAFOP 10% EC applied against frequently occurring perennial grassweeds; evaluation: efficacy rating at 29-30 days after application; mean values [avg] and variation [min/max] across trials carried out in 2016 in % control.

EPPO Code	Total No. of trials	Untreated Weed infestation Pl/m2	Efficacy obtained with Propaquizafop 10% EC at:			
			Mean (min-max)			
			0.6 L/ha	0.8 L/ha	1.0 L/ha	1.2 L/ha
Field crops						
AGRRE	2	9.8 (8.5-11.0)	55.0 (40.0-70.0)	71.9 (63.8-80.0)	78.2 (72.5-83.8)	85.0 (82.5-87.5)

In the Maritime EPPO zone, the average combined control of all the assessed perennial grassweeds at 29-630 days after application was 55.0% following an application of PROPAQUIZAFOP 10% EC at 0.6 L/ha, 71.9% following an application of PROPAQUIZAFOP 10% EC at 0.8 L/ha, 78.2% following an application of PROPAQUIZAFOP 10% EC at 1.0 L/ha, compared to 85.0% achieved by 1.2 L/ha. For PROPAQUIZAFOP 10% EC to consistently achieve over 80% control against the perennial grassweeds claimed in the GAP, PROPAQUIZAFOP 10% EC has to be applied at 1.2 L/ha on weeds that are not on too advanced growth stages

Table 3.2-12: Minimum effective dose - Nort-East zone - Efficacy of reduced rates of PROPAQUIZAFOP 10% EC applied against frequently occurring perennial grassweeds; evaluation: efficacy rating at 15-44 days after application; mean values [avg] and variation [min/max] across trials carried out in 2016 in % control.

EPPO Code	Total No. of trials	Untreated Weed infestation Pl/m2	Efficacy obtained with Propaquizafop 10% EC at:			
			Mean (min-max)			
			0.6 L/ha	0.8 L/ha	1.0 L/ha	1.2 L/ha
Field crops						
AGRRE	5	18.8 (5.0-55.0)	69.7 (21.3-93.3)	74.6 (26.3-91.5)	80.0 (42.5-92.5)	87.5 (67.5-96.3)
ELYRE	1	6.0 (-)	-	76.0 (-)	77.0 (-)	87 (-)
Mean of all assessments	6	16.2 (5.0-55.0)	69.7 (21.3-93.3)	74.8 (26.3-91.5)	79.5 (42.5-92.5)	87.3 (67.5-96.3)

In the Nort-East EPPO zone, the average combined control of all the assessed perennial grassweeds at 15-174 days after application was 69.7% following an application of PROPAQUIZAFOP 10% EC at 0.6 L/ha, 74.8% following an application of PROPAQUIZAFOP 10% EC at 0.8 L/ha, 79.5% following an application of PROPAQUIZAFOP 10% EC at 1.0 L/ha compared to 87.3% achieved by 1.2 L/ha. For PROPAQUIZAFOP 10% EC to consistently control against the perennial grassweeds claimed in the GAP, PROPAQUIZAFOP 10% EC has to be applied at 1.2 L/ha on weeds that are not on too advanced

growth stages.

Table 3.2-13: Minimum effective dose - Mediteranean zone - Efficacy of reduced rates of PROPAQUIZAFOP 10% EC applied against frequently occurring perennial grassweeds; evaluation: efficacy rating at 15-28 days after application; mean values [avg] and variation [min/max] across trials, in % control.

Eppo Code	Total No. of trials	Untreated Weed infestation Pl/m2	Efficacy obtained with			
			Propaquizafop 10% EC at:			
			Mean (min-max)			
			0.6 L/ha	0.8 L/ha	1.0 L/ha	1.2 L/ha
Field crops						
SORHA	1	30.0 (-)	88.8 (-)	90.0 (-)	90.0 (-)	95 (-)

In the Mediterranean zone, in Field crops the average combined control of all the assessed perennial weeds at two weeks after application was 88.8% following an application of PROPAQUIZAFOP 10% EC at 0.6 L/ha, 90% following an application of PROPAQUIZAFOP 10% EC at 0.8 L/ha, 90% following and application of PROPAQUIZAFOP 10% EC, compared to 95% achieved by 1.2 L/ha. When applied on the weed species present in the trials, PROPAQUIZAFOP 10% EC achieved 85% to 90% control at the lower than recommended dose rate (0.6-1.0 L/ha) and 90% to 95% control when applied at the recommended dose rate for single application against perennial grassweeds (1.2 L/ha). Only in the trials where 1.2 L/ha was applied, more than 90% was obtained against weed species claimed in the GAP. For PROPAQUIZAFOP 10% EC to consistently achieve over 90% control against the perennial grassweeds claimed in the GAP, PROPAQUIZAFOP 10% EC has to be applied at more than 1.2 L/ha on weeds that are not on too advanced growth stages.

Summary and conclusions on the minimum effective dose

Based on results achieved in 33 trials, it can be concluded that PROPAQUIZAFOP 10% EC applied at 1.2 L/ha to control annual and perennial grassweeds achieved excellent control of all target weeds. As grassweeds often occur as a complex of several weed species with different susceptibility towards propaquizafop, one application of PROPAQUIZAFOP 10% EC at the recommended rates should be used to efficiently control all weeds claimed on the label

This document clearly demonstrates that the efficacy and crop safety of PROPAQUIZAFOP 10% EC is equivalent to that of the standard propaquizafop reference products from ADAMA Agricultural solutions. The applicant therefore wishes to cite the original registrant’s data on propaquizafop now out of protection in support of those recommendations on the draft label that are not adequately supported by the applicant’s data and requests that the Zonal Evaluator extrapolate from those data.

Comments of zRMS:	<p>The applicant has proposed doses of ALIVE (product code: SHA 6100 A) that reflect those of currently authorised propaquizafop products across the EU. To provide information to establish the minimum effective dose, 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 accordance to EPPO 1/225 (2).</p> <p>During field tests Applicant used different doses of herbicide ALIVE (product code: SHA 6100 A) containing propaquizafop (100 g/l). So, in the appropriate research of efficacy were tested differ doses and to register was chosen the lowest effective, which is in accordance to EPPO 1/225 (2).</p> <p>Minimum effective dose rate on oilseed rape against annual and perennial weeds in MAR, N-E and MED EPPO zone was studied at following doses: 0,6 l/ha; 0,8 l/ha; 1,0 l/ha and 1,2 l/ha.</p>
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	<p>ZRMs agree with Applicant that, it can be concluded that PROPAQUIZAFOP 10% EC applied at 1.2 L/ha to control annual and perennial grassweeds achieved excellent control of all target weeds. As grassweeds often occur as a complex of several weed species with different susceptibility towards propaquizafop, one application of PROPAQUIZAFOP 10% EC at the recommended rates should be used to efficiently control all weeds claimed on the label.</p> <p>Uses (from 1 to 49) with exception of Use 28 requested for propaquizafop 10% EC are identical to those of the reference product Agil S 100 EC (reg nr R208/2014) registered in POLAND for more than 10 years and, therefore, not in a scope of data protection anymore. ZRM's agree with this statement for Poland. For those uses Applicant do not have to presented MED trials.</p>
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3.2.3 Efficacy tests (KCP 6.2)

In total, data from 33 efficacy trials have been included in this biological assessment dossier to support the label claims and recommendations on efficacy and selectivity in the EU Central Registration zone. As the dose rates applied in some of the trials were considered not appropriate to demonstrate the control obtained at the GAP claimed dose rates, or the trials were considered valid, a total of 33 trials conducted in field crops, i.e. 11 trials from the Maritime zone and 13 trials from the North-east zone have been included in this section. Finally, to give additional support to the label claims and recommendations on efficacy of Propaquizafop 10% EC in the Central zone, 9 trials conducted in field crops (Oilseed rape, Soybeans, Tomato and Sunflower) in the Mediterranean EPPO zone have been added to the efficacy section. Data from trials conducted on various crops has been added as Propaquizafop is a contact graminicide and it is assumed that there is no significant differences in the competition from the different crop types against the grass weeds in the time frame from application and up to the evaluation (one to nine months after application) included in the summary tables. Data from each group has been summarized separately as well as together.

The included efficacy trials have been conducted in the Maritime EPPO zone (11; N-France (5), United Kingdom (2), Germany (2) and Czech Republic (2)), the North-East EPPO zone (13; Poland (7), Latvia (2) and Lithuania (4)) and the Mediterranean EPPO zone (9; Italy (5), Spain (3) and S-France (1)) in 2016.

In the 33 trials, the level of control obtained by Propaquizafop 10% EC was assessed on annual and perennial monocotyledonous weeds present in the trials.

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

Crop, stage	Crop: please refer to GAP table Post-emergence
Use rate	1.2 L/ha PROPAQUIZAFOP 10% EC
Use frequency	1x
Application timing	Post-emergence to weeds and crop
Target weeds	Annual grassweeds, e.g. <i>Agrostis spp.</i> , <i>Phalaris brachystachys</i> , <i>Lolium spp.</i> , <i>Avena spp.</i> , <i>Bromus spp.</i> , <i>Phalaris minor</i> , <i>Digitaria sanguinalis</i> , <i>Echinochloa spp.</i> , <i>Setaria spp.</i> , <i>Alopecurus spp.</i>

Crop, stage	Crop: please refer to GAP table Post-emergence
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Use rate Use frequency Application timing	1.2 L/ha PROPAQUIZAFOP 10% EC 1x Post-emergence to weeds and crop
Target weeds	Perennial grassweeds, e.g. <i>Cynodon dactylon</i> , <i>Agropyron repens</i> , <i>Sorghum halepense</i>

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

Table 3.2-14: Details on trial methodology

Guidelines	General guidelines	EPPO PP 1/152 (3/4), PP 1/181 (3), PP 1/135(3)
	Specific guidelines	EPPO PP 1/90 (3), PP 1/63 (3), PP 1/49 (3), PP 1/91 (3)
Experimental design	Plot design	Randomised complete blocks
	Plot size	10-33 m ²
	Number of replications	4(33)
Crop	Trials per crop	33; Oilseed rape (22), Sunflower (3), Tomato (3) and Soybean (5)
	Varieties per crop	Locally grown commercial varieties. Selection of market range of varieties in the year of the trials.
	Sowing period	According to common practice
Application	Crop stage (BBCH)* at application	BBCH 12-74
	Timing Pest stage at application (1)	Post-emergence Annual agrassweeds: 12-74 Perennial grassweeds: BBCH 12-67
	Number of applications Intervals between applications	1 (33 trials) n.a.
	Spray volumes	200 - 300 L/ha
Assessment	Assessment types	Visual estimation of biomass reduction per plot compared to 'untreated' ('untreated' = 0 % control); total control = 100 % control)
	Assessment dates	as a rule 2-4 ratings
Other relevant information	Soil type	Light to heavy soils
	Natural / artificial inoculation...	Natural
	Field / Greenhouse...	Field

Control of annual grassweeds

The summary of efficacy results obtained with the application of PROPAQUIZAFOP 10% EC at 1.2 L/ha on annual grassweeds in a range of crops are listed in Table 3.2-15, Table 3.2-16 and

Weed	Total No. of trials	Untreated	Efficacy obtained with		
		Weed infestation Pl/m ²	PROPAQUIZAFOP 10% EC at:	Propaquizafop ref. prod. at:	
			Mean (min-max, number of trials)	1.2 L/ha	1.2 L/ha
Field crop					
TRZAW	7	31.5 (21.0-56.0)	85.6 (83.8-96.0)	91.2 (86.0-95.0)	94.8 (91.8-96.8)

Weed	Total No. of trials	Untreated Weed infestation	Efficacy obtained with		
			PROPAQUIZAFOP 10% EC at:	Propaquizafop ref. prod. at:	
		Pl/m2	Mean (min-max, number of trials)		
			1.2 L/ha	1.2 L/ha	1.5 L/ha
ECHCG	2	12.5 (9.0-16.0)	80.0 (65.0-94.0)	90.0 (90.0-90.0)	-
APESV	4	11.0 (6.0-15.0)	80.8 (56.0-94.0)	90.7 (86.3-96.0)	-
TTLWI	1	17.5	100	99.8	-
SETPF	1	10.0	61.3	78.8	-
VOLCE	1	17.0	92.0	93.0	-
ELYRE	1	6.0	87.0	89.0	-
VOLCE	1	18.0	96.0	93.0	-
LOLMU	1	5.0	95.3	-	95.8
Mean of all assessments		19.1 (5.0-56.0)	85.0 (56.0-100)	90.7 (78.8-99.8)	95.0 (91.8-96.8)

Table 3.2-17 for results from trials conducted in the Maritime (11), North-east (5) and the Mediterranean (8) EPPO zones, respectively. The trials were conducted in Italy (4), Spain (3), Poland (6), S-France (1), N-France (5), Latvia (2), Lithuania (2), United Kingdom (2), Germany (2) and Czech Republic (2).

When applied at 1.2 L/ha in the Maritime, the North-east and the Mediterranean zone, PROPAQUIZAFOP 10% EC obtained variable levels of control when applied to annual grassweeds. The highest level of control was obtained on the key grassweeds, i.e. PHAMI, SETSS, DIGSA, BROSS SETVI, ECHCG, LOLMU and AVEFA whereas the control obtained against POAAN, DIGSA and YSTEG was more variable. All these annual grassweeds are commonly found in field- crops and are known to cause losses in production. In all species evaluated, the effect obtained with PROPAQUIZAFOP 10% EC was on par with the effect obtained with the propaquizafop reference product (Agil) applied in the trials.

