REGISTRATION REPORT

Part B
Section 3
Efficacy Data and Information
Concise summary

Product code: 102000028562
Product name: Deltamethrin + flupyradifurone EC 85 (10+75 g/L)
Chemical active substances:
Deltamethrin, 10 g/L
Flupyradifurone, 75 g/L

Central Zone
Zonal Rapporteur Member State: Poland

CORE ASSESSMENT
(Extension of use)

Applicant: Bayer Crop Science Division
Submission date: August 2021, update: January 2023
MS Finalisation date: February 2023 (initial Core Assessment)
June 2023 (final Core Assessment)

Version history

When	What
August 2021	Initial dRR – Bayer Crop Science Division
January 2023	Updated dRR (addition of dose rate converted into L/ha LWA in grape; removal of sunflower; EURYMA on winter wheat claimed under art.51 instead of art.33 in Poland; additional data in the chapter 3.4.1; addition of lost trial report with yield data; amendments in source documents and their names) – Bayer Crop Science Division (changes and additions are highlighted in yellow)
Februay 2023	Initial zRMS assessment The report in the dRR format has been prepared by the Applicant, therefore all comments, additional evaluations and conclusions of the zRMS are presented in grey commenting boxes. Minor changes are introduced directly in the text and highlighted in grey. Not agreed or not relevant information are ~~struck through and shaded for transparency~~.
June 2023	Final report (Core Assessment updated following the commenting period) Additional information/assessments included by the zRMS in the report in response to comments received from the cMS and the Applicant are highlighted in yellow. Information no longer relevant ~~is struck through and shaded~~.

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- From a second party that has obtained permission from the owner of the data for this purpose or, alternatively, the applicant has received permission from the data owner that the summaries and evaluation contained in this Monograph or review report may be used in lieu of the data; or
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3 Efficacy Data and Information (including Value Data) on the Plant Protection Product (KCP 6)

Reference:	**KCP Section 6/01**
Title:	Biological assessment dossier - Efficacy data and information - Detailed summary - Deltamethrin + flupyradifurone EC85 (85 g/L) - Central zone - Zonal rapporteur member state: Poland - Core assessment (extension of use)
Report:	Guilhempere, N.; Tamosiunas, R.; Van Waetermeulen, X.; 2022; M-772677-02-1
Authority registration No:	
Guideline(s):	Reg 1107/2009; Section 7, Point 6; According to OECD format guidance for industry data submissions on plant protection products and their active substances
Deviations:	--
GLP/GEP:	not applicable
Acceptability:	
Duplication (if vertebrate study):	

This document is a summary of the data submitted to support the registration of the plant protection product deltamethrin+flupyradifurone EC85 (10+75 g/L) which is proposed to be commonly named as DLT+FPF EC85 to ease the reading on this dossier. It refers to the Zonal BAD "Summary of the Efficacy Data and Information on the Plant Protection Product for deltamethrin + flupyradifurone EC85 (10+75 g/L).

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

All other appendices are submitted together with the Biological Assessment Dossier and its respective studies or study compilations.

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

Comments of zRMS:

Conclusions from the evaluation were prepared using grey commenting boxes placed at the end of each chapter. Textual changes were done using grey highlights in the text. The parts of the text amended or added by the zRMS evaluator are highlighted in grey, whereas the parts struck off are also ~~visibly marked with the grey font~~.

The product Deltamethrin + flupyradifurone EC 85 (10+75 g/L) (DLT+FPF EC 85 / Product Code 102000028562) has been submitted at zonal level to Poland as ZRMS in October 2019 for its use in oilseed rape.
This present dossier is for an extension of use. For such dossier, only new information should be submitted.

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

Abstract

Comments of zRMS:

This application has been submitted for the extension of use the insecticide DLT+FPF EC85, containing 10 g/L deltamethrin (DLT) (sodium channel modulators, IRAC group 3A) and 75 g/L flupyradifurone (FPF) (nicotinic acetylcholine receptor (NACHR) competitive modulators, IRAC group 4D).
DLT+FPF EC85 is intended to be used for the control of *Scaphoideus titanus* **(**SCAPLI) on grape, table and grape, wine; *Rhopalosiphum padi* (RHOPPA), *Rhopalosiphum maidis* (RHOPMA), *Sitobion avenae* (MACSAV), *Metopolophium dirhodum* (METODR), *Ostrinia nubilalis* (PYRUNU), *Helicoverpa armigera* (HELIAR), *Diabrotica virgifera virgifera* (DIABVI) on corn and sweet corn; *Rhopalosiphum padi* (RHOPPA), *Rhopalosiphum maidis* (RHOPMA), *Sitobion avenae* (MACSAV), *Metopolophium dirhodum* (METODR), *Ostrinia nubilalis* (PYRUNU), *Helicoverpa armigera* (HELIAR) on common millet and sorghum; *Brachycaudus helichrysi* (ANURHE), *Lygus* sp. (LYGUSP) on sunflower; *Rhopalosiphum padi* (RHOPPA), *Sitobion avenae* (MACSAV), *Oulema* spp. (LEMASP), *Eurygaster* sp. (EURYSP) on barley (spring and winter), oat (spring and winter), wheat (spring and winter). The authorization is sought on the grounds of the art. 33 mainly. For some of the the claimed uses/cMss: SCAPLI on grape, table (Slovenia, Poland); SCAPLI on grape, vine (Poland); RHOPPA, RHOPMA, MACSAV, METODR, PYRUNU, HELIAR, DIABVI on sweet corn (Slovenia, Poland); ANURHE, LYGUSP on sunflower (Poland); RHOPPA, RHOPMA, MACSAV, METODR, PYRUNU, HELIAR on millet, common and sorghum (Slovenia Poland, Czech Republic, Slovakia, Hungary); RHOPPA, MACSAV, LEMASP, EURYSP on spring oat and winter oat (Slovakia, Hungary); EURYMA on spring wheat and winter wheat (Poland), the authorization is based on the art. 51, of the regulation (EC) No 1107/2009.
During the evaluation process, the applicant - taking into account the data gaps in Ecotoxicology Section and due to business reasons, has decided to no longer support the use of DLT+FPF EC85 in sunflower. As sufficient efficacy data has been presented for the use of DLT+FPF EC85 in the control of ANURHE and LYGUSP on sunflower, the assessment is included in this document.

Preliminary tests
A part of submitted efficacy trials contains data for mixture justification and presents effcacy of DLT+FPF EC85 compared with products containing single flupyridafurone single deltamethrin. Based on the submitted preliminary efficacy trial results it is concluded, that the use of co-formulation of deltamethrin with flupyradifurone has been justified.

Minimum effective dose
Based on the submitted trials, the minimum effective dose rate of 0.75 L/ha has been justified for PYRUNU, HELIAR and DIABVI, aphids on corn, for EURYSP on cereal crops and for ANURHE, LYGUSP on sunflower; the minimum effective dose rate of 0.5 L/ha has been justified for OULESP and aphids on cereal crops; the minimum effective dose rate of 0.4 L/ha has been justified for SCAPLI on grape.

Efficacy
A total of 162 valid efficacy trials carried out between 2014 and 2019 have been considered for the evaluation of the insecticide DLT+FPF EC85. The trials were carried out in 3 EPPO zones: Maritime (Czech Republic), North-East (Lithuania, Latvia, Poland) and South-East (Bulgaria, Hungary, Romania, Slovakia). Based on the submitted efficacy trial results it can be concluded that the insecticide DLT+FPF EC85, applied at the recommended dose rates of 0.75 or 0.5 or 0.4 L/ha (dose rate depending on the claimed use), is effective in the control of target insect pests. For some uses, due to no or limited efficacy data the concerned MSs are kindly advised to make a decision about acceptance, individually on the national level, according to the national requirements. The use of DLT+FPF EC85 in the control of LEMASP on spring wheat, winter barley, spring barley and spring oat is not accepted in Poland, due to not sufficient efficacy data.

Summarizing the evaluation, the following uses are accepted by the zRMS:
<u>Maritime EPPO zone:</u>
ZEAMX: APHIDIDAE (RHOPPA, RHOPMA, MACSAV, METODR), PYRUNU
TRZAW: APHIDIDAE (RHOPPA, MACSAV), LEMASP
HELAN: ANURHE
<u>North-East EPPO zone</u>

ZEAMX: APHIDIDAE (RHOPPA, MACSAV, METODR), HELIAR, PYRUNU, DIABVI
TRZAW: LEMASP
South-East EPPO zone
VITVX, VITVI: SCAPLI
ZEAMX: APHIDIDAE (RHOPPA, RHOPMA, MACSAV, METODR), PYRUNU, HELIAR, DIABVI
TRZAW: APHIDIDAE (RHOPPA, MACSAV), LEMASP, EURYSP
HELAN: ANURHE, LYGUSP

The following uses are not accepted by the zRMS:
North-East EPPO zone
TRZAS, HORVW, HORVS, AVESP: LEMASP

The following uses are to be confirmed by cMSs:
Maritime EPPO zone
ZEAMX: HELIAR, DIABVI
ZEAMS: APHIDIDAE (RHOPPA, RHOPMA, MACSAV, METODR), PYRUNU, HELIAR, DIABVI
TRZAS, HORVW, HORVS, AVESW, AVESP: APHIDIDAE (RHOPPA, MACSAV), LEMASP
TRZAW, TRZAS, HORVW, HORVS, AVESW, AVESP: EURYSP
HELAN: LYGUSP
South-East EPPO zone
ZEAMS: APHIDIDAE (RHOPPA, RHOPMA, MACSAV, METODR), PYRUNU, HELIAR, DIABVI
TRZAS, HORVW, HORVS, AVESW, AVESP: APHIDIDAE (RHOPPA, MACSAV), LEMASP, EURYSP
PANMI, SORSS: APHIDIDAE (RHOPPA, RHOPMA, MACSAV, METODR), PYRUNU, HELIAR

Phytotoxicity, yield, propagation material, transformation processes, succeeding crops and adjacent crops
Based on the submitted trials or data it can be also concluded that no phytotoxicity and no adverse effect on the yield, propagation material, transformation processes, succeeding crops, adjacent crops is to be expected after application of DLT+FPF EC85. Nevertheless, in order to avoid the risk of adverse effects on adjacent crops, being in accordance with the rules of good agricultural practice it is recommended to include, in the product label, the following remark: "*When using* DLT+FPF EC85 *do not allow spray drift to the neighbouring crop plantations*".

Resistance management strategy

DLT+FPF EC85 contains two active substances: flupyradifurone – a nAChR modulator belonging to the group 4D, IRAC, (butenolides), and deltamethrin – sodium channel modulator belonging to the group 3A, IRAC (pyrethroids). In order to avoid resistance build-up in populations of the pests targeted by this product, the following rules should be observed:

1) *The maximum number of applications of the DLT+FPF EC85 per season is 2. In case when more applications are necessary, products containing actives belonging to other IRAC groups and showing other modes of action should be applied.*
2) *In any case, an application of DLT+FPF EC85 should not be followed directly by the application of any insecticide showing MoA of the IRAC groups 3A, or 4D. Instead, a product with an active(s) belonging to other MoA groups, e.g. 1B, 4A, 9B, or 22A, should be utilized.*
3) *Avoid treating consecutive generations of the target pest with insecticides in the same MoA group.*
4) *The dose rates should be observed strictly, according to the label recommendation for particular uses.*
5) *Non-chemical control options should be considered as part of any pest management strategy. Insecticide use does not replace the need for resistant crop varieties, good agronomic practice, plant hygiene/sanitation etc.*

The cMSs are kindly encouraged to adopt or adjust the wording, according to their local circumstances and requirements.

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. *	**Member state(s)**	**Crop and/ or situation** (crop destination / purpose of crop)	**F, Fn, Fnp G, Gn, Gnp or I ****	**Pests or Group of pests controlled** (additionally: developmental stages of the pest or pest group)	**Application**				**Application rate**			**PHI** (days)	**Remarks:** e.g. g safener/ synergist per ha, other dose rate expression, dose range (min-max)	**zRMS Conclusion (efficacy)**
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	g as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
Zonal uses (field or outdoor uses, certain types of protected crops)														
201	ROU	Grape, table (VITVX)	F	SCAPLI	spraying (foliar)	57-81	a) 2 b) 2	14	a) 0.4 b) 0.8	a) DLT 4 + FPF 30 b) DLT 8 + FPF 60	100-1200	14	Converted into LWA: 0,4 L/ 10000 m² LWA without exceeding 0,4 L/ha.	A
352	SVK	Grape, table (VITVX)	F	SCAPLI	spraying (foliar)	57-81	a) 2 b) 2	14	a) 0.4 b) 0.8	a) DLT 4 + FPF 30 b) DLT 8 + FPF 60	100-1200	14	Converted into LWA: 0,4 L/ 10000 m² LWA without exceeding 0,4 L/ha.	A
371	HUN	Grape, table (VITVX)	F	SCAPLI	spraying (foliar)	57-81	a) 2 b) 2	14	a) 0.4 b) 0.8	a) DLT 4 + FPF 30 b) DLT 8 + FPF 60	100-1200	14	Converted into LWA: 0,4 L/ 10000 m² LWA without exceeding 0,4 L/ha.	A
104	SVN	Grape, wine (VITV I)	F	SCAPLI	spraying (foliar)	57-81	a) 2 b) 2	14	a) 0.4 b) 0.8	a) DLT 4 + FPF 30 b) DLT 8 + FPF 60	100-1200	14	Converted into LWA: 0,4 L/ 10000 m² LWA without exceeding 0,4 L/ha.	A
202	ROU	Grape, wine (VITV I)	F	SCAPLI	spraying (foliar)	57-81	a) 2 b) 2	14	a) 0.4 b) 0.8	a) DLT 4 + FPF 30 b) DLT 8 + FPF 60	100-1200	14	Converted into LWA: 0,4 L/ 10000 m² LWA without exceeding 0,4 L/ha.	A

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use-No. *	**Member state(s)**	**Crop and/ or situation** (crop destination / purpose of crop)	**F, Fn, Fnp G, Gn, Gnp or I ****	**Pests or Group of pests controlled** (additionally: developmental stages of the pest or pest group)	**Application**				**Application rate**			**PHI** (days)	**Remarks:** e.g. g safener/ synergist per ha, other dose rate expression, dose range (min-max)	**zRMS Conclusion (efficacy)**
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	g as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
353	SVK	Grape, wine (VITVI)	F	SCAPLI	spraying (foliar)	57-81	a) 2 b) 2	14	a) 0.4 b) 0.8	a) DLT 4 + FPF 30 b) DLT 8 + FPF 60	100-1200	14	Converted into LWA: 0,4 L/ 10000 m² LWA without exceeding 0,4 L/ha.	A
372	HUN	Grape, wine (VITVI)	F	SCAPLI	spraying (foliar)	57-81	a) 2 b) 2	14	a) 0.4 b) 0.8	a) DLT 4 + FPF 30 b) DLT 8 + FPF 60	100-1200	14	Converted into LWA: 0,4 L/ 10000 m² LWA without exceeding 0,4 L/ha.	A
217	ROU	Corn, sweet (ZEAMS)	F	RHOPPA, RHOPMA, MACSAV, METODR, PYRUNU, HELIAR, DIABVI	spraying (foliar)	51-75	a) 1 b) 1	-	a) 0.75 b) 0.75	a) DLT 7.5 + FPF 56.2 b) DLT 7.5 + FPF 56.2	200-1000	7		C
351	CZE	Corn, sweet (ZEAMS)	F	RHOPPA, RHOPMA, MACSAV, METODR, PYRUNU, HELIAR, DIABVI	spraying (foliar)	51-75	a) 1 b) 1	-	a) 0.75 b) 0.75	a) DLT 7.5 + FPF 56.2 b) DLT 7.5 + FPF 56.2	200-1000	7		C
370	SVK	Corn, sweet (ZEAMS)	F	RHOPPA, RHOPMA, MACSAV, METODR, PYRUNU, HELIAR, DIABVI	spraying (foliar)	51-75	a) 1 b) 1	-	a) 0.75 b) 0.75	a) DLT 7.5 + FPF 56.2 b) DLT 7.5 + FPF 56.2	200-1000	7		C
389	HUN	Corn, sweet (ZEAMS)	F	RHOPPA, RHOPMA, MACSAV, METODR, PYRUNU, HELIAR, DIABVI	spraying (foliar)	51-75	a) 1 b) 1	-	a) 0.75 b) 0.75	a) DLT 7.5 + FPF 56.2 b) DLT 7.5 + FPF 56.2	200-1000	7		C

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use-No. *	**Member state(s)**	**Crop and/ or situation** (crop destination / purpose of crop)	**F, Fn, Fnp G, Gn, Gnp or I ****	**Pests or Group of pests controlled** (additionally: developmental stages of the pest or pest group)	**Application**				**Application rate**			**PHI** (days)	**Remarks:** e.g. g safener/ synergist per ha, other dose rate expression, dose range (min-max)	**zRMS Conclusion (efficacy)**
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	g as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
~~105~~	~~SVN~~	~~Sunflower (HELAN)~~	~~F~~	~~ANURHE, LYGUSP~~	~~spraying (foliar)~~	~~31-69~~	~~a) 2 b) 2~~	~~14~~	~~a) 0.75 b) 1.5~~	~~a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5~~	~~200-600~~	~~as per growth stage~~		A ***
~~219~~	~~ROU~~	~~Sunflower (HELAN)~~	~~F~~	~~ANURHE, LYGUSP~~	~~spraying (foliar)~~	~~31-69~~	~~a) 2 b) 2~~	~~14~~	~~a) 0.75 b) 1.5~~	~~a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5~~	~~200-600~~	~~as per growth stage~~		A ***
~~335~~	~~CZE~~	~~Sunflower (HELAN)~~	~~F~~	~~ANURHE, LYGUSP~~	~~spraying (foliar)~~	~~31-69~~	~~a) 2 b) 2~~	~~14~~	~~a) 0.75 b) 1.5~~	~~a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5~~	~~200-600~~	~~as per growth stage~~		A *** ANURHE C *** LYGUSP
~~354~~	~~SVK~~	~~Sunflower (HELAN)~~	~~F~~	~~ANURHE, LYGUSP~~	~~spraying (foliar)~~	~~31-69~~	~~a) 2 b) 2~~	~~14~~	~~a) 0.75 b) 1.5~~	~~a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5~~	~~200-600~~	~~as per growth stage~~		A ***
~~373~~	~~HUN~~	~~Sunflower (HELAN)~~	~~F~~	~~ANURHE, LYGUSP~~	~~spraying (foliar)~~	~~31-69~~	~~a) 2 b) 2~~	~~14~~	~~a) 0.75 b) 1.5~~	~~a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5~~	~~200-600~~	~~as per growth stage~~		A ***
106	SVN	Barley, spring (HORVS)	F	RHOPPA, MACSAV, LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	200-600	30		C
107	SVN	Barley, spring (HORVS)	F	EURYSP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.75 b) 1.5	a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5	200-600	30		C

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use-No. *	**Member state(s)**	**Crop and/ or situation** (crop destination / purpose of crop)	**F, Fn, Fnp G, Gn, Gnp or I ****	**Pests or Group of pests controlled** (additionally: developmental stages of the pest or pest group)	**Application**				**Application rate**			**PHI** (days)	**Remarks:** e.g. g safener/ synergist per ha, other dose rate expression, dose range (min-max)	**zRMS Conclusion (efficacy)**
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	g as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
203	ROU	Barley, spring (HORVS)	F	RHOPPA, MACSAV, LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	200-600	30		C
204	ROU	Barley, spring (HORVS)	F	EURYSP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.75 b) 1.5	a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5	200-600	30		C
255	POL	Barley, spring (HORVS)	F	LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	200-600	30		N
336	CZE	Barley, spring (HORVS)	F	RHOPPA, MACSAV, LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	200-600	30		C
337	CZE	Barley, spring (HORVS)	F	EURYSP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.75 b) 1.5	a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5	200-600	30		C
355	SVK	Barley, spring (HORVS)	F	RHOPPA, MACSAV, LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	200-600	30		C
356	SVK	Barley, spring (HORVS)	F	EURYSP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.75 b) 1.5	a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5	200-600	30		C
374	HUN	Barley, spring (HORVS)	F	RHOPPA, MACSAV, LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	200-600	30		C

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
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					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	g as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
375	HUN	Barley, spring (HORVS)	F	EURYSP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.75 b) 1.5	a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5	200-600	30		C
108	SVN	Barley, winter (HORVW)	F	RHOPPA, MACSAV, LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	200-600	30		C
109	SVN	Barley, winter (HORVW)	F	EURYSP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.75 b) 1.5	a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5	200-600	30		C
205	ROU	Barley, winter (HORVW)	F	RHOPPA, MACSAV, LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	200-600	30		C
206	ROU	Barley, winter (HORVW)	F	EURYSP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.75 b) 1.5	a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5	200-600	30		C
256	POL	Barley, winter (HORVW)	F	LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	200-600	30		N
338	CZE	Barley, winter (HORVW)	F	RHOPPA, MACSAV, LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	200-600	30		C
339	CZE	Barley, winter (HORVW)	F	EURYSP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.75 b) 1.5	a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5	200-600	30		C

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use-No. *	**Member state(s)**	**Crop and/ or situation** (crop destination / purpose of crop)	**F, Fn, Fnp G, Gn, Gnp or I ****	**Pests or Group of pests controlled** (additionally: developmental stages of the pest or pest group)	**Application**				**Application rate**			**PHI** (days)	**Remarks:** e.g. g safener/ synergist per ha, other dose rate expression, dose range (min-max)	**zRMS Conclusion (efficacy)**
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	g as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
357	SVK	Barley, winter (HORVW)	F	RHOPPA, MACSAV, LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	200-600	30		C
358	SVK	Barley, winter (HORVW)	F	EURYSP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.75 b) 1.5	a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5	200-600	30		C
376	HUN	Barley, winter (HORVW)	F	RHOPPA, MACSAV, LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	200-600	30		C
377	HUN	Barley, winter (HORVW)	F	EURYSP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.75 b) 1.5	a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5	200-600	30		C
118	SVN	Corn / Maize (ZEAMX)	F	RHOPPA, RHOPMA, MACSAV, METODR, PYRUNU, HELIAR, DIABVI	spraying (foliar)	51-75	a) 1 b) 1	-	a) 0.75 b) 0.75	a) DLT 7.5 + FPF 56.2 b) DLT 7.5 + FPF 56.2	200-1000	as per growth stage		A
215	ROU	Corn / Maize (ZEAMX)	F	RHOPPA, RHOPMA, MACSAV, METODR, PYRUNU, HELIAR, DIABVI	spraying (foliar)	51-75	a) 1 b) 1	-	a) 0.75 b) 0.75	a) DLT 7.5 + FPF 56.2 b) DLT 7.5 + FPF 56.2	200-1000	as per growth stage		A
262	POL	Corn / Maize (ZEAMX)	F	RHOPPA, ~~RHOPMA,~~ MACSAV, METODR, PYRUNU, HELIAR, DIABVI	spraying (foliar)	51-75	a) 1 b) 1	-	a) 0.75 b) 0.75	a) DLT 7.5 + FPF 56.2 b) DLT 7.5 + FPF 56.2	200-~~1000~~ 500	as per growth stage		A

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use-No. *	**Member state(s)**	**Crop and/ or situation** (crop destination / purpose of crop)	**F, Fn, Fnp G, Gn, Gnp or I ****	**Pests or Group of pests controlled** (additionally: developmental stages of the pest or pest group)	**Application**				**Application rate**			**PHI** (days)	**Remarks:** e.g. g safener/ synergist per ha, other dose rate expression, dose range (min-max)	**zRMS Conclusion (efficacy)**
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	g as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
348	CZE	Corn / Maize (ZEAMX)	F	RHOPPA, RHOPMA, MACSAV, METODR, PYRUNU, HELIAR, DIABVI	spraying (foliar)	51-75	a) 1 b) 1	-	a) 0.75 b) 0.75	a) DLT 7.5 + FPF 56.2 b) DLT 7.5 + FPF 56.2	200-1000	as per growth stage		A RHOPPA MACSAV METODR PYRUNU C HELIAR DIABVI
367	SVK	Corn / Maize (ZEAMX)	F	RHOPPA, RHOPMA, MACSAV, METODR, PYRUNU, HELIAR, DIABVI	spraying (foliar)	51-75	a) 1 b) 1	-	a) 0.75 b) 0.75	a) DLT 7.5 + FPF 56.2 b) DLT 7.5 + FPF 56.2	200-1000	as per growth stage		A
386	HUN	Corn / Maize (ZEAMX)	F	RHOPPA, RHOPMA, MACSAV, METODR, PYRUNU, HELIAR, DIABVI	spraying (foliar)	51-75	a) 1 b) 1	-	a) 0.75 b) 0.75	a) DLT 7.5 + FPF 56.2 b) DLT 7.5 + FPF 56.2	200-1000	as per growth stage		A
218	ROU	Millet, common (PANMI)	F	RHOPPA, RHOPMA MACSAV, METODR PYRUNU, HELIAR	spraying (foliar)	51-75	a) 1 b) 1	-	a) 0.75 b) 0.75	a) DLT 7.5 + FPF 56.2 b) DLT 7.5 + FPF 56.2	400-800	as per growth stage		C
110	SVN	Oat, spring (AVESP)	F	RHOPPA, MACSAV, LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	200-600	30		C
111	SVN	Oat, spring (AVESP)	F	EURYSP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.75 b) 1.5	a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5	200-600	30		C
207	ROU	Oat, spring (AVESP)	F	RHOPPA, MACSAV, LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	200-600	30		C

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use-No. *	**Member state(s)**	**Crop and/ or situation** (crop destination / purpose of crop)	**F, Fn, Fnp G, Gn, Gnp or I ****	**Pests or Group of pests controlled** (additionally: developmental stages of the pest or pest group)	**Application**				**Application rate**			**PHI** (days)	**Remarks:** e.g. g safener/ synergist per ha, other dose rate expression, dose range (min-max)	**zRMS Conclusion (efficacy)**
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	g as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
208	ROU	Oat, spring (AVESP)	F	EURYSP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.75 b) 1.5	a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5	200-600	30		C
257	POL	Oat, spring (AVESP)	F	LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	200-600	30		N
340	CZE	Oat, spring (AVESP)	F	RHOPPA, MACSAV, LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	200-600	30		C
341	CZE	Oat, spring (AVESP)	F	EURYSP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.75 b) 1.5	a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5	200-600	30		C
112	SVN	Oat, winter (AVESW)	F	RHOPPA, MACSAV, LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	200-600	30		C
113	SVN	Oat, winter (AVESW)	F	EURYSP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.75 b) 1.5	a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5	200-600	30		C
209	ROU	Oat, winter (AVESW)	F	RHOPPA, MACSAV, LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	200-600	30		C
210	ROU	Oat, winter (AVESW)	F	EURYSP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.75 b) 1.5	a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5	200-600	30		C

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use-No. *	**Member state(s)**	**Crop and/ or situation** (crop destination / purpose of crop)	**F, Fn, Fnp G, Gn, Gnp or I ****	**Pests or Group of pests controlled** (additionally: developmental stages of the pest or pest group)	**Application**				**Application rate**			**PHI** (days)	**Remarks:** e.g. g safener/ synergist per ha, other dose rate expression, dose range (min-max)	**zRMS Conclusion (efficacy)**
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	g as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
342	CZE	Oat, winter (AVESW)	F	RHOPPA, MACSAV, LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	200-600	30		C
343	CZE	Oat, winter (AVESW)	F	EURYSP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.75 b) 1.5	a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5	200-600	30		C
216	ROU	Sorghum (SORSS)	F	RHOPPA, RHOPMA MACSAV, METODR PYRUNU, HELIAR	spraying (foliar)	51-75	a) 1 b) 1	-	a) 0.75 b) 0.75	a) DLT 7.5 + FPF 56.2 b) DLT 7.5 + FPF 56.2	150-400	as per growth stage		C
114	SVN	Wheat, spring (TRZAS)	F	RHOPPA, MACSAV, LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	200-600	30		C
115	SVN	Wheat, spring (TRZAS)	F	EURYSP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.75 b) 1.5	a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5	200-600	30		C
211	ROU	Wheat, spring (TRZAS)	F	RHOPPA, MACSAV, LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	150-400	30		C
212	ROU	Wheat, spring (TRZAS)	F	EURYSP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.75 b) 1.5	a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5	150-400	30		C
258	POL	Wheat, spring (TRZAS)	F	LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	200-600	30		N

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use-No. *	**Member state(s)**	**Crop and/ or situation** (crop destination / purpose of crop)	**F, Fn, Fnp G, Gn, Gnp or I ****	**Pests or Group of pests controlled** (additionally: developmental stages of the pest or pest group)	**Application**				**Application rate**			**PHI** (days)	**Remarks:** e.g. g safener/ synergist per ha, other dose rate expression, dose range (min-max)	**zRMS Conclusion (efficacy)**
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	g as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
344	CZE	Wheat, spring (TRZAS)	F	RHOPPA, MACSAV, LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	200-600	30		C
345	CZE	Wheat, spring (TRZAS)	F	EURYSP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.75 b) 1.5	a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5	200-600	30		C
363	SVK	Wheat, spring (TRZAS)	F	RHOPPA, MACSAV, LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	200-600	30		C
364	SVK	Wheat, spring (TRZAS)	F	EURYSP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.75 b) 1.5	a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5	200-600	30		C
382	HUN	Wheat, spring (TRZAS)	F	RHOPPA, MACSAV, LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	200-600	30		C
383	HUN	Wheat, spring (TRZAS)	F	EURYSP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.75 b) 1.5	a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5	200-600	30		C
116	SVN	Wheat, winter (TRZAW)	F	RHOPPA, MACSAV, LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	200-600	30		A
117	SVN	Wheat, winter (TRZAW)	F	EURYSP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.75 b) 1.5	a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5	200-600	30		A

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use-No. *	**Member state(s)**	**Crop and/ or situation** (crop destination / purpose of crop)	**F, Fn, Fnp G, Gn, Gnp or I ****	**Pests or Group of pests controlled** (additionally: developmental stages of the pest or pest group)	**Application**				**Application rate**			**PHI** (days)	**Remarks:** e.g. g safener/ synergist per ha, other dose rate expression, dose range (min-max)	**zRMS Conclusion (efficacy)**
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	g as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
213	ROU	Wheat, winter (TRZAW)	F	RHOPPA, MACSAV, LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	150-400	30		A
214	ROU	Wheat, winter (TRZAW)	F	EURYSP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.75 b) 1.5	a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5	150-400	30		A
260	POL	Wheat, winter (TRZAW)	F	LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	200-~~500~~ 400	30		A
~~261~~	~~POL~~	~~Wheat, winter (TRZAW)~~	~~F~~	~~EURYMA~~	~~spraying (foliar)~~	~~41-83~~	~~a) 2 b) 2~~	~~14~~	~~a) 0.75 b) 1.5~~	~~a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5~~	~~200-600~~	~~30~~		
346	CZE	Wheat, winter (TRZAW)	F	RHOPPA, MACSAV, LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	200-600	30		A
347	CZE	Wheat, winter (TRZAW)	F	EURYSP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.75 b) 1.5	a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5	200-600	30		C
365	SVK	Wheat, winter (TRZAW)	F	RHOPPA, MACSAV, LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	200-600	30		A
366	SVK	Wheat, winter (TRZAW)	F	EURYSP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.75 b) 1.5	a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5	200-600	30		A

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use-No. *	**Member state(s)**	**Crop and/ or situation** (crop destination / purpose of crop)	**F, Fn, Fnp G, Gn, Gnp or I ****	**Pests or Group of pests controlled** (additionally: developmental stages of the pest or pest group)	**Application**				**Application rate**			**PHI** (days)	**Remarks:** e.g. g safener/ synergist per ha, other dose rate expression, dose range (min-max)	**zRMS Conclusion (efficacy)**
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	g as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
384	HUN	Wheat, winter (TRZAW)	F	RHOPPA, MACSAV, LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	200-600	30		A
385	HUN	Wheat, winter (TRZAW)	F	EURYSP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.75 b) 1.5	a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5	200-600	30		A
Minor uses according to Article 51 (field uses)														
103	SVN	Grape, table (VITVX)	F	SCAPLI	spraying (foliar)	57-81	a) 2 b) 2	14	a) 0.4 b) 0.8	a) DLT 4 + FPF 30 b) DLT 8 + FPF 60	100-1200	14	Converted into LWA: 0,4 L/ 10000 m² LWA without exceeding 0,4 L/ha.	n.r.
252	POL	Grape, table (VITVX)	F	SCAPLI	spraying (foliar)	57-81	a) 2 b) 2	14	a) 0.4 b) 0.8	a) DLT 4 + FPF 30 b) DLT 8 + FPF 60	100-1200	14	Converted into LWA: 0,4 L/ 10000 m² LWA without exceeding 0,4 L/ha.	n.r.
253	POL	Grape, wine (VITVI)	F	SCAPLI	spraying (foliar)	57-81	a) 2 b) 2	14	a) 0.4 b) 0.8	a) DLT 4 + FPF 30 b) DLT 8 + FPF 60	100-1200	14	Converted into LWA: 0,4 L/ 10000 m² LWA without exceeding 0,4 L/ha.	n.r.
121	SVN	Corn, sweet (ZEAMS)	F	RHOPPA, RHOPMA, MACSAV, METODR, PYRUNU, HELIAR, DIABVI	spraying (foliar)	51-75	a) 1 b) 1	-	a) 0.75 b) 0.75	a) DLT 7.5 + FPF 56.2 b) DLT 7.5 + FPF 56.2	200-1000	7		n.r.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use-No. *	**Member state(s)**	**Crop and/ or situation** (crop destination / purpose of crop)	**F, Fn, Fnp G, Gn, Gnp or I ****	**Pests or Group of pests controlled** (additionally: developmental stages of the pest or pest group)	**Application**				**Application rate**			**PHI** (days)	**Remarks:** e.g. g safener/ synergist per ha, other dose rate expression, dose range (min-max)	**zRMS Conclusion (efficacy)**
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	g as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
265	POL	Corn, sweet (ZEAMS)	F	RHOPPA, RHOPMA, MACSAV, METODR, PYRUNU, HELIAR, DIABVI	spraying (foliar)	51-75	a) 1 b) 1	-	a) 0.75 b) 0.75	a) DLT 7.5 + FPF 56.2 b) DLT 7.5 + FPF 56.2	200-1000	7		n.r.
~~254~~	~~POL~~	~~Sunflower (HELAN)~~	~~F~~	~~ANURHE, LYGUSP~~	~~spraying (foliar)~~	~~31-69~~	~~a) 2 b) 2~~	~~14~~	~~a) 0.75 b) 1.5~~	~~a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5~~	~~200-600~~	~~as per growth stage~~		n.r. ***
119	SVN	Millet, common (PANMI)	F	RHOPPA, RHOPMA MACSAV, METODR PYRUNU, HELIAR	spraying (foliar)	51-75	a) 1 b) 1	-	a) 0.75 b) 0.75	a) DLT 7.5 + FPF 56.2 b) DLT 7.5 + FPF 56.2	200-1000	as per growth stage		n.r.
263	POL	Millet, common (PANMI)	F	RHOPPA, RHOPMA MACSAV, METODR PYRUNU, HELIAR	spraying (foliar)	51-75	a) 1 b) 1	-	a) 0.75 b) 0.75	a) DLT 7.5 + FPF 56.2 b) DLT 7.5 + FPF 56.2	200-1000	as per growth stage		n.r.
349	CZE	Millet, common (PANMI)	F	RHOPPA, RHOPMA MACSAV, METODR PYRUNU, HELIAR	spraying (foliar)	51-75	a) 1 b) 1	-	a) 0.75 b) 0.75	a) DLT 7.5 + FPF 56.2 b) DLT 7.5 + FPF 56.2	200-1000	as per growth stage		n.r.
368	SVK	Millet, common (PANMI)	F	RHOPPA, RHOPMA MACSAV, METODR PYRUNU, HELIAR	spraying (foliar)	51-75	a) 1 b) 1	-	a) 0.75 b) 0.75	a) DLT 7.5 + FPF 56.2 b) DLT 7.5 + FPF 56.2	200-1000	as per growth stage		n.r.
387	HUN	Millet, common (PANMI)	F	RHOPPA, RHOPMA MACSAV, METODR PYRUNU, HELIAR	spraying (foliar)	51-75	a) 1 b) 1	-	a) 0.75 b) 0.75	a) DLT 7.5 + FPF 56.2 b) DLT 7.5 + FPF 56.2	200-1000	as per growth stage		n.r.
359	SVK	Oat, spring (AVESP)	F	RHOPPA, MACSAV, LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	200-600	30		n.r.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use-No. *	**Member state(s)**	**Crop and/ or situation** (crop destination / purpose of crop)	**F, Fn, Fnp G, Gn, Gnp or I ****	**Pests or Group of pests controlled** (additionally: developmental stages of the pest or pest group)	**Application**				**Application rate**			**PHI** (days)	**Remarks:** e.g. g safener/ synergist per ha, other dose rate expression, dose range (min-max)	**zRMS Conclusion (efficacy)**
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	g as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
360	SVK	Oat, spring (AVESP)	F	EURYSP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.75 b) 1.5	a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5	200-600	30		n.r.
378	HUN	Oat, spring (AVESP)	F	RHOPPA, MACSAV, LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	200-600	30		n.r.
379	HUN	Oat, spring (AVESP)	F	EURYSP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.75 b) 1.5	a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5	200-600	30		n.r.
361	SVK	Oat, winter (AVESW)	F	RHOPPA, MACSAV, LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	200-600	30		n.r.
362	SVK	Oat, winter (AVESW)	F	EURYSP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.75 b) 1.5	a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5	200-600	30		n.r.
380	HUN	Oat, winter (AVESW)	F	RHOPPA, MACSAV, LEMASP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.5 b) 1	a) DLT 5 + FPF 37.5 b) DLT 10 + FPF 75	200-600	30		n.r.
381	HUN	Oat, winter (AVESW)	F	EURYSP	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.75 b) 1.5	a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5	200-600	30		n.r.
120	SVN	Sorghum (SORSS)	F	RHOPPA, RHOPMA MACSAV, METODR PYRUNU, HELIAR	spraying (foliar)	51-75	a) 1 b) 1	-	a) 0.75 b) 0.75	a) DLT 7.5 + FPF 56.2 b) DLT 7.5 + FPF 56.2	200-1000	as per growth stage		n.r.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use-No. *	**Member state(s)**	**Crop and/ or situation** (crop destination / purpose of crop)	**F, Fn, Fnp G, Gn, Gnp or I ****	**Pests or Group of pests controlled** (additionally: developmental stages of the pest or pest group)	**Application**				**Application rate**			**PHI** (days)	**Remarks:** e.g. g safener/ synergist per ha, other dose rate expression, dose range (min-max)	**zRMS Conclusion (efficacy)**
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	L product / ha a) max. rate per appl. b) max. total rate per crop/season	g as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
264	POL	Sorghum (SORSS)	F	RHOPPA, RHOPMA MACSAV, METODR PYRUNU, HELIAR	spraying (foliar)	51-75	a) 1 b) 1	-	a) 0.75 b) 0.75	a) DLT 7.5 + FPF 56.2 b) DLT 7.5 + FPF 56.2	200-1000	as per growth stage		n.r.
350	CZE	Sorghum (SORSS)	F	RHOPPA, RHOPMA MACSAV, METODR PYRUNU, HELIAR	spraying (foliar)	51-75	a) 1 b) 1	-	a) 0.75 b) 0.75	a) DLT 7.5 + FPF 56.2 b) DLT 7.5 + FPF 56.2	200-1000	as per growth stage		n.r.
369	SVK	Sorghum (SORSS)	F	RHOPPA, RHOPMA MACSAV, METODR PYRUNU, HELIAR	spraying (foliar)	51-75	a) 1 b) 1	-	a) 0.75 b) 0.75	a) DLT 7.5 + FPF 56.2 b) DLT 7.5 + FPF 56.2	200-1000	as per growth stage		n.r.
388	HUN	Sorghum (SORSS)	F	RHOPPA, RHOPMA MACSAV, METODR PYRUNU, HELIAR	spraying (foliar)	51-75	a) 1 b) 1	-	a) 0.75 b) 0.75	a) DLT 7.5 + FPF 56.2 b) DLT 7.5 + FPF 56.2	200-1000	as per growth stage		n.r.
259	POL	Wheat, spring (TRZAS)	F	EURYMA	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.75 b) 1.5	a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5	200-600	30		n.r.
261	POL	Wheat, winter (TRZAW)	F	EURYMA	spraying (foliar)	41-83	a) 2 b) 2	14	a) 0.75 b) 1.5	a) DLT 7.5 + FPF 56.2 b) DLT 15 + FPF 112.5	200-600	30		n.r.

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

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

Remarks table heading:

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

Remarks columns:	1	Numeration necessary to allow references	8	The maximum number of application possible under practical conditions of use must be provided.
	2	Use official codes/nomenclatures of EU Member States	9	Minimum interval (in days) between applications of the same product
	3	For crops, the EU and Codex classifications (both) should be used; when relevant, the use situation should be described (e.g. fumigation of a structure)	10	For specific uses other specifications might be possible, e.g.: g/m³ in case of fumigation of empty rooms. See also EPPO-Guideline PP 1/239 Dose expression for plant protection products.
	4	F: professional field use, Fn: non-professional field use, Fpn: professional and non-professional field use, G: professional greenhouse use, Gn: non-professional greenhouse use, Gpn: professional and non-professional greenhouse use, I: indoor application	11	The dimension (g, kg) must be clearly specified. (Maximum) dose of a.s. per treatment (usually g, kg or L product / ha).
	5	Scientific names and EPPO-Codes of target pests/diseases/ weeds or, when relevant, the common names of the pest groups (e.g. biting and sucking insects, soil born insects, foliar fungi, weeds) and the developmental stages of the pests and pest groups at the moment of application must be named.	12	If water volume range depends on application equipments (e.g. ULVA or LVA) it should be mentioned under "application: method/kind".
	6	Method, e.g. high volume spraying, low volume spraying, spreading, dusting, drench Kind, e.g. overall, broadcast, aerial spraying, row, individual plant, between the plants - type of equipment used must be indicated.	13	PHI - minimum pre-harvest interval
	7	Growth stage at first and last treatment (BBCH Monograph, Growth Stages of Plants, 1997, Blackwell, ISBN 3-8263-3152-4), including where relevant, information on season at time of application	14	Remarks may include: Extent of use/economic importance/restrictions
			15	Overall conclusions - explanation for the column 15 is below
			n/a	Not applicable

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

Comments of zRMS – to the GAP table:

**** During the evaluation process, the applicant - taking into account the data gaps in Fate and behaviour and Ecotoxicology Section and due to business reasons, has decided to no longer support the use of DLT+FPF EC85 in sunflower. As sufficient efficacy data has been presented for the use of DLT+FPF EC85 in the control of ANURHE and LYGUSP on sunflower, the zRMS conclusions are included in the column 15 of GAP table.

The GAP table presents details of intended uses in cereal crops separately for EURYSP and for the pest group: RHOPPA, MACSAV, LEMASP presumably due different application rates recommended for each of intended target/group of targets. The number of applications recommended for ceral crops is 2 per crop/per growth season. To the opinion of zRMS, the GAP table may suggest a total number of treatments of 4 in cereal crops. In order to avoid such an interpretation, the cMSs are kindly advised to include in the product label the remark: *The maximum number of application is 2 per crop/per growth season.* This will be in accordance with the resistance risk management strategy specified for DLT+FPF EC85, that says: *The maximum number of applications of the DLT+FPF EC85 per season is 2. In case when more applications are necessary, products containing actives belonging to other IRAC groups and showing other modes of action should be applied.*

The water amount determined for the target crops is covered by trials only in part. The cMSs are kindly advised to make a decision on acceptance of the claimed water amount or to recommend water amount from the efficacy trials according to the national requirements and practice, using the table below comparing the amounts of water - from the trials and those applied for.

*water amount used in the field parts of trials performed to assess the effect of DLT+FPF EC85 on processing procedure on grapevine.

			Water amount (L/ha)	
Crop	Target pest	cMS	GAP	Efficacy trials/other trials*
VITVI	SCAPLI	SVN, ROU, SVK, HUN	100-1200	200-500 120-1000*
VITVX		ROU, SVK, HUN		
ZEAMX	RHOPPA, RHOPMA, MACSAV, METODR, PYRUNU, HELIAR, DIABVI	SVN, ROU, POL, CZE, SVK, HUN	200-1000	300-500
ZEAMS		ROU, CZE, SVK, HUN		
HELAN	ANURHE, LYGUSP	SVN, ROU, CZE, SVK, HUN	200-600	250-300
HORVW, HORVS	RHOPPA, MACSAV, LEMASP, EURYSP	SVN, ROU, CZE, SVK, HUN	200-600	200-400
	LEMASP	POL		
AVESP, AVESW	RHOPPA, MACSAV, LEMASP, EURYSP	SVN, ROU, CZE		
	LEMASP	POL		
TRZAW, TRZAS	RHOPPA, MACSAV, LEMASP, EURYSP	SVN, CZE, SVK, HUN		
TRZAW, TRZAS	LEMASP	POL		
	RHOPPA, MACSAV, LEMASP, EURYSP	ROU	150-400	
PANMI	RHOPPA, RHOPMA MACSAV, METODR, PYRUNU, HELIAR	ROU	400-800	-
SORSS	RHOPPA, RHOPMA MACSAV, METODR PYRUNU, HELIAR	ROU	150-400	-

3.2 Efficacy data (KCP 6)

Introduction

The aim of this document is to present data to support the authorization of DLT+FPF EC85 for field use on corn and related crops (millet, sorghum), cereals (wheat, barley and oat), sunflower and grape in the regulatory Central Zone in Europe. It is submitted to be evaluated by Poland as zRMS. Authorization of this product is claimed for Maritime EPPO climatic zone (the Czech Republic), South-East EPPO climatic zone (Hungary, Romania, Slovakia and Slovenia) and North-East EPPO climatic zone (Poland). This document contains all relevant information for efficacy evaluation of DLT+FPF EC85, where efficacy is defined as the overall effect DLT+FPF EC85 application on the agricultural system where it is used (EPPO standard PP1/214(3): 'Principles of acceptable efficacy').

Submission type: extension of use

Central zone RMS: Poland

c-MS	Nat Add (Y/N)	Justification for Nat Add
Central Zone		
the Czech Republic	N	
Hungary	N	
Poland	N	
Romania	N	
Slovakia	N	
Slovenia	N	

Description of active substances

The active substances of DLT+FPF EC85 are deltamethrin and flupyradifurone.

This product contains the following active substances

deltamethrin	Existing*
flupyradifurone	Existing*

*Annex I listed

A summary of the main characteristics of these active substances is presented in **Table 3.2-1** below:

Table 3.2-1: Details of the active substances

Active substance	Deltamethrin	Flupyradifurone
Concentration	10 g/L	75 g/L
Chemical group	pyrethroids	butenolide
Mode of action	Sodium channel modulators (disturbs conduction of nerve impulse in insects by modifying the kinetics of voltage sensitive sodium channels). IRAC group 3A	Agonist of nicotinic acetylcholine receptor. IRAC group 4D
Biological action	Insecticide	Insecticide

Mode of action

Flupyradifurone

The action of Flupyradifurone takes place in the central nerve system of targeted insect pests. Here the active ingredient flupyradifurone acts as an agonist which means that the chemical binds to a receptor and activates the receptor to produce a biological response. Flupyradifurone acts like the naturally occurring neurotransmitter acetylcholine, and the binding to the receptor protein induces a depolarizing ion current, causing excitation of the nerve cell. In contrast to acetylcholine, flupyradifurone cannot be inactivated by the respective enzyme acetylcholinesterase, which leads to a permanent opening of the post-synaptic receptor. The lasting effect of the product results in a disorder of the insect nervous system and subsequent collapse.

With its unique pharmacophore system, flupyradifurone is chemically distinct from neonicotinoid insecticides and sulfoxaflor. It is a butenolide insecticide with a distinct new chemistry and has been assigned to IRAC (Insecticide Resistance Action Committee) mode of action Group 4D, a new subgroup of Group 4, which includes all insecticidal agonists of nAChR. It binds to the nAChR but with a different pharmacophore than neonicotinoids (4A) and sulfoximines (4C). Thus, flupyradifurone presents little to no metabolism-based cross-resistance with neonicotinoids in target

species. However, target-site mutation-based cross-resistance affects all compounds within IRAC group 4.

Flupyradifurone is a systemic, xylem mobile insecticide (ascending mobility), with a higher activity after oral than after contact uptake, against adults and larvae of sucking pests (aphids, whiteflies, psyllids) and selected chewing pests, including coleopteran and dipteran pests. Its systemic property contributes to its lasting efficacy and ability to control difficult-to be reached pests. The mixture combines 2 active substances with opposite properties, in relation with temperature: there is a well-known negative thermodependency for pyrethroids, including deltamethrin whereas flupyradifurone has a positive thermodependency (M-659248-01-1); a combination of these 2 molecules has then the capability to be effective in a broad range of temperature conditions, from end of winter/beginning of spring (leafhoppers and aphids management) to spring/summer (borers and aphids management).

Deltamethrin

Deltamethrin (DLT), an insecticide of the pyrethroid chemical family belonging to the group 3 of insecticides (sodium channel modulators) according to the IRAC (Insecticide Resistance Action Committee) classification of modes of action: it is a neurotoxic insecticide that disturbs conduction of nerve impulse in insects by modifying the kinetics of voltage-sensitive sodium channels.

Effect of deltamethrin on insects is mainly through contact and ingestion (it is not systemic). As expressed by the high octanol/water partition coefficient, it is the lipophilic qualities of the molecule which makes the action of deltamethrin possible by contact and ingestion: the cuticle of the insect is made up, to a large extent, of lipids, which easily absorb deltamethrin.

Insecticidal effects differ depending on the dose used or the concentration of the film of insecticide applied to the plants. The effects which have been observed in the laboratory and confirmed in many field situations are the following:

- a knock-down effect (KD) where the pest is affected within minutes and immediately stops damaging the treated crop;
- an anti-feeding effect protecting the treated plants as, although the insect is present, it no longer feeds on the plant and therefore cannot cause damage, as it either moves away or dies of starvation;
- a transient repellent effect, which causes the insect to escape from treated plants and so avoid contact with them.

The properties of deltamethrin allow it to control a broad range of insects (adults and larvae), belonging to the most damaging insect orders: *Lepidoptera; Coleoptera; Diptera; Homoptera; Hemiptera; Thysanoptera; Orthoptera*.

Description of the plant protection product

DLT+FPF EC85 is an emulsifiable concentrate (EC) containing 10 grams per litre of deltamethrin and 75 grams per litre of flupyradifurone.

DLT+FPF EC085 is to be used on:

- corn and related crops for the control of *Ostrinia nubilalis* (PYRUNU) and *Helicoverpa armigera* (HELIAR); aphids (1APHIF) – *Rhopalosiphum padi* (RHOPPA), *Rhopalosiphum maidis* (RHOPMA), *Sitobion avenae* (MACSAV), *Metopolophium dirhodum* (METODR) and *Diabrotica virgifera virgifera* (DIABVI) at the dose rate of 0.75 l/ha.
- cereals for the control of *Oulema melanopus* (LEMAME), *Oulema gallaeciana* (LEMALI), aphids (1APHIF) – *Sitobion avenae* (MACSAV) and *Rhopalosiphum padi* (RHOPPA) at the dose rate of 0.5 L/ha L/ha and for the control of – *Eurygaster integriceps* (EURYIN) and *Eurygaster maura* (EURYMA) at the dose rate of 0.75 L/ha.
- sunflower for the control of *Brachycaudus helichrysi* (ANURHE) and *Lygus* sp. (LYGUSP) at the dose rate of 0.75 L/ha.
- grapevine (wine and table) for the control of *Scaphoideus titanus* (SCAPLI) at the dose rate of 0.4 L/ha.

Further details concerning intended uses in different countries are given in **Table 3.2-2** below.

Table 3.2-2: Simplified table of currently registered uses and requested uses for the product code

Use		Member State	Requested rate(s)	Comments / Other relevant details on GAPs
Crop	**Target**			
Corn (ZEAMX)	PYRUNU HELIAR 1APHIF DIABVI	CZE HUN POL ROU SVK SVN	0.75 L/ha	Foliar application; Max. 1 applications/year; BBCH 51-75; water ~~150~~ 200-1000*
Corn, sweet (ZEAMS)	PYRUNU HELIAR 1APHIF DIABVI	CZE HUN POL ROU SVK SVN	0.75 L/ha	Foliar application; Max. 1 applications/year; BBCH 51-75; water 200-1000*
Millet, common (PANMI) Sorghum (SORSS)	PYRUNU HELIAR 1APHIF	CZE HUN POL ROU SVK SVN	0.75 L/ha	Foliar application; Max. 1 applications/year; BBCH 51-75; water 150-1000*
Wheat, spring (TRZAS) Wheat, winter (TRZAW) Barley, spring (HORVS) Barley, winter (HORVW) Oat, spring (AVESS) Oat, winter (AVESW)	LEMAME LEMALI MACSAV RHOPPA	CZE HUN POL** ROU SVK SVN	0.5 L/ha	Foliar application; Max. 2 applications/year; BBCH 41-83; water volume 150-600 L/ha*
Wheat, spring (TRZAS) Wheat, winter (TRZAW) Barley, spring (HORVS) Barley, winter (HORVW) Oat, spring (AVESS) Oat, winter (AVESW)	EURYIN EURYMA	CZE HUN POL*** ROU SVK SVN	0.75 L/ha	Foliar application; Max. 2 applications/year; BBCH 41-83; water volume 150-600 L/ha*
Sunflower (HELAN)	ANURHE LYGUSP	CZE HUN POL ROU SVK SVN	0.75 L/ha	Foliar application; Max. 2 applications/year; BBCH 31-~~79~~ 69; water volume 200-600 L/ha*
Grape (VITVI) grape wine+grape table	SCAPLI	SVN ROU POL SVK HUN	0.4 L/ha	Foliar application; Max. 2 applications/year; BBCH 57-81; water 100-1200

*Three-letters country codes are used according to ISO 3166-1 alpha-3, please refer to:
https://unstats.un.org/unsd/tradekb/Knowledgebase/50347/Country-Code
*water volume range varies depending on countries and crops (see GAP table)
** not MACSAV/RHOPPA/AVESW; *** only EURYMA in TRZAW/TRZAS

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

Description of the crops

The **Table 3.2-3** below presents an overview of the crop situation in the Czech Republic, Hungary, Poland, Romania , Slovakia and Slovenia where the submission is intended for the last available season (from 2018 to 2019).

Table 3.2-3: Area grown by crop/country (kha) – 2018–2019 harvest seasons (Total cultivated area 1000 ha).

Crops	Czech Republic	Hungary	Poland	Romania	Slovenia	Slovakia
Corn grain and corn-cob-mix***	2 650.59 (d)	38.88	660.75	19.01	74.83	197.53
Corn green***	47.75	28.59	601.58*	186.23	232.39	75.10
Corn, sweet (ZEAMS)	n.c.	33.3	6.66	n.c.	n.c.	n.c.

Millet, common (PANMI)****	3.00	1.40	93.36 (p)	0.00	4.51	4.30
Sorghum (SORSS)	18.54	1.11	0.00	0.00	0.00 (n)	0.13
Winter wheat and spelt (TRZAW)	814.52	972.60	2 043.25	2 073.21	n.c. (u)	353.24
Spring wheat and spelt (TRZAS)	24.93	6.41	468.08	11.21	n.c. (u)	11.42
Winter barley (HORVW)	107.71	222.56	224.76	343.66	n.c. (u)	41.02
Spring barley (HORVS)	211.88	25.08	750.53	97.85	n.c. (u)	85.55
Winter and spring oat (AVESW, AVESS))	42.53	21.69	495.50	121.66	1.21	12.42
Sunflower (HELAN)	11.83	567.10	2.00	1 306.50	0.33	48.55
Grapes (VITVI)	-	64.93	0.74	170.51	15.57	7.92
Grapes for wines	-	62.26	0.00	164.23	15.55	7.78
Grapes for table use	-	2.02	n.c.	6.27	0.02	0.14

*2018 / *** Corn (ZEAMX) = Corn grain and corn-cob-mix + Corn green /**** Other cereals n.e.c. (buckwheat, millet, canary seed, etc.)
(d) For Czech Republic, data provided without corn-cob-mix / (n) not significant / (p) provisional / (u) low reliability / n.c. not communicated / - not concerned
Sources: http://ec.europa.eu/eurostat/data/database, http://www.cornurop.com/structure/agpm-mais-doux/chiffres/ for sweet corn

Description of the target pests

Table 3.2-4 below lists the target pests which are considered within this submission.

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

EPPO code	Scientific name	Common name and/or other name used in trial reports
Corn		
PYRUNU	*Ostrinia nubilalis*	European corn borer
HELIAR	*Helicoverpa armigera*	Old World bollworm
DIABVI	*Diabrotica virgifera virgifera*	Western Corn rootworm
1APHIF	Aphididae	Aphids
RHOPPA	*Rhopalosiphum padi*	Leaf-curling plum aphid
RHOPMA	*Rhopalosiphum maidis*	Corn aphid/corn leaf aphid
MACSAV	*Sitobion avenae*	English grain aphid, *Macrosiphum avenae*
METODR	*Metopolophium dirhodum*	Rose-grain aphid
Cereals		
OULESP – LEMAME, LEMALI	*Oulema spp. – O. melanopus, O. gallaeciana*	Cereal leaf beetles, *Lema melanopus, L. lichenis*
1APHIF	Aphididae	Aphids
MACSAV	*Sitobion avenae*	English grain aphid, *Macrosiphum avenae*
RHOPPA	*Rhopalosiphum padi*	Bird cherry – oat aphid
EURYSP – EURYIN, EURYMA	*Eurygaster* spp. – *E. integriceps, E maura*	Stink/shield bugs; sunn pests
Sunflower		
ANURHE	*Brachycaudus helichrysi*	Leaf-curling plum aphid
LYGUSP	*Lygus* sp.	Lygus bugs
Grape		
SCAPLI	*Scaphoideus titanus*	American grapevine leafhopper

The following provides general background information on the biology and importance of the target pests.

Target pests in corn

Ostrinia nubilalis (PYRUNU)

Ostrinia nubilalis is the most commonly observed aerial pest in corn. Its harmfulness is however very variable according to its abundance and its biology. These two elements are variable according to geographical sectors. Regarding biology, the adult (butterfly) is approximately 25 mm wide. Males, whose belly protrudes beyond the folded wings, are darker than pale yellow females.
Larvae measures 2-3 mm to 20 mm depending on the larval stage. Light grey, they have a dark grey longitudinal line on the back.
In Europe the moth presents a variable number of cycles depending on geographical areas.

It is monovoltine in cold climate with only one generation. Even in very hot years, as in 2003, in north of France, this borer develops only one generation.
In warmer climate, it achieves two or more generations (plurivoltine cycle). Almost all first-generation individuals give rise to a second generation in the south. Everywhere else, a variable part of 1st generation individuals are likely to give a 2nd generation, depending on the weather conditions of spring and summer.
The moth overwinters as diapause larvae. In the spring, from the end of April, more or less early depending on the year, it will pupate. Pupation occurs around May-June for the 1st generation. The adult exit is spread over a month, between mid-May and mid-July depending on the region.
In situations where there is only one generation, larvae in the last larval stage take refuge in the snout to spend the winter.
In situations where several generations can succeed, a certain proportion of larvae (sometimes all, depending on weather conditions) from 1st generation butterflies will pupate and give rise to a second flight that will run from mid-July to mid-July-August, according to regions and years. The laying of the second generation is under the leaves, sometimes on the ears, depending on the stage of development of the plant. Larvae dig galleries in stems, peduncles and ears. They create entrance doors to the Fusarium spores of the liseola section.
Parcels located in geographical areas where the borer was present the previous year are likely to be infested the year after.
Evolution and impact on yield:
The borer is likely to cause direct damage of several quintals by the drop of the Weight of Thousand Grains and by cut of the stems and peduncles. It also causes indirect damage, when the second generation develops on the ears and creates entrance doors to the Fusarium of the liseola section, responsible for the production of fumonisins. The consequences in terms of sanitary quality are then important.
Methods of pest management:
References: Fiche accident Arvalis

***Helicoverpa armigera* (HELIAR)**
The eggs are white to yellowish, brownish at hatching. Young caterpillars are pale green, but later instars are very variable in colour (yellowish-green to dark brown) and markings. They become up to 40 mm (1.57 inch) long. The adults vary greatly, too; the forewings are yellowish to orange in females and greenish-grey in males, with a slightly darker transversal band in the distal third. The kidney-shaped marking is slightly distinct and smoky. The hind wings are pale grey with a broad, darker marginal band and a small, brown marking near the base spanning 35-40 mm (1.36 inch).
The voracious caterpillars of *Helicoverpa armigera* can feed on leaves and stems, but they show a strong preference for reproductive organs such as buds, inflorescences, berries, pods, capsules etc.
They bore into these parts, leaving large, round holes. Older larvae often enter the plant tissue with the anterior part of their bodies only. Young instars, however, may disappear completely inside, so they are sometimes not discovered before the produce (e.g. tomatoes) is processed.
Secondary infections by fungi and bacteria are very common and they lead to rotting of fruits.
Injury to growing tips disturbs normal plant development; maturity may be delayed, and fruits are often dropped. So, in cotton for example, attacked blooms will frequently open prematurely and stay fruitless: when the bolls are damaged, some will fall off, and those that remain either fail to produce lint entirely, or they produce lint of inferior quality.
Each female of *Helicoverpa armigera* can lay several hundred eggs, distributed on all parts of the plants, flowers and fruit included. At optimal temperature, the larvae can hatch after less than three days. They then pass through four instars over a three to four-week period.
The caterpillars are rather aggressive, occasionally carnivorous and, when the opportunity arises, cannibalistic. If disturbed, they let themselves drop from the plant and roll up on the ground. They pupate inside a silken cocoon several centimetres deep in the soil. During this stage, they can overwinter if necessary, in seasonal climates, but they cannot resist severe frost. Otherwise, pupation lasts about 2-3 weeks. Under favourable conditions, the whole development cycle can be completed in little more than a month, so numerous generations per season are possible, especially in warmer areas. In the tropics, reproduction continues throughout the year.

Helicoverpa armigera is almost indistinguishable from its near relative *H. zea*. However, the two species have different areas of distribution. *Helicoverpa armigera*, also called the „Old World bollworm", is found in parts of Europe, Asia, Africa and Australasia: *Helicoverpa zea*, the „New World Bollworm" in the Americas. Their host ranges are broadly similar.
Both species originate from tropical and subtropical regions, but they will immigrate over long distances into areas with temperate climates each summer. The adult insects are good fliers and are mostly active at night.
Helicoverpa armigera is highly polyphagous and is a pest of about 200 plant species.
It also attacks a great number of cereals, vegetable and garden crops, among them beans, leek, zucchini, lemon, sunflower, artichoke, pigeon pea, sorghum and groundnut.
Agricultural Importance
Considered one of the most serious insect pests worldwide, causing huge losses due to its high reproductive potential and polyphagy. Economic damage is greatest in cotton and vegetables. In grain legumes, which are staple foods for people in many countries, up to 80% of the crop can be destroyed.
In Europe, there are two to three generations a year. *Helicoverpa armigera* overwinters as pupae in the soil. Adults appear from May until the end of October. Eggs are laid on plants at or near flowering. The principal host on which eggs are laid is corn: eggs are laid on the silks, larvae invade the cobs and developing grain is consumed. Secondary bacterial infections are common. But other plants are also concerned, e.g. tomatoes, weeds, and, in certain areas, cotton. The feeding larvae can be seen on the surface of plants, but they are often hidden within plant organs. Bore holes may be visible, but otherwise it is necessary to cut open the plant to detect the pest. Secondary infections are common.
As example, in southern Bulgaria, there are two complete generations a year and a partial third, winter being passed in the pupal stage in the soil. Adults emerge in the first 3 weeks of May and, 2-6 days later (rarely 10), oviposition begins. This period lasts 5-24 days and, within this time, a female may lay up to 3180 eggs (up to 457 in 24 h), singly and mainly at night, on chickpeas, cotton, corn, okras, tobacco, tomatoes, Phaseolus and certain weeds. At 25°C, they hatch in 3 days, but in 10-11 days in colder weather. The first-generation larvae (i.e. the larval progeny of the overwintering generation) appear in May and feed for 24-36 days; those of the second-generation feed for 16-30 days, and those of the third generation (at 25-26°C) develop in 19-26 days. When fully fed, the larvae descend to the soil and, after 1-7 days, pupate in an earthen cell, 2-8 cm below the surface. The overwintering pupae remain in the soil for 176-221 days, whereas this stage lasts 13-19 days in the first generation, 8-15 days in August and up to 44 days in colder weather in September. Longevity of adults is about 3 weeks.
In Southern France, adults appear from May until the end of October. Some are thought to be migrants and others to have overwintered there. A second generation occurs during summer, and third-generation adults appear in September. Second-generation adults from more northern regions migrate towards the south and Mediterranean Basin in autumn. The principal host on which eggs are laid is corn in south-western France, but tomatoes in the Rhône Valley.
Infestation can be forecast by use of sex-pheromone traps or light-traps. Sprays should be applied against first-stage larvae. Usually, a single application is not sufficient to cover the whole hatching period. Biological control, using *Trichogramma* spp., can give good results. Weed control may reduce problems with this pest.
References: CABI website (https://www.plantwise.org/knowledgebank/datasheet/26757), EPPO standard PP2/017(1) Corn, https://www.cropscience.bayer.com/en/crop-compendium/pests-diseases-weeds/pests/helicoverpa-armigera, EPPO web site: Data sheet on Helicoverpa armigera

***Diabrotica virgifera virgifera* (DIABVI)**
Diabrotica virgifera virgifera is an important pest of corn occurring in North America and was first detected in Southern Germany in 2007, followed by further infestations in additional locations in the following years. *Diabrotica virgifera virgifera*, an EU quarantine organism until 31 May 2014, was spreading throughout Europe. In 2010 this quarantine pest has already been reported from more than 20 European countries. In the USA and in Canada, the Western Corn Rootworm causes annual losses of about one billion USD due to yield loss and expenditure on pest control. *Diabrotica virgifera virgifera* beetles begin to emerge from the soil in spring when soil temperature starts to grow up with a peak in May-June or June-July depending on climates and continue to emerge until late October. They

are active in the field until frost. Females lay their eggs in late summer and early fall mainly in corn fields in the upper 5 – 20 cm of soil. The eggs overwinter in the soil in diapause (three to four months) which ends in spring at a threshold temperature of 12.8°C. The thermal requirements for hatching lying in the range 300 to 400 degree-days over the threshold according to different reports. Larval development of *Diabrotica virgifera virgifera* took 71, 38 and 27 days at 15, 22 and 29°C respectively. The pupal stage is short-lived. Adults are most active at dawn and dusk. Evening temperatures of about 18°C are optimal for oviposition. After hatching, the larvae infest the host plant roots and base of corn stems. Most damage is caused by the root feeding of the three larval stages, which upsets nutrient and water uptake and lowers plant stability. After the larvae finish feeding, they change to the pupal stage. Adults emerge from pupae in the soil. After feeding of about two weeks, the females start laying eggs. The adults feed on pollen and silk and on developing grains and cause less damage compared to the larvae.
References: *Arvalis_Les_fiches_accidents_maïs*, *EPPO Data sheet on Diabrotica barberi and Diabrotica virgifera*, *http://www.lfl.bayern.d.e/ips/*, *https://www.cabi.org/isc/datasheet/18637*

Aphididae (1APHIF)
According to PP2/17(1) Corn, several species of aphids can be observed on corn and the main are *Sitobion avenae* (MACSAV), *Metopolophium dirhodum* (METODR), *Rhopalosiphum padi* (RHOPPA) but the damage they cause is of variable importance.

***Sitobion (=Macrosiphum) avenae* (MACSAV)**
Sitobion avenae (MACSAV) is a yellow to green or brownish-red aphid with long dark siphunculi. It causes relatively little damage to corn crops; the natural enemies present in corn fields often being sufficient to limit the populations of this aphid.

***Metopolophium dirhodum* (METODR)**
Metopolophium dirhodum (METODR) is a yellow-green to pinkish aphid with long clear siphunculi and a visible dorsal line, which migrates from small-grain cereals and grasses to corn at about BBCH growth stage 19. When feeding on corn, its toxic saliva produces yellow discoloration (mosaic) of plant tissues and may limit their growth.

***Rhopalosiphum padi* (RHOPPA)**
Rhopalosiphum padi (RHOPPA) is usually the most damaging species. This green to black aphid with a reddish coloration at the basis of the abdomen generally appears on corn at the end of July. Populations are normally present on leaves and tassels. Damage is caused by feeding punctures on leaves and silks. As the production of honeydew is followed by the development of sooty mould, this may lead to yield reduction. Plant hosts are poaceae (*Zea mays*, *Sorghum vulgare*, *Hordeum vulgare*, etc.).

***Rhopalosiphum maidis* (RHOPMA)**
Rhopalosiphum maidis is rarely seen in the spring mostly in summer in corn. Populations on maize appear to be restricted around the Mediterranean basin.
The wingless are elongated, bluish green with short and dark cornicles and cauda, with purple spots around the insertion of the cornicles. Winged are elongated body, dark green with black marginal sclerites, short antennae equal to half the body, short whip, short dark cornicles with slight constriction at the tip, short and dark cauda.
Rhopalosiphum maidis causes the last leaf of growing corn to be wrapped longitudinally. It secretes abundantly honeydew where the sooty mould develops. Plant hosts are poaceae like *Zea mays*, *Sorghum vulgare*, *Hordeum vulgare*). It transmits the dwarf barley jaundice virus (BYDV).
Control strategy is based on monitoring of the crop, and a treatment is applied when a defined threshold is reached.
Thresholds of 500 and 200 aphids per plant at growth stage BBCH19 can be suggested for S*itobion avenae* (MACSAV) and *Metopolophium dirhodum* (METODR) respectively.
For *Rhopalosiphum padi* (RHOPPA), the suggested threshold for young plants is 10 winged aphids per plant with forming colonies of apterous aphids. However, flowering is the most sensitive period

for the crop, which should be monitored at tassel emergence (BBCH 55), and a treatment applied if 50% of tassels are infested.
Sources: PP2/17(1) Corn (https://gd.eppo.int/taxon/RHOPPA/documents), INRAe website https://www6.inrae.fr/encyclopedie-pucerons/Especes/Pucerons/Rhopalosiphum/R.-maidis

Target pests in cereals

***Oulema melanopus* (LEMAME), *O. gallaeciana (=lichenis)* (LEMALI)**
Oulema melanopus and *O. gallaeciana* (syn. *O. lichenis*) are shiny-blue beetles which feed on wheat leaves, causing elongated holes. The yellow larvae are covered by a blackish, sticky substance and may be mistaken for small slugs. It is a monovoltine species, beetles emerging in spring when daily average air temperatures reach 7.5–9.0°C. In the beginning, the beetles feed on wild-growing cereals, then on fields of winter grain crops, and further on summer crops. Feeding on crops, pairing and laying eggs, the beetles stay in groups, therefore damaging crops in places. They fly most intensively in warm, sunny weather from 10–11 a.m. The pest is especially dangerous when humidity is low.
Beetles gnaw out longitudinal apertures in leaves; larvae skeletonize leaves of oats, barley, hard varieties of summer and winter wheat, rye, maize, rice, and many species of wild-growing cereals. Larvae eat pulp of leaves, leaving veins. Larvae of 3rd–4th instars cause the most essential harm. The damaged leaves are distinguished from green ones by whitish, longitudinal stripes. Large numbers of larvae cause coalescence of damaged parts, and the entire leaf turns yellow. Harming activity of the species proceeds from tillering until ear emergence. The maximum fertility of the cereal leaf beetle occurs in droughty years. Lack of ground moisture causes beetles and larvae to have a stronger influence on plants, i.e. yield is reduced, and the weight of 1000 grains decreases. Strongly damaged plants do not form ears during droughty weather. Chemical measures of control include insecticide treatments in spring during feeding of larvae and beetles and treatments of field edges. Chemical treatment is usually justified after reaching a damage threshold such as 15 adults per m^2 just before oviposition, or 0.5–1 larvae per stem. Treatments may be combined with those against aphids, in which case suitable active substances should be used. Chemical control measures usually rely on foliar sprays with insecticides based on contact mode of action, such as alpha-cypermethrin, beta-cyfluthrin, cypermethrin, deltamethrin, or lambda-cyhalothrin.

***Sitobion avenae* (MACSAV), *Rhopalosiphum padi* (RHOPPA)**
Aphids, such as *Sitobion avenae* (formerly *Macrosiphum avenae*) and *Rhopalosiphum padi*, may become numerous on tillers and ears of wheat, and may inflict direct feeding damage or indirect damage because of the formation of sooty moulds or transmission of virus diseases (especially *Barley yellow dwarf luteovirus*). Quality of grain is also affected by aphid infestations.
Both species are widespread oligophagous cereal pests, feeding on a variety of cereal grasses and a range on the most important cereal crops.
Sitobion avenae hatching of first larvae giving fundatrices is usually observed in March – April depending from the region. The pests feed on winter cereals at first and later on spring crops. The insects prefer the upper part of the ears of plants. The aphids are active, and they do not form big colonies, although high densities observed in the field are not uncommon. In the areas where the insect causes the greatest harm the intensive migration of aphids to cereals takes place at the end of May and in June. The borders of fields are populated at first and then the pest penetrates deep into the cereal field. The aphid infestation is very dangerous when the plants are in the phases of ear emergence, milk and dough development. The most favourable conditions for the insects are at temperatures of 16–20 degrees Celsius and a relative humidity of 65-80%. The greatest harm caused by this insect occurs after years with moderately warm and damp summers and also damp autumns. The pest causes the greatest damage to summer and winter wheat, summer and winter barley, rye, oats, sorghum and maize. Among the wild cereal grasses, it prefers *Phleum pratense*, *Avena fatua*, *Agropyron repens*, *Dactylis glomerata*, *Bromus mallis*, *Bromus secalinis*, *Festuca pratensis*.
The life cycle of *Rhopalosiphum padi* includes two host plants. The first host is the bird cherry tree (*Padus racemosa*) or plum-tree (*Prunus domestica*). Over-wintering takes place during the egg phase on buds of bird cherry trees. The hatching of fundatrices larvae is observed in March – April. The larvae form colonies on upper side of leaves and on blossoms (3 to 5 generations). The branches are

bent; the leaves turn yellow and twist. At the end of May and beginning of June the aphids migrate from the first host to cereals. The pest feed on winter cereals at first and then on spring varieties on upper side of leaves and on ears. By the second or third of August the insects (winged males and viginoparae) migrate from summer reservations to bird cherry trees. The pest causes the greatest damage to spring and winter wheat, spring and winter barley, rye, oats, sorghum, millet, rice. The insect feeds also on wild cereal grasses.
Control measures include forecasting pest appearance and number, eradication of weeds, insecticide treatments. Crop should be regularly inspected in spring, and an insecticide spray application should be made if aphid numbers reach a certain level. Various threshold levels are recommended, for example: 30% of tillers carry aphids before flowering; 70% of tillers are infested during and shortly after flowering up to caryopsis watery ripe. A single spray is usually sufficient.
Chemical control measures usually rely on foliar sprays based on contact mode of action insecticides, such as alpha-cypermethrin, beta-cyfluthrin, chlorpyrifos, cyfluthrin, cypermethrin, deltamethrin, esfenvalerate, lambda-cyhalothrin and alike.

***Eurygaster integriceps* (EURYIN), *E. maura* (EURYMA)**
Heteropteran pests, belonging to family Pentatomidae (Scutelleridae) – *E. integriceps* and *E. maura* are oligophagous pests of cereals, main importance of these being recognized in South-East European and Mediterranean countries. Both species share a number of biological and ecological characteristics.
Eurygaster integriceps. Monovoltine species. Activity of imago starts when plant litter in woods and bushes where the insects winter begins warming up to 12–13°C; flights in field begin at an average daily temperature of 12–14°C. Summer flights usually coincide with dough development of host plant. If insect development is not finished before harvesting, then the larvae and young imagoes finish their feeding under wind-rows or on fallen ears and grain. After fattening, the bugs fly away and overwinter in plantations of trees; it is more uncommon that they overwinter among high weed vegetation along ditches, idle lands, and fields.
It is a major pest of cultivated cereals, especially winter and spring wheat, partly barley and oat. Can damage corn and millet also. Feeds on various cereal grasses, eating also seed pulps on many dicotyledons and even trees occasionally (maple, ash, etc.).
Eurygaster maura. The overwintering takes place at the imago stage under fallen leaves in forests. Awakening is only observed at the mid to end of April at temperature 18–19°C (for *E. Maura* occurring later than that in *E. integriceps*). As additional feeding is necessary, the bugs usually populate perennial cereal grasses, being able to perform considerable migrations. The insect lives openly. Coupling takes place in May, and oviposition at the beginning of June. The period from awakening to coupling lasts about a month. Insect has five larval instars. The first instar larvae do not move on plant, locating among scales of ears; older instar larvae crawl on plants, looking for food. Larvae and young bugs develop on cereal crops and feed on grains causing substantial damage, particularly by injection of saliva which affects bread-making quality. Larval stage lasts about one month. The bugs fly at the middle of July and migrate to forests at the beginning of August. This species does not usually reach high densities in the field, but sometimes can be observed at high numbers.
The insect usually feeds on perennial cereal grasses, also on wheat, rye, barley, oats, maize, millet. Leaves become yellow, dry up, and the plant lags in its growth. Larvae and bugs feed on ears. The ears have small grains. The grains become puny, lose their qualities. The species is not as dangerous as *E. integriceps* because its emergence is occurring later, and its fecundity is not high.
Control measures for both species include eradication of weeds, early harvesting of grain, under-winter ploughing and insecticide treatments against both adults and larvae when exceeding economic threshold numbers. Most commonly, sprays are applied at full heading to protect the young grain, based on a threshold density of nymphs. An alternative strategy is to spray at the end of winter, when the adults migrate, based on forecasts of adult development. Chemical control measures usually rely on foliar sprays based on contact mode of action insecticides, such as alpha-cypermethrin, deltamethrin, lambda-cyhalothrin.

Target pests in sunflower

***Brachycaudus helichrysi* (ANURHE)**

Several species of aphids can be observed on sunflower, the most frequent being *Aphis fabae* and *Brachycaudus helichrysi*. They may cause direct feeding damage from the 2- to 4- leaf growth stage (BBCH 12–14) to harvesting (BBCH 92). Aphids are most abundant and damaging on leaves and unopened flowers (up to BBCH growth stage 59). Severe attack may stop head development, and yield may be reduced.

Brachycaudus helichrysi (leaf-curling plum aphid) is oligophagous pest of stone fruit trees and sunflowers. Overwintering takes place at the phase of egg. Eggs are located at bud base on young shoots of stone-fruit trees. Hatching of fundatrix larvae in the zone of strong harmfulness is observed at the end of March or in April (at the beginning of bud swelling in plum). The species feeds on plum, wild plum, peach, apricot, almond trees. The insects prefer lower side of upper leaves, forming large colonies. They also feed on flowers. The aphids suck sap from leaf veins. The species is a typical migrant; its secondary hosts are usually plants of the family Asteraceae. Beginning of migration takes place at the end of May; maximal activity is marked in the second half of June. The biggest number of insects is observed in the first half of June, then decreasing considerably. Larval period lasts 6–11 days. Life span of apterous parthenogenetic females is about 24–49 days (depending on generation and meteorological conditions); their fecundity varies from 40 to 110 larvae. The leaf-curling plum aphid forms big colonies on both primary and secondary hosts. In August-September the insects migrate to primary hosts; then viginoparae appear, giving the sexual generation.

Control measures include cultural methods, such as eradication of weeds, and insecticide treatments. Fields should be inspected regularly to determine population levels of these aphids.

***Lygus* sp. (LYGUSP)**

Sunflower is attacked by several heteropteran bugs belonging to genus *Lygus*, namely *Lygus pratensis* and *L. rugulipennis*. The *Lygus* sp. are about 6 mm long, oval in shape, brownish-greenish in colour with darker markings. The adults appear early, on sunflower with 5–6 leaves developed (BBCH 15–16). The symptoms can first be seen on stem and leaves, later on bud and head. Severe damage is caused by sucking sap from seeds. If the attack comes within 20 days after flowering (after BBCH 69), yield and oil quality can be significantly lower. These pests can have 2–3 generations per year. Warm and dry weather is optimal for rapid distribution and development of populations of Lygus bugs.

Control measures include cultural methods, such as preventing sunflower from being sown next to alfalfa, and insecticide treatments. Fields should be inspected regularly to determine population levels of these bugs, and threshold levels should be checked before deciding on treatment.

Chemical control measures usually rely on foliar sprays with insecticides, such as beta-cypermethrin, deltamethrin, lambda-cyhalothrin and other.

Target pests in grape

***Scaphoideus titanus* (SCAPLI)**

Scaphoideus titanus (SCAPLI) is considered the main vector of the Grapevine flavescence doree phytoplasma. It originates from North America but is now present in several countries in Europe. *Scaphoideus titanus* was accidentally introduced into Europe and first identified in 1958 in a vineyard in Gironde. Since then, this insect has colonized a large part of the European vineyard. Thus, it is currently found from West to East, from Portugal to Serbia and from North to South of France (Yonne) to South of Italy, as well as in Corsica.

The size of *Scaphoideus titanus* larvae varies on average from 1.5 mm (at hatching) to 5.5 mm for the last larval stage. Two lateral black spots at the end of the abdomen are characteristic of *Scaphoideus titanus* larvae. Adults range in size from 5 mm for males to 6.5 mm for females. The eggs are elongated and about 1.3 mm long and 0.3 mm wide.

Scaphoideus titanus feeds preferentially on phloem contents but may also feed on xylem or parenchyma and excretes large quantities of honeydew. *Scaphoideus titanus* has only one sexual generation per year.

In Europe, females lay several eggs during summer and early autumn in the bark of vine. The eggs spend the winter in diapause and hatch the following spring. Hatching starts at the beginning of May and lasts 6 to 12 weeks. The larval development cycle consists of 5 instars, which succeed each other on average every 10 days. Adults appear between mid-July and early August and remain present in the vineyard until September. The lifespan of the imagoes is about 1 month.
The *Scaphoideus titanus* leafhopper does not cause any direct damage to grapevine foliage, but it does transmit the phytoplasma responsible for flavescence doree, a wall-less bacterium that develops in the phloem of the grapevine. The acquisition of the phytoplasma occurs passively when the insects feed. When feeding on an infected plant, phytoplasmas can be absorbed through sap ingestion. Phytoplasmas are sucked and multiply actively in the intestinal cells, reach the salivary glands and multiply there (latency period of about one month). Phytoplasmas are excreted with the saliva in the phloem when the insects feed. The leafhopper that becomes infectious will remain infectious throughout its life. As soon as a disease outbreak is present, the spread of the disease within the plot is made from these diseased vines as the infectious larvae move from one plant to another. The adults, moving by their flight capacity, may move to contaminate plants further away.
It should be stressed that heavy regulatory measures, such as the obligation to use insecticide treatments or the uprooting of vines, which have an important economic and ecological impact, are applied in all these vineyards affected by Flavescence doree.
Source: PM 3/85 (1) Inspection of places of production – Vitis plants for planting
http://ephytia.inra.fr/fr/C/7001/Vigne-Degats-et-nuisibilite

Master Label

A master draft label is prepared here to facilitate the understanding on the product and help in the construction of the country labels that are submitted into Part A.

Deltamethrin+flupyradifurone EC85 (85 g/L)
An emulsifiable concentrate (EC) containing 10 g/L deltamethrin and 75 g/L flupyradifurone.
CROPS
For use on corn (ZEAMX, ZEAMS), millet (PANMI), sorghum (SORSS), wheat (TRZAS, TRZAW), barley (HORVS, HORVW), oat (AVESS, AVESW), sunflower (HELAN) and grapevine (VITVI)
TARGETS

Corn (ZEAMX), Corn, sweet (ZEAMS), Millet, common (PANMI) and Sorghum (SORSS)	
Ostrinia nubilalis (PYRUNU)	CZE, HUN, POL, ROU, SVK, SVN
Helicoverpa armigera (HELIAR)	CZE, HUN, POL, ROU, SVK, SVN
Diabrotica virgifera virgifera (DIABVI)	CZE, HUN, POL, ROU, SVK, SVN
Aphididae (1APHIF)	CZE, HUN, POL, ROU, SVK, SVN
Wheat, winter and spring (TRZAW, TRZAS)	
Oulema melanopus (LEMAME)	CZE, HUN, POL, ROU, SVK, SVN
Oulema gallaeciana (LEMALI)	CZE, HUN, POL, ROU, SVK, SVN
Sitobion avenae (MACSAV)	CZE, HUN, ROU, SVK, SVN
Rhopalosiphum padi (RHOPPA)	CZE, HUN, ROU, SVK, SVN
Eurygaster integriceps (EURYIN)	CZE, HUN, ROU, SVK, SVN
Eurygaster maura (EURYMA)	CZE, HUN, POL, ROU, SVK, SVN
Barley, winter and spring (HORVW, HORVS)	
Oulema melanopus (LEMAME)	CZE, HUN, POL, ROU, SVK, SVN
Oulema gallaeciana (LEMALI)	CZE, HUN, POL, ROU, SVK, SVN
Sitobion avenae (MACSAV)	CZE, HUN, ROU, SVK, SVN
Rhopalosiphum padi (RHOPPA)	CZE, HUN, ROU, SVK, SVN
Eurygaster integriceps (EURYIN)	CZE, HUN, ROU, SVK, SVN
Eurygaster maura (EURYMA)	CZE, HUN, ROU, SVK, SVN
Oat, spring (AVESS)	
Oulema melanopus (LEMAME)	CZE, HUN, POL, ROU, SVK, SVN
Oulema gallaeciana (LEMALI)	CZE, HUN, POL, ROU, SVK, SVN
Sitobion avenae (MACSAV)	CZE, HUN, ROU, SVK, SVN
Eurygaster integriceps (EURYIN)	CZE, HUN, ROU, SVK, SVN
Eurygaster maura (EURYMA)	CZE, HUN, ROU, SVK, SVN
Oat, winter (AVESW)	
Oulema melanopus (LEMAME)	CZE, HUN, ROU, SVK, SVN
Oulema gallaeciana (LEMALI)	CZE, HUN, ROU, SVK, SVN

Sitobion avenae (MACSAV)	CZE, HUN, ROU, SVK, SVN
Eurygaster integriceps (EURYIN)	CZE, HUN, ROU, SVK, SVN
Eurygaster maura (EURYMA)	CZE, HUN, ROU, SVK, SVN
Sunflower (HELAN)	
Brachycaudus helichrysi (ANURHE)	CZE, HUN, POL, ROU, SVK, SVN
Lygus sp. (LYGUSP)	CZE, HUN, POL, ROU, SVK, SVN
Grape, wine and table (VITVI)	
Scaphoideus titanus (SCAPLI)	HUN, POL, ROU, SVK, SVN

APPLICATION TIMING
- *Ostrinia nubilalis, Helicoverpa armigera, Diabrotica virgifera virgifera*, *Rhopalosiphum padi*, *Rhopalosiphum maidis*, *Sitobion avenae*, *Metopolophium dirhodum* BBCH 51–75 of corn, sweet corn, millet and sorghum
- *Oulema melanopus, Oulema gallaeciana*, *Sitobion avenae*, *Rhopalosiphum padi*, *Eurygaster integriceps*, *Eurygaster maura* BBCH 41–83 of wheat, barley and oat
- *Brachycaudus helichrysi*, *Lygus* sp. BBCH 30–~~79~~ 69 of sunflower
- *Scaphoideus titanus* – BBCH 57–81 of grapevine (wine and table)

NUMBER OF APPLICATIONS
- Maximum 1 application per use, per crop, per season for ~~potato,~~ corn, sweet corn, millet and sorghum
- Maximum2 applications per use, per crop and per season, with a minimum interval of 14 days between applications for wheat, barley, oat, sunflower and grapevine

RATE & WATER VOLUME
- 0.4 L/ha (max 2 appl.) on grapevine in 100–~~1000~~ 1200 L/ha water
- 0.5 L/ha (max 2 appl.) on wheat, barley and oat (LEMAME, LEMALI, RHOPPA, MACSAV) in 200–600 L/ha water in CZE, POL, HUN, SVK, SVN; in ROU – 150–400 L/ha water in TRZAW and TRZAS, 200–600 L/ha water in HORVW, HORVS, AVESW and AVESS.
- 0.75 L/ha (1 appl.). on corn, sweet corn, millet and sorghum in 200–1000 L/ha water
- 0.75 L/ha (max 2 appl.) on wheat, barley and oat (EURYIN, EURYMA) in 200–600 L/ha water in CZE, POL, HUN, SVK, SVN; in ROU – 150–400 L/ha water in TRZAW and TRZAS, 200–600 L/ha water in HORVW, HORVS, AVESW and AVESS.

