REGISTRATION REPORT
Part A
Risk Management

Product code: VVH 86 086
Product name: BELOUKHA
Chemical active substance:
Pelargonic Acid, 680 g/L

Central Zone
Zonal Rapporteur Member State: Germany

NATIONAL ASSESSMENT Germany
(extension of use)

Applicant: Certis Belchim BV
Submission date: 17/07/2020
MS finalisation date: 03/08/2023

Version history

When	What
28/03/2023	Draft registration report provided for commenting
03/08/2023	Registration Report: zRMS assessment

Table of Contents

PART A
RISK MANAGEMENT

1 Details of the application

1.1 Application background

This application was submitted by Certis Belchim BV on 17.07.2020 in order to allow an extension of use (Art. 29/45) for this product in Germany according to Regulation (EC) No 1107/2009.

Germany is the zRMS for the evaluation of the core assessment and there no cMS.

The application is for an extension of use of BELOUKHA (VVH 86 086) containing 680 g/L pelargonic acid. The product is intended to be used as herbicide to control monocotyledonous and dicotyledonous weeds in grape vine. It is an emulsifiable concentrate formulation.

The risk assessment conclusions are based on the information, data and assessments provided in the Registration Report, Part A, B3 and B9. The information, data and assessments provided in Registration Report, Parts B includes assessment of further data or information as required at national extension of use by the EU review. It also includes assessment of data and information relating to VVH86 086 where that data have not been considered in the EU review. Otherwise assessments for the safe use of VVH86 086 have been made using endpoints agreed in the EU review of pelargonic acid.

This document describes the specific conditions of use and labelling required for the German registration of BELOUKHA

Appendix 1 should include the authorisation of the final product in Germany. Due to technical reasons, the authorisation of the final product in Germany is inserted under Appendix 5.

Appendix 2: The submitted draft product label has been checked by the competent authority. The applicant is requested to amend the product label in accordance with the decisions made by the competent authority. The final version of the German label has to fulfil the requirements according to Article 31 of Regulation (EC) No 1107/2009 and PflSchG § 31.

Appendix 3: Letters of access are classified as confidential and, thus, are not attached to this document.

Appendix 4 of this document contains the lists of data considered for national authorisation.

Appendix 5 of this document provides a copy of the final product authorisation in Germany.

1.2 Letters of Access

No Letter of Access was needed. The data requirements were addressed either by own or publicly available data.

1.3 Justification for submission of tests and studies

To obtain approval the product *BELOUKHA* must meet the conditions of Commission Implementing Regulation (EU) No 540/2011 of 25.05.2011 and be supported by dossiers satisfying the requirements according to Commission Regulation (EU) No 284/ 2013, with an assessment to Uniform Principles, using agreed end-points.

This application was submitted in order to allow an extension of use for of this product in Germany in accordance with the above.

The reference list included in Part A Appendix 4 defines the list of studies and reports, submitted by the applicant and relied on as well as a list of studies submitted by the applicant but not relied on for the authorisation. Furthermore, Appendix 4 includes studies already evaluated at EU peer review and studies necessary but not submitted.

1.4 Data protection claims

The list of studies for which the applicant requests data protection in accordance with Article 59 of Regulation (EC) No 1107/2009 is reported in Appendix 4 of the Registration Report. The applicant confirms that no period of data protection has previously been granted in respect of these studies or has been granted and expired. Studies marked "N" in the data protection list are not protected.

2 Details of the authorisation decision

2.1 Product identity

Product code	VVH 86 086
Product name in MS	Beloukha
Authorisation number	008528-00/07
Function	herbicide
Applicant	Certis Belchim BV
Active substance (incl. content)	pelargonic acid / nonanoic acid (680 g/L)
Formulation type	emulsifiable concentrate [EC]
Packaging	1 L to 20 L f-HDPE bottles; 200 L to 1000 L HDPE/EVOH IBC, professional user
Coformulants of concern for national authorisations	none
Restrictions related to identity	none
Mandatory tank mixtures	not applicable
Recommended tank mixtures	not applicable

2.2 Conclusion

With respect to identity, physical, chemical and technical properties, further information and analytical methods for the formulation an authorisation can be granted.

With respect to analytical methods for residues an authorisation can be granted.

With respect to toxicology, residues and consumer protection an authorisation can be granted.

With respect to fate and ecotoxicology assessment, an authorisation can be granted. Considering an application in accordance with the evaluated use pattern and good agricultural practice as well as strict observance of the conditions of use no harmful effects on groundwater or adverse effects on the ecosystem are to be apprehended.

With respect to efficacy/IPM and sustainable use incl. risk of honeybees and beneficial arthropods, an authorisation can be granted to all uses applied for and as described under Chapter 2.6.

An authorisation can be granted.

2.3 Substances of concern for national monitoring

None.

2.4 Classification and labelling

2.4.1 Classification and labelling under Regulation (EC) No 1272/2008

The following classification is proposed in accordance with Regulation (EC) No 1272/2008:

Hazard class(es), categories:	Eye Irrit. 2, Skin Irrit. 2

The following labelling information is derived from the classification and to be mentioned in the safety data sheet.

Hazard pictograms:	
GHS07	exclamation mark
Signal word:	
	Warning
Hazard statement(s):	
H315	Causes skin irritation.
H319	Causes serious eye irritation.
Precautionary statement(s):	

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P501	Dispose of contents/container to ...
Additional labelling phrases:	To avoid risks to man and the environment, comply with the instructions for use. [EUH401]

Special rule for labelling of plant protection product (PPP):	
EUH401	To avoid risks to man and the environment, comply with the instructions for use.
Further labelling statements under Regulation (EC) No 1272/2008:	
none	

2.4.2 Standard phrases under Regulation (EU) No 547/2011

None	

2.4.3 Other phrases (according to Article 65 (3) of the Regulation (EU) No 1107/2009)

none	

2.5 Risk management

2.5.1 Restrictions linked to the PPP

The authorisation of the PPP is linked to the following conditions (mandatory labelling):

Operator protection:	
SB001	Avoid any unnecessary contact with the product. Misuse can lead to health damage.
SB005	If medical advice is needed, have product container or label at hand.
SB010	Keep out of the reach of children.
SB111	Concerning the requirements for personal protective gear for handling the plant protection product the material safety data sheet and the instructions for use of the plant protection product as well as the guideline "Personal protective gear for handling plant protection prod-ucts" of the Federal Office of Consumer Protection and Food Safety (www.bvl.bund.de) must be observed.
SB166	Do not eat, drink or smoke when using this product.

SE110	Wear tight fitting eye protection when handling the undiluted product.
SS110-1	Protective gloves (plant protection) must be worn when handling the undiluted product.
SS206	Working clothes (if no specific protective suit is required) and sturdy footwear (e.g. rubber boots) must be worn when applying/handling plant protection products.
SS2101	Wear a protective suit against pesticides and sturdy shoes (e.g. rubber boots) when handling the undiluted product.
Worker protection:	
SF245-02	It must be ensured that treated areas/crops may not be entered until the film of the plant protection product has dried.
Integrated pest management (IPM)/sustainable use:	
WMH0	Mode of Action Group (HRAC/WSSA-Code): 0
WH952	The indication identifying the mode of action must be assigned directly to each corresponding name of the active substance as supplementary information on the packaging and in the instructions for use.
NN3001	The product is classified as harmful for populations of relevant beneficial insects.
NN3002	The product is classified as harmful for populations of relevant beneficial predatory mites and spiders.
Environmental protection	
NW262	The product is toxic for algae.
NW468	Fluids left over from application and their remains, products and their remains, empty containers and packaging, and cleansing and rinsing fluids must not be dumped in water. This also applies to indirect entry via the urban or agrarian drainage system and to rain-water and sewage canals.

The authorisation of the PPP is linked to the following conditions (voluntary labelling):

Integrated pest management (IPM)/sustainable use:	
NB6641	The product is classified as non-hazardous to bees, even when the maximum application rate, or concentration if no application rate is stipulated, as stated for authorisation is applied. (B4)

2.5.2 Specific restrictions linked to the intended uses

Some of the authorised uses are linked to the following conditions in addition to those listed under point 2.5.1 (mandatory labelling):

Integrated pest management (IPM)/sustainable use:		Relevant for use no.
WH9161	The instructions for use must include a summary of weeds which can be controlled well, less well and insufficiently by the product, as well as a list of species and/or varieties showing which crops are tolerant of the intended application rate and which are not.	001
Environmental protection:		Relevant for use no.
NW642-1	The product may not be applied in or in the immediate vicinity of surface or coastal waters. Irrespective of this, the	Uses 001 and 002

	minimum buffer zone from surface waters stipulated by state law must be observed. Violations may be punished by fines of up to 50,000 EUR	
NT101-1	In a strip at least 20 m wide which is adjacent to other areas, the product must be applied using loss reducing equipment which is registered in the index of 'Loss Reducing Equipment' of 14 October 1993 (Federal Gazette No 205, p. 9780) as amended, and be registered in at least drift reducing class 50 % (except agriculturally or horticulturally used areas, roads, paths and public places). Loss reducing equipment is not required if the product is applied with portable plant protection equipment or if adjacent areas (field boundaries, hedges, groups of woody plants) are less than 3 m wide or the product is applied in an area which has been declared by the Biologische Bundesanstalt in the "Index of regional proportions of ecotones" of 7 February 2002 (Federal Gazette no. 70 a of 13 April 2002), as amended, as agrarian landscape with a sufficient proportion of natural and semi-natural structures.	Uses 001 and 002
Other specific restrictions:		Relevant for use no.
none		

2.6 Intended uses (NATIONAL GAP)

GAP rev. 3, date: 2023-07-14

PPP (product name/code):	Beloukha	Formulation type:	EC [a, b]
Active substance:	Pelargonic acid	Conc. of as:	680 g/L [c]13,28
Applicant:	Certis Belchim BV	Professional use:	☒
Zone(s):	central [d]	Non-professional use:	☐
Verified by MS:	yes	Field of use:	Herbicide

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Use-No. [e]	**Member state(s)**	**Crop and/ or situation** **(crop destination / purpose of crop)**	**F, Fn, Fpn G, Gn, Gpn or I**	**Pests or Group of pests controlled** (additionally: developmental stages of the pest or pest group)	**Application**				**Application rate**			**PHI** (days)	**Remarks** e.g. g safener/synergist per ha[f]
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	kg or L product / ha a) max. rate per appl. b) max. total rate per crop/season	g or kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max		
001	DE	grape vine *Vitis vinifera L. ssp. vinifera* VITVI (use as table and wine grape)	F	annual dicotyledonous weeds TTTDS, annual monocotyledonous weeds TTTMS	spraying, row treatment, protected with shield	during growing season, from 4th year after planting, BBCH 00-77	a) 2 b) 2	14	a) 16 L/ha b) 32 L/ha	a) 10.88 kg as/ha b) 21.76 kg as/ha	200-400	F*	
002	DE	grape vine *Vitis vinifera L. ssp. vinifera* VITVI (use as table and wine grape)	F	stump shoot STOCKT**	spraying, row treatment, trunk treatment, protected with shield	beginning of spring until end of summer, from 4th year after planting, BBCH 11-77	a) 2 b) 2	14	a) 16 L/ha b) 32 L/ha	a) 10.88 kg as/ha b) 21.76 kg as/ha	200-400	F*	

* The PHI is covered by the conditions of use and/or the vegetation period remaining between the application of the plant protection product and the use of the product (e. g. harvest) or the setting of a PHI in days is not required resp.
** no EPPO-Code

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 authorisation possible for uses where the line is highlighted in grey, Use should be crossed out when the notifier no longer supports this use.

Remarks columns:

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

3 Background of authorisation decision and risk management

3.1 Physical and chemical properties (Part B, Section 2)

No new studies were submitted.
A sample of the formulation has been tested in the BVL laboratory for colour, pH, surface tension, density, persistent foaming and emulsion properties.
No significant deviations from the data reported in the registration report from Austria (2016) have been detected.

3.2 Efficacy (Part B, Section 3)

The efficacy data submitted support the extension of the authorisation of "BELOUKHA" (pelargonic acid 680 g/L) as a post-emergence herbicide applied during the vegetation period against annual monocotyledonous weeds (TTTMS) and annual dicotyledonous weeds (TTTDS) in grapevine and for sucker control in grapevine. The GAP information "directed shielded spray" for use 001 and "directed shielded spray - base of plant" for use 002 have been added by the applicant in phase 2 of the assessment and these have been supplemented respectively in the uses for DE. Since the trials presented do not explicitly deal with young plants, the addition "from the 4th year" has also been added to both uses.

3.3 Efficacy data

Preliminary range-finding tests
Preliminary tests to assess the biological activity of the active substance were not presented in this submission. The statement of the applicant "*that pelargonic acid is an established herbicide, preliminary data on the weed control demonstrated by the active substance is not considered necessary*" will not be followed. Pelargonic acid is used in many variants and formulations. Furthermore, weather conditions, plant size and the concentration of the spray liquid also play a greater role than with other active substances. Preliminary range-finding tests would therefore be very interesting.

Minimum effective dose tests
Trials were conducted according to EPPO Standard PP1/225 (Minimum effective dose).
Use 001 (annual monocotyledonous and annual dicotyledonous weeds)
A total of 6–15 trials with results that fully support the herbicide should be sufficient to demonstrate efficacy against a major target weed (EPPO Standard PP1/226 Number of efficacy trials). However, the number of trials for Beloukha was not sufficient for one single species. Furthermore, the trials for the maritime zone show only a limited dose-response relationship for annual dicotyledonous weeds. The relationship is more pronounced for annual monocotyledonous and perennial species. Therefore, trials for other similar uses (e.g. orchards) needed to be considered.
Use 002 (suckers)
Data from a total of nine sucker control trials have been provided to demonstrate minimum effective dose, conducted in Austria (3 trials), Germany (3 trials), Northern France (2 trials) and Hungary (1 trial) between 2012 and 2019. These data demonstrate that the minimum effective dose of Beloukha (BCP1004D) for the control of suckers in grapevines is 16 L/ha, as this was the only dose that consistently provided in excess of 80% control of suckers, from both one application and two sequential applications.

Efficacy tests
Trials were conducted according to EPPO Standard PP1/64 –Weeds in grapevine. Sufficient results from young vineyards are not dealt with.

Use 001 (annual monocotyledonous and annual dicotyledonous weeds)
To support Beloukha for weed control in grapevine, efficacy data for the control of annual dicotyledonous weeds and annual monocotyledonous weeds are presented from 25 efficacy trials in grapevine. A total of 6–15 trials with results that is fully supportive for the herbicide should be sufficient to demonstrate efficacy against a major target weed (EPPO Standard PP1/226 Number of efficacy trials). The number of trials was not sufficient for one single species.
Finally, because the applicant presented additional trials from orchards (11 on pome fruit and 9 on stone fruit), 19 trials from various annual and perennial row-crops (post-emergence to the weeds), 7 trials from tree nursery or ornamental crops and 5 from non-crop situations assessed between 2012 and 2019 in Austria, Belgium, the Czech Republic, Denmark, Germany, France, the Netherlands, the United Kingdom, Italy, Hungary and Romania, the number of trials submitted is accepted as sufficient.
Use 002 (suckers)
To support Beloukha for sucker control in grapevine, efficacy data for sucker control are presented from 9 trials carried out 2012, 2013, 2018 and 2019 in Austria, Germany and France. Across the nine trials where sucker control was assessed in grapevines following a single application of Beloukha (BCP1004D) 9-22 days after application, the proposed dose (16 L/ha) achieved mean control of 87.7% (range 44.8-100%).
Across the five trials where sucker control was assessed in grapevines following two sequential applications of Beloukha (BCP1004D) 9-26 days after the second application, the proposed dose (16 L/ha) achieved mean control of 83.9% (range 49.6-100%).
These demonstrate that the proposed dose (16 L/ha) of Beloukha (BCP1004D) applied as either a single application or as two sequential applications provided good control of suckers in grapevines (>80%). The use of two sequential applications of 16 L/ha Beloukha (BCP1004D) is considered necessary as it is a contact acting herbicide, so new sucker growth after application would not be controlled by the initial application. These data support the 16 L/ha dose of Beloukha (BCP1004D), for the control of suckers (optimum control for suckers up to 25 cm) in grapevines in Germany.

3.3.1 Information on the occurrence or possible occurrence of the development of resistance

The overall resistance risk is low.

3.3.2 Adverse effects on treated crops

Phytotoxicity to host crop
Trials were conducted according to EPPO Standard PP1/135 (Phytotoxicity assessment).
Use 001 (annual monocotyledonous and annual dicotyledonous weeds) and *Use 002 (suckers)*
Usually, in major crops eight selectivity trials should be presented (EPPO Standard PP1/226 Number of efficacy trials) per EPPO zone. Here, only 4 results for the maritime and two results for the south-eastern EPPO zone are presented.
In this case, this number of results is acceptable because no phytotoxic observations were made in all the selectivity and in all efficacy trials conducted with Beloukha in grapes. Furthermore, the degradation of the active substance takes place very quickly, so that no soil effect can be assumed. But as there are not enough selectivity trials, the additional condition “from the fourth year of growth” has been added.
In addition, the application is carried out with a shield protection.

Effects on the yield of treated plants and plant products
Use 001 (annual monocotyledonous and annual dicotyledonous weeds) and *Use 002 (suckers)*
This dossier contains 6 selectivity trials conducted to GEP on grapevine (VITVI) undertaken to assess adverse effects of Beloukha (BCP1004D) on treated crops. Three of these trials conducted in the maritime EPPO climatic zone (2 in Austria and 1 in Germany) were assessed for yield, one trial was assessed for weight of branches and one trial was assessed for number of fruit bunches. In one trial conducted in Germany, the trial could not be harvested manually due to *Botrytis* infection and therefore yield could not be determined. The two trials conducted in the Mediterranean EPPO climatic zone (2 in Greece) were as-

sessed for number of marketable fruit bunches and weight of marketable fruit bunches.
Negative effects were not determined.
Although the results are based on a limited number of trials reduced yield or impact on the quality of plants and plant products is not to be expected.

3.3.3 Observations on other undesirable or unintended side-effects

Conclusion – Impact on succeeding crops
For the requested uses, the impact on succeeding crops is not relevant for the uses in permanent crops (grapes).

Effects on adjacent crops
A risk assessment conducted according to EPPO Standard PP1/256 (Effects on adjacent crops) was provided.
Based on the results of the seedling emergence study (OECD 208) and of the vegetative vigour study (OECD 227) it can be concluded that Beloukha (BCP1004D) will most likely cause no adverse effects on adjacent crops, at a distance of 1 metre, when using the proposed dose of 16 L/ha for weed control or sucker control in grapevines. Therefore, the risk to adjacent pre-emergent crops is considered negligible.

Adverse effects on beneficial organisms (other than bees)
Concerning the toxicity to relevant beneficial organisms, BELOUKHA is classified as harmful for populations of relevant spiders and mites and as harmful for populations of relevant beneficial insects. However, because the product is applied as a row treatment with shield, populations of relevant beneficial arthropods will not be exposed severely.

Conclusion – tank cleaning
According to EPPO Standard PP1/292 (Cleaning pesticide application equipment (PAE) – efficacy aspects) information on tank cleaning was given.

3.4 Methods of analysis (Part B, Section 5)

3.4.1 Analytical method for the formulation

No new studies were submitted.
Reference is made to the registration report from Austria (2016).

3.4.2 Analytical methods for residues

Not relevant. No MRL is required for the intended uses. Pelargonic Acid has been included in Annex IV to Reg. (EC) No 396/2005.

3.5 Mammalian toxicology (Part B, Section 6)

If used properly and according to the intended conditions of use, adverse health effects for operators, workers, bystanders and residents will not be expected.

3.5.1 Acute toxicity

Acute toxicity studies for VVH 86 086 (BELOUKHA) have not been evaluated as part of the EU review of the pelargonic acid. Therefore, all relevant data are provided and are considered adequate.
VVH 86 086 (BELOUKHA) containing 680 g/L of pelargonic acid has a low toxicity in respect to acute oral and dermal toxicity and is considered not a skin sensitiser. However, it is irritant to skin and eye.

3.5.2 Operator exposure

The used source of pelargonic acid is of food grade quality. According to EFSA conclusions (EFSA, 2013), exposure to pelargonic acid from the use as plant protection products is of low toxicological concern and no reference values are needed. Therefore, no exposure/risk assessment is requested for VVH 86 086 (BELOUKHA) used in vines.

3.5.3 Worker exposure

The used source of pelargonic acid is of food grade quality. According to EFSA conclusions (EFSA, 2013), exposure to pelargonic acid from the use as plant protection products is of low toxicological concern and no reference values are needed. Therefore, no exposure/risk assessment is requested for VVH 86 086 (BELOUKHA) used in vines.

3.5.4 Bystander and resident exposure

The used source of pelargonic acid is of food grade quality. According to EFSA conclusions (EFSA, 2013), exposure to pelargonic acid from the use as plant protection products is of low toxicological concern and no reference values are needed. Therefore, no exposure/risk assessment is requested for VVH 86 086 (BELOUKHA) used in vines.

3.6 Residues and consumer exposure

Not relevant. pelargonic Acid has been included in Annex IV to Reg. (EC) No 396/2005.

3.6.1 Residues

The intended use is not relevant with regard to consumer protection or animal feed. No MRLs are required.

3.6.2 Consumer exposure

The intended uses are not relevant in terms of consumer health protection.

3.7 Environmental fate and behaviour (Part B, Section 8)

A full risk assessment for environmental fate and behavior according to Uniform Principles is documented in detail for the plant protection product BELOUKHA in its intended uses for the main application (008528-00/00 ZV3).

No unacceptable risks for the environment due to environmental fate and behaviour are to be expected according to the intended uses 07-001 and/ 07-002 of BELOUKHA according to the label.

3.7.1 Predicted environmental concentrations in soil (PEC_{soil})

Regulatory authorization decision is based on PECs calculated for a soil depth of 5 cm for all substances, independently of their potential of sorption. However, for soil organisms additional TERs are calculated by DE in dependence on sorption potential for information purposes only. TERs are presented for PECs of 2.5 cm as standard and 1 cm as specific depth for compounds with higher sorption potential.

Due to the fast degradation of the active substance NONANOIC ACID in soil the accumulation potential of NONANOIC ACID was not considered.

The PEC_{soil} values for the active substance were used in the eco-toxicological risk assessment for the intended uses of the plant protection product BELOUKHA in Germany.

3.7.2 Predicted environmental concentrations in groundwater (PEC_{gw})

Direct leaching into groundwater

As indicated in the main application results of modelling with FOCUS PELMO / PEARL show that the active substance NONANOIC ACID is not expected to penetrate into groundwater at concentrations of ≥ 0.1µg/L in the intended uses of BELOUKHA in Germany according to uses No. 001 and 002.

Groundwater contamination by bank filtration due to surface water exposure via runoff and drainage

According modelling with EXPOSIT 3, groundwater contamination at concentrations ≥ 0.1 µg/L by the active substance NONANOIC ACID due to surface runoff and drainage into the adjacent ditch with subsequent bank filtration can be excluded.

3.7.3 Predicted environmental concentrations in surface water (PEC_{sw})

Risk mitigation measures for the intended uses of plant protection products in Germany due to exposure of surface water consider two routes of entry (i) spray drift and volatilization with subsequent deposition and (ii) runoff, drainage separately.
Surface water exposure including effects of risk mitigation via spray drift and volatilization with subsequent deposition was estimated with the model EVA 3 using drift data by Rautmann and Ganzelmeier.
Surface water exposure including effects of risk mitigation via surface runoff and drainage was estimated using the model EXPOSIT 3.0.
The results of the specific national exposure assessment for the active substance were used in the eco-toxicological risk assessment.

3.7.4 Predicted environmental concentrations in air (PEC_{air})

The vapour pressure at 20 °C of the active substance NONANOIC ACID is > 10^{-4} Pa. Hence the active substance NONANOIC ACID is regarded volatile (volatilisation from soil and plant surfaces). Therefore, exposure of adjacent surface waters and terrestrial ecosystems by the active substance NONANOIC ACID due to volatilization with subsequent deposition was considered.

Implications for labelling resulting from environmental fate assessment:
none

3.8 Ecotoxicology (Part B, Section 9)

A full risk assessment for non-target species according to Uniform Principles is documented in detail for the plant protection product BELOUKHA in its intended uses for the main application (008528-00/00 ZV3).

3.8.1 Effects on terrestrial vertebrates

According to the main application (008528-00/00 ZV3) the results of the risk assessment indicate an acceptable risk for wildlife birds and mammals due to the intended use of BELOUKHA according to the label.
Specific additional risk mitigation measures are not required.

3.8.2 Effects on aquatic species

The product BELOUKHA and the active substance pelargonic acid are toxic for aquatic organisms (BELOUKHA: *Anabaena flos-aquae.* NOEyC = 1.0 mg/L). Subsequently, no additional entries as those according to the evaluated use pattern and good agricultural practise are acceptable, and the conditions of use NW262 and NW468 are assigned.

The results of the assessment indicate an acceptable risk for aquatic organisms (ErC50 of 3.0 mg a.i./L (*Anabaena flos aquae*)). However, the application of plant protection products in the immediate vicinity of surface waters is prohibited in Germany, minimum buffer zones stipulated by state law must be observed. Therefore, additional labelling is assigned to advise the user of this requirement (NW642-1) for the intended field uses 001 and 002.

3.8.3 Effects on bees

Under consideration of the honey bee risk assessment for the main application (008528-00/00 ZV3), DE concluded on national level that the risk to bees is acceptable when BELOUKHA (VVH 86 086) is used up to 16 L/ha in bee attractive crops. Since the recommended application rate does not exceed this rate no further risk assessment is required.

3.8.4 Effects on other arthropod species other than bees

TER values for non-target arthropods in off-field habitats were calculated, taking into account the relevant toxicity data for pelargonic acid and calculated exposure concentrations in off-field habitats, according to the intended uses of the product BELOUKHA in vines. The calculated TER values do achieve the

acceptability criterion TER ≥ 5 (extended toxicity database) for effects on non-target arthropods, according to agreed EU Guidance in Document SANCO/10329/2002 rev 2 (as modified by specific German guidance) that overrides the prescriptions of Commission Regulation (EU) No 546/2011, Annex, Part I C, point 2.5.2.4. The results of the assessment indicate an acceptable risk for non-target arthropods in off-field habitats due to the intended use of BELOUKHA in vines according to the label.

3.8.5 Effects on soil organisms

Earthworms

TER values for earthworms were calculated, taking into account the relevant toxicity data for pelargonic acid and calculated exposure concentrations in soil, according to the intended uses of the BELOUHA in vines. The calculated TER values do achieve the acceptability criterion TER ≥ 10 for acute effects on earthworms, according to Commission Regulation (EU) No 546/2011, Annex, Part I C, point 2.5.2.5. The results of the assessment indicate an acceptable risk for earthworms due to the intended use of BELOUKHA in vines according to the label.

Effects on other soil non-target macro-organisms

Not required since the DT_{90} of pelargonic acid is largely below 100 days, that means that this active substance is not persistent. Moreover, the risk to non-target arthropods, earthworms and micro-organisms is acceptable.

Effects on organic matter breakdown

No special studies regarding the effects of the formulation on organic matter breakdown were submitted. Earthworms, other soil non-target macro and mesofauna as well as soil organisms are involved in the breakdown of dead organic matter. Since the risk for these groups of organisms is considered acceptable, no effects on organic matter breakdown are expected.

Effects on Soil Non-target Micro-organisms

Concentrations of pelargonic acid in soil were determined where effects on nitrogen and carbon mineralization processes remained ≤ 25 % and were compared to calculated exposure concentrations in soil, according to the intended uses of the product BELOUKHA in vines. The comparison indicates no exceedance of the acceptability criterion ≤ 25 % effects on soil microorganisms, according to Commission Regulation (EU) No 546/2011, Annex, Part I C, point 2.5.2.6. The results of the assessment indicate an acceptable risk for soil microorganisms due to the intended use of BELOUKHA in vines according to the label.

3.8.6 Effects on non-target terrestrial plants

The product BELOUKHA and the active substance pelargonic acid are toxic for non-target terrestrial plants (pelargonic acid: Cucumis sativus vegetative vigor = 3862 g a.i./ha). Concerning the use of BELOUKHA in vines against weeds (use 001), the resulting TER value for the active substance pelargonic acid will only exceed the relevant trigger of 10 if spraying equipment with 50 % drift reduction is used. Therefore, the condition of use for 001 and 002 **NT101-1** (50 % drift reduction) is assigned.

3.8.7 Effects on other terrestrial organisms (Flora and Fauna)

No data available

3.9 Relevance of metabolites (Part B, Section 10)

As indicated in the main application results of modelling with FOCUS PELMO / PEARL show that the active substance NONANOIC ACID is not expected to penetrate into groundwater at concentrations of ≥ 0.1µg/L in the intended uses of BELOUKHA in Germany according to uses No. 001 and 002.

4 Conclusion of the national comparative assessment (Art. 50 of Regulation (EC) No 1107/2009)

The active substance pelargonic acid is not approved as a candidate for substitution therefore a comparative assessment is not foreseen.

5 Further information to permit a decision to be made or to support a review of the conditions and restrictions associated with the authorisation

None

Appendix 1 Copy of the product authorisation (see Appendix 5)

Appendix 2 Copy of the product label

The submitted draft product label has been checked by the competent authority. The final version of the label is not displayed in the RR, because the label is the sole responsibility of the applicant and is therefore not finally checked by the competent authority. The applicant is requested to generate the product label in accordance with the authorisation granted by the competent authority.

Appendix 3 Letter of Access

Letter(s) of access is/are classified as confidential and, thus, are not attached to this document.

Appendix 4 Lists of data considered for national authorisation

None

Appendix 5 Copy of the product authorisation

REGISTRATION REPORT

Part B

Section 0

Product Background, Regulatory Context and GAP information

Product code: VVH 86 086

Product name: BELOUKHA

Chemical active substance:

Pelargonic Acid, 680 g/L

Central Zone

Zonal Rapporteur Member State: Germany

CORE ASSESSMENT

(extension of use)

Applicant: Certis Belchim BV

Submission date: 17/07/2020

MS finalisation date: 03/08/2023

Version history

When	What
28/03/2023	Draft registration report provided for commenting
03/08/2023	Registration Report: zRMS assessment

Table of Contents

0 Product background, regulatory context and GAP information

0.1 Introduction

0.1.1 Reason for application

To obtain approval the product *BELOUKHA* must meet the conditions of Annex I inclusion of Commission Directive 2008/127/EC 18.12.2008 and be supported by dossiers satisfying the requirements of Commission Regulation (EU) No 544/2011, 545/2011 and 546/2011, which adopt the requirements of Annex II and Annex III, and the Uniform Principles (Annex VI) to Council Directive 91/414/EEC.

This application was submitted in order to allow an extension of use for of this product in Germany in accordance with the above.
This application was submitted in order to allow an extension of use for of this product in Germany in accordance with the above.

0.1.2 Details of zRMS and concerned MS

The following table provides corresponding information of product codes, product names and applications/authorisations in different EU Member States according to information given by the applicant.

Table 0.1-1: Overview of zRMS and cMS

	zRMS, product name and authorisation no. (if relevant)	**(if relevant) Concerned MS, MS' product name and authorisation number (if applicable)**
Northern zone	-	-
Central zone	**Extension of use:** **Germany** Beloukha (VVH 86 086) Registration No 008528-00/07	**cMS** -
Southern zone	-	-
Inter-zonal	-	-

0.1.3 Regulatory history of the active substance

0.1.3.1 Active substance 1 (Pelargonic acid)

Table 0.1-2: Summary of regulatory history of CAS No112-05-0 (Pelargonic acid)

Status	
Approved in EU	Y
Original Inclusion Directive	Commission Directive 2008/127/EC

Status	
or Commission Implementing Regulation	Commission Implementing Regulation (EU) No 540/2011 and Commission Implementing Regulation (EU) No 2017/195
RMS	Greece
Date of Approval (or most recent renewal) of Active Substance (date of Regulation to be applied)	01/09/2009 (approval)
Date of first Commission (re-registration) deadline (Step 1) or date of deadline for renewal of authorisation (renewal)	28/02/2010 (step 1)
Date of final Commission (re-registration) deadline (Step 2)	31/08/2015 (step 2)
Current expiration of approval	31/08/2023
Low risk substance or Candidate for Substitution?	N/A

Issues that need to be considered as part of the EU approval are listed below.

The SANCO report for Fatty Acids C_7 to C_{20} (SANCO/2611/08 – rev. 2 - 16/07/2013) as well as the EFSA conclusion (EFSA Journal 2013;11(1):3023) are considered to provide the relevant information on the evaluation or a reference to where such information can be found. The EFSA Scientific Report was made available on 7 January 2013

Table 0.1-3: Information on minimum purity of pelargonic acid

EU agreed minimum purity from Inclusion Directive or Implementing regulation	**(if different) Minimum purity of active substance used in the product / information on available equivalency report *, ** **
889 g/kg	950 g/kg Equivalence report available: Y RMS: FR

* Since EU approval new studies on the active substance have been performed (e.g. new manufacturing site, new specification) and as a result the purity of the active substance has changed (see Part C).

**. If the specification of the active substance is different to that used as reference specification for EU approval then please refer to the equivalency document from the RMS.

0.1.4 Regulatory history of the product

he following table provides corresponding information of product codes, product names and authorisations in different EU Member States according to information given by the applicant.

Table 0.1-4: Summary of regulatory history of the product <*Beloukha*>

Product code	**Product name(s)**	**MS**	**Authorization No.**	**Date of initial registration**	**Date of the last re-registration**
BCP 1004D	Beloukha	AT	3768-0	19/08/2016	-
BCP 1004D	Beloukha	BE	10586P/B	20/06/2017	-
BCP 1004D	Kalina	BE	10631P/B	20/06/2017	-
BCP 1004D	Katamisa	BE	10632P/B	20/06/2017	-

Product code	Product name(s)	MS	Authorization No.	Date of initial registration	Date of the last re-registration
BCP 1004D	Beloukha	LU	L02142-118	30/04/2018	-
BCP 1004D	Beloukha	CZ	5568-0	29/03/2018	-
BCP 1004D	Kalina	CZ	5568-1	29/03/2018	-
BCP 1004D	Katamisa	CZ	5568-2	29/03/2018	-
BCP 1004D	Beloukha	DE	008528-00	08/05/2018	-
BCP 1004D	Beloukha	NL	15316 N	03/03/2017	-
BCP 1004D	Kalina	NL	15389 N	12/05/2017	-
BCP 1004D	Katamisa	NL	15388 N	12/05/2017	-
BCP 1004D	Beloukha 680 EC	PL	R-94/2016	05/04/2016	-
BCP 1004D	Atut Hobby	PL	R-127/2017	30/06/2017	-
BCP 1004D	Effect 24 H 680 EC	PL	R-140/2017	13/07/2017	-
BCP 1004D	Herbikill Green	PL	R-177/2017	01/09/2017	-
BCP 1004D	Randacol 680 EC	PL	R-128/2016	06/05/2017	-
BCP 1004D	Randil Fast 680 EC	PL	R-156/2017	31/07/2017	-
BCP 1004D	Beloukha 2nd name: Kalina	RO	337PC	10/10/2017 25/04/2018	-
BCP 1004D	Beloukha	SI	U34330-58/17/3	20/04/2018	-
BCP 1004D	Beloukha 2nd names: Kalina, Katamisa	FR	2140255	09/01/2015	-
BCP 1004D	Beloukha	IT	16261	26/02/2016	-
BCP 1004D	Kalina	IT	16996	04/05/2017	-
BCP 1004D	Katamisa	IT	16995	04/05/2017	-
BCP 1004D	Beloukha 2nd name: Kalina	ES	ES-00222	25/08/2016 12/06/2017	-
BCP 1004D	Beloukha	PT	0801	06/07/2016	-
BCP 1004D	Kalina	PT	1203	02/07/2018	-
BCP 1004D	Katamisa	PT	1006	13/09/2017	-
BCP 1004D	Beloukha	HR	UP/I-320-20/17-03/242	01/08/2018	-
BCP 1004D	Beloukha	BG	1573	19/03/2018	-
BCP 1004D	Beloukha	GR	70298	22/10/2018	-
BCP 1004D	Kalina	GR	70299	22/10/2018	-
BCP 1004D	Katamisa	GR	70300	22/10/2018	-

0.2 zRMS conclusion on all intended uses

GAP rev. 3, date: 2023-07-14

PPP (product name/code):	Beloukha	Formulation type:	EC [a, b]
Active substance:	Pelargonic acid	Conc. of as:	680 g/L [c]13,28
Applicant:	Certis Belchim BV	Professional use:	☒
Zone(s):	central [d]	Non-professional use:	☐
Verified by MS:	yes	Field of use:	Herbicide

1	2	3	4	5	6	7	8	9	10
Use-No. [e]	**Member state(s)**	**Crop and/ or situation** **(crop destination / purpose of crop)**	**F, Fn, Fpn, G, Gn, Gpn, or I**	**Pests or Group of pests controlled** (additionally: developmental stages of the pest or pest group)	**zRMS Conclusion**				**Additional remarks** e.g. g safener/synergist per ha 205 [f]
					Physical and chemical properties, Analytical methods	**Efficacy**	**Mammalian Toxicology, Metabolism and Residues**	**Environmental Fate, Ecotoxicology**	
001	DE	grape vine *Vitis vinifera L. ssp. vinifera* VITVI (use as table and wine grape)	F	annual dicotyledonous weeds TTTDS, annual monocotyledonous weeds TTTMS	**A**	**A**	**R** Further refinement and/or risk mitigation measures required. For further information see Part A 2.5.1	**R**	
002	DE	grape vine *Vitis vinifera L. ssp. vinifera* VITVI (use as table and wine grape)	F	stump shoot STOCKT*	**A**	**A**	**R** Further refinement and/or risk mitigation measures required. For further information see Part A 2.5.1	**R**	

* no EPPO-Code

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 authorisation possible for uses where the line is highlighted in grey, Use should be crossed out when the notifier no longer supports this use.

Remarks columns:

1 Numeration necessary to allow references
2 Use official codes/nomenclatures of EU Member States
3 For crops, the EU and Codex classifications (both) should be used; when relevant, the use situation should be described (e.g. fumigation of a structure)
4 F: professional field use, Fn: non-professional field use, Fpn: professional and non-professional field use, G: professional greenhouse use, Gn: non-professional greenhouse use, Gpn: professional and non-professional greenhouse use, I: indoor application
5 Scientific names and EPPO-Codes of target pests/diseases/ weeds or, when relevant, the common names of the pest groups (e.g. biting and sucking insects, soil born insects, foliar fungi, weeds) and the developmental stages of the pests and pest groups at the moment of application must be named.

6-9 Explanation for “zRMS Conclusion”:

A	Acceptable
R	Acceptable with further restriction
C	To be confirmed by cMS
N	Not acceptable / evaluation not possible

10 Additional remarks may include: Extent of use/economic importance/restrictions/specific application techniques a.s.o.

Appendix 1 ALL intended uses

Appendix 1.1 ALL INTENDED USES

GAP rev. 3, date: 2023-07-14

PPP (product name/code):	Beloukha	Formulation type:	EC [a, b]
Active substance:	Pelargonic acid	Conc. of as:	680 g/L [c]13,28
Applicant:	Certis Belchim BV	Professional use:	☒
Zone(s):	central [d]	Non-professional use:	☐
Verified by MS:	yes	Field of use:	Herbicide

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Use-No. [e]	**Member state(s)**	**Crop and/ or situation** **(crop destination / purpose of crop)**	**F, Fn, Fpn G, Gn, Gpn or I**	**Pests or Group of pests controlled** (additionally: developmental stages of the pest or pest group)	**Application**				**Application rate**			**PHI** (days)	**Remarks** e.g. g safener/synergist per ha[f]
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	kg or L product / ha a) max. rate per appl. b) max. total rate per crop/season	g or kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max		
001	DE	grape vine *Vitis vinifera L. ssp. vinifera* VITVI (use as table and wine grape)	F	annual dicotyledonous weeds TTTDS, annual monocotyledonous weeds TTTMS	spraying, row treatment, protected with shield	during growing season, from 4th year after planting, BBCH 00-77	a) 2 b) 2	14	a) 16 L/ha b) 32 L/ha	a) 10.88 kg as/ha b) 21.76 kg as/ha	200-400	F*	
002	DE	grape vine *Vitis vinifera L. ssp. vinifera* VITVI (use as table and wine grape)	F	stump shoot STOCKT**	spraying, row treatment, trunk treatment, protected with shield	beginning of spring until end of summer, from 4th year after planting, BBCH 11-77	a) 2 b) 2	14	a) 16 L/ha b) 32 L/ha	a) 10.88 kg as/ha b) 21.76 kg as/ha	200-400	F*	

* The PHI is covered by the conditions of use and/or the vegetation period remaining between the application of the plant protection product and the use of the product (e. g. harvest) or the setting of a PHI in days is not required resp.

** no EPPO-Code

Appendix 1.2 MATCHING TABLE DE USES (Application reference code of zRMS: 008528-00/07)

GAP rev. 3, date: 2023-07-14

PPP (product name/code):	Beloukha	Formulation type:	EC [a, b]
Active substance:	Pelargonic acid	Conc. of as:	680 g/L [c]13,28
Applicant:	Certis Belchim BV	Professional use:	☒
Zone(s):	central [d]	Non-professional use:	☐
Verified by MS:	yes	Field of use:	Herbicide

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Use-No. [e]	**Member state(s)**	**Crop and/ or situation** **(crop destination / purpose of crop)**	**F, Fn, Fpn G, Gn, Gpn or I**	**Pests or Group of pests controlled** (additionally: developmental stages of the pest or pest group)	**Application**				**Application rate**			**PHI** (days)	**Remarks** e.g. g safener/synergist per ha[f]
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	kg or L product / ha a) max. rate per appl. b) max. total rate per crop/season	g or kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max		
001	DE	grape vine *Vitis vinifera L. ssp. vinifera* VITVI (use as table and wine grape)	F	annual dicotyledonous weeds TTTDS, annual monocotyledonous weeds TTTMS	spraying, row treatment, protected with shield	during growing season, from 4th year after planting, BBCH 00-77	a) 2 b) 2	14	a) 16 L/ha b) 32 L/ha	a) 10.88 kg as/ha b) 21.76 kg as/ha	200-400	F*	
002	DE	grape vine *Vitis vinifera L. ssp. vinifera* VITVI (use as table and wine grape)	F	stump shoot STOCKT**	spraying, row treatment, trunk treatment, protected with shield	beginning of spring until end of summer, from 4th year after planting, BBCH 11-77	a) 2 b) 2	14	a) 16 L/ha b) 32 L/ha	a) 10.88 kg as/ha b) 21.76 kg as/ha	200-400	F*	

* The PHI is covered by the conditions of use and/or the vegetation period remaining between the application of the plant protection product and the use of the product (e. g. harvest) or the setting of a PHI in days is not required resp.

** no EPPO-Code

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 authorisation possible for uses where the line is highlighted in grey, Use should be crossed out when the notifier no longer supports this use.

Remarks columns:

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

REGISTRATION REPORT

Part B

Section 3

Efficacy Data and Information

Concise summary

Product code: BCP1004D

Product name(s): Beloukha

Chemical active substance(s):

Pelargonic acid, 680 g/L

Reg. No Germany ZV1 008528-00/07 BELOUKHA

Central Zone

Rapporteur Member State: Germany

CORE ASSESSMENT

(authorization)

Applicant: Certis Belchim BV

Submission date: October 2021

MS Finalisation date: June 2023

VERSION HISTORY

When	What
August 2020	Firstf dRR for Beloukha for use on vines in Germany
October 2021	Revision of dRR for Beloukha (BCP1004D) for use on vines in Germany
May 2022	DE evaluation of dRR, green boxes have been added at the end of each chapter
June 2023	Final RR of DE, comments were received neither from the applicant nor from other MS. GAP table has been corrected and amended.

REQUEST FOR DATA CONFIDENTIALITY IN ACCORDANCE WITH ARTICLE 63 OF EC REGULATION 1107/2009.

The company Certis Belchim BV hereby requests data confidentiality for all the information listed in the attached document on the basis that this information is regarded as proprietary. This request takes into account the provision of Article 63 of the EC Regulation 1107/2009, on the freedom of access to information.

Table of Contents

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

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

The following data and information was mainly provided by the applicant and was submitted as dRR and BAD.
Additional comments and the final evaluation by the zRMS are marked by green boxes.
Typographical errors have been corrected.

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

Abstract

This document summarises the information related to the efficacy data of the new plant protection product Beloukha (BCP1004D) containing 680 g/L pelargonic acid. The active substance is currently approved under Regulation (EC) No. 1107/2009. The purpose of this concise summary (dRR) document is to support the BAD for the product authorisation of Beloukha (BCP1004D) under Regulation (EC) No. 1107/2009, for use as a herbicide in grapevine and for sucker control in grapevine, in Germany. To support this product authorisation, a total of 76 weed control effectiveness trials (63 were considered 'valid trials', including one trial where sucker control was also assessed), 8 sucker control trials and 6 grapevine crop selectivity trials, were conducted in the EPPO Maritime, Mediterranean and South-East climatic zones to demonstrate the effectiveness and selectivity of Beloukha (BCP1004D), applied either once or as two sequential applications at a dose rate of 16 L/ha. Weed control data were summarised across grapevine, orchard crops, annual and perennial row-crops, tree nursery and ornamental crops, and non-crop situations. All these situations were considered relevant to weed control in grapevine, as they all provide no crop competition. Data from across the three EPPO climatic zones was also considered relevant , as the product is contact acting only, so the conditions suitable for annual weed growth and sucker growth would be similar across the climatic zones, and weed control was seen to be similar across climatic zones. There were sufficient data to determine that 16 L/ha was the minimum effective dose for Beloukha (BCP1004D) both for weed control (vast majority of results showed weeds to be 'Susceptible') and sucker control (consistently in excess of 80% control). The effectiveness data also demonstrated that using two sequential applications of 16 L/ha Beloukha (BCP1004D) generally improved weed control, especially against the more 'difficult to control' weed species. Beloukha (BCP1004D) when used as directed and in line with the proposed GAP, will have no adverse effects on treated grapevine crops. It is also considered that the proposed use of Beloukha (BCP1004D) around grapevines at the proposed dose rate of 16.0 L/ha will have no adverse effects on succeeding or adjacent crops and the sprayer tank cleaning procedures will provide no risk to crops from subsequent spray operations. Resistance risk is considered as 'low' against annual dicotyledonous and monocotyledonous weeds. A summary of the intended GAP is presented in Table 3.1-1 and Appendix 2. This assessment has been performed according to the Uniform Principles.

Abstract

The purpose of this section is to evaluate efficacy data submitted for extension of authorisation of "BELOUKHA" (Pelargonic acid 680 g/L) as a post-emergence herbicide applied during the vegetations period against annual monocotyledonous weeds (TTTMS) and

annual dicotyledonous weeds (TTTDS) in grapevine and for sucker control in vine or debudding.
The GAP information “directed shielded spray” for use 001 and “directed shielded spray - base of plant” for use 002 have been added by the applicant in phase 2 and have to be added in the uses for DE.
The addition "from 4th year after planting" has been added to both uses and “trunk treatment, protected, with shield” to DE use 002.

Preliminary range-finding tests
Preliminary tests to assess the biological activity of the active substance were not presented in this submission. The statement of the applicant “*that pelargonic acid is an established herbicide, preliminary data on the weed control demonstrated by the active substance is not considered necessary”* will not be followed. Pelargonic acid is used in many variants and formulations. Furthermore, weather conditions, plant size and the concentration of the spray liquid also play a greater role than with other active substances. Preliminary range-finding tests would therefore be very interesting.

Minimum effective dose tests
Trials were conducted according to EPPO Standard PP1/225 (Minimum effective dose).
Use 001 (annual monocotyledonous and annual dicotyledonous weeds)
The data set for minimum effective dose includes 17 trials, 10 trials from the maritime EPPO climatic zone, 6 trials from the south-eastern EPPO climatic zone and 1 trial from the mediterranean EPPO climatic zone. The proposed dose of Beloukha (BCP1004D) 16 L/ha was compared to a 50% dose (8 L/ha) and a 75% dose (12 L/ha). The trials were conducted in Austria (6), Germany (3), the Czech Republic (1), Romania (3), Hungary (3) and Southern France (1) between 2018 and 2019.
A total of 6 – 15 trials with results that fully support the herbicide should be sufficient to demonstrate efficacy against a major target weed (EPPO Standard PP1/226 Number of efficacy trials). This number of trials is not reached for one single species. So the EPPO Standard is not fulfilled.
Furthermore, the trials from the maritime zone show only a limited dose-response relationship for annual dicotyledonous weeds. The relationship is more pronounced for annual monocotyledonous and perennial species. This does not change much when the trials from the south-eastern EPPO zone are added. Only if you add the trials from other similar uses (e.g. orchards) you come to the conclusion that the intended application rate is also the required application rate. The use of other applications is accepted here because the number of approved herbicides in viticulture in Germany is very limited, especially if the registration for the active ingredient glyphosate is discontinued. Under these conditions the submitted results for the minimum effective dose are accepted as sufficient.
Use 002 (suckers)
Data from a total of nine sucker control trials have been provided to demonstrate minimum effective dose, conducted in Austria (3 trials), Germany (3 trials), Northern France (2 trials) and Hungary (1 trial) between 2012 and 2019.
The number of suckers and lengths (by class) were assessed in each trial (>5cm, 5-15cm, 15-25cm and >25cm, and then percentage of control was calculated for each trial, based on reduction in overall length of suckers per treatment.
Across the nine trials where sucker control was assessed in grapevines following a single application of Beloukha (BCP1004D) 9-22 days after application, the 16 L/ha dose achieved mean control of 87.7% (range 44.8-100%), compared to mean control of 85.4% (range 31.3-99.2%) using the 12 L/ha dose and mean control of 82.0% (range 36.7-97.5%) using the 8 L/ha dose.
Across the five trials where sucker control was assessed in grapevines following two sequential applications of Beloukha (BCP1004D) 9-26 days after the second application, the 16 L/ha dose achieved mean control of 83.9% (range 49.6-100%), compared to mean control

of 76.7% (range 36.8-100%) using the 12 L/ha dose and mean control of 72.3% (range 40.0-97.7%) using the 8 L/ha dose.
These data demonstrate that the minimum effective dose of Beloukha (BCP1004D) for the control of suckers in grapevines is 16 L/ha, as this was the only dose that consistently provided in excess of 80% control of suckers, from both one application and two sequential applications.

Efficacy tests
Trials were conducted according to EPPO Standard PP1/64 –Weeds in grapevine. Sufficient results from young vineyards are not dealt with.
Use 001 (annual monocotyledonous and annual dicotyledonous weeds)
To support Beloukha for weed control in grapevine, efficacy data for control of annual dicotyledonous weeds and annual monocotyledonous weeds are presented from 25 efficacy trials in grapevine. A total of 6 – 15 trials with results that is fully supportive for the herbicide should be sufficient to demonstrate efficacy against a major target weed (EPPO Standard PP1/226 Number of efficacy trials). This number of trials is not reached for one single species. So the EPPO Standard is not fulfilled.
Furthermore, the presented reference herbicide Basta (glufosinate-ammonium) shows a better control than Beloukha. However, the herbicide Basta is no longer authorised. Last but not least the applicant presented additional trials from orchards (11 on pome fruit and 9 on stone fruit), 19 trials from various annual and perennial row-crops (post-emergence to the weeds), 7 trials from tree nursery or ornamental crops and 5 from non-crop situations assessed between 2012 and 2019 in Austria, Belgium, the Czech Republic, Denmark, Germany, France, the Netherlands, the United Kingdom, Italy, Hungary and Romania the number of trials submitted is accepted as sufficient.
The results from the other uses are accepted here because the number of approved herbicides in viticulture in Germany is very limited, especially if the active ingredient glyphosate is discontinued. Under these conditions the submitted results for the efficacy of Beloukha are accepted as sufficient.
Use 002 (suckers)
To support this product for sucker control in grapevine, efficacy data for sucker control are presented from 9 trials carried out 2012, 2013, 2018 and 2019 in Austria, Germany and France. Across the nine trials where sucker control was assessed in grapevines following a single application of Beloukha (BCP1004D) 9-22 days after application, the proposed dose (16 L/ha) achieved mean control of 87.7% (range 44.8-100%), compared to mean control of 98.8% (range 93.1-100%) using Spotlight Plus or Shark (carfentrazone-ethyl) or 39.1% control using Basta (glufosinate-ammonium).
Across the five trials where sucker control was assessed in grapevines following two sequential applications of Beloukha (BCP1004D) 9-26 days after the second application, the proposed dose (16 L/ha) achieved mean control of 83.9% (range 49.6-100%), compared to mean control of 98.4% (range 97.9-99.0%) using Shark (carfentrazone-ethyl).
These demonstrate that the proposed dose (16 L/ha) of Beloukha (BCP1004D) applied as either a single application or as two sequential applications provided good control of suckers in grapevines (>80%). The use of two sequential applications of 16 L/ha Beloukha (BCP1004D) is considered necessary as it is a contact acting herbicide, so new sucker growth after application would not be controlled by the initial application. But as the level of control is good from a single application, this would promote the growth of new suckers, requiring a further application to control those new suckers. Although it is not clear from the data provided, whether Beloukha (BCP1004D) applied at 16 L/ha to suckers in grapevines is more effective on smaller suckers, the trial with the lowest level of control (44.8%) was the trial where the mean length of suckers at the initial application was the longest (17.0 cm), indicating that suckers >25 cm are likely to be less well controlled as if applied to smaller suckers (i.e., 0-15 cm).
These data support the 16 L/ha dose of Beloukha (BCP1004D), for the control of suckers (optimum control for suckers up to 25 cm) in grapevines in Germany.

Possible development of resistance or cross-resistance
The overall resistance risk is low.

Phytotoxicity to host crop
Trials were conducted according to EPPO Standard PP1/135 (Phytotoxicity assessment).
Use 001 (annual monocotyledonous and annual dicotyledonous weeds) and Use 002 (suckers)
Usually, in major crops eight selectivity trials should be presented (EPPO Standard PP1/226 Number od efficacy trials) per EPPO zone. Here, only 4 results for the maritime and two results for the south-eastern EPPO zone are presented.
In this case, this number of results should be enough because no phytotoxic observations were made in all the selectivity and in all efficacy trials conducted with Beloukha in grapes. Furthermore, the degradation of the active substance takes place very quickly, so that no soil effect can be assumed.

Effects on the yield of treated plants and plant products
Use 001 (annual monocotyledonous and annual dicotyledonous weeds) and Use 002 (suckers)
This dossier contains 6 selectivity trials conducted to GEP on grapevine (VITVI) undertaken to assess adverse effects of Beloukha (BCP1004D) on treated crops. Three of these trials conducted in the maritime EPPO climatic zone (2 in Austria and 1 in Germany) were assessed for yield, one trial was assessed for weight of branches and one trial was assessed for number of fruit bunches. In one trial conducted in Germany, the trial could not be harvested manually due to Botrytis infection and therefore yield could not be determined. The two trials conducted in the mediterranean EPPO climatic zone (2 in Greece) were assessed for number of marketable fruit bunches and weight of marketable fruit bunches.
Negative effects were not determined.
Although the results are based on a limited number of trials reduced yield is not to be expected. See also conclusion to 3.4.1.

Impact on the quality of plants and plant products
Refer to 3.4.4.

Adverse effects on beneficial organisms (other than bees)
Concerning the toxicity to relevant beneficial organisms, BELOUKHA is classified as harmful for populations of *Typhlodromus pyri* and as harmful for populations of relevant beneficial insects.

Impact on succeeding crops
EPPO Standard PP1/207(2) 'Effects on succeeding crops' advises the use of EC_{10} values to perform a succeeding crop risk assessment. However, as the OECD 208 study for VVH-86086 (BCP1004D) does not include EC_{10} values. ER values have been used to perform the succeeding crop risk assessment. But for the requested uses, the impact on succeeding crops is not relevant for these uses in permanent cultures (grapes).

Impact on other plants including adjacent crops
A risk assessment conducted according to EPPO Standard PP1/256 (Effects on adjacent crops) was provided.
Based on the results of the seedling emergence study (OECD 208) and of the vegetative vigour study (OECD 227) it can be concluded that Beloukha (BCP1004D) will most likely cause no adverse effects on adjacent crops, at a distance of 1 metre, when using the proposed dose of 16 L/ha for weed control or sucker control in grapevines. Therefore, the risk to adjacent pre-emergent crops is considered negligible.

Conclusion – tank cleaning
According to EPPO Standard PP1/292 (Cleaning pesticide application equipment (PAE) – efficacy aspects) information on tank cleaning was given.

Other special studies
None.