Table 3.2-15: Maritime zone – Annual grassweed control results by 1.2 L/ha PROPAQUIZAFOP 10% EC in the efficacy tests 2016 (14-16 DAA; mean and variation in % control as compared to untreated check)

Weed	Total No. of trials	Untreated Weed infestation	Efficacy obtained with	
			PROPAQUIZAFOP 10% EC at:	Propaquizafop ref. prod. at:
		Pl/m2	Mean (min-max, number of trials)	
			1.2 L/ha	1.2 L/ha
Field crop				
ALOMY	3	7.7 (7.3-8.8)	84.9 (75.0-97.3)	78.8 (65.0-86.3)
LOLSS	2	28.9 (15.3-42.3)	86.6 (83.8-89.3)	80.7 (73.8-87.5)
TRZAW	4	15.6 (5.3-44.7)	84.7 (65.0-100)	81.1 (45.0-100)
HORVW	2	32.5 (10.5-54.4)	87.4 (80.0-94.8)	88.7 (81.3-96.0)
POAAN	1	57.8 (-)	66.3 (-)	78.8 (-)
AVEFA	1	13.0 (-)	91.3 (-)	93.0 (-)
ECHCX	1	43.5 (-)	100.0 (-)	100.0 (-)
APESV	1	12.5 (-)	98.8 (-)	98.8 (-)
Mean of all assessments		20.9 (5.3-57.8)	86.4 (65.0-100)	85.0 (45.0-100)

Table 3.2-16: North-east zone – Annual grassweed control results by 1.2 L/ha PROPAQUIZAFOP 10% EC in the efficacy tests 2016, 2017 and 2018 (14-208 DAA; mean and variation in % control as compared to untreated check).

Weed	Total No. of trials	Untreated Weed infestation	Efficacy obtained with		
			PROPAQUIZAFOP 10% EC at:	Propaquizafop ref. prod. at:	
		Pl/m2	Mean (min-max, number of trials)		
			1.2 L/ha	1.2 L/ha	1.5 L/ha
Field crop					
TRZAW	7	31.5 (21.0-56.0)	85.6 (83.8-96.0)	91.2 (86.0-95.0)	94.8 (91.8-96.8)
ECHCG	2	12.5 (9.0-16.0)	80.0 (65.0-94.0)	90.0 (90.0-90.0)	-
APESV	4	11.0 (6.0-15.0)	80.8 (56.0-94.0)	90.7 (86.3-96.0)	-
TTLWI	1	17.5	100	99.8	-
SETPF	1	10.0	61.3	78.8	-

Weed	Total No. of trials	Untreated Weed infestation Pl/m2	Efficacy obtained with		
			PROPAQUIZAFOP 10% EC at:	Propaquizafop ref. prod. at:	
		Mean (min-max, number of trials)			1.2 L/ha
VOLCE	1	17.0	92.0	93.0	-
ELYRE	1	6.0	87.0	89.0	-
VOLCE	1	18.0	96.0	93.0	-
LOLMU	1	5.0	95.3	-	95.8
Mean of all assessments		19.1 (5.0-56.0)	85.0 (56.0-100)	90.7 (78.8-99.8)	95.0 (91.8-96.8)

Table 3.2-17: Mediterranean zone – Annual grassweed control results by 1.2 L/ha PROPAQUIZAFOP 10% EC in the efficacy tests 2016 (15-115 DAA); mean and variation in % control as compared to untreated check).

Weed	Total No. of trials	Untreated Weed infestation Pl/m2	Efficacy obtained with	
			PROPAQUIZAFOP 10% EC at:	Propaquizafop ref. prod. at:
		Mean (min-max, number of trials)		1.2 L/ha
Field crop				
ECHCG	6	37.2 (4.0-87.5)	96.6 (87.3-100)	97.7 (88.8-100)
DIGSA	5	34.3 (9.0-90.0)	92.9 (72.5-100)	95.1 (80.0-100)
SETVU	2	25.3 (6.8-43.8)	90.2 (85.3-95.0)	91.9 (87.5-96.3)
PHAMI	1	53.3 (-)	97.5 (-)	100.0 (-)
AVELU	1	29.5 (-)	92.5 (-)	100.0 (-)
YSTEG	1	8.0 (-)	82.5 (-)	60.0 (-)
Mean of all assessments		33.0 (4.0-90.0)	93.7 (90.2-100)	94.2 (60.0-100)

No differences in the level of weed control or crop safety were seen from the trials conducted in the different EU Member States. In all countries PROPAQUIZAFOP 10% EC gave good to excellent control of a number of key annual grassweeds found in a wide range of crops. In the vast majority of trials, PROPAQUIZAFOP 10% performed similar to the propaquizafop reference product.

The proposed label claims of the annual grassweed spectrum controlled after one application of 1.2 kg/ha PROPAQUIZAFOP 10% EC post-emergence in the label claimed crops are listed in Table 3.2-18.

Table 3.2-18: Annual grassweed spectrum controlled by 1.2 L/ha PROPAQUIZAFOP 10% EC after post-emergence application, proven by testing results of the applicant from the 2016, 2017 and 2018.

Annual grassweeds	Field crops	Field crops	Field crops
	Level of effectiveness		
	Mediterranean zone	Maritime zone	North-east zone
SETSS	S	-	-
BROSS	-	-	-
AVESS	S	HS	-
DIGSA	S	-	-
ECHCG	HS	HS	S
PHAMI	HS	-	-
TRZAX	-	MS	S
POAAN	-	MT	-
ALOMY	-	S	-
YSTEG	MS	-	-
APESV	-	HS	S
SETPF	-	-	MS
VOLCE	-	-	S
ELYRE	-	-	S

LOLSS	-	S	HS
LOMU	-	-	HS
HORVX	-	S	-

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Susceptibility	Abbreviation	Level of control
Highly Susceptible	HS	95-100 %
Susceptible	S	85-94.9 %
Moderately Susceptible	MS	70-84.9 %
Moderately tolerant	MT	50-69.9 %
Tolerant	T	0-49.9 %

Control of perennial grassweeds

The summary of efficacy results obtained with the application of PROPAQUIZAFOP 10% EC at 1.2L/ha on perennial grassweeds in a range of crops are listed in **Błąd! Nie można odnaleźć źródła odwołania.**, Table 3.4-8 and

Table 3.4-9 for results from trials conducted in the Maritime (2), the North-East (6) and the Mediterranean (3), respectively. The trials were conducted in Spain (2), Italy (1), Czech Republic (2), Lithuania (4) and Poland (2).

When applied in the Maritime, the North-East and the Mediterranean EPPZ zones, PROPAQUIZAFOP 10% EC obtained variable levels of control when applied to annual grassweeds. The highest level of control was obtained on the key weeds, i.e. SORHA. All these annual grassweeds are commonly found in field-crops and are known to cause losses in production. In all species evaluated, the effect obtained with PROPAQUIZAFOP 10% EC was on par with the effect obtained with the propaquizafop reference product applied in the trials.

Table 3.2-19: Maritime zone – Perennial grassweed control results by 1.2 L/ha PROPAQUIZAFOP 10% EC in efficacy tests from 2016 (29-30 DAA; mean and variation in % control as compared to untreated check)

Weed	Total No. of trials	Untreated Weed infestation Pl/m2	Efficacy obtained with	
			PROPAQUIZAFOP 10% EC at:	Propaquizafop ref. prod. at:
			Mean (min-max, number of trials)	
			1.2 L/ha	1.2 L/ha
Field crop				
AGRRE	2	9.8 (8.5-11.0)	85.0 (82.5-87.5)	87.5 (82.5-92.5)

Table 3.2-20: North-East zone – Perennial grassweed control results by 1.2 L/ha PROPAQUIZAFOP 10% EC in efficacy tests from 2016 (15-44 DAA; mean and variation in % control as compared to untreated check)

Weed	Total No. of trials	Untreated Weed infestation Pl/m2	Efficacy obtained with		
			PROPAQUIZAFOP 10% EC at:	Propaquizafop ref. prod. at:	
			Mean (min-max, number of trials)		
			1.2 L/ha	1.2 L/ha	1.5 L/ha
Field crop					
AGRRE	5	16.2 (5.0-55.0)	87.3 (67.5-96.3)	75.8 (-)	91.0 (87.8-95.0)
ELYRE	1	6.0 (-)	87.0 (-)	88.0 (-)	-
Mean of all assessments		16.2 (5.0-55.0)	87.3 (67.5-96.3)	81.9 (75.8-88.0)	91.0 (87.8-95.0)

Table 3.2-21: Mediterranean zone – Perennial grassweed control results by 1.2 L/ha PROPAQUIZAFOP 10% EC in efficacy tests 2016 (15-28 DAA; mean and variation in % control as compared to untreated check)

Weed	Total No. of trials	Untreated Weed infestation Pl/m2	Efficacy obtained with	
			PROPAQUIZAFOP 10% EC at:	Propaquizafop ref. prod. at:
			Mean (min-max, number of trials)	
			1.2 L/ha	1.2 L/ha
Field crop				
SORHA	1	30.0 (-)	95 (-)	97.3 (-)

No differences in the level of weed control or crop safety were seen from the trials conducted in the different EU Member States. In all countries PROPAQUIZAFOP 10% EC gave good to excellent control of a number of key annual grassweeds found in a wide range of crops. In the vast majority of trials, PROPAQUIZAFOP 10% EC performed similar to the propaquizafop reference product.

The proposed label claims of the perennial grassweed spectrum controlled after one application of 1.2 kg/ha PROPAQUIZAFOP 10% EC post-emergence in the label claimed crops are listed in Table 3.2-22.

Table 3.2-22: Perennial grassweed spectrum controlled by 1.2 L/ha PROPAQUIZAFOP 10% EC after post-emergence application, proven by testing results of the applicant from the 2016 and 2017.

Annual grassweeds	Field crops	Field crops	Field crops
	Level of effectiveness		
	Mediterranean zone	Maritime zone	North-east zone
SORHA	HS	-	-
ELYRE	-	-	S
AGRRE	-	S	S

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Susceptibility	Abbreviation	Level of control
Highly Susceptible	HS	95-100 %
Susceptible	S	85-94.9 %
Moderately Susceptible	MS	70-84.9 %
Moderately tolerant	MT	50-69.9 %
Tolerant	T	0-49.9 %

Summary and conclusion

Based on the results of 33 field trials carried out in 2016, 2017 and 2018, the following can be concluded for the intended use 'Control of annual and perennial grassweeds' from PROPAQUIZAFOP 10% EC applied post-emergence at the dose rate of 1.2 L/ha:

- PROPAQUIZAFOP 10% EC provides a high-level control of annual and perennial monocotyledonous weeds, like ALOMY, BROSS, PHAMI, SETSS, DIGSA, ECHCG, AVESS, volunteer cereals, AGRRE, CYNDA, SORHA and a number of other grass weed species in the GAP claimed crops with the recommended dose rate of 1.2 L/ha against annual grassweeds and 1.2 L/ha against perennial grassweeds. As weeds often occur as a complex of several weeds with different susceptibility towards propaquizafop, one application of PROPAQUIZAFOP 10% EC at the recommended rates 1.2 L/ha rate should be used to efficiently control all weeds claimed on the label.
- A high level of control is also obtained against certain susceptible perennial grassweeds if treated with 1.2 l/ha under optimal conditions, i.e. early growth stages, good weather conditions and no tolerant weeds present in the field to be treated.
- Compared to the propaquizafop reference product, the efficacy obtained with PROPAQUIZAFOP 10% EC is comparable against all weed species.
- The trial results are considered valid for all intended Central zone countries.

PROPAQUIZAFOP 10% EC is suitable for the control of annual and perennial grass weeds in the GAP claimed crops.

The same grassweeds are controlled by propaquizafop in the different GAP claimed crops. When treating the weeds at similar growth stages, the same level of control would be expected in all GAP claimed crops and this has been seen in the trials. Therefore, for any label claims not adequately supported for one crop type Sharda Cropchem España requests that the Zonal Evaluators reads across to the data on the other crop types. This BAD also clearly demonstrates that the efficacy and cropsafety of PROPAQUIZAFOP 10% EC is equivalent to the efficacy and cropsafety of the standard propaquizafop reference products (i.e. Agil and Falcon) against which PROPAQUIZAFOP 10% EC was compared. The applicant therefore wishes to cite the original registrant's data on Propaquizafop now out of protection in support of those recommendations on the draft label that are not adequately supported by the applicant's data and requests that the Zonal Evaluator extrapolate from those data.

Applicant would like to refer to the EPPO standard PP 1/226(3) where is indicated that full number of trials in different years is required “particularly for plant protection products or active substances which not have been on the market in the EPPO region in which authorization is sought”. It is important to remark that the EPPO standard is referring to the region where registration is sought and not to a specific country, thus applicant considers that presence of standards has to be evaluated taking into account the registers in the whole Central Zone. The same EPPO PP 1/226(3) indicates that reduced number of trials can be presented “where there is a large amount of supporting evidence from use of the product, or of similar products with the same active substance on closely related pests or against the same pests on different crops”. Propaquizafop formulations have been registered in Central Zone and in countries where trials were conducted for various years like Agil-S 100 EC (reg nr R-208/2014) registered in Poland in 2014, Bosiak 100 EC (reg nr R-51-2015) registered in Poland in 2015, Agil 100 EC (reg nr 4239-9) registered in the Czech Republic in 2012, Agil-S (reg nr 034107-00) registered in Germany in 2017, Agil 100 EC (reg nr 11071/2002) registered in Hungary in 2002. According to this, formulation has been widely proved in Central Zone where registration is sought, thus applicant considers that number of trials are enough to register formulation.