APPLICATION DETAILS
- Foliar spraying

Compliance with the Uniform Principles

The studies summarised in this document were performed according to the Uniform Principles, being carried out following the EPPO recommendations and in accordance with GEP, by officially recognised testing organisations. The product's evaluation complies with Uniform Principles.

Deviations from EPPO standards that occurred in efficacy trials are described in detail in Chapter 3.2.3 of this document for each respective use. These deviations have been considered overall acceptable for efficacy evaluation purposes.

Information on trials submitted (3.1 Efficacy data)

The trials reported in the BAD and in this document were carried out by the development teams of the country subsidiary organisations of Bayer and other testing organisations. All these organizations were officially recognized by the competent authorities to be able to carry out field registration trials in accordance with the principles of Good Experimental Practices (GEP). A list of the test facilities including the corresponding certificates can be found in Chapter 3.7.

All together **185 trials** were implemented and is reported in this document conducted over the three EPPO climatic zones (MED/efficacy trials and trials displayed in preliminary part being part of this whole dataset). Some of the trials of the entire dataset were considered as not valid for efficacy evaluation due to various reasons (low pest pressure, unreliable results, etc.). These trials are still mentioned in the corresponding uses of the efficacy chapter (3.2.3), where reasons for non-inclusion are also explained. Additionally, in all of these trials, selectivity assessments were performed, therefore, even though these trials are not considered eligible for efficacy evaluation, they are still included into the phytotoxicity evaluation in the chapter 3.4.1.

These trials are presented by crop in tables here below: **Table 3.2-5** (corn), **Table 3.2-6** (cereals), **3.2-7** (sunflower), **3.2-8** (grape).

Table 3.2-5: Presentation of trials performed in corn (preliminary (mixture justification) – P, minimum effective dose – MED and efficacy trials – E).

Crop(s) *	Target(s)*	Country	Years	Type of trial**	Number of trials per EPPO climatic zone (number of valid trials)			GEP, non-GEP, official***	Comments (any other relevant information)
					South-East	Maritime	North-East		
ZEAMX (corn)	PYRUNU	CZE	2014	E,P		2 (2)		GEP	
	PYRUNU	CZE	2017	E		1 (1)		GEP	
	PYRUNU	CZE	2018	E,P,MED		2 (2)		GEP	
	PYRUNU	POL	2017	E,MED			4 (4)	GEP	
	PYRUNU	POL	2018	E,MED			4 (4)	GEP	
	PYRUNU	HUN	2014	E,P	3 (3)			GEP	
	PYRUNU	ROU	2017	E	1 (1)			GEP	
	PYRUNU	ROU	2018	E,P,MED	1 (1)			GEP	
	PYRUNU	SVK	2014	E,P	3 (3)			GEP	
	PYRUNU	SVK	2018	E,P,MED	1 (1)			GEP	
	PYRUNU	BGR	2014	E,P,MED	1 (1)			GEP	supportive from EU southern zone
	PYRUNU	BGR	2017	E	1 (1)			GEP	supportive from EU southern zone
	PYRUNU	BGR	2018	E,P	1 (1)			GEP	supportive from EU southern zone
	Total PYRUNU	-	2014 to 2018	E	12 (12)	5 (5)	8 (8)	GEP	-
				P	10 (10)	4 (4)			
				MED	3 (3)	2 (2)			
	HELIAR	BGR	2014	E-P	1 (1)			GEP	EU Southern zone supportive trials
	HELIAR	HUN	2017	E	1(1)			GEP	
	HELIAR	HUN	2018	E-P-MED	1 (1)			GEP	
	HELIAR	ROU	2017	E	1 (1)			GEP	
	HELIAR	SVK	2014	E-P	2 (2)			GEP	
	HELIAR	SVK	2017	E	1 (1)				
	HELIAR	SKV	2018	E-P-MED	1 (1)			GEP	
	HELIAR	BGR	2014	E	1 (1)			GEP	Tomato supportive trials
	HELIAR	BGR	2017	E	2 (2)			GEP	Tomato supportive trials
	HELIAR	BGR	2018	E-P-MED	2 (2)			GEP	Tomato supportive trials
	HELIAR	ROU	2014	E	1 (0)			GEP	Tomato supportive trials
	HELIAR	ROU	2017	E	2 (2)			GEP	Tomato supportive trials
	HELIAR	ROU	2018	E-P-MED	2 (2)			GEP	Tomato supportive trials
	Total HELIAR	-	2014 to 2018	E	18 (17)			GEP	Corn + tomato supportive trals
				P	9 (9)				
				MED	6(6)				
	DIABVI	POL	2017	E-P-MED			2 (2)	GEP	
			2018	E-P-MED			2 (2)	GEP	
		HUN	2015	E-P-MED	2 (2)			GEP	
			2016	E-P-MED	2 (2)			GEP	
			2017	E-P-MED	1 (1)			GEP	
			2018	E-P-MED	1 (1)			GEP	
		SVK	2014	E-P	2 (2)			GEP	
			2015	E-P-MED	2 (2)			GEP	
			2016	E-P-MED	2 (2)			GEP	
			2017	E-P-MED	1 (1)			GEP	
			2018	E-P-MED	1 (1)			GEP	
	Total DIABVI	-	2014 to 2018	E	14 (14)		4 (4)	GEP	Inter-zone analyse - use suported by worth cases.
				P	14 (14)		4 (4)		
				MED	12 (12)		4 (4)		
	Aphididae	CZE	2016	E-MED		2 (2)		GEP	

			2017	E-MED		2 (2)		GEP	
			2018	E-MED		1 (1)		GEP	
		ROU	2017	E-MED	1 (1)			GEP	
		HUN	2016	E-MED	2 (2)			GEP	
			2017	E-MED	1 (1)			GEP	
			2018	E-MED	1 (1)			GEP	
		SVK	2016	E-MED	1 (1)			GEP	
			2017	E-MED	1 (1)			GEP	
			2018	E-MED	1 (0)			GEP	
		BGR	2016	E-MED	1 (1)			GEP	supportive trial
	Total	-	2016 to 2017	E	9 (8)	5 (5)		GEP	-
				MED	6 (6)	5 (5)			

* 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.

For corn, in the EU Central zone, Mixture justification, Minimum effective dose and Efficacy trials were carried out in the North-East, South-East and Maritime EPPO climatic zone. Supportive South-East EPPO climatic zone trials are also used to strengthen data package for some uses in North-East and Maritime EPPO climatic zone. As shown in the table above, most of the efficacy trials were conducted in the EU regulatory Central zone where the submission is intended for.

Table 3.2-6: Presentation of trials performed in cereals (preliminary (mixture justification) – P, minimum effective dose – MED and efficacy trials – E)

Target(s)*	Crop(s) *	Country	Year	Type of trial**	Number of trials (number of valid trials)			GEP, non-GEP, official***	Comments (any other relevant information)
					Maritime zone	South-East zone	North-East zone		
Oulema spp. (OULESP)	TRZAW	Bulgaria	2015	P+MED+E	-	2 (1)	-	GEP	Supportive SZ
			2017	P+MED+E	-	2 (2)	-	GEP	Supportive SZ
		Hungary	2014	E	-	4 (3)	-	GEP	
		Romania	2017	P+MED+E	-	1 (1)	-	GEP	
		Slovakia	2014	P+MED+E	-	1 (1)	-	GEP	
			2015	P+MED+E	-	2 (2)	-	GEP	
			2017	P+MED+E	-	1 (1)	-	GEP	
		Czech Republic	2014	P+MED+E	4 (4)	-	-	GEP	
			2015	P+MED+E	1 (1)	-	-	GEP	
			2016	P+MED+E	1 (1)	-	-	GEP	
		Poland	2016	P+MED+E	-	-	2 (1)	GEP	
		Lithuania	2018	E	-	-	1 (0)	GEP	Supportive NZ
	TRZAS	Hungary	2015	P+MED+E	-	1 (1)	-	GEP	
		Slovakia	2016	P+MED+E	-	1 (1)	-	GEP	
		Czech Republic	2014	P+MED+E	1 (1)	-	-	GEP	
			2015	P+MED+E	1 (1)	-	-	GEP	
		Latvia	2018	P+MED+E	-	-	2 (1)	GEP	Supportive NZ
	HORVW	Hungary	2016	E	-	1 (0)	-	GEP	
	HORVS	Hungary	2016	P+MED+E	-	1 (1)	-	GEP	
		Czech Republic	2016	P+MED+E	1 (1)	-	-	GEP	
		Poland	2016	E			2 (0)	GEP	Supportive NZ
		Latvia	2016	P+MED+E			2 (2)	GEP	Supportive NZ
		Lithuania	2016	E			1 (0)	GEP	Supportive NZ
	AVESW	Hungary	2015	P+MED+E	-	1 (1)	-	GEP	
	AVESS	Lithuania	2017	E	-	-	1 (0)	GEP	Supportive NZ
	TTLSO	Lithuania	2016	E	-	-	1 (0)	GEP	Supportive NZ
	TOTAL	-	2014-2017	-	9 (9)	18 (15)	12 (4)	-	-
Sitobion avenae MACSAV	TRZAW	Bulgaria	2015	P+MED+E	-	1 (1)	-	GEP	Supportive SZ
			2016	E	-	1 (0)	-	GEP	Supportive SZ
			2017	P+MED+E	-	2 (2)	-	GEP	Supportive SZ

Target(s)*	Crop(s) *	Country	Year	Type of trial**	Number of trials (number of valid trials)			GEP, non-GEP, official***	Comments (any other relevant information)
					Maritime zone	South-East zone	North-East zone		
		Hungary	2016	E		2 (0)	-	GEP	
		Romania	2016	P+MED+E	-	2 (2)	-	GEP	
			2017	P+MED+E	-	2 (2)	-	GEP	
		Slovakia	2014	P+MED+E	-	2 (2)	-	GEP	
			2015	P+MED+E	-	2 (2)	-	GEP	
			2016	P+MED+E	-	1 (1)	-	GEP	
		Czech Republic	2014	P+MED+E	2 (2)	-	-	GEP	
			2015	P+MED+E	2 (2)	-	-	GEP	
			2016	P+MED+E	1 (1)	-	-	GEP	
	TOTAL	-	2014-2017	-	5 (5)	15 (12)	-	-	
	TRZAS	Bulgaria	2015	P+MED+E	-	1 (1)		GEP	Supportive SZ
		Czech Republic	2015	P+MED+E	2 (2)	-	-	GEP	
			2016	E	1 (0)			GEP	
	TOTAL	-	2015	-	2 (2)	1 (1)	-	GEP	
	TTLWI	Hungary	2015	P+MED+E	-	1 (1)	-	GEP	
	TOTAL	-	2014-2017		7 (7)	17 (14)	-	-	-
Rhopalosiphum padi RHOPPA	TRZAW	Hungary	2014	E	-	1 (1)	-	GEP	
			2015	E	-	1 (1)	-	GEP	
		Czech Republic	2014	E	1 (0)	-	-	GEP	
	TRZAS		2014	E	1 (1)	-	-	GEP	
	HORVS		2016	E	1 (1)	-	-	GEP	
	TOTAL	-	2014-2015		3 (2)	2 (2)	-		
Eurygaster spp. (EURYSP)	TRZAW	Bulgaria	2014	P+MED+E	-	1 (1)	-	GEP	Supportive SZ
			2016	P+MED+E	-	1 (1)	-	GEP	Supportive SZ
			2017	P+MED+E	-	2 (2)	-	GEP	Supportive SZ
		Hungary	2015	P+MED+E	-	1 (1)	-	GEP	
			2016	P+MED+E	-	1 (1)	-	GEP	
			2017	P+MED+E	-	1 (1)	-	GEP	
		Romania	2015	MED+E	-	1 (1)	-	GEP	
			2016	P+MED+E	-	2 (1)	-	GEP	
			2017	E	-	2 (0)	-	GEP	
	HORVW	Hungary	2017	P+MED+E	-	1 (1)	-	GEP	
	TTLWI	Hungary	2016	P+MED+E	-	1 (1)	-	GEP	
	TOTAL	-	2014-2017	-	-	14 (11)	-	-	-

* 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.

Table 3.2-7: Presentation of trials performed in sunflower (preliminary (mixture justification) – P, minimum effective dose – MED and efficacy trials – E)

Crop(s) *	Target(s)*	Country	Year	Type of trial**	Number of trials (number of valid trials)		GEP, non-GEP, official***	Comments (any other relevant information)
					Maritime EPPO climatic zone	South-East EPPO climatic zone		
Sunflower	*Brachycaudus helichrysi* (ANURHE)	Bulgaria	2016	P+E	-	1 (1)	GEP	Supportive SZ
			2017	P+E	-	1 (1)	GEP	Supportive SZ
		Hungary	2014	P+MED+E	-	2 (2)	GEP	
			2015	P+MED+E	-	4 (4)	GEP	
			2016	P+MED+E	-	1 (1)	GEP	
			2017	P+MED+E	-	1 (1)	GEP	
		Romania	2016	E	-	1 (0)	GEP	
		Slovakia	2014	P+E	-	1 (1)	GEP	
				P+MED+E	-	1 (1)	GEP	
			2015	P+MED+E	-	1 (1)	GEP	

Crop(s) *	Target(s)*	Country	Year	Type of trial**	Number of trials (number of valid trials)		GEP, non-GEP, official***	Comments (any other relevant information)
					Maritime EPPO climatic zone	South-East EPPO climatic zone		
			2016	P+MED+E	-	2 (2)	GEP	
		Czech Republic	2014	P+MED+E	4 (3)	-	GEP	
			2015	P+MED+E	1 (1)	-	GEP	
			2016	P+MED+E	2 (1)	-	GEP	
			2017	P+MED+E	2 (2)	-	GEP	
	TOTAL	-	2014-2017	-	9 (7)	16 (15)	-	-
	Lygus sp. (LYGUSP)	Hungary	2014	E	-	2 (0)	GEP	
			2015	P+MED+E	-	4 (4)	GEP	
			2016	P+MED+E	-	2 (2)	GEP	
			2017	P+MED+E	-	1 (1)	GEP	
		Slovakia	2014	E	-	1 (0)	GEP	
			2015	P+MED+E	-	1 (1)	GEP	
	TOTAL	-	2014-2017	-	-	11 (8)	-	-

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

Table 3.2-8: Presentation of trials performed in grape (preliminary (mixture justification) – P, minimum effective dose – MED and efficacy trials – E)

Crop(s) *	Target(s)*	Country	Years	Type of trial**	Number of trials (number of valid trials)			GEP, non-GEP, official***	Comments (any other relevant information)
					EPPO clim. Maritime zone	EPPO clim. North-East	EPPO clim. South East zone		
Grapevine	*Scaphoideus titanus* (SCAPLI)	Hungary	2016	P+MED+E	-	-	2(2)	GEP	
			2017	P+MED+E	-	-	2(2)	GEP	
			2018	P+MED+E	-	-	3(3)	GEP	
			2019	E	-	-	2(2)	GEP	
	TOTAL	-	2014-2019	P	-	-	7~~(3)~~ (7)	GEP	
				MED	-	-	~~3(3)~~ 7(7)	GEP	
				E	-	-	9(9)	GEP	

Reference products

Reference standards used throughout experimental programme are presented in **Table 3.2-9** below.

Table 3.2-9: Presentation of reference standards used in trials (preliminary trials, minimum effective dose and efficacy trials)

Crop(s)	Reference standard	Country(ies) where the product is registered (1)	Authorization number	Active substance(s)	Formulation		Registered application rate(3)	Application rate in trials (per treatment)	Remark(4)
					Type(2)	Concentration of a.s.			
VITVI	Actara 240 SC	Hungary	04.2/2104-2/2016	Thiamethoxam	SC	240 g/L	20 ml /100 L	0.040 L/ha 0.060 L/ha 0.100 L/ha	
VITVI	Decis 100 EC	Hungary		Deltamethrin	EC	100 g/L		0.040 L/ha 0.075 L/ha	
VITVI	Decis Mega	Hungary	02.5/2000/4/2008MgSzHK	Deltamethrin	EW	50 g/L	0.15 L/ha	0.15 L/ha	
VITVI	Karate Zeon	Hungary	04.2/418-1/2017	Lambda-cyhalothrin	CS	100 g/L	0.075-0.125 L/ha	0.125 L/ha	
VITVI	Karate Zeon	Slovenia	not registered	Lambda-cyhalothrin	CS	100 g/L		0.125 L/ha	
VITVI	Teppeki	Hungary	not registered	Flonicamid	WG	50 g/kg		0.140 kg/ha	
ZEAMX	Ampligo	Hungary	04.2/2272-2/2013 NÉBIH	Lambda-cyhalothrin Chlorantraniliprole	SC	150 g/L	0.2-0.3 L/ha	0.3 L/ha	
ZEAMX	Ampligo	Czech	not registered	Lambda-	SC	150 g/L		0.2 L/ha	

Crop(s)	Reference standard	Country(ies) where the product is registered [1]	Authorization number	Active substance(s)	Formulation		Registered application rate[3]	Application rate in trials (per treatment)	Remark[4]
					Type[2]	Concentration of a.s.			
		Republic		cyhalothrin Chlorantraniliprole					
ZEAMX	Ampligo	Romania	186PC/03.06. 2016	Lambda-cyhalothrin Chlorantraniliprole	SC	150 g/L	0.2 L/ha	0.2 L/ha	
ZEAMX	Ampligo	Slovakia	16-05-1701	Lambda-cyhalothrin Chlorantraniliprole	SC	150 g/L	0.2 L/ha	0.2 L/ha	
ZEAMX	Decis 100 EC	Romania	not registered (this formulation)	Deltamethrin	EC	100 g/L	7 to 12.25 g a.s./ha*	0.075 L/ha 0.125 L/ha	*doses of 25EC formulation registered
ZEAMX	Decis 100 EC	Hungary	not registered (this formulation)	Deltamethrin	EC	100 g/L	10 g a.s./ha*	0.125 L/ha	*dose of 50EW formulation registered
ZEAMX	Decis EW 15	Czech Republic	4538-7	Deltamethrin	EW	15 g/L	0.6-0.75 L/ha	0.500 L/ha 0.833 L/ha	
ZEAMX	Decis EW 15	Slovakia	07-05-0876	Deltamethrin	EW	15 g/L	0.750 L/ha	0.500 L/ha 0.833 L/ha	
ZEAMX	Decis Expert	Czech Republic	not registered	Deltamethrin	EC	100 g/L		0.075 L/ha 0.125 L/ha	under name Decis Forte
ZEAMX	Decis Expert	Hungary	not registered (this formulation)	Deltamethrin	EC	100 g/L	10 g a.s./ha*	0.075 L/ha 0.125 L/ha	*dose of 50EW formulation registered
ZEAMX	Decis Expert	Romania	not registered (this formulation)	Deltamethrin	EC	100 g/L	7 to 12.25 g a.s./ha*	0.075 L/ha 0.125 L/ha	*doses of 25EC formulation registered
ZEAMX	Decis Expert	Slovakia	not registered	Deltamethrin	EC	100 g/L		0.075 L/ha 0.125 L/ha	
ZEAMX	Decis Expert	Poland	not registered	Deltamethrin	EC	100 g/L		0.125 L/ha	
ZEAMX	Fury 10 EW	Hungary	04.2/4487-1/2017	Zeta-cypermethrin	EW	100 g/L	0.2-0.375 L/ha	0.150 L/ha 0.375 L/ha	
ZEAMX	Fury 10 EW	Slovakia	12-05-1253	Zeta-cypermethrin	EW	100 g/L	0.375 L/ha	0.150 L/ha	
ZEAMX	Inazuma	Slovakia	not registered	Acetamiprid Lambda-cyhalothrin	WG	13 g/kg		0.2 kg/ha 1.54 kg/ha	
ZEAMX	Inazuma	Hungary	04.2/9267-2/2015	Acetamiprid Lambda-cyhalothrin	WG	13 g/kg	0.15-0.2 kg/ha	0.2 kg/ha	
ZEAMX	Inazuma	Romania	127PC/22.07. 2015	Acetamiprid Lambda-cyhalothrin	WG	13 g/kg	0.15-0.2 kg/ha	0.2 kg/ha	
ZEAMX	Karate Zeon	Hungary	04.2/418-1/2017	Lambda-cyhalothrin	CS	100 g/L	0.125-0.15 L/ha	0.125 L/ha	
ZEAMX	Karate Zeon	Slovakia	not registered	Lambda-cyhalothrin	CS	100 g/L		0.25 L/ha	
ZEAMX	Karate Zeon	Hungary	04.2/3421-2/2015	Lambda-cyhalothrin	CS	50 g/L	0.25-0.3 L/ha	0.3 L/ha	
ZEAMX	Mospilan SG	Hungary	not registered	Acetamiprid	SG	20 g/kg		0.15 kg/ha	
ZEAMX	Nurelle D 550 EC	Czech Republic	4360-9	Chlorpyrifos Cypermethrin	EC	55 g/L	0.6 L/ha	0.6 L/ha	
ZEAMX	Pirimor 50 WG	Czech Republic	not registered	Pirimicarb	WG	50 g/kg		0.5 kg/ha	
ZEAMX	Pirimor 50 WG	Hungary	not registered	Pirimicarb	WG	50 g/kg		0.5 kg/ha	
ZEAMX	Pirimor 50 WG	Slovakia	18-00265-AU	Pirimicarb	WG	50 g/kg	0.3-0.4 kg/ha	0.5 kg/ha	
ZEAMX	Proteus	Poland	R-10/2009	Deltamethrin Thiacloprid	OD	110 g/L	0.5-0.75 L/ha	0.75 L/ha	
ZEAMX	Steward	Poland	R-51/2011	Indoxacarb	WG	30 g/Kg	0.125-0.15	0.125 kg/ha	

Crop(s)	Reference standard	Country(ies) where the product is registered [1]	Authorization number	Active substance(s)	Formulation		Registered application rate[3]	Application rate in trials (per treatment)	Remark[4]
					Type[2]	Concentration of a.s.			
	WG						kg/ha		
HELAN	Decis Expert	Bulgaria,	not registered	Deltamethrin	EC	100 g/L		0.075 L/ha	
HELAN	Decis EW15	Bulgaria	not registered	Deltamethrin	EW	15 g/L		0.5 L/ha	
HELAN	Proteus	Bulgaria	not registered	Deltamethrin Thiacloprid	OD	110 g/L		0.57-0.75 L/ha	
HELAN	Decis 100 EC	Hungary	not registered	Deltamethrin	EC	100 g/L		0.05 L/ha 0.075 L/ha	
HELAN	Decis 15 EW	Slovakia	07-05-0876	Deltamethrin	EW	15 g/L	0.35-0.5 L/ha	0.333 L/ha 0.5 L/ha	
HELAN	Decis 15 EW	Czech Republic	not registered	Deltamethrin	EW	15 g/L		0.333 L/ha 0.5 L/ha	
HELAN	Decis Expert	Czech Republic	not registered	Deltamethrin	EC	100 g/L		0.075 L/ha	
HELAN	Decis Expert	Hungary	not registered	Deltamethrin	EC	100 g/L		0.075 L/ha	
HELAN	Decis Expert	Romania	not registered	Deltamethrin	EC	100 g/L		0.075 L/ha	
HELAN	Decis Expert	Slovakia	not registered	Deltamethrin	EC	100 g/L		0.075 L/ha	
HELAN	Proteus	Czech Republic	not registered	Deltamethrin Thiacloprid	OD	110 g/L		0.75 L/ha	
HELAN	Proteus	Hungary	not registered	Deltamethrin Thiacloprid	OD	110 g/L		0.568 L/ha 0.75 L/ha	
HELAN	Proteus	Romania	not registered	Deltamethrin Thiacloprid	OD	110 g/L		0.75 L/ha	
HELAN	Proteus	Slovakia	not registered	Deltamethrin Thiacloprid	OD	110 g/L		0.7 L/ha 0.75 L/ha	
Cereals	Karate Zeon	Hungary	00436	Lambda-cyhalothrin	CS	50 g/L	0.15-0.2 L/ha	0.2 L/ha	
Cereals	Karate Zeon	Romania	1812	Lambda-cyhalothrin	CS	50 g/L	0.15 L/ha	0.15 L/ha	
Cereals	Karate Zeon 50CS	Bulgaria	n.a.	Lambda-cyhalothrin	CS	15 g/L	0.065-0.13%	0.5 L/ha	
Cereals	Decis Forte	Hungary	01658	Deltamethrin	CS	100 g/L	0.0625 L/ha	0.075 L/ha	
Cereals	Decis Expert	Romania	123PC	Deltamethrin	EC	100 g/L	0.0625 L/ha	0.075 L/ha	
Cereals	Decis 100EC	Bulgaria	Registration expired	Deltamethrin	EC	100 g/L	0.075-0.125 L/ha	0.075 L/ha	
Cereals	Decis Mega	Poland	R-9/2012	Deltamethrin	EW	50 g/L	0.1-0.125 L/ha	0.125 L/ha	
Cereals	Proteus OD110	Slovakia	07-05-0901	Deltamethrin Thiacloprid	OD	110 g/L	0.5-0.7 L/ha	0.5-0.7 L/ha	
Cereals	Proteus OD110	Hungary	01578	Deltamethrin Thiacloprid	OD	110 g/L	0.5 L/ha	0.5 L/ha	
Cereals	Proteus OD110	Romania	2522	Deltamethrin Thiacloprid	OD	110 g/L	0.4 L/ha	0.5 L/ha	
Cereals	Proteus OD110	Bulgaria	539-3/28.04.2016	Deltamethrin Thiacloprid	OD	110 g/L	0.5-0.625 L/ha	0.5-0.7 L/ha	
Cereals	Proteus OD110	Czech Republic	4607-1	Deltamethrin Thiacloprid	OD	110 g/L	0.5 L/ha	0.5-0.75 L/ha	
Cereals	Proteus OD110	Latvia	0275	Deltamethrin Thiacloprid	OD	110 g/L	0.6-0.75 L/ha	0.6 L/ha	

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

It should be noted that for some uses comparisons to reference products, that are not registered for these particular uses, have been made. The reason for this is that activity of these reference standards against certain pests/pest groups is either very well and widely known and this allows to better realize the performance of the test product, or registration of the reference product has been withdrawn during or after trial period.

Formulation codes used for the experimentation of DLT+FPF EC85

DLT+FPF EC85 has been evaluated under the following name/formulation:

Name	Formulation code
DELTAMETHRIN+BYI02960	SP102000028562
BYI02960+DELTAMETHRIN	
SIVANTO+DELTAMETHRIN	
FLUPYRADIFURONE+DELTAMETHRIN EC85	
DLT+FPF EC85	
Sivanto energy	

Methodology

The methodology used in efficacy GEP trials is highlighted below.

All selected efficacy studies were designed according to GEP, and were conducted and reported according to general EPPO standards:

PP1/152(3/4): 'Design and analysis of efficacy evaluation trials';

PP1/181(3/4): 'Conduct and reporting of efficacy evaluation trials including good experimental practice';

PP1/135(2/3/4): 'Phytotoxicity assessment';

PP1/239(1/2): 'Dose expression of plant protection products'

and the specific EPPO standards:

- On corn:
  - PP1/013(3): "*Ostrinia nubilalis* on corn"
  - PP1/295(1): "*Helicoverpa armigera* on vegetables or ornamentals"
  - PP1/274(1): "*Diabrotica virgifera* adults"
  - PP 1/245(1): "Aphids on corn"
- On cereals
  - PP1/236(1) *"Oulema* spp. on cereals"
  - PP1/020(3) "Aphids on cereals"
  - PP1/126(2) "*Eurygaster integriceps*"
- On sunflower:
  - PP1/231(1) Aphids in sunflower

No specific EPPO standards are available for:

- *Helicoverpa armigera* on corn
- *Lygus* sp. on sunflower
- *Scaphoideus titanus* on grape

Additionally, the recommendations of the specific EPPO standard PP1/225(2): 'Minimum effective dose' were also considered to conduct minimum effective dose trials.

More details on specific methodologies used in trials and possible deviations from the recommendations of EPPO standards are reported in chapter 3.2.3.

Statistical analyses of the data

Analyses are carried out by SAS PROC GLM, which uses the method of least squares to fit general linear models. The statistical model is a randomized complete block with fixed effects. Data are transformed before analysis to improve normality according to the following conventions: proportions and percentages are transformed to angles with arc sin square root, ratios and wide ranges are transformed to log10(x+1) and counts to square-root (x+0.5). Homogeneity of treatment variance is tested with Levene's test.

Means are compared with the Student-Newman-Keuls test at p=0.05. Treatment means which are not significantly different are labelled with the same letter. The label ""-"" indicates that the F-test of the treatment effect was not significant (p>0.05) and that all treatments are not significantly different from each other.

An assessment is not analysed if:

- it has fewer than 2 replicates of non-missing values;
- it has fewer than 5 different values;

- it is calculated with a formula which gives the same result for every replicate (e.g. Abbott Efficacy); analysis is impossible because there is no variance.
- it is calculated with one of these formulae: Abbott efficacy, Henderson & Tilton, Schneider-Orelli and relative. The original variables are more suitable for the analysis.
- it is a visual assessment of phytotoxicity, discrete scales, measures of time, poorly-defined units, judgement scales, currency values or treatment averages.

Technical notes: SAS: SAS Institute Inc., 100 SAS Campus Drive, Cary, NC 27513-2414, USA. (www.sas.com).

Formula used /efficacy calculations

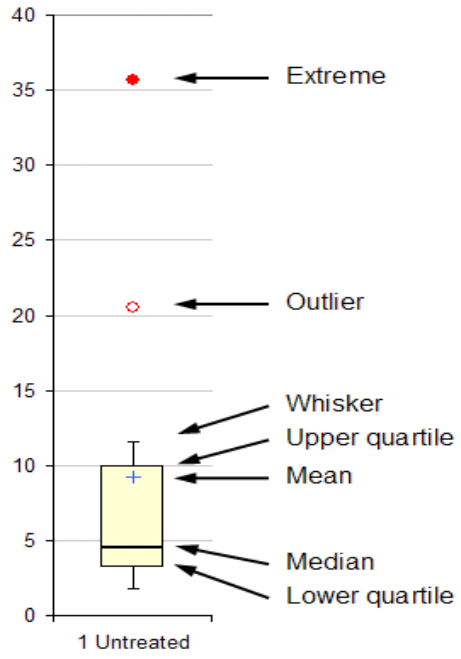
Efficacy – Abbott

$$\%\,Efficacy = \left(1 - \frac{T}{C}\right) x100$$

Where T = means level in the treated plots & C = means level in the untreated plot.

Use of box plots

To enable a better understanding of the figures used in chapter 3.2.2 - Minimum effective dose tests a short lexicon is presented below.



Description

- The black line across the box is the **median**. The median is the middle value when all the data points are sorted in order.
- The box lies between the **lower quartile** and the **upper quartile**. These are also known as the 25th and 75th percentiles. The length of the box is the inter-quartile range.
- Therefore, the middle half of the data values lie inside the box.
- The **mean** is shown with a blue cross +. This can sometimes be outside the box.
- The vertical lines are the **whiskers**. The whiskers extend to the highest and lowest data values.
- If there are any points more than 1½ box lengths from the end of the box, they are shown separately. These points are called **outliers**. These are data values which are unusually large or small. They are shown with a red empty circle ○. The whiskers still end at a data value but not the highest or lowest.
- Data values more than 3 box lengths beyond the box are the **extremes**. They are shown with a red filled circle ●.
- A box plot may also be horizontal.

Justification for dataset

The EU regulatory Central zone covers countries from the EPPO South-East, Mediterranean, Maritime and North-East climatic zones as described in EPPO standard PP1/241 "*Guidance on comparable climates*". This submission includes trial data from the EPPO Maritime EPPO climatic zone: the Czech Republic; South-East climatic zone: Hungary, Romania and Slovakia and North-East EPPO climatic zone: Poland. Furthermore, additional data from Bulgaria from the EPPO South-East climatic zone of the EU Regulatory Southern zone and Latvia and Lithuania from the EPPO North-East climatic zone, EU Regulatory Northern zone is used when relevant in the data compilations as supportive data.

Therefore, all the presented trial data in this document is considered to be valid for the submission to EU Regulatory Central zone since the pests, cultural practices, soil type and weather conditions could be considered to be sufficiently similar.

Principles for data grouping - Efficacy trials

To ease the reading, the evaluated efficacy data are presented per crop and per proposed use as **USE 001-USE 010**.

The list of presented uses (number, target pathogen, crop) is presented in **Table 3.2-10** below.

Table 3.2-10: Uses presented in this dossier (number, target pest, crop)

No.	Crop	Pest
Corn and related crops		
USE 001	Corn, sweet corn, sorghum, millet	PYRUNU
USE 002	Corn, sweet corn, sorghum, millet	HELIAR
USE 003	Corn, sweet corn	DIABVI
USE 004	Corn, sweet corn, sorghum, millet	1APHIF
Cereals		
USE 005	Wheat, barley, rye (winter and spring)	OULESP
USE 006	Wheat, barley, rye (winter and spring)	MACSAV/RHOPPA
USE 007	Wheat, barley, rye (winter and spring)	EURYSP
Sunflower		
USE 008	Sunflower	ANURHE
USE 009	Sunflower	LYGUSP
Grape		
USE 010	Grapevine	SCAPLI

In the data compilation, trial data from EU Regulatory Central Zone is clustered according to the EPPO climatic zone. The supportive/supplementary trials are firstly clustered separately from Central Zone trials, as they belong to a different EU Regulatory Zone with a clear note indicating in which EPPO climatic zone the trial has been conducted and finally they are summarized on the EPPO climatic zone basis together with EU Regulatory Central Zone trials if being considered homogeneous.
All efficacy trials reported in this dossier have been selected for their reliability and in accordance with the relevant EPPO standard, with a sufficient pest pressure (depending on the target pest) and with the expected pest control obtained by the reference products. Some trials which did not meet one of these criteria could still be selected to support the dossier, either when the data package was limited or when the reliability of the concerned trial was high. In this case they are clearly highlighted in the respective discussion.
Results of individual trials of DLT+FPF EC85 against target pests are available in 'Compilation of Trial Reports' (CTR) as follows:

Corn	
M-687456-02-1	CTR PYRUNU & HELIAR in corn
M-688139-01-1	CTR DIABVI in corn
M-687450-02-1	CTR Aphids in corn
Cereals	
M-689778-02-1	CTR OULESP in cereals
M-689779-02-1	CTR aphids in cereals
M-689780-02-1	CTR EURYSP in cereals
Sunflower	
M-689795-02-1	CTR ANURHE/LYGUS in sunflower
Grape	
M-687453-01-1	CTR SCAPLI in grape

Trials are grouped according to countries and EPPO climatic zones defined by EPPO standard PP1/241(2) where they were conducted.
The efficacy values were generated considering the most appropriate assessment intervals for each assessed parameter according to the relevant EPPO standards.
Additionally, yield and quality of cereals were assessed after harvest in most efficacy trials. They are reported in Chapter 3.2.3 (Efficacy tests) of Chapter 3.4 (Adverse effects on treated crops), with the absolute value for the untreated plots and the % relative (%REL) to untreated for treatments.

Crop safety assessments conducted in efficacy trials, through evaluation of general occurrence of phytotoxicity, are presented and discussed as adverse effect of the treatments on the treated crop in Chapter 3.4.1.
The evaluation of the product complies with the Uniform Principles.

Major / minor status of intended uses
Major/minor status of intended uses is listed in the **Table 3.2-11** below.

Table 3.2-11: Major / minor status of intended uses (for all cMS and zRMS).

Crop	Crop status		Pests or group of pests controlled	Pest status	
	Major	minor		Major	minor
Corn (ZEAMX)	CZE HUN POL ROU SVK SVN		*Ostrinia nubilalis* PYRUNU	CZE, HUN, POL*, ROU, SVK, SVN	
			Helicoverpa armigera HELIAR	HUN, POL*, ROU, SVK, SVN	CZE
			Diabrotica virgifera virgifera DIABVI	CZE, HUN, POL*, ROU, SVK, SVN	
			Sitobion avenae MACSAV	HUN, POL*	CZE, ROU, SVK, SVN
			Rhopalosiphum padi RHOPPA	CZE, HUN, POL*, SVK	ROU, SVN
			Rhopalosiphum maidis RHOPMA	CZE, HUN, POL*, ROU	SVK, SVN
Sweet corn (ZEAMS)	HUN	CZE POL ROU SVK SVN	*Ostrinia nubilalis* PYRUNU	HUN, POL*, ROU	CZE, SVK, SVN
			Helicoverpa armigera HELIAR	HUN, POL*, ROU	CZE, SVK, SVN
			Diabrotica virgifera virgifera DIABVI	HUN, POL*, ROU	CZE, SVK, SVN
			Sitobion avenae MACSAV	HUN, POL*	CZE, ROU, SVK, SVN
			Rhopalosiphum padi RHOPPA	HUN, POL*	CZE, ROU, SVK, SVN
			Rhopalosiphum maidis RHOPMA	HUN, POL*, ROU	CZE, SVK, SVN
Millet, common/ ~~proso~~ (PANMI)		CZE HUN POL ROU SVK SVN	*Ostrinia nubilalis* PYRUNU	HUN, POL*	CZE, ROU, SVK, SVN
			Helicoverpa armigera HELIAR	HUN, POL*	CZE, ROU, SVK, SVN
			Sitobion avenae MACSAV	POL*	CZE, HUN, ROU, SVK, SVN
			Rhopalosiphum padi RHOPPA	POL*	CZE, HUN, ROU, SVK, SVN
			Rhopalosiphum maidis RHOPMA	POL*	CZE, HUN, ROU, SVK, SVN
Sorghum (SORSS)		CZE HUN POL ROU SVK SVN	*Ostrinia nubilalis* PYRUNU	HUN, POL*	CZE, ROU, SVK, SVN
			Helicoverpa armigera HELIAR	HUN, POL*	CZE, ROU, SVK, SVN
			Sitobion avenae MACSAV	POL*	CZE, HUN, ROU, SVK, SVN
			Rhopalosiphum padi RHOPPA	POL*	CZE, HUN, ROU, SVK, SVN
			Rhopalosiphum maidis RHOPMA	POL*	CZE, HUN, ROU, SVK, SVN
Wheat, winter (TRZAW)	POL ROU HUN SVK SVN CZE		*Oulema melanopus* LEMAME	POL, ROU, HUN, SVK, SVN, CZE	
			Oulema gallaeciana LEMALI	POL, ROU, HUN, SVK, SVN, CZE	ROU
			Sitobion avenae MACSAV	POL, ROU, HUN, SVK, SVN, CZE	
			Rhopalosiphum padi RHOPPA	POL, ROU, HUN, SVK, SVN, CZE	
			Eurygaster integriceps EURYIN	ROU, HUN, SVN	SVK, CZE
			Eurygaster maura EURYMA	HUN, SVN	POL, ROU, SVK, CZE

Crop	Crop status		Pests or group of pests controlled	Pest status	
	Major	minor		Major	minor
Wheat, spring (TRZAS)	POL SVK SVN CZE	ROU	*Oulema melanopus* LEMAME	POL, ROU, HUN, SVK, SVN, CZE	
			Oulema gallaeciana LEMALI	POL, ROU, HUN, SVK, SVN, CZE	ROU
			Sitobion avenae MACSAV	POL, ROU, HUN, SVK, SVN, CZE	
			Rhopalosiphum padi RHOPPA	POL, ROU, HUN, SVK, SVN, CZE	
			Eurygaster integriceps EURYIN	ROU, HUN, SVN	ROU, SVK, CZE
			Eurygaster maura EURYMA	HUN, SVN	POL, SVK, CZE
Barley, winter (HORVW)	POL ROU, SVK SVN CZE		*Oulema melanopus* LEMAME	POL, ROU, HUN, SVK, SVN, CZE	
			Oulema gallaeciana LEMALI	POL, ROU, HUN, SVK, SVN, CZE	ROU
			Sitobion avenae MACSAV	POL, ROU, HUN, SVK, SVN, CZE	
			Rhopalosiphum padi RHOPPA	POL, ROU, HUN, SVK, SVN, CZE	
			Eurygaster integriceps EURYIN	ROU, HUN, SVN	SVK, CZE
			Eurygaster maura EURYMA	HUN, SVN	ROU, SVK, CZE
Barley, spring (HORVS)	POL SVK SVN CZE	ROU	*Oulema melanopus* LEMAME	POL, ROU, HUN, SVK, SVN, CZE	
			Oulema gallaeciana LEMALI	POL, ROU, HUN, SVK, SVN, CZE	
			Sitobion avenae MACSAV	POL, ROU, HUN, SVK, SVN, CZE	
			Rhopalosiphum padi RHOPPA	POL, ROU, HUN, SVK, SVN, CZE	
			Eurygaster integriceps EURYIN	ROU, HUN, SVN	SVK, CZE
			Eurygaster maura EURYMA	HUN, SVN	ROU, SVK, CZE
Oat (AVESW, AVESP)	POL SVK CZE	ROU HUN SVN	*Oulema melanopus* LEMAME	POL, ROU, HUN, SVN, CZE, SVK	
			Oulema gallaeciana LEMALI	POL, HUN, SVN, SVK, CZE	ROU
			Sitobion avenae MACSAV	POL, ROU, HUN, SVK, CZE	SVN
			Rhopalosiphum padi RHOPPA	POL, ROU, HUN, SVK CZE	SVN
			Eurygaster integriceps EURYIN	ROU, SVN	HUN, SVK, CZE
			Eurygaster maura EURYMA	SVN	ROU, HUN, SVK, CZE
Sunflower (HELAN)	ROU, HUN SVN SVK CZE	POL	*Brachycaudus helichrysi* (ANURHE)	POL, ROU, SVN, SVK, CZE	
			Lygus sp. (LYGUSP)	POL, ROU, SVN	SVK, CZE
Grapevine (VITVI)	HUN, ROU SVK, SVN	POL	*Scaphoideus titanus* (SCAPLI)	HUN, ROU, SVN	POL, SVK

*status of pests is not specified in Poland for corn (except for *Glishrochilus quadrisignatus*, which is a minor pest in corn) / However, based on EPPO website HELIAR, for example, is “Present with few occurences in Poland” (link).

3.2.1 Preliminary tests (KCP 6.1)

General presentation of the mixture justification

Depending on countries, several insecticides mixtures are registered for the control of insect pests in corn, cereals, sunflower and grapevine. Majority of them are based on pyrethroid molecules, mainly associated either with organo-phosphate (such as chlorpyrifos), or with group 4 insecticides (such as thiacloprid; acetamiprid or thiamethoxam). However, due to health risks or environmental concerns, many of these well-known and widely used active substances are being removed from the market or are under the risk of removal, thus further limiting the choice of chemistry against variety of pests. Therefore, a need arises for a novel compounds or new mixtures for control of broad variety of pests in a number of different crops.

DLT+FPF EC85 is an insecticide mixture associating 2 different insecticides molecules having different properties, spectrum and mode of action. Deltamethrin, belonging to the pyrethroid chemical class (IRAC group 3A) and flupyradifurone, from the butenolide chemical class (IRAC group 4D). Deltamethrin is a broad-spectrum insecticide, targeting sucking and chewing pests, acting by contact and ingestion against all mobile stages (larvae; adults), characterized also as other pyrethroids by a good knock-down effect. Effects on the target pests is obtained via direct contact on the pest, by residual activity (transfer of the insecticide from leaf cuticula to the insect, via tarsal or body contact) or by ingestion. Flupyradifurone is a systemic, xylem mobile insecticide, with a higher activity after oral than after contact uptake, against adults and larvae of sucking pests (aphids, whiteflies, psyllids) and selected chewing pests, including coleopteran and dipteran pests. Its systemic property contributes to its lasting efficacy and ability to control difficult-to be reached pests.

Additionally, the mixture combines 2 active substances with opposite properties, in relation with temperature: there is a well-known negative thermodependency for pyrethroids, including deltamethrin whereas flupyradifurone has a positive thermodependency (M-659248-01-1); a combination of these 2 molecules has then the capability to be effective in a broad range of temperature conditions, from end of winter/beginning of spring (e.g. against leafhoppers, aphids, stem weevils) to spring/summer (e.g. aphids, borers, bugs, seed pod pests).

Due to reasons stated above, when used as products containing solo active substances, both compounds because of their properties have certain weaknesses against some pest groups or particular species. Therefore, it is assumed, that when combined into the mixture it will negate those drawbacks and provide high level of control against these target pests individually and when dealing with a complex of pests, increasing the spectrum and efficacy considerably.

At the same time, it is expected, that the mixture will provide a higher level of control than products containing the same amount of solo active substances (deltamethrin or flupyradifurone) or equivalent level of control to products containing higher amount of solo active substances. That approach would let to achieve either the same level of control by reducing the amount of each individual active substance or improved control and increased spectrum over each individual active substance used at the equivalent rate.

In order to justify the mixture a series of field trials have been carried out by Bayer CropScience in Europe. The justification of the mixture is supported by field trials results against the major pests in corn – *Ostrinia nubilalis, Helicoverpa armigera* and *Diabrotica virgifera virgifera*; in cereals – *Oulema* spp., *Sitobion avenae* and *Eurygaster* spp.; in sunflower – *Brachycaudus helichrysi* and *Lygus* sp.; in grape – *Scaphoideus titanus*. In these trials the efficacy of the mixture was compared with the efficacy of the single active substances in order to investigate the potential benefits as defined in the EPPO standard PP 1/306 (1): General principles for the development of co-formulated mixtures of plant protection products. The considerations of this insecticide mixture for resistance management are addressed in 3.3. Information on the occurrence or possible occurrence of the development of resistance.

Field trials results will be presented and discussed by target pests, in relation with the main timing of applications and by EPPO climatic/EU regulatory zone.

USE 001: Justification of the mixture: *Ostrinia nubilalis* (PYRUNU)

Material and methods

In order to evaluate the justification of the mixture of DLT+FPF EC85 on *Ostrinia nubilalis* in corn, a series of 14 field trials was implemented across Europe from 2014 to 2018. According to EPPO climatic zone this field trial series was spread as follow: 4 trials in Maritime EPPO climatic zone, and 10 trials in the South-East EPPO climatic zone.

The number of trials conducted in each EPPO climatic zone and country is shown in **Table 3.2-12** below.

Table 3.2-12: Distribution of trials according to EPPO climatic zones and countries.

EPPO climatic zone	Regulatory Zone	Country	Year	Number of trials		
				Total per year	Total by country	Total
Maritime	Central	Czech Republic	2014	2	4	14
			2018	2		
South-East	Central	Hungary	2014	3	3	
		Slovakia	2014	3	4	
			2018	1		
		Romania	2018	1	1	
	Southern	Bulgaria	2014	1	2	
			2018	1		

All the trials were conducted under GEP by officially recognized testing organisations and followed the appropriate EPPO standards.

The detailed methodology of these trials is described in chapter 3.2.3 Efficacy tests since they are used in both chapters.

Single trial reports are given in the Compilation of Trial Reports M-687456-02-1 with the corresponding trial list.

DLT+FPF EC85 was tested in corn for the control of *Ostrinia nubilalis* at 0.75 L/ha (7.5+56.25 g a.s./ha) and compared to flupyradifurone (designated as "FPF") at 56.25 g a.s./ha and deltamethrin (designated as "DLT") at 7.5 g a.s./ha.

Details on test product dosages are presented in **Table 3.2-13** below.

Table 3.2-13: Dosages of DLT+FPF EC85 used to justify the mixture.

Product	Formulated product dosages	Single substances dosages (g a.s/ha)	
		Deltamethrin (DLT)	Flupyradifurone (FPF)
DLT+FPF EC85	0.75 L/ha	7.5	56.25
FPF SL200	0.28 L/ha	-	56.25
DLT (various formulations)	-	7.5	

Results

In the summary **Table 3.2-14** below, comparison between formulated product and single substances applied straight are presented. Trials from the Maritime and South-East EPPO climatic zones are presented separately and then grouped as the results are comparable in both EPPO climatic zones.

Table 3.2-14: Efficacy of DLT+FPF EC85 on *Ostrinia nubilalis*: justification of the mixture. Efficacy on counting number of larvae per plant at BBCH crop stage 75.

EU regulatory zone	EPPO climatic zone	Trial number	Sample size (plants)	Days after appl.	BBCH crop stage	*UNTREATED* *number of larvae per plant*	**DLT+FPF EC85 0.75 L/ha (56.25+7.5 g a.s./ha)**	DLT 7.5 g a.s./ha	FPF 56.25 g a.s./ha (SL200)
							% of efficacy (Abbott)		
Central	Mar	**Mean of 4 trials**	20	38 to 47	75 to 79	*0.44*	**87.40**	84.19	56.45
		(Min-Max)				*(0.23-0.7)*	***(68.6-97.2)***	*(77.1-97.2)*	*(17.1-74.6)*
Central (8)+Southern (2)	S-E	**Mean of 10 trials**	20	7 to 44	73 to 83	*0.99*	**88.4**	87.9	64.0
		(Min-Max)				*(0.14-2.2)*	***(72.2-97.6)***	*(66.7-100)*	*(0.0-94.6)*
Central+ Southern	S-E + Mar	**Mean of 14 trials**	20	7 to 47	73 to 83	*0.83*	**88.1**	87.8	58.4
		(Min-Max)				*(0.14-2.2)*	***(68.6-97.6)***	*(66.7-100)*	*(0.0-94.6)*

S-E= South-east, Mar=Maritime, DLT=deltamethrin, FPF=flupyradifurone

Discussion about the mixture justification – O. nubilalis

Within the 14 valid trials presented from Maritime and South-East EPPO climatic zones, the level of efficacy of DLT+FPF EC85 and references are statistically better than in untreated (see chapter 3.2.3 Efficacy tests).

Maritime EPPO climatic zone:

Within the 4 trials from Maritime EPPO climatic zone, the level of infestation of *Ostrinia nubilalis* varies from 0.23 to 0.7 larvae per plant with a mean of 0.4 larvae per plant.

For the Maritime EPPO climatic zone, flupyradifurone applied straight at 56 g a.s./ha bring a level of efficacy of 56.45% in mean of 4 trials. DLT+FPF EC85 at 0.75 L/ha is, in trend, slightly better than deltamethrin at 7 to 7.5 g a.s./ha (87.4% versus 84.2% of efficacy in mean in 4 trials).

South-East EPPO climatic zone:

Within the 10 trials from South-east EPPO climatic zone the level of infestation of *Ostrinia nubilalis* varies from 0.14 to 2.2 larvae per plant with a mean of 0.99 larvae per plant.

For the South-East EPPO climatic zone, flupyradifurone applied straight at 56 g a.s./ha bring a level of efficacy of 64.0% in mean of 10 trials. DLT+FPF EC85 at 0.75 L/ha is, in trend, slightly better than deltamethrin at 7 to 7.5 g a.s./ha (88.4% versus 87.9% of efficacy in mean of 10 trials).

Maritime and South-East EPPO climatic zones:

Within the 14 valid trials from Maritime and South-East EPPO climatic zone, the level of infestation of *Ostrinia nubilalis* varies from 0.1 to 2.2 larvae per plant with a mean of 0.8 larvae per plant.

Based on the results, DLT+FPF EC85 at 0.75 L/ha is, in trend, slightly better than deltamethrin applied straight at 7 to 7.5 g a.s./ha (88.1% versus 87.8% of efficacy in mean of 14 trials). Flupyradifurone applied straight at 56 g a.s./ha bring a level of efficacy of 58.4% which is clearly lower than the mixture.

To complete the analysis for both EPPO climatic zones, hereafter is a boxplot graph in **Figure 3.2-1** showing the consistency of efficacy results for the set of the 14 trials. This graph well underlined the better homogeneity in results with the mixture DLT+FPF EC85 versus the active substances used straight.

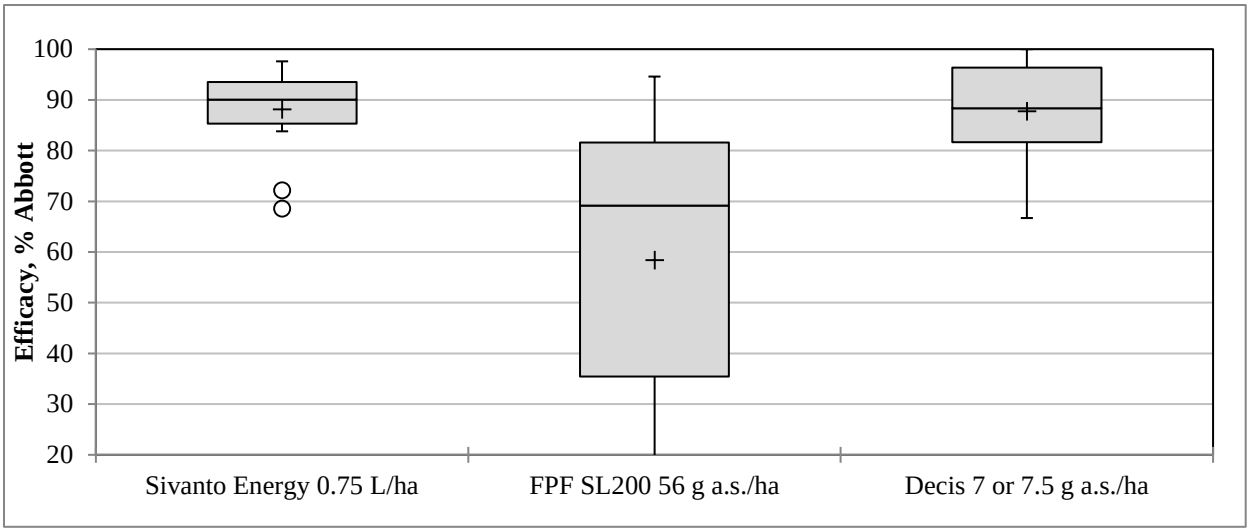


Figure 3.2-1: Mixture justification of DLT+FPF EC85 in 14 trials conducted in Central zone (Maritime and South-East EPPO climatic zones) on *Ostrinia nubilalis*

Conclusion about the mixture justification

Based on the findings of the analysis of the 14 trials, it could be concluded that the addition of flupyradifurone to deltamethrin is clearly justified for the Maritime and South-East EPPO climatic zone with a better efficacy and consistency in results for the mixture than the active substance applied straight at the same dose.

USE 002: Justification of the mixture: *Helicoverpa armigera* (HELIAR) in corn

Material and methods

In order to evaluate the justification of the mixture of DLT+FPF EC85 on *Helicoverpa armigera* in corn, a series of 8 field valid trials was implemented across Europe from 2014 to 2018. As *Helicoverpa a.* is polyphagous and as in efficacy part, it is demonstrated that the products (standards and DLT+FPF 85EC) have the same behaviour whatever the crop (corn or tomato) with similar doses, then the results will be presented as follow:

- 4 field corn trials from the South-East EPPO climatic zone conducted in 2014 and 2018 with 4 3 trials from EU regulatory Central zone (Slovakia and Hungary) and 1 supportive trial from EU regulatory Southern zone (Bulgaria) according to PP1/241(2) - Guidance on comparable climates
- 4 tomato field trials from the South-East EPPO climatic zone conducted in 2018 with 2 trials from EU regulatory Central zone (Romania) and 1 supportive trial from EU regulatory Southern zone (Bulgaria). Those tomato trials are presented to support the use on corn according to EPPO "PP1/226 (3) Number of efficacy trials" and justification is provided in chapter 3.2.3.

There are no trials to support North-East and Maritime EPPO climatic zone for respectively Poland and the Czech Republic. However, as this pest is minor in Poland and the Czech Republic according to EPPO website, it is proposed to use the trials from South-East EPPO climatic zone as supportive for both EPPO climatic zones.

All trials were carried out in field conditions, with natural infestations.

Single trial reports are given in the Compilation of Trial Reports M-687456-01-1 with the corresponding trial list.

The number of trials conducted in each crop and EPPO climatic zone and country is shown in **Table 3.2-15** below.

Table 3.2-15: distribution of **corn** and **tomato** trials according to EPPO climatic zones and countries.

EPPO climatic zone	Crop	Regulatory Zone	Country	Year	Number of trials			
					Total by year	Total by crop	Total by country	Total
South-East	ZEAMX	Southern	Bulgaria	2014	1	4	1	8
		Central	Hungary	2018	1		1	
			Slovakia	2014	2		2	
				~~2018~~	~~1~~			
	LYPES	Southern	Bulgaria	2018	~~3~~ 2	4	2	
		Central	Romania	2018	2		2	

All the trials were conducted under GEP by officially recognized testing organisations and followed the appropriate EPPO standards.
As it is impossible to predict which lepidoptera will occur in field trials (*Ostrinia nubilalis* or *Helicoverpa armigera* or both), the trials follow the specific EPPO standard PP1/013(3) *Ostrinia nubilalis* on corn with specific recommendation for assessments on *Helicoverpa armigera* so that trials can be used for *Ostrinia nubilalis* or *Helicoverpa armigera* or both.
Tomato trials followed the requirements of the specific EPPO standard PP1/295(1) *Helicoverpa armigera* on vegetables or ornamentals.
The detailed methodology of these trials is described in chapter 3.2.3 Efficacy tests since they are used in both chapters.
DLT+FPF EC85 was tested in corn for the control of *Helicoverpa armigera* at 0.75 L/ha (7.5+56.25 g a.s./ha) and compared to flupyradifurone (designated as "FPF") at 56.25 g a.s./ha and deltamethrin (designated as "DLT") at 7.5 g a.s./ha.
Details on test product dosages are presented in **Table 3.2-16** below.

Table 3.2-16: Dosages of DLT+FPF EC85 used to justify the mixture

Product	Formulated product dosages	Single substances dosages (g a.s/ha)	
		Deltamethrin (DLT)	Flupyradifurone (FPF)
DLT+FPF EC85	0.75 L/ha	7.5	56.25
FPF SL200	0.28 L/ha	-	56.25
DLT (various formulations)	-	7.5	

Helicoverpa armigera larvae show a strong preference in feeding on inflorescence and fruit parts of crops. The assessments are so done on damaged cobs in corn and damaged fruits on tomato. The most discriminant assessments have been chosen to be presented in this mixture justification part.
On corn, 1 table will show the percentage of efficacy according to the pest incidence recorded two weeks after application.
On tomato, 1 table will show the percentage of efficacy according to the pest incidence recorded one week after the first application.

Results
In the **Table 3.2-17** below, comparison between formulated product and single substances applied straight are presented. Trials are grouped by crop (corn and tomato).

Table 3.2-17: Efficacy of DLT+FPF EC85 on *Helicoverpa armigera*: justification of the mixture. % Efficacy on counting number of plant part infested – pest incidence. Results from corn and tomato trials - South-East EPPO climatic zone

EU regulatory zone	**EPPO climatic zone**	**Crop**	**Trial number**	**Sample size**	**Days after appl**	**BBCH crop stage**	*UNTREATED Frequency on number of infested cobs or plants in %*	**DLT+FPF EC85**	DLT		FPF	
								0.75 L/ha	7.5 g a.s./ha		56.25 g a.s./ha	
								Efficacy (% Abbott) and delta DLT+FPF versus straight ingredients (+/-)				
Central (3) + Southern (1)	S-E	ZEAMX	Mean of 4 trials	50 cobs or 20 plants	14	65 to 73	*46*	**85.4**	83.8	+1.6%	79.9	+5.5%
			(Min-Max)				*(26.0-78.0)*	**(56.9-100)**	(60.8-100)		(44.1-95.8)	
Central (2) + Southern (2)	S-E	LYPES	Mean of 4 trials	100 tomatoes	7	72 to 81	29.2	**83.9**	69.6	+14.3%	82.8	+1.1%
			(Min-Max)				(20.5-39.5)	**(73.7-92.4)**	(50.9-76.6)		(50.9-76.6)	
Southern+Central	S-E	ZEAMX and LYPES	Mean of 8 trials	nr	7 to 14	*nr*	37.6	**84.7**	76.7	+8%	81.4	+3.3%
			(Min-Max)				29.2 to 46	**(56.9-100)**	(50.9-100)		(44.1-95.8)	
			CV					**18.7%**	22.3%		19.9%	

S-E: South-East, DLT=deltamethrin, FPF=flupyradifurone, CV=coefficient of variation, nr=not relevant

- *Discussion about the mixture justification*

In all trials, the level of efficacy of treatments are statistically better than in untreated.
The level of infestation in corn varies from 26 to 78% of cobs or plants infested with a mean of 46% in 4 trials.
For corn, in mean of 4 valid trials, the level of efficacy of DLT+FPF EC85 is equivalent to deltamethrin (1.6% of difference) and is 5.5% better than flupyradifurone.
The level of infestation in tomatoes varies from 20.5 to 39.5% of fruit damaged with a mean of 29.2% in 4 trials.
For tomato, in mean of 4 valid trials, the level of efficacy of DLT+FPF EC85 is 14.3% better than deltamethrin and is 5.5% better than flupyradifurone.
By grouping corn and tomatoes trials from South-East EPPO climatic zone, the level of efficacy of the mixture (84.7%) is clearly better than deltamethrin (76.7%) and equivalent to flupyradifurone (82.8%) applied straight. The results are also less variable with the mixture (CV=18,8) than deltamethrin (CV=22.3%) and than flupyradifurone (CV=19.9%).

- *Conclusion about the mixture justification*

Based on the findings of the analysis of the 8 trials, it could be concluded that the proposed rate of 0.75 L/ha of DLT+FPF EC85 ensures an efficient and much more secured control of *Helicoverpa armigera* in corn than deltamethrin straight in the South-East EPPO climatic zone. Those results can be extrapolated to the other climatic zones for countries where this pest is considered as minor by EPPO organization.

USE 003: Justification of the mixture: *Diabrotica virgifera virgifera* (DIABVI)

Material and methods

In order to evaluate the justification of the mixture of DLT+FPF EC85 on *Diabrotica virgifera virgifera* in corn, a series of 18 trials was implemented across Europe from 2014 to 2018.
In order to avoid duplication and since this trial series is the same as the one presented for efficacy tests, methods used, main characteristics and detailed information about can be reached in chapter **3.2.3**.

Single trial reports are given in the Compilation of Trial Reports M-688139-01-1 with the corresponding trial list.
The number of trials conducted in each EPPO climatic zone and country is shown in **Table 3.2-18** below.

Table 3.2-18: distribution of trials according to EPPO climatic zones and countries.

EPPO climatic zone	Regulatory Zone	Country	Year	Number of trials (valid trials)		
				Total per year	Total by country	Total
North-East	Central	Poland	2017	2	4 (4)	18 (18)
			2018	2		
South-East	Central	Hungary	2015	2	14 (14)	
			2016	2		
			2017	1		
			2018	1		
		Slovakia	2014	2		
			2015	2		
			2016	2		
			2017	1		
			2018	1		

All the trials were conducted under GEP by officially recognized testing organisations and followed the appropriate EPPO standards.
DLT+FPF EC85 was tested in corn for the control of *Diabrotica virgifera virgifera* at the dose of 0.75 L/ha (7.5+56.25 g a.s./ha) and compared to:
- flupyradifurone (designed as "FPF") at 56.25 or 96 g a.s./ha
- deltamethrin (designed as "DLT") at 7.5 or 12.5 g a.s./ha.

The rates of the straight active substances tested deliver from 100% to 178% for DLT and 100% to 175% for FPF of the amount bring by DLT+FPF EC85 at the supported rate of 0.75 L/ha on *Diabrotica virgifera virgifera*.
Efficacy was tested under a range of environmental conditions to fully challenge the product.
Details on test product dosages are presented in **Table 3.2-19** below.

Table 3.2-19: Dosages of DLT+FPF EC85 used to justify the mixture

Product	Formulated product dosages	Single substances dosages (g a.s/ha)	
		Deltamethrin (DLT)	Flupyradifurone (FPF)
DLT+FPF EC85	0.75 L/ha	7.5	56.25
FPF SL200	0.28 L/ha	-	56.25 or 94
DECIS (various formulations)	-	7.5 or 12.5	

Results

In the **Table 3.2-20** below, comparison between formulated product and single substances applied straight are presented. It has to be noticed that even in a same EPPO climatic zone, the pest pressure level can vary depending on countries like for South-East EPPO climatic zone where the Hungarian trials were much more infested than the Slovak ones. Moreover, considering Poland trials, even at a country level, pest pressure varies according to local areas.
Trials from the North-East and South-East EPPO climatic zones are presented all together but sorted by EPPO climatic zone. The results are presented and discussed hereafter by timing of assessment from 2-3 to 21 days after application. A summary merging results from both EPPO climatic zone is proposed at the end.

Table 3.2-20: Efficacy of DLT+FPF EC85 on *Diabrotica virgifera virgifera*: justification of the mixture. % Efficacy on counting number of insects in yellow traps or on plants.

EU regulatory zone	**EPPO climatic zone**	**Number of trials**	**Sample size**	**Days after appl.**	**BBCH crop stage**	UNTREATED number of living insects in yellow traps	**DLT+FPF EC85 0.75 L/ha 7.5+56.25 g a.s/ha**	DLT 7.5 or 12.5* g a.s/ha	FPF SL200 56.25 or 94* g a.s/ha
							% of Efficacy (Abbott) or number of insects for assessments before/at application timing		
Mean from Northeast EPPO climatic zone by assessment timing									
Central	N-E	Mean of 4 trials	3 TRAP	-1	73 to 75	*201.9*	***201.4***	*196.2*	
		(min-max)				*(60.8-333.3)*	*(64.8-307.8)*	*(57.8-306.5)*	
		Mean of 4 trials	3 TRAP	2 to 3	73 to 75	*189.6*	**94.9**	92.4	
		(min-max)				*(48-297.8)*	*(91.7-97.6)*	*(88-95.7)*	
		Mean of 4 trials	3 TRAP	7	75	*211.025*	**82.8**	79.5	
		(min-max)				*(61.3-318)*	*(78.6-87.2)*	*(74.1-82.9)*	
		Mean of 4 trials	3 TRAP	14	83	*184.15*	**46.5**	29.6	
		(min-max)				*(74-247.8)*	*(37.4-62.2)*	*(0-59.1)*	
Mean from South-East EPPO climatic zone by assessment timing									
Central	S-E	Mean of 14 trials	3 TRAP	0	59 to 73	*43.4*	***45.4***	*40.2*	*42.8*
		(min-max)				*(0.0-130.8)*	*(0-141.3)*	*(0.6-126.3)*	*(0.3-129.0)*
		Mean of 12 trials	3 TRAP	2 to 3	59 to 71	*50.5*	**90.5**	90.2	72.6
		(min-max)				*(2.7-179)*	*(65.4-100)*	*(56.8-100)*	*(33.6-100)*
		Mean of 11 trials	3 TRAP	6 to 8	61 to 75	*46.8*	**85.0**	87.2	64.8
		(min-max)				*(1.5-151.0)*	*(50.4-100)*	*(58.7-100)*	*(8.6-100)*
		Mean of 9 trials	3 TRAP	14 to 16	63 to 79	*49.7*	**73.1**	72.1	51.3
		(min-max)				*(1.5-139.7)*	*(39.4-100)*	*(41.8-100)*	*(6.1-100)*
Mean of South-East + North-East EPPO climatic zone									
Central zone (N-E+S-E)		Mean of 18 trials	3 TRAP	-1 to 0	59 to 75	*78.6*	***80.1***	*74.8*	
		(min-max)				*(0-333.3)*	*(0-307.8)*	*(0.6-306.5)*	
		Mean of 16 trials	3 TRAP	2 to 3	59 to 75	91.8	**88.9**	88.8	
		(min-max)				*(2.7-297.8)*	*(55.3-100)*	*(56.8-100)*	
		CV					**16.2%**	16.1%	
		Mean of 15 trials	3 TRAP	7 to 8	61 to 75	90.6	**84.4**	85.1	
		(min-max)				*(1.5-318)*	*(50.4-100)*	*(58.7-100)*	
		CV					**21.0%**	18.1%	
		Mean of 13 trials	3 TRAP	14 to 16	63 to 83	91.1	**64.9**	59.0	
		(min-max)				*(1.5-247.8)*	*(37.4-100)*	*(0-100)*	
		CV					**41.9**	53.7	

N-E=North-East, S-E=South-East, CV=coefficient of variation, DLT=deltamethrin, FPF=flupyradifurone

North-East EPPO climatic zone:

Among the 4 trials that were conducted in Poland for North-East EPPO climatic zone, DLT+FPF EC85 at 0.75 L/ha (7.5+56.25 g a.s/ha) was compared to DLT straight at 12.5 g a.s./ha. The level of efficacy from 2-3 to 1 week after application is equivalent when comparing the mixture to deltamethrin straight. In case of huge pest pressure, one application is not enough to manage this target. A loss of activity starting 14 days after application can be seen. However, DLT+FPF EC85 at 0.75 L/ha provides a longer lasting effect in mean than DLT straight at 12.5 g a.s./ha (respectively 46.5% vs 29.6% of efficacy) with much higher minimum value.

South-East EPPO climatic zone:

Among the 14 valid trials conducted in Hungary and in Slovakia for South-East EPPO climatic zone, and among the valid assessments, different dose rates of flupyradifurone and deltamethrin were tested:

- 4 trials with deltamethrin at 7.5 g a.s./ha and flupyradifurone at 56.25 g a.s./ha (2 in Hungary +2 in Slovakia)
- 4 trials with deltamethrin at 12.5 g a.s./ha and flupyradifurone at 56.25 g a.s./ha (2 in Hungary +2 in Slovakia)
- 6 trials with deltamethrin at 12,5 g a.s./ha and flupyradifurone at 94 g a.s./ha (4 in Hungary +2 in Slovakia)

Based on the results, whatever the dose rates of deltamethrin, for this pest, there is no differences in terms of efficacy when compared to DLT+FPF EC85 at 0.75 L/ha.
Compared to flupyradifurone straight, DLT+FPF EC85 at 0.75 l/ha shows a better efficacy.

Conclusion about the mixture justification across EPPO climatic zones

An analyse merging results from N-E and S-E EPPO climatic is proposed in order to be more consistent as the variability in results trend to be much more linked to pest level infestation and dynamic of population than on weather conditions. Based on the findings, DLT+FPF EC85 0.75 L/ha is slightly better than DLT 7 or 12.5 g a.s./ha with less variability (see coefficient of variation) especially after two weeks following application. This allow a better flexibility in product use for managing *Diabrotica virgifera* on corn. Compared to FPF straight (56.25 or 94 g a.s./ha), the level of efficacy is clearly better with DLT+FPF EC85 0.75 L/ha.

Conclusion about the mixture justification

Based on the findings of the analysis of the trial set, it is concluded that the mixture of DLT+FPF EC85 at the proposed rate of 0.75 L/ha ensures a good control of *Diabrotica virgifera virgifera* in corn both North-East and South-East EPPO climatic zones until 14 days after application that is better than each of the active ingredients applied straight at the same or higher dose rate.

General conclusion and summary for the justification of the mixture in corn

By looking at the 3 main pests occurring on corn, the mixture of deltamethrin and flupyradifurone at the proposed doses is clearly justified in consistence of the 14 trial results for PYRUNU and regarding the level of efficacy for HELIAR (8 trials) and DIABVI (13 trials).
The findings are summarized in the **Table 3.2-21** below.

Table 3.2-21: Summary for mixture justification across EPPO climatic zone – efficacy of the 3 main targets on corn.

Target	Untreated type of data	EPPO climatic zone(s)	number of trials	Untreated	**DLT+FPF (12.5+56.25 g a.s./ha)**	DLT (7.5 or 12.5 g a.s./ha)	FPF (56.25 or 94 g a.s./ha)
PYRUNU	Pest severity (nb. of larvae per plant) at 11 to 29 days after application (corn BBCH75)	Mar + S-E	14	0.44	**88.1**	87.8	58.4
HELIAR	Pest incidence (number of plants infested in %) at 2 weeks after application	S-E	8	37.6	**84.7**	76.7	81.4
DIABVI	Pest incidence (number of adult in 3 yellow traps) at 2 weeks after application	N-E + S-E	13	98.3	**64.9**	59.0	n.c.*

*n.c.: not concerned because not all trials tested FPF straight. As information, in 9 trials out of 13, the mean across EPPO climatic zone was of 53.1%.

The product's evaluation complies with Uniform Principles.

USE 005: Justification of the mixture: cereal leaf beetles *Oulema* spp. (OULESP)

In order to justify the mixture DLT+FPF EC85 against cereal leaf beetles *Oulema melanopus* (LEMAME) and *Oulema gallaeciana* (LEMALI) in cereals, a series of field trials was implemented in Europe by Bayer CropScience between 2014 and 2017. Both species are termed *Oulema* spp. (OULSEP) and this name is used in the text and tables henceforth.

Trials were carried out in countries belonging to Central EU Regulatory Zone – Hungary (3), Slovakia (5) and Romania (1) – belonging to South-East EPPO climatic zone; the Czech Republic (9) – belonging to Maritime EPPO climatic zone and Poland (1) – belonging to North-East EPPO climatic zone. Additionally, 3 trials conducted in Bulgaria, a country belonging to EU Regulatory Southern zone and 3 trials conducted in Latvia, a country belonging to EU Regulatory Northern zone, were included into evaluation as supportive data to expand South-East and North-East EPPO climatic zones datasets. All trials were carried out in field conditions, with natural infestations.

Trials were designed, conducted and reported in accordance to general EPPO standards PP1/135(2/4), PP1/152(3/4), PP1/225(2) and PP1/181(3/4), to the specific standard PP1/231(1) and comply with Good Experimental Practices.

It should be noticed that these trials are also part of the data package presented for Minimum effective dose tests in chapter 3.2.2 and Efficacy tests in chapter 3.2.3, where the methodology of the trials is described in detail.

Single trial reports are given in the Compilation of Trial Reports M-689778-02-1 with the corresponding trial list.

The number of trials conducted in each EU regulatory zone and country is shown in **Table 3.2-22** below.

Table 3.2-22: Distribution of the trials presented to justify the mixture DLT+FPF EC85 against OULESP in cereals.

Crop	EPPO climatic zone	Regulatory Zone	Country	Year	Number of trials	Total	
						Total per country	Total per clim. zone
Cereals	Maritime	Central	Czech Republic	~~2016~~ 2014	5	9	9
				~~2014~~ 2016	2		
				2015	2		
	South-East		Romania	2017	1	1	12
			Hungary	2015	2	3	
				2016	1		
			Slovakia	2014	1	5	
				2015	2		
				2016	1		
				2017	1		
		Southern	Bulgaria	2015	1	3	
				2017	2		
	North-East	Central	Poland	2016	1	1	4
		Northern	Latvia	2016	2	3	
				2018	1		
Total	**All EPPO climatic zones**		**Cereals**				**25**

Damage caused by the leaf beetles belonging to genus *Oulema* is mainly attributed to feeding of its larvae on the leaves of cereals. Larvae feed on epidermis of the leaves, causing long discoloured stripes, which can converge together, forming regions on leaf surface. As superficial layers of the leaves are striped of tissues responsible for photosynthesis, photosynthetic capacity is then impaired, resulting in suboptimal development of the plant and, consequently, yield of the crop. The assessment for the evaluation of the efficacy of the products consists of counting the number of living insects of different life stages (adult beetles and larvae) on leaves of infested plant and determining the extent of damage on flag leaves caused by larvae, reported as % of damaged leaf area.

To justify the mixture, the efficacy of DLT+FPF EC85 at the supported rate – 0.5 L/ha – has been investigated, in comparison to Decis (various formulations) and FPF SL200, at rates delivering respectively the same amount of deltamethrin and flupyradifurone as DLT+FPF EC85, against the cereal leaf beetles. As number of available trials in North-East EPPO climatic zone was relatively low and different dose rates of DLT in those trials were used, comparison to DLT at 6.25 g a.s./ha and 7.5 g a.s./ha was also presented, in order to include additional trials into the mixture justification and maximize the dataset.
The tested rates are presented in **Table 3.2-23**.

Table 3.2-23: Tested rates of DLT+FPF EC85; FPF SL200; DLT formulations against the cereal leaf beetles *Oulema melanopus* and *Oulema gallaeciana*, for the justification of the mixture.

Product	Formulated product dosages	Single substances dosages (g a.s./ha)	
		Deltamethrin (DLT)	Flupyradifurone (FPF)
DLT+FPF EC85	0.5 L/ha	5	37.5
FPF SL200	0.1875 L/ha	-	37.5
DECIS EXPERT	0.05 L/ha	5	-
DECIS EW 15	0.3333 L/ha	5	-
DECIS MEGA	0.125 L/ha	6.25	
	0.15 L/ha	7.5	

In all DLT formulations included in the trials, the active substance is solubilized in a solvent. These formulations have shown to be comparable regarding efficacy against the target pests – therefore results of the various DLT products are grouped together.

Results in South-East EPPO climatic zone

Table 3.2-24 below presents the overall efficacy of DLT+FPF EC85 against OULESP in cereals in comparison to products containing equivalent amount of solo active substances, assessed 1 (immediate effect), 3–4 (mid-term) and 6–10 days (long-term effect) after application.

Table 3.2-24: Overall efficacy of the mixture DLT+FPF EC85 against OULESP in cereals in comparison to products containing equivalent amount of solo active substances.

Overall summary						**Abbott % (efficacy)**					
EPPO climatic zone	**Timing of assessment**	**Assessment**	**No. of results**	**PESSEV**		**DLT+FPF EC85**		**DLT**		**FPF SL200**	
						0.5 L/ha		**5 g a.s./ha**		**37.5 g a.s./ha**	
				Mean	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***
Effect on larvae											
S-E CZ+SZ	Immediate effect	larvae/leaf	6	*1.3*	*.1-3.3*	***80.4***	*63.6-94.4*	*64.0*	*4.1-86.2*	*66.9*	*6.7-93.1*
	Short-term effect	larvae/leaf	9	*1.6*	*.4-3.7*	***89.8***	*77.8-100*	*78.1*	*2.6-96.6*	*85.4*	*6.0-100*
	Mid-term effect	larvae/leaf	10	*1.3*	*.2-3.8*	***94.3***	*84.8-100*	*80.4*	*8.1-100*	*85.4*	*4.3-100*
S-E CZ	Immediate effect	larvae/row-meter	1	*159.8*		***92.6***	-	*80.4*	-	*79.9*	-
	Long-term effect			*187.4*		***98.4***	-	*81.7*	-	*72.6*	-
S-E CZ	Mid-term effect	larvae/row-meter	1	*28.3*		***98.5***	-	*98.7*	-	*89.4*	-
	Long-term effect			*41.6*		***99.4***	-	*100*	-	*89.8*	
Effect on adults											
S-E CZ	Short-term effect	adults/leaf	3	*0.8*	*.1-1.8*	***94.4***	*85.7-100*	*76.9*	*3.1-80.5*	*78.9*	*1.4-92.7*
S-E CZ	Mid-term effect	adults/leaf	3	*0.4*	*.1-0.5*	***98.7***	*96.0-100*	*87.9*	*0.0-97.9*	*94.5*	*1.4-100*
Reduction of damage											
S-E CZ+SZ	Short-term effect	% damaged flag leaf area	6	*25.5*	*.4-46.3*	***75.6***	*42.4-100*	*73.6*	*4.1-89.1*	*61.2*	*3.5-90.9*
S-E CZ+SZ	Mid-term effect	% damaged flag leaf area	8	*33.9*	*3.9-72.5*	***71.9***	*23.5-100*	*63.0*	*7.4-93.6*	*58.6*	*1.6-100*

Discussion on the justification of the mixture against OULESP in cereals, South-East EPPO climatic zone

Comparisons between DLT+FPF EC85 0.5 L/ha and FPF SL200 37.5 g a.s./ha or DLT 5 g a.s./ha demonstrate, that the mixture exhibits higher efficacy against larvae (immediate effect) than DLT at 5 g a.s./ha in 4 trials from 6 with an average positive effect of 16.5% in favour of the mixture, and than FPF SL200 at 37.5 g a.s in all 6 trials with an average positive effect of 13.5% (**Table 3.2-25**).

In terms of short-term effect against larvae, comparisons between DLT+FPF EC85 0.5 L/ha and FPF SL200 37.5 g a.s./ha or DLT 5 g a.s./ha demonstrate, that the mixture exhibits higher efficacy than DLT at 5 g a.s./ha in 8 trials from 9 with an average positive effect of 11.7% in favour of the mixture, and than FPF SL200 at 37.5 g a.s in 6 trials from 9 with an average positive effect of 4.4% in favour of the mixture.

In terms of short-term effect against adults, comparisons between DLT+FPF EC85 0.5 L/ha and FPF SL200 37.5 g a.s./ha or DLT 5 g a.s./ha demonstrate, that the mixture exhibits higher efficacy than DLT at 5 g a.s./ha in all 3 trials with an average positive effect of 17.5% in favour of the mixture, and than FPF SL200 at 37.5 g a.s in all 3 trials with an average positive effect of 15.6% in favour of the mixture.

In terms of effect on leaf damage reduction, comparisons between DLT+FPF EC85 0.5 L/ha and FPF SL200 37.5 g a.s./ha or DLT 5 g a.s./ha demonstrate, that the mixture exerts better ability to reduce the extent of damaged area of flag leaf surface than DLT at 5 g a.s./ha in 5 out of 6 trials with an average positive effect of 2% in favour of the mixture, and than FPF SL200 at 37.5 g a.s in 5 out of 6 trials with an average positive effect of 14.4% in favour of the mixture.

In terms of mid-term effect against larvae, comparisons between DLT+FPF EC85 0.5 L/ha and FPF SL200 37.5 g a.s./ha or DLT 5 g a.s./ha demonstrate, that the mixture exhibits higher efficacy than DLT at 5 g a.s./ha in 8 trials from 10 with an average positive effect of 13.9% in favour of the mixture, and than FPF SL200 at 37.5 g a.s in 8 trials from 10 with an average positive effect of 8.9% in favour of the mixture.

In terms of mid-term effect against adults, comparisons between DLT+FPF EC85 0.5 L/ha and FPF SL200 37.5 g a.s./ha or DLT 5 g a.s./ha demonstrate, that the mixture exhibits higher efficacy than DLT at 5 g a.s./ha in all 3 trials with an average positive effect of 10.8% in favour of the mixture, and than FPF SL200 at 37.5 g a.s in 2 trials from 3 with an average positive effect of 4.2% in favour of the mixture.

In terms of effect on leaf damage reduction for extended period, comparisons between DLT+FPF EC85 0.5 L/ha and FPF SL200 37.5 g a.s./ha or DLT 5 g a.s./ha demonstrate, that the mixture exerts better ability to reduce the extent of damaged area of flag leaf surface than DLT at 5 g a.s./ha in 7 out of 8 trials with an average positive effect of 8.8% in favour of the mixture, and than FPF SL200 at 37.5 g a.s in 6 out of 8 trials with an average positive effect of 13.2% in favour of the mixture.

DLT+FPF EC85 also exhibited more consistent results in terms of data variation based on coefficient of variation when compared to DLT and FPF at almost all assessment timings.

Table 3.2-25: Comparison between DLT+FPF EC85 0.5 L/ha and FPF SL200 37.5 g a.s./ha or DLT 5 g a.s./ha against OULESP, South-East EPPO climatic zone.