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

GAP rev. 0, date: 2021-09-29

PPP (product name/code) Beloukha (BCP1004D)
active substance 1 Pelargonic acid
Applicant: Certis Belchim BV
Zone(s): Central (DE)
Verified by MS: northern/central/southern

Formulation type: EC
Conc. of as 1: 680 g/L
professional use

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)	**Conclusions DE**
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	kg or L product / ha a) max. rate per appl. b) max. total rate per crop/season	g or kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
1	DE	**Grapevine** (VITVI)	F	Annual dicotyledonous weeds (3ANDIT) and annual monocotyledonous weeds (3ANMNT)	Directed shielded spray - row treatment	BBCH 00 to 77	a) 2 b) 2	14 days	a) 16.0 L/ha b) 32.0 L/ha	a) 10880 g/ha b) 21760 g/ha	200-400	-	Row treatment. - max 50% of the vineyard surface is treated.	
2	DE	**Grapevine** (VITVI)	F	Control of suckers (VITVI)	Directed shielded spray – base of plant	BBCH 11 to 77	a) 2 b) 2	14 days	a) 16.0 L/ha b) 32.0 L/ha	a) 10880 g/ha b) 21760 g/ha	150-250	-	6-10 L/hL	

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

Appendix 1 ALL intended uses (BVL version)

Appendix 1.1 All intended uses (EU or ZONAL GAP)

GAP rev. (1), date: 2020-12-10

PPP (product name/code):	Beloukha	Formulation type:	EC [a, b]
Active substance:	Pelargonsäure	Conc. of as:	680 g/L [c]
Applicant:	Certis Belchim BV	Professional use:	☒
Zone(s):	central [d]	Non-professional use:	☐
Verified by MS:	yes		
Field of use:	herbicide		

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Use-No. [e]	**Member state(s)**	**Crop and/ or situation** **(crop destination / purpose of crop)**	**F, Fn, Fpn G, Gn, Gpn or I**	**Pests or Group of pests controlled** (additionally: developmental stages of the pest or pest group)	**Application**				**Application rate**			**PHI** (days)	**Remarks:**
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	kg or L product / ha a) max. rate per appl. b) max. total rate per crop/season	g or kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max		e.g. g safener/synergist per ha [f]
Zonal uses (field or outdoor uses, certain types of protected crops)													

001	DE	Vineyard	F	Annual monocotyledonous and dicotyledonous weeds	Spraying	BBCH 00-77	a) 1 to 2 applications per use (min. 14 days) b) 1 to 2 applications per year	Min. 14 days	a) 16 L/ha per application b) 32 L/ha per year	a) 10 880 g/ha b) 21 760 g/ha	200-400	XF	row application
002	DE	Vineyard	F	Vine suckering or debudding	Spraying	BBCH 11-77	a) 1 to 2 applications per use (min. 14 days) b) 1 to 2 applications per year	Min. 14 days	a) 16 L/ha per application b) 32 L/ha per year	a) 10 880 g/ha b) 21 760 g/ha	150-400	XF	row 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
	2	Use official codes/nomenclatures of EU Member States
	3	For crops, the EU and Codex classifications (both) should be used; when relevant, the use situation should be described (e.g. fumigation of a structure)
	4	F: professional field use, Fn: non-professional field use, Fpn: professional and non-professional field use, G: professional greenhouse use, Gn: non-professional greenhouse use, Gpn: professional and non-professional greenhouse use, I: indoor application
	5	Scientific names and EPPO-Codes of target pests/diseases/ weeds or, when relevant, the common names of the pest groups (e.g. biting and sucking insects, soil born insects, foliar fungi, weeds) and the developmental stages of the pests and pest groups at the moment of application must be named.
	6	Method, e.g. high volume spraying, low volume spraying, spreading, dusting, drench Kind, e.g. overall, broadcast, aerial spraying, row, individual plant, between the plants - type of equipment used must be indicated.
	7	Growth stage at first and last treatment (BBCH Monograph, Growth Stages of Plants, 1997, Blackwell, ISBN 3-8263-3152-4), including where relevant, information on season at time of application
	8	The maximum number of application possible under practical conditions of use must be provided.
	9	Minimum interval (in days) between applications of the same product
	10	For specific uses other specifications might be possible, e.g.: g/m³ in case of fumigation of empty rooms. See also EPPO-Guideline PP 1/239 Dose expression for plant protection products.
	11	The dimension (g, kg) must be clearly specified. (Maximum) dose of a.s. per treatment (usually g, kg or L product / ha).
	12	If water volume range depends on application equipments (e.g. ULVA or LVA) it should be mentioned under “application: method/kind”.
	13	PHI - minimum pre-harvest interval
	14	Remarks may include: Extent of use/economic importance/restrictions

Appendix 1.2 Matching table for DE uses (BVL version 008528-00/07)

GAP rev. (1), date: 2023-05-26

PPP (product name/code):	Beloukha	Formulation type:	EC [a, b]
Active substance:	Pelargonsäure	Conc. of as:	680 g/L [c]13,28
Applicant:	Certis Belchim BV	Professional use:	☒
Zone(s):	central [d]	Non-professional use:	☐

Verified by MS: yes

Field of use: herbicide

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use-No. (e)	**Member state(s)**	**Crop and/ or situation** **(crop destination / purpose of crop)**	**F, Fn, Fpn G, Gn, Gpn or I**	**Pests or Group of pests controlled** (additionally: developmental stages of the pest or pest group)	**Application**				**Application rate**			**PHI** (days)	**Remarks/matching remarks:**	**Conclusion Efficacy**
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	kg or L product / ha a) max. rate per appl. b) max. total rate per crop/season	g or kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
Zonal uses (field or outdoor uses, certain types of protected crops)														
001	DE	grape vine *Vitis vinifera L. ssp. vinifera* VITVI (use as table and wine grape)	F	annual dicotyledonous weeds TTTDS, annual monocotyledonous weeds TTTMS	Spraying row treatment, protected, with shield	BBCH 00-77 during growing season, from 4th year after planting	a) 2 b) 2	treatments must be at least 14 days apart	a) 16 L/ha b) 32 L/ha	a) 10.88 kg as/ha b) 21.76 kg as/ha	200-400	XF	This DE-use corresponds to or is part of EU/ZONAL-use 001	Acceptable

002	DE	grape vine *Vitis vinifera L. ssp. vinifera* VITVI (use as table and wine grape)	F	stump shoot STOCKT*	Spraying row treatment, trunk treatment, protected, with shield	BBCH 11-77 beginning of spring until end of summer, from 4th year after planting	a) 2 b) 2	treatments must be at least 14 days apart	a) 16 L/ha b) 32 L/ha	a) 10.88 kg as/ha b) 21.76 kg as/ha	200-400	XF	This DE-use corresponds to or is part of EU/ZONAL-use 002	Acceptable

***no EPPO code**

Remarks table heading:

(a) e.g. wettable powder (WP), emulsifiable concentrate (EC), granule (GR)

(b) Catalogue of pesticide formulation types and international coding system CropLife International Technical Monograph n°2, 6th Edition Revised May 2008

(c) g/kg or g/l

(d) Select relevant

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

(f) No authorization possible for uses where the line is highlighted in grey, Use should be crossed out when the notifier no longer supports this use.

Remarks columns:

1 Numeration necessary to allow references

2 Use official codes/nomenclatures of EU Member States

3 For crops, the EU and Codex classifications (both) should be used; when relevant, the use situation should be described (e.g. fumigation of a structure)

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

5 Scientific names and EPPO-Codes of target pests/diseases/ weeds or, when relevant, the common names of the pest groups (e.g. biting and sucking insects, soil born insects, foliar fungi, weeds) and the developmental stages of the pests and pest groups at the moment of application must be named.

6 Method, e.g. high volume spraying, low volume spraying, spreading, dusting, drench Kind, e.g. overall, broadcast, aerial spraying, row, individual plant, between the plants - type of equipment used must be indicated.

7 Growth stage at first and last treatment (BBCH Monograph, Growth Stages of Plants, 1997, Blackwell, ISBN 3-8263-3152-4), including where relevant, information on season at time of application

8 The maximum number of application possible under practical conditions of use must be provided.

9 Minimum interval (in days) between applications of the same product

10 For specific uses other specifications might be possible, e.g.: g/m³ in case of fumigation of empty rooms. See also EPPO-Guideline PP 1/239 Dose expression for plant protection products.

11 The dimension (g, kg) must be clearly specified. (Maximum) dose of a.s. per treatment (usually g, kg or L product / ha).

12 If water volume range depends on application equipments (e.g. ULVA or LVA) it should be mentioned under “application: method/kind”.

13 PHI - minimum pre-harvest interval

14 Remarks may include: Extent of use/economic importance/restrictions. Matching remarks includes information about the relation between DE-uses and the EU/Zonal-uses, if requirements for national crop (-groups) or pest (-groups) description results in refinements

15 Conclusion Efficacy

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

3.2 Efficacy data (KCP 6)

Introduction

This Concise Summary Dossier (dRR) summarises the information within the BAD, related to the efficacy data of the new plant protection product Beloukha (BCP1004D) containing 680 g/L pelargonic acid. Pelargonic acid is currently approved under Regulation (EC) No. 1107/2009.

Beloukha (BCP1004D) is a new contact herbicide, proposed for the post-emergence control of annual dicotyledonous weeds (3ANDIT) and annual monocotyledonous weeds (3ANMNT) in grapevines (VITVI), and for the control of suckers (YEXWS) in grapevines (VITVI). It is applied between or around the vines at a dose rate of 16.0 L/ha (10880 g/ha pelargonic acid). The area between and around the vines represents less than 50% of the total area of the orchard/vineyard.

This submission in the Central EU Authorisation zone (CEU) is only for Germany (DE).

The Detailed Summary (BAD) is located in the following report: Part B, Section 3 (Efficacy Data and Information – Detailed Summary) of the draft registration report (dRR) for Beloukha (BCP1004D).

Description of active substances

Pelargonic acid is a fatty acid belonging to the C_7-C_{20} group. This active substance is used as a post-emergence, contact herbicide and plant growth regulator (sucker control).

Mode of action

Pelargonic acid, a member of the chemical class of the phenylpyrazoles, is a non-selective contact herbicidal compound. After application of pelargonic acid on the plant tissues, the active substance increases the permeability of the wax layer, resulting in a disruption of the cuticle and then, disrupts normal cell membrane permeability. Uncontrolled leakage of cell content occurs. Water loss is increased by warm temperatures and sunlight. The cells collapse leading to death of the plant tissue. Pelargonic acid is not translocated in plants and does not provide residual weed control, as it has no soil activity.

Because of this mode of action, pelargonic acid is a broad spectrum, non-persistent, non-systemic, contact acting herbicide.

Table 3.2-1: Details of the active substances

Active substance	**Pelargonic acid**
Concentration (Unit: g/kg or g/L...)	680 g/L
Chemical group	Fatty acid; C_7-C_{20} group (HRAC Group 0, formerly Group Z)
Mode of action	Unknown
Biological action	Post-emergence, contact herbicide and plant growth regulator

Mode of action
Pelargonic acid is a saturated, nine-carbon fatty acid. The active substance is the ammonium salt of the acid. It is a contact herbicide and used in post-emergence application. After application on plant tissues, the active substance increases the permeability of the wax layer, resulting in a disruption of the cuticle and then, disrupts normal cell membrane permeability. Uncontrolled leakage of cell content occurs. This causes the destruction of the photosynthesis apparatus. Water loss is increased by warm temperature and sun's UV rays. The cells

collapse leading to death of the plant tissue. Pelargonic acid causes extremely rapid plant damage; plants begin to collapse within 1-3 hours after application.
Pelargonic acid is not translocated in plants and does not provide residual weed control. Pelargonic acid does not prevent re-growth from basal meristems. Because of this mode of action, pelargonic acid is a broad spectrum, non-persistent, non-systemic, contact herbicide with a fast action. Pelargonic acid is used for total weed control in non-crop areas. Pelargonic acid has no soil activity.
Site of action (HRAC-group): 0

Description of the plant protection product

Beloukha (BCP1004D) is an emulsifiable concentrate (EC) containing 680 g/L pelargonic acid.

For weed control in grapevine, the proposed maximum dose rate of Beloukha (BCP1004D) is 16 litres per hectare (L/ha) with a maximum of 2 applications per season (minimum interval of 14 days), delivering 21,760 g pelargonic acid per hectare. To support the proposed use of Beloukha (BCP1004D) in grapevine, data are presented from trials conducted between 2012 and 2019, across three EPPO climatic zones (Maritime, Mediterranean and South-East). Weed control trials were conducted in grapevines, orchard crops, and annual and perennial row-crops, tree nurseries and ornamentals and in non-crop situations. Justifications for use of data in other crops/situations and from other EPPO climatic zones (outside the EPPO Maritime climatic zone) are included below.

For sucker control in grapevines, the proposed maximum rate of Beloukha (BCP1004D) is 16 litre per hectare (L/ha) with a maximum of 2 applications per season (minimum interval of 14 days), delivering 21,760 g pelargonic acid per hectare. In order to support the proposed use of BCP1004D, data is presented from trials conducted between 2013 to 2019, across three EPPO climatic zones (Maritime, Mediterranean and South-East), in grapevines. Justification for the use of data from other EPPO climatic zones (outside the EPPO Maritime climatic zone) are included below.

Table 3.2-2: Simplified table of requested uses for Beloukha (BCP1004D)

Uses		**Member State**	**Requested rate(s)**	**Comments / Other relevant details on GAPs**
Crop(s)	**Target(s)**			
Grapevine (VITVI)	Annual dicotyledonous weeds (3ANDIT) and annual monocotyledonous weeds (3ANMNT)	DE	16.0 L/ha x 2	Row treatment.
	Sucker control (YEXWS)	DE	16.0 L/ha x 2	Spot treatment to base of the individual plants.

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

Description of the target weeds

(a) Annual broad-leaved and grass weed control in grapevines.

Broad-leaved weeds and grass weeds compete with vines for nutrients, light and water which can reduce yield. This is particularly important for grapevines in the first three years of planting, when competition can impede the production of the first viable grape crop. Weeds may also lead to higher levels of pests and disease in the crops by acting as a reservoir and allowing spread between plants.

In vineyards, mown grass strips are typically grown between the rows, as a mechanical means of weed control, whilst chemical weed control is used in the area close to the vines (and between the vines) which cannot be mown. Weed control is usually carried out either pre-emergence or post-emergence of the weeds,

(or a combination of both). BCP1004D (Beloukha), containing 680 g/l pelargonic acid is a contact acting herbicide, so will only be effective when applied post-emergence of the weeds.

Weeds mentioned in this dossier are summarised in Table 3.2-3.

(b) Control of suckers in grapevine.

Suckers are undesirable shoots that grow from the base of vines which compete with the upper canopy for resources. They can also make general vineyard maintenance more difficult and can harbour pests and diseases. Suckers can be removed manually. However, this is costly and time consuming, therefore chemical control is more efficient, commercially.

Table 3.2-3: Glossary of weeds mentioned in the dossier

EPPO code	Scientific name	Monocots or Dicots Annuals or Perennials
ABUTH	*Abutilon theophrasti*	Annual dicots
AETCY	*Aethusa cynapium*	Annual dicots
AMACH	*Amaranthus hybridus*	Annual dicots
AMARE	*Amaranthus retroflexus*	Annual dicots
AMBEL	*Ambrosia artemisiifolia*	Annual dicots
ANTAR	*Anthemis arvensis*	Annual dicots
ARBTH	*Arabidopsis thaliana*	Annual dicots
BEAVA	*Beta vulgaris subsp. vulgaris var. altissima*	Annual dicots
BRSNW	*Brassica napus*	Annual dicots
BRSNW	*Brassica napus*	Annual dicots
CAPBP	*Capsella bursa-pastoris*	Annual dicots
CARFL	*Cardamine flexuosa*	Annual dicots
CARHI	*Cardamine hirsuta*	Annual dicots
CHEAL	*Chenopodium album*	Annual dicots
CHEHY	*Chenopodiastrum hybridum*	Annual dicots
CHEPO	*Lipandra polysperma*	Annual dicots
CHERE	*Chenopodium album* subsp. *reticulatum*	Annual dicots
FUMOF	*Fumaria officinalis*	Annual dicots
GASPA	*Galinsoga parviflora*	Annual dicots
GERDI	*Geranium dissectum*	Annual dicots
GERPU	*Geranium pusillum*	Annual dicots
GERRT	*Geranium rotundifolium*	Annual dicots
HIBTR	*Hibiscus trionum*	Annual dicots
LAMAM	*Lamium amplexicaule*	Annual dicots
LAMPU	*Lamium purpureum*	Annual dicots
MATCH	*Matricaria chamomilla*	Annual dicots
MATIN	*Tripleurospermum inodorum*	Annual dicots
MATMT	*Matricaria discoidea*	Annual dicots
MERAN	*Mercurialis annua*	Annual dicots
MYOAR	*Myosotis arvensis*	Annual dicots
POLAV	*Polygonum aviculare*	Annual dicots
POLCO	*Fallopia convolvulus*	Annual dicots
POLPE	*Persicaria maculosa*	Annual dicots
POROL	*Portulaca oleracea*	Annual dicots
POROT	*Portulaca oleracea* subsp. *stellata*	Annual dicots
RANSA	*Ranunculus sardous*	Annual dicots
SENVU	*Senecio vulgaris*	Annual dicots
SOLNI	*Solanum nigrum*	Annual dicots
SONOL	*Sonchus oleraceus*	Annual dicots
STEME	*Stellaria media*	Annual dicots
URTUR	*Urtica urens*	Annual dicots
VERAG	*Veronica agrestis*	Annual dicots
VERHE	*Veronica hederifolia*	Annual dicots
VERPE	*Veronica persica*	Annual dicots
VERSS	*Veronica sp.*	Annual dicots
VIOAR	*Viola arvensis*	Annual dicots
BROST	*Bromus sterilis*	Annual monocots
DIGSA	*Digitaria sanguinalis*	Annual monocots
ECHCG	*Echinochloa crus-galli*	Annual monocots
LOLMU	*Lolium multiflorum*	Annual monocots
POAAN	*Poa annua*	Annual monocots
SETVI	*Setaria viridis*	Annual monocots
TRZAW	*Triticum aestivum*	Annual monocots
ARFLA	*Arctium lappa*	Perennial dicots
BELPE	*Bellis perennis*	Perennial dicots
BUNOR	*Bunias orientalis*	Perennial dicots
CARPR	*Cardamine pratensis*	Perennial dicots
CIRAR	*Cirsium arvense*	Perennial dicots
CONAR	*Convolvulus arvensis*	Perennial dicots
EPICT	*Epilobium ciliatum*	Perennial dicots

EPPO code	Scientific name	Monocots or Dicots Annuals or Perennials
EPIHI	*Epilobium hirsutum*	Perennial dicots
EPISS	*Epilobium sp.*	Perennial dicots
EQUAR	*Equisetum arvense*	Perennial dicots
ERICA	*Erigeron canadensis*	Perennial dicots
PLALA	*Plantago lanceolata*	Perennial dicots
PLAMA	*Plantago major*	Perennial dicots
SONAR	*Sonchus arvensis*	Perennial dicots
TAROF	*Taraxacum officinale*	Perennial dicots
TRFRE	*Trifolium repens*	Perennial dicots
TRFSS	*Trifolium sp.*	Perennial dicots
AGRRE	*Elymus repens*	Perennial monocots
LOLPE	*Lolium perenne*	Perennial monocots
POAPR	*Poa pratensis*	Perennial monocots
SORSU	*Sorghum x drummondii*	Perennial monocots
FESSS	*Festuca sp.*	Perennial monocots

Description of the target crops

Beloukha (BCP1004D) is intended for use as a row treatment in grapevine for the control of annual dicotyledonous weeds (3ANDIT) and annual monocotyledonous weeds (3ANMNT). The major/minor use status of this crop and these target pests in each of Member State is summarised in Table 3.2-4.

Table 3.2-4: Major / minor status of intended uses (for all cMS and zRMS)

Crop and/or situation		Crop status		Pests or group of pests controlled	Pest status	
		Major	Minor*		Major	Minor*
Grapevine	Grapevine (VITVI)	DE	-	Annual dicotyledonous weeds (3ANDIT)	DE	-
				Annual monocotyledonous weeds (3ANMNT)	DE	-
				Suckers	DE	-

*Minor crop status based on information for each country on the EUMUDA website or a crop area less than 10,000 ha in the country as listed on the Eurostat website for 2018 (most recent year with complete information).

Compliance with the Uniform Principles

All trials included in this dossier have been conducted by GEP certified companies and have been performed in accordance with the relevant EPPO Standards and/or French CEB methods, with the following exceptions with regard to plot size. These exceptions are not considered to have affected trial validity since the product is intended for overall weed control and weed distribution was uniform in these trials.

According to EPPO standard PP 1/064(4) *'Weeds in grapevine'*, the plot size should be at least 20m^2, which may be reduced to12m^2, if the aim of the trial is to control one abundant weed species, which is non-creeping and uniformly distributed. As Beloukha (BCP1004D) is intended for general weed control of annual weeds, which are generally non-creeping and all weeds were abundant ($\geq$5/m^2 or $\geq$2% GC), the product meets these criteria and the plot sizes of 10-12m^2 is considered sufficient for grapevine.

According to EPPO standard PP 1/161(3) *'Control of suckers in grapevine'*, the plot size should be at least 20 plants (at least 4 replicates). As Beloukha (BCP1004D) is intended for sucker control in grapevine, the product meets these criteria and the plot sizes of at least 20 plants is considered sufficient for grapevine.

The overall assessment was performed according to Uniform Principles.

Information on trials submitted (3.1 Efficacy data)

This dossier contains 84 effectiveness trials [76 weed control trials (one of which also included sucker control assessments) and 8 dedicated sucker control trials], conducted to assess the minimum effective dose and effectiveness of Beloukha (BCP1004D) against annual dicotyledonous weeds and annual monocotyledonous weeds in various crops and situations, as well as sucker control in grapevine. As detailed in Table 3.2-5, these included 33 trials (25 weed control and 8 sucker control) on grapevine (VITVI), 20 weed control trials in orchard crops (12 trials on pome fruit and 8 trials on stone fruit), 19 trials in various annual and perennial row-crops (applied post-emergence of the weeds, but pre-emergence of the crop), 7 trials on tree nursery and ornamental crops, and 5 trials non-crop situations (on 'bare soil'). These trials were conducted across 3 EPPO climatic zones (EPPO Maritime, Mediterranean and South-East zones) in Austria (9 trials on weed control and 3 trials on sucker control), Belgium (11 trials), the Czech Republic (2 trials), Germany (20 trials on weed control and 3 trials on sucker control), Denmark (4 trials), France (9 trials on weed control and 2 trials on sucker control), Hungary (4 trials, including one with sucker control assessments), Italy (3 trials), the Netherlands (10 trials), Romania (3 trials) and the UK (1 trial).

Location maps for all trials can be found in Appendix 3 of the BAD.

A number of the 25 grapevine efficacy trials were considered invalid and excluded (see Table 3.2-5) for several reasons, leaving 17 'valid' trials:

- All weed densities being too low (<5/m^2 or <2% ground cover) at either application or assessment.
- All weed species were beyond the maximum proposed growth stages at application (approximately BBCH growth stage 10-18 for dicotyledonous weeds or BBCH 10-12 for monocotyledonous weeds)
- New weeds germinated or emerged after application (which would not be controlled by the product as it has only contact activity) in sufficient numbers to seriously reduce the level of control at subsequent assessments.

Therefore, the results from these trials are not discussed here, but the data are still provided in Appendix 5 of the BAD. Also, specific weed species within 'valid trials' were also excluded, for the same reasons as stated above. Again, these data are not discussed here, but still included (but 'greyed-out') in Appendix 5 of the BAD.

In addition to weed control in grapevine, weed control data from other crops and situations have been included in the dossier to demonstrate the efficacy of the product, as all these other situations of use represent a similar situation of use to 'around grapevines', with no competition from the crop regarding weed control (as either the product was applied pre-emergence of the crop or between the rows of the crops on bare soil, providing no crop competition against the weeds). This is further supported by the EPPO extrapolation tables which indicate that weed control data on other crops (such as pome fruit and stone fruit) can be used to support uses in grapevine.

Justification for use of data across EU zones

All summaries in this dossier group trials by EPPO climatic zone, dose rate and weed species, as these are considered relevant to the proposed claims and authorisations. Study results are grouped following the EPPO 1/241(1) Standard '*Guidance of comparable climates*' before being combined to provide overall results, across all EPPO climatic zones.

As Beloukha (BCP1004D), containing pelargonic acid, is a contact herbicide with no residual or systemic activity, factors such as soil type, crop type, agricultural practice etc., are not considered to be relevant. Therefore relevance of weed control data from outside the EPPO Maritime climatic zone has been justified, as Beloukha (BCP1004D), applied at the proposed dose of 16 L/ha, generally provided consistent levels of weed control across the different EPPO climatic zones. Therefore, the total number of valid weed control trials within the dataset, which are considered relevant to support the use of Beloukha (BCP1004D) in grapevines in Germany, is 63; 48 trials in the EPPO Maritime zone, 9 trials in the EPPO Mediterranean zone and 6 trials in the EPPO South-East zone. Although grapevines is a major crop and there is no EPPO minor use extrapolation table, it is considered that all the uses where weed control data were generated are very similar (having no crop competition).

In addition, nine trials results were provided for sucker control in grapevines (8 specific sucker control trials and 1 additional sucker control data assessed from a weed control trial) using either one or two sequential applications of 16 L/ha Beloukha (BCP1004D). All of these trials were carried out on grapevine.

Treatments were applied either once or twice, as summarised in Table 3.2-5. Where two applications were made, intervals between applications ranged from 14-35 days in the grapevine trials (in line with the proposed GAP) and 5-36 days in trials for the other situations of use. The water volumes used ranged from 200-300 L/ha in the grapevine trials (200-400 L/ha for the other situations of use) except in 1 trial where a water volume of 150 L/ha was used, but although outside the proposed range of 200-400 L/ha, in the GAP table, the weed control from this trial was comparable to that seen in the other trials, so these data have been included in the evaluation, as it is considered that the data generated in this trial fully support the use of Beloukha (BCP1004D) in grapevines in Germany. Treatments were applied from April to September, with the majority of treatments applied in May, June and July, which is in line with the proposed GAP (active growing season for weeds).

Table 3.2-5: Presentation of trials – weed control (post-emergence) for Beloukha (BCP1004D)

Crop(s)	Target(s)	Country	Years	Type of trial**	No. of trials per EPPO zone (number of valid trials)			GEP, non-GEP, official***	No. of applications of Beloukha (BCP1004D)
					Maritime	Mediterranean	South-East		
Grapevine (VITVI)	3ANDIT 3ANMNT	AT	2013	MED + E	2 (2)	-	-	GEP	1
			2014	MED + E	2 (2)	-	-	GEP	1
			2017	MED + E	1 (1)	-	-	GEP	2
			2018	MED + E	1	-	-	GEP	1
				MED + E	1 (1)	-	-	GEP	2
		CZ	2013	MED + E	1 (1)	-	-	GEP	1
		DE	2013	MED + E	3 (1)	-	-	GEP	1
			2014	MED + E	2 (1)	-	-	GEP	1
			2018	MED + E	1	-	-	GEP	1
				MED + E	2 (1)	-	-	GEP	2
		FR	2013	MED + E	1	1 (1)	-	GEP	1
		HU	2019	MED + E	-	-	4 (3)	GEP	2
		RO	2019	MED + E	-	-	3 (3)	GEP	2
Grapevine (VITVI)	**TOTAL**				**17 (10)**	**1 (1)**	**7 (6)**	-	
	TOTAL ALL ZONES				**25 (17)**			-	
Orchard crops									
Pome fruit (3PMFC)									
Apple (MABSD)	3ANDIT 3ANMNT	AT	2017	MED + E	1 (1)	-	-	GEP	2
		BE	2016	MED + E	1 (1)	-	-	GEP	2
			2017	MED + E	1	-	-	GEP	1
			2018	MED + E	1 (1)	-	-	GEP	1
		DE	2018	MED + E	1	-	-	GEP	2
		DK	2017	MED + E	1 (1)	-	-	GEP	2
		NL	2016	MED + E	2 (2)	-	-	GEP	2
			2017	MED + E	1 (1)	-	-	GEP	2
		UK	2016	MED + E	1 (1)	-	-	GEP	2
Pear (PYUCO)		DE	2018	MED + E	1 (1)	-	-	GEP	2
		NL	2018	MED + E	1 (1)	-	-	GEP	2
Pome fruit (3PMFC)	**TOTAL**				**12 (10)**	-	-	-	
	TOTAL ALL ZONES				**12 (10)**			-	

Crop(s)	Target(s)	Country	Years	Type of trial**	No. of trials per EPPO zone (number of valid trials)			GEP, non-GEP, official***	No. of applications of Beloukha (BCP1004D)
					Maritime	Mediterranean	South-East		
Stone fruit (3STFC)									
Cherry (PRNAV)	3ANDIT 3ANMNT	DE	2017	MED + E	1	-	-	GEP	2
		NL	2016	MED + E	1 (1)	-	-	GEP	2
Sour Cherry (PRNCE)		BE	2018	MED + E	1 (1)	-	-	GEP	2
Plum (PRNDO)		CZ	2016	MED + E	1 (1)	-	-	GEP	2
		DE	2016	MED + E	1 (1)	-	-	GEP	2
			2017	MED + E	1 (1)	-	-	GEP	2
			2018	MED + E	1	-	-	GEP	1
		NL	2018	MED + E	1	-	-	GEP	1
Stone fruit (3STFC)	**TOTAL**				**8 (5)**	**-**	**-**	**-**	
	TOTAL ALL ZONES				**5 (5)**			**-**	
Annual and perennial row-crops (post-emergence to the weeds)									
Onions (ALLCE)	3ANDIT 3ANMNT	AT	2016	MED + E	1 (1)	-	-	GEP	1
		BE	2018	MED + E	1 (1)	-	-	GEP	1
		FR	2017	MED + E	1 (1)	-	-	GEP	1
Celery (APUGV)		BE	2018	MED + E	1 (1)	-	-	GEP	2
Asparagus (APUGV)		DE	2017	MED + E	1 (1)	-	-	GEP	2
			2018	MED + E	1 (1)	-	-	GEP	2
		NL	2017	MED + E	1 (1)	-	-	GEP	2
Brassicas (BRSSS)		BE	2018	MED + E	1 (1)	-	-	GEP	2
		DE	2018	MED + E	1 (1)	-	-	GEP	2
		DK	2018	MED + E	1 (1)	-	-	GEP	2
Strawberry (FRAAN)		DK	2018	MED + E	1 (1)	-	-	GEP	2
Soybean (GLXMA)		IT	2018	MED + E	-	1 (1)	-	GEP	1
Sunflower (HELAN)		FR	2018	MED + E	1 (1)	-	-	GEP	1
		IT	2018	MED + E	-	1 (1)	-	GEP	1
Lettuce (LACSS)		FR	2018	MED + E	-	1 (1)	-	GEP	2
Peas (PIBST)		FR	2018	MED + E	-	1 (1)	-	GEP	1
Spinach (SPQOL)		BE	2018	MED + E	1 (1)	-	-	GEP	1
		IT	2018	MED + E	-	1 (1)	-	GEP	1
Maize (ZEAMX)		BE	2018	MED + E	1 (1)	-	-	GEP	1
Row-crops	**TOTAL**				**14 (14)**	**5 (5)**	**-**	**-**	
	TOTAL ALL ZONES				**19 (19)**				
Tree nursery/ornamental crops									
Nordmann Fir (ABINO)	3ANDIT 3ANMNT	BE	2017	MED + E	1 (1)	-	-	GEP	1
		DK	2017	MED + E	1 (1)	-	-	GEP	2
		DE	2018	MED + E	1 (1)	-	-	GEP	2
Sweet William (DINBA)		DE	2018	MED + E	1 (1)	-	-	GEP	2

Crop(s)	Target(s)	Country	Years	Type of trial**	No. of trials per EPPO zone (number of valid trials)			GEP, non-GEP, official***	No. of applications of Beloukha (BCP1004D)
					Maritime	Mediterranean	South-East		
Common Oak (QUERO)		NL	2018	MED + E	1 (1)	-	-	GEP	2
Rose (ROSSS)		DE	2017	MED + E	1 (1)	-	-	GEP	2
Small-leaved Lime (TILCO)		NL	2018	MED + E	1 (1)	-	-	GEP	2
Nursery tree/ornamental crops	**TOTAL**				**7 (7)**	-	-		
	TOTAL ALL ZONES				**7 (7)**				
Non-crop land									
No plant (NNNXX)	3ANDIT 3ANMNT	BE	2018	MED + E	1 (1)	-	-	GEP	2
		FR	2018	MED + E	-	1 (1)	-	GEP	1
				MED + E	-	2 (2)	-	GEP	2
		NL	2018	MED + E	1 (1)	-	-	GEP	2
Non-crop land	**TOTAL**				**2 (2)**	**3 (3)**	-		
	TOTAL ALL ZONES				**5 (5)**				
TOTAL WEED CONTROL TRIALS					**60 (48)**	**9 (9)**	**7 (6)**		
TOTAL WEED CONTROL (ALL ZONES)					**76 (63)**				
Grapevine sucker control									
Grapevine (VITVI)	YEXWS	AT	2013	MED + E	2 (2)	-	-	GEP	1
			2018	MED + E	1 (1)	-	-	GEP	2
		DE	2018	MED + E	3 (3)	-	-	GEP	2
		FR	2012	MED + E	1 (1)	-	-	GEP	1
			2013	MED + E	1 (1)		-	GEP	1
		HU	2019	MED + E	-	-	1 (1)†	GEP	2
Grapevine sucker control	**TOTAL**				**8 (8)**	-	**1 (1)†**		
	TOTAL ALL ZONES				**9 (8+1 weed control trial)**				
TOTAL					**68 (56)**	**9 (9)**	**7 (6)**		
TOTAL (ALL ZONES)					**84 (71)**				

**P = preliminary trial, MED = minimum effective dose, E = efficacy trial.
***GEP: Good Experimental Practice. Official: carried out by a national official organisation.
* = Southern France, # = Northern France
3ANDIT = Annual Dicotyledonous weed species, 3ANMNT = Annual Monocotyledonous weed species, YEXWS = Suckers
† This trial assessed both weed control and sucker control

Reference standards

Details of the reference standards used in the efficacy trials are shown in Table 3.2-6. Details of product authorisations and dose rates applied are provided in the table for all the products that were authorised in the EU at the time that the trials were conducted.

The reference standards use in the majority of trials were, Basta (containing 200 g/L glufosinate-ammonium), Basta F1/Basta 150 SL/Harvest (containing 150 g/L glufosinate-ammonium), Reglone (containing 200 g/L diquat) and glyphosate products (containing 360-480 g/L glyphosate). Whilst most of these products are no longer authorised in those Member States within the EU, they were authorised for those uses at the time when the trials were conducted.

All reference products were used in line with their authorisations (doses and timings) in the relevant Member States at the time trials were conducted.

Table 3.2-6: Presentation of reference standards used in trials

Crop(s)	Reference standard	Country where the product is registered	Authorisation number	Active substance(s)	Formulation		Registered application rate	Application rate in trials (per treatment)
					Type	Concentration of a.s. (g/L)		
Grapevine Orchard crops Annual and perennial row-crops	Basta/Basta F1/ Basta 150 SL (Harvest – UK)*	AT	No longer registered	glufosinate-ammonium	SL	200	n/a	750-1000 g a.s./ha
		BE	No longer registered	glufosinate-ammonium	SL	200	n/a	750-1000 g a.s./ha
		CZ	3732-9	glufosinate-ammonium	SL	200	n/a	750-900 g a.s./ha
		DE	050287-00	glufosinate-ammonium	SL	200	n/a	750-1000 g a.s./ha
		DK	No longer registered	glufosinate-ammonium	SL	200	n/a	750 g a.s./ha
		FR	No longer registered	glufosinate-ammonium	SL	150	n/a	1000 g a.s./ha
		NL	8906	glufosinate-ammonium	SL	200	n/a	563-750 g a.s./ha
		UK	17236	glufosinate-ammonium	SL	200	n/a	750 g a.s./ha
Orchard crops Annual and perennial row-crops Tree nursery and ornamental crops Non-crop situations	Reglone	BE	4781P/B	diquat	SC	200	n/a	3-5 L/ha
		DE	050287-00	diquat	SC	200	n/a	3-5 L/ha
		DK	1-178	diquat	SC	200	n/a	2-3 L/ha
		FR	5581	diquat	SC	200	n/a	3-5 L/ha
		IT	000630	diquat	SC	200	n/a	5 L/ha
		NL	No longer registered	diquat	SC	200	n/a	3 L/ha
Grapevine	Madrigal	HU	No longer registered	glyphosate	SL	480	n/a	3 L/ha
	Glyfos Ultra	RO	237PC/20.10.2016	glyphosate	SL	360	1.5-3.5 L/ha	1.5 L/ha
	Round up Mega	HU	15192/1/2003	glyphosate	SL	450	1.5-5.5 L/ha	2.5 L/ha
Sucker control	Spotlight Plus	AT	No longer registered	carfentrazone-ethyl	ME	60	0.6-1.0 L/ha	0.3-0.5 L/hL
	Shark	DE	No longer registered	carfentrazone-ethyl	ME	60	0.5 L/ha	0.5 L/ha
	Madrigal	HU	No longer registered	glyphosate	SL	480	n/a	3 L/ha
	Basta F1	FR	No longer registered	glufosinate-ammonium	SL	150	5 L/ha	750 g a.s./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.).
n/a = currently not authorised. *All products referred to as Basta in the Effectiveness and Crop selectivity/Phytotoxicity summary tables

Conclusion – Efficacy data
Efficacy was tested under a range of environmental conditions (across three EPPO climatic zones – maritime, mediterranean and south-eastern) to fully challenge the herbicide. Trials were conducted according to GEP and in accordance with the relevant EPPO Standards and French CEB methods.

3.2.1 Preliminary tests (KCP 6.1)

As pelargonic acid is an established herbicide, preliminary data on the weed control demonstrated by the active substance is not considered necessary. Preliminary tests are not reported as products containing pelargonic acid have been approved for the control of weeds in various situations for many years, and the herbicidal activity of pelargonic acid has been widely researched and proven in commercial use in countries across the EU including in Germany. Table 3.2.1-1 details the current authorisations for pelargonic acid in Germany.

Table 3.2.1-1: Summary of authorisations for Beloukha in Germany

Member state	Product	Formulation		Authorisation no.	Uses	Type of use	Registered rate (active substance)
		Type	Conc. (g/L)				
DE	Beloukha	EC	680	008528-00	Potato	Desiccation	16 L/ha
					Grapevine	Sucker control	16 L/ha
					Strawberry	Stolon control	16 L/ha
					Hops	Hop cleaning	16 L/ha

Conclusion – Preliminary range-finding tests
Preliminary tests to assess the biological activity of the active substance were not presented in this submission. The statement of the applicant "*that pelargonic acid is an established herbicide, preliminary data on the weed control demonstrated by the active substance is not considered necessary"* will not be followed. Pelargonic acid is used in many variants and formulations. Furthermore, weather conditions, plant size and the concentration of the spray liquid also play a greater role than with other active substances. Preliminary range-finding tests would therefore be very interesting.

3.2.2 Minimum effective dose tests (KCP 6.2)

The efficacy field trials, described in section 0, were established to determine the minimum effective dose for the post emergence control of annual dicotyledonous weeds (3ANDIT), annual monocotyledonous weeds (3ANMNT) and for the control of suckers, in grapevine (VITVI).

Beloukha (BCP1004D) was tested at rates of 8.0 L/ha, 12.0 L/ha, 16.0 L/ha, 20.0 L/ha and 32.0 L/ha, both below and above the proposed label rate of 16 L/ha, for the control of weeds and suckers, in accordance with the EPPO Standard PP 1/225(2) '*Minimum effective dose'*. Efficacy was tested under a range of environmental conditions (across three EPPO climatic zones – Maritime, Mediterranean and South-East) to fully challenge the product. Trials were conducted according to GEP and in accordance with the relevant EPPO Standards and French CEB methods. Data in sections below have only been summarised for the 8.0, 12.0 and 16.0 L/ha doses of Beloukha (BCP1004D) to demonstrate the minimum effective dose of the product.

These minimum effective dose data include a total of 75 different weeds species (46 annual dicotyledonous species, 7 annual monocotyledonous species, 17 perennial dicotyledonous species and 5 perennial monocotyledonous species), all treated post emergence (generally within the range BBCH 10-18, but with some exceptions, where the weed species provided a recognisable dose response and was consistent with the size range which would be encountered in those situations). The weed control trials were conducted at water volumes of 200 to 400 L/ha.

The full results for each individual weed species can be found in Appendix 5 of the BAD and are also summarised in Appendix 6 of the BAD. Full details of the methodology behind these trials and the proposed label recommendations can be found in section 0.

Minimum effective dose data for the control of suckers in grapevine were also summarised across the three EPPO climatic zones and only for the 8.0, 12.0 and 16.0 L/ha doses of Beloukha (BCP1004D) in 121 to 200 L/ha water volumes.

3.2.2.1 Weed control in grapevine

The data set for minimum effective dose includes 17 trials, 10 trials from the EPPO Maritime climatic zone, 6 trials from the EPPO South-East climatic zone and 1 trial from the EPPO Mediterranean climatic zone. The proposed dose of Beloukha (BCP1004D) 16 L/ha, was compared to a 50% dose (8 L/ha) and a 75% dose (12 L/ha). The trials were conducted in Austria (6), Germany (3), Czech Republic (1), Romania (3), Hungary (3) and Southern France (1), between 2018 and 2019.

Table 3.2.2-1 summarises the results for various broad-leaved and grass weed species, 7-24 days after a single application and Table 3.2.2-2 summarises the results 4-28 days after two applications, in those trials that included a second application. These are considered to be the critical assessment points to demonstrate optimum control from a single application and from a repeat application, 14-35 after the first application.

Table 3.2.2-1: Minimum effective dose. Efficacy of Beloukha (BCP1004D) at the proposed label rate, at 50% and 75% dose rates against broad-leaved and grass weed species assessed at 7-24 days after one application in grapevine (VITVI)

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n(s)	Weed density at appl'n(s) (range)	No. of results	% control with Beloukha (BCP1004D)					
					8 L/ha (50% dose)		12 L/ha (75% dose)		16 L/ha (100% dose)	
					Mean	Min-Max	Mean	Min-Max	Mean	Min-Max
ANNUAL DICOTYLEDONOUS WEEDS (3ANDIT)										
AMARE	MAR	10-14	13-45/m²	3	-	-	83.5	62.5-94.3	87.3	66.3-97.8
	SE	13	32/m²	1	76.3	-	95.0	-	100.0	-
	ALL	10-14	13-45/m²	4	76.3 (1)	-	86.4	62.5-95.0	90.5	66.3-100.0
AMBEL	SE	12-18	9.5-103/m²	3	74.1	50.0-100.0	79.5	62.5-100.0	82.4	61.3-100.0
CAPBP	MAR	10-10	22-65/m²	2	-	-	94.7	94.3-95.0	98.2	96.8-99.5
CARFL	MAR	10	32/m²	1	-	-	97.0	-	98.8	-
CHEAL	MAR	10-14	10-17/m²	3	-	-	90.0	76.3-97.3	94.5	86.3-98.8
	SE	18	61.8/m²	1	74.5	-	83.5	-	86.0	-
	ALL	10-18	10-61.8/m²	4	74.5 (1)	-	88.4	76.3-97.3	92.4	86.0-98.8
CHEHY	MAR	10-10	10-24/m²	2	-	-	99.7	99.3-100.0	100.0	100.0-100.0
CHEPO	MAR	10-12	14-48/m²	2	90.8 (1)	-	97.4	94.8-100.0	98.6	97.3-100.0
GERDI	MAR	10-15	7-9/m²	2	-	-	78.8	71.3-86.3	83.6	73.8-93.3
GERPU	SE	59	11/m²	1	51.3	-	86.3	-	92.0	-
GERRT	MED	22	30/m²	1	-	-	63.0	-	71.0	-
HIBTR	SE	11	8.5/m²	1	100.0	-	100.0	-	100.0	-
LAMAM	MAR	10-10	13-15/m²	3	-	-	98.3	95.0-100.0	98.7	96.0-100.0
LAMPU	MAR	10-11	31-79.5/m²	2	-	-	93.4	91.8-95.0	96.3	94.5-98.0
MERAN	MAR	10	7/m²	1	-	-	94.3	-	98.5	-
POLAV	MAR	12	11/m²	1	-	-	83.8	-	90.8	-
POROT	SE	12	22/m²	1	75.0	-	91.3	-	100.0	-
POROL	SE	12-12	17.5-41.8/m²	2	100.0	100.0-100.0	100.0	100.0-100.0	100.0	100.0-100.0
SENVU	MAR	10-12	13-60/m²	4	99.0 (1)	-	97.1	93.5-99.5	97.8	96.3-100.0
SOLNI	MAR	10-10	6-8.8/m²	2	65.7 (1)	-	94.2	88.4-100.0	89.8	79.6-100.0
	SE	16-16	16-21/m²	2	62.5	60.0-65.0	70.7	70.0-71.3	84.8	83.8-85.8
	ALL	10-16	6-21/m²	4	63.6 (3)	60.0-65.7	82.4	70.0-100.0	87.3	79.6-100.0
STEME	MAR	10-12	7-55/m²	5	97.2 (1)	-	98.4	95.8-99.8	98.6	95.0-100.0
URTUR	MAR	10	20/m²	1	53.6	-	84.5	-	79.3	-
VERAG	MAR	10-11	24-27/m²	2	91.3 (1)	-	91.4	90.8-92.0	92.5	90.0-95.0
VERPE	MAR	10-10	7-167/m²	4	85.0 (1)	-	85.5	68.7-93.3	87.2	59.9-97.3
All (3ANDIT)	**MAR**	**10-15**	**6-167/m²**	**40**	**83.2 (7)**	**53.6-99.0**	**92.4**	**62.5-100.0**	**94.0**	**59.9-100.0**
	MED	**22**	**30/m²**	**1**	**-**	**-**	**63.0**	**-**	**71.0**	**-**
	SE	**11-59**	**8.5-103/m²**	**12**	**77.0**	**50.0-100.0**	**86.3**	**62.5-100.0**	**91.2**	**61.3-100.0**
	ALL	**10-59**	**6-167/m²**	**53**	**79.3 (19)**	**50.0-100.0**	**90.5**	**62.5-100.0**	**92.9**	**59.9-100.0**
PERENNIAL DICOTYLEDONOUS WEEDS (3PEDIT)										
CONAR	SE	12-65	8-8.3/m²	2	78.8	57.5-100.0	85.0	70.0-100.0	81.9	63.8-100.0
	MED	23	20/m²	1	-	-	67.0	-	84.0	-
	ALL	12-65	8-20/m²	3	78.8 (2)	57.5-100.0	79.0	67.0-100.0	82.6	63.8-100.0
BUNOR	MAR	10	9.3/m²	1	-	-	57.1	-	**100.0**	-
ERICA	SE	14	15/m²	1	66.3	-	68.8	-	89.5	-
TAROF	MAR	10-14	7.3-41/m²	4	-	-	84.5	72.5-98.0	**85.2**	67.5-98.3
All (3PEDIT)	**MAR**	**10-14**	**7.3-41/m²**	**5**	**-**	**-**	**79.0**	**57.1-98.0**	**88.2**	**67.5-100.0**
	MED	**23**	**20/m²**	**1**	**-**	**-**	**67.0**	**-**	**84.0**	**-**
	SE	**12-65**	**8-15/m²**	**3**	**74.6**	**57.5-100.0**	**79.6**	**68.8-100.0**	**84.4**	**63.8-100.0**
	ALL	**10-65**	**7.3-41/m²**	**9**	**74.6 (3)**	**57.5-100.0**	**77.9**	**57.1-100.0**	**86.5**	**63.8-100.0**

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n(s)	Weed density at appl'n(s) (range)	No. of results	% control with Beloukha (BCP1004D)					
					8 L/ha (50% dose)		12 L/ha (75% dose)		16 L/ha (100% dose)	
					Mean	Min-Max	Mean	Min-Max	Mean	Min-Max
ANNUAL MONOCOTYLEDONOUS WEEDS (3ANMNT)										
DIGSA	SE	12-13	33.3-45/m²	2	86.9	73.8-100.0	92.5	85.0-100.0	100.0	100.0-100.0
ECHCG	MAR	10-12	7-100/m²	2	-	-	78.2	61.3-95.0	82.3	68.8-95.8
	SE	13	134.3/m²	1	72.3	-	84.0	-	85.5	-
	ALL	10-13	7-134.3/m²	3	72.3 (1)	-	80.1	61.3-95.0	83.4	68.8-95.8
SETVI	SE	31	17/m²	1	65.0	-	67.5	-	85.8	-
All (3ANMNT)	**MAR**	**10-12**	**7-100/m²**	**2**	-	-	**78.2**	**61.3-95.0**	**82.3**	**68.8-95.8**
	SE	**12-31**	**17-134.3/m²**	**4**	**77.8**	**65.0-100.0**	**84.1**	**67.5-100.0**	**92.8**	**85.5-100.0**
	ALL	**10-31**	**7-134.3/m²**	**6**	**77.8 (4)**	**65.0-100.0**	**82.1**	**61.3-100.0**	**89.3**	**68.8-100.0**
PERENNIAL MONOCOTYLEDONOUS WEEDS (3PEMNT)										
LOLPE	MAR	10	55/m²	1	-	-	94.3	-	**94.3**	-
All weeds	**All zones**	**10-65**	**6-167/m²**	**69**	**78.5 (26)**	**50.0-100.0**	**88.2**	**57.1-100.0**	**91.8**	**59.9-100.0**

Numbers in superscript brackets = No. of results with 8 L/ha rate, where different to the numbers of trials results using the 12 and 16 L/ha doses.

Table 3.2.2-2: Minimum effective dose. Efficacy of Beloukha (BCP1004D) at the proposed label rate, at 50% and 75% dose rates against broad-leaved and grass weed species assessed at 4-28 days after second application in grapevine (VITVI)

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n(s)	Weed density at appl'n(s) (range)	No. of results	% control with Beloukha (BCP1004D)					
					8 L/ha (50% dose)		12 L/ha (75% dose)		16 L/ha (100% dose)	
					Mean	Min-Max	Mean	Min-Max	Mean	Min-Max
ANNUAL DICOTYLEDONOUS WEEDS (3ANDIT)										
AMARE	SE	30	52/m²	1	71.3	-	96.3	-	**100.0**	-
AMBEL	SE	12-55	8.5-97.3/m²	3	60.0	30.0-100.0	67.1	50.0-100.0	**76.7**	62.5-100.0
CHEAL	SE	24	63.8/m²	1	43.8	-	53.8	-	**71.3**	-
CHEPO	MAR	13-29	40-52/m²	2	96.0 (1)	-	98.6	98.3-99.0	**99.6**	99.5-99.8
GERPU	SE	81	12/m²	1	62.5	-	95.0	-	**90.0**	-
HIBTR	SE	11	18.7/m²	1	100.0	-	100.0	-	**100.0**	-
LAMPU	MAR	24	56/m²	1	-	-	80.0	-	**90.0**	-
POROL	SE	12-12	11.5-33/m²	2	100.0	100.0-100.0	100.0	100.0-100.0	**100.0**	100.0-100.0
POROT	SE	51	41/m²	1	70.0	-	92.5	-	**100.0**	-
SENVU	MAR	60	62/m²	1	96.0	-	98.8	-	**97.0**	-
SOLNI	MAR	12	15/m²	1	79.4	-	100.0	-	100.0	-
	SE	55-63	18-20/m²	2	59.4	57.5-61.3	71.3	71.3-71.3	80.0	70.0-90.0
	ALL	12-63	15-20/m²	3	66.1	57.5-79.4	80.9	71.3-100.0	86.7	70.0-100.0
VERAG	MAR	12-25	37-40/m²	2	78.8 (1)	-	88.1	86.3-90.0	93.4	88.8-98.0
VERPE	MAR	12	32/m²	1	86.7	-	94.4	-	**87.4**	-
All (3ANDIT)	**MAR**	**12-60**	**15-62/m²**	**8**	**87.4 (5)**	**78.8-96.0**	**93.3**	**80.0-100.0**	**95.1**	**87.4-100.0**
	SE	**11-81**	**8.5-97.3/m²**	**12**	**70.5**	**30.0-100.0**	**81.8**	**50.0-100.0**	**87.6**	**62.5-100.0**
	ALL	**11-81**	**8.5-97.3/m²**	**20**	**75.5 (17)**	**30.0-100.0**	**86.4**	**50.0-100.0**	**90.6**	**62.5-100.0**
PERENNIAL DICOTYLEDONOUS WEEDS (3PEDIT)										
ERICA	SE	33	15/m²	1	68.8	-	76.3	-	**88.8**	-
CONAR	SE	12-71	7.3-12/m²	2	76.3	52.5-100.0	83.2	66.3-100.0	**85.0**	70.0-100.0
All (3PEDIT)	**ALL**	**12-71**	**7.3-15/m²**	**3**	**73.8**	**52.5-100.0**	**80.9**	**66.3-100.0**	**86.3**	**70.0-100.0**
ANNUAL MONOCOTYLEDONOUS WEEDS (3ANMNT)										
DIGSA	SE	12-30	27.8-75/m²	2	84.4	68.8-100.0	93.2	86.3-100.0	**100.0**	100.0-100.0
ECHCG	SE	21	135/m²	1	38.8	-	53.8	-	**68.3**	-
POAAN	MAR	13	30/m²	1	63.2	-	59.9	-	**84.8**	-
SETVI	SE	67	22/m²	1	83.8	-	85.0	-	**96.5**	-
All (3ANMNT)	**MAR**	**13**	**30/m²**	**1**	**63.2**	**-**	**59.9**	**-**	**84.8**	**-**
	SE	**12-67**	**22-135/m²**	**4**	**72.9**	**38.8-100.0**	**81.3**	**53.8-100.0**	**91.2**	**68.3-100.0**
	ALL	**12-67**	**22-135/m²**	**5**	**70.9**	**38.8-100.0**	**77.0**	**53.8-100.0**	**89.9**	**68.3-100.0**
All weeds	**All zones**	**11-81**	**7.3-135/m²**	**28**	**74.4 (25)**	**30.0-100.0**	**84.1**	**50.0-100.0**	**90.0**	**62.5-100.0**

Numbers in superscript brackets = No. of results with 8 L/ha rate, where different to the numbers of trials results using the 12 and 16 L/ha doses.

Grapevines: Summary and Conclusions

Using one application of Beloukha (BCP1004D), against annual dicotyledonous weeds (3ANDIT), across all climatic conditions, the 8 L/ha dose achieved mean control of 79.3%, compared to mean control of 90.5% using the 12 L/ha dose and mean control of 92.9% using the 16 L/ha dose. Against annual monocotyledonous weeds (3ANMNT), one application of Beloukha (BCP1004D) applied at 8 L/ha achieved mean control of 77.8%, compared to mean control of 82.1% using the 12 L/ha dose and mean

control of 89.3% using the 16 L/ha dose. Where dicotyledonous perennial weeds (3PEDIT) occurred, one application of Beloukha (BCP1004D) applied at 8 L/ha achieved mean control of 74.6%, compared to mean control of 77.9% using the 12 L/ha dose and mean control of 86.5% using the 16 L/ha dose. One trial on LOLPE (perennial monocotyledonous weed) both the 12 L/ha and 16 L/ha doses achieved 94.3% control.

From two applications, neither the 8 L/ha or 12 L/ha doses of Beloukha (BCP1004D) consistently achieved mean control of 85% across all the different weed species and across all the different climatic conditions. The 8 L/ha dose achieved mean control of 74.4% and the 12 L/ha dose achieved mean control of 84.1%, compared to mean control of 90.0% using the 16 L/ha dose of Beloukha (BCP1004D).

Weed control across the different EPPO climatic zones was reasonably consistent, where there were sufficient assessments to provide a robust evaluation. A single application of the 16 L/ha dose of Beloukha (BCP1004D) achieved 94.0% control of annual dicotyledonous weeds (3ANDIT) in the EPPO Maritime climatic zone, compared to 90.8% control in the EPPO South-East climatic zone. A similar pattern was seen using the 8 L/ha and 12 L/ha doses. For the annual monocotyledonous weeds (3ANMNT), the 16 L/ha dose of Beloukha (BCP1004D) achieved 82.3% control in the EPPO Maritime climatic zone, compared to 95.3% control in the EPPO South-East climatic zone, but the sample size was very small. There was less variation using the 12 L/ha dose. Perennial dicotyledonous weeds (3PEDIT) had a larger dataset and the 16 L/ha dose of Beloukha (BCP1004D) achieved 88.2% control in the EPPO Maritime climatic zone, compared to 84.4% control in the EPPO South-East climatic zone and 84.0% control in the EPPO Mediterranean climatic zone. A similar pattern of consistent control was seen using the 8 L/ha and 12 L/ha doses across the different EPPO climatic zones. Similar consistent levels of control using the different doses of Beloukha (BCP1004D) were seen following two sequential applications. The 16 L/ha dose of Beloukha (BCP1004D) achieved 95.1% control of annual dicotyledonous weeds (3ANDIT) in the EPPO Maritime climatic zone, compared to 87.6% control in the EPPO South-East climatic zone. A similar pattern was seen using the 8 L/ha and 12 L/ha doses. The other datasets, although small also showed reasonably consistent control across the different EPPO climatic zones, using the equivalent doses of Beloukha (BCP1004D).

Therefore, it is considered that to support the minimum effective dose of Beloukha (BCP1004D), all relevant data across all the three EPPO climatic zones (Maritime, South-East and Mediterranean) can be combined, due to the consistent activity of the product across the range of climatic conditions.

In the vast majority of trials, across the different weed species and different climatic zones, the proposed dose of Beloukha (BCP1004D), 16 L/ha, achieved the highest level of control, compared to the 8 L/ha and 12 L/ha doses, often achieving in excess of 85% control of both annual dicotyledonous weeds (3ANDIT) and annual monocotyledonous weeds (3ANMNT). In addition, where perennial weeds were encountered, often these were also controlled to levels in excess of 85% using the 16 L/ha dose of Beloukha (BCP1004D), especially when applied to the smaller growth stages of the weeds (BBCH 10-16). This pattern of control was achieved using both a single application and two sequential applications of the product.

These data fully support the 16 L/ha dose of Beloukha (BCP1004D), as being the minimum effective dose across annual and perennial dicotyledonous and monocotyledonous weeds in grapevines, in Germany.

3.2.2.2 Weed control in orchard crops

The data set for minimum effective dose includes 15 trials, all from the EPPO Maritime climatic zone. The trials were conducted in Austria (1), Belgium (3), Germany (3), Denmark (1), Czech Republic (1), the Netherlands (5) and the United Kingdom (1) in 2016, 2017 and 2018. The proposed dose of Beloukha (BCP1004D) 16 L/ha, was compared to a 50% dose (8 L/ha) and a 75% dose (12 L/ha).

Table 3.2.2-3 summarises the results for various broad-leaved and grass weed species, 7-17 days after a single application and Table 3.2.2-4 summarises the results 6-29 days after two applications, in those trials that included a second application. These are considered to be the critical assessment points to demonstrate optimum control from a single application and from a repeat application, 14-35 after the first application.