Comments of zRMS:	<p>EPPO Standard PP 1/226 Number of efficacy trials provides guidance on the number of trials in target crops needed to demonstrate the efficacy of a plant protection product at the recommended dose. Where authorization is sought across a range of diverse conditions, such as across an authorization zone (PP 1/278 Principles of zonal data production and evaluation), then the number of trials conducted may need to increase. These trials should be done across the range of climatic and environmental conditions likely to be encountered, and over at least 2 years.</p> <p>Applicant submitted in total 22 efficacy trials carried out on winter oilseed rape in three different growing seasons for post-emergence use. It is in line with appropriate EPPO standards. Also, to give additional support to the label claims and recommendations on efficacy of Propaquizafop 10% EC in the Central zone, 9 trials conducted in field crops in the Mediterranean EPPO zone (soybeans: 4 trials (ES-1, IT-2, FR), tomato (3 trials: IT-2, ES-1) and sunflower (2 trials: FR-1, ES-1)) and Maritime EPPO zone (sunflower: 1 trial from FR, soybean-1 trial from FR) have been added to the efficacy section. Data from trials conducted on various crops has been added as Propaquizafop is a contact graminicide and it is assumed that there are no significant differences in the competition from the different crop types against the grass weeds in the time frame from application and up to the evaluation (one to nine months after application) included in the summary tables. Data from each group has been summarized separately as well as together.</p> <p>The field experiments of the herbicide – ALIVE (product code: SHA 6100 A) were carried out by testing unit mandated to conduct research in the field of efficacy of plant protection products by the Chief Inspector of Plant Health and Seed Inspection and are officially GEP recognized. The reports include a detailed data about conditions, agro-technological procedures, fore-crop as well as technical details etc. Submitted efficacy trials are correctly performed according to appropriate EPPO standards.</p> <p>cMS should use scale of efficacy in line with its national guidelines (ex. SANCO). Applicant presented scale of weed sensitivity according to SANCO scale. However, for Poland we should used different scale: S (susceptible) > 85%; MS (moderately susceptible) 70-85%; MT (moderately tolerant) 60-70%; T (tolerant) < 60%.</p> <p>We are dealing with the active substances used commonly for many years in many countries. So, in the list of weeds controlled should include only those species that occurred (with appropriate intensity) a minimum of two localizations, and in the case of the species with the highest hazard of the plants at least in four locations. The level (>5%) of weed infestation in all studies was sufficient. Only trials with</p>
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<p>greater than 5 weeds/m² or over 2% ground cover have been included.</p> <p><u>Applicant submitted following number of trials for:</u></p> <ul style="list-style-type: none">• winter oilseed rape: 22 trials were presented (MAR: 9 – FR-3; UK-2; DE-2; CZ-2; MED: lack of trials; S-E: lack of trials and N-E: 13 – PL-7; LT-4, LV-2). Only for MAR and N-E EPPO zone Applicant submitted sufficient number of trials. cMS from S-E and MED should decide if trials from other EPPO zone can be acceptable.• sunflower: 3 trials were presented (MAR; 1 -FR; MED: 2 trials – FR, ES). This crop is not requested for registration in GAP table.• tomato: 3 trials were presented (MED: 3 trials – IT-2, ES-1). This crop is not requested for registration in GAP table.• soybean: 5 trials were presented (MAR: 1 -FR; MED: 4 trials –ES-1, IT-2, FR). This crop is not requested for registration in GAP table. <p>Also, Concerned Member States will need to consider the relevance of the submitted formulation comparability data in relation to the current authorized uses for the reference product in their own Member State. The evaluation was conducted in accordance with Uniform Principles.</p> <p>cMS should decide which weed species can be accepted on the basis on presented documentation and their national rules.</p> <p><u>Following weed species should be consider by each cMS if they can be acceptable on the basis on submitted documentation:</u></p> <ul style="list-style-type: none">• winter oilseed rape:<ul style="list-style-type: none">- <u>Maritime EPPO zone</u> – ALOMY (3), LOLSS (2), TRZAW (4), HORVW (2), AGREE (2)- <u>N-E EPPPO zone</u> – TRZAW (7), ECHCG (2), APESV (4), AGREE (5)• sunflower, soybean, tomato:<ul style="list-style-type: none">- <u>MED EPPO zone:</u> ECHCG (6), DIGSA (5), SETVI (2) <p>Applicant submitted limited data for most studied weeds. In the opinion of Evaluator weeds studied only in 1 trial should be excluded from GAP table and label project.</p> <p><u>Following weed species should be excluded due to not enough number of trials (only 1 trial was presented):</u></p> <ul style="list-style-type: none">• winter oilseed rape:<ul style="list-style-type: none">- <u>Maritime EPPO zone</u> – POAAN (1), AVEFA (1), ECHCX (1), APESV (1)- <u>N-E EPPPO zone</u> – TTLWI (1), SETPF (1), VOLCE (1), ELYRE (1), LOLMU (1), ELYRE (1)• sunflower, soybean, tomato:<ul style="list-style-type: none">- <u>MED EPPO zone:</u> PHAMI (1), AVELU (1), VSTEG (1), SORHA (1) <p>Applicant correctly presented results. Due to the limited number of results for particular weeds species, it is difficult to make a clear conclusion for the label, especially for weeds which are considered to be major. Therefore, the sufficiency of results should be considered on the national level based on importance of weed in their country.</p> <p>Extrapolations results from registered products containing propaquizafop should be considered by individual member states on a national level based on current registration, data protection and experience with similar active compounds products. The spectrum of weeds should be checked with label claims on these refer-</p>
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	<p>ence products.</p> <p>ASSESSMENT FOR POLAND (N-E EPPO ZONE):</p> <p>For Poland (N-E) we can take into consideration results from neighbouring countries (DE, CZ) from other EPPO zones. So, for winter oilseed rape Applicant submitted in total 17 valid trials (DE-2, CZ-2, PL-7, LT-4, LV-2).</p> <p>Winter oilseed rape:</p> <p>Following weed species can be accepted in the Polish label:</p> <ul style="list-style-type: none">- ALOMY – 3 trials – minor weed, so number of trials is sufficient – MS- TRZAW – 11 trials —major weed, so number of trials is acceptable – S- APESV – 5 trials – major weed, so number of trials is sufficient – MS- ECHCG – 2 trials – minor weed, so number of trials is acceptable – MS- AGREE – 7 trials – major wees, so number of triials is acceptable – MS- HORVW – 2 trials – major weed, so at least 4 trials are required. Applicant submitted enough number of trials for self-seeding of winter wheat. So, in the opinion of Evaluator HORVW can be accepted in the label as self-seeding of winter cereals – S.- LOLSS – 2 trials – minor weed. However, we can not include group of plants in the label. Trials should be presented for each species, ex. <i>Lolium multiflorum</i> not group or family. <p>Based on the summarized data, it is therefore considered that claims for control of weeds in winter oilseed rape by ALIVE (product code: SHA 6100 A) applied at the proposed label rate 1,2 product/ha and according to other label recommendations, are fully supported.</p> <p>Without any efficacy trials minor uses can be registered only on the basis on Article 51: spring oilseed rape, opium poppy; common flax; linen flax; broccoli; brussels sprouts; broad beans; faba bean; field peas; white lupine; yellow lu-pine; narrow-leaved lupine; root celery; parsnip; swede; garlic; shallot; fodder beet; beetroot; Jerusalem artichokes; horseradish; black radish; Japanese radish (daikon); radish; salsify; white turnip; black turnip; alfalfa; yellow alfalfa; black medic; red clover; white clover; crimson clover; common sainfoin; vetch; little white bird's-foot; lentil; white melilot; yellow melilot; grass pea for control of annual grass- and broadleaved weeds.</p> <p><u>In Polish label following weeds species can be included as:</u></p> <ul style="list-style-type: none">• <i>Susceptible</i>: self-seeding of cereals (ex. winter wheat, winter barley).• <i>Moderately susceptible</i>: ALOMY, APESV, ECHCG, AGREE <p>Due to the fact that in Polish label most of entries are based on Agil-S 100 EC in which such weeds as ALOMY, APESV, ECHCG, AGREE are classified as a susceptible weed, in the opinion of Evaluator such classification should be preserved in the Polish label project. In most studies the efficacy was higher than 85%, only in a few trials' efficacy was lower and in consequence the average efficacy was lower. However, taking into account that the study only covers winter oilseed rape and the label is for a wide range of crops, the classification should remain unchanged as it is more representative for the majority of the crops included (according to the Agil-s 100 EC registration).</p> <p>Uses (from 1 to 49) with exception of Use 28 requested for propaquizafop 10% EC are identical to those of the reference product Agil S 100 EC (reg nr R208/2014) registered in POLAND for more than 10 years and, therefore, not in a scope of data protection anymore. Those uses can be accepted in the opinion of</p>
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ZRMs.
Justification for the expiry of data protection for the product AGIL-S 100 EC
GAP for plant protection product – ALIVE was developed based on the AGIL-S 100 EC label dated 01/08/2019, which in our opinion reflects all uses as for agent AGIL-S 100 EC. In the exception of use 28 which was accepted on the basis on presented documentation and trials.
The active substance propaquizafop was approved for use in plant protection products from 1 December 2009 by Commission Directive No 2009/37/EC of 23 April 2009 as an existing active substance under the provisions of Article 8(2) of Directive 91/414/EEC. Therefore, taking into account the provisions specified in the Technical Guideline on data protection under Regulation (EC) No 1107/2009 (2019/C 229/01), the data protection for the substance propaquizafop expired on 31.11.2014. In addition, the plant protection product AGIL 100 EC was authorised for placing on the market by MRiRW permit No 26/2002 dated 08.03. 2002, for use in the following areas: sugar beet, fodder beet (seed plantations), winter oilseed rape, broad beans, peas for dry seed, red beet, broad beans, green peas, onions, head cabbage (white, red), savoy cabbage, Brussels sprouts, carrots, parsley, celery, tomato (seedling), cucumber, beans, berry plants (gooseberry, currants, strawberry, raspberry), orchards (fruit trees) and nurseries, forest nurseries (from sowing to 3 years after sowing), forest crops (from planting of seedlings to 4 years after planting). Then, the authorization No. 26/2002 was changed by the decision of MRiRW No. R- 324/2003p of 12.08.2003, decision of MRiRW No. R-132/2004o of 19.03.2004, decision of MRiRW No. R-195/2007 of 7.05.2007, MRRW decision no. R-206/2009 of 25 November 2009, MRRW decision no. R-198/2011d of 5 July 2011, decision R-56/2012d of 22 February 2012 and MRRW decision no. R-206/2012d of 22 August 2012. In the process of re-registration, the authorization of MRiRW No. R-208/2014 dated 14.10.2014 was issued for the agent AGIL-S 100 EC, which was amended by MRiRW Decision No. R - 603/2015d dated 20.07.2015, by MRiRW decision no. R - 367/2016d of 20.07.2016, by MRiRW decision no. R - 315/2017d of 04.07.2017, by MRiRW decision no. R -204 /2018d of 09.05.2018 and by decision R - 500/2019d of 01.08.2019. Currently, AGIL-S 100 EC is approved for use in the following crops: sugar beet, winter oilseed rape, potato, onion, green peas, peas for dry seeds, beans, head cabbage, carrots, parsley, strawberries, spring oilseed rape, poppy, flax, linseed, celery root, parsnips, swedes, garlic, shallots, broccoli, Brussels sprouts, broad beans, pansies, white lupins, yellow lupins, blue lupins, fodder beets, red beets, Jerusalem artichokes horseradish, black radish, Japanese radish (daikon), radish, salsify, white turnip, black turnip, lucerne, lucerne sickle, alfalfa, red clover, white clover, blood-red clover, sainfoin, vetch, serradella, lentils, white bracts, yellow bracts, and lupins. In view of the above, in accordance with the provisions set out in the Technical Guidance on Data Protection under Regulation (EC) No 1107/2009 (2019/C 229/01), data protection for the plant protection product AGIL-S 100 EC has expired.
ALIVE and AGIL-S 100 EC contains one active compound – propachizafop (100 g/L). The ALIVE formulation is considered comparable to that of Agil-S 100 EC. The applicant relies on unprotected data supporting Agil-S 100 EC, as allowed for under article 34 of Regulation (EU) No 1107/2009.

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

3.3.1 Summary and Conclusions

Resistance is a natural phenomenon embodied in the process of the evolution of biological systems and has been experienced over and over again in the past. According to Heap (2013²) resistance is the naturally occurring inheritable ability of some weed biotypes within a population to survive an herbicide treatment that would, under normal conditions of use, effectively control that weed population. Selection of resistant biotypes may eventually result in control failures.

The risk of resistance was analysed following the EPPO-Standard (2003³), the classification of the Herbicide Resistance Action Committee (HRAC)⁴ and the international Survey of Herbicide Resistant Weeds (Heap 2018). So far 8 cases of resistance in 8 monocotyledonous weed species have been reported to have developed resistance to propaquizafop. Of these, four cases have been reported from Europe, i.e. one from Germany (BROST), one from Italy (SORHA), one from Belgium (ALOMY) and one too in Greece (SORHA). The active substance is therefore classified as a medium inherent risk, while several target plants have high inherent risk.