Assessment type	Assessment timing	Total number of trials	Number of trials where DLT+FPF EC85 0.5 L/ha > DLT 5 g a.s./ha	Average difference between DLT+FPF EC85 0.5 L/ha and DLT 5 g a.s./ha	Variability of data based on coefficient of variation (CV%)		Number of trials where the mixture is statistically <, =,> to DLT
					DLT+FPF EC85	DLT 5 g a.s./ha	
Larvae count	1 DAA 3-4 DAA 6-10 DAA	6 9 10	4 8 8	+16.5% +11.7% +13.9%	15.6 9.5 5.3	35.2 16.9 22.9	0, 5, 1 0, 5, 4 0, 4, 6
Adults count	1 DAA 3-4 DAA	3 3	3 3	+17.5% +10.8%	8.1 2.3	4.8 10.4	0, 1, 2 0, 3, 0
Reduction of damage (% estimated)	3 DAA 7-9 DAA	6 8	5 7	+2.0% +8.8%	29.1 40.0	19.3 46.1	0, 2, 3 0, 3, 4

Target	Assessment	Total number of trials	Number of trials where DLT+FPF EC85 0.5 L/ha > FPF SL200 37.5 g a.s.	Average difference between DLT+FPF EC85 0.5 L/ha and FPF SL200 37.5 g a.s.	Variability of data based on coefficient of variation (CV%)		Number of trials where the mixture is statistically <, =,> to FPF
					DLT+FPF EC85	FPF SL200 37.5 g a.s.	
Larvae	1 DAA 3-4 DAA 6-10 DAA	6 9 10	6 6 8	+13.5% +4.4% +8.9%	15.6 9.5 5.3	27.3 15.6 13.0	0, 6, 0 0, 7, 2 0, 7, 3
Adults	1 DAA 3-4 DAA	3 3	3 2	+15.6% +4.2%	8.1 2.3	15.2 5.1	0, 2, 1 0, 3, 0
Reduction of damage	3 DAA 7-9 DAA	6 8	5 6	+14.4% +13.2%	29.1 40.0	47.8 52.8	0, 2, 3 0, 4, 3

It can be concluded that the mixture DLT+FPF EC85 at 0.5 L/ha demonstrates a considerably higher and more reliable efficacy against cereal leaf beetles of different life stages (adults and larvae) and exhibits higher potential in reducing the damage caused by these pests than DLT and FPF at equivalent amount of a.s./ha.

Results in Maritime EPPO climatic zone

Table 3.2-26 below presents the overall efficacy of DLT+FPF EC85 against OULESP in cereals in comparison to products containing equivalent amount of solo active substances, assessed 1–2, 3–4 and 6–10 days after application.

Table 3.2-26: Overall efficacy of the mixture DLT+FPF EC85 against OULESP in cereals in comparison to products containing equivalent amount of solo active substances.

Overall summary						Abbott % (efficacy)					
EPPO climatic zone	Timing of assessment	Assessment	No. of results	PESSEV		DLT+FPF EC85		DLT		FPF SL200	
						0.5 L/ha		5 g a.s./ha		37.5 g a.s./ha	
				Mean	*Min-Max*	Mean	*Min-Max*	Mean	*Min-Max*	Mean	*Min-Max*
Effect on larvae											
Maritime CZ	1-2 DAA	larvae/leaf	7	*0.8*	*0.7-1.2*	***95.7***	*87.7-100*	*90.2*	*72.8-100*	*93.4*	*85.2-100*
	3-4 DAA	larvae/leaf	4	*0.7*	*0.2-1.1*	***99.5***	*98.0-100*	*93.1*	*84.2-98.2*	*93.0*	*85.7-96.5*
	6-8 DAA	larvae/leaf	8	*0.7*	*0.5-0.9*	***98.1***	*91.9-100*	*94.1*	*84.9-100*	*94.7*	*83.9-100*
Effect on adults											
Maritime CZ	1-2 DAA	adults/leaf	3	*0.3*	*0.1-0.4*	***89.9***	*81.8-100*	***89.9***	*81.8-100*	*77.5*	*68.0-91.7*
	6-7 DAA	adults/leaf	3	*0.1*	*0.1-0.2*	***69.2***	*64.3-75.0*	*42.2*	*35.7-50.0*	*43.0*	*21.4-667*
Reduction of damage											
Maritime CZ	7-10 DAA	% damaged flag leaf area	9	*15.4*	*1.9-27.5*	***71.4***	*55.0-97.1*	*62.2*	*45.5-89.7*	*62.2*	*40.9-89.6*

Discussion on the justification of the mixture against OULESP in cereals, Maritime EPPO climatic zone

At 1-2 DAA against larvae comparisons between DLT+FPF EC85 0.5 L/ha and FPF SL200 37.5 g a.s./ha or DLT 5 g a.s./ha demonstrate, that the mixture exhibits higher efficacy against larvae (knock-down effect) than DLT at 5 g a.s./ha in 4 trials from 7 with an average positive effect of 5.5% in favour of the mixture, and than FPF SL200 at 37.5 g a.s in 5 trials from 7 with an average positive effect of 2.3% (**Table 3.2-27**).

Against adults, comparisons between DLT+FPF EC85 0.5 L/ha and FPF SL200 37.5 g a.s./ha or DLT 5 g a.s./ha demonstrate, that the mixture exhibits equivalent efficacy to DLT at 5 g a.s./ha and considerably better efficacy than FPF SL200 at 37.5 g a.s in all 3 trials with an average positive effect of 12.5% in favour of the mixture.

At 3–4 DAA comparisons between DLT+FPF EC85 0.5 L/ha and FPF SL200 37.5 g a.s./ha or DLT 5 g a.s./ha demonstrate, that the mixture exhibits higher efficacy against larvae than DLT at 5 g a.s./ha in all 4 trials an average positive effect of 6.4% in favour of the mixture, and than FPF SL200 at 37.5 g a.s in with an average positive effect of 6.5% in favour of the mixture.

At 6–8 DAA against larvae, comparisons between DLT+FPF EC85 0.5 L/ha and FPF SL200 37.5 g a.s./ha or DLT 5 g a.s./ha demonstrate, that the mixture exhibits higher efficacy than DLT at 5 g a.s./ha in 7 trials from 8 with an average positive effect of 4.0% in favour of the mixture, and then FPF SL200 at 37.5 g a.s in 6 trials from 8 with an average positive effect of 3.4% in favour of the mixture.

Against adults, comparisons between DLT+FPF EC85 0.5 L/ha and FPF SL200 37.5 g a.s./ha or DLT 5 g a.s./ha demonstrate, that the mixture exhibits higher efficacy than DLT at 5 g a.s./ha in all 3 trials with an average positive effect of 27.0% in favour of the mixture, and then FPF SL200 at 37.5 g a.s in all 3 trials with an average positive effect of 26.2% in favour of the mixture.

In terms of effect on leaf damage reduction at 7–10 DAA, comparisons between DLT+FPF EC85 0.5 L/ha and FPF SL200 37.5 g a.s./ha or DLT 5 g a.s./ha demonstrate, that the mixture exerts better ability to reduce the extent of damaged area of flag leaf surface than DLT at 5 g a.s./ha in 8 out of 9 trials with an average positive effect of 9.2% in favour of the mixture, and than FPF SL200 at 37.5 g a.s in 8 out of 9 trials with an average positive effect of 9.2% in favour of the mixture.

DLT+FPF EC85 also exhibited more consistent results in terms of data variation based on coefficient of variation and higher precision of estimate based on standard error when compared to DLT and FPF at almost all assessment timings.

Table 3.2-27: Comparison between DLT+FPF EC85 0.5 L/ha and FPF SL200 37.5 g a.s./ha or DLT 5 g a.s./ha against OULESP, Maritime climatic zone.

Target	Assessment	Total number of results	Number of trials where DLT+FPF EC85 0.5 L/ha > DLT 5 g a.s./ha	Average difference between DLT+FPF EC85 0.5 L/ha and DLT 5 g a.s./ha	Variability of data based on coefficient of variation (CV%)		Number of trials where the mixture is statistically <, =,> to DLT
					DLT+FPF EC85	DLT 5 g a.s./ha	
Larvae	1-2 DAA	7	4	+5.5%	5.1	11.0	0, 4, 3
	3-4 DAA	4	4	+6.4%	1.0	6.6	0, 3, 1
	6-8 DAA	8	7	+4.0%	3.1	6.2	0, 6, 2
Adults	1-2 DAA	3	0	0.0%	10.3	10.3	0, 3, 0
	6-7 DAA	3	3	+27.0%	7.8	17.2	0, 3, 0
Reduction of damage	7-10 DAA	9	8	+9.2%	22.8	24.5	0, 7, 2

Target	Assessment	Total number of results	Number of trials where DLT+FPF EC85 0.5 L/ha > FPF SL200 37.5 g a.s.	Average difference between DLT+FPF EC85 0.5 L/ha and FPF SL200 37.5 g a.s.	Variability of data based on coefficient of variation (CV%)		
					DLT+FPF EC85	FPF SL200 37.5 g a.s.	
Larvae	1-2 DAA	7	5	+2.3%	5.1	6.1	0, 6, 1
	3-4 DAA	4	4	+6.5%	1.0	5.4	0, 4, 0
	6-8 DAA	8	6	+3.4%	3.1	5.8	0, 7, 1
Adults	1-2 DAA	3	3	+12.5%	10.3	16.2	0, 3, 0
	6-7 DAA	3	3	+26.2%	7.8	52.8	0, 3, 0
Reduction of damage	7-10 DAA	9	8	+9.2%	22.8	29.3	0, 5, 4

It can be concluded that the mixture DLT+FPF EC85 at 0.5 L/ha demonstrates higher and more reliable efficacy against cereal leaf beetles of different life stages (adults and larvae) and exhibits higher potential in reducing the damage caused by these pests than DLT and FPF at equivalent amount of a.s./ha.

Results in North-East EPPO climatic zone

Table 3.2-28 below presents the overall efficacy of DLT+FPF EC85 against OULESP in cereals in comparison to products containing equivalent amount of solo active substances, assessed 3 and 6–7 days after application.

Table 3.2-28: Overall efficacy of the mixture DLT+FPF EC85 against OULESP in cereals in comparison to products containing equivalent or higher amount of solo active substances.

Overall summary						**Abbott % (efficacy)**									
EPPO climatic zone	**Timing of assessment**	**Assessment**	**No. of results**	**PESSEV**		**DLT+FPF EC85**		**DLT**						**FPF SL200**	
						0.5 L/ha		**5 g a.s./ha**		**6.25 g a.s./ha**		**7.5 g a.s./ha**		**37.5 g a.s./ha**	
				Mean	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***
Effect on larvae															
N-E NZ[3]	3 DAA	larvae/leaf	3	*0.8*	*0.5-1.1*	***98.0***	*97.8-98.1*	-	-	-	-	*96.2*	*93.3-99.1*	*63.5*	*6.7-80.2*
N-E CZ[2]	6 DAA	larvae/leaf	1	*1.0*	-	***100***	-	-	-	*100*	-	-	-	*56.1*	-
N-E NZ[1]	7 DAA	larvae/leaf	1	*0.8*	-	***91.3***	-	*92.5*	-	-	-	-	-	*42.5*	-
N-E NZ[3]	7 DAA	larvae/leaf	2	*1.0*	*0.6-1.3*	***97.7***	*95.3-100*	-	-	-	-	*95.3*	*92.2-98.4*	*35.2*	*2.5-57.8*
N-E CZ+NZ[4]	6-7 DAA	larvae/leaf	4	*0.9*	*0.6-1.3*	***96.7***	*91.3-100*	-	-	-	-	-	-	*42.2*	*2.5-57.8*
Reduction of damage															
N-E CZ[2]	6 DAA	% damaged flag leaf area	1	*15.8*	-	***52.6***	-	-	-	*68.3*	-	-	-	*43.6*	-
N-E NZ[3]	7 DAA	% damaged flag leaf area	2	*8.1*	*7.8-8.3*	***96.7***	*96.0-97.4*	-	-	-	-	*91.2*	*85.4-96.9*	*44.2*	*5.6-72.7*
N-E CZ+NZ[4]	6-7 DAA	% damaged flag leaf area		*10.6*	*2.6-97.*	***82.0***	*52.6-97.4*	-	-	-	-	-	-	*44.0*	*5.6-72.7*

[1] Orthogonal comparison to DLT 5 g a.s./ha
[2] Orthogonal comparison to DLT 6.25 g a.s./ha
[3] Orthogonal comparison to DLT 7.5 g a.s./ha
[4] Orthogonal comparison to FPF SL200 37.5 g a.s./ha

Discussion on the justification of the mixture against OULESP in cereals, North-East EPPO climatic zone

Orthogonal comparisons between DLT+FPF EC85 0.5 L/ha and FPF SL200 37.5 g a.s./ha or DLT 7.5 g a.s./ha demonstrate, that at 3 DAA that the mixture exhibits slightly higher efficacy than DLT at 7.5 g a.s./ha in 2 trials an average positive effect of 1.8% in favour of the mixture, and considerably higher efficacy than FPF SL200 at 37.5 g a.s in with an average positive effect of 34.5% in favour of the mixture (**Table 3.2-29**).

Against larvae, orthogonal comparisons at assessment timing 6 DAA between DLT+FPF EC85 0.5 L/ha and DLT 5 g a.s./ha demonstrate, that the mixture exhibits slightly lower efficacy than DLT at 5 g a.s./ha in 1 trial with an average effect of 1.2% in favour of solo DLT product. Additional comparisons to DLT 6.25 g a.s./ha and DLT 7.5 g a.s./ha revealed that DLT+FPF EC85 0.5 L/ha provided equivalent efficacy in the only trial where DLT was tested at 6.25 g a.s./ha and higher efficacy than DLT 7.5 g a.s./ha in 1 out of 2 trials with an average positive effect of 2.3% in favour of the mixture. Comparison between DLT+FPF EC85 0.5 L/ha and FPF SL200 37.5 g a.s./ha demonstrates that the mixture exhibits considerably higher efficacy than FPF SL200 at 37.5 g a.s in 4 trials out of 4, with an average positive effect of 54.4% in favour of the mixture.

In terms of effect on leaf damage reduction at 6–7 DAA, comparisons between DLT+FPF EC85 0.5 L/ha and DLT 5 g a.s./ha demonstrate, that the mixture exerted weaker performance than DLT at 6.25 g a.s./ha in the only trial where DLT was tested at this dose rate, however mixture provided visibly higher efficacy than DLT at 7.5 g a.s./ha in 2 out of 2 and with an average positive effect of 5.6% in favour of the mixture. Comparison between DLT+FPF EC85 0.5 L/ha and FPF SL200 37.5 g a.s./ha demonstrates that the mixture exhibits considerably higher efficacy than FPF SL200 at 37.5 g a.s in 3 trials out of 3 with an average positive effect of 38.0% in favour of the mixture.

DLT+FPF EC85 also exhibited more consistent results in terms of data variation based on coefficient of variation and higher precision of estimate based on standard error when compared to DLT regardless of dose rate and FPF at almost all assessment timings.

Table 3.2-29: Comparison between DLT+FPF EC85 0.5 L/ha and FPF SL200 37.5 g a.s./ha or DLT 5 g a.s./ha, 6.25 g a.s./ha and 7.5 g a.s./ha against OULESP, North-East climatic zone.

Target	Assessment	Total number of results	Number of trials where DLT+FPF EC85 0.5 L/ha > DLT 5 g a.s./ha	Average difference between DLT+FPF EC85 0.5 L/ha and DLT 5 g a.s./ha	Variability of data based on coefficient of variation (CV%)		Number of trials where the mixture is statistically <, =,> to DLT
					DLT+FPF EC85	DLT 5 g a.s./ha	
Larvae	7 DAA	1	0	-1.2%	-	-	0, 1, 0

Target	Assessment	Total number of results	Number of trials where DLT+FPF EC85 0.5 L/ha > DLT 6.25 g a.s./ha	Average difference between DLT+FPF EC85 0.5 L/ha and DLT 6.25 g a.s./ha	Variability of data based on coefficient of variation (CV%)		Number of trials where the mixture is statistically <, =,> to DLT
					DLT+FPF EC85	DLT 6.25 g a.s./ha	
Larvae	6 DAA	1	0	0.0	-	-	0, 1, 0
Reduction of damage	6-7 DAA	1	0	-5.7%	-	-	0, 1, 0

Target	Assessment	Total number of results	Number of trials where DLT+FPF EC85 0.5 L/ha > DLT 7.5 g a.s./ha	Average difference between DLT+FPF EC85 0.5 L/ha and DLT 7.5 g a.s./ha	Variability of data based on coefficient of variation (CV%)		Number of trials where the mixture is statistically <, =,> to DLT
					DLT+FPF EC85	DLT 7.5 g a.s./ha	
Larvae	3 DAA 7 DAA	2 2	1 1	+1.8% +2.3%	0.2 3.4	4.3 4.6	0, 2, 0 0, 1, 0
Reduction of damage	6-7 DAA	2	2	+5.6%	1.0	8.9	0, 2, 0

Target	Assessment	Total number of results	Number of trials where DLT+FPF EC85 0.5 L/ha > FPF SL200 37.5 g a.s.	Average difference between DLT+FPF EC85 0.5 L/ha and FPF SL200 37.5 g a.s.	Variability of data based on coefficient of variation (CV%)		Number of trials where the mixture is statistically <, =,> to FPF
					DLT+FPF EC85	FPF SL200 37.5 g a.s.	
Larvae	3 DAA 6-7 DAA	2 4	2 4	+34.5% +54.4%	0.2 4.3	37.3 49.7	0, 0, 2 0, 0, 4
Reduction of damage	6-7 DAA	3	3	+38.0%	31.1	64.9	0, 2, 1

It can be concluded that the mixture DLT+FPF EC85 at 0.5 L/ha demonstrates higher or at least equivalent and more reliable efficacy against larvae of cereal leaf beetles and exhibits higher potential in reducing the damage caused by these pests than DLT and FPF at equivalent amount of a.s./ha.

Conclusion on the mixture justification across EPPO climatic zones

Based on the findings from trials conducted throughout three EPPO climatic zones, DLT+FPF EC85 at 0.5 L/ha exhibited consistently better control of cereal leaf beetles regardless of its life stage (adult or larva) and better potential of reducing leaf damage than DLT at 5 g a.s./ha or in some cases than 6.25 or 7.5 g a.s./ha with less variability (based on coefficient of variation). Compared to FPF straight (37.5 g a.s./ha), the level of efficacy is clearly better with DLT+FPF EC85 0.75 L/ha.

USE 006: Justification of the mixture: aphids in cereals: *Sitobion avenae,* MACSAV and bird cherry – oat aphid *Rhopalosiphum padi,* RHOPPA

In order to justify the mixture DLT+FPF EC85 against English grain aphid *Sitobion avenae* (MACSAV) in cereals, a series of field trials was implemented in Europe by Bayer CropScience between 2014 and 2017. As biological and ecological traits of MACSAV are relatively close to that of RHOPPA, data analysed in this chapter is also considered valid to cover the use of DLT+FPF EC85 against RHOPPA. Trials were conducted in the Czech Republic (7) representing Maritime EPPO

climatic zone and Romania (4), Hungary (1) and Slovakia (5) representing South-East EPPO climatic zone of the EU Central regulatory zone.
Additional trials from Bulgaria (4), country belonging to EU regulatory Southern Zone are presented as supportive to South-East EPPO climatic, Central EU reg. zones dataset.
From the dataset of 21 trials, 7 trials from Maritime climatic zone and 14 trials from South-East climatic zone were summarized. Trial details are presented in tables, which follow.
Trials were designed, conducted and reported in accordance to general EPPO standards PP1/135(2/4), PP1/152(3/4), PP1/225(2) and PP1/181(3/4), to the specific standard PP1/020(3) and comply with Good Experimental Practices.
It should be noticed that these trials are also part of the data package presented for Minimum effective dose tests in chapter 3.2.2 and Efficacy tests in chapter 3.2.3, where the methodology of the trials is described in detail.
Single trial reports are given in the Compilation of Trial Reports M-689779-02-1 with the corresponding trial list.
The number of trials conducted in each EPPO climatic zone, EU regulatory zone and country is shown in **Table 3.2-30** below.

Table 3.2-30: Distribution of the trials presented to justify the mixture DLT+FPF EC85 against MACSAV in cereals

Crop	EPPO climatic zone	Regulatory Zone	Country	Year	Number of trials	Total	
Cereals	South-East	Central	Romania	2016	2	10	14
				2017	2		
			Hungary	2015	1		
			Slovakia	2014	2		
				2015	2		
				2016	1		
		Southern	Bulgaria	2015	2	4	
				2017	2		
	Maritime	Central	Czech Republic	2014	2	7	7
				2015	4		
				2016	1		
Total	**All EPPO climatic zones**		**Cereals**				**21**

On young cereal plants, these aphids colonize the leaves and stalks. When heading begins, they migrate towards the ears and settle among the bracts and kernels. In contrast to some other aphids, large populations of *S. avenae* in the ears may cause significant direct damage, particularly if heavy infestation occurs between heading and the milky-ripe stage, because feeding leads to a reduced number of well-established grains, and the developing kernels become shrunken and malformed. This results in a reduction in thousand-grain weight and overall yield. The assessment for the evaluation of the efficacy of the products consists of counting the number of living aphids of mixed life stages (adults and/or nymphae) on ears of plants (5 randomly selected groups of 5 ears per plot).
To justify the mixture, the efficacy of DLT+FPF EC85 at the supported rate – 0.5 L/ha in South-East and Maritime EPPO climatic zones has been investigated, in comparison to Decis (various formulations) and FPF SL200, at rates delivering respectively the same amount of deltamethrin and flupyradifurone as DLT+FPF EC85, against English grain aphid.
The tested rates are presented in **Table 3.2-31**.

Table 3.2-31: Tested rates of DLT+FPF EC85; FPF SL200; DLT formulations against English grain aphid *Sitobion avenae* (MACSAV), for the justification of the mixture.

Product	Formulated product dosages	Singles ubstances dosages (g a.s./ha)	
		Deltamethrin (DLT)	Flupyradifurone (FPF)
DLT+FPF EC85	0.5 L/ha	5	37.5
FPF SL200	0.1875 L/ha	-	37.5
DECIS EXPERT	0.05 L/ha	5	-
DECIS EW15	0.3333 L/ha	5	-

In all DLT formulations included in the trials, the active substance is solubilized in a solvent. These formulations have shown to be comparable regarding efficacy against the target pests – therefore results of the various DLT products are grouped together.

Results in South-East EPPO climatic zone

In the summary tables below, comparisons between DLT+FPF EC85 and the products containing single active substances at the equivalent dose rates are presented.

Population dynamics of MACSAV populations during the trials

An important factor which should be taken into account when interpreting efficacy data against insect pests is dynamics of the population of the pest. It is especially true for such sucking pests as aphids, which tend to form relatively sedentary colonies on different parts of its host plant. The tendency in population dynamics in the UTC plots– increasing, stable or declining – could serve as a relative measure of overall fitness and viability of the population of interest. Efficacy results from trials, where insect populations tend to be in a healthy state, indicate a strong potential of a compound to control a well-established aphid populations. Consequently, results of such trials carry a relatively more weight and allow more realistic estimates on performance and duration of control of the product than the results where aphid populations appeared to be in a less healthy state.

Over the course of the trial series aiming to determine biological efficacy of DLT+FPF EC85 against MACSAV a stable or increasing trends in population dynamics were observed in 1 trial from EU Southern regulatory zone and 4 trials from EU Central regulatory zone. In the rest of the trials either constantly declining or relatively stable with rapid collapse at 14–16 DAA dynamics trends were observed. More details on dynamics of MACSAV populations can be found in chapter 3.2.3 ‘Efficacy tests’

Results

Table 3.2-32 below presents the overall efficacy of DLT+FPF EC85 against MACSAV in cereals in comparison to products containing equivalent amount of solo active substances, assessed 1–2 (immediate effect), 3–4 (short-term effect), 7–9 days (mid-term effect) and 14-–15 days (long-term effect) after application.

Table 3.2-32: Overall efficacy of the mixture DLT+FPF EC85 against MACSAV in cereals in comparison to products containing equivalent amount of solo active substances, South-East EPPO climatic zone.

Overall summary						**Abbott % (efficacy)**					
EPPO climatic zone	**Timing of assessment**	**Assessment**	**No. of results**	**PESSEV**		**DLT+FPF EC85**		**DLT**		**FPF SL200**	
						0.5 L/ha		**5 g a.s./ha**		**37.5 g a.s./ha**	
				Mean	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***
MACSAV											
S-E CZ+SZ	1-2 DAA	aphids/ear	4	*7.6*	*3.8-11.0*	***87.6***	*75.0-100*	*86.6*	*71.9-100*	*83.2*	*72.2-100*
S-E CZ+SZ	3-4 DAA	aphids/ear	9	*5.1*	*2.3-9.0*	***92.9***	*81.4-100*	*88.8*	*76.5-100*	*85.8*	*69.4-100*
S-E CZ+SZ	7-9 DAA	aphids/ear	13	*3.8*	*2.0-8.8*	***90.0***	*75.6-99.8*	*82.4*	*55.3-100*	*84.5*	*70.8-99.8*
S-E CZ+SZ	14-15 DAA	aphids/ear	7	*3.6*	*2.0-5.5*	***87.3***	*78.2-96.0*	*74.7*	*51.7-83.8*	*82.1*	*77.7-91.3*

Discussion on the justification of the mixture against MACSAV in cereals, South-East EPPO climatic zone

Comparisons between DLT+FPF EC85 0.5 L/ha and FPF SL200 37.5 g a.s./ha or DLT 5 g a.s./ha demonstrate, that the mixture exhibits higher initial efficacy than DLT at 5 g a.s./ha in 1 trial from 4 with an average positive effect of 1.0% in favour of the mixture, and than FPF SL200 at 37.5 g a.s in 3 trials from 4 with an average positive effect of 4.4% in favour of the mixture (**Table 3.2-33**).

Comparisons between DLT+FPF EC85 0.75 L/ha and FPF SL200 37.5 g a.s./ha or DLT 5 g a.s./ha demonstrate, that the mixture exhibits higher short-term efficacy than DLT at 5 g a.s./ha in 7 trials from 9 and with an average positive effect of 4.1% in favour of the mixture, and than FPF SL200 at 37.5 g a.s in 6 trials from 9 with an average positive effect of 7.1% in favour of the mixture.

Comparisons between DLT+FPF EC85 0.75 L/ha and FPF SL200 37.5 g a.s./ha or DLT 5 g a.s./ha demonstrate, that the mixture exhibits higher mid-term efficacy (7–8 DAA) than DLT at 5 g a.s./ha in 9 trials from 13 and with an average positive effect of 7.6% in favour of the mixture, and than FPF SL200 at 37.5 g a.s in 9 trials from 13 with an average positive effect of 5.6% in favour of the mixture.

Comparisons between DLT+FPF EC85 0.75 L/ha and FPF SL200 37.5 g a.s./ha or DLT 5 g a.s./ha demonstrate, that the mixture exhibits higher long-term efficacy (14–16 DAA) than DLT at 5 g a.s./ha in 7 trials from 7, with an average positive effect of 12.6% in favour of the mixture, and than FPF SL200 at 37.5 g a.s in 6 trials from 7 with an average positive effect of 5.2% in favour of the mixture.

DLT+FPF EC85 also exhibited more consistent results in terms of data variation when compared to FPF SL200 or DLT, with a coefficient of variation for the mixture being lower than that of FPF SL200 at majority of assessment timings or DLT at all assessment timings, differences becoming increasingly evident as a function of time, which could be attributed to FPF in the mixture.

Table 3.2-33: Comparison between DLT+FPF EC85 0.5 L/ha and FPF SL200 37.5 g a.s./ha or DLT 5 g a.s./ha against MACSAV, South-East EPPO climatic zone.

Target	Assessment	Total number of trials	Number of trials where DLT+FPF EC85 0.5 L/ha > DLT 5 g a.s./ha	Average difference between DLT+FPF EC85 0.5 L/ha and DLT 5 g a.s./ha	Variability of data based on coefficient of variation (CV%)		Number of trials where the mixture is statistically <, =,> to DLT
					DLT+FPF EC85	DLT 5 g a.s./ha	
MACSAV	1-2 DAA	4	1	+1.0%	12.9	14.5	0, 4, 0
	3-4 DAA	9	7	+4.1%	6.2	8.7	0, 9, 0
	7-9 DAA	13	9	+7.6%	9.8	18.8	1, 8, 4
	14-15 DAA	7	7	+12.6%	7.6	14.8	0, 3, 4

Target	Assessment	Total number of trials	Number of trials where DLT+FPF EC85 0.5 L/ha > FPF SL200 37.5 g a.s.	Average difference between DLT+FPF EC85 0.5 L/ha and FPF SL200 37.5 g a.s.	Variability of data based on coefficient of variation (CV%)		Number of trials where the mixture is statistically <, =,> to FPF
					DLT+FPF EC85	FPF SL200 37.5 g a.s.	
MACSAV	1-2 DAA	4	3	+4.4%	12.9	15.7	0, 4, 0
	3-4 DAA	9	6	+7.1%	6.2	14.7	1, 4, 4
	7-9 DAA	13	9	+5.6%	9.8	11.3	0, 11, 2
	14-15 DAA	7	6	+5.2%	7.6	6.1	0, 5, 2

Based on the findings of trial series performed in the South-East EPPO climatic zone, it could be concluded that the mixture DLT+FPF EC85 at 0.5 L/ha demonstrates a more efficient and reliable control of English grain aphid of different life stages (adults and nymphs) than DLT and FPF at equivalent amount of a.s./ha.

Influence of population dynamics on performance of the products

In order to evaluate impact of population dynamics on efficacy of the mixture and products containing solo active substances, mean efficacy values were calculated separately for the trials displaying a positive population dynamics trend and trials where aphid populations went into a decline at the time of the last assessment. Results of these calculations are presented in **Table 3.2-34**.

As could be seen from the presented results, there was no visible effect of population dynamics on the performance of the mixture DLT+FPF EC85 and FPF SL200, especially at later assessment timings. In case of DLT, an evident difference in efficacy was observed in relation to population dynamics trend. When declining population trend was observed, at later assessment timings DLT performed at slightly lower level than the mixture and similar level as FPF SL200. However, a significant drop in efficacy of the products containing solo DLT was observed in these trials, where MACSAV populations maintained increasing or stable dynamics trend. These results indicate obvious benefit of the mixture over both solo products, but especially over the DLT containing products, both in terms of longevity of control and ability to control well-established and productive MACSAV populations. This seems logical taking into account systemic properties of FPF and ability of DLT to control insects only through a contact way of entry.

Table 3.2-34: Efficacy of DLT+FPF EC85 and products containing solo active substances in relation to population dynamics at different assessment timings.

	DLT+FPF EC85 0.5 L/ha				**DLT 7.5 a.s./ha**				**FPF SL20037.5 g a.s./ha**			
	1–2 DAA	3–4 DAA	7–8 DAA	14–16 DAA	1–2 DAA	3–4 DAA	7–8 DAA	14–16 DAA	1–2 DAA	3–4 DAA	7–8 DAA	14–16 DAA
Declining dynamics trend												
Mean	**91.8**	**92.9**	**90.9**	**84.4**	**91.5**	**88.8**	**88.2**	**80.5**	**86.4**	**85.8**	**86.3**	**82.6**
Min	81.8	81.4	75.6	78.2	81.0	76.5	55.8	76.3	72.2	69.4	70.8	79.0
Max	100	100.0	99.8	87.3	100.0	100.0	100.0	83.8	100.0	100.0	99.8	85.8
Count	3	8	8	2	3	8	8	2	3	8	8	2
Positive dynamics trend												
Mean	**75.0**	**93.2**	**88.86**	**89.1**	**71.9**	**90.6**	**73.0**	**72.5**	**73.4**	**90.9**	**81.9**	**81.9**
Min	-	-	80	82.3	-	-	55.3	51.7	-	-	72.4	77.7
Max	-	-	97	96.0	-	-	87.1	81.4	-	-	90.3	91.3
Count	1	1	5	5	1	1	5	5	1	1	5	5

Results in Maritime EPPO climatic zone

Population dynamics of MACSAV populations during the trials

Over the course of the trial series aiming to determine biological efficacy of DLT+FPF EC85 against MACSAV a stable or increasing trends in population dynamics were observed in 2 trials. In the rest of the trials either gradually declining or relatively stable dynamics with rapid collapse at 13–14 DAA were observed. More details on dynamics of MACSAV populations can be found in chapter 3.2.3 ‘Efficacy tests’

Results

Table 3.2-35 below presents the overall efficacy of DLT+FPF EC85 against MACSAV in cereals in comparison to products containing equivalent amount of solo active substances, assessed 1–2 (immediate effect), 3–4 (short-term effect), 6–7 days (mid-term effect) and 13-–14 days (long-term effect) after application.

Table 3.2-35: Overall efficacy of the mixture DLT+FPF EC85 against MACSAV in cereals in comparison to products containing equivalent amount of solo active substances, Maritime EPPO climatic zone.

Overall summary						**Abbott % (efficacy)**					
EPPO climatic zone	**Timing of assessment**	**Assessment**	**No. of results**	**PESSEV**		**DLT+FPF EC85**		**DLT**		**FPF SL200**	
						0.5 L/ha		**5 g a.s./ha**		**37.5 g a.s./ha**	
				Mean	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***
MACSAV											
Maritime CZ	1-2 DAA	aphids/ear	5	*5.9*	*3.2-8.9*	***96.0***	*88.9-99.8*	*87.4*	*54.9-99.2*	*95.3*	*87.3-99.3*
	3-4 DAA	aphids/ear	3	*3.8*	*2.2-6.3*	***88.2***	*74.4-100*	*78.1*	*74.4-100*	*79.0*	*54.8-100*
	6-7 DAA	aphids/ear	5	*5.8*	*2.0-9.6*	***95.9***	*86.4-100*	*84.1*	*75.9-92.4*	*91.5*	*71.7-100*
	13-14 DAA	aphids/ear	3	*3.9*	*2.4-6.8*	***81.4***	*52.8-100*	*50.0*	*36.8-73.3*	*69.2*	*33.2-95.7*

Discussion on the justification of the mixture against MACSAV in cereals, Maritime EPPO climatic zone

Comparisons between DLT+FPF EC85 0.5 L/ha and FPF SL200 37.5 g a.s./ha or DLT 5 g a.s./ha demonstrate, that the mixture exhibits higher initial efficacy than DLT at 5 g a.s./ha in 3 trial from 5 with an average positive effect of 8.7% in favour of the mixture, and than FPF SL200 at 37.5 g a.s in 2 trials from 5 with an average positive effect of 0.7% in favour of the mixture (**Table 3.2-36**).
Comparisons between DLT+FPF EC85 0.5 L/ha and FPF SL200 37.5 g a.s./ha or DLT 5 g a.s./ha demonstrate, that the mixture exhibits higher short-term efficacy than DLT at 5 g a.s./ha in 2 trials from 3 and with an average positive effect of 10.1% in favour of the mixture, and than FPF SL200 at 37.5 g a.s in 2 trials from 3 with an average positive effect of 9.2% in favour of the mixture.
Comparisons between DLT+FPF EC85 0.75 L/ha and FPF SL200 37.5 g a.s./ha or DLT 5 g a.s./ha demonstrate, that the mixture exhibits higher mid-term efficacy than DLT at 5 g a.s./ha in 5 trials from 5 and with an average positive effect of 11.8% in favour of the mixture, and than FPF SL200 at 37.5 g a.s in 4 trials from 5 with an average positive effect of 4.4% in favour of the mixture.
Comparisons between DLT+FPF EC85 0.75 L/ha and FPF SL200 37.5 g a.s./ha or DLT 5 g a.s./ha demonstrate, that the mixture exhibits higher long-term efficacy than DLT at 5 g a.s./ha in 3 trials from 3, with an average positive effect of 31.5% in favour of the mixture, and than FPF SL200 at 37.5 g a.s in 3 trials from 3 with an average positive effect of 12.2% in favour of the mixture.
DLT+FPF EC85 also exhibited more consistent results in terms of data variation when compared to FPF SL200 or DLT, with a coefficient of variation for the mixture being lower than that of or DLT or FPF SL200 at majority of assessment timings, differences becoming increasingly evident as a function of time, which could be attributed to FPF in the mixture.

Table 3.2-36: Comparison between DLT+FPF EC85 0.5 L/ha and FPF SL200 37.5 g a.s./ha or DLT 5 g a.s./ha against MACSAV, Maritime EPPO climatic zone.

Target	Assessment	Total number of results	Number of trials where DLT+FPF EC85 0.5 L/ha > DLT 5 g a.s./ha	Average difference between DLT+FPF EC85 0.5 L/ha and DLT 5 g a.s./ha	Variability of data based on coefficient of variation (CV%)		Number of trials where the mixture is statistically <, =,> to
					DLT+FPF EC85	DLT 5 g a.s./ha	
MACSAV	1-2 DAA	5	3	+8.7%	5.1	21.2	0, 3, 2
	3-4 DAA	3	2	+10.1%	14.6	6.1	0, 1, 2
	6-7 DAA	5	5	+11.8%	6.0	8.9	0, 2, 3
	13-14 DAA	3	3	+31.5%	30.9	40.6	0, 0, 3

Target	Assessment	Total number of results	Number of trials where DLT+FPF EC85 0.5 L/ha > FPF SL200 37.5 g a.s.	Average difference between DLT+FPF EC85 0.5 L/ha and FPF SL200 37.5 g a.s.	Variability of data based on coefficient of variation (CV%)		Number of trials where the mixture is statistically <, =,> to
					DLT+FPF EC85	FPF SL200 37.5 g a.s.	
MACSAV	1-2 DAA	5	2	+0.7%	5.1	5.0	1, 3, 1
	3-4 DAA	3	2	+9.2%	14.6	28.8	0, 2, 1
	6-7 DAA	5	4	+4.4%	6.0	12.4	0, 3, 2
	13-14 DAA	3	3	+12.2%	30.9	46.7	0, 0, 3

Based on the findings of trial series performed in the Maritime EPPO climatic zone, it could be concluded that the mixture DLT+FPF EC85 at 0.5 L/ha demonstrates considerably higher and more reliable control of MACSAV of different life stages (adults and nymphs) than DLT and FPF at equivalent amount of a.s./ha.

Influence of population dynamics on performance of the products
In order to evaluate impact of population dynamics on efficacy of the mixture and products containing solo active substances, mean efficacy values were calculated separately for the trials displaying a positive population dynamics trend and trials where aphid populations went into a decline at the time of the last assessment. Results of these calculations are presented in **Table 3.2-37**.
As could be seen from the presented results, there was a visible effect of population dynamics on the performance of the mixture DLT+FPF EC85, FPF SL200 and DLT especially at later assessment

timings. In trials where positive dynamics trend was observed, DLT+FPF EC85 and FPF SL200 exhibited very high level of MACSAV control, which was maintained throughout entire observation period. In trials, where negative dynamics trend was recorded, overall efficacy level was lower, especially at the latest assessment timing. In case of DLT, overall efficacy was lower an evident difference in efficacy was observed in relation to population dynamics trend. When declining population trend was observed, at later assessment timings DLT performed at substantially lower level than the mixture and similar level as FPF SL200. However, a significant drop in efficacy of the products containing solo DLT was observed in these trials, where MACSAV populations maintained stable dynamics trend. These results indicate obvious benefit of the mixture over both solo products, but especially over the DLT straight products, both in terms of longevity of control and ability to control well-established and productive MACSAV populations.

Table 3.2-37: Efficacy of DLT+FPF EC85 and products containing solo active substances in relation to population dynamics at different assessment timings.

	DLT+FPF EC85 0.5 L/ha				**DLT 7.5 a.s./ha**				**FPF SL20037.5 g a.s./ha**			
	1–2 DAA	3–4 DAA	6–7 DAA	13–14 DAA	1–2 DAA	3–4 DAA	6–7 DAA	13–14 DAA	1–2 DAA	3–4 DAA	6–7 DAA	13–14 DAA
Declining dynamics trend												
Mean	**95.3**	**82.3**	**88.0**	**71.3**	**86.1**	**79.3**	**77.3**	**49.5**	**95.0**	**68.5**	**80.4**	**49.1**
Min	88.9	74.4	62.6	50.6	54.9	74.9	41.1	24.4	87.3	54.8	52.3	15.6
Max	99.8	90.2	100	100	99.2	83.6	92.5	100	99.3	82.2	95	94.7
Count	4	2	5	5	4	2	5	5	4	2	5	5
Positive dynamics trend												
Mean	**99.1**	**100**	**99.3**	**97.7**	**92.6**	**75.9**	**83.8**	**80.2**	**96.6**	**100**	**98.9**	**94.5**
Min	99.1	100	98.5	95.4	92.6	75.9	75.9	73.3	96.6	100	97.7	93.3
Max	99.1	100	100	100	92.6	75.9	91.6	87.1	96.6	100	100	95.7
Count	1	1	2	2	1	1	2	2	1	1	2	2

Conclusion on the mixture justification across EPPO climatic zones

Based on the findings from trials conducted throughout two EPPO climatic zones, DLT+FPF EC85 at 0.5 L/ha exhibited consistently better control of *Sitobion avenae* regardless of its life stage (adult or nymph) than DLT at 5 g a.s./ha with less variability (based on coefficient of variation). Compared to FPF straight (37.5 g a.s./ha), the level of efficacy is evidently better with DLT+FPF EC85 0.75 L/ha.

USE 007: Justification of the mixture: stink bugs *Eurygaster* spp. (EURYSP) – *E. maura* (EURYMA) and *E. integriceps* (EURYIN) in cereals

In order to justify the mixture DLT+FPF EC85 against cereal stink bugs *Eurygaster maura* (EURYMA) and *Eurygaster integriceps* (EURYIN), further termed as *Eurygaster* spp. (EURYSP) in cereals, a series of field trials was implemented in Europe by Bayer CropScience between 2014 and 2017. Trials were conducted in Romania (1) and Hungary (5) representing South-East EPPO climatic zone, EU regulatory Central zone. Additional trials from Bulgaria (4) representing South-East climatic zone of Southern EU regulatory zone are presented as supportive to EPPO South-East, Central EU reg. zone dataset.

Trials were designed, conducted and reported in accordance to general EPPO standards PP1/135(2/4), PP1/152(3/4), PP1/225(2) and PP1/181(3/4), to the specific standard PP1/126(2) and comply with Good Experimental Practices.

It should be noticed that these trials are also part of the data package presented for Minimum effective dose tests in chapter 3.2.2 and Efficacy tests in chapter 3.2.3, where the methodology of the trials is described in detail.

Single trial reports are given in the Compilation of Trial Reports M-689780-02-1 with the corresponding trial list.

The number of trials conducted in South-East EPPO climatic zone per EU regulatory zone and country is shown in **Table 3.2-38** below.

Table 3.2-38: Distribution of the trials presented to justify the mixture DLT+FPF EC85 against EURYSP in cereals.

Crop	EPPO climatic zone	Regulatory Zone	Country	Year	Number of trials	Total	
Cereals	South-East	Central	Romania	2016	1	6	10
			Hungary	2015	1		
				2016	2		
				2017	2		
		Southern	Bulgaria	2014	1	4	
				2016	1		
				2017	2		
Total	**All EPPO climatic zones**		**Cereals**				**10**

These insects usually feed on leaves or ears of perennial cereal grasses, wheat, rye, barley or oats. Leaves become yellow, dry up, and the plant lags in its growth. Feeding on ears usually results in smaller grain size and consequently reduction in yield. The assessment for the evaluation of the efficacy of the products consists of determining the number of live bugs on 10 randomly distributed sample squares of 0.25m^2 per plot.
To justify the mixture, the efficacy of DLT+FPF EC85 at the supported rate – 0.75 L/ha – has been investigated, in comparison to Decis (various formulations) and FPF SL200, at rates delivering respectively the same amount of deltamethrin and flupyradifurone as DLT+FPF EC85, against the stink bugs.
The tested rates are presented in **Table 3.2-39**.

Table 3.2-39: Tested rates of DLT+FPF EC85; FPF SL200; DLT formulations against stink bugs *Eurygaster* spp., for the justification of the mixture.

Product	Formulated product dosages	Single substances dosages (g a.s./ha)	
		Deltamethrin (DLT)	Flupyradifurone (FPF)
EPPO South-East climatic zone			
DLT+FPF EC85	0.75 L/ha	7.5	56.25
FPF SL200	0.28125 L/ha	-	56.25
DECIS 100EC	0.075 L/ha	7.5	-
DECIS EW25	0.3 L/ha	7.5	-

In all DLT formulations included in the trials, the active substance is solubilized in a solvent. These formulations have shown to be comparable regarding efficacy against the target pests – therefore results of the various DLT products are grouped together.

Results in South-East EPPO climatic zone

Table 3.2-40 below presents the overall efficacy of DLT+FPF EC85 against EURYSP in cereals in comparison to products containing equivalent amount of solo active substances, assessed 1 (immediate effect), 3 (mid-term effect) and 7 days (long-term effect) after application.

Table 3.2-40: Overall efficacy of the mixture DLT+FPF EC85 against EURYSP in cereals in comparison to products containing equivalent amount of solo active substances.

Overall summary						Abbott % (efficacy)					
EPPO climatic zone	Timing of assessment		No. results	ESSEV		DLT+FPF EC85		DLT		FPF SL200	
						0.75 L/ha		7.5 g a.s./ha		56.25 g a.s./ha	
				Mean	*Min-Max*	Mean	*Min-Max*	Mean	*Min-Max*	Mean	*Min-Max*
EURYSP											
S-E SZ+CZ	1 DAA	insects/m^2	10	*4.3*	*.6-14.8*	***94.1***	*63.6-100*	*85.4*	*27.3-100*	*68.8*	*18.2-100*
S-E SZ+CZ	3 DAA	insects/m^2	10	*4.3*	*.7-7.6*	***97.6***	*92.3-100*	*93.6*	*78.9-100*	*69.4*	*47.8-93.2*
S-E SZ+CZ	7 DAA	insects/m^2	8	*5.1*	*.9-9.6*	***92.9***	*80.0-100*	*85.9*	*76.0-94.7*	*48.9*	*16.0-89.1*

Discussion on the justification of the mixture against EURYSP in cereals, South-East EPPO climatic zone

Comparisons between DLT+FPF EC85 0.75 L/ha and FPF SL200 56.25 g a.s./ha or DLT 7.5 g a.s./ha demonstrate, that the mixture exhibits overall higher and more consistent initial efficacy against EURYSP than DLT at 7.5 g a.s./ha. DLT+FPF EC85 0.75 L/ha performed better in 7 trials from 10, with an average positive effect of 8.7% in favour of the mixture. DLT+FPF EC85 at 0.75 L/ha exhibited far superior efficacy to that achieved by FPF SL200 at 56.25 g a.s and performed better in 9 trials out of 10 with an average positive effect of 25.3% in favour of the mixture (**Table 3.2-41**).

Comparisons between DLT+FPF EC85 0.75 L/ha and FPF SL200 56.25 g a.s./ha or DLT 7.5 g a.s./ha demonstrate, that in terms of short-term effect the mixture exerts overall higher and more stable level of EURYSP control than DLT at 7.5 g a.s./ha. DLT+FPF EC85 0.75 L/ha performed better in 5 trials from 10 (in 4 trials both products being equivalent), with an average positive effect of 4% in favour of the mixture. DLT+FPF EC85 at 0.75 L/ha exhibited far superior efficacy and consistency of performance to that achieved by FPF SL200 at 56.25 g a.s and performed better in 9 trials out of 10 with an average positive effect of 28.2% in favour of the mixture.

Comparisons between DLT+FPF EC85 0.75 L/ha and FPF SL200 56.25 g a.s./ha or DLT 7.5 g a.s./ha at 7 DAA (long-term effect) revealed, that in the longer run the mixture gains advantage over DLT at 7.5 g a.s./ha and exhibits higher efficacy in 7 trials from 8 with an average positive effect of 7.0% in favour of the mixture. DLT+FPF EC85 at 0.75 L/ha maintained highly superior EURYSP control to FPF SL200 at 56.25 g a.s and achieved higher efficacy in all 8 with an average positive effect of 44.0% in favour of the mixture.

As mentioned above, DLT+FPF EC85 exhibited more consistent results in terms of data variation when compared to DLT and FPF SL200 with a coefficient of variation for the mixture being lower than that of DLT at all assessment timings and considerably lower than that of FPF SL200 especially at later assessment timings.

Table 3.2-41: Comparison between DLT+FPF EC85 0.75 L/ha and FPF SL200 56.25 g a.s./ha or DLT 7.5 g a.s./ha against EURYSP, South-East EPPO climatic zone.

Target	Assessment	Total number of results	Number of trials where DLT+FPF EC85 0.75 L/ha > DLT 7.5 g a.s./ha	Average difference between DLT+FPF EC85 0.75 L/ha and DLT 7.5 g a.s./ha	Variability of data based on coefficient of variation (CV%)		Number of trials where the mixture is statistically <, =,> to DLT
					DLT+FPF EC85	DLT 5 g a.s./ha	
EURYSP	1 DAA	10	7	+8.7%	12.0	27.0	0, 8, 2
	3 DAA	10	5	+4.0%	2.9	7.4	0, 8, 2
	7 DAA	8	7	+7.0%	7.7	8.2	0, 7, 1

Target	Assessment	Total number of results	Number of trials where DLT+FPF EC85 0.75 L/ha > FPF SL200 56.25 g a.s.	Average difference between DLT+FPF EC85 0.75 L/ha and FPF SL200 56.25 g a.s.	Variability of data based on coefficient of variation (CV%)		Number of trials where the mixture is statistically <, =,> to FPF
					DLT+FPF EC85	FPF SL200 37.5 g a.s.	
EURYSP	1 DAA	10	9	+25.3%	12.0	35.8	0, 6, 4
	3 DAA	10	9	+28.2%	2.9	25.3	0, 2, 8
	7 DAA	8	8	+44.0%	7.7	64.7	0, 1, 7

Conclusion on the mixture justification

Based on the findings, it therefore could be concluded that the mixture DLT+FPF EC85 at 0.75 L/ha demonstrates a higher and more reliable efficacy against stink bugs in cereals than the products containing solo active substances DLT and FPF at equivalent amount of a.s./ha in terms of initial efficacy, short-term and lasting efficacy.

General conclusion for the justification of the mixture in cereals

South-East EPPO climatic zone

The results from the field trials carried out in EU regulatory Central zone countries, supported by trials carried out in the Southern EU regulatory Zone, against complex of pests occurring in cereals demonstrate that:

- Against OULESP of larval or adult life stages, the mixture DLT+FPF EC85 applied at 0.5 L/ha delivers considerably more effective control than solo product containing equivalent amount of deltamethrin and similar control level as solo product containing equivalent amount of flupyradifurone. The mixture has the potential to deliver more effective long-lasting control of cereal leaf beetles than deltamethrin and at slightly smaller extent than flupyradifurone;
- Against the MACSAV DLT+FPF EC85 at 0.5 L/ha resulted in improved control and enhanced lasting efficacy in comparison to solo products containing equivalent amount of deltamethrin or flupyradifurone;
- DLT+FPF EC85 at 0.5 L/ha also exhibited obvious benefit over both solo products, but especially over the DLT containing products, both in terms of longevity of control and ability to control well-established and productive MACSAV populations, in comparison to situations where MACSAV populations displayed negative population dynamics trends.
- Against EURYSP the mixture at 0.75 L/ha provided a considerable advantage over deltamethrin and flupyradifurone in terms of both – activity and duration of control;
- The mixture shows a better consistency of performances than the products containing solo active substances;
- The mixture therefore can be justified against each of the targeted pest species and the complex of these species in comparison to the products containing solo active substances, based on evident advantages provided to efficacy level and duration of control;
- The considerations for this insecticide mixture regarding resistance management are addressed in point 3.3.

Maritime EPPO climatic zone

The results from the field trials carried out in EU regulatory Central zone against complex of pests occurring in cereals demonstrate that:

- Against OULESP of larval or adult life stages, the mixture DLT+FPF EC85 applied at 0.5 L/ha delivers more effective control than solo product containing equivalent amount of deltamethrin or flupyradifurone at all assessment timings and shows considerably higher potential of reducing damage caused by larvae to flagleaf;
- Against the MACSAV DLT+FPF EC85 at 0.5 L/ha resulted in improved control and enhanced lasting efficacy in comparison to solo products containing equivalent amount of deltamethrin or flupyradifurone;
- DLT+FPF EC85 at 0.5 L/ha also exhibited obvious benefit over both solo products both in terms of longevity of control and ability to control well-established and productive MACSAV populations (maintaining stable or increasing dynamics in the UTC), in comparison to situations where MACSAV populations displayed negative population dynamics trends.
- The mixture shows a better consistency of performances than the products containing solo active substances in majority of cases;
- The mixture therefore can be justified against intended target pests in comparison to the products containing solo active substances, based on evident advantages provided to efficacy level, duration and reliability of control;
- The considerations for this insecticide mixture regarding resistance management are addressed in point 3.3.

North-East EPPO climatic zone

The results from the field trials carried out in EU regulatory Central zone country Poland and Northern reg. zone Latvia, against OULESP in cereals demonstrate that:

- Against OULESP the mixture at 0.5 L/ha provided an advantage over flupyradifurone both in terms of activity and duration of effect;
- DLT+FPF EC85 performs at the same level or even better than DLT containing higher amount (6.25 g or 7.5 g a.s./ha) of active substance than present in the mixture, thus indicating a

considerable benefit of the mixture over solo DLT products in terms of OULESP control and possibility to ensure reliable protection while reducing amount of DLT delivered to the crop.
- DLT+FPF EC85 shows higher potential of reducing damage caused by larvae to flagleaf, when compared to DLT 7.5 g a.s. and substantially higher reduction of damage when compared to flupyradifurone straight;
- The mixture shows a better consistency of performances than the products containing solo active substances in majority of cases;
- The mixture therefore can be justified against intended target pests in comparison to the products containing solo active substances, based on evident advantages provided to efficacy level, duration and reliability of control;
- The considerations for this insecticide mixture regarding resistance management are addressed in point 3.3.
-

USE 008: Justification of the mixture: leaf-curling plum aphid *Brachycaudus helichrysi* (ANURHE)

In order to justify the mixture DLT+FPF EC85 against ANURHE in sunflower, a series of field trials was implemented in Europe by Bayer CropScience between 2014 and 2017. The trials were carried out in Hungary (8) and Slovakia (5) representing South-East EPPO climatic zone, EU regulatory Central zone and 2 supportive trials were implemented in Bulgaria, country belonging to Southern EU regulatory Zone. To support authorization in Maritime EPPO climatic zone, 7 trials in the Czech Republic were implemented and presented in this document. All trials were carried out in field conditions, with natural infestations.

Trials were designed, conducted and reported in accordance to general EPPO standards PP1/135(2/4), PP1/152(3/4), PP1/225(2) and PP1/181(3/4), to the specific standard PP1/231(1) and comply with Good Experimental Practices.

It should be noticed that these trials are also part of the data package presented for Minimum effective dose tests in chapter 3.2.2 and Efficacy tests in chapter 3.2.3, where the methodology of the trials is described in detail.

Single trial reports are given in the Compilation of Trial Reports M-689795-02-1 with the corresponding trial list.

The number of trials conducted in each EU regulatory zone and country is shown in **Table 3.2-42** below.

Table 3.2-42: Distribution of the trials presented to justify the mixture DLT+FPF EC85 against ANURHE in sunflower.

Crop	EPPO climatic zone	Regulatory Zone	Country	Year	Number of trials	Total	
Sunflower	South-East	Central	Hungary	2014	2	13	15
				2015	4		
				2016	1		
				2017	1		
			Slovakia	2014	2		
				2015	1		
				2016	2		
		Southern	Bulgaria	2016	1	2	
				2017	1		
	Maritime	Central	Czech Republic	2014	3	7	
				2015	1		
				2016	1		
				2017	2		
Total	**South-East EPPO climatic zone**		**Sunflower**				**22**

The damage caused by the aphids is related to its feeding habits mainly on the shoots or leaves, what cause curling and distortion of these plant parts, effectively reducing photosynthetic capacity and

normal development of the plant. The assessment for the evaluation of the efficacy of the products consists of counting the number of living aphids of various life stages (nymphs or adults) on infested plant parts (mostly leaves) and determining the damage caused by aphids (such as lightened or ruffled leaves and deformed buds), reported as % damaged leaves or % damaged buds.
To justify the mixture, the efficacy of DLT+FPF EC85 at the supported rate – 0.75 L/ha – has been investigated, in comparison with Decis (various formulations) and FPF SL200, at rates delivering respectively the same amount of deltamethrin and flupyradifurone as DLT+FPF EC85 against the aphids.
The tested rates are presented in **Table 3.2-43**.

Table 3.2-43: Tested rates of DLT+FPF EC85; FPF SL200; DLT formulations against ANURHE, for the justification of the mixture.

Product	Formulated product dosages	Single substances dosages (g a.s./ha)	
		Deltamethrin (DLT)	Flupyradifurone (FPF)
DLT+FPF EC85	0.75 L/ha	7.5	56.25
FPF SL200	0.28125 L/ha	-	56.25
DLT EC100	0.075 L/ha	7.5	-
DLT EW15	0.5 L/ha	7.5	

Results in South-East EPPO climatic zone

Table 3.2-44 below presents the overall efficacy of DLT+FPF EC85 against ANURHE in sunflower in comparison to products containing equivalent amount of solo active substances, assessed 1–3 days (immediate effect), and 7–10 days (mid-term effect) after application.

Table 3.2-44: Overall efficacy of the mixture DLT+FPF EC85 against ANURHE in sunflower in comparison to products containing equivalent amount of solo active substances.

Overall summary						**Abbott % (efficacy)**					
EPPO climatic zone	**Timing of assessment**	**Assessment**	**Nb. of trials**	**PESSEV**		**DLT+FPF EC85**		**DLT**		**FPF SL200**	
						0.75 L/ha		**7.5 g a.s./ha**		**56.25 g a.s./ha**	
				Mean	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***
ANURHE											
S-E SZ+CZ	1-3 DAA	insects/plant	15	*34.5*	*8-53.3*	***88.0***	*79.4-100*	*80.2*	*48.9-100*	*87.8*	*70.0-100*
S-E SZ+CZ	7-10 DAA	insects/plant	15	*26.6*	*9-64.8*	***84.9***	*29.9-100*	*67.2*	*13.3-100*	*83.1*	*53.1-100*

Discussion on the justification of the mixture against ANURHE in sunflower, South-East EPPO climatic zone

Comparisons between DLT+FPF EC85 0.75 L/ha and FPF SL200 56.25 g a.s./ha or DLT 7.5 g a.s./ha demonstrate, that the mixture exhibits higher efficacy (immediate effect) than DLT at 7.5 g a.s./ha in 9 trials from 15 with an average positive effect of 7.8% in favour of the mixture, and than FPF SL200 at 56.25 g a.s./ha in 5 trials from 15 with an effect being similar to the FPF SL200 56.25 g a.s./ha (**Table 3.2-45**).
In terms of mid-term effect, comparisons between DLT+FPF EC85 0.75 L/ha and FPF SL200 56.25 g a.s./ha or DLT 7.5 g a.s./ha demonstrate, that the mixture exhibits higher efficacy than DLT at 7.5 g a.s./ha in 11 trials from 15 with an average positive effect of 17.8% in favour of the mixture, and than FPF SL200 at 56.25 g a.s./ha in 6 trials from 15 with an average positive effect of 1.8% in favour of the mixture.
DLT+FPF EC85 also exhibited more consistent results in terms of data variation when compared to DLT, especially at application timing which represents mid-term effect of an insecticide: 45.3% of variation for DLT, compared with 14.8 % variation for the mixture.

Table 3.2-45: Comparison between DLT+FPF EC85 0.75 L/ha and FPF SL200 56.25 g a.s./ha or DLT 7.5 g a.s./ha against ANURHE, South-East EPPO climatic zone.

Target	Assessment	Total number of trials	Number of trials where DLT+FPF EC85 0.75 L/ha > DLT 7.5 g a.s./ha	Average difference between DLT+FPF EC85 0.75 L/ha and DLT 7.5 g a.s./ha	Variability of data based on coefficient of variation (CV%)		Number of trials where the mixture is statistically <, =,> to DLT
					DLT+FPF EC85	DLT 7.5 g a.s./ha	
ANURHE	1-3 DAA	15	9	+7.8%	8.5	19.7	0, 12, 3
	7-10 DAA	15	11	+17.8%	14.8	45.3	0, 5, 10
Target	**Assessment**	**Total number of results**	**Number of trials where DLT+FPF EC85 0.75 L/ha > FPF SL200 56.25 g a.s.**	**Average difference between DLT+FPF EC85 0.75 L/ha and FPF SL200 56.25 g a.s.**	**Variability of data based on coefficient of variation (CV%)**		**Number of trials where the mixture is statistically <, =,> to FPF**
					DLT+FPF EC85	**FPF SL200 56.2 g a.s.**	
ANURHE	1-3 DAA	15	5	+0.2%	8.5	10.7	1, 12, 2
	7-10 DAA	15	6	+1.8%	14.8	17.6	0, 13, 2

It can be concluded that the mixture DLT+FPF EC85 at 0.75 L/ha demonstrates a considerably higher and more reliable efficacy against leaf-curling peach aphid in sunflower than DLT at equivalent amount of a.s./ha. However, only very slight positive effect of DLT+FPF EC85 at 0.75 L/ha *vs*. FPF SL200 56.25 g a.s./ha in terms of efficacy could be observed, indicating that FPF is the major component contributing to the control of ANURHE.
As no flupyradifurone-containing product is registered and available for the control of aphids in sunflower, the use of DLT+FPF EC85 in practice represents a clear improvement in comparison with DLT, which is registered for this use.

Results in Maritime EPPO climatic zone

Table 3.2-46 below presents the overall efficacy of DLT+FPF EC85 against ANURHE in sunflower in comparison to products containing equivalent amount of solo active substances, assessed 1–3 days (immediate effect), and 7–8 days (mid-term effect) after application.

Table 3.2-46: Overall efficacy of the mixture DLT+FPF EC85 against ANURHE in sunflower in comparison to products containing equivalent amount of solo active substances.

Overall summary						**Abbott % (efficacy)**					
EPPO climatic zone	**Timing of assessment**	**Assessment**	**Nb. of trials**	**PESSEV**		**DLT+FPF EC85**		**DLT**		**FPF SL200**	
						0.75 L/ha		**7.5 g a.s./ha**		**56.25 g a.s./ha**	
				Mean	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***
ANURHE											
Maritime CZ	1-3 DAA	aphids/plant	7	*12.5*	*5-45.8*	***88.3***	*61.6-98.8*	*80.0*	*47.3-97.2*	*84.3*	*47.4-96.8*
	7-8 DAA	aphids/plant	4	*6.6*	*4-11.7*	***89.7***	*80.7-96.2*	*78.2*	*47.2-93.5*	*86.9*	*79.5-94.3*

Discussion on the justification of the mixture against ANURHE in sunflower, Maritime EPPO climatic zone

Comparisons between DLT+FPF EC85 0.75 L/ha and FPF SL200 56.25 g a.s./ha or DLT 7.5 g a.s./ha demonstrate, that the mixture exhibits higher initial efficacy than DLT at 7.5 g a.s./ha in 7 trials out of 7 with an average positive effect of 8.3% in favour of the mixture, and than FPF SL200 at 56.25 g a.s./ha in 6 trials out of 7 with an average positive effect of 3.9% in favour of the mixture (**Table 3.2-47**).
In terms of mid-term effect, comparisons between DLT+FPF EC85 0.75 L/ha and FPF SL200 56.25 g a.s./ha or DLT 7.5 g a.s./ha demonstrate, that the mixture exhibits higher efficacy than DLT at 7.5 g a.s./ha in 4 summarized trials out of 4 with an average positive effect of 11.5% in favour of the mixture, and than FPF SL200 at 56.25 g a.s./ha in 3 trials out of 4 with an average positive effect of 2.8% in favour of the mixture.

DLT+FPF EC85 also exhibited more consistent results in terms of data variation when compared to DLT, especially at application timing which represents mid-term effect of an insecticide: 27.1% of variation for DLT, compared with 7.9 % variation for the mixture.

Table 3.2-47: Comparison between DLT+FPF EC85 0.75 L/ha and FPF SL200 56.25 g a.s./ha or DLT 7.5 g a.s./ha against ANURHE, Maritime EPPO climatic zone.

Target	Assessment	Total number of trials	Number of trials where DLT+FPF EC85 0.75 L/ha > DLT 7.5 g a.s./ha	Average difference between DLT+FPF EC85 0.75 L/ha and DLT 7.5 g a.s./ha	Variability of data based on coefficient of variation (CV%)		Number of trials where the mixture is statistically <, =,> to DLT
					DLT+FPF EC85	DLT 7.5 g a.s./ha	
ANURHE	1-3 DAA 7-8 DAA	7 4	7 4	+8.3% +11.5%	15.9 7.9	26.4 27.1	0, 5, 2 0, 0, 4

Target	Assessment	Total number of trials	Number of trials where DLT+FPF EC85 0.75 L/ha > FPF SL200 56.25 g a.s.	Average difference between DLT+FPF EC85 0.75 L/ha and FPF SL200 56.25 g a.s.	Variability of data based on coefficient of variation (CV%)		Number of trials where the mixture is statistically <, =,> to FPF
					DLT+FPF EC85	FPF SL200 56.25 g a.s.	
ANURHE	1-3 DAA 7-8 DAA	7 4	6 3	+3.9% +2.8%	15.9 7.9	21.9 7.9	0, 6, 1 0, 1, 3

It can be concluded that the mixture DLT+FPF EC85 at 0.75 L/ha demonstrates a considerably higher and more reliable efficacy against leaf-curling peach aphid in sunflower than DLT at equivalent amount of a.s./ha. However, only slight positive effect of DLT+FPF EC85 at 0.75 L/ha *vs*. FPF SL200 56.25 g a.s./ha in terms of efficacy could be observed, indicating that FPF is the major component contributing to the control of ANURHE.
As no flupyradifurone-containing product is registered and available for the control of aphids in sunflower, the use of DLT+FPF EC85 in practice represents a clear improvement in comparison with DLT products registered for this use.

Conclusion on the mixture justification across EPPO climatic zones
Based on the findings from trials conducted throughout two EPPO climatic zones, DLT+FPF EC85 at 0.75 L/ha exhibited consistently better control of *Brachycaudus helichrysi* regardless of its life stage (adult or nymph) than DLT at 7.5 g a.s./ha with less variability (based on coefficient of variation). Compared to FPF straight (37.5 g a.s./ha), the level of efficacy is evidently better with DLT+FPF EC85 0.75 L/ha.

USE 009: Justification of the mixture: lygus bugs *Lygus* sp. LYGUSP
In order to evaluate the efficacy of DLT+FPF EC85 against *Lygus* sp. (LYGUSP) in sunflower in foliar application, Bayer implemented a series of field trials in Europe.
Lygus bugs (several species belonging to genus *Lygus*, Myridae family) is a minor target of spring-applied insecticides in sunflower (*Helianthus annuus L.*) in Bulgaria. The data, which is presented here, is intended to support the use of DLT+FPF EC85 in Bulgaria, where sunflower HELAN is considered a major crop.
Single trial reports are given in the Compilation of Trial Reports M-689795-02-1 with the corresponding trial list.
It should be noticed that these trials are also part of the data package presented for Minimum effective dose tests in chapter 3.2.2 and Efficacy tests in chapter 3.2.3, where the methodology of the trials is described in detail.
A total of 8 trials from South-East climatic zone were summarised to justify the mixture of DLT+FPF EC85 for the control of lygus bugs in sunflower. The number of trials conducted in Central EU regulatory zone of South-East EPPO climatic zone is shown in **Table 3.2-48** below.

Table 3.2-48: Distribution of efficacy trials presented to justify the mixture against LYGUSP in sunflower.

Crop	EPPO climatic zone	Regulatory Zone	Country	Year	Number of trials	Total	
Sunflower	South-East	Central	Hungary	2015	4	7	8
				2016	2		
				2017	1		
			Slovakia	~~2014~~ 2015	~~2~~ 1	1	
Total	**South-East zone**	**EPPO climatic**	**Sunflower**				**8**

The tested rates are presented in **Table 3.2-49**.

Table 3.2-49: Tested rates of DLT+FPF EC85; FPF SL200; DLT formulations against LYGUSP, for the justification of the mixture.

Product	Formulated product dosages	Single substances dosages (g a.s./ha)	
		Deltamethrin (DLT)	Flupyradifurone (FPF)
DLT+FPF EC85	0.75 L/ha	7.5	56.25
FPF SL200	0.28125 L/ha	-	56.25
DLT EC100	0.075 L/ha	7.5	-
DLT EW15	0.5 L/ha	7.5	

Results in South-East EPPO climatic zone

Table 3.2-50 below presents the overall efficacy of DLT+FPF EC85 against LYGUSP in sunflower in comparison to products containing equivalent amount of solo active substances, assessed 2–3 days (immediate effect), and 6–7 days (mid-term effect) after application.

Table 3.2-50: Overall efficacy of the mixture DLT+FPF EC85 against LYGUSP in sunflower in comparison to products containing equivalent amount of solo active substances.

Overall summary						**Abbott % (efficacy)**					
EPPO climatic zone	**Timing of assessment**	**Assessment**	**Nb. of trials**	**PESSEV**		**DLT+FPF EC85**		**DLT**		**FPF SL200**	
						0.75 L/ha		**7.5 g a.s./ha**		**56.25 g a.s./ha**	
				Mean	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***
LYGUSP											
S-E CZ	Immediate effect	insects/plant	8	*2.1*	*0.2-3.6*	***93.5***	*90.5-95.2*	*94.9*	*87.9-98.0*	*64.8*	*44.3-87.9*
S-E CZ	Mid-term effect	insects/plant	8	*1.8*	*0.2-2.4*	***76.7***	*67.5-94.0*	*68.9*	*51.8-85.1*	*51.7*	*22.4-88.1*

Comparisons between DLT+FPF EC85 0.75 L/ha and FPF SL200 56.25 g a.s./ha or DLT 7.5 g a.s./ha demonstrate, that the mixture exhibits nearly similar initial efficacy against LYGUSP than DLT at 7.5 g a.s./ha. DLT+FPF EC85 0.75 L/ha performed better in 1 trials from 8 with being 1.4% less efficient than DLT on average. However, DLT+FPF EC85 0.75 L/ha exhibited far superior efficacy to that achieved by FPF SL200 at 56.25 g a.s and was better in all 8 trials with an average positive effect of 28.7% in favour of the mixture (**Table 3.2-51**).

Comparisons between DLT+FPF EC85 0.75 L/ha and FPF SL200 56.25 g a.s./ha or DLT 7.5 g a.s./ha at 6–7 DAA (mid-term effect) revealed, that in the longer run the mixture gains advantage over DLT at 7.5 g a.s./ha and exhibits higher efficacy in 7 trials from 8 with an average positive effect of 7.8% in favour of the mixture. DLT+FPF EC85 at 0.75 L/ha maintained highly superior LYGUSP control to FPF SL200 at 56.25 g a.s./ha and achieved higher efficacy in 7 trials from 8 with an average positive effect of 25.0% in favour of the mixture.

DLT+FPF EC85 also exhibited more consistent results in terms of data variation when compared to FPF SL200 with a coefficient of variation for the mixture being considerably lower than that of FPF SL200, especially at later assessment timing.

Table 3.2-51: Comparison between DLT+FPF EC85 0.75 L/ha and FPF SL200 56.25 g a.s./ha or DLT 7.5 g a.s./ha against LYGUSP, South-East EPPO climatic zone.

Target	Assessment	Total number of trials	Number of trials where DLT+FPF EC85 0.75 L/ha > DLT 7.5 g a.s./ha	Average difference between DLT+FPF EC85 0.75 L/ha and DLT 7.5 g a.s./ha	Variability of data based on coefficient of variation (CV%)		Number of trials where the mixture is statistically <, =,> to DLT
					DLT+FPF EC85	DLT 7.5 g a.s./ha	
LYGUSP	Immediate effect Mid-term effect	8 8	1 7	-1.4% +7.8%	1.9 12.1	3.4 14.5	3, 5, 0 0, 6, 2

Target	Assessment	Total number of results	Number of trials where DLT+FPF EC85 0.75 L/ha > FPF SL200 56.25 g a.s.	Average difference between DLT+FPF EC85 0.75 L/ha and FPF SL200 56.25 g a.s.	Variability of data based on coefficient of variation (CV%)		Number of trials where the mixture is statistically <, =,> to FPF
					DLT+FPF EC85	FPF SL200 56.2 g a.s.	
LYGUSP	Immediate effect Mid-term effect	8 8	8 7	+28.7% +25.0%	1.8 12.1	23.7 46.8	0, 1, 7 0, 4, 4

Conclusion on the mixture justification

It can be concluded that the mixture DLT+FPF EC85 at 0.75 L/ha demonstrates a higher and more reliable efficacy against Lygus bugs than the single active substance FPF at equivalent amount of a.s./ha in terms of initial efficacy and than DLT and FPF in terms of mid-term efficacy.

General conclusion for the justification of the mixture in sunflower

The results from the field trials carried out in Southern Zone countries, supported by trials carried out in the Central EU regulatory Zone, against key pests occurring in sunflower demonstrate that:

- Against ANURHE, the mixture DLT+FPF EC85 applied at 0.75 L/ha delivers considerably higher control than solo product containing equivalent amount of deltamethrin and similar control level as solo product containing equivalent amount of flupyradifurone. The mixture has the potential to deliver more effective long-lasting control of leaf curling peach aphid than deltamethrin and at smaller extent than flupyradifurone;
- Against LYGUSP the mixture at 0.75 L/ha provided a considerable advantage over deltamethrin and flupyradifurone especially in terms of duration of control;
- The mixture proves to have a potential for effectively controlling complex of pests, when they occur in the field at the same time. Products containing solo active substance proved to be efficacious against certain pest species, while exhibiting reduced efficacy against other species, e.g. DLT being considerably less effective against ANURHE or FPF being less effective against LYGUSP. Combination of both active substances negates these disadvantages and substantially improves efficacy and duration of control against entire complex of pests likely to be encountered in the field;
- The mixture shows a better consistency of performances than the products containing solo active substances;
- The mixture therefore can be justified against each of the targeted pest species and the complex of these species as a whole in comparison to the products containing solo active substances, based on evident advantages provided to efficacy level and duration of control;

The considerations for this insecticide mixture regarding resistance management are addressed in point 3.3.

USE 010: Justification of the mixture: *Scaphoideus titanus* SCAPLI in grapevine

In order to evaluate the justification of the mixture of DLT+FPF EC85 on *Scaphoideus titanus* in grapevine, the following chapter summarizes the results from a series of 7 field trials carried out in Hungary belonging to the European regulatory Central zone from 2016 to 2018.

Single trial reports are given in the Compilation of Trial Reports M-687453-01-1 with the corresponding trial list.

The number of trials conducted is shown in **Table 3.2-52** below.

Table 3.2-52: distribution of trials according to climatic zones and countries for *Scaphoideus titanus* (SCAPLI).

EPPO climatic zone	Regulatory Zone	Country	Year	Number of trials	Total
South-East	Central	Hungary	2016	2	7
			2017	2	
			2018	3	

All the trials were conducted under GEP by officially recognized testing organisations and followed the appropriate EPPO standards.
The detailed methodology of these trials is described in chapter 3.2.3 Efficacy tests since they are used in both chapters.
DLT+FPF EC85 was tested in grapevine for the control of *Scaphoideus titanus* (SCAPLI) at 0.4 L/ha (4+30 g a.s./ha) and compared to:
- flupyradifurone (designed as "FPF") at 30 g a.s./ha
- deltamethrin (designed as "DLT") at 4 g a.s./ha.

The rates of the straight active substances tested alone deliver 100% for DLT and 100% for FPF of the amount bring by DLT+FPF EC85 at the supported rate of 0.4 L/ha on *Scaphoideus titanus* in grape.
Details on test product dosages are presented in **Table 3.2-53** below.

Table 3.2-53: Dosages of DLT+FPF EC85 used to justify the mixture

Product	**Formulated product dosages**	**Single substances dosages (g a.s./ha)**	
		Deltamethrin (DLT)	**Flupyradifurone (FPF)**
DLT+FPF EC85	0.4 L/ha	4	30
FPF SL200	0.28 L/ha	-	30
DLT EC100	0.04 L/ha	4	-

Results
The results are presented and discussed hereafter by timing of assessment from 2-3 to 21 days after application.

- *Results at 2-3 days after application:*

The level of infestation of *Scaphoideus titanus* (SCAPLI) in untreated plots varies from 1.6 to 212.0 larvae per 50 leaves with a mean of 95.9 larvae on 50 leaves (**Table 3.2-54**).

Table 3.2-54: Efficacy of DLT+FPF EC85 against *Scaphoideus titanus (SCAPLI)* on grapevine: justification of the mixture. Counts of living larvae at 2 to 3 days after application.

Trial number	**Sample Size**	**Days after appl.**	**BBCH crop stage at assessment**	UNTREATED number of insects on 50 leaves	DLT+FPF 0.4 L/ha (4+30g a.s./ha)	DLT 4 g a.s./ha 100EC	FPF 30 g a.s./ha SL200
					% Efficacy Abbott		
EU Central zone. South-East EPPO climatic zone (Hungarian trials)							
Mean 7 trials	50 leaves	2 to 3	53 to71	95.9	95.3	90.4	90.3
Min-Max				*(1.6-212.0)*	*(90.2-98)*	*(84.2-99.1)*	*(66.9-98.8)*

Among the 7 trials, at 2 to 3 days after application, the level of efficacy of DLT+FPF EC85 and straight active substances (DLT and FPF) are statistically better than in untreated.
On average of 7 trials, DLT+FPF EC85 provides an efficacy of 95.3% against living larvae (ranging from 90.2% to 98.0%). Compared to the straight active ingredient providing the same dose, DLT+FPF EC85 applied at 0.4 L/ha (DLT 4 g a.s.+FPF 30 g a.s.) is:

- 4.9% better than DLT 4 g a.s./ha applied straight (95.3% versus 90.4% of efficacy in mean of 7 trials). By look at minimum and maximum values, DLT+FPF EC85 provides less variability (90.2-98.0% versus 84.2-99.1% of efficacy).
- 5.0% better that FPF 30 g a.s./ha applied straight (95.3% versus 90.3% of efficacy in mean of 7 trials). By looking at minimum and maximum values, DLT+FPF EC85 provides less variability (90.2-98.0% versus 66,9-98,8% of efficacy).

- *Results at 7-8 days after application:*

The level of infestation of *Scaphoideus titanus* (SCAPLI) in untreated plots varies from 1.9 to 267.5 larvae per 50 leaves with a mean of 111.8 larvae on 50 leaves (**Table 3.2-55**).

Table 3.2-55: Efficacy of DLT+FPF EC85 against *Scaphoideus titanus (SCAPLI)* on grapevine: justification of the mixture. Counts of living larvae at 7 to 8 days after application.

Trial number	**Sample Size**	**Days after appl.**	**BBCH crop stage at assessment**	UNTREATED number of insects on 50 leaves	DLT+FPF 0.4 L/ha (4+30g a.s./ha)	DLT 4 g a.s./ha 100EC	FPF 30 g a.s./ha SL200
					% Efficacy Abbott		
EU Central zone. South-East EPPO climatic zone (Hungarian trials)							
Mean7 trials	50 leaves	7 to 8	60 to 73	*111.8*	95.3	87.4	87.7
Min-Max				*(1.9-267.5)*	*(86.3-100)*	*(82.0-94.0)*	*(65.2-100)*

Among the 7 trials, at 7 to 8 days after application, the level of efficacy of DLT+FPF EC85 and straight active substances (DLT and FPF) are statistically better than in untreated.
On average of 7 trials, DLT+FPF EC85 provides an efficacy of 95.3% against living larvae (ranging from 86.3% to 100%). Compared to the straight active ingredient providing the same dose, DLT+FPF EC85 applied at 0.4 L/ha (DLT 4 g a.s.+FPF 30 g a.s.) is:

- 7.9% better than DLT 4 g a.s./ha applied straight (95.3% versus 87.4% of efficacy in mean of 7 trials). By look at minimum and maximum values, DLT+FPF EC85 provides less variability (86.3-100% versus 84.0-94.0% of efficacy).
- 7.6% better that FPF 30 g a.s./ha applied straight (95.3% versus 87.7% of efficacy in mean of 7 trials). By looking at minimum and maximum values, DLT+FPF EC85 provides less variability (86.3-100% versus 87.2-100% of efficacy).
- *Results at 14 days after application:*

The level of infestation of *Scaphoideus titanus* (SCAPLI) in untreated plots varies from 2.2 to 305.5 larvae per 50 leaves with a mean of 98.2 larvae on 50 leaves (**Table 3.2-56**).

Table 3.2-56: Efficacy of DLT+FPF EC85 against *Scaphoideus titanus (SCAPLI)* on grapevine: justification of the mixture. Counts of living larvae at 14 days after application.

Trial number	**Sample Size**	**Days after appl.**	**BBCH crop stage at assessment**	UNTREATED number of insects on 50 leaves	DLT+FPF 0.4 L/ha (4+30g a.s./ha)	DLT 4 g a.s./ha 100EC	FPF 30 g a.s./ha SL200
					% Efficacy Abbott		
EU Central zone. South-East EPPO climatic zone (Hungarian trials)							
Mean7 trials	50 leaves	14	61 to 75	*98.2*	93.4	84.4	78.4
Min-Max				*(2.2-305.5)*	*(73.0-100)*	*(76.5-93.7)*	*(32.4-100)*

At 14 days after application, in the 7 trials the level of efficacy of DLT+FPF EC85 and straight active substances (DLT and FPF) are statistically better than in untreated.
On average of 7 trials, DLT+FPF EC85 provides an efficacy of 93.4% against living larvae (ranging from 73.0% to 100%). Compared to the straight active ingredient providing the same dose, DLT+FPF EC85 applied at 0.4 L/ha (DLT 4 g a.s.+FPF 30 g a.s.) is:

- 9.0% better than DLT 4 g a.s./ha applied straight (93.4% versus 84.4% of efficacy in mean of 7 trials). By look at minimum and maximum values, DLT+FPF EC85 provides less variability (73.0-100% versus 76.5-93.7% of efficacy).
- 15.0% better that FPF 30 g a.s./ha applied straight (95.4% versus 78.4% of efficacy in mean of 7 trials). By looking at minimum and maximum values, DLT+FPF EC85 provides less variability (73.0-100% versus 32,4-100% of efficacy).
- *Results at 21 days after application:*

The level of infestation of *Scaphoideus titanus* (SCAPLI) in untreated plots varies from 294.8 to 327.0 larvae per 50 leaves with a mean of 310.9 larvae on 50 leaves (**Table 3.2-57**).

Table 3.2-57: Efficacy of DLT+FPF EC85 against *Scaphoideus titanus (SCAPLI)* on grapevine: justification of the mixture. Counts of living larvae at 21 days after application.

Trial number	**Sample Size**	**Days after appl.**	**BBCH crop stage at assessment**	UNTREATED number of insects on 50 leaves	DLT+FPF 0.4 L/ha (4+30g a.s./ha)	DLT 4 g a.s./ha 100EC	FPF 30 g a.s./ha SL200
					% Efficacy Abbott		
EU Central zone. South-East EPPO climatic zone							
Mean2 trials	50 leaves	21	69	*310.9*	99.9	72.4	98.6
Min-Max				*(294.8-327.0)*	*(99.7-100)*	*(71.8-72.9)*	*(98.2-99.0)*

At 21 days after application, in 2 trials out of 3 the level of efficacy of DLT+FPF EC85 and references are statistically better than in untreated. In 1 trial the alpha risk was higher than 5%. For that reason it is decided to exclude this trial from the analyse.
On average of 2 trials, DLT+FPF EC85 provides an efficacy of 99.9% against living larvae (ranging from 99.7% to 100%). Compared to the straight active ingredient providing the same dose, DLT+FPF EC85 applied at 0.4 L/ha (DLT 4 g a.s.+FPF 30 g a.s.) is:

- 27.5% better than DLT 4 g a.s./ha applied straight (99.9% versus 72.4% of efficacy in mean of 2 trials). By look at minimum and maximum values, DLT+FPF EC85 provides less variability (99,7-100% versus 71,8-72,9% of efficacy).
- 1.3% better that FPF 30 g a.s./ha applied straight (99.9% versus 78.4% of efficacy in mean of 2 trials). By looking at minimum and maximum values, DLT+FPF EC85 provides less variability (99.7-100% versus 98,2-99.0% of efficacy).
- *Conclusion about the efficacy on Scaphoideus titanus in grape:*

Based on the findings of the analysis of the 7 trials It can be concluded that the mixture DLT+FPF EC85 at 0.4 L/ha showed a higher and more reliable efficacy against *Scaphoideus titanus* than DLT formulation and FPF SL200 at equivalent amount of active substance per hectare.
The product's evaluation complies with Uniform Principles.

DLT and FPF ratio justification

Additional data have been submitted by the applicant during 2nd stage of the evaluation, as the answer for the comment received from the cMS Slovenia regarding the justification of ratios DLT and FPF doses. The explanation given by the applicant is presented below. Details are contained in the report SP102000028562 (Mixture Ration Evaluation of Deltamethrin & Flupyradifurone EC85 (10 + 75 g/L) on Lepidoptera Pests.

Sivanto Energy is a product intended to be used against a broad range of insect pests (sucking + chewing) in several crops. Practically it is not possible to justify a ratio against all these diverse pests. A single pest has been evaluated in a study conducted in laboratory conditions (report SP102000028562), the pest (HELIAR) being estimated to be the most discriminating one (as in practice a higher dose of DLT is needed). Results (table 10, page 16 of the report) show that for instance a 15+70 ratio (DLT+FPF) is worse than the 10+75, which corresponds to the supported formulation.

In addition, in general, deltamethrin effective dose against chewing pests (leps; coleoptera) is between 5 to 12,5 g a.s/ha. In OSR and other crops, the mixture should not deliver higher deltamethrin doses than the currently registered doses 5 to 7,5 g a.s/ha (notably for resistance management reasons). On the other side, flupyradifurone effective dose against sucking pests in low crops is between 50 to 125 g a.s/ha. The 10:75 ratio offers the possibility to fulfill the objectives of controlling both chewing and sucking pests.

Comments of zRMS on:

Preliminary (3.2.1)

123 of 185 trials carried out on corn/sweet corn (33), tomato (4), cereal crops (56), sunflower (23) and grape (7) presents data on efficacy of DLT+FPF EC85 compared with products containing single flupyridafurone (mostly 56.25 g a.s/ha or 30, 37.5, 94 g a.s./ha) and single deltamethrin (mostly 7.5 g a.s./ha or 4, 5, 6.25, 12.5 g a.s./ha). The trials were conducted in the concerned EPPO zones: South-East (Bulgaria, Hungary, Romania, Slovakia), Maritime (Czech Republic), North-East (Latvia, Poland) between 2014 and 2018.
The benefits co-formulation mixture deltamethrin with flypyradifurone as compared with products containing single active ingredients were seen in the control of most target pests, including: on corn - *Ostrinia nubilalis*, *Helicoverpa armigera* and *Diabrotica virgifera virgifera*; on cereals – *Oulema* spp., *Sitobion avenae* and *Eurygaster* spp.; on sunflower – *Brachycaudus helichrysi* and *Lygus* sp.; on grape – *Scaphoideus titanus*. The difference in efficacy was from a few to a several dozen percentage in favour of the co-formulation mixture.
Additionally, the other benefits of co-formulation mixture deltamethrin with flupyradifurone besides increasing the overall control of target insect pests are:
- the new novel compound would be valuable for the control of broad variety of pests in different crops increasing the avaialability of registered insecticide mixtures for the control of insect pests in corn, cereals, suflower and grapevine.
- the new mixture of two active substances with different mode of action [deltamethrin, belonging to the pyrethroid chemical class (IRAC group 3A) and flupyradifurone, from the butenolide chemical class (IRAC group 4D)] would be a valuable tool in pest resistance management strategy.
- mixture of two active substances which have opposite termodependancy (pyrethroids have negative termodependancy while flupyradufurone has positive termodependancy) woul be effective in broad range of temperature conditions.