Table 3.2.2-3: Minimum effective dose. Efficacy of Beloukha (BCP1004D) at the proposed label rate, at 50% and 75% dose rates against broad-leaved and grass weed species assessed at 7-17 days after one application in orchard crops

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n	Weed density at appl'n (range)	No. of results	% control with Beloukha (BCP1004D)					
					8 L/ha (50% dose)		12 L/ha (75% dose)		16 L/ha (100% dose)	
					Mean	Min-Max	Mean	Min-Max	Mean	Min-Max
ANNUAL DICOTYLEDONOUS WEEDS (3ANDIT)										
ARBTH	MAR	12	40/m²	1	-	-	99.8	-	**100.0**	-
CARHI	MAR	14	18.8/m²	1	87.2	-	96.4	-	**93.9**	-
CHEAL	MAR	10-12	9.5-27.6/m²	2	77.5	62.5-92.5	97.5	95.0-100.0	**100.0**	100.0-100.0
GERDI	MAR	11	12/m²	1	-	-	98.8	-	**100.0**	-
LAMPU	MAR	10-11	7-17/m²	2	68.5	50.0-87.0	89.5	82.5-96.5	**92.9**	86.3-99.5
MYOAR	MAR	10	167/m²	1	76.9	-	62.8	-	**72.7**	-
SENVU	MAR	10-30	7-145/m²	6	81.1 (3)	61.3-99.0	88.1	66.0-100.0	**89.2**	75.0-100.0
STEME	MAR	10-11	12.8-20/m²	2	97.0 (1)	-	99.1	99.0-99.3	**99.8**	99.8-99.8
VERHE	MAR	10-25	9.8-26/m²	2	59.5	55.0-64.0	85.0	85.0-85.0	**85.0**	74.0-96.0
All (3ANDIT)	**MAR**	**10-30**	**7-167/m²**	**18**	**76.3 (12)**	**50.0-99.0**	**90.5**	**62.8-100.0**	**92.1**	**72.7-100.0**
PERENNIAL DICOTYLEDONOUS WEEDS (3PEDIT)										
BELPE	MAR	14	17/m²	1	-	-	82.5	-	**82.5**	-
CARPR	MAR	14	76/m²	1	-	-	69.0	-	**80.0**	-
EPISS	MAR	15-32	10-60/m²	2	75.0 (1)	-	91.3	83.0-99.5	**88.5**	80.0-97.0
PLALA	MAR	19	7.3/m²	1	8.8	-	50.0	-	**52.5**	-
PLAMA	MAR	15	11/m²	1	-	-	97.3	-	**99.5**	-
SONAR	MAR	10	17.8/m²	1	32.5	-	66.3	-	**80.0**	-
TAROF	MAR	12-19	6-27/m²	3	10.0 (1)	-	65.1	35.0-94.3	**79.0**	52.5-96.5
TRFRE	MAR	30	11/m²	1	-	-	99.5	-	**99.3**	-
All (3PEDIT)	**MAR**	**10-32**	**6-76/m²**	**11**	**31.6 (4)**	**8.8-75.0**	**76.6**	**35.0-99.5**	**82.5**	**52.5-99.5**
ANNUAL MONOCOTYLEDONOUS WEEDS (3ANMNT)										
BROST	MAR	24	20.5/m²	1	37.3	-	71.3	-	**72.5**	-
DIGSA	MAR	13	8/m²	1	-	-	98.5	-	**99.8**	-
POAAN	MAR	9-30	7.5-158.8/m²	4	60.4 (3)	20.0-86.3	76.0	58.8-91.3	**84.0**	75.0-89.8
All (3ANMNT)	**MAR**	**9-30**	**7.5-158.8/m²**	**6**	**54.7 (4)**	**20.0-86.3**	**79.0**	**58.8-98.5**	**84.7**	**72.5-99.8**
PERENNIAL MONOCOTYLEDONOUS WEEDS (3PEMNT)										
POAPR	MAR	30	12.5/m²	1	62.5	-	87.5	-	**88.8**	-
FESSS	MAR	30	12/m²	1	-	-	77.5	-	**80.0**	-
All (3PEMNT)	**MAR**	**30-30**	**12-12.5/m²**	**2**	**62.5 (1)**	**-**	**82.5**	**77.5-87.5**	**84.4**	**80.0-88.8**
All weeds	**MAR**	**9-32**	**6-167/m²**	**37**	**63.0 (21)**	**8.8-99.0**	**84.1**	**35.0-100.0**	**87.6**	**52.5-100.0**

Numbers in superscript brackets = No. of results with 8 L/ha rate, where different to the numbers of trials results using the 12 and 16 L/ha doses.

Table 3.2.2-4: Minimum effective dose. Efficacy of Beloukha (BCP1004D) at the proposed label rate, at 50% and 75% dose rates against broad-leaved and grass weed species assessed at 6-29 days after second application in orchard crops

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n	Weed density at appl'n (range)	No. of results	% control with Beloukha (BCP1004D)					
					8 L/ha (50% dose)		12 L/ha (75% dose)		16 L/ha (100% dose)	
					Mean	Min-Max	Mean	Min-Max	Mean	Min-Max
ANNUAL DICOTYLEDONOUS WEEDS (3ANDIT)										
ANTAR	MAR	18	5.3/m²	1	-	-	44.9	-	**75.7**	-
ARBTH	MAR	30	30/m²	1	-	-	100.0	-	**100.0**	-
CARHI	MAR	10-33	22.8-875/m²	3	77.0	70.0-85.0	91.9	81.3-100.0	**90.9**	78.8-100.0
CHEAL	MAR	17-51	29-43.2/m²	2	63.2	43.8-82.5	98.2	96.3-100.0	**98.8**	97.5-100.0
GERDI	MAR	13	22/m²	1	-	-	100.0	-	**100.0**	-
LAMPU	MAR	13-51	10-21.8/m²	3	73.4	51.5-91.8	91.5	78.8-100.0	**93.5**	81.3-100.0
MYOAR	MAR	10	142.6/m²	1	85.6	-	81.1	-	**87.8**	-
SENVU	MAR	10-65	7-492.5/m²	7	69.7 (4)	57.5-98.8	89.7	69.3-100.0	**90.7**	76.3-100.0
SONOL	MAR	61	7%GC	1	-	-	71.6	-	**87.3**	-
STEME	MAR	13-31	7.5-83.8/m²	4	49.7 (3)	15.0-99.3	80.5	22.8-99.9	**95.3**	81.3-100.0
VERAG	MAR	10	68.3/m²	1	15.0	-	66.3	-	**72.5**	-
VERHE	MAR	10	6.8/m²	1	60.5	-	73.2	-	**97.6**	-
All (3ANDIT)	**MAR**	**10-65**	**5.3-875/m² 7%GC**	**26**	**64.8 (18)**	**15.0-99.3**	**85.9**	**22.8-100.0**	**91.8**	**72.5-100.0**
PERENNIAL DICOTYLEDONOUS WEEDS (3PEDIT)										
BELPE	MAR	17	16/m²	1	-	-	90.0	-	**92.3**	-
CARPR	MAR	12	76/m²	1	-	-	100.0	-	**100.0**	-
EPISS	MAR	32	9/m²	1	-	-	98.0	-	**99.3**	-
PLALA	MAR	19	6.5/m²	1	37.5	-	50.0	-	**78.8**	-
PLAMA	MAR	16	11/m²	1	-	-	97.5	-	**99.8**	-
TAROF	MAR	12-55	6-27/m² 10%GC	6	26.5 (3)	9.3-48.0	75.1	36.0-99.8	**86.7**	63.0-100.0
TRFRE	MAR	30	11/m²	1	-	-	95.8	-	**96.0**	-
All (3PEDIT)	**MAR**	**12-55**	**6-76/m² 10%GC**	**12**	**29.3 (4)**	**9.3-48.0**	**81.8**	**36.0-100.0**	**90.5**	**63.0-100.0**
ANNUAL MONOCOTYLEDONOUS WEEDS (3ANMNT)										
BROST	MAR	13	134/m²	1	38.5	-	43.5	-	**92.1**	-
DIGSA	MAR	51	12/m²	1	-	-	100.0	-	**100.0**	-
LOLMU	MAR	18	9%GC	1	-	-	51.7	-	**78.8**	-
POAAN	MAR	10-61	14.3-252/m² 16.8%GC	6	58.7 (4)	33.3-81.3	68.5	1.5-93.8	**86.5**	76.3-99.0
All (3ANMNT)	**MAR**	**10-61**	**12-252/m² 9-16.8%GC**	**9**	**54.6 (5)**	**33.3-81.3**	**67.4**	**1.5-100.0**	**87.8**	**76.3-100.0**
PERENNIAL MONOCOTYLEDONOUS WEEDS (3PEMNT)										
FESSS	MAR	30	11/m²	1	-	-	91.3	-	**92.5**	-
All weeds	**MAR**	**10-65**	**5.3-875/m² 7-16.8%GC**	**48**	**57.7 (27)**	**9.3-99.3**	**81.5**	**1.5-100.0**	**90.8**	**63.0-100.0**

Numbers in superscript brackets = No. of results with 8 L/ha rate, where different to the numbers of trials results using the 12 and 16 L/ha doses.

Orchard Crops: Summary and Conclusions

Data from the use of Beloukha (BCP1004D) in orchard crops has been included to demonstrate the minimum effective dose of the product, as the dose applied in these trials is the same as that proposed for use in grapevines in Germany (16 L/ha) and also both situations of use provide no competition from the crop regarding weed control. Therefore, these orchard crop weed control data fully support the use of Beloukha (BCP1004D) in grapevines in Germany, to demonstrate the minimum effective dose of the product.

Using one application of Beloukha (BCP1004D), against annual dicotyledonous weeds (3ANDIT), across the EPPO Maritime climatic zone, the 8 L/ha dose achieved mean control of 76.3%, compared to mean control of 90.5% using the 12 L/ha dose and mean control of 92.1% using the 16 L/ha dose. Against annual monocotyledonous weeds (3ANMNT), one application of Beloukha (BCP1004D) applied at 8 L/ha achieved mean control of 54.7%, compared to mean control of 79.0% using the 12 L/ha dose and mean control of 84.7% using the 16 L/ha dose. Where dicotyledonous perennial weeds (3PEDIT) occurred, one application of Beloukha (BCP1004D) applied at 8 L/ha achieved mean control of 31.6%, compared to mean control of 76.6% using the 12 L/ha dose and mean control of 82.5% using the 16 L/ha dose. For perennial monocotyledonous weeds there were only two trials results (one each for POAPR and FESSS), 62.5%

control was using the 8 L/ha dose, 82.5% control using the 12 L/ha dose and 84.4% control using the 16 L/ha dose of Beloukha (BCP1004D).

From two applications, neither the 8 L/ha or 12 L/ha doses of Beloukha (BCP1004D) consistently achieved mean control of 85% across all the different weed species. The 8 L/ha dose achieved mean control of 57.7% and the 12 L/ha dose achieved mean control of 81.3%, compared to mean control of 90.7% using the 16 L/ha dose of Beloukha (BCP1004D).

These data from use in orchard crops, fully support the 16 L/ha dose of Beloukha (BCP1004D), as being the minimum effective dose across annual and perennial dicotyledonous and monocotyledonous weeds in grapevines, in Germany.

3.2.2.3 Weed control in annual and perennial row-crops

The data set for minimum effective dose includes 19 trials, 14 from the EPPO Maritime climatic zone and 5 from the EPPO Mediterranean climatic zone. The trials were conducted in Austria (1), Belgium (5), Germany (3), Denmark (2), Northern France (2), the Netherlands (1), Southern France (2) and Italy (3), between 2016 and 2018. The proposed dose of Beloukha (BCP1004D) 16 L/ha, was compared to a 50% dose (8 L/ha) and a 75% dose (12 L/ha).

Table 3.2.2-5 summarises the results for various broad-leaved and grass weed species, 7-27 days after a single application and Table 3.2.2-6 summarises the results 3-23 days after two applications, in those trials that included a second application. These are considered to be the critical assessment points to demonstrate optimum control from a single application and from a repeat application, 14-35 after the first application.

Table 3.2.2-5: Minimum effective dose. Efficacy of Beloukha (BCP1004D) at the proposed label rate, at 50% and 75% dose rates against broad-leaved and grass weed species assessed at 7-27 days after one application in annual and perennial row-crops

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n	Weed density at appl'n (range)	No. of results	% control with Beloukha (BCP1004D)					
					8 L/ha (50% dose)		12 L/ha (75% dose)		16 L/ha (100% dose)	
					Mean	Min-Max	Mean	Min-Max	Mean	Min-Max
ANNUAL DICOTYLEDONOUS WEEDS (3ANDIT)										
ABUTH	MED	9	12.8/m²	1	49.7	-	80.1	-	**90.7**	-
AMACH	MAR	11	7.8/m²	1	95.0	-	58.8	-	**75.0**	-
AMARE	MED	10-11	5.5-13.3/m²	3	52.4	35.0-62.5	69.6	55.0-78.9	**77.5**	65.0-86.2
BRSNW	MAR	14	15/m²	1	78.8	-	83.8	-	**88.8**	-
CHEAL	MAR	10-14	13.8-85.8/m²	7	70.9	45.0-97.5	86.3	60.0-100.0	**87.6**	56.4-98.8
	MED	10-11	6-30/m²	5	66.1	35.0-95.3	77.5	55.0-100.0	**84.8**	65.0-100.0
	ALL	**10-14**	**6-85.8/m²**	**12**	**68.9**	**35.0-97.5**	**82.6**	**55.0-100.0**	**86.4**	**56.4-100.0**
CHERE	MAR	11	5/m²	1	83.8	-	86.3	-	**86.3**	-
FUMOF	MAR	12	14.8/m²	1	100.0	-	100.0	-	**99.4**	-
GASPA	MAR	10-14	54-203/m²	3	67.5	60.0-73.8	71.7	55.0-83.8	**82.3**	77.5-85.0
GERDI	MAR	10	15/m²	1	-	-	72.5	-	**81.3**	-
LAMPU	MAR	12	5/m²	1	60.9	-	56.5	-	**65.2**	-
MATCH	MAR	13-18	20/m²	2	85.7	76.3-95.0	93.2	88.8-97.5	**95.4**	93.3-97.5
	MED	10-10	16-18.8/m²	2	90.9	88.4-93.3	96.5	95.1-98.0	**96.6**	95.0-98.3
	ALL	**10-18**	**16-20/m²**	**4**	**88.3**	**76.3-95.0**	**94.8**	**88.8-98.0**	**96.0**	**93.3-98.3**
MATIN	MAR	10-12	9-11.5/m²	2	37.5 (1)	-	72.9	60.0-85.8	**76.7**	61.3-92.0
MATMT	MAR	12	9/m²	1	82.5	-	80.0	-	**90.0**	-
POLCO	MAR	11	27/m²	1	57.8	-	84.6	-	**81.7**	-
POLPE	MAR	10	10.5/m²	1	57.0	-	87.0	-	**85.0**	-
POROL	MED	10-11	5.3-63/m²	4	74.9	32.5-93.5	82.5	52.5-98.1	**89.2**	62.5-98.9
SOLNI	MAR	10-11	7-19/m²	2	60.6 (1)	-	93.9	87.8-100.0	**84.8**	69.6-100.0
	MED	10-10	5.5-55/m²	3	88.0	72.5-96.9	100.0	100.0-100.0	**100.0**	100.0-100.0
	ALL	**10-11**	**5.5-55/m²**	**5**	**81.1 (4)**	**60.6-96.9**	**97.6**	**87.8-100.0**	**93.9**	**69.6-100.0**
STEME	MAR	10-18	7.3-17.8/m²	3	58.8	28.8-77.5	62.7	27.5-82.5	**80.1**	71.3-85.0
URTUR	MAR	10	163.8/m²	1	53.8	-	60.0	-	**76.3**	-
All (3ANDIT)	**MAR**	**10-18**	**5-203/m²**	**29**	**69.8 (26)**	**28.8-100.0**	**79.2**	**27.5-100.0**	**84.2**	**56.4-100.0**
	MED	**9-11**	**5.3-63/m²**	**18**	**71.3**	**32.5-96.9**	**83.3**	**52.5-100.0**	**88.8**	**62.5-100.0**
	ALL	**9-18**	**5-203/m²**	**47**	**70.4 (44)**	**28.8-100.0**	**80.8**	**27.5-100.0**	**86.0**	**56.4-100.0**
PERENNIAL DICOTYLEDONOUS WEEDS (3PEDIT)										
SONAR	MAR	12	12/m²	1	81.3	-	92.5	-	**95.0**	-
ANNUAL MONOCOTYLEDONOUS WEEDS (3ANMNT)										
POAAN	MAR	10	74.8/m²	1	100.0	-	97.5	-	**98.8**	-
All weeds	**All zones**	**9-18**	**5-203/m²**	**49**	**71.3 (46)**	**28.8-100.0**	**81.3**	**27.5-100.0**	**86.4**	**56.4-100.0**

Numbers in superscript brackets = No. of results with 8 L/ha rate, where different to the numbers of trials results using the 12 and 16 L/ha doses

Table 3.2.2-6: Minimum effective dose. Efficacy of Beloukha (BCP1004D) at the proposed label rate, at 50% and 75% dose rates against broad-leaved and grass weed species assessed at 3-23 days after second application in annual and perennial row-crops

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n	Weed density at appl'n (range)	No. of results	% control with Beloukha (BCP1004D)					
					8 L/ha (50% dose)		12 L/ha (75% dose)		16 L/ha (100% dose)	
					Mean	Min-Max	Mean	Min-Max	Mean	Min-Max
ANNUAL DICOTYLEDONOUS WEEDS (3ANDIT)										
AMACH	MAR	61	11.5/m²	1	87.5	-	90.0	-	**93.5**	-
BRSNW	MAR	14-14	40/m²	2	75.1	68.8-81.3	84.4	77.5-91.3	**91.3**	90.0-92.5
CAPBP	MAR	14	5/m²	1	58.8	-	65.0	-	**77.5**	-
CHEAL	MAR	12-61	16-62.5/m²	4	85.0	52.5-100.0	87.2	60.0-100.0	**90.0**	67.5-100.0
	MED	12	15/m²	1	99.5	-	100.0	-	**100.0**	-
	ALL	**12-61**	**15-62.5/m²**	**5**	**87.9**	**52.5-100.0**	**89.8**	**60.0-100.0**	**92.0**	**67.5-100.0**
CHERE	MAR	13	10/m²	1	95.0	-	92.5	-	**97.5**	-
FUMOF	MAR	10	31.3/m²	1	86.3	-	88.8	-	**91.8**	-
GASPA	MAR	12-14	25-200/m²	4	49.4	42.5-60.0	61.3	53.8-70.0	**74.1**	70.0-78.8
MATCH	MAR	18	n/d	1	82.5	-	80.0	-	**87.5**	-
	MED	10	41/m²	1	72.5	-	85.5	-	**94.8**	-
	ALL	**10-18**	**41/m²**	**2**	**77.5**	**72.5-82.5**	**82.8**	**80.0-85.5**	**91.1**	**87.5-94.8**
MATIN	MAR	35	8/m²	1	56.3	-	72.5	-	**72.5**	-
POROL	MED	11	63/m²	1	82.5	-	89.5	-	**95.0**	-
RANSA	MED	10	25/m²	1	96.3	-	99.0	-	**99.0**	-
SENVU	MAR	14-18	10/m²	2	72.6	61.3-83.8	87.6	86.3-88.8	**92.5**	87.5-97.5
SOLNI	MED	12	58/m²	1	100.0	-	100.0	-	**100.0**	-
STEME	MAR	12-18	5.8-8/m²	3	76.7	45.0-100.0	80.4	52.5-100.0	**85.0**	65.0-100.0
URTUR	MAR	12	261.8/m²	1	57.5	-	68.8	-	**86.3**	-
VIOAR	MAR	10	20/m²	1	88.8	-	88.8	-	**90.0**	-
All (3ANDIT)	**MAR**	**10-61**	**5-261.8/m²**	**23**	**72.8**	**42.5-100.0**	**79.4**	**52.5-100.0**	**85.9**	**65.0-100.0**
	MED	**10-12**	**15-63/m²**	**5**	**90.2**	**72.5-100.0**	**94.8**	**85.5-100.0**	**97.8**	**94.8-100.0**
	ALL	**10-61**	**5-261.8/m²**	**28**	**75.9**	**42.5-100.0**	**82.1**	**52.5-100.0**	**88.0**	**65.0-100.0**
ANNUAL MONOCOTYLEDONOUS WEEDS (3ANMNT)										
POAAN	MAR	12	93.8/m²	1	100.0	-	100.0	-	**100.0**	-
All weeds	**All zones**	**10-61**	**5-261.8/m²**	**29**	**76.8**	**42.5-100.0**	**82.7**	**52.5-100.0**	**88.4**	**65.0-100.0**

Annual and Perennial Row-Crops: Summary and Conclusions

Data from the use of Beloukha (BCP1004D) in annual and perennial row crops has been included to demonstrate the minimum effective dose of the product, as the dose applied in these trials is the same as that proposed for use in grapevines in Germany (16 L/ha) and also both situations of use provide no competition from the crop regarding weed control (as either the product was applied pre-emergence of the crop or between the rows of the crops, providing no crop competition against the weeds). Therefore, these annual and perennial row crop weed control data fully support the use of Beloukha (BCP1004D) in grapevines in Germany, to demonstrate the minimum effective dose of the product.

Using one application of Beloukha (BCP1004D), against annual dicotyledonous weeds (3ANDIT), across all climatic conditions, the 8 L/ha dose achieved mean control of 70.4%, compared to mean control of 80.8% using the 12 L/ha dose and mean control of 86.0% using the 16 L/ha dose. For annual monocotyledonous weeds (3ANMNT), there was only one trials result on *Poa annua* (POAAN) and no dose response was seen. For dicotyledonous perennial weeds (3PEDIT), there was only one trials result on *Sonchus arvensis* (SONAR), the 8 L/ha dose achieved 81.3% control, compared to 92.5% control using the 12 L/ha dose and 95.0% control using the 16 L/ha dose.

From two applications, neither the 8 L/ha or 12 L/ha doses of Beloukha (BCP1004D) consistently achieved mean control of 85% across all the different weed species and across all the different climatic conditions. The 8 L/ha dose achieved mean control of 76.8% and the 12 L/ha dose achieved mean control of 82.7%, compared to mean control of 88.4% using the 16 L/ha dose of Beloukha (BCP1004D).

Weed control across the different EPPO climatic zones was reasonably consistent, where there were sufficient assessments to provide a robust evaluation. A single application of the 16 L/ha dose of Beloukha (BCP1004D) achieved 83.9% control of annual dicotyledonous weeds (3ANDIT) in the EPPO Maritime climatic zone, compared to 88.8% control in the EPPO Mediterranean climatic zone. A similar pattern was seen using the 8 L/ha and 12 L/ha doses. Where direct weed species equivalence was available (for CHEAL, MATCH and SOLNI) these always achieved ≥85% control, regardless of climatic zone.

Therefore, it is considered that to support the minimum effective dose of Beloukha (BCP1004D), all relevant data across both EPPO climatic zones (Maritime and Mediterranean) can be combined, due to the consistent activity of the product across the range of climatic conditions.

In the vast majority of trials, across the different weed species and different climatic zones, the proposed dose of Beloukha (BCP1004D), 16 L/ha, achieved the highest level of control, compared to the 8 L/ha and 12 L/ha doses, often achieving in excess of 85% control of both annual dicotyledonous weeds (3ANDIT) and annual monocotyledonous weeds (3ANMNT). In addition, where perennial weeds were encountered, often these were also controlled to levels in excess of 85% using the 16 L/ha dose of Beloukha (BCP1004D), especially when applied to the smaller growth stages of the weeds (BBCH 10-16). This pattern of control was achieved using both a single application and two sequential applications of the product.

These data, from use in annual and perennial row crops, fully supports the 16 L/ha dose of Beloukha (BCP1004D), as being the minimum effective dose across annual and perennial dicotyledonous and monocotyledonous weeds in grapevines, in Germany.

3.2.2.4 Weed control in tree nursery and ornamental crops

The data set for minimum effective dose includes 7 trials, all from the EPPO Maritime climatic zone. The trials were conducted in Belgium (1), Germany (3), Denmark (1) and the Netherlands (2), in 2017 and 2018. The proposed dose of Beloukha (BCP1004D) 16 L/ha, was compared to a 50% dose (8 L/ha) and a 75% dose (12 L/ha).

Table 3.2.2-7 summarises the results for various broad-leaved and grass weed species, 7-15 days after a single application and Table 3.2.2-8 summarises the results 6-14 days after two applications, in those trials that included a second application. These are considered to be the critical assessment points to demonstrate optimum control from a single application and from a repeat application, 14-35 after the first application.

Table 3.2.2-7: Minimum effective dose. Efficacy of Beloukha (BCP1004D) at the proposed label rate, at 50% and 75% dose rates against broad-leaved and grass weed species assessed at 7-15 days after one application in tree nursery and ornamental crops

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n	Weed density at appl'n (range)	No. of results	% control with Beloukha (BCP1004D)					
					8 L/ha (50% dose)		12 L/ha (75% dose)		16 L/ha (100% dose)	
					Mean	Min-Max	Mean	Min-Max	Mean	Min-Max
ANNUAL DICOTYLEDONOUS WEEDS (3ANDIT)										
CHEAL	MAR	10-10	6-31/m²	2	84.5	74.0-95.0	90.0	80.0-100.0	**99.1**	98.8-99.4
GASPA	MAR	10	21/m²	1	77.0	-	81.9	-	**100.0**	-
MATIN	MAR	12	11.3/m²	1	57.5	-	63.8	-	**77.5**	-
MATMT	MAR	12	8/m²	1	60.0	-	75.0	-	**91.5**	-
STEME	MAR	12	396/m²	1	26.3	-	67.5	-	**83.8**	-
URTUR	MAR	10	5/m²	1	99.0	-	99.0	-	**99.0**	-
VERHE	MAR	12	5/m²	1	74.0	-	78.9	-	**95.6**	-
VIOAR	MAR	12	9/m²	1	99.0	-	99.0	-	**99.0**	-
All (3ANDIT)	**MAR**	**10-12**	**5-396/m²**	**9**	**73.5**	**26.3-99.0**	**82.8**	**63.8-100.0**	**93.8**	**77.5-100.0**
PERENNIAL DICOTYLEDONOUS WEEDS (3PEDIT)										
CIRAR	MAR	16	5/m²	1	80.0	-	85.0	-	**82.5**	-
EPIHI	MAR	14	30/m²	1	78.8	-	72.5	-	**92.5**	-
EPICT	MAR	12	50/m²	1	76.9	-	90.3	-	**92.7**	-
PLAMA	MAR	14	10/m²	1	65.0	-	70.0	-	**90.0**	-
TAROF	MAR	16	5/m²	1	63.8	-	61.3	-	**76.3**	-
TRFSS	MAR	51	12.5/m²	1	82.5	-	68.8	-	**63.8**	-
All (3PEDIT)	**MAR**	**12-51**	**5-50/m²**	**6**	**74.5**	**63.8-82.5**	**74.7**	**61.3-90.3**	**83.0**	**63.8-92.7**
All weeds	**All zones**	**10-51**	**5-396/m²**	**15**	**73.9**	**26.3-99.0**	**79.5**	**61.3-100.0**	**89.5**	**63.8-100.0**

Table 3.2.2-8: Minimum effective dose. Efficacy of Beloukha (BCP1004D) at the proposed label rate, at 50% and 75% dose rates against broad-leaved and grass weed species assessed at 6-14 days after second application in tree nursery and ornamental crops

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n	Weed density at appl'n (range)	No. of results	% control with Beloukha (BCP1004D)					
					8 L/ha (50% dose)		12 L/ha (75% dose)		16 L/ha (100% dose)	
					Mean	Min-Max	Mean	Min-Max	Mean	Min-Max
ANNUAL DICOTYLEDONOUS WEEDS (3ANDIT)										
AETCY	MAR	12	49/m²	1	55.0	-	92.5	-	**100.0**	-
CHEAL	MAR	12-12	18-59/m²	2	80.3	68.1-92.5	97.2	94.3-100.0	**98.9**	97.7-100.0
GASPA	MAR	14	37/m²	1	91.3	-	100.0	-	**100.0**	-
MATCH	MAR	12	48/m²	1	27.5	-	50.0	-	**85.0**	-
MATMT	MAR	14	27.5/m²	1	99.0	-	99.0	-	**99.0**	-
POLAV	MAR	12-65	16-17.5/m²	2	56.0	55.0-56.9	66.0	61.9-70.0	**80.3**	70.6-90.0
STEME	MAR	14-19	40-396/m²	2	78.3	57.5-99.0	92.0	85.0-99.0	**92.7**	86.3-99.0
URTUR	MAR	14	22.5/m²	1	99.0	-	99.0	-	**99.0**	-
VERHE	MAR	14	15/m²	1	85.0	-	100.0	-	**100.0**	-
VIOAR	MAR	14	42.5/m²	1	99.0	-	99.0	-	**99.0**	-
All (3ANDIT)	**MAR**	**12-65**	**15-396/m²**	**13**	**75.8**	**27.5-99.0**	**88.4**	**50.0-100.0**	**94.3**	**70.6-100.0**
PERENNIAL DICOTYLEDONOUS WEEDS (3PEDIT)										
ARFLA	MAR	12	64/m²	1	52.5	-	63.8	-	**97.5**	-
CIRAR	MAR	38	5/m²	1	72.5	-	77.5	-	**97.5**	-
EPIHI	MAR	19	15/m²	1	57.5	-	50.0	-	**90.0**	-
EQUAR	MAR	12	95/m²	1	0.0	-	100.0	-	**100.0**	-
PLAMA	MAR	16	17.5/m²	1	42.5	-	77.5	-	**95.0**	-
TRFSS	MAR	30	12.5/m²	1	90.0	-	85.0	-	**66.3**	-
All (3PEDIT)	**MAR**	**12-38**	**5-95/m²**	**6**	**52.5**	**0.0-90.0**	**75.6**	**50.0-100.0**	**91.1**	**66.3-100.0**
ANNUAL MONOCOTYLEDONOUS WEEDS (3ANMNT)										
ECHCG	MAR	12	98/m²	1	57.5	-	57.5	-	**90.0**	-
POAAN	MAR	23	42.5/m²	1	60.0	-	80.0	-	**99.0**	-
All (3ANMNT)	**MAR**	**12-23**	**42.5-98/m²**	**2**	**58.8**	**57.5-60.0**	**68.8**	**57.5-80.0**	**94.5**	**90.0-99.0**
All weeds	**MAR**	**12-65**	**5-396/m²**	**21**	**67.5**	**0.0-99.0**	**82.9**	**50.0-100.0**	**93.4**	**66.3-100.0**

Tree Nursery and Ornamental Crops: Summary and Conclusions

Data from the use of Beloukha (BCP1004D) in tree nursery and ornamental crops has been included to demonstrate the minimum effective dose of the product, as the dose applied in these trials is the same as that proposed for use in grapevines in Germany (16 L/ha) as both situations of use, as is the case for grapevines, provide no competition from the crop regarding weed control (as the product was applied between the trees or between the tree and ornamental crop rows, providing no crop competition against the weeds). Therefore, these tree nursery and ornamental crop weed control data fully support the use of Beloukha (BCP1004D) in grapevines in Germany, to demonstrate the minimum effective dose of the product.

Using one application of Beloukha (BCP1004D) against annual dicotyledonous weeds (3ANDIT), the 8 L/ha dose achieved mean control of 74.6%, compared to mean control of 82.1% using the 12 L/ha dose and mean control of 92.7% using the 16 L/ha dose. For perennial dicotyledonous weeds (3PEDIT), the 8 L/ha dose achieved mean control of 72.1%, compared to mean control of 72.6% using the 12 L/ha dose and mean control of 80.7% using the 16 L/ha dose.

From two applications, the 8 L/ha dose of Beloukha (BCP1004D) achieved mean control of 67.5% across all weed species, compared to mean control of 82.9% using the 12 L/ha dose, and mean control of 93.4% using the 16 L/ha dose of Beloukha (BCP1004D).

In the vast majority of trials, across the different weed species the proposed dose of Beloukha (BCP1004D), 16 L/ha, achieved the highest level of control, compared to the 8 L/ha and 12 L/ha doses, often achieving in excess of 85% control of both annual dicotyledonous weeds (3ANDIT) and annual monocotyledonous weeds (3ANMNT). In addition, where perennial weeds were encountered, they were more often controlled to levels in excess of 85% using the 16 L/ha dose of Beloukha (BCP1004D), especially when applied to the smaller growth stages of the weeds (BBCH 10-16). This pattern of control was achieved using both a single application and two sequential applications of the product.

These data, from use in tree nursery and ornamental crops, fully supports the 16 L/ha dose of Beloukha (BCP1004D), as being the minimum effective dose across annual and perennial dicotyledonous and monocotyledonous weeds in grapevines, in Germany.

3.2.2.5 Weed control in non-crop situations

The data set for minimum effective dose includes 5 trials, 2 from the EPPO Maritime climatic zone and 3 from the EPPO Mediterranean climatic zone. The trials were conducted in Belgium (1), the Netherlands (1) and Southern France (3), all in 2018. The proposed dose of Beloukha (BCP1004D) 16 L/ha, was compared to a 50% dose (8 L/ha) and a 75% dose (12 L/ha).

Table 3.2.2-9 summarises the results for various broad-leaved and grass weed species, 3-15 days after a single application and Table 3.2.2-10 summarises the results 3-8 days after two applications, in those trials that included a second application. These are considered to be the critical assessment points to demonstrate optimum control from a single application and from a repeat application, 14-35 after the first application.

Table 3.2.2-9: Minimum effective dose. Efficacy of Beloukha (BCP1004D) at the proposed label rate, at 50% and 75% dose rates against broad-leaved and grass weed species assessed at 3-15 days after one application in non-crop situations

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n	Weed density at appl'n (range)	No. of results	% control with Beloukha (BCP1004D)					
					8 L/ha (50% dose)		12 L/ha (75% dose)		16 L/ha (100% dose)	
					Mean	Min-Max	Mean	Min-Max	Mean	Min-Max
ANNUAL DICOTYLEDONOUS WEEDS (3ANDIT)										
GASPA	MAR	11	211/m²	1	63.5	-	93.7	-	**91.4**	-
LAMPU	MAR	12	23.5/m²	1	91.3	-	86.3	-	**92.5**	-
VERSS	MAR	11	36.8/m²	1	67.4	-	80.9	-	**89.5**	-
AMARE	MED	12	90/m²	1	56.5	-	71.1	-	**89.6**	-
BEAVA	MED	11	8/m²	1	15.5	-	56.5	-	**63.1**	-
BRSNW	MED	11	20/m²	1	78.8	-	98.8	-	**97.5**	-
CAPBP	MED	12	5/m²	1	77.5	-	80.0	-	**87.5**	-
POROL	MED	11-12	9-246/m²	2	79.5	78.9-80.0	64.5	39.0-90.0	**93.3**	90.0-96.5
SONOL	MED	11	16/m²	1	100.0	-	99.2	-	**100.0**	-
VERPE	MED	12	8/m²	1	80.0	-	90.0	-	**90.0**	-
All (3ANDIT)	**MAR**	**11-12**	**23.5-211/m²**	**3**	**74.1**	**63.5-91.3**	**87.0**	**80.9-93.7**	**91.1**	**89.5-92.5**
	MED	**11-12**	**5-246/m²**	**8**	**70.9**	**15.5-100.0**	**78.1**	**39.0-99.2**	**89.3**	**63.1-100.0**
	ALL	**11-12**	**5-246/m²**	**11**	**71.8**	**15.5-100.0**	**80.5**	**39.0-99.2**	**89.8**	**63.1-100.0**
PERENNIAL DICOTYLEDONOUS WEEDS (3PEDIT)										
CONAR	MED	12	5/m²	1	39.2	-	50.8	-	**74.2**	-
ERICA	MED	12	5/m²	1	50.0	-	75.0	-	**75.0**	-
All (3PEDIT)	**MED**	**12-12**	**5-5/m²**	**2**	**44.6**	**39.2-50.0**	**62.9**	**50.8-75.0**	**74.6**	**74.2-75.0**
PERENNIAL MONOCOTYLEDONOUS WEEDS (3PEMNT)										
AGRRE	MED	11	10/m²	1	70.0	-	75.0	-	**82.5**	-
SORSU	MED	12	9/m²	1	66.3	-	82.5	-	**86.3**	-
All (3PEMNT)	**MED**	**11-12**	**9-246/m²**	**2**	**71.7**	**66.3-78.9**	**65.5**	**39.0-82.5**	**88.4**	**82.5-96.5**
All weeds	**All zones**	**11-12**	**5-246/m²**	**15**	**67.7**	**15.5-100.0**	**77.9**	**39.0-99.2**	**87.0**	**63.1-100.0**

Table 3.2.2-10: Minimum effective dose. Efficacy of Beloukha (BCP1004D) at the proposed label rate, at 50% and 75% dose rates against broad-leaved and grass weed species assessed at 3-8 days after second application in non-crop situations

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n	Weed density at appl'n (range)	No. of results	% control with Beloukha (BCP1004D)					
					8 L/ha (50% dose)		12 L/ha (75% dose)		16 L/ha (100% dose)	
					Mean	Min-Max	Mean	Min-Max	Mean	Min-Max
ANNUAL DICOTYLEDONOUS WEEDS (3ANDIT)										
AMARE	MED	12	90/m²	1	63.8	-	88.2	-	**90.0**	-
BEAVA	MED	15	9/m²	1	51.3	-	90.0	-	**95.8**	-
BRSNW	MED	15	38/m²	1	95.8	-	99.0	-	**98.3**	-
LAMPU	MAR	12	23.5/m²	1	76.0	-	95.0	-	**100.0**	-
POROL	MED	12	247/m²	1	72.7	-	40.9	-	**98.2**	-
SONOL	MED	12	12/m²	1	100.0	-	100.0	-	**100.0**	-
VERSS	MAR	14	38.5/m²	1	17.5	-	42.5	-	**70.0**	-
All (3ANDIT)	**MAR**	**12-14**	**23.5-38.5/m²**	**2**	**46.8**	**17.5-76.0**	**68.8**	**42.5-95.0**	**85.0**	**70.0-100.0**
	MED	**12-15**	**9-247/m²**	**5**	**76.7**	**51.3-100.0**	**83.6**	**40.9-100.0**	**96.5**	**90.0-100.0**
	ALL	**12-15**	**9-247/m²**	**7**	**68.2**	**17.5-100.0**	**79.4**	**40.9-100.0**	**93.2**	**70.0-100.0**
PERENNIAL DICOTYLEDONOUS WEEDS (3PEDIT)										
CONAR	MED	15	5/m²	1	29.2	-	33.3	-	**58.3**	-
ERICA	MED	12	5/m²	1	75.0	-	50.0	-	**75.0**	-
All (3PEDIT)	**MED**	**12-15**	**5-5/m²**	**2**	**52.1**	**29.2-75.0**	**41.7**	**33.3-50.0**	**66.7**	**58.3-75.0**
ANNUAL MONOCOTYLEDONOUS WEEDS (3ANMNT)										
TRZAW	MED	22	15/m²	1	51.3	-	90.0	-	87.5	-
All weeds	**All zones**	**12-22**	**5-247/m²**	**10**	**63.3**	**17.5-100.0**	**72.9**	**33.3-100.0**	**87.3**	**58.3-100.0**

Non-Crop Situations: Summary and Conclusions

Data from the use of Beloukha (BCP1004D) in non-crop situations has been included to demonstrate the minimum effective dose of the product, as the dose applied in these trials is the same as that proposed for use in grapevines in Germany (16 L/ha) and as both situations of use (grapevine and non-crop) provide no competition from the crop regarding weed control (as there is no crop in 'non-crop' situations). Therefore, these non-crop situations weed control data fully support the use of Beloukha (BCP1004D) in grapevines in Germany, to demonstrate the minimum effective dose of the product.

Using one application of Beloukha (BCP1004D) against annual dicotyledonous weeds (3ANDIT), across both climatic zones (EPPO Maritime and EPPO Mediterranean), the 8 L/ha dose achieved mean control of 68.4%, compared to mean control of 85.3% using the 12 L/ha dose and mean control of 88.6% using the 16 L/ha dose. For perennial dicotyledonous weeds (3PEDIT), the 8 L/ha dose achieved mean control of 44.6%, compared to mean control of 62.9% using the 12 L/ha dose and mean control of 74.6% using the 16 L/ha dose. For perennial monocotyledonous weeds (3PEMNT), the 8 L/ha dose achieved mean control of 44.6%, compared to mean control of 62.9% using the 12 L/ha dose and mean control of 74.6% using the 16 L/ha dose.

From two applications, the 8 L/ha dose of Beloukha (BCP1004D) achieved mean control of 63.3% across all weed species and both climatic zones (EPPO Maritime and EPPO Mediterranean), compared to mean control of 72.9% using the 12 L/ha dose, and mean control of 87.3% using the 16 L/ha dose of Beloukha (BCP1004D).

In the vast majority of trials, across the different weed species the proposed dose of Beloukha (BCP1004D), 16 L/ha, achieved the highest level of control, compared to the 8 L/ha and 12 L/ha doses, often achieving in excess of 85% control of both annual dicotyledonous weeds (3ANDIT) and annual monocotyledonous weeds (3ANMNT). In addition, where perennial weeds were encountered, they were more often controlled to levels in excess of 85% using the 16 L/ha dose of Beloukha (BCP1004D), especially when applied to the smaller growth stages of the weeds (BBCH 10-16), compared to either the 8 L/ha dose or 12 L/ha dose. This pattern of control was achieved using both a single application and two sequential applications of the product.

These data, from use in non-crop situations, fully supports the 16 L/ha dose of Beloukha (BCP1004D), as being the minimum effective dose across annual and perennial dicotyledonous and monocotyledonous weeds in grapevines, in Germany.

3.2.2.6 Weed control across all situations

The data set for minimum effective dose across all situations of use (as described in sections 3.2.2.1 to 3.2.2.5, above) included trials from the EPPO Maritime zone, the EPPO South-east zone and the Mediterranean zone. In each section, the relevance of weed control data from outside the EPPO Maritime climatic zone has been justified, as Beloukha (BCP1004D) containing pelargonic acid, applied at the proposed dose of 16 L/ha, generally provided consistent levels of weed control across the different EPPO climatic zones.

Data from the use of Beloukha (BCP1004D) across these situations of use has been included to demonstrate the minimum effective dose of the product, as the dose applied in these trials is the same as that proposed for use in grapevines in Germany (16 L/ha) and as all the situations of use (including use in grapevine) provide no competition from the crop regarding weed control. Therefore, these weed control data fully support the use of Beloukha (BCP1004D) in grapevines in Germany, to demonstrate the minimum effective dose of the product.

A total of 63 trials (17 grapevine trials, 15 orchard trials, 19 annual and perennial row crop trials, 5 non-crop trials and 7 tree nursery and ornamental trials) were conducted between 2013 and 2019. The trials were conducted in Austria (8), Belgium (10), the Czech Republic (2), Germany (12), the Netherlands (9), the United Kingdom (1), Denmark (4), Northern France (2), Southern France (6), Italy (3), Hungary (3)

and Romania (3). The proposed dose of Beloukha (BCP1004D) 16 L/ha, was compared to a 50% dose (8 L/ha) and a 75% dose (12 L/ha).

Table 3.2.2-11 and Table 3.2.2-12 show the results for various broad-leaved and grass weed species at 3-27 days after a single application and 3-29 days after two applications, in the trials that included second application. These are considered to be the critical assessment points to show control from a single application and from a repeat application 14-35 after the first.

Table 3.2.2-11: Minimum effective dose. Efficacy of Beloukha (BCP1004D) at the proposed label rate, at 50% and 75% dose rates against broad-leaved and grass weed species assessed at 3-27 days after one application across all situations of use

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n	Weed density at appl'n (range)	No. of results	% control with Beloukha (BCP1004D)					
					8 L/ha (50% dose)		12 L/ha (75% dose)		16 L/ha (100% dose)	
					Mean	Min-Max	Mean	Min-Max	Mean	Min-Max
ABUTH	MED	9	12.8/m²	1	49.7	-	80.1	-	**90.7**	-
AMACH	MAR	11	7.8/m²	1	95.0	-	58.8	-	**75.0**	-
AMARE	MAR	10-14	13-45/m²	3	-	-	83.5	62.5-94.3	**87.3**	66.3-97.8
	SE	13	32/m²	1	76.3	-	95.0	-	**100.0**	-
	MED	10-12	5.5-90/m²	4	53.5	35.0-62.5	70.0	55.0-78.9	**80.5**	65.0-89.6
	ALL	10-14	5.5-90/m²	8	58.0 (5)	35.0-76.3	78.2	55.0-95.0	**85.5**	65.0-100.0
AMBEL	SE	12-18	9.5-103/m²	3	74.1	50.0-100.0	79.5	62.5-100.0	**82.4**	61.3-100.0
ARBTH	MAR	12	40/m²	1	-	-	99.8	-	**100.0**	-
BEAVA	MED	11	8/m²	1	15.5	-	56.5	-	**63.1**	-
BRSNW	MED	11	20/m²	1	78.8	-	98.8	-	**97.5**	-
	MAR	14	n/d	1	78.8	-	83.8	-	**88.8**	-
	ALL	11-14	20/m²	2	78.8	78.8-78.8	91.3	83.8-98.8	**93.2**	88.8-97.5
CAPBP	MAR	10-10	22-65/m²	2	-	-	94.7	94.3-95.0	**98.2**	96.8-99.5
	MED	12	5/m²	1	77.5	-	80.0	-	**87.5**	-
	ALL	10-12	5-65/m²	3	77.5 (1)	-	89.8	80.0-95.0	**94.6**	87.5-99.5
CARFL	MAR	10	32/m²	1	-	-	97.0	-	**98.8**	-
CARHI	MAR	14	18.8/m²	1	87.2	-	96.4	-	**93.9**	-
CHEAL	MAR	10-14	6-85.8/m²	14	74.5 (11)	45.0-97.5	89.2	60.0-100.0	**92.5**	56.4-100.0
	SE	18	61.8/m²	1	74.5	-	83.5	-	**86.0**	-
	MED	10-11	6-30/m²	5	66.1	35.0-95.3	77.5	55.0-100.0	**84.8**	65.0-100.0
	ALL	10-18	6-85.8/m²	20	72.1 (17)	35.0-97.5	86.0	55.0-100.0	**90.3**	56.4-100.0
CHEHY	MAR	10-10	10-24/m²	2	-	-	99.7	99.3-100.0	**100.0**	100.0-100.0
CHEPO	MAR	10-12	14-48/m²	2	90.8 (1)	-	97.4	94.8-100.0	**98.6**	97.3-100.0
CHERE	MAR	11	5/m²	1	83.8	-	86.3	-	**86.3**	-
FUMOF	MAR	12	14.8/m²	1	100.0	-	100.0	-	**99.4**	-
GASPA	MAR	10-14	21-211/m²	5	68.6	60.0-77.0	78.1	55.0-93.7	**87.6**	77.5-100.0
GERDI	MAR	10-15	7-15/m²	4	-	-	82.2	71.3-98.8	**87.1**	73.8-100.0
GERPU	SE	59	11/m²	1	51.3	-	86.3	-	**92.0**	-
GERRT	MED	22	30/m²	1	-	-	63.0	-	**71.0**	-
HIBTR	SE	11	8.5/m²	1	100.0	-	100.0	-	**100.0**	-
LAMAM	MAR	10-10	13-15/m²	3	-	-	98.3	95.0-100.0	**98.7**	96.0-100.0
LAMPU	MAR	10-12	5-79.5/m²	6	72.3 (4)	50.0-91.3	84.8	56.5-96.5	**89.3**	65.2-99.5
MATCH	MAR	13-18	20/m²	2	85.7	76.3-95.0	93.2	88.8-97.5	**95.4**	93.3-97.5
	MED	10-10	16-18.8/m²	2	90.9	88.4-93.3	96.5	95.1-98.0	**96.6**	95.0-98.3
	ALL	10-18	16-20/m²	4	88.3	76.3-95.0	94.8	88.8-98.0	**96.0**	93.3-98.3
MATIN	MAR	10-12	9-11.5/m²	2	37.5 (1)	-	72.9	60.0-85.8	**76.7**	61.3-92.0
MATMT	MAR	12-12	8-9/m²	2	71.3	60.0-82.5	77.5	75.0-80.0	**90.8**	90.0-91.5
MERAN	MAR	10	7/m²	1	-	-	94.3	-	**98.5**	-
MYOAR	MAR	10	167/m²	1	76.9	-	62.8	-	**72.7**	-
POLAV	MAR	12	11/m²	1	-	-	83.8	-	**90.8**	-
POLCO	MAR	11	27/m²	1	57.8	-	84.6	-	**81.7**	-
POLPE	MAR	10	10.5/m²	1	57.0	-	87.0	-	**85.0**	-
POROL	SE	12-12	17.5-41.8/m²	2	100.0	100.0-100.0	100.0	100.0-100.0	**100.0**	100.0-100.0
	MED	10-12	5.3-246/m²	6	76.4	32.5-93.5	76.5	39.0-98.1	**90.6**	62.5-98.9
	ALL	10-12	5.3-246/m²	8	82.3	32.5-100.0	82.4	39.0-100.0	**92.9**	62.5-100.0
POROT	SE	12	22/m²	1	75.0	-	91.3	-	**100.0**	-
SENVU	MAR	10-30	7-145/m²	10	85.6 (4)	61.3-99.0	91.7	66.0-100.0	**92.7**	75.0-100.0
SOLNI	MAR	10-11	6-19/m²	4	63.2 (2)	60.6-65.7	94.1	87.8-100.0	**87.3**	69.6-100.0
	SE	16-16	16-21/m²	2	62.5	60.0-65.0	70.7	70.0-71.3	**84.8**	83.8-85.8
	MED	10-10	5.5-55/m²	3	88.0	72.5-96.9	100.0	100.0-100.0	**100.0**	100.0-100.0
	ALL	10-16	5.5-55/m²	9	73.6 (7)	60.0-96.9	90.8	70.0-100.0	**91.0**	69.6-100.0
SONOL	MED	11	16/m²	1	100.0	-	99.2	-	**100.0**	-
STEME	MAR	10-18	7-396/m²	11	66.1 (6)	26.3-97.2	86.0	27.5-99.8	**92.4**	71.3-100.0

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n	Weed density at appl'n (range)	No. of results	% control with Beloukha (BCP1004D)					
					8 L/ha (50% dose)		12 L/ha (75% dose)		16 L/ha (100% dose)	
					Mean	Min-Max	Mean	Min-Max	Mean	Min-Max
URTUR	MAR	10-10	5-163.8/m²	3	68.8	53.6-99.0	81.2	60.0-99.0	**84.9**	76.3-99.0
VERAG	MAR	10-11	24-27/m²	2	91.3 (1)	-	91.4	90.8-92.0	**92.5**	90.0-95.0
VERHE	MAR	10-25	5-26/m²	3	64.3	55.0-74.0	83.0	78.9-85.0	**88.5**	74.0-96.0
VERPE	MAR	10-10	7-167/m²	4	85.0 (1)	-	85.5	68.7-93.3	**87.2**	59.9-97.3
VERSS	MAR	11	36.8/m²	1	67.4	-	80.9	-	**89.5**	-
VIOAR	MAR	12	9/m²	1	99.0	-	99.0	-	**99.0**	-
All (3ANDIT)	**MAR**	**10-30**	**5-396/m²**	**99**	**73.6 (57)**	**26.3-100.0**	**87.1**	**27.5-100.0**	**90.7**	**56.4-100.0**
	MED	**9-22**	**5-246/m²**	**27**	**71.2 (26)**	**15.5-100.0**	**81.0**	**39.0-100.0**	**88.3**	**62.5-100.0**
	SE	**11-59**	**8.5-103/m²**	**12**	**77.0**	**50.0-100.0**	**86.3**	**62.5-100.0**	**91.2**	**61.3-100.0**
	ALL	**9-59**	**5-396/m²**	**138**	**73.4 (95)**	**15.5-100.0**	**85.9**	**27.5-100.0**	**90.3**	**56.4-100.0**
PERENNIAL DICOTYLEDONOUS WEEDS (3PEDIT)										
CIRAR	MAR	16	5/m²	1	80.0	-	85.0	-	**82.5**	-
EPIHI	MAR	14	30/m²	1	78.8	-	72.5	-	**92.5**	-
BELPE	MAR	14	17/m²	1	-	-	82.5	-	**82.5**	-
BUNOR	MAR	10	9.3/m²	1	-	-	57.1	-	**100.0**	-
CARPR	MAR	14	76/m²	1	-	-	69.0	-	**80.0**	-
CONAR	SE	12-65	8-8.3/m²	2	78.8	57.5-100.0	85.0	70.0-100.0	**81.9**	63.8-100.0
	MED	12-23	5-20/m²	2	39.2 (1)	-	58.9	50.8-67.0	**79.1**	74.2-84.0
	ALL	12-65	5-20/m²	4	65.6 (3)	39.2-100.0	72.0	50.8-100.0	**80.5**	63.8-100.0
EPICT	MAR	12	50/m²	1	76.9	-	90.3	-	**92.7**	-
EPISS	MAR	15-32	10-60/m²	2	75.0 (1)	-	91.3	83.0-99.5	**88.5**	80.0-97.0
ERICA	SE	14	15/m²	1	66.3	-	68.8	-	**89.5**	-
	MED	12	5/m²	1	50.0	-	75.0	-	**75.0**	-
	ALL	12-14	5-15/m²	2	58.2	50.0-66.3	71.9	68.8-75.0	**82.3**	75.0-89.5
PLALA	MAR	19	7.3/m²	1	8.8	-	50.0	-	**52.5**	-
PLAMA	MAR	14-15	10-11/m²	2	65.0 (1)	-	83.7	70.0-97.3	**94.8**	90.0-99.5
SONAR	MAR	10-12	12-17.8/m²	2	56.9	32.5-81.3	79.4	66.3-92.5	**87.5**	80.0-95.0
TAROF	MAR	10-19	5-41/m²	8	36.9 (2)	10.0-63.8	74.3	35.0-98.0	**81.8**	52.5-98.3
TRFRE	MAR	30	11/m²	1	-	-	99.5	-	**99.3**	-
TRFSS	MAR	51	12.5/m²	1	82.5	-	68.8	-	**63.8**	-
All (3PEDIT)	**MAR**	**10-51**	**5-76/m²**	**23**	**59.5 (11)**	**8.8-82.5**	**77.3**	**35.0-99.5**	**84.4**	**52.5-100.0**
	MED	**12-23**	**5-20/m²**	**3**	**44.6 (2)**	**39.2-50.0**	**64.3**	**50.8-75.0**	**77.7**	**74.2-84.0**
	SE	**12-65**	**8-15/m²**	**3**	**74.6**	**57.5-100.0**	**79.6**	**68.8-100.0**	**84.4**	**63.8-100.0**
	ALL	**10-65**	**5-76/m²**	**29**	**60.5 (16)**	**8.8-100.0**	**76.2**	**35.0-100.0**	**83.7**	**52.5-100.0**
ANNUAL MONOCOTYLEDONOUS WEEDS (3ANMNT)										
BROST	MAR	24	20.5/m²	1	37.3	-	71.3	-	**72.5**	-
DIGSA	SE	12-13	33.3-45/m²	2	86.9	73.8-100.0	92.5	85.0-100.0	**100.0**	100.0-100.0
	MAR	13	8/m²	1	-	-	98.5	-	**99.8**	-
	ALL	12-13	8-45/m²	3	86.9 (2)	73.8-100.0	94.5	85.0-100.0	**99.9**	99.8-100.0
ECHCG	MAR	10-12	7-100/m²	2	-	-	78.2	61.3-95.0	**82.3**	68.8-95.8
	SE	13	134.3/m²	1	72.3	-	84.0	-	**85.5**	-
	ALL	10-13	7-134.3/m²	3	72.3 (1)	-	80.1	61.3-95.0	**83.4**	68.8-95.8
POAAN	MAR	9-30	7.5-158.8/m²	5	70.3 (4)	20.0-100.0	80.3	58.8-97.5	**87.0**	75.0-98.8
SETVI	SE	31	17/m²	1	65.0	-	67.5	-	**85.8**	-
All (3ANMNT)	**MAR**	**9-30**	**7-158.8/m²**	**9**	**63.7 (5)**	**20.0-100.0**	**80.9**	**58.8-98.5**	**85.8**	**68.8-99.8**
	SE	**12-31**	**17-134.3/m²**	**4**	**77.8**	**65.0-100.0**	**84.1**	**67.5-100.0**	**92.8**	**85.5-100.0**
	ALL	**9-31**	**7-158.8/m²**	**13**	**70.0 (9)**	**20.0-100.0**	**81.9**	**58.8-100.0**	**87.9**	**68.8-100.0**
PERENNIAL MONOCOTYLEDONOUS WEEDS (3PEMNT)										
AGRRE	MED	11	10/m²	1	70.0	-	75.0	-	**82.5**	-
FESSS	MAR	30	12/m²	1	-	-	77.5	-	**80.0**	-
LOLPE	MAR	10	55/m²	1	-	-	94.3	-	**94.3**	-
POAPR	MAR	30	12.5/m²	1	62.5	-	87.5	-	**88.8**	-
SORSU	MED	12	9/m²	1	66.3	-	82.5	-	**86.3**	-
All (3PEMNT)	**MAR**	**10-30**	**12-55/m²**	**3**	**62.5 (1)**	**-**	**86.4**	**77.5-94.3**	**87.7**	**80.0-94.3**
	MED	**11-12**	**9-10/m²**	**2**	**68.2**	**66.3-70.0**	**78.8**	**75.0-82.5**	**84.4**	**82.5-86.3**
	ALL	**10-30**	**9-55/m²**	**5**	**66.3 (3)**	**62.5-70.0**	**83.4**	**75.0-94.3**	**86.4**	**80.0-94.3**
All weeds	**All zones**	**9-65**	**5-396/m²**	**185**	**71.3 (123)**	**8.8-100.0**	**84.2**	**27.5-100.0**	**89.1**	**52.5-100.0**

Numbers in superscript brackets = No. of results with 8 L/ha rate, where different to the numbers of trials results using the 12 and 16 L/ha doses

Table 3.2.2-12: Minimum effective dose. Efficacy of Beloukha (BCP1004D) at the proposed label rate, at 50% and 75% dose rates against broad-leaved and grass weed species assessed at 3-29 days after second application across all situations of use