The evaluation of the agronomic risk comes to the conclusion, that Propaquizafop 10% EC bears a low risk of resistance.

The Registration of Propaquizafop 10% EC is endorsed.

3.3.2 Active ingredient

Propaquizafop, chemical name butyl (R)-2-isopropylideneamino-oxyethyl (R)-2-[4-(6-chloro- quinoxalin-2-yloxy)phenoxy]propionate (IUPAC), belongs to the chemical group of the aryloxyphenoxy-propionates. It is a selective herbicide in many broad-leaved crops which is adsorbed by foliage predominantly. Propaquizafop provides contact activity against important annual and perennial grasses across all climatic zones of Europe.

3.3.3 Mode of action

Propaquizafop acts by the inhibition of acetyl CoA carboxylase (ACCase). Due to its primary target site and its chemical family, in the HRAC mode of action classification it is classified as group A (WSSA group 1) herbicide:

- Mode of Action: Inhibition of acetyl CoA carboxylase (ACCase)
- Chemical families: Aryloxyphenoxy-propionate 'FOPs', Cyclohexanedione 'DIMs'.

² Heap, I. M., 2014: The International Survey of Herbicide Resistant Weeds. Web site visited May 2018.

<http://www.weedscience.com>

³ EPPO 2003: Standard PP 1/213 (2): Resistance risk analysis.

⁴ HRAC: <http://www.HRACglobal.com>. Web site visited May 2018.

3.3.4 Status

As demonstrated by the international survey of herbicide resistant weeds, resistance to 'FOPs' and 'DIMs' (HRAC group A) exists for several agriculturally relevant grass weed species⁵ with *Alopecurus myosuroides* and *Echinochloa crus galli* being most important for arable crop production under European conditions.

3.3.5 Mechanism(s) of resistance

The major reason for the reduced sensitivity of resistant biotypes of grass species against HRAC group A herbicides is found to be an altered target site. However, especially for *Alopecurus myosuroides* and *Lolium rigidum* enhanced metabolism has been reported as another mechanism of resistance⁶.

3.3.5.1 Cross-resistance

Based on the HRAC resistance classification, cross resistance should be expected to be likely between propaquizafop and other HRAC group A herbicides. Thus the analysis of the risk for the development of weed resistance to propaquizafop is made under the assumption that cross resistance exists between all herbicides classified as HRAC group A. Especially in the cases of metabolic resistance of *Alopecurus myosuroides* and *Lolium rigidum* cross resistance to other modes of action can also not be excluded. Cases of multiple resistance (plants may possess from two to many distinct resistance mechanisms and may exhibit resistance to a few or many herbicides²) including HRAC group A herbicides are reported for biotypes of *Alopecurus myosuroides* (ALOMY), *Avena fatua* (AVEFA), *Digitaria sanguinalis* (DIGSA), *Echinochloa colona* (ECHCO), *Echinochloa crus galli* (ECHCG), *Echinochloa erecta* (ECHCG), several *Lolium sp.*, especially *Lolium rigidum* (LOLRI), *Phalaris minor* (PHAMI) and *Setaria viridis* (SETVI)⁷.

3.3.5.2 Baseline sensitivity

The determination of the baseline sensitivity of the target species to propaquizafop is not convenient since HRAC group A herbicides have been used widely for many years and it would probably be hard to find origins of the target weed species in major crop-growing areas which never have been in contact to these herbicidal active substances and since resistance to HRAC group A herbicides can develop very quickly and is dependent of cultural and weed control measures⁸, indicating that the actual sensitivity level of target grass species such as *Alopecurus myosuroides* is likely to be very location- or even field specific.

3.3.6 Use pattern

PROPAQUIZAFOP 10% EC is based on the activity of propaquizafop which is a selective post-emergence herbicide. In the EU Central zone, the formulation is proposed for use against annual and perennial grass weeds in a wide range of crops. The recommended dose rate is 120 g ai/ha for annual and perennial grass weeds. The maximum number of applications is one application per growing season.

⁵ Source: Heap, I. The International Survey of Herbicide Resistant Weeds – Ureas and Amides (C2/7) resistant weeds by species and country, Online. Internet. July 2008. Available: <http://www.weedscience.org/>

⁶ Source: Powles, P. and Preston, Ch.: Herbicide Cross Resistance and Multiple Resistance in Plants. Available in the internet in July 2008 under <http://www.hracglobal.com/Publications>

⁷ Source: The International Survey of Herbicide Resistant Weeds, Online. Internet. Dec. 2013. Available: <http://www.weedscience.org/>

⁸ Moss, S.R., Perryman, S.A.M., Tatnell, L.V. Managing Herbicide resistant Blackgrass (*Alopecurus myosuroides*): Theory and Practice; Weed Technology 2007, 21:300–309

3.3.7 Determination of inherent risk of resistance of target weeds

If nothing different is mentioned, the information about the occurrence of resistance is based on ‘The International Survey of Herbicide Resistant Weeds’⁹ in the internet. The analysis of inherent risk of weeds to develop resistance to herbicides is done according to EPPO guideline 1/213 (2) - Resistance Risk Analysis - Appendix II¹⁰, focussing on a historical analysis of the occurrence of weed resistance of the target species and a historical analysis of the occurrence of weed resistance to the chemical (mode of action) group(s) of the product.

Major weed species concerned by the intended indications for propaquizafop are listed in **Table 3.3-1** and a classification of these target weed species according to their inherent risk to develop resistance to herbicides is demonstrated in this table. For all weeds which have developed resistance against more than one mode of action or for which the frequency of reported resistance is high (reports from more than 4 countries or states) the inherent risk to develop resistance to herbicides was classified as high. For all weeds which have developed resistance against only 1 mode of action and for which the frequency of reported resistance is low (reports from less than 5 countries or states) the inherent risk to develop resistance to herbicides was classified as medium. The inherent risk to develop resistance to herbicides is classified low for all weed species for which no cases of resistance were reported up to now.

Table 3.3-1 demonstrates that within the group of weeds showing a high inherent risk for resistance to herbicides major grass weed species being of importance in Europe such as for example *Alopecurus myosuroides*, *Avena fatua* or *Echinochloa crus galli* are represented. Based on these results it can be concluded that there is a generally high inherent risk of most target grass weed species to develop resistance to herbicides.

Table 3.3-1: Classification of target weed species according to their inherent risk to develop resistance to herbicides (across modes of action), based on the frequency of the occurrence of recorded resistance¹¹.

Target weed species	Frequency of the occurrence of recorded resistance (across HRAC groups) (# of countries [states])			# of sites of action involved	Inherent risk to develop resistance to herbicides
	Europe	Overseas	Worldwide		
<i>Lolium rigidum</i>	4	11	15	11	High
<i>Echinochloa crus-galli</i>	10	18	28	10	
<i>Poa annua</i>	7	10	17	9	
<i>Avena fatua</i>	5	24	29	6	
<i>Lolium multiflorum</i>	5	20	25	6	
<i>Alopecurus myosuroides</i>	12	2	14	6	
<i>Bromus tectorum</i>	2	2	4	4	
<i>Setaria viridis</i>	3	7	10	4	
<i>Sorghum halepense</i>	2	14	16	4	
<i>Digitaria sanguinalis</i>	4	5	9	3	
<i>Avena sterilis ludoviciana</i>	1	3	4	3	
<i>Avena sterilis</i>	4	5	9	3	
<i>Lolium perenne</i>	2	5	7	3	
<i>Setaria faberi</i>	1	9	10	3	
<i>Setaria glauca</i>	2	3	5	2	
<i>Phalaris minor</i>	-	7	7	3	
<i>Apera spica-venti</i>	7	-	7	3	
<i>Phalaris brachystachys</i>	1	1	2	2	
<i>Bromus rigidus</i>	-	4	4	2	
<i>Bromus diandrus</i>	-	3	3	3	

⁹ Source: Heap, I. The International Survey of Herbicide Resistant Weeds. Online. Internet. Sept. 2009. Available: www.weedscience.com/

¹⁰ EPPO: Standard of the efficacy evaluation of plant protection products [PP 1/213 (2)], Resistance Risk Analysis – Appendix II, Specific details on different types of plant protection products

¹¹ Source: Heap, I. The International Survey of Herbicide Resistant Weeds. Online. Internet. Nov. 2014. Available: www.weedscience.com/

Target weed species	Frequency of the occurrence of recorded resistance (across HRAC groups) (# of countries [states])			# of sites of action involved	Inherent risk to develop resistance to herbicides
	Europe	Overseas	Worldwide		
<i>Agrostis stolonifera</i>	1	-	1	1	Medium
<i>Bromus sterilis</i>	1	-	1	1	
<i>Brachypodium distachyon</i>	-	1	1	1	
<i>Setaria verticillata</i>	1	-	1	1	
<i>Cynodon dactylon</i>	-	-	-	-	low
<i>Elytrigia repens</i>	-	-	-	-	
<i>Panicum repens</i>	-	-	-	-	
<i>Poa sterilis</i>	-	-	-	-	

Table 3.3-2 shows the target weed species which have developed resistance to HRAC group A herbicides. Based on the empiric numbers the inherent risk to develop resistance against propaquizafop in Europe is considered high only for *Alopecurus myosuroides* and *Avena fatua* and medium to high for e.g. *Lolium multiflorum*, *Digitaria sanguinalis*, *Lolium rigidum* and *Avena sterilis*, while the inherent risk for e.g. *Lolium perenne*, *Bromus sp.*, *Echinochloa crus galli*, *Setaria viridis* and *Phalaris sp.* to develop resistance against propaquizafop is considered low. For other annual and perennial target grass weed species the inherent risk to develop resistance to Propaquizafop 10% EC in Europe is considered low.

Table 3.3-2: Target weed species that have developed resistance to HRAC group A herbicides (number of countries where the occurrence of resistance to HRAC group A herbicides has been recorded).

Target weed species	Number of countries where the occurrence of resistance has been recorded to HRAC group A herbicides		
	Europe	Overseas	Worldwide
<i>Alopecurus myosuroides</i>	9(7)*	1(1)	10(8)
<i>Avena fatua</i>	5(3)	21(6)	26(9)
<i>Lolium multiflorum</i>	4(3)	14(10)	18(13)
<i>Avena sterilis</i>	4(2)	5(1)	9(3)
<i>Lolium rigidum</i>	3(1)	10(11)	14(12)
<i>Avena sterilis ludoviciana</i>	1(0)	1(1)	2(1)
<i>Digitaria sanguinalis</i>	2(0)	5(1)	7(1)
<i>Sorghum halepense</i>	2(0)	6(0)	8(0)
<i>Lolium perenne</i>	1(1)	1(0)	2(1)
<i>Phalaris paradoxa</i>	1(0)	4(1)	5(1)
<i>Bromus sterilis</i>	1(0)	0(0)	1(0)
<i>Echinochloa crus galli</i>	1(1)	8(4)	9(5)
<i>Phalaris brachystachys</i>	1(0)	1(1)	2(1)
<i>Setaria viridis</i>	0(0)	4(2)	4(2)
<i>Phalaris minor</i>	0(0)	7(2)	7(2)
<i>Bromus tectorum</i>	0(0)	1(0)	1(0)
<i>Cynodon dactylon</i>	0(0)	0(0)	0(0)

3.3.8 Determination of the Agronomic Risk of Resistance

Agronomic parameters reducing the risk of a development of resistance are:

- Weed control strategies including chemical, non chemical, biological and cultural practices.
- No repeated applications in the same crop per season.
- Wide crop rotations
- Low weed pressure
- Applications in mixture with other (different mode of action) active substances.
- Alternation with other (different modes of action) active substances.
- High level of activity on the target weed species.
- Low residual activity.
- Chemical diversity

Agronomic parameters increasing the risk of a development of resistance are:

- Repeated applications during a crop cycle.
- Control of weeds with a sole active ingredient (mostly meaning a single site of action).
- Mono cropping.
- High weed pressure
- Application of sub-lethal concentrations of the herbicide.
- Long lasting residual activity.
- Chemical similarity

With respect to the above mentioned agronomic parameters and an **unrestricted** use pattern, the following can be stated for Propaquizafop 10% EC:

Propaquizafop 10% EC contains a sole ingredient.

Propaquizafop 10% EC provides no residual activity.

At the intended use rate (1.2 L/ha) Propaquizafop 10% EC is highly active on the target weed species.

Only one application is recommended per season.

When used in field crops, Propaquizafop 10% EC should be used in alteration with graminicides employing other modes of action.

Conclusions:

Although Propaquizafop 10% EC is highly active on the target weed species and provides no residual activity, the agronomic risk for the development of resistance is considered high if the product is used unrestrictedly. The risk is high as Propaquizafop 10% EC contains a sole active ingredient only, since it could be applied only one time during a crop cycle as well as other HRAC group A herbicides are available for grass control in field crops. Thus it is not unlikely that HRAC group A herbicides are applied in 2 or more consecutive years.

3.3.9 Conclusion on inherent and agronomic risk analysis

Taking into consideration inherent and agronomic risk for resistance development, it can be concluded that measures for resistance management should be established for the control of grasses, especially for *Alopecurus myosuroides* for the use of Propaquizafop 10% EC in broad-leaved crops.

3.3.10 Resistance management for Propaquizafop 10% EC

To avoid the development of resistance of grass weed species, especially of *Alopecurus myosuroides* to Propaquizafop 10% EC the following measures for resistance management should be established:

Modifiers related to the application of the product:

The number of applications in broadleaved crops should be limited to 1 application per crop cycle.