Based on the submitted preliminary efficacy trial results it can be concluded that the use of co-formulation of deltamethrin with flupyradifurone has been justified.
Considering additional data submitted by the applicant during 2nd stage of the evaluation, the ratio for DLT and FPF has been justified.

3.2.2 Minimum effective dose tests (KCP 6.2)

USE 001: Minimum effective dose of DLT+FPF EC85 on *Ostrinia nubilalis* (PYRUNU) in corn

Material and methods
In order to evaluate the Minimum Effective Dose of DLT+FPF EC85 on *Ostrinia nubilalis* in corn the following chapter summarize the results from a series of 13 field trials carried out in EU regulatory central zone from 2017 to 2018 in Maritime, North-East and South-East EPPO climatic zone.
Single trial reports are given in the Compilation of Trial Reports M-687456-02-1 with the corresponding trial list.
The number of trials conducted in each EPPO climatic zone and country is shown in **Table 3.2-58** below.

Table 3.2-58: distribution of trials according to EPPO climatic zones and countries.

EPPO climatic zone	Regulatory Zone	Country	Year	Number of trials		
				Total per year	Total per country	Total
Maritime	Central	Czech Republic	2018	2 (2)	2	13
North-East	Central	Poland	2017	4 (4)	8	
			2018	4 (4)		
South-East	Central	Romania	2018	1 (1)	3	
		Slovakia	2018	1 (1)		
	Southern	Bulgaria	2018	1 (1)		

All the trials were conducted under GEP by officially recognized testing organisations and followed the appropriate EPPO standards.

The detailed methodology of these trials is described in chapter 3.2.3 Efficacy tests since they are used in both chapters.
DLT+FPF EC85 was tested in corn for the control of *Ostrinia nubilalis* at 0.5 L/ha (5.0+37.5) and 0.75 L/ha (7.5+56.25 g a.s/ha). The dose rate of 1.25 L/ha (12.5+94 g a.s./ha) was tested too and is presented as indication.
Efficacy was tested under a range of environmental conditions to fully challenge the product.
Details on test product dosages are presented in **Table 3.2-59** below.

Table 3.2-59: Dosages of DLT+FPF EC85 used to determine minimum effective dose rate

Product	Formulated product dosages	Single ingredients	Single ingredient dosages	% of the maximal label dose rate
DLT+FPF EC85	0.5 L/ha	Deltamethrin+ flupyradifurone	5.0+37.5 g a.s./ha	66.7%
	0.75 L/ha		7.5+56.25 g a.s/ha	100 %
	1.25 L/ha		12.5+94 g a.s./ha	166.7 %

Results
Based on chapter 3.2.3 "Efficacy tests", the trends related to pest pressure and level of efficacy are similar for the 3 EPPO climatic zones (Maritime, North-East and South-East). For that reason, the results are presented by grouping EPPO climatic zones in **Table 3.2-60** hereafter.

Table 3.2-60: Minimum effective dose of DLT+FPF EC85 on *Ostrinia nubilalis* in corn –% Efficacy on counting number of larvae per plant at BBCH 75.

EPPO climatic zone	EU regulatory zone	Trial number	Sample size (plants)	Days after appl.	BBCH crop stage	Untreated number of larvae per plant	DLT+FPF EC85 0.5 L/ha (5+37.5 g a.s/ha) 0.67N	DLT+FPF EC85 0.75 L/ha (7.5+56.25 g a.s/ha) N	DLT+FPF EC85 1,25 L/ha (12,5+94g a.s./ha) 1.67N
Central	Mar	Mean of 2 trials	20	42 to 46	73 to 74	*0.6*	51.5	**81.8**	**82.6**
		(Min-Max)				*(0.4-0.7)*	(45.8-57.1)	**(68.6-94.9)**	**(68.6-96.6)**
Central	N-E	Mean of 8 trials	20	26 to 47	75	0.9	91.5	**94.2**	98.11
		(Min-Max)				(0.5-1.3)	(87-94.6)	**(88.9-96.2)**	(96.3-100)
Central+Southern	S-E	Mean of 3 trials	20	7 to 34	81 to 85	*0.8*	78.1	**91.7**	94.9
		(Min-Max)				*(0.3-1.6)*	(59.7-93.6)	**(83.8-97.6)**	(89.2-100)
Central+Southern	Mar+N-E+S-E	Mean of 13 trials	20	7 to 47	73 to 85		82.2	**91.7**	95.0
		(Min-Max)				*0.3 to 1.6*	(45.8-94.6)	**(68.6-97.6)**	(68.6-100)

N-E=North-East, S-E= South-east, Mar=Maritime DLT=deltamethrin, FPF=flupyradifurone

Discussion about the Minimum Effective Dose – O. nubilalis
Within the 13 trials presented from Maritime, North-East and South-East EPPO climatic zones, the level of efficacy of DLT+FPF EC85 and standard products are statistically better than in untreated (see Efficacy tests chapter for more information on standard products).

Maritime EPPO climatic zone:
Within the 2 trials from Maritime EPPO climatic zone, the level of infestation of *Ostrinia nubilalis* varies from 0.4 to 0.7 larvae per plant with a mean of 0.6 larvae per plant.
The level of efficacy of DLT+FPF EC85 applied at 0.75 L/ha is of 81.8% which is better than DLT+FPF EC85 applied at 0.5 L/ha that provide only 51.5% of efficacy in mean of 2 trials.

North-East EPPO climatic zone:
Within the 8 trials from North-East EPPO climatic zone, the level of infestation of *Ostrinia nubilalis* varies from 0.5 to 1.3 larvae per plant with a mean of 0.9 larvae per plant.
For the North-East EPPO climatic zone, DLT+FPF EC85 at 0.75 L/ha provide a level of efficacy of 94.2% which is better than the level of efficacy of 0.5 L/ha dose which is of 91.5%.

South-East EPPO climatic zone:
Within the 3 trials from South-East EPPO climatic zone, the level of infestation of *Ostrinia nubilalis* varies from 0.3 to 1.6 larvae per plant with a mean of 0.8 larvae per plant.

For the South-East EPPO climatic zone, the level of efficacy of DLT+FPF EC85 applied at 0.75 L/ha is of 91.7% which is clearly better than DLT+FPF EC85 applied at 0.5 L/ha that provide 78.1% of efficacy in mean of 3 trials.
To complete the analyse of those 3 EPPO climatic zones, hereafter is a boxplot graph in **Figure 3.2-2** showing the consistency of efficacy results for the set of the 13 trials. This graph well underlined the better consistency in results with DLT+FPF EC85 at dose of 0.75 L/ha compared to the dose of 0.5 L/ha. The dose of 1.25 L/ha is just given as indication.

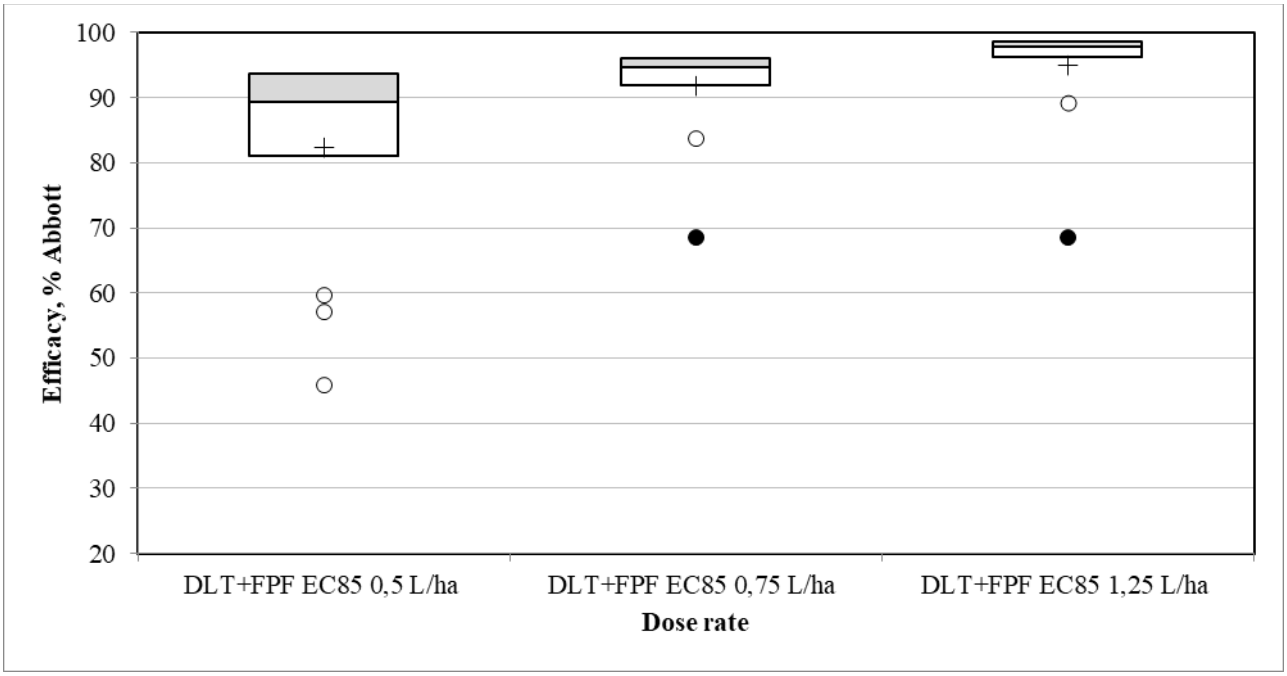


Figure 3.2-2: MED of DLT+FPF EC85 in 13 trials conducted in Central zone (3 EPPO climatic zones) on *Ostrinia nubilalis*

Conclusion about the Minimum effective dose O. nubilalis
Based on the findings of the analysis of the 13 trials conducted across the 3 EPPO climatic zones (Maritime, North-East and South-East), the proposed rate of 0.75L/ha of DLT+FPF EC85 ensures an efficient control of *Ostrinia nubilalis* in corn in the EU regulatory Central zone under varying climatic and infestation conditions.

USE 002: Minimum effective dose of DLT+FPF EC85 on *Helicoverpa armigera* (HELIAR) in corn

Material and methods
In order to evaluate the Minimum Effective Dose of DLT+FPF EC85 on *Helicoverpa armigera* in corn, the following chapter summarize the results from a series of 6 field trials carried out in EU regulatory Central zone. As *Helicoverpa* is polyphagous and as in efficacy part, it is demonstrated that the products (standards and DLT+FPF 85EC) have the same behaviour whatever the crop (corn or tomato) with similar doses, then the results will be presented as follow:

- 2 field trials on corn in the South-East EPPO climatic zone.
- 4 supportive field trials in tomato South-East EPPO climatic zone.

There are no trials to support North-East and Maritime EPPO climatic zone for respectively Poland and the Czech Republic. However, as this pest is minor in Poland and the Czech Republic according to EPPO website, it is proposed to use the trials from South-East EPPO climatic zone as supportive for both EPPO climatic zones.
All trials were carried out in field conditions, with natural infestations.
Single trial reports are given in the Compilation of Trial Reports M-687456-02-1 with the corresponding trial list.

The number of trials conducted in each crop and EPPO climatic zone and country is shown in **Table 3.2-61** below.

Table 3.2-61: distribution of **corn** trials according to EPPO climatic zones and countries.

EPPO climatic zone	Crop	Regulatory Zone	Country	Year	Trial code	Number of trials		
						Total by crop	Total by country	Total
South-East	ZEAMX	Central	Hungary	2018	IR18HUNCN3S505	2	1	6
			Slovakia	2018	IR18SVK102VK08		1	
	LYPES	Central	Romania	2018	IR18ROU008CP01	4	2	
				2018	IR18ROU008CP02			
		Southern	Bulgaria	2018	IR18BGRTO1AN94		2	
				2018	IR18BGRTO1PV07			

All the trials were conducted under GEP by officially recognized testing organisations and followed the appropriate EPPO standards.
As it is impossible to predict which lepidoptera will occur in field trials (*Ostrinia nubilalis* or *Helicoverpa armigera* or both), the trials follow the specific EPPO standard PP1/013(3) *Ostrinia nubilalis* on corn with specific recommendation for assessments on *Helicoverpa armigera* so that trials can be used for *Ostrinia nubilalis* or *Helicoverpa armigera* or both.
Tomato trials followed the requirements of the specific EPPO standard PP1/295(1) *Helicoverpa armigera* on vegetables or ornamentals.
The detailed methodology of these trials is described in chapter 3.2.3 Efficacy tests since they are used in both chapters.
DLT+FPF EC85 was tested in corn for the control of *Ostrinia nubilalis* at 0.5 L/ha (5.0+37.5) and 0.75 L/ha (7.5+56.25 g a.s/ha). The dose rate of 1.25 L/ha (12.5+94 g a.s./ha) was tested too and is presented as indication.
The rates tested reflect 60 % and 100 % of the proposed label rate, according to EPPO standard PP1/225 '*Minimum effective dose'* (60 to 80% compared to 100%).
Efficacy was tested under a range of environmental conditions to fully challenge the product.
Details on test product dosages are presented in **Table 3.2-62** below.

Table 3.2-62: Dosages of DLT+FPF EC85 used to determine minimum effective dose rate

Product	Formulated product dosages	Single ingredients	Single ingredient dosages	% of the maximal label dose rate
DLT+FPF EC85	0.5 L/ha	Deltamethrin +Flupyradifurone	5.0+37.5 g a.s./ha	66.7%
	0.75 L/ha		7.5+56.25 g a.s/ha	100 %

Results

Helicoverpa armigera larvae show a strong preference in feeding on inflorescence and fruit parts of crops. The assessments are so done on damaged cobs in corn and damaged fruits on tomato. The most discriminant assessments have been chosen to be presented in this minimum effective dose chapter.
On corn, 1 table will show the percentage of efficacy according to the pest incidence recorded two weeks after application.
On tomato, 1 table will show the percentage of efficacy according to the pest incidence recorded two weeks after the second application.
A summary of the available results is presented in **Table 3.2-63** hereafter.

Table 3.2-63: Minimum effective dose of DLT+FPF EC85 on *Helicoverpa armigera* in **tomato and corn** – % Efficacy on counting number of plant part damaged at 7 or 14 days after application – pest incidence. Results from the **South-East EPPO climatic zones**

Crop	EPPO climatic zone	EU regulatory zone	Trial number	Sample size	Days after appl.	BBCH crop stage	*UTC*	DLT+FPF EC85 (DLT+FPF) 0.5 L/ha	DLT+FPF EC85 (DLT+FPF) 0.75 L/ha	Number of trials showing N dose statistically <,=,> to 0.6N dose
							% Frequency Damaged fruits	*0.6N* *% efficacy*	*N* *% efficacy*	
ZEAMX	S-E	Central	Mean of 2 trials	50 cobs	14	71 to 73	33.0	65.7	**75.7**	0, 1, 1
			(Min-Max)				*(30-51)*	*(30.4-51.7)*	*(56.9-61.7)*	
LYPES	S-E	Central+ Southern	Mean of 4 trials	100 fruits	7	73 to 85	29.2	78.1	**83.9**	0, 4, 0
			(Min-Max)				*(20.5-39.5)*	*(69.3-85.4)*	*(73.7-92.4)*	
ZEAMX+ LYPES	S-E	Central+ Southern	Mean of 6 trials	50 cobs or 100 fruits	7 or 14 days	71 to 85	33.0	65.7	**75.7**	0, 5, 1
			(Min-Max)				*(20.5-51)*	*(30.4-85.4)*	*(56.9-92.4)*	
			CV					31.8	**18.7**	

N:targeted dose for intended use on Helicoverpa armigera

*Discussion about Minimum Effective Dose on **corn** and on **tomatoes** for South-East EPPO climatic zone*

In all trials, the level of efficacy of DLT+FPF EC85 and references are statistically better than in untreated.

As demonstrated in chapter 3.2.1 and 3.3.3, is it possible to merge corn and tomato trials to study the product effect on target *Helicoverpa armigera*.

Within the 6 trials used for minimum effective dose, based on pest incidence assessment done 2 weeks after application, the level of infestation of *Helicoverpa armigera* was homogeneous in each trial. The frequency of attack varies from 20.5 to 51% with a mean of 33%.

Despite there is only 1 trial out of 6 showing statistically difference in favour to the N dose versus 0.6 N dose, the level of efficacy is always better with the N dose. In mean of 6 trials the level of efficacy is 10% better with DLT+FPF EC85 applied at 0.75 L/ha (75.7% of efficacy) than DLT+FPF EC85 applied at 0.5 L/ha (67.5% of efficacy).

Conclusion about Minimum Effective Dose on Helicoverpa armigera corn for South-East EPPO climatic zone.

Based on the findings of the analysis of the 6 trials, the proposed rate of 0.75L/ha of DLT+FPF EC85 ensures better and more consistent control of *Helicoverpa armigera* in corn than the lower dose of 0.5 L/ha in the South-East EPPO climatic zone. Those results can be extrapolated to the other EPPO climatic zones from EU regulatory central zone for countries where this pest is considered as minor by EPPO organization

USE 003: Minimum effective dose of DLT+FPF EC85 on *Diabrotica virgifera virgifera* (DIABVI) in corn

Material and methods

In order to evaluate the minimum effective dose of DLT+FPF EC85 on *Diabrotica virgifera virgifera* in corn, a series of ~~18~~ 16 trials was implemented across Europe from 2014 to 2018.

Single trial reports are given in the Compilation of Trial Reports M-688139-01-1 with the corresponding trial list.

The number of trials conducted in each EPPO climatic zone and country is shown in **Table 3.2-64** below.

Table 3.2-64: distribution of trials according to EPPO climatic zones and countries.

EPPO climatic zone	Regulatory Zone	Country	Year	Number of trials (valid trials)		
				Total by year	Total by country	Total
North-East	Central	Poland	2017	2	4	18 16
			2018	2		
South-East	Central	Hungary	2015	2	6	
			2016	2		
			2017	1		
			2018	1		
		Slovakia	~~2014~~	~~2~~	8 6	
			2015	2		
			2016	2		
			2017	1		
			2018	1		

All the trials were conducted under GEP by officially recognized testing organisations and followed the appropriate EPPO standards.
In order to avoid duplication and since this trial series is the same as the one presented for efficacy tests, methods used, main characteristics and detailed information about can be reached in chapter **3.2.3**.
DLT+FPF EC85 was tested in corn for the control of *Diabrotica virgifera virgifera* at 0.5 L/ha (5+37.5 g a.s./ha) and at 0.75 L/ha (7.5+56.25 g a.s/ha)
The rates tested reflect 66.7 % and 100 % of the proposed label rate, in accordance with the EPPO standard PP1/225 '*Minimum effective dose'*.
Efficacy was tested under a range of environmental conditions to fully challenge the product.
Details on test product dosages are presented in **Table 3.2-65** below.

Table 3.2-65: Dosages of DLT+FPF EC85 used to determine minimum effective dose rate

Product	Formulated product dosages	Single ingredients	Single substance dosages	% of the maximal label dose rate
DLT+FPF EC85	0.5 L/ha	Deltamethrin +Flupyradifurone	5+37.5 g a.s./ha	66.7 %
	0.75 L/ha		7.5+56.25 g a.s./ha	100 %

Results
It has to be noticed that even in a same EPPO climatic zone, the pest pressure level can vary depending on countries like for South-East EPPO climatic zone where the Hungarian trials were much more infested than the Slovakian ones. Moreover, considering ~~Poland~~ Polish trials, even at a country level, pest pressure varies according to local areas.
Trials from the North-East and South-East EPPO climatic zones are presented all together but sorted by EPPO climatic zone. The results are presented and discussed hereafter by timing of assessment from 2-3 to 21 days after application.
A summary of the available results is presented in **Table 3.2-66** hereafter.

Table 3.2-66: Minimum Effective Dose of DLT+FPF EC85 on *Diabrotica virgifera virgifera* in corn – % Efficacy on counting number of insects in yellow traps.

EU regulatory zone	EPPO climatic zone	Trial number	Sample size	Days after appl.	BBCH crop stage	UNTREATED number of living insects in yellow trap	DLT+FPF EC85	DLT+FPF EC85
							0.5 L/ha 5+37.5 g a.s/ha	**0.75 L/ha 7.5+56.25 g a.s/ha**
							Efficacy (% Abbott) / or number of insects for assessments before/at application timing	
		Mean of 4 trials (min-max)		-1	73-75	*201.9*	*201.0*	*201.4*
						(60.8-333.3)	*(55.3-314.8)*	*(64.8-307.8)*
		Mean of 4 trials (min-max)	-	2 to 3	73-75	*189.6*	91.2	**94.9**
						(48.0-297.8)	*(85.9-95.6)*	*(91.7-97.6)*
Central	N-E	Mean of 4 trials (min-max)	-	7	75	*211.0*	76.8	**82.8**
						(61.3-318.0)	*(73.9-79.6)*	*(78.6-87.2)*
		Mean of 4 trials (min-max)	-	14	83	*184.2*	36.2	**46.5**
						(74.0-247.8)	*(24.9-45.3)*	*(37.4-62.2)*
		Mean of 12 trials (min-max)	-	-3 to 0	59-73	*50.1*	*45.7*	*52.4*
						(0.0-130.8)	*(0.0-135.8)*	*(0.0-141.3)*
		Mean of 10 trials (min-max)	-	2 to 3	59-71	*58.3*	76.2	**88.5**
						(2.7-179)	*(47.1-100)*	*(65.4-100)*
Central	S-E	Mean of 9 trials (min-max)	-	6 to 8	61-75	*51.3*	74.0	**78.4**
						(1.5-151)	*(36.4-100)*	*(50.4-100)*
		Mean of 8 trials (min-max)	-	14 to 16	63-79	*55.7*	53.9	**69.7**
						(2.3-139.7)	*(25.2-100)*	*(39.4-100)*
	Mean of 16 trials (min-max)		-	-3 to 0	59-75	*88.1*	*84.5*	*89.7*
						(0.0-333.3)	*(0.0-314.8)*	*(0.0-307.8)*
Central zone	Mean of 14 trials (min-max)		-	2 to 3	59-75	*95.8*	80.5	**90.4**
						(2.7-297.8)	*(47.1-100)*	*(65.4-100)*
N-E+S-E EPPO climatic zone	CV						20.7	**14.0**
	Mean of 14 trials		-	6 to 8	61-75	*96.9*	74.8	**79.8**
	(min-max)					*(1.5-318)*	*(36.4-100)*	*(50.4-100)*
	CV						27.1	**21.7**
	Mean of 13 trials (min-max)		-	14 to 16	63-83	*98.5*	48.0	**62.0**
						(2.3-247.8)	*(24.9-100)*	*(37.4-100)*
	CV						59.6	**42.2**

N-E=North-East, S-E=South-East, CV=coefficient of variation

In all trials and assessments kept for the analyse, the level of efficacy of DLT+FPF EC85 and references are statistically better than in untreated except in the last timing of assessment 2 weeks after application kept to show a fall down in efficacy in some trials.

North-East EPPO climatic zone:
Among the 4 trials that were conducted in Poland, the pest pressure varies from 48 to 333 larvae per three yellow traps with a mean around 197 larvae whatever assessment timings. DLT+FPF EC85 at 0.75 L/ha (7.5+56.25 g a.s/ha) show a better efficacy than DLT+FPF EC85 applied at 0.5 L/ha (5+37.5 g a.s./ha) whatever the assessment timings. The difference of efficacy increases in time (from 3.7% to 10.3%) meaning that 0.75 L/ha dose bring a longer lasting effect than the 0.5 L/ha lower dose.

South-East EPPO climatic zone:
Among the 12 trials conducted in Hungary and in Slovakia for South-East EPPO climatic zone, and among the valid assessments the better performance of efficacy is provided by the dose of 0.75 L/ha compared to 0.5 L/ha of DLT+FPF EC85. Whatever the assessment timings, the dose of 0.75 L/ha is always superior to 10% of efficacy when compared to the 0.5 L/ha dose.

Conclusion about the Minimum effective dose across EPPO climatic zones D. virgifera virgifera
Based on the finding of the analysis, the trends are the same whatever the EPPO climatic zones regarding the level of efficacy: DLT+FPF EC85 at 0.75 L/ha provide a better efficacy on *Diabrotica virgifera virgifera* (90.4 to 92.0% from 2-3 to 14-16 days after application) than DLT+FPF EC85 at 0.5 L/ha (80.5% to 48% from 2-3 to 14-16 days after application). Moreover, the dose of 0.75 L/ha

provides a longer lasting effect than the 0.5 L/ha dose with less variability in results, especially after two weeks following application when efficacy started to decrease (difference of CV of 17.4%).

USE 004: Minimum effective dose of DLT+FPF EC85 on *Aphididae* (1APHIF) in corn

Material and methods

In order to evaluate the minimum effective dose of DLT+FPF EC85 on aphids in corn the following chapter summarize the results from a series of 13 field trials carried out in EU regulatory central zone (12 trials) and EU regulatory southern zone (1 supportive trial) from 2016 to 2018 in Maritime and South-East EPPO climatic zone.

Single trial reports are given in the Compilation of Trial Reports M-687450-02-1 with the corresponding trial list.

The number of trials conducted in each EPPO climatic zone and country is shown in **Table 3.2-67** below.

Table 3.2-67: distribution of trials according to EPPO climatic zones and countries.

EPPO climatic zone	Regulatory Zone	Country	Year	Number of trials (valid trial)		
				Total by year	Total by country	Total
Maritime	Central	Czech Republic	2016	2 (2)	5	13
			2017	2 (2)		
			2018	1 (1)		
South-East	Central	Hungary	2016	2 (2)	4	
			2017	1 (1)		
			2018	1 (1)		
		Romania	2017	1 (1)	1	
		Slovakia	2016	1 (1)	3 2	
			2017	1 (1)		
			2018	1 (0)		
	Southern	Bulgaria	2016	1 (1)	1	

All the trials were conducted under GEP by officially recognized testing organisations and followed the appropriate EPPO standards.

In order to avoid duplication and since those trials are part of efficacy tests, methods used, main characteristics and detailed information about can be reached in chapter **3.2.3**.

DLT+FPF EC85 was tested in corn for the control of aphids at 0.5 L/ha (5+37.5 g a.s./ha), 0.75 L/ha (7.5+56.25 g a.s/ha). The dose rate of 1.25 L/ha (12.5+94 g a.s./ha) was tested too and is presented as indication.

Efficacy was tested under a range of environmental conditions to fully challenge the product.

Details on test product dosages are presented in **Table 3.2-68** below.

Table 3.2-68: Dosages of DLT+FPF EC85 used to determine minimum effective dose rate

Product	Formulated product dosages	Single ingredients	Single ingredient dosages	% of the maximal label dose rate
DLT+FPF EC85	0.5 L/ha	Deltamethrin+ flupyradifurone	5.0+37.5 g a.s./ha	66.7%
	0.75 L/ha		7.5+56.25 g a.s/ha	100 %
	1.25 L/ha		12.5+94 g a.s./ha	166.7 %

Results

The last assessment done 2 weeks after application is chosen to be presented in this chapter as it is the most discriminant one.

For both Maritime and South-East EPPO climatic zones as the results are similar in both zones.

Among the 14 13 trials carried out, 3 4 trials faced concomitant attacks of aphid species – either RHOPPA and MACSAV or RHOPPA and METODR and 1 trial faced concomitant attacks of aphid species – RHOPMA. The assessments were done separately at trial level but as the results are similar, the 15 assessments are grouped and presented hereafter in **Table 3.2-69**.

Table 3.2-69: Minimum Effective Dose of DLT+FPF EC85 on aphids– % Efficacy on counting number of aphids on leaves – South-East and Maritime EPPO climatic zones.

EPPO Climatic zones	**EU Regulatory zones**	**Trial number**	**Sample Size (leaves)**	**Pest species**	**Days after Appl.**	**BBCH crop stage**	**Untreated** **Number of aphids on 15 leaves**	DLT+FPF EC85 0.5 l/ha	**DLT+FPF EC85 0.75 l/ha**	DLT+FPF EC85 1.25 l/ha
								Efficacy (% Abbott)		
Mar. + S-E	Central	Mean of 3 trials (min-max)	15 to 75	RHOPPA RHOPMA MACSAV METDOR	14 to 15	65 to 69	84.6	71.9	84.8	
							(12.8-200.3)	(66.3-82.6)	(82.8-87.4)	
Mar. + S-E	Central + Southern	Mean of 12 trials (15 assessments) (min-max)	15	RHOPPA RHOPMA MACSAV METDOR	14 to 15	61 to 79	203.0		87.6	92.7
							(11.3-722.8)		(64.2-99.7)	(75.8-100)

n.c.=not communicated

Discussion about Minimum Effective Dose across EPPO climatic zones on aphids

In all trials and assessments kept for the analyse, the level of efficacy of DLT+FPF EC85 and references are statistically better than in untreated

Among the 3 trials comparing 0.5 to 0.75 L/ha of DLT+FPF EC85 at 2 weeks after application, the dose of 0.75 L/ha provides a level of efficacy of 84.8% that is 12.9% better than the lower dose of 0.5 L/ha.

As 3 trials could be considered as too limited to conclude, a comparison between 0.75L/ha and 1.25 L/ha is proposed as additional data.

The level of efficacy of DLT+FPF EC85 at 1.25 L/ha increased by 5.1% at 2 weeks after application compared to 0.75 L/ha. It is so considered that even if the dose of 1.25 L/ha would have been the minimum effective dose in case risk assessment passed, the dose rate of 0.75 L/ha provides nevertheless an efficient control (87.6% in mean of 12 trials) and is then considered as the minimum effective dose.

Conclusion about minimum effective dose across EPPO climatic zones aphids

Based on the findings of the analysis of the trial set, the proposed rate of 0.75L/ha of DLT+FPF EC85 is proposed as the minimum effective dose for aphids (RHOPPA, RHOPMA, MACSAV, METDOR) in corn in the Maritime and South-East EPPO climatic zones. Those results can be extrapolated to the North-East EPPO climatic zone for countries where this pest is considered as minor.

Summary and conclusions on the minimum effective dose in corn

According to the presented results in corn, the dose of 0.75 L/ha of DLT+FPF EC85 provided the optimum overall control and should be considered as effective against the major pests for which activity of product is claimed.

For aphids which is considered as minor and that is a pest often occurring at the same period of application as borers in corn, DLT+FPF EC85 at 0.75 L/ha, should therefore be used to efficiently control aphids.

The product's evaluation complies with Uniform Principles.

USE 005: Minimum effective dose of DLT+FPF EC85 on cereal leaf beetles *Oulema* spp. (OULESP) in cereals

In order to determine the minimum effective dose of DLT+FPF EC85 against cereal leaf beetles *Oulema* spp. (OULESP) in cereals, Bayer implemented a series of field trials in Europe.

It should be noted that these trials are also part of the data package presented for the justification of the mixture in the section 3.2.1 and for Efficacy evaluation in chapter 3.2.3.

A set of 23 trials is used to determine the minimum effective dose of DLT+FPF EC85 for the control of OULESP in cereals. Trials were conducted in growing seasons 2014–2018.

Trials were carried out in countries belonging to Central EU Regulatory Zone – Hungary (1), Slovakia (5) and Romania (1) – belonging to South-East EPPO climatic zone; the Czech Republic (9) – belonging to Maritime EPPO climatic zone and Poland (1) – belonging to North-East EPPO climatic zone. Additionally, 3 trials conducted in Bulgaria, a country belonging to EU Regulatory Southern zone and 3 trials conducted in Latvia, a country belonging to EU Regulatory Northern zone, were included into evaluation as supportive data to expand South-East and North-East EPPO climatic zones datasets. All trials were carried out in field conditions, with natural infestations.
Trials were designed, conducted and reported in accordance to general EPPO standards PP1/135(2/4), PP1/152(3/4), PP1/225(2) and PP1/181(3/4), to the specific standard PP1/236(1) and comply with Good Experimental Practices.
Single trial reports are given in the Compilation of Trial Reports M-689778-02-1 with the corresponding trial list.
The number of trials conducted per crop, EPPO climatic zone and regulatory zone is shown in **Table 3.2-70** below.

Table 3.2-70: Distribution of the trials presented to determine minimum effective dose of DLT+FPF EC85 against OULESP in cereals.

Crop	EPPO climatic zone	Regulatory Zone	Country	Year	Number of trials	Total	
						Total per country	Total per clim. zone
Cereals	Maritime	Central	Czech Republic	2014	5	9	9
				2015	2		
				2016	2		
	South-East		Romania	2017	1	1	10
			Hungary	2015	1	1	
			Slovakia	2014	1	5	
				2015	2		
				2016	1		
				2017	1		
		Southern	Bulgaria	2015	1	3	
				2017	2		
	North-East	Central	Poland	2016	1	1	4
		Northern	Latvia	2016	2	3	
				2018	1		
Total	**All EPPO climatic zones**			**Cereals**			**23**

Test product
DLT+FPF EC85 was tested against *Oulema* spp. (OULESP) in cereals at 0.3 L/ha (3+22.5 g a.s./ha) and 0.5 L/ha (5+37.5 g a.s./ha).
The rates tested reflect 60 % and 100% of the proposed label rate, in accordance with the EPPO standard PP1/225 'Minimum effective dose'.
Efficacy was evaluated under different environmental conditions of South-East, Maritime and North-East EPPO climatic zones to cover wide range of agronomic and climatic conditions.
Details on test product dosages are presented in **Table 3.2-71** below.

Table 3.2-71: Dosages of DLT+FPF EC85 used to determine the minimum effective dose rate to be used for OULESP control in cereals.

Product	Active substances	Formulated product dosages	Substance dosages	% of the maximal label dose rate
DLT+FPF EC85	deltamethrin+ flupyradifurone	0.3 L/ha	3+22.5 g a.s./ha	60%
		0.5 L/ha	5+37.5 g a.s./ha	100%

Methodology
The detailed methodology of these trials is described in chapter 3.2.3 Efficacy tests since they are used in both chapters.

The trials were conducted under GEP and comply with the uniform principles.

Results in South-East EPPO climatic zone

Table 3.2-72 below presents the overall efficacy of DLT+FPF EC85 tested at two different dose rates – 0.3 L/ha (0.6N) and 0.5 L/ha (1N), assessed 1 day (immediate effect), 3–4 days (short-term effect) and 7–9 days (mid-term effect) after application.

Table 3.2-72: Minimum effective dose determination of DLT+FPF EC85 against OULESP in cereals at 0.3 L/ha and 0.5 L/ha.

Overall summary						Abbott % (efficacy)				
EPPO climatic zone	Timing of assessment	Assessment type	Nb. of trials	Untreated (larvae or adults/leaf)		DLT+FPF EC85 0.3 L/ha		DLT+FPF EC85 0.5 L/ha		Nb. of trials where the dose 0.5 L/ha is statistically <, =,> to 0.3 L/ha
				Mean	*Min-Max*	Mean	*Min-Max*	Mean	*Min-Max*	
Efficacy against larvae										
South-East	1 DAA	larvae/leaf	6	*1.3*	*0.3-3.3*	*69.1*	*46.7-86.1*	***80.4***	*63.6-94.4*	0, 6, 0
South-East	3-4 DAA	larvae/leaf	9	*1.6*	*0.4-3.7*	*83.9*	*63.4-94.7*	***89.8***	*81.0-100*	0, 8, 1
South-East	7-9 DAA	larvae/leaf	10	*1.3*	*0.2-3.8*	*86.2*	*66.7-100*	***94.3***	*84.8-100*	0, 7, 3
Efficacy against adults										
South-East	3 DAA	adults/leaf	3	*0.8*	*0.1-1.8*	***77.2***	*64.3-90.2*	***84.4***	*85.7-100*	0, 2, 1
South-East	7-9 DAA	adults/leaf	3	*0.4*	*0.1-0.5*	*93.8*	*90.0-100*	***98.7***	*96.0-100*	0, 3, 0

10 trials carried out in the South-East EPPO climatic zone were implemented in the trial seasons 2014 to 2017 to determine the minimum effective dose against *Oulema* melanopus (OULESP) in cereals. All trials were conducted under the GEP by officially recognized testing organizations and followed the appropriate EPPO standards.
Assessments were presented in groupings, representing immediate effect (1 day), short-term effect (3–4 days) and mid-term effect (7–9 days). Based on the analysis of the dataset, a general trend in increased and more reliable control of OULESP of larval and adult stages by applying higher dose rate of DLT+FPF EC85 at 0.75 L/ha was determined.

Conclusion on the Minimum effective dose Oulema spp. in South-East EPPO climatic zone

Based on the findings of the analysis of the trial set, it could be concluded that the proposed rate of 0.5 L/ha of DLT+FPF EC85 should be considered the minimum effective dose for optimal control of OULSEP in cereals in the countries of submission in South-East EPPO climatic zone.

Results in Maritime EPPO climatic zone

Table 3.2-73 below presents the overall efficacy of DLT+FPF EC85 tested at two different dose rates – 0.3 L/ha (0.6N) and 0.5 L/ha (1N), assessed 1–2 days, 3–4 days, 6–8 days and 14 days after application.

Table 3.2-73: Minimum effective dose determination of DLT+FPF EC85 against OULESP in cereals at 0.3 L/ha and 0.5 L/ha.

Overall summary						Abbott % (efficacy)				
EPPO climatic zone	Timing of assessment	Assessment	Nb. of trials	PESSEV		DLT+FPF EC85 0.3 L/ha		DLT+FPF EC85 0.5 L/ha		Nb. of trials where the dose 0.5 L/ha is statistically <, =,> to 0.3 L/ha
				Mean	*Min-Max*	Mean	*Min-Max*	Mean	*Min-Max*	
Efficacy against larvae										
~~S-E CZ+SZ~~ MAR CZ	1-2 DAA	larvae/leaf	7	*0.8*	*0.7-1.2*	*88.5*	*81.5-100*	***95.7***	*87.7-100*	0, 3, 4
~~S-E CZ+SZ~~ MAR CZ	3-4 DAA	larvae/leaf	4	*0.7*	*0.2-1.1*	*92.0*	*84.6-100*	***99.7***	*98.7-100*	0, 2, 2
~~S-E CZ+SZ~~ MAR CZ	6-8 DAA	larvae/leaf	8	*0.7*	*0.5-0.9*	*92.0*	*82.0-100*	***98.1***	*91.9-100*	0, 4, 4
~~S-E CZ+SZ~~ MAR CZ	14 DAA	larvae/leaf	5	*0.5*	*0.2-0.7*	*84.3*	*75.0-97.3*	***93.7***	*85.9-100*	0, 4, 1
Efficacy against adults										
~~S-E CZ~~ MAR CZ	1-2 DAA	adults/leaf	3	*0.3*	*0.1-0.4*	*69.8*	*45.5-100*	***89.9***	*81.8-100*	0, 3, 0
~~S-E CZ~~ MAR CZ	6-7 DAA	adults/leaf	3	*0.1*	*0.1-0.2*	*37.1*	*14.3-63.6*	***69.2***	*64.3-75.0*	0, 3, 0

9 trials carried out in Maritime EPPO climatic zone were implemented in the trial seasons 2014 to 2016 to determine the minimum effective dose against *Oulema* spp. (OULESP) in cereals. All trials were conducted under the GEP by officially recognized testing organizations and followed the appropriate EPPO standards.
Assessments were presented in groupings, representing knock-down effect (1–2 days), short-term effect (3–4 days) and mid-term effect (6–8 days). Based on the analysis of the dataset, a general trend in increased and more reliable control of OULESP of larval and adult stages by applying higher dose rate of DLT+FPF EC85 at 0.75 L/ha was determined.

Conclusion on the minimum effective dose tests against Oulema spp. (OULESP) in cereals, Maritime EPPO climatic zone
Based on the findings of the analysis of the trial set, it could be concluded that the proposed rate of 0.5 L/ha of DLT+FPF EC85 should be considered the minimum effective dose for optimal control of OULSEP in cereals in the countries of submission in Maritime EPPO climatic zone.

Results in North-East EPPO climatic zone
Table 3.2-74a below presents the overall efficacy of DLT+FPF EC85 tested at two different dose rates – 0.3 L/ha (0.6N) and 0.5 L/ha (1N), assessed 3 days and 6–7 days after application.

Table 3.2-74a: Minimum effective dose determination of DLT+FPF EC85 against OULESP in cereals at 0.3 L/ha and 0.5 L/ha.

Overall summary						Abbott % (efficacy)			
EPPO climatic zone	**Timing of assessment**	**Assessment**	**Nb. of trials**	**PESSEV**		**DLT+FPF EC85 0.3 L/ha**		**DLT+FPF EC85 0.5 L/ha**	
				Mean	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***
Efficacy against larvae									
S-E NZ	3DAA	larvae/leaf	3	*0.7*	*0.5-1.1*	*79.5*	*42.9-100*	***80.1***	*44.4-98.1*
S-E CZ+NZ	6-7 DAA	larvae/leaf	4	*0.9*	*0.6-1.3*	*91.2*	*83.8-99.2*	***96.7***	*91.3-100*

4 trials carried out in North-East EPPO climatic zone were implemented in the trial seasons 2016 to 2018 to determine the minimum effective dose against *Oulema* spp. (OULESP) in cereals. All trials were conducted under the GEP by officially recognized testing organizations and followed the appropriate EPPO standards.
Assessments were presented in groupings, representing short-term effect (3 days) and mid-term effect (6–7 days). Based on the analysis of the dataset, a tendency for increased and more reliable control of OULESP of larval stage at later assessment timing by applying higher dose rate of DLT+FPF EC85 at 0.75 L/ha was determined.

Based on the findings of the analysis of the trial set, it could be concluded that the proposed rate of 0.5 L/ha of DLT+FPF EC85 should be considered the minimum effective dose for optimal control of OULSEP in cereals in the country of submission in North-East EPPO climatic zone.

USE 006: Minimum effective dose of DLT+FPF EC85 on English grain aphid *Sitobion avenae*, MACSAV in cereals

In order to determine the minimum effective dose of DLT+FPF EC85 against English grain aphid *Sitobion avenae*. (MACSAV) in cereals, Bayer implemented a series of field trials in Europe.
It should be noted that these trials are also part of the data package presented for the justification of the mixture in the section 3.2.1 and for Efficacy evaluation in chapter 3.2.3 where the methodology and characteristics of the trials are described in detail.
21 trials are used to determine the minimum effective dose of DLT+FPF EC85 for the control of MACSAV in cereals (A1). Trials were conducted in growing seasons 2014–2017.
Trials were conducted in the Czech Republic (7) representing Maritime climatic zone of EU regulatory Central zone and Hungary (1) Romania (4), and Slovakia (5) representing South-East EPPO climatic zone of EU regulatory Central Zone. Additional trials from Bulgaria (4) representing South-East

climatic zone of Southern EU regulatory zone are presented as supportive to EPPO South-East, Central EU reg. zone dataset.
From the dataset of 21 trials, 7 trials from Maritime climatic zone and 14 trials from South-East climatic zone were summarised.
Trials were designed, conducted and reported in accordance to general EPPO standards PP1/135(3), PP1/152(4), PP1/181(4) and PP1/225(2) and the specific EPPO standard PP1/20(3). All trials comply with Good Experimental Practices.
Single trial reports are given in the Compilation of Trial Reports M-689779-02-1 with the corresponding trial list.
The number of trials conducted per crop, EPPO climatic zone and regulatory zone is shown in **Table 3.2-75** below.

Table 3.2-75: Distribution of the trials presented to determine minimum effective dose of DLT+FPF EC85 against MACSAV in cereals

Crop	EPPO climatic zone	Regulatory Zone	Country	Year	Number of trials	Total	
Cereals	South-East	Central	Romania	2016	2	10	14
				2017	2		
			Hungary	2015	1		
			Slovakia	2014	2		
				2015	2		
				2016	1		
		Southern	Bulgaria	2015	2	4	
				2017	2		
	Maritime	Central	Czech Republic	2014	2	7	7
				2015	4		
				2016	1		
Total	**All EPPO climatic zones**			**Cereals**			**21**

Test product
DLT+FPF EC85 was tested at 0.3 L/ha (3+22.5 g a.s./ha) and 0.5 L/ha (5+37.5 g a.s./ha). The rates tested reflect 60% and 100% of the proposed label rate, in accordance with the EPPO standard PP1/225 'Minimum effective dose'.
Efficacy was evaluated under different environmental conditions of EPPO South-East and Maritime climatic zones to cover wide range of agronomic and climatic conditions.
Details on test product dosages are presented in **Table 3.2-76** below.

Table 3.2-76: Dosages of DLT+FPF EC85 used to determine the minimum effective dose rate

Product	Active substances	Formulated product dosages	Substance dosages	% of the maximal label dose rate
DLT+FPF EC85	deltamethrin+ flupyradifurone	0.3 L/ha	3+22.5 g a.s./ha	60%
		0.5 L/ha	5+37.5 g a.s./ha	100%

Methodology
The detailed methodology of these trials is described in chapter 3.2.3 Efficacy tests since they are used in both chapters.
The trials were conducted under GEP and comply with the uniform principles.

Results in South-East EPPO climatic zone
Table 3.2-77 below presents the overall efficacy of DLT+FPF EC85 tested at two different dose rates – 0.3 L/ha (0.6N) and 0.5 L/ha (1N), assessed 1–2 days (immediate effect), 3–4 days (short-term), 7–8 days (mid-term effect) and 14–16 days (long-term effect) after application.

Table 3.2-77: Minimum effective dose determination of DLT+FPF EC85 against MACSAV in cereals at 0.3 L/ha and 0.5 L/ha.

Overall summary						**Abbott % (efficacy)**				
EPPO climatic zone	**Timing of assessment**	**Assessment**	**Nb. of trials**	**Untreated (aphids/ear)**		**DLT+FPF EC85 0.3 L/ha**		**DLT+FPF EC85 0.5 L/ha**		**Nb. of trials where the dose 0.5 L/ha is statistically <, =,> to 0.3 L/ha**
				Mean	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***	
South East	1-2 DAA	aphids/ear	4	*7.6*	*3.8-11.0*	***83.6***	*69.8-100*	***87.6***	*75.0-100*	0, 3, 1
South East	3-4 DAA	aphids/ear	9	*5.1*	*2.3-9.0*	***87.0***	*53.0-100*	***92.9***	*81.4-100*	0, 8, 1
South East	7-8 DAA	aphids/ear	13	*3.6*	*2.0-8.8*	***84.6***	*62.7-99.3*	***90.0***	*75.6-99.8*	0, 11, 2
South East	14-16 DAA	aphids/ear	7	*3.6*	*2.0-5.5*	***81.4***	*71.8-90.0*	***87.3***	*78.2-96.0*	0, 5, 2

14 trials carried out in the South-East EPPO climatic zone were implemented in the trial seasons 2014 to 2017 to determine the minimum effective dose against English grain aphid – *Sitobion avenae* (MACSAV) in cereals. All trials were conducted under the GEP by officially recognized testing organizations and followed the appropriate EPPO standards.
Assessments were presented in groupings, representing immediate effect (1–2 days), short-term effect (3–4 days), mid-term effect (7–8 days) and long-term effect (14–16 days). Based on the analysis of the dataset, a general trend in increased and more reliable control (especially in terms of duration of control) of MACSAV by applying higher dose rate of DLT+FPF EC85 at 0.5 L/ha was determined.

Conclusion on the minimum effective dose tests against Sitobion avenae (MACSAV) in cereals, South-East EPPO climatic zone

Based on the findings of the analysis of the trial set, it could be concluded that the proposed rate of 0.5 L/ha of DLT+FPF EC85 should be considered the minimum effective dose for optimal control of MACSAV in cereals in the countries of submission in South-East EPPO climatic zone.

Results in Maritime EPPO climatic zone

Table 3.2-78 below presents the overall efficacy of DLT+FPF EC85 tested at two different dose rates – 0.3 L/ha (0.6N) and 0.5 L/ha (1N), assessed 1–2 days (immediate effect), 3–4 days (short-term effect), 6–7 days (mid-term effect) and 13–14 days (long-term effect) after application.

Table 3.2-78: Minimum effective dose determination of DLT+FPF EC85 against MACSAV in cereals at 0.3 L/ha and 0.5 L/ha.

Overall summary						**Abbott % (efficacy)**				
EPPO climatic zone	**Timing of assessment**	**Assessment**	**Nb. of trials**	**PESSEV**		**DLT+FPF EC85 0.3 L/ha**		**DLT+FPF EC85 0.5 L/ha**		**Nb. of trials where the dose 0.5 L/ha is statistically <, =,> to 0.3 L/ha**
				Mean	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***	
Maritime CZ	1-2 DAA	aphids/ear	5	5.9	*3.2-8.9*	***84.3***	*56.6-94.6*	***96.0***	*88.9-99.8*	0, 0, 5
	3-4 DAA	aphids/ear	3	*3.8*	*2.2-6.3*	***79.6***	*62.6-95.1*	***88.2***	*74.4-100*	0, 1, 2
	6-7 DAA	aphids/ear	5	*5.8*	*2.0-9.6*	***87.5***	*71.2-95.1*	***95.9***	*86.4-100*	0, 0, 5
	13-14 DAA	aphids/ear	3	*3.9*	*2.4-6.8*	***65.8***	*20.4-96.5*	***81.4***	*52.8-100*	0, 0, 3

7 trials carried out in the Maritime EPPO climatic zone were implemented in the trial seasons 2014 to 2017 to determine the minimum effective dose against English grain aphid – *Sitobion avenae* (MACSAV) in cereals. All trials were conducted under the GEP by officially recognized testing organizations and followed the appropriate EPPO standards.
Assessments were presented in groupings, representing immediate effect (1–2 days), short-term effect (3–4 days), mid-term effect (6–7 days) and long-term effect (13–14 days). Based on the analysis of the dataset, a clear trend in increased and more reliable control (especially in terms of duration of control) of MACSAV by applying higher dose rate of DLT+FPF EC85 at 0.5 L/ha was determined.

Conclusion on the minimum effective dose tests against Sitobion avenae (MACSAV) in cereals, Maritime EPPO climatic zone

Based on the findings of the analysis of the trial set, it could be concluded that the proposed rate of 0.5 L/ha of DLT+FPF EC85 should be considered the minimum effective dose for optimal control of MACSAV in cereals in the countries of submission in Maritime EPPO climatic zone.

USE 007: Minimum effective dose of DLT+FPF EC85 on stink bugs *Eurygaster* spp. (EURYSP) – *E. maura* (EURYMA) and *E. integriceps* (EURYIN) in cereals

In order to determine the minimum effective dose of DLT+FPF EC85 against cereal stink bugs *Eurygaster maura* (EURYMA) and *Eurygaster integriceps* (EURYIN), further termed as *Eurygaster* spp. (EURYSP) in cereals, Bayer implemented a series of field trials in Europe.

It should be noted that these trials are also part of the data package presented for the justification of the mixture in the section 3.2.1 and for Efficacy evaluation in chapter 3.2.3 where the methodology and characteristics of the trials are described in detail.

11 trials are used to determine the minimum effective dose of DLT+FPF EC85 for the control of EURYSP in cereals (A1). Trials were conducted in growing seasons 2014–2017.

Trials were conducted in Hungary (5) and Romania (2) representing South-East EPPO climatic zone, EU regulatory Central Zone. Additional trials from Bulgaria (4) representing South-East climatic zone of Southern EU regulatory zone are presented as supportive to EPPO South-East, Southern EU reg. zone dataset.

Single trial reports are given in the Compilation of Trial Reports M-689780-02-1 with the corresponding trial list.

Trials were designed, conducted and reported in accordance to general EPPO standards PP1/135(3), PP1/152(4), PP1/181(4) and PP1/225(2) and the specific EPPO standard PP1/126(2). All trials comply with Good Experimental Practices.

The number of trials conducted per crop, EPPO climatic zone and regulatory zone is shown in **Table 3.2-79** below.

Table 3.2-79: Distribution of the trials presented to determine minimum effective dose of DLT+FPF EC85 against EURYSP in cereals

Crop	EPPO climatic zone	Regulatory Zone	Country	Year	Number of trials	Total	
Cereals	South-East	Central	Romania	2015	1	7	11
				2016	1		
			Hungary	2015	1		
				2016	2		
				2017	2		
		Southern	Bulgaria	2014	1	4	
				2016	1		
				2017	2		
Total	**All EPPO climatic zones**			**Cereals**			**11**

Test product

DLT+FPF EC85 was tested against *Eurygaster* spp. (EURYSP) in cereals at 0.5 L/ha (5+37.5 g a.s./ha) and 0.75 L/ha (7.5+56.25 g a.s./ha) in both – South-East EPPO climatic zone.

The rates tested reflect 66.7 % and 100% of the proposed label rate, in accordance with the EPPO standard PP1/225 'Minimum effective dose'.

Efficacy was evaluated under different environmental conditions of South-East ~~and Mediterranean~~ EPPO climatic zone~~s~~ to cover wide range of agronomic and climatic conditions.

Details on test product dosages are presented in **Table 3.2-80** below.

Table 3.2-80: Dosages of DLT+FPF EC85 used to determine the minimum effective dose rate

Product	Active substances	Formulated product dosages	Substance dosages	% of the maximal label dose rate
DLT+FPF EC85	deltamethrin+ flupyradifurone	0.5 L/ha	5+37.5 g a.s./ha	66.7%
		0.75 L/ha	7.5+56.25 g a.s./ha	100%

Methodology

The detailed methodology of these trials is described in chapter 3.2.3 Efficacy tests since they are used in both chapters.

The trials were conducted under GEP and comply with the uniform principles.

Results in South-East EPPO climatic zone

Table 3.2-81 below presents the overall efficacy of DLT+FPF EC85 tested at two different dose rates – 0.5 L/ha (0.67N) and 0.75 L/ha (1N), assessed 1 day (immediate effect), 3 days (short-term effect) and 7 days (mid-term effect) after application.

Table 3.2-81: Minimum effective dose determination of DLT+FPF EC85 against EURYSP in cereals at 0.5 L/ha and 0.75 L/ha.

Overall summary						**Abbott % (efficacy)**				
EPPO climatic zone	**Timing of assessment**	**Assessment**	**Nb. of trials**	**PESSEV**		**DLT+FPF EC85 0.5 L/ha**		**DLT+FPF EC85 0.75 L/ha**		**Nb. of trials where the dose 0.75 L/ha is statistically <, =,> to 0.5 L/ha**
				Mean	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***	
South-East	1 DAA	insects/m^2	11	*4.9*	*0.6-14.8*	***84.9***	*45.5-100*	***94.2***	*63.6-100*	0, 8, 3
South-East	3 DAA	insects/m^2	11	*4.6*	*0.7-11.8*	***87.7***	*61.0-98.6*	***97.8***	*92.3-100*	0, 7, 4
South-East	7 DAA	insects/m^2	9	*4.9*	*1.9-9.6*	***81.2***	*40.6-100*	***93.7***	*80.0-100*	0, 5, 4

11 trials carried out in the South-East EPPO climatic zone were implemented in the trial seasons 2014 to 2017 to determine the minimum effective dose against cereal stink bugs – *Eurygaster* spp. (EURYSP) in cereals. All trials were conducted under the GEP by officially recognized testing organizations and followed the appropriate EPPO standards.

Assessments were presented in groupings, representing immediate effect (1 day), short-term effect (3 days) and mid-term effect (7 days). Based on the analysis of the dataset, a general trend in significantly increased and more reliable control of EURYSP by applying higher dose rate of DLT+FPF EC85 at 0.75 L/ha at independently of assessment timing was determined.

Conclusion on the minimum effective dose tests against Eurygaster spp. (EURYSP) in cereals, South-East EPPO climatic zone

Based on the findings of the analysis of the trial set, it could be concluded that the proposed rate of 0.75 L/ha of DLT+FPF EC85 should be considered the minimum effective dose for optimal control of EURYSP in cereals in the countries of submission in South-East EPPO climatic zone. These conclusions are also considered valid for Maritime ~~and North-East EPPO~~ climatic zone ~~countries,~~ where this use is claimed for (see the argumentation in the corresponding efficacy chapter).

USE 008: Minimum effective dose of DLT+FPF EC85 on leaf-curling plum aphid *Brachycaudus helichrysi* (ANURHE) on sunflower

In order to determine the minimum effective dose of DLT+FPF EC85 against leaf-curling plum aphid *Brachycaudus helichrysi* (ANURHE) in sunflower, Bayer implemented a series of field trials in Europe.

It should be noted that these trials are also part of the data package presented for the justification of the mixture in the section 3.2.1 and for Efficacy evaluation in chapter 3.2.3. In order to avoid duplication

methods used, main characteristics and detailed information from these trials is presented in chapter 3.2.3.
12 trials from Hungary (8) and Slovakia (4) representing South-East EPPO climatic zone and 7 trials from the Czech Republic representing Maritime EPPO climatic zone are used to determine the minimum effective dose of DLT+FPF EC85 for the control of ANURHE in sunflower (HELAN). Trials were conducted in growing seasons 2014 to 2017.
Trials were designed, conducted and reported in accordance to general EPPO standards PP1/135(3), PP1/152(4), PP1/181(4) and PP1/225(2) and the specific EPPO standard PP1/231(1) Aphids in sunflower. All trials comply with Good Experimental Practices.
Single trial reports are given in the Compilation of Trial Reports M-689795-02-1 with the corresponding trial list.
The number of trials conducted per crop and regulatory zone of South-East EPPO climatic zone is shown in **Table 3.2-82** below.

Table 3.2-82: Distribution of the trials presented to determine minimum effective dose of DLT+FPF EC85 against ANURHE in sunflower

Crop	EPPO climatic zone	Regulatory Zone	Country	Year	Number of trials	Total	
Sunflower HELAN	South-East	Central	Hungary	2014	2	8	12
				2015	4		
				2016	1		
				2017	1		
			Slovakia	2014	1	4	
				2015	1		
				2016	2		
	Maritime		Czech Republic	2014	3	7	
				2015	1		
				2016	1		
				2017	2		
Total	**All EPPO climatic zones**			**Sunflower**			**19**

Test product
DLT+FPF EC85 was tested against *B. helichrysi* (ANURHE) in sunflower at 0.5 L/ha (5+37.5 g a.s./ha) and 0.75 L/ha (7.5+56.25 g a.s./ha).
The rates tested reflect 66.7 % and 100% of the proposed label rate, in accordance with the EPPO standard PP1/225 'Minimum effective dose'.
Efficacy was evaluated under different environmental conditions of South-East and Maritime EPPO climatic zones to cover wide range of agronomic and climatic conditions.
Details on test product dosages are presented in **Table 3.2-83** below.

Table 3.2-83: Dosages of DLT+FPF EC85 used to determine the minimum effective dose rate to be used for ANURHE control.

Product	Active substances	Formulated product dosages	Substance dosages	% of the maximal label dose rate
DLT+FPF EC85	deltamethrin+ flupyradifurone	0.5 L/ha	5+37.5 g a.s./ha	66.7%
		0.75 L/ha	7.5+56.25 g a.s./ha	100%

Methodology
The detailed methodology of these trials is described in chapter 3.2.3 Efficacy tests since they are used in both chapters.
The trials were conducted under GEP and comply with the uniform principles.

Results in South-East EPPO climatic zone
Table 3.2-84 below presents the overall efficacy of DLT+FPF EC85 tested at two different dose rates

– 0.5 L/ha (0.67N) and 0.75 L/ha (1N), assessed 1–3 days (immediate effect), 7–10 days (mid-term effect) and 14–15 days (long-term effect) after application.

Table 3.2-84: Minimum effective dose determination of DLT+FPF EC85 against ANURHE in sunflower at 0.5 L/ha and 0.75 L/ha.

Overall summary						**Abbott % (efficacy)**				
EPPO climatic zone	**Timing of assessment**	**Assessment**	**Nb. of trials**	**PESSEV**		**DLT+FPF EC85 0.5 L/ha**		**DLT+FPF EC85 0.75 L/ha**		**Nb. of trials where the dose 0.75 L/ha is statistically <, =,> to 0.5 L/ha**
				Mean	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***	
South-East CZ	1-3 DAA	insects/plant	12	*30.3*	*6.8-52.1*	***79.0***	*68.6-94.5*	***85.0***	*79.4-96.0*	*0, 8, 4*
South-East CZ	7-10 DAA	insects/plant	12	*21.8*	*4.9-64.8*	***73.7***	*54.3-94.9*	***81.2***	*62.9-96.7*	*0, 8, 4*
South-East CZ	14-15 DAA	insects/plant	10	*18.3*	*3.2-65.1*	***47.3***	*14.3-88.3*	***60.7***	*32.5-89.4*	*0, 5, 5*

16 trials carried out in the South-East EPPO climatic zone were implemented in the trial seasons 2014 to 2017 to determine the minimum effective dose against *Brachycaudus helichrysi* (ANURHE) in sunflower. From the dataset of 16 trials, 12 trials were considered relevant for evaluation. All trials were conducted under GEP by officially recognized testing organizations and followed the appropriate EPPO standards.
Assessments were presented in groupings, representing immediate effect (1–3 days), mid-term effect (7–10 days) and long-term effect (14–15 days). Based on the analysis of the dataset, a general trend in increased and more reliable control of ANURHE by applying higher dose rate of DLT+FPF EC85 at 0.75 L/ha was determined.

Conclusion on the minimum effective dose tests against Brachycaudus helichrysi (ANURHE) in sunflower

Based on the findings of the analysis of the trial set, it could be concluded that the proposed rate of 0.75 L/ha of DLT+FPF EC85 should be considered the minimum effective dose for optimal control of ANURHE in sunflower in the countries of submission in South-East EPPO climatic zone. These conclusions are also considered valid for North-East EPPO climatic zone country Poland, where this use is claimed for (see the argumentation in the corresponding efficacy chapter).

Results in Maritime EPPO climatic zone

Table 3.2-85 below presents the overall efficacy of DLT+FPF EC85 tested at two different dose rates – 0.5 L/ha (0.67N) and 0.75 L/ha (1N), assessed 1–3 days (immediate effect) and 7–10 days (mid-term effect) after application.

Table 3.2-85: Minimum effective dose determination of DLT+FPF EC85 against ANURHE in sunflower at 0.5 L/ha and 0.75 L/ha.

Overall summary						**Abbott % (efficacy)**				
EPPO climatic zone	**Timing of assessment**	**Assessment**	**Nb. of trial**	**PESSEV**		**DLT+FPF EC85 0.5 L/ha**		**DLT+FPF EC85 0.75 L/ha**		**Nb. of trials where the dose 0.75 L/ha is statistically <, =,> to 0.5 L/ha**
				Mean	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***	
ANURHE										
Maritime CZ	1-3 DAA	aphids/plant	7	*12.5*	*2.5-45.8*	***83.4***	*55.0-97.1*	***88.3***	*61.6-98.8*	*0, 7, 0*
Maritime CZ	7-10 DAA	aphids/plant	5	*10.3*	*3.4-24.9*	***75.4***	*43.2-93.3*	***84.2***	*62.4-96.2*	*0, 3, 2*

9 trials carried out in Maritime EPPO climatic zone were implemented in the trial seasons 2014 to 2017 to determine the minimum effective dose against *Brachycaudus helichrysi* (ANURHE) in sunflower. From the dataset of 9 trials,7 trials were considered relevant for evaluation. All trials were conducted under GEP by officially recognized testing organizations and followed the appropriate EPPO standards.

Assessments were presented in groupings, representing immediate effect (1–3 days) and mid-term effect (7–10 days). Based on the analysis of the dataset, a general trend in increased and more reliable control of ANURHE by applying higher dose rate of DLT+FPF EC85 at 0.75 L/ha was determined.
Conclusion on the minimum effective dose tests against Brachycaudus helichrysi (ANURHE) in sunflower, Maritime EPPO climatic zone

Based on the findings of the analysis of the trial set, it could be concluded that the proposed rate of 0.75 L/ha of DLT+FPF EC85 should be considered the minimum effective dose for optimal control of ANURHE in sunflower in the countries of submission in Maritime EPPO climatic zone. ~~**These conclusions are also considered valid for North East EPPO climatic zone country Poland, where this use is claimed for (see the argumentation in the corresponding efficacy chapter).**~~

USE 009: Minimum effective dose of DLT+FPF EC85 on *Lygus* sp. (LYGUSP) in sunflower

In order to determine the minimum effective dose of DLT+FPF EC85 against Lygus bugs, *Lygus* sp. (LYGUSP) in sunflower, Bayer implemented a series of field trials in Europe.
It should be noted that these trials are also part of the data package presented for the justification of the mixture in the section 3.2.1 and for Efficacy evaluation in chapter 3.2.3. In order to avoid duplication methods used, main characteristics and detailed information from these trials is presented in chapter 3.2.3.
8 trials are used to determine the minimum effective dose of DLT+FPF EC85 for the control of LYGUSP in sunflower (HELAN). Trials were conducted in growing seasons 2015–2017.
Trials from the EU regulatory Central Zone, belonging to EPPO South-East climatic zone, located in Hungary (7) and Slovakia (1) are presented to support the submission.
Trials were designed, conducted and reported in accordance to general EPPO standards PP1/135(3), PP1/152(4), PP1/181(4) and PP1/225(2) and the specific EPPO standard PP1/231(1) Aphids in sunflower. All trials comply with Good Experimental Practices.
Single trial reports are given in the Compilation of Trial Reports M-689795-02-1 with the corresponding trial list.
The number of trials conducted per crop in South-East EPPO climatic zone, EU Central regulatory zone is shown in **Table 3.2-86** below.

Table 3.2-86: Distribution of the trials presented to determine minimum effective dose of DLT+FPF EC85 against LYGUSP in sunflower.

Crop	EPPO climatic zone	Regulatory Zone	Country	Year	Number of trials	Total	
Sunflower HELAN	South-East	Central	Hungary	2015	4	7	8
				2016	2		
				2017	1		
			Slovakia	~~2014~~ 2015	1	1	
Total	**South-East EPPO climatic zone**			**Sunflower**			**8**

Test product
DLT+FPF EC85 was tested against *Lygus* sp. (LYGUSP) in sunflower at 0.5 L/ha (5+37.5 g a.s./ha) and 0.75 L/ha (7.5+56.25 g a.s./ha).
The rates tested reflect 66.7 % and 100% of the proposed label rate, in accordance with the EPPO standard PP1/225 'Minimum effective dose'.
Efficacy was evaluated under different environmental conditions of South-East EPPO climatic zone to cover wide range of agronomic and climatic conditions.
Details on test product dosages are presented in **Table 3.2-87** below.

Table 3.2-87: Dosages of DLT+FPF EC85 used to determine the minimum effective dose rate.

Product	Active substances	Formulated product dosages	Substance dosages	% of the maximal label dose rate
DLT+FPF EC85	deltamethrin+ flupyradifurone	0.5 L/ha	5+37.5 g a.s./ha	66.7%
		0.75 L/ha	7.5+56.25 g a.s./ha	100%

Methodology

There is no EPPO guideline for efficacy trials designed specifically against *Lygus* sp. As efficacy of DLT+FPF EC85 against lygus bugs was tested in the same trials as ANURHE, generally the methodology of PP1/231(1) Aphids in sunflower was followed, with some modifications (e.g. sample size of 100 plants instead of 25) applied.

The detailed methodology of these trials is described in chapter 3.2.3 Efficacy tests since they are used in both chapters.

The trials were conducted under GEP and comply with the uniform principles.

Results in South-East EPPO climatic zone

Table 3.2-88 below presents the overall efficacy of DLT+FPF EC85 tested at two different dose rates – 0.5 L/ha (0.67N) and 0.75 L/ha (1N), assessed 2–3 days (immediate effect) and 6–7 days (mid-term effect) after application.

Table 3.2-88: Minimum effective dose determination of DLT+FPF EC85 against LYGUSP in sunflower at 0.5 L/ha and 0.75 L/ha.

Overall summary						**Abbott % (efficacy)**				
EPPO climatic zone	**Timing of assessment**	**Assessment**	**Nb. of trials**	**PESSEV**		**DLT+FPF EC85 0.5 L/ha**		**DLT+FPF EC85 0.75 L/ha**		**Nb. of trials where the dose 0.75 L/ha is statistically <, =,> to 0.5 L/ha**
				Mean	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***	
South-East	2-3 DAA	insects/plant	8	*2.1*	*0.2-2.9*	***87.9***	*82.5-93.9*	***93.5***	*90.5-95.2*	0, 6, 2
South-East	6-7 DAA	insects/plant	8	*1.8*	*0.2-2.4*	***70.6***	*53.1-92.5*	***76.7***	*67.5-94.0*	0, 7, 1

8 trials carried out in the South-East EPPO climatic zone were implemented in the trial seasons 2014 to 2017 to determine the minimum effective dose against Lygus bugs – *Lygus* sp. (LYGUSP) in sunflower. From the dataset of 8 trials, all trials were considered relevant for evaluation, with an exception of one trial, where the assessment at 7 days after application was considered not relevant to reliably determine minimum effective dose. All trials were conducted under the GEP by officially recognized testing organizations and followed the appropriate EPPO standards.

Assessments were presented in groupings, representing immediate effect (2–3 days) and mid-term effect (6–7 days). Based on the analysis of the dataset, a general trend in increased and more reliable control of LYGUSP by applying higher dose rate of DLT+FPF EC85 at 0.75 L/ha was determined.

Conclusion on the minimum effective dose tests against Lygus sp. (LYGUSP) in sunflower

Based on the findings of the analysis of the trial set, it could be concluded that the proposed rate of 0.75 L/ha of DLT+FPF EC85 should be considered the minimum effective dose for optimal control of LYGUSP in sunflower in the countries of submission in South-East EPPO climatic zone. These conclusions are also considered valid for Maritime ~~and North-East~~ EPPO climatic zone countries, where this use is claimed for (see the argumentation in the corresponding efficacy chapter).

USE 010: Minimum effective dose of DLT+FPF EC85 in grapevine (VITVI) against *Scaphoideus titanus* (SCAPLI)

In order to evaluate the minimum effective dose of DLT+FPF EC85 on *Scaphoideus titanus* in grape, a series of ~~3~~ 7 trials was implemented in Hungary in 2016-2018.
Single trial reports are given in the Compilation of Trial Reports M-687453-01-1 with the corresponding trial list.
The trial list and their characteristics is presented below **Table 3.2-89** below.

Table 3.2-89: main characteristics of the GEP trials for the evaluation of the Minimum Effective Dose of DLT+FPF EC85 on *Scaphoideus titanus* (SCAPLI) in grapevine

EPPO climatic zone	Regulatory Zone	Country	Year	Number of trials	Perennial Age	Appl. Date	BBCH crop stage at appl.	Spray Volume	Canopy height at application (m)	Row spacing (m)	LWA at application (m2)	Plot size (m²)	No. of Repl.
South-East	Central	Hungary	2016-2018	~~3~~ 7	~~13~~ 10 to 16 YR	~~22/05/15~~ 25/05/16 to 29/05/18	~~57~~ 53 to 71	200 to 500 L/HA	1 to 1.2	2 to 2.8	~~8571~~ 7142 to 10000	~~40~~ 15 to 42	4

All the trials were conducted under GEP by officially recognized testing organisations and followed the appropriate EPPO standards.
The detailed methodology of these trials is described in chapter 3.2.3 Efficacy tests since they are used in both chapters.
DLT+FPF EC85 was tested in grapevine for the control of *Scaphoideus titanus* (SCAPLI) at 0.4 L/ha (4+30 g a.s./ha) and at 0.25 L/ha (2.5+18.75 g a.s./ha)
The rates tested reflect 62.5 % and 100 % of the proposed label rate, according to EPPO standard PP1/225 '*Minimum effective dose'*.
Efficacy was tested under a range of environmental conditions to fully challenge the product.
Details on test product dosages are presented in **Table 3.2-90** below.

Table 3.2-90: Dosages of DLT+FPF EC85 used to determine minimum effective dose rate.

Product	Formulated product dosages	Single ingredients	Single substance dosages	% of the maximal label dose rate
DLT+FPF EC85	0.25 L/ha	deltamethrin+ flupyradifurone	2.5+18.75 g a.s./ha	62.5 %
	0.4 L/ha		4+30 g a.s./ha	100 %

Results

The results are presented and discussed hereafter by timing of assessment from 2-3 to 21 days after application.

Results at 2-3 days after application:
The level of infestation of *Scaphoideus titanus* (SCAPLI) in untreated plots varies from ~~101.3~~ 1.6 to 212 larvae per 50 leaves with a mean of ~~143.9~~ 95.9 larvae on 50 leaves (**Table 3.2-91**).

Table 3.2-91: Minimum Effective Dose of DLT+FPF EC85 against *Scaphoideus titanus (SCAPLI)* on grapevine - Counts of living larvae at 2-3 days after application.

Trial number	Sample Size	Days after appl.	BBCH crop stage at assessment	UNTREATED number of insects on 50 leaves	DLT+FPF 0.25 L/ha (2.5+18.75g a.s./ha)	DLT+FPF 0.4 L/ha (4+30g a.s./ha)
					% Efficacy Abbott	
EU Central zone. South-East EPPO climatic zone						
Mean ~~3~~ 7 trials	50 leaves	2-3	~~57~~ 53 to71	~~143.9~~	~~96.7~~	~~98.8~~
Min-Max				~~(101.3-212)~~ *95.9 (1.6-212)*	~~(96.6-96.8)~~ *95.3 (90.2-98.0)*	~~(98.1-100)~~ *97.5 (93.2-100)*

At 2-3 days after application, in ~~3~~ 7 trials out of ~~3~~ 7 the level of efficacy of DLT+FPF EC85 applied at 0.4 and 0.25 L/ha are statistically better than in untreated.
On average of ~~3~~ 7 trials, DLT+FPF EC85 applied at 0.4 L/ha provides an efficacy of ~~98.8%~~ 97.5% against living larvae (ranging from ~~98.1% to 100 %~~ 93.2% to 100%) which is ~~2.1%~~ 2.2% higher than DLT+FPF EC85 applied at 0.25 L/ha (~~96.7%~~ 95.3% of efficacy). By looking at minimum and maximum values the 0.4 L/ha dose provides less variability (from ~~98.1~~ 93.2% to 100% of efficacy) than the 0.25 L/ha dose (from ~~96.6~~ 90.2% to 96.8% of efficacy).

Results at 7-8 days after application:
The level of infestation of *Scaphoideus titanus* (SCAPLI) in untreated plots varies from ~~112.5~~ 1.9 to 267.5 larvae per 50 leaves with a mean of ~~195.6~~ 111.8 larvae on 50 leaves (**Table 3.2-92**).

Table 3.2-92: Minimum Effective Dose of DLT+FPF EC85 against *Scaphoideus titanus (SCAPLI)* on grapevine - Counts of living larvae at 7-8 days after application.

Trial number	**Sample Size**	**Days after appl.**	**BBCH crop stage at assessment**	UNTREATED number of insects on 50 leaves	DLT+FPF 0.25 L/ha (2.5+18.75g a.s./ha)	**DLT+FPF 0.4 L/ha (4+30g a.s./ha)**
					% Efficacy Abbott	
EU Central zone. South-East EPPO climatic zone						
Mean ~~3~~ 7 trials	50 leaves	7-8	60 to 73	~~195.6~~	~~98.1~~	~~98.4~~
Min-Max				*(112.5-267.5)* *111.8* *(1.9-267.5)*	*(94.2-100)* *91.8* *(70.8-100)*	*(95.3-100)* *95.3* *(86.3-100)*

At 7-8 days after application, in ~~3~~ 7 trials out of ~~3~~ 7 the level of efficacy of DLT+FPF EC85 applied at 0.4 and 0.25 L/ha are statistically better than in untreated.
On average of ~~3~~ 7 trials, DLT+FPF EC85 applied at 0.4 L/ha provides an efficacy of ~~98.4%~~ 95.3% against living larvae (ranging from ~~95.3%~~86.3% to 100 %) which is ~~0.3%~~ 3.5% higher than DLT+FPF EC85 applied at 0.25 L/ha (~~98.1%~~ 91.8% of efficacy). By looking at minimum and maximum values the 0.4 L/ha dose provides less variability (from ~~95.3~~ 86.3% to 100% of efficacy) than the 0.25 L/ha dose (from ~~94.2~~ 70.8% to 100% of efficacy).

Results at 14 days after application:
The level of infestation of *Scaphoideus titanus* (SCAPLI) in untreated plots varies from ~~48.3~~ 2.2 to 305.5 larvae per 50 leaves with a mean of ~~200.2~~ 98.2 larvae on 50 leaves (**Table 3.2-93**).

Table 3.2-93: Minimum Effective Dose of DLT+FPF EC85 against *Scaphoideus titanus (SCAPLI)* on grapevine - trials - Counts of living larvae at 14 days after application.

Trial number	**Sample Size**	**Days after appl.**	**BBCH crop stage at assessment**	UNTREATED number of insects on 50 leaves	DLT+FPF 0.25 L/ha (2.5+18.75g a.s./ha)	DLT+FPF 0.4 L/ha (4+30g a.s./ha)
					% Efficacy Abbott	
EU Central zone. South-East EPPO climatic zone						
Mean ~~3~~ 7 trials	50 leaves	14	~~65~~ 61 to 75	~~200.2~~	~~96.2~~	~~98.3~~
Min-Max				*(48.3-305.5)* *98.2* *(2.2-305.5)*	*(89.1-100)* *90.8* *(70.8-100)*	*(94.8-100)* *93.4* *(73.0-100)*

At 14 days after application, in ~~3~~ 7 trials out of ~~3~~ 7 the level of efficacy of DLT+FPF EC85 applied at 0.4 and 0.25 L/ha are statistically better than in untreated.
On average of ~~3~~ 7 trials, DLT+FPF EC 85 applied at 0.4 L/ha provides an efficacy of ~~98.3%~~ 93.4% against living larvae (ranging from ~~94.8%~~ 73.0% to 100 %) which is ~~2.3%~~ 2.6% higher than DLT+FPF EC85 applied at 0.25 L/ha (~~96.2%~~ 90.8% of efficacy). By looking at minimum and maximum values the 0.4 L/ha dose provides less variability (from ~~94.8~~ 73.0% to 100% of efficacy) than the 0.25 L/ha dose (from ~~89.1~~ 70.8 to 100% of efficacy).

- *Results at 21 days after application:*

The level of infestation of *Scaphoideus titanus* (SCAPLI) in untreated plots varies from 294.8 to 327.0 larvae per 50 leaves with a mean of 310.9 larvae on 50 leaves (**Table 3.2-94**).

Table 3.2-94: Minimum Effective Dose of DLT+FPF EC85 against *Scaphoideus titanus (SCAPLI)* on grapevine – trials - Counts of living larvae at 21 days after application.

Trial number	**Sample Size**	**Days after appl.**	**BBCH crop stage at assessment**	UNTREATED number of insects on 50 leaves	DLT+FPF 0.25 L/ha (2.5+18.75g a.s./ha)	DLT+FPF 0.4 L/ha (4+30g a.s./ha)
					% Efficacy Abbott	
EU Central zone. South-East EPPO climatic zone						
Mean 2 trials	50 leaves	21	69	*310.9*	99.3	99.9
Min-Max				*(294.8-327)*	*(99.0-99.5)*	*(99.7-100)*

At 21 days after application, in 2 trials out of 3 the level of efficacy of DLT+FPF EC85 applied at 0.4 and 0.25 L/ha are statistically better than in untreated. In 1 trial the alpha risk was higher than 5%. For that reason, it is decided to exclude this trial from the analyse.
On average of 2 trials, DLT+FPF EC85 applied at 0.4 L/ha provides an efficacy of 99.9% against living larvae (ranging from 99.7% to 100 %) which is 0.6% higher than DLT+FPF EC85 applied at 0.25 L/ha (99.3% of efficacy).

Conclusion about the efficacy on Scaphoideus titanus in grape:
Based on the analysis of the trial set (3 7 trials from South-East EPPO climatic zone), the proposed rate of 0.4 L/ha of DLT+FPF EC85 ensures an efficient control of *Scaphoideus titanus* in grape from 2 to 21 days after application. DLT+FPF EC85 applied at 0.4 L/ha provides a higher and more consistent control of larvae (SCAPLI) than the tested lower dose rates 0.25 L/ha whatever the assessment timings. It can therefore be concluded that a label claim for the use of DLT+FPF EC85 in grapevine against *Scaphoideus titanus* at 0.4 L/ha (4+30 g a.s./ha) in the European regulatory Central zone has been justified by the data discussed above.
The product's evaluation complies with Uniform Principles.

Comments of zRMS on:

Minimum effective dose tests (3.2.2)

129 efficacy trials carried out between 2014 and 2018 in Maritime (Czech Republic), North-East (Poland, Latvia) and South-East (Bulgaria, Hungary, Romania, Slovakia) EPPO zone present data to determine the Minimum Effective Dose (MED) of DLT+FPF EC85. The trials were conducted on corn (control of PYRUNU, HELIAR, DABVI, aphids), cereal crops (control of EURYSP), sunflower (control od ANURHE, LYGUSP) to justify the recommended dose rate of 0.75 L/ha as compared with lower dose rate of 0.5 L/ha corresponding to 66.7% of the target dose rate. For OULESP and aphids on cereal crops the target dose rate is 0.5 L/ha, and DLT+FPF EC85 was tested at the recommended dose rate of 0.5 L/ha and at lower dose rate of 0.3 L/ha, corresponding with 60% of the target dose rate. The target dose rate for the control of SCAPLI on grape is 0.4 L/ha. To justify the recommended dose rate, lower dose rate of 0.25 L/ha (corresponding with 62.5% of the target dose rate) was tested.

Based on the submitted trial results, a clear dose response was seen comparing the target dose rate with lower dose rate of DLT+FPF EC85 in the control of the vast majority of target insect pests in all concerned EPPO zones. A slight dose response was noted in the trials, where DLT+FPF EC85 was applied for the control of SCAPLI on grape (the highest difference (target dose rate gave 3.5% higher efficacy) between tested dose rates: 0.25 and 0.4 Lha was was noted 7-8 days after application). However it can be noticed that the higher dose rate of 0.4 L/ha provides more consistent control of SCAPLI (especially 7-8 days after treatment), than lower dose rate of 0.25 L/ha.

It can be conluded, that the minimum effective dose rate of 0.75 L/ha has been justified for PYRUNU, HELIAR and DIABVI, aphids on corn, for EURYSP on cereal crops and for ANURHE, LYGUSP on sunflower; the minimum effective dose rate of 0.5 L/ha has been justified for OULESP and aphids on cereal crops; the minimum effective dose rate of 0.4 L/ha has been justified for SCAPLI on grape.

3.2.3 Efficacy tests (KCP 6.2)

As a field-based programme, a total of **184 trials** was carried out in 2014–2018 **against 10 pests/pest** groups in 4 crops/crop groups (in corn and related crops, cereals, sunflower and grape). The list of presented uses (number, target pest, crop) can be found in **Table 3.2-95**.

Table 3.2-95: Uses presented in this dossier (number, target pathogen, crop).

No.	Crop	Pest
Corn and related crops		
USE 001	Corn, sweet corn, sorghum, millet	PYRUNU
USE 002	Corn, sweet corn, sorghum, millet	HELIAR
USE 003	Corn, sweet corn	DIABVI
USE 004	Corn, sweet corn, sorghum, millet	1APHIF
Cereals		
USE 005	Wheat, barley, oat (winter and spring)	OULESP
USE 006	Wheat, barley, oat (winter and spring)	MACSAV/RHOPPA
USE 007	Wheat, barley, oat (winter and spring)	EURYSP
Sunflower		
USE 008	Sunflower	ANURHE
USE 009	Sunflower	LYGUSP
Grape		
USE 010	Grapevine	SCAPLI

152 trials presented in this section were conducted in countries belonging to the EPPO South-East, Maritime and North-East climatic zones in the EU regulatory Central Zone (56 trials on corn (and additional 5 supportive trials on tomato), 58 trials on cereals, 24 trials on sunflower and 9 trials on grape).
Additionally, **24 field trials** conducted in EU regulatory Southern Zone (covering South-East EPPO climatic zone – 4 trials on corn (and additional 5 supportive trials on tomato), 13 trials on cereals, 2 trials on sunflower) and **8 field trials** conducted in EU regulatory Northern Zone (covering North-East EPPO climatic zone – 8 trials on cereals) are included into this section. These trials are used as supplementary data in order to support the use on targets, which have not been present (or only to a lesser extent) in the field trials conducted in the EU regulatory Central Zone in the years 2014 to 2018, but for which activity is claimed. Furthermore, in several cases trials conducted on related crops (data obtained on *Helicoverpa armigera* in tomato) were evaluated and extrapolations based on results of these trials were performed in order to justify some uses. This data set can be considered as a homogenous source of data for the EU regulatory Central Zone leading to reliable conclusions on the performance of DLT+FPF EC85 in crops discussed in this dossier, since the presented data demonstrates the efficacy spectrum representing agroclimatic conditions occurring in the EU regulatory Central Zone. It should be noted, that some of the trials of the entire dataset were considered as not valid for efficacy evaluation due to various reasons (low pest pressure, unreliable results, etc.). These trials are still mentioned in the corresponding uses of the efficacy chapter (3.2.3), where reasons for non-inclusion are also explained.
Efficacy test information is covered in the following section, which includes: location of trials, methodologies and result summaries.

Testing facilities and organizations
The testing facilities responsible for conducting the trials were the development teams of the country organizations subsidiaries of Bayer CropScience and external testing organizations. They are listed under the point **3.7**. All are GEP approved and copies/links to the corresponding certificates are included under the same point.

Methodology
The global methodology is described in the beginning of this document in chapter 3.2 Efficacy data.
The detailed methodology and characteristics of the specific EPPO standards are reviewed in the introductory part of each respective use of the Efficacy chapter.

Trials are grouped according to countries including trials of three EPPO climatic zones (Maritime, South-East, North-East) of the EU regulatory Central Zone as well as supportive trials of the EU regulatory Southern and Northern zones, South-East and North-East EPPO climatic zones.