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n	Weed density at appl'n (range)	No. of results	% control with Beloukha (BCP1004D)					
					8 L/ha (50% dose)		12 L/ha (75% dose)		16 L/ha (100% dose)	
					Mean	Min-Max	Mean	Min-Max	Mean	Min-Max
AETCY	MAR	12	49/m²	1	55.0	-	92.5	-	**100.0**	-
AMACH	MAR	61	11.5/m²	1	87.5	-	90.0	-	**93.5**	-
AMARE	SE	30	52/m²	1	71.3	-	96.3	-	**100.0**	-
	MED	12	90/m²	1	63.8	-	88.2	-	**90.0**	-
	ALL	12-30	52-90/m²	2	67.6	63.8-71.3	92.3	88.2-96.3	95.0	90.0-100.0
AMBEL	SE	12-55	8.5-97.3/m²	3	60.0	30.0-100.0	67.1	50.0-100.0	**76.7**	62.5-100.0
ANTAR	MAR	18	5.3/m²	1	-	-	44.9	-	**75.7**	-
ARBTH	MAR	30	30/m²	1	-	-	100.0	-	**100.0**	-
BEAVA	MED	15	9/m²	1	51.3	-	90.0	-	**95.8**	-
BRSNW	MED	15	38/m²	1	95.8	-	99.0	-	**98.3**	-
	MAR	14-14	40/m²	2	75.1	68.8-81.3	84.4	77.5-91.3	**91.3**	90.0-92.5
	ALL	14-15	38-40/m²	3	82.0	68.8-95.8	89.3	77.5-99.0	**93.6**	90.0-98.3
CAPBP	MAR	14	5/m²	1	58.8	-	65.0	-	**77.5**	-
CARHI	MAR	10-33	22.8-875/m²	3	77.0	70.0-85.0	91.9	81.3-100.0	**90.9**	78.8-100.0
CHEAL	SE	24	63.8/m²	1	43.8	-	53.8	-	**71.3**	-
	MAR	12-61	16-62.5/m²	8	78.4	43.8-100.0	92.4	60.0-100.0	**94.4**	67.5-100.0
	MED	12	15/m²	1	99.5	-	100.0	-	**100.0**	-
	ALL	12-61	15-63.8/m²	10	77.0	43.8-100.0	89.3	53.8-100.0	92.6	67.5-100.0
CHEPO	MAR	13-29	40-52/m²	2	96.0 (1)	-	98.6	98.3-99.0	**99.6**	99.5-99.8
CHERE	MAR	13	10/m²	1	95.0	-	92.5	-	**97.5**	-
FUMOF	MAR	10	31.3/m²	1	86.3	-	88.8	-	**91.8**	-
GASPA	MAR	12-14	25-200/m²	5	57.8	42.5-91.3	69.0	53.8-100.0	**79.3**	70.0-100.0
GERDI	MAR	13	22/m²	1	-	-	100.0	-	**100.0**	-
GERPU	SE	81	12/m²	1	62.5	-	95.0	-	**90.0**	-
HIBTR	SE	11	18.7/m²	1	100.0	-	100.0	-	**100.0**	-
LAMPU	MAR	12-51	10-56/m²	5	74.1 (4)	51.5-91.8	89.9	78.8-100.0	**94.1**	81.3-100.0
MATCH	MAR	12-18	48/m²	2	55.0	27.5-82.5	65.0	50.0-80.0	**86.3**	85.0-87.5
	MED	10	41/m²	1	72.5	-	85.5	-	**94.8**	-
	ALL	10-18	41-48/m²	3	60.8	27.5-82.5	71.8	50.0-85.5	89.1	85.0-94.8
MATIN	MAR	35	8/m²	1	56.3	-	72.5	-	**72.5**	-
MATMT	MAR	14	27.5/m²	1	99.0	-	99.0	-	**99.0**	-
MYOAR	MAR	10	142.6/m²	1	85.6	-	81.1	-	**87.8**	-
POLAV	MAR	12-65	16-17.5/m²	2	56.0	55.0-56.9	66.0	61.9-70.0	**80.3**	70.6-90.0
POROL	SE	12-12	11.5-33/m²	2	100.0	100.0-100.0	100.0	100.0-100.0	**100.0**	100.0-100.0
	MED	11-12	63-247/m²	2	77.6	72.7-82.5	65.2	40.9-89.5	**96.6**	95.0-98.2
	ALL	11-12	11.5-247/m²	4	88.8	72.7-100.0	82.6	40.9-100.0	98.3	95.0-100.0
POROT	SE	51	41/m²	1	70.0	-	92.5	-	**100.0**	-
RANSA	MED	10	25/m²	1	96.3	-	99.0	-	**99.0**	-
SENVU	MAR	10-65	7-492.5/m²	10	74.3 (7)	57.5-98.8	90.2	69.3-100.0	**91.7**	76.3-100.0
SOLNI	MAR	12	15/m²	1	79.4	-	100.0	-	**100.0**	-
	SE	55-63	18-20/m²	2	59.4	57.5-61.3	71.3	71.3-71.3	**80.0**	70.0-90.0
	MED	12	58/m²	1	100.0	-	100.0	-	**100.0**	-
	ALL	12-63	15-58/m²	4	74.6	57.5-100.0	85.7	71.3-100.0	90.0	70.0-100.0
SONOL	MAR	61	7/m²	1	-	-	71.6	-	**87.3**	-
	MED	12	12/m²	1	100.0	-	100.0	-	**100.0**	-
	ALL	12-61	7-12/m²	2	100.0 (1)	-	85.8	71.6-100.0	93.7	87.3-100.0
STEME	MAR	12-31	5.8-396/m²	9	67.0 (8)	15.0-100.0	83.0	22.8-100.0	**91.3**	65.0-100.0
URTUR	MAR	12-14	22.5-261.8/m²	2	78.3	57.5-99.0	83.9	68.8-99.0	**92.7**	86.3-99.0
VERAG	MAR	10-25	37-68.3/m²	3	46.9 (2)	15.0-78.8	80.9	66.3-90.0	**86.4**	72.5-98.0
VERHE	MAR	10-14	6.8-15/m²	2	72.7	60.5-85.0	86.6	73.2-100.0	**98.8**	97.6-100.0
VERPE	MAR	12	32/m²	1	86.7	-	94.4	-	**87.4**	-
VERSS	MAR	14	38.5/m²	1	17.5	-	42.5	-	**70.0**	-
VIOAR	MAR	10-14	20-42.5/m²	2	93.9	88.8-99.0	93.9	88.8-99.0	**94.5**	90.0-99.0
All (3ANDIT)	**MAR**	**10-65**	**5-875/m²**	**72**	**71.4 (61)**	**15.0-100.0**	**84.6**	**22.8-100.0**	**90.5**	**65.0-100.0**
	MED	**10-15**	**9-247/m²**	**10**	**83.4**	**51.3-100.0**	**89.2**	**40.9-100.0**	**97.1**	**90.0-100.0**
	SE	**11-81**	**8.5-97.3/m²**	**12**	**70.5**	**30.0-100.0**	**81.8**	**50.0-100.0**	**87.6**	**62.5-100.0**
	ALL	**10-81**	**5-875/m²**	**94**	**72.7 (83)**	**15.0-100.0**	**84.7**	**22.8-100.0**	**90.9**	**62.5-100.0**

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n	Weed density at appl'n (range)	No. of results	% control with Beloukha (BCP1004D)					
					8 L/ha (50% dose)		12 L/ha (75% dose)		16 L/ha (100% dose)	
					Mean	Min-Max	Mean	Min-Max	Mean	Min-Max
PERENNIAL DICOTYLEDONOUS WEEDS (3PEDIT)										
ARFLA	MAR	12	64/m²	1	52.5	-	63.8	-	**97.5**	-
BELPE	MAR	17	16/m²	1	-	-	90.0	-	**92.3**	-
CARPR	MAR	12	76/m²	1	-	-	100.0	-	**100.0**	-
CONAR	SE	12-71	7.3-12/m²	2	76.3	52.5-100.0	83.2	66.3-100.0	**85.0**	70.0-100.0
	MED	15	5/m²	1	29.2	-	33.3	-	**58.3**	-
	ALL	12-71	5-12/m²	3	60.6	29.2-100.0	66.5	33.3-100.0	76.1	58.3-100.0
CIRAR	MAR	38	5/m²	1	72.5	-	77.5	-	**97.5**	-
EPIHI	MAR	19	15/m²	1	57.5	-	50.0	-	**90.0**	-
EPISS	MAR	32	9/m²	1	-	-	98.0	-	**99.3**	-
EQUAR	MAR	12	95/m²	1	0.0	-	100.0	-	**100.0**	-
ERICA	SE	33	15/m²	1	68.8	-	76.3	-	**88.8**	-
	MED	12	5/m²	1	75.0	-	50.0	-	**75.0**	-
	ALL	12-33	5-15/m²	2	71.9	68.8-75.0	63.2	50.0-76.3	81.9	75.0-88.8
PLALA	MAR	19	6.5/m²	1	37.5	-	50.0	-	**78.8**	-
PLAMA	MAR	16-16	11-17.5/m²	2	42.5 (1)	-	87.5	77.5-97.5	**97.4**	95.0-99.8
TAROF	MAR	12-55	6-27/m²	6	26.5 (3)	9.3-48.0	75.1	36.0-99.8	**86.7**	63.0-100.0
TRFRE	MAR	30	11/m²	1	-	-	95.8	-	**96.0**	-
All (3PEDIT)	**MAR**	**12-55**	**5-95/m²**	**18**	**43.2 (10)**	**0.0-90.0**	**79.7**	**36.0-100.0**	**90.7**	**63.0-100.0**
	MED	**12-15**	**5-5/m²**	**2**	**52.1**	**29.2-75.0**	**41.7**	**33.3-50.0**	**66.7**	**58.3-75.0**
	SE	**12-71**	**7.3-15/m²**	**3**	**73.8**	**52.5-100.0**	**80.9**	**66.3-100.0**	**86.3**	**70.0-100.0**
	ALL	**12-71**	**5-95/m²**	**23**	**50.5 (15)**	**0.0-100.0**	**76.6**	**33.3-100.0**	**88.0**	**58.3-100.0**
ANNUAL MONOCOTYLEDONOUS WEEDS (3ANMNT)										
BROST	MAR	13	134/m²	1	38.5	-	43.5	-	**92.1**	-
DIGSA	SE	12-30	27.8-75/m²	2	84.4	68.8-100.0	93.2	86.3-100.0	**100.0**	100.0-100.0
	MAR	51	12/m²	1	-	-	100.0	-	**100.0**	-
	ALL	12-51	12-75/m²	3	84.4 (2)	68.8-100.0	95.4	86.3-100.0	**100.0**	100.0-100.0
ECHCG	SE	21	135/m²	1	38.8	-	53.8	-	**68.3**	-
	MAR	12	98/m²	1	57.5	-	57.5	-	**90.0**	-
	ALL	12-21	98-135/m²	2	48.2	38.8-57.5	55.7	53.8-57.5	**79.2**	68.3-90.0
LOLMU	MAR	18	9/m²	1	-	-	51.7	-	**78.8**	-
POAAN	MAR	10-61	14.3-252/m²	9	65.4 (7)	33.3-100.0	72.3	1.5-100.0	**89.2**	76.3-100.0
SETVI	SE	67	22/m²	1	83.8	-	85.0	-	**96.5**	-
TRZAW	MED	22	15/m²	1	51.3	-	90.0	-	**87.5**	-
All (3ANMNT)	**MAR**	**10-61**	**12-252/m²**	**13**	**61.5 (9)**	**33.3-100.0**	**69.5**	**1.5-100.0**	**89.5**	**76.3-100.0**
	MED	**22**	**15/m²**	**1**	**51.3**	**-**	**90.0**	**-**	**87.5**	**-**
	SE	**12-67**	**22-135/m²**	**4**	**72.9**	**38.8-100.0**	**81.3**	**53.8-100.0**	**91.2**	**68.3-100.0**
	ALL	**10-67**	**12-252/m²**	**18**	**64.0 (14)**	**33.3-100.0**	**73.3**	**1.5-100.0**	**89.8**	**68.3-100.0**
PERENNIAL MONOCOTYLEDONOUS WEEDS (3PEMNT)										
FESSS	MAR	30	11/m²	1	-	-	91.3	-	**92.5**	-
All weeds	**All zones**	**10-81**	**5-875/m²**	**136**	**68.7 (112)**	**0.0-100.0**	**81.9**	**1.5-100.0**	**90.3**	**58.3-100.0**

Numbers in superscript brackets = No. of results with 8 L/ha rate, where different to the numbers of trials results using the 12 and 16 L/ha doses

All Situations of Use: Summary and Conclusions

Using one application of Beloukha (BCP1004D) against annual dicotyledonous weeds (3ANDIT), across all three climatic zones (EPPO Maritime, EPPO Mediterranean and EPPO South-East), the 8 L/ha dose achieved mean control of 73.5%, compared to mean control of 86.0% using the 12 L/ha dose and mean control of 90.4% using the 16 L/ha dose. For annual monocotyledonous weeds (3ANMNT), the 8 L/ha dose achieved mean control of 70.0%, compared to mean control of 81.9% using the 12 L/ha dose and mean control of 87.9% using the 16 L/ha dose. For perennial dicotyledonous weeds (3PEDIT), the 8 L/ha dose achieved mean control of 57.8%, compared to mean control of 76.0% using the 12 L/ha dose and mean control of 83.4% using the 16 L/ha dose. For perennial monocotyledonous weeds (3PEMNT), the 8 L/ha dose achieved mean control of 71.3%, compared to mean control of 84.2% using the 12 L/ha dose and mean control of 89.1% using the 16 L/ha dose.

Using two applications of Beloukha (BCP1004D) against annual dicotyledonous weeds (3ANDIT), across all three climatic zones (EPPO Maritime, EPPO Mediterranean and EPPO South-East), the 8 L/ha dose achieved mean control of 72.3%, compared to mean control of 84.0% using the 12 L/ha dose and mean control of 91.1% using the 16 L/ha dose. For annual monocotyledonous weeds (3ANMNT), the 8 L/ha dose achieved mean control of 62.3%, compared to mean control of 73.6% using the 12 L/ha dose and mean control of 89.4% using the 16 L/ha dose. For perennial dicotyledonous weeds (3PEDIT), the 8 L/ha dose

achieved mean control of 47.9%, compared to mean control of 78.5% using the 12 L/ha dose and mean control of 87.0% using the 16 L/ha dose. For perennial monocotyledonous weeds (3PEMNT), only one trial on one weed *Festuca* sp. (FESSS) occurred, and the 12 L/ha dose achieved mean control of 91.3%, compared to mean control of 92.5% using the 16 L/ha dose.

In the vast majority of trials, across the different weed species, the proposed dose of Beloukha (BCP1004D), 16 L/ha, achieved the highest level of control, compared to the 8 L/ha and 12 L/ha doses, often achieving in excess of 85% control of both annual dicotyledonous weeds (3ANDIT) and annual monocotyledonous weeds (3ANMNT). In addition, where perennial weeds were encountered, they were more often controlled to levels in excess of 85% using the 16 L/ha dose of Beloukha (BCP1004D), especially when applied to the smaller growth stages of the weeds (BBCH 10-16), compared to either the 8 L/ha dose or 12 L/ha dose. This pattern of control was achieved using both a single application and two sequential applications of the product.

These data, from a range of relevant situations of use (including use in grapevines), fully supports the 16 L/ha dose of Beloukha (BCP1004D), as being the minimum effective dose across annual and perennial dicotyledonous and monocotyledonous weeds in grapevines, in Germany, as this was the only dose to consistently achieve in excess of 85% control across the four weed groups [annual dicotyledonous weeds (3ANDIT), annual monocotyledonous weeds (3ANMNT), perennial dicotyledonous weeds (3PEDIT) and perennial monocotyledonous weeds (3PEMNT)].

3.2.2.7 Sucker control in grapevine

The data set to demonstrate the minimum effective dose of Beloukha (BCP1004D), trials results from the EPPO Maritime climatic zone and the EPPO South-East climatic zone and have been summarised in Table 3.2.3-13 and Table 3.2.3-14. The relevance of sucker control data from outside the EPPO Maritime climatic zone is considered relevant, as Beloukha (BCP1004D) containing pelargonic acid, is a contact acting herbicide, so climatic conditions which are suitable for sucker development in grapevine (warm and moist conditions, with sufficient soil moisture) can occur in both the EPPO climatic zones, during the summer period. In the non-Maritime EPPO climatic zone trials, development of suckers continued for the duration of the trials (21-47 days after the first application), suggesting that conditions remained favourable for sucker development. In addition, the levels of control of suckers were similar across the three different EPPO climatic zones, especially using the proposed dose (16 L/ha) of Beloukha (BCP1004D), applied either once or as two sequential treatments.

Data from a total of nine sucker control trials have been provided to demonstrate minimum effective dose, conducted in Austria (3 trials), Germany (3 trials), Northern France (2 trials) and Hungary (1 trial), between 2012 and 2019.

Table 3.2.2-13: Minimum effective dose. Efficacy of Beloukha (BCP1004D) at the proposed label rate, at 50% and 75% dose rates against grapevine suckers assessed at 9-22 days after one application

EPPO code	EPPO climatic zone	Sucker length at appl'n	Sucker density at appl'n (range)	No. of results	% control with Beloukha (BCP1004D)					
					8 L/ha (50% dose)		12 L/ha (75% dose)		16 L/ha (100% dose)	
					Mean	Min-Max	Mean	Min-Max	Mean	Min-Max
GRAPEVINE SUCKERS										
YEXST	MAR	6cm-17cm 0-25cm*	2-36.9/vine 16.8/plot	6	83.4	36.7-97.5	86.0	31.3-99.2	88.2	44.8-100
YEXST	S-E	15cm	14.25/m^2	1	70.5	-	80.5	-	83.5	-
All (YEXST)	**ALL**	**6cm-17cm 0-25cm***	**2-36.9/vine 16.8/plot 14.25/m^2**	**9**	**82.0**	**36.7-97.5**	**85.4**	**31.3-99.2**	**87.7**	**44.8-100.0**

*Mean sucker length where specified, otherwise less than 25cm.

Table 3.2.2-14: Minimum effective dose. Efficacy of Beloukha (BCP1004D) at the proposed label rate, at 50% and 75% dose rates against grapevine suckers assessed at 9-26 days after second application

EPPO code	EPPO climatic zone	Sucker length at appl'n	Sucker No. at appl'n (range)	No. of results	% control with Beloukha (BCP1004D)					
					8 L/ha (50% dose)		12 L/ha (75% dose)		16 L/ha (100% dose)	
					Mean	Min-Max	Mean	Min-Max	Mean	Min-Max
GRAPEVINE SUCKERS										
YEXST	MAR	6cm-17cm 0-25cm*	3.1-36.9/vine	4	80.3	41.2-97.7	78.2	36.8-100	84.8	49.6-100
YEXST	S-E	15cm	14.25/m^2	1	40.0	-	70.8	-	80.5	-
All (YEXST)	**ALL**	**6cm-17cm 0-25cm***	**3.1-36.9/vine 14.25/m^2**	**5**	**72.3**	**40.0-97.7**	**76.7**	**36.8-100**	**83.9**	**49.6-100**

*Mean sucker length where specified, otherwise less than 25cm.

Summary and conclusions

Number of suckers and lengths (by class) were assessed in each trial (>5cm, 5-15cm, 15-25cm and >25cm), and then % control was calculated for each trial, based on reduction in overall length of suckers per treatment.

Across the nine trials where sucker control was assessed in grapevines following a single application of Beloukha (BCP1004D) 9-22 days after application, the 16 L/ha dose achieved mean control of 87.7% (range 44.8-100%), compared to mean control of 85.4% (range 31.3-99.2%) using the 12 L/ha dose and mean control of 82.0% (range 36.7-97.5%) using the 8 L/ha dose.

Across the five trials where sucker control was assessed in grapevines following two sequential applications of Beloukha (BCP1004D) 9-26 days after the second application, the 16 L/ha dose achieved mean control of 83.9% (range 49.6-100%), compared to mean control of 76.7% (range 36.8-100%) using the 12 L/ha dose and mean control of 72.3% (range 40.0-97.7%) using the 8 L/ha dose.

These data clearly demonstrate that the minimum effective dose of Beloukha (BCP1004D) for the control of suckers in grapevines is 16 L/ha, as this was the only dose that consistently provided in excess of 80% control of suckers, from both one application and two sequential applications.

These data fully support the 16 L/ha dose of Beloukha (BCP1004D), as being the minimum effective dose for the control of suckers (optimum control for suckers up to 25cm) in grapevines, in Germany.

Conclusion – Minimum effective dose
Trials were conducted according to EPPO Standard PP1/225 (Minimum effective dose).

Use 001 (annual monocotyledonous and annual dicotyledonous weeds)
The data set for minimum effective dose includes 17 trials, 10 trials from the maritime EPPO climatic zone, 6 trials from the south-eastern EPPO climatic zone and 1 trial from the mediterranean EPPO climatic zone. The proposed dose of Beloukha (BCP1004D) 16 L/ha was compared to a 50% dose (8 L/ha) and a 75% dose (12 L/ha). The trials were conducted in Austria (6), Germany (3), the Czech Republic (1), Romania (3), Hungary (3) and Southern France (1) between 2018 and 2019.
A total of 6 – 15 trials with results that fully support the herbicide should be sufficient to demonstrate efficacy against a major target weed (EPPO Standard PP1/226 Number of efficacy trials). This number of trials is not reached for one single species. So the EPPO Standard is not fulfilled.
Furthermore, the trials from the maritime zone show only a limited dose-response relationship for annual dicotyledonous weeds. The relationship is more pronounced for annual monocotyledonous and perennial species. This does not change much when the trials from the south-eastern EPPO zone are added. Only if you add the trials from other similar uses (e.g. orchards) you come to the conclusion that the intended application rate is also the required application rate. The use of other applications is accepted here because the number

of approved herbicides in viticulture in Germany is very limited, especially if the registration for the active ingredient glyphosate is discontinued. Under these conditions the submitted results for the minimum effective dose are accepted as sufficient.

Use 002 (suckers)
Data from a total of nine sucker control trials have been provided to demonstrate minimum effective dose, conducted in Austria (3 trials), Germany (3 trials), Northern France (2 trials) and Hungary (1 trial) between 2012 and 2019.
The number of suckers and lengths (by class) were assessed in each trial (>5cm, 5-15cm, 15-25cm and >25cm, and then percentage of control was calculated for each trial, based on reduction in overall length of suckers per treatment.
Across the nine trials where sucker control was assessed in grapevines following a single application of Beloukha (BCP1004D) 9-22 days after application, the 16 L/ha dose achieved mean control of 87.7% (range 44.8-100%), compared to mean control of 85.4% (range 31.3-99.2%) using the 12 L/ha dose and mean control of 82.0% (range 36.7-97.5%) using the 8 L/ha dose.
Across the five trials where sucker control was assessed in grapevines following two sequential applications of Beloukha (BCP1004D) 9-26 days after the second application, the 16 L/ha dose achieved mean control of 83.9% (range 49.6-100%), compared to mean control of 76.7% (range 36.8-100%) using the 12 L/ha dose and mean control of 72.3% (range 40.0-97.7%) using the 8 L/ha dose.
These data demonstrate that the minimum effective dose of Beloukha (BCP1004D) for the control of suckers in grapevines is 16 L/ha, as this was the only dose that consistently provided in excess of 80% control of suckers, from both one application and two sequential applications.

3.2.3 Efficacy tests (KCP 6.2)

Beloukha (BCP1004D) is a contact herbicide for control of annual dicotyledonous weeds (3ANDIT) and annual monocotyledonous weeds (3ANMNT) in grapevines (VITVI). It is applied around vines at a dose rate of 16 L/ha (10880 g/ha of pelargonic acid).

To support this product for weed control in grapevine, efficacy data for control of annual dicotyledonous weeds (3ANDIT) and annual monocotyledonous weeds (3ANDIT) are presented from 25 efficacy trials in grapevine, 20 trials from orchards (11 on pome fruit and 9 on stone fruit), 19 trials from various annual and perennial row-crops (post-emergence to the weeds), 7 trials from tree nursery or ornamental crops and 5 from non-crop situations assessed between 2012 and 2019 in Austria, Belgium, Czech Republic, Denmark, Germany, France, the Netherlands, the United Kingdom, Italy, Hungary and Romania.

To support this product for sucker control in grapevine, efficacy data for sucker control are presented from 9 trials carried out between 2012, 2013, 2018 and 2019 in Austria, Germany and France.

All trials were subject to normal agricultural inputs, according to the principles of good agricultural practice (GAP). In all the trials, the crops were well established with good uniformity and vigour prior to the application of Beloukha (BCP1004D). Details of the application dates, crop growth stages at application, and edaphic data are summarised in Appendix 4 of the BAD.

The majority of studies were subject to statistical analysis and full details can be found Appendix 5 of the BAD.

3.2.3.1 Weed control in grapevine

The weed control effectiveness data set in grapevine (25 trials) includes results from a total of 17 ‘valid’ trials (10 trials from the EPPO Maritime climatic zone, 6 trials from the EPPO South-East climatic zone and 1 trial from the EPPO Mediterranean climatic zone). The proposed dose of Beloukha (BCP1004D) 16 L/ha, was compared to various doses of the reference standards, Basta (containing glufosinate-ammonium) and glyphosate (various products). The trials were conducted in Austria (6), Germany (3), Czech Republic (1), Romania (3), Hungary (3) and Southern France (1), between 2018 and 2019.

Trial methodology

Table 3.2.3-1: Details on trial methodology

Guidelines	General guidelines	EPPO PP 1/135(4), PP 1/152(4), PP 1/181(4), PP 1/225(2)
	Specific guidelines	PP 1/64(4), CEB 205, CEB DT12
Experimental design	Plot design	RCBD
	Plot size	8-30 m²
	Number of replications	4
Crop	Trials per crop	Grapevine (25), of which 17 were 'valid' trials.
	Varieties per crop	Grapevine (25): Blauer Wildbacher (1), Cabernet (1), Chardonnay (1), Dornfelder (1), Faberrebe (1), Feteasca neagra (1), Gamay (1), Grüner Veltliner (2), Huxel (1), Kékfrankos (1), Kerner (1), Müller-Thurgau (4), Olaszrizling (1), Sauvignon blanc (1), Scheurebe (1), Schwarzriesling (1), Traminer Rose (1), Welschriesling (2), Zenit (1), Zweigeltrebe (1).
Application	Crop stage (BBCH) at application(s)	15-85 (A) 64-85 (B)
	Timing Pest stage at application	Post-emergence
	Number of applications Intervals between applications	1 (14 trials) 2 (11 trials) with intervals of 14-35 days.
	Spray volumes	150 - 300 L/ha
Assessment	Assessment types	% of weed coverage, number of weeds/m²
	Assessment dates	2-47 DA-A/3-78 DA-B

Summary and Conclusions

Table 3.2.3-2 and Table 3.2.3-3 summarises the results for various broad-leaved and grass weed species, 7-24 days after a single application and Table 3.2.3-4 and Table 3.2.3-5 summarises the results 4-28 days after two applications, in those trials that included a second application. These are considered to be the critical assessment points to demonstrate optimum control from a single application and from a repeat application, 14-35 days after the first application.

Using one application of Beloukha (BCP1004D), against annual dicotyledonous weeds (3ANDIT), across all climatic conditions, the proposed dose (16 L/ha) achieved mean control of 92.9% (range 59.9-100%), compared to mean control of 99.1% (range 81.5-100%) using Basta (glufosinate-ammonium) and mean control of 86.3% (range 55.0-100%) using glyphosate. Of the 53 trial results against 3ANDIT weeds, only 7 results were <85% control, compared to 46 results ≥85% control, suggesting Beloukha (BCP1004D) applied at 16 L/ha would provide sufficient post-emergence control of annual broad-leaved weeds (SANCO rating of 'Susceptible'). Against annual monocotyledonous weeds (3ANMNT), one application of Beloukha (BCP1004D) applied at 16 L/ha achieved mean control of 89.3% (range 68.8-100%), compared to mean control of 99.4% (range 98.8-100%) using Basta (glufosinate-ammonium) and mean control of 85.2% (range 46.3-100%) using glyphosate. Of the 6 trial results against 3ANMNT weeds, only 1 result was <85% control, compared to 5 results ≥85% control, suggesting Beloukha (BCP1004D) applied at 16 L/ha would provide sufficient post-emergence control of annual monocotyledonous weeds (SANCO rating of 'Susceptible').

Against perennial dicotyledonous weeds (3PEDIT), across all climatic conditions, the proposed dose (16 L/ha) achieved mean control of 86.5% (range 63.8-100%), compared to mean control of 97.9% (range 87.5-100%) using Basta (glufosinate-ammonium) and mean control of 92.9% (range 78.8-100%) using glyphosate. Of the 9 trial results against 3PEDIT weeds, 4 results were <85% control, compared to 5 results ≥85% control, suggesting Beloukha (BCP1004D) applied at 16 L/ha could provide sufficient post-emergence control of perennial broad-leaved weeds (SANCO rating of 'Susceptible') from one application. However, whilst some of the perennial broad-leaved weeds encountered in trials were 'germinations from

seed', others (less reliably controlled) were probably emerging from root-stock, making them difficult to control. Therefore, weed control trials were also conducted using two sequential applications of 16 L/ha Beloukha (BCP1004D). Only one perennial monocotyledonous weed (3PEMNT) was encountered in the trials using a single application of Beloukha (BCP1004D), LOLPE, where the proposed dose (16 L/ha) achieved 94.3% control, compared to 100% control using Basta (glufosinate-ammonium).

From two sequential applications of 16 L/ha, Beloukha (BCP1004D) achieved mean control of 90.6% (range 62.5-100%) against annual dicotyledonous weeds (3ANDIT), across all the different climatic conditions, compared to mean control of 98.8% (range 90-100%) using Basta (glufosinate-ammonium) and mean control of 94.5% (range 79.8-100%) using glyphosate. Of the 20 trial results against 3ANDIT weeds, only 4 results were <85% control, compared to 16 results ≥85% control, suggesting that two applications of Beloukha (BCP1004D) applied at 16 L/ha would provide sufficient post-emergence control of annual monocotyledonous weeds (SANCO rating of 'Susceptible'). Against annual monocotyledonous weeds (3ANMNT), two applications of Beloukha (BCP1004D) applied at 16 L/ha achieved mean control of 89.9% (range 68.3-100%), compared to 97.7% control using Basta (glufosinate-ammonium) – 1 result, and mean control of 93.8% (range 79-100%) using glyphosate – 4 results. Of the 5 trial results against 3ANMNT weeds, 2 results were <85% control, compared to 3 results ≥85% control, suggesting Beloukha (BCP1004D) applied twice at 16 L/ha would provide sufficient post-emergence control of annual monocotyledonous weeds (SANCO rating of 'Susceptible'). Against perennial dicotyledonous weeds (3PEDIT), across all climatic conditions, the proposed dose (16 L/ha) achieved mean control of 86.3% (range 70-100%), compared to mean control of 93.8% (range 81.3-100%) using glyphosate. Of the 3 trial results against 3PEDIT weeds, only 1 result was <85% control, compared to 2 results ≥85% control, suggesting Beloukha (BCP1004D) applied twice at 16 L/ha would provide sufficient post-emergence control of perennial dicotyledonous weeds (SANCO rating of 'Susceptible').

These data fully support the 16 L/ha dose of Beloukha (BCP1004D), as being effective against annual and perennial dicotyledonous and monocotyledonous weeds (SANCO rating of 'Susceptible') for use in grapevines, in Germany.

Table 3.2.3-2: Effectiveness of Beloukha (BCP1004D) on annual and perennial dicotyledonous weeds assessed at 7-24 days after one application in grapevine (VITVI)

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n	Weed density at appl'n (range)	No. of trial results	% control											
					Beloukha (BCP1004D)		Basta (glufosinate-ammonium)					Comparison with glyphosate standards				
					16 L/ha		750-1000 g a.i./ha		Comparison with Basta			540-1140 g a.i./ha		Comparison with glyphosate		
					Mean	Min-Max	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=
ANNUAL DICOTYLEDONOUS WEEDS (3ANDIT)																
AMARE	MAR	10-14	13-45/m²	3	**87.3**	66.3-97.8	99.2	97.5-100.0	-	1	2	-	-	-	-	-
	SE	13	32/m²	1	**100.0**	-	-	-	-	-	-	87.5	-	1	-	-
	ALL	10-14	13-45/m²	4	**90.5**	66.3-100.0	99.2 (3)	97.5-100.0	-	1	2	87.5 (1)	-	1	-	-
AMBEL	SE	12-18	9.5-103/m²	3	**82.4**	61.3-100.0	-	-	-	-	-	84.8	57.5-100.0	1	1	1
CAPBP	MAR	10-10	22-65/m²	2	**98.2**	96.8-99.5	100.0	100.0-100.0	-	1	1	-	-	-	-	-
CARFL	MAR	10	32/m²	1	**98.8**	-	100.0	-	-	-	1	-	-	-	-	-
CHEAL	MAR	10-14	10-17/m²	3	**94.5**	86.3-98.8	99.9	99.8-100.0	-	1	2	-	-	-	-	-
	SE	18	61.8/m²	1	**86.0**	-	-	-	-	-	-	60.0	-	1	-	-
	ALL	10-18	10-61.8/m²	4	**92.4**	86.0-98.8	99.9 (3)	99.8-100.0	-	1	2	60.0 (1)	-	1	-	-
CHEHY	MAR	10-10	10-24/m²	2	**100.0**	100.0-100.0	100.0	100.0-100.0	-	-	2	-	-	-	-	-
CHEPO	MAR	10-12	14-48/m²	2	**98.6**	97.3-100.0	99.4	98.8-100.0	-	-	2	-	-	-	-	-
GERDI	MAR	10-15	7-9/m²	2	**83.6**	73.8-93.3	99.9	99.8-100.0	-	1	1	-	-	-	-	-
GERPU	SE	59	11/m²	1	**92.0**	-	-	-	-	-	-	97.5	-	-	-	1
GERRT	MED	22	30/m²	1	**71.0**	-	99.0	-	-	1	-	-	-	-	-	-
HIBTR	SE	11	8.5/m²	1	**100.0**	-	-	-	-	-	-	100.0	-	-	-	1
LAMAM	MAR	10-10	13-15/m²	3	**98.7**	96.0-100.0	99.9	99.8-100.0	-	-	3	-	-	-	-	-
LAMPU	MAR	10-11	31-79.5/m²	2	**96.3**	94.5-98.0	99.3	98.5-100.0	-	1	1	-	-	-	-	-
MERAN	MAR	10	7/m²	1	**98.5**	-	99.0	-	-	-	1	-	-	-	-	-
POLAV	MAR	12	11/m²	1	**90.8**	-	98.8	-	-	1	-	-	-	-	-	-
POROL	SE	12-12	17.5-41.8/m²	2	**100.0**	100.0-100.0	-	-	-	-	-	100.0	100.0-100.0	-	-	2
POROT	SE	12	22/m²	1	**100.0**	-	-	-	-	-	-	83.8	-	1	-	-
SENVU	MAR	10-12	13-60/m²	4	**97.8**	96.3-100.0	99.8	99.3-100.0	-	2	2	-	-	-	-	-
SOLNI	MAR	10-10	6-8.8/m²	2	**89.8**	79.6-100.0	98.4	96.7-100.0	-	-	2	-	-	-	-	-
	SE	16-16	16-21/m²	2	**84.8**	83.8-85.8	-	-	-	-	-	76.3	55.0-97.5	1	1	-
	ALL	10-16	6-21/m²	4	**87.3**	79.6-100.0	98.4 (2)	96.7-100.0	-	-	2	76.3 (2)	55.0-97.5	1	1	-
STEME	MAR	10-12	7-55/m²	5	**98.6**	95.0-100.0	99.9	99.5-100.0	-	1	4	-	-	-	-	-

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n	Weed density at appl'n (range)	No. of trial results	% control											
					Beloukha (BCP1004D)		Basta (glufosinate-ammonium)					Comparison with glyphosate standards				
					16 L/ha		750-1000 g a.i./ha		Comparison with Basta			540-1140 g a.i./ha		Comparison with glyphosate		
					Mean	Min-Max	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=
URTUR	MAR	10	20/m²	1	**79.3**	-	100.0	-	-	-	1	-	-	-	-	-
VERAG	MAR	10-11	24-27/m²	2	**92.5**	90.0-95.0	97.1	95.3-99.0	-	-	2	-	-	-	-	-
VERPE	MAR	10-10	7-167/m²	4	**87.2**	59.9-97.3	95.4	81.5-100.0	-	3	1	-	-	-	-	-
All (3ANDIT)	**MAR**	**10-15**	**6-167/m²**	**40**	**94.0**	**59.9-100.0**	**99.1**	**81.5-100.0**	**-**	**12**	**28**	**-**	**-**	**-**	**-**	**-**
	MED	**22**	**30/m²**	**1**	**71.0**	**-**	**99.0**	**-**	**-**	**1**	**-**	**-**	**-**	**-**	**-**	**-**
	SE	**11-59**	**8.5-103/m²**	**12**	**91.2**	**61.3-100.0**	**-**	**-**	**-**	**-**	**-**	**86.3**	**55.0-100.0**	**5**	**2**	**5**
	ALL	**10-59**	**6-167/m²**	**53**	**92.9**	**59.9-100.0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
				41	**93.4**	**59.9-100.0**	**99.1**	**81.5-100.0**	**-**	**13**	**28**	**-**	**-**	**-**	**-**	**-**
				12	**91.2**	**61.3-100.0**	**-**	**-**	**-**	**-**	**-**	**86.3**	**55.0-100.0**	**5**	**2**	**5**
PERENNIAL DICOTYLEDONOUS WEEDS (3PEDIT)																
BUNOR	MAR	10	9.3/m²	1	**100.0**	-	100.0	-	-	-	1	-	-	-	-	-
CONAR	SE	12-65	8-8.3/m²	2	**81.9**	63.8-100.0	-	-	-	-	-	89.4	78.8-100.0	-	1	1
	MED	23	20/m²	1	**84.0**	-	100.0	-	-	1	-	-	-	-	-	-
	ALL	12-65	8-20/m²	3	**82.6**	63.8-100.0	100.0 (1)	-	-	1	-	89.4 (2)	78.8-100.0	-	1	1
ERICA	SE	14	15/m²	1	**89.5**	-	-	-	-	-	-	100.0	-	-	1	-
TAROF	MAR	10-14	7.3-41/m²	4	**85.2**	67.5-98.3	96.9	87.5-100.0	-	3	1	-	-	-	-	-
All (3PEDIT)	**MAR**	**10-14**	**7.3-41/m²**	**5**	**88.2**	**67.5-100.0**	**97.5**	**87.5-100.0**	**-**	**3**	**2**	**-**	**-**	**-**	**-**	**-**
	MED	**23**	**20/m²**	**1**	**84.0**	**-**	**100.0**	**-**	**-**	**1**	**-**	**-**	**-**	**-**	**-**	**-**
	SE	**12-65**	**8-15/m²**	**3**	**84.4**	**63.8-100.0**	**-**	**-**	**-**	**-**	**-**	**92.9**	**78.8-100.0**	**-**	**2**	**1**
	ALL	**10-65**	**7.3-41/m²**	**9**	**86.5**	**63.8-100.0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
				6	**87.5**	**67.5-100.0**	**97.9**	**87.5-100.0**	**-**	**4**	**2**	**-**	**-**	**-**	**-**	**-**
				3	**84.4**	**63.8-100.0**	**-**	**-**	**-**	**-**	**-**	**92.9**	**78.8-100.0**	**-**	**2**	**1**

Numbers in superscript brackets = No. of results with standards, where different to the numbers of trials results obtained from Beloukha (BCP1004D)

Table 3.2.3-3: Effectiveness of Beloukha (BCP1004D) on annual and perennial grass weeds assessed at 7-21 days after one application in grapevine (VITVI)

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n	Weed density at appl'n (range)	No. of trial results	% control											
					Beloukha (BCP1004D)		Basta (glufosinate-ammonium)					Comparison with glyphosate				
					16 L/ha		750-1000 g a.i./ha		Comparison with Basta			540-1140 g a.i./ha		Comparison with glyphosate		
					Mean	Min-Max	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=
ANNUAL MONOCOTYLEDONOUS WEEDS (3ANMNT)																
DIGSA	SE	12-13	33.3-45/m²	2	**100.0**	100.0-100.0	-	-	-	-	-	97.5	95.0-100.0	1	-	1
ECHCG	SE	13	134.3/m²	1	**85.5**	-	-	-	-	-	-	46.3	-	1	-	-
	MAR	10-12	7-100/m²	2	**82.3**	68.8-95.8	99.4	98.8-100.0	-	**2**	-	-	-	-	-	-
	ALL	10-13	7-134.3/m²	3	**83.4**	68.8-95.8	99.4 [(2)]	98.8-100.0	-	**2**	-	46.3 [(1)]	-	1	-	-
SETVI	SE	31	17/m²	1	**85.8**	-	-	-	-	-	-	99.5	-	-	1	-
All (3ANMNT)	**MAR**	**10-12**	**7-100/m²**	**2**	**82.3**	**68.8-95.8**	**99.4**	**98.8-100.0**	-	**2**	-	-	-	-	-	-
	SE	**12-31**	**17-134.3/m²**	**4**	**92.8**	**85.5-100.0**	-	-	-	-	-	**85.2**	**46.3-100.0**	**2**	**1**	**1**
	ALL	**10-31**	**7-134.3/m²**	**6**	**89.3**	**68.8-100.0**	-	-	-	-	-	-	-	-	-	-
				2	**82.3**	**68.8-95.8**	**99.4**	**98.8-100.0**	-	**2**	-	-	-	-	-	-
				4	**92.8**	**85.5-100.0**	-	-	-	-	-	**85.2**	**46.3-100.0**	**2**	**1**	**1**
PERENNIAL MONOCOTYLEDONOUS WEEDS (3PEMNT)																
LOLPE	MAR	10	55/m²	1	**94.3**	-	100.0	-	-	1	-	-	-	-	-	-

Numbers in superscript brackets = No. of results with standards, where different to the numbers of trials results obtained from Beloukha (BCP1004D)

Table 3.2.3-4: Effectiveness of Beloukha (BCP1004D) on annual and perennial dicotyledonous weeds assessed at 4-28 days after two applications in grapevine (VITVI)

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n	Weed density at appl'n (range)	No. of trial results	% control											
					Beloukha (BCP1004D)		Basta (glufosinate-ammonium)					Comparison with glyphosate standards				
					16 L/ha		750-1000 g a.i./ha		Comparison with Basta			540-1140 g a.i./ha		Comparison with glyphosate		
					Mean	Min-Max	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=
ANNUAL DICOTYLEDONOUS WEEDS (3ANDIT)																
AMARE	SE	30	52/m²	1	**100.0**	-	-	-	-	-	-	88.8	-	1	-	-
AMBEL	SE	12-55	8.5-97.3/m²	3	**76.7**	62.5-100.0	-	-	-	-	-	93.3	79.8-100.0	-	2	1
CHEAL	SE	24	63.8/m²	1	**71.3**	-	-	-	-	-	-	81.3	-	-	1	-
CHEPO	MAR	13-29	40-52/m²	2	**99.6**	99.5-99.8	100.0	100.0-100.0	-	-	2	-	-	-	-	-
GERPU	SE	81	12/m²	1	**90.0**	-	-	-	-	-	-	97.5	-	-	1	-
HIBTR	SE	11	18.7/m²	1	**100.0**	-	-	-	-	-	-	100.0	-	-	-	1
LAMPU	MAR	24	56/m²	1	**90.0**	-	90.0	-	-	-	1	-	-	-	-	-
POROL	SE	12-12	11.5-33/m²	2	**100.0**	100.0-100.0	-	-	-	-	-	100.0	100.0-100.0	-	-	2
POROT	SE	51	41/m²	1	**100.0**	-	-	-	-	-	-	86.3	-	1	-	-
SENVU	MAR	60	62/m²	1	**97.0**	-	100.0	-	-	-	1	-	-	-	-	-
SOLNI	MAR	12	15/m²	1	**100.0**	-	100.0	-	-	-	1	-	-	-	-	-
	SE	55-63	18-20/m²	2	**80.0**	70.0-90.0	-	-	-	-	-	100.0	100.0-100.0	-	2	-
	ALL	12-63	15-20/m²	3	**86.7**	70.0-100.0	100.0 [(1)]	-	-	-	1	100.0 [(2)]	100.0-100.0	-	2	-
VERAG	MAR	12-25	37-40/m²	2	**93.4**	88.8-98.0	100.0	100.0-100.0	-	1	1	-	-	-	-	-
VERPE	MAR	12	32/m²	1	**87.4**	-	100.0	-	-	-	1	-	-	-	-	-
All (3ANDIT)	**MAR**	**12-60**	**15-62/m²**	**8**	**95.1**	**87.4-100.0**	**98.8**	**90.0-100.0**	**-**	**1**	**7**	**-**	**-**	**-**	**-**	**-**
	SE	**11-81**	**8.5-97.3/m²**	**12**	**87.6**	**62.5-100.0**	**-**	**-**	**-**	**-**	**-**	**94.5**	**79.8-100.0**	**2**	**6**	**4**
	ALL	**11-81**	**8.5-97.3/m²**	**20**	**90.6**	**62.5-100.0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
				8	**95.1**	**87.4-100.0**	**98.8**	**90.0-100.0**	**-**	**1**	**7**	**-**	**-**	**-**	**-**	**-**
				12	**87.6**	**62.5-100.0**	**-**	**-**	**-**	**-**	**-**	**94.5**	**79.8-100.0**	**2**	**6**	**4**
PERENNIAL DICOTYLEDONOUS WEEDS (3PEDIT)																
CONAR	SE	12-71	7.3-12/m²	2	**85.0**	70.0-100.0	-	-	-	-	-	90.7	81.3-100.0	-	1	1
ERICA	SE	33	15/m²	1	**88.8**	-	-	-	-	-	-	100.0	-	-	1	-
All (3PEDIT)	**SE**	**12-71**	**7.3-15/m²**	**3**	**86.3**	**70.0-100.0**	**-**	**-**	**-**	**-**	**-**	**93.8**	**81.3-100.0**	**-**	**2**	**1**

Numbers in superscript brackets = No. of results with **standards**, where different to the numbers of trials results **obtained from Beloukha (BCP1004D)**

Table 3.2.3-5: Effectiveness of Beloukha (BCP1004D) on annual grass weeds assessed at 6-28 days after two applications in grapevine (VITVI)

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n	Weed density at appl'n (range)	No. of trial results	% control											
					Beloukha (BCP1004D)		Basta (glufosinate-ammonium)					Comparison with glyphosate				
					16 L/ha		750-1000 g a.i./ha		Comparison with Basta			540-1140 g a.i./ha		Comparison with glyphosate		
					Mean	Min-Max	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=
ANNUAL MONOCOTYLEDONOUS WEEDS (3ANMNT)																
DIGSA	SE	12-30	27.8-75/m²	2	**100.0**	100.0-100.0	-	-	-	-	-	98.2	96.3-100.0	-	-	2
ECHCG	SE	21	135/m²	1	**68.3**	-	-	-	-	-	-	79.0	-	-	1	-
POAAN	MAR	13	30/m²	1	**84.8**	-	97.7	-	-	-	1	-	-	-	-	-
SETVI	SE	67	22/m²	1	**96.5**	-	-	-	-	-	-	100.0	-	-	-	1
All (3ANMNT)	**ALL**	**12-67**	**22-135/m²**	**5**	**89.9**	-	-	-	-	-	-	-	-	-	-	-
				1	**84.8**	**68.3-100.0**	**97.7**	-	-	-	**1**	-	-	-	-	-
				4	**91.2**	**68.3-100.0**	-	-	-	-	-	**93.8**[)]	**79.0-100.0**	-	**1**	**3**

3.2.3.2 Weed control in orchard crops

The weed control effectiveness data set in orchard crops (20 trials) includes results from 15 'valid' trials, all from the EPPO Maritime climatic zone. The trials were conducted in Austria (1), Belgium (3), Germany (3), Denmark (1), Czech Republic (1), the Netherlands (5) and the United Kingdom (1) in 2016, 2017 and 2018. The proposed dose of Beloukha (BCP1004D), 16 L/ha, was compared to various doses of the reference standards, Basta (containing glufosinate-ammonium) and glyphosate (various products).

Trial methodology

Table 3.2.3-6: Details on trial methodology

Guidelines	General guidelines	EPPO PP1/181(4), PP1/135(4), PP1/152(4)
	Specific guidelines	EPPO PP1/90(3)
Experimental design	Plot design	RCBD
	Plot size	9-25.6 m²
	Number of replications	4
Crop	Trials per crop	Pome fruit: Apple (10), Pear (2) [10 'valid' trials] Stone fruit: Plum (5), Sweet cherry (2), Amarello cherry (1) [5 'valid' trials]
	Varieties per crop	Amarello cherry: Regina (1) Apple: Bramley (1), Elstar (1), Gala (2), Jonagold (2), Jumina (1), King Jonagold (1), Rode Boskoop (1), Topas (1) Pear : Conference (2) Plum: Victory (1), Cacaks Schöne (1), Fellenberg (1), Katinka (1), Elena (1) Sweet cherry: Bellise (1), Grace Star (1)
Application	Crop stage (BBCH) at application	69-91 (A) 69-91 (B)
	Timing Pest stage at application	Post-emergence
	Number of applications Intervals between applications	1 (4 trials) 2 (16 trials) with intervals of 5-36 days.
	Spray volumes	200 L/ha
Assessment	Assessment types	% of weed coverage, number of weeds/m²
	Assessment dates	3-36 DA-A/3-83 DA-B

Summary and Conclusions

Table 3.2.3-7 and Table 3.2.3-8 summarises the results for various broad-leaved and grass weed species, 7-17 days after a single application Table 3.2.3-9 and Table 3.2.3-10 summarises the results 4-28 days after two applications, in those trials that included a second application. These are considered to be the critical assessment points to demonstrate optimum control from a single application and from a repeat application, 14-35 days after the first application.

Using one application of Beloukha (BCP1004D), against annual dicotyledonous weeds (3ANDIT), the proposed dose (16 L/ha) achieved mean control of 92.1% (range 72.7-100%), compared to mean control of 94.3% (range 46-100%) using Basta (glufosinate-ammonium) and control of 99.3% (1 trial result) using glyphosate. Of the 18 trial results against 3ANDIT weeds, only 4 results were <85% control, compared to 14 results ≥85% control, suggesting Beloukha (BCP1004D) applied at 16 L/ha would provide sufficient post-emergence control of annual broad-leaved weeds (SANCO rating of 'Susceptible'). Against annual monocotyledonous weeds (3ANMNT), one application of Beloukha (BCP1004D) applied at 16 L/ha achieved mean control of 84.7% (range 72.5-99.8%), compared to mean control of 99.0% (range 95-100%) using Basta (glufosinate-ammonium). Of the 6 trial results against 3ANMNT weeds, 3 results were <85%

control, compared to 3 results ≥85% control, suggesting Beloukha (BCP1004D) applied at 16 L/ha would probably provide sufficient post-emergence control of annual monocotyledonous weeds (SANCO rating of 'Susceptible').

Against perennial dicotyledonous weeds (3PEDIT), the proposed dose (16 L/ha) achieved mean control of 82.5% (range 52.5-99.5%), compared to mean control of 96.1% (range 78-100%) using Basta (glufosinate-ammonium). Of the 11 trial results against 3PEDIT weeds, 6 results were <85% control, compared to 5 results ≥85% control, suggesting Beloukha (BCP1004D) applied at 16 L/ha could provide sufficient post-emergence control of perennial broad-leaved weeds (SANCO rating of 'Susceptible') from one application. However, whilst some of the perennial broad-leaved weeds encountered in trials were 'germinations from seed', others (less reliably controlled) were probably emerging from rootstocks, making them difficult to control. Therefore, weed control trials were also conducted using two sequential applications of 16 L/ha Beloukha (BCP1004D). Only two perennial monocotyledonous weeds (3PEMNT) were encountered using a single application of Beloukha (BCP1004D), (1 trial result each of POAPR and FESSS), where the proposed dose (16 L/ha) achieved mean control of 84.4% (range 80-88.8%), compared to 100% control using Basta (glufosinate-ammonium). Again, Beloukha (BCP1004D) applied at 16 L/ha could provide sufficient post-emergence control of perennial monocotyledonous weeds (SANCO rating of 'Susceptible') from one application. However, these probably emerged from rhizomes, making them difficult to control. Therefore, weed control trials were also conducted using two sequential applications of 16 L/ha Beloukha (BCP1004D) – see below.

From two sequential applications of 16 L/ha, Beloukha (BCP1004D) achieved mean control of 91.8% (range 72.5-100%) against annual dicotyledonous weeds (3ANDIT), compared to mean control of 99.0% (range 90-100%) using Basta (glufosinate-ammonium) and mean control of 100% (range 100-100%) using glyphosate. Of the 26 trial results against 3ANDIT weeds, only 6 results were <85% control, compared to 20 results ≥85% control, suggesting that two applications of Beloukha (BCP1004D) applied at 16 L/ha would provide sufficient post-emergence control of annual monocotyledonous weeds (SANCO rating of 'Susceptible'). Against annual monocotyledonous weeds (3ANMNT), two applications of Beloukha (BCP1004D) applied at 16 L/ha achieved mean control of 87.8% (range 76.3-100%), compared to mean control of 96.1% (range 69.7-100%) using Basta (glufosinate-ammonium). Of the 9 trial results against 3ANMNT weeds, 3 results were <85% control, compared to 6 results ≥85% control, suggesting Beloukha (BCP1004D) applied twice at 16 L/ha would provide sufficient post-emergence control of annual monocotyledonous weeds (SANCO rating of 'Susceptible'). Against perennial dicotyledonous weeds (3PEDIT), the proposed dose (16 L/ha) achieved mean control of 90.5% (range 63-100%), compared to mean control of 100% (range 99.8-100%) using Basta (glufosinate-ammonium) and 99.9% control (1 result) using glyphosate. Of the 12 trial results against 3PEDIT weeds, only 4 results were <85% control, compared to 8 results ≥85% control, suggesting Beloukha (BCP1004D) applied twice at 16 L/ha would provide sufficient post-emergence control of perennial dicotyledonous weeds (SANCO rating of 'Susceptible'), especially those germinating from seed, but also improving control of weeds emerging from rootstocks. Only one perennial monocotyledonous weed (3PEMNT) was encountered using two applications of Beloukha (BCP1004D), (1 trial result for FESSS), where the proposed dose (16 L/ha) achieved 92.5% control, compared to 100% control using Basta (glufosinate-ammonium). Again, Beloukha (BCP1004D) applied at 16 L/ha can provide sufficient post-emergence control of perennial monocotyledonous weeds (SANCO rating of 'Susceptible') from two applications, especially where the weed has probably emerged from rhizomes, improving control compared to that achieved from a single application.

These data generated in orchard crops in the EPPO Maritime climatic zone, fully support the 16 L/ha dose of Beloukha (BCP1004D), as being effective against annual and perennial dicotyledonous and monocotyledonous weeds (SANCO rating of 'Susceptible') for use in grapevines, in Germany.

Table 3.2.3-7: Effectiveness of Beloukha (BCP1004D) on annual and perennial dicotyledonous weeds assessed at 7-17 days after one application in orchard crops

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n	Weed density at appl'n (range)	No. of trial results	% control											
					Beloukha (BCP1004D)		Basta (glufosinate-ammonium)					Reglone (diquat)				
					16 L/ha		563-750 g a.i./ha		Comparison with Basta			5 L/ha		Comparison with Reglone		
					Mean	Min-Max	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=
ANNUAL DICOTYLEDONOUS WEEDS (3ANDIT)																
ARBTH	MAR	12	40/m²	1	**100.0**	-	100.0	-	-	-	1	-	-	-	-	-
CARHI	MAR	14	18.8/m²	1	**93.9**	-	-	-	-	-	-	99.3	-	-	-	1
CHEAL	MAR	10-12	9.5-27.6/m²	2	**100.0**	100.0-100.0	98.2	96.3-100.0	-	-	2	-	-	-	-	-
GERDI	MAR	11	12/m²	1	**100.0**	-	100.0	-	-	-	1	-	-	-	-	-
LAMPU	MAR	10-11	7-17/m²	2	**92.9**	86.3-99.5	99.8	99.5-100.0	-	-	2	-	-	-	-	-
MYOAR	MAR	10	167/m²	1	**72.7**	-	46.0	-	-	-	1	-	-	-	-	-
SENVU	MAR	10-30	7-145/m²	6	**89.2**	75.0-100.0	93.5	74.0-100.0	-	1	5	-	-	-	-	-
STEME	MAR	10-11	12.8-20/m²	2	**99.8**	99.8-99.8	100.0	100.0-100.0	-	-	2	-	-	-	-	-
VERHE	MAR	10-25	9.8-26/m²	2	**85.0**	74.0-96.0	100.0	100.0-100.0	-	1	1	-	-	-	-	-
All (3ANDIT)	**MAR**	**10-30**	**7-167/m²**	**18**	**92.1**	**72.7-100.0**	**94.3** [17]	**46.0-100.0**	-	2	15	**99.3** [1]	-	-	-	1
PERENNIAL DICOTYLEDONOUS WEEDS (3PEDIT)																
BELPE	MAR	14	17/m²	1	**82.5**	-	100.0	-	-	1	-	-	-	-	-	-
CARPR	MAR	14	76/m²	1	**80.0**	-	78.0	-	-	-	1	-	-	-	-	-
EPISS	MAR	15-32	10-60/m²	2	**88.5**	80.0-97.0	100.0	100.0-100.0	-	-	2	-	-	-	-	-
PLALA	MAR	19	7.3/m²	1	**52.5**	-	98.0	-	-	1	-	-	-	-	-	-
PLAMA	MAR	15	11/m²	1	**99.5**	-	100.0	-	-	-	1	-	-	-	-	-
SONAR	MAR	10	17.8/m²	1	**80.0**	-	100.0	-	-	-	1	-	-	-	-	-
TAROF	MAR	12-19	6-27/m²	3	**79.0**	52.5-96.5	93.7	83.0-99.5	-	1	2	-	-	-	-	-
TRFRE	MAR	30	11/m²	1	**99.3**	-	100.0	-	-	-	1	-	-	-	-	-
All (3PEDIT)	**MAR**	**10-32**	**6-76/m²**	**11**	**82.5**	**52.5-99.5**	**96.1**	**78.0-100.0**	-	**3**	**8**	-	-	-	-	-

Table 3.2.3-8: Effectiveness of Beloukha (BCP1004D) on annual and perennial grass weeds assessed at 8-14 days after one application in orchard crops

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n	Weed density at appl'n (range)	No. of trial results	% control						
					Beloukha (BCP1004D)		Basta (glufosinate-ammonium)				
					16 L/ha		563-750 g a.i./ha		Comparison with Basta		
					Mean	Min-Max	Mean	Min-Max	>	<	=
ANNUAL MONOCOTYLEDONOUS WEEDS (3ANMNT)											
BROST	MAR	24	20.5/m²	1	**72.5**	-	99.4	-	-	1	-
DIGSA	MAR	13	8/m²	1	**99.8**	-	100.0	-	-	-	1
POAAN	MAR	9-30	7.5-158.8/m²	4	**84.0**	75.0-89.8	98.6	95.0-100.0	-	1	3
All (3ANMNT)	**MAR**	**9-30**	**7.5-158.8/m²**	**6**	**84.7**	**72.5-99.8**	**99.0**	**95.0-100.0**	**-**	**2**	**4**
PERENNIAL MONOCOTYLEDONOUS WEEDS (3PEMNT)											
POAPR	MAR	30	12.5/m²	1	**88.8**	-	100.0	-	-	1	-
FESSS	MAR	30	12/m²	1	**80.0**	-	100.0	-	-	1	-
All (3PEMNT)	**MAR**	**30-30**	**12-12.5/m²**	**2**	**84.4**	**80.0-88.8**	**100.0**	**100.0-100.0**	**-**	**2**	**-**

Table 3.2.3-9: Effectiveness of Beloukha (BCP1004D) on annual and perennial dicotyledonous weeds assessed at 6-29 days after two applications in orchard crops

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n	Weed density at appl'n (range)	No. of trial results	% control											
					Beloukha (BCP1004D)		Basta (glufosinate-ammonium)					Reglone (diquat)				
					16 L/ha		563-750 g a.i./ha		Comparison with Basta			5 L/ha		Comparison with Reglone		
					Mean	Min-Max	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=
ANNUAL DICOTYLEDONOUS WEEDS (3ANDIT)																
ANTAR	MAR	18	5.3/m²	1	**75.7**	-	95.0	-	-	1	-	-	-	-	-	-
ARBTH	MAR	30	30/m²	1	**100.0**	-	100.0	-	-	-	1	-	-	-	-	-
CARHI	MAR	10-33	22.8-875/m²	3	**90.9**	78.8-100.0	98.5 (2)	98.0-99.0	-	-	2	100.0 (1)	-	-	-	1
CHEAL	MAR	17-51	29-43.2/m²	2	**98.8**	97.5-100.0	99.7	99.3-100.0	-	-	2	-	-	-	-	-
GERDI	MAR	13	22/m²	1	**100.0**	-	100.0	-	-	-	1	-	-	-	-	-
LAMPU	MAR	13-51	10-21.8/m²	3	**93.5**	81.3-100.0	100.0 (2)	100.0-100.0	-	-	2	100.0 (1)	-	-	-	1
MYOAR	MAR	10	142.6/m²	1	**87.8**	-	90.0	-	-	-	1	-	-	-	-	-
SENVU	MAR	10-65	7-492.5/m²	7	**90.7**	76.3-100.0	99.6	97.8-100.0	-	1	6	-	-	-	-	-
SONOL	MAR	61	7%GC	1	**87.3**	-	100.0	-	-	-	1	-	-	-	-	-
STEME	MAR	13-31	7.5-83.8/m²	4	**95.3**	81.3-100.0	99.9 (3)	99.8-100.0	-	1	2	100.0 (1)	-	-	-	1
VERAG	MAR	10	68.3/m²	1	**72.5**	-	100.0	-	-	-	1	-	-	-	-	-
VERHE	MAR	10	6.8/m²	1	**97.6**	-	100.0	-	-	-	1	-	-	-	-	-
All (3ANDIT)	**MAR**	**10-65**	**5.3-875/m² 7%GC**	**26**	**91.8**	**72.5-100.0**	-	-	-	-	-	-	-	-	-	-
				23	**90.8**	**72.5-100.0**	**99.0**	**90.0-100.0**	-	**3**	**20**	-	-	-	-	-
				3	**100.0**	**100.0-100.0**	-	-	-	-	-	**100.0)**	**100.0-100.0**	-	-	**3**
PERENNIAL DICOTYLEDONOUS WEEDS (3PEDIT)																
BELPE	MAR	17	16/m²	1	**92.3**	-	99.8	-	-	1	-	-	-	-	-	-
CARPR	MAR	12	76/m²	1	**100.0**	-	100.0	-	-	-	1	-	-	-	-	-
EPISS	MAR	32	9/m²	1	**99.3**	-	100.0	-	-	-	1	-	-	-	-	-
PLALA	MAR	19	6.5/m²	1	**78.8**	-	100.0	-	-	1	-	-	-	-	-	-
PLAMA	MAR	16	11/m²	1	**99.8**	-	100.0	-	-	-	1	-	-	-	-	-
TAROF	MAR	12-55	6-27/m² 10%GC	6	**86.7**	63.0-100.0	100.0 (5)	100.0-100.0	-	3	2	99.9 (1)	-	-	-	1
TRFRE	MAR	30	11/m²	1	**96.0**	-	99.8	-	-	-	1	-	-	-	-	-
All (3PEDIT)	**MAR**	**12-55**	**6-76/m² 10%GC**	**12**	**90.5**	**63.0-100.0**										
				11			**100.0**	**99.8-100.0**	-	**5**	**6**	-	-	-	-	-
				1	**97.6**	-	-	-	-	-	-	**99.9**	-	-	-	**1**

Numbers in superscript brackets = No. of results with standards, where different to the numbers of trials results obtained from Beloukha (BCP1004D)

Table 3.2.3-10: Effectiveness of Beloukha (BCP1004D) on annual and perennial grass weeds assessed at 7-23 days after two applications in orchard crops

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n	Weed density at appl'n (range)	No. of trial results	% control						
					Beloukha (BCP1004D)		Basta (glufosinate-ammonium)				
					16 L/ha		563-750 g a.i./ha		Comparison with Basta		
					Mean	Min-Max	Mean	Min-Max	>	<	=
ANNUAL MONOCOTYLEDONOUS WEEDS (3ANMNT)											
BROST	MAR	13	134/m²	1	**92.1**	-	100.0	-	-	1	-
DIGSA	MAR	51	12/m²	1	**100.0**	-	100.0	-	-	-	1
LOLMU	MAR	18	9%GC	1	**78.8**	-	100.0	-	-	-	1
POAAN	MAR	10-61	14.3-252/m² 16.8%GC	6	**86.5**	76.3-99.0	94.2	69.7-100.0	-	2	4
All (3ANMNT)	**MAR**	**10-61**	**12-252/m² 9-16.8%GC**	**9**	**87.8**	**76.3-100.0**	**96.1**	**69.7-100.0**	**-**	**3**	**6**
PERENNIAL MONOCOTYLEDONOUS WEEDS (3PEMNT)											
FESSS	MAR	30	11/m²	1	**92.5**	-	100.0	-	-	1	-

3.2.3.3 Weed control in annual and perennial row-crops

The weed control effectiveness data set in annual and perennial row crops includes results from 19 trials, 14 from the EPPO Maritime climatic zone and 5 from the EPPO Mediterranean climatic zone. The trials were conducted in Austria (1), Belgium (5), Germany (3), Denmark (2), Northern France (2), the Netherlands (1), Southern France (2) and Italy (3), between 2016 and 2018. The proposed dose of Beloukha (BCP1004D), 16 L/ha, was compared to various doses of the reference standards, Basta (containing glufosinate-ammonium) and Reglone (containing diquat).