Alternations:

In case of repeated applications of herbicides for grass control within a cropping season or in consecutive cropping seasons, only herbicides with a different mode of action should be used.

Cultural practices:

Since occasionally herbicide resistance of grasses (esp. *Alopecurus myosuroides*) might be based on enhanced metabolism and thus cross resistance between different modes of action cannot be excluded, application limitations and the alternation of herbicides should be supported by additional agricultural measures.

3.3.11 Implementation of the management strategy

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

3.3.12 Summary

The risk for the development of resistance of weed species to Propaquizafop 10% EC was analysed following EPPO guideline PP 1/213 (2). Based on the empiric numbers the inherent risk to develop resistance against propaquizafop in Europe is considered high only for *Alopecurus myosuroides* and *Avena fatua* and medium to high for e.g. *Lolium multiflorum*, *Digitaria sanguinalis*, *Lolium rigidum* and *Avena sterilis*, while the inherent risk for e.g. *Lolium perenne*, *Bromus sp.*, *Echinochloa crus galli*, *Setaria viridis* and *Phalaris sp.* to develop resistance against propaquizafop is considered low to medium. For other annual and perennial target grass weed species the inherent risk to develop resistance to Propaquizafop 10% EC is considered low. The agronomic risk analysis has shown high agronomic risk for the control of grass weed species, especially for *Alopecurus myosuroides* and *Avena fatua* control, if Propaquizafop 10% EC would be used unrestrictedly.

Comments of zRMS:	Applicant submitted detailed information's about possibilities of development the resistance or cross-resistance. Evaluator accepted the strategy management about possible development of resistance or cross-resistance proposed by Applicant. Always follow HRAG guidelines for the prevention and managing herbicide resistant grass and broadleaved weeds.						
	The applicant has correctly highlighted that propaquizafop acts by the inhibition of acetyl CoA carboxylase (ACCase). Due to its primary target site and its chemical family, in the HRAC mode of action classification it is classified as group A (WSSA group 1) herbicide. The following table shows the current worldwide resistance cases specifically to the herbicide propaquizafop:						
	#	Year	Species	Country	MOAs	Actives	Situations
	1	1996	Alopecurus myosuroides	Belgium	Inhibition of Acetolactate Synthase HRAC Group 2 (Legacy B), Inhibition of Acetyl CoA Carboxylase HRAC Group 1 (Legacy A), Inhibition of Microtubule Assembly 2 HRAC Group 3 (Legacy K1), PSII inhibitors - Serine 264 Binders HRAC Group 5 (Legacy C1 C2)	clodinafop-propargyl, propaquizafop, fenoxa-prop-ethyl, flupyr-sulfuron-methyl-Na, atrazine, chlorotoluron, pendimethalin	Winter wheat
	2	1997	Urochloa plantaginea (=Brachiaria plantaginea)	Brazil	Inhibition of Acetyl CoA Carboxylase HRAC Group 1 (Legacy A)	haloxyfop-methyl, diclofop-methyl, fluazifop-butyl, propaquizafop, quizalofop-ethyl, fenoxa-prop-ethyl, sethoxydim, butoxydim	Soybean
	3	2002	Digitaria ciliaris	Brazil	Inhibition of Acetyl CoA Carboxylase HRAC Group 1 (Legacy A)	haloxyfop-methyl, cyhalofop-butyl, fluazifop-butyl, propaquizafop, fenoxa-prop-ethyl, sethoxydim	Soybean
	4	2012	Bromus sterilis	Germany	Inhibition of Acetyl CoA Carboxylase HRAC Group 1 (Legacy A)	propaquizafop, cycloxydim	Cereals, Rapeseed
	5	2005	Sorghum halepense	Greece	Inhibition of Acetyl CoA Carboxylase HRAC Group 1 (Legacy A)	propaquizafop, quizalofop-ethyl	Cotton
6	2019	Avena fatua	Ireland	Inhibition of Acetyl CoA Carboxylase HRAC Group	propaquizafop, cycloxydim, pinoxaden	Spring Barley	

				1 (Legacy A)		Winter barley
7	2005	Sorghum halepense	Italy	Inhibition of Acetyl CoA Carboxylase HRAC Group 1 (Legacy A)	haloxyfop-methyl, fluazifop-butyl, propaquizafop, quizalofop-ethyl	Soybean, Tomatoes
8	1990	Eleusine indica	Malaysia	Inhibition of Acetyl CoA Carboxylase HRAC Group 1 (Legacy A)	fluazifop-butyl, propaquizafop	Cropland, Vegetables
9	2017	Sorghum halepense	Serbia	Inhibition of Acetyl CoA Carboxylase HRAC Group 1 (Legacy A)	haloxyfop-methyl, fluazifop-butyl, propaquizafop, quizalofop-ethyl, fenoxaprop-ethyl	Soybean
10	1999	Phalaris minor	South Africa	Inhibition of Acetolactate Synthase HRAC Group 2 (Legacy B), Inhibition of Acetyl CoA Carboxylase HRAC Group 1 (Legacy A)	haloxyfop-methyl, clodinafop-propargyl, diclofop-methyl, propaquizafop, quizalofop-ethyl, fenoxaprop-ethyl, sulfosulfuron, iodosulfuron-methyl-Na, mesosulfuron-methyl	Pastures, Wheat
<p>The inherent risk to develop resistance against propaquizafop in Europe is considered high only for <i>Alopecurus myosuroides</i> and <i>Avena fatua</i> and medium to high for e.g., <i>Lolium multiflorum</i>, <i>Digitaria sanguinalis</i>, <i>Lolium rigidum</i> and <i>Avena sterilis</i>, while the inherent risk for e.g., <i>Lolium perenne</i>, <i>Bromus sp.</i>, <i>Echinochloa crus galli</i>, <i>Setaria viridis</i> and <i>Phalaris sp.</i> to develop resistance against propaquizafop is considered low. For other annual and perennial target grass weed species the inherent risk to develop resistance to Propaquizafop 10% EC in Europe is considered low. In the opinion of Evaluator, Propaquizafop is inherently a medium to high-risk active for the development of resistance and an unrestricted use pattern is not acceptable.</p> <p>Always follow the recommendations of the Weed Resistance Action Group (WRAG) with respect to the integration of chemical and cultural control measures</p> <p>Each of cMS can change or adjust risk assessment considering the national requirements and may designate additional measures relating to resistance prevention on the national level. For Poland (zRMS) proposed strategy is acceptable in the opinion of Evaluator.</p>						

3.4 Adverse effects on treated crops (KCP 6.4)

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

Table 3.4-1: Presentation of selectivity trials

Crop(s) *	Country	Years	Type of trial**	Number of trials (number of valid trials for efficacy)				GEP, non-GEP, official***	Comments (any other relevant information)
				EPPo zone					
				MAR	MED	S-E	N-E		
Oilseed rape	France	2016	S + Y + Q	2 (2)	-	-	-	GEP	
	United Kingdom	2016	S + Y + Q	2 (2)	-	-	-	GEP	
	Germany	2016	S + Y + Q	2 (2)	-	-	-	GEP	
	Czech Republic	2016	S + Y + Q	2 (2)	-	-	-	GEP	
	Latvia	2016	S + Y + Q	-	-	-	2 (2)	GEP	

Crop(s) *	Country	Years	Type of trial**	Number of trials (number of valid trials for efficacy)				GEP, non-GEP, official***	Comments (any other relevant information)
				EPPO zone					
				MAR	MED	S-E	N-E		
	Lithuania	2016	S + Y+ Q	-	-	-	4 (4)	GEP	
	Poland	2016	S + Y+ Q	-	-	-	1 (1)	GEP	
		2017	S + Y+ Q	-	-	-	2 (2)	GEP	
		2018	S + Y+ Q	-	-	-	2 (2)	GEP	
Total Oilseed rape;				8 (8)	-	-	11 (11)		
TOTAL	-	2016	-	8 (8)	-	-	11 (11)	-	

* According to the GAP table

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

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

Table 3.4-2: Details on selectivity trial methodology

Guidelines	General guidelines	EPPO PP 1/152 (3/4), PP 1/181 (3/4), PP 1/135(3/4) – All trials
	Specific guidelines	EPPO PP1/49(3)
Experimental design	Plot design	RCBD (19)
	Plot size	16 to 76 m ²
	Number of replications	4 (19)
Crop	Trials per crop	Oilseed rape (19)
	Varieties per crop	Oilseed rape ; Alessio, Extorn, Difussion, Incentive, DK Exquisite, Arsenal, DK Sensei, Starte C-1, Avatar, Mercedes, Majong, Visby, Agatha, PT211, Poznianiak, Starter, Monolit
	Sowing period	Field crops ; August to October
Application	Crop stage (BBCH)* at application	BBCH 13-61
	Number of applications Intervals between applications	1 (19 trials) n.a.
	Spray volumes	200 to 300 l/ha
Assessment	Assessment types	- Visual estimation of crop injury and crop stand reduction (thinning) compared to ‘untreated’ (‘untreated’ = 0% crop injury; 100% crop injury = total crop destruction). Where appropriate this overall score was substituted or supplemented by assessments of individual symptoms. - Count of plants, crop vigour, count of tassels, crop height, lodging
	Assessment dates	As a rule 3 to 4 crop injury ratings
Other relevant information	Soil type	Light to heavy soils
	Natural / artificial inoculation...	Preferably weed-free conditions

	Field / Greenhouse...	Field
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Table 3.4-3: Presentation of reference standards used in selectivity trials

Trade name	Formulation	Composition	Rates [L/ha]	Indication	Country	N° of trials
AGIL	EC	100 g/L propaquizafop	0.60 L/ha 0.80 L/ha 1.00 L/ha 1.20 L/ha 1.50 L/ha 2.40 L/ha 3.00 L/ha	Control of annual and perennial grassweeds	Italy, Spain, France, Poland, Latvia, Lithuania, Germany, Czech Republic	17
FALCON	EC	100 g/L propaquizafop	0.60 L/ha 0.80 L/ha 1.00 L/ha 1.20 L/ha 2.40 L/ha	Control of annual and perennial grassweeds	United Kingdom	2

3.4.1 Phytotoxicity to host crop (KCP 6.4.1)

The crop safety of applying PROPAQUIZAFOP 10% EC in Oilseed rape was tested in 22 efficacy trials and 19 selectivity trials, conducted in the Maritime (9 eff and 8 sel) and the North-East (13 eff and 13 sel) EPPO zones.

3.4.1.1 Oilseed rape

The crop safety of PROPAQUIZAFOP 10% EC applied in soybeans post-emergence was tested in 22 efficacy trials and 19 selectivity trials, conducted in the Maritime (9 eff and 8 sel) and North-east (13 eff and 13 sel) EPPO zone.

Table 3.4-4 and Table 3.4-7 lists the oilseed rape trials and varieties where the absence of phytotoxicity was recorded as a data set containing zeroes.

Table 3.4-4: Varieties where no adverse effects were observed in Maritime oilseed rape trials, from efficacy and selectivity trial

Country	Trial no.	Variety	No. of appl.
Efficacy trials, 0.6, 0.8, 1.0 and 1.2 kg/ha			
FR	15E-HOSSHA FR143	Alessio	1
FR	15E-HOSSHA FR141	Extorn	1
FR	15E-HOSSHA FR142	Diffusion	1
GB	SHA820-15-EFF001-001	Incentive	1
GB	SHA820-15-EFF002-001	Incentive	1
DE	Sharda 16-014	DK Exquisite	1
DE	Sharda 16-015	Arsenal	1
CZ	SWEPL-CZE16-PFQ-BRSNW-KUJ1	DK Sensei	1
CZ	SWEPL-CZE16-PFQ-BRSNW-KUJ2	DK Sensei	1
Selectivity trials, 1.2 and 2.4 kg/ha			
FR	15E-HOSSHA FR145	DK Exprit	1
FR	15E-HOSSHA FR146	Agatha	1
GB	SHA820-15-SEL001-001	PT211	1
GB	SHA820-15-SEL001-002	PT211	1
DE	Sharda 16-016	Avatar	1

Country	Trial no.	Variety	No. of appl.
DE	Sharda 16-017	Avatar	1
CZ	SWEPL-CZE16-PFQ-BRSNW-KUJ3	DK Exception	1
CZ	SWEPL-CZE16-PFQ-BRSNW-KUJ4	DK Sensei	1

Table 3.4-5: Varieties where no adverse effects were observed in North-east oilseed rape trials, from efficacy trial

Country	Trial no.	Variety	No. of appl.
Efficacy trials, 0.6, 0.8, 1.0 and 1.2 kg/ha			
PL	SH16RZ107W	Starter C-1	1
LV	H-2016-LV-3-1	Avatar	1
LV	H-2016-LV-3-2	Mercedes	1
LT	LTZIHE2016BRSNS-PR-01	Doktrin	1
LT	LTZIHE2016BRSNS-PR-02	Majong	1
LT	LTZIHE2016BRSNW-PR-01	Mercedes	1
LT	LTZIHE2016BRSNW-PR-02	Visby	1
PL	SH18RZ112W	Monolit	1
PL	SH18RZ113T	Gladius	1
PL	SH18RZ114Z	Archimedes	1
PL	NUZ 06/17-I	Anderson	1
PL	NUZ 06/17-II	Florida	1
PL	17-ro-26-As	Monolit	1
Selectivity trials, 1.2, 1.5, 2.4 and 3.0 kg/ha			
PL	SH16RZ108W	Poznaniak	1
LV	H-2016-LV-4	Avatar	1
LV	H-2016-LV-4-1	Visby	1
LT	LTZIHS2016BRSNS-PR-01	Doktrin	1
LT	LTZIHS2016BRSNS-PR-02	Majong	1
LT	LTZIHS2016BRSNW-PR-01	Visby	1
LT	LTZIHS2016BRSNW-PR-02	Mercedes	1
PL	SH18RZ115W	Poznaniak	1
PL	SH18RZ116W	Starter	1
PL	17-ro-34-Af	Monolit	1
PL	17-ro-35-Af	Monolit	1

Maritime zone

The crop safety of PROPAQUIZAFOP 10% EC applied post-emergence in oilseed rape was tested in 9 efficacy trials and 8 selectivity trials conducted in the Maritime EPPO zone. The trials were conducted on a range commercial varieties.