USE 001: Efficacy of DLT+FPF EC85 in corn against *Ostrinia nubilalis* (PYRUNU) – Maritime, North-East and South-East EPPO climatic zones

In order to demonstrate the efficacy of DLT+FPF EC85 on *Ostrinia nubilalis* (PYRUNU) in corn the following chapter summarises the results from a series of 25 valid field trials implemented across Europe from 2014 to 2018. The trials were implemented in farmer's fields under conditions of natural infection and were distributed across the EPPO Maritime, North-East and South-East climatic zones.
Single trial reports are given in the Compilation of Trial Reports M-687456-02-1 with the corresponding trial list.
The number of trials conducted in each EPPO climatic zone and country is shown in **Table 3.2-96** below.

Table 3.2-96: distribution of trials according to EPPO climatic zones and countries.

EPPO climatic zone	Regulatory Zone	Country	Year	Total by year	Total by country	Total by climatic zone	Total
Maritime	Central	Czech Republic	2014	2	5	5	25
			2017	1			
			2018	2			
North-East	Central	Poland	2017	4	8	8	
			2018	4			
South-East	Central	Hungary	2014	3	3	12	
		Romania	2017	1	2		
			2018	1			
		Slovakia	2014	3	4		
			2018	1			
		Bulgaria	2014	1	3		
			2017	1			
			2018	1			

All the trials were conducted under GEP by officially recognized testing organisations and followed the appropriate EPPO standards.
DLT+FPF EC85 was tested in corn for the control of *Ostrinia nubilalis* at 0.75 L/ha and compared to multiple standards as described hereafter:

- Deltamethrin based products applied at 7 (only 3 trials) or 12.5 g a.s./ha with different formulation (100 EC or 15EW) in a total of 22 trials:
  - 3 trials in the Czech Republic at 12.5 g a.s./ha (15EW)
  - 8 trials in Poland at 12.5 g a.s./ha (100EC)
  - 3 trials from Hungary at 12.5 g a.s./ha (100EC)
  - 2 trials from Romania at 1 trial at 7.5 and 1 trial at 12.5 g a.s./ha (100EC)
  - 4 trials in Slovakia: 1 trial at 7.5 g a.s./ha (100EC), 3 trials at 12.5 g a.s./ha (15EW)
  - 2 trials in Bulgaria at 12.5 g a.s./ha (100EC)
- Inazuma 13 WG applied at dose rate of 0.2 kg/ha (acetamiprid+lambda-cyhalothrin 20+6 g a.s./ha) in 15 trials:
  - 3 trials in the Czech Republic
  - 8 trials in Poland
  - 1 trial in Romania
  - 1 trial in Slovakia
  - 2 trials in Bulgaria
- Karate Zeon (lambda-cyhalothrin) with different formulations and doses in 7 trials:
  - In Hungary, 3 trials: 2 trials with CS50 formulation at 0.3 L/ha (15 g a.s./ha) and 1 trial with CS100 formulation at 0.12 L/ha (12 g a.s./ha),
  - In Slovakia, 3 trials with CS100 formulation at 0.25 L/ha (25 g a.s./ha),

- In Bulgaria, 1 trial with CS50 formulation at 0.3 L/ha (15 g a.s./ha).

- Ampligo SC150 (lambda-cyhalothrin+chloranthraniliprole) applied at 0.2 L/ha (10+20 g a.s./ha) or 0.3 L/ha (15+30 g a.s./ha) in 5 trials:
  - 2 trials in the Czech Republic at 0.2 L/ha
  - 1 trial in Romania at 0.2 L/ha
  - 2 trials in Bulgaria at 0.3 L/ha
- Steward WG (indoxacarb) applied at 0.12 kg/HA (3,6 g ai/ha) in 8 Polish trials.
- Proteus 110OD (deltamethrin+thiacloprid) applied at 0,75 L/ha in 8 Polish trials.

Efficacy was tested under a range of environmental conditions to fully challenge the product.
A general overview of the methodology used in efficacy trials is shown in **Table 3.2-97** thereafter.

Table 3.2-97: Details on trial methodology.

Guidelines	General guidelines	PP1/135(3/4) Phytotoxicity assessment PP1/152(4) Design and analysis of efficacy evaluation trials PP1/181(4) Conduct and reporting of efficacy evaluation trials including GEP
	Specific guidelines	PP1/013(3) *Ostrinia nubilalis* on corn.
Experimental design	Plot design	Randomized Complete Block Designed
	Plot size	EPPO ask 4 rows of 10 meters long; 20-45 m^2
	Number of replications	4
Crop	Trials per crop	ZEAMX (23), ZEAMS (2)
	Varieties per crop	ZEAMX: Nerissa, Alexandra, Angelo, Chromixx (2), Danubio, DKC3568, LG 3258, LG 33.95 FAO 400, LG34.75 FAO 450, Musixx, OLT (2), Ondina, PR39A98, PR34B39, Rebecca, RGT Tiberio, Silvinio, Supra, Sussan, SY Multipass, SY Talisman ZEAMS: Royalty
	Sowing period	From 10th of April to 10th of May
Application	Crop stage (BBCH) at application	From ~~51~~ 34 to 79
	Timing Pest stage at application (1)	At peak of flight. For trials targetting PYRUNU and HELIAR, there was specific recommendation in protocol: trials to target preferably the first generation of PYRUNU, or the second generation of HELIAR. For specific trials were timing of application were studied, Spray timing : A = peak of flight; B = 7 days after A
	Number of applications Intervals between applications	1
	Spray volumes	300 to 500 L/ha

Assessment	Assessment types and dates	First assessment: BBCH 75 - milky ripeness: cut 20 plants per plot (5 from each row) - stems split open along their lenght and - count number of plants with larvae - count number of larvae above the husk (1st part) - count number of larvae below the husk (2nd part) - count number of larvae in the husk (3rd part) - count the number of holes per plant Second assessment: shortly before harvest: measure 20 plants per plot (5 from each row) and - count number of damaged plants (all types of damages caused by *O. nubilalis*) - count number of plant broken above the husk (husk is harvestable) (1st part) - count number of broken plants below the husk (husk is lost for harvest) (2nd part) - count number of broken husks (3rd part) - cut number of cut plants (lying on the soil as consequence of *O. nubilalis*)

- Crop growth stages were assessed using the BBCH growth stage codification.
- The pest pressure was assessed in untreated at timing of assessments. For most of the trials, the most discriminant assessment type with reliable and enough data is providing with the first assessment counting the total number of insects. For that reason, only this assessment will be presented in this summary.
- The level of efficacy is calculated using the Abbott efficacy formula.

Results

Results are presented by EPPO climatic zone. For Maritime and South-East EPPO climatic zones, as there were several standards used in the trials and as the standards can differ from one trial to others, the comparison of means is done with equal trial number (orthogonal means) **(Table 3.2-98**).

Table 3.2-98: Efficacy of DLT+FPF EC85 on *Ostrinia nubilalis* in corn – % Efficacy on counting number of larvae per plant. Results from the Maritime EPPO climatic zone

EU regulatory zone	EPPO climatic zone	Number of trials	Sample size (plants	Days after appl.	BBCH crop stage	Untreated number of larvae per plant or cobs*	**DLT+FPF EC85 0.75 L/ha**	Inazuma WG13 0.2 kg/ha	Ampligo SC150 0.2 L/ha	Deltamethrin 15EW 12.5 g a.s./ha
Central zone – Maritime EPPO climatic zone										
Maritime	Central	Mean of 2 trials	20	42 to 46	75	*0.6*	**81.8**	86.9	96.3	
		(Min-Max)				*(0.4-0.7)*	*(68.6-94.9)*	*(85.7-88.1)*	*(94.3-98.3)*	
		Mean of 3 trials	20	42 to 70	75	*0.5*	**83.2**	86.7		
		(Min-Max)				*(0.4-0.7)*	*(68.6-94.9)*	*(85.7-88.1)*		
		Mean of 3 trials	20	38 to 70	75 to 79	*0.4*	**90.8**			89.6
		(Min-Max)				*(0.2-0.7)*	*(86.2-97.2)*			*(82.8-97.2)*
		Mean of 5 trials	20	38 to 70	75 to 79	*0.4*	**87.2**			
		(Min-Max)				*(0.2-0.7)*	*(68.6-97.2)*			

- *Discussion about the efficacy Ostrinia nubilalis – Maritime EPPO climatic zone*

In the 5 valid trials conducted in Maritime EPPO climatic zone, the level of efficacy of DLT+FPF EC85 and references are statistically better than in untreated.
The level of infestation of *Ostrinia nubilalis* varies from 0.2 to 0.7 larvae per plant.
The level of efficacy of DLT+FPF EC85 applied at 0.75 L/ha is statistically equivalent to the standards, whatever they are, in all trials.
In figures, the level of efficacy of DLT+FPF EC85 applied at 0.75 L/ha is:

- 14.6% lower than Ampligo applied at 0.2 L/ha in mean of 2 trials (81.75% versus 96.3%)

- 3.5% lower than Inazuma applied at 0.2 kg/ha in mean 3 trials (83.2% versus 86.7%)
- 1.2% better than deltamethrin applied at 12 or 12.45 g a.s./ha in mean of 3 trials (90.8% versus 89.6%).
- *Conclusion about the efficacy Ostrinia nubilalis- Maritime EPPO climatic zone*

Based on the findings of the analysis of the trial set, it could be concluded that the proposed rate of 0.75 L/ha of DLT+FPF EC85 ensures an efficient control of *Ostrinia nubilalis* with a level of efficacy of 87.2% in mean of 5 trials and statistically equivalent to the market standards.

- *EPPO North-East climatic zone*

Results are presented in **Table 3.2-99** below.

Table 3.2-99: Efficacy of DLT+FPF EC85 on *Ostrinia nubilalis* in corn – % Efficacy on counting number of larvae per plant. Results from the North-East EPPO climatic zone.

EU regulatory zone	EPPO climatic zone	Number of trials	Sample size (plants	Days after appl.	BBCH crop stage	Untreated number of larvae per plant or cobs*	**DLT+FPF EC085 0.75 L/ha**	~~Inazuma WG13 0.2 kg/ha~~	Steward WG 0.12 kg/ha	Delta-methrin 100EC 12.5 g a.s./ha	Proteus 110OD 0.75 L/ha
Central zone – North-East EPPO climatic zone											
North-East	Central	Mean of 8 trials	20	27 to 47	75	*0.9*	~~*91.5*~~ *94.2*	~~*94.2*~~	*93.8*	*94.9*	*93.3*
		(Min-Max)				*(0.5-1.3)*	~~*(87.0-94.6)*~~ *(88.9-96.2)*	~~*(88.9-96.2)*~~	*(90.2-97.4)*	*(90.2-98.1)*	*(90.2-97.3)*

- *Discussion about the efficacy Ostrinia nubilalis – North-East EPPO climatic zone*

In the 8 valid trials conducted in North-East EPPO climatic zone, the level of efficacy of DLT+FPF EC85 and references are statistically better than in untreated.

The level of infestation of *Ostrinia nubilalis* varies from 0.5 to 1.3 larvae per plant.

The level of efficacy of DLT+FPF EC85 applied at 0.75 L/ha is statistically equivalent to the standards, whatever they are, in all trials.

In figures, in mean of 8 trials, the level of efficacy of DLT+FPF EC85 applied at 0.75 L/ha is:

- ~~2.7% lower than Inazuma applied at 0.2 kg/ha (91.5% versus 94.2%)~~
- ~~2.3% lower~~ 0.4% higher than Steward WG applied at 0.12 kg/ha (~~91.5%~~ 94.2% versus 93.8%)
- ~~3.4%~~ 0.7% lower than deltamethrin applied at 12 g a.s./ha (~~91.5%~~ 94.2% versus 94.9)
- ~~1.8% lower~~ 0.9% higher than Proteus 110OD applied at 0.75 L/ha (~~91.5%~~ 94.2% versus 93.3%)
- *Conclusion about the efficacy Ostrinia nubilalis - North-East EPPO climatic zone*

Based on the findings of the analysis of the trial set, the proposed rate of 0.75 L/ha of DLT+FPF EC85 ensures an efficient control of *Ostrinia nubilalis* with a level of efficacy of ~~91.5%~~ 94.2% in mean of 8 trials.

- *EPPO South-East climatic zone*

Results are presented in **Table 3.2-100** below.

Table 3.2-100: Efficacy of DLT+FPF EC85 on *Ostrinia nubilalis* in corn – % Efficacy on counting number of larvae per plant. Results from the South-East EPPO climatic zone.

EU regulatory zone	EPPO climatic zone	Trial number	Sample size (plants	Days after appl.	BBCH crop stage	Untreated number of larvae per plant	**DLT+FPF EC085 0.75 l/ha**	Inazuma WG13 0.2 kg/ha	Karate Zeon 12 or 15** g or 25* g ai/ha	Ampligo SC150 0.2 or 0.3* L/ha	Deltamethrin 7.5* or12.5 g a.s./ha
	Central and Southern zones – South-East EPPO climatic zone										
South-East	Central+ Southern	Mean of 4 trials	20	13 to 42	75	*0.7*	**88.3**	92.7			
		(Min-Max)				*(0.3-1.6)*	*(78.1-97.6)*	*(84.4-100)*			
		Mean of 4 trials	20	13 to 39	75	*1.3*	**89.0**			91.8	
		(Min-Max)				*(0.4-2.8)*	*(78.1-97.6)*			*(86.5-100)*	
		Mean of 7 trials	20	7 to 44	73 to 83	*1.3*	**82.1**		87.6		
		(Min-Max)				*(0.1-2.6)*	*(47.6-93.4)*		*(72.2-95.6)*		
		Mean of 11 trials	20	7 to 44	73 to 83	*1.1*	**88.6**				94.1
		(Min-Max)				*(0.14-2.8)*	*(72.2-97.6)*				*(75.0-100)*
		Mean of 12 trials	20	7 to 44	73 to 83	*1.1*	**88.2**				
		(Min-Max)				*(0.1-2.8)*	*(72.2-97.6)*				

- Discussion about the efficacy *Ostrinia nubilalis* – South-East EPPO climatic zone

In the 12 valid trials conducted in South-East EPPO climatic zone, the level of efficacy of DLT+FPF EC85 and references are statistically better than in untreated.
The level of infestation of *Ostrinia nubilalis* varies from 0.14 to 2.82 larvae per plant.
The level of efficacy of DLT+FPF EC85 applied at 0.75 L/ha is statistically equivalent to the standards, whatever they are, in all trials except in 1 where it is statistically better than Karate Zeon.
In figures, the level of efficacy of DLT+FPF EC85 applied at 0.75 L/ha is:

- 3.5% lower than Inazuma applied at 0.2 kg/ha in mean of 4 trials (88.3% versus 92.7%)
- 5.5% lower than Karate Zeon applied at 12, 15 or 25 g a.s./ha in mean of 7 trials (82.1% versus 87.6%)
- 2.8% lower than Ampligo applied at 0.2 or 0.3 L/ha in mean of 4 trials (89% versus 91.8%)
- 5.5% lower than deltamethrin applied at 12 or 12.45 g a.s./ha in mean of 11 trials (88.6% versus 94.1%)

- Conclusion about the efficacy *Ostrinia nubilalis* – South-East EPPO climatic zone

Based on the findings of the analysis of the trial set, the proposed rate of 0.75 L/ha of DLT+FPF EC85 ensures an efficient control of *Ostrinia nubilalis* with a level of efficacy of 88.2% in mean of 12 trials.

The product complies with the Uniform Principles.

USE 002: Efficacy of DLT+FPF EC85 in corn against *Helicoverpa armigera* (HELIAR) – – Maritime, North-East and South-East EPPO climatic zones

In order to demonstrate the efficacy of DLT+FPF EC85 on *Helicoverpa armigera* (HELIAR) in corn the following chapter summarises the results from a series of 17 trials implemented Eu regulatory Central zone from 2014 to 2018. As described in chapter "Target pests on corn", *Helicoverpa armigera* mainly attack tomatoes and corn in Europe. The existing EPPO standard for *Helicoverpa armigera* is given for vegetables and ornamentals. As the number of results on corn for this target is limited, it is proposed to present supportive tomato field trials according to EPPO standard "PP1/226 (3) Number of efficacy trials". Trials conducted on tomatoes are easier to follow-up with limited risk of having a concomitant pest and bring good consistency in results. As the intended use is a foliar spray, the plants shape and density of leaves at timing of application must be considered. By referring to the methodology part, the spray volume at application for tomatoes is similar to corn (400–500 L/ha). The timing of application is similar too (summer season). The other aspect to be considered is the leaf surface. As tomato leaves are hairier than on corn, it is considered as a worth case as one of

the active ingredients works by ingestion and must be available on/in the plant to be effective. Consequently, the field trials are proposed to be presented as follow:

- 8 field corn trials from South-East EPPO climatic zone including 1 supportive trial from EU regulatory Southern zone (Bulgaria) according to PP1/241(2) - Guidance on comparable climates.
- 9 tomato field valid trials from South-East EPPO climatic zone including 5 trials from EU regulatory Southern zone (Bulgaria) according to PP1/241(2) - Guidance on comparable climates.

There are no trials to support North-East and Maritime EPPO climatic zone. However, as this pest is minor in Poland and the Czech Republic, it is proposed to use the trials from South-East EPPO climatic zone as supportive for both EPPO climatic zones.
Single trial reports are given in the Compilation of Trial Reports M-687456-02-1 with the corresponding trial list.
The number of trials conducted in each EPPO climatic zone and country is shown in **Table 3.2-101** for corn and **Table 3.2-102** for tomato hereafter.

Table 3.2-101: distribution of **corn** trials according to EPPO climatic zones and countries.

EPPO climatic zone	**Regulatory Zone**	**Country**	**Year**	**Number of trials (number of valid trials)**		
				Number of trial per year	**Total per country**	**Total**
South-East	Central	Hungary	2017	1	2	8
			2018	1		
		Romania	2017	1	1	
		Slovakia	2014	2	4	
			2017	1		
			2018	1		
	Southern	Bulgaria	2014	1	1	

Table 3.2-102: distribution of **tomato** trials according to EPPO climatic zones and countries.

EPPO climatic zone	**Regulatory Zone**	**Country**	**Year**	**Number of trials (number of valid trials)**		
				Total per year	**Total per country**	**Total**
South-East	Central	Romania	2014	1 (0)	5 (4)	10 (9)
			2017	2 (2)		
			2018	2 (2)		
	Southern	Bulgaria	2015	1 (1)	5 (5)	
			2017	2 (2)		
			2018	2 (2)		

All the trials were conducted under GEP by officially recognized testing organisations and followed the appropriate EPPO standards.
DLT+FPF EC85 was tested in **corn** for the control of *Helicoverpa armigera* at 0.75 L/ha and compared to multiple standards as described hereafter:
DLT+FPF EC85 was tested in **corn** for the control of *Helicoverpa armigera* at 0.75 L/ha and compared to multiple standards registered in the countries from the EU Central zone as described hereafter:

- Ampligo 150SC applied at dose rate of 0.2 L/ha in Romania and Slovakia and at 0.3 L/ha in Hungary (corresponding to respectively 10+20 and 15+30 g a.s./ha of lambda-cyhalothrin+chloranthraniliprole). 5 trials concerned.
- Deltamethrin based product (100EC or 15EW formulation) applied at dose rate of 12.5 g a.s./ha in 6 trials,
- Inazuma 13WG applied at 0.2 kg/ha (corresponding to 20+6 g a.s./ha of acetamiprid+lambda-cyhalothrin) in 4 trials (Hungary and Slovakia),
- Karate Zeon (CS50 or CS100) applied at the dose rates of lambda-cyhalothrin of 25 g a.s./ha in Slovakia and at 15 g a.s./ha in Bulgaria. 3 trials concerned.

Among 8 valid trials used for efficacy test on corn, there were 2 or 3 standard product(s) depending on trials. Ampligo and deltamethrin based products are the most representative ones.

DLT+FPF EC85 was tested in **tomato** for the control of *Helicoverpa armigera* at 0.75 L/ha and compared to 2 standards:

- Deltamethrin based products (25 or 100 EC) applied at the same dose as in corn trials: 12.5 g a.s./ha in 5 valid trials
- Coragen applied at 0.175 L/ha in Romanian trials and at 0.200 L/ha in Bulgarian trials (representing respectively 35 and 40 g a.s./ha of chlorantraniliprole) in 10 trials.

Among 9 valid trials used for efficacy tests on tomato to support corn trials, the most representative active substances to manage *Helicoverpa armigera* are chlorantraniliprole and deltamethrin based products as for corn trials.
Efficacy was tested under a range of environmental conditions to fully challenge the product.
As it is impossible to predict which lepidoptera will occur in field trials (*Ostrinia nubilalis* or *Helicoverpa armigera* or both), the trials follow the specific EPPO standard PP1/013(3) *Ostrinia nubilalis* on corn with specific recommendation for assessments on *Helicoverpa armigera* so that trials can be used for *Ostrinia nubilalis* or *Helicoverpa armigera* or both.
There is no specific standard for corn on *Helicoverpa armigera.*
Tomato trials followed the requirements of the specific EPPO standard PP1/295(1) *Helicoverpa armigera* on vegetables or ornamentals.
A general overview of the methodology used in efficacy trials is shown in **Table 3.2-103** hereafter.

Table 3.2-103: Details on trial methodology

Guidelines	General guidelines	PP1/135(3/4) Phytotoxicity assessment PP1/152(3/4) Design and analysis of efficacy evaluation trials PP1/181(3/4) Conduct and reporting of efficacy evaluation trials including GEP
	Specific guidelines	Corn: PP1/013(3) *Ostrinia nubilalis* on corn Tomato: PP1/295 (1) *Helicoverpa armigera* on vegetables or ornamentals
Experimental design	Plot design	Randomized Complete Block Designed
	Plot size	For corn: 4 rows of 10 meters length, 28-45 m^2 For tomato: At least 1 row (must allow to assess 100 fruits); 18-30 m^2
	Number of replications	4
Crop	Trials per crop	Corn (8) / Tomato ~~(10)~~ (9)
	Varieties per crop	Corn: SY Dartona, P9025, OLT, Alexandra, Supra, Sussan (2), Ondina Tomato: ~~Pontica,~~ Perfect Peel (2), Chelsea, Rio Grande, Milyana, Heinz 3402, Trapezitsa, DPX 307, Rio Fuego
Application	Crop stage (BBCH)* at application	Corn: 51 to 67 applied from 21/06 to 28/07 Tomatos: 1rst application 61 to 81 applied from 06/07 to 23/08 (except 1 trial: 28/09)
	Application timing	**Corn**: At peak of flight: Trials to target preferably the first generation of PYRUNU, or the second generation of HELIAR. For specific trials were timing of application were studied, Spray timing : A = peak of flight; B = A + 7 days **Tomato**: first application carried out according to local threshold (e.g. 1 young larvae/row-m or 2% fruit damaged...). Second application to be done if needed with 7 days interval.
	Spray volumes	**Corn**: 400 to 500 L/ha (1trial at 300 L/ha) **Tomato**: 500 l/ha (1 trial at 350 L/ha)
Assessment	Assessment types	**Corn**: count number of infested ears and number of larvae in 50 cobs/plot **Tomato**: Assess the number of damaged fruits on at least 100 fruits.
	Assessment dates	**Corn**: 2 weeks after application **Tomato**: 2018 trials: before application, 1 to 3 days after first application, 7 days after each application. Trials before 2018: 6-8 days after first application and 13-15 days after last application

Crop growth stages were assessed using the BBCH growth stage codification.

Assessment on corn:

- 2 types of assessments were done at 14 days after application. 1 on pest incidence (frequency of attack) by counting number of plants or plant part infested and on pest severity (intensity of attack) by counting number of larvae per plant.
- Assessment on pest incidence has been done in the 8 trials by counting number of cobs or plants infested by at least on larvae. In all trials the sample size was of 50 cobs per plot except 2 trials with a sample size of 20 plants.
- Assessment on pest severity has been done in 7 trials out of 8 by counting the number of larvae per cobs. In one trial this assessment was not done as the pest incidence show no incidence on treated plots. The sample size was of 50 cobs per plot for all trials.
- The efficacy is calculated using the Abbott efficacy formula.

In all tomato trials, 2 applications were done as required in the protocols except in 2 trials with 1 application.

Assessments on pest incidence were done at several timings as follow:

- 1 day before application or the day just before application in 6 trials
- 2 to 3 days after application in 4 trials
- 6 to 7 days after first application in 9 valid trials
- 7 to 8 days after second application in 6 valid trials
- 14 to 15 days after second application in 5 valid trials

In all trials presented in the summary tables, pest incidence has been done by counting number of tomato fruits damaged by *Helicoverpa armigera* on a sample size of 100 fruits.

Results

In order to show the level of efficacy of DLT+FPF EC85 at 0.75 L/ha on *Helicoverpa armigera* in comparison to standards for the EU regulatory Central zone, the results will be presented by crop starting with corn and followed by tomato.

- *Corn: Results of efficacy for South-East EPPO climatic zone on Helicoverpa armigera*

For corn, as the response of treatment are similar whatever the assessment type, only frequency assessment will be presented and discussed in this document.

Summary of the available results is presented in **Table 3.2-104** on pest incidence.

The supportive Bulgarian trial from EU Southern zone is included in the same table as the other countries from South-East EPPO climatic zone.

Table 3.2-104: Efficacy of DLT+FPF EC85 on *Helicoverpa armigera* in **corn** – % Efficacy on counting number of cobs or plants with at least 1 larva – **pest incidence**. Results from the **South-East EPPO climatic zone**

EU regulatory zone	**EPPO climatic zone**	**Number of trials**	**Sample size**	**Days after appl.**	**BBCH crop stage**	*Untreated Frequency on number of infested cobs or plants in %*	**DLT+FPF EC85 0.75 L/ha**	Ampligo 0.2 or 0.3 L/ha	Delta-methrin 12.5 g a.s./ha	Inazuma 0.2 kg/ha	Karate Zeon 15 or 25* g a.s./ha
							Efficacy (% Abbott)				
Central and Southern	**South-East**	Mean of 8 trials	50 cobs or 20 plants	14	65 to 75	*39.4*	**82.8**				
		(Min-Max)				*(16.3-78.0)*	*(56.9-100)*				
		Mean of 5 trials	50 cobs or 20 plants	14	65 to 75	*36.2*	**75.5**	88.2			
		(Min-Max)				*(16.3-52.5)*	*(56.9-100)*	*(67.6-100)*			
		Mean of 6 trials	50 cobs or 20 plants	14	65 to 75	*39.0*	**90.6**		89.8		
		(Min-Max)				*(16.3-78.0)*	*(59.0-100)*		*(59.0-100)*		
		Mean of 4 trials	50 cobs	14	71 to 75	*41.1*	**69.4**	85.2		78.5	
		(Min-Max)				*(30.0-52.5)*	*(56.9-100)*	*(67.6-100)*		*(55.9-100)*	
		Mean of 2 trials	50 cobs or 20 plants	14	65	*28*	**100**		100		100*
		(Min-Max)				*(26.0-30.0)*	*(100-100)*		*100*		*(100-100)**
		1 trial	50	14	65	*78.0*	**84.6**		79.5		66.7

- *Corn: Discussion about the efficacy on corn for South-East EPPO climatic zone*

In all corn trials, the level of efficacy of DLT+FPF EC85 and references are statistically better than in untreated.
The frequency of attack is variable across the 8 trials with Hungarian and Bulgarian trials much more infested in frequency than the ones conducted in Romania and Slovakia. The frequency of attack varies from 16.3 to 78% of attack with a mean of 39.4% in the 8 trials.
The level of efficacy of DLT+FPF EC85 applied at 0.75 L/ha is statistically equivalent to the standards, whatever they are, in 7 trials out of 8.
In 1 trial DLT+FPF EC85 at 0.75 L/ha doesn't act as in the other trials with a very low level of efficacy compared to the other treatments. This play at the end on the mean of efficacy when compared to Ampligo and to Inazuma.
In 2 trials the level of efficacy of the treatments (standard and test) was quite low.
In figures, the level of efficacy of DLT+FPF EC85 applied at 0.75 L/ha is:

- 12.7% lower than Ampligo applied at 0.2 L/ha in mean of 5 trials (75.5% versus 88.2% of efficacy)
- 0.8% better than deltamethrin applied at 12.5 g a.s./ha in mean of 6 trials (90.6% versus 89.8% of efficacy).
- 9.1% lower than Inazuma applied at 0.2 kg/ha in mean of 4 trials (69.4% vs 78.5% of efficacy)
- Equivalent to Karate Zeon applied at 25 g a.s./ha of lambda-cyhalothrin (100% of efficacy)
- 17.9% better than Karate Zeon applied at 15 g a.s./ha of lambda-cyhalothrin (84.6% vs 66.7)
- *Corn: Conclusion of efficacy for South-East EPPO climatic zone.*

Based on the findings of the analysis of the trial set, the proposed rate of 0.75 L/ha of DLT+FPF EC85 ensures an efficient control of *Helicoverpa armigera* with a level of efficacy of 82.8% in mean of 8 trials.
However, as 8 trials are not enough concluded especially in this case with 1 atypical trial, supportive data from tomato trials are proposed hereafter.

- *Tomato: results of efficacy for South-East EPPO climatic zone on Helicoverpa a. (supportive trials)*

Although the intended use of DLT+FPF EC85 on corn is 1 application per year, it is of interest to show the results after a second application as spray programs are typical in case of long-lasting infestation in tomatoes. The number of trials per assessment timing is variable. It is so proposed to present the results as followed:

- 1 result table presenting the results of efficacy at 6 to 7 days after the first application (assessment done in 9 valid trials).
- 1 result table presenting the results of efficacy at 14 to 15 days after the second application (assessment done in 5 valid trials) to see the long-lasting effect.

Considering the standard product Coragen, as there are no clear differences of efficacy between 0.175 and 0.2 L/ha in the trials presented, it is proposed to merge data from both doses in one column.
The means, minimum and maximum value of the trial set are calculated depending on number of trials with available data.
At 6 to 7 days after first application, the pest incidence varies from 6.3 to 41% of fruit damaged with a mean of 23.4% of fruit infested (**Table 3.2-105**).

Table 3.2-105: Efficacy of DLT+FPF EC85 on *Helicoverpa armigera* in **tomato** – % Efficacy on counting number of tomato fruits damaged **6 to 7 days** after **first** application – **pest incidence**.

EPPO climatic zone	EU regulatory zone	Number of trials	Sample size	Days after appl.	BBCH crop stage	*UNTREATED Frequency on number of fruits damaged*	**DLT+FPF EC85 0.75 L/ha**	Coragen 0.175 or 0.2* L/ha	Deltamethrin 12.5 g a.s./ha
							Efficacy (% Abbott)		
South-East	Southern+ Central	Mean of 9 trials	100 fruits	6 to 7	62 to 85	*23.4*	**70.7**	72.1	
		(min-max)				*(6.3-41.0)*	*(44.0-92.4)*	*(36.0-96.2)*	
		Mean of 5 trials	100 fruits	6 to 7	62 to 83	*18.7*	**60.1**	60.3	51.6
		(min-max)				*(6.3-41)*	*(44.0-73.8)*	*(36.0-71.4)*	*(32.0-64.6)*

In mean of 9 trials, DLT+FPF EC85 applied at 0.75 L/ha provide an efficacy of 70.7% which is equivalent to Coragen applied at 0.175 or 0.2 l/ha that reach a level of 72.1%. In each trial the level of efficacy of DLT+FPF EC85 is statistically equivalent to Coragen.

In mean of 5 trials, DLT+FPF EC85 applied at 0.75 L/ha provide an efficacy of 60.1% which is better in trend than deltamethrin based products applied at 12.5 g a.s./ha that reach a level of 51.6%. It is still equivalent to Coragen applied at 0.175 or 0.2 l/ha that reach a level of 60.3%. In each trial the level of efficacy of DLT+FPF EC85 is statistically equivalent to deltamethrin based products.
At 14 to 15 days after second application, the pest incidence varies from 13 to 47% of fruit damaged with a mean of 29.9% (**Table 3.2-106**).

Table 3.2-106: Efficacy of DLT+FPF EC85 on *Helicoverpa armigera* in **tomato** – % Efficacy on counting number of tomato fruits damaged **14 to 15 days** after **second** application – **pest incidence**.

EPPO climatic zone	EU regulatory zone	Number of trials	Sample size	Days after appl. A	BBCH crop stage	*UNTREATED Frequency on number of fruits damaged*	**DLT+FPF EC85 0.75 L/ha**	Coragen 0.175 or 0.2* L/ha	Deltamethrin 12.5 g a.s./ha
							Efficacy (% Abbott)		
South-East	Southern+ Central	Mean of 5 trials	100 fruits	14 to 15	71 to 87	*29.9*	**82.5**	84.6	75.3
		(min-max)				*(13.0-47.0)*	*(69.8-90.4)*	*(77.1-100)*	*(57.9-96.2)*

In mean of 5 valid trials, DLT+FPF EC85 applied at 0.75 L/ha provide an efficacy of 82.5% which is equivalent to Coragen applied at 0.175 or 0.2 l/ha that reach a level of 84.6%. In 4 trials out of 5 the level of efficacy of DLT+FPF EC85 is statistically equivalent to Coragen and statistically better in 1 trial.
In mean of 5 trials, DLT+FPF EC85 applied at 0.75 L/ha provide an efficacy 7.2% better than deltamethrin based products applied at 12.5 g a.s./ha that reach a level of 73.5%. The level of efficacy of DLT+FPF EC85 is statistically better than deltamethrin based products in 4 trials out of 5, and statistically equivalent in 1 trial out of 5.

- *Conclusion of efficacy on Tomato for South-East EPPO climatic zone.*

Based on the findings of the analysis of the trial set, the proposed rate of 0.75 L/ha of DLT+FPF EC85 ensures an efficient control of *Helicoverpa armigera* standing out equivalent or better when compared to market references and comfort the results found in corn.

- *Conclusion about the efficacy*

Based on the findings of the analysis of 8 corn trials and 9 valid supportive tomato trials, it could be concluded that the proposed rate of 0.75 L/ha of DLT+FPF EC85 ensures an efficient control of *Helicoverpa armigera* in corn in the South-East EPPO climatic zone. Those results can be extrapolated to the other climatic zones for countries where this pest is considered as minor by EPPO organization.

USE 003: Efficacy of DLT+FPF EC85 in corn against *Diabrotica virgifera virgifera* (DIABVI) – North-East and South-East EPPO climatic zones

In order to demonstrate the efficacy of DLT+FPF EC85 on *Diabrotica virgifera virgifera* (DIABVI) in corn the following chapter summarises the results from a series of 18 valid field trials implemented across Europe from 2014 to 2018. The trials were implemented in farmer's fields under conditions of natural infection.
According to EPPO climatic zone this field trial series was spread as follow:
- 4 trials in the North-East EPPO climatic zone
- 14 trials in the South-East EPPO climatic zone.

There are no trials presented from Maritime EPPO climatic zone. For *Diabrotica virgifera virgifera*, the application timing is linked to the biological stage of the pest. This stage is linked to sum of temperatures as well as for the corn stage development. For that reason, the product activity is more linked to the product positioning according to the pest stage. Whatever the climate differences a huge behaviour in the product activity compared to standards is not expected. Thus, all the trials will be considered in the data package to support the use on *Diabrotica virgifera virgifera* whatever the EPPO climatic zone. However, the results will be sorted per EPPO climatic zone (South-East and North-East) and per country for South-East EPPO climatic zone.
Single trial reports are given in the Compilation of Trial Reports M-688139-01-1 with the corresponding trial list.

The trials were implemented in Hungary and Slovakia for the South-East EPPO climatic zone and in Poland for North-East EPPO climatic zone.
The number of trials conducted in each EPPO climatic zone and country is shown in **Table 3.2-107** below.

Table 3.2-107: distribution of trials according to EPPO climatic zones and countries.

EPPO climatic zone	**Regulatory Zone**	**Country**	**Year**	**Number of trials (valid trials)**		
				Total per year	**Total by country**	**Total**
North-East	Central	Poland	2017	2 (2)	4 (4)	18 (18)
			2018	2 (2)		
South-East	Central	Hungary	2015	2 (2)	6(6)	
			2016	2 (2)		
			2017	1 (1)		
			2018	1 (1)		
		Slovakia	2014	2 (2)	8 (8)	
			2015	2 (2)		
			2016	2 (2)		
			2017	1 (1)		
			2018	1 (1)		

All the trials were conducted under GEP by officially recognized testing organisations and followed the appropriate EPPO standards.
DLT+FPF EC85 was tested in corn for the control of *Diabrotica virgifera virgifera* at 0.75 L/ha and compared to multiple standards and doses as described hereafter to multiple standards as described in following **Table 3.2-108** with the number of trials per country, standards used and dose:

Table 3.2-108: number of trials per standard and country

Standards	POL	HUN	SVK	TOTAL
FURY 10 EW (zeta-cypermethrin 100 g a.s./l) at dose rate of 0.15 l/ha		2	8	10
FURY 10 EW (zeta-cypermethrin 100 g a.s./l) at dose rate of 0.38 l/ha		4		4
STEWARDWG (indoxacarb 30 g a.s./kg) at dose rate of 0.12 kg/ha	4			4
PROTEUS 110 OD (deltamethrin+thiacloprid 10+100) at dose rate of 0.75 L/ha	4			4
KARATE ZEON CS50 (lambda-cyhalothrin) at dose rate of 0.14 L/ha		2		2
INAZUMA 13 WG (acetamiprid+lambda-cyhalothrin 10+3 g a.s./kg) at dose rate of 0.2 kg/ha		3	3	8
INAZUMA 13 WG (acetamiprid+lambda-cyhalothrin 10+3 g a.s./kg) at dose rate of 1.52 kg/ha			1	1

Efficacy was tested under a range of environmental conditions to fully challenge the product.
A general overview of the methodology used in efficacy trials is shown in **Table 3.2-109** thereafter.

Table 3.2-109: Details on trial methodology.

Guidelines	General guidelines	PP1/135(3/4) Phytotoxicity assessment PP1/152(3/4) Design and analysis of efficacy evaluation trials PP1/181(3/4) Conduct and reporting of efficacy evaluation trials including GEP
	Specific guidelines	PP1/274(1) *Diabrotica virgifera* adults
Experimental design	Plot design	Randomized Complete Block Designed
	Plot size	10 rows of 20 meters long; 50-1200 m^2
	Number of replications	4
Crop	Trials per crop	ZEAMX ~~(19)~~ (18)
	Varieties per crop	DKC 3623, DKC 467, DKC4590, Monalisa, MT Matado (2), NK Supra, Occitan, P9025, Phileaxx, Ricardinio, Ronaldinio, San, Sudor, Sumator, Susann (3)
	Sowing period	ZEAMX: from 13th to 29th of April
Application	Crop stage (BBCH) at application	55 to ~~73~~ 75
	Timing Pest stage at application (1)	Local timing generally at peak of flight monitored by pheromons (presence of pest) and yellow traps (pest pressure) combined to sum of temperatures 160-170 day degrees starting from treshold soil temperature of 12.7°C.
	Number of applications Intervals between applications	1 to 2 (14 days interval)
	Spray volumes	250 to ~~600~~ 450 L/ha
Assessment	Assessment types	Count number of insects

		living in 3 yellow traps per plot : ~~19~~ 18 trials
	Assessment dates	0 DAT, 2 to 3 DAT, 6 to 8 DAT, 14 to 16 DAT and until loss of efficacy or population decrease

- Crop growth stages were assessed using the BBCH growth stage codification.
    - The pest pressure was assessed before application, 2 to 4 days after application, 6 to 8 days after application and 14 to 16 days after application by counting adults in 3 yellow traps per plot.
- For most of the trials, 2 additional assessments were done:
    - 14 to 16 days after application by scoring cobs in four classes according to the level of damages.
    - Harvest

  Those assessments do not bring more information than assessments on insects count and are not required by EPPO standard. However, those assessments are available in Compilation Trial Report.
- The efficacy is calculated using the Abbott efficacy formula vs. the UTC.
- Assessments where results were not reliable or standard products failed to give the expected level of control are highlighted in the summary result table with grey font and not included in trial groupings.

Results of efficacy trials against *Diabrotica virgifera virgifera*

It has to be noticed that even in a same EPPO climatic zone, the pest pressure level can vary depending on countries like for South-East EPPO climatic zone where the Hungarian trials were much more infested than the Slovakian ones. Moreover, considering Poland trials, even at a country level, pest pressure varies according to local areas.

Trials from the North-East and South-East EPPO climatic zones are presented all together but sorted by EPPO climatic zone and country.

All timings of assessment are presented to better see and product activity from 2–3 to 14–16 days after application. The mean, minimum, maximum calculation are presented by EPPO climatic zones and by country for South-East EPPO climatic zone according to the standards or standards dose.

As there are many standards used, in order to simplify the overview result table, standards have been grouped as following:

1 column with:

Fury 10 EW (zeta-cypermethrin 100 g a.s./l) at 0.15 L/ha or

Fury 10 EW (zeta-cypermethrin 100 g a.s./l) at 0.38 L/ha*or

Steward WG (indoxacarb 30 g a.s./kg) at 0.12 kg/ha**.

The character "*" is reported aside in statistics groups. The mean is calculated per standard.

1 column with:

Proteus 110 OD (deltamethrin+thiacloprid 10+100) 0.75 L/ha or

Karate Zeon CS50 (lambda-cyhalothrin) at 0.3 L/ha* or

Inazuma 13 WG (acetamiprid+lambda-cyhalothrin 10+3 g a.s./kg) at 0.2 kg/ha° or

Inazuma 13 WG (acetamiprid+lambda-cyhalothrin 10+3 g a.s./kg) at 1.52 kg/ha°°

The characters "*", "°" and "°°" are reported aside in statistics groups. The mean is given as indication but not really relevant as it mixes different standards or doses.

A summary of the available results is presented in **Table 3.2-110** hereafter.

Table 3.2-110: Efficacy of DLT+FPF EC85 on *Diabrotica virgifera virgifera* in corn – % Efficacy on counting number of insects in yellow traps. Results from North-East and South-East EPPO climatic zones.

EU regulatory zone	**EPPO climatic zone**	**Trial number**	**Sample size**	**Days after appl.**	**BBCH crop stage**	**Untreated** number of living insects in yellow traps or on plants* or dead insects**	**DLT+FPF EC85 0.75 L/ha 7.5+56.25 g a.s./ha**	Fury 10 EW 0.15 L/ha or 0.38 L/ha*or Steward WG 0.12 KG/ha**	Proteus 110 OD 0.75 L/ha or Karate Zeon CS50 0.3 L/ha* or Inazuma 13 WG 0.2 kg/ha° or 1.52 kg/ha°°

							Efficacy (% Abbott) / or number of insects for assessments before/at application timing		
North-East EPPO climatic zone/Central EU regulatory zone (supportive trials)									
Central	N-E Poland	Mean of 4 trials (min-max)	3 TRAP	3	73 to 75	*189.6 (48.0-297.8)*	**94.9** *(91.7-97.6)*	90.1** *(82.8-95.7)*	95.1 *(90.6-97.6)*
		Mean of 4 trials (min-max)	3 TRAP	7	75	*211.0 (61.3-318.0)*	**82.8** *(78.6-87.2)*	75.4** *(73.7-77.6)*	84.7 *(82.6-86.5)*
		Mean of 4 trials (min-max)	3 TRAP	14	83	*184.2 (74.0-247.8)*	**46.5** *(37.4-62.2)*	29.8** *(20.6-41.9)*	39.7 *(9.9-65.2)*
South-East EPPO climatic zone/Central EU regulatory zone (supportive trials)									
Central	S-E Hungary	Mean of 5 trials (min-max)	3 TRAP	3	63 to 67	*110.0 (66.2-179.0)*	**77.1** *(65.4-94.8)*	76.2* *(58.5-95.8)*	74.7 *(53.8-95.5)*
		Mean of 6 trials (min-max)	3 TRAP	6 to 7	63 to 67	*82.0 (33.8-151.0)*	**67.6** *(50.4-94.1)*	69.0* *(50.8-97.2)*	71.1 *(52.9-98.3)*
		Mean of 5 trials (min-max)	3 TRAP	14	69	*87.1 (14.2-139.7)*	**51.5** *(39.4-83.7)*	57.8* *(37.5-93.0)*	54.3 *(34.9-88.7)*
Central	S-E Slovakia	Mean of 7 trials (min-max)	3 TRAP	3	59 to 71	*8.0 (2.7-12.9)*	**100** *(100-100)*	83.1 *(44.1-100)*	98.6 *(95.8-100)*
		Mean of 8 trials (min-max)	3 TRAP	7 to 8	59 to 69	*9.4 (1.5-27.3)*	**100** *(100-100)*	91.3 *(55.9-100)*	100 *(100-100)*
		Mean of 7 trials (min-max)	3 TRAP	14 to 16	67 to 79	*2.9 (1.5-5.4)*	**100** *(100-100)*	77.8 *(55.6-100)*	100 *(100-100)*

N-E=North-East, S-E=South-East

Discussion about the efficacy

6 assessments were excluded from the analyses because of unreliable data (too much variability or too low infestation).

During the trials, from 0 to 2 weeks after application the pest pressure remains stable except in 2 trials. In 1 trial, the level of infestation decreased a lot. However, the last level of infestation remains enough to be useful in the analysis.

In 1 trial the number of insects fall down from 72.3 to 33.8 from application to 2 days after application with great variability of efficacy at this timing for most of the treatments except deltamethrin straight. In this trial the standard reference Fury shown an unexpected low efficacy with pest pressure higher than in untreated plots with statistical differences. For that reason, assessment at 2 days after application is finally excluded from analyse for this trial.

In all trials and assessments kept for the analyse, the level of efficacy of DLT+FPF EC85 and references are statistically better than in untreated except in the last timing of assessment at 2 weeks after application kept showing a decline in efficacy in some trials.

Discussions about the efficacy by EPPO climatic zones

North-East EPPO climatic zone:

Among the 4 trials that were conducted in Poland for North-East EPPO climatic zone, the level of infestation is strongly variable depending on trials (from 2.7 to 179.0 at 3 days after application). Although this variability, the products reacts identically whatever the level of infestation and whatever the timing of assessment. From 3 days to 1 week after application DLT+FPF EC85 at 0.75 L/ha provides respectively a level of efficacy of 94.9% and 82.8% which is better than STEWARD WG applied at 0.12 KG/ha (respectively 90.1% and 75.4% of efficacy) and equivalent to PROTEUS 110 OD (respectively 95.1 % and 84.7%). 2 weeks after application the level of efficacy fall to 46.5% for DLT+FPF EC85 but providing a better efficacy compared to the standards.

South-East zone:

Among the 12 trials conducted in Hungary and in Slovakia for South-East EPPO climatic zone, and among the valid assessments, DLT+FPF EC85 applied at 0.75 L/ha is:

- better than Fury 10 EW applied at dose of 0.15 L/ha (in Slovakia with low level of infestation)
- equivalent to Fury 10 EW applied at dose of 0.38 L/ha (in Hungary with high level of infestation)
- Equivalent to Karate Zeon 0.3 L/ha and to Inazuma 13WG 0.2 or 1.52 kg/ha

In Slovakia, with a pest pressure from 1.5 to 27.3 insects per yellow trap, the level of efficacy from 3 days to 2 weeks after application was of 100% for DLT+FPF EC85 in mean of 7 or 8 trials.

In Hungary, with a pest pressure from 14.2 to 179 insects per yellow trap and a mean around 100, the level of efficacy from 3 days to 1 week after application was respectively of 77.1% and 67.6% and declining to 51.5% after 2 weeks for DLT+FPF EC85 in mean of 5 or 6 trials.

Conclusion about the efficacy across EPPO climatic zones

In all EPPO climatic zones, the level of efficacy of DLT+FPF EC85 applied at 0.75 L/ha clearly starts to fall down at 2 weeks after application in case of high pest pressure.
In South-East EPPO climatic zone, the level of efficacy seems to depend on pest pressure (77.1% to 100% at 3 days after application) whereas in North-East EPPO climatic zone, even with a high pest pressure, the level of efficacy is around 95% of efficacy.
In any cases, based on the results, whatever the standards used and whatever the EPPO climatic zones, the level of efficacy of DLT+FPF EC85 at 0.75 L/ha is equivalent or better than the standards.

USE 004: Efficacy of DLT+FPF EC85 in corn against aphididae (1APHIF) – South-East EPPO climatic zone

Aphids is considered as a minor pest on corn. In order to evaluate the efficacy of DLT+FPF EC85 on *Aphididae*, the following chapter summarises the results from a series of 13 field trials implemented in Maritime and South-East EPPO climatic zone in Europe from 2016 to 2018. The trials were implemented in farmer's fields under conditions of natural infection. According to EPPO climatic zone, this field trial series was spread as follow:

- 8 valid trials conducted in South-East EPPO climatic zone whose 7 from the EU regulatory Central zone and 1 from the EU regulatory Southern zone as supportive trial according to PP1/241(2) - Guidance on comparable climates
- 5 trials conducted in Maritime EPPO climatic zone

Single trial reports are given in the Compilation of Trial Reports M-687450-02-1 with the corresponding trial list.
The number of trials conducted in each EPPO climatic zone and country is shown in **Table 3.2-111** below.

Table 3.2-111: distribution of trials according to EPPO climatic zones and countries.

EPPO climatic zone	Regulatory Zone	Country	Year	Number of trials (valid trial)		
					Total by country	Total
Maritime	Central	Czech Republic	2016	2 (2)	5 (5)	14 (13)
			2017	2 (2		
			2018	1 (1)		
South-East	Central	Hungary	2016	2 (2)	4 (4)	
			2017	1 (1)		
			2018	1 (1)		
		Romania	2017	1 (1)	1 (1)	
		Slovakia	2016	1 (1)	3 (2)	
			2017	1 (1)		
			2018	1 (0)		
	Southern	Bulgaria	2016	1 (1)	1 (1)	

All the trials were conducted under GEP by officially recognized testing organisations and followed the appropriate EPPO standards.
DLT+FPF EC85 was tested in corn for the control of aphids at 0.75 L/ha and compared to the following standard products:

- Decis Expert 100EC and DECIS 15EW applied at 12.5 g a.s/ha – 10 trials
- Mospilan 20SG applied at 0.15 KG/ha (acetamiprid 30 g a.s./ha) – 4 trials
- Nurelle D 550 EC applied at 0.6 L/ha (chlorpyrifos+cypermethrin, 300+30 g a.s/ha) – 5 trials

Trials followed the requirements of the specific EPPO standard "PP 1/245(1) Aphids on corn".
A general overview of the methodology used in efficacy trials is shown in **Table 3.2-112** thereafter.

Table 3.2-112: Details on trial methodology.

Guidelines	General guidelines	PP 1/135(4) Phytotoxicity assessment PP 1/152(4) Design and analysis of efficacy evaluation trials PP 1/181(4) Conduct and reporting of efficacy evaluation trials including GEP PP 1/225(2) Minimum effective dose
	Specific guidelines	PP 1/245(1) Aphids on corn
Experimental design	Plot design	Randomized Complete Block Designed
	Plot size	At least 15m² - 4 rows ,20.16-30 m²
	Number of replications	4
Crop	Trials per crop	ZEAMX (13)
	Varieties per crop	Musixx (3), MAS 29.T, Jokari, P9915-430, Dessert 78, Konsens, LG 3490, Surreal, OLT, SY Ulises, Codipro, ~~Amanita~~
	Sowing period	ZEAMX: from 4th of April to 28th of May
Application	Crop stage (BBCH) at application	30 to 73
	Timing Pest treshold at application	first application when the infestation is sufficiently dense. At beginning of aphids infestation; preferably shortly before/after or at same timing as applications against corn borers/corn root worm (adults).
	Number of applications Intervals between applications	1
	Spray volumes	500 L/ha (1 trial at 300 L/ha)
Assessment	Assessment types	The numbers of live aphids should be counted on each of 15 leaves taken at 3 levels (top, middle, low) on 5 randomly selected and marked plants per plot. If aphid density is very high, the number of aphids may be estimated.
	Assessment dates	before application, 1-3; 7-9 and 14-16 days after application. Further assessments may be useful

- Crop growth stages were assessed using the BBCH growth stage codification.
- The efficacy is calculated using the Abbott efficacy formula vs. the UTC
- Assessments where results were not reliable or standard products failed to give the expected level of control are not included in trial groupings:
    - Assessment at 2 weeks after application in 1 trial was excluded from the analyses because too low infestation and too much variability.

Results

As a first step, the dynamic of aphid population is presented in **Table 3.2-113** for all trials from Maritime and South-East EPPO climatic zone.

Table 3.2-113: dynamic of aphids population in untreated from start to end of the trials – Count number of aphids on 15 leaves at 0, 1–3, 7–8, 13–14 days after application.

Country	Crop stage at appl.	EPPO climatic zones	Aphid species	0 DAA	1-3 DAA	7-8 DAA	13-14 DAA	Pest pressure at peak of infestation	Timing at peak of infestation	Dynamic
CZE	59	Mar	MACSAV	46.5	44.5	39.8	53.3	Medium (53.3)	13-14 DAA	stable
CZE	59	Mar	RHOPPA	17.0	15.8	12.8	13.3	Low (17)	0 DAA	stable
CZE	63	Mar	METODR	30.8	19.5	25.3	27.5	Medium (30.8)	0 DAA	stable
CZE	63	Mar	RHOPPA	107.3	82.3	39.0	22.5	High (107.3)	0 DAA	decreasing
CZE	59	Mar	MACSAV	29.0	24.8	25.5	23.8	Medium (29.0)	0 DAA	stable
CZE	59	Mar	RHOPPA	13.5	12.3	11.8	11.3	Low (13.5)	0 DAA	stable
CZE	35	Mar	RHOPPA	14.8	26.5	39.0	35.5	Medium (39)	7-8 DAA	slightly increasing
CZE	59	Mar	MACSAV	45.5	39.3	41.8	40.8	Medium (45.5)	0 DAA	stable
CZE	59	Mar	RHOPPA	10.8	10.8	12.8	12.8	Low (12.8)	13-14 DAA	stable
HUN	63	S-E	RHOPPA	170.0	216.0	307.0	412.0	High (412.0)	13-14 DAA	Increasing (2.4x)
HUN	65	S-E	RHOPPA	85.0	96.0	174.0	394.0	High (394.0)	13-14 DAA	Increasing (4.1x)
HUN	53	S-E	RHOPPA	141.0	167.0	207.0	227.0	High (227.0)	13-14 DAA	Slightly increasing
HUN	51	S-E	RHOPPA	117.0	141.0	164.0	200.0	High (200.0)	13-14 DAA	Slightly increasing
ROM	73	S-E	RHOPMA	n.c.	462.0	586.0	634.0	High (634.0)	13-14 DAA	Slightly increasing
SVK	51	S-E	RHOPPA	29.0	43.0	56.0	63.0	Medium (63.0)	13-14 DAA	Increasing (2.2x)
SVK	51	S-E	RHOPPA	395.0	455.0	579.0	820.0	Very High (820.0)	13-14 DAA	Increasing (2.1x)
SVK	30	S-E	RHOPPA	3.0	5.0	2.0	0.0	Low (5.0)	1-3 DAA	stable
BGR	51	S-E	RHOPPA	145.0	158.0	147.0	145.0	High (158.0)	1-3 DAA	stable

DAA=Days After Application, Mar=Maritime, S-E= South-East, CZE= the Czech Republic, HUN=Hungary, ROM=Romania, SVK=Slovakia, BLG=Bulgaria, n.c.=not communicated

For Maritime EPPO climatic zone, in 4 trials out of 5 there were mixed population of different species of aphids. The species *Rhopalosiphum padi* was present in all trials. The pest pressure whatever the species was low to medium. Only 1 trial was facing a strong RHOPPA population at timing of application, but the dynamic was then decreasing along the trial period.

For South-East EPPO climatic zone, in the 8 valid trials, by looking at dynamic of populations, there is a variability regarding pest pressure, regarding the timing at peak of infestation and regarding the dynamic of population along the trials (pest population stable or increasing). However, in most of trials (7 out of 8) the peak of infestation was reached at 13–14 days after application.

The last assessment done 2 weeks after application is the chosen one to be presented in order to compare the results of products efficacy on aphids on corn as it is the most challenging one.

The results of this assessment timing are presented hereafter in **Table 3.2-114** for Maritime EPPO climatic zone and in **Table 3.2-115** for South-East EPPO climatic zones.

Table 3.2-114: Efficacy of DLT+FPF EC85 on aphids in corn – % of efficacy on counting number of insects on plants. **Maritime** EPPO climatic zone

EPPO Climatic zones	**EU Regulatory zones**	**Number of trials**	**Sample size (leaves)**	**Pest species**	**Days after appl.**	**BBCH crop stage**	**Untreated** Number of aphids on 15 leaves	**DLT+FPF EC85** 0.75 l/ha (56.25+7.5 g a.s./ha)	Deltamethrin 100 EC 12.5 g a.s./ha	Nurelle D 550 EC 0.6 L/ha
								Efficacy (% Abbott)		
Mar.	Central	Mean of 5 trials (9 assessments) *(min-max)*	15 to 75	RHOPPA MACSAV METODR	14 to 15	69 to 73	*26.8*	**87.4**		94.2
							(11.3-53.3)	*(64.2-99.3)*		*(86.3-100)*
Mar.	Central	Mean of 4 trials (7 assessments) *(min-max)*	15	RHOPPA MACSAV METODR	14	69 to 73	*26.7*	**88.5**	78.6	92.9
							(11.3-53.3)	*(64.2-99.3)*	*(48.4-98.2)*	*(86.3-97.8)*

Mar=Maritime

Table 3.2-115: Efficacy of DLT+FPF EC85 on aphids in corn – % of efficacy on counting number of insects on plants. **South-East** EPPO climatic zone

EPPO Climatic zones	**EU Regulatory zones**	**Number of trials**	**Sample size (leaves)**	**Pest species**	**Days after appl.**	**BBCH crop stage at assessment**	**Untreated** Number of aphids on 15 leaves	**DLT+FPF EC85** 0.75 l/ha (56.25+7.5 g a.s./ha)	Deltamethrin 100EC 12.5 g a.s./ha	Mospilan 20SG 0.15 kg/ha
								Efficacy (% Abbott)		
S-E	Central+ Southern	8 trials *(min-max)*	15 to 75	RHOPPA RHOPMA	13 to 16	34 to 79	386.0	**86.3**		
							(0.0-820.0)	*(78.6-99.7)*		
S-E	Central+ Southern	7 trials *(min-max)*	15 to 75	RHOPPA RHOPMA	13 to 15	61 to 79	467.0	**86.2**	86.9	
							(63.0-820.0)	*(78.6-99.7)*	*(78.1-96.0)*	
S-E	Central	4 trials *(min-max)*	15	RHOPPA	14	63 to 71	308.0	**82.5**		84.3
							(200.0-411.0)	*(78.6-87.4)*		*(82.4-85.6)*

S-E=South-East,

Based on results from Maritime and South-East EPPO climatic zone, in all trials (13 trials), DLT+FPF EC85 and standard products show a good level of efficacy on aphids compared to the untreated demonstrating the activity on aphids. The standard products show the expected level of efficacy.

Maritime EPPO climatic zone

The level of infestation varies from 11.3 to 53.3 with a mean of 26.8% which is considered as medium level of infestation.

In summary calculations, DLT+FPF EC85 is compared to the most representative standard products: Nurelle D applied at 0.6 L/ha in 5 trials (9 assessments) and deltamethrin applied at 12.5 g a.s./ha a in 4 trials and 7 assessments.

Based on the results, DLT+FPF EC85 applied at 0.75 L/ha, at 2 weeks after application, is:

- 9.9% better than deltamethrin standards applied at 12.5 g a.s./ha (88.5% of efficacy versus 78.6%) with, in 4 trials and 7 assessments
- 6.8% lower than Nurelle D (87.4% of efficacy versus 94.2%) in 5 trials and 9 assessments.

For South-East EPPO climatic zone, DLT+FPF EC85 applied at 0.75 L/ha is equivalent to the standards with a slight better effect than deltamethrin based standards applied at 12.5 g a.s./ha and a slight lower effect than Nurelle D applied at 0.6 L/ha.

South-East EPPO climatic zone

In the 7 trials carried out in South-East EPPO climatic zone the aphid species occurring was *Rhopalosiphum* (6 trials with *Rhopalosiphum padi* and 1 Romanian trial with *Rhopalosiphum maidis*). The level of infestation varies from 63 to 820 aphids on 15 leaves with a mean at 467.

In summary calculations, DLT+FPF EC85 is compared to the most representative standard products: MOPSILAN applied at 0.15 kg/ha in 4 trials out of 8 and deltamethrin applied at 12.5 g a.s./ha a in 7 trials out of 8.

Based on the results, DLT+FPF EC85 applied at 0.75 L/ha, at 2 weeks after application, is:

- Equivalent to deltamethrin standards applied at 12.5 g a.s./ha with a mean of 86% of efficacy
- Equivalent to Mospilan considering that 1.8% is not a significant gap (82.5% of efficacy versus 84.3%).
- *Conclusion about the efficacy across EPPO climatic zones on Rhopalosiphum padi*

For Maritime EPPO climatic zone, based on the finding of the analysis of the trial set, it could be conclude that the proposed dose rate of 0.75 L/ha of DLT+FPF EC85 ensures an efficient control of (RHOPPA, MACSAV, METODR and RHOPMA), with a level of efficacy of 87.4% in mean of 5 trials which is in the range of the standards of the market.

For South-East EPPO climatic zone, based on the finding of the analysis of the trial set, it could be conclude that the proposed dose rate of 0.75 L/ha of DLT+FPF EC85 ensures an efficient control of aphids (RHOPPA, RHOPMA) with a level of efficacy of 86.3% in mean of 8 trials which is in the range of the standards of the market.

The level of efficacy in North-East EPPO climatic zone can be expected as similar to the ones found in Maritime and South-East with respectively 87.4% and 86.3%.

Corn, sweet (ZEAMS), Millet, common (PANMI), Sorghum (SORSS): efficacy tests

Corn, sweet (ZEAMS), Millet, common (PANMI), Sorghum (SORSS) are all minor crops in the countries where the submission is intended for. Those three crops belong to same subfamily of Panicoideae (1PANS) as corn (ZEAMX) and are conducted under similar conditions. For those reasons, based on SANCO/D3/SI2.395857, Final Report, October 2005 and according to "PP 1/224(2) Principles of efficacy evaluation for minor uses" the efficacy demonstrated for corn (ZEAMX) is valid for sweet corn (ZEAMS), Millet, common (PANMI), Sorghum (SORSS) and do not required additional trials.

USE 005: Efficacy of DLT+FPF EC85 in cereals against cereal leaf beetles *Oulema* spp. (OULESP) – South-East EPPO climatic zone

In order to evaluate the efficacy of DLT+FPF EC85 cereal leaf beetle *Oulema* spp. (OULESP) in cereals, Bayer implemented a series of field trials in Europe.

Both species of leaf beetles share a number of similar biological and ecological characteristics, therefore they are termed *Oulema* spp. (OULSEP) and under this name summarized and evaluated together in the following chapter.

Vast majority of trials was performed in winter wheat varieties and some trials were conducted in spring wheat, spring and winter barley, and winter oat in order to evaluate potential impact of host plant-herbivore complex on biological efficacy of the insecticide. As initial evaluation did not reveal visible influence of host plant on performance of the product against *O. melanopus* and *O. gallaeciana*, results obtained on different crops are summarized together and conclusions on efficacy against the target pest are drawn for the whole crop group of cereals.

Single trial reports are given in Compilation of Trial Reports M-689778-02-1 with the corresponding trial list.

A total of 39 field trials was carried out in trial seasons 2014 to 2018 to evaluate the efficacy of DLT+FPF EC85 for the control of *Oulema spp.* (OULESP) in cereals. From 39 trials 18 were conducted in the South-East EPPO climatic zone in countries belonging to Central EU regulatory zone (8 trials in Hungary, 5 in Slovakia and 1 in Romania) and Southern EU regulatory zone (3 trials in Bulgaria); 9 trials were conducted in the Maritime EPPO climatic zone country the Czech Republic; 12 trials were conducted the North-East EPPO climatic zone in countries belonging to Central EU regulatory zone (4 trial) and Northern EU regulatory zone (4 trials in Latvia and 4 in Lithuania). From the dataset of 39 trials, 28 trials were considered valid for efficacy evaluation and were summarised in the following chapter. 11 trials were not included into efficacy evaluation as infestation level was insufficient to reliably determine efficacy of the tested objects or results were found to be unreliable due to sampling issues. Trials were performed in several different cereal crops – wheat (winter (18 valid trials) and spring (5 valid trials)), barley (1 valid trial in winter and 4 in spring) and in winter oat (1 valid trial). Two trials performed in spring oat and spring triticale were discarded due to insufficient infestation by the target pest. As no visible differences in efficacy pattern against OULESP were observed between the different crops, it is assumed that species or type of a cereal crop does not play a major role in determining efficacy against cereal leaf beetles. Therefore, efficacy results were summarized and presented together in the following summary tables.

The number of trials conducted per countries of each EU regulatory zone of South-East, Maritime and North-East EPPO climatic zones is shown in **Table 3.2-116** below.

Table 3.2-116: Distribution of trials according to climatic zones and countries.

Crop	EPPO climatic zone	Regulatory Zone	Country	Year	Number of trials (valid trials)	Total per country (valid trials)	Total per EU reg. zone (valid trials)
TRZAW	South-East	Central	Romania	2017	1 (1)	1 (1)	9 (8)
			Hungary	2014	4 (3)	4 (3)	
			Slovakia	2014	1 (1)	4 (4)	
				2015	2 (2)		
				2017	1 (1)		
		Southern	Bulgaria	2015	2 (1)	4 (3)	4 (3)
				2017	2 (2)		
	Maritime	Central	Czech Republic	2014	4 (4)	6 (6)	8 (7)
				2015	1 (1)		
				2016	1 (1)		
	North-East		Poland	2016	2 (1)	2 (1)	
		Northern	Lithuania	2018	1 (0)	1 (0)	1 (0)
	South-East EPPO climatic zone						13 (11)
	Maritime EPPO climatic zone						6 (6)
	North-East EPPO climatic zone						3 (1)
	All EPPO climatic zones (TRZAW)						**22 (18)**
TRZAS	South-East	Central	Hungary	2015	1 (1)	1 (1)	4 (4)
			Slovakia	2016	1 (1)	1 (1)	
	Maritime		Czech Republic	2014	1 (1)	2 (2)	
				2015	1 (1)		
	North-East	Northern	Latvia	2018	2 (1)	2 (1)	2 (1)
	Sum EU Central reg. zone						4 (4)
	Sum EU Northern reg. zone						2 (1)
	Sum (TRZAS)						**6 (5)**
HORVW	South-East	Central	Hungary	2016	1 (0)	1 (0)	**1 (0)**
HORVS	South-East	Central	Hungary	2016	1 (1)	1 (1)	4 (2)
	Maritime		Czech Republic	2016	1 (1)	1 (1)	
	North-East		Poland	2016	2 (0)	2 (0)	
		Northern	Latvia	2016	2 (2)	2 (2)	3 (2)
			Lithuania	2016	1 (0)	1 (0)	
	South-East EPPO climatic zone						1 (1)
	Maritime EPPO climatic zone						1 (1)
	North-East EPPO climatic zone						5 (2)
	All EPPO climatic zones (TRZAW HORVS)						**7 (4)**
AVESW	South-East	Central	Hungary	2015	1 (1)	1 (1)	**1 (1)**
AVESS	North-East	Northern	Lithuania	2017	1 (0)	1 (0)	**1 (0)**
TTLSO	Lithuania	Northern	Lithuania	2016	1 (0)	1 (0)	**1 (0)**
Total	**South-East EPPO climatic zone**			**All cereal crops**			**18 (15)**
	Maritime EPPO climatic zone						**9 (9)**
	North-East EPPO climatic zone						**12 (4)**
	All EPPO climatic zone						**39 (28)**

The product DLT+FPF EC85 was compared to the following commercial products as reference products:

- Proteus (DLT+TCP OD110) applied at 0.5 L/ha (5+50 g a.s./ha), at 0.58 L/ha (5.8+58 g a.s./ha), at 0.6 L/ha (6+60 g a.s./ha) and at 0.75 L/ha (7+70 g a.s./ha) according to years and countries. To ease the reading of this document, results from these treatments will be grouped together and considered as a unique reference product: Proteus OD110 0.5–0.75 L/ha.
- Decis Mega (DLT EW50) applied at 0.125 L/ha (6.25 g a.s./ha) in one trial performed in Poland, North-East EPPO climatic zone.

A general overview of the methodology in efficacy trials carried out in cereals against OULESP is presented in **Table 3.2-117** below.

Table 3.2-117: Details on trial methodology (field trials) – OULESP

Guidelines	General guidelines	PP1/135(3) Phytotoxicity assessment PP1/152(4) Design and analysis of efficacy evaluation trials PP1/181(4) Conduct and reporting of efficacy evaluation trials including GEP PP1/225(2) Minimum effective dose
	Specific guidelines	PP1/236(1) *Oulema* spp. on cereals
Experimental design	Plot design	Randomized Complete Block, RCB, RCBD
	Plot size	17.5 to 30 m²
	Number of replications	4
Crop	Trials per crop	TRZAW – 18 TRZAS – 5 HORVS – 4 AVESW – 1
	Varieties per crop	TRZAW – Antonius (2), Apolon, Bona Vita, Capo, Cubus, Enola (2), Energo, Federer (2), Forhand, GK Csillag, Kalahari, Malyska, Otilia, Sailor, Svitava TRZAS – Dafne, Diskett, Duroflavus, Epos, Granny HORVS – Anabella, Concerto, Kristaps, Malz AVESW – Saja Supreme
	Sowing dates	TRZAW – September (5), October (12) TRZAS – March (4), April (1) HORVS – March (1), April (2), May (1) AVESW – March (1)
Application	Crop stage (BBCH) at application	TRZAW – from BBCH 31 to BBCH 71 TRZAS – from BBCH 29 to BBCH 65 HORVS – BBCH 15 to BBCH ~~24~~ 47 AVESW – BBCH 31
	Number of applications	TRZAW, TRZAS, HORVS, AVESW – 1
	Spray volumes	200–400 L/ha
Assessment	Assessment types	Number of living larvae and adults (counted separately) on leaves (5 groups of 5 leaves; upper position of the tiller), damaged leaf area % (25 flag leaves); number of larvae per row meter (4 rows 2×0.5m)
	Assessment timings	0; 1–2; 3–4, 6–9 and 14 days after application for assessments on larvae and adults 3 and 6–10 days after application for assessments on plant damage
Other relevant information	Infestation	Natural
	Site type	Field

Results in South-East EPPO climatic zone

Table 3.2-118 below presents the overall efficacy of DLT+FPF EC85 against OULESP in cereals in comparison to the reference product Proteus OD 110 at 0.5–0.58 L/ha, assessed 1–2 (immediate effect), 3–4 (short-term) and 6–10 days (mid-term effect) after application.

Table 3.2-118: Overall efficacy of DLT+FPF EC85 at 0.5 L/ha against OULESP in cereals in comparison to the reference product Proteus OD110 at 0.5–0.58 L/ha.

Overall summary						**Abbott % (efficacy)**				
EPPO climatic zone	**Timing of assessment**	**Assessment type**	**Nb. of trials**	**Untreated (nb. of larvae or adults or % of damages)**		**DLT+FPF EC85**		PROTEUS OD110		**Nb. of trials where DLT+FPF 0.75 L/ha is statistically <. =.> to standard**
						0.5 L/ha		0.5–0.58 L/ha		
				Mean	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***	
Effect on larvae										
South-East	1-2 DAA	larvae/leaf	8	*1.2*	*0.3-3.3*	***84.6***	*63.6-100*	*86.2*	*60.0-100*	0, 8, 0
South-East	3-4 DAA	larvae/leaf	10	*1.6*	*0.4-3.7*	***90.4***	*77.8-100*	*93.2*	*82.8-100*	1, 10, 0
South-East	6-10 DAA	larvae/leaf	13	*1.2*	*0.2-3.8*	***91.8***	*70.4-100*	*95.8*	*85.9-100*	2, 11, 0
South-East	1 DAA	larvae/row-meter	1	*159.8*	-	***92.6***	-	*97.1*	-	0, 1, 0
	8 DAA			*187.4*	-	***98.4***	-	*99.9*	-	0, 1, 0
South-East	3 DAA	larvae/row-meter	1	*28.3*	-	***98.5***	-	*98.5*	-	0, 1, 0
	8 DAA			*41.6*	-	***99.4***	-	*99.8*	-	0, 1, 0
Effect on adults										
South-East	3 DAA	adults/leaf	3	*0.8*	*0.1-1.8*	***94.4***	*85.7-100*	*94.7*	*91.4-100*	0, 3, 0
South-East	7-9 DAA	adults/leaf	3	*0.4*	*0.1-0.5*	***98.7***	*96.0-100*	*98.0*	*94.0-100*	0, 3, 0
Reduction of damage										
South-East	3 DAA	% damaged flag leaf area	6	*25.5*	*5.4-46.3*	***75.6***	*42.4-100*	*75.7*	*37.0-100*	0, 6, 0
South-East	7-10 DAA		8	*33.9*	*13.9-72.5*	***71.9***	*23.5-100*	*79.1*	*29.4-100*	1, 6, 1

Summary on the efficacy, South-East EPPO climatic zone

From the dataset of 18 trials, 15 trials were considered relevant for evaluation. 3 trials were not included into efficacy evaluation as infestation level was insufficient to reliably determine efficacy of the tested objects or results were found to be unreliable due to sampling issues. All trials were conducted under the GEP by officially recognized testing organizations and followed the appropriate EPPO standards.

Assessments were presented in groupings, representing immediate effect (1–2 days after application), short-term effect (3–4 days after application) and mid-term effect (6–9 days after application) and a potential for reduction in damaged area of flag leaves caused by feeding of OULESP larvae (3 and 7–10 days after application). Based on the analysis of the whole dataset (15 valid trials) and taking into account comparison to the reference product, DLT+FPF EC85 at 0.5 L/ha proved to be an efficient solution for the control of OULESP of larval and adult life stages and in terms of reduction in damage caused to flag leaves in cereals and performed at similar level when compared to the reference product Proteus OD110 0.5–0.58 L/ha.

Conclusion on the efficacy tests against cereal leaf beetles *Oulema* spp. (OULESP) in cereals, South-East EPPO climatic zone

Based on the findings of the analysis of the trial set, it could be concluded that the proposed rate of 0.5 L/ha of DLT+FPF EC85 ensures an efficient and lasting control of OULESP in cereals in the countries of submission in South-East EPPO climatic zone under varying climatic and infestation conditions.

Results in Maritime EPPO climatic zone

Table 3.2-119 below presents the overall efficacy of DLT+FPF EC85 against OULESP in cereals in comparison to the reference product Proteus OD 110 at 0.5–0.75 L/ha, assessed 1–2 (immediate effect), 3–4 (short-term), 6–10 days (mid-term effect) and 14 days (long-term effect) after application.

Table 3.2-119: Overall efficacy of DLT+FPF EC85 at 0.5 L/ha against OULESP in cereals in comparison to the reference product Proteus OD110 at 0.5–0.75 L/ha.

Overall summary						**Abbott % (efficacy)**				
EPPO climatic zone	**Timing of assessment**	**Assessment**	**Nb. of trials**	**PESSEV**		**DLT+FPF EC85**		PROTEUS OD110		**Nb. of trials where DLT+FPF 0.5 L/ha is statistically <. =.> to standard**
						0.5 L/ha		0.5–0.75 L/ha		
				Mean	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***	
Effect on larvae										
Maritime CZ	1-2 DAA	larvae/leaf	7	*0.8*	*0.7-1.2*	***95.7***	*87.7-100*	*95.5*	*87.7-100*	*1, 6, 0*
	3-4 DAA	larvae/leaf	4	*0.7*	*0.2-1.1*	***99.7***	*98.7-100*	*100*	*100-100*	*0, 4, 0*
	6-8 DAA	larvae/leaf	8	*0.7*	*0.5-0.9*	***98.1***	*91.9-100*	*98.9*	*95.2-100*	*0, 8, 0*
	14 DAA	larvae/leaf	5	*0.5*	*0.2-0.7*	***93.7***	*85.9-100*	*96.0*	*90.1-100*	*0, 5, 0*
Effect on adults										
Maritime CZ	1-2 DAA	adults/leaf	3	*0.3*	*0.1-0.4*	***89.9***	*81.8-100*	*94.3*	*90.9-100*	*0, 3, 0*
	6-7 DAA	adults/leaf	3	*0.1*	*0.1-0.2*	***69.2***	*64.3-75.0*	*80.4*	*71.4-86.4*	*0, 3, 0*
Reduction of damage										
Maritime CZ	7-10 DAA	% damaged flag leaf area	9	*15.4*	*1.9-27.5*	***71.4***	*55.0-97.1*	*72.4*	*50.0-95.4*	*0, 9, 0*

Summary on the efficacy, Maritime EPPO climatic zone

From the dataset of 9 trials, all trials were considered relevant for evaluation. All trials were conducted under the GEP by officially recognized testing organizations and followed the appropriate EPPO standards.

Assessments were presented in groupings, representing immediate effect (1–2 days after application), short-term effect (3–4 days after application), mid-term effect (6–8 days after application) and a potential for reduction in damaged area of flag leaves caused by feeding of OULESP larvae (7–10 days after application). Based on the analysis of the whole dataset and taking into account comparison to the reference product, DLT+FPF EC85 at 0.5 L/ha proved to be an efficient solution for the control of OULESP of larval and adult life stages and in terms of reduction in damage caused to flag leaves in cereals and performed at similar level when compared to the reference product Proteus OD110 0.5–0.75 L/ha.

Conclusion on the efficacy tests against cereal leaf beetles *Oulema* spp. (OULESP) in cereals, Maritime EPPO climatic zone

Based on the findings of the analysis of the trial set, it could be concluded that the proposed rate of 0.5 L/ha of DLT+FPF EC85 ensures an efficient and lasting control of OULESP in cereals in the countries of submission in Maritime EPPO climatic zone under varying climatic and infestation conditions.

Results in North-East EPPO climatic zone

Table 3.2-120 below presents the overall efficacy of DLT+FPF EC85 against OULESP in cereals in comparison to the reference products Proteus OD 110 at 0.6 L/ha and Decis Mega at 0.125 L/ha, assessed 3 (short-term) and 6–7 days (mid-term effect) after application.

Table 3.2-120: Overall efficacy of DLT+FPF EC85 at 0.5 L/ha against OULESP in cereals in comparison to the reference products Decis Mega at 0.125 L/ha and Proteus OD110 at 0.6 L/ha.

Overall summary						**Abbott % (efficacy)**						
EPPO climatic zone	**Timing of assess-ment**	**Assessment**	**Nb. of trials**	**PESSEV**		**DLT+FPF EC85**		DECIS MEGA		PROTEUS OD110		**Nb. of trials where DLT+FPF 0.5 L/ha is statistically <. =.> to standard**
						0.5 L/ha		**0.125 L/ha**		0.6 L/ha		
				Mean	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***	
Effect on larvae												
North-East NZ	3 DAA	larvae/leaf	3	*0.7*	*0.5-1.1*	***80.1***	*44.4-98.1*	-	-	*86.1*	*65.1-100*	0, 3, 0
North-East CZ[1]	6 DAA	larvae/leaf	1	*1.0*	-	***100***	-	*100*	-	-	-	0, 1, 0
North-East NZ[2]	7 DAA	larvae/leaf	3	*0.9*	*0.6-1.3*	***95.5***	*91.3-100*	-	-	*97.7*	*96.3-100*	0, 3, 0
North-East CZ+NZ[3]	6-7 DAA	larvae/leaf	4	*0.9*	*0.6-1.3*	***96.7***	*91.3-100*	-	-	-	-	0, 4, 0
Reduction of damage												
North-East CZ[1]	6 DAA	% damaged flag leaf area	1	*15.8*	-	***52.6***	-	*58.3*	-	-	-	0, 1, 0
North-East NZ[2]	7 DAA		2	*8.1*	*7.8-8.3*	***96.7***	*96.0-97.4*	-	-	*91.3*	*57.3-95.2*	0, 2, 0
North-East CZ+NZ[3]	6-7 DAA		3	*10.6*	*7.8-15.8*	***82.0***	*52.6-97.4*	-	-	-	-	0, 3, 0

[1] Orthogonal comparison to Decis Mega at 0.125 L/ha
[2] Orthogonal comparison to Proteus at 0.6 L/ha
[3] Overall efficacy of DLT+FPF EC85 at 0.5 L/ha in North-East EPPO climatic zone

Summary on the efficacy, North-East EPPO climatic zone

From the dataset of 12 trials, 4 trials were considered relevant for efficacy evaluation of DLT+FPF EC85 against OULESP in cereals. 8 trials were discarded from the evaluation due to very low target pest density. All trials were conducted under the GEP by officially recognized testing organizations and followed the appropriate EPPO standards.

Assessments were presented in groupings, representing short-term effect (3 days after application), mid-term effect (6–7 days after application) and a potential for reduction in damaged area of flag leaves caused by feeding of OULESP larvae (6–7 days after application). Based on the analysis of the whole dataset and taking into account orthogonal comparisons to the reference products, DLT+FPF EC85 at 0.5 L/ha proved to be an efficient solution for the control of OULESP of larval and adult life stages and in terms of reduction in damage caused to flag leaves in cereals and performed at similar level when compared to the reference products Decis Mega at 0.125 L/ha and Proteus OD110 0.5–0.75 L/ha.

As only limited trial set from North-East EPPO climatic zone is available in order to support authorization in Poland, results of trials conducted in the Czech Republic and Slovakia could be referred to, to strengthen the conclusions. As could be seen from the analysis of these trials presented in the previous sections, the results from both neighbouring countries are consistent with the findings in North-East EPPO climatic zone.

Conclusion on the efficacy tests against cereal leaf beetles *Oulema* spp. (OULESP) in cereals, North-East EPPO climatic zone

Therefore, it could be concluded that the proposed rate of 0.5 L/ha of DLT+FPF EC85 ensures an efficient and lasting control of OULESP in cereals in the country of submission in North-East EPPO climatic zone under varying climatic and infestation conditions.

USE 006: Efficacy of DLT+FPF EC85 in cereals against aphids – English grain aphid *Sitobion avenae* (MACSAV) and bird cherry-oat aphid *Rhopalosiphum padi* (RHOPPA) – South-East and Maritime EPPO climatic zones

In order to evaluate the efficacy of DLT+FPF EC85 against aphids – *Sitobion avenae* (MACSAV) and *Rhopalosiphum padi* (RHOPPA) in cereals in foliar application, Bayer implemented a series of field trials in Europe.

Vast majority of trials was performed in winter soft wheat varieties and some trials were conducted in spring soft wheat and winter triticale in order to evaluate potential impact of host plant-herbivore complex on biological efficacy of the insecticide. As initial evaluation did not reveal visible influence of host plant on performance of the product against *S. avenae*, results obtained on different crops are

summarized together and conclusions on efficacy against the target pest are drawn for a whole crop group.
Single trial reports are given in Compilation of Trial Reports M-689779-02-1 with the corresponding trial list.
A total of 30 field trials was carried out in trial seasons 2014 to 2017 to evaluate the efficacy of DLT+FPF EC85 for the control of *Sitobion avenae* (MACSAV) and *Rhopalosiphum padi* (RHOPPA) in cereals. Trials were conducted in the Czech Republic (11) representing Maritime climatic zone and Hungary (3) Romania (4), and Slovakia (5) representing South-East EPPO climatic zone. Additional trials from Bulgaria (5) representing South-East climatic zone of Southern EU regulatory zone are presented as supportive to EPPO South-East, Central EU reg. zone dataset. From the dataset of 30 trials, 25 trials, 9 from Maritime EPPO climatic zone and 16 from South-East EPPO climatic zone) were considered valid for efficacy evaluation and were summarised in the following chapter. 3 trials from South-East EPPO climatic zone and 2 from Maritime EPPO climatic zone were not included into efficacy evaluation as infestation in all these trials was insufficient to reliably determine efficacy of the tested objects.
It has to be noted that for RHOPPA 4 valid trials are available, 2 were conducted in Hungary and 2 were conducted in the Czech Republic. To overcome a limited dataset available, the assumption is made that data acquired on English grain aphid *Sitobion avenae* (MACSAV) in cereals in South-East and Maritime EPPO climatic zones datasets could be extrapolated to support efficacy evaluation against RHOPPA. As biological traits and life histories of these aphid species are comparable and efficacy patterns against the two species were quite similar in all discussed datasets, it is thus considered that presented efficacy evaluation and data extrapolation from *Sitobion avenae* (MACSAV) are relevant to reliably estimate efficacy of DLT+FPF EC85 against RHOPPA in both – South-East and Maritime EPPO climatic zones countries: the Czech Republic, Hungary, Romania, Slovakia and Slovenia.
The number of trials conducted per countries of Central and Southern EU regulatory zones of South-East and Maritime EPPO climatic zones is shown in **Table 3.2-121** below.

Table 3.2-121: Distribution of efficacy trials on MACSAV and RHOPPA in cereals.

MACSAV	Crop	EPPO climatic zone	Regulatory Zone	Country	Year	Number of trials (valid trials)	Total (valid trials)	
MACSAV	TRZAW	South-East	Central	Slovakia	2014	2 (2)	5 (5)	15 (12)
					2015	2 (2)		
					2016	1 (1)		
				Romania	2016	2 (2)	4 (4)	
					2017	2 (2)		
				Hungary	2016	2 (0)	2 (0)	
			Southern	Bulgaria	2015	1 (1)	4 (3)	
					2016	1 (0)		
					2017	2 (2)		
		Maritime	Central	Czech Republic	2014	2 (2)	5 (5)	
					2015	2 (2)		
					2016	1 (1)		
	Sum (TRZAW)							**20 (17)**
	TRZAS	South East	Southern	Bulgaria	2015	1 (1)	1 (1)	
		Maritime	Central	Czech Republic	2015	2 (2)	2 (2)	
					2016	1 (0)	1 (0)	
	Sum (TRZAS)							**4 (3)**
	TTLWI	South-East	Central	Hungary	2015	1 (1)		**1 (1)**
	All EPPO climatic zones (MACSAV)				**All cereals**			**25 (21)**
RHOPPA	TRZAW	South-East	Central	Hungary	2014	1 (1)	2 (2)	
					2015	1 (1)		
		Maritime	Central	Czech Republic	2014	1 (0)	1 (0)	
	Sum (TRZAW)							**3 (2)**
	TRZAS	Maritime	Central	Czech Republic	2014	1 (1)		**1 (1)**
	HORVS	Maritime	Central	Czech Republic	2016	1 (1)		**1 (1)**
	All EPPO climatic zones (RHOPPA)				**All cereals**			**5 (4)**
MACSAV+ RHOPPA	**South-East EPPO climatic zone**				**All cereals**			**19 (16)**
	Maritime EPPO climatic zone				**All cereals**			**11 (9)**
	All EPPO climatic zones				**All cereals**			**30 (25)**

The product DLT+FPF EC85 was compared to the following commercial products as reference products:
In efficacy tests against MACSAV:

- In South-East and Maritime EPPO climatic zones, Proteus OD110 (DLT+TCP OD110) applied at 0.5 L/ha (5.0+55.0 g a.s./ha) or at 0.7 L/ha (7.0+70.0 g a.s./ha), or at 0.75 L/ha (7.5+75.0 g a.s./ha) according to years and countries. To ease the reading of this document, results from these treatments will be grouped together and considered as a unique reference product: Proteus OD110 0.5–0.75 L/ha.