Trial methodology

Table 3.2.3-11: Details on trial methodology

Guidelines	General guidelines	EPPO PP1/181(4), PP1/135(4), PP1/152(4)
	Specific guidelines	EPPO PP 1/305(1) EPPO PP 1/50(1) EPPO PP 1/63(3) EPPO PP 1/75(3) EPPO PP 1/91(3) EPPO PP 1/063(3) EPPO PP 1/089(3)
Experimental design	Plot design	RCBD
	Plot size	8-30 m²
	Number of replications	4
Crop	Trials per crop	Asparagus (3) Brassicas (3) Celery (1) Lettuce (1) Maize (1) Onion (3) Peas (1) Soybean (1) Spinach (2) Strawberry (1) Sunflower (2)
	Varieties per crop	Asparagus: Backlim (1), Cumulus (1), Ravel (1) Brassicas: Green Lunar (1), Ironman (1), n/d (1) Celery: n/d (1) Lettuce: Vitrine (1) Maize: Rotango (1) Onion: Hybing F1 (1), Hytech (1), Wiener Bronzekugel (1) Peas: Lucy (1) Soybean: PR91M10 (1) Spinach: Acadia F1 (1), Puma (1) Strawberry: Sunsation A+ (1) Sunflower: P64LE99 (1), Talento (1)
Application	Crop stage (BBCH) at application	00-92 (A) 05-92 (B)
	Timing Pest stage at application	Post-emergence
	Number of applications Intervals between applications	1 (10 trials) 2 (9) with intervals of 14-27 days.
	Spray volumes	200-400 L/ha
Assessment	Assessment types	% of weed coverage, number of weeds/m²
	Assessment dates	1-68 DA-A/1-42 DA-B

Summary and Conclusions

Table 3.2.3-12 and Table 3.2.3-13 summarises the results for various broad-leaved and grass weed species, 7-27 days after a single application Table 3.2.3-14 and Table 3.2.3-15 summarises the results 3-23 days after two applications, in those trials that included a second application. These are considered to be the critical assessment points to demonstrate optimum control from a single application and from a repeat application, 14-35 days after the first application.

Using one application of Beloukha (BCP1004D), against annual dicotyledonous weeds (3ANDIT), the proposed dose (16 L/ha) achieved mean control of 86.0% (range 56.4-100%), compared to mean control of 99.9% (range 99.8-100%) using Basta (glufosinate-ammonium) and mean control of 91.0% (range 60-100%) using glyphosate. Of the 47 trial results against 3ANDIT weeds, 18 results were <85% control, compared to 29 results ≥85% control, suggesting Beloukha (BCP1004D) applied at 16 L/ha would provide sufficient post-emergence control of annual broad-leaved weeds (SANCO rating of 'Susceptible'), even where assessments were made from as little as 7 days after application (optimum activity for contact herbicides is normally at around 14 days after application). Against annual monocotyledonous weeds (3ANMNT), one application of Beloukha (BCP1004D) applied at 16 L/ha achieved 98.8% control from the one weed species encountered in trials (POAAN - 1 trial result), compared to 95.0% control using Reglone (diquat). Similarly, against perennial dicotyledonous weeds (3PEDIT) one application of Beloukha (BCP1004D) applied at 16 L/ha achieved 95.0% control from the one weed species encountered in trials (SONAR - 1 trial result), compared to 90.0% control using Reglone (diquat). These results suggest Beloukha (BCP1004D) applied at 16 L/ha would probably provide sufficient post-emergence control of annual monocotyledonous weeds and perennial dicotyledonous weeds (SANCO rating of 'Susceptible').

From two sequential applications of 16 L/ha, Beloukha (BCP1004D) achieved mean control of 88.0% (range 65-100%) against annual dicotyledonous weeds (3ANDIT), compared to mean control of 95.7% (range 78.8-100%) using Reglone (diquat). Of the 28 trial results against 3ANDIT weeds, only 10 results were <85% control, compared to 18 results ≥85% control, suggesting that two applications of Beloukha (BCP1004D) applied at 16 L/ha would provide sufficient post-emergence control of annual dicotyledonous weeds (SANCO rating of 'Susceptible'). Against annual monocotyledonous weeds (3ANMNT), two applications of Beloukha (BCP1004D) applied at 16 L/ha achieved 100% control from the one weed species encountered in trials (POAAN - 1 trial result), compared to 100% control using Reglone (diquat). Two applications of 16 L/ha Beloukha (BCP1004D) provided an overall improvement in control of 2%, compared to one application.

These data generated in annual and perennial row-crops in the EPPO Maritime climatic zone, fully support the 16 L/ha dose of Beloukha (BCP1004D), as being effective against annual and perennial dicotyledonous weeds and annual monocotyledonous weeds (SANCO rating of 'Susceptible') for use in grapevines, in Germany.

Table 3.2.3-12: Effectiveness of Beloukha (BCP1004D) on annual and perennial dicotyledonous weeds assessed at 7-27 days after one application in annual and perennial row-crops

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n	Weed density at appl'n (range)	No. of trial results	% control											
					Beloukha (BCP1004D)		Basta (glufosinate-ammonium)					Reglone (diquat)				
					16 L/ha		750 g a.i./ha		Comparison with Basta			2-5 L/ha		Comparison with Reglone		
					Mean	Min-Max	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=
ANNUAL DICOTYLEDONOUS WEEDS (3ANDIT)																
ABUTH	MED	9	12.8/m²	1	**90.7**	-	-	-	-	-	-	93.1	-	-	-	1
AMACH	MAR	11	7.8/m²	1	**75.0**	-	-	-	-	-	-	60.0	-	-	-	1
AMARE	MED	10-11	5.5-13.3/m²	3	**77.5**	65.0-86.2	-	-	-	-	-	92.9	78.8-100.0	-	1	2
BRSNW	MAR	14	15/m²	1	**88.8**	-	-	-	-	-	-	98.8	-	-	-	1
CHEAL	MAR	10-14	13.8-85.8/m²	7	**87.6**	56.4-98.8	-	-	-	-	-	81.9	61.3-99.8	2	1	4
	MED	10-11	6-30/m²	5	**84.8**	65.0-100.0	-	-	-	-	-	94.0	85.0-100.0	1	2	2
	ALL	10-14	6-85.8/m²	12	**86.4**	56.4-100.0	-	-	-	-	-	86.9	61.3-100.0	3	3	6
CHERE	MAR	11	5/m²	1	**86.3**	-	-	-	-	-	-	87.5	-	-	-	1
FUMOF	MAR	12	14.8/m²	1	**99.4**	-	-	-	-	-	-	92.5	-	-	-	1
GASPA	MAR	10-14	54-203/m²	3	**82.3**	77.5-85.0	-	-	-	-	-	97.5	95.0-98.8	-	2	1
GERDI	MAR	10	15/m²	1	**81.3**	-	99.8	-	-	1	-	-	-	-	-	-
LAMPU	MAR	12	5/m²	1	**65.2**	-	-	-	-	-	-	95.7	-	-	-	1
MATCH	MAR	13-18	20/m²	2	**95.4**	93.3-97.5	-	-	-	-	-	99.1	98.8-99.3	-	-	2
	MED	10-10	16-18.8/m²	2	**96.6**	95.0-98.3	-	-	-	-	-	80.7	61.5-100.0	1	1	-
	ALL	10-18	16-20/m²	4	**96.0**	93.3-98.3	-	-	-	-	-	89.9	61.5-100.0	1	1	2
MATIN	MAR	10-12	9-11.5/m²	2	**76.7**	61.3-92.0	100.0 (1)	-	-	1	-	81.3 (1)	-	-	-	1
MATMT	MAR	12	9/m²	1	**90.0**	-	-	-	-	-	-	100.0	-	-	-	1
POLCO	MAR	11	27/m²	1	**81.7**	-	-	-	-	-	-	90.1	-	-	-	1
POLPE	MAR	10	10.5/m²	1	**85.0**	-	-	-	-	-	-	92.0	-	-	-	1
POROL	MED	10-11	5.3-63/m²	4	**89.2**	62.5-98.9	-	-	-	-	-	95.4	81.6-100.0	1	1	2

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n	Weed density at appl'n (range)	No. of trial results	% control											
					Beloukha (BCP1004D)		Basta (glufosinate-ammonium)					Reglone (diquat)				
					16 L/ha		750 g a.i./ha		Comparison with Basta			2-5 L/ha		Comparison with Reglone		
					Mean	Min-Max	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=
SOLNI	MAR	10-11	7-19/m²	2	**84.8**	69.6-100.0	100.0 (1)	-	-	-	1	89.1 (1)	-	-	-	1
	MED	10-10	5.5-55/m²	3	**100.0**	100.0-100.0	-	-	-	-	-	96.1	90.9-100.0	1	-	2
	ALL	10-11	5.5-55/m²	5	**93.9**	69.6-100.0	100.0 (1)	-	-	-	1	94.4 (4)	89.1-100.0	1	-	3
STEME	MAR	10-18	7.3-17.8/m²	3	**80.1**	71.3-85.0	-	-	-	-	-	94.3	85.0-100.0	-	**1**	**2**
URTUR	MAR	10	163.8/m²	1	**76.3**	-	-	-	-	-	-	95.0	-	-	-	**1**
All (3ANDIT)	**MAR**	**10-18**	**5-203/m²**	**29**	**84.2**	**56.4-100.0**	-	-	-	-	-	-	-	-	-	-
				3	**91.1**	**81.3-100.0**	**99.9**	**99.8-100.0**	-	**2**	**1**	-	-	-	-	-
				26	**83.4**	**56.4-99.4**	-	-	-	-	-	**89.6**	**60.0-100.0**	**2**	**4**	**20**
	MED	**9-11**	**5.3-63/m²**	**18**	**88.8**	**62.5-100.0**	-	-	-	-	-	**93.0**	**61.5-100.0**	**4**	**5**	**9**
	ALL	**9-18**	**5-203/m²**	**47**	**86.0**	**56.4-100.0**	**99.9**	**99.8-100.0**	-	-	-	-	-	-	-	-
				3	**91.1**	**81.3-100.0**	**99.9**	**99.8-100.0**	-	**2**	**1**	-	-	-	-	-
				44	**85.6**	**56.4-100.0**	-	-	-	-	-	**91.0**	**60.0-100.0**	**6**	**9**	**29**
PERENNIAL DICOTYLEDONOUS WEEDS (3PEDIT)																
SONAR	MAR	12	12/m²	1	**95.0**	-	-	-	-	-	-	90.0	-	-	-	1

Numbers in superscript brackets = No. of results with standards, where different to the numbers of trials results obtained from Beloukha (BCP1004D)

Table 3.2.3-13: Effectiveness of Beloukha (BCP1004D) on an annual grass weed species assessed at 21 days after one application in a perennial row-crops

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n	Weed density at appl'n (range)	No. of trial results	% control						
					Beloukha (BCP1004D)		Reglone (diquat)				
					16 L/ha		3 L/ha		Comparison with Reglone		
					Mean	Min-Max	Mean	Min-Max	>	<	=
ANNUAL MONOCOTYLEDONOUS WEEDS (3ANMNT)											
POAAN	MAR	10	74.8/m²	1	**98.8**	-	95.0	-	-	-	1

Table 3.2.3-14: Effectiveness of Beloukha (BCP1004D) on annual and perennial dicotyledonous weeds assessed at 3-23 days after two applications in annual and perennial row-crops

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n	Weed density at appl'n (range)	No. of trial results	% control						
					Beloukha (BCP1004D)		Reglone (diquat)				
					16 L/ha		2-5 L/ha		Comparison with Reglone		
					Mean	Min-Max	Mean	Min-Max	>	<	=
ANNUAL DICOTYLEDONOUS WEEDS (3ANDIT)											
AMACH	MAR	61	11.5/m²	1	**93.5**	-	78.8	-	-	-	1
BRSNW	MAR	14-14	40/m²	2	**91.3**	90.0-92.5	100.0	100.0-100.0	-	-	2
CAPBP	MAR	14	5/m²	1	**77.5**	-	100.0	-	-	1	-
CHEAL	MAR	12-61	16-62.5/m²	4	**90.0**	67.5-100.0	91.0	78.8-100.0	-	1	3
	MED	12	15/m²	1	**100.0**	-	100.0	-	-	-	1
	ALL	12-61	15-62.5/m²	5	**92.0**	67.5-100.0	92.8	78.8-100.0	-	1	4
CHERE	MAR	13	10/m²	1	**97.5**	-	92.5	-	-	-	1
FUMOF	MAR	10	31.3/m²	1	**91.8**	-	90.0	-	-	-	1
GASPA	MAR	12-14	25-200/m²	4	**74.1**	70.0-78.8	96.9	87.5-100.0	-	3	1
MATCH	MAR	18	n/d	1	**87.5**	-	100.0	-	-	1	-
	MED	10	41/m²	1	**94.8**	-	100.0	-	-	1	-
	ALL	10-18	41/m²	2	**91.1**	87.5-94.8	100.0	100.0-100.0	-	2	-
MATIN	MAR	35	8/m²	1	**72.5**	-	90.5	-	-	-	1
POROL	MED	11	63/m²	1	**95.0**	-	98.0	-	-	1	-
RANSA	MED	10	25/m²	1	**99.0**	-	99.0	-	-	-	1
SENVU	MAR	14-18	10/m²	2	**92.5**	87.5-97.5	100.0	100.0-100.0	-	-	2
SOLNI	MED	12	58/m²	1	**100.0**	-	100.0	-	-	-	1
STEME	MAR	12-18	5.8-8/m²	3	**85.0**	65.0-100.0	96.7	90.0-100.0	-	2	1
URTUR	MAR	12	261.8/m²	1	**86.3**	-	100.0	-	-	-	1
VIOAR	MAR	10	20/m²	1	**90.0**	-	90.0	-	-	-	1
All (3ANDIT)	**MAR**	**10-61**	**5-261.8/m²**	**23**	**85.9**	**65.0-100.0**	**94.9**	**78.8-100.0**	**-**	**8**	**15**
	MED	**10-12**	**15-63/m²**	**5**	**97.8**	**94.8-100.0**	**99.4**	**98.0-100.0**	**-**	**2**	**3**
	ALL	**10-61**	**5-261.8/m²**	**28**	**88.0**	**65.0-100.0**	**95.7**	**78.8-100.0**	**-**	**10**	**18**

Table 3.2.3-15: Effectiveness of Beloukha (BCP1004D) on annual grass weed species assessed at 7 days after two applications in perennial row-crops

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n	Weed density at appl'n (range)	No. of trial results	% control						
					Beloukha (BCP1004D)		Reglone (diquat)				
					16 L/ha		3 L/ha		Comparison with Reglone		
					Mean	Min-Max	Mean	Min-Max	>	<	=
ANNUAL MONOCOTYLEDONOUS WEEDS (3ANMNT)											
POAAN	MAR	12	93.8/m²	1	**100.0**	-	100.0	-	-	-	1

3.2.3.4 Weed control in tree nursery and ornamental crops

The weed control effectiveness data set in tree nursery and ornamental crops includes results from 7 trials, all from the EPPO Maritime climatic zone. The trials were conducted in Belgium (1), Germany (3), Denmark (1) and the Netherlands (2), in 2017 and 2018. The proposed dose of Beloukha (BCP1004D), 16 L/ha, was compared to the reference standard Reglone (containing diquat).

Trial methodology

Table 3.2.3-16: Details on trial methodology

Guidelines	General guidelines	EPPO PP1/181(4), PP1/135(4), PP1/152(4)
	Specific guidelines	EPPO PP 1/92(3) EPPO PP 1/141(3)
Experimental design	Plot design	RCBD
	Plot size	5.25-18 m²
	Number of replications	4
Crop	Trials per crop	Pedunculate oak: (1) Bearded pink: (1) Small-leaved lime: (1) Caucasian tree nursery: (3) Rose: (1)
	Varieties per crop	Pedunculate oak: Danish selection (1) Bearded pink: Super Duplex (1) Small-leaved lime: n/d (1) Caucasian tree nursery: Nordmann (2), n/d (1) Rose: Schneeflocke (1)
Application	Crop stage (BBCH) at application	10cm-50cm/21-78 (A) 31-85 (B)
	Timing Pest stage at application	Post-emergence
	Number of applications Intervals between applications	1 (1 trial) 2 (6) with intervals of 14-27 days.
	Spray volumes	200 L/ha
Assessment	Assessment types	% of weed coverage, number of weeds/m²
	Assessment dates	3-29 DA-A/1-56 DA-B

Summary and Conclusions

Table 3.2.3-17 and Table 3.2.3-18 summarises the results for various broad-leaved and grass weed species, 7-15 days after a single application and Table 3.2.3-19 summarises the results of 6-14 days after two applications, in those trials that included a second application. These are considered to be the critical assessment points to demonstrate optimum control from a single application and from a repeat application, 14-35 days after the first application.

Using one application of Beloukha (BCP1004D), against annual dicotyledonous weeds (3ANDIT), the proposed dose (16 L/ha) achieved mean control of 93.8% (range 77.5-100%), compared to mean control of 96.4% (range 75-100%) using Reglone (diquat). Of the 9 trial results against 3ANDIT weeds, only 2 results were <85% control, compared to 7 results ≥85% control, suggesting Beloukha (BCP1004D) applied at 16 L/ha would provide sufficient post-emergence control of annual broad-leaved weeds (SANCO rating of 'Susceptible').

Against annual monocotyledonous weeds (3ANMNT), one application of Beloukha (BCP1004D) applied at 16 L/ha achieved 98.8% control from the one weed species encountered in trials (POAAN - 1 trial result), compared to 95.0% control using Reglone (diquat). Against perennial dicotyledonous weeds (3PEDIT) one application of Beloukha (BCP1004D) applied at 16 L/ha achieved mean control of 83.0% (range 63.8-92.7%), compared to mean control of 93.3% (range 87.5-97.5%) using Reglone (diquat). Of the 6 trial results against 3PEDIT weeds, 3 results were <85% control, compared to 3 results ≥85% control, suggesting Beloukha (BCP1004D) applied once at 16 L/ha could probably provide sufficient post-emergence control of perennial dicotyledonous weeds (SANCO rating of 'Susceptible'). However, as some of these weeds may have developed from rootstocks, rather than germinating seed, so could be considered 'difficult to control', a further set of data was generated using two sequential applications of Beloukha (BCP1004D) applied at 16 L/ha, to demonstrate the effectiveness of sequential applications.

From two sequential applications of 16 L/ha, Beloukha (BCP1004D) achieved mean control of 95.1% (range 70.6-100%) against annual dicotyledonous weeds (3ANDIT), compared to mean control of 97.4% (range 55-100%) using Reglone (diquat). Of the 13 trial results against 3ANDIT weeds, only 1 result was <85% control, compared to 12 results ≥85% control, suggesting that two applications of Beloukha (BCP1004D) applied at 16 L/ha would provide sufficient post-emergence control of annual dicotyledonous weeds (SANCO rating of 'Susceptible'). Against annual monocotyledonous weeds (3ANMNT), two applications of Beloukha (BCP1004D) applied at 16 L/ha achieved mean control of 94.5% (range 90-99%) from the two weed species encountered in trials (ECHCG and POAAN, 1 trial result each), compared to mean control of 66.3% (range 47.5-85%) using Reglone (diquat). Against perennial dicotyledonous weeds, two sequential applications of 16 L/ha, Beloukha (BCP1004D) achieved mean control of 91.3% (range 66.3-100%) compared to mean control of 89.7% (range 59.2-98.8%) using Reglone (diquat). Of the 6 trial results against 3PEDIT weeds, 1 result was <85% control, compared to 5 results ≥85% control, suggesting that two applications of Beloukha (BCP1004D) applied at 16 L/ha would provide sufficient post-emergence control of perennial dicotyledonous weeds (SANCO rating of 'Susceptible'). Two applications of 16 L/ha Beloukha (BCP1004D) provided an overall improvement in control of perennial weeds of approximately 4%, compared to one application.

These data generated in annual and perennial row-crops in the EPPO Maritime climatic zone, fully support the 16 L/ha dose of Beloukha (BCP1004D), as being effective against annual and perennial dicotyledonous weeds and annual monocotyledonous weeds (SANCO rating of 'Susceptible') for use in grapevines, in Germany.

Table 3.2.3-17: Effectiveness of Beloukha (BCP1004D) on annual and perennial dicotyledonous weeds assessed at 7-15 days after one application in tree nursery and ornamental crops

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n	Weed density at appl'n (range)	No. of trial results	% control						
					Beloukha (BCP1004D)		Reglone (diquat)				
					16 L/ha		3 L/ha		Comparison with Reglone		
					Mean	Min-Max	Mean	Min-Max	>	<	=
ANNUAL DICOTYLEDONOUS WEEDS (3ANDIT)											
CHEAL	MAR	10-10	6-31/m²	2	**99.1**	98.8-99.4	97.5	95.0-100.0	-	-	2
GASPA	MAR	10	21/m²	1	**100.0**	-	100.0	-	-	-	1
MATIN	MAR	12	11.3/m²	1	**77.5**	-	100.0	-	-	-	1
MATMT	MAR	12	8/m²	1	**91.5**	-	75.0	-	1	-	-
STEME	MAR	12	396/m²	1	**83.8**	-	99.3	-	-	1	-
URTUR	MAR	10	5/m²	1	**99.0**	-	99.0	-	-	-	1
VERHE	MAR	12	5/m²	1	**95.6**	-	100.0	-	-	-	1
VIOAR	MAR	12	9/m²	1	**99.0**	-	99.0	-	-	-	1
All (3ANDIT)	**MAR**	**10-12**	**5-396/m²**	**9**	**93.8**	**77.5-100.0**	**96.4**	**75.0-100.0**	**1**	**1**	**7**
PERENNIAL DICOTYLEDONOUS WEEDS (3PEDIT)											
CIRAR	MAR	16	5/m²	1	**82.5**	-	97.5	-	-	-	1
EPIHI	MAR	14	30/m²	1	**92.5**	-	93.8	-	-	-	1
EPICT	MAR	12	50/m²	1	**92.7**	-	95.6	-	-	-	1
PLAMA	MAR	14	10/m²	1	**90.0**	-	96.3	-	-	-	1
TAROF	MAR	16	5/m²	1	**76.3**	-	88.8	-	-	-	1
TRFSS	MAR	51	12.5/m²	1	**63.8**	-	87.5	-	-	-	1
All (3PEDIT)	**MAR**	**12-51**	**5-50/m²**	**6**	**83.0**	**63.8-92.7**	**93.3**	**87.5-97.5**	**-**	**-**	**6**

Table 3.2.3-18: Effectiveness of Beloukha (BCP1004D) on annual and perennial dicotyledonous weeds assessed at 6-14 days after two applications in tree nursery and ornamental crops

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n	Weed density at appl'n (range)	No. of trial results	% control						
					Beloukha (BCP1004D)		Reglone (diquat)				
					16 L/ha		3 L/ha		Comparison with Reglone		
					Mean	Min-Max	Mean	Min-Max	>	<	=
ANNUAL DICOTYLEDONOUS WEEDS (3ANDIT)											
AETCY	MAR	12	49/m²	1	**100.0**	-	97.5	-	-	-	1
CHEAL	MAR	12-12	18-59/m²	2	**98.9**	97.7-100.0	98.0	95.9-100.0	-	-	2
GASPA	MAR	14	37/m²	1	**100.0**	-	100.0	-	-	-	1
MATCH	MAR	12	48/m²	1	**85.0**	-	87.5	-	-	-	1
MATMT	MAR	14	27.5/m²	1	**99.0**	-	99.0	-	-	-	1
POLAV	MAR	12-65	16-17.5/m²	2	**80.3**	70.6-90.0	77.2	55.0-99.4	-	1	1
STEME	MAR	14-19	40-396/m²	2	**92.7**	86.3-99.0	99.3	99.0-99.5	-	1	1
URTUR	MAR	14	22.5/m²	1	**99.0**	-	99.0	-	-	-	1
VERHE	MAR	14	15/m²	1	**100.0**	-	100.0	-	-	-	1
VIOAR	MAR	14	42.5/m²	1	**99.0**	-	99.0	-	-	-	1
All (3ANDIT)	**MAR**	**12-65**	**15-396/m²**	**13**	**94.3**	**70.6-100.0**	**94.7**	**55.0-100.0**	**-**	**2**	**11**
PERENNIAL DICOTYLEDONOUS WEEDS (3PEDIT)											
ARFLA	MAR	12	64/m²	1	**97.5**	-	87.5	-	-	-	1
CIRAR	MAR	38	5/m²	1	**97.5**	-	97.5	-	-	-	1
EPIHI	MAR	19	15/m²	1	**90.0**	-	97.5	-	-	-	1
EQUAR	MAR	12	95/m²	1	**100.0**	-	59.2	-	-	-	1
PLAMA	MAR	16	17.5/m²	1	**95.0**	-	98.8	-	-	-	1
TRFSS	MAR	30	12.5/m²	1	**66.3**	-	97.5	-	-	-	1
All (3PEDIT)	**MAR**	**12-38**	**5-95/m²**	**6**	**91.1**	**66.3-100.0**	**89.7**	**59.2-98.8**	**-**	**-**	**6**

Table 3.2.3-19: Effectiveness of Beloukha (BCP1004D) on annual grass weeds assessed at 7 days after two applications in tree nursery and ornamental crops

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n	Weed density at appl'n (range)	No. of trial results	% control						
					Beloukha (BCP1004D)		Reglone (diquat)				
					16 L/ha		3 L/ha		Comparison with Reglone		
					Mean	Min-Max	Mean	Min-Max	>	<	=
ANNUAL MONOCOTYLEDONOUS WEEDS (3ANMNT))											
ECHCG	MAR	12	98/m²	1	**90.0**	-	85.0	-	-	-	**1**
POAAN	MAR	23	42.5/m²	1	**99.0**	-	47.5	-	**1**	-	-
All (3ANMNT)	**MAR**	**12-23**	**42.5-98/m²**	**2**	**94.5**	**90.0-99.0**	**66.3**	**47.5-85.0**	**1**	**-**	**1**

3.2.3.5 Weed control in non-crop situations

The weed control effectiveness data set in non-crop situations includes results from 5 trials, 2 from the EPPO Maritime climatic zone and 3 from the EPPO Mediterranean climatic zone. The trials were conducted in Belgium (1), the Netherlands (1) and Southern France (3), all in 2018. The proposed dose of Beloukha (BCP1004D) 16 L/ha, was compared to the reference standard Reglone (containing diquat).

Trial methodology

Table 3.2.3-20: Details on trial methodology

Guidelines	General guidelines	EPPO PP1/181(4), PP1/135(4), PP1/152(4)
	Specific guidelines	EPPO PP 1/98(3)
Experimental design	Plot design	RCBD
	Plot size	12-24 m²
	Number of replications	4
Crop	Trials per crop	non-crop (5)
	Varieties per crop	no-crop
Application	Crop stage (BBCH) at application	no-crop
	Timing Pest stage at application	Post-emergence
	Number of applications Intervals between applications	1 (1 trials) 2 (5) with intervals of 8-32 days.
	Spray volumes	200-300 L/ha
Assessment	Assessment types	% of weed coverage, number of weeds/m²
	Assessment dates	1-32 DA-A/1-32 DA-B

Summary and Conclusions

Table 3.2.3-21 and Table 3.2.3-22 summarises the results for various broad-leaved and grass weed species, 3-15 days after a single application and Table 3.2.3-23 and Table 3.2.3-24 summarises the results 3-8 days after two applications, in those trials that included a second application. These are considered to be the critical assessment points to demonstrate optimum control from a single application and from a repeat application, 14-35 days after the first application.

Using one application of Beloukha (BCP1004D), against annual dicotyledonous weeds (3ANDIT), the proposed dose (16 L/ha) achieved mean control of 89.8% (range 63.1-100%), compared to mean control of 96.0% (range 83.6-100%) using Reglone (diquat). Of the 11 trial results against 3ANDIT weeds, only 1

result was <85% control, compared to 10 results ≥85% control, suggesting Beloukha (BCP1004D) applied at 16 L/ha would provide sufficient post-emergence control of annual broad-leaved weeds (SANCO rating of 'Susceptible'). Against annual monocotyledonous weeds (3ANMNT), one application of Beloukha (BCP1004D) applied at 16 L/ha achieved mean control of 84.4% (range 82.5-86.3%) from the two weed species encountered in trials (ARRRE and SORSU, 1 trial result each), compared to mean control of 96.0% (range 83.6-100%) using Reglone (diquat). Against perennial dicotyledonous weeds (3PEDIT) one application of Beloukha (BCP1004D) applied at 16 L/ha achieved mean control of 74.6% (range 74.2-75.0%), from the two weed species encountered in the trials (CONAR and ERICA, 1 trial result each), compared to mean control of 93.3% (range 87.5-97.5%) using Reglone (diquat). These results suggest that Beloukha (BCP1004D) applied once at 16 L/ha may provide sufficient post-emergence control of perennial dicotyledonous weeds (SANCO rating of 'Moderately Susceptible'). However, as some of these weeds may have developed from rootstocks, rather than germinating seed, so could be considered 'difficult to control', a further set of data was generated using two sequential applications of Beloukha (BCP1004D) applied at 16 L/ha, to demonstrate the effectiveness of sequential applications.

From two sequential applications of 16 L/ha, Beloukha (BCP1004D) achieved mean control of 93.2% (range 70-100%) against annual dicotyledonous weeds (3ANDIT), compared to mean control of 99.3% (range 94.8-100%) using Reglone (diquat). Of the 7 trial results against 3ANDIT weeds, only 1 result was <85% control, compared to 6 results ≥85% control, suggesting that two applications of Beloukha (BCP1004D) applied at 16 L/ha would provide sufficient post-emergence control of annual dicotyledonous weeds (SANCO rating of 'Susceptible'). Against annual monocotyledonous weeds (3ANMNT), two applications of Beloukha (BCP1004D) applied at 16 L/ha achieved 87.5% control of the one weed species encountered in trials (TRZAW - 1 trial result), compared to 51.0% control using Reglone (diquat). Against perennial dicotyledonous weeds, two sequential applications of 16 L/ha, Beloukha (BCP1004D) achieved mean control of 66.7% (range 58.3-75%), from the two weed species encountered in the trials (CONAR and ERICA, 1 trial result each), compared to mean control of 72.9% (range 70.8-75%) using Reglone (diquat). Of the 2 trial results against 3PEDIT weeds, both were <85% control.

These data generated in non-crop situations, fully support the 16 L/ha dose of Beloukha (BCP1004D), as being effective against annual and perennial dicotyledonous weeds and annual monocotyledonous weeds (SANCO rating of 'Susceptible' or 'Moderately Susceptible') for use in grapevines, in Germany.

Table 3.2.3-21: Effectiveness of Beloukha (BCP1004D) on annual and perennial dicotyledonous weeds assessed at 3-15 days after one application in non-crop situations

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n	Weed density at appl'n (range)	No. of trial results	% control						
					Beloukha (BCP1004D)		Reglone (diquat)				
					16 L/ha		3 L/ha		Comparison with Reglone		
					Mean	Min-Max	Mean	Min-Max	>	<	=
ANNUAL DICOTYLEDONOUS WEEDS (3ANDIT)											
AMARE	MED	12	90/m²	1	**89.6**	-	99.9	-	-	-	1
BEAVA	MED	11	8/m²	1	**63.1**	-	100.0	-	-	1	-
BRSNW	MED	11	20/m²	1	**97.5**	-	100.0	-	-	-	**1**
CAPBP	MED	12	5/m²	1	**87.5**	-	93.8	-	-	-	1
GASPA	MAR	11	211/m²	1	**91.4**	-	99.6	-	-	-	1
LAMPU	MAR	12	23.5/m²	1	**92.5**	-	85.0	-	-	-	1
POROL	MED	11-12	9-246/m²	2	**93.3**	90.0-96.5	97.3	95.0-99.5	-	1	1
SONOL	MED	11	16/m²	1	**100.0**	-	100.0	-	-	-	1
VERPE	MED	12	8/m²	1	**90.0**	-	100.0	-	-	-	1
VERSS	MAR	11	36.8/m²	1	**89.5**	-	83.6	-	-	-	1
All (3ANDIT)	**MAR**	**11-12**	**23.5-211/m²**	**3**	**91.1**	**89.5-92.5**	**89.4**	**83.6-99.6**	-	-	3
	MED	**11-12**	**5-246/m²**	**8**	**89.3**	**63.1-100.0**	**98.5**	**93.8-100.0**	-	**2**	**6**
	ALL	**11-12**	**5-246/m²**	**11**	**89.8**	**63.1-100.0**	**96.0**	**83.6-100.0**	-	**2**	**9**
PERENNIAL DICOTYLEDONOUS WEEDS (3PEDIT)											
CONAR	MED	12	5/m²	1	**74.2**	-	75.0	-	-	-	1
ERICA	MED	12	5/m²	1	**75.0**	-	62.5	-	-	-	1
All (3PEDIT)	**MED**	**12-12**	**5-5/m²**	**2**	**74.6**	**74.2-75.0**	**68.8**	**62.5-75.0**	-	-	**2**

Table 3.2.3-22: Effectiveness of Beloukha (BCP1004D) on perennial grass weeds assessed at 7-11 days after one application in non-crop situations

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n	Weed density at appl'n (range)	No. of trial results	% control						
					Beloukha (BCP1004D)		Reglone (diquat)				
					16 L/ha		3 L/ha		Comparison with Reglone		
					Mean	Min-Max	Mean	Min-Max	>	<	=
PERENNIAL MONOCOTYLEDONOUS WEEDS (3PEMNT)											
AGRRE	MED	11	10/m²	1	**82.5**	-	100.0	-	-	**1**	-
SORSU	MED	12	9/m²	1	**86.3**	-	96.0	-	-	-	**1**
All (3PEMNT)	**MED**	**11-12**	**9-10/m²**	**2**	**84.4**	**82.5-86.3**	**98.0**	**96.0-100.0**	-	**1**	**1**

Table 3.2.3-23: Effectiveness of Beloukha (BCP1004D) on annual and perennial dicotyledonous weeds assessed at 3-8 days after two applications in non-crop situations

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n	Weed density at appl'n (range)	No. of trial results	% control						
					Beloukha (BCP1004D)		Reglone (diquat)				
					16 L/ha		3 L/ha		Comparison with Reglone		
					Mean	Min-Max	Mean	Min-Max	>	<	=
ANNUAL DICOTYLEDONOUS WEEDS (3ANDIT)											
AMARE	MED	12	90/m²	1	**90.0**	-	100.0	-	-	-	**1**
BEAVA	MED	15	9/m²	1	**95.8**	-	100.0	-	-	-	**1**
BRSNW	MED	15	38/m²	1	**98.3**	-	100.0	-	-	-	**1**
LAMPU	MAR	12	23.5/m²	1	**100.0**	-	100.0	-	-	-	**1**
POROL	MED	12	247/m²	1	**98.2**	-	100.0	-	-	-	**1**
SONOL	MED	12	12/m²	1	**100.0**	-	100.0	-	-	-	**1**
VERSS	MAR	14	38.5/m²	1	**70.0**	-	94.8	-	-	**1**	-
All (3ANDIT)	**MAR**	**12-14**	**23.5-38.5/m²**	**2**	**85.0**	**70.0-100.0**	**97.4**	**94.8-100.0**	-	**1**	**1**
	MED	**12-15**	**9-247/m²**	**5**	**96.5**	**90.0-100.0**	**100.0**	**100.0-100.0**	-	-	**5**
	ALL	**12-15**	**9-247/m²**	**7**	**93.2**	**70.0-100.0**	**99.3**	**94.8-100.0**	-	**1**	**6**
PERENNIAL DICOTYLEDONOUS WEEDS (3PEDIT)											
CONAR	MED	15	5/m²	1	**58.3**	-	70.8	-	-	-	**1**
ERICA	MED	12	5/m²	1	**75.0**	-	75.0	-	-	-	**1**
All (3PEDIT)	**MED**	**12-15**	**5-5/m²**	**2**	**66.7**	**58.3-75.0**	**72.9**	**70.8-75.0**	-	-	**2**

Table 3.2.3-24: Effectiveness of Beloukha (BCP1004D) on an annual grass weeds assessed at 8 days after two applications in a non-crop situation

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n	Weed density at appl'n (range)	No. of trial results	% control						
					Beloukha (BCP1004D)		Reglone (diquat)				
					16 L/ha		3 L/ha		Comparison with Reglone		
					Mean	Min-Max	Mean	Min-Max	>	<	=
ANNUAL MONOCOTYLEDONOUS WEEDS (3ANMNT)											
TRZAW	MED	22	15/m²	1	**87.5**	-	51.0	-	**1**	-	-

3.2.3.6 Weed control across all situations

The weed control effectiveness data set includes trials results from a number of situations of use relevant to weed control in grapevine. The relevance of weed control data from other situations of use has been justified in previous sections, essentially all the situations of use (including grapevine) provide no crop competition, so all the weed control data are considered relevant. The data set also included trials from the EPPO Maritime zone, the EPPO South-east zone and the Mediterranean zone. The relevance of weed control data from outside the EPPO Maritime climatic zone has been justified in the previous sections, as Beloukha (BCP1004D) containing pelargonic acid, applied at the proposed dose of 16 L/ha, generally provided consistent levels of weed control across the different EPPO climatic zones.

A total of 63 trials (17 grapevine trials, 15 orchard trials, 19 annual and perennial row crop trials, 7 tree nursery and ornamental trials and 5 non-crop trials) were conducted between 2013 and 2019. The trials were conducted in Austria (8), Belgium (10), the Czech Republic (2), Germany (12), the Netherlands (9), the United Kingdom (1), Denmark (4), Northern France (2), Southern France (6), Italy (3), Hungary (3) and Romania (3). The proposed dose of Beloukha (BCP1004D) 16 L/ha, was compared to various commercial standard reference products including, Basta (containing glufosinate-ammonium), Reglone (containing diquat) and various product containing glyphosate. The standard reference products were applied at the dose rates authorised for those situations of use in the Member States where the efficacy trials were conducted.

Table 3.2.3-25, Table 3.2.3-26, Table 3.2.3-27 and Table 3.2.3-28 show the results for various broad-leaved and grass weed species at 3-27 days after a single application and Table 3.2.3-29, Table 3.2.3-30 and Table 3.2.3-31 shows the results at 3-29 days after two applications, in the trials that included second application. These are considered to be the critical assessment points to show control from a single application and from a repeat application 14-35 days after the first.

Summary and Conclusions

Using one application of Beloukha (BCP1004D), against annual dicotyledonous weeds (3ANDIT), the proposed dose (16 L/ha) achieved mean control of 90.3% (range 56.4-100%), compared to mean control of 97.8% (range 46-100%) using Basta (glufosinate-ammonium), mean control of 92.7% (range 60-100%) using Reglone (diquat) and mean control of 86.3% (range 55-100%) using glyphosate. Of the 138 trial results against 3ANDIT weeds (42 different weed species), only 32 results were <85% control, compared to 106 results ≥85% control, suggesting Beloukha (BCP1004D) applied at 16 L/ha would provide sufficient post-emergence control of annual broad-leaved weeds (SANCO rating of 'Susceptible').

Against annual monocotyledonous weeds (3ANMNT), one application of Beloukha (BCP1004D) applied at 16 L/ha achieved mean control of 87.9% (range 68.8-100%%), compared to mean control of 99.1% (range 95-100%) using Basta (glufosinate-ammonium), 95.0% control using Reglone (diquat) and mean control of 85.2% (range 46.3-100%) using glyphosate. Of the 13 trial results against 3ANMNT weeds (5 different weed species), only 4 results were <85% control, compared to 9 results ≥85% control, suggesting Beloukha (BCP1004D) applied at 16 L/ha would provide sufficient post-emergence control of annual broad-leaved weeds (SANCO rating of 'Susceptible').

Against perennial dicotyledonous weeds (3PEDIT) one application of Beloukha (BCP1004D) applied at 16 L/ha achieved mean control of 83.7% (range 52.5-100%), compared to mean control of 96.7% (range 78-100%) using Basta (glufosinate-ammonium), mean control of 87.4% (range 62.5-97.5%) using Reglone (diquat) and mean control of 92.9% (range 78.8-100%) using glyphosate. These results suggest that Beloukha (BCP1004D) applied once at 16 L/ha could provide sufficient post-emergence control of perennial dicotyledonous weeds (SANCO rating of 'Moderately Susceptible'). However, as some of these weeds may have developed from rootstocks, rather than germinating seed, so could be considered 'difficult to control', these data suggest that a second sequential application of 16 L/ha Beloukha (BCP1004D) may be required to provide 'adequate' control.

Against perennial monocotyledonous weeds (3PEMNT) one application of Beloukha (BCP1004D) applied at 16 L/ha achieved mean control of 86.4% (range 80-94.3%), compared to mean control of 100% using Basta (glufosinate-ammonium) and mean control of 98.0% (range 96-100%) using Reglone (diquat). These results suggest that Beloukha (BCP1004D) applied once at 16 L/ha would probably provide sufficient post-emergence control of perennial monocotyledonous weeds (SANCO rating of 'Susceptible'). However, as some of these weeds may have developed from rhizomes, rather than germinating seed, so could be considered 'difficult to control', these data suggest that a second sequential application of 16 L/ha Beloukha (BCP1004D) may be required to provide 'more consistent' control, if re-growth occurs.

From two sequential applications of 16 L/ha, Beloukha (BCP1004D) achieved mean control of 90.9% (range 62.5-100%) against annual dicotyledonous weeds (3ANDIT), compared to mean control of 99.0% (range 90-100%) using Basta (glufosinate-ammonium), mean control of 96.2% (range 55-100%) using Reglone (diquat) and mean control of 97.5% (range 87.5-100%) using glyphosate. Of the 94 trial results against 3ANDIT weeds, only 21 results were <85% control, compared to 73 results ≥85% control, suggesting that two applications of Beloukha (BCP1004D) applied at 16 L/ha would provide sufficient post-emergence control of annual dicotyledonous weeds (SANCO rating of 'Susceptible').

Against annual monocotyledonous weeds (3ANMNT), two applications of Beloukha (BCP1004D) applied at 16 L/ha achieved mean control of 89.8% (range 68.3-100%), compared to mean control of 96.3% (range 69.7-100%) using Basta (glufosinate-ammonium), mean control of 70.9% (range 47.5-100%) using Reglone (diquat) and mean control of 98.0% (range 95.8-100%) using glyphosate. Of the 18 trial results against 3ANMNT weeds, only 5 results were <85% control, compared to 13 results ≥85% control, suggesting that two applications of Beloukha (BCP1004D) applied at 16 L/ha would provide sufficient post-emergence control of annual monocotyledonous weeds (SANCO rating of 'Susceptible').

Against perennial dicotyledonous weeds (3PEDIT), two sequential applications of 16 L/ha, Beloukha (BCP1004D) achieved mean control of 88.0% (range 58.3-100%) compared to mean control of 100% (range 99.8-100%) using Basta (glufosinate-ammonium), mean control of 87.1% (range 59.2-99.9%) using Reglone (diquat) and mean control of 94.6% (range 83.8-100%) using glyphosate. Of the 23 trial results against 3PEDIT weeds, 8 results were <85% control, compared to 15 results ≥85% control, suggesting that two applications of Beloukha (BCP1004D) applied at 16 L/ha would provide sufficient post-emergence control of perennial dicotyledonous weeds (SANCO rating of 'Susceptible'). Two applications of 16 L/ha Beloukha (BCP1004D) provided an overall improvement in control of perennial weeds of 4.3%, compared to one application (sufficient to lift the SANCO susceptibility rating from 'Moderately Susceptible' to 'Susceptible' for 3PEDIT weeds).

Against perennial monocotyledonous weeds (3PEMNT) two applications of Beloukha (BCP1004D) applied at 16 L/ha achieved 92.5% control of the one weed species encountered in the trials (FESSS – 1 trial result), compared to 100% control using Basta (glufosinate-ammonium). This result suggest that Beloukha (BCP1004D) applied twice at 16 L/ha would probably provide sufficient post-emergence control of perennial monocotyledonous weeds (SANCO rating of 'Susceptible'), especially if re-growth occurs.

These data generated across a range of relevant situations of use, fully support the 16 L/ha dose of Beloukha (BCP1004D), as being effective against annual dicotyledonous and monocotyledonous weeds (SANCO rating of 'Susceptible' from one application), and also against perennial dicotyledonous and monocotyledonous weeds (SANCO rating of 'Susceptible' from two sequential applications) for use in grapevines, in Germany.

Table 3.2.3-25: Effectiveness of Beloukha (BCP1004D) on annual dicotyledonous weeds assessed at 3-27days after one application across all use situations

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n(s)	Weed density at appl'n(s) (range)	No. of trial results	% control																
					Beloukha (BCP1004D)		Basta (glufosinate-ammonium)					Reglone (diquat)					Glyphosate standard				
					16 L/ha		750-1000 g a.i./ha					2-5L/ha					540-1140 g a.i./ha				
					Mean	Min-Max	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=
ABUTH	MED	9	12.8/m²	1	**90.7**	-	-	-	-	-	-	93.1	-	-	-	1	-	-	-	-	-
AMACH	MAR	11	7.8/m²	1	**75.0**	-	-	-	-	-	-	60.0	-	-	-	1	-	-	-	-	-
AMARE	MAR	10-14	13-45/m²	3	**87.3**	66.3-97.8	99.2	97.5-100.0	-	1	2	-	-	-	-	-	-	-	-	-	-
	SE	13	32/m²	1	**100.0**	-	-	-	-	-	-	-	-	-	-	-	87.5	-	1	-	-
	MED	10-12	5.5-90/m²	4	**80.5**	65.0-89.6	-	-	-	-	-	94.7	78.8-100.0	-	1	3	-	-	-	-	-
	ALL	10-14	5.5-90/m²	8	**85.5**	65.0-100.0	99.2 (3)	97.5-100.0	-	1	2	94.7 (4)	78.8-100.0	-	1	3	87.5 (1)	-	1	-	-
AMBEL	SE	12-18	9.5-103/m²	3	**82.4**	61.3-100.0	-	-	-	-	-	-	-	-	-	-	84.8	57.5-100.0	1	1	1
ARBTH	MAR	12	40/m²	1	**100.0**	-	100.0	-	-	-	1	-	-	-	-	-	-	-	-	-	-
BEAVA	MED	11	8/m²	1	**63.1**	-	-	-	-	-	-	100.0	-	-	1	-	-	-	-	-	-
BRSNW	MED	11	20/m²	1	**97.5**	-	-	-	-	-	-	100.0	-	-	-	1	-	-	-	-	-
	MAR	14	n/d	1	**88.8**	-	-	-	-	-	-	98.8	-	-	-	1	-	-	-	-	-
	ALL	11-14	20/m²	2	**93.2**	88.8-97.5	-	-	-	-	-	99.4	98.8-100.0	-	-	2	-	-	-	-	-
CAPBP	MAR	10-10	22-65/m²	2	**98.2**	96.8-99.5	100.0	100-100	-	1	1	-	-	-	-	-	-	-	-	-	-
	MED	12	5/m²	1	**87.5**	-	-	-	-	-	-	93.8	-	-	-	1	-	-	-	-	-
	ALL	10-12	5-65/m²	3	**94.6**	87.5-99.5	100.0 (2)	100-100	-	1	1	93.8 (1)	-	-	-	1	-	-	-	-	-
CARFL	MAR	10	32/m²	1	**98.8**	-	100.0	-	-	-	1	-	-	-	-	-	-	-	-	-	-
CARHI	MAR	14	18.8/m²	1	**93.9**	-	-	-	-	-	-	99.3	-	-	-	1	-	-	-	-	-
CHEAL	MAR	10-14	6-85.8/m²	14	**92.5**	56.4-100.0	99.2 (5)	96.3-100.0	-	1	4	85.4 (9)	61.3-100.0	2	1	6	-	-	-	-	-
	SE	18	61.8/m²	1	**86.0**	-	-	-	-	-	-	-	-	-	-	-	60.0	-	1	-	-
	MED	10-11	6-30/m²	5	**84.8**	65.0-100.0	-	-	-	-	-	94.0	85.0-100.0	1	2	2	-	-	-	-	-
	ALL	10-18	6-85.8/m²	20	**90.3**	56.4-100.0	99.2 (5)	96.3-100.0	-	1	4	88.4 (14)	61.3-100.0	3	3	8	60.0 (1)	-	1	-	-
CHEHY	MAR	10-10	10-24/m²	2	**100.0**	100-100	100.0	100-100	-	-	2	-	-	-	-	-	-	-	-	-	-
CHEPO	MAR	10-12	14-48/m²	2	**98.6**	97.3-100.0	99.4	98.8-100.0	-	-	2	-	-	-	-	-	-	-	-	-	-
CHERE	MAR	11	5/m²	1	**86.3**	-	-	-	-	-	-	87.5	-	-	-	1	-	-	-	-	-
FUMOF	MAR	12	14.8/m²	1	**99.4**	-	-	-	-	-	-	92.5	-	-	-	1	-	-	-	-	-
GASPA	MAR	10-14	21-211/m²	5	**87.6**	77.5-100.0	-	-	-	-	-	98.4	95.0-100.0	-	2	3	-	-	-	-	-
GERDI	MAR	10-15	7-15/m²	4	**87.1**	73.8-100.0	99.9	99.8-100.0	-	2	2	-	-	-	-	-	-	-	-	-	-
GERPU	SE	59	11/m²	1	**92.0**	-	-	-	-	-	-	-	-	-	-	-	97.5	-	-	-	1
GERRT	MED	22	30/m²	1	**71.0**	-	99.0	-	-	1	-	-	-	-	-	-	-	-	-	-	-
HIBTR	SE	11	8.5/m²	1	**100.0**	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	1

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n(s)	Weed density at appl'n(s) (range)	No. of trial results	% control																
					Beloukha (BCP1004D)		Basta (glufosinate-ammonium)					Reglone (diquat)					Glyphosate standard				
					16 L/ha		750-1000 g a.i./ha					2-5L/ha					540-1140 g a.i./ha				
					Mean	Min-Max	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=
LAMAM	MAR	10-10	13-15/m²	3	**98.7**	96.0-100.0	99.9	99.8-100.0	-	-	3	-	-	-	-	-	-	-	-	-	-
LAMPU	MAR	10-12	5-79.5/m²	6	**89.3**	65.2-99.5	99.5 (4)	98.5-100.0	-	1	3	90.4 (2)	85.0-95.7	-	-	2	-	-	-	-	-
MATCH	MAR	13-18	20/m²	2	**95.4**	93.3-97.5	-	-	-	-	-	99.1	98.8-99.3	-	-	2	-	-	-	-	-
	MED	10-10	16-18.8/m²	2	**96.6**	95.0-98.3	-	-	-	-	-	80.7	61.5-100.0	1	1	-	-	-	-	-	-
	ALL	10-18	16-20/m²	4	**96.0**	93.3-98.3	-	-	-	-	-	89.9	61.5-100.0	1	1	2	-	-	-	-	-
MATIN	MAR	10-12	9-11.5/m²	3	**76.9**	61.3-92.0	100.0 (1)	-	-	1	-	90.7 (2)	81.3-100.0	-	-	2	-	-	-	-	-
MATMT	MAR	12-12	8-9/m²	2	**90.8**	90.0-91.5	-	-	-	-	-	87.5	75.0-100.0	1	-	1	-	-	-	-	-
MERAN	MAR	10	7/m²	1	**98.5**	-	99.0	-	-	-	1	-	-	-	-	-	-	-	-	-	-
MYOAR	MAR	10	167/m²	1	**72.7**	-	46.0	-	-	-	1	-	-	-	-	-	-	-	-	-	-
POLAV	MAR	12	11/m²	1	**90.8**	-	98.8	-	-	1	-	-	-	-	-	-	-	-	-	-	-
POLCO	MAR	11	27/m²	1	**81.7**	-	-	-	-	-	-	90.1	-	-	-	1	-	-	-	-	-
POLPE	MAR	10	10.5/m²	1	**85.0**	-	-	-	-	-	-	92.0	-	-	-	1	-	-	-	-	-
POROL	SE	12-12	17.5-41.8/m²	2	**100.0**	100-100	-	-	-	-	-	-	-	-	-	-	100.0	100-100	-	-	2
	MED	10-12	5.3-246/m²	6	**90.6**	62.5-98.9	-	-	-	-	-	96.0	81.6-100.0	1	2	3	-	-	-	-	-
	ALL	10-12	5.3-246/m²	8	**92.9**	62.5-100.0	-	-	-	-	-	96.0 (6)	81.6-100.0	1	2	3	100 (2)	100-100	-	-	2
POROT	SE	12	22/m²	1	**100.0**	-	-	-	-	-	-	-	-	-	-	-	83.8	-	1	-	-
SENVU	MAR	10-30	7-145/m²	10	**92.7**	75.0-100.0	96.0	74.0-100.0	-	3	7	-	-	-	-	-	-	-	-	-	-
SOLNI	MAR	10-11	6-19/m²	4	**87.3**	69.6-100.0	98.9 (3)	96.7-100.0	-	-	3	89.1 (1)	-	-	-	1	-	-	-	-	-
	SE	16-16	16-21/m²	2	**84.8**	83.8-85.8	-	-	-	-	-	-	-	-	-	-	76.3	55.0-97.5	1	1	-
	MED	10-10	5.5-55/m²	3	**100.0**	100-100	-	-	-	-	-	96.1	90.9-100.0	1	-	2	-	-	-	-	-
	ALL	10-16	5.5-55/m²	9	**91.0**	69.6-100.0	98.9 (3)	96.7-100.0	-	-	3	94.4 (4)	89.1-100.0	1	-	3	76.3 (2)	55.0-97.5	1	1	-
SONOL	MED	11	16/m²	1	**100.0**	-	-	-	-	-	-	100.0	-	-	-	1	-	-	-	-	-
STEME	MAR	10-18	7-396/m²	11	**92.4**	71.3-100.0	99.9 (7)	99.5-100.0	-	1	6	95.6 (4)	85.0-100.0	-	2	2	-	-	-	-	-
URTUR	MAR	10-10	5-163.8/m²	3	**84.9**	76.3-99.0	100.0 (1)	-	-	-	1	97.0 (2)	95.0-99.0	-	-	2	-	-	-	-	-
VERAG	MAR	10-11	24-27/m²	2	**92.5**	90.0-95.0	97.1	95.3-99.0	-	-	2	-	-	-	-	-	-	-	-	-	-
VERHE	MAR	10-25	5-26/m²	3	**88.5**	74.0-96.0	100.0 (2)	100-100	-	1	1	100.0 (1)	-	-	-	1	-	-	-	-	-