In the efficacy trials, the crop safety was assessed at dose rates ranging from 60g to 120g propaquizafop per hectare. No occurrence of phytotoxicity was reported in any of the efficacy trials.

In the crop safety trials, crop safety was assessed at 120g propaquizafop per hectare and in the double dose rates of 240g, simulating overlaps. No occurrence of phytotoxicity was reported in the selectivity trials.

To test if Propaquizafop at the applied dose rates has a negative effect on yield and the quality of the crop, the eight crop safety trials conducted in oilseed rape in the Maritime EPPO zone were harvested. No significant effect on crop yield was observed when Propaquizafop was applied, neither at the recommended dose rate nor at the overlapping dose rates. Also, no detrimental effects were observed in the plots treated with the reference products.

North-East zone

The crop safety of PROPAQUIZAFOP 10% EC applied post-emergence in oilseed rape was tested in 13 efficacy trials and thirteen selectivity trials conducted in the North-east EPPO zone. The trials were conducted on a range commercial varieties.

In the efficacy trials, the crop safety was assessed at dose rates ranging from 60g to 150g propaquizafop per hectare. No occurrence of phytotoxicity was reported in any of the efficacy trials.

In the crop safety trials, crop safety was assessed at 120-150g propaquizafop per hectare and in the double dose rates of 240-300g, simulating overlaps. No occurrence of phytotoxicity was reported in the selectivity trials.

To test if Propaquizafop at the applied dose rates has a negative effect on yield and the quality of the crop, the seven crop safety trials conducted in Oilseed rape in the North-east EPPO zone were harvested. No significant effect on crop yield was observed when Propaquizafop was applied, neither at the recommended dose rate nor at the overlapping dose rates. Also, no detrimental effects were observed in the plots treated with the reference products.

Table 3.4-6: Phytotoxicity of product

Number of trials with...		Selectivity trials (19 trials)				Efficacy trials (22 trials)	
		Test product		Standard 1		Test product	Standard 1
		1.0 kg/ha	1.2 kg/ha	1.0 kg/ha	1.2 kg/ha	1.2-3 kg/ha	1.2-3 kg/ha
Maximum of phytotoxicity recorded during the trials	0% to 5%	19	19	19	19	22	22
	>5% to 10%	0	0	0	0	0	0
	>10% to 15%	0	0	0	0	0	0
	>15 %	0	0	0	0	0	0
Level of symptoms at the last assessments	0% to 5%	19	19	19	19	22	22
	>5% to 10%	0	0	0	0	0	0
	>10% to 15%	0	0	0	0	0	0
	>15 %	0	0	0	0	0	0

3.4.1.2 Overall conclusion

Propaquizafop applied at the recommended dose rates did not caused phytotoxicity in the vast majority of the trials conducted on Oilseed rape when applied post-emergence to the crop. Any phytotoxicity was observed in any trials, and no differences in the harvest data were observed it is therefore considered safe to apply PROPAQUIZAFOP 10% EC in the GAP claimed crops at the recommended dose rate. In the trials where PROPAQUIZAFOP 10% EC EC was applied at dose rates higher than the recommended, no unacceptable detrimental effects were observed on selectivity, when assessed in the vast majority of the trials.

For crops and application timings claimed on the label not supported with trials, the applicant wishes to bridge to the trials conducted in oilseed rape where equivalence between the selectivity of propaquizafop and the reference propaquizafop products currently registered in the EU Central zone was demonstrated and no negative impact of the application was observed. The Applicant therefore wishes to cite the original Registrants data on propaquizafop now out of protection in support of those recommendations on the draft label that are not adequately supported by the applicant's data and requests that the Zonal Rapporteur extrapolate from those data.

Comments of zRMS:	<p>In the evaluation process the fact that the active ingredient – propaquizafop used in many plant protection products and has been commonly used in crop protection for many years were taken into consideration.</p> <p>The Applicant submitted in total 19 selectivity and 33 efficacy studies conducted on herbicide (ALIVE) containing this active substance. In Poland three different growing seasons were studied: 2016, 2017 and 2018. However, in LV, LT, CZ, DE, UK and FR only one growing season (2016) was studied. cMS should decide if it is acceptable.</p> <p>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 herbicides treatment compared to plant for untreated, where 0% means no phytotoxicity and 100% - complete destruction.</p> <p>Phytotoxicity assessment was carried out with the use of different cultivars of winter oilseed rape. Dosages N (1,2 l/ha) and higher (even 2,5N: 3,0 l/ha) were studied during trials. Experimental details and assessments methods were in accordance to EPPO standards.</p> <p>No phytotoxicity symptoms were observed for any tested dosage for all tested winter oilseed rape varieties. The crop developed normally and did not involve a loss in yield at harvest.</p> <p>Phytotoxicity effect for uses (from 1 to 49) requested for propaquizafop 10% EC are identical to those of the reference product Agil S 100 EC (reg nr R208/2014) registered in POLAND for more than 10 years and, therefore, not in a scope of data protection anymore and phytotoxicity results for them were not required. ZRM's agree with this statement for Poland.</p>
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3.4.2 Effect on the yield of treated plants or plant product (KCP 6.4.2)

Nineteen selectivity trials were conducted in 2016, 2017 and 2018 to evaluate the effect of PROPAQUIZAFOP 10% EC on yield of Oilseed rape.

PROPAQUIZAFOP 10% EC was applied on a range of crops at growth stages ranging from BBCH 13 to BBCH 61, i.e. post-emergence. All selectivity trials presented in this Biological Assessment Dossier were located within the Maritime (8) or the North-East zone (11) as defined by EPPO Standard PP1/241(1).

3.4.2.1 Materials and methods

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

3.4.2.2 Summary and evaluation of the field trials conducted in Oilseed rape, treated post-emergence

A summary of the mean yield assessments (yield and/or quality) expressed as %-relative of the untreated, from trials treated once, conducted in the Maritime and North-east, are presented in Table 3.4-7 to **Błąd! Nie można odnaleźć źródła odwołania.**

Oilseed rape, Maritime EPPO zone

Eight selectivity trials from the N-France, United Kingdom, Germany and Czech Republic, were conducted in oilseed rape. In the trials, PROPAQUIZAFOP 10% EC was applied at 1.2 (120g) L/ha. In the same trials, AGIL and FALCON was applied at equivalent dose rates, i.e. 1.2 (120g) L/ha. The trials were sprayed at crop growth stage BBCH 14 to 30.

Neither PROPAQUIZAFOP 10% EC nor AGIL or FALCON significantly affected yield (Table 3.4-7) when applied at 1.2L/ha at BBCH 14-30 in any of the eight trials treated post-emergence. It is considered that PROPAQUIZAFOP 10% EC is safe to be used in oilseed rape.

Oilseed rape, North-east EPPO zone

Eleven selectivity trials from the Poland, Latvia and Lithuania, were conducted in oilseed rape. In the trials, PROPAQUIZAFOP 10% EC was applied at 1.2 (120g) L/ha. In the same trials, AGIL was applied at equivalent dose rates, i.e. 1.2 (120g) L/ha. The trials were sprayed at crop growth stage BBCH 13 to 32.

Neither PROPAQUIZAFOP 10% EC nor AGIL significantly affected yield (Table 3.4-7) when applied at 1.2L/ha at BBCH 13-32 in any of the eleven trials treated post-emergence. It is considered that PROPAQUIZAFOP 10% EC is safe to be used in oilseed rape

3.4.2.3 Conclusion

PROPAQUIZAFOP 10% EC applied at the recommended dose rates did not affect crop yield significantly in the any of the trials conducted, when applied as recommended. In all trials, PROPAQUIZAFOP 10% EC applied at twice or more the recommended rate – representative for sprayer overlap – did not significantly affect the crop yield.

For crops claimed on the label not supported with trials, the applicant wishes to bridge to the trials conducted in Oilseed rape where equivalence between the selectivity of PROPAQUIZAFOP 10% EC and the reference propaquizafop product currently on the market was demonstrated and no negative impact of the application was observed. The applicant therefore wishes to cite the original registrant's data on propaquizafop now out of protection in support of those recommendations on the draft label that are not adequately supported by the applicant's data and requests that the Zonal Evaluator extrapolate from those data.

Comments of zRMS:	Applicant submitted 19 selectivity trials carried out in N-E EPPO (11 trials) and MAR EPPO zone (8 trials). During those field trials the impact of ALIVE on the yield was studied. 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 ALIVE provided a yield similar to the untreated plots and to those treated with the reference products. No statistical differences were observed between untreated and treated plots and also between the test-ed product and the standard product. Effect on yield for uses (from 1 to 49) requested for propaquizafop 10% EC are identical to those of the reference product Agil S 100 EC (reg nr R208/2014) registered in POLAND for more than 10 years and, therefore, not in a scope of data protection anymore and yield results for them were not required. ZRM's agree with this statement for Poland.
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Table 3.4-7: Crop yield (t/ha) of Oilseed rape, treated with PROPAQUIZAFOP 10% EC with single application, as % of untreated (Untreated = 100%), Maritime zone and North-east zone

Trial ID	Country	Year	Variety	GS at appl.	Assessm. Days after last appl.	Assess. Type	Part assess.	Untreated		Propaquizafop 10% EC 1.2-1.5 L/ha		Propaquizafop 10% EC 2.4-3.0 L/ha		Ref. product 1.2-1.5 L/ha		Ref. product 2.4-3.0 L/ha	
								% relative	SNK	% relative	SNK	% relative	SNK	% relative	SNK	% relative	SNK
Maritime EPPO zone																	
15E HOSSHA FR145	FR	2016	DK Exprit	14 (13-15)	152	Yield	Plant	100%	a	99.9%	a	101%	a	102.1%	a	101.5%	a
15E HOSSHA FR146	FR	2016	Agatha	17 (16-18)	255	Yield	Plant	100%	a	100.3%	a	105.5%	a	101.8%	a	106.5%	a
SHA820-15-SEL001-001	GB	2016	PT211	16 (14-16)	209	Yield	Plant	100%	a	100%	a	99.7%	a	99.8%	a	99.8%	a
SHA820-15-SEL002-001	GB	2016	PT211	31 (30-35)	111	Yield	Plant	100%	a	99.6%	a	99.2%	a	99.6%	a	99.2%	a
Sharda 16-016	DE	2016	Avatar	16 (14-16)	99	Yield	Plant	100%	a	106.75%	a	99.0%	a	100.7%	a	97.2%	a
Sharda 16-017	DE	2016	Avatar	61 (57-61)	99	Yield	Plant	100%	a	99.6%	a	102.6%	a	102.7%	a	104.0%	a
SWEPL-CZE16-PFQ-BRSNW-KUJ3	CZ	2016	DK Exception	14 (13-14)	294	Yield	Plant	100%	a	98.4%	a	102%	a	98.87%	a	97.5%	a
SWEPL-CZE16-PFQ-BRSNW-KUJ4	CZ	2016	DK Exception	30 (30-30)	102	Yield	Plant	100%	a	98.8%	a	100.5%	a	100.5%	a	100.5%	a
Mean								100%		100.4%		101.2%		100.7%		100.8%	
Min								100%		98.4%		99.0%		98.8%		97.2%	
Max								100%		106.7%		105.5%		102.7%		106.5%	
No. of trials								8		8		8		8		8	
North-east EPPO zone																	
SH16RZ108W	PL	2016	Poznaniak	30	90	Yield	Plant	100%	a	101%	a	99.5%	a	97.4%	a	98.9%	a
H-2016-LV-4	LV	2016	Avatar	15 (14-17)	324	Yield	Plant	100%	a	103%	a	104.4%	a	110.4%	a	116.8%	a
H-2016-LV-4-1	LV	2016	Visby	32 (31-32)	351	Yield	Plant	100%	a	99.0%	a	100%	a	99.0%	a	99.9%	a
LTZIHS2016BRNS-PR-01	LT	2016	Doktrin	13 (12-13)	104	Yield	Plant	100%	a	98.1%	a	92.1%	a	97.7%	a	95.4%	a
LTZIHS2016BRNS-PR-02	LT	2016	Majong	15 (14-30)	104	Yield	Plant	100%	a	100%	a	101.2%	a	100%	a	96.4%	a
LTZIHS2016BRNW-PR-01	LT	2016	Visby	13 (12-14)	323	Yield	Plant	100%	a	100%	a	100.5%	a	100.4%	a	100.5%	a
LTZIHS2016BRNW-PR-02	LT	2016	Mercedes	13 (12-14)	323	Yield	Plant	100%	a	102.1%	a	104.8%	a	104%	a	105%	a
SH18RZ115W	PL	2018	Poznianak	10-12	281	Yield	Plant	3.38	a	103%	a	101.1%	a	90.7%	a	97.3%	a
SH18RZ116W	PL	2018	Starter	10-12	258	Yield	Plant	3.29	a	96.9%	a	104%	a	97.6%	a	99.7%	a
17-ro-34-Af	PL	2017	Monolit	35	110	Yield	Plant	3.04	-	101.3	-	99.0	-	100.7	-	100	-
17-ro-35-Af	PL	2017	Monolit	35	110	Yield	Plant	2.88	-	99.7	-	102.7	-	102.7	-	100.3	-
Mean								3.15		100.3		100.9		100		100.9	
Min										98.1		92.1		90.7		95.4	
Max										103		104.8		110.4		116.8	
No. of trials								11		11		11		11		11	

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

Thirty-two trials treated with Propaquizafop 10% EC, conducted in oilseed rape (19 trials), were harvested and yield recorded. In a number of these, assessments on the potential impact of treatment on a range of quality parameters including quality of the harvested fruit, thousand grain weight and oil content were conducted.