In efficacy tests against RHOPPA:

- Proteus (DLT+TCP OD110) applied at 0.5 L/ha (5+50 g a.s./ha).
- Karate Zeon CS50 (LCY CS50) applied at 0.2 L/ha.

Methodology
A general overview of the methodology in efficacy trials carried out in cereals against MACSAV and RHOPPA is presented in **Table 3.2-122** below.

Table 3.2-122: Details on trial methodology (field trials) – MACSAV and RHOPPA

Guidelines	General guidelines	PP1/135(3) Phytotoxicity assessment PP1/152(4) Design and analysis of efficacy evaluation trials PP1/181(4) Conduct and reporting of efficacy evaluation trials including GEP PP1/225(2) Minimum effective dose
	Specific guidelines	PP1/020(3) Aphids in cereals
Experimental design	Plot design	Randomized Complete Block, RCB, RCBD
	Plot size	South-East: 25 to 70 m² Maritime: 17.5 to 25 m²
	Number of replications	4
Crop	Trials per crop	South-East: TRZAW – 14; TRZAS – 1; TTLWI – 1 Maritime: TRZAW – 5; TRZAS – 2 3, HORVS (1)
	Varieties per crop	South-East: TRZAW – Antonius, Capo, Enola, GK Csilag, GK Szala, Glosa (4), Kosutka, Lukullus, Sobel C1, Sobel C2, Viglanka; TRZAS – Todora TTLWI – GK Rege Maritime: TRZAW – Bodycek, Darwin, Federer, Forhand, Grizzly TRZAS – Dafne, Tercie (2) HORVS – Malz
	Sowing dates	South-East: TRZAW – September (2), October (12) TRZAS – October (1) TTLWI – October (1) Maritime: TRZAW – September (3), October (2) TRZAS – March (2) (3) HORVS – March
Application	Crop stage (BBCH) at application	South-East: TRZAW – from BBCH 55 to BBCH 75 TRZAS – BBCH 71 TTLWI – BBCH 77 Maritime: TRZAW – from BBCH 65 to BBCH 71 TRZAS – from BBCH 69 to BBCH 85 HORVS – BBCH 47
	Application timing	Onset of infestation
	Number of applications	TRZAW, TRZAS, HORVS, TTLWI – 1
	Spray volumes	200–400 L/ha
Assessment	Assessment types	Number of living aphids on ears; number of aphids per 2.5 m^2
	Assessment timings	0; 1–2, 3–4, 6–8 and 14–16 days after application for assessments on living aphids
Other relevant information	Infestation	Natural
	Site type	Field

Results of efficacy tests against MACSAV in South-East EPPO climatic zone

Population dynamics of MACSAV populations during the trials

An important factor which should be taken into account when interpreting efficacy data against insect pests is dynamics of the population of the pest. It is especially true for such sucking pests as aphids, which tend to form relatively sedentary colonies on different parts of its host plant. The tendency in population dynamics in the UTC plots– increasing, stable or declining – could serve as a relative measure of overall fitness and viability of the population of interest. Efficacy results from trials, where insect populations tend to be in a healthy state, indicate a strong potential of a compound to control a well-established aphid populations. Consequently, results of such trials carry a relatively more weight and allow more realistic estimates on performance and durability of the product than the results where aphid populations appeared to be in a less healthy state.

Over the course of the trial series aiming to determine biological efficacy of DLT+FPF EC85 against MACSAV a stable or increasing trends in population dynamics were 4 trials from EU Central regulatory zone and observed in 1 trial from EU Southern regulatory zone. In the rest of the trials either constantly declining or relatively stable with rapid collapse at 14–16 DAA dynamics trends

were observed. An overview of the details of MACSAV population dynamics during the trials is presented in **Table 3.2-123**.

Table 3.2-123: Dynamics of *Sitobion avenae* populations in untreated control plots from the initial to the final assessments – number of aphids per ear at 0, 1–2, 3–4, 7–8 and 14–16 days after application, South-East EPPO climatic zone.

Crop stage at application	EU Regulatory zones	Country	0 DAA	1-2 DAA	3-4 DAA	7-8 DAA	14-16 DAA	Pest pressure at peak of infestation (aphids/ear)	Timing of peak	Dynamics trend
EU regulatory Central Zone										
71	Central	Slovakia	***3.6***	**3.8**	**n. a.**	**4.0**	**4.2**	Moderate (4.0)	1-2 DAA	**Slightly increasing**
73	Central	Slovakia	***1.1***	**n. a.**	**1.4**	**3.4**	**3.7**	Moderate (3.7)	14-16 DAA	**Increasing**
77	Central	Hungary	*2.0*	n. a.	2.3	3.0	0.7	Low (3.0)	7-9 DAA	Stable/rapid late decline
71	Central	Slovakia	***1.6***	**1.9**	**n. a.**	**2.1**	**2.2**	Low (2.2)	14-16 DAA	**Stable**
69	Central	Slovakia	***3.7***	**n. a.**	**3.8**	**3.9**	**5.5**	Moderate (5.5)	14-16 DAA	**Slightly increasing**
73	Central	Romania	*9.1*	n. a.	11.0	8.8	1.8	High (11.0)	3-4 DAA	Stable/rapid late decline
67	Central	Romania	*8.5*	8.4	1.7	0.0	n. a.	High (8.5)	0 DAA	Declining
71	Central	Slovakia	*1.2*	n. a.	4.1	2.0	n. a.	Moderate (4.1)	3-4 DAA	Increase/decline
71	Central	Romania	*4.9*	n. a.	5.6	2.5	1.6	Moderate (5.6)	3-4 DAA	Stable/rapid late decline
73	Central	Romania	*5.8*	n. a.	6.3	4.4	1.5	Moderate (6.3)	3-4 DAA	Stable/rapid late decline
EU Regulatory Southern Zone (supportive trials)										
71	Southern	Bulgaria	*4.3*	n. a.	6.7	4.3	2.0	Moderate (6.7)	3-4 DAA	Stable/late decline
71	Southern	Bulgaria	*6.0*	n. a.	9.0	3.9	3.8	High (9.0)	3-4 DAA	Increase/decline
71	Southern	Bulgaria	***1.3***	**1.4**	**2.7**	**3.0**	**3.8**	Moderate (3.8)	14-16 DAA	**Slightly increasing**
75	Southern	Bulgaria	*7.5*	7.1	5.0	2.1	0.4	High (7.5)	0 DAA	Declining

Population dynamics of RHOPPA populations during the trials

Over the course of two trials aiming to determine biological efficacy of DLT+FPF EC85 against RHOPPA a rather stable or slightly increasing trend in population dynamics was observed in both trials, indicating a healthy state of aphid populations despite relatively low population density.

Results, MACSAV and RHOPPA

Table 3.2-124 below presents the overall efficacy of DLT+FPF EC85 against MACSAV in cereals (A1) in comparison to the reference products Proteus OD110 0.3–0.75 L/ha, and Karate Zeon CS50 0.2 L/ha assessed 1–2 (immediate effect), 3–4 (mid-term), 7–8 (mid-term effect) and 14–16 (long-term effect) days after application.

Table 3.2-124: Overall efficacy of DLT+FPF EC85 at 0.5 L/ha against MACSAV and RHOPPA in cereals in comparison to the reference products Proteus OD110 0.5–0.7 L/ha and Karate Zeon CS50 0.2 L/ha.

Overall summary												
EPPO climatic zone	**Timing of assessment**	**Assessment**	**No. of trials**	**PESSEV**		**DLT+FPF EC85**		**PROTEUS OD110**		**KARATE ZEON CS50**		**Nb. of trials where DLT+FPF 0.5 L/ha is statistically <.=.> to standard**
						0.5 L/ha		**0.5-0.7 L/ha**		**0.2 L/ha**		
				Mean	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***	
MACSAV						**Abbott % (efficacy)**						
South-East	1-2 DAA	aphids/ear	4	*7.6*	*3.8-11.0*	***87.6***	*75.0-100*	*91.0*	*83.3-100*	-	-	*1, 3, 0*
South-East	3-4 DAA	aphids/ear	9	*5.1*	*2.3-9.0*	***92.9***	*81.4-100*	*93.1*	*82.5-100*	-	-	*1, 8, 0*
South-East	6-7 DAA	aphids/ear	12	*3.6*	*2.0-8.8*	***90.8***	*75.6-99.8*	*94.0*	*81.9-100*	-	-	*4, 4, 0*
South-East	14-16 DAA	aphids/ear	7	*3.6*	*2.0-5.5*	***87.3***	*78.2-96.0*	*91.8*	*87.3-96.5*	-	-	*2, 5, 0*
RHOPPA						**Henderson-Tilton% (efficacy)**						
South-East	1-2 DAA	aphids/ear	2	*6.1*	*5.6-6.5*	***97.2***	*96.7-97.6*	97.6	*97.0-98.1*	*97.8*	*95.9-99.7*	*1, 1, 0 (both)*
South-East	4 DAA	aphids/ear	1	*6.8*	-	***98.3***	-	100	-	*100*	-	*1, 0, 0 (both)*
South-East	6-7 DAA	aphids/ear	2	*6.9*	*5.7-8.0*	***98.7***	*98.4-99.0*	99.7	*99.3-100*	*99.2*	*98.4-100*	*1, 1, 0 (both)*
South-East	14-16 DAA	aphids/ear	2	*5.5*	*3.0-7.9*	***98.7***	*97.4-100*	100	*100-100*	*99.5*	*99.0-100*	*1, 1, 0 (both)*

Summary and discussion on the efficacy, South-East EPPO climatic zone

From the dataset of 17 trials conducted to test efficacy against MACSAV in cereals in EU Central and Southern (supportive trials) regulatory zones of South-East EPPO climatic zone, 14 trials were considered relevant for evaluation. 3 trials were not included into efficacy evaluation as infestation

level was insufficient to reliably determine efficacy of the tested objects. Against *Rhopalosiphum padi* (RHOPPA) in cereals, 2 trials carried out in the South-East EPPO climatic zone, EU regulatory Central zone were implemented in the trial seasons 2014–2015 to estimate efficacy of DLT+FPF EC85 at the proposed dose rate of 0.5 L/ha. All trials were conducted under the GEP by officially recognized testing organizations and followed the appropriate EPPO standards.
Assessments were presented in groupings, representing immediate effect (1–2 days after application), short-term effect (3–4 days after application), mid-term effect (6–8 days after application) and long-term effect (14–16 days after application). Based on the analysis of the whole dataset and taking into account comparison to the reference product, DLT+FPF EC85 at 0.5 L/ha proved to be an efficient solution for the control of MACSAV populations in cereals and performed at nearly similar level when compared to the reference product Proteus OD 110 0.5–0.75 L/ha at all assessment timings.
In case of RHOPPA, as only 2 trials are available for efficacy evaluation, the assumption is made that data acquired on English grain aphid *Sitobion avenae* (MACSAV) in cereals could be extrapolated to support efficacy evaluation against RHOPPA.
Conclusion on the efficacy tests against aphids – *Sitobion avenae* (MACSAV) and *Rhopalosiphum padi* (RHOPPA) in cereals, South-East EPPO climatic zone
Based on the findings of the analysis of the trial set, it could be concluded that the proposed rate of 0.5 L/ha of DLT+FPF EC85 ensures an efficient and lasting control of MACSAV and RHOPPA in cereals in the countries of submission in South-East EPPO climatic zone under varying climatic and infestation conditions.

Results in Maritime EPPO climatic zone

Population dynamics of MACSAV populations during the trials

Over the course of the trial series aiming to determine biological efficacy of DLT+FPF EC85 against MACSAV a stable or increasing trends in population dynamics were observed in 2 trials. In the rest of the trials either gradually declining or relatively stable dynamics with rapid collapse at 13–14 DAA were observed. An overview of the details of MACSAV population dynamics during the trials is presented in **Table 3.2-125**.

Table 3.2-125: Dynamics of *Sitobion avenae* populations in untreated control plots from the initial to the final assessments – number of aphids per ear at 0, 1–2, 3–4, 6–7 and 13–14 days after application, Maritime EPPO climatic zone, EU Central regulatory zone.

Trial number	Crop stage at application	Country	0 DAA	1-2 DAA	3-4 DAA	6-7 DAA	13-14 DAA	Pest pressure at peak of infestation (aphids/ear)	Timing of peak	Dynamics trend
IR14CZE401NE01	71	Czech Republic	*10.2*	8.9	*n.a.*	8.7	2.5	High (10.2)	0 DAA	Stable with late rapid decline
IR14CZE401TU01	71	Czech Republic	*6.3*	8.1	*n.a.*	9.6	2.4	Moderate (9.6)	6-7 DAA	Increasing then rapid decline
IR15CZE401DO01	85	Czech Republic	*6.7*	*n.a.*	*2.2*	1.1	1.2	Moderate (6.7)	0 DAA	Declining
IR15CZE401KU01	69	Czech Republic	*3.4*	3.2		2.6	1.9	Low (3.4)	0 DAA	**Stable**
IR15CZE401NE01	71	Czech Republic	*5.3*	4.8	*2.8*	2.0	1.8	Moderate (5.3)	0 DAA	Declining
IR15CZE401TU01	65	Czech Republic	*4.2*	*n.a.*	*6.3*	6.3	6.8	Moderate (6.8)	13-14 DAA	**Stable**
IR16CZE401KL01	71	Czech Republic	*4.9*	4.6	*n.a.*	0.8	0.2	Moderate (4.9)	0 DAA	Declining

Population dynamics of RHOPPA populations during the trials

Over the course of two trials aiming to determine biological efficacy of DLT+FPF EC85 against RHOPPA a slightly declining trend in population dynamics coupled with low population density was observed in both trials, indicating that RHOPPA populations weren`t well-established on host plants in the test plots.

Results, MACSAV and RHOPPA

Table 3.2-126 below presents the overall efficacy of DLT+FPF EC85 against MACSAV in cereals (A1) in comparison to the reference product Proteus OD110 0.5–0.75 L/ha, assessed 1–2 (immediate

effect), 3–4 (short-term effect), 6–7 (mid-term effect) and 13–14 (long-term effect) days after application.

Table 3.2-126: Overall efficacy of DLT+FPF EC85 at 0.5 L/ha against MACSAV and RHOPPA in cereals in comparison to the reference products Proteus OD110 0.5–0.75 L/ha and DLT at 5 g a.s./ha.

Overall summary												
EPPO climatic zone	**Timing of assessment**	**Assessment**	**No. of trials**	**PESSEV**		**DLT+FPF EC85 0.5 L/ha**		**PROTEUS OD110 0.5-0.75 L/ha**		**DLT 5 g a.s./ha**		**Nb. of trials where DLT+FPF 0.5 L/ha is statistically <.=.> to standard**
				Mean	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***	
MACSAV						**Abbott % (efficacy)**						
Maritime CZ	1-2 DAA	aphids/ear	5	*5.9*	*3.2-8.9*	***96.0***	*88.9-99.8*	*97.8*	*91.6-100*	-	-	*1, 4, 0*
	3-4 DAA	aphids/ear	3	*3.8*	*2.2-6.3*	***88.2***	*74.4-100*	*89.9*	*76.3-97.5*	-	-	*1, 2, 0*
	6-7 DAA	aphids/ear	5	*5.8*	*2.0-9.6*	***95.9***	*86.4-100*	*96.8*	*91.4-100*	-	-	*1, 4, 0*
	13-14 DAA	aphids/ear	3	*3.9*	*2.4-6.8*	***81.4***	*52.8-100*	*80.6*	*52.4-95.7*	-	-	*0, 2, 1*
RHOPPA						**Abbott % (efficacy)**						
Maritime CZ	1-2 DAA	aphids/ear or leaves	2	*2.8*	*2.7-2.9*	***93.6***	*87.2-100*	*69.3***	*44.5*-94.1*	*86.5*	*82.8-90.1*	*0, 0, 2* *0, 1, 1*[1]
	7 DAA	aphids/ear or leaves	1	*2.2*	-	***100***	-	*99.1*	-	*99.5*	-	*0, 1, 0*

*unusually low efficacy (44.5%) by Proteus OD110 at 0.5 L/ha, value discarded. Value of 94.1% efficacy is considered a realistic estimate.
[1]Comparison to DLT

Summary and discussion on the efficacy, Maritime EPPO climatic zone

From the dataset of 11 trials (8 on MACSAV and 3 on RHOPPA) conducted in EU Central regulatory zone, Maritime EPPO climatic zone, 9 trials (7 on MACSAV and 2 on RHOPPA) were considered relevant for evaluation. 1 trial on RHOPPA was not included into efficacy evaluation as infestation level was insufficient to reliably determine efficacy of the tested objects. All trials were conducted under the GEP by officially recognized testing organizations and followed the appropriate EPPO standards.

Assessments were presented in groupings, representing immediate effect (1–2 days after application), short-term effect (3–4 days after application), mid-term effect (6–7 days after application) and long-term effect (13–14 days after application). Based on the analysis of the whole dataset and taking into account comparisons to reference products, DLT+FPF EC85 at 0.5 L/ha proved to be an efficient solution for the control of MACSAV and RHOPPA populations in cereals and performed at higher or similar level when compared to the reference products Proteus OD110 0.5–0.75 L/ha and DLT at 5 g a.s./ha at all assessment timings.

As RHOPPA only occurred in 2 trials conducted in Maritime EPPO climatic zone, the assumption is made that data acquired on English grain aphid *Sitobion avenae* (MACSAV) in cereals could be extrapolated to strengthen the conclusions on the use against RHOPPA in the Czech Republic. As biological and behavioural traits of these aphid species are comparable, both species share many aspects of their life histories and use patterns against the two species are similar, it is thus considered that data extrapolation from *Sitobion avenae* (MACSAV) is relevant to reliably estimate efficacy of DLT+FPF EC85 against RHOPPA.

Therefore, based on extrapolation of data from MACSAV, efficacy level determined in RHOPPA and MACSAV trial series should be a realistic estimate and DLT+FPF EC85 could be considered to be an efficient solution for the control of RHOPPA in cereals performing at comparable efficacy level when compared to the main commercial products used for aphid control in cereals.

Conclusion on the efficacy tests against aphids – *Sitobion avenae* (MACSAV) and *Rhopalosiphum padi* (RHOPPA) in cereals, Maritime EPPO climatic zone

Based on the findings of the trial set and extrapolations made to support a use against RHOPPA, it could be concluded that the proposed rate of 0.5 L/ha of DLT+FPF EC85 ensures an efficient and

lasting control of MACSAV and RHOPPA in cereals in the countries of submission in Maritime EPPO climatic zone.

USE 007: Efficacy of DLT+FPF EC85 in cereals against stink bugs *Eurygaster* spp. (EURYSP) – *Eurygaster maura* (EURYMA) *and Eurygaster integriceps* (EURYIN) – South-East, Maritime and North-East EPPO climatic zones

In order to evaluate the efficacy of DLT+FPF EC85 against cereal stink bugs – tortoise bug *Eurygaster maura* (EURYMA) and corn bug *Eurygaster integriceps* (EURYIN) in cereals in foliar application, Bayer implemented a field trials in Europe.
Both species of stink bugs share many characteristics of how they behave and feed on their host plants and both species were encountered throughout different trials of the trial series, therefore it assumed as a complex of species and referred to as *Eurygaster* spp. (EURYSP) further in the text.
Vast majority of trials was performed in winter wheat varieties and several trials were conducted in winter barley and winter triticale in order to evaluate potential impact of host plant-herbivore complex on biological efficacy of the insecticide. As initial evaluation did not reveal visible influence of host plant on performance of the product against *E. maura*, results obtained on different crops are summarized together and conclusions on efficacy against the target pest are drawn for a whole crop group.
Single trial reports are given in Compilation of Trial Reports M-689780-02-1 with the corresponding trial list.
A total of 14 field trials was carried out in trial seasons 2014 to 2017 to evaluate the efficacy of DLT+FPF EC85 for the control of *Eurygaster* spp. (EURYSP) in cereals. Trials were conducted in Hungary (5) and Romania (5) representing South-East EPPO climatic zone, EU regulatory Central zone. Additional trials from Bulgaria (4) representing South-East climatic zone of Southern EU regulatory zone are presented as supportive to EPPO South-East, Central EU reg. zone dataset. From the dataset of 14 trials, 11 were considered valid for efficacy evaluation and were summarised in the following chapter. 3 trials were not included into efficacy evaluation as low infestation and lack of variability in efficacy between treatments in all these trials did not allow meaningful statistical analysis.
As could be seen, only efficacy data from South-East EPPO climatic zone against EURYIN and EURYMA is available for evaluation as no efficacy trials were positioned neither in Maritime nor in North-East EPPO climatic zones. As this use is claimed for in the Czech Republic and Poland, the reference could be made to the data acquired in Hungarian and Romanian trial set, as fairly relevant to support the claimed uses in the countries mentioned above.
From both *Eurygaster* species *E. maura* is considered as having a wider distribution throughout Europe (**Figure 3.2-3**), but overall lower density levels, because of rather low fecundity coupled with xerophilous nature, meaning that the pest is less adapted to survive and reproduce in more humid conditions which are prevalent in parts of Europe, particularly in the countries belonging to Maritime EPPO climatic zone and parts of North-East EPPO climatic zone. In addition, it is indicated that overwintering *E. maura* imagoes tend to be subjected to increased mortality during cold humid winters with light snow cover and periodic thawing (www.agroatlas ru.), which is typical to countries of Maritime EPPO climatic zone.

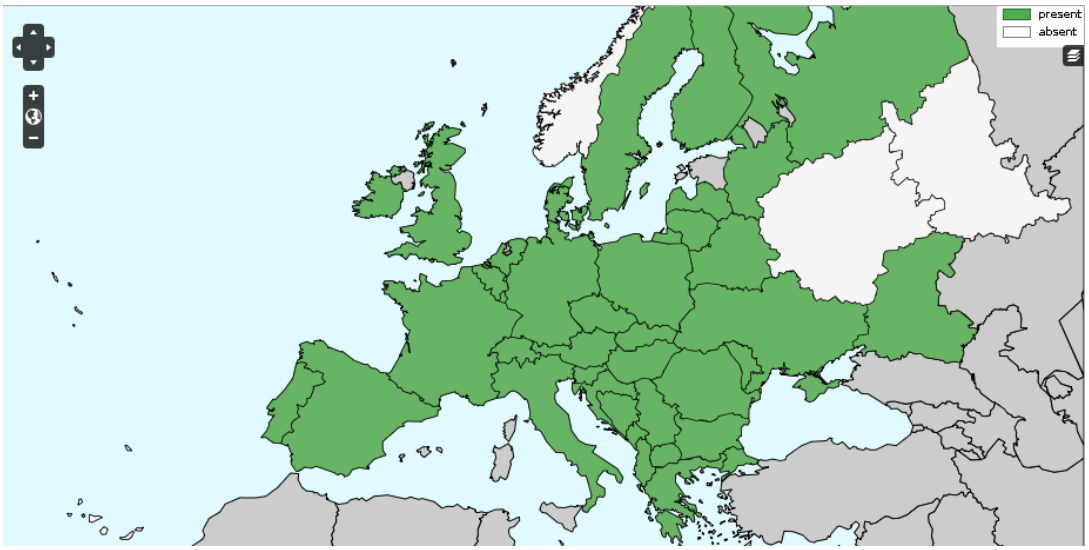


Figure 3.2-3: Distribution of *E. maura* in Europe (source: www.fauna-eu.org).

On the contrary *E. integriceps* is considered to be more abundant in terms of population density, however its distribution tends to be limited to southern and eastern parts of Europe (**Figure 3.2-4**). Despite the fact, that it is not officially mapped as occurring in the countries of Maritime EPPO climatic zone, *E. integriceps* is present in the countries where the use against it is claimed and is considered as a major pest in all cereal crops. This is more due to nature of its damage to crops and destructive potential, than to wide distribution or high abundance, as these bugs cause a direct feeding damage to grains, ultimately rendering them useless for further processing. It is especially true for wheat as *Eurygaster* spp. inject proteolytic enzymes which harm the baking properties of the flour. Dough made from damaged wheat is sticky and runny due to excessive insect proteolytic activity and kneading becomes difficult. For that reason, even relatively small proportion of grain damaged by *Eurygaster* spp. is highly undesirable.

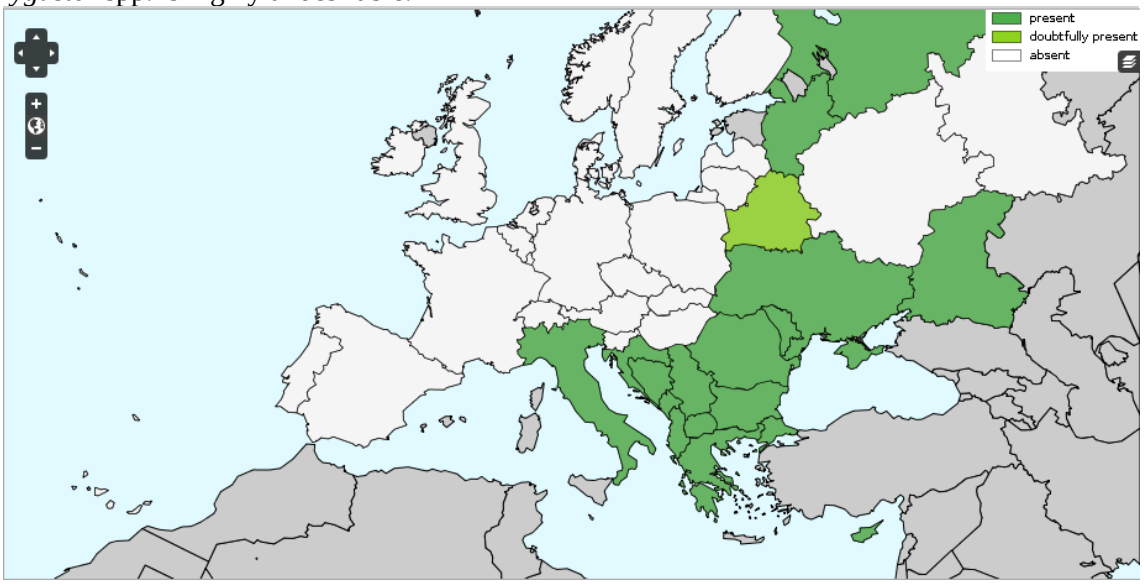


Figure 3.2-4: Distribution of *E. integriceps* in Europe (source: www.fauna-eu.org).

Based on assumptions concerning the distribution, abundance and ecological specificities of both species, trials were localized in countries, where sufficient and uniform distribution of these insects and subsequently reliable results of efficacy tests could be ensured. Given the fact, that conditions prevalent in South-East EPPO climatic zone countries Hungary and Romania would favour higher pest pressure and consequently greater destructive potential, it could be safely assumed, that efficacy data acquired in these countries could cover the respective use in the countries of Maritime EPPO climatic zone – the Czech Republic and North-East EPPO climatic zone – Poland. It should be mentioned that

the proposed use patterns are similar in all the countries of submission, except Poland, where use only against *E. maura*, which is considered to be a minor pest, and only in wheat (winter and spring) is claimed.
The number of trials conducted per countries of Central and Southern EU regulatory zones of South-East EPPO climatic zone is shown in **Table 3.2-127** below.

Table 3.2-127: Distribution of efficacy trials on EURYSP in cereals.

Crop	EPPO climatic zone	Regulatory Zone	Country	Year	Number of trials (valid trials)	Total (valid trials)	
TRZAW	South-East	Central	Hungary	2015	1 (1)	3 (3)	12 (9)
				2016	1 (1)		
				2017	1 (1)		
			Romania	2015	1 (1)	5 (2)	
				2016	2 (1)		
				2017	2 (0)		
		Southern	Bulgaria	2014	1 (1)	4 (4)	
				2016	1 (1)		
				2017	2 (2)		
	Sum (TRZAW)						**12 (9)**
HORVW	South East	Central	Hungary	2017	1 (1)	1 (1)	**1 (1)**
TTLWI	South-East	Central	Hungary	2016	1 (1)	1 (1)	**1 (1)**
Total	**All EPPO climatic zones**			**All cereals**			**14 (11)**

The product DLT+FPF EC85 was compared to the following commercial products as reference products:

- DLT+FPF EC85 was compared to two pyrethroid based insecticides – Karate Zeon 50CS (LCY 50CS) applied at 0.15 L/ha or 0.2 L/ha and Decis EC100 (DLT EC100) applied at 0.075 L/ha (7.5 g a.s./ha) according to years and countries. To ease the reading of this document, results from these treatments will be grouped together and considered as a unique reference product: Karate Zeon 50CS (0.15–0.2 L/ha).

All details of the reference product can be found in the Table 3.2-9.
A general overview of the methodology in efficacy trials carried out in cereals against EURYSP is presented in **Table 3.2-128** below.

Table 3.2-128: Details on trial methodology (field trials) – EURYSP.

Guidelines	General guidelines	PP1/135(3) Phytotoxicity assessment PP1/152(4) Design and analysis of efficacy evaluation trials PP1/181(4) Conduct and reporting of efficacy evaluation trials including GEP PP1/225(2) Minimum effective dose
	Specific guidelines	PP1/126(2) *Eurygaster integriceps*
Experimental design	Plot design	Randomized Complete Block, RCB, RCBD
	Plot size	South-East: 21 to 81 m²
	Number of replications	4
Crop	Trials per crop	TRZAW – 9 HORVW – 1 TTLWI – 1
	Varieties per crop	TRZAW – Enola (2), GK Körös, GK Magvas, Hisseo, Izvor, Miranda, Sadovo 1, Zenka 1 HORVW – Laverda TTLWI – GK Maros
	Sowing dates	TRZAW – October (9) HORVW – October (1) TTLWI – October (1)
Application	Crop stage (BBCH) at application	TRZAW – from BBCH 63 to BBCH 83 HORVW –BBCH 71 TTLWI – BBCH 65
	Number of applications	TRZAW, ~~TRZAS~~, TTLWI, HORVW – 1
	Spray volumes	200–300 L/ha

Assessment	Assessment types	Number of living insects on plants sampled per 2 or 2.5 square meters (10 plots of 0.25 m^2)
	Assessment timings	0; 1, 3 and 7 days after application for assessments on living insects
Other relevant information	Infestation	Natural
	Site type	Field

Results in South-East EPPO climatic zone

Table 3.2-129 below presents the overall efficacy of DLT+FPF EC85 against EURYSP in cereals (A1) in comparison to the reference products Decis EC100 applied at 0.075 L/ha and Karate Zeon CS50 applied at 0.15–0.2 L/ha, assessed 1 (immediate effect), 3 (mid-term), 7 (mid-term effect) and 14 (long-term effect) days after application.

Table 3.2-129: Overall efficacy of DLT+FPF EC85 at 0.75 L/ha against EURYSP in cereals in comparison to the reference products Decis EC100 0.075 L/ha and Karate Zeon CS50 0.15–0.2 L/ha.

Overall summary						Abbott % (efficacy)						
EPPO climatic zone	**Timing of assessment**	**Assessment**	**Nb. of trials**	**PESSEV**		**DLT+FPF EC85**		**DECIS EC100**		**KARATE ZEON CS50**		**Nb. of trials where DLT+FPF 0.75 L/ha is statistically <. =.> to standard**
						0.75 L/ha		**0.075 L/ha**		**0.15-0.2 L/ha**		
				Mean	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***	
MACSAV												
South-East[1]	1 DAA	Insects/m^2	8	*3.0*	*0.6-5.6*	***97.2***	*89.7-100*	*91.7*	*62.5-100*	*96.8*	*90.0-100*	0, 8, 0
South-East[2]	1 DAA	Insects/m^2	11	*4.7*	*0.6-14.8*	***94.1***	*63.6-100*	*85.6*	*27.3-100*	-	-	0, 9, 2
South-East[1]	3 DAA	Insects/m^2	8	*3.0*	*0.7-7.0*	***97.6***	*92.3-100*	*95.3*	*86.7-100*	*94.3*	*80.0-100*	0, 7, 1
South-East[2]	3 DAA	Insects/m^2	11	*4.6*	*0.7-11.8*	***97.8***	*92.3-100*	*94.2*	*78.9-100*	-	-	0, 9, 2
South-East[1]	7 DAA	Insects/m^2	6	*3.7*	*1.9-7.5*	***92.4***	*80.0-100*	*86.7*	*76.0-94.7*	*84.9*	*75.8-94.7*	0, 6, 0
South-East[2]	7 DAA	Insects/m^2	9	*4.9*	*1.9-9.6*	***93.7***	*80.0-100*	*87.4*	*76.0-100*	-	-	0, 8, 1
South-East	14 DAA	Insects/m^2	2	*3.2*	*0.5-5.0*	***72.9***	*48.3-96.0*	*72.1*	*50.0-94.7*	*66.6*	*48.3-84.2*	0, 2, 0 (both)

[1] Orthogonal comparison to Karate Zeon CS50 at 0.15–0.2 L/ha
[2] Orthogonal comparison to Decis at 0.075 L/ha

Summary and discussion on the efficacy, South-East EPPO climatic zone

From the dataset of 14 trials conducted in EU Central and Southern (supportive trials) regulatory zones of South-East EPPO climatic zone, 11 trials were considered relevant for evaluation. 3 trials were not included into efficacy evaluation as infestation level was insufficient to reliably determine efficacy of the tested objects. All trials were conducted under the GEP by officially recognized testing organizations and followed the appropriate EPPO standards.

Assessments were presented in groupings, representing immediate effect (1 day after application), short-term effect (3 days after application), mid-term effect (7 days after application) and long-term effect (14 days after application). Based on the analysis of the whole dataset and taking into account orthogonal comparisons to the reference products, DLT+FPF EC85 at 0.75 L/ha proved to be an efficient solution for the control of EURYSP populations in cereals and performed at higher level when compared to the reference products Decis at 0.075 L/ha and Karate Zeon at 0.15–0.2 L/ha at all assessment timings.

As mentioned in the introductory part of this use only efficacy data from South-East EPPO climatic zone against EURYIN and EURYMA is available for evaluation as no efficacy trials were positioned neither in Maritime nor in North-East EPPO climatic zones. As this use is claimed for in the Czech Republic and Poland, the reference could be made to the data acquired in Hungarian and Romanian trial set, as fairly relevant to support the claimed uses in the countries mentioned above.

Based on assumptions concerning the distribution, abundance and ecological specificities of both species which are discussed in the introductory part for this use, trials were localized in countries, where sufficient and uniform distribution of these insects and subsequently reliable results of efficacy tests could be ensured. Given the fact, that conditions prevalent in South-East EPPO climatic zone countries Hungary and Romania would favour higher pest pressure and consequently greater destructive potential, it could be safely assumed, that efficacy data acquired in these countries could cover the respective use in the countries of Maritime EPPO climatic zone – the Czech Republic and

North-East EPPO climatic zone country Poland. It should be mentioned that the proposed use patterns are similar in all the countries of submission, except Poland, where use only against *E. maura*, which is considered to be a minor pest, and only in wheat (winter and spring) is claimed.

Conclusion on the efficacy tests against stink bugs *Eurygaster* spp. (EURYSP) – *Eurygaster maura* (EURYMA) *and Eurygaster integriceps* (EURYIN), South-East EPPO climatic zone

Therefore, based on the findings of the analysis of the trial set, it could be concluded that the proposed rate of 0.75 L/ha of DLT+FPF EC85 ensures an efficient and lasting control of EURYSP in cereals in the countries of submission in South-East, Maritime and North-East EPPO climatic zones under varying climatic and infestation conditions.

USE 008: Efficacy of DLT+FPF EC85 in sunflower against *Brachycaudus helichrysi* (ANURHE) – South-East EPPO climatic zone

In order to evaluate the efficacy of DLT+FPF EC85 against *Brachycaudus helichrysi* (ANURHE) in sunflower in foliar application, Bayer implemented a series of field trials in Europe.

Single trial reports are given in Compilation of Trial Reports M-689795-02-1 with the corresponding trial list.

A total of 25 field trials was carried out in trial seasons 2014 to 2017 to evaluate the efficacy of DLT+FPF EC85 for the control of *B. helichrysi* in sunflower. From 25 trials, 16 trials were conducted in South-East EPPO climatic zone in Central EU regulatory zone (8 trials in Hungary, 5 in Slovakia and 1 in Romania) and country belonging to Southern EU regulatory zone (2 trials in Bulgaria). 9 trials were conducted in Maritime EPPO climatic zone in the Czech Republic. From the dataset of 25 trials 22 (15 from South-East and 7 from Maritime EPPO climatic zones) were considered valid for efficacy evaluation and were summarized in this chapter. 3 trials (1 from South-East and 2 from Maritime EPPO climatic zones) were discarded from the efficacy evaluation as infestation levels in these trials were too low to perform consistent evaluation of results.

~~It is to be mentioned that in Poland, where authorization for this use is also claimed, no trials were performed on ANURHE in sunflower. However, as mentioned above, sunflower is a minor crop in Poland as well as the use against *Brachycaudus helichrysi*. As stated by the Polish authority, if there are no available studies from the North-east EPPO climatic zone, it is necessary to verify if there are any studies from neighboring countries (Germany, Czech Republic, Slovakia). In case of ANURHE, 5 valid studies from Slovakia and 7 valid studies from the Czech Republic are evaluated in this document. Therefore, it is assumed that a total of 12 studies from the neighboring countries fully covers the use against ANURHE in sunflower in Poland and the same level of control, as observed in these countries could be a realistic estimate under Polish conditions.~~

The number of trials conducted per countries of South-East and Maritime EPPO climatic zones is shown in **Table 3.2-130** below.

Table 3.2-130: Distribution of trials according to climatic zones and countries.

Crop	EPPO climatic zone	Regulatory Zone	Country	Year	Number of trials (valid trials)	Total (valid trials)	
Sunflower (HELAN)	South-East	Central	Romania	2016	1 (0)	1 (0)	14 (13)
			Hungary	2014	2 (2)	8 (8)	
				2015	4 (4)		
				2016	1 (1)		
				2017	1 (1)		
			Slovakia	2014	2 (2)	5 (5)	
				2015	1 (1)		
				2016	2 (2)		
		Southern	Bulgaria	2016	1 (1)	2 (2)	2 (2)
				2017	1 (1)		
	Maritime	Central	Czech Republic	2014	4 (3)	9 (7)	
				2015	1 (1)		
				2016	2 (1)		
				2017	2 (2)		
Total	**All EPPO climatic zones**			**Sunflower**			**25 (22)**

The product DLT+FPF EC85 was compared to the following commercial products as reference products:

- Proteus (DLT+TCP OD110) applied at 0.57 L/ha (5.7+57 g a.s./ha) or at 0.7 L/ha (7.0+70.0 g a.s./ha) or at 0.75 L/ha (7.5+75.0 g a.s./ha) according to years and countries. To ease the reading of this document, results from these treatments will be grouped together and considered as a unique reference product: Proteus OD110 0.57–0.75 L/ha.
- Decis EW15 (DLT EW15) applied at 0.5 L/ha (7.5 g a.s./ha) or Decis Expert/EC100 (DLT EC100) applied at 0.075 L/ha (7.5 g a.s./ha)) according to years and countries. To ease the reading of this document, results from these treatments will be grouped together and considered as a unique reference product: DLT 7.5 g a.s./ha because these deltamethrin formulations have equivalent biological efficacy.

All details of the reference product can be found in the Table 3.2-9.

Methodology

A general overview of the methodology in efficacy trials carried out in sunflower against HELAN is presented in **Table 3.2-131** below.

Table 3.2-131: Details on trial methodology (field trials) – ANURHE.

Guidelines	General guidelines	PP1/135(3) Phytotoxicity assessment PP1/152(4) Design and analysis of efficacy evaluation trials PP1/181(4) Conduct and reporting of efficacy evaluation trials including GEP PP1/225(2) Minimum effective dose
	Specific guidelines	PP1/231(1) Aphids in sunflower
Experimental design	Plot design	Randomized Complete Block, RCB, RCBD
	Plot size	South-East: ~~25~~ 16.8 to 60 m² Maritime: 28 to 40.3 m²
	Number of replications	4
Crop	Trials per crop	*Helianthus annuus* (HELAN) (22)
	Varieties per crop	South-East: Alexandra (2), Adagio, ~~Favourit,~~ LG5697CLP, LG 56.58 CL, NK Neoma (3), NK Alegro (2), P64HE118, PR64H42, P64LC09, P64LE25, Tutti Maritime: Alexandra, ES Bella (2), MAS 83.R (2), Noema, Siklos CL
	Sowing dates	South-East: April (14) to May (1) Maritime: April (6) to May (1)
Application	Crop stage (BBCH) at application	South-East: from BBCH 14 to BBCH 55 Maritime: from BBCH 16 to BBCH 53
	Number of applications	1 or 2 (only appl. A is taken into account for ANURHE)

	Application timing	Threshold or infestation onset
	Spray volumes	250–300 L/ha
Assessment	Assessment types	Number of living aphids on plants (4 upper leaves), plant (leaves or buds) damage %
	Assessment timings	0; 1–3; 7–10 and 14–15 days after application for assessments on living aphids 24 days after application for assessments on plant damage
Other relevant information	Infestation	Natural
	Site type	Field

Results in South-East EPPO climatic zone

Table 3.2-132 below presents the overall efficacy of DLT+FPF EC85 assessed 1–3 days (immediate effect), 7–10 days (mid-term effect), 14–15 days (long-term effect) and 24-28 days (reduction in leave and bud damage) after application.

Table 3.2-132: Overall efficacy of DLT+FPF EC85 against ANURHE in sunflower at 0.75 L/ha.

Overall summary						**Abbott % (efficacy)**						
EPPO climatic zone	**Timing of assessment**	**Assessment**	**Nb. of trials**	**PESSEV**		**DLT+FPF EC85 0.75 L/ha**		**DECIS 7.5 g a.s./ha**		**PROTEUS OD110 0.57-0.75 L/ha**		**Nb. of trials where DLT+FPF 0.75 L/ha is statistically <. =.> to standard**
				Mean	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***	
ANURHE												
South-East	1-3 DAA	insects/plant	15	*34.5*	*6.8-55.3*	***88.0***	*79.4-100*	*80.2*	*48.9-100*	-	-	1, 11, 3
South-East	1-3 DAA	insects/plant	13	*35.8*	*6.8-55.3*	***88.7***	*79.4-100*	*84.5*	*55.3-100*	*92.1*	*80.9-100*	3, 10, 0
South-East	7-10 DAA	insects/plant	15	*26.6*	*4.9-64.8*	***84.9***	*62.9-100*	*67.2*	*43.3-100*	-	-	0, 8, 7
South-East	7-10 DAA	insects/plant	13	*29.6*	*7.0-64.8*	***88.3***	*72.9-100*	*75.4*	*57.2-100*	*92.8*	*85.3-100*	3, 10, 0
South-East	24-28 DAA	% damaged leaves	3 4	~~*13.8*~~ *20.5*	~~*10.0-21.3*~~ *10.0-40.6*	~~*100*~~ ***90***	~~*100-100*~~ *60-100*	~~*70.8*~~ *64.6*	~~*50.0-100*~~ *45.9-100*	~~*100*~~ *92.6*	~~*100-100*~~ *70.2-100*	0, 3 4, 0
South-East	24 DAA	% damaged buds	2	*5.0*	*5.0-5.0*	***100***	*100-100*	*90.0*	*80.0-100*	*100*	*100-100*	0, 2, 0

[1] Orthogonal comparison to Decis 7.5 g a.s./ha
[2] Orthogonal comparison to Proteus 110OD 0.57–0.75 L/ha

Summary on the efficacy, South-East EPPO climatic zone

16 trials carried out in the South-East EPPO climatic zone were implemented in the trial seasons 2014 to 2017 to estimate efficacy of DLT+FPF EC85 at the proposed dose rate 0.75 L/ha against *Brachycaudus helichrysi* (ANURHE) in sunflower. From the dataset of 16 trials, 15 trials were considered relevant for evaluation. 1 trial was not included into efficacy evaluation as infestation level was insufficient to reliably determine efficacy of the tested objects. All trials were conducted under the GEP by officially recognized testing organizations and followed the appropriate EPPO standards.

Assessments were presented in groupings, representing immediate effect (1–3 days after application), mid-term effect (7–10 days after application) ~~long-term effect (14–15 days after application)~~ and a potential for reduction in damaged plant parts (leaves and buds) caused by feeding of ANURHE nymphs and adults (24-28 days after application). Based on the analysis of the whole dataset and taking into account comparison to the reference products, DLT+FPF EC85 proved to be an efficient solution for the control of ANURHE in sunflower and performed at considerably higher or nearly similar level when compared to the reference products DLT at 7.5 g a.s./ha and Proteus OD100 at 0.57–0.75 L/ha.

Conclusion on the efficacy tests against *Brachycaudus helichrysi* (ANURHE) in sunflower, South-East EPPO climatic zone

Based on the findings of the analysis of the trial set, it could be concluded that the proposed rate of 0.75 L/ha of DLT+FPF EC85 ensures an efficient and lasting control of ANURHE in sunflower in the countries of submission in South-East EPPO climatic zone under varying climatic and infestation conditions.

Results in Maritime EPPO climatic zone

Table 3.2-133 below presents the overall efficacy of DLT+FPF EC85 assessed 1–3 days (immediate

effect), 7–10 days (mid-term effect) after application.

Table 3.2-133: Overall efficacy of DLT+FPF EC85 against ANURHE in sunflower at 0.75 L/ha.

Overall summary						Abbott % (efficacy)				
EPPO climatic zone	**Timing of assess. (DAA)**	**Assessment**	**Nb. of trials**	**PESSEV**		**DLT+FPF EC85 0.75 L/ha**		**PROTEUS OD110 0.75 L/ha**		**Nb. of trials where DLT+FPF 0.75 L/ha is statistically <. =.> to standard**
				Mean	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***	
ANURHE										
Maritime CZ	1-3 DAA	aphids/plant	7	*12.5*	*2.5-45.8*	**88.3**	*61.6-98.8*	87.6	*51.7-99.1*	*2, 5, 0*
	7-10 DAA	aphids/plant	5	*10.3*	*3.4-24.9*	**84.2**	*62.4-96.2*	88.9	*74.5-98.0*	*2, 3, 0*
Maritime CZ	31-37 DAA	% damaged leaves	3	*11.2*	*8.5-16.3*	**92.1**	*88.2-94.3*	94,3	*92.6-96.6*	*1,2,0*

Summary on the efficacy, Maritime climatic zone

9 trials carried out in the Maritime EPPO climatic zone were implemented in the trial seasons 2014 to 2017 to estimate efficacy of DLT+FPF EC85 at the proposed dose rate 0.75 L/ha against *Brachycaudus helichrysi* (ANURHE) in sunflower. From the dataset of 9 trials, 7 trials were considered relevant for evaluation. 2 trials were not included into efficacy evaluation as infestation level was insufficient to reliably determine efficacy of the tested objects. All trials were conducted under the GEP by officially recognized testing organizations and followed the appropriate EPPO standards.

Assessments were presented in groupings, representing immediate effect (1–3 days after application) and mid-term effect (7–10 days after application) and a potential for reduction in damaged plant parts (leaves) caused by feeding of ANURHE nymphs and adults (31-37 days after application). Based on the analysis of the whole dataset and taking into account comparison to the reference product, DLT+FPF EC85 proved to be an efficient solution for the control of ANURHE in sunflower and performed at nearly similar level when compared to the reference product Proteus OD100 at 0.75 L/ha.

Conclusion on the efficacy tests against *Brachycaudus helichrysi* (ANURHE) in sunflower, Maritime EPPO climatic zone

Based on the findings of the analysis of the trial set, it could be concluded that the proposed rate of 0.75 L/ha of DLT+FPF EC85 ensures an efficient and lasting control of ANURHE in sunflower in the countries of submission in Maritime EPPO climatic zone under varying climatic and infestation conditions.

~~**Conclusion on the efficacy tests against *Brachycaudus helichrysi* (ANURHE) in sunflower, North-East EPPO climatic zone (Poland)**~~

~~It is to be mentioned that in Poland, where authorization for this use is also claimed, no trials were performed on ANURHE in sunflower. However, sunflower is a minor crop in Poland as well as the use against *Brachycaudus helichrysi*. As stated by the Polish authority, if there are no available studies from the North-east EPPO climatic zone, it is necessary to verify if there are any studies from neighboring countries (Germany, Czech Republic, Slovakia). In case of ANURHE, 5 valid studies from Slovakia and 7 valid studies from the Czech Republic are evaluated in this document. Therefore, it is assumed that a total of 12 studies from the neighboring countries fully covers the use against ANURHE in sunflower in Poland and the same level of control, as observed in these countries (90.3% (in a range of 83.0–100%) at 1–3 DAA and 93.6% (in a range of 86.2–100%) at 7–10 DAA in Slovakia; 88.3% (in a range of 61.6–98.8%) at 1–3 DAA and 84.2% (in a range of 62.4–96.2%) at 7–10 DAA in the Czech Republic) could be a realistic estimate under Polish conditions.~~

USE 009: Efficacy of DLT+FPF EC85 in sunflower against *Lygus* sp. (LYGUSP) – South-East EPPO climatic zone

In order to evaluate the efficacy of DLT+FPF EC85 against *Lygus* sp. (LYGUSP) in sunflower in foliar application, Bayer implemented field trials in Europe.

Single trial reports are given in Compilation of Trial Reports M-689795-02-1 with the corresponding trial list.

A total of 11 field trials was carried out in trial season 2014–2017 to evaluate the efficacy of DLT+FPF EC85 for the control of lygus bugs in sunflower.
From the dataset of 11 trials, 8 trials from South-East climatic zone were summarised. Three trials were not included into the efficacy evaluation as infestation by LYGUSP was insufficient to draw meaningful conclusions on the efficacy of the tested objects. Therefore, these trials were considered as not valid to determine efficacy of the test product and are not presented in the summary tables.
All 8 valid trials were conducted in the South-East EPPO climatic zone countries Hungary (7) and Slovakia (1) belonging to Central EU regulatory zone.
For the Czech Republic, where this is a major use ~~and for Poland, where this use is considered to be minor,~~ no trials are available ~~neither from Maritime nor from North-East EPPO climatic zone~~ and only 1 trial, from the neighbouring country Slovakia is available. However, agroclimatic conditions prevalent in Hungary, could be matched to those of Slovakia and partially to those of the Czech Republic. ~~Despite the absence of trials in neighbouring countries, it could be assumed, that localized infestations by this pest could be expected under the agro-climatic conditions of Poland.~~ Moreover, There is a high possibility, that this pest species could be controlled by the application targeted at ANURHE, as use patterns are the same for both uses. Therefore, results of the trial set from countries where more challenging LYGUSP infestations are to be expected, could support this use in the Czech Republic ~~and Poland~~ and similar control level could be a realistic estimate.
The number of trials conducted in Central EU regulatory zone of South-East EPPO climatic zone is shown in **Table 3.2-134** below.

Table 3.2-134: Distribution of efficacy trials on LYGUSP in sunflower.

Crop	EPPO climatic zone	Regulatory Zone	Country	Year	Number of trials (valid trials)	Total (valid trials)	
Sunflower HELAN	South-East	Central	Hungary	2014	2 (0)	9 (7)	11 (8)
				2015	4 (4)		
				2016	2 (2)		
				2017	1 (1)		
			Slovakia	2014	~~2 (1)~~ 1 (0)	2 (1)	
				2015	1 (1)		
Total	**South-East EPPO climatic zone**			**Sunflower**			**11 (8)**

The product DLT+FPF EC85 was compared to the following commercial product as reference product:

- Proteus (DLT+TCP OD110) applied at 0.57 L/ha (5.9+56.8 g a.s./ha) or at 0.7 L/ha (7.0+70.0 g a.s./ha) or at 0.75 L/ha (7.5+75.0 g a.s./ha) according to years and countries. To ease the reading of this document, results from these treatments will be grouped together and considered as a unique reference product: Proteus OD110 0.57–0.75 L/ha.

All details of the reference product can be found in the Table 3.2-13.

Methodology
There is no EPPO guideline for efficacy trials designed specifically against *Lygus* sp. As efficacy of DLT+FPF EC85 against Lygus bugs was tested in the same trials as ANURHE, generally the methodology of PP1/231(1) Aphids in sunflower was followed, with some modifications (e.g. sample size of 100 plants instead of 25) applied.
A general overview of the methodology in efficacy trials carried out in sunflower against LYGUSP is presented in **Table 3.2-135** below.

Table 3.2-135: Details on trial methodology (field trials) – LYGUSP

Guidelines	General guidelines	PP1/135(3) Phytotoxicity assessment PP1/152(4) Design and analysis of efficacy evaluation trials PP1/181(4) Conduct and reporting of efficacy evaluation trials including GEP PP1/225(2) Minimum effective dose
	Specific guidelines	PP1/231(1) Aphids in sunflower
Experimental design	Plot design	Randomized Complete Block, RCB, RCBD
	Plot size	~~25~~ 30 to 60 m²
	Number of replications	4
Crop	Trials per crop	*Helianthus annuus* (HELAN) ~~(9)~~ (8)
	Varieties per crop	Adagio (2), NK Alegro, NK Neoma ~~(2)~~, LG56.58CL, P64LC09, P64LE25, Tutti
	Sowing dates	April to May
Application	Crop stage (BBCH) at application	from BBCH 19 to BBCH ~~55~~ 53
	Number of applications	1 or 2
	Spray volumes	250–300 L/ha
Assessment	Assessment types	Number of living bugs (nymphs and adults) on plants
	Assessment timings	0; 2–3 and 6–7 days after application for assessments on living insects
Other relevant information	Infestation	Natural
	Site type	Field

Results

Table 3.2-136 below presents the overall efficacy of DLT+FPF EC85 assessed 2–3 days (immediate effect) and 6–7 days (mid-term effect) after application.

Table 3.2-136: Overall efficacy of DLT+FPF EC85 against LYGUSP in sunflower at 0.75 L/ha.

Overall summary						**Abbott % (efficacy)**				
EPPO climatic zone	**Timing of assessment**	**Assessment**	**Nb. of trials**	**PESSEV**		**DLT+FPF EC85**		**PROTEUS OD110**		**Nb. of trials where DLT+FPF 0.75 L/ha is statistically <. =.> to standard**
						0.75 L/ha		**0.57-0.75 L/ha**		
				Mean	***Min-Max***	**Mean**	***Min-Max***	**Mean**	***Min-Max***	
LYGUSP										
South-East	2-3 DAA	insects/plant	8	*2.1*	*0.2-2.9*	***93.5***	*90.5-95.2*	*95.3*	*90.9-97.9*	3, 4, 1
South-East	6-7 DAA	insects/plant	8	*1.8*	*0.2-2.4*	***76.7***	*67.5-94.0*	*84.5*	*77.2-91.6*	2, 5, 1

Summary on the efficacy, South-East climatic zone

11 trials carried out in the South-East EPPO climatic zone were implemented in the trial seasons 2014 to 2017 to estimate efficacy of DLT+FPF EC85 at the proposed dose rate 0.75 L/ha against *Lygus* sp. (LYGUSP) in sunflower. From the dataset of 11 trials, 8 trials were considered relevant for evaluation. 2 trials were not included into efficacy evaluation as infestation level was insufficient to reliably determine efficacy of the tested objects. All trials were conducted under the GEP by officially recognized testing organizations and followed the appropriate EPPO standards.

Assessments were presented in groupings, representing immediate effect (2–3 days after application) and mid-term effect (6–7 days after application). Based on the analysis of the whole dataset and taking into account comparison to the reference product, DLT+FPF EC85 proved to be an efficient solution for the control of LYGUSP in sunflower and performed at comparable level when compared to the reference product Proteus OD100 at 0.57–0.75 L/ha.

Conclusion on the efficacy tests against *Lygus* sp. (LYGUSP) in sunflower, South-East EPPO climatic zone

Based on the findings of the analysis of the trial set, it could be concluded that the proposed rate of 0.75 L/ha of DLT+FPF EC85 ensures an efficient and lasting control of LYGUSP in sunflower in the countries of submission in South-East EPPO climatic zone under varying climatic and infestation conditions.

Conclusion on the efficacy tests against *Lygus* sp. (LYGUSP) in sunflower, Maritime ~~and North-East~~ EPPO climatic zone~~s~~

For the Czech Republic, where this is a major use ~~and for Poland, where this use is considered to be minor,~~ no trials are available ~~neither from Maritime nor from North-East EPPO climatic zone and~~ only 1 trial, from the neighbouring country Slovakia is available. However, agroclimatic conditions prevalent in Hungary, could be matched to those of Slovakia and partially to those of the Czech Republic. ~~Despite the absence of trials in neighbouring countries, it could be assumed, that localized infestations by this pest could be expected under the agro-climatic conditions of Poland.~~ Moreover, there is a high possibility, that this pest species could be controlled by the application targeted at ANURHE, as use patterns are the same for both uses. Therefore, results of the trial set from countries where more challenging LYGUSP infestations are to be expected, could support this use in the Czech Republic ~~and Poland~~ and similar control level could be a realistic estimate.

USE 010: Efficacy of DLT+FPF EC85 in grapevine (VITVI) against *Scaphoideus titanus* (SCAPLI) field trial results

In order to demonstrate the efficacy of DLT+FPF EC85 on *Scaphoideus titanus* (SCAPLI) on grapevine the following chapter summarises the results from a series of 9 trials implemented in Hungary belonging to South-East EPPO climatic zone from 2016 to 2019.

No trials were carried out in North-East EPPO climatic zone (for Poland) where this use (crop and target) is minor.

The Hungarian efficacy trials presented here represent the worst conditions in term of infestation level. Therefore, it is considered that this trial set supports the label claim for EU regulatory Central zone.

Single trial reports are given in the Compilation of Trial Reports M-687453-01-1 with the corresponding trial list.

The number of trials conducted in each climatic zone and country is shown in **Table 3.2-137** below.

Table 3.2-137: distribution of trials according to EPPO climatic zones and countries for *Scaphoideus titanus* (SCAPLI).

EPPO climatic zone	Regulatory Zone	Country	Year	Number of trials per year	Total (valid)
South-East	Central	Hungary	2016	2 (2)	9 (9)
			2017	2 (2)	
			2018	3 (3)	
			2019	2 (2)	

All the trials were conducted under GEP by officially recognized testing organisations and followed the appropriate EPPO standards.

DLT+FPF EC85 was applied on grapevine for the control of *Scaphoideus titanus* (SCAPLI) at 0.4 L/ha once.

The product DLT+FPF EC85 was compared to the following commercial products as reference products:

Locally registered deltamethrin formulations have been used as reference products, at their locally registered dose. When doses were equivalent, results of the different deltamethrin formulations have been grouped together, as their biological efficacy is similar.

South-East EPPO Climatic Zone reference products:

- Decis formulations (deltamethrin): Decis 100EC or Decis mega (50EW) applied at 7.5 g a.s./ha (9 trials). To ease the reading of this document, results from these different treatments and formulations will be grouped together and considered as a unique reference product: DLT (7.5 g a.s./ha).
- Karate Zeon (100 g a.s./L of lambda-cyhalothrin) applied at 0.125 L/ha (7 trials)
- Actara 240SC (240 g a.s./L of thiametoxam) applied at 20 ml/100L (7 trials)
- Teppeki 50WG (flonicamid) applied at 140 g/ha (3 trials)

Efficacy was tested under a range of environmental conditions and infestations levels to fully challenge the product.

A general overview of the methodology used in efficacy trials is shown in **Table 3.2-138**.

Table 3.2-138: Details on trial methodology – SCAPLI.

Guidelines	General guidelines	PP1/135(2/3/4) ; PP1/152(3/4) ; PP1/181(3/4)
	Specific guidelines	CEB method n°147
Experimental design	Plot design	Randomized Complete Block Design (9)
	Plot size	15 to 42 m²
	Number of replications	4
Crop	Trials per crop	Grapevine (9)
	Varieties per crop	Cabernet Sauvignon, Kékfrankos (3), Riesling (2), Kövidinka (2), Cabernet Franc
	Perenial age	from 10 to 17 years
Application	Crop stage (BBCH) at application	BBCH 53 to BBCH 71
	Timing Pest stage at application (1)	Living Larvae
	Number of applications Intervals between applications	1 (9 trials)
	Spray volumes	200–500 L/ha
Assessment	Assessment types	Number of living larvae: 9 trials in South-East EPPO climatic zone
	Assessment dates	-1 to 0 days before application (9 trials) 2 to 3 days after application (9 trials) 7 days after application (9 trials) 13 to 14 days after application (9trials) 21 days after application (5 trials)
Other relevant information	Natural / artificial innoculation…	Natural infestation (9)
	Field / Greenhouse...	Field tests (9)
	Leaf Wall Area at application timing	5000 to 10000 m² with a mean of 8968m² (9 trials)

Assessments

- Crop growth stages were assessed using the BBCH growth stage codification.
- The pest pressure was assessed in untreated at timing of assessments.
- The assessments were done by counting living larvae on 50 leaves at 5 different timings:
  - before application,
  - 2–3 days (9 valid trials – 9 valid assessments),
  - 7–8 days (9 valid trials – 8 valid assessments),
  - 14 days (9 valid trials – 8 valid assessments) and
  - 21 days after application (5 valid trials – 3 valid assessments).

The assessments that are considered as not valid are have been excluded from analyse. The reasons are explained in each assessment part.

- The level of efficacy is calculated using the Abbott efficacy formula.
  - *Results and discussion about efficacy on SCAPLI*

As a first step, the dynamic of aphid population is presented in **Table 3.2-139** for all trials from South-East EPPO climatic zone.

Table 3.2-139: Dynamic of SCAPLI population in untreated from start to end of the trials – number of larva on 50 leaves

Country	EPPO climatic zones	Crop stage at appl.	0 DAA	1-2 DAA	7-8 DAA	14 DAA	21 DAA	Pest pressure at peak of infestation	Timing of peak (DAA)	Dynamic
HUN	S-E	60	1.3	1.6	1.9	2.2	n.c.	low	14	stable
HUN	S-E	53	83.5	84.5	79.5	34.3	n.c.	high	1-2	decreasing
HUN	S-E	57	2.8	3	3.1	4.3	n.c.	low	14	stable
HUN	S-E	57	102.5	150.5	111.5	46.3	n.c.	high	1-2	decreasing
HUN	S-E	57	193.0	212.0	267.5	305.5	327.0	very high	21	increasing
HUN	S-E	57	104.8	118.5	206.8	246.8	294.8	high	21	increasing
HUN	S-E	71	84.8	101.3	112.5	48.3	32.5	high	7	decreasing
HUN	S-E	57	139.0	151.5	176.8	205.5	223.5	very high	21	increasing
HUN	S-E	55	24.0	48.0	145.3	151.0	59.5	medium	14	increasing

DAA=Days After Application, S-E= South-East, HUN=Hungary, n.c.=not communicated

For South-East EPPO climatic zone, in the 9 valid trials, by looking at dynamic of populations, there is a variability regarding pest pressure (1.3 to 327 larvae on 50 leaves), regarding the timing at peak of infestation (from 1–2 to 21 days after application) and regarding the dynamic of population along the trials (pest population stable or increasing or decreasing). The trial set reflects a wide range of pest pressure situations.
The major risk with *Scaphoideus titanus* leafhopper is the transmission of the phytoplasma responsible for flavescence doree. The transmission is possible 1 month after the feeding on a contaminated grape plant. By reducing the number of larvae, insecticides products contribute to reduce the chances to propagate phytoplasma.
The results are presented and discussed hereafter by timing of assessment from 2–3 to 21 days after application. Calculations are done according the number of trials with data (orthogonal means).

- *Results at 2–3 days after application:*

The level of infestation of *Scaphoideus titanus* (SCAPLI) in untreated plots varies from 1.6 to 212 larvae per 50 leaves with a mean of 96.8 larvae on 50 leaves **(Table 3.2-140**).

Table 3.2-140: Efficacy of DLT+FPF EC85 against *Scaphoideus titanus* (SCAPLI) on grapevine – South-East EPPO climatic zone trials - Counts of living larvae at **2 to 3 days** after application.

Number of trials	**Sample Size**	**Days after appl.**	**BBCH crop stage at assessment**	UNTREATED number of insects on 50 leaves	DLT+FPF 0.4 L/ha (4+30g a.s./ha)	DLT 7.5 g a.s./ha (100EC or 50EW)	Karate Zeon 0.125 L/ha	Actara 20 mL/100L	Teppeki 140 g/ha
					% Efficacy Abbott				
EU Central zone. South-East EPPO climatic zone									
Mean 9 trials	50 leaves	2 to 3	53 to71	*96.8*	**96.6**	91.8			
Min-Max				*(1.6-212.0)*	*(91.1-100)*	*(67.8-100)*			
Mean 7 trials	50 leaves	2 to 3	53 to 71	*95.9*	**97.5**	94.1	79.9	88.2	
Min-Max				*(1.6-212.0)*	*(93.2-100)*	*(88.3-100)*	*(39.9-100)*	*(69.5-98.8)*	
Mean 3 trials	50 leaves	2 to 3	57 to 71	*143.9*	**98.8**	91.9	71.0	92.0	64.2
Min-Max				*(101.3-212.0)*	*(98.1-100)*	*(89.0-97.0)*	*(39.9-100)*	*(89.6-93.9)*	*(44.3-74.8)*

At 2 to 3 days after application, in the 9 trials the level of efficacy of DLT+FPF EC85 and references are statistically better than in untreated.
On average of 9 trials, DLT+FPF EC85 provides an efficacy of 96.8% against living larvae (ranging from 91.1% to 100%). Compared to the standards, DLT+FPF EC85 applied at 0.4 L/ha is:

- 4.8% better than Decis EW50/Decis Protect (deltamethrin formulations) at 7.5 g a.s./ha (96.8% versus 91.8% of efficacy in mean of 9 trials). By look at minimum and maximum values, DLT+FPF EC85 provides less variability (91.1–100% versus 67.8–100% of efficacy).
- 17.6% better than Karate Zeon (100 g a.s./L of Lambda-cyhalothrin) applied at 0.125 L/ha in mean of 7 trials (97.5% versus 79.9% of efficacy). Looking at the trials individually
- 9.3% better than Actara (240 g a.s./L of thiametoxam) applied at 20 ml/100L in mean of 7 trials (97.5% versus 88.2% of efficacy).
- 34.4% better than Teppeki 50WG (flonicamid) applied at 140 g/ha in mean of 3 trials (98.8% versus 64.2% of efficacy).

- *Results at 7–8 days after application:*

The level of infestation of *Scaphoideus titanus* (SCAPLI) in untreated plots varies from 1.9 to 267.5 larvae per 50 leaves with a mean of 122.8 larvae on 50 leaves **(Table 3.2-141**).

Table 3.2-141: Efficacy of DLT+FPF EC85 against *Scaphoideus titanus* (SCAPLI) on grapevine – South-East EPPO climatic zone trials - Counts of living larvae at **7 to 8 days** after application.

Number of trials	**Sample Size**	**Days after appl.**	**BBCH crop stage at assessment**	UNTREATED number of insects on 50 leaves	DLT+FPF 0.4 L/ha (4+30g a.s./ha)	DLT 7.5 g a.s./ha (100ECor50EW)	Karate Zeon 0.125 L/ha	Actara 20 mL/100L	Teppeki 0.140 KG/ha
					% Efficacy Abbott				
EU Central zone. South-East EPPO climatic zone									
Mean 8 trials	50 leaves	7 to 8	60 to 73	*120.0*	**95.9**	91.5			
Min-Max				*(1.9-267.5)*	*(86.3-100)*	*(65.2-100)*			
Mean 7 trials	50 leaves	7 to 8	60 to 73	*111.8*	**95.3**	95.3	91.7	97.5	

Min-Max				*(1.9-267.5)*	*(86.3-100)*	*(88.3-100)*	*(71.1-100)*	*(91.7-100)*	
Mean 3 trials	50 leaves	7	60 to 73	*195.6*	**98.4**	94.4	93.6	98.6	91.0
Min-Max				*(112.5-267.5)*	*(95.3-100)*	*(88.3-100)*	*(88.8-100)*	*(97.9-100)*	*(83.8-96.4)*

At 7 to 8 days after application, in 8 trials out of 9 the level of efficacy of DLT+FPF EC85 and references are statistically better than in untreated. In 1 trial treatment are statistically equivalent to untreated. For that reason, this trial is excluded from the analyse.
On average of 8 trials, DLT+FPF EC85 provides an efficacy of 95.9% against living larvae (ranging from 86.3% to 100 %). Compared to the standards, DLT+FPF EC85 applied at 0.4 L/ha is:

- 4.4% better than Decis EW50/Decis Protect (deltamethrin formulations) at 7.5 g a.s./ha (95.9% versus 91.5% of efficacy in mean of 8 trials). By looking at minimum and maximum values, DLT+FPF EC85 provides less variability (86.3%–100 % versus 65.2–100% of efficacy).
- 3.6% better than Karate Zeon (100 g a.s./L of Lambda-cyhalothrin) applied at 0.125 L/ha in mean of 7 trials (95.3% versus 91.7% of efficacy). By looking at minimum and maximum values, DLT+FPF EC85 provides less variability (86.3–100% versus 71.1–100% of efficacy).
- 2.2% lower than Actara (240 g a.s./L of thiametoxam) applied at 20 ml/100L in mean of 7 trials (95.3% versus 97.5% of efficacy). By looking at minimum and maximum values, DLT+FPF EC85 provides more variability (86.3–100% versus 91.7–100%).
- 7.4% better than Teppeki 50WG (flonicamid) applied at 140 g/ha in mean of 3 trials (98.4 versus 91.0% of efficacy).
- *Results at 14 days after application:*

The level of infestation of *Scaphoideus titanus* (SCAPLI) in untreated plots varies from 2.2 to 305.5 larvae per 50 leaves with a mean of 111.7 larvae on 50 leaves **(Table 3.2-142**).

Table 3.2-142: Efficacy of DLT+FPF EC85 against *Scaphoideus titanus* (SCAPLI) on grapevine – South-East EPPO climatic zone trials - Counts of living larvae at 14 days after application.

Number of trials	**Sample Size**	**Days after appl.**	**BBCH crop stage at assessment**	UNTREATED number of insects on 50 leaves	DLT+FPF 0.4 L/ha (4+30g a.s./ha)	DLT 7.5 g a.s./ha (100ECor50EW)	Karate Zeon 0.125 L/ha	Actara 20 mL/100L	Teppeki 0.140 KG/ha
					% Efficacy Abbott				
EU Central zone. South-East EPPO climatic zone									
Mean 8 trials	50 leaves	14	61 to 75	*111.7*	**94.2**	84.7			
Min-Max				*(2.2-305.5)*	*(73.0-100)*	*(58.9-97.8)*			
Mean 7 trials	50 leaves	14	61 to 75	*98.2*	**93.4**	88.4	90.7	96.3	
Min-Max				*(2.2-305.5)*	*(73.0-100)*	*(77.7-97.8)*	*(79.4-97.8)*	*(89.2-100)*	
Mean 3 trials	50 leaves	14	65 to 75	*200.2*	**98.3**	81.3	92.2	99.2	84.7
Min-Max				*(48.3-305.5)*	*(94.8-100)*	*(77.7-83.9)*	*(90.3-93.5)*	*(98.7-100)*	*(60.6-97.5)*

At 14 days after application, in 8 trials out of 9 the level of efficacy of DLT+FPF EC85 and references are statistically better than in untreated. In 1 trial the alpha risk was higher than 5%. For that reason, it is decided to exclude this trial from the analyse.
On average of 8 trials, DLT+FPF EC85 provides an efficacy of 94.2% against living larvae (ranging from 73.0% to 100 %). Compared to the standards, DLT+FPF EC85 applied at 0.4 L/ha is:

- 9.5% better than Decis EW50/Decis Protect (deltamethrin formulations) at 7.5 g a.s./ha (94.2% versus 84.7% of efficacy in mean of 8 trials). By looking at minimum and maximum values, DLT+FPF EC85 provides less variability (73–100% versus 58.9–97.8% of efficacy).
- 2.7% better than Karate Zeon (100 g a.s./L of Lambda-cyhalothrin) applied at 0.125 L/ha in mean of 7 trials (93.4% versus 90.7% of efficacy). By looking at minimum and maximum values, DLT+FPF EC85 provides slightly more variability (73.0–100% versus 79.4–97.8% of efficacy).
- 2.9% lower than Actara (240 g a.s./L of thiametoxam) applied at 20 ml/100L in mean of 7 trials (93.4% versus 96.3% of efficacy). By looking at minimum and maximum values, DLT+FPF EC85 provides more variability (73.0–100% versus 89.2–100%).

- 13.6% better than Teppeki 50WG (flonicamid) applied at 140 g/ha in mean of 3 trials (98.3 versus 84.7% of efficacy).

- *Results at 21 days after application:*

The level of infestation of *Scaphoideus titanus* (SCAPLI) in untreated plots varies from 223.5 to 327.0 larvae per 50 leaves with a mean of 281.8 larvae on 50 leaves **(Table 3.2-143**).

Table 3.2-143: Efficacy of DLT+FPF EC85 against *Scaphoideus titanus (SCAPLI)* on grapevine – South-East EPPO climatic zone trials - Counts of living larvae at **21 days** after application.

Number of trials	**Sample Size**	**Days after appl.**	**BBCH crop stage at assessment**	UNTREATED number of insects on 50 leaves	DLT+FPF 0.4 L/ha (4+30g a.s./ha)	DLT 7.5 g a.s./ha (100ECor50EW)	Karate Zeon 0.125 L/ha	Actara 20 mL/100L	Teppeki 0.140 KG/ha
					% Efficacy Abbott				
EU Central zone. South-East EPPO climatic zone									
Mean 3 trials	50 leaves	21	69 to 75	*281.8*	**99.9**	72.8			
Min-Max				*(223.5-327)*	*(99.7-100)*	*(54.5-83.0)*			
Mean 2 trials	50 leaves	21	69	*310.9*	**99.9**	82.0	90.6	97.4	94.5
Min-Max				*(294.8-327)*	*(99.7-100)*	*(81-83)*	*(89.6-91.5)*	*(96.2-98.6)*	*(94.1-94.8)*

At 21 days after application, in 3 trials out of 5 the level of efficacy of DLT+FPF EC85 and references are statistically better than in untreated. In 2 trials the alpha risk was higher than 5%. For that reason, it is decided to exclude those 2 trials from the analyse.

On average of 3 trials, DLT+FPF EC85 provides an efficacy of 99.9% against living larvae (ranging from 99.7% to 100 %). Compared to the standards, DLT+FPF EC85 applied at 0.4 L/ha is:

- 27.1% better than Decis EW50/Decis Protect (deltamethrin formulations) at 7.5 g a.s./ha (99.9% versus 72.8% of efficacy in mean of 3 trials).
- 9.3% better than Karate Zeon (100 g a.s./L of Lambda-cyhalothrin) applied at 0.125 L/ha in mean of 2 trials (99.9% versus 90.6% of efficacy). By looking at minimum and maximum values, DLT+FPF EC85 provides slightly more variability variability (99.7-100% versus 89.6-91.5% of efficacy).
- 2.5% better than Actara (240 g a.s./L of thiametoxam) applied at 20 ml/100L in mean of 2 trials (99.9% versus 97.4% of efficacy). By looking at minimum and maximum values, DLT+FPF EC85 provides less variability (99.7-100% versus 96.2-98.6%).
- 5.4% better than Teppeki 50WG (flonicamid) applied at 140 g/ha in mean of 3 trials (99.9 versus 94.5% of efficacy).

- *Conclusion about the efficacy on Scaphoideus titanus in grape:*

Based on the analysis of the trials set from South-East EPPO climatic zone, it could be concluded that the proposed rate of 0.4 L/ha of DLT+FPF EC85 ensures an efficient control (>94%) of *Scaphoideus titanus* in grape from application and until 21 days after application. Compared to standards, the level of efficacy of DLT+FPF EC85 at 0.4 L/ha is equivalent by looking at all situations and remains better than standards in case of high pest pressure and in long lasting effect.

The product's evaluation complies with Uniform Principles.

Conclusion on efficacy tests

All together **185 field trials** are presented in the efficacy section to illustrate the efficacy of DLT+FPF EC85 against pests on corn and related crops (sweet corn, millet and sorghum), cereals – wheat, barley and oat, sunflower and grapevine (table and wine). From a whole dataset of 185 trials, **162 trials** were considered relevant to reliably evaluate biological efficacy of DLT+FPF EC85 against various pests in different crops. Remaining part of the trials were not considered for efficacy evaluation as either pest pressure was too low or reference product(s) failed to give an expected efficacy, or other reasons that prevented to reliably estimate the efficacy.

153 trials (137 valid) presented in this section were conducted in countries belonging to the EPPO South-East, Maritime and North-East climatic zones in the EU regulatory Central Zone (56 trials (55 valid) on corn (and additional 5 supportive trials (4 valid) on tomato), 59 trials (48 valid) on cereals, 24 trials (21 valid) on sunflower and 9 trials (all valid) on grape).

Additionally, **24 field trials (22 valid)** conducted in EU regulatory Southern Zone (covering South-

East EPPO climatic zone – 4 trials (all valid) on corn (and additional 5 supportive trials (all valid) on tomato), 13 trials (11 valid) on cereals, 2 trials (both valid) on sunflower) and **8 field trials (3 valid)** conducted in EU regulatory Northern Zone (covering North-East EPPO climatic zone – 8 trials (3 valid) on cereals) are included into this section. These trials are used as supplementary data in order to support the use on targets, which have not been present (or only to a lesser extent) in the field trials conducted in the EU regulatory Central Zone in the years 2014 to 2018, but for which activity is claimed. Furthermore, in several cases trials conducted on related crops (data obtained on *Helicoverpa armigera* in tomato) were evaluated and extrapolations based on results of these trials were performed in order to justify some uses.

For a final conclusion, mean efficacy values are presented in comparison to different reference products used throughout the trial series and overall mean efficacy value highlighted in **bold** per each pest per each EPPO climatic zone is synthesized and summarized in **Table 3.2-144**, **Table 3.2-145, Table 3.2-146 and Table 3.2-147** prepared for each crop.

Table 3.2-144: Overall efficacy summary for corn pests.

Efficacy on corn								
							Reference product	
Target pest	**EPPO climatic zone/EU regulatory zone**	**Number of results**	**Assessment**	**Timing of assessment (DAA)**	**DLT+FPF EC85 0.75 L/ha**		**Inazuma 13WG 0.2-1.52 kg/ha[1] Ampligo 150 SC[2] Karate Zeon CS50/CS100 15-25 g a.s./ha[3] Deltamethrin 7.5-12.5 g a.s./ha[4] Proteus 110OD 0.75 L/ha[5] Coragen 0.175-0.2 L/ha[6] Steward WG0.12 kg/ha[7] Fury 10EW 0.15-0.38 L/ha[8] Nurelle D 550EC 0.6 L/ha[9] Mospilan 20SG 0.15 kg/ha[10]**	
					Mean	***Min-Max***	**Mean**	***Min-Max***
PYRUNU	Maritime CZ	2	Larvae/plant or cob	42-46 DAA	81.8	*68.6-94.9*	*96.3*[2]	*94.3-98.3*[2]
		3		42-70 DAA	83.2	*68.6-94.9*	*86.7*[1]	*85.7-88.1*[1]
		3		38-70 DAA	90.8	*86.2-97.2*	*89.6*[4]	*82.8-97.2*[4]
		5*		38-70 DAA	**87.2***	*68.6-97.2**	-	-
	South-East CZ	4	Larvae/plant	13-42 DAA	88.3	78.1-97.6	*92.7*[1]	*84.4-100*[1]
		4		13-49 DAA	89.0	78.1-97.6	*91.8*[2]	*86.5-100*[2]
		7		7-44 DAA	82.1	47.6-93.4	*87.6*[3]	*72.2-95.6*[3]
		11		7-44 DAA	88.6	72.2-97.6	*94.1*[4]	*75.0-100*[4]
		12*		7-44 DAA	**88.2***	72.2-97.6*	-	-
	North-East CZ	**8**	Larvae/plant or cob	24-47 DAA	~~**91.5**~~ **94.2**	~~*87.0-94.6*~~ *88.9-96.2*	~~*94.2*~~[+] *93.8*[7] *94.9*[4] *93.3*[5]	~~*88.9-96.2*~~[+] *90.2-97.4*[7] *90.2-98.1*[4] *90.2-97.3*[5]
HELIAR	South-East SZ[C]	5	Frequency of infested cobs or plants, %	14 DAA	75.5	*56.9-100*	*88.2*[2]	*67.6-100*[2]
		6		14 DAA	90.6	*59.0-100*	*89.8*[4]	*59.0-100*[4]
		4		14 DAA	69.4	*56.9-100*	*78.5*[1]	*55.9-100*[1]
		2		14 DAA	100	*100-100*	*100*[3]	*100-100*[3]
		1		14 DAA	84.6	-	*84.6*[3]	-
		8*		14 DAA	**82.8***	*56.9-100**	-	-
	South-East CZ+SZ[T1]	5	Frequency of damaged fruits, %	6-7 DAA	60.1	*44.0-73.8*	*60.3*[6]*/51.6*[4]	*36.0-71.4*[6]*/32.0-64.6*[4]
		9		6-7 DAA	**70.7**	*44.0-92.4*	*72.1*[6]	*36.0-96.2*
	South-East CZ+SZ[T2]	**5**	Frequency of damaged fruits, %	14-15 DAA	**82.5**	*69.8-90.4*	84.6[6]/75.3[4]	77.1-100[6]/57.9-99.6[4]
DIABVI	North-East CZ	**4**	Number of living insects in yellow traps or on plants; or dead insects	3 DAA	**94.9**	91.7-97.6	90.1[7]/95.1[5]	82.8-95.7[7]/90.6-97.6[5]
		4		7 DAA	**82.8**	78.6-87.2	75.4[7]/84.7[5]	73.7-77.6[7]/82.6-86.5[5]
		4		14 DAA	**46.5**	37.4-62.2	29.8[7]/39.7[5]	20.6-41.9[7]/9.9-65.2[5]
	South-East CZ (Hungary -high infestation))	**5**	Number of living insects in yellow traps or on plants; or dead insects	3 DAA	**77.1**	65.4-94.8	76.2[8]/74.7[5]	58.5-95.8[8]/53.8-95.5[5]
		6		6-7 DAA	**67.6**	50.4-94.1	69.0[8]/71.1[5]	50.8-97.2[8]/52.9-98.3
		5		14 DAA	**51.5**	39.4-83.7	57.8[8]//54.3[5]	37.5-93.0[8]/34.9-88.7[5]
	South-East CZ (Slovakia – low/moderate infestation))	**7**	Number of living insects in yellow traps or on plants; or dead insects	3 DAA	**100**	100-100	83.1[8]/98.6[5]	44.1-100[8]/95.8-100[5]
		8		7-8 DAA	**100**	100-100	91.3[8]/100[5]	55.9-100[8]/100-100[5]
		7		14-16 DAA	**100**	100-100	77.8[8]/100[5]	55.6-100[8]/100-100[5]
1APHIF	South-East CZ+SZ	4	Number of aphids on 15 leaves	14 DAA	82.5	*78.6-87.4*	*84.3*[10]	*82.4-85.6*[10]
		7		13-15 DAA	86.2	*78.6-99.7*	*86.9*[4]	*78.1-96.0*[4]
		8*		13-16 DAA	**86.3***	*78.6-99.7**	-	-
	Maritime CZ	4	Number of aphids on 15 leaves	14 DAA	88.5	64.2-99.3	78.6[4]/92.9[9]	48.4-99.3[4]/86.3-97.8[9]
		5		14-15 DAA	**87.4**	64.2-99.3	94.2[9]	86.3-100[9]

* Overall efficacy independently of the reference product; C – trials performed in corn; T – supportive trials performed on tomato (T1 – efficacy single application; T2 – efficacy after two applications)

Table 3.2-145: Overall summary for cereal pests.