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n(s)	Weed density at appl'n(s) (range)	No. of trial results	% control																
					Beloukha (BCP1004D)		Basta (glufosinate-ammonium)					Reglone (diquat)					Glyphosate standard				
					16 L/ha		750-1000 g a.i./ha					2-5L/ha					540-1140 g a.i./ha				
					Mean	Min-Max	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=
VERPE	MAR	10-10	7-167/m²	4	**87.2**	59.9-97.3	95.4	81.5-100.0	-	3	1	-	-	-	-	-	-	-	-	-	-
	MED	12	8/m²	1	**90.0**	-	-	-	-	-	-	100.0	-	-	-	1	-	-	-	-	-
	ALL	10-12	7-167/m²	5	**87.7**	59.9-97.3	95.4 (4)	81.5-100.0	-	3	1	100.0 (1)	-	-	-	1	-	-	-	-	-
VERSS	MAR	11	36.8/m²	1	**89.5**	-	-	-	-	-	-	83.6	-	-	-	1	-	-	-	-	-
VIOAR	MAR	12	9/m²	1	**99.0**	-	-	-	-	-	-	99.0	-	-	-	1	-	-	-	-	-
All (3ANDIT)				**99**	**90.7**	**56.4-100.0**						-	-	-	-	-	-	-	-	-	-
	MAR	**10-30**	**5-396/m²**	60	93.3	59.9-100.0	97.8	46.0-100.0	-	16	44	-	-	-	-	-	-	-	-	-	-
				39	86.7	56.4-100.0	-	-	-	-	-	91.4	60.0-100.0	3	5	31					
	MED	**9-22**	**5-246/m²**	**28**	**88.5**	**62.5-100.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				1	71.0	-	99.0	-	-	1	-	-	-	-	-	-	-	-	-	-	-
				27	89.2	62.5-100.0	-	-	-	-	-	94.0	61.5-100.0	5	7	15					
	SE	**11-59**	**8.5-103/m²**	**12**	**91.2**	**61.3-100.0**	-	-	-	-	-	-	-	-	-	-	**86.3**	**55.0-100.0**	**5**	**2**	**5**
	ALL	**9-59**	**5-396/m²**	**138**	**90.3**	**56.4-100.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				61	92.9	59.9-100.0	97.8	46.0-100.0	-	17	44	-	-	-	-	-	-	-	-	-	-
				65	87.6	56.4-100.0	-	-	-	-	-	92.7	60.0-100.0	7	12	46	-	-	-	-	-
				12	91.2	61.3-100.0	-	-	-	-	-	-	-	-	-	-	86.3	55.0-100.0	5	2	5

Numbers in superscript brackets = No. of results with standards, where different to the numbers of trials results obtained from Beloukha (BCP1004D)

Table 3.2.3-26: Effectiveness of Beloukha (BCP1004D) on perennial dicotyledonous weeds assessed 3-15 days after one application across all use situations

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n(s)	Weed density at appl'n(s) (range)	No. of trial results	% control																
					Beloukha (BCP1004D)		Basta (glufosinate-ammonium)					Reglone (diquat)					Glyphosate standard				
					16 L/ha		750-1000 g a.i./ha					2-5L/ha					540-1140 g a.i./ha				
					Mean	Min-Max	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=
BELPE	MAR	14	17/m²	1	**82.5**	-	100.0	-	-	1	-	-	-	-	-	-	-	-	-	-	-
BUNOR	MAR	10	9.3/m²	1	**100.0**	-	100.0	-	-	-	1	-	-	-	-	-	-	-	-	-	-
CARPR	MAR	14	76/m²	1	**80.0**	-	78.0	-	-	-	1	-	-	-	-	-	-	-	-	-	-
CONAR	SE	12-65	8-8.3/m²	2	**81.9**	63.8-100.0	-	-	-	-	-	-	-	-	-	-	89.4	78.8-100.0	-	1	1
	MED	12-23	5-20/m²	2	**79.1**	74.2-84.0	100.0 (1)	-	-	1	-	75.0 (1)	-	-	-	1	-	-	-	-	-
	ALL	12-65	5-20/m²	4	**80.5**	63.8-100.0	100.0 (1)	-	-	1	-	75.0 (1)	-	-	-	1	89.4 (2)	78.8-100.0	-	1	1
CIRAR	MAR	16	5/m²	1	**82.5**	-	-	-	-	-	-	97.5	-	-	-	1	-	-	-	-	-
EPIHI	MAR	14	30/m²	1	**92.5**	-	-	-	-	-	-	93.8	-	-	-	1	-	-	-	-	-
EPICT	MAR	12	50/m²	1	**92.7**	-	-	-	-	-	-	95.6	-	-	-	1	-	-	-	-	-
EPISS	MAR	15-32	10-60/m²	2	**88.5**	80.0-97.0	100.0	100-100	-	-	2	-	-	-	-	-	-	-	-	-	-
ERICA	SE	14	15/m²	1	**89.5**	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	1	-
	MED	12	5/m²	1	**75.0**	-	-	-	-	-	-	62.5	-	-	-	1	-	-	-	-	-
	ALL	12-14	5-15/m²	2	**82.3**	75.0-89.5	-	-	-	-	-	62.5 (1)	-	-	-	1	100 (1)	-	-	1	-
PLALA	MAR	19	7.3/m²	1	**52.5**	-	98.0	-	-	1	-	-	-	-	-	-	-	-	-	-	-
PLAMA	MAR	14-15	10-11/m²	2	**94.8**	90.0-99.5	100.0 (1)	-	-	-	1	96.3 (1)	-	-	-	1	-	-	-	-	-
SONAR	MAR	10-12	12-17.8/m²	2	**87.5**	80.0-95.0	100.0 (1)	-	-	-	1	90.0 (1)	-	-	-	1	-	-	-	-	-
TAROF	MAR	10-19	5-41/m²	8	**81.8**	52.5-98.3	95.5 (7)	83.0-100.0	-	4	3	88.8 (1)	-	-	-	1	-	-	-	-	-
TRFRE	MAR	30	11/m²	1	**99.3**	-	100.0	-	-	-	1	-	-	-	-	-	-	-	-	-	-
TRFSS	MAR	51	12.5/m²	1	**63.8**	-	-	-	-	-	-	87.5	-	-	-	1	-	-	-	-	-
All (3PEDIT)	**MAR**	**10-51**	**5-76/m²**	**23**	**84.4**	**52.5-100.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				16	84.3	52.5-100.0	96.5	78.0-100.0	-	6	10	-	-	-	-	-	-	-	-	-	-
				5	84.7	63.8-95.0	-	-	-	-	-	92.8	87.5-97.5	-	-	7	-	-	-	-	-
	MED	**12-23**	**5-20/m²**	**3**	**77.7**	**74.2-84.0**					-						-	-	-	-	-
				1	84.0	-	100.0	-	-	1	-	-	-	-	-	-	-	-	-	-	-
				2	74.6	74.2-75.0	-	-	-	-	-	68.8	62.5-75.0	-	-	2					
	SE	**12-65**	**8-15/m²**	**3**	**84.4**	**63.8-100.0**	-	-	-	-	-	-	-	-	-	-	92.9	78.8-100.0	-	2	1
	ALL	**10-65**	**5-76/m²**	**29**	**83.7**	**52.5-100.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				17	84.3	52.5-100.0	96.7	78.0-100.0	-	7	10	-	-	-	-	-	-	-	-	-	-
				9	82.4	63.8-95.0	-	-	-	-	-	87.4	62.5-97.5	-	-	9	-	-	-	-	-
				3	84.4	63.8-100.0	-	-	-	-	-	-	-	-	-	-	92.9	78.8-100.0	-	2	1

Numbers in superscript brackets = No. of results with standards, where different to the numbers of trials results obtained from Beloukha (BCP1004D)

Table 3.2.3-27: Effectiveness of Beloukha (BCP1004D) on annual grass weeds assessed at 7-21 days after one application across all situations of use

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n(s)	Weed density at appl'n(s) (range)	No. of trial results	% control																
					Beloukha (BCP1004D)		Basta (glufosinate-ammonium)					Reglone (diquat)					Glyphosate standard				
					16 L/ha		750-1000 g a.i./ha					2-5L/ha					540-1140 g a.i./ha				
					Mean	Min-Max	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=
BROST	MAR	24	20.5/m²	1	**72.5**	-	99.4	-	-	1	-	-	-	-	-	-	-	-	-	-	-
DIGSA	SE	12-13	33.3-45/m²	2	**100.0**	100-100	-	-	-	-	-	-	-	-	-	-	97.5	95.0-100.0	1	-	1
	MAR	13	8/m²	1	**99.8**	-	100.0	-	-	-	1	-	-	-	-	-	-	-	-	-	-
	ALL	12-13	8-45/m²	3	**99.9**	99.8-100.0	100.0 (1)	-	-	-	1	-	-	-	-	-	97.5 (2)	95.0-100.0	1	-	1
ECHCG	MAR	10-12	7-100/m²	2	**82.3**	68.8-95.8	99.4	98.8-100.0	-	2	-	-	-	-	-	-	-	-	-	-	-
	SE	13	134.3/m²	1	**85.5**	-	-	-	-	-	-	-	-	-	-	-	46.3	-	1	-	-
	ALL	10-13	7-134.3/m²	3	**83.4**	68.8-95.8	99.4 (2)	98.8-100.0	-	2	-	-	-	-	-	-	46.3 (1)	-	1	-	-
POAAN	MAR	9-30	7.5-158.8/m²	5	**87.0**	75.0-98.8	98.6 (4)	95.0-100.0	-	1	3	95.0 (1)	-	-	-	1	-	-	-	-	-
SETVI	SE	31	17/m²	1	**85.8**	-	-	-	-	-	-	-	-	-	-	-	99.5	-	-	1	-
All (3ANMNT)	**MAR**	**9-30**	**7-158.8/m²**	**9**	**85.8**	**68.8-99.8**											-	-	-	-	-
				8	84.1	68.8-99.8	99.1	95.0-100.0	-	4	4	-	-	-	-	-	-	-	-	-	-
				1	98.8	-	-	-	-	-	-	95.0	-	-	-	1	-	-	-	-	-
	SE	**12-31**	**17-134.3/m²**	**4**	**92.8**	**85.5-100.0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**85.2**	**46.3-100.0**	**2**	**1**	**1**
	ALL	**9-31**	**7-158.8/m²**	**13**	**87.9**	**68.8-100.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				8	84.1	68.8-99.8	99.1	95.0-100.0	-	4	4	-	-	-	-	-	-	-	-	-	-
				1	98.8	-	-	-	-	-	-	95.0	-	-	-	1	-	-	-	-	-
				4	92.8	85.5-100.0	-	-	-	-	-	-	-	-	-	-	85.2	46.3-100.0	2	1	1

Numbers in superscript brackets = No. of results with standards, where different to the numbers of trials results obtained from Beloukha (BCP1004D)

Table 3.2.3-28: Effectiveness of Beloukha (BCP1004D) on perennial grass weeds assessed at 7-21 days after one application across all situations of use

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n(s)	Weed density at appl'n(s) (range)	No. of trial results	% control											
					Beloukha (BCP1004D)		Basta (glufosinate-ammonium)					Reglone (diquat)				
					16 L/ha		750-1000 g a.i./ha					2-5L/ha				
					Mean	Min-Max	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=
AGRRE	MED	11	10/m²	1	**82.5**	-	-	-	-	-	-	100.0	-	-	1	-
LOLPE	MAR	10	55/m²	1	**94.3**	-	100.0	-	-	1	-	-	-	-	-	-
POAPR	MAR	30	12.5/m²	1	**88.8**	-	100.0	-	-	1	-	-	-	-	-	-
SORSU	MED	12	9/m²	1	**86.3**	-	-	-	-	-	-	96.0	-	-	-	1
FESSS	MAR	30	12/m²	1	**80.0**	-	100.0	-	-	1	-	-	-	-	-	-
All (3PEMNT)	**MAR**	**10-30**	**12-55/m²**	**3**	**87.7**	**80.0-94.3**	**100.0**	**100.0-100.0**	**-**	**3**	**-**	**-**	**-**	**-**	**-**	**-**
	MED	**11-12**	**9-10/m²**	**2**	**84.4**	**82.5-86.3**	**-**	**-**	**-**	**-**	**-**	**98.0**	**96.0-100.0**	**-**	**1**	**1**
	ALL	**10-30**	**9-55/m²**	**5**	**86.4**	**80.0-94.3**	**100.0**	**100.0-100.0**	**-**	**3**	**-**	**98.0**	**96.0-100.0**	**-**	**1**	**1**

Table 3.2.3-29: Effectiveness of Beloukha (BCP1004D) on annual dicotyledonous weeds assessed at 3-29 days after two applications across all use situations

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n(s)	Weed density at appl'n(s) (range)	No. of trial results	% control																
					Beloukha (BCP1004D)		Basta (glufosinate-ammonium)					Reglone (diquat)					Glyphosate standard				
					16 L/ha		750-1000 g a.i./ha					2-5L/ha					540-1140 g a.i./ha				
					Mean	Min-Max	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=
AETCY	MAR	12	49/m²	1	**100.0**	-	-	-	-	-	-	97.5	-	-	-	**1**	-	-	-	-	-
AMACH	MAR	61	11.5/m²	1	**93.5**	-	-	-	-	-	-	78.8	-	-	-	1	-	-	-	-	-
AMARE	SE	30	52/m²	1	**100.0**	-	-	-	-	-	-	-	-	-	-	-	87.5	-	1	-	-
	MED	12	90/m²	1	**90.0**	-	-	-	-	-	-	100.0	-	-	-	1	-	-	-	-	-
	ALL	12-30	52-90/m²	2	**95.0**	90.0-100.0	-	-	-	-	-	100.0 (1)	-	-	-	1	87.5 (1)	-	1	-	-
AMBEL	SE	12-55	8.5-97.3/m²	3	**76.7**	62.5-100.0	-	-	-	-	-	-	-	-	-	-	99.0	97.0-100.0	-	2	1
ANTAR	MAR	18	5.3/m²	1	**75.7**	-	95.0	-	-	1	-	-	-	-	-	-	-	-	-	-	-
ARBTH	MAR	30	30/m²	1	**100.0**	-	100.0	-	-	-	1	-	-	-	-	-	-	-	-	-	-
BEAVA	MED	15	9/m²	1	**95.8**	-	-	-	-	-	-	100.0	-	-	-	1	-	-	-	-	-
BRSNW	MED	15	38/m²	1	**98.3**	-	-	-	-	-	-	100.0	-	-	-	**1**	-	-	-	-	-
	MAR	14-14	40/m²	2	**91.3**	90.0-92.5	-	-	-	-	-	100.0	100.0-100.0	-	-	**2**	-	-	-	-	-
	ALL	14-15	38-40/m²	3	**93.6**	90.0-98.3	-	-	-	-	-	100.0	100.0-100.0	-	-	**3**	-	-	-	-	-
CAPBP	MAR	14	5/m²	1	**77.5**	-	-	-	-	-	-	100.0	-	-	1	-	-	-	-	-	-
CARHI	MAR	10-33	22.8-875/m²	3	**90.9**	78.8-100.0	98.5 (2)	98.0-99.0	-	-	2	100.0 (1)	-	-	-	1	-	-	-	-	-
CHEAL	SE	24	63.8/m²	1	**71.3**	-	-	-	-	-	-	-	-	-	-	-	98.5	-	-	1	-
	MAR	12-61	16-62.5/m²	8	**94.4**	67.5-100.0	99.7 (2)	99.3-100.0	-	-	2	93.3 (6)	78.8-100.0	-	1	5	-	-	-	-	-
	MED	12	15/m²	1	**100.0**	-	-	-	-	-	-	100.0	-	-	-	1	-	-	-	-	-
	ALL	12-61	15-63.8/m²	10	**92.6**	67.5-100.0	99.7 (2)	99.3-100.0	-	-	2	94.2 (7)	78.8-100.0	-	1	6	98.5 (1)	-	-	1	-
CHEPO	MAR	13-29	40-52/m²	2	**99.6**	99.5-99.8	100.0	100-100	-	-	2	-	-	-	-	-	-	-	-	-	-
CHERE	MAR	13	10/m²	1	**97.5**	-	-	-	-	-	-	92.5	-	-	-	1	-	-	-	-	-
FUMOF	MAR	10	31.3/m²	1	**91.8**	-	-	-	-	-	-	90.0	-	-	-	1	-	-	-	-	-
GASPA	MAR	12-14	25-200/m²	5	**79.3**	70.0-100.0	-	-	-	-	-	97.5	87.5-100.0	-	3	2	-	-	-	-	-
GERDI	MAR	13	22/m²	1	**100.0**	-	100.0	-	-	-	1	-	-	-	-	-	-	-	-	-	-
GERPU	SE	81	12/m²	1	**90.0**	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	1	-
HIBTR	SE	11	18.7/m²	1	**100.0**	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	1
LAMPU	MAR	12-51	10-56/m²	5	**94.1**	81.3-100.0	96.7 (3)	90.0-100.0	-	-	3	100.0 (2)	100.0-100.0	-	-	2	-	-	-	-	-

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n(s)	Weed density at appl'n(s) (range)	No. of trial results	% control																
					Beloukha (BCP1004D)		Basta (glufosinate-ammonium)					Reglone (diquat)					Glyphosate standard				
					16 L/ha		750-1000 g a.i./ha					2-5L/ha					540-1140 g a.i./ha				
					Mean	Min-Max	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=
MATCH	MAR	12-18	48/m²	2	**86.3**	85.0-87.5	-	-	-	-	-	93.8	87.5-100.0	-	1	1	-	-	-	-	-
	MED	10	41/m²	1	**94.8**	-	-	-	-	-	-	100.0	-	-	1	-	-	-	-	-	-
	ALL	10-18	41-48/m²	3	**89.1**	85.0-94.8	-	-	-	-	-	95.8	87.5-100.0	-	2	1	-	-	-	-	-
MATIN	MAR	35	8/m²	1	**72.5**	-	-	-	-	-	-	90.5	-	-	-	1	-	-	-	-	-
MATMT	MAR	14	27.5/m²	1	**99.0**	-	-	-	-	-	-	99.0	-	-	-	1	-	-	-	-	-
MYOAR	MAR	10	142.6/m²	1	**87.8**	-	90.0	-	-	-	1	-	-	-	-	-	-	-	-	-	-
POLAV	MAR	12-65	16-17.5/m²	2	**80.3**	70.6-90.0	-	-	-	-	-	77.2	55.0-99.4	-	1	1	-	-	-	-	-
POROL	SE	12-12	11.5-33/m²	2	**100.0**	100-100	-	-	-	-	-	-	-	-	-	-	100.0	100-100	-	-	2
	MED	11-12	63-247/m²	2	**96.6**	95.0-98.2	-	-	-	-	-	99.0	98.0-100.0	-	1	1	-	-	-	-	-
	ALL	11-12	11.5-247/m²	4	**98.3**	95.0-100.0	-	-	-	-	-	99.0 (2)	98.0-100.0	-	1	1	100.0 (2)	100-100	-	-	2
POROT	SE	51	41/m²	1	**100.0**	-	-	-	-	-	-	-	-	-	-	-	87.5	-	1	-	-
RANSA	MED	10	25/m²	1	**99.0**	-	-	-	-	-	-	99.0	-	-	-	1	-	-	-	-	-
SENVU	MAR	10-65	7-492.5/m²	10	**91.7**	76.3-100.0	99.6 (8)	97.8-100.0	-	1	7	100.0 (2)	100.0-100.0	-	-	2	-	-	-	-	-
SOLNI	MAR	12	15/m²	1	**100.0**	-	100.0	-	-	-	1	-	-	-	-	-	-	-	-	-	-
	SE	55-63	18-20/m²	2	**80.0**	70.0-90.0	-	-	-	-	-	-	-	-	-	-	100.0	100-100	-	2	-
	MED	12	58/m²	1	**100.0**	-	-	-	-	-	-	100.0	-	-	-	1	-	-	-	-	-
	ALL	12-63	15-58/m²	4	**90.0**	70.0-100.0	100.0 (1)	-	-	-	1	100.0 (1)	-	-	-	1	100.0 (2)	100-100	-	2	-
SONOL	MAR	61	7%GC	1	**87.3**	-	100.0	-	-	-	1	-	-	-	-	-	-	-	-	-	-
	MED	12	12/m²	1	**100.0**	-	-	-	-	-	-	100.0	-	-	-	1	-	-	-	-	-
	ALL	12-61	12/m² 7%GC	2	**93.7**	87.3-100.0	100.0 (1)	-	-	-	1	100.0 (1)	-	-	-	1	-	-	-	-	-
STEME	MAR	12-31	5.8-396/m²	9	**91.3**	65.0-100.0	99.9 (3)	99.8-100.0	-	1	2	98.1 (6)	90.0-100.0	-	3	3	-	-	-	-	-
URTUR	MAR	12-14	22.5-261.8/m²	2	**92.7**	86.3-99.0	-	-	-	-	-	99.5	99.0-100.0	-	-	2	-	-	-	-	-
VERAG	MAR	10-25	37-68.3/m²	3	**86.4**	72.5-98.0	100.0	100-100	-	1	2	-	-	-	-	-	-	-	-	-	-
VERHE	MAR	10-14	6.8-15/m²	2	**98.8**	97.6-100.0	100.0 (1)	-	-	-	1	100.0 (1)	-	-	-	1	-	-	-	-	-
VERPE	MAR	12	32/m²	1	**87.4**	-	100.0	-	-	-	1	-	-	-	-	-	-	-	-	-	-

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n(s)	Weed density at appl'n(s) (range)	No. of trial results	% control																
					Beloukha (BCP1004D)		Basta (glufosinate-ammonium)					Reglone (diquat)					Glyphosate standard				
					16 L/ha		750-1000 g a.i./ha					2-5L/ha					540-1140 g a.i./ha				
					Mean	Min-Max	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=
VERSS	MAR	14	38.5/m²	1	**70.0**	-	-	-	-	-	-	94.8	-	-	1	-	-	-	-	-	-
VIOAR	MAR	10-14	20-42.5/m²	2	**94.5**	90.0-99.0	-	-	-	-	-	94.5	90.0-99.0	-	-	2	-	-	-	-	-
All (3ANDIT)				**76**	**90.8**	**65.0-100.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	MAR	**10-65**	**5-875/m²**	**31**	**91.9**	**72.5-100.0**	**99.0**	**90.0-100.0**	-	**4**	**27**	-	-	-	-	-	-	-	-	-	
				45	**90.1**	**65.0-100.0**	-	-	-	-	-	**95.3**	**55.0-100.0**	-	**11**	**34**	-	-	-	-	-
	MED	**10-15**	**9-247/m²**	**11**	**97.0**	**90.0-100.0**	-	-	-	-	-	**99.4**	**96.0-100.0**	-	**2**	**9**	-	-	-	-	-
	SE	**11-81**	**8.5-97.3/m²**	**12**	**87.6**	**62.5-100.0**	-	-	-	-	-	-	-	-	-	-	**97.5**	**87.5-100.0**	**2**	**6**	**4**
	ALL	**10-81**	**5-875/m²**	**94**	**90.9**	**62.5-100.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				31	91.9	72.5-100.0	99.0	90.0-100.0	-	4	27	-	-	-	-	-	-	-	-	-	-
				51	91.0	65.0-100.0	-	-	-	-	-	96.2	55.0-100.0	-	13	38	-	-	-	-	-
				12	87.6	62.5-100.0	-	-	-	-	-	-	-	-	-	-	97.5	87.5-100.0	2	6	4

Numbers in superscript brackets = No. of results with standards, where different to the numbers of trials results obtained from Beloukha (BCP1004D)

Table 3.2.3-30: Effectiveness of Beloukha (BCP1004D) on perennial dicotyledonous weeds assessed 3-21 days after two applications across all use situations

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n(s)	Weed density at appl'n(s) (range)	No. of trial results	% control																
					Beloukha (BCP1004D)		Basta (glufosinate-ammonium)					Reglone (diquat)					Glyphosate standard				
					16 L/ha		750-1000 g a.i./ha					2-5L/ha					540-1140 g a.i./ha				
					Mean	Min-Max	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=
ARFLA	MAR	12	64/m²	1	**97.5**	-	-	-	-	-	-	87.5	-	-	-	1	-	-	-	-	-
BELPE	MAR	17	16/m²	1	**92.3**	-	99.8	-	-	1	-	-	-	-	-	-	-	-	-	-	-
CARPR	MAR	12	76/m²	1	**100.0**	-	100.0	-	-	-	1	-	-	-	-	-	-	-	-	-	-
CONAR	SE	12-71	7.3-12/m²	2	**85.0**	70.0-100.0	-	-	-	-	-	-	-	-	-	-	91.9	83.8-100.0	-	1	1
	MED	15	5/m²	1	**58.3**	-	-	-	-	-	-	70.8	-	-	-	1	-	-	-	-	-
	ALL	12-71	5-12/m²	3	**76.1**	58.3-100.0	-	-	-	-	-	70.8 (1)	-	-	-	1	91.9 (2)	83.8-100.0	-	1	1
CIRAR	MAR	38	5/m²	1	**97.5**	-	-	-	-	-	-	97.5	-	-	-	1	-	-	-	-	-
EPIHI	MAR	19	15/m²	1	**90.0**	-	-	-	-	-	-	97.5	-	-	-	1	-	-	-	-	-
EPISS	MAR	32	9/m²	1	**99.3**	-	100.0	-	-	-	1	-	-	-	-	-	-	-	-	-	-
EQUAR	MAR	12	95/m²	1	**100.0**	-	-	-	-	-	-	59.2	-	-	-	1	-	-	-	-	-
ERICA	SE	33	15/m²	1	**88.8**	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	1	-
	MED	12	5/m²	1	**75.0**	-	-	-	-	-	-	75.0	-	-	-	1	-	-	-	-	-
	ALL	12-33	5-15/m²	2	**81.9**	75.0-88.8	-	-	-	-	-	75.0 (1)	-	-	-	1	100.0 (1)	-	-	1	-
PLALA	MAR	19	6.5/m²	1	**78.8**	-	100.0	-	-	1	-	-	-	-	-	-	-	-	-	-	-
PLAMA	MAR	16-16	11-17.5/m²	2	**97.4**	95.0-99.8	100.0 (1)	-	-	-	1	98.8 (1)	-	-	-	1	-	-	-	-	-
TAROF	MAR	12-55	6-27/m² 10%GC	6	**86.7**	63.0-100.0	100.0 (5)	100-100	-	3	2	99.9 (1)	-	-	-	1	-	-	-	-	-
TRFRE	MAR	30	11/m²	1	**96.0**	-	99.8	-	-	-	1	-	-	-	-	-	-	-	-	-	-
TRFSS	MAR	30	12.5/m²	1	**66.3**	-	-	-	-	-	-	97.5	-	-	-	1	-	-	-	-	-
All (3PEDIT)	**MAR**	**12-55**	**6-95/m²**	**15**	**89.8**	**63.0-100.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				11	89.9	63.0-100.0	100.0	99.8-100.0	-	5	6	-	-	-	-	-	-	-	-	-	-
				4	89.7	66.3-100.0	-	-	-	-	-	88.9	59.2-99.9	-	-	4	-	-	-	-	-
	MED	**12-15**	**5-5/m²**	**2**	**66.7**	**58.3-75.0**	-	-	-	-	-	**72.9**	**70.8-75.0**	-	-	**2**	-	-	-	-	-
	SE	**12-71**	**7.3-15/m²**	**3**	**86.3**	**70.0-100.0**	-	-	-	-	-	-	-	-	-	-	**94.6**	**83.8-100.0**	-	**2**	**1**
	ALL	**12-71**	**5-95/m²**	**23**	**88.0**	**58.3-100.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				11	89.9	63.0-100.0	100.0	99.8-100.0	-	5	6	-	-	-	-	-	-	-	-	-	-
				9	86.4	58.3-100.0	-	-	-	-	-	87.1	59.2-99.9	-	-	*9*	-	-	-	-	-
				3	86.3	70.0-100.0	-	-	-	-	-	-	-	-	-	-	94.6	83.8-100.0	-	2	1

Numbers in superscript brackets = No. of results with standards, where different to the numbers of trials results obtained from Beloukha (BCP1004D)

Table 3.2.3-31: Effectiveness of Beloukha (BCP1004D) on annual and perennial grass weeds assessed at 6-28 days after two applications across all situations of use

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at appl'n(s)	Weed density at appl'n(s) (range)	No. of trial results	% control																
					Beloukha (BCP1004D)		Basta (glufosinate-ammonium)					Reglone (diquat)					Glyphosate standard				
					16 L/ha		750-1000 g a.i./ha					2-5L/ha					540-1140 g a.i./ha				
					Mean	Min-Max	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=
ANNUAL MONOCOTYLEDONOUS WEEDS (3ANMNT)																					
BROST	MAR	13	134/m²	1	**92.1**	-	100.0	-	-	1	-	-	-	-	-	-	-	-	-	-	-
DIGSA	SE	12-30	27.8-75/m²	2	**100.0**	100-100	-	-	-	-	-	-	-	-	-	-	98.2	96.3-100.0	-	-	2
	MAR	51	12/m²	1	**100.0**	-	100.0	-	-	-	1	-	-	-	-	-	-	-	-	-	-
	ALL	12-51	12-75/m²	3	**100.0**	100-100	100.0 (1)	-	-	-	1	-	-	-	-	-	98.2 (2)	96.3-100.0	-	-	2
ECHCG	SE	21	135/m²	1	**68.3**	-	-	-	-	-	-	-	-	-	-	-	95.8	-	-	1	-
	MAR	12	98/m²	1	**90.0**	-	-	-	-	-	-	85.0	-	-	-	1	-	-	-	-	-
	ALL	12-21	98-135/m²	2	**79.2**	68.3-90.0	-	-	-	-	-	85.0 (1)	-	-	-	1	95.8 (1)	-	-	1	-
LOLMU	MAR	18	9%GC	1	**78.8**	-	100.0	-	-	-	1	-	-	-	-	-	-	-	-	-	-
POAAN	MAR	10-61	14.3-252/m² 16.8%GC	9	**89.2**	76.3-100.0	94.7 (7)	69.7-100.0	-	2	5	73.8 (2)	47.5-100.0	1	-	1	-	-	-	-	-
SETVI	SE	67	22/m²	1	**96.5**	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	1
TRZAW	MED	22	15/m²	1	**87.5**	-	-	-	-	-	-	51.0	-	**1**	-	-	-	-	-	-	-
All (3ANMNT)	**MAR**	**10-61**	**12-252/m² 9-16.8%GC**	**13**	**89.5**	**76.3-100.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				10	87.5	76.3-100.0	96.3	69.7-100.0	-	3	7	-	-	-	-	-	-	-	-	-	-
				3	96.3	90.0-100.0	-	-	-	-	-	77.5	47.5-100.0	1	-	2	-	-	-	-	-
	MED	**22**	**15/m²**	**1**	**87.5**	-	-	-	-	-	-	51.0	-	1	-	-	-	-	-	-	-
	SE	**12-67**	**22-135/m²**	**4**	**91.2**	**68.3-100.0**	-	-	-	-	-	-	-	-	-	-	**98.0**	**95.8-100.0**	-	**1**	**3**
	ALL	**10-67**	**12-252/m² 9-16.8%GC**	**18**	**89.8**	**68.3-100.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				10	87.5	76.3-100.0	96.3	69.7-100.0	-	3	7	-	-	-	-	-	-	-	-	-	-
				4	91.8	82.5-100.0	-	-	-	-	-	70.9	47.5-100.0	2	-	2	-	-	-	-	-
				4	91.2	68.3-100.0	-	-	-	-	-	-	-	-	-	-	98.0	95.8-100.0	-	1	3
PERENNIAL MONOCOTYLEDONOUS WEEDS (3PEMNT)																					
FESSS	MAR	30	11/m²	1	**92.5**	-	100.0	-	-	**1**	-	-	-	-	-	-	-	-	-	-	-

Numbers in superscript brackets = No. of results with standards, where different to the numbers of trials results obtained from Beloukha (BCP1004D)

Table 3.2.3-32: Effectiveness of Beloukha (BCP1004D) on all weed species assessed at 3-27 days after one application across all situations of use

EPPO climatic zone	Weed size (BBCH) at appl'n(s)	Weed density at appl'n(s) (range)	No. of trial results	% control																
				Beloukha (BCP1004D) 16 L/ha		Basta (glufosinate-ammonium) 750-1000 g a.i./ha					Reglone (diquat) 2-5L/ha					Glyphosate standard 540-1140 g a.i./ha				
				Mean	Min-Max	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=
ALL WEEDS (3WEEDT)																				
MAR	**9-51**	**5-396/m²**	**134**	**89.2**	**52.5-100.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			87	90.6	52.5-100.0	97.7	46.0-100.0	-	31	58	-	-	-	-	-	-	-	-	-	-
			47	86.7	56.4-100.0	-	-	-	-	-	91.7	60.0-100.0	8	13	57	-	-	-	-	-
MED	**9-23**	**5-246/m²**	**33**	**87.3**	**62.5-100.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2	77.5	71.0-84.0	99.5	99.0-100.0	-	2	-	-	-	-	-	-	-	-	-	-	-
			31	87.9	62.5-100.0	-	-	-	-	-	92.6	61.5-100.0	5	8	18	-	-	-	-	-
SE	**11-65**	**8-134.3/m²**	**19**	**90.5**	**61.3-100.0**	-	-	-	-	-	-	-	-	-	-	87.1	46.3-100.0	7	5	7
All	**9-65**	**5-396/m²**	**186**	**89.0**	**52.5-100.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			89	**90.3**	**52.5-100.0**	**97.8**	**46.0-100.0**	-	**31**	**58**	-	-	-	-	-	-	-	-	-	-
			78	**87.2**	**56.4-100.0**	-	-	-	-	-	**92.0**	**60.0-100.0**	**8**	**13**	**57**	-	-	-	-	-
			19	**90.5**	**61.3-100.0**	-	-	-	-	-	-	-	-	-	-	**87.1**	**46.3-100.0**	**7**	**5**	**7**
ALL ANNUAL WEEDS																				
MAR	**9-30**	**5-396/m²**	**108**	**90.3**	**56.4-100.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			68	92.2	59.9-100.0	97.9	46.0-100.0	-	20	48	-	-	-	-	-	-	-	-	-	-
			40	87.0	56.4-100.0	-	-	-	-	-	**91.5**	**60.0-100.0**	**3**	**5**	**32**	-	-	-	-	-
MED	**9-22**	**5-246/m²**	**28**	**88.5**	**62.5-100.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			1	71.0	-	99.0	-	-	1	-	-	-	-	-	-	-	-	-	-	-
			27	89.2	62.5-100.0	-	-	-	-	-	94.0	61.5-100.0	5	7	15	-	-	-	-	-
SE	**11-59**	**8.5-134.3/m²**	**16**	**91.6**	**61.3-100.0**	-	-	-	-	-	-	-	-	-	-	86.0	46.3-100.0	7	3	6
ALL	**9-59**	**5-396/m²**	**152**	**90.1**	**56.4-100.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			69	**91.9**	**59.9-100.0**	**97.9**	**46.0-100.0**	-	**21**	**48**						-	-	-	-	-
			67	**87.9**	**56.4-100.0**	-	-	-	-	-	**92.5**	**60.0-100.0**	**8**	**12**	**47**	-	-	-	-	-
			16	**91.6**	**61.3-100.0**	-	-	-	-	-	-	-	-	-	-	**86.0**	**46.3-100.0**	**7**	**3**	**6**
ALL PERENNIAL WEEDS																				
MAR	**10-51**	**5-95/m²**	**26**	**84.8**	**52.5-100.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			19	84.8	52.5-100.0	97.1	78.0-100.0	-	9	10	-	-	-	-	-	-	-	-	-	-
			7	84.7	63.8-95.0	-	-	-	-	-	92.8	87.5-97.5	-	-	7	-	-	-	-	-
MED	**11-23**	**5-20/m²**	**5**	**80.4**	**74.2-86.3**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			1	84.0	-	100.0	-	-	1	-	-	-	-	-	-	-	-	-	-	-
			4	79.5	74.2-86.3	-	-	-	-	-	83.4	62.5-100.0	-	1	3	-	-	-	-	-
SE	**12-65**	**8-15/m²**	**3**	**84.4**	**63.8-100.0**	-	-	-	-	-	-	-	-	-	-	**92.9**	**78.8-100.0**	-	**2**	**1**
ALL	**10-65**	**5-95/m²**	**34**	**84.1**	**52.5-100.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			20	**84.8**	**52.5-100.0**	**97.2**	**78.0-100.0**	-	**10**	**10**										
			11	**82.8**	**63.8-95.0**	-	-	-	-	-	**89.4**	**62.5-100.0**	-	**1**	**10**	-	-	-	-	-
			3	**84.4**	**63.8-100.0**	-	-	-	-	-	-	-	-	-	-	**92.9**	**78.8-100.0**	-	**2**	**1**

Table 3.2.3-33: Effectiveness of Beloukha (BCP1004D) on all weed species assessed at 3-29 days after two applications across all situations of use

EPPO climatic zone	Weed size (BBCH) at appl'n(s)	Weed density at appl'n(s) (range)	No. of trial results	% control																
				Beloukha (BCP1004D) 16 L/ha		Basta (glufosinate-ammonium) 750-1000 g a.i./ha					Reglone (diquat) 2-5L/ha					Glyphosate standard 540-1140 g a.i./ha				
				Mean	Min-Max	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=
ALL WEEDS (3WEEDT)																				
MAR	**10-65**	**5-875/m² 7-16.8%GC**	**105**	**90.5**	**63.0-100.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			53	90.6	63.0-100.0	98.7	69.7-100.0	-	13	40	-	-	-	-	-	-	-	-	-	-
			52	90.4	65.0-100.0	-	-	-	-	-	93.8	47.5-100.0	1	11	40	-	-	-	-	-
MED	**10-22**	**5-247/m²**	**15**	**91.3**	**58.3-100.0**	-	-	-	-	-	91.1	51.0-100.0	1	2	12	-	-	-	-	-
SE	**11-81**	**7.3-135/m²**	**19**	**88.2**	**62.5-100.0**	-	-	-	-	-	-	-	-	-	-	97.2	83.8-100.0	2	9	8
All	**10-81**	**5-875/m² 7-16.8%GC**	**139**	**90.3**	**58.3-100.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			53	90.6	63.0-100.0	98.7	69.7-100.0	-	13	40	-	-	-	-	-	-	-	-	-	-
			67	90.6	58.3-100.0	-	-	-	-	-	93.2	47.5-100.0	2	13	52	-	-	-	-	-
			19	88.2	62.5-100.0	-	-	-	-	-	-	-	-	-	-	97.2	83.8-100.0	2	9	8
ALL ANNUAL WEEDS																				
MAR	**10-65**	**5-875/m²**	**86**	**90.5**	**65.0-100.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			41	90.8	72.5-100.0	98.3	69.7-100.0	-	7	34	-	-	-	-	-	-	-	-	-	-
			45	90.2	65.0-100.0	-	-	-	-	-	94.2	47.5-100.0	1	11	33	-	-	-	-	-
MED	**10-22**	**9-247/m²**	**13**	**95.1**	**82.5-100.0**	-	-	-	-	-	93.8	51.0-100.0	1	2	10	-	-	-	-	-
SE	**11-81**	**8.5-135/m²**	**16**	**88.5**	**62.5-100.0**	-	-	-	-	-	-	-	-	-	-	97.7	87.5-100.0	2	7	7
ALL	**10-81**	**5-875/m²**	**115**	**90.7**	**62.5-100.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			41	90.8	72.5-100.0	98.3	69.7-100.0	-	7	34	-	-	-	-	-	-	-	-	-	-
			58	91.3	65.0-100.0	-	-	-	-	-	94.1	47.5-100.0	2	13	43	-	-	-	-	-
			16	88.5	62.5-100.0	-	-	-	-	-	-	-	-	-	-	97.7	87.5-100.0	2	7	7
ALL PERENNIAL WEEDS																				
MAR	**12-55**	**5-95/m²**	**19**	**90.8**	**63.0-100.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			12	90.1	63.0-100.0	100.0	99.8-100.0	-	6	6	-	-	-	-	-	-	-	-	-	-
			7	92.0	66.3-100.0	-	-	-	-	-	91.1	59.2-99.9	-	-	4	-	-	-	-	-
MED	**12-15**	**5-5/m²**	**2**	**66.7**	**58.3-75.0**	-	-	-	-	-	72.9	70.8-75.0	-	-	2	-	-	-	-	-
SE	**12-71**	**7.3-15/m²**	**3**	**86.3**	**70.0-100.0**	-	-	-	-	-	-	-	-	-	-	94.6	83.8-100.0	-	2	1
ALL	**12-71**	**5-95/m²**	**24**	**88.2**	**58.3-100.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			12	90.1	63.0-100.0	**100.0**	**99.8-100.0**	-	**6**	**6**	-	-	-	-	-	-	-	-	-	-
			9	86.4	58.3-100.0	-	-	-	-	-	**87.1**	**59.2-99.9**	-	-	**6**	-	-	-	-	-
			33	86.3	70.0-100.0	-	-	-	-	-	-	-	-	-	-	**94.6**	**83.8-100.0**	-	**2**	**1**

Weed control label claims

It has been demonstrated that when used in situations relevant to those of the proposed use (weed control in grapevines), Beloukha (BCP1004D) applied once at a dose of 16 L/ha will provide an overall level of control of annual dicotyledonous weeds (3ANDIT) and annual monocotyledonous weeds equivalent to a SANCO rating of 'Susceptible'. However, to aid the user some 'example weed species' will be included on the label, specifically, those annual dicotyledonous and monocotyledonous weeds with three or more trials results, will be specifically included on the product label (see Table 3.2.3-34 and Table 3.2.3-35).

Table 3.2.3-34: Overall %control of 3ANDIT weed species from 1 application of Beloukha (BCP1004D)

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at 1st appl'n	Weed density at 1st appl'n (range)	No. results	% control Beloukha (BCP1004D) at 16 L/ha		SANCO rating - Beloukha (BCP1004D)
					Mean	Min-Max	
ANNUAL DICOTYLEDONOUS WEEDS (3ANDIT)							
ABUTH	MED	09	12.8/m²	1	**90.7**	-	**S**
AMACH	MAR	11	7.8/m²	1	**75.0**	-	**MS**
AMARE	MAR	10-14	13-45/m²	3	**87.3**	66.3-97.8	**S**
	SE	13	32/m²	1	**100.0**	-	**HS**
	MED	10-12	5.5-90/m²	4	**80.5**	65.0-89.6	**MS**
	ALL	10-14	5.5-90/m²	8	**85.5**	65.0-100.0	**S**
AMBEL	SE	12-18	9.5-103/m²	3	**82.4**	61.3-100.0	**MS**
ARBTH	MAR	12	40/m²	1	**100.0**	-	**HS**
BEAVA	MED	11	8/m²	1	**63.1**	-	**MS**
BRSNW	MED	11	20/m²	1	**97.5**	-	**HS**
	MAR	14	n/d	1	**88.8**	-	**S**
	ALL	11-14	20/m²	2	**93.2**	88.8-97.5	**S**
CAPBP	MAR	10-10	22-65/m²	2	**98.2**	96.8-99.5	**HS**
	MED	12	5/m²	1	**87.5**	-	**S**
	ALL	10-12	5-65/m²	3	**94.6**	87.5-99.5	**S**
CARFL	MAR	10	32/m²	1	**98.8**	-	**HS**
CARHI	MAR	14	18.8/m²	1	**93.9**	-	**S**
CHEAL	MAR	10-14	6-85.8/m²	14	**92.5**	56.4-100.0	**S**
	SE	18	61.8/m²	1	**86.0**	-	**S**
	MED	10-11	6-30/m²	5	**84.8**	65.0-100.0	**MS**
	ALL	10-18	6-85.8/m²	20	**90.3**	56.4-100.0	**S**
CHEHY	MAR	10-10	10-24/m²	2	**100.0**	100.0-100.0	**HS**
CHEPO	MAR	10-12	14-48/m²	2	**98.6**	97.3-100.0	**HS**
CHERE	MAR	11	5/m²	1	**86.3**	-	**S**
FUMOF	MAR	12	14.8/m²	1	**99.4**	-	**HS**
GASPA	MAR	10-14	21-211/m²	5	**87.6**	77.5-100.0	**S**
GERDI	MAR	10-15	7-15/m²	4	**87.1**	73.8-100.0	**S**
GERPU	SE	59	11/m²	1	**92.0**	-	**S**
GERRT	MED	22	30/m²	1	**71.0**	-	**MS**
HIBTR	SE	11	8.5/m²	1	**100.0**	-	**HS**
LAMAM	MAR	10-10	13-15/m²	3	**98.7**	96.0-100.0	**HS**
LAMPU	MAR	10-12	5-79.5/m²	6	**89.3**	65.2-99.5	**S**
MATCH	MAR	13-18	20/m²	2	**95.4**	93.3-97.5	**HS**
	MED	10-10	16-18.8/m²	2	**96.6**	95.0-98.3	**HS**
	ALL	10-18	16-20/m²	4	**96.0**	93.3-98.3	**HS**
MATIN	MAR	10-12	9-11.5/m²	3	**76.9**	61.3-92.0	**MS**
MATMT	MAR	12-12	8-9/m²	2	**90.8**	90.0-91.5	**S**
MERAN	MAR	10	7/m²	1	**98.5**	-	**HS**
MYOAR	MAR	10	167/m²	1	**72.7**	-	**MS**
POLAV	MAR	12	11/m²	1	**90.8**	-	**S**
POLCO	MAR	11	27/m²	1	**81.7**	-	**MS**
POLPE	MAR	10	10.5/m²	1	**85.0**	-	**S**
POROL	SE	12-12	17.5-41.8/m²	2	**100.0**	100.0-100.0	**HS**
	MED	10-12	5.3-246/m²	6	**90.6**	62.5-98.9	**S**
	ALL	10-12	5.3-246/m²	8	**92.9**	62.5-100.0	**S**
POROT	SE	12	22/m²	1	**100.0**	-	**HS**
SENVU	MAR	10-30	7-145/m²	10	**92.7**	75.0-100.0	**S**
SOLNI	MAR	10-11	6-19/m²	4	**87.3**	69.6-100.0	**S**
	SE	16-16	16-21/m²	2	**84.8**	83.8-85.8	**MS**
	MED	10-10	5.5-55/m²	3	**100.0**	100.0-100.0	**HS**
	ALL	10-16	5.5-55/m²	9	**91.0**	69.6-100.0	**S**
SONOL	MED	11	16/m²	1	**100.0**	-	**HS**
STEME	MAR	10-18	7-396/m²	11	**92.4**	71.3-100.0	**S**

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at 1st appl'n	Weed density at 1st appl'n (range)	No. results	% control Beloukha (BCP1004D) at 16 L/ha		SANCO rating - Beloukha (BCP1004D)
					Mean	Min-Max	
URTUR	MAR	10-10	5-163.8/m²	3	**84.9**	76.3-99.0	**MS**
VERAG	MAR	10-11	24-27/m²	2	**92.5**	90.0-95.0	**S**
VERHE	MAR	10-25	5-26/m²	3	**88.5**	74.0-96.0	**S**
VERPE	MAR	10-10	7-167/m²	4	**87.2**	59.9-97.3	**S**
	MED	12	8/m²	1	**90.0**	-	**S**
	ALL	10-12	7-167/m²	5	**87.7**	59.9-97.3	**S**
VERSS	MAR	11	36.8/m²	1	**89.5**	-	**S**
VIOAR	MAR	12	9/m²	1	**99.0**	-	**HS**

Table 3.2.3-35: Overall %control of 3ANMNT weed species from 1 application of Beloukha (BCP1004D)

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at 1st appl'n	Weed density at 1st appl'n (range)	No. results	% control Beloukha (BCP1004D) at 16 L/ha		SANCO rating - Beloukha (BCP1004D)
					Mean	Min-Max	
ANNUAL MONOCOTYLEDONOUS WEEDS (3ANMNT)							
BROST	MAR	24	20.5/m²	1	**72.5**	-	**MS**
DIGSA	SE	12-13	33.3-45/m²	2	**100.0**	100.0-100.0	**HS**
	MAR	13	8/m²	1	**99.8**	-	**HS**
	ALL	12-13	8-45/m²	3	**99.9**	99.8-100.0	**HS**
ECHCG	MAR	10-12	7-100/m²	2	**82.3**	68.8-95.8	**MS**
	SE	13	134.3/m²	1	**85.5**	-	**S**
	ALL	10-13	7-134.3/m²	3	**83.4**	68.8-95.8	**MS**
POAAN	MAR	9-30	7.5-158.8/m²	5	**87.0**	75.0-98.8	**S**
SETVI	SE	31	17/m²	1	**85.8**	-	**S**

It has also been demonstrated that although one application of Beloukha (BCP1004D) at 16 L/ha is likely to provide adequate control of perennial weeds, especially if still small and germinating from seed, many perennial weeds will emerge from 'rootstocks' or 'rhizomes'. Under these circumstances, a repeat application of Beloukha (BCP1004D) at 16 L/ha may provide 'enhanced control' (see Table 3.2.3-36). Also, to aid the user, some 'example weed species' will be included on the label, specifically, those perennial weeds with three or more trials results, will be specifically included on the product label (see Table 3.2.3-37).

Table 3.2.3-36: 'Enhanced perennial weed control' using 2 applications of Beloukha (BCP1004D)

Weed EPPO code	EPPO climatic zone	No. results	Weed size at (BBCH)		Weed density (range)		% control with Beloukha (BCP1004D) at 16 L/ha			
			1st appl'n	2nd appl'n	1st appl'n	2nd appl'n	After one appl'n (3-27 DA-A)		After two appl'n (3-29 DA-B)	
							Mean	Min-Max	Mean	Min-Max
PERENNIAL DICOTYLEDONOUS WEEDS (3PEDIT)										
BELPE	MAR	1	14	17	17/m²	16/m²	**82.5**	-	**92.3**	-
CARPR	MAR	1	14	12	76/m²	76/m²	**80.0**	-	**100.0**	-
CONAR	SE	2	12-65	12-71	8-8.3/m²	7.3-12/m²	**81.9**	63.8-100.0	**85.0**	70.0-100.0
CIRAR	MAR	1	16	38	5/m²	5/m²	**82.5**	-	**97.5**	-
EPIHI	MAR	1	14	19	30/m²	15/m²	**92.5**	-	**90.0**	-
ERICA	SE	1	14	33	15/m²	15/m²	**89.5**	-	**88.8**	-
	MED	1	12	12	5/m²	5/m²	**75.0**	-	**75.0**	-
	ALL	2	12-14	12-33	5-15/m²	5-15/m²	**82.3**	75.0-89.5	**81.9**	75.0-88.8
PLALA	MAR	1	19	19	7.3/m²	6.5/m²	**52.5**	-	**78.8**	-
PLAMA	MAR	2	14-15	16-16	10-11/m²	11-17.5/m²	**94.8**	90.0-99.5	**97.4**	95.0-99.8
TRFRE	MAR	1	30	30	11/m²	11/m²	**99.3**	-	**96.0**	-
TRFSS	MAR	1	51	30	12.5/m²	12.5/m²	**63.8**	-	**66.3**	-
PERENNIAL MONOCOTYLEDONOUS WEEDS (3PEMNT)										
FESSS	MAR	1	30	30	12/m²	11/m²	**80.0**	-	**92.5**	-

Table 3.2.3-37: %control of perennial weed species from 2 applications of Beloukha (BCP1004D)

Weed EPPO code	EPPO climatic zone	Weed size (BBCH) at 2nd appl'n	Weed density at 2nd appl'n (range)	No. results	% control Beloukha (BCP1004D) at 16 L/ha		SANCO rating - Beloukha (BCP1004D)
					Mean	Min-Max	
PERENNIAL DICOTYLEDONOUS WEEDS (3PEDIT)							
ARFLA	MAR	12	64/m²	1	**97.5**	-	**HS**
BELPE	MAR	17	16/m²	1	**92.3**	-	**S**
CARPR	MAR	12	76/m²	1	**100.0**	-	**HS**
CONAR	SE	12-71	7.3-12/m²	2	**85.0**	70.0-100.0	**S**
	MED	15	5/m²	1	**58.3**	-	**MS**
	ALL	12-71	5-12/m²	3	**76.1**	58.3-100.0	**MS**
CIRAR	MAR	38	5/m²	1	**97.5**	-	**HS**
EPIHI	MAR	19	15/m²	1	**90.0**	-	**S**
EPISS	MAR	32	9/m²	1	**99.3**	-	**HS**
EQUAR	MAR	12	95/m²	1	**100.0**	-	**HS**
ERICA	SE	33	15/m²	1	**88.8**	-	**S**
	MED	12	5/m²	1	**75.0**	-	**MS**
	ALL	12-33	5-15/m²	2	**81.9**	75.0-88.8	**MS**
PLALA	MAR	19	6.5/m²	1	**78.8**	-	**MS**
PLAMA	MAR	16-16	11-17.5/m²	2	**97.4**	95.0-99.8	**HS**
TAROF	MAR	12-55	6-27/m²/10%GC	6	**86.7**	63.0-100.0	**S**
TRFRE	MAR	30	11/m²	1	**96.0**	-	**HS**
TRFSS	MAR	30	12.5/m²	1	**66.3**	-	**MS**
PERENNIAL MONOCOTYLEDONOUS WEEDS (3PEMNT)							
FESSS	MAR	30	11/m²	1	**92.5**	-	**S**

Table of Weed Control Label Claims for Beloukha (BCP1004D) at 16 L/ha in Grapevines

WEED CONTROL:

Beloukha is a non-selective contact acting herbicide, so should be applied within the rows of grapevines, being careful to avoid the leaves, fruits or green shoots of the grapevines. Application should be made post-emergence, to small, actively growing weeds, preferably no larger than BBCH 16-18 of the broad-leaved weeds and BBCH 12-13 of the grass weeds. Where the weed spectrum includes perennial weeds, these may be adequately controlled using one application of Beloukha at 16 L/ha. However, to provide more consistent control of these difficult to control perennial weeds, it may be necessary to apply a second application of Beloukha at 16 L/ha. Also, as Beloukha is a contact acting herbicide, it has no residual activity, so weeds germinating or emerging after application will not be controlled.

A single application of 16 L/ha Beloukha will control annual broad-leaved and grass weeds, including:

Weed species	EPPO code	Weed growth stages controlled (BBCH)	Weed susceptibility rating
Amaranthus retroflexus	AMARE	10-18	MS
Capsella bursa-pastoris	CAPBP	10-18	S
Chenopodium album	CHEAL	10-18	S
Galinsoga parviflora	GASPA	10-18	S
Geranium dissectum	GERDI	10-18	S
Lamium amplexicaule	LAMAM	10-18	S
Lamium purpureum	LAMPU	10-18	S
Matricaria species	MATSS	10-18	S
Polygonum species	POLSS	10-18	S
Portulaca oleracea	POROL	10-18	S
Senecio vulgaris	SENVU	10-18	S
Solanum nigrum	SOLNI	10-18	S
Stellaria media	STEME	10-18	S
Urtica urens	URTUR	10-18	S
Veronica species	VERSS	10-18	S
Digitaria sanguinalis	DIGSA	10-13	S
Poa annua	POAAN	10-13	S

A single application of 16 L/ha Beloukha will provide useful control of perennial broad-leaved and grass weeds, but may require a second application (minimum interval 14 days) to provide adequate control of these weeds, including:

Weed species	EPPO code	Weed growth stages controlled (BBCH)	Weed susceptibility rating
Plantago species	PLASS	10-16	S
Taraxacum officinale	TAROF	10-16	S

3.2.3.7 Sucker control in grapevines

The data set to demonstrate the efficacy of Beloukha (BCP1004D), trials results from the EPPO Maritime climatic zone and the EPPO South-East climatic zone have been summarised in Table 3.2.3-38 and Table 3.2.3-39. The relevance of sucker control data from outside the EPPO Maritime climatic zone is considered relevant, as Beloukha (BCP1004D) containing pelargonic acid, is a contact acting herbicide, so climatic conditions which are suitable for sucker development in grapevine (warm and moist conditions, with sufficient soil moisture) can occur in both the EPPO climatic zones, during the summer period. In the non-Maritime EPPO climatic zone trials, development of suckers continued for the duration of the trials (21-47 days after the first application), suggesting that conditions remained favourable for sucker development. In addition, the levels of control of suckers were similar across the two different EPPO climatic zones, especially using the proposed dose (16 L/ha) of Beloukha (BCP1004D), applied either once or as two sequential treatments. The proposed dose (16 L/ha) of Beloukha (BCP1004D) was compared to the standard reference products, Basta (containing glufosinate-ammonium), Spotlight Plus or Shark (containing carfentrazone-ethyl) and Madrigal (containing glyphosate), applied at the doses authorised in those Member States where the trials were conducted.

Data from a total of nine sucker control trials have been provided to demonstrate minimum effective dose, conducted in Austria (3 trials), Germany (3 trials), Northern France (2 trials) and Hungary (1 trial), between 2012 and 2019. The number of suckers and lengths (by class) were assessed in each trial (>5cm, 5-15cm, 15-25cm and >25cm), and then % control was calculated for each trial, based on reduction in overall length of suckers per treatment.

Assessments were also made of new sucker growth and re-growth of suckers following application, but these were less consistent measures of effectiveness, as when the initial sucker size was smaller and control was good, new sucker growth was more rapid, but re-growth was slower, compared to when the initial sucker size was larger, where new sucker growth was slower, but re-growth was quicker.

Summary and conclusions

Across the nine trials where sucker control was assessed in grapevines following a single application of Beloukha (BCP1004D) 9-22 days after application, the proposed dose (16 L/ha) achieved mean control of 87.7% (range 44.8-100%), compared to mean control of 98.8% (range 93.1-100%) using Spotlight Plus or Shark (carfentrazone-ethyl), 39.1% control using Basta (glufosinate-ammonium) and 66.3% control using Madrigal (glyphosate).