Thousand Grain Weight (TGW)

The Thousand Grain Weight (TGW) was evaluated in nine of the 19 trials taken to harvest. The results obtained in oilseed rape (9 trials) are presented in Table 3.4-10. The data on TGW was obtained from two trials conducted in the Maritime and three trials conducted in the North-east zone.

Overall, Propaquizafop 10% EC had no detrimental effect on the TGW of any of the treated crops when applied at the proposed label rate and higher rates.

Oil content (%)

The Oil Content in percent was evaluated in thirteen of the 19 trials taken to harvest. The results obtained in Oilseed rape and Sunflower are presented in Table 3.4-8. The data on Oil content was obtained from six trials conducted in the Maritime zone and three trials conducted in the North-east zone.

Overall, Propaquizafop 10% EC had no detrimental effect on the oil content of the treated crops when applied at the proposed label rate and higher rates.

Moisture content (%)

The Moisture Content in percent was evaluated in fifteen of the 19 trials taken to harvest. The results obtained in oilseed rape are presented Table 3.4-9. The data on Moisture content was obtained from eight trials conducted in the Maritime zone and six trials conducted in the North-east.

Overall, Propaquizafop 10% EC had no detrimental effect on the moisture content of the treated crops when applied at the proposed label rate and higher rates.

3.4.3.1 Conclusion

PROPAQUIZAFOP 10% EC applied at the recommended dose rates did not affect crop yield nor the quality of the crop yield significantly in the any of the trials conducted, when applied as recommended. In all trials, PROPAQUIZAFOP 10% EC applied at twice or more the recommended rate – representative for sprayer overlap – did not significantly affect the crop yield or the quality parameters.

For crops claimed on the label not supported with trials, the applicant wishes to bridge to the trials conducted in Oilseed rape where equivalence between the selectivity of PROPAQUIZAFOP 10% EC and the reference propaquizafop product currently on the market was demonstrated and no negative impact of the application was observed. The applicant therefore wishes to cite the original registrant's data on propaquizafop now out of protection in support of those recommendations on the draft label that are not adequately supported by the applicant's data and requests that the Zonal Evaluator extrapolate from those data.

Comments of zRMS:	Submitted trials are sufficient. Influence of ALIVE (product code: SHA 6100 A) on quantity and quality of yield was evaluated during selectivity research. The
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	<p>evaluation was carried out in accordance with EPPO guidelines. Following parameters were studied: moisture, TGW and oil content. 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 ALIVE (product code: SHA 6100 A) provided a quality yield like the untreated plots and to those treated with the reference products. No statistical differences were observed between untreated and treated plots and also between the tested product and the standard product.</p> <p>Effect on the quality on yield for uses (from 1 to 49) requested for propaquizafop 10% EC are identical to those of the reference product Agil S 100 EC (reg nr R208/2014) registered in POLAND for more than 10 years and, therefore, not in a scope of data protection anymore and phytotoxicity quality of yield results for them were not required. ZRM's agree with this statement for Poland.</p>
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Table 3.4-8: Crop quality parameter (Oil content (%)) of Oilseed rape, treated with PROPAQUIZAFOP 10% EC with single application, as % of untreated (Untreated = 100%), Maritime zone

Trial ID	Country	Year	Variety	GS at appl.	Assessm. Days after last appl.	Assess. Type	Part assess.	Untreated		Propaquizafop 10% EC 1.2-1.5 L/ha		Propaquizafop 10% EC 2.4-3.0 L/ha		Ref. product 1.2-1.5 L/ha		Ref. product 2.4-3.0 L/ha	
								% relative	SNK	% relative	SNK	% relative	SNK	% relative	SNK	% relative	SNK
Maritime EPPO zone																	
15E HOSSHA FR145	FR	2016	DK Exprit	14 (13-15)	242	Oil	Seed	100%	a	100.4%	a	101.5%	a	99.6%	a	100.2%	a
15E HOSSHA FR146	FR	2016	Agatha	17 (16-18)	255	Oil	Seed	100%	a	99.8%	a	99.4%	a	100.1%	a	100.1%	a
Sharda 16-016	DE	2016	Avatar	16 (14-16)	193	Oil	Seed	100%	a	101.4%	a	100.4%	a	100.7%	a	100.7%	a
Sharda 16-017	DE	2016	Avatar	61 (57-61)	193	Oil	Seed	100%	a	98.5%	a	99.4%	a	98.9%	a	99.5%	a
SWEPL-CZE16-PFQ-BRSNW-KUJ3	CZ	2016	DK Exception	14 (13-14)	299	Oil	Seed	100%	a	100%	a	100.4%	a	100.9%	a	100.7%	a
SWEPL-CZE16-PFQ-BRSNW-KUJ4	CZ	2016	DK Exception	30 (30-30)	105	Oil	Seed	100%	a	99.8%	a	100.4%	a	100.5%	a	100.1%	a
							Mean	100%		99.98%		100.3%		100.1%		100.2%	
							Min	100%		98.5%		99.4%		98.9%		99.5%	
							Max	100%		101.4%		101.5%		100.9%		100.7%	
							No. of trials	6		6		6		6		6	
North-east EPPO zone																	
SH16RZ108W	PL	2016	Poznaniak	30	90	Oil	Seed	100%	a	100.7%	a	100.2%	a	100.2%	a	100.2%	a
H-2016-LV-4	LV	2016	Avatar	15 (14-17)	324	Oil	Seed	100%	a	99.1%	a	97.04%	a	99.3%	a	100%	a
H-2016-LV-4-1	LV	2016	Visby	32 (31-32)	351	Oil	Seed	100%	a	100.6%	a	99.5%	a	99.3%	a	99.2%	a
SH18RZ115W	PL	2018	Poznianak	10-12	281	Oil	Seed	48.1	a	101.5%	a	101%	a	101%	a	99.8%	a
SH18RZ116W	PL	2018	Starter	10-12	258	Oil	Seed	48.6	a	101%	a	99.4%	a	100%	a	100%	a
17-ro-34-Af	PL	2017	Monolit	35	110	Oil	Seed	37.4	-	99.8	-	99.9	-	99.8	-	99.9	-
17-ro-35-Af	PL	2017	Monolit	35	110	Oil	Seed	36.9	-	99.7	-	99.6	-	99.9	-	99.9	-
							Mean	42.8		100.3		99.5		99.9		99.9	
							Min			99.1		99.5		99.3		99.2	
							Max			101.5		101		101		100.2	
							No. of trials	7		7		7		7		7	

Table 3.4-9: Crop quality parameter (Moisture content (%)) of Oilseed rape, treated with PROPAQUIZAFOP 10% EC with single application, as % of untreated (Untreated = 100%), Maritime and North-east zone

Trial ID	Country	Year	Variety	GS at appl.	Assessm. Days after last appl.	Assess. Type	Part assess.	Untreated		Propaquizafop 10% EC 1.2-1.5 L/ha		Propaquizafop 10% EC 2.4-3.0 L/ha		Ref. product 1.2-1.5 L/ha		Ref. product 2.4-3.0 L/ha	
								% relative	SNK	% relative	SNK	% relative	SNK	% relative	SNK	% relative	SNK
Maritime EPPO zone																	
15E HOSSHA FR145	FR	2016	DK Exprit	14 (13-15)	152	MOICON	Seed	100%	a	100%	a	100%	a	100%	a	99.8%	a
15E HOSSHA FR146	FR	2016	Agatha	17 (16-18)	255	MOICON	Seed	100%	a	101.3%	a	102.5%	a	98.8%	a	102.5%	a
SHA820-15-SEL001-001	GB	2016	PT211	16 (14-16)	209	MOICON	Seed	100%	a	100%	a	100%	a	101%	a	95.3%	a
SHA820-15-SEL002-001	GB	2016	PT211	31 (30-35)	111	MOICON	Seed	100%	a	100%	a	100%	a	98.5%	a	98.5%	a
Sharda 16-016	DE	2016	Avatar	16 (14-16)	193	MOICON	Seed	100%	a	104.2%	a	100%	a	101.4%	a	102.7%	a
Sharda 16-017	DE	2016	Avatar	61 (57-61)	193	MOICON	Seed	100%	a	100%	a	102%	a	100%	a	98.1%	a
SWEPL-CZE16-PFQ-BRSNW-KUJ3	CZ	2016	DK Exception	14 (13-14)	294	MOICON	Seed	100%	a	99.4%	a	100%	a	100%	a	99.4%	a
SWEPL-CZE16-PFQ-BRSNW-KUJ4	CZ	2016	DK Exception	30 (30-30)	102	MOICON	Seed	100%	a	98.4%	a	98.4%	a	109%	a	101%	a
							Mean	100%		100.4%		100.4%		101%		99.7%	
							Min	100%		98.4%		98.4%		98.5%		95.3%	
							Max	100%		104.2%		102.5%		109%		102.7%	
							No. of trials	8		8		8		8		8	
North-east EPPO zone																	
H-2016-LV-4	LV	2016	Avatar	15 (14-17)	324	MOICON	Seed	100%	a	103%	a	104.4%	a	110.4%	a	116.8%	a
H-2016-LV-4-1	LV	2016	Visby	32 (31-32)	351	MOICON	Seed	100%	a	114%	a	131%	a	152%	a	132%	a
LTZIHS2016BRNS-PR-01	LT	2016	Doktrin	13 (12-13)	104	MOICON	Seed	100%	a	101%	a	101%	a	101%	a	101%	a
LTZIHS2016BRNS-PR-02	LT	2016	Majong	15 (14-30)	104	MOICON	Seed	100%	a	100%	a	102%	a	100.5%	a	100.5%	a
LTZIHS2016BRNW-PR-01	LT	2016	Visby	13 (12-14)	323	MOICON	Seed	100%	a	100%	a	100.5%	a	100.4%	a	100.5%	a
LTZIHS2016BRNW-PR-02	LT	2016	Mercedes	13 (12-14)	323	MOICON	Seed	100%	a	98.9%	a	99.3%	a	98.7%	a	97%	a
SH18RZ115W	PL	2018	Poznianak	10-12	281	MOICON	Seed	6.34	a	94.1%	a	100%	a	95.9%	a	96.8%	a
SH18RZ116W	PL	2018	Starter	10-12	258	MOICON	Seed	6.61	a	97.4%	a	96.7%	a	94.1%	a	98.3%	a
							Mean	6.48		101.1		104.4		106.6		105.4	
							Min			94.1		96.7		94.1		96.8	
							Max			114		131		152		132	
							No. of trials	8		8		8		8		8	

Table 3.4-10: Crop quality parameter (TGW (g/1000 seeds)) of Oilseed rape, treated with PROPAQUIZAFOP 10% EC with single application, as % of untreated (Untreated = 100%), Maritime and North-east zone

Trial ID	Country	Year	Variety	GS at appl.	Assessm. Days after last appl.	Assess. Type	Part assess.	Untreated		Propaquizafop 10% EC 1.2-1.5 L/ha		Propaquizafop 10% EC 2.4-3.0 L/ha		Ref. product 1.2-1.5 L/ha		Ref. product 2.4-3.0 L/ha	
								% relative	SNK	% relative	SNK	% relative	SNK	% relative	SNK	% relative	SNK
Maritime EPPO zone																	
SWEPL-CZE16-PFQ-BRSNW-KUJ3	CZ	2016	DK Exception	14 (13-14)	294	TGW	Seed	100%	a	101%	a	100%	a	100.4%	a	101.8%	a
SWEPL-CZE16-PFQ-BRSNW-KUJ4	CZ	2016	DK Exception	30 (30-30)	102	TGW	Seed	100%	a	100%	a	101%	a	100%	a	102%	a
Mean								100%		100.5%		100.5%		100.2%		101.9%	
Min								100%		100%		100%		100%		101.8%	
Max								100%		101%		101%		100.4%		102%	
No. of trials								2		2		2		2		2	
North-east EPPO zone																	
SH16RZ108W	PL	2016	Poznaniak	30	90	TGW	Seed	100%	a	105%	a	105%	a	104%	a	107.4%	a
H-2016-LV-4	LV	2016	Avatar	15 (14-17)	324	TGW	Seed	100%	a	100.9%	a	100.3%	a	100.7%	a	100.3%	a
H-2016-LV-4-1	LV	2016	Visby	32 (31-32)	351	TGW	Seed	100%	a	102.5%	a	102.2%	a	100%	a	99.7%	a
SH18RZ115W	PL	2018	Poznaniak	10-12	281	TGW	Seed	5.61	a	101%	a	100.5%	a	100.5%	a	100.5%	a
SH18RZ116W	PL	2018	Starter	10-12	258	TGW	Seed	5.32	a	108.1%	a	99.1%	a	99.6%	a	100%	a
17-ro-34-Af	PL	2017	Monolit	35	110	TGW	Seed	5.96	-	100.5	-	99.8	-	99.8	-	100.8	-
17-ro-35-Af	PL	2017	Monolit	35	110	TGW	Seed	5.80	-	101.2	-	101.7	-	100.2	-	100.7	-
Mean								5.67		102.6		101.3		101.2		101.2	
Min										99.7		99.0		99.6		99.7	
Max										105		105		104		107.4	
No. of trials								7		7		7		7		7	

3.4.4 Effects on transformation processes (KCP 6.4.4)

No processing has been conducted. Processing is not required.