Efficacy on cereals								
							Reference product	
Target pest	**EPPO climatic zone/EU regulatory zone**	**Number of results**	**Assessment**	**Timing of assessment (DAA)**	**DLT+FPF EC85 0.5 L/ha or 0.75° L/ha**		**Karate Zeon CS50 0.15-0.2 L/ha[1] Deltamethrin 0.5-7.5 g a.s./ha[2] Proteus 110OD 0.5-0.75 L/ha[3]**	
					Mean	***Min-Max***	**Mean**	***Min-Max***
OULESP	South-East CZ+SZ	**Effect on larvae**						
		8	larvae/leaf	1-2 DAA	***84.6***	*63.6-100*	*86.2*	*60.0-100*
		11		3-4 DAA	***90.4***	*77.8-100*	*93.2*	*82.8-100*
		13		6-10 DAA	***91.8***	*70.4-100*	*95.8*	*85.9-100*
		1	larvae/row-meter	1 DAA	***92.6***	-	*97.1*	-
				8 DAA	***98.4***	-	*99.9*	-
		1		3 DAA	***98.5***	-	*98.5*	-
				8 DAA	***99.4***	-	*99.8*	-
		Effect on adults						
		3	adults/leaf	3 DAA	***94.4***	*85.7-100*	*94.7*	*91.4-100*
		3		7-9 DAA	***98.7***	*96.0-100*	*98.0*	*94.0-100*
		Reduction of damage						
		6	% damaged flag leaf area	3 DAA	***75.6***	*42.4-100*	*75.7*	*37.0-100*
		8		7-10 DAA	***71.9***	*23.5-100*	*79.1*	*29.4-100*
	Maritime CZ	**Effect on larvae**						
		7	larvae/leaf	1-2 DAA	***95.7***	*87.7-100*	*95.5*	*87.7-100*
		4		3-4 DAA	***99.7***	*98.7-100*	*100*	*100-100*
		8		6-8 DAA	***98.1***	*91.9-100*	*98.9*	*95.2-100*
		5		14 DAA	***93.7***	*85.9-100*	*96.0*	*90.1-100*
		Effect on adults						
		3	adults/leaf	1-2 DAA	***89.9***	*81.8-100*	*94.3*	*90.9-100*
		3		6-7 DAA	***69.2***	*64.3-75.0*	*80.4*	*71.4-86.4*
		Reduction of damage						
		9	% damaged flag leaf area	7-10 DAA	***71.4***	*55.0-97.1*	*72.4*	*50.0-95.4*
	North-East CZ+NZ	**Effect on larvae**						
		3	larvae/leaf	3 DAA	*80.1*	*44.4-98.1*	*86.1[3]*	*65.1-100[3]*
		1		6 DAA	*100*	-	*100[2]*	-
		3		7 DAA	*95.5*	*91.3-100*	*97.7[3]*	*96.3-100[3]*
		4*		6-7 DAA	***96.7****	*91.3-100**	-	-
		Reduction of damage						
		1	% damaged flag leaf area	6 DAA	*52.6*	-	*58.3[2]*	
		2		7 DAA	*96.7*	*96.0-97.4*	*91.3[3]*	*57.3-95.2[3]*
		3*		6-7 DAA	***82.0****	*52.6-97.4**	-	-
MACSAV	South-East CZ+SZ	**4**	aphids/ear	1-2 DAA	***87.6***	*75.0-100*	*91.0*	*83.3-100*
		9		3-4 DAA	***92.9***	*81.4-100*	*93.1*	*82.5-100*
		12		6-7 DAA	***90.8***	*75.6-99.8*	*94.0*	*81.9-100*
		7		14-16 DAA	***87.3***	*78.2-96.0*	*91.8*	*87.3-96.5*
	Maritime CZ	**5**	aphids/ear	1-2 DAA	***96.0***	*88.9-99.8*	*97.8*	*91.6-100*
		3		3-4 DAA	***88.2***	*74.4-100*	*89.9*	*76.3-97.5*
		5		6-7 DAA	***95.9***	*86.4-100*	*96.8*	*91.4-100*
		3		13-14 DAA	***81.4***	*52.8-100*	*80.6*	*52.4-95.7*
RHOPPA	South-East CZ**	**2**	aphids/ear	1-2 DAA	***97.2***	*96.7-97.6*	97.2[3]/97.8[1]	97.0-98.1[3]/95.9-99.7[1]
		1		4 DAA	***98.3***	-	100[3]/100[1]	-
		2		6-7 DAA	***98.7***	*98.4-99.0*	99.7[3]/99.2[1]	99.3-100[3]/98.4-100[1]
		2		14-16 DAA	***98.7***	*97.4-100*	100[3]/99.5[1]	100-100[3]/99.0-100[1]
	Maritime CZ	**2**	aphids/ear or leaves	1-2 DAA	***93.6***	*87.2-100*	*86.5[2]*	*82.8-90.1[2]*
		1		7 DAA	***100***	-	*99.5[2]*	-
EURYSP	South-East CZ+SZ	8	insects/m^2	1 DAA	*97.2*	*89.7-100*	*91.7[2]/96.8[1]*	*62.5-100[2]/90.0-100[1]*
		11		1 DAA	***94.1***	*63.6-100*	*85.6[2]*	*27.3-100[2]*
		8		3 DAA	*97.6*	*92.3-100*	*95.3[2]/94.3[1]*	*86.7-100[2]/80.0-100[1]*
		11		3 DAA	***97.8***	*92.3-100*	*94.2[2]*	*78.9-100[2]*
		6		7 DAA	*92.4*	*80.0-100*	*86.7[2]/84.9[1]*	*76.0-94.7[2]/75.8-94.7[1]*
		9		7 DAA	***93.7***	*80.0-100*	*87.4[2]*	*76.0-100[2]*
		2		14 DAA	***72.9***	*48.3-96.0*	*72.1[2]/66.6[1]*	*50.0-94.7[2]/48.3-84.2[1]*

* Overall efficacy independently of the reference product; ** Efficacy determined by the means of Henderson-Tilton formula

Table 3.2-146: Overall efficacy summary for sunflower pests.

Efficacy on sunflower								
							Reference product	
Target pest	EPPO climatic zone/EU regulatory zone	Number of results	Assessment	Timing of assessment (DAA)	DLT+FPF EC85 0.75 L/ha		Deltamethrin 7.5 g a.s./ha[1] Proteus 110OD 0.75 L/ha[2]	
					Mean	*Min-Max*	Mean	*Min-Max*
ANURHE	South-East CZ	Effect on nymphae/imagoes						
		15	insects/plant	1-3 DAA	***88.0***	*79.4-100*	*80.2*[1]	*48.9-100*[1]
		13		1-3 DAA	*88.7*	*79.4-100*	*84.5*[1]*/92.1*[2]	*65.3-100*[1]*/80.9-100*[2]
		15		7-10 DAA	***84.9***	*62.9-100*	*67.2*[1]	*13.3-100*[1]
		13		7-10 DAA	*88.3*	*72.9-100*	*75.4*[1]*/92.8*[2]	*37.2-100*[1]*/85.3-100*[2]
		Reduction of damage on leaves/buds						
		3 4	% damaged leaves	24-28 DAA	***100*** ***90.0***	*100-100* *60.0-100*	*70.8*[1]*/100*[2] *64.6*[1]*/92.6*[2]	*50.0-100*[1]*/100-100*[2] *45.9-100*[1]*/70.2-100*[2]
		2	% damaged buds	24 DAA	***100***	*100-100*	*90.0*[1]*/100*[2]	*80.0-100*[1]*100-100*[2]
	Maritime CZ	7	aphids/plant	1-3 DAA	**88.3**	*61.6-98.8*	87.6[2]	*51.7-99.1*[2]
		5		7-10 DAA	**84.2**	*62.4-96.2*	88.9[2]	*74.5-98.0*[2]
		3	% damaged leaves	31-37 DAA	**92.1**	*88.2-94,3*	94.3	*92.6-96,6*
LYGUSP	South-East CZ	8	insects/plant	2-3 DAA	***93.5***	*90.5-95.2*	*95.3*	*90.9-97.9*
		8		6-7 DAA	***76.7***	*67.5-94.0*	*84.5*	*77.2-91.6*

Table 3.2-147: Overall efficacy summary for grapevine pests.

Efficacy on grapevine								
							Reference product	
Target pest	EPPO climatic zone/EU regulatory zone	Number of results	Assessment	Timing of assessment (DAA)	DLT+FPF EC85 0.4 L/ha		Deltamethrin 7.5 g a.s./ha[1] Karate Zeon 100EC 0.125 L/ha[2] Actara 240SC 0.02 L/ha[3] Teppeki 50WG 0.14 g/ha[4]	
					Mean	*Min-Max*	Mean	*Min-Max*
SCAPLI	South-East CZ	3	Insects/50 leaves	2-3 DAA	98.8	98.1-100	64.2[4]	44.3-74.8[4]
		7		2-3 DAA	97.5	*93.2-100*	79.9[2]/88.2[3]	*39.9-100*[2]*/69.5-98.8*[3]
		9		2-3 DAA	**96.6**	*91.1-100*	91.8[1]	*67.8-100*
		3		7 DAA	98.4	*95.3-100*	91.0[4]	*83.8-96.4*[4]
		7		7-8 DAA	95.3	*86.3-100*	91.7[2]/97.5[3]	*71.1-100*[2]*/91.7-100*[3]
		8		7-8 DAA	**95.9**	*86.3-100*	91.5[1]	*65.2-100*[1]
		3		14 DAA	98.3	*94.8-100*	84.7[4]	*60.6-97.5*[4]
		7		14 DAA	93.4	*73.0-100*	96.3[2]/96.3[3]	*79.4-97.8*[2]*/89.2-100*[3]
		8		14 DAA	**94.2**	*73.0-100*	84.7[1]	*58.9-97.8*[1]
		2		21 DAA	99.9	*99.7-100*	90.6[2]/97.4[3]/94.5[4]	*89.6-91.5*[2]*/96.2-98.6*[3]*94.1-94.8*[4]
		3		21 DAA	**99.9**	*99.7-100*	72.8[1]	*54.5-83.0*[1]

Data demonstrates that the test product DLT+FPF EC85 is an effective solution against a range of pests in corn, cereals, sunflower and grapevine. Proposed label target pests are:

- In corn and related crops (sweet corn, millet, sorghum)
  - *Ostrinia nubilalis* – PYRUNU
  - *Helicoverpa armigera* – HELIAR
  - *Diabrotica virgifera virgifera* – DIABVI
  - Aphididae (*Rhopalosiphum padi, R. maidis, Sitobion avenae, Metopolophium dirhodum*) – 1APHIF (RHOPPA, RHOPMA, MACSAV, METODR)
- In cereals
  - *Oulema* spp. (*O. melanopus* and *O. gallaeciana*) – OULESP (LEMAME and LEMALI)
  - Aphididae (*Sitobion avenae* and *Rhopalosiphum padi*) – 1APHIF (MACSAV and RHOPPA)
  - *Eurygaster* spp.(*E. integriceps* and *E. maura*) – EURYSP (EURYIN and EURYMA)
- In sunflower
  - *Brachycaudus helichrysi* ANURHE
  - *Lygus* sp. – LYGUSP
- In grapevine
  - *Scaphoideus titanus* – SCAPLI

It is recommended to apply DLT+FPF EC85 at a dose rate 0.4 L/ha, max. 2 applications per season on grape for the control of *Scaphoideus titanus* at a growth stage BBCH 57–81 within a water volume of 100-1000 L/ha; at a dose rate of 0.5 L/ha, max. 2 applications per season on wheat, barley and oat for the control of *O. melanopus*, *O. gallaeciana*, *R. padi* and *S. avenae* at a growth stage BBCH 41–83 within a water volume of 150–600; at a dose rate 0.75 L/ha, max. 1 application per season on corn and related crops for the control of *O. nubilalis*, *H. armigera*, *D. virgifera virgifera* and aphids at a crop stage BBCH 51–75 within a water volume of 200–100 L/ha; at a dose rate 0.75 L/ha, max. 2 applications per season on wheat, barley and oat for the control of *E. integriceps* and *E. maura* at a crop stage BBCH 41–83 within a water volume 150–600 L/ha.

Yield (and relevant quality indicators) from efficacy trials (in the presence of challenging pest populations)

Within the efficacy trials of DLT+FPF EC85, yield ~~as~~ is an optional requirement for insecticide products was assessed.

This quantitative parameter 'Yield' was evaluated in the presence of pests in winter wheat, spring wheat and spring barley. ~~and winter oilseed rape.~~ Yield measured in presence of different pests presented in the efficacy trials is discussed here below per each crop and per each pest.

All details on the methodology for testing have been already described in the beginning of the chapter 3.2.3 Efficacy tests.

Yield for each treatment (test or reference products) is expressed as a relative percentage in comparison with the untreated (%REL).

All the trials supposed to be examined with respect to the yield, were harvested from each plot using appropriate small plot mechanical harvesting equipment and the moisture content of the seed was taken for each sample. This fresh harvested yield was then converted to a standardized dT/ha at standard moisture (WESTMO = WEight STandardised MOisture) for statistical analysis.

In line with EPPO standard PP1/028(3), the additional quantitative parameters the thousand-grain weight (TKW), weight of 1 hectolitre of grain (HLW) and protein content of the grain (PROCON) will be presented in this section.

<u>Cereals</u>

Quantitative and qualitative parameters were evaluated in total of 16 efficacy trials: 9 in South-East EPPO climatic zone (1 in Hungary, 3 in Slovakia and 5 in Bulgaria), 6 efficacy trials in Maritime EPPO climatic zone (the Czech Republic) and 1 trial in North-East EPPO climatic zone (Latvia) conducted in winter wheat (12), spring wheat (2) and spring barley (2). It is to be noted, that in 3 trials conductd in Lithuania pest pressure was extremely low, therefore these trials were considered as pest-free and yield and quality parameters measurments results of these trials were not included into this summary. Also, results of the trial one trial conducted in the Czech Republic were only presented in this section and not included in efficacy evaluation, as infestation by MACSAV was borderline to evaluate efficacy but still considered enough to be presented in evaluation of yield and yield parameters in the presence of pests.

Yield was measured in 16 trials (**Table 3.2-148**), TKW (Weight of Thousand Kernel) in 14 trials (**Table 3.2-149**), HLW (Hectoliter Weight) in 6 trials (**Table 3.2-150**) and protein content (PROCON) in 3 trials (**Table 3.2-151**).

Table 3.2-148: Yield effect of DLT+FPF EC85 in efficacy trials on winter wheat, spring wheat and spring barley ~~and winter oilseed rape~~ in the presence of different pests.

Crop	Pest	EPPO climatic zone	EU regulatory zone	No. of trials	BBCH at appl.	YIELD % relative to untreated				No of trials where test product at N rate is <, =, > compared to standard(s) (based on statistically significant differences)
						DLT+FPF EC85		PROTEUS 110OD KARATE ZEON CS50[1]		
						0.5 L/ha 0.75 L/ha[1]		0.5-0.75 L/ha 0.15 L/ha[1]		
						Mean	Min-Max	**Mean**	Min-Max	
TRZAW	OULESP	South-East	CZ+SZ	3	31-71	**112.3**	*103.7-118.5*	112.0	*103.1-117.2*	0, 2, 1
TRZAW	OULESP	Maritime	CZ	2	55-59	**104.3**	*98.9-109.7*	105.3	*99.8-110.8*	0, 2, 0
TRZAS	OULESP	Maritime	CZ	1	59	**105.1**	-	102.2	-	0, 1, 0
HORVS	OULESP	Maritime	CZ	1	47	**104.3**	-	100.9	-	0, 1, 0
HORVS	OULESP	North-East	NZ	1	33	**102.7**	-	103.2	-	0, 1, 0
TRZAW	MACSAV	South-East	CZ+SZ	4	61-75	**106.7**	*90.6-117.9*	109.4	*95.6-118*	1, 3, 0
TRZAW	MACSAV	Maritime	CZ	1	71	**101.9**	-	99.2	-	0, 1, 0
TRZAS	MACSAV	Maritime	CZ	1	69	**102.2**	-	99.7	-	0, 0, 1
TRZAW	**EURYSP**	**South-East**	**SZ**	1	71	**115.2[1]**	-	109.9[1]	-	0, 0, 1
TRZAW	**OULESP+ MACSAV**	**All EPPO climatic zones**	**All EU regulatory zones**	11	31-75	**108.1**	*90.6-118.5*	108.5	*95.6-118.0*	1, 8, 2
TRZAS				2	59-69	**103.7**	*102.2-105.1*	101.0	*99.7-102.2*	0, 1, 1
HORVS				2	33-47	**103.5**	*102.7-104.3*	102.1	*100.9-103.2*	0, 2, 0

Table 3.2-149: Effect on TKW of DLT+FPF EC85 in efficacy trials on winter wheat, spring wheat and spring barley in the presence of different pests.

Crop	Pest	EPPO climatic zone	EU regulatory zone	No. of trials	BBCH at appl.	TKW relative to untreated				No of trials where test product at N rate is <, =, > compared to standard(s) (based on statistically significant differences)
						DLT+FPF EC85		PROTEUS 110OD KARATE ZEON CS50[1]		
						0.5 L/ha 0.75 L/ha[1]		0.5 L/ha 0.15 L/ha[1]		
						Mean	Min-Max	**Mean**	Min-Max	
TRZAW	OULESP	South-East	CZ+SZ	3	31-71	**104.6**	*100.7-109.9*	104.0	*99.5-111.8*	0, 2, 1
TRZAW	OULESP	Maritime	CZ	1	59	**103.5**	-	104.4	-	0, 1, 0
HORVS	OULESP	Maritime	CZ	1	47	**102.3**	-	102.2	-	0, 1, 0
HORVS	OULESP	North-East	NZ	1	33	**108.3**	-	101.1	-	0, 1, 0
TRZAW	MACSAV	South-East	CZ+SZ	4	61-75	**103.0**	*96.5-106.7*	104.3	*98.0-112.4*	1, 3, 0
TRZAW	MACSAV	Maritime	CZ	1	71	**100.6**	-	100.8	-	0, 1, 0
TRZAS	MACSAV	Maritime	CZ	1	69	**103.1**	-	102.7	-	0, 1, 0
TRZAW	**EURYSP**	**South-East**	SZ	2	71-83	**102.7[1]**	*102.0-103.3*	102.0[1]	*101.7-102.2*	1, 0, 1
TRZAW	**OULESP+ MACSAV**	**All EPPO climatic zones**	**All EU regulatory zones**	11	31-75	**103.2**	*96.5-109.9*	103.5	*98.0-112.4*	2, 8, 1
TRZAS				1	69	**103.1**	-	102.7	-	0, 1, 0
HORVS				2	33-47	**105.3**	*102.3-108.3*	101.7	*101.1-102.2*	0, 2, 0

Table 3.2-150: Effect on HLW of DLT+FPF EC85 in efficacy trials on winter wheat in the presence of different pests.

Crop	Pest	EPPO climatic zone	EU regulatory zone	No. of trials	BBCH at appl.	HLW relative to untreated				No of trials where test product at N rate is <, =, > compared to standard(s) (based on statistically significant differences)
						DLT+FPF EC85		PROTEUS 110OD KARATE ZEON CS50[1]		
						0.5 L/ha 0.75 L/ha[1]		0.5 L/ha 0.15 L/ha[1]		
						Mean	Min-Max	**Mean**	Min-Max	
TRZAW	OULESP	South-East	SZ+CZ	3	31-71	**97.4**	*89.9-102.1*	96.0	*84.1-103.6*	1, 0, 0
TRZAW	MACSAV	South-East	SZ+CZ	3	61-75	**100.7**	*98.5-102.5*	101.1	*100.6-101.8*	0, 1, 0
HORVS	OULESP	North-East	NZ	1	33	**99.3**	-	101.4	-	-
TRZAW	**EURYSP**	**South-East**	**SZ**	1	71	**102.2[1]**	-	100.8[1]	-	0, 0, 1
TRZAW	**OULESP+ MACSAV**	**South-East+ North-East**	**SZ+CZ**	~~6~~ 7	31-75	**99.1**	*89.9-102.5*	~~98.6~~ 98.9	*84.1-103.6*	1, 2, 0

Table 3.2-151: Effect on PROCON of DLT+FPF EC85 in efficacy trials on winter wheat a in the presence of different pests.

Crop	Pest	EPPO climatic zone	EU regulatory zone	No. of trials	BBCH at appl.	PROCON relative to untreated				No of trials where test product at N rate is <, =, > compared to standard(s) (based on statistically significant differences)
						DLT+FPF EC85		PROTEUS 110OD		
						0.5 L/ha		0.5 L/ha		
						Mean	Min-Max	**Mean**	Min-Max	
TRZAW	OULESP	South-East	CZ	2	31-43	**104.7**	*100.4-108.9*	104.7	*100.6-108.7*	0, 1, 0
TRZAW	MACSAV	South-East	CZ	1	71	**104.6**	-	109.0	-	0, 1, 0
TRZAW	**OULESP+ MACSAV**	**South-East**	**CZ**	3	31-71	**104.6**	*100.4-108.9*	106.1	*100.6-109.0*	0, 2, 0

Conclusion of yield data in efficacy trials in cereals

Plots were harvested in 16 efficacy trials in the South-East, Maritime and North-East EPPO climatic zones in winter wheat, spring wheat and spring barley. Weight and moisture of grains from each plot were measured. The yield of grains was recalculated to the evaluated moisture and presented as t/ha. In these trials, sub-samples were taken for measuring the weight and moisture of seeds. The results were recalculated to standard moisture content and presented as gram of 1000 seeds as TKW, weight of grains per hectoliter and content (%) of protein in grains.

In conclusion, DLT+FPF EC85 applied at the proposed dose rate of 0.5 L/ha or 0.75 L/ha (worst-case), sprayed once caused no overall adverse effects on yield and its quality parameters, and was comparable without significant differences to the reference products Proteus OD110 or Karate Zeon CS 50 applied at recommended dose rates.

Thus, it could be concluded that the label claim for the use of DLT+FPF EC85 on cereals in South-East, Maritime and North-East EPPO climatic zones has been fully justified by the data discussed above.

The product complies with the Uniform Principles.

Comments of zRMS on:

Efficacy (3.2.3)

A total of 185 efficacy trials (162 valid trials) carried out between 2014 and 2019 have been submitted for the evaluation of the insecticide DLT+FPF EC85. The trials were carried out in 3 EPPO zones: Maritime (Czech Republic), North-East (Lithuania, Latvia, Poland) and South-East (Bulgaria, Hungary, Romania, Slovakia). A wide range of trial locations allows to evaluate the performance of DLT+FPF EC85 in all the Member States (Czech Republic, Hungary, Poland, Romania, Slovakia, Slovenia) for which the authorisation is sought. All the efficacy trials were carried out by the officially GEP-recognized testing units.

DLT+FPF EC85 is intended to be used for the control of *Scaphoideus titanus* **(**SCAPLI) on grape, table and grape, wine; *Rhopalosiphum padi* (RHOPPA), *Rhopalosiphum maidis* (RHOPMA), *Sitobion avenae* (MACSAV), *Metopolophium dirhodum* (METODR), *Ostrinia nubilalis* (PYRUNU), *Helicoverpa armigera* (HELIAR), *Diabrotica virgifera virgifera* (DIABVI) on corn and sweet corn; *Rhopalosiphum padi* (RHOPPA), *Rhopalosiphum maidis* (RHOPMA), *Sitobion avenae* (MACSAV), *Metopolophium dirhodum* (METODR), *Ostrinia nubilalis* (PYRUNU), *Helicoverpa armigera* (HELIAR) on common millet and sorghum; *Brachycaudus helichrysi* (ANURHE), *Lygus* sp. (LYGUSP) on sunflower; *Rhopalosiphum padi* (RHOPPA), *Sitobion avenae* (MACSAV), *Oulema* spp. (LEMASP), *Eurygaster* sp. (EURYSP) on barley (spring and winter), oat (spring and winter), wheat (spring and winter). For some cMS, according to the GAP table, some of the uses are claimed under art 51. As "off label" uses are not relevant for Efficacy Section, these uses would not be concerned and evaluated under section 3.

During the evaluation process, the applicant - taking into account the data gaps in Ecotoxicology Section and due to business reasons, has decided to no longer support the use of DLT+FPF EC85 in sunflower. As sufficient efficacy data has been presented for the use of DLT+FPF EC85 in the control of ANURHE and LYGUSP on sunflower, the conclusions on this use are included in this document.

Conclusions from the evaluation have been summarized separately for individual claimed uses listed in the GAP table.

VITVX, VITVI/ SCAPLI
According to the GAP table this use is claimed in Romania, Slovakia, Hungary, Slovenia in grape, wine, and in Romania, Slovakia, Hungary in grape, table**.** DLT+FPF EC85 is intended to be used at dose rate of 0.4 L/ha, at growth stage of the crop ranging from BBCH 57-81. The recommended number of applications is 2. The claimed water volume is 100-1200 L/ha.

The number of trials submitted for the evaluation is 9. The trials were conducted in South-East EPPO zone (Hungary) in 4 growing seasons (2016, 2017, 2018, 2019). DLT+FPF EC85 at recommended dose rate of 0.4 L/ha was applied once (in all trials) at growth stage ranging from BBCH 53-71, and water volume ranging from 200-500 L/ha. All the efficacy trials were conducted on grape, wine varieties.

Based on the efficacy trials results (assessment type: counting of living larva), it can be concluded, that DLT+FPF EC85 applied at recommended dose rate of 0.4 L/ha is highly effective in the control of SCAPLI on grape. The efficacy of DLT+FPF EC85 was higher as compared with reference products (Decis 50 EW, Decis Protect, Karate Zeon, Teppeki). The efficacy of standard Actara was higher than DLT+FPF EC85 at 7-8 and 14 days after application or lower than DLT+FPF EC85 at 2-3 and 21 days after application.

The water amount determined for grape is covered by efficacy trials only in part (200-500 L/ha instead of 100-1200 L/ha). Hovewer other trials are available (field parts of the trials perfomered to assessed the effect of DLT+FPF EC85 on processing procedure on grapevine), in which the water amount was between 120-1000 L/ha. The cMS are kindly advised to make a decision on acceptance of the claimed water amount (100-1200 L/ha) or to recommend water amount based on the efficacy and other trials (120-1000 L/ha), according to the national requirements and practice.

The recommended number of application is 2, while DLT+FPF EC85 was applied once in all efficacy trials. However, other 8 trials have been submitted (field parts of the trials perfomered to assessed the effect of DLT+FPF EC85 on processing procedure on grapevine), in which DLT+FPF EC85 was applied twice. The trials were conducted in Hungary (3 trials) and in France (5 trials). Due to no phytotoxicity noted in additional trials, 2 applications can be recommended for grapevine.

ZEAMX, ZEAMS/ RHOPPA, RHOPMA, MACSAV, METODR
According to the GAP table this use is claimed in Slovenia, Romania, Slovakia, Hungary, Poland and Czech Republic in corn, and in Romania, Slovakia, Hungary and Czech Republic in sweet corn. DLT+FPF EC85 is intended to be used at dose rate of 0.75 L/ha, at growth stage of the crop ranging from BBCH 51-75. The recommended number of applications is 1. The claimed water amount is 200-1000 L/ha.

The number of valid trials submitted for the evaluation is 13 [5 trials from Maritime EPPO zone (Czech Republic) and 8 trials from South-East EPPO zone (Bulgaria, Hungary, Romania, Slovakia)]. Amongst 13 trials, RHOPPA appeared in 12 trials conducted in Bulgaria, Hungary, Slovakia and Czech Republic; MACSAV

appeared in 3 trials carried out in Czech Republic; METODR appeared in 1 trial conducted in Czech Republic and RHOPMA appeared in 1 trial conducted in Romania.

The trials were carried out in 3 growing seasons (2016, 2017, 2018). DLT+FPF EC85 at recommended dose rate of 0.75 L/ha was applied once (in all trials) at growth stage ranging from BBCH 19-73, and water volume ranging from 300-500 L/ha. 13 of 14 efficacy trials were conducted on corn and 1 Hungarian trial was conducted on sweet corn.

Based on the efficacy trials results (assessment type: counting number of insects), it can be concluded, that DLT+FPF EC85 applied at recommended dose rate of 0.75 L/ha is highly effective in the control of *Aphididae* on corn in Maritime and South-East EPPO zone. The efficacy of DLT+FPF EC85 was higher as compared with reference product Deltamethrin 100 EC and lower as compared with standard Nurelle D 550 EC in Maritime EPPO zone. The efficacy of DLT+FPF EC85 was comparable with the efficacy of reference products Deltamethrin 100 EC and Mospilan 20 SG in South-East EPPO zone.

Based on the efficacy trial results, this use is accepted in Maritime, North-East (PL) and South-East EPPO zone in corn. As limited number of trials is available for sweet corn (1 trial from Hungary), the cMss are kindly advised to consider extrapolation efficacy data from corn and make decision on acceptance this use individually, according to the national requirements.

ZEAMX, ZEAMS/ PYRUNU
According to the GAP table this use is claimed in Slovenia, Romania, Slovakia, Hungary, Poland and Czech Republic in corn, and in Romania, Slovakia, Hungary and Czech Republic in sweet corn. DLT+FPF EC85 is intended to be used at dose rate of 0.75 L/ha, at growth stage of the crop ranging from BBCH 51-75. The recommended number of applications is 1. The claimed water amount is 200-1000 L/ha.

The number of valid trials submitted for the evaluation is 25 [5 trials from Maritime EPPO zone (Czech Republic), 8 trials from North-East EPPO zone (Poland) and 12 trials from South-East EPPO zone (Bulgaria, Hungary, Romania, Slovakia)].
The trials were carried out in 3 growing seasons (2014, 2017, 2018). DLT+FPF EC85 at recommended dose rate of 0.75 L/ha was applied once (in all trials) at growth stage ranging from BBCH 34-79, and water volume ranging from 300-500 L/ha. 23 of 25 efficacy trials were conducted on corn and 2 Hungarian trials were conducted on sweet corn.

Based on the efficacy trials results (assessment type: counting number of larva), it can be concluded, that DLT+FPF EC85 applied at recommended dose rate of 0.75 L/ha is highly effective in the control of PYRUNU on corn in Maritime, North-East and South-East EPPO zone. The efficacy of DLT+FPF EC85 was comparable to the efficacy of reference product: Steward WG, Deltamethrin 100 EC and Proteus 110 OD in North-East EPPO zone; lower than efficacy of standards: Inazuma WG, Ampligo SC 150 and comparable to the efficacy of Deltamethrin 15EW in Maritime EPPO zone; lower than efficacy of reference products: Inazuma WG, Karate Zeon, Ampligo SC 150 and Deltamethrin in South-East EPPO zone.

Based on the efficacy trial results, this use is accepted in Maritime, North-East (PL) and South-East EPPO zone in corn. As limited number of trials is available for sweet corn (2 trials from Hungary), the cMss are kindly advised to consider extrapolation efficacy data from corn and make decision on acceptance this use individually, according to the national requirements.

ZEAMX, ZEAMS/ HELIAR
This use is claimed in Slovenia, Romania, Slovakia, Hungary, Poland and Czech Republic in corn, and in Romania, Slovakia, Hungary and Czech Republic in sweet corn. DLT+FPF EC85 is intended to be used at dose rate of 0.75 L/ha, at growth stage of the crop ranging from BBCH 51-75. The recommended number of applications is 1. The claimed water amount is 200-1000 L/ha.

The number of valid trials submitted for the evaluation is 17. The trials were carried out in South-East EPPO zone (Bulgaria, Hungary, Romania, Slovakia; 8 trials conducted on corn and additional 9 supportive trials conducted on tomato).
The trials were carried out in 4 growing seasons (2014, 2015, 2017, 2018). DLT+FPF EC85 at recommended dose rate of 0.75 L/ha was applied once (in all trials conducted on corn and in 3 trials conducted on tomato) or twice (in 6 trials conducted on tomato) at growth stage ranging from BBCH 51-67 on corn and 61-81 on tomato

(at first application), and water volume ranging from 300-500 L/ha.

Based on the efficacy trials results achieved for corn (assessment type: counting number of cobs or plants with at least 1 larva), it can be concluded, that DLT+FPF EC85 applied at recommended dose rate of 0.75 L/ha is highly effective in the control of HELIAR on corn in South-East EPPO zone. The efficacy of DLT+FPF EC85 was comparable to the efficacy of reference products: Deltamethrin 100 EC and Karate Zeon or lower than efficacy of standards: Ampligo and Inazuma.
Results from the trials conducted on tomato show moderate level of efficacy and high efficacy (parameter assessed: counting number of tomato fruits damaged) for DLT+FPF EC85 and for the standard Coragen achieved 6-7 days and 14-15 days after treatment respectively. The efficacy of Deltamethrin was visibly lower as compared with DLT+FPF EC85.

Based on the efficacy trial results, this use is accepted in North-East (PL) and South-East EPPO zone in corn. As no efficacy trials are available for Maritime zone, and there are no trials conducted on sweet corn, the cMss are kindly advised to consider efficacy data from South-East EPPO zone, extrapolation of data from corn and make decision on acceptance this use individually, according to the national requirements.

ZEAMX, ZEAMS/ / DIABVI
This use is claimed in Slovenia, Romania, Slovakia, Hungary, Poland and Czech Republic in corn, and in Romania, Slovakia, Hungary and Czech Republic in sweet corn. DLT+FPF EC85 is intended to be used at dose rate of 0.75 L/ha, at growth stage of the crop ranging from BBCH 51-75. The recommended number of applications is 1. The claimed water amount is 200-1000 L/ha.

The number of valid trials submitted for the evaluation is 18 [4 trials from North-East EPPO zone (Poland) and 14 trials from South-East EPPO zone (Hungary, Slovakia)].
The trials were carried out in 5 growing seasons (2014, 2015, 2016, 2017, 2018). DLT+FPF EC85 at recommended dose rate of 0.75 L/ha was applied once (in 12 trials) or twice (in 6 trials) at growth stage ranging from BBCH 55-75, and water volume ranging from 250-450 L/ha. All trial were conducted on corn. As in a part of the trials 2 treatments were performed, for efficacy evaluation only results achieved after 1 application have been considered.

Based on the efficacy trials results (assessment type: counting number of insects in yellow traps), it can be concluded, that DLT+FPF EC85 applied at recommended dose rate of 0.75 L/ha is highly effective in the control of DIABVI on corn in North-East EPPO zone 3 to 7 days after application. Visible decrease of efficacy was noted 14 days after application (efficacy: 46.5%). The efficacy of DLT+FPF EC85 was comparable to the results achieved for standard Proteus 110 OD or higher than efficacy of reference product Steward WG 3-7 days after treatment. The efficacy of DLT+FPF EC85 was higher than efficacy of both standards 14 days after treatment.
In South-East EPPO zone, due to different levels of pest pressure noted in Hungary and Slovakia, efficacy results have been presented separately for these countries. Moderate level of efficacy was noted in Hungary under high pest pressure 3-7 days after application. Visible decrease of efficacy was noted 14 days after application (efficacy: 51.5%). The efficacy of DLT+FPF EC85 was comparable to the results achieved for standard Fury 10 EW or slightly lower or higher than efficacy of reference products Karate Zeon CS50 or Inazuma 13 WG 3-7 days after treatment. The efficacy of DLT+FPF EC85 was lower than efficacy of standards 14 days after treatment. DLT+FPF EC85 was highly effective in all trials (8) carried out in Slovakia under lower pest pressure, 3-16 days after treatment. The efficacy of DLT+FPF EC85 was comparable to the results achieved for standard Inazuma 13 WG and higher than efficacy of reference product Fury 10 EW.

Based on the efficacy trial results, this use is accepted in North-East (PL) and South-East EPPO zone in corn. As no efficacy trials are available for Maritime EPPO zone, and there are no trials conducted on sweet corn, the cMs is kindly advised to consider efficacy data from North-East and South-East EPPO zone, extrapolation of data from corn and make decision on acceptance this use individually, according to the national requirements.

As the water amount determined for corn is covered by efficacy trials only in part , the cMS are kindly advised to make a decision on acceptance of the claimed water amount (200-1000 L/ha) or to recommend water amount based on the efficacy trials (250-500 L/ha), according to the national requirements and practice.

PANMI/ RHOPPA, RHOPMA, MACSAV, METODR, PYRUNU, HELIAR

According to the GAP table this use is claimed in Romania only. DLT+FPF EC85 is intended to be used at dose rate of 0.75 L/ha, at growth stage of the crop ranging from BBCH 51-75. The recommended number of applications is 1. The claimed water amount is 400-800 L/ha.

As no efficacy trials have been submitted to support this claimed use, the cMs is kindly advised to consider extrapolation of data from corn and make decision on acceptance this use individually, according to the national requirements.

SORSS/ RHOPPA, RHOPMA, MACSAV, METODR, PYRUNU, HELIAR
According to the GAP table this use is claimed in Romania only. DLT+FPF EC85 is intended to be used at dose rate of 0.75 L/ha, at growth stage of the crop ranging from BBCH 51-75. The recommended number of applications is 1. The recommended water amount is 150-400 L/ha.

As no efficacy trials have been submitted to support this claimed use, the cMs is kindly advised to consider extrapolation of data from corn and make decision on acceptance this use individually, according to the national requirements.

TRZAW, TRZAS, HORVW, HORVS, AVESW, AVESP/ RHOPPA, MACSAV, LEMASP
According to the GAP table RHOPPA, MACSAV and LEMASP on TRZAW, TRZAS, HORVW and HORVS are claimed in South-East EPPO zone (Romania, Slovenia, Slovakia, Hungary) and Maritime EPPO zone (Czech Republic); RHOPPA, MACSAV and LEMASP on AVESP and AVESW is claimed in South-East EPPO zone (Slovenia, Romania) and in Maritime EPPO zone (Czech Republic). LEMASP on TRZAW, TRZAS, HORVW, HORVS and AVESP is claimed in North-East EPPO zone (Poland). DLT+FPF EC85 is intended to be used at dose rate of 0.5 L/ha, at growth stage of the crop ranging from BBCH 41-83. The recommended number of applications is 2. The recommended water amount is 200-600 L/ha. In Romania, the recommended water amount is 150-400 L/ha for TRZAW and TRZAS.

RHOPPA, MACSAV
Twenty five valid trials conducted in South-East EPPO zone (16 trials; Bulgaria, Hungary, Romania, Slovakia), Maritime EPPO zone (9 trials; Czech Republic), have been submitted to support this use. The trials were carried out in 4 growing seasons (2014, 2015, 2016, 2017). DLT+FPF EC85 at recommended dose rate of 0.5 L/ha was applied once (in all trials) at growth stage ranging from BBCH 47-85, and with water amount 200-400 L/ha. Trials were carried out on TRZAW [19 trials: 14 from South-East zone (Bulgaria, Hungary, Romania, Slovakia), 5 from Maritime zone (Czech Republic)], TRZAS [4 trials: 1 from South-East zone (Bulgaria), 3 from Maritime zone (Czech Republic)], HORVS (1 trial from Czech Republic) and on TTLWI (1 trial from Hungary). Amongst 25 trials, RHOPPA appeared in 4 trials conducted on TRZAW (2 trials from Hungary), TRZAS (1 trial from Czech Republic), HORVS (1 trial from Czech Republic), MACSAV appeared in 21 trials carried out on TRZAW (17 trials from Slovakia, Romania, Bulgaria, Czech Republic), on TRZAS (3 trials from Bulgaria, Czech Republic), on TTLWI (1 trial from Hungary).

Based on the efficacy trials results (assessment type: counting of living aphids), it can be concluded, that DLT+FPF EC85 applied at recommended dose rate of 0.5 L/ha is highly effective in the control of RHOPPA, MACSAV on cereal crops in South-East and Maritime EPPO zone. High efficacy was noted 1-2 days after application (immediate effects), 3-4 days after treatment (short-term effects), 6-7 days after application (mid-term effects) and 13-16 days after application (long-term effect). The efficacy of DLT+FPF EC85 was comparable or lower than efficacy of reference products Proteus OD110, Karate ZeonCS50 in South-East EPPO zone. The efficacy of DLT+FPF EC85 was comparable or lower than efficacy of reference product Proteus OD110 and comparable or higher than efficacy of standard Deltamethrin in Maritime EPPO zone.

Based on the efficacy trial results, this use is accepted in South-East EPPO and Maritime EPPO zone in winter wheat.
As limited number of trials is available for spring cereal crops and no trials have been submitted for winter barley and winter oat, the cMss are kindly advised to consider extrapolation of data from winter wheat and make decision on acceptance the claimed uses individually, according to the national requirements.

LEMASP
Twenty eight valid trials conducted in South-East EPPO zone (15 trials; Bulgaria, Hungary, Romania, Slovakia), Maritime EPPO zone (9 trials; Czech Republic), and in North-East EPPO zone (4; Latvia, Poland) have been submitted to support this use. The trials were carried out in 5 growing seasons (2014, 2015, 2016, 2017, 2018).

DLT+FPF EC85 at recommended dose rate of 0.5 L/ha was applied once (in all trials) at growth stage ranging from BBCH 15-71, and with water amount 200-400 L/ha. Trials were carried out on winter wheat [18 trials: 11 from South-East zone (Bulgaria, Hungary, Romania, Slovakia), 7 from Maritime zone (Czech Republic) and 1 from North-East zone (Poland)], spring wheat [5 trials: 2 from South-East zone (Hungary, Slovakia), 2 from Maritime zone (Czech Republic) and 1 from North-East zone (Latvia)], spring barley (4 trials: 1 from South-East zone (Hungary), 1 from Maritime zone (Czech Republic) and 2 from North-East zone (Latvia)] and on winter oat (1 trial from Hungary).

Based on the efficacy trials, it can be concluded, that DLT+FPF EC85 applied at recommended dose rate of 0.5 L/ha is highly effective in the control of LEMASP on cereals in South-East EPPO zone (immediate effect, short-term effect, mid-term effect; effect on larva and/or on adults;). Moderate level of efficacy was noted for reduction of leaf damage in this zone. The efficacy of DLT+FPF EC85 was comparable or lower than efficacy of reference product Proteus OD110. High efficacy of DLT+FPF EC85 was noted in Maritime EPPO zone (immediate effect, short-term effect, mid-term effect and long-term effect on larva; immediate effect on adult). Moderate efficacy was observed 6-7 days after application (mid-term effect on adult) and for reduction of leaf damage in this zone. The efficacy of DLT+FPF EC85 was comparable or lower than efficacy of reference product Proteus OD110. DLT+FPF EC85 applied at recommended dose rate of 0.5 L/ha was highly effective in the control of LEMASP on cereals in North-East EPPO zone (short-term effect, mid-term effect; effect on larva and reduction of leaf damage). The efficacy of DLT+FPF EC85 was comparable to the results achieved for reference product Proteus OD110.
Based on the efficacy trial results, this use is accepted in South-East and Maritime EPPO zone in winter wheat. As limited number of trials have been submitted for spring cereals, winter oat, no trials have been presented for winter barley, the cMSs are kindly advised to consider extrapolation of data from winter wheat and make decision on acceptance the claimed uses individually, according to the national requirements.
In North-East EPPO zone (PL) the use of DLT+FPF EC85 in the control of LEMASP is accepted in winter wheat, and not accepted on spring wheat, winter barley, spring barley and spring due to not sufficient efficacy data.

As the water amount determined for cereals is covered by efficacy trials only in part , the cMS are kindly advised to make a decision on acceptance of the claimed water amount (200-600 L/ha with the exception of use on wheat in Romania where the recommendation of water amount is 150-400 L/ha) or to recommend water amount based on the efficacy trials (200-400 L/ha), according to the national requirements and practice.

TRZAW, TRZAS, HORVW, HORVS, AVESW, AVESP/ / EURYSP
According to the GAP table EURYSP on TRZAW, TRZAS, HORVW and HORVS is claimed in South-East EPPO zone (Romania, Slovenia, Slovakia, Hungary) and Maritime EPPO zone (Czech Republic). EURYSP on AVESP and AVESW is claimed in South-East EPPO zone (Slovenia, Romania) and in Maritime EPPO zone (Czech Republic). DLT+FPF EC85 is intended to be used at dose rate of 0.75 L/ha, at growth stage of the crop ranging from BBCH 41-83. The recommended number of applications is 2. The claimed water amount is 200-600 L/ha. In Romania, the claimed recommended water volume is 150-400 L/ha for TRZAW and TRZAS.

Eleven valid trials conducted in South-East EPPO zone (Bulgaria, Hungary, Romania) have been submitted to support this use. The trials were carried out in 4 growing seasons (2014, 2015, 2016, 2017). DLT+FPF EC85 at recommended dose rate of 0.75 L/ha was applied once (in all trials) at growth stage ranging from BBCH 63-83, and with water amount 200-300 L/ha. Trials were carried out on TRZAW (9), TTLWI (1) and HORVW (1).

Based on the efficacy trials results (assessment type: counting of living insects), it can be concluded, that DLT+FPF EC85 applied at recommended dose rate of 0.75 L/ha is highly effective in the control of EURYSP on winter cereals in South-East EPPO zone. High efficacy was noted 1day after application (immediate effects), 3 days after treatment (short-term effects) and 7 days after application (mid-term effects). Decrease of efficacy, but still good control on the moderate level was noted 14 days after application (long-term effects). The efficacy of DLT+FPF EC85 was comparable or higher than efficacy of reference products Decis EC100 and Karate Zeon CS50.

Based on the efficacy trial results, this use is accepted in South-East EPPO in winter wheat.
As no efficacy trials from Maritime EPPO zone have been submitted, the cMs is kindly advised to consider data from South-East EPPO zone and make decision on acceptance this use individually, according to the national requirements.

As no efficacy trials are available for spring cereal crops and for winter oat and due to limited number of trials in winter barley, the cMss are kindly advised to consider extrapolation of data from winter wheat and make decision on acceptance the claimed uses individually, according to the national requirements.

As the water amount determined for cereals is covered by efficacy trials only in part , the cMS are kindly advised to make a decision on acceptance of the claimed water amount (200-600 L/ha with the exception of use on wheat in Romania where the recommendation of water amount is 150-400 L/ha) or to recommend water amount from the efficacy trials (200-400 L/ha), according to the national requirements and practice.

The number of applications recommended for ceral crops is 2 per crop/per growth season. The GAP table presents details of intended uses separately for EURYSP and for the pest group: RHOPPA, MACSAV, LEMASP presumably due different application rates recommended for each of intended target/group of targets. To the opinion of zRMS, the GAP table may suggest a total number of treatments of 4 in cereal crops. In order to avoid such an interpretation, the cMSs are kindly advised to include in the product label the remark: *The maximum number of application is 2 per crop/per growth season.* This will be in accordance with the resistance risk management strategy specified for DLT+FPF EC85, that says: *The maximum number of applications of the DLT+FPF EC85 per season is 2. In case when more applications are necessary, products containing actives belonging to other IRAC groups and showing other modes of action should be applied.*

HELAN/ ANURHE, LYGUSP
According to the GAP table this use is claimed in Slovenia, Romania, Slovakia, Hungary and Czech Republic. DLT+FPF EC85 is intended to be used at dose rate of 0.75 L/ha, at growth stage of the crop ranging from BBCH 31-69. The recommended number of applications is 2. The claimed water amount is 200-600 L/ha.

ANURHE
The number of valid trials submitted for the evaluation is 22 [15 trials from South-East EPPO zone (Bulgaria, Hungary, Slovakia) and 7 trials from Maritime EPPO zone (Czech Republic)].
The trials were carried out in 4 growing seasons (2014, 2015, 2016, 2017). DLT+FPF EC85 at recommended dose rate of 0.75 L/ha was applied once (in 16 trials) or twice (in 6 trials) at growth stage ranging from BBCH 14-55, and water volume ranging from 250-300 L/ha. As in a part of the trials 2 treatments were performed, for efficacy evaluation of the target ANURHE only results achieved after 1 application have been considered.

Based on the efficacy trials results (assessment types: counting number of insects and determining the percentage of damaged leaves and buds), it can be concluded, that DLT+FPF EC85 applied at recommended dose rate of 0.75 L/ha is highly effective in the control of ANURHE on sunflower in South-East and Maritime EPPO zone. High efficacy was noted 1-3 days after application (immediate effects), 7-10 days after treatment (mid-term effects) and also 24-37 days after application (effect on reduction in damaged leaves). The efficacy of DLT+FPF EC85 was higher than efficacy of reference product: Decis or lower/ comparable to the efficacy of standard Proteus 110 OD in South-East EPPO zone. The efficacy of DLT+FPF EC85 was lower or comparable to the results achieved for reference product: Proteus 110 OD in Maritime EPPO zone.

Based on the efficacy trial results, this use is accepted in South-East EPPO and Maritime EPPO zone.

LYGUSP
Eight valid trials conducted in South-East EPPO zone (Hungary, Slovakia) have been submitted to support this claimed use. The trials were carried out in 3 growing seasons (2015, 2016, 2017). DLT+FPF EC85 at recommended dose rate of 0.75 L/ha was applied once (in 3 trials) or twice (in 5 trials) at growth stage ranging from BBCH 19-53, and with water amount 250-300 L/ha.

Based on the efficacy trials results (assessment type: counting of living insects), it can be concluded, that DLT+FPF EC85 applied at recommended dose rate of 0.75 L/ha is highly effective (immediate effects 2-3 days after application) and moderately effective (mid-term effect 6-7 days after application) in the control of LYGUSP on sunflower in South-East EPPO zone. The efficacy of DLT+FPF EC85 was comparable or lower than efficacy of reference product Proteus 110 OD.

Based on the efficacy trial results, this use is accepted in South-East EPPO. As no efficacy trials are available for Maritime EPPO zone, the cMs is kindly advised to consider efficacy data from South-East EPPO zone, and make decision on acceptance this use individually, according to the national requirements.
As the water amount determined for sunflower is covered by efficacy trials only in part , the cMS are kindly

advised to make a decision on acceptance of the claimed water amount (200-600 L/ha) or to recommend water amount based on the efficacy trials (250-300 L/ha), according to the national requirements and practice.

Summarizing the evaluation, the following uses are accepted by the zRMS:
Maritime EPPO zone:
ZEAMX: APHIDIDAE (RHOPPA, RHOPMA, MACSAV, METODR), PYRUNU
TRZAW: APHIDIDAE (RHOPPA, MACSAV), LEMASP
HELAN: ANURHE
North-East EPPO zone
ZEAMX: APHIDIDAE (RHOPPA, MACSAV, METODR), HELIAR, PYRUNU, DIABVI
TRZAW: LEMASP
South-East EPPO zone
VITVX, VITVI: SCAPLI
ZEAMX: APHIDIDAE (RHOPPA, RHOPMA, MACSAV, METODR), PYRUNU, HELIAR, DIABVI
TRZAW: APHIDIDAE (RHOPPA, MACSAV), LEMASP, EURYSP
HELAN: ANURHE, LYGUSP

The following uses are not accepted by the zRMS:
North-East EPPO zone
TRZAS, HORVW, HORVS, AVESP: LEMASP

The following uses are to be confirmed by cMSs:
Maritime EPPO zone
ZEAMX: HELIAR, DIABVI
ZEAMS: APHIDIDAE (RHOPPA, RHOPMA, MACSAV, METODR), PYRUNU, HELIAR, DIABVI
TRZAS, HORVW, HORVS, AVESW, AVESP: APHIDIDAE (RHOPPA, MACSAV), LEMASP
TRZAW, TRZAS, HORVW, HORVS, AVESW, AVESP: EURYSP
HELAN: LYGUSP
South-East EPPO zone
ZEAMS: APHIDIDAE (RHOPPA, RHOPMA, MACSAV, METODR), PYRUNU, HELIAR, DIABVI
TRZAS, HORVW, HORVS, AVESW, AVESP: APHIDIDAE (RHOPPA, MACSAV), LEMASP, EURYSP
PANMI, SORSS: APHIDIDAE (RHOPPA, RHOPMA, MACSAV, METODR), PYRUNU, HELIAR

Yield
Yield data was presented based on 16 efficacy trials carried out on winter wheat, spring wheat and spring barley. Based on the submitted trial results it can be concluded that adverse effect on yield and yield quality parameters (TGW, HLW, protein content) is not expected in cereal crops after application of DLT+FPF EC85 according to the GAP recommendations. Yield data was not presented for other efficacy trials conducted on corn, sunflower and grapevine. EPPO guidelines: PP 1/295(1), 1/274 (1), 1/245 (1), PP 1/231 (1) do not obligatorily require quantitative and qualitative recording of yield. According to the EPPO guideline PP 1/13(3*): It may be advisable to calculate yield in kg/ha adjusted to a fixed moisture level (specific national or international standard). For grain crops, the thousand grain weight should be recorded.* According to the applicant explanation: Concerning yield data for corn not presented in the BAD – only the yield data in cereals was presented to highlight the benefits of the product although this parameter is optional to be presented for insecticides as defined in the corresponding EPPO standards. Therefore, it was decided that, although optional, to present yield results in cereals as a supportive information to strengthen possible benefit and presenting ield results on corn would add no additional knowledge. As checked by the zRMS, no negative impact on the yield (13 trials conducted in: Bulgaria (2), Hungary (2), Poland (8), Slovakia (1)) and no adverse effects on TGW (2 trials conducted in Bulgaria and 1 trial carried out in Slovakia) was observed after application of DLT+FPF EC85 on corn based on the yield data contained in Compilation of trial reports for DLT+FPF EC85 - Efficacy trials on Ostrinia nubilalis and Helicoverpa armigera on corn (document M-687456-02-1).
It can be concluded that adverse effect of DLT+FPF EC85 on the yield of target crops is not expected.

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

Summary

The report contains updated information on resistance risk according to EPPO Std. PP 1/213(4) (Resistance Risk Analysis) as well as resistance management information for *Sivanto Energy* against key invertebrate pests targeted by formulations containing the insecticidal ingredients flupyradifurone and deltamethrin. It specifically assesses the resistance risk against insect pests such as *Lygus* spp., *Oulema melanopus*, *Sitobion avenae*, *Ostrinia nubilalis*, *Scaphoideus titanus* and other sucking and chewing pests to be controlled on sunflowers, cereals, corn, and grapes in the EU Central Zone.

Mode of action

Sivanto Energy is a mixture of two chemically different insecticides complementing each other in numerous properties and belonging to distinct mode of action classes, i.e. acting on different molecular target-sites. Flupyradifurone belongs to the new butenolide class of chemistry and acts agonistically by reversible binding to the orthosteric site of insect nicotinic acetylcholine receptors (nAChR) located in the central nervous system. It belongs to IRAC (Insecticide Resistance Action Committee) mode of action (MoA) sub-group 4D. However due to its new butenolide pharmacophore as a novel bioactive scaffold it is chemically different from other sub-groups such as neonicotinoids (IRAC 4A). Deltamethrin is an established fast-acting pyrethroid insecticide targeting voltage-gated sodium channels and belongs to IRAC MoA sub-group 3A (sodium channel modulators).

Mechanisms of resistance

No metabolic or target-site mediated mechanisms of resistance were yet described for flupyradifurone against any European pest targeted by this compound on those crops mentioned above (*Arthropod Pesticide Resistance Database*, © Michigan State University (USA), accessed June 2021). Resistance to pyrethroid insecticides has been described for different crop pests and the major mechanisms of resistance were identified as either metabolic (esterases and cytochrome P450-monooxygenases) or knock-down-resistance (*kdr*) due to a mutation in the IIS4-6 domain of the voltage-gated sodium channel. None of the insect species intended to be targeted by *Sivanto Energy* on sunflowers, cereals, corn, and grapes in CZ is considered a high-risk pest according to EPPO´s Std. PP1/213(4) on resistance risk analysis.

Cross resistance

Cross-resistance is principally expected to occur between all members of chemical classes belonging to a single IRAC MoA group, but not between IRAC MoA groups, such as IRAC MoA group 3 (deltamethrin belongs to IRAC MoA 3A) and 4 (flupyradifurone belongs to IRAC MoA 4D). Flupyradifurone cross-resistance has not been published yet for any pest covered in the statement. Cross-resistance issues between pyrethroids are well known and have been described for several pest species in the past.

Evidence of resistance, sensitivity data and resistance risk

Flupyradifurone belongs to a new class of chemistry, and pests targeted for example in sunflowers, cereals and other crops have not yet been exposed to this insecticide under applied conditions. Among those pests none is considered high-risk by EPPO. An isolated UK case of kdr-mediated pyrethroid resistance was recently reported for *Sitobion avenae*.

Acceptability of the resistance risk

In addition to the specific insecticide risk, the inherent invertebrate pest risk is a second factor that determines the overall resistance risk of *Sivanto Energy*. In most cases the insecticide combination of *Sivanto Energy* will offer higher efficacy, and a lower resistance risk due to a dual mode of action application. Apart from this fact, whereever possible, the installment of resistance management strategies as outlined here or based on regularly updated IRAC documents are recommended to lower the risk of resistance development in any of the pests targeted by *Sivanto Energy*.

Resistance management strategy and use pattern

General resistance management guidelines for insecticides as published by IRAC should be followed with *Sivanto Energy* and regionally adapted as necessary. To prevent possible resistance development against flupyradifurone, consecutive spray applications with compounds of the same IRAC MoA group are not recommended and should only be considered in rotational spray applications when interrupted with treatments by insecticides of other MoA classes, or if other alternatives are not available. Such a resistance management strategy is also known as "MoA treatment windows" approach.

Communication and implementation of the management strategy

Bayer AG is an active member of IRAC International and its Working Groups since decades. The anti-resistance strategy for flupyradifurone/deltamethrin-based products is communicated to the advisory and the farmer's level essentially on the label. In addition, leaflets and brochures which describe the product also include recommendations for resistance management.

Comments of zRMS on:

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

DLT+FPF EC85 contains two acitve substances: flupyradifurone (FPF) (chemical class: butenolide; IRAC MoA sub-group 4D) and deltamethrin (DLT) (chamical class: pyrethroids; IRAC MoA group 3A), that differ in their mode of action. Flupyradifurone is systemic insecticide and acts by binding to the orthosteric site of insect nicotinic acetylcholine receptors (nAChR) located in the central nervous system. FPF is new butenolide class and differ from neonicotynoids (IRAC Moa sub-group 4A) and sulfoxaflor (IRAC MoA sub-group 4C). Deltamethrin is contact insecticide and acts on voltage-gated sodium channels in the central nervous systems of insects.

The resistance risk for flupyradifurone in the target insect pests is low, because FPF has not yet been widely used, and no cases of pest resistance have been documented yet in Europe. According to the Arthropod Pesticide Resistance Database (accessed January 2023), 7 cases of resistance of *Bemisia tabaci* to flupyradifurone habe been noted in USA (2014) and in China (2020, 2022) and 1 case of *Plutella xylostella* resistance to flupyradifuone has been noted in China (2021). This shows that even outside Europe there are sporadic cases of resistance and no cases of resistance of the target insect pests have been documented.

Most of the pests targeted by DLT+FPF EC85 (*Ostrinia nubilalis, Diabrotica virgifera, Rhopalosiphum maidis, Metopalophium dirhodum, Oulema melanopus, Olulema gallaeciana, Eurygatser spp., Brachycaudus helichrysi, Scaphoideus titanus*) are susceptible and haven´t developed resistance to pyrethroids yet. For other target pests, according to the Pesticide Resistance Database (accessed January 2023), there are documented cases of resistance, most from outside Europe and a dozen from France, England and Spain, as follows:

-*Helicoverpa armigera* – 441 cases of resistance, including 54 cases of resistance to deltamethrin: France -1 (2005), Spain – 8 (2002), countries outside Europe: India, Pakistan, Cameroon, Africa, China, Australia, Thailand – 45 (1984-2015)

- *Rhopalosiphum padi* – 12 cases: China (2020-2021); no cases of resistance to deltamethrin
- *Sitobion avenae* - 11 cases: UK -2 (2014), China- 9 (2021); no cases of resistance to deltamethrin
- *Lygus pratensis* – 5 cases: China (2021); no cases of resistance to deltamethrin

The general resistance risk of deltamethrin in DLT+FPF EC85 has been establisehd as low, due to combination with a second MoA without cross-resistance.

Resistance monitoring studies and susceptibility studies have not been submitted by the applicant, because the target insects pests are genarally considered as low risk of resistance at least in Europe, Central zone (none of the target pest is mentioned in EPPO guideline PP 1/213 (4)).

However, to avoid the possible resistance development it is reccomended to include in the product label resistance management strategy. The overall strategy based on the general IRAC recommendations and concerning also recommendations etstablished during the first registration process is presented below:

DLT+FPF EC85 contains two active substances: flupyradifurone – a nAChR modulator belonging to the group 4D, IRAC, (butenolides), and deltamethrin – sodium channel modulator belonging to the group 3A, IRAC (pyrethroids). In order to avoid resistance build-up in populations of the pests targeted by this product, the following rules should be observed:

1) *The maximum number of applications of the DLT+FPF EC85 per season is 2. In case when more applications are necessary, products containing actives belonging to other IRAC groups and*

showing other modes of action should be applied.

2) *In any case, an application of DLT+FPF EC85 should not be followed directly by the application of any insecticide showing MoA of the IRAC groups 3A, or 4D. Instead, a product with an active(s) belonging to other MoA groups, e.g. 1B, 4A, 9B, or 22A, should be utilized.*
3) *Avoid treating consecutive generations of the target pest with insecticides in the same MoA group.*
4) *The dose rates should be observed strictly, according to the label recommendation for particular uses.*
5) *Non-chemical control options should be considered as part of any pest management strategy. Insecticide use does not replace the need for resistant crop varieties, good agronomic practice, plant hygiene/sanitation etc.*

The MSs are kindly encouraged to adopt or adjust the wording, according to their local circumstances and requirements.

3.4 Adverse effects on treated crops (KCP 6.4)

In accordance with the recommendations of the EPPO standard PP1/226(2), it is not relevant to conduct specific crop safety trials (with dose rates N and 2N) when a foliar insecticide applied to the crop did not show phytotoxic symptoms in efficacy trials.
When the test product DLT+FPF EC85 was applied in accordance with the proposed use pattern, it appeared safe in all the treated crops without any phytotoxic issue (see Chapter 3.4.1) in all efficacy trials, which were conducted both in the presence of pest(s) or at negligible pest pressure, implemented in a wide range of varieties and agro-environmental conditions. Therefore, no specific crop safety trials were considered to be conducted on claimed crops to test the intended (N) and the double (2N) dose rates of DLT+FPF EC85.
The assessment of the phytotoxic symptoms on the treated crop was made in all efficacy trials in the presence of claimed pests on all crops and are presented after one or more applications of DLT+FPF EC85 at dose rates claimed for the respective crops and targets.
Results of positive effects due to the control of the pests(s) at higher infestation levels applied in accordance with the proposed use pattern have already been presented in Efficacy part, '*Yield (and relevant quality indicators), from efficacy trials (in the presence of challenging pest populations)*' to support the effectiveness in Chapter 3.2.3.
Justification for data for countries of submission (outside of EU regulatory Central Zone) is made according to the standard EPPO standard PP1/241(1) "Guidance on comparable climates." Thus, all trials carried out in the respective EPPO zone can be extrapolated to each country belonging to this agro-climatic EPPO zone. All presented trials are therefore relevant for a submission in the EU Central Regulatory zone.
Information on trials displayed in 3.4.1 Phytotoxic symptoms on the treated crop, have been already shown in *Information on trials submitted* (3.2 Efficacy data).

3.4.1 Phytotoxicity to host crop (KCP 6.4.1)

Crop safety of DLT+FPF EC85 for the uses claimed within this submission will be addressed in the following chapter by observations made in the efficacy trials presented.
In order to avoid duplication and since all these trials are part of the data package presented for efficacy tests, methods used, main characteristics and detailed information from these trials are presented in chapter 3.2.3.

Assessments in efficacy trials
For each observation, a percentage of general phytotoxicity was estimated taking into account the intensity of the different symptoms observed: volume reduction, thinning, discoloration. The visual estimation of general phytotoxicity is expressed as a percentage, in comparison with the untreated check and according to the following scale of phytotoxicity.

Evaluation of the symptoms at the observation	% general phytotoxicity
No effect: no visible symptoms.	0
Very slight effect is noticeable, observed only after detailed comparison with Untreated check (the experimenter is not sure that the symptoms are due to the product).	1 to 5
Slight effect is visible: noticeable symptoms after comparison with Untreated check. However, it is not of practical importance in the field.	6 to 10
Obvious effect of the product, visible even without comparison with the Untreated check. Nevertheless, the symptoms are still acceptable in the field. Some users might complain.	11 to 15
Very obvious effect of the product; symptoms are worrying. Users would certainly complain.	16 to 20
Damage considered as more and more serious: very worrying (21 to 23) to unacceptable (29 to 30). Users and the company would be involved in litigation.	21 to 30
Damage absolutely unacceptable, which brings into question the continuation of the experiments on the product (depending on the frequency of damage in the trials).	> 30
Total destruction of the crop.	100

Crop safety in corn

On corn, the dose of DLT+FPF EC85 claimed is of 0.75 L/ha. According to "PP 1/135(4) Phytotoxicity assessment" no specific selectivity trials were carried out as no phytotoxicity symptoms were reported in any of the 60 efficacy corn trials presented in efficacy part. The trials were implemented in farmer's fields under conditions of natural infestation.

Single trial reports are given in Compilation of Trial Reports M-687456-02-1, M-688139-01-1, M-687450-02-1 with the corresponding trial lists.

Among 60 trials conducted in corn with DLT+FPF EC85 at 0.75 L/ha, no phytotoxicity symptoms occurred. The product was tested under varying conditions in each EPPO climatic zone.

In the Maritime EPPO climatic zone, 7 different varieties were tested in the Czech Republic. The variety list is the following: Danubio, Jokari, LG 3258, MAS 29.T, Musixx, Nerissa, Rebecca. Depending on the trials, the application was done from 34 to 63 BBCH crop stage.

In the North-East EPPO climatic zone, 11 different varieties were tested in Poland. The variety list is the following: Chromixx, DKC 3623, DKC3568, Pioneer PR39A98, RGT Tiberio, Ricardinio, RONALDINIO , San, Silvinio, SY Multipass, SY Talisman. Depending on trials, the application was done from 61 to 75 BBCH crop stage.

In the South-East EPPO climatic zone, 31 different varieties were tested in 4 different countries of the European regulatory Southern and Central zones (Bulgaria, Hungary, Romania and Slovakia). The variety list is the following: Alexandra, Amanita, Angelo, Codipro, Dessert 78, DKC 467, DKC4590, Konsens, LG 33.95 FAO 400, LG 3490, LG34.75 FAO 450, Monalisa, MT Matado, NK Supra, Occitan, OLT, Ondina, P9025, P9915-430, Phileaxx, PR34B39, Royalty, Sudor, Sumator, Supra, Surreal, Susann, SY Dartona, SY Ulises. Depending on trials, the application was done from 30 to 79 BBCH crop stage.

Conclusion on crop safety in corn

From the results discussed above it can be considered that DLT+FPF EC85, applied at the intended uses should not be harmful to corn.

It can therefore be concluded that no detrimental phytotoxic effect of DLT+FPF EC85 can be expected in corn, when applied according to the proposed use pattern.

Crop safety in corn, sweet (ZEAMS), Millet, common (PANMI), Sorghum (SORSS)

Corn, sweet (ZEAMS), Millet, common (PANMI), Sorghum (SORSS) are all minor crops in the countries where the submission is intended for. Those three crops belong to same subfamily of Panicoideae (1PANS) as corn (ZEAMX) with similar morphology and are conducted under similar conditions. The uses, doses and timing of application claimed are the same for theses Panicoideae crops. For those reasons, based on SANCO/D3/SI2.395857, Final Report, October 2005 and according to "PP 1/224(2) Principles of efficacy evaluation for minor uses" the good selectivity

demonstrated for corn (ZEAMX) is valid for Corn, sweet (ZEAMS), Millet, common (PANMI), Sorghum (SORSS) and do not required additional trials.

Crop safety in cereals

Efficacy trials were conducted on several different cereal crops. From the dataset of 80 trials, 55 were performed on winter wheat (TRZAW), 11 on spring wheat (TRZAS), 2 on winter triticale (TTLWI), 1 trial on spring triticale (TTLSO), 2 on winter barley (HORVW), ~~5~~ 7 on spring barley (HORVS), 1 on winter oat (AVESW) and 1 on spring oat. 50 trials were conducted in South-East EPPO climatic zone, from which 37 trials were performed in the European regulatory Central zone in Hungary (17), Romania (10) and Slovakia (10) during trial seasons 2014–2017 and, additionally 13 efficacy field trials carried out in the European regulatory Southern zone in Bulgaria in the period of 2014–2017 are used in this dossier. 18 trials were performed in Maritime EPPO climatic zone, EU Central regulatory zone in the Czech Republic during trial seasons 2014-2016. 12 trials were performed in North-East EPPO climatic zone, from which 4 trials were performed in the European regulatory Central zone in Poland, and additionally 8 efficacy field trials carried out in the European regulatory Northern zone in Latvia (4) and Lithuania (4) in the period of 2016–2018 are used in this dossier.
The trials were implemented in farmer's fields under conditions of natural infection.
In order to avoid duplication and since all these trials are part of the data package presented for efficacy tests, methods used, main characteristics and detailed information from these trials is presented in chapter 3.2.3.
Single trial reports are given in Compilation of Trial Reports M-689778-02-1, M-689779-02-1 and M-689780-02-1 with the corresponding trial lists.
Within these trials, phytotoxicity assessments were made to define if the product could harm the plant.

Results of selectivity assessments efficacy trials in cereals

Depending on the trials, DLT+FPF EC85 was applied once ~~or twice~~, from BBCH 14 to BBCH 85 with a spraying water volume 200 to 400 L/ha under different conditions.

In the South-East EPPO climatic zone, 34 different varieties of 6 different cereal crops were tested in 4 countries of the European regulatory Southern and Central zones. The variety list is the following: TRZAW: Antonius, Apolon, Bona Vita, Buzogány, Capo, Enola, GK Csillag, GK Körös, GK Magvas, GK Szala, Glosa, Hisseo, Izvor, Kalahari, Kosutka, Lukullus, Malyska, Milena, Miranda, Otilia, Sadovo 1, Sobel C1, Sobel C2, Todora, Viglanka, Zenka 1; TRZAS: Duroflavus, Granny, Todora; HORVW: Calypso, Laverda; HORVS: Concerto; AVESW: Saja Supreme; TTLWI: GK Maros, GK Rege.

In the Maritime EPPO climatic zone, 13 different varieties of 3 different crops were tested in 1 country of the European regulatory Central zone. The variety list is the following: TRZAW: Bodycek, Cubus, Darwin, Energo, Federer, Forhand, Grizzly, Svitava; TRZAS: Dafne, Epos, Kadrilj, Tercie; HORVS: Malz.

In the North-East EPPO climatic zone, 11 different varieties of 5 different cereal crops were tested in 3 countries of the European regulatory Central and Northern zones. The variety list is the following: TRZAW: Famulus, Sailor, Sax; TRZAS: Diskett; HORVS: Anabella, Flavour, Kangoo, Kristaps, Penguin; TTLSO: Nilex; AVESS: Kontender 1.
Crop safety observations have been made after 1 to 42 days after application respectively depending on the trials.
In the whole set of trials, DLT+FPF EC85 applied at 0.5–0.75 L/ha (5+37.2 g a.s./ha and 7.5+56.25 g a.s./ha) was always selective on cereals independently from the crop and did not show any symptom of phytotoxicity.
It is to be noticed, that for cereal species 2 treatments by DLT+FPF EC85 are requested in the GAP table, but in all presented trials the test product was applied only once.
In order to prove the lack of phytotoxic effects of the product applied twice on cereals additional data from studies on non-target plants (B9 document, p. 397–402) is provided where possible effects of

DLT+FPF EC85 have been investigated on non-target plants regulatory studies (M-554604-01-1; M-554592-01-1), in worst-case scenarios in controlled environment greenhouse conditions:
- M-554604-01-1: effects on vegetative vigour, one application at 1.25 L/ha on plants at BBCH 12–14;
- M-554592-01-1: effects on seedling emergence, one application at 1.25 L/ha on soil prior to seedling emergence.

In both studies several plant species have been investigated, including corn, barley, and wheat.
Results on monocotyledonous species from the vegetative vigour study show that at 1.25 L/ha DLT+FPF EC85 did not have any negative effect on maize; wheat and barley. Similarly, no effects were observed in the seedling emergence study.
Therefore, it can be concluded from both studies that one application of DLT+FPF EC85 in worst-case scenarios (greenhouse conditions; young crop stages; high dose) has any negative effect on monocotyledonous species (barley, wheat, maize) which confirm the absence of phytotoxicity effects in the field efficacy trials and it further could be concluded that in the field conditions the use of DLT+FPF EC85 applied twice on cereal crops at more advanced (=less susceptible) growth stages will be safe to the crop.
Two winter wheat trials carried out in France (Maritime and Mediterranean EPPO climatic zone) were presented also in section 3.4.4. Those trials were conducted with 2 applications of DLT+FPF EC85 at 0.75 L/ha. The results of these trials demonstrated the absence of any phytotoxicity symptoms. Details of these trials are available in document M-686623-01-1.

Conclusion on crop safety in cereals
From the results discussed above it can be considered that DLT+FPF EC85, applied at 0.75 L/ha (7.5+56.25 g a.s./ha) or lower dose 0.5 L/ha (5+37.5 L/ha) should not be harmful to any cereals discussed in this dossier.
It can therefore be concluded that no detrimental phytotoxic effect of DLT+FPF EC85 can be expected in cereals, when applied according to the proposed use patterns.

Crop safety in sunflower

On sunflower, a total of 26 trials – 17 trials performed in the South-East EPPO climatic zone in Hungary, Romania, Slovakia and Bulgaria and 9 trials performed in the Maritime EPPO climatic zone in the Czech Republic in the period of 2014–2017 are used in this dossier.
The trials were implemented in farmer's fields under conditions of natural infection or artificial infection.
In order to avoid duplication and since all these trials are part of the data package presented for efficacy tests, methods used, main characteristics and detailed information from these trials is presented in chapter 3.2.3.
Single trial reports are given in Compilation of Trial Reports M-689795-02-1 with the corresponding trial lists.
Within these trials, phytotoxicity assessments were made to define if the product could harm the plant.

Results of selectivity assessments in sunflower efficacy trials
Depending on the trials, DLT+FPF EC85 was applied once or twice, from BBCH 14 to BBCH 63 with a spraying water volume 250 to 300 L/ha.
In the South-East climatic zone, 12 different varieties were tested in 4 different countries of the European regulatory Central and Southern zones. The variety list is the following: Adagio, Alexandra, Favourit, LG56.58CL, LG5697CLP, NK Alegro, NK Neoma, P64HE118, P64LC09, P64LE25, PR64H42, Tutti.
In the Maritime climatic zone, 6 different varieties were tested in 1 country of the European regulatory Central zone. The variety list is the following: Alexandra, ES Bella, LG 56.33, MAS 83.R, NK Noema, Siklos CL.
Crop safety observations have been made after 1–77 and 3–55 days after application A or B respectively depending on the trials.
In the whole set of trials, DLT+FPF EC85 applied at 0.75 L/ha (7.5+56.25 g a.s./ha) and some trials in two application scenarios (worst-case) was always selective of sunflower and did not show any symptom of phytotoxicity.

Conclusion on crop safety in sunflower

From the results discussed above it can be considered that DLT+FPF EC85, applied at 0.75 L/ha (7.5+56.25 g a.s./ha) should not be harmful to sunflower.

It can therefore be concluded that no detrimental phytotoxic effect of DLT+FPF EC85 can be expected in sunflower, when applied according to the proposed use patterns.

Crop safety in efficacy trials on grapevine

On grape, the dose of DLT+FPF EC85 claimed is of 0.4 L/ha. According to "PP 1/135(4) Phytotoxicity assessment" no specific selectivity trials were carried out as no phytotoxicity symptoms were reported in any of the 9 efficacy grape trials presented in efficacy part. The trials were implemented in farmer's fields under conditions of natural infestation.

Single trial reports are given in Compilation of Trial Report M-687453-01-1 with the corresponding trial lists.

Among 9 trials conducted in grape with DLT+FPF EC85 at 0.4 L/ha, no phytotoxicity symptoms occurred. The product was tested under varying conditions in South-East EPPO climatic zone.

In the South-East EPPO climatic zone, ~~31~~ 5 different grape varieties were tested in Hungary. The variety list is the following: Cabernet Sauvignon, Kékfrankos, Riesling, Kövidinka, Cabernet Franc.

Depending on trials, the application was done from 53 to 71 BBCH crop stage.

Grapevine trials carried out in Maritime (France) and in South-East (Hungary) EPPO climatic zone were presented also in section 3.4.4. Those trials were conducted with 2 applications of DLT+FPF EC85 at 0.4 L/ha and phytotoxicity was assessed in 6 out of 8 trials. The results of these assessments demonstrated the absence of any phytotoxicity symptoms. Details of these trials are available in document M-687457-01-1.

Conclusion on crop safety in grape

From the results discussed above it can be considered that DLT+FPF EC85, applied at the intended uses should not be harmful to corn.

It can therefore be concluded that no detrimental phytotoxic effect of DLT+FPF EC85 can be expected in grape, when applied according to the proposed use pattern.

Comments of zRMS on:

Phytotoxicity to host crop (3.4.1)

Observations on phytotoxicity after application of DLT+FPF EC85 on target crops: corn, cereal crops, sunflower and grapevine were carried out in all submitted efficacy trials. No phytototoxicity was noted in any of the trials.

Additionally phytotoxicity was also assessed in field parts of 8 trials carried out to assess the the effect of DLT+FPF EC85 on transformation processes. No phytotoxicity was noted after 2 applications of DLT+FPF EC85 at dose rate of 0.4 L/ha on grapevine in France (3 trials) and Hungary (3 trials) and at dose rate of 0.75 L/ha on winter wheat in France (2 trials).

Results from the study on effects on the vegetatative vigour of non-target terrestrial plant species under greenhouse conditions (see chapter 3.5.2) showed no phytotoxicity of DLT+FPF EC85 applied at 1.25 L/ha on the target crops: sunflower, barley, spring wheat and maize.

Based on the submitted trial results it can be conluded that the phytotoxicity is not expected on the target crops: corn, cereal crops, sunflower, grapevine, after application of DLT+FPF EC85 according to the GAP recommendations.

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

Since no phytotoxicity symptoms were observed with DLT+FPF EC85 in all efficacy trials (section 3.4.1), no dedicated crop safety trial was conducted, in accordance with EPPO standard PP 1/135(4) "*Phytotoxicity assessment*".

Effects of DLT+FPF EC85 on yield were measured in the efficacy trials (section 3.2.3), in situations of low to high pest pressure. Any significant negative effect on yield caused by application of DLT+FPF EC85 could not be observed throughout the available trial set.

It can be there concluded that when used according to the label it is unlikely that DLT +FPF EC85 would have a detrimental effect on yield.

Comments of zRMS on:

Effect on the yield of treated plants or plant products (3.4.2)

zRMS comments on the potential effect of DLT+FPF EC85 on the yield of treated crops are contained in Efficacy chapter (3.2.3).

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

Since no phytotoxicity symptoms were observed with DLT+FPF EC85 in all efficacy trials (section 3.4.1), no dedicated crop safety trial was conducted, in accordance with EPPO standard PP1/135(4) "*Phytotoxicity assessment*".
As no phytotoxicity symptoms were observed in field, it can be stated that DLT+FPF EC85 will not have any detrimental effect on quality of crops, when applied according to the recommendations for use.
Quality results (weight of thousand kernels, hectolitre weight, protein content) under variable pest populations densities are reported under effectiveness, as supporting evidence of the benefit of the treatment. For a summary of the quality data from the efficacy trials, please refer to section 3.2.3.
No adverse effects on quality of plants or plant products are reported.

Comments of zRMS on:

Effect on the quality of plants or plant products (3.4.3)

zRMS comments on the potential effect of DLT+FPF EC85 on the yield quality of treated crops are contained in Efficacy chapter (3.2.3).

3.4.4 Effects on transformation processes (KCP 6.4.4)

M-686623-01-1
M-687457-01-1

Effect of DLT+FPF EC85 on transformation processes in winter wheat
Impact on taint from specific crop safety trials tested with DLT+FPF EC85 on winter wheat is covered in the following chapter.

Standards and trial design
The trials were implemented as followed:

General standards
- PP1/135(3) "Phytotoxicity assessment",
- PP1/152(3/4) "Design and analysis of efficacy evaluation trials",
- PP1/181(3/4) "Conduct and reporting of efficacy evaluation trials, including good experimental practice".

Specific standards:
- EPPO PP1/242 (1) "Efficacy evaluation of Plant protection products-Taint tests"

The studies conducted in 2018 are summarized in **Table 3.4-1** below.

Table 3.4-1: Overview of taint studies carried out with DLT+FPF EC85 on winter wheat.

Crop	2018	Total
TRZAW	FRA (Mediterranean EPPO climatic zone) FRA (Maritime EPPO climatic zone)	**2**

Both trials were carried out under GEP. Copies of the corresponding GEP certificates are included in Chapter 3.7 of this document.
In both trials DLT+FPF EC85 was applied at the maximal proposed rate in cereals – 0.75 L/ha. The time between the last application and sampling was in line with the supported PHI, as described in the table "All intended uses" in Part B - Section 0. Harvested samples were sent to GALYS, FRA for subsequent taint studies. In GALYS LABORATOIRE, the samples (treated and untreated) were processed and potential impact of tested products on bread making was evaluated.
A total of 2 field trials was carried out in the year 2018. Reports of field trials are given in the Compilation of Trial Reports M-686623-01-1.

Summary of test results on winter wheat – Mediterranean and Maritime EPPO climatic zones
Results of analysis indicate no significant effects on quality parameters, which can influence bread-making quality. Specifically, DLT+FPF EC85 did not detrimentally affected grain protein, Hagberg Falling number, hectolitre weight, thousand kernel weight and other relevant parameters compared to the untreated control and the reference products. Detailed results of analysis are available in document M-686623-01-1.

Conclusion – Mediterranean and Maritime EPPO climatic zones (bread-making studies on winter wheat)
It can be concluded that possible detrimental effects on bread-making quality, following the application with DLT+FPF EC85 at the dose rate of **0.75 L/ha** as requested, is unlikely to occur, when DLT+FPF EC85 is used as according to the recommendations as described in the in the table "All intended uses" in Part B - Section 0

Effect on transformation processes in grapevine
In order to evaluate the effect of DLT+FPF EC85 on transformation processes in grapevine for the European regulatory Central zone, a series of 8 trials was implemented across Europe from 2014 to 2018. According to climatic zone this field trial series was spread as follow:

- 5 trials in the Maritime EPPO climatic zone.(supportive trials from France)
- 3 trials in South East EPPO climatic Zone

Single trial reports and transformation processes reports are given in the Compilation of Trial Report M-687457-01-1 with the corresponding trial list. Detailed data from the trials are also contained in BAD document.
The number of trials conducted in each climatic zone and country is shown in **Table 3.4-2** below.

Table 3.4-2: distribution of trials according to climatic zones and countries for the effect of DLT+FPF EC85 on transformation processes in grapevine

EPPO climatic zone	Regulatory Zone	Country	Year	Number of trials (valid)	Total (valid)	
Maritime	Southern	France	2014	1(1)	5(5)	8 (7)*
			2015	1(1)		
			2016	2(2)		
			2018	1(1)		
South-East	Central	Hungary	2018	3(2)*	3(2)*	

* 1 Hungarian trial was not valid, because the sanitary state of the harvest was not in conformity, the grapes were contaminated by acetic bacteria and analyses showed acetic acid contents.

Testing facilities
These trials were carried out by different testing organizations, all of them being GEP recognized:
- Bayer CropScience experimentation network in France

- External contractors: Eurofins Agroscience Service Kft and Syntech Research Hungary Kft in Hungary
The GEP certificates of these organizations can be reached via the certibase links located in the part 3.7 of this document.
The processing test were carried out by IFV ("Institut Français de la vigne et du vin") in France for all trials. Except for one trial in Maritime EPPO climatic zone, the processing test were carried out by BNIC "Bureau National Interprofessionnel du Cognac".

Methodology
The trials were implemented as followed:

General standards
- PP1/135(4) "Phytotoxicity assessment",
- PP1/152(3/4) "Design and analysis of efficacy evaluation trials",
- PP1/181(3/4) "Conduct and reporting of efficacy evaluation trials, including good experimental practice".

Specific standards:
- EPPO PP1/268 (1) "Study of unintentional effects of plant protection products on fermentation processes and characteristics of wine"
- CEB 143 « Etude des effets non intentionnels des produits phytosanitaires sur l'élaboration et la qualité des vins et eaux de vie de vin »

In all trials DLT+FPF EC85 was applied twice on grapevine once at 0.4 L/ha.

Summary of transformation processes test results on grapevine

Maritime EPPO climatic zone
There is no difference in the fermentation kinetics between modalities. No differences are observed during the malolactic fermentation. The wines do not present any analytical differences. This study does not bring to light effect of the tested products DLT+FPF EC85 on wine processes and on the characteristics of the wine.

South -East EPPO climatic zone
Differences in fermentation kinetics are observed in 1 out of 2 trial. Analytical differences on wines are highlighted. Tasting does not show any significant difference between wines. The wines do not reveal any major abnormal findings. The test does not show any impact of experimental products on production and quality of wine.

Conclusion on taint trials on grapevine
It can be concluded that occurrence of detrimental effects on wine-making processes and characteristics of wine, following the application with DLT+FPF EC85 at the dose rate of **0.4 L/ha** as requested, is unlikely to occure.

Overall Conclusion – transformation processes and taint tests
Field studies were carried out from 2014 to 2018 in order to check potential effects on transformation processes or taint occurring in winter wheat and grapevine following applications with DLT+FPF EC85 at respectively 0.4 L/ha or 0.75 L/ha. Samples were generated from GEP field trials, where sampling timing took place as according to the intended pre-harvest interval. Samples processing and sensory analysis were carried out at respective organizations, specializing in this kind of tests. It could be concluded from the transformation and taint tests that detrimental effect on transformation processes undergoing during bread-making or wine-making is unlikely to occur, when DLT+FPF EC85 is used as according to the recommendations as described in the in the table "All intended uses" in Part B - Section 0.

Comments of zRMS on:

Effect on transformation processes (3.4.4)

The potential effect of DLT+FPF EC85 on transformation processes or taint occurring was tasted in 9 valid trias conducted in the years 2014-2018 in winter wheat in France (2) and in grapevine in France (5) and Hungary (2). DLT+FPF EC85 in the field parts of the trials was applied twice in all trials, at dose rate of 0.4 Lha in grapevine and at 0.75 Lha in winter wheat.
Based on the submitted trial results, the detrimental effect of DLT+FPF EC85 on bread-making, on production and qulity of wine is not expected, when DLT+FPF EC85 is applied according to the GAP recommendations.

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

As DLT and FPF are insecticides, they show no herbicidal or PGR activity. As reported in section 3.4.1, no phytotoxicity effects have ever been reported in any of the DLT+FPF EC85 efficacy trials performed in ~~oil seed rape~~ corn, sunflower, cereals and grapevine after foliar spray, which correspond to the supported uses.
Thus, no dedicated crop safety trial was conducted, in accordance with EPPO standard PP1/135(4) "*Phytotoxicity assessment*".
Therefore, it is reasonable to conclude that there will be negligible risk of adverse effects on plant parts used for propagating purposes.

Comments of zRMS on:

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

Accepted. Adverse effect on plants parts used for propagating purposes is not expected after application of DLT+FPF EC85 according to GAP recommendations.

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

3.5.1 Impact on succeeding crops (KCP 6.5.1)

M-554592-01-1
The effects of DLT+FPF EC85 on non-target plants are included in the dRR part B Section 9 Ecotoxicology.
Evidence generated from application of DLT +FPF EC85, applied at 1.25 L/ha measuring seedling emergence ~~and possible phototoxic symptoms~~ on a representative range of crop seeds (sugar beet; ~~rapeseed~~ oilseed-rape; cucumber; soybean; sunflower; tomato; onion; barley; spring wheat; maize) resulted in no statistically significant effect (document M-554592-01-1). The most sensitive species was *Allium cepa* with an inhibition od seedling emergence of 10.5 % at the application rate of 1250 mL product/ha on day 21. No symptoms of phytotoxicity were observed for any of the plant species tested on all assessment days.
No mortality occurred for any of the plant species tested except *Allium cepa.* For this species a mortality of 5.9 % was determined in the treatment group. An application of deltamethrin + flupyradifurone EC 85 (10+75 g/L) resulted in statistically significant effects on shoot dry weight for the plant species *Cucumis sativus and Lycopersicon esculentum.* The most sensitive species was *Allium cepa* with an inhibition of 29.2 %, followed by *Helianthus annuus* with 24.6 % inhibition, compared to the control group.
~~Therefore,~~ No adverse effect to succeeding crops is expected when DLT+FPF EC85 is applied according to the recommendations for use.