Across the five trials where sucker control was assessed in grapevines following two sequential applications of Beloukha (BCP1004D) 9-26 days after the second application, the proposed dose (16 L/ha) achieved mean control of 83.9% (range 49.6-100%), compared to mean control of 98.4% (range 97.9-99.0%) using Shark (carfentrazone-ethyl) and 79.0% control using Madrigal (glyphosate).

These data clearly demonstrate that the proposed dose (16 L/ha) of Beloukha (BCP1004D) applied as either a single application or as two sequential applications provided very good control of suckers in grapevines (>80%). The use of two sequential applications of 16 L/ha Beloukha (BCP1004D) is considered necessary as it is a contact acting herbicide, so new sucker growth after application would not be controlled by the initial application, but as the level of control is good from a single application, this would promote the growth of new suckers, requiring a further application to control those new suckers. Although not clear from the data provided, Beloukha (BCP1004D) applied at 16 L/ha to suckers in grapevines is more effective on smaller suckers, the trial with the lowest level of control (44.8%) was the trial where the mean length of suckers at the initial application was the longest (17.0cm), indicating that suckers >25cm are likely to be less well controlled than when applied to smaller suckers (i.e., 0-15cm).

These data fully support the 16 L/ha dose of Beloukha (BCP1004D), for the control of suckers (optimum control for suckers up to 25cm) in grapevines, in Germany.

Table 3.2.3-38: Effectiveness of Beloukha (BCP1004D) against grapevine suckers assessed at 9-22 days after one application

EPPO code	EPPO climatic zone	Sucker size (BBCH) at appl'n	No. of suckers at appl'n (range)	No. of trial results	% control																
					Beloukha (BCP1004D)		Basta (glufosinate-ammonium)					Spotlight Plus/Shark (carfentrazone-ethyl)					Madrigal (glyphosate)				
					16 L/ha		375 g a.s/ha		Comparison with Basta			0.3-0.5 L/ha		Comparison with Spotlight Plus/Shark*			1440 g a.s./ha		Comparison with Madrigal		
					Mean	Min-Max	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=
GRAPEVINE SUCKERS																					
YEXST	MAR	6cm-17cm 0-25cm*	2-36.9/vine 16.8/plot	8	88.2	44.8-100	39.1	-	1	0	0	98.8	93.1-100	0	2	5	-	-	-	-	-
YEXST	S-E	15cm	14.25/m^2	1	83.5	-	-	-	-	-	-	-	-	-	-	-	66.3	-	1	-	-
All (YEXST)	**ALL**	**6cm-17cm 0-25cm***	**2-36.9/vine 16.8/plot 14.25/m^2**	**9**	**87.7**	**44.8-100.0**	**39.1**	**-**	**2**	**0**	**0**	**98.8**	**93.1-100**	**0**	**2**	**5**	**66.3**	**-**	**1**	**-**	**-**

* When result is a mean across length classes of sucker, statistical differences have been counted if present for any length class.

Table 3.2.3-39: Effectiveness of Beloukha (BCP1004D) against grapevine suckers assessed at 9-26 days after two applications

Weed EPPO code	EPPO climatic zone	Sucker size (BBCH) at appl'n	No. of suckers at appl'n (range)	No. of trial results	% control											
					Beloukha (BCP1004D)		Madrigal (glyphosate)					Shark (carfentrazone-ethyl)				
					16 L/ha		1440 g a.s./ha		Comparison with Madrigal			0.5 L/ha		Comparison with Spotlight Plus/Shark*		
					Mean	Min-Max	Mean	Min-Max	>	<	=	Mean	Min-Max	>	<	=
GRAPEVINE SUCKERS																
YEXST	MAR	6cm-17cm 0-25cm*	3.1-36.9/vine	4	84.8	49.6-100	-	-	-	-	-	98.4	97.9-99.0	0	1	3
YEXST	S-E	15cm	14.25/m^2	1	80.5	-	79.0	-	0	0	1	-	-	-	-	-
All (YEXST)	**ALL**	**6cm-17cm 0-25cm***	**3.1-36.9/vine 14.25/m^2**	**5**	**83.9**	**49.6-100**	**79.0**	**-**	**0**	**0**	**1**	**98.4**	**97.9-99.0**	**0**	**1**	**3**

* When result is a mean across length classes of sucker, statistical differences have been counted if present for any length class.

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Conclusion – Efficacy tests
Trials were conducted according to EPPO Standard PP1/64 –Weeds in grapevine. Sufficient results from young vineyards are not dealt with.

Use 001 (annual monocotyledonous and annual dicotyledonous weeds)
To support Beloukha for weed control in grapevine, efficacy data for control of annual dicotyledonous weeds and annual monocotyledonous weeds are presented from 25 efficacy trials in grapevine. A total of 6 – 15 trials with results that is fully supportive for the herbicide should be sufficient to demonstrate efficacy against a major target weed (EPPO Standard PP1/226 Number of efficacy trials). This number of trials is not reached for one single species. So the EPPO Standard is not fulfilled.
Furthermore, the presented reference herbicide Basta (glufosinate-ammonium) shows a better control than Beloukha. However, the herbicide Basta is no longer authorised. Last but not least the applicant presented additional trials from orchards (11 on pome fruit and 9 on stone fruit), 19 trials from various annual and perennial row-crops (post-emergence to the weeds), 7 trials from tree nursery or ornamental crops and 5 from non-crop situations assessed between 2012 and 2019 in Austria, Belgium, the Czech Republic, Denmark, Germany, France, the Netherlands, the United Kingdom, Italy, Hungary and Romania the number of trials submitted is accepted as sufficient.
The results from the other uses are accepted here because the number of approved herbicides in viticulture in Germany is very limited, especially if the active ingredient glyphosate is discontinued. Under these conditions the submitted results for the efficacy of Beloukha are accepted as sufficient.

Use 002 (suckers)
To support this product for sucker control in grapevine, efficacy data for sucker control are presented from 9 trials carried out 2012, 2013, 2018 and 2019 in Austria, Germany and France. Across the nine trials where sucker control was assessed in grapevines following a single application of Beloukha (BCP1004D) 9-22 days after application, the proposed dose (16 L/ha) achieved mean control of 87.7% (range 44.8-100%), compared to mean control of 98.8% (range 93.1-100%) using Spotlight Plus or Shark (carfentrazone-ethyl) or 39.1% control using Basta (glufosinate-ammonium).
Across the five trials where sucker control was assessed in grapevines following two sequential applications of Beloukha (BCP1004D) 9-26 days after the second application, the proposed dose (16 L/ha) achieved mean control of 83.9% (range 49.6-100%), compared to mean control of 98.4% (range 97.9-99.0%) using Shark (carfentrazone-ethyl).
These demonstrate that the proposed dose (16 L/ha) of Beloukha (BCP1004D) applied as either a single application or as two sequential applications provided good control of suckers in grapevines (>80%). The use of two sequential applications of 16 L/ha Beloukha (BCP1004D) is considered necessary as it is a contact acting herbicide, so new sucker growth after application would not be controlled by the initial application. But as the level of control is good from a single application, this would promote the growth of new suckers, requiring a further application to control those new suckers. Although it is not clear from the data provided, whether Beloukha (BCP1004D) applied at 16 L/ha to suckers in grapevines is more effective on smaller suckers, the trial with the lowest level of control (44.8%) was the trial where the mean length of suckers at the initial application was the longest (17.0 cm), indicating that suckers >25 cm are likely to be less well controlled as if applied to smaller suckers (i.e., 0-15 cm).
These data support the 16 L/ha dose of Beloukha (BCP1004D), for the control of suckers (optimum control for suckers up to 25 cm) in grapevines in Germany.

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

Beloukha (BCP1004D) contains 680 g/L pelargonic acid (a fatty acid belonging to the C_7-C_{20} group of fatty acids). It is used for sucker control in vines and also as a post-emergence herbicide in vines.

3.3.1 Mode of action

Pelargonic acid is a fatty acid belonging to the C_7-C_{20} group of fatty acids. After application of pelargonic acid on the plant tissues, the active substance increases the permeability of the wax layer, resulting in a disruption of the cuticle and then disrupts normal cell membrane permeability. Uncontrolled leakage of cell contents occurs. Water loss is increased by warm temperatures and UV rays from sunlight. The cells collapse leading to death of the plant tissue. Pelargonic acid is not translocated in plants and does not provide residual weed control. Because of this mode of action, pelargonic acid is a broad spectrum, non-persistent, non-systemic, contact herbicide with a relatively fast action.

The C_7-C_{20} group of fatty acids are members of HRAC mode of action Group 0, formerly Group Z (unknown mode of action)[1].

3.3.2 Mechanism of resistance

As the mode of action of pelargonic acid is classified by HRAC as 'unknown', the mechanisms of resistance are also unable to be identified, currently.

3.3.3 Evidence of resistance

There are currently no reports of weed species resistant specifically to pelargonic acid. The International Herbicide-Resistant Weed Database[2] indicates that only one resistant weed biotype has been reported worldwide against the HRAC Group 0 (formerly Group Z) herbicides, and that is in *Poa annua*, in Australia, to endothal. However, it is suggested that this biotype may also be cross-resistant to other HRAC Group 0 (formerly Group Z) herbicides (see Table 3.3.3-1).

No cases of resistance to pelargonic acid or any other HRAC Group 0 (formerly Group Z) have been reported in any weed species in Europe. NOTE: Endothal is not approved for use in the EU.

Table 3.3.3-1: Resistance to HRAC Group 0 (formerly Group Z) herbicides worldwide

No.	Species	Year	Country	MOAs	Actives	Situations
1	*Poa annua* Annual meadow-grass	2009	Australia	HRAC Group 0 (unknown) *5 SOAs	bispyribac-sodium, **endothal,** foramsulfuron, glyphosate, iodosulfuron-methyl-Na, propyzamide/pronamide, rimsulfuron, and simazine	Golf courses (amenity turf)

Heap, I. The International Herbicide-Resistant Weed Database. Online. Monday, October 11, 2021. Available www.weedscience.org

[1] https://hracglobal.com/files/GHRAC_MOA_UPDATE_2020.pdf
[2] Heap, I. The International Herbicide-Resistant Weed Database. Online. Monday, October 11, 2021. Available: www.weedscience.org

3.3.4 Cross-resistance

No cases of resistance to pelargonic acid or any other HRAC Group 0 (formerly Group Z) have been reported in any weed species in Europe. Therefore, cross-resistance is not considered an issue for pelargonic acid. Whilst the modes of action for herbicides in HRAC Group 0 (formerly Group Z) is unknown, it is likely that they differ in their mode of action between themselves and from other groups. As no resistance cases have been reported so far to pelargonic acid and considering the mode of action of pelargonic acid, it is very unlikely that weeds will develop resistance or cross-resistance to pelargonic acid.

3.3.5 Sensitivity data

As pelargonic acid is an existing active substance in the EU (first authorised in 2007), the baseline sensitivity to weeds can no longer be established. Therefore, no baseline sensitivity data have been submitted.

3.3.6 Use pattern

The proposed use of Beloukha (BCP1004D) is for two applications per year of 16.0 L/ha (10880 g a.s./ha pelargonic acid), applied post emergence of the weeds (and for the control of suckers) from BBCH 00-99 to grapevine. The product is intended to control annual dicotyledonous and monocotyledonous weeds as a directed spray within the rows (between plants) and to the base of the stems of grapevines, where suckers emerge, carefully avoiding the foliage and fruit. As a row treatment a maximum of 50% of the vineyard surface area will be treated with the product.

3.3.7 Resistance risk assessment of unrestricted use pattern

This resistance risk assessment has been completed in accordance with EPPO Standard PP 1/213(4) 'Resistance risk analysis' and with reference to the resistance risk matrix developed by Moss *et al.*, (2019).

			WEED RISK			
			Low	**Medium**	**High**	
			1	**2**	**3**	
			All other weed species	AVESS ECHSS ERISS MATSS PHASS SENVU STEME	ALOMY AMASS APESV CHESS LOLSS PAPRH	
HERBICIDE RISK	**High** [HRAC: 1, 2, 5 (triazines triazinones, triazolinones, pyridazinones, phenyl-carbamates and uracils)]	**3**	**3**	**6**	**9**	**Unmodified Risk (x1)**
			2	**4**	**6**	**Partially modified (x0.67)**
			1	**2**	**3**	**IWM (x0.33)**
	Medium [HRAC: 4, 9, 22, 5 (amides and ureas)]	**2**	**2**	**4**	**6**	**Unmodified Risk (x1)**
			1.3	**2.7**	**4**	**Partially modified (x0.67)**
			0.7	**1.3**	**2**	**IWM (x0.33)**
	Low [HRAC: 3, 6, 10, 12, 13, 14, 15, 18, 19, 23, 24, 27, 29, 30, 31, 32, 33, 34, ∅]	**1**	**1**	**2**	**3**	**Unmodified Risk (x1)**
			0.7	**1.3**	**2**	**Partially modified (x0.67)**
			0.3	**0.7**	**1**	**IWM (x0.33)**

Weed risk is by species or genera. Herbicide risk is by HRAC mode of action group (2020)
IWM = Integrated Weed Management.
Overall herbicide resistance risk: Low = 0.3-2.7; Moderate = 3-4; High = 6; Very High = 9.
Adapted from Moss, et al. (2019) 'A herbicide resistance risk matrix'. Crop Protection 115, pp 13-19.

Key:

Score	Resistance risk
9	Very high
6	High
3-4	Moderate
0.3-2.7	Low

Inherent risk of Beloukha (BCP1004D) containing pelargonic acid

Pelargonic acid (HRAC Group 0, formerly Group Z) is used for the post-emergence control of annual dicotyledonous and monocotyledonous weeds. As only on case of resistance worldwide has been reported to HRAC Group 0 (formerly Group Z) herbicides (endothall), and that was in Australia against *Poa annua*, and none to pelargonic acid, it can be considered to be in the **low**-risk category (Moss *et al.*, 2019).

Also, as endothal is not approved for use in the EU, cross-resistance risk between members of the HRAC Group 0 (formerly Group Z) herbicides can be considered as also being **low**, as their modes of action although classed as 'unknown', are likely to be different to each other.

Overall, the inherent resistance risk for Beloukha (BCP1004D) containing pelargonic acid, is considered to be **low**.

Inherent risk of target weed species

As resistance to pelargonic acid has not been seen since its initial registration (1995 – USA), in any weed species, the inherent risk even to 'high risk' weeds (such as PAPRH, ALOMY, APESV) can be considered to be **low** (Moss *et al*., 2019). Overall, the inherent resistance risk for the target weed species for Beloukha (BCP1004D) containing pelargonic acid, is considered to be **low**.

Agronomic risk of resistance

Agronomic factors can contribute to the development and establishment of resistant weed populations, particularly where herbicide use patterns are unrestricted, and agronomic factors have been identified in assisting the development of resistance. These factors include short rotations, geographical distribution of the crop, mono-cropping/continuous cropping, application techniques, frequency of applications, and reliance on a single active substance/mode of action [EPPO PP 1/213(4) 'Resistance risk analysis', and Moss *et al*., (2019)].

The following agronomic practices may increase the risk of resistance to for Beloukha (BCP1004D) containing pelargonic acid.

- Reducing doses below effective rates, or repeating applications of low or split doses, so increasing the likelihood of survivors.
- Sub-optimal applications, such as in poor weather conditions, when weeds are too large, or with inappropriate application equipment, which can reduce effectiveness and increase the likelihood of survivors.
- Repeated applications of a single active substance (or mode of action) over a single season or over several years, increases selection pressure for resistance. This is particularly true where repeated applications are consecutive or where weed control is over-reliant on a single mode of action.
- Reduced cultivation can allow seed from resistant biotypes to accumulate in the surface soil layers and dominate weed populations upon germination. Although this can form part of a resistance management strategy (allowing germination then treating with a non-selective herbicide), careful management is required to avoid resistant weed populations to become established or spread.

Resistance to pelargonic acid has not developed in the EU. Therefore, the agronomic resistance risk using pelargonic acid can be considered as being **low**.

Overall resistance risk of unrestricted use pattern

The overall resistance risk from the unrestricted use of Beloukha (BCP1004D) containing pelargonic acid, according to mode of action, target weeds, and agronomic factors is considered to be **low**. This corresponds

to a risk factor range of 0.3-1.0 (Moss *et al.*, 2019), with the lowest risk in the range (0.3) corresponding to the risk of resistance development in low-risk weeds and the highest risk (1.0) corresponding to high-risk weeds, such as PAPRH.

In practice, pelargonic has been in commercial usage in the EU since 2007, without any weeds developing resistance to the active substance. However, it remains important to manage any potential risk for the development of resistance, so the advice on the product label focuses on how to obtain optimum levels of control, but applying to small, actively growing weeds, and using a re-application when new germinations of weeds occur or to improve the control of 'more difficult to control' weed species.

3.3.8 Test methods

No testing was conducted. Pelargonic acid has been in widespread commercial use since its first authorisation in Europe in 2007, so no new studies were considered necessary.

3.3.9 Acceptability of the resistance risk

The resistance risk of an unrestricted use pattern of Beloukha (BCP1004D) containing pelargonic acid, is considered to be **low**, based on the resistance risk matrix (Moss *et al.*, 2019).

3.3.10 Management strategy

Based on the resistance risk matrix (Moss *et al.*, 2019) the resistance risk of Beloukha (BCP1004D) containing pelargonic acid, when used against annual dicotyledonous and monocotyledonous weeds in grapevine is considered to be **low**. Therefore, no specific resistance risk management strategy is necessary.

However, the principles of *Good Agricultural Practice* and *Good Plant Protection Practice*, as detailed in the EPPO Standard PP 2/1(2), should be followed, hence limiting the applications to two per crop for weed control and 2 per crop for the control of suckers, in grapevine.

It also means the following:

- Select the correct active substance and product for the weed situation.
- Follow label recommendations, particularly regarding timing, weather conditions and dosage.
- Non-chemical methods of control should be used where appropriate.
- Minimise the risk of weed invasion from adjacent non-crop areas. Grass strips between rows should be mown and maintained.
- Good spraying practice should always be followed.
- Monitor for survivors and report cases of resistance.
- The use of alternatives with alternative modes of action should be encouraged.

These practices are well understood by growers, so do not need to be communicated via instructions on the product label.

3.3.11 Implementation of the management strategy

As only the principles of *Good Agricultural Practice* and *Good Plant Protection Practice*, as detailed in the EPPO guideline PP 2/1(2), should be followed, there is no need to have a dedicated resistance management strategy for Beloukha (BCP1004D) containing pelargonic acid, for use in grapevines.

3.3.12 Monitoring, reporting and reaction to changes in performance

The approval holder will continue to ask distributors and agronomist advisors to monitor the use of Beloukha (BCP1004D) containing pelargonic acid, and if any significant changes in performance are seen (or resistance is suspected) this will be investigated. If resistance to pelargonic acid is confirmed, this will be reported to the appropriate authority.

It is considered that this area of the risk assessment fully complies with the Uniform Principles of Regulation 545/2011/EU with the proposed label recommendations.

Conclusion - Resistance risk assessment
A risk assessment conducted according to EPPO Standard PP1/213 (Resistance risk analysis) was provided.

Mechanisms of resistance
The herbicide Beloukha contains the active pelargonic acid.
Recently, the HRAC has revised their classification of herbicide modes of action. According to this classification nonanonic acid or pelargonic acid is now grouped into the HRAC group 0 (Unknown mode of action). This group is non-homogenous and modes of action of its actives are largely unknown. Pelargonic acid is a contact herbicide that is not systemically transported within its target plant. It induces bleaching and wilting of the covered plant parts.

Evidence of resistance and cross resistance
So far, no cases of herbicide resistance are known for pelargonic acid (www.weedscience.org, assessed May 2023)

Analysis of the inherent risk
The inherent resistance risk of the active is rated low since no resistance cases are known.
In contrast to the applicant's rating, the inherent risk of the target weed species is rated high. There are several weed species, which have already developed resistance to one or more herbicide modes of action.

Variation of sensitivity
The applicant did not provide data on the variation of sensibility.

Analysis of the agronomic risk
Beloukha is intended to control annual monocotyledonous and dicotyledonous weeds in vinyards. In this permanent cropping situation, consecutive applications of Beloukha are likely. Accordingly, the agronomic risk is moderate.

Summary and conclusion
The overall resistance risk is low.

Management strategy
The applicant refers to Good Agricultural Practice to prevent the evolution of herbicide resistance towards Beloukha.

3.4 Adverse effects on treated crops (KCP 6.4)

Information on trials submitted (3.4 Crop selectivity data)

This dossier contains 6 selectivity trials on grapevine (VITVI) undertaken to assess adverse effects of Beloukha (BCP1004D) on treated crops as detailed in Table 3.4-1. Four of these trials were located in countries in the EPPO Maritime climatic zone (2 in Austria and 2 in Germany) and two of these trials were conducted in the EPPO Mediterranean climatic zone (2 in Greece).

The data on VITVI from the EPPO Maritime zone and EPPO Mediterranean zone (6 trials) demonstrated no adverse effects (phytotoxicity, yield and quality) on grapevines. It is therefore considered that sufficient supported data and evidence are available to support this use in the Germany.

All trials included Beloukha (BCP1004D) applied at a dose rate of 16.0 L/ha (1N) and a 2N dose rate of 32.0 L/ha. A glufosinate-ammonium standard was included at the authorised dose rate for the relevant country the trials was undertaken in, and a 2N dose. Full details of the standard reference products can be found in Table 3.4-2. The trials conducted in the Maritime EPPO climatic zone (2 AT + 2 DE) all had a single application of Beloukha (BCP1004D) and the reference product. For the trials conducted in the Mediterranean EPPO climatic zone all treatments were applied twice at intervals ranging from 14-21 days between applications. The water volumes used ranged from 200-300 L/ha.

Table 3.4-1: Presentation of trials (selectivity trials)

Crop(s) *	Country	Years	Type of trial**	Number of trials per EPPO zone (number of valid trials)		GEP, non-GEP, official***	Comments (any other relevant information)
				Maritime	Mediterranean		
Grapevine (VITVI)	AT	2014, 2015	S + Y	2	-	GEP	
	DE	2014	S	1	-	GEP	
		2015	S + Y	1		GEP	
	EL	2018	S + Q	-	2-	GEP	
Grapevine (VITVI)	**TOTAL**		**-**	**4**	**2**	**GEP**	
	TOTAL ALL ZONES		**-**	**6**		**GEP**	

* According to the GAP table
** S = selectivity trial, Y = trial with yield assessment, Q = trial with quality assessment
*** Official: carried out by a national official organisation

The reference standards used in the trials were all glufosinate-ammonium products applied at 750 and 1500 g a.s./ha (see Table 3.4-2). This is within the registered dose rates of glufosinate-ammonium across all countries.

Table 3.4-2: Presentation of reference standards used in trials (selectivity trials)

Crop(s)	Active substance(s)	Product	Country where the product is registered[1)]	Authorization number	Formulation		Reg. rate	Rate in trial L/ha		Dose of a.s. g/ha		Remark/ Trial
					Type	Conc. a.s.		N	2N	N	2N	
Grapevine (VITVI)	Glufosinate-ammonium	Basta	AT	-	SL	200	n.a.	3.75	7.5	750	1500	
			DE	-	SL	200	n.a.	3.75	7.5	750	1500	
		Basta 200	EL	n.a.	SL	200	n.a.	3.75	7.5	750	1500	

*n/a = product registration details no longer available

Table 3.4-3: Details on trial methodology

Guidelines	General guidelines	PP 1/135(4), PP 1/152(4), PP 1/181(4), PP1/225(4)
	Specific guidelines	PP 1/64(4), PP 1/161(3)
Experimental design	Plot design	RCBD
	Plot size	EPPO Maritime zone: 14.4-16 m² EPPO Mediterranean zone: 12-22.5 m²
	Number of replications	4
Crop	Trials per crop	EPPO Maritime zone: 4 EPPO Mediterranean zone: 2
	Varieties per crop	EPPO Maritime zone: Müller Thurgau x 2, Ortega, Blauer Sylvaner EPPO Mediterranean zone: Soultanina, Corinthian
Application	Crop stage (BBCH) at application	EPPO Maritime zone: First application – BBCH 71 (2), 73 (1), 77 (1) EPPO Mediterranean zone: First application – BBCH 55 (1), 65 (1) Second application – BBCH 55 (1), 73 (1)
	Timing	EPPO Maritime zone: First application – June (1), July (3) EPPO Mediterranean zone: First application – May (2) Second application – May (1), June (1)
	Number of applications Intervals between applications	EPPO Maritime zone: 1 EPPO Mediterranean zone: 2 (14 days, 21 days)
	Spray volumes	EPPO Maritime zone: 300 L/ha EPPO Mediterranean zone: 200 L/ha
Assessment	Assessment types	EPPO Maritime zone: % Phytoxicity (necrosis, chlorosis, stunting, thining), Vigour, Yield (t/ha) EPPO Mediterranean zone: % Phytoxicity (necrosis, chlorosis, stunting, thining), Vigour, marketable fruit (number of fruit and weight per plot), Sugar content
	Assessment dates	EPPO Maritime zone: 3 days after application to 42 days after application EPPO Mediterranean zone: 4 days after first application to 172 days after second application
Other relevant information	Soil type	EPPO Maritime zone: Loamy silt (1), Loamy sand (2), Loam (1) EPPO Mediterranean zone: Sandy loam (1), Silty clay loam (1)
	Natural / artificial innoculation…	n/a
	Field / Greenhouse...	Field

All trials included in this dossier have been conducted by GEP certified companies and have been performed in accordance with the EPPO Standards and/or French CEB methods, including EPPO Standards PP 1/64(4) '*Weeds in grapevine'*, PP 1/161(3) '*Control of suckers in grapevine*' and PP 1/135 (4): '*Phytotoxicity assessment*'. Plots sizes varied from 12-22.5m², which reflects the different growing systems across the EU. However, in line with the relevant EPPO Standards, all trials contained at least 15 grapevines per plot.

3.4.1 Phytotoxicity to host crop (KCP 6.4.1)

This dossier includes 33 effectiveness trials (24 weed control trials, 8 sucker control trials and 1 combined weed control and sucker control trial) conducted to GEP across the EPPO Maritime, Mediterranean and South-East climatic zones, between 2012 and 2019 in grapevine (VITVI). NOTE: Trials which were

considered both valid and not valid for weed control have been included in the phytotoxicity dataset, along with all eight dedicated sucker control trials. Treatments were applied around the vines between April to September, from BBCH 13-85 of the crop (first application) and BBCH 57-85 of the crop (second application). Water volumes used ranged from 150-300 L/ha. Treatments were applied either once or twice (majority), at intervals ranging from 14-35 days between applications.

A summary of the varieties used, and application timings is given in Table 3.4.1-1. Full details of the trial location can be found in Table 3.2-6 and the methodologies in Table 3.2.3-1.

Table 3.4.1-1: Details on effectiveness trials – crops, varieties and application timing

Crop (EPPO code)	No. of trials per EPPO zone	Variety	Growth stage at application(s)* (BBCH)
VITVI	MAR: 25	Chardonnay (2), Grüner Veltliner (2), Blauer Wildbacher, Zweigeltrebe, Kerner, Faberrebe, Schwarzriesling (Pinot Meunier), Gamay, Merlot, Müller Thurgau (5), Huxel, Welschriesling, Sauvignon blanc, Dornfelder, Weißer Burgunder, Silvaner, Weissburgunder, Riesling	13-85
	SE: 7	Zenit, Chardonnay, Olaszrizling, Kékfrankos, Cabernet, Traminer Rose, Feteasca neagra	71-85
	MED: 1	Gamay,	57

*for a single application or across two applications

Phytotoxicity was assessed in all 33 effectiveness trials included in this dossier and vigour in some of the trials. No effects were reported for applications of Beloukha (BCP1004D) at dose rates up to 32.0 L/ha (2N dose) or any of the reference standards (including products containing glufosinate-ammonium, diquat and glyphosate) except in one trial (see Appendix 7, Table 7.3 of the BAD). In this one trial, low levels of leaf necrosis were observed from the 16 L/ha (8 L/hL) dose of Beloukha (BCP1004D) (3% necrosis on the lower foliage, 3 days after application) which declined to 1%, 21 days after application and was outgrown by 45 days after application. The reference standard (Spotlight Plus, containing carfentrazone-ethyl) had significantly higher levels of necrosis (29% at 3 days after application, lasting beyond 45 days after application). Necrosis in this trial may have developed due to high temperatures recorded on the day of application (up to 27ºC). However, for Beloukha (BCP1004D) the damage was both slight and transient, so unlikely to have any adverse impact on yield.

This dossier contains 6 selectivity trials conducted to GEP on grapevine (VITVI) undertaken to assess adverse effects of Beloukha (BCP1004D) on treated crops. Four of these trials were located in countries in the EPPO Maritime climatic zone (2 in Austria and 2 in Germany) with a further two trials conducted in the EPPO Mediterranean climatic zone (2 in Greece). All trials included Beloukha (BCP1004D) applied a dose rates of 16.0 L/ha (1N) and 32 L/ha (2N). A glufosinate-ammonium standard (Basta) was included at the authorised dose rate (and double that dose) for the relevant country the trials were conducted in. The trials conducted in the Maritime EPPO climatic zone (2 AT + 2 DE) all had a single application of Beloukha (BCP1004D) and the reference product applied from June to July at BBCH 71-77 of the crop. For the trials conducted in the Mediterranean EPPO climatic zone all treatments were applied twice at intervals ranging from 14-21 days between applications. Treatments were applied from May to June at BBCH 55-65 of the crop (first application) and BBCH 55-73 of the crop (second application). The water volumes used ranged from 200-300 L/ha.

A summary of the varieties used, and application timings is given in Table 3.4.1-1. Full details of the trial location can be found in Table 3.4-1 and the methodologies in Table 3.4-3.

Table 3.4.1-2: Details on selectivity trials – crops, varieties and application timing

Crop (EPPO code)	No. of trials per EPPO zone	Variety	Growth stage at application* (BBCH)
VITVI	MAR: 4	Müller Thurgau (2), Ortega, Blauer Sylvaner	71-77
	MED: 2	Soultanina, Corinthian	55-73

*across two applications

No phytotoxicity was found in any of the 6 selectivity trials.

A summary of the phytotoxicity across all trials is shown in Table 3.4.1-3 and full details for individual trials can be found in Appendix 7.

Table 3.4.1-3: Phytotoxicity of product

Number of trials with…		Selectivity trials (6 trials)				Efficacy trials (33 trials)	
		Beloukha (BCP1004D)		Standards*		Beloukha (BCP1004D)	Standards*
		N	2N (or other)	N	2N (or other)	N	N
Maximum phytotoxicity recorded during the trials	0%	6	6	6	6	32	32
	>1%	0	0	0	0	1 (3%)	1 (29%)
Level of symptoms at the last assessments	0%	6	6	6	6	33	32
	>1%	0	0	0	0	0	1 (21%)
Minimum vigour recorded during the trials	100% or 10[#]	6	6	6	6	33	33
	97-100%	0	0	0	0	0	0
	<97%	0	0	0	0	0	0
Vigour at the last assessments	100% or 10	6	6	6	6	33	33
	97-100%	0	0	0	0	0	0
	<97%	0	0	0	0	0	0

*Standard used was Basta (glufosinate-ammonium) applied at 750g a.s./ha (N dose).
[#]Some trials recorded vigour on a 0-5 scale, so these were converted to 0-10 for this summary table

It is concluded that sufficient data have been submitted to confirm that Beloukha (BCP1004D) when applied as proposed (between grapevines for weed control or around the base of grapevines for sucker control) using one or two applications of 16 L/ha, in line with the proposed GAP, will have no adverse effects (phytotoxicity) on treated crops.

Conclusion – Phytotoxicity to host crop
Trials were conducted according to EPPO Standard PP1/135 (Phytotoxicity assessment).

Use 001 (annual monocotyledonous and annual dicotyledonous weeds) and Use 002 (suckers)
Usually, in major crops eight selectivity trials should be presented (EPPO Standard PP1/226 Number od efficacy trials) per EPPO zone. Here, only 4 resuts for the maritime and two results for the south-eastern EPPO zone are presented.
In this case, this number of results should be enough because no phytotoxic observations were made in all the selectivity and in all efficacy trials conducted with Beloukha in grapes. Furthermore, the degradation of the active substance takes place very quickly, so that no soil effect can be assumed.

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

EPPO Standard PP 1/135 (4): *Phytotoxicity assessment*, indicates that for all herbicides, specific crop safety/selectivity trials in the absence of weeds are required.

This dossier contains 6 selectivity trials conducted to GEP on grapevine (VITVI) undertaken to assess adverse effects of Beloukha (BCP1004D) on treated crops. Three of these trials conducted in the EPPO Maritime climatic zone (2 in Austria and 1 in Germany) were assessed for yield, one trial was assessed for weight of branches and one trial was assessed for number of fruit bunches. In one trial conducted in Germany, the trial could not be harvested manually due to Botrytis infection and therefore yield could not be determined. The two trials conducted in the EPPO Mediterranean climatic zone (2 in Greece) were assessed for number of marketable fruit bunches and weight of marketable fruit bunches.

All trials included Beloukha (BCP1004D) applied at a dose rate of 16.0 L/ha (1N) and a 2N dose rate of 32.0 L/ha. A glufosinate-ammonium standard was included at the authorised dose rate for the relevant country the trials was undertaken in, and a 2N dose. The EPPO Maritime climatic zone trials all had a single application of Beloukha (BCP1004D) and the reference product applied from June to July at BBCH 71-77 of the crop. For the trials conducted in the Mediterranean EPPO climatic zone all treatments were applied twice at intervals ranging from 14-21 days between applications. Treatments were applied from May to June at BBCH 55-65 of the crop (first application) and BBCH 55-73 of the crop (second application). The water volumes used ranged from 200-300 L/ha.

Full details of the trial location can be found in Table 3.4-1 and the methodologies in Table 3.4-3.

Results are shown in Table 3.4.2-1 (tonnes of fruit per ha), Table 3.4.2-2 (weight of bunches) and Table 3.4.2-3 (number of bunches).

Table 3.4.2-1: Yield of fruit crops (t/ha) in selectivity trials

Crop (EPPO code)	EPPO Zone	No. of trials	Yield in Untreated (t/ha)		Yield as a % of untreated							
					Beloukha (BCP1004D)		Beloukha (BCP1004D)		Standard*		Standard*	
					16.0 L/ha		32.0 L/h		N		2N	
			Mean	Min-Max	Mean	Min-Max	Mean	Min-Max	Mean	Min-Max	Mean	Min-Max
VITVI	MAR	3	15.3	5.3-32.5	102.9	98.8-108.9	100.7	98.8-104.4	99.2	95.7-101.9	99.9	94.5-104.3

*Standards used in selectivity trials were glufosinate-ammonium products at 750g a.s./ha (N dose)

There was no significant differences in yield across treatments in all 3 selectivity trials. See Appendix 7 of the BAD for full details.

Table 3.4.2-2: Weight of bunches (kg/ha)

Crop (EPPO code)	EPPO Zone	No. of trials	Weight of bunches (kg/ha)		Yield as a % of untreated							
					Beloukha (BCP1004D)		Beloukha (BCP1004D)		Standard*		Standard*	
					16.0 L/ha		32.0 L/h		N		2N	
			Mean	Min-Max	Mean	Min-Max	Mean	Min-Max	Mean	Min-Max	Mean	Min-Max
VITVI	MAR	1	1466.7	-	100.4	-	103.8	-	97.5	-	98.7	-

*Standards used in selectivity trials were glufosinate-ammonium products at 750g a.s./ha (N dose)

Table 3.4.2-3: Number of bunches (per 10 plants)

Crop (EPPO code)	EPPO Zone	No. of trials	Number of bunches		Yield as a % of untreated							
					Beloukha (BCP1004D)		Beloukha (BCP1004D)		Standard*		Standard*	
					16.0 L/ha		32.0 L/h		N		2N	
			Mean	Min-Max	Mean	Min-Max	Mean	Min-Max	Mean	Min-Max	Mean	Min-Max
VITVI	MAR	1	63.3	-	109.5	-	108.2	-	109.8	-	100	-

*Standards used in selectivity trials were glufosinate-ammonium products at 750g a.s./ha (N dose)

Table 3.4.2-4: Number of marketable bunches in selectivity trials (per 4 plants)

Crop (EPPO code)	EPPO Zone	No. of trials	Number of marketable bunches		Sugar content as a % of untreated							
					Beloukha (BCP1004D)		Beloukha (BCP1004D)		Standard*		Standard*	
					2.0 L/ha		4.0 L/h		N		2N	
			Mean	Min-Max	Mean	Min-Max	Mean	Min-Max	Mean	Min-Max	Mean	Min-Max
VITVI	MED	2	43.2	22.8-63.5	101.1	100-102.2	96.9	93.4-100.5	104.4	101.3-107.5	103.4	102.4-104.4

#% sugar content. *Standards used in selectivity trials were glufosinate-ammonium products at 750g a.s./ha (N dose)

Table 3.4.2-5: Weight of marketable bunches in selectivity trials (per 4 plants)

Crop (EPPO code)	EPPO Zone	No. of trials	Weight of marketable bunches (kg/4 plant)		Sugar content as a % of untreated							
					Beloukha (BCP1004D)		Beloukha (BCP1004D)		Standard*		Standard*	
					2.0 L/ha		4.0 L/h		N		2N	
			Mean	Min-Max	Mean	Min-Max	Mean	Min-Max	Mean	Min-Max	Mean	Min-Max
VITVI	MED	2	39.2	17.1	99.0	98.0-100.0	98.8	97.1-100.5	98.3	97.7-98.9	100.3	98.2-102.5

#% sugar content. *Standards used in selectivity trials were glufosinate-ammonium products at 750g a.s./ha (N dose)

There was no significant differences in yield, weight of branches or number of branches, weight of marketable bunches or number of marketable bunches across treatments in all 5 selectivity trials. See Appendix 7 for full details.

It is concluded that sufficient data have been submitted to confirm that the use of Beloukha (BCP1004D) around grapevines, for control of weeds in line with the proposed GAP will have no adverse effects on the yield of treated crops.

Note: As all effectiveness trials were undertaken in the presence of weeds, none were assessed for yield.

Conclusion – Effect on the yield of treated plants or plant products
Use 001 (annual monocotyledonous and annual dicotyledonous weeds) and Use 002 (suckers)
This dossier contains 6 selectivity trials conducted to GEP on grapevine (VITVI) undertaken to assess adverse effects of Beloukha (BCP1004D) on treated crops. Three of these trials conducted in the maritime EPPO climatic zone (2 in Austria and 1 in Germany) were assessed for yield, one trial was assessed for weight of branches and one trial was assessed for number of fruit bunches. In one trial conducted in Germany, the trial could not be harvested manually due to Botrytis infection and therefore yield could not be determined. The two trials conducted in the mediterranean EPPO climatic zone (2 in Greece) were assessed for number of marketable fruit bunches and weight of marketable fruit bunches.
Negative effects were not determined.
Although the results are based on a limited number of trials reduced yield is not to be expected.
See also conclusion to 3.4.1.

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

This dossier contains 6 selectivity trials conducted to GEP on grapevine (VITVI) in the absence of weeds undertaken to assess adverse effects of Beloukha (BCP1004D) on treated crops. Two of these trials conducted in the EPPO Mediterranean climatic zone (2 in Greece) were assessed for sugar content.

Both trials included Beloukha (BCP1004D) applied a dose rate of 16.0 L/ha (1N) and a 2N dose rate of 32.0 L/ha. A glufosinate-ammonium standard was included at the authorised dose rate for the relevant country the trials was undertaken in, and a 2N dose. All treatments were applied twice at intervals ranging from 14-21 days between applications. Treatments were applied from May to June at BBCH 55-65 of the crop (first application) and BBCH 55-73 of the crop (second application). The water volumes used ranged from 200-300 L/ha.

Sugar content (using the Brix percentage method) was assessed across a range of trials and the results are shown in Table 3.4.3-1.

Table 3.4.3-1: Quality of fruit crops (sugar content) in selectivity trials

Crop (EPPO code)	EPPO Zone	No. of trials	Sugar content in Untreated (Brix %)		Sugar content as a % of untreated							
					Beloukha (BCP1004D)		Beloukha (BCP1004D)		Standard*		Standard*	
					2.0 L/ha		4.0 L/h		N		2N	
			Mean	Min-Max	Mean	Min-Max	Mean	Min-Max	Mean	Min-Max	Mean	Min-Max
VITVI	MED	2	18.1	17.1-19.0	100.3	100-100.5	98.5	97.1-100	98.8	97.7-100	98.9	98.2-99.5

#% sugar content. *Standards used in selectivity trials were glufosinate-ammonium products at 750g a.s./ha (N dose)

There was no significant differences in sugar content across treatments in all trials. See Appendix 7 of the BAD for full details.

It is concluded that sufficient data have been submitted to confirm that the use of Beloukha (BCP1004D) around grapevines, for control of weeds in line with the proposed GAP will have no adverse effects on the quality of treated crops.

Conclusion – Effects on the quality of plants or plant products
Refer to 3.4.4.

3.4.4 Effects on transformation processes (KCP 6.4.4)

Beloukha (BCP1004D) is for use around vines and is not applied directly to the crop. No residues are anticipated in the crop following the use of this product and it is therefore considered that this product will have no effects on transformation processes of treated crops.

As detailed in EPPO Standard PP 1/242 (2) '*Taint tests*', the use of this product is considered to be a low risk (taint testing not required), as the component active substance are not associated with taint issues, the product leaves no residues and is not applied to the harvestable parts of the plants. Similarly, as detailed under EPPO Standard PP 1/243(2) '*Effects of plant protection products on transformation processes*', as no residues are anticipated following use of this product it is considered that transformation data (winemaking etc) are not required.

Conclusion – Effects on transformation processes

Use 001 (annual monocotyledonous and annual dicotyledonous weeds) and Use 002 (suckers)
EPPO Standard PP1/243 (Effects of plant protection products on transformation processes) states that if no residues are detected in the harvested product, a reasoned case may be sufficient to address this point.

A direct influence of the active ingredient on the fermentation process or wine taste is not expected. Applications of Beloukha at 16 l/ha formulated product do not have a negative impact on wine constitution and taste of wine.

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

Beloukha (BCP1004D) is for use around vines and is not applied directly to the crop. The selectivity and effectiveness data in this dossier confirm that the use of the product, in line with the GAP, will have no impact on treated crops. It is therefore considered that this product will have no effects on plants or plant products used for propagation.

EPPO Standard PP 1/242 (2) '*Phytotoxicity assessments*', provides an indication of the circumstances under which data on plant parts for propagation are required. For cuttings (the likely source of propagation material for treated crops), data for herbicide treatments is not required.

Summary and conclusion

Data from 33 effectiveness and 6 selectivity trials demonstrate no adverse effects on treated crops.

It is concluded that sufficient data, across a wide range of climatic conditions, have been submitted to confirm that the use of 16 L/ha Beloukha (BCP1004D) around grapevines, for the control of weeds or for the control of suckers, in line with the proposed GAP, will have no adverse effects on grapevine crops.

Conclusion – Impact on treated plants or plant products to be used for propagation
Not relevant for grapes.

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

3.5.1 Impact on succeeding crops (KCP 6.5.1)

The proposed label includes the following recommendations:

Degrades rapidly on contact with the soil
Allow a minimum of 7 days after application before replanting or sowing crops

Although the proposed situation of use is in grapevine, for sucker control at the base of vines and for weed control within the rows of vines (between vines), the impact of the use of BCP1004D on succeeding crops still requires consideration, as vine crops are periodically 'grubbed up' and are sometimes replaced by rotational field crops.

As part of the ecotoxicology data supporting this product, an OECD 208 study, 'A study to determine the effects of VVH-86086 (nonanoic acid 680 g/L) on the seedling emergence and growth of terrestrial plants; according to OECD No. 208 (2006)', was conducted to GLP on a range of plants (10 species). Study number: 291SRFR13C1. Note: VVH-86086 was the original product code for BCP1004D.

EPPO Standard PP 1/207(2) 'Effects on succeeding crops', advises the use of ER_{10} values from the OECD 208 studies to perform a succeeding crop risk assessment. However, as the OECD 208 study for VVH-86086 (BCP1004D) does not include ER_{10} values, LOER values have been used to perform the succeeding crop risk assessment.

The study was fully summarised on Part B, Section 9 A2.6 of the Ecotoxicology dossier for Beloukha (BCP1004D), so only the endpoints from this study have been reported within this section of the dossier.

The results from this study show that the lowest LOER (based on dry weight, 21 days after 50% emergence) was 3.4 litres of product/ha (for both cucumber and wheat), equivalent to 2312 g a.s./ha pelargonic acid. With the next lowest LOERs being for lettuce and sorghum (10.2 L/ha), equivalent to 6936 g a.s./ha pelargonic acid. For the remaining plant species (ryegrass, barley, tomato, oilseed rape, peas and sugar beet) the LOER value was ≥30.6 L/ha (equivalent to 20808 g a.s./ha pelargonic acid), see Table 3.5.1-1 for full details. Therefore, this indicates that a residual soil level equivalent to 3.4 L product/ha (2312 g a.s./ha pelargonic acid) is unlikely to have an impact on any succeeding crop.

Table 3.5.1-1: Summary of effects of VVH-86086 (BCP1004D) on the seedling emergence and early growth of terrestrial non-target plants (OECD 208 study) at 21DAE*

Test item	VVH-86086 (BCP1004D)				
Test organism/Exposure	Terrestrial non-target plants / Bare soil spray application				
Plant species	Endpoint	Dry Weight*	Height*	Emergence*	Mortality*
Wheat, var. Soisson (*Triticum aestivum*)	ER_{50} [L product/ha]	> 30.6	> 30.6	> 30.6	> 30.6
	LOER [L product/ha]	3.4	> 30.6	> 30.6	> 30.6
	NOER [L product/ha]	1.14	30.6	30.6	30.6
Ryegrass, var. Ecopa (*Lolium perenne*)	ER_{50} [L product/ha]	22.7	> 30.6	> 30.6	> 30.6
	LOER [L product/ha]	30.6	30.6	> 30.6	> 30.6
	NOER [L product/ha]	10.2	10.2	30.6	30.6
Barley, var. Platine (*Hordeum vulgare*)	ER_{50} [L product/ha]	> 30.6	> 30.6	> 30.6	> 30.6
	LOER [L product/ha]	> 30.6	> 30.6	> 30.6	> 30.6
	NOER [L product/ha]	30.6	30.6	30.6	30.6
Sorghum, var. Piper (*Sorghum bicolor*)	ER_{50} [L product/ha]	> 30.6	> 30.6	> 30.6	> 30.6
	LOER [L product/ha]	10.2	10.2	> 30.6	> 30.6
	NOER [L product/ha]	3.4	3.4	30.6	30.6
Lettuce, var. Graffiti (*Lactuca sativa*)	ER_{50} [L product/ha]	22.8	> 30.6	> 30.6	> 30.6
	LOER [L product/ha]	10.2	10.2	> 30.6	> 30.6
	NOER [L product/ha]	3.4	3.4	30.6	30.6
Tomato, var. Saint Pierre (*Solanum lycopersicum*)	ER_{50} [L product/ha]	> 30.6	> 30.6	> 30.6	> 30.6
	LOER [L product/ha]	> 30.6	> 30.6	> 30.6	> 30.6
	NOER [L product/ha]	30.6	30.6	30.6	30.6
Oilseed rape, var. 14988 (*Brassica napus*)	ER_{50} [L product/ha]	> 30.6	> 30.6	> 30.6	> 30.6
	LOER [L product/ha]	> 30.6	> 30.6	> 30.6	> 30.6
	NOER [L product/ha]	30.6	30.6	30.6	30.6
Pea, var. Précovil (*Pisum sativum*)	ER_{50} [L product/ha]	> 30.6	> 30.6	> 30.6	> 30.6
	LOER [L product/ha]	> 30.6	> 30.6	> 30.6	> 30.6
	NOER [L product/ha]	30.6	30.6	30.6	30.6
Sugar Beet, var. Python (*Beta vulgaris*)	ER_{50} [L product/ha]	> 30.6	> 30.6	> 30.6	> 30.6
	LOER [L product/ha]	> 30.6	> 30.6	> 30.6	> 30.6
	NOER [L product/ha]	30.6	30.6	30.6	30.6
Cucumber, var. Serit F1 (*Cucumis sativus*)	ER_{50} [L product/ha]	24.3	> 30.6	> 30.6	> 30.6
	LOER [L product/ha]	3.4	3.4	> 30.6	> 30.6
	NOER [L product/ha]	1.14	1.14	30.6	30.6

*Assessment conducted 21 days after 50% emergence.

EPPO Standard PP 1/207(2) 'Effects on succeeding crops', advises the use of PEC_{soil} values to perform a succeeding crop risk assessment. The following input parameters were used to produce the PECsoil values for BCP1004D (containing 680 g/ha pelargonic acid):

- Maximum application rate: 16 L product/ha (10880 g a.s./ha pelargonic acid).
- Crop interception: 0% (worst case).
- *X* g a.s./ha divided by [100 x 5 (*cm of soil distribution*) x 1.5 (*soil bulk density*)] = mg a.s./kg of soil (10880/750 = 14.51 mg/kg soil).

Table 3.5.1-2: PEC_{soil} for pelargonic acid on several crops (reproduced from Part B 8, 8.7-3)

PEC_{soil} (mg/kg soil)	Interval (d)	Several crops			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial	-	14.51	-	17.39	-
Short term	**1 d**	11.51	12.95	13.80	15.52
	2 d	9.14	11.62	10.95	13.92
	4 d	5.76	9.47	6.90	11.35
Long term	**7 d**	2.88	7.19	3.45	8.62
	14 d	0.57	4.31	0.68	5.16
	21 d	0.11	2.97	0.14	3.56
	28 d	0.02	2.24	0.03	2.68
	50 d	0.00	1.26	0.00	1.50
	100 d	0.00	0.63	0.00	0.75

According to the EFSA conclusions for Fatty acids (C_7-C_{20}); EFSA Journal 2013; 11(1);3023, pelargonic acid degrades rapidly with a DT_{90} value of 8-10 days (Annex IIA, point 7.1.1.2). As the product has a recommendation to re-treat (maximum number of applications is 2 per use) at intervals of 5-14 days (7-14 days for 0% crop interception uses, 5 days for potato desiccant use with 25%-90% crop interception) and based on this rapid degradation of the active substance, it is considered that the succeeding crop risk assessment does not need to be based on multiple applications, but on the basis of a single application.

The lowest LOER value in the OECD 208 study was 3.4 L/ha BCP1004D (equivalent to 2312 g a.s./ha pelargonic acid). This is equivalent to 3.08 mg/kg soil; 2312 g a.s./ha divided by [100 x 5 (*cm of soil distribution*) x 1.5 (*soil bulk density*)], assuming the pelargonic acid remains in the top 5 cm of soil, which is likely, as this it is a short persistence molecule in soil (as seen from the PEC_{soil} values in Table 3.5.1-2).

Table 3.5.1-3: Succeeding crop risk assessment using PEC_{soil} values of BCP1004D (pelargonic acid)

Test item	**VVH-86086 (BCP1004D)**							
Test organism	**Terrestrial non-target plants / Bare soil spray application**							
Plant species	**LOER (L/ha)**	**LOER (mg/kg soil)**	**PEC_{soil} 1d (mg/kg soil)**	**TER**	**PEC_{soil} 2d (mg/kg soil)**	**TER**	**PEC_{soil} 7d (mg/kg soil)**	**TER**
Wheat, var. Soisson (*Triticum aestivum*)	3.4	3.08	11.51	**0.27**	9.14	**0.34**	2.88	1.07
Ryegrass, var. Ecopa (*Lolium perenne*)	30.6	27.72		2.41		3.03		9.63
Barley, var. Platine (*Hordeum vulgare*)	> 30.6	> 27.72		>2.41		>3.03		>9.63
Sorghum, var. Piper (*Sorghum bicolor*)	10.2	9.24		**0.80**		1.01		3.21
Lettuce, var. Graffiti (*Lactuca sativa*)	10.2	9.24		**0.80**		1.01		3.21
Tomato, var. Saint Pierre (*Solanum lycopersicum*)	> 30.6	> 27.72		>2.41		>3.03		>9.63
Oilseed rape, var. 14988 (*Brassica napus*)	> 30.6	> 27.72		>2.41		>3.03		>9.63
Pea, var. Précovil (*Pisum sativum*)	> 30.6	> 27.72		>2.41		>3.03		>9.63
Sugar Beet, var. Python (*Beta vulgaris*)	> 30.6	> 27.72		>2.41		>3.03		>9.63
Cucumber, var. Serit F1 (*Cucumis sativus*)	3.4	3.08		**0.27**		**0.34**		1.07

TER values in bold are less than the EPPO PP 1/207(2) threshold TER value of 1 (unsafe to plant a succeeding crop of that species).

Conclusions

Based on the results and the risk assessment (TER values) in Table 3.5.1-3, it is considered that for the proposed uses of BCP1004D, there will be no impact on any succeeding crops after an application interval of 7 days for all crops (and an application interval of 2 days for all crops except wheat, cucumber and other cucurbits).

Conclusion – Impact on succeeding crops
EPPO Standard PP1/207(2) 'Effects on succeeding crops' advises the use of EC_{10} values to perform a succeeding crop risk assessment. However, as the OECD 208 study for VVH-86086 (BCP1004D) does not include EC_{10} values. ER values have been used to perform the succeeding crop risk assessment. But for the requested uses, the impact on succeeding crops is not relevant for these uses in permanent cultures (grapes).

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

The proposed label includes the following recommendation:

Avoid drift onto adjacent crops

Although the proposed situation of use is in grapevine, for sucker control at the base of vines and for weed control within the rows of vines (between vines), the impact of the use of BCP1004D on adjacent plants (including crops) still requires consideration, as there is always the risk of drift onto adjacent 'rotational or non-rotational field crops'.

As part of the ecotoxicology data supporting this product, an OECD 227 study, 'Effects of VVH-86086 on Terrestrial (Non-Target) Plants: Vegetative Vigour Test (GLP compliant study based on OECD Guideline 227, 2006)', was conducted to GLP on a range of plants (6 species). Project number: 64373087. Note: VVH-86086 was the original product code for BCP1004D.

A refined risk assessment has been conducted, based on the data generated in the OECD 227 Guideline study (Project number: 64373087). This study was summarised in Part B Section 9, A2.6 of the Ecotoxicology dossier for Beloukha (BCP1004D), so only the endpoints have been provided below.

To assess the risk to adjacent crops from the proposed uses of Beloukha (BCP1004D), a risk assessment has been conducted according to EPPO Standard PP 1/256(2) '*Effects on adjacent crops'*, for crops grown adjacent to a field treated with Beloukha (BCP1004D). For adjacent crops, the TER-value is calculated by comparing the most sensitive endpoint for each test plant species from the non-target terrestrial plant study [Project number: 64373087] to the estimated drift values (in the proposed crops), so as to predict the likelihood of effects on adjacent crops at different distances from the treated crop. If the TER-value of the most sensitive crop is ≥1, according to EPPO Standard PP 1/256(2), no higher tier testing is required. The active substance in Beloukha (BCP1004D) pelargonic acid is not subject to problems relating to low vapour pressure. Therefore, the only source of potential contact between adjacent crops and Beloukha (BCP1004D) (containing pelargonic acid) has been assumed to be due to spray drift at the time of application.

As part of the ecotoxicology data supporting this product, two study reports (RCC Study A56621) have been produced, within which are data from two studies; an OECD 208 (seedling emergence study) and an OECD 227 (vegetative vigour study). Adjacent crops can be exposed to spray drift from Beloukha (BCP1004D) either pre-emergence or post-emergence. The seedling emergence (OECD 208) study (Study number: 291SRFR13C1 – see section 3.5.1 above) represents spray drift at the pre-emergence stage of the adjacent crop, whilst the vegetative vigour (OECD 227) study (Project number: 64373087) represents spray drift at the post-emergence stage of the adjacent crop.

Table 3.5.2-1: Summary of effects of VVH-86086 (BCP1004D) on the seedling emergence and early growth of terrestrial non-target plants (OECD 208 study) at 21DAE*

Test item	**VVH-86086 (BCP1004D)**				
Test organism/Exposure	**Terrestrial non-target plants / Bare soil spray application**				
Plant species	**Endpoint**	**Dry Weight***	**Height***	**Emergence***	**Mortality***
Wheat, var. Soisson (*Triticum aestivum*) TRZAW	ER_{50} [L product/ha]	**> 30.6**	> 30.6	> 30.6	> 30.6
	LOER [L product/ha]	3.4	> 30.6	> 30.6	> 30.6
	NOER [L product/ha]	1.14	30.6	30.6	30.6
Ryegrass, var. Ecopa (*Lolium perenne*) LOLPE	ER_{50} [L product/ha]	**22.7**	> 30.6	> 30.6	> 30.6
	LOER [L product/ha]	30.6	30.6	> 30.6	> 30.6
	NOER [L product/ha]	10.2	10.2	30.6	30.6
Barley, var. Platine (*Hordeum vulgare*) HORVW	ER_{50} [L product/ha]	**> 30.6**	> 30.6	> 30.6	> 30.6
	LOER [L product/ha]	> 30.6	> 30.6	> 30.6	> 30.6
	NOER [L product/ha]	30.6	30.6	30.6	30.6
Sorghum, var. Piper (*Sorghum bicolor*) SORVU	ER_{50} [L product/ha]	**> 30.6**	> 30.6	> 30.6	> 30.6
	LOER [L product/ha]	10.2	10.2	> 30.6	> 30.6
	NOER [L product/ha]	3.4	3.4	30.6	30.6
Lettuce, var. Graffiti (*Lactuca sativa*) LACSA	ER_{50} [L product/ha]	**22.8**	> 30.6	> 30.6	> 30.6
	LOER [L product/ha]	10.2	10.2	> 30.6	> 30.6
	NOER [L product/ha]	3.4	3.4	30.6	30.6
Tomato, var. Saint Pierre (*Solanum lycopersicum*) LYPES	ER_{50} [L product/ha]	**> 30.6**	> 30.6	> 30.6	> 30.6
	LOER [L product/ha]	> 30.6	> 30.6	> 30.6	> 30.6
	NOER [L product/ha]	30.6	30.6	30.6	30.6
Oilseed rape, var. 14988 (*Brassica napus*) BRSNN	ER_{50} [L product/ha]	**> 30.6**	> 30.6	> 30.6	> 30.6
	LOER [L product/ha]	> 30.6	> 30.6	> 30.6	> 30.6
	NOER [L product/ha]	30.6	30.6	30.6	30.6
Pea, var. Précovil (*Pisum sativum*) PIBSX	ER_{50} [L product/ha]	**> 30.6**	> 30.6	> 30.6	> 30.6
	LOER [L product/ha]	> 30.6	> 30.6	> 30.6	> 30.6
	NOER [L product/ha]	30.6	30.6	30.6	30.6
Sugar Beet, var. Python (*Beta vulgaris*) BETVX	ER_{50} [L product/ha]	**> 30.6**	> 30.6	> 30.6	> 30.6
	LOER [L product/ha]	> 30.6	> 30.6	> 30.6	> 30.6
	NOER [L product/ha]	30.6	30.6	30.6	30.6
Cucumber, var. Serit F1 (*Cucumis sativus*) CUMSA	ER_{50} [L product/ha]	**24.3**	> 30.6	> 30.6	> 30.6
	LOER [L product/ha]	3.4	3.4	> 30.6	> 30.6
	NOER [L product/ha]	1.14	1.14	30.6	30.6

*Assessment conducted 21 days after 50% emergence. Values in **bold** have been used for the adjacent crop risk assessment.