Comments of zRMS:	Assuming a long history of safe use of a.s.: propaquizafop no special trials dedicated to evaluation of effects of ALIVE on transformation process were undertaken.
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3.4.5 Impact on treated plants or plant products to be used for propagation (KCP 6.4.5)

Special tests to investigate this purpose are not required.

Not applicable.

Comments of zRMS:	<p>PROPAQUIZAFOP 10% EC is composed of propaquizafop, which has been widely used for several years on the GAP claimed crops, without identifying any issues in regard to ability of grains of treated plants to germinate. According to EPPO PP 1/135(4), no data are normally required for non-systemic insecticides such as PROPAQUIZAFOP 10% EC.</p> <p>In addition, no phytotoxic or other adverse effects were recorded at the recommended rates on several crops targeted for this registration during efficacy trials reported in this biological assessment dossier.</p> <p>Finally, it is not expected that significant amounts of residues are present in the harvested part of the crops studied. Thus, no influence on the ability of plant parts from treated crops to germinate is expected. In the opinion of Evaluator, the product ALIVE has no negative impact on parts of plants used for propagating purposes.</p>
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3.5 Observations on other undesirable or unintended side-effects (KCP 6.5)

3.5.1 Impact on succeeding crops (KCP 6.5.1)

Introduction

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 presents the assessment of the possible effect of propaquizafop, 100 g as/L 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.

Method of assessment

The procedure

Risk of propaquizafop residues to succeeding crops was assessed following the decision-support scheme provided in the EPPO Standard PP 1/207 (2).

Relevant ecotoxicological endpoints have been taken from the DAR and are presented below:

Spring wheat cv. Festival, spinach cv. Glares and sugar beet cv. Kawevera were sown 30, 120 and 270 days after soybean harvest. At harvest, the radioactivity content of spinach (whole plant), sugar beet (roots and foliage) and wheat (straw, chaff and grain) were determined by combustion analysis. Soil samples were also taken at each harvest and radioactivity determined by combustion analysis.

The nature of the radioactivity present in succeeding crops was investigated in spinach and straw from wheat sown 30 days after second treatment and straw from wheat sown 120 days after second treatment. Plants were homogenised and frozen prior to removal of water by lyophilisation. Aliquots were extracted by reflux using Soxhlet thimbles extracting first with acetonitrile and then with methanol/water each for 24 hours. Radioactivity in extracts and residual plant material were determined by LSC and combustion analysis respectively. Further investigations were performed on extracts by liquid partitioning into aqueous and organic phases followed by analysis by TLC or HPLC. Organic extracts were further separated into fractions by applying residues to silica gel in a glass chromatography column and eluting with methanol in water, methanol and finally acetone. Fractions were analysed by TLC or HPLC. Pre-extracted plant materials were also extracted with sulphuric to determine lignin which was then hydrolysed by reflux with hydrochloric acid. Radioactivity from each lignin residue was determined by LSC.

Results

Table 3.5-1: Residual radioactivity in mature spinach, sugar beet and wheat sown 30, 120 and 270 days after second application of [¹⁴C-quinoxaline]propaquizafop at 280 g a.s./ha

Sampling time		Radioactive residues equivalent Ro 17-3664 (mg/kg)					
Sowing day after second treatment	Harvest time in days after first treatment	Spinach	Sugar beet		Wheat		
		Whole plant	Roots	Foliage	Grain	Chaff	Straw
30	85	0.039	-	-	-	-	-
30	209		0.017	0.014	-	-	-
30	285	-	-	-	0.023	0.096	0.167
120	183	0.015	-	-	-	-	-
120	308	-	0.011	0.008	-	-	-
120	383	-	-	-	0.012	0.015	0.096
270	329	0.007	-	-	-	-	-
270	431	-	0.004	0.004	-	-	-
270	476	-	-	-	0.006	0.006	0.116

Conclusion: A radiolabelled study has been performed to assess the affect of propaquizafop on succeeding crops. The concentrations of radioactive residues in all succeeding crops were low ranging from 0.004 mg/kg in sugar beet roots and foliage sown 270 days after the second treatment to 0.167 mg/kg in straw from spring wheat sown 30 days after the second treatment. Parent material was extensively broken down into numerous metabolites with the majority of the residue being incorporated into the lignin fraction.

Propaquizafop shows no tendency to accumulate in succeeding crops. As propaquizafop residues are unlikely to be present in succeeding crops, field trials on representative crops are not required

It is possible to conclude that no special measures are needed to avoid any impact of propaquizafop on succeeding crops

Comments of zRMS:	<p>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 ALIVE (product code: SHA 6100 A) 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.</p> <p>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.</p> <p>Propaquizafop shows no tendency to accumulate in succeeding crops. As propaquizafop residues are unlikely to be present in succeeding crops, field trials on representative crops are not required It is possible to conclude that no special measures are needed to avoid any impact of propaquizafop on succeeding crops</p>
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3.5.2 Impact on other plants including adjacent crops (KCP 6.5.2)

Due to the age of the compound, data on preliminary tests used to assess the biological activity and dose ranges for propaquizafop (CGA 233380) are unavailable. Dose-response studies are available for propaquizafop for six species of non-target plants, assessing vegetative vigour. Testing was undertaken using the representative formulation (Propaquizafop 100 EC).

Estudy; J.R. Porch and H.O. Krueger (2002b), A toxicity test to determine the effects of CGA 233380 EC 100 (A8726 D) on vegetative vigor of six species of plants, Wildlife International Ltd. Unpublished Report No. 108-431. (art. 90004357), 09 January 2002. IIA 8.6/02

Six species were tested using a single post-emergent foliar application of the test substance. Each species was subjected to at least five application rates of the test substance along with a negative control (water). Seedling age at application ranged from about one week to three weeks after planting. Lettuce and pea seedlings had 2-4 open leaves, onion and oat had 1-2 open leaves, carrot had 1- 3 open leaves and oilseed rape had 2-3 open leaves. Each treatment group was replicated six times, with a replicate consisting of five individually potted plants. The test duration was 21 days after application. Plant height and visual assessments were made weekly, and the biomass (dry weights) of plant shoots collected at test termination was measured

The study is considered to be valid, since the plant survival in the control groups was at least 90% at the end of the test. At 21 days after treatment, there were no observed effects on two of the six species tested (onion and pea). However, some effects were observed on carrot, lettuce, oat and oilseed rape.

Table 3.5-2: Effects on survival, plant height and dry weight, given in g a.s./ha (Day-21 results) following post-emergency applications (DAR B.9.9.2)

Test species	Seedling emergence		Plant height		Seedling dry weight	
	NOEL	EC ₅₀	NOEL	EC ₅₀	NOEL	EC ₅₀
Dicotelydons						
Lettuce	400	>400	100	>400	100	>400
Oilseed rape	400	>400	200	>400	50.0	351
Carrot	400	>400	200	>400	100	>400
Pea	400	>400	400	>400	400	>400
Monocotelydons						
Oat	12.5	34.4	12.5	>50	12.5	26.6
Onion	400	>400	400	>400	400	>400

A NOEL value was determined for all parameters in all crops tested. In most cases the NOEL for each parameter was >100 g a.s./ha; the only exceptions to this were oat and oilseed rape. The lowest NOEL values were for oat survival, plant height and dry weight (12.5 g a.s./ha) and oilseed rape dry weight (50 g a.s./ha).

Risk assessment

According to the EU Guidance Document on Terrestrial Ecotoxicology (SANCO/10329/2002 rev. 2 final, 17 October 2002), the initial non-target plant risk assessment is conducted for terrestrial plants occurring in the vicinity of the treated area i.e. in the off-crop environment. Accordingly, spray drift is considered to be the main route of exposure for these non-target plants and for applications to field crops a default drift distance of 1m from the field edge is used. The spray drift value (90th percentile) following one application under these conditions, according to Rautmann *et al.* (2001), is 2.77%. The resultant TER values based on this exposure level and the worst case toxicity endpoints (emergence or biomass) obtained in the non-target plant studies for pre-emergent application post-emergent application are shown in the table below

Table 3.5-3: TER for non TER values for propaquizafop (CGA 233380) and non-target plants based on an application rate of 200 g a.s./ha and worst case ER₅₀ values, 1) pre-emergent application and 2) post-emergent application

pre-emergent application			
Species	ER ₅₀ (g a.s./ha)	Spray drift (g a.s./ha)	TER
Lettuce	>400	5.54	>72
Oilseed rape	>400	5.54	>72
Carrot	>400	5.54	>72
Pea	>400	5.54	>72
Oat	>400	5.54	>72
Onion	>400	5.54	>72
post-emergent application			
Species	ER ₅₀ (g a.s./ha)	Spray drift (g a.s./ha)	TER
Lettuce	>400	5.54	>72
Oilseed rape	351	5.54	63
Carrot	>400	5.54	>72
Pea	>400	5.54	>72
Oat	26.6	5.54	4.8
Onion	>400	5.54	>72

Only in the case of oats with a TER of 4.8 is the trigger value of 5 slightly exceeded. However, not only is the potential risk that this indicates marginal, it also only applies to one of the three endpoints from the post-emergent study (seedling dry weight). The TERs based on the other endpoints, plant survival and height, are both greater than 5. In addition, available residue decline data shows that propaquizafop is rapidly dissipated from plants (i.e. a sugar beet trial in Germany had residues at day 0 of 7.76 mg/kg by day 30 residues had declined to 0.03 mg/kg propaquizafop equivalents) and so any effects will be transient. Moreover, young greenhouse seedlings are likely to be much more sensitive than mature grasses in field margins which will have established root systems. Grasses are also rapidly growing species, with a great capacity for recovery from stressors (cutting, grazing, etc).

Conclusion

Taking all these factors into account, it is considered that there is a low risk to graminaceous species in field margins (broad-leaved plant species are insensitive). Thus, the risk to non-target plants is considered acceptable and no further testing is necessary.

Comments of zRMS:	<p>As every plant protection product – including ALIVE (product code: SHA 6100 A) should not be used during wind that may cause drift spray solution on adjacent plants, especially dicotyledonous crops / plants. Such recommendation will be contained on the label - instruction of use.</p> <p>Taking all these factors into account, it is considered that there is a low risk to graminaceous species in field margins (broad-leaved plant species are insensitive). Thus, the risk to non-target plants is considered acceptable and no further testing is necessary.</p> <p>Please, for more information, refer to Registration Report, Part B, Section 6.</p>
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3.5.3 Effects on beneficial and other non-target organisms (KCP 6.5.3)

From the experimentation carried out with PROPAQUIZAFOP 10% EC during 2016, 2017 and 2018, no problems regarding adverse effects on beneficial organisms were reported.

Special tests to investigate this purpose are not required.

Detailed studies on the possible adverse effects to beneficial organisms are submitted and summarised in Part B, Section 9 (Ecotoxicology).

Compatibility with current management practices including IPM

This is not an EC data requirement/ not required by Directive 91/414/EEC.

Comments of zRMS:	Detailed studies on the possible adverse effects to beneficial organisms are submitted and summarised in Part B, Section 9 (Ecotoxicology).
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3.5.4 Tank cleaning

Relevant information on tank cleaning is included in dRR Part B124. Please refer to this section for complete evaluation.

Comments of zRMS:	ZRMs agree with Applicant.
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3.6 Other/special studies

No other studies were conducted

3.7 List of test facilities including the corresponding certificates

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

Table 3.7-1: List of test facilities

Testing facility	Country	Year and type					
		2016		2017		2018	
		Eff.	Sel.	Eff.	Sel.	Eff.	Sel.
Sagea, Centro di Saggio s.r.l.	IT	5	-				
Promo-vert Crop services S.L.,	ES	3	-				
SGS seed & crop services	GB	2	2				
Hetterich Field work	DE	2	2				
Zemědělská zkušební stanice Kujavy, s.r.o	CZ	2	2				
Promo-vert Crop services S.L.,	FR	5	2				
Institute of plant protection - - Herbicide efficacy group	PL	1	1				
Latvian Plant Protection Research Centre	LV	2	2				
Institute of agriculture. Lithuanian research centre fro agriculture and forestry	LT	4	4				
Institute of plant protection	PL					3	2
Institute of soil sicence and plant cultivation	PL			3	2		
Total		27	15	3	2	3	2

Appendix 1 Lists of data considered in support of the evaluation

List of data submitted by the applicant and relied on

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
CP 6.0-001	Anonymous	2020	Biological Assessment Dossier: PROPAQUIZAFOP 10% EC (100 g/l propaquizafop) – EU Central zone Sharda Cropchem España - Unpublished	N	SHA