Comments of zRMS on:

Impact on succeeding crops (3.5.1)

Results from the study on the effect of DLT+FPF EC85 on the seedling emergence of non-target terrestrial plant species under greenhouse conditions resulted in statistically significant adverse effects (inhibition of shoot dry weight) occurred for two tested species (cucumber, tomato). For onion the mortality 5.9% was determined. The inhibition of shoot dry weight was high in onion (29.2 %), followed by sunflower with 24.6 % inhibition. It should be noted that DLT+FPF EC85 was applied at dose rate of 1,25 L/ha, whereas the maximum recommended dose rate of DLT+FPF EC85 is 0.75 L/ha. No phytotoxicity and no statistically significant effect on seedling emergence was noted for any of the plant species tested.
It can be concluded that adverse effect to succeeding crops is not expected after application of DLT+FPF EC85 according to GAP recommendations.

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

M-554604-01-1
The effects of DLT+FPF EC85 on non-target plants are evaluated in the dRR part B Section 9 Ecotoxicology.
A study (M-554604-01-1) has been conducted to evaluate the effects of DLT+FPF EC85 on a representative range of crop (sugar beet; ~~rapeseed~~ oilseed rape; cucumber; soybean; sunflower; tomato; onion; barley; spring wheat; maize). A statistically significant reduction of shoot dry weight was reported in 3 crops (rape seed; sugar beet, tomato) as well as a light phytotoxicity (sugar beet, rapeseed). However, the product was applied at a maximal supported dose (1.25 L/ha) and at BBCH 12-14, whereas for the above-mentioned susceptible crop (oilseed rape) an application at 0.75 L/ha and from BBCH 30 is supported. In the field trials there was never any phytotoxicity observed with DLT+FPF EC85, when applied according to the recommendations. No mortality occurred for any species tested. On day 21 no differences in the BBCH growth stages was observed between test item and the control group for any species tested, except *Beta vulgaris*. The BBCH growth stage of test item treated plants of this species was 15 and the BBCH growth stage of control plants was 16.
~~Therefore,~~ No adverse effect to adjacent crops is expected when DLT+FPF EC85 is applied according to the recommendations for use.

Tank cleaning
No specific recommendation for tank cleaning after DLT+FPF EC85 treatment is proposed as no negative impact of DLT+FPF EC85 on crops treated after tank cleaning is expected.

Comments of zRMS on:

Impact on adjacent crops (3.5.2)

Results from the study on effect of DLT+FPF EC85 on the vegetatative vigour of non-target terrestrial plant species under greenhouse conditions resulted in statistically significant adverse effects (inhibition of shoot dry weight) noted for three tested species (sugar beet, oilseed rape, tomato). Slight phytotoxicity was noted for sugar beet and oilseed rape. No phytotoxicity was observed for other tested crops (cucumber; soybean; sunflower; tomato; onion; barley; spring wheat; maize). No mortality occurred for any species tested. The effect on growth stage was noted for sugar beet: the BBCH growth stage of test item treated plants of this species was 15 and the BBCH growth stage of control plants was 16.
It should be noted that DLT+FPF EC85 was applied at dose rate of 1,25 L/ha, whereas the maximum recommended dose rate of DLT+FPF EC85 is 0.75 L/ha.
It can be concluded that adverse effect to adjacent crops is not expected after application of DLT+FPF EC85 according to GAP recommendations.

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

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

Comments of zRMS on:

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

Adverse effects on non-target organisms were not observed in a part of efficacy trials. In other trials no observations on beneficial or non-target organisms have been reported. Detailed studies are contained in Part B, Section 9 (Ecotoxicology).

3.6 Other/special studies

No other studies are reported.

3.7 List of test facilities including the corresponding certificates

Table 3.7-1: List of test facilities.

Test facility	Town	Country	Valid from	Valid to	Link to certificate otherwise, comment
Anadiag Bulgaria Ltd	Plovdiv	Bulgaria	15-May-13	15-May-18	1d65345c713
Anadiag Bulgaria Ltd	Plovdiv	Bulgaria	29-Nov-18	26-Nov-28	1d6534ef374
Anadiag Hungary Mezogazdasagi Szolgaltato Kft.	Komarom	Hungary	22-Jul-11	21-Jul-16	1d65345c5a8
Anadiag Romania	Bucharest	Romania	20-Aug-15	20-Aug-20	1d65345c91c
ATC - Agro Trial Center GmbH	Uhersky Ostroh	Czech Republic	21-Feb-11	20-Feb-16	1d653d0a138
Bayer Hungaria Kft.	Budapest	Hungary	31-Dec-14	31-Dec-19	1d65345c865
BAZ - PLan Protection and Soil Conservation, Governmental Office, Borsod-Abauj-Zemplen	Miskolc	Hungary	3-Aug-11	3-Aug-16	1d65345c785
Eurofins Agroscience Services EOOD (Bulgaria)	Letnitsa	Bulgaria	1-Jun-10	1-Jun-15	1d65345c34d
Eurofins Agroscience Services EOOD (Bulgaria)	Letnica	Bulgaria	28-May-15	28-May-25	1d65345c921
Eurofins Agroscience Services EOOD (Bulgaria)	Letnitsa	Bulgaria	01-juin-10	01-juin-15	1d65345c34d
Eurofins Agroscience Services Kft (Hungary)	Székesfehérvár	Hungary	22-Oct-14	22-Oct-19	1d65345c90a
Eurofins Agroscience Services sp. Zoo (Poland)	KaÃ…Âºmierz	Poland	10-Aug-15	31-Dec-20	1d65504dee6
Eurofins Agroscience Services Srl (Romania) - (EAS ROMANIA)	Timisoara	Romania	27-Feb-15	27-Feb-20	1d65345c8ea
Fructica Kft.	Dunaalmas	Hungary	30-Mar-15	30-Mar-17	1d65345ca34
Fundulea National Institute for Agricultural Research and Development	Fundulea, Calarasi County	Romania	30-Jun-10	30-Jun-15	1d65345c6da
Fundulea National Institute for Agricultural Research and Development (Plant Protection Laboratory)	jud. Calarasi	Romania	20-Aug-15	20-Aug-20	1d65345ca7d
FYSE s.r.o. Odd. AgroLab Kolare	Kolare	Slovakia	28-Jan-11	28-Jan-16	1d65345c825

FYSE s.r.o. Odd. AgroLab Kolare	Kolare	Slovakia	4-Feb-16	4-Feb-21	1d65345c95d
FYSE s.r.o. Odd. AgroLab Kolare	Kolare	Slovakia	28-janv-11	28-janv-16	1d65345c825
Gemerprodukt Valice ovocinarsko-vinohradnicke druzstvo	Rimavska Sobota	Slovakia	15-Feb-11	15-Feb-16	1d65345c5c3
Gemerprodukt Valice ovocinarsko-vinohradnicke druzstvo	Rimavska Sobota	Slovakia	12-Apr-16	12-Apr-21	1d65345c96d
Governmental Office, Csongrad	Hodmezovasarhely	Hungary	29-Sep-11	29-Sep-16	1d6534a5c4a
Governmental Office, Komarom-Esztergom	Tatabanya	Hungary	30-May-12	30-May-17	1d6534a5c4f
Institute of Plant Protection - National Research Institute in Poznan (IOR PIB POZNAN)	Poznan	Poland	16-juin-10	31-Dec-19	1d65504da1a
Nógrád Megyei Kormányhivatal Növény- és Talajvédelmi Igazgatósága	Balassagyarmat	Hungary	4-Dec-12	3-Dec-17	1d65345c7ea
Plant-Art Reserach	Budaörs	Hungary	18-May-15	18-May-17	1d65345c9e5
SGS Bulgaria Ltd	Sofia	Bulgaria	27-Jun-12	27-Jun-17	1d65345c788
SGS Bulgaria Ltd	Sofia	Bulgaria	2-Nov-17	2-Nov-27	1d65345ca73
SGS Bulgaria Ltd	Sofia	Bulgaria	27-juin-12	27-juin-17	1d65345c788
Syntech Research Hungary Kft.	Táplánszentkereszt	Hungary	8-Aug-11	8-Aug-16	1d65345c8fe
Syntech Research Hungary Kft.	Taplanszentkereszt	Hungary	15-Aug-16	15-Aug-21	1d65345cb83
Ustredny kontrolny a skusobny ustav pol'nohospodarsky v Bratislave - Bratislave	Bratislava	Slovakia	15-Dec-10	15-Dec-15	1d65345c526
Ustredny kontrolny a skusobny ustav pol'nohospodarsky v Bratislave - Bratislave	Bratislava	Slovakia	15-Feb-16	15-Feb-21	1d65345c98e
Ustredny kontrolny a skusobny ustav pol'nohospodarsky v Bratislave - Kosice	Bratislava	Slovakia	15-Dec-10	15-Dec-15	1d65345c527
Ustredny kontrolny a skusobny ustav pol'nohospodarsky v Bratislave - Kosice	Bratislava	Slovakia	15-Feb-16	15-Feb-21	1d65345c98f

Vas Megyei Kormanyhivatal, Noveny-Es Talajvedelmi Igazgatosag Karosito Diagnosztikai Osztalya	Tanakajd	Hungary	15-Jul-11	15-Jul-16	1d65345c6b7
Veszprem County Agricultural Office, Plant Protection and Soil Conservation Directorate	Csopak	Hungary	11-Jun-13	15-Jun-18	1d65345c870
Vidra, Research Institute for Vegetables and Flowers Growing	Ilfov	Romania	20-Aug-15	20-Aug-20	1d65504de4d
Vyzkumny ustav picninarsky, spol. S r.o.	Troubsko	Czech Republic	1-Sep-16	1-Sep-21	1d65504df1f
Vyzkumny ustav picninarsky, spol. S r.o.	Troubsko	Czech Republic	31-mars-2009	1-Sep-16	1d653d09e36
Zkusebni stanice Nechanice s.r.o.	Nechanice	Czech Republic	1-Sep-16	31-Aug-21	1d653d0a489
Krasne Udoli, Ing. Jitka Mareckova	Touzim	Czech Republic	1-Sep-16	1-Sep-21	1d6558fba0e
Zemservis zkusebni stanice Domaninek, s.r.o.	Kromeriz	Czech Republic	29-Mar-10	6-Apr-16	1d6558fb9f2
Latvian Plant Protection Research Centre Ltd./ SIA Latvijas Augu aizsardzibas petniecibas centrs	Riga	Latvia	28-Sep-16	27-Sep-21	1d6558fb9e6
Zkusebni Stanice Trutnov. s.r.o.	Trutnov	Czech Republic	1-Sep-16	1-Sep-21	1d6558fb9d6
Zkusebni stanice Kluky, spol. S r.o.	Kluky u Pisku	Czech Republic	1-Sep-16	31-Aug-21	1d6558fb9a4
Zkusebni stanice Nechanice s.r.o.	Nechanice	Czech Republic	7-Aug-09	7-Aug-16	1d6558fb968
Zemedelska zkusebni stanice Kujavy, s.r.o.	Kujavy	Czech Republic	14-Apr-09	14-Apr-16	1d6558fb357
Institute of Agriculture, Lithuanian Research Centre for Agriculture and Forestry	Akademija, Kedainiai district	Lithuania	12-Dec-13	12-Dec-19	1d6558fb88e
Bayer Sp. z o. o.	Warszawa	Poland	16-Jun-10	31-Dec-00	1d6558fb7a5
Zkusebni stanice Kluky, spol. S r.o.	Kluky u Pisku	Czech Republic	15-Mar-10	31-Dec-00	1d6558fb774
Zkusebni Stanice Trutnov. s.r.o.	Trutnov	Czech Republic	20-Mar-09	20-Mar-14	1d6558fb64f
Vyzkumny ustav rostlinne vyroby, v.v.i.	Praha 6	Czech Republic	20-May-09	31-Dec-20	1d6558fb628

Krasne Udoli, Ing. Jitka Mareckova	Touzim	Czech Republic	28-Jul-11	31-Dec-19	1d6558fb352

The certificates which are not available on the GEP certificate website are available hereafter.

IOR PIB POZNAN: Field trials on corn against *Diabrotica virgifera virgifera*

GŁÓWNY INSPEKTOR
OCHRONY ROŚLIN I NASIENNICTWA

Andrzej Chodkowski

BORiT.541.9.2018.2

Warszawa, 22.03.2019 r.

CERTYFIKAT

Na podstawie art. 20 ustawy z dnia 8 marca 2013 r. o środkach ochrony roślin (Dz.U. z 2018 r. poz. 1310, z późn. zm.) zaświadcza się, że:

Instytut Ochrony Roślin – Państwowy Instytut Badawczy
Centrum Badań Rejestracyjnych Agrochemikaliów
Zespół Badania Zoocydów
(ul. Władysława Węgorka 20; 60-318 Poznań)

spełnia wymagania dobrej praktyki doświadczalnej w rozumieniu art. 3 pkt 20 rozporządzenia Parlamentu Europejskiego i Rady (WE) nr 1107/2009 z dnia 21 października 2009 r. dotyczącego wprowadzania do obrotu środków ochrony roślin i uchylającego dyrektywy Rady 79/117/EWG i 91/414/EWG (Dz. Urz. UE L 309 z 24.11.2009, str. 1, z późn. zm.), w zakresie udzielonego upoważnienia do prowadzenia badań skuteczności działania środków ochrony roślin.

Grupy badanych środków ochrony roślin: akarycydy, insektycydy, moluskocydy, nematocydy, repelenty, rodentycydy, talpicydy.

Miejsca prowadzenia badań i rodzaje upraw: uprawy polowe i pomieszczenia magazynowe. Badania prowadzone będą w uprawach rzepaku ozimego i jarego, zbóż ozimych i jarych, kukurydzy, buraków, ziemniaków, roślin strączkowych.

CERTIFICATE

On the basis of Article. 20 para. 1 of the Act of 8 March 2013 on plant protection products (Journal of Laws of 2018 item 1310, as amended) it is certified that:

Institute of Plant Protection – National Research Institute
Research Centre for Registration of Agrochemicals
Zoocide Research Team
(Władysława Węgorka 20; 60-318 Poznań)

meets the requirements of good experimental practice (GEP) within the meaning of art. 3 point 20 of the Regulation (EC) No 1107/2009 of the European Parliament and of the Council of 21 October 2009 concerning the placing of plant protection products on the market and repealing Council Directives 79/117/EEC and 91/414/EEC (Journal of the EU L 309, 24.11.2009, page 1, as amended) within the scope of the authorization granted to conduct research on the efficacy of plant protection products.

Groups of investigated plant protection products: acaricides, insecticides, molluscicides, nematicides, repellents, rodenticides, talpicides.

Research sites and crop types: field crops and storage rooms. Research will be carried out in the cultivation of winter and spring rape, winter and spring cereals, maize, beet, potatoes and legumes.

GŁÓWNY INSPEKTOR OCHRONY ROŚLIN I NASIENNICTWA

Al. Jana Pawła II 11, 00-828 Warszawa
tel. 22 652 92 90; fax 22 652 93 03; gi@piorin.gov.pl

Field Trials to generate Samples for Taint-Tests SP102000028562 Sivanto Energy (foliar) on winter wheat
SYNTECH RESEARCH for the subsequent analysis of samples

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MINISTÈRE
DE L'AGRICULTURE
DE L'AGROALIMENTAIRE
ET DE LA FORÊT

Direction générale de l'alimentation

Service de l'action sanitaire en production primaire

Sous-direction de la qualité et de la protection des végétaux

Bureau de la biovigilance, des biotechnologies et de la qualité des végétaux

251, rue de Vaugirard
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Réf. : BBBQV/2015-01/BPE-059
N° Convention COFRAC : 3004

Syntech Research France SAS
1095 chemin de Bachas
30000 NIMES

A l'attention de Madame Florence BERTRAND

Paris, le 26 janvier 2015

Objet : Décision d'agrément (n° BPE-059)

Conformément à l'article R. 253-38 du code rural et de la pêche maritime et à l'article 6 de l'arrêté du 26 avril 2007 relatif aux essais officiels et officiellement reconnus pour l'évaluation des produits mentionnés à l'article L. 253-1 du code rural et de la pêche maritime, et après examen du rapport d'évaluation établi par le Comité français d'accréditation (Cofrac) en date du 23/06/2014 et des preuves d'actions correctives transmises par votre organisme, l'agrément de votre organisme est renouvelé et les extensions accordées.

Votre organisme est agréé pour réaliser des essais officiellement reconnus selon le périmètre suivant :

UNITE(S)	SECTEUR(S) D'ACTIVITE
UE01 – unité Centre Est 613 route du Bois de Loyse 71570 LA CHAPELLE DE GUINCHAY (unité centrale)	- **Grandes cultures** - **Vigne** - **Culture légumières, plantes aromatiques, médicinales, condimentaires et à parfum** - **Cultures fruitières et arboriculture** - **Productions horticoles et plantes d'intérieur** - **Zones non agricoles** - **Traitement des semences :** *grandes cultures*
UE02 – unité Centre Ouest 17 rue du Château d'Eau 37360 ROUZIERS DE TOURAINE	- **Grandes cultures** - **Vigne** - **Culture légumières, plantes aromatiques, médicinales, condimentaires et à parfum** - **Cultures fruitières et arboriculture** - **Zones non agricoles**

UNITE(S)	SECTEUR(S) D'ACTIVITE
UE03 – unité Sud Est 1095 chemin de Bachas 30000 NIMES	- **Grandes cultures** - **Vigne** - **Culture légumières, plantes aromatiques, médicinales, condimentaires et à parfum** - **Cultures fruitières et arboriculture** - **Productions horticoles et plantes d'intérieur** - **Zones non agricoles** - **Traitement des semences :** *grandes cultures* - **Désinfection et désinsectisation des sols, des matériels et des locaux de culture et de stockage des végétaux**
UE04 – unité Sud Ouest 29 rue Motta di Livenza 32600 L'ISLE JOURDAIN	- **Grandes cultures** - **Vigne** - **Culture légumières, plantes aromatiques, médicinales, condimentaires et à parfum** - **Cultures fruitières et arboriculture** - **Zones non agricoles** - **Traitement des semences :** *grandes cultures*
UE05 – unité Nord 6 route d'Oresmaux 80160 SAINT SAUFLIEU	- **Grandes cultures** - **Culture légumières, plantes aromatiques, médicinales, condimentaires et à parfum** - **Zones non agricoles**
UE06 – unité Centre 13 rue du cinq Mars 63260 EFFIAT	- **Grandes cultures** - **Traitement des semences :** *grandes cultures*
UE07 – unité Nord Est 24 rue des Tonnelles 10230 Mailly le Camp	- **Grandes cultures** - **Zones non agricoles**

Cet agrément est délivré pour une durée de cinq ans à **compter du 30/10/2014**. En application de l'article 5 de l'arrêté susmentionné, une nouvelle évaluation aura lieu dans un délai compris entre vingt-quatre et trente-six mois à compter de cette même date.

Le sous-directeur de la qualité
et de la protection des végétaux

Alain TRIDON

Copie : Cofrac

Section Laboratoires – ***Accréditation n° 1-1844***

ANNEXE TECHNIQUE N° 2
à l'attestation d'accréditation (convention n° 2740)
Norme NF EN ISO/CEI 17025 v2005

L'entité juridique ci-dessous désignée :

NOM : **GALYS**
Adresse : **ZA Les Esses Galerne – BP 28**
45760 - VENNECY

est accréditée par le Cofrac – Section Laboratoires – pour son laboratoire, site et unités techniques suivants :

SITE CONCERNÉ	**Nom : GALYS – Laboratoire de BLOIS** Adresse : **14, rue André Boulle** **41000 – BLOIS**

Unité Technique 1: AGRICOLE

L'accréditation est accordée selon le domaine suivant :

ANALYSES DE TERRES (96)

Elle porte sur les essais suivants :

Objet	Caractéristique mesurée ou recherchée	Principe de la méthode	Référence De la méthode
Terres	Matières sèches Teneur en eau Humidité résiduelle	Gravimétrie	NF ISO 11465 (X 31-102)
Terres	pH - eau, pH - KCl	Electrochimie	NF ISO 10390 (X 31-117)
Terres	Calcaire total - évaluation des carbonates	Volumétrie	NF ISO 10693 (X 31-105)
Terres	Calcaire actif	Extraction par agitation et volumétrie	NF X 31-106
Terres	Granulométrie	Tamisage, Sédimentation et Prélèvement à la pipette	NF X 31-107
Terres	Echantillons de sol	Prélèvement en vue des analyses	X 31-100
Terres	Cations extractibles par l'acétate d'ammonium : calcium, magnésium, potassium	Extraction par agitation à l'acétate d'ammonium et dosage par ICP	NF X 31-108
Terres	Azote total	Minéralisation (Kjeldahl) et volumétrie	NF ISO 11261 (X 31-111)
Terres	Phosphore soluble (Méthode Joret-Hébert)	Extraction partielle par l'oxalate d'ammonium	NF X31-161
Terres	Teneurs élémentaires totales : Cadmium, Chrome, Cuivre, Nickel, Zinc et Plomb	Mise en solution totale par attaque acide	Méthode interne MTEL 1 ver 5
Terres	Eléments minéraux : Calcium, Cuivre, Fer, Magnesium, Manganèse, Potassium et Zinc	Extraction par acétate d'ammonium en présence d'EDTA et dosage par ICP	NF X 31-120
Terres	Bore	Extraction à l'eau bouillante et dosage par ICP	NF X 31-122
Terres	Capacité d'échange cationique (CEC) et cations extractibles	- Méthode à l'acétate d'ammonium	NF X 31-130

Date de prise d'effet :	**31/01/2010**

Section Laboratoires – ***Accréditation n° 1-1844***

Unité Technique 2: AGRO-ALIMENTAIRE

L'accréditation est accordée selon les domaines suivants :

ANALYSE DE CONTAMINANTS CHIMIQUES CHEZ LES ANIMAUX DANS LEURS PRODUITS ET LES DENREES ALIMENTAIRES DESTINEES A L'HOMME OU AUX ANIMAUX : METAUX (99-3)

ANALYSES DES BLES TENDRES, FARINES, ET AUTRES PRODUITS DE MOUTURE (119)

Elle porte sur les essais suivants :

Domaine 99-3

Objet	Caractéristique mesurée ou recherchée	Principe de la méthode	Référence de la méthode
Oléagineux et produits dérivés Végétaux Produits de la mer Produits carnés Produits alimentaires (fruits et légumes, céréales et produits dérivés, aliments pour animaux)	Détermination de la teneur en plomb, cadmium	**Minéralisation :** Voie humide (digestion par micro-ondes) **Analyse :** Spectrométrie d'absorption atomique à four graphite (AAS)	Méthode interne MD – EL2 V9 + MD – EL3 V1 adaptée de la norme NF EN 14084
Oléagineux et produits dérivés Végétaux Produits de la mer Produits carnés Produits alimentaires (fruits et légumes, céréales et produits dérivés, aliments pour animaux)	Détermination de la teneur en cuivre, zinc	**Minéralisation :** Voie humide (digestion par micro-ondes) **Analyse :** ICP/AES	Méthode interne MD – EL2 V9 + MD – EL4 V1 adaptée de la norme NF EN 14084
Oléagineux et produits dérivés Végétaux Produits de la mer Produits carnés Produits alimentaires (fruits et légumes, céréales et produits dérivés, aliments pour animaux)	Détermination de la teneur en mercure	**Minéralisation :** Voie humide (digestion par micro-ondes) **Analyse :** Spectrométrie d'Absorption Atomique (Kit Hydrure)	Méthode interne MD – EL2 V9 + MD – EL5 V1 adaptée de la norme NF EN 14084

Domaine 119

1.1. Analyses physiques

Objet	Caractéristique mesurée ou recherchée	Principe de la méthode	Référence de la méthode	Analyses intermédiaires obligatoires
Blés tendres	Détermination de la masse de 1000 grains	Gravimétrie	NF V03-702	Détermination de la teneur en eau

1.2. Analyses chimiques

Objet	Caractéristique mesurée ou recherchée	Principe de la méthode	Référence de la méthode	Analyses intermédiaires obligatoires
Blés tendres Farines	Détermination de la teneur en eau	Etuvage (130 - 133°C) Gravimétrie	NF V03-707	
Blés tendres Farines	Détermination des cendres	Incinération (900°C) Gravimétrie	NF ISO 2171	Détermination de la teneur en eau
Blés tendres Farines	Détermination de la teneur en azote et calcul de la teneur en protéines brutes*	Kjeldahl : Minéralisation Distillation Titrimétrie	NF EN ISO 20483	Détermination de la teneur en eau

Date de prise d'effet :	**31/01/2010**

Section Laboratoires – ***Accréditation n° 1-1844***

1.3. Essais technologiques

Objet	Caractéristique mesurée ou recherchée	Principe de la méthode	Référence de la méthode	Analyses intermédiaires obligatoires
Blés tendres Farines	Détermination du niveau d'activité alpha-amylasique	Indice de chute de Hagberg	NF EN ISO 3093	Détermination de la teneur en eau
Blés tendres	Détermination de l'indice de sédimentation – Test de Zélény	Mise en solution (acide lactique) Mesure graduelle	NF ISO 5529	Détermination de la teneur en eau
Blés tendres	Détermination des propriétes alvéographiques d'une pâte à hydratation constante de farine industrielle ou d'essai et méthodologie pour la mouture d'essai	Alvéographe de Chopin (3)	NF EN ISO 27971	Détermination de la teneur en eau
Farines	Détermination des propriétes alvéographiques d'une pâte à hydratation constante de farine industrielle ou d'essai et méthodologie pour la mouture d'essai	Alvéographe de Chopin	NF EN ISO 27971	Détermination de la teneur en eau

(3) Voir exigence spécifique p.7/8 du programme 119

Essais complémentaires

Objet	Caractéristique mesurée ou recherchée	Principe de la méthode	Référence de la méthode	Analyses intermédiaires obligatoires
Céréales Blé tendre	Détermination de la teneur en eau (méthode électrique)	Mesure d'impédance	Méthode interne (MC-EAR V2)	
Blé tendre	Détermination de la teneur en protéines	Proche INFRA ROUGE	Méthode interne (MC-PRI V3)	
Blé tendre Farine	Test de panification de type pain courant français	Pétrissage Fermentation Façonnage Cuisson	NF V03-716	Détermination du niveau d'activité alpha-amylasique Détermination de la teneur en eau

Fait à Paris, le 19 Janvier 2010

Le Responsable d'accréditation

David BAILLOUX

Date de prise d'effet :	31/01/2010

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 GLP or GEP status published or not	Vertebrate study Y/N	Owner
KCP Section 6 / 01	Guilhempere, N.; Tamosiunas, R.; Van Waetermeulen, X.	2021	Biological assessment dossier - Efficacy data and information - Detailed summary - Deltamethrin + flupyradifurone EC85 (85 g/L) - Central zone - Zonal rapporteur member state: Poland - Core assessment (extension of use) Report No.: M-772677-01-1 M-772677-02-1 - amended: 2023-01-16 Bayer S.A.S., Crop Science Division, Lyon, France GLP/GEP: n.a. unpublished		Bayer
KCP 6.1	Svenja Bellof, Olga Malsam	2019	Mixture Ratio Evaluation of Deltamethrin & Flupyradifurone EC85 (10 + 75 g/L) on Lepidopteran Pests. Bayer AG No GEP Unpublished	No	Bayer
KCP 6.1 / 01 **... also filed:** **KCP 6.2 / 01** **KCP 6.4 / 01**	Guilhempere, N.	2020	Compilation of trial reports for DLT+FPF EC85 - Efficacy trials on Ostrinia nubilalis and Helicoverpa armigera on corn Report No.: M-687456-01-1 M-687456-02-1 - amended: 2023-01-11 Bayer S.A.S., Crop Science Division, Lyon, France GLP/GEP: Yes unpublished	No	Bayer
KCP 6.1 / 02 **... also filed:** **KCP 6.2 / 02** **KCP 6.4 / 02**	Guilhempere, N.	2020	Compilation of trial reports for DLT+FPF EC85 - Efficacy trials on Diabrotica virgifera virgifera on corn Report No.: M-688139-01-1 Bayer S.A.S., Crop Science Division, Lyon, France GLP/GEP: Yes unpublished	No	Bayer
KCP 6.1 / 03 **... also filed:** **KCP 6.2 / 04** **KCP 6.4 / 04**	Fernandez-Moreno, P. T.	2020	Compilation of trial reports for DLT+FPF EC85 - Mixture justification, minimum effective dose and efficacy tests against cereal leaf beetles Oulema spp. on cereals in Maritime, South-East and North-East EPPO climatic zones Report No.: M-689778-01-1 M-689778-02-1- amended: 2022-12-22 Bayer AG, Crop Science Division, Monheim, Germany GLP/GEP: Yes unpublished	No	Bayer

Data Point	Author(s)	Year	**Title** **Company Report No.** **Source** **GLP or GEP status** **published or not**	**Vertebrate study Y/N**	**Owner**
KCP 6.1 / 04 **... also filed:** **KCP 6.2 / 05** **KCP 6.4 / 05**	Fernandez-Moreno, P. T.	2020	Compilation of trial reports for DLT+FPF EC85 - Mixture justification, minimum effective dose and efficacy tests against ear aphids on cereals, Maritime and South-East EPPO climatic zones Report No.: M-689779-01-1 M-689779-02-1- amended: 2022-12-22 Bayer AG, Crop Science Division, Monheim, Germany GLP/GEP: Yes unpublished	No	Bayer
KCP 6.1 / 05 **... also filed:** **KCP 6.2 / 06** **KCP 6.4 / 06**	Fernandez-Moreno, P. T.	2020	Compilation of trial reports for DLT+FPF EC85 - Mixture justification, minimum effective dose and efficacy tests on Eurygaster spp. on cereals, South-East EPPO climatic zone Report No.: M-689780-01-1 M-689780-02-1- amended: 2022-12-22 UAB Bayer, Vilnius, Lithuania GLP/GEP: Yes unpublished	No	Bayer
KCP 6.1 / 06 **... also filed:** **KCP 6.2 / 07** **KCP 6.4 / 07**	Fernandez-Moreno, P. T.	2020	Compilation of trial reports for DLT+FPF EC85 - Mixture justification, minimum effective dose and efficacy tests on Brachycaudus helichrysi and Lygus sp. on sunflower, Maritime and South-East climatic zones Report No.: M-689795-01-1 M-689795-02-1- amended: 2022-12-22 Bayer AG, Crop Science Division, Monheim, Germany GLP/GEP: Yes unpublished	No	Bayer
KCP 6.1 / 07 **... also filed:** **KCP 6.2 / 08** **KCP 6.4 / 08**	Guilhempere, N.	2020	Compilation of trial reports for DLT+FPF EC85 - Efficacy trials on Scaphoideus titanus on grape Report No.: M-687453-01-1 Bayer S.A.S., Crop Science Division, Lyon, France GLP/GEP: Yes unpublished	No	Bayer
KCP 6.2 / 01 **... also filed:** **KCP 6.1 / 01** **KCP 6.4 / 01**	Guilhempere, N.	2020	Compilation of trial reports for DLT+FPF EC85 - Efficacy trials on Ostrinia nubilalis and Helicoverpa armigera on corn Report No.: M-687456-01-1 M-687456-02-1- amended: 2023-01-11 Bayer S.A.S., Crop Science Division, Lyon, France GLP/GEP: Yes unpublished	No	Bayer
KCP 6.2 / 02 **... also filed:** **KCP 6.1 / 02** **KCP 6.4 / 02**	Guilhempere, N.	2020	Compilation of trial reports for DLT+FPF EC85 - Efficacy trials on Diabrotica virgifera virgifera on corn Report No.: M-688139-01-1 Bayer S.A.S., Crop Science Division, Lyon, France GLP/GEP: Yes unpublished	No	Bayer

Data Point	Author(s)	Year	**Title** **Company Report No.** **Source** **GLP or GEP status** **published or not**	**Vertebrate study Y/N**	**Owner**
KCP 6.2 / 03 **... also filed:** **KCP 6.4 / 03**	Guilhempere, N.	2020	Compilation of trial reports for DLT+FPF EC85 - Efficacy trials on Aphididae on corn Report No.: M-687450-01-1 M-687450-02-1- amended: 2022-12-22 Bayer S.A.S., Crop Science Division, Lyon, France GLP/GEP: Yes unpublished	No	Bayer
KCP 6.2 / 04 **... also filed:** **KCP 6.1 / 03** **KCP 6.4 / 04**	Fernandez-Moreno, P. T.	2020	Compilation of trial reports for DLT+FPF EC85 - Mixture justification, minimum effective dose and efficacy tests against cereal leaf beetles Oulema spp. on cereals in Maritime, South-East and North-East EPPO climatic zones Report No.: M-689778-01-1 M-689778-02-1- amended: 2022-12-22 Bayer AG, Crop Science Division, Monheim, Germany GLP/GEP: Yes unpublished	No	Bayer
KCP 6.2 / 05 **... also filed:** **KCP 6.1 / 04** **KCP 6.4 / 05**	Fernandez-Moreno, P. T.	2020	Compilation of trial reports for DLT+FPF EC85 - Mixture justification, minimum effective dose and efficacy tests against ear aphids on cereals, Maritime and South-East EPPO climatic zones Report No.: M-689779-01-1 M-689779-02-1- amended: 2022-12-22 Bayer AG, Crop Science Division, Monheim, Germany GLP/GEP: Yes unpublished	No	Bayer
KCP 6.2 / 06 **... also filed:** **KCP 6.1 / 05** **KCP 6.4 / 06**	Fernandez-Moreno, P. T.	2020	Compilation of trial reports for DLT+FPF EC85 - Mixture justification, minimum effective dose and efficacy tests on Eurygaster spp. on cereals, South-East EPPO climatic zone Report No.: M-689780-01-1 M-689780-02-1- amended: 2022-12-22 UAB Bayer, Vilnius, Lithuania GLP/GEP: Yes unpublished	No	Bayer
KCP 6.2 / 07 **... also filed:** **KCP 6.1 / 06** **KCP 6.4 / 07**	Fernandez-Moreno, P. T.	2020	Compilation of trial reports for DLT+FPF EC85 - Mixture justification, minimum effective dose and efficacy tests on Brachycaudus helichrysi and Lygus sp. on sunflower, Maritime and South-East climatic zones Report No.: M-689795-01-1 M-689795-02-1- amended: 2022-12-22 Bayer AG, Crop Science Division, Monheim, Germany GLP/GEP: Yes unpublished	No	Bayer

Data Point	Author(s)	Year	**Title** **Company Report No.** **Source** **GLP or GEP status** **published or not**	**Vertebrate study Y/N**	**Owner**
KCP 6.2 / 08 **... also filed:** **KCP 6.1 / 07** **KCP 6.4 / 08**	Guilhempere, N.	2020	Compilation of trial reports for DLT+FPF EC85 - Efficacy trials on Scaphoideus titanus on grape Report No.: M-687453-01-1 Bayer S.A.S., Crop Science Division, Lyon, France GLP/GEP: Yes unpublished	No	Bayer
KCP 6.3 / 01	Nauen, R.	2021	Resistance statement - Information on the occurrence or possible occurrence of the development of resistance of the plant protection product Sivanto Energy - Central zone (for submission in Europe) Report No.: M-771185-01-1 Bayer AG, Crop Science Division, Monheim, Germany GLP/GEP: n.a. unpublished	No	Bayer
KCP 6.4 / 01 **... also filed:** **KCP 6.1 / 01** **KCP 6.2 / 01**	Guilhempere, N.	2020	Compilation of trial reports for DLT+FPF EC85 - Efficacy trials on Ostrinia nubilalis and Helicoverpa armigera on corn Report No.: M-687456-01-1 M-687456-02-1- amended: 2023-01-11 Bayer S.A.S., Crop Science Division, Lyon, France GLP/GEP: Yes unpublished	No	Bayer
KCP 6.4 / 02 **... also filed:** **KCP 6.1 / 02** **KCP 6.2 / 02**	Guilhempere, N.	2020	Compilation of trial reports for DLT+FPF EC85 - Efficacy trials on Diabrotica virgifera virgifera on corn Report No.: M-688139-01-1 Bayer S.A.S., Crop Science Division, Lyon, France GLP/GEP: Yes unpublished	No	Bayer
KCP 6.4 / 03 **... also filed:** **KCP 6.2 / 03**	Guilhempere, N.	2020	Compilation of trial reports for DLT+FPF EC85 - Efficacy trials on Aphididae on corn Report No.: M-687450-01-1 M-687450-02-1- amended: 2022-12-22 Bayer S.A.S., Crop Science Division, Lyon, France GLP/GEP: Yes unpublished	No	Bayer
KCP 6.4 / 04 **... also filed:** **KCP 6.1 / 03** **KCP 6.2 / 04**	Fernandez-Moreno, P. T.	2020	Compilation of trial reports for DLT+FPF EC85 - Mixture justification, minimum effective dose and efficacy tests against cereal leaf beetles Oulema spp. on cereals in Maritime, South-East and North-East EPPO climatic zones Report No.: M-689778-01-1 M-689778-02-1- amended: 2022-12-22 Bayer AG, Crop Science Division, Monheim, Germany GLP/GEP: Yes unpublished	No	Bayer

Data Point	Author(s)	Year	**Title** **Company Report No.** **Source** **GLP or GEP status** **published or not**	**Vertebrate study Y/N**	**Owner**
KCP 6.4 / 05 **... also filed:** **KCP 6.1 / 04** **KCP 6.2 / 05**	Fernandez-Moreno, P. T.	2020	Compilation of trial reports for DLT+FPF EC85 - Mixture justification, minimum effective dose and efficacy tests against ear aphids on cereals, Maritime and South-East EPPO climatic zones Report No.: M-689779-01-1 M-689779-02-1- amended: 2022-12-22 Bayer AG, Crop Science Division, Monheim, Germany GLP/GEP: Yes unpublished	No	Bayer
KCP 6.4 / 06 **... also filed:** **KCP 6.1 / 05** **KCP 6.2 / 06**	Fernandez-Moreno, P. T.	2020	Compilation of trial reports for DLT+FPF EC85 - Mixture justification, minimum effective dose and efficacy tests on Eurygaster spp. on cereals, South-East EPPO climatic zone Report No.: M-689780-01-1 M-689780-02-1- amended: 2022-12-22 UAB Bayer, Vilnius, Lithuania GLP/GEP: Yes unpublished	No	Bayer
KCP 6.4 / 07 **... also filed:** **KCP 6.1 / 06** **KCP 6.2 / 07**	Fernandez-Moreno, P. T.	2020	Compilation of trial reports for DLT+FPF EC85 - Mixture justification, minimum effective dose and efficacy tests on Brachycaudus helichrysi and Lygus sp. on sunflower, Maritime and South-East climatic zones Report No.: M-689795-01-1 M-689795-02-1- amended: 2022-12-22 Bayer AG, Crop Science Division, Monheim, Germany GLP/GEP: Yes unpublished	No	Bayer
KCP 6.4 / 08 **... also filed:** **KCP 6.1 / 07** **KCP 6.2 / 08**	Guilhempere, N.	2020	Compilation of trial reports for DLT+FPF EC85 - Efficacy trials on Scaphoideus titanus on grape Report No.: M-687453-01-1 Bayer S.A.S., Crop Science Division, Lyon, France GLP/GEP: Yes unpublished	No	Bayer
KCP 6.4 / 09 **... also filed:** **KCP 6.4.4 / 02**	Guilhempere, N.	2020	Compilation of trial reports for DLT+FPF EC85 - Effects on processing procedure (grapevine) Report No.: M-687457-01-1 Bayer S.A.S., Crop Science Division, Lyon, France GLP/GEP: Yes unpublished	No	Bayer
KCP 6.4 / 10 **... also filed:** **KCP 10.6.2 / 01** **KCP 5.1 / 45** **KCP 6.5.2 / 01**	Ripperger, D.	2016	Deltamethrin + flupyradifurone EC 85 (10+75 g/L): Effects on the vegetative vigour of non-target terrestrial plant species under greenhouse conditions Report No.: S15-01671, Edition Number: M-554604-01-1 Eurofins Agroscience Services EcoChem GmbH, Niefern-Oeschelbronn, Germany GLP/GEP: Yes unpublished	No	Bayer

Data Point	Author(s)	Year	**Title** **Company Report No.** **Source** **GLP or GEP status** **published or not**	**Vertebrate study Y/N**	**Owner**
KCP 6.4 / 11 **... also filed:** **KCP 10.6.2 / 02** **KCP 5.1 / 44** **KCP 6.5.1 / 01**	Ripperger, D.	2016	Deltamethrin + flupyradifurone EC 85 (10+75 g/L): Effects on the seedling emergence of non-target terrestrial plant species under greenhouse conditions Report No.: S15-01670, Edition Number: M-554592-01-1 Eurofins Agroscience Services EcoChem GmbH, Niefern-Oeschelbronn, Germany GLP/GEP: Yes unpublished	No	Bayer
KCP 6.4.4 / 01	Tamosiunas, R.	2020	Compilation of trial reports for DLT+FPF EC85 - Effect on the processing procedure winter wheat Report No.: M-686623-01-1 Bayer S.A.S., Crop Science Division, Lyon, France GLP/GEP: Yes unpublished	No	Bayer
KCP 6.4.4 / 02 **... also filed:** **KCP 6.4 / 09**	Guilhempere, N.	2020	Compilation of trial reports for DLT+FPF EC85 - Effects on processing procedure (grapevine) Report No.: M-687457-01-1 Bayer S.A.S., Crop Science Division, Lyon, France GLP/GEP: Yes unpublished	No	Bayer
KCP 6.5.1 / 01 **... also filed:** **KCP 10.6.2 / 02** **KCP 5.1 / 44** **KCP 6.4 / 11**	Ripperger, D.	2016	Deltamethrin + flupyradifurone EC 85 (10+75 g/L): Effects on the seedling emergence of non-target terrestrial plant species under greenhouse conditions Report No.: S15-01670, Edition Number: M-554592-01-1 Eurofins Agroscience Services EcoChem GmbH, Niefern-Oeschelbronn, Germany GLP/GEP: Yes unpublished	No	Bayer
KCP 6.5.2 / 01 **... also filed:** **KCP 10.6.2 / 01** **KCP 5.1 / 45** **KCP 6.4 / 10**	Ripperger, D.	2016	Deltamethrin + flupyradifurone EC 85 (10+75 g/L): Effects on the vegetative vigour of non-target terrestrial plant species under greenhouse conditions Report No.: S15-01671, Edition Number: M-554604-01-1 Eurofins Agroscience Services EcoChem GmbH, Niefern-Oeschelbronn, Germany GLP/GEP: Yes unpublished	No	Bayer

List of individual trial reports per CTR

Compilation of Trial Reports for Preliminary, Minimum effective dose, Efficacy and Adverse effects of DLT+FPF EC85 on corn against Ostrinia nubilalis (PYRUNU) and Helicoverpa armigera (HELIAR)

Report N°: M-687456-02-1

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
3.2.1, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14BGRMZ1EAS1	Bulgaria	2014	Decis post-AIR (DLT EC100) / PYRUNU and HELIAR in maize Evaluation of Sivanto Energy xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14CZE501ATC1	Czech Republic	2014	Decis post-AIR (DLT EW015) / PYRUNU in maize Evaluation of Sivanto Energy xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14CZE501TR01	Czech Republic	2014	Decis post-AIR (DLT EW015) / PYRUNU in maize Evaluation of Sivanto Energy xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14HUNCN1RJ01	Hungary	2014	Decis post-AIR (DLT EC100) / PYRUNU and HELIAR in maize Evaluation of Sivanto Energy xxx GEP Unpublished	Yes	Bayer CropScience Division

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
3.2.1, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14HUNCN1TF07	Hungary	2014	Decis post-AIR (DLT EC100) / PYRUNU and HELIAR in maize Evaluation of Sivanto Energy xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14HUNM7WIK01	Hungary	2014	Decis post-AIR (DLT EC100) / PYRUNU and HELIAR in maize Evaluation of Sivanto Energy GEP Unpublished	Yes	Bayer CropScience Division
~~3.2.3,~~ 3.4	~~KCP 6.2,~~ KCP 6.4	IR14ROUCS5EB01	Romania	2014	Evaluation of FPF+DLT EC085 against Leps in field fruiting vegetables post-AIR of Decis xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14SVK156VK30	Slovakia	2014	Decis post-AIR (DLT EW015) / PYRUNU and HELIAR in maize Evaluation of Sivanto Energy xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14SVK156VK31	Slovakia	2014	Decis post-AIR (DLT EW015) / PYRUNU and HELIAR in maize Evaluation of Sivanto Energy xxx GEP Unpublished	Yes	Bayer CropScience Division

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
3.2.1, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14SVK156VK32	Slovakia	2014	Decis post-AIR (DLT EW015) / PYRUNU and HELIAR in maize Evaluation of Sivanto Energy xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.3, 3.4	KCP 6.2, KCP 6.4	IR15BGRTO2EAS1	Bulgaria	2015	Evaluation of FPF+DLT EC085 against Leps in field fruiting vegetables post-AIR of Decis xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.3, 3.4	KCP 6.2, KCP 6.4	IR17BGRMZ1EAS1	Bulgaria	2017	Efficay of DLT+FPF EC085 against HELIAR/PYRUNU in maize. xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.3, 3.4	KCP 6.2, KCP 6.4	IR17BGRTO2AN91	Bulgaria	2017	Evaluation of FPF+DLT EC085 against HELIAR in field tomato xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.3, 3.4	KCP 6.2, KCP 6.4	IR17BGRTO2PV09	Bulgaria	2017	Evaluation of FPF+DLT EC085 against HELIAR in field tomato xxx GEP Unpublished	Yes	Bayer CropScience Division

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
3.2.3, 3.4	KCP 6.2, KCP 6.4	IR17CZE501TR01	Czech Republic	2017	Efficay of DLT+FPF EC085 against HELIAR/PYRUNU in maize. xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.3, 3.4	KCP 6.2, KCP 6.4	IR17HUNCN1S373	Hungary	2017	Efficay of DLT+FPF EC085 against HELIAR/PYRUNU in maize. xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.2, 3.2.3, 3.4	KCP 6.2, KCP 6.4	IR17POLM01EAS1	Poland	2017	Efficacy of DLT+FPF EC085 against DIABVI and PYRANU in maize Oc.skut.DLT+FPFEC85(syn Sivanto EnergyEC85) na szkodniki w kukurydzy xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.2, 3.2.3, 3.4	KCP 6.2, KCP 6.4	IR17POLM01EAS2	Poland	2017	Efficacy of DLT+FPF EC085 against DIABVI and PYRANU in maize Oc.skut.DLT+FPFEC85(syn Sivanto EnergyEC85) na szkodniki w kukurydzy xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.2, 3.2.3, 3.4	KCP 6.2, KCP 6.4	IR17POLM01EAS3	Poland	2017	Efficacy of DLT+FPF EC085 against DIABVI and PYRANU in maize Oc.skut.DLT+FPFEC85(syn Sivanto EnergyEC85) na szkodniki w kukurydzy xxx GEP Unpublished	Yes	Bayer CropScience Division

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
3.2.2, 3.2.3, 3.4	KCP 6.2, KCP 6.4	IR17POLM01EAS4	Poland	2017	Efficacy of DLT+FPF EC085 against DIABVI and PYRANU in maize Oc.skut.DLT+FPFEC85(syn Sivanto EnergyEC85) na szkodniki w kukurydzy xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.3, 3.4	KCP 6.2, KCP 6.4	IR17ROU009DE22	Romania	2017	Efficay of DLT+FPF EC085 against HELIAR/PYRUNU in maize. xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.3, 3.4	KCP 6.2, KCP 6.4	IR17ROU012-026	Romania	2017	Evaluation of FPF+DLT EC085 against HELIAR in field tomato. xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.3, 3.4	KCP 6.2, KCP 6.4	IR17ROU012-027	Romania	2017	Evaluation of FPF+DLT EC085 against HELIAR in field tomato. xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.3, 3.4	KCP 6.2, KCP 6.4	IR17SVK103VK06	Slovakia	2017	Efficay of Sivanto Energy against HELIAR/PYRUNU in maize. xxx GEP Unpublished	Yes	Bayer CropScience Division

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR18BGRMZ1EAS1	Bulgaria	2018	Efficay of DLT+FPF EC085 against HELIAR/PYRUNU in ZEAMX. xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR18BGRTO1AN94	Bulgaria	2018	Efficacy of FPF+DLT EC085 against HELIAR in field tomato. xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR18BGRTO1PV07	Bulgaria	2018	Efficacy of FPF+DLT EC085 against HELIAR in field tomato. xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR18CZE501NE01	Czech Republic	2018	Efficay of DLT+FPF EC085 against HELIAR/PYRUNU in ZEAMX. xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR18CZE501TR01	Czech Republic	2018	Efficay of DLT+FPF EC085 against HELIAR/PYRUNU in ZEAMX. xxx GEP Unpublished	Yes	Bayer CropScience Division

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR18HUNCN3S505	Hungary	2018	Efficay of DLT+FPF EC085 against HELIAR/PYRUNU in ZEAMX. xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.2, 3.2.3, 3.4	KCP 6.2, KCP 6.4	IR18POLM01EAS1	Poland	2018	Efficacy of DLT+FPF EC085 against DIABVI and PYRANU in maize Oc.skut.DLT+FPFEC85(syn Sivanto EnergyEC85) na szkodniki w kukurydzy xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.2, 3.2.3, 3.4	KCP 6.2, KCP 6.4	IR18POLM01EAS2	Poland	2018	Efficacy of DLT+FPF EC085 against DIABVI and PYRANU in maize Oc.skut.DLT+FPFEC85(syn Sivanto EnergyEC85) na szkodniki w kukurydzy xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.2, 3.2.3, 3.4	KCP 6.2, KCP 6.4	IR18POLM01EAS3	Poland	2018	Efficacy of DLT+FPF EC085 against DIABVI and PYRANU in maize Oc.skut.DLT+FPFEC85(syn Sivanto EnergyEC85) na szkodniki w kukurydzy xxx GEP Unpublished	Yes	Bayer CropScience Division

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
3.2.2, 3.2.3, 3.4	KCP 6.2, KCP 6.4	IR18POLM01EAS4	Poland	2018	Efficacy of DLT+FPF EC085 against DIABVI and PYRANU in maize Oc.skut.DLT+FPFEC85(syn Sivanto EnergyEC85) na szkodniki w kukurydzy xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR18ROU008CP01	Romania	2018	Efficacy of FPF+DLT EC085 against HELIAR in field tomato. xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR18ROU008CP02	Romania	2018	Efficacy of FPF+DLT EC085 against HELIAR in field tomato. xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR18ROU009FU01	Romania	2018	Efficay of DLT+FPF EC085 against HELIAR/PYRUNU in ZEAMX. xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR18SVK102VK08	Slovakia	2018	Efficacy of DLT+FPF EC085 against HELIAR/PYRUNU in ZEAMX. xxx GEP Unpublished	Yes	Bayer CropScience Division

Compilation of Trial Reports for Preliminary, Minimum effective dose, Efficacy and Adverse effects of DLT+FPF EC85 on corn against Diabrotica virgifera virgifera (DIABVI)

Report N°: M-688139-01-1

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
3.2.1, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14SVK155VK36	Slovakia	2014	DLT+FPF EC085 against DIABVI in maize xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14SVK155VK37	Slovakia	2014	DLT+FPF EC085 against DIABVI in maize xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15HUNCN3S484	Hungary	2015	DLT+FPF EC085 against DIABVI in maize xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15HUNCN3TF05	Hungary	2015	DLT+FPF EC085 against DIABVI in maize GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15SVK403VK56	Slovakia	2015	Sivanto Energy against DIABVI in maize xxx GEP Unpublished	Yes	Bayer CropScience Division

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15SVK403VK57	Slovakia	2015	Sivanto Energy against DIABVI in maize xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR16HUNCN1S565	Hungary	2016	Efficacy of DLT+FPF EC085 against DIABVI in maize xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR16HUNCN1SY02	Hungary	2016	Efficacy of DLT+FPF EC085 against DIABVI in maize xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR16SVK708VK44	Slovakia	2016	Efficacy of Sivanto Energy against DIABVI in maize xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR16SVK708VK45	Slovakia	2016	Efficacy of Sivanto Energy against DIABVI in maize xxx GEP Unpublished	Yes	Bayer CropScience Division

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR17HUNCN2S374	Hungary	2017	Efficacy of DLT+FPF EC085 against DIABVI in maize xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR17POLM01GPR3	Poland	2017	Efficacy of DLT+FPF EC085 against DIABVI and PYRANU in maize Oc.skut.DLT+FPFEC85(syn Sivanto EnergyEC85) na szkodniki w kukurydzy xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR17POLM01GPR4	Poland	2017	Efficacy of DLT+FPF EC085 against DIABVI and PYRANU in maize Oc.skut.DLT+FPFEC85(syn Sivanto EnergyEC85) na szkodniki w kukurydzy xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR17SVK105VK05	Slovakia	2017	Efficacy of Sivanto Energy against DIABVI in maize xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR18HUNCN1S022	Hungary	2018	Efficacy of DLT+FPF EC085 against DIABVI in ZEAMX xxx GEP Unpublished	Yes	Bayer CropScience Division

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR18POLM01GPR3	Poland	2018	Efficacy of DLT+FPF EC085 against DIABVI and PYRANU in maize Oc.skut.DLT+FPFEC85(syn Sivanto EnergyEC85) na szkodniki w kukurydzy xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR18POLM01GPR4	Poland	2018	Efficacy of DLT+FPF EC085 against DIABVI and PYRANU in maize Oc.skut.DLT+FPFEC85(syn Sivanto EnergyEC85) na szkodniki w kukurydzy xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR18SVK101VK07	Slovakia	2018	Efficacy of DLT+FPF EC085 against DIABVI in ZEAMX xxx GEP Unpublished	Yes	Bayer CropScience Division

Compilation of Trial Reports for Preliminary, Minimum effective dose, Efficacy and Adverse effects of DLT+FPF EC85 on corn against Aphididae

Report N°: M-687450-02-1

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
3.2.2, 3.2.3, 3.4	KCP 6.2, KCP 6.4	IR16BGRMZ1EAS1	Bulgaria	2016	Efficacy of DLT+FPF EC085 against aphids in maize xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.2, 3.2.3, 3.4	KCP 6.2, KCP 6.4	IR16CZE502NE01	Czech Republic	2016	Efficacy of DLT+FPF EC085 against aphids in maize xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.2, 3.2.3, 3.4	KCP 6.2, KCP 6.4	IR16CZE502TR01	Czech Republic	2016	Efficacy of DLT+FPF EC085 against aphids in maize xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.2, 3.2.3, 3.4	KCP 6.2, KCP 6.4	IR16HUNCN3S577	Hungary	2016	Efficacy of DLT+FPF EC085 against aphids in maize xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.2, 3.2.3, 3.4	KCP 6.2, KCP 6.4	IR16HUNCN3S578	Hungary	2016	Efficacy of DLT+FPF EC085 against aphids in maize xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.2, 3.2.3, 3.4	KCP 6.2, KCP 6.4	IR16SVK709RS16	Slovakia	2016	Efficacy of Sivanto Energy against aphids in maize xxx GEP	Yes	Bayer CropScience Division

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	**Title** **Source (where different from company)** **GLP or GEP status (where relevant)** **Published or Unpublished**	Data protection claimed (Yes/No)	Owner
					Unpublished		
3.2.2, 3.2.3, 3.4	KCP 6.2, KCP 6.4	IR17CZE502NE01	Czech Republic	2017	Efficacy of DLT+FPF EC085 against aphids in maize xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.2, 3.2.3, 3.4	KCP 6.2, KCP 6.4	IR17CZE502TR01	Czech Republic	2017	Efficacy of DLT+FPF EC085 against aphids in maize xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.2, 3.2.3, 3.4	KCP 6.2, KCP 6.4	IR17HUNCN3S375	Hungary	2017	Efficacy of DLT+FPF EC085 against aphids in maize xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.2, 3.2.3, 3.4	KCP 6.2, KCP 6.4	IR17ROU008DE21	Romania	2017	Efficacy of DLT+FPF EC085 against aphids in maize xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.2, 3.2.3, 3.4	KCP 6.2, KCP 6.4	IR17SVK104KE02	Slovakia	2017	Efficacy of Sivanto Energy against aphids in maize xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.2, 3.2.3, 3.4	KCP 6.2, KCP 6.4	IR18CZE502NE01	Czech Republic	2018	Efficacy of DLT+FPF EC085 against aphids in maize xxx GEP	Yes	Bayer CropScience Division

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	**Title** **Source (where different from company)** **GLP or GEP status (where relevant)** **Published or Unpublished**	Data protection claimed (Yes/No)	Owner
					Unpublished		
3.2.2, 3.2.3, 3.4	KCP 6.2, KCP 6.4	IR18HUNCN2S504	Hungary	2018	Efficacy of DLT+FPF EC085 against aphids in maize xxx GEP Unpublished	Yes	Bayer CropScience Division
~~3.2.2, 3.2.3,~~ 3.4	~~KCP 6.2,~~ KCP 6.4	IR18SVK103VK09	Slovakia	2018	Efficacy of DLT+FPF EC085 against aphids in maize xxx GEP Unpublished	Yes	Bayer CropScience Division

Compilation of Trial Reports for Mixture justification, minimum effective dose and efficacy tests against cereal leaf beetles Oulema spp. on cereals in Maritime, South-East and North-East EPPO climatic zones.

Report N°: M-689778-02-1

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14CZE401DO01	Czech Republic	2014	Evaluation of FPF+DLT EC085 against ear aphids in wheat (CZ) Decis post- AIR (DLT EW015; DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.4	KCP 6.4	IR14CZE401KU01	Czech Republic	2014	Evaluation of FPF+DLT EC085 against ear aphids in wheat (CZ) Decis post- AIR (DLT EW015; DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14CZE401NE01	Czech Republic	2014	Evaluation of FPF+DLT EC085 against ear aphids in wheat (CZ) Decis post- AIR (DLT EW015; DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14CZE401TU01	Czech Republic	2014	Evaluation of FPF+DLT EC085 against ear aphids in wheat (CZ) Decis post- AIR (DLT EW015; DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14HUNWW1GS01	Hungary	2014	Decis post-AIR (DLT EC100) against leaf beetle in wheat (CZ, SE) Proteus 110 OD local registration xxx GEP	Yes	Bayer CropScience Division

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14SVK441KE15	Slovakia	2014	Evaluation of FPF+DLT EC085 against ear aphids in wheat (CZ) Decis post- AIR (DLT EW015; DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14SVK441RS14	Slovakia	2014	Evaluation of FPF+DLT EC085 against ear aphids in wheat (CZ) Decis post- AIR (DLT EW015; DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15BGRWH2VA13	Bulgaria	2015	Evaluation of FPF+DLT EC085 against ear aphids in wheat (CZ) Decis post- AIR (DLT EW015; DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15BGRWH2VA14	Bulgaria	2015	Evaluation of FPF+DLT EC085 against ear aphids in wheat (CZ) Decis post- AIR (DLT EW015; DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15CZE401DO01	Czech Republic	2015	Evaluation of FPF+DLT EC085 against ear aphids in wheat (CZ) Decis post- AIR (DLT EW015; DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15CZE401KU01	Czech Republic	2015	Evaluation of FPF+DLT EC085 against ear aphids in wheat (CZ) Decis post- AIR (DLT EW015; DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15CZE401NE01	Czech Republic	2015	Evaluation of FPF+DLT EC085 against ear aphids in wheat (CZ) Decis post- AIR (DLT EW015; DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15CZE401TU01	Czech Republic	2015	Evaluation of FPF+DLT EC085 against ear aphids in wheat (CZ) Decis post- AIR (DLT EW015; DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15HUNWW1BO01	Hungary	2015	Evaluation of FPF+DLT EC085 against ear aphids in wheat (CZ) Decis post- AIR (DLT EW015; DLT EC100) xxxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15HUNWW1LB01	Hungary	2015	Evaluation of FPF+DLT EC085 against ear aphids in wheat (CZ) Decis post- AIR (DLT EW015; DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15SVK400KE08	Slovakia	2015	Evaluation of Sivanto Energy against MACSAV in wheat (CZ) Decis post- AIR (DLT EW015; DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15SVK400RS15	Slovakia	2015	Evaluation of Sivanto Energy against MACSAV in wheat (CZ) Decis post- AIR (DLT EW015; DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.4	KCP 6.4	IR16BGRWH3PV02	Bulgaria	2016	Evaluation of DLT+FPF EC085 against cereals aphids Decis post- AIR (DLT EC100) SGS Bulgaria Ltd. GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR16CZE401KL01	Czech Republic	2016	Evaluation of DLT+FPF EC085 against cereals aphids Decis post- AIR (DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR16CZE402KU01	Czech Republic	2016	Efficacy of DLT+FPF EC085 against leaf beetle in wheat xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.3, 3.4	KCP 6.2, KCP 6.4	IR16CZE401DO01	Czech Republic	2016	Evaluation of DLT+FPF EC085 against cereals aphids Decis post- AIR (DLT EC100) xxx GEP	Yes	Bayer CropScience Division

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished Unpublished	Data protection claimed (Yes/No)	Owner
3.4	KCP 6.4	IR16HUNWW1FR01	Hungary	2016	Evaluation of DLT+FPF EC085 against cereals aphids Decis post- AIR (DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.4	KCP 6.4	IR16HUNWW1VE03	Hungary	2016	Evaluation of DLT+FPF EC085 against cereals aphids in cereal Decis post- AIR (DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR16ROU008DE12	Romania	2016	Evaluation of DLT+FPF EC085 against cereals aphids Decis post- AIR (DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR16ROU008FU01	Romania	2016	Evaluation of DLT+FPF EC085 against cereals aphids Decis post- AIR (DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR16SVK702VK29	Slovakia	2016	Evaluation of Sivanto Energy against MACSAV Decis post- AIR (DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR17BGRWH3EAS1	Bulgaria	2017	Evaluation of DLT+FPF EC085 against cereals aphids xxx GEP	Yes	Bayer CropScience Division

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished Unpublished	Data protection claimed (Yes/No)	Owner
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR17BGRWH3VA21	Bulgaria	2017	Evaluation of DLT+FPF EC085 against cereals aphids xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR17ROU002AG19	Romania	2017	Evaluation of DLT+FPF EC085 against cereals aphids xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR17ROU002DE19	Romania	2017	Evaluation of DLT+FPF EC085 against cereals aphids xxx GEP Unpublished	Yes	Bayer CropScience Division

Compilation of Trial Reports for Mixture justification, minimum effective dose and efficacy tests against cereal leaf beetles Oulema spp. on cereals in Maritime, South-East and North-East EPPO climatic zones.

Report N°: M-689778-02-1

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14CZE401KU01	Czech Republic	2014	Evaluation of FPF+DLT EC085 against ear aphids in wheat (CZ) Decis post- AIR (DLT EW015; DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14CZE402KD01	Czech Republic	2014	Evaluation of FPF+DLT EC085 against leaf beetle in wheat (CZ) Decis post- AIR xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14CZE402KL01	Czech Republic	2014	Evaluation of FPF+DLT EC085 against leaf beetle in wheat (CZ) Decis post- AIR xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14CZE402KU01	Czech Republic	2014	Evaluation of FPF+DLT EC085 against leaf beetle in wheat (CZ) Decis post- AIR xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14CZE402NE01	Czech Republic	2014	Evaluation of FPF+DLT EC085 against leaf beetle in wheat (CZ) Decis post- AIR xxx GEP Unpublished	Yes	Bayer CropScience Division

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
3.2.3, 3.4	KCP 6.2, KCP 6.4	IR14HUNWW1CS01	Hungary	2014	Decis post-AIR (DLT EC100) against leaf beetle in wheat (CZ, SE) Proteus 110 OD local registration xxx GEP Unpublished	Yes	Bayer CropScience Division
3.4	KCP 6.4	IR14HUNWW1MA01	Hungary	2014	Decis post-AIR (DLT EC100) against leaf beetle in wheat (CZ, SE) Proteus 110 OD local registration xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.3, 3.4	KCP 6.2, KCP 6.4	IR14HUNWW1NO02	Hungary	2014	Decis post-AIR (DLT EC100) against leaf beetle in wheat (CZ, SE) Proteus 110 OD local registration xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.3, 3.4	KCP 6.2, KCP 6.4	IR14HUNWW1VE01	Hungary	2014	Decis post-AIR (DLT EC100) against leaf beetle in wheat (CZ, SE) Proteus 110 OD local registration xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14SVK440KE16	Slovakia	2014	Evaluation of FPF+DLT EC085 against leaf beetle in wheat (CZ) Decis post- AIR xxx GEP Unpublished	Yes	Bayer CropScience Division

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15BGRWH1EAS1	Bulgaria	2015	Efficacy of DLT+FPF EC0850 against leaf beetle in wheat (CZ, SE) Decis post-AIR xxx GEP Unpublished	Yes	Bayer CropScience Division
3.4	KCP 6.4	IR15BGRWH1VA12	Bulgaria	2015	Efficacy of DLT+FPF EC0850 against leaf beetle in wheat (CZ, SE) Decis post-AIR xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15CZE402KU01	Czech Republic	2015	Evaluation of FPF+DLT EC085 against leaf beetle in wheat (CZ) Decis post- AIR xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15CZE402NE01	Czech Republic	2015	Evaluation of FPF+DLT EC085 against leaf beetle in wheat (CZ) Decis post- AIR xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15HUNWW2LB01	Hungary	2015	Efficacy of DLT+FPF EC0850 against leaf beetle in wheat (CZ, SE) Decis post-AIR xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15HUNWW2NO01	Hungary	2015	Efficacy of DLT+FPF EC0850 against leaf beetle in wheat (CZ, SE) Decis post-AIR xxx GEP Unpublished	Yes	Bayer CropScience Division

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15SVK401KE07	Slovakia	2015	Evaluation of Sivanto Energy against LEMAME in wheat (CZ) Decis post- AIR xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15SVK401VK54	Slovakia	2015	Evaluation of Sivanto Energy against LEMAME in wheat (CZ) Decis post- AIR xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR16CZE402KU01	Czech Republic	2016	Efficacy of DLT+FPF EC085 against leaf beetle in wheat xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR16CZE402NE01	Czech Republic	2016	Efficacy of DLT+FPF EC085 against leaf beetle in wheat xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR16HUNWW2LB01	Hungary	2016	Efficacy of DLT+FPF EC085 against leaf beetle in wheat xxx GEP Unpublished	Yes	Bayer CropScience Division
3.4	KCP 6.4	IR16HUNWW2VE02	Hungary	2016	Efficacy of DLT+FPF EC085 against leaf beetle in winter barley xxx GEP Unpublished	Yes	Bayer CropScience Division

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
3.4	KCP 6.4	IR16LTUCP1RS06	Lithuania	2016	Evaluation of DLT+FPF EC085 against cereals aphids xxx GEP Unpublished	Yes	Bayer CropScience Division
3.4	KCP 6.4	IR16LTUCP2RS05	Lithuania	2016	Evaluation of DLT+FPF EC085 against leaf beetles in cereals xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR16LVACP22575	Latvia	2016	Evaluation of DLT+FPF EC085 against leaf beetles in cereals xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR16LVACP22576	Latvia	2016	Evaluation of DLT+FPF EC085 against leaf beetles in cereals xxx GEP Unpublished	Yes	Bayer CropScience Division
3.4	KCP 6.4	IR16POLC01STAK	Poland	2016	Efficacy of DLT+FPF EC085 against leaf beetle in wheat GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR16POLC01TOLK	Poland	2016	Efficacy of DLT+FPF EC085 against leaf beetle in wheat GEP Unpublished	Yes	Bayer CropScience Division

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
3.4	KCP 6.4	IR16POLC02PAAS	Poland	2016	Efficacy of DLT+FPF EC085 against leaf beetle in wheat GEP Unpublished	Yes	Bayer CropScience Division
3.4	KCP 6.4	IR16POLC02SAAK	Poland	2016	Efficacy of DLT+FPF EC085 against leaf beetle in wheat GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR16SVK703KE09	Slovakia	2016	Efficacy of Sivanto Energy against OULESP/LEMAME xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR17BGRWH1EAS1	Bulgaria	2017	Efficacy of DLT+FPF EC085 against leaf beetle in wheat xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR17BGRWH1PV01	Bulgaria	2017	Efficacy of DLT+FPF EC085 against leaf beetle in wheat xxx GEP Unpublished	Yes	Bayer CropScience Division
3.4	KCP 6.4	IR17LTUSE4BV07	Lithuania	2017	Evaluation of DLT+FPF EC085 against leaf beetles in cereals xxx GEP Unpublished	Yes	Bayer CropScience Division

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR17ROU003FU01	Romania	2017	Efficacy of DLT+FPF EC085 against leaf beetle in wheat xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR17SVK101RS17	Slovakia	2017	Efficacy of Sivanto Energy against leaf beetle in wheat xxx GEP Unpublished	Yes	Bayer CropScience Division
3.4	KCP 6.4	IR18LTUSE4AS02	Lithuania	2018	Efficacy of DLT+FPF EC085 against leaf beetle in wheat xxx GEP Unpublished	Yes	Bayer CropScience Division
3.4	KCP 6.4	IR18LVASE33247	Latvia	2018	Evaluation of DLT+FPF EC085 against cereals aphids xxx GEP Unpublished	Yes	Bayer CropScience Division
3.4	KCP 6.4	IR18LVASE43248	Latvia	2018	Efficacy of DLT+FPF EC085 against leaf beetle in wheat xxx GEP Unpublished	Yes	Bayer CropScience Division

Compilation of Trial Reports for Mixture justification, minimum effective dose and efficacy tests against ear aphids on cereals, Maritime and South-East EPPO climatic zones

Report N°: M-689779-02-1

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
~~3.2.1, 3.2.2,~~ 3.2.3, 3.4	~~KCP 6.1~~, KCP 6.2, KCP 6.4	IR14CZE401DO01	Czech Republic	2014	Evaluation of FPF+DLT EC085 against ear aphids in wheat (CZ) Decis post- AIR (DLT EW015; DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.4	KCP 6.4	IR14CZE401KU01	Czech Republic	2014	Evaluation of FPF+DLT EC085 against ear aphids in wheat (CZ) Decis post- AIR (DLT EW015; DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14CZE401NE01	Czech Republic	2014	Evaluation of FPF+DLT EC085 against ear aphids in wheat (CZ) Decis post- AIR (DLT EW015; DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14CZE401TU01	Czech Republic	2014	Evaluation of FPF+DLT EC085 against ear aphids in wheat (CZ) Decis post- AIR (DLT EW015; DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14HUNWW1CS01	Hungary	2014	Decis post-AIR (DLT EC100) against leaf beetle in wheat (CZ, SE) Proteus 110 OD local registration xxx GEP	Yes	Bayer CropScience Division

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
					Unpublished		
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14SVK441KE15	Slovakia	2014	Evaluation of FPF+DLT EC085 against ear aphids in wheat (CZ) Decis post- AIR (DLT EW015; DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14SVK441RS14	Slovakia	2014	Evaluation of FPF+DLT EC085 against ear aphids in wheat (CZ) Decis post- AIR (DLT EW015; DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15BGRWH2VA13	Bulgaria	2015	Evaluation of FPF+DLT EC085 against ear aphids in wheat (CZ) Decis post- AIR (DLT EW015; DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15BGRWH2VA14	Bulgaria	2015	Evaluation of FPF+DLT EC085 against ear aphids in wheat (CZ) Decis post- AIR (DLT EW015; DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15CZE401DO01	Czech Republic	2015	Evaluation of FPF+DLT EC085 against ear aphids in wheat (CZ) Decis post- AIR (DLT EW015; DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15CZE401KU01	Czech Republic	2015	Evaluation of FPF+DLT EC085 against ear aphids in wheat (CZ) Decis post- AIR (DLT EW015; DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15CZE401NE01	Czech Republic	2015	Evaluation of FPF+DLT EC085 against ear aphids in wheat (CZ) Decis post- AIR (DLT EW015; DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15CZE401TU01	Czech Republic	2015	Evaluation of FPF+DLT EC085 against ear aphids in wheat (CZ) Decis post- AIR (DLT EW015; DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
~~3.2.1, 3.2.2,~~ 3.2.3, 3.4	~~KCP 6.1,~~ KCP 6.2, KCP 6.4	IR15HUNWW1BO01	Hungary	2015	Evaluation of FPF+DLT EC085 against ear aphids in wheat (CZ) Decis post- AIR (DLT EW015; DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15HUNWW1LB01	Hungary	2015	Evaluation of FPF+DLT EC085 against ear aphids in wheat (CZ) Decis post- AIR (DLT EW015; DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15SVK400KE08	Slovakia	2015	Evaluation of Sivanto Energy against MACSAV in wheat (CZ) Decis post- AIR (DLT EW015; DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15SVK400RS15	Slovakia	2015	Evaluation of Sivanto Energy against MACSAV in wheat (CZ) Decis post- AIR (DLT EW015; DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.4	KCP 6.4	IR16BGRWH3PV02	Bulgaria	2016	Evaluation of DLT+FPF EC085 against cereals aphids Decis post- AIR (DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR16CZE401KL01	Czech Republic	2016	Evaluation of DLT+FPF EC085 against cereals aphids Decis post- AIR (DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
~~3.2.1, 3.2.2,~~ 3.2.3, 3.4	~~KCP 6.1,~~ KCP 6.2, KCP 6.4	IR16CZE402KU01	Czech Republic	2016	Efficacy of DLT+FPF EC085 against leaf beetle in wheat xxx GEP Unpublished	Yes	Bayer CropScience Division
3.4	KCP 6.4	IR16CZE401DO01	Czech Republic	2016	Evaluation of DLT+FPF EC085 against cereals aphids Decis post- AIR (DLT EC100) xxx	Yes	Bayer CropScience Division

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
					GEP Unpublished		
3.4	KCP 6.4	IR16HUNWW1FR01	Hungary	2016	Evaluation of DLT+FPF EC085 against cereals aphids Decis post- AIR (DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.4	KCP 6.4	IR16HUNWW1VE03	Hungary	2016	Evaluation of DLT+FPF EC085 against cereals aphids in cereal Decis post- AIR (DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR16ROU008DE12	Romania	2016	Evaluation of DLT+FPF EC085 against cereals aphids Decis post- AIR (DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR16ROU008FU01	Romania	2016	Evaluation of DLT+FPF EC085 against cereals aphids Decis post- AIR (DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR16SVK702VK29	Slovakia	2016	Evaluation of Sivanto Energy against MACSAV Decis post- AIR (DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR17BGRWH3EAS1	Bulgaria	2017	Evaluation of DLT+FPF EC085 against cereals aphids xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR17BGRWH3VA21	Bulgaria	2017	Evaluation of DLT+FPF EC085 against cereals aphids xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR17ROU002AG19	Romania	2017	Evaluation of DLT+FPF EC085 against cereals aphids xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR17ROU002DE19	Romania	2017	Evaluation of DLT+FPF EC085 against cereals aphids xxx GEP Unpublished	Yes	Bayer CropScience Division

Compilation of Trial Reports for Mixture justification, minimum effective dose and efficacy tests on Eurygaster spp. on cereals, South-East EPPO climatic zone

Report N°: M-689780-02-1

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14BGRWH1EAS1	Bulgaria	2014	Efficacy of FPF+DLT EC085 against Eurygaster in cereals Decis post-AIR (DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15HUNWW3TF01	Hungary	2015	Efficacy of FPF+DLT EC085 against Eurygaster in cereals Decis post-AIR (DLT EC100) GEP Unpublished	Yes	Bayer CropScience Division
~~3.2.1,~~ 3.2.2, 3.2.3, 3.4	~~KCP 6.1,~~ KCP 6.2, KCP 6.4	IR15ROU002FU01	Romania	2015	Efficacy of FPF+DLT EC085 against Eurygaster in cereals Decis post-AIR (DLT EC100) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR16BGRWH2EAS1	Bulgaria	2016	Efficacy of DLT+FPF EC085 against Eurygaster in cereals xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR16HUNWW3S563	Hungary	2016	Efficacy of DLT+FPF EC085 against Eurygaster in cereals xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR16HUNWW3S564	Hungary	2016	Efficacy of DLT+FPF EC085 against Eurygaster in cereals xxx	Yes	Bayer CropScience Division

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
					GEP Unpublished		
3.4	KCP 6.4	IR16ROU009DE13	Romania	2016	Efficacy of DLT+FPF EC085 against Eurygaster in cereals xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR16ROU009FU01	Romania	2016	Efficacy of DLT+FPF EC085 against Eurygaster in cereals xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR17BGRWH2EAS1	Bulgaria	2017	Efficacy of DLT+FPF EC085 against Eurygaster in cereals xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR17BGRWH2RS01	Bulgaria	2017	Efficacy of DLT+FPF EC085 against Eurygaster in cereals xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR17HUNWW2IK01	Hungary	2017	Efficacy of DLT+FPF EC085 against Eurygaster in cereals GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR17HUNWW2S366	Hungary	2017	Efficacy of DLT+FPF EC085 against Eurygaster in cereals xxx	Yes	Bayer CropScience Division

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	**Title** **Source (where different from company)** **GLP or GEP status (where relevant)** **Published or Unpublished**	Data protection claimed (Yes/No)	Owner
					GEP Unpublished		
3.4	KCP 6.4	IR17ROU004AG20	Romania	2017	Efficacy of DLT+FPF EC085 against Eurygaster in cereals xxx GEP Unpublished	Yes	Bayer CropScience Division
3.4	KCP 6.4	IR17ROU004DE20	Romania	2017	Efficacy of DLT+FPF EC085 against Eurygaster in cereals xxx GEP Unpublished	Yes	Bayer CropScience Division

Compilation of Trial Reports for Mixture justification, minimum effective dose and efficacy tests on *Brachycaudus helichrysi* and *Lygus* sp. on sunflower, Maritime and South-East climatic zones

Report N°: M-689795-02-1

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14CZE310ATC1	Czech Republic	2014	Evaluation of FPF+DLT EC085 against aphids/Lygus in sunflower xxx GEP Unpublished	Yes	Bayer CropScience Division
3.4	KCP 6.4	IR14CZE310IH01	Czech Republic	2014	Evaluation of FPF+DLT EC085 against aphids/Lygus in sunflower xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14CZE310NE01	Czech Republic	2014	Evaluation of FPF+DLT EC085 against aphids/Lygus in sunflower xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14CZE310TR01	Czech Republic	2014	Evaluation of FPF+DLT EC085 against aphids/Lygus in sunflower xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14HUNSU1ES01	Hungary	2014	Evaluation of FPF+DLT EC085 against aphids/Lygus in sunflower xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2,	IR14HUNSU1TF04	Hungary	2014	Evaluation of FPF+DLT EC085 against aphids/Lygus in sunflower	Yes	Bayer CropScience

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
	KCP 6.4				xxx GEP Unpublished		Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14SVK138KE14	Slovakia	2014	KE14Evaluation of FPF+DLT EC085 against aphids/Lygus in sunflower xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR14SVK138VK29	Slovakia	2014	Evaluation of FPF+DLT EC085 against aphids/Lygus in sunflower xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15CZE310TR01	Czech Republic	2015	Evaluation of DLT+FPF EC085 against aphids/Lygus in sunflower xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15HUNSU1S483	Hungary	2015	Evaluation of DLT+FPF EC085 against aphids/Lygus in sunflower xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15HUNSU1S509	Hungary	2015	Evaluation of DLT+FPF EC085 against aphids/Lygus in sunflower xxx GEP Unpublished	Yes	Bayer CropScience Division

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15HUNSU1TF01	Hungary	2015	Evaluation of DLT+FPF EC085 against aphids/Lygus in sunflower GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15HUNSU1TF02	Hungary	2015	Evaluation of DLT+FPF EC085 against aphids/Lygus in sunflower GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR15SVK407RS15	Slovakia	2015	Evaluation of Sivanto Energy against aphids/Lygus in sunflower xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, ~~3.2.2,~~ 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR16BGRSF1EAS1	Bulgaria	2016	Efficacy of DLT+FPF EC085 against aphids/Lygus in sunflower xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR16CZE310NE01	Czech Republic	2016	Efficacy of DLT+FPF EC085 against aphids/Lygus in sunflower xxx GEP Unpublished	Yes	Bayer CropScience Division
3.4	KCP 6.4	IR16CZE310TR01	Czech Republic	2016	Efficacy of DLT+FPF EC085 against aphids/Lygus in sunflower xxx GEP	Yes	Bayer CropScience Division

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
					Unpublished		
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR16HUNSU1S573	Hungary	2016	Efficacy of DLT+FPF EC085 against aphids/Lygus in sunflower xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR16HUNSU1S574	Hungary	2016	Efficacy of DLT+FPF EC085 against aphids/Lygus in sunflower xxx GEP Unpublished	Yes	Bayer CropScience Division
3.4	KCP 6.4	IR16ROU010FU01	Romania	2016	Efficacy of DLT+FPF EC085 against aphids/Lygus in sunflower xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR16SVK706BHC1	Slovakia	2016	Efficacy of Sivanto Energy against ANURHE/LYGUSP xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR16SVK706KE11	Slovakia	2016	Efficacy of Sivanto Energy against ANURHE/LYGUSP xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR17BGRSF1EAS1	Bulgaria	2017	Efficacy of DLT+FPF EC085 against aphids/Lygus in sunflower xxx	Yes	Bayer CropScience Division

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
					GEP Unpublished		
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR17CZE310NE01	Czech Republic	2017	Efficacy of DLT+FPF EC085 against aphids/Lygus in sunflower xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR17CZE310TR01	Czech Republic	2017	Efficacy of DLT+FPF EC085 against aphids/Lygus in sunflower xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR17HUNSU1S372	Hungary	2017	Efficacy of DLT+FPF EC085 against aphids/Lygus in sunflower xxx GEP Unpublished	Yes	Bayer CropScience Division

Compilation of Trial Reports for Preliminary, Minimum effective dose, Efficacy and Adverse effects of DLT+FPF EC85 on vineyard against of Scaphoideus titanus (SCAPLI)

Report N°: M-687453-01-1

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR16HUNGR1BIO1	Hungary	2016	Efficacy of DLT+FPF EC085 against Scaphoideus titanus in grapes xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR16HUNGR1S458	Hungary	2016	Efficacy of DLT+FPF EC085 against Scaphoideus titanus in grapes xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR17HUNGR1BI01	Hungary	2017	Efficacy of DLT+FPF EC085 against Scaphoideus titanus in grapes xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR17HUNGR1S371	Hungary	2017	Efficacy of DLT+FPF EC085 against Scaphoideus titanus in grapes xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR18HUNGR1BI01	Hungary	2018	Efficacy of DLT+FPF EC085 against Scaphoideus titanus in grapes xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR18HUNGR1BI02	Hungary	2018	Efficacy of DLT+FPF EC085 against Scaphoideus titanus in grapes xxx GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.2, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR18HUNGR1S007	Hungary	2018	Efficacy of DLT+FPF EC085 against Scaphoideus titanus in grapes xxx GEP	Yes	Bayer CropScience Division

					Unpublished		
3.2.1, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR19HUNGR1BIO1	Hungary	2019	Efficacy of SPT SC100 against Scaphoideus titanus in grapes xxx Not GEP Unpublished	Yes	Bayer CropScience Division
3.2.1, 3.2.3, 3.4	KCP 6.1, KCP 6.2, KCP 6.4	IR19HUNGR1S370	Hungary	2019	Efficacy of SPT SC100 against Scaphoideus titanus in grapes xxx GEP Unpublished	Yes	Bayer CropScience Division

Compilation of Trial Reports for Adverse effects of DLT+FPF EC85 on grapevine – Taint test and selectivity

Report N°: M-687457-01-1

Dossier Point(s)	KCP Point(s)	Trial ID	Country	Year	Title Source (where different from company) GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed (Yes/No)	Owner
3.4.4	KCP 6.4.4	IR14FRAV06ARN1	France	2014	Vinification - Effets Non intentionnels I427BCS (DLT+FPF EC85) - Decis protech (Réhomologation) GEP Unpublished	Yes	Bayer CropScience Division
3.4.4	KCP 6.4.4	C17/2015	France	2015	Rapport d'essai – Essais contractuel de la formulation I427BCS. GEP Unpublished	Yes	BNIC
3.4.1 3.4.4	KCP 6.4.4	IR16FRAV03GRA1	France	2016	study of unintentional effetcs of DLT+FPF EC85 on fermentation processes and characteristics of wine (field part) GEP Unpublished	Yes	Bayer CropScience Division
3.4.1 3.4.4	KCP 6.4.4	IR16FRAV03SAI1	France	2016	study of unintentional effetcs of DLT+FPF EC85 on fermentation processes and characteristics of wine (field part) GEP Unpublished	Yes	Bayer CropScience Division
3.4.1 3.4.4	KCP 6.4.4	IR18FRAV03SAI1	France	2018	study of unintentional effetcs of DLT+FPF EC85 on fermentation processes and characteristics of wine (field part) GEP Unpublished	Yes	Bayer CropScience Division
3.4.1 3.4.4	KCP 6.4.4	IR18HUNGR2EU01	Hungary	2018	study of unintentional effetcs of DLT+FPF EC85 on fermentation processes and characteristics of wine (field part) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.4.1 3.4.4	KCP 6.4.4	IR18HUNGR2S487	Hungary	2018	study of unintentional effetcs of DLT+FPF EC85 on fermentation processes and characteristics of wine (field part) xxx GEP Unpublished	Yes	Bayer CropScience Division
3.4.1 3.4.4	KCP 6.4.4	IR18HUNGR2S488	Hungary	2018	study of unintentional effetcs of DLT+FPF EC85 on fermentation processes and characteristics of wine (field part)	Yes	Bayer CropScience Division

					xxx GEP Unpublished		

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

Please note that all data mentioned as part of DAR, RAR, or EFSA journals are considered as relied on.

List of data submitted by the applicant and not relied on

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
-	-	-	-	-	-

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

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
-	-	-	-	-	-