Table 3.5.2-2: Summary of effects of VVH-86086 (BCP1004D) on the vegetative growth of terrestrial non-target plants (OECD 227 study) at 21DAA*

Test item	**VVH-86086 (BCP1004D)**				
Test organism/Exposure	**Terrestrial non-target plants / Bare soil spray application**				
Plant species	**Endpoint**	**Fresh Weight***	**Mortality***	**Phytotoxicity***	**BBCH GS***
Oilseed rape (*Brassica napus*) BRSNN	ER_{50} [L product/ha]	9.81	18.0	**7.9**≈	-
	ER_{10} [L product/ha]	3.72	7.83-18.0	2.0≈	-
	LOER [L product/ha]	3.40	18.0	1.48	7.83
	NOER [L product/ha]	1.48	7.83	0.64	3.40
Sunflower (*Helianthus annuus*) HELAN	ER_{50} [L product/ha]	12.86	>18.0	**7.9**≈	-
	ER_{10} [L product/ha]	3.69	>18.0	3.5≈	-
	LOER [L product/ha]	7.83	18.0	1.48	7.83
	NOER [L product/ha]	3.40	7.83	0.64	3.40
Cucumber (*Cucumis sativus*) CUMSA	ER_{50} [L product/ha]	**6.74**	>41.4	7.1≈	-
	ER_{10} [L product/ha]	1.24	18.0-41.4	0.6≈	-
	LOER [L product/ha]	3.40	41.4	1.48	3.40
	NOER [L product/ha]	1.48	18.0	<1.48	1.48
Soybean (*Glycine max*) GLXMA	ER_{50} [L product/ha]	27.19	>41.4	**20.0**≈	-
	ER_{10} [L product/ha]	4.67	>41.4	3.5≈	-
	LOER [L product/ha]	7.83	>41.4	1.48	7.83
	NOER [L product/ha]	3.40	>41.4	<1.48	3.40
Oat (*Avena sativa*) AVESA	ER_{50} [L product/ha]	**23.27**	>41.4	37.0≈	-
	ER_{10} [L product/ha]	2.80	40.0≈	5.4≈	-
	LOER [L product/ha]	7.83	41.4	1.48	3.40
	NOER [L product/ha]	3.40	18.0	<1.48	1.48
Onion (*Allium cepa*) ALLCE	ER_{50} [L product/ha]	80.37#	>41.4	**>41.4**	-
	ER_{10} [L product/ha]	12.60#	>41.4	9.0≈	-
	LOER [L product/ha]	41.40	>41.4	3.40	10.0≈
	NOER [L product/ha]	18.00	>41.4	1.48	3.40

*Assessment conducted 21 days after application.
#Value has been extrapolated from the data.
≈Approximate values.
Note: BBCH Growth stages at 21 DAA varied for some plant species, but could not be quantified by ER values, so only LOER/NOERs have been reported.
Values in **bold** have been used for the adjacent crop risk assessment.

The pre-emergence adjacent crop risk assessment for Beloukha (BCP1004D) is provided in Table 3.5.2-3.

Table 3.5.2-3: Adjacent crop TERs for Beloukha (BCP1004D) pre-emergence (OECD 208 study)

Beloukha (BCP1004D) (proposed dose rate: 16.0 L/ha)	Plant species under test				
	TRZAW	LOLPE	HORVW	SORVU	LACSA
Objective of assessment	Seedling emergence/seedling growth test (values given as L formulated product/ha)				
Lowest Endpoint: ER_{50} (L/ha)	>30.6 (dw)	22.7 (dw)	>30.6 (dw)	>30.6 (dw)	22.8 (dw)
Dose 1m (2.77%)* for 16.0 L/ha	0.4432 L/ha				
TER	>69.0	51.2	>69.0	>69.0	51.4
Lowest Endpoint: NOER (L/ha)	1.14 (dw)	10.2 (dw)	30.6 (dw)	3.4 (dw)	3.4 (dw)
Dose 1m (2.77%)* for 16.0 L/ha	0.4432 L/ha				
TER	2.57	23.0	69.0	7.67	7.67
Beloukha (BCP1004D) (proposed dose rate: 16.0 L/ha)	Plant species under test				
	LYPES	BRSNN	PIBSX	BETVX	CUMSA
Objective of assessment	Seedling emergence/seedling growth test (values given as L formulated product/ha)				
Lowest Endpoint: ER_{50} (L/ha)	>30.6 (dw)	>30.6 (dw)	>30.6 (dw)	>30.6 (dw)	24.3 (dw)
Dose 1m (2.77%)* for 16.0 L/ha	0.4432 L/ha				
TER	>69.0	>69.0	>69.0	>69.0	54.8
Lowest Endpoint: NOER (L/ha)	30.6 (dw)	30.6 (dw)	30.6 (dw)	30.6 (dw)	1.14 (dw)
Dose 1m (2.77%)* for 16.0 L/ha	0.4432 L/ha				
TER	69.0	69.0	69.0	69.0	2.57

(dw) = dry weight. *Based on Rautmann *et al.*, 2001 drift values in cereal crops.

The post-emergence adjacent crop risk assessment for Beloukha (BCP1004D) is provided in Table 3.5.2-4.

Table 3.5.2-4: Adjacent crop TERs for Beloukha (BCP1004D) post-emergence (OECD 227 study)

Beloukha (BCP1004D) (proposed dose rate: 16.0 L/ha)	Plant species under test					
	BRSNN	HELAN	CUMSA	GLXMA	AVESA	ALLCE
Objective of assessment	Vegetative vigour test (values given as L formulated product/ha)					
Lowest Endpoint: ER_{50} (L/ha)	7.9 (ph)	7.9 (ph)	6.74 (fw)	20.0 (ph)	23.27 (fw)	>41.4 (ph)
Dose 1m (2.77%)* for 16.0 L/ha	0.4432 L/ha					
TER	17.8	17.8	15.2	45.1	52.5	>93.4
Lowest Endpoint: LOER/NOER# (L/ha)	0.64 (ph)	0.64 (ph)	0.6 (ph)	1.48 (ph)	1.48 (GS)	1.48 (ph)
Dose 1m (2.77%)* for 16.0 L/ha	0.4432 L/ha					
TER	1.44	1.44	1.35	3.34	3.34	3.34

(fw) = fresh weight, (ph) = phytotoxicity, (GS) = difference in BBCH Growth Stage.
*Based on Rautmann *et al.*, 2001 drift values in cereal crops.
#Most reliable LOER/NOER value.

Results and Conclusions

Based on the results of the seedling emergence study (OECD 208) it can be concluded that Beloukha (BCP1004D) containing pelargonic acid, will most likely cause no adverse effects on yet to emerge (pre-emergent) adjacent crops, at a distance of 1 metre, when using the proposed dose of 16.0 L/ha for weed control or sucker control in grapevines, as the TERs for all the crops (based on both the ER_{50} and NOER values) were in excess of 1.0. Therefore, the risk to adjacent pre-emergent crops is considered negligible. No specific label restrictions or risk phrases with regard to pre-emergent adjacent crops are considered necessary for Beloukha (BCP1004D).

Based on the results of the vegetative vigour study (OECD 227), it can be concluded that Beloukha (BCP1004D) containing pelargonic acid, will most likely cause no adverse effects on emerged (post-emergent) adjacent crops, at a distance of 1 metre, when using the proposed dose of 16.0 L/ha for weed control or sucker control in grapevines, as the TERs for all the crops (based on both the ER_{50} and LOER/NOER values) were in excess of 1.0. Therefore, the risk to adjacent post-emergent crops is considered negligible. No specific label restrictions or risk phrases with regard to post-emergent adjacent crops are considered necessary for Beloukha (BCP1004D). However, as Beloukha (BCP1004D) containing pelargonic acid is a non-selective contact herbicide, a general warning (*Avoid drift onto adjacent crops*) is considered good agricultural practice.

Tank Cleaning

The proposed label includes the following recommendations for cleaning the sprayer after use with Beloukha (BCP1004D):

> *After spraying Beloukha, thoroughly clean all application equipment with clean water. Dilute any remaining residual amount in a ratio of 1:10 with water and apply to the treated area. Spray the inner walls of the spray tank with a jet of water or use integrated cleaning nozzles. Rinse the spray tank again with clean water and apply the rinsing liquid to the previously treated area.*

As Beloukha (BCP1004D) contains pelargonic acid, a non-selective herbicide, it is important to have an effective cleaning procedure for the spray equipment.

A typical sprayer retains approximately 5% of the spray solution following application, and before any cleaning procedure is conducted[3].

If the sprayer used has a 100 litre capacity and was cleaned as proposed – double water-rinse with a minimum of 10% water each time (i.e. 10 litres of water for rinsing), then refilled with an EC formulation pesticide, and sprayed on the next crop at 400 litres/ha water volume (a normal case for a field-crop scenario, this would result in the final dilution being applied to 0.25 ha), the following calculations would be applicable for the amount of pelargonic acid being applied to one hectare of the next crop, after a previous application of the maximum amount of Beloukha (BCP1004D) proposed for use in grapevines in Germany (16.0 L product/ha):

16.0 L/ha applied at a water volume of 400 L/ha in a 100 Litre capacity sprayer would require 4.0 Litres of Beloukha (BCP1004D) (2720 g pelargonic acid) plus 96 litres of water. This would then be sprayed on a total of 0.25 ha. As calculated by Taylor & Cooper (1998), 5% (5 litres) of the spray solution would remain in the sprayer following an application. This equates to a total of 136g pelargonic acid (5% of 2720 g) that remains in the sprayer following an application and prior to cleaning.

For the first water-rinse of a 100-litre capacity sprayer, 10 litres of water would be used (10% of capacity), which would dilute the pelargonic acid residue in the sprayer to 13.6 g/L pelargonic acid. After 'flushing-out', 5 litres of the water-rinse solution would remain in the sprayer, so the total amount of pelargonic acid residue remaining in the sprayer after the first water-rinse would be 68 g (13.6 g a.s./L x 5 L). For the second water-rinse of a 100-litre capacity sprayer, 10 litres of water would again be used (10% of capacity), which would dilute the pelargonic acid residue in the sprayer to 6.8 g a.s./L (68 g a.s./10 litres). After 'flushing-out', 5 litres of the solution would again remain in the sprayer, so the total amount of pelargonic acid residue remaining in the sprayer after the second water rinse would be 34 g a.s. (6.8 g a.s./L x 5 L). Filling the sprayer tank (100 litres) with an EC formulation (so completely suspending the pelargonic acid residues in the solution) that would provide a concentration of 0.34 g a.s./L, and then spraying that on to 0.25 hectares (400 L/ha water volume- a normal scenario for field crops), that would deliver 136 g/ha of pelargonic acid, equivalent to 0.2 Litres/ha Beloukha (BCP1004D). This value (0.2 L/ha) is then used to calculate the risk to crops from subsequent spray operations, after a double water-rinse following an application of Beloukha (BCP1004D) at 16.0 L/ha.

[3] Taylor, W.A. & Cooper, S.E, 'Validation of a decontamination method for arable crop sprayers following use with the sulfonyl urea herbicide – amidosulfuron'. 1998 BCPC Proceedings No. 70: Managing Pesticide Waste and Packaging, pp189-194.

Table 3.5.2-5: Subsequent spray operations TERs for Beloukha (BCP1004D) effectiveness of application equipment cleaning procedures (OECD 208 study)

Beloukha (BCP1004D) (proposed dose rate: 16.0 L/ha)	Plant species under test				
	TRZAW	LOLPE	HORVW	SORVU	LACSA
Objective of assessment	Seedling emergence/seedling growth test (values given as L product/ha)				
Lowest Endpoint: ER_{50} (L/ha)	>30.6 (dw)	22.7 (dw)	>30.6 (dw)	>30.6 (dw)	22.8 (dw)
Dose after double water rinse for 16.0 L/ha*	0.2 L/ha				
TER	>153.0	113.5	>153.0	>153.0	114.0
Lowest Endpoint: NOER (L/ha)	1.14 (dw)	10.2 (dw)	30.6 (dw)	3.4 (dw)	3.4 (dw)
Dose after double water rinse for 16.0 L/ha*	0.2 L/ha				
TER	5.7	51.0	153.0	17.0	17.0
Beloukha (BCP1004D) (proposed dose rate: 16.0 L/ha)	Plant species under test				
	LYPES	BRSNN	PIBSX	BETVX	CUMSA
Objective of assessment	Seedling emergence/seedling growth test (values given as L product/ha)				
Lowest Endpoint: ER_{50} (L/ha)	>30.6 (dw)	>30.6 (dw)	>30.6 (dw)	>30.6 (dw)	24.3 (dw)
Dose after double water rinse for 16.0 L/ha*	0.2 L/ha				
TER	>153.0	>153.0	>153.0	>153.0	121.5
Lowest Endpoint: NOER (L/ha)	30.6 (dw)	30.6 (dw)	30.6 (dw)	30.6 (dw)	1.14 (dw)
Dose after double water rinse for 16.0 L/ha*	0.2 L/ha				
TER	153.0	153.0	153.0	153.0	5.7

(dw) = dry weight.
*Based on Taylor & Cooper (1998)

Table 3.5.2-6: Subsequent spray operations TERs for Beloukha (BCP1004D) effectiveness of application equipment cleaning procedures (OECD 227 study)

Beloukha (BCP1004D) (proposed dose rate: 16.0 L/ha)	Plant species under test					
	BRSNN	HELAN	CUMSA	GLXMA	AVESA	ALLCE
Objective of assessment	Vegetative vigour test (values given as L formulated product/ha)					
Lowest Endpoint: ER_{50} (L/ha)	7.9 (ph)	7.9 (ph)	6.74 (fw)	20.0 (ph)	23.27 (fw)	>41.4 (ph)
Dose after double water rinse for 16.0 L/ha*	0.2 L/ha					
TER	39.5	39.5	33.7	100.0	116.4	>207
Lowest Endpoint: LOER/NOER# (L/ha)	0.64 (ph)	0.64 (ph)	0.6 (ph)	1.48 (ph)	1.48 (GS)	1.48 (ph)
Dose after double water rinse for 16.0 L/ha*	0.2 L/ha					
TER	3.2	3.2	3.0	7.4	7.4	7.4

(fw) = fresh weight, (ph) = phytotoxicity, (GS) = difference in BBCH Growth Stage.
*Based on Taylor & Cooper (1998)
#Most reliable LOER/NOER value.

Results and Conclusions

As can be seen from the calculations, a double water-rinse application equipment cleaning procedure provides a sufficient degree of safety (TERs >1) across all the 'representative' crops tested in the OECD 208 and OECD 227 studies.

CUMSA *Cucumis sativus* (cucumber) was the most sensitive crop tested, and this had a minimum TER of 3.0 based on an LOER/NOER endpoint (a 3x safety factor to ensure no phytotoxic effects would occur from a subsequent spray operation) for applications post-emergence, and a 5.7x safety factor for pre-emergence applications, based on EPPO Standard PP 1/292(1) and EPPO Standard PP 1/256(1).

Therefore, the recommendation to use a double water-rinse sprayer cleaning procedure will be added to the Beloukha (BCP1004D) product label (and to comply with local requirements for sprayer decontamination).

Conclusion – Impact on other plants including adjacent crops
A risk assessment conducted according to EPPO Standard PP1/256 (Effects on adjacent crops) was provided.
Based on the results of the seedling emergence study (OECD 208) and of the vegetative vigour study (OECD 227) it can be concluded that Beloukha (BCP1004D) will most likely cause no adverse effects on adjacent crops, at a distance of 1 metre, when using the proposed dose of 16 L/ha for weed control or sucker control in grapevines. Therefore, the risk to adjacent pre-emergent crops is considered negligible.

Conclusion – tank cleaning
According to EPPO Standard PP1/292 (Cleaning pesticide application equipment (PAE) – efficacy aspects) information on tank cleaning was given.

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

No observations of adverse effects to beneficials were recorded in the efficacy and selectivity trials presented in this dossier. ~~Detailed studies on the possible adverse effects to beneficial organisms are submitted and summarised in Part B, Section 9 (Ecotoxicology); 9.6 'Effects on bees (KCP 10.3.1)' and 9.7 'Effects on arthropods other than bees (KCP 10.3.2)'.~~ These have been reproduced within this section of the BAD, with conclusions which also relate to the efficacy aspects of possible effects on beneficials and other non-target arthropods.

~~3.5.3.1 Effects on bees (KCP 10.3.1)~~

~~Toxicity data~~

~~Studies on the toxicity to bees have been carried out with pelargonic acid. Full details of these studies are provided in the respective EU DAR and related documents.~~

~~Effects on bees of BCP1004D were not evaluated as part of the EU assessment of pelargonic acid. New data submitted with this application are listed in Appendix 1 of the Part B, Section 9, Ecotoxicology dRR and summarised in Appendix 2 of the Part B, Section 9, Ecotoxicology dRR.~~

~~Table 3.5.3.1-1: Endpoints and effect values relevant for TER risk assessment for bees~~

~~Species~~	~~Substance~~	~~Exposure System~~	~~Results~~	~~Reference~~
~~*Apis mellifera L.*~~	~~Neudosan Neu (515 g/L potassium salts of natural fatty acids)~~	~~Oral~~	~~LD50 >96.04 µg a.s./bee~~	~~EFSA Journal 2013;11(1):3023~~
~~*Apis mellifera L.*~~	~~Neudosan Neu (515 g/L potassium salts of natural fatty acids)~~	~~Contact~~	~~LD50 >100 µg a.s./bee~~	~~EFSA Journal 2013;11(1):3023~~
~~*Apis mellifera*~~	~~Ringer/Safer 50% Insecticidal Soap~~	~~Contact~~	~~LD50 >25 µg product/bee~~	~~EFSA Journal 2013;11(1):3023~~

Species	**Substance**	**Exposure System**	**Results**	**Reference**
	(52.8% potassium salts of fatty acids)		LD50 > 12.5 µg a.s./bee	
Apis mellifera	VVH 86 086	Oral	LD50 = 217.7 µg a.s./bee	KCP 10.3.1.1.1/01 Noël E. (2015)
Apis mellifera	VVH 86 086	Contact	LD50 = 346.5 µg a.s./bee	KCP 10.3.1.1.1/02 Noël E. (2015)
Chronic toxicity				
Apis mellifera	COM 508 16 H EW (Pelargonic acid 23.157%)	Chronic	LDD50 = 68.5 µg a.s./bee/d NOED = 49.7 µg a.s./bee/d	KCP 10.3.1.2/01 Ruhland S. (2017)
Effects on honeybee development and other honeybee life stages				
Apis mellifera	92% Pelargonic acid	Chronic Honeybee larvae	NOED >100.2 µg a.s./larva	KCP 10.3.1.3/01 Scheller K. (2017)
Higher-tier studies (tunnel test, field studies)				
None submitted				

Justification for new endpoints

Endpoints obtained with the formulation studies are used in the risk assessment of effects on bees.

Risk assessment

The evaluation of the risk for bees was performed in accordance with the recommendations of the 'Guidance Document on Terrestrial Ecotoxicology', as provided by the Commission Services (SANCO/10329/2002 rev.2 (final), October 17, 2002) and EFSA Guidance Document on the risk assessment of plant protection products on bees (EFSA Journal 2013;11(7):3295). No risk assessment for bumble bees and solitary bees is performed as recommended in EFSA (EFSA Supporting publication 2015:EN 924).

Hazard quotients for bees

Risk assessment according to SANCO Guidance Document (2002).

Acute oral and contact risk assessment

Table 3.5.3.1-2: First-tier risk assessment for bees due to the use of Beloukha (BCP1004D) in grapevines

Intended use **Product** **Application rate (g a.s./ha)**	**Grapevine (Germany)** **BCP1004D** **2 x 10880 (equivalent to 2 x 16.0 L/ha Beloukha)**		
Test design	LD50 (lab.) (µg a.s./bee)	Single application rate (g a.s./ha)	QHO, QHC criterion: QH ≤ 50
Oral toxicity	217.7	10880	49.98
Contact toxicity	346.5		31.40

QHO, QHC: Hazard quotients for oral and contact exposure. QH values shown in bold breach the relevant trigger.

~~Hazard quotients values calculated from the formulation studies are below the trigger value of 50, indicating an acceptable risk to bees for intended uses.~~

~~Risk assessment according to EFSA (2013)~~

~~Acute contact risk assessment~~

~~Screening step:~~

~~The hazard quotient for contact toxicity (HQcontact) is calculated using the following equation:~~

$$~~HQ_{contact}~~ = \frac{AR}{LD_{50}\ contact}$$

~~With:~~

~~AR~~ = ~~Application rate in g a.s./ha~~
~~LD50 contact~~ ~~expressed in µg a.s./bee~~

Table 3.5.3.1-3: Acute contact screening risk assessment for bees due to the use of BCP1004D in grapevines (downwards directed spray application)

Intended use **Active substance** **Single application rate (g a.s./ha)**	**All uses** **Pelargonic acid** **10880 (equivalent to 1 x 16.0 L/ha Beloukha)**		
Test design	LD50 (lab.) (µg a.s./bee)	Single application rate (g a.s./ha)	QHC criterion: QH ≤ 42
Contact toxicity	346.5	10880	31.40

QHC: Hazard quotients for contact exposure. QH values shown in bold breach the relevant trigger.

The QH value for contact toxicity for the product Beloukha (BCP1004D) is 31.4, which is below the trigger value of 42 for downward spray, indicating no risk for bees after application Beloukha (BCP1004D) to grapevine.

Acute oral risk assessment

Screening step

The acute exposure-toxicity ratio for adults (ETRacute adult oral) is calculated using the following:

$$ETR_{\text{acute adult oral}} = AR \times \frac{SV}{LD_{50\ \text{oral}}}$$

With:

AR = Application rate in kg a.s./ha
SV = Short-cut value for the respective kind of application; specific for honeybees
LD50 oral expressed in µg a.s./bee

Table 3.5.3.1-4: Acute oral screening risk assessment for bees due to the use of BCP1004D in grapevines (downwards directed spray application)

Intended use **Active substance** **Single application rate (kg a.s./ha)**	Grapevine (sucker control and weed control) Pelargonic acid 10.88 (equivalent to 16.0 L/ha Beloukha)			
Test design	LD50 (lab.) (µg a.s/bee)	Single application rate (kg a.s./ha)	SV[a]	ETRacute adult oral criterion: ETR ≤ 0.2
Oral toxicity	217.7	10.88	7.6	0.38

ETR: exposure toxicity ratio. ETR values shown in bold breach the relevant trigger.
[a] Short-cut value for the respective kind of application, application made via downward spraying

The ETR value for oral toxicity is above the trigger value of 0.2 when considering the endpoint for the product, indicating a potential risk for bees after application of Beloukha (BCP1004D) to grapevine at the proposed dose of 16.0 L/ha.

Thus, first tier risk assessments are required:

In the refined risk assessment, the exposure of bees is differentiated for the scenarios "treated crops", "weeds in the field", "plants at the field margin", "adjacent crops" and "next crops". Pelargonic acid is a total herbicide and intended to control weeds in grapevine. This means that the spray solution will only come into contact with the crop itself at the base of the vine (away from the foliage) for 'sucker control'

and should make no or only minimal contact with the base of the vine for 'weed control within the rows'. As the product is non-systemic, no residues will be taken up by the roots and therefore the risk from the treated crop scenario will not be needed for consideration of exposure to bees in the risk assessment.

This is further supported by to EFSA Journal 2013;11(7):3295 the assessment for the treated crop scenario can be skipped also for non-crop directed applications (i.e., when the crop itself is not oversprayed). As is outlined above, the application of Beloukha (BCP1004D) is intended to be directed to the base of the vines (for sucker control) or as a directed spray application between the vines (within the row). Due to this reason, the scenario "treated crop" is excluded from the risk assessment. Furthermore, Pelargonic acid is degraded in soil with a half-life of 3 days (EFSA Journal 2013;11(1):3023). Thus, Pelargonic acid is not persistent in soil, so exposure to succeeding crops can be excluded. Therefore, a risk for the scenario "next crops" is also excluded from the risk assessment.

Acute oral first tier risk assessment based on the relevant endpoints identified for the product Beloukha (BCP1004D):

Table 3.5.3.1-5: Acute oral first tier risk assessment for bees due to the use of BCP1004D in grapevines (downwards directed spray application onto bare soil)

Intended use		Bare soil				
Active substance		Pelargonic acid				
Single application rate (kg a.s./ha)		10.88 (equivalent to 16.0 L/ha Beloukha)				
Crop category	**BBCH**	**Scenario**	LD50 (lab.) (µg a.s./bee)	Ef[a]	SV[b]	ETRacute adult oral criterion: ETR ≤ 0.2
Bare soil	< 10	Weeds	217.7	1	0.35	0.02
		Field margin		0.0092	3.7	0.00
		Adjacent crop		0.0033	7.6	0.00

[a] Exposure factor (Ef) for the different scenarios For non-crop directed spray applications (e.g. herbicides sprayed between the rows of trees), the exposure of the treated crop might be considered as negligible. In the EFSA Bee calculation tool this is considered by choosing a deposition factor (fdep) of 0 for the treated crop scenarios.
[b] Shortcut values (SVs) for the relevant exposure scenario

Table 3.5.3.1-6: Acute oral first tier risk assessment for bees due to the use of BCP1004D in grapevines (downwards directed spray application inter-row application)

Intended use		Inter-row applications for use on grapevine (post-emergence)				
Active substance		Pelargonic acid				
Single application rate (kg a.s./ha)		10.88 (equivalent to 16.0 L/ha Beloukha)				
Crop category		**Scenario**	LD50 (lab.) (µg a.s./bee)	Ef[a]	SV[b]	ETRacute adult oral criterion: ETR ≤ 0.2
Inter-row applications for use on grapevine (post-emergence)		Weeds	217.7	1	3.7	0.18
		Field margin		0.0092	3.7	0.0017
		Adjacent crop		0.0033	7.6	0.0013

[a] Exposure factor (Ef) for the different scenarios For non-crop directed spray applications (e.g. herbicides sprayed between the rows of trees), the exposure of the treated crop might be considered as negligible. In the EFSA Bee calculation tool this is considered by choosing a deposition factor (fdep) of 0 for the treated crop scenarios.
[b] Shortcut values (SVs) for the relevant exposure scenario

In the first-tier acute oral risk assessment, the ETR values indicate no acute risk to adult bees for the intended use. Thus, the acute oral risk for honeybees is acceptable for the intended use of Beloukha (BCP1004D) in grapevine.

Chronic oral risk assessment

Screening step

The chronic exposure-toxicity ratio for adults (ETRchronic adult oral) is calculated using the following:

$$ETR_{chronic\ adult\ oral} = AR \times \frac{SV}{10\text{-}d\ LDD_{50\ oral}}$$

With:

AR = Application rate in kg a.s./ha
SV = Short-cut value for the respective kind of application; specific for honeybees
LC50 oral expressed in µg a.s./bee per day

Table 3.5.3.1-7: Chronic oral screening risk assessment for bees due to the use of BCP1004D in grapevines (downwards directed spray application)

Intended use **Active substance** **Single application rate (kg/ha)**	Grapevine (sucker control and weed control) Pelargonic acid 10.88 (equivalent to 16.0 L/ha Beloukha)			
Test design	LDD50 (µg/bee/d)	Single application rate (kg/ha)	SV[a]	ETRacute adult oral criterion: ETR ≤ 0.03
Oral toxicity	68.5	10.88	7.6	1.207

ETR: exposure toxicity ratio. ETR values shown in bold breach the relevant trigger.
[a] Short-cut value for the respective kind of application, application made via downward spraying

The ETR for chronic adult oral toxicity for the product BCP1004D is above the trigger value of 0.03, indicating a potential risk for bees after application of BCP1004D.

Thus, first tier risk assessments are required:

Chronic first tier risk assessment for exposure via pollen and nectar

In the refined risk assessment, the exposure of bees is differentiated for the scenarios "treated crops", "weeds in the field", "plants at the field margin", "adjacent crops" and "next crops".

The scenarios "treated crop", "weeds in the field" and "next crops" are not considered relevant for the use of BCP1004D. Pelargonic acid is a total herbicide and intended to control weeds in grapevine to be applied in the rows between the vines, or to the base of the vine for 'sucker control'. This means that the spray solution will only come into contact with the crop itself at the base of the vine (away from the foliage) for 'sucker control' and should make no or only minimal contact with the base of the vine for 'weed control within the rows'. As the product is non-systemic, no residues will be taken up by the roots and therefore the risk from the "treated crop" scenario will not be needed for consideration of exposure to bees in the risk assessment.

A chronic exposure of bees foraging within the area treated can also be excluded. Once BCP1004D is applied, Pelargonic acid is absorbed by plant cells. They penetrate plant tissue and disrupt normal cell membrane function of permeability regulation in the target plants. This results in a disruption of normal physiological processes that ultimately results in cell death. Within hours of contact with fatty acids all exposed foliage will be dead. Consequently, flowering weeds will become unattractive for bees within hours. Therefore, the scenario "weeds in the field" does not need to be considered in the chronic risk assessment.

Furthermore, Pelargonic acid is degraded in soil with a half-life of 3 days (EFSA Journal 2013;11(1):3023). Thus, Pelargonic acid is not persistent in soil and exposure to succeeding crops is excluded. Therefore, a risk for the scenario "next crops" is excluded.

The ETR is recalculated using the following equation:

$$\text{ETRchronic adult oral} = AR \times Ef \times SV \times \frac{twa}{LC_{50}\ \text{oral}}$$

With:

AR = Application rate in kg a.s./ha
SV = Shortcut values for the respective kind of application; specific for honeybees
Ef = Exposure factor
twa = 0.72 (Value based on a default DT50 of 10 days and a 10-day time window)
LD50 oral = expressed in µg a.s./bee per day

Table 3.5.3.1-8: Chronic oral first tier risk assessment for bees due to the use of BCP1004D in grapevines (downwards directed spray application to bare soil)

Intended use		Bare soil					
Active substance		Pelargonic acid					
Single application rate (kg/ha)		10.88 (equivalent to 16.0 L/ha Beloukha)					
Crop category	**BBCH**	**Scenario**	LDD50 (µg/bee)	Ef[a]	SV[b]	TWA[c]	ETRacute adult oral criterion: ETR ≤ 0.03
Bare soil	< 10	Field margin	217.7	0.0092	2.9	0.72	0.003
		Adjacent crop		0.0033	5.8		0.002

[a] Exposure factor (Ef) for the different scenarios. For herbicidal applications in crops planted in wide rows (i.e. vines), the pesticide application is not crop directed (e.g. spray application between the rows or under the trees).
[b] Shortcut values (SVs) for the relevant exposure scenario
[c] Time-weighted average factor

Table 3.5.3.1-9: Chronic oral first tier risk assessment for bees due to the use of BCP1004D in grapevines (downwards directed spray application for inter-row applications)

Intended use	Inter-row applications for use on grapevines (post-emergence)					
Active substance	Pelargonic acid					
Single application rate (kg/ha)	10.88					
Crop category	**Scenario**	LDD50 (µg/bee)	Ef[a]	SV[b]	TWA[c]	ETRchronic adult oral criterion: ETR ≤ 0.03
Inter-row applications for use on grapevines (post-emergence)	Field margin	68.5	0.0092	2.9	0.72	0.003
	Adjacent crop		0.0033	5.8		0.002

a Exposure factor (Ef) for the different scenarios.
b Shortcut values (SVs) for the relevant exposure scenario
c Time-weighted average factor

For the relevant exposure scenarios, the ETR values for chronic exposure of adult bees feeding on pollen and nectar in all uses are below the trigger value indicating acceptable risk for bees after application of VVH 86-086/BCP1004D.

Furthermore, results from a semi-field study on bees conducted with a product containing 23.157% Pelargonic acid (COM 508 16 H EW) confirm that applications of up to 29.6 kg a.s./ha do not pose a chronic risk to honey bees.

Larval toxicity

Screening step

The chronic exposure-toxicity ratio for larvae (ETRlarvae) is calculated using the following:

$$\text{Honey bee ETR}_{\text{larvae}} = \text{AR} \times \frac{\text{SV}}{\text{NOED}_{\text{larvae}}}$$

With:

AR = Application rate in kg a.s./ha
SV = Short-cut value for the respective kind of application; specific for honeybees
NOEClarvae = expressed in µg a.s./larvae per developmental period

Table 3.5.3.1-10: Larvae screening risk assessment for bees due to the use of BCP1004D in grapevines (downwards directed spray application)

Intended use **Active substance** **Single application rate (kg/ha)**	All crops Pelargonic acid 10.88 (equivalent to 16.0 L/ha Beloukha)10.88			
Test design	NOEL (µg/larvae)	Single application rate (kg/ha)	SV[a]	ETRlarvae criterion: ETR ≤ 0.2
Oral toxicity	> 100.2	10.88	4.4	< 0.48

ETR: exposure toxicity ratio. ETR values shown in bold breach the relevant trigger.
[a] Short-cut value for the respective kind of application DW or SUW

The ETRlarvae values for the active substance Pelargonic acid exceed the trigger value, indicating a potential risk for bee larvae for the intended use in grapevine. Thus, first tier risk assessments are required.

Refined chronic larvae risk assessment for exposure via pollen and nectar

An exposure of bees following the use of BCP1004D cannot be excluded. In the refined risk assessment, the exposure of bees is differentiated for the scenarios "treated crops", "weeds in the field", "plants at the field margin", "adjacent crops" and "next crops". Pelargonic acid is a total herbicide and intended to control weeds in grapevine to be applied in the rows between the vines, or to the base of the vine for 'sucker control'. This means that the spray solution will only come into contact with the crop itself at the base of the vine (away from the foliage) for 'sucker control' and should make no or only minimal contact with the base of the vine for 'weed control within the rows'. As the product is non-systemic, no residues will be taken up by the roots and therefore the risk from the "treated crop" scenario will not be needed for consideration in the risk assessment. This is further supported by to EFSA Journal 2013;11(7):3295 the assessment for the "treated crop" scenario can be excluded for non-crop directed applications (i.e., when the crop itself is not treated). As outlined above, the application of BCP1004D is intended as a directed application either away from the vines (for weed control) or to the base of the vine (for sucker control) so, for this reason, the scenario "treated crop" is excluded from the risk assessment. Furthermore, Pelargonic acid is degraded in soil with a half-life of 3 days (EFSA Journal 2013;11(1):3023). Also, Pelargonic acid is not persistent in soil, so exposure to succeeding crops can be excluded. Therefore, a risk for the scenario "next crops" is excluded.

A chronic exposure of bees foraging within the area treated can be excluded. Once BCP1004D is applied, Pelargonic acid is absorbed by plant cells. They penetrate plant tissue and disrupt normal cell membrane function of permeability regulation in the target plants. This results in a disruption of normal physiological processes that ultimately results in cell death. Within hours of contact with fatty acids all exposed foliage will be dead. Consequently, flowering weeds will become unattractive for bees within hours. Due to the intended use of BCP1004D, as herbicide to control weeds, and the fast mode of action, it is highly unlikely that exposure of pelargonic acid to bee larvae will occur via the scenario "weeds in the field". Therefore, the scenario "weeds in the field" does not need to be considered in the larvae risk assessment.

The ETR is recalculated using the following equation:

$$\text{Honey bee ETR}_{\text{larvae}} = AR \times Ef \times SV \times \frac{twa}{NOEClarvae}$$

With:

AR = Application rate in kg a.s./ha
SV = Shortcut values for the exposure scenarios (e.g., treated crops, weeds in the field and plants at the field margin, adjacent or next crops; specific for honeybees
Ef = Exposure factor
twa = 0.85 (Value based on a default DT50 of 10 days and a 5-day time window)
NOEC larvae = expressed in µg a.s./larvae per developmental period

Table 3.5.3.1-11: Chronic larvae first tier risk assessment for bees due to the use of BCP1004D in grapevines (downwards directed spray application on bare soil)

Intended use			Bare soil				
Active substance			Pelargonic acid				
Single application rate (kg a.s./ha)			10.88 (equivalent to 16.0 L/ha Beloukha)				
Crop category	**BBCH**	**Scenario**	NOEL (µg a.s./larvae)	Ef[a]	SV[b]	TWA[c]	ETRacute adult oral criterion: ETR ≤ 0.2
Bare soil	< 10	Field margin	> 100.2	0.0092	2.2	0.85	< 0.00
		Adjacent crop		0.0033	4.4		< 0.00

[a] Exposure factor (Ef) for the different scenarios.
[b] Shortcut values (SVs) for the relevant exposure scenario
[c] Time weighted average factor

Table 3.5.3.1-12: Chronic larvae first tier risk assessment for bees due to the use of BCP1004D in grapevines (downwards directed spray application inter-row applications)

Intended use		Inter-row applications in grapevine (post-emergence				
Active substance		Pelargonic acid				
Single application rate (kg a.s./ha)		10.88 (equivalent to 16.0 L/ha Beloukha)				
Crop category	**Scenario**	NOEL (µg a.s./larvae)	Efa	SVb	TWAc	ETRacute adult oral criterion: ETR ≤ 0.2
Inter-row applications in grapevine (post emergence)	Field margin	> 100.2	0.0092	2.2	0.85	< 0.00
	Adjacent crop		0.0033	4.4		< 0.00

[a] Exposure factor (Ef) for the different scenarios.
[b] Shortcut values (SVs) for the relevant exposure scenario
[c] Time weighted average factor

~~For all uses, the ETRlarvae values for larvae fed with pollen and nectar foraged from the field margin or adjacent crops are below the trigger value, which demonstrates acceptable risks for the intended uses of VVH 86 086/BCP1004D.~~

~~**Higher-tier risk assessment for bees (tunnel test, field studies)**~~

~~Not relevant.~~

~~Furthermore, as stated above, results from a semi-field study on bees conducted with a product containing 23.157% Pelargonic acid (COM 508-16-H-EW) confirm that applications of up to 29.6 kg a.s./ha do not pose a chronic risk to honey bees (BCP1004D applies a maximum of 21.76 kg a.s./ha per year, i.e. a maximum of 2 applications of 10.88 kg a.s./ha, to grapevines).~~

~~**Effects on bumble bees**~~

~~No information on quantitative risk assessment for bumble bees is available in SANCO/10329/2002 rev 2. Therefore, no risk assessment is performed in this dossier.~~

~~**Effects on solitary bees**~~

~~No information on quantitative risk assessment for solitary bees is available in SANCO/10329/2002 rev 2. Therefore, no risk assessment is performed in this dossier.~~

~~**Overall conclusions**~~

~~The effect on bees of the application of BCP1004D was assessed in compliance with the requirements based on EPPO/OEPP (2003) Environmental risk assessment scheme for plant protection products, Chapter 10: Honeybees (PP 3/10(2)).~~

~~For each risk assessment, the hazard quotients are less than 50, indicating that BCP1004D presents acceptable acute oral and contact risks to honeybees for the intended use (grapevines).~~

~~In addition, the evaluation of the risk for bees was also performed in accordance with the recommendations of the EFSA Guidance Document (EFSA 2013) on bees, leading to an acceptable risk to bees.~~

~~Based on results, no unacceptable risk is expected for bees due to the application of BCP1004D following its intended use (grapevines).~~

Conclusion - Effects on bees
Risk assessment for bees is not part of dRR B3. Refer to Part B Sec. 6.

3.5.3.2 Effects on arthropods other than bees (KCP 10.3.2)

This section includes an assessment of the risk of Beloukha (BCP1004D) containing pelargonic acid to beneficials and other non-target organisms (other than bees).

Toxicity data

Studies on the toxicity to non-target arthropods have been carried out with pelargonic acid. Full details of these studies are provided in the respective EU DAR and related documents.

Effects on non-target arthropods of BCP1004D were not evaluated as part of the EU assessment of pelargonic acid. ~~New data submitted with this application are listed in Appendix 1 of the Part B, Section 9, Ecotoxicology dRR and summarised in Appendix 2 of the Part B, Section 9, Ecotoxicology dRR.~~

Table 3.5.3.2-1: Endpoints and effect values relevant to the risk assessment for non-target arthropods

Species	Substance	Exposure System	Results	Reference
Typhlodromus pyri (protonymphs)	NEU 1170H (21% Pelagonic acid)	Laboratory test	LR50 = approximately 20 L product/ha (3.9 kg a.s./ha)	EFSA Journal 2013;11(1):3023
Aphidius rhopalosiphi (adults)	NEU 1170H (21% Pelagonic acid)	Laboratory test	100% mortality at 20 L product/ha (3.9 kg a.s./ha)	EFSA Journal 2013;11(1):3023
Typhlodromus pyri (protonymphs)	VVH 86 086	Extended laboratory test (2D)	LR50 = 2.8 L/ha (= 1604 g a.s./ha) ER50 > 2.68 L/ha	KCP 10.3.2.2/01 Schwarz A. (2012a)
Aphidius rhopalosiphi (adults)	VVH 86 086	Extended laboratory test (2D)	LR50 = 1.34 L/ha (= 768 g a.s./ha) ER50 > 0.959 L/ha	KCP 10.3.2.2/02 Moll M. (2012a)
Chrysoperla carnea	VVH 86 086	Extended laboratory test (2D)	LR50 > 18.0 L/ha (> 10314 g a.s./ha) ER50 > 18.0 L/ha	KCP 10.3.2.2/03 Moll M. (2012b)
Orius laevigatus	VVH 86 086	Extended laboratory test (2D)	LR50 = 9.79 L/ha (= 5610 g a.s./ha) ER50 > 7.83 L/ha	KCP 10.3.2.2/04 Schwarz A. (2012b)
Aphidius rhopalosiphi (adults)	VVH 86 086	Aged-residue test	Full recovery occurred 21 days after treatment (2 applications at 12240 kg a.s./ha)	KCP 10.3.2.2/05 Définod C. (2014)
Field or semi-field tests				
No data available				

Justification for new endpoints

Endpoints obtained with the formulation studies are used in the risk assessment of effects on arthropods other than bees.

Risk assessment

The evaluation of the risk for non-target arthropods was performed in accordance with the recommendations of the "Guidance Document on Terrestrial Ecotoxicology", as provided by the Commission Services (SANCO/10329/2002 rev.2 (final), October 17, 2002), and in consideration of the recommendations of the guidance document ESCORT 2.

Risk assessment for in-field exposure

No Tier 1 risk assessment was performed, as no studies using VVH 86 086/BCP1004D were conducted on *A. rhopalosiphi* or *T. pyri* under laboratory conditions on an inert substrate. Therefore, the risk assessment begins at Tier 2, considering the extended laboratory studies conducted with VVH 86 086/BCP1004D.

Table 3.5.3.2-2: First-tier and higher-tier assessment of the in-field risk for non-target arthropods due to the use of BCP1004D on grapevines

Intended use	Grapevine		
Active substance/product	Pelargonic acid/ BCP1004D		
Application rate (g a.s./ha)	2 x 10880 (equivalent to 2 x 16.0 L/ha Beloukha)		
MAF	1.4		
Test species **Tier II**	LR50 (lab.) (g a.s. /ha)	PERin-field (g a.s./ha)	HQin-field criterion: HQ ≤ 1
Typhlodromus pyri	1604	15232	9.50
Aphidius rhopalosiphi	768		19.83
Chrysoperla carnea	> 10314		> 1.48
Orius laevigatus	5610		2.72

MAF: Multiple application factor; PER: Predicted environmental rate; HQ: Hazard quotient; DALT: Days after last treatment. Criteria values shown in bold breach the relevant trigger.
* If an LR50 or ER50 from a relevant extended laboratory test is available, it should be considered in place of the rate with ≤ 50 % effect.

All in-field HQ are above the trigger of 1 for all species. Therefore, a refined risk assessment is required to demonstrate safe uses.

Refined in-field risk assessment

According to the HQ values, after the application of the formulation VVH 86 086/BCP1004D, the risk for the non-target arthropods cannot be excluded for the in-field risk assessment.

Therefore, the effects of VVH 86 086 on the parasitoid *Aphidius rhopalosiphi*, the most sensitive species, were studied under extended laboratory conditions, during an aged residue test.

Following 2 applications at 12240 g a.s./ha with an interval of 5 days between applications, effects on survival and reproduction were observed on *Aphidius rhopalosiphi*, following exposure to freshly dried residues (1st bioassay, start on day of 2nd application) and to aged dried residues during for bioassays (day of the 2nd application and 7, 21 and 42 days after).

Table 3.5.3.2-3: Effects on aged residues of VVH 86 086/BCP1004D on Aphidius rhopalosiphi after two applications (5 day interval between applications)

Test item		VVH 86 086/BCP1004D (pelargonic acid 680 g/L)	
Test organism / exposure		*Aphidius rhopalosiphi*	
Bioassay	**Assessment**	Distilled water control	12.240 kg a.s./ha
Fresh residue (0 DAA)	Mortality after 48 h [%] *	0.0	100 (s)
Aged residue (7 DAA)	Mortality after 48 h [%] *	5.0	78.951 (s)
Aged residue (21 DAA)	Mortality after 48 h [%] *	2.5	2.561 (ns)
	Mummies/female	14.0	13.92 (ns)
	Fecundity effects [%] **	NA	-0.55
Aged residue (42 DAA)	Mortality after 48 h [%] *	7.5	-2.701 (ns)
	Mummies/female	13.1	12.7 (ns)
	Fecundity effects [%] **	NA	-3.62

* Based on the number of moribund and dead organisms; ** Negative values mean lower reproduction compared to water control. Treatment group significantly (s) or not significantly (ns) different from the distilled water control (Student-T test after Log transformation).
1 = Corrected mortality according to Abbott (1925). DAA= days after last application; a.s.= active substance; NA= Not Applicable.

After 2 applications of 12240 g a.s./ha pelargonic acid (VVH 86 086/BCP1004D) with an application interval of 5 days, no unacceptable effects on either survival or reproduction were observed on *Aphidius rhopalosiphi*, following exposure to aged, dried residues (3rd bioassay, start on day 21 of 2nd application).

This study indicates an acceptable potential for re-colonisation/recovery after application of VVH 86 086/BCP1004D, when used as proposed (2 x 10880 g a.s./ha) on grapevine.

Conclusion

An aged residue study with the most sensitive species (*Aphidius rhopalosiphi*) was conducted. Based on the results of this study, it is considered that there is an acceptable potential for re-colonisation/recovery within one year for non-target arthropods after application of VVH 86 086/BCP1004D, when used as proposed (2 x 10880 g a.s./ha) on grapevine.

Risk assessment for off-field exposure

Four extended laboratory tests were conducted on several species: *Aphidius rhopalosiphi*, *Typhlodromus pyri*, *Chrysoperla carnea* and *Orius laevigatus*. The LR50 of VVH 86 086/BCP1004D to the parasitic wasp *Aphidius rhopalosiphi* and the predatory mite *Typhlodromus pyri* were determined to be 768 g a.s./ha and 1604 g a.s./ha, respectively. The LR50 of VVH 86 086 to *Chrysoperla carnea* and *Orius laevigatus* were determined to be >10314 g a.s./ha and 5610 g a.s./ha, respectively. These data provide sufficient information to allow the Tier 2 risk assessment of VVH 86 086/BCP1004D to non-target arthropods according to ESCORT 2 (Candolfi *et al*., 2001).

For most species, the ER50 values are below the LR50. However, no effect on reproduction was observed at the highest tested rate during the reproduction phase. Therefore, the LR50 values can be used in the risk assessment.

Drift rates values relevant for field uses were used in the risk assessment below. Indeed, even though the product is intended to be used in grapevines according to the GAP, the application takes place underneath the vines or to the base of the vines. Therefore, downward spraying is considered for both uses.

Table 3.5.3.2-4: First- and higher-tier assessment of the off-field risk for non-target arthropods due to the use of BCP1004D on grapevines

Intended use	Grapevines				
Active substance/product	Pelargonic acid/ BCP1004D				
Application rate (g a.s./ha)	2 x 10880 (equivalent to 2 x 16 .0 L/ha Beloukha)				
MAF	1.4				
vdf	10				
Test species **Tier II**	LR50 (lab.) (g a.s./ha)	Drift rate	PERoff-field (g a.s./ha)	CF	HQoff-field criterion: HQ ≤ 1
Typhlodromus pyri	1604	0.0238	42.19	5	0.1372
Aphidius rhopalosiphi	768				0.2866
Chrysoperla carnea	> 10314				0.0213
Orius laevigatus	5610				0.0392

MAF: Multiple application factor; vdf: Vegetation distribution factor; (corr.) PER: (corrected) Predicted environmental rate; CF: Correction factor; HQ: Hazard quotient. Criteria values shown in bold breach the relevant trigger.
* If an LR50 or ER50 from a relevant extended laboratory test is available, it should be considered in place of the rate with ≤ 50 % effect.

The off-field risks are below the trigger value of 1.0 at 1 meter, indicating an acceptable off-field risk.

Additional higher-tier risk assessment

Not relevant.

Risk mitigation measures

No risk mitigation needed.

Overall conclusions

Four extended laboratory toxicity tests were performed using VVH86 086/BCP1004D on *Aphidius rhopalosiphi*, *Typhlodromus pyri*, *Chrysoperla carnea* and *Orius laevigatus*. The LR50 values of VVH 86 086/BCP1004D to the parasitic wasp *Aphidius rhopalosiphi* and to the predatory mite *Typhlodromus pyri* were determined to be 768 g a.s./ha and 1604 g a.s./ha, respectively. The LR50 of VVH 86 086/BCP1004D to *Chrysoperla carnea* and *Orius laevigatus* were determined to be >10314 g a.s./ha and 5610 a.s./ha, respectively.

The in-field HQ are above the trigger of 1.0 for all species. Based on an aged residue test performed with *Aphidius rhopalosiphi*, it is concluded that populations of non-target arthropods will be able to recolonise, leading to population recovery within the one year time-frame stated in ESCORT 2. Therefore, the risk in-field can be considered acceptable.

The off-field risks are acceptable without mitigation measures for the use of BCP1004D on grapevines.

Conclusion - Effects on beneficial and other non-target organisms

Adverse effects on beneficial organisms (other than bees)
The herbicide BELOUKHA (= BCP1004D, 680 g/L pelargonic acid, EC) has been proposed for two applications in vineyards with a minimum time interval between the applications of 14 d and with rates of 16 L/ha for each application. Taking into account the potential disappearance of the active ingredient between the applications, using the default multiple application factor for two applications of 1.7, the maximum exposure was calculated to be 27.2 L/ha (18496 g a.s./ha pelargonic acid).

Studies on the potential adverse effects on beneficial arthropods were available from Registration Report Part B, Section 3, Point 3.5.3.2 Effects on arthropods other than bees (KCP 10.3.2), Core Assessment (Revision October 2021) as summary and from the main application under registration no. 008528-00/00 ZV3.

The toxicity of the test product was investigated by carrying out extended laboratory tests on natural substrate with the two indicator species *Typhlodromus pyri* and *Aphidius rhopalosiphi*, the lacewing *Chrysoperla carnea* and the flower bug *Orius laevigatus,* as well as in an aged residue-test with *A. rhopalosiphi* (Table 6.5.3-1).

In extended Laboratory tests LR_{50} rates of 1604 g AS/ha for *Typhlodromus pyri* (Schwarz, 2012a), 768 g AS/ha for *Aphidius rhopalosiphi* (Moll, 2012a) and 5610 g AS/ha for *Orius laevigatus* (Schwarz, 2012b) were determined.

Results from studies with formulations deviating from the test product (EFSA Journal 2013, 11(1): 3023) were not considered in the evaluation due to possible deviating toxic effects.

Table 6.5.3-1: Effects of VVH 86 086 (573 - 702 g/L pelargonic acid) on beneficial arthropods in extended laboratory tests and an aged residue-test on natural substrates.

Species (Exposed Stage)	Substrate	Rate nonanoic acid [g a.s./ha]	Corrected Mortality [%]	Sublethal Effect (Reproduction) [%]	Reference
Typhlodromus pyri (protonymphs)	Wine leaves	246	1	-6	64360062 (Schwarz, 2012a)
		565	2	12	
		1536	39	-30	
		2991	94		
		6876	98		
Aphidius rhopalosiphi (adults)	Wine leaves	323	5	4	64369002 (Moll, 2012a)
		550	48	14	
		917	65		
		1587	80		
		2699	88		
	Ivy plants 0 DAT 2	25564 (12952 + 12712, time interval: 5 d)	100		291SRFR14C1 (Définod, 2014
	7 DAT 2		79		
	21 DAT 2		3	-1	
	42 DAT 2		-3	-4	
Chrysoperla carnea (larvae)	Wine leaves	368	3	-22	64371047 (Moll, 2012b)
		848	0	-41	
		1948	3	-29	
		4487	3	-12	
		10314	10	4	
Orius laevigatus (nymphs)	Wine leaves	368	-2	-13	64372052 (Schwarz, 2012b)#
		848	7	8	
		1948	9	-23	
		4487	27	-34	
		10314	84	-13	

DAT 2 = days after the second treatment (Start of exposition)
deviations from the test guideline: only 50 instead of 80°individuals were tested

Based on the presented results effects >°50% cannot be excluded for populations of *T. pyri* and *A. rhopalosiphi* when BELOUKHA is applied according to the recommended use pattern. *A. rhopalosiphi* is not a relevant antagonist in the proposed crops.
At 56% of the proposed application rate the test product caused effects < 25% on *C. carnea.* However, no classification is proposed since the proposed maximum application rate was not tested for this species.
At 30% of the proposed application rate the test product caused lethal effects > 50 % on the flower bug *Orius laevigatus.* However, only 50 instead of 80°individuals were tested in the study and the species *Orius laevigatus* is not native to Germany. Therefore, no classification is proposed for this species.
Based on the results for *A. rhopalosiphi* BELOUKHA may cause effects >°50% % on populations of relevant beneficial insects when it is applied according to the recommended use pattern.

Classification scheme of the effects:
Extended laboratory tests on natural substrates, semi-field and field tests

< 25%	= not harmful
25 - 50%	= slightly harmful
> 50%	= harmful

Proposal for classification:

BELOUKHA is classified as:
- harmful for populations of *Typhlodromus pyri* (predatory mite),
- harmful for populations of relevant beneficial insects.

Adverse effects on soil quality indicators (e. g. microorganisms, earthworms) are considered in Section 6 Ecotoxicological Studies in the Registration Report.

3.6 Other/special studies

None.

3.7 List of test facilities including the corresponding certificates

Efficacy trials were conducted by GEP certificated research organisations as listed in Table 3.7-1 below.

Table 3.7-1: List of test facilities

Test facility	Town	Country	Valid from	Valid to	ECPA GEP certificate hyperlink reference‡
Aarhus University	Aarhus	Denmark	01/01/2014	16/12/2013	1d5e0e8be9e
Agrartest GmbH	Aarbergen-Panrod	Germany	02/05/2016	02/05/2020	1d69315d8dd
Agri 2000 Hellas Ltd	Messinia	Greece	01/01/2017	31/12/2020	1d69315d9cf
Agri 2000 Net S.r.l	Bagnarola di Budrio	Italy	03/05/2018	03/05/2020	1d69315dac2
AgroChemex Ltd	-	UK	06/03/2015	05/03/2020	AgroChemix.pdf
Agrolab A/S	Middlefart	Denmark	01/01/2014	01/01/2020	1d69315d828
ANADIAG FRANCE	Ruy	France	09/10/2017	08/10/2022	1d69315da16
Anadiag Hungary Kft.	Komarom	Hungary	07/10/2016	07/10/2021	1d69315d9cc
ATC – Agro Trial Center GmbH	Uhersky Ostroh	Czech Republic	01/09/2016	01/09/2021	1d69315d8cc
			21/02/2011	20/02/2016	1d69315d598
	Rohrau	Austria	26/03/2014	31/12/2018	1d69315d76f
Belchim Crop Protection	Fronton	France	08/01/2018	-	Belchim GEP certificate.pdf
BioChem agrar GmbH; Gerichshain	Uedem	Germany	11/11/2015	30/11/2020	1d69315d8ec
CropTrials GmbH	Burgwedel	Germany	19/09/2013	19/09/2018	1d69315d8ca
De Bredelaar B.V.	-	Netherlands	22/01/2014	22/01/2020	1d653d22a15
EAS Austria	Graz	Austria	04/08/2016	31/12/2020	1d69315d8e3
EAS Germany, Heidelberg	Stade	Germany	15/01/2016	15/01/2021	1d69315d89c
EAS Hungary,	Székesfehérvár	Hungary	22/10/2014	22/10/2019	1d653d22a8a
EAS Romania,	Timisoara	Romania	27/02/2015	27/02/2020	1d653d22a6a
EAS Belgium	Haasdonk (Beveren)	Belgium	01/03/2018	28/02/2023	1d5e0e8c108
Eurofins Agroscience Services GmbH	Stadt	Germany	15/01/2016	15/01/2021	1d653d22adc
Exploras Agro Development BV	Dongen	Netherlands	18/01/2016	18/01/2022	1d69315d98a
Field Research Support	Wunstorf	Germany	03/03/2016	03/03/2021	1d69315d962
Hiebler Agricultural Engineering Service	Markt Hartmannsdorf	Austria	04/08/2016	31/12/2020	1d69315d909
Martin Feldversuchswesen	Orsingen-Nenzingen	Germany	14/05/2017	31/12/2021	1d69315d979
PCG	-	Belgium	15/06/2016	15/06/2026	1d5e0e8c0a8
Proefstation voor de Groenteteelt	Sint-Katelijne-Waver	Belgium	03/06/2016	20/04/2019	1d69315d9df
Proeftuin Zwaagdijk	Zwaagdijk	Netherlands	09/06/2015	09/06/2021	1d69315d98d
Redebel S.A.	Saint-Amand	Belgium	20/01/2017	20/01/2022	1d69315da3d
Redebel S.A.	Saint-Amand	Belgium	01/10/2012	20/01/2017	1d69315d573
SARL Ephydia	Martinpuich	France	30/01/2013	30/01/2018	1d69315d76e
SARL VITACONSULT	Gorges	France	18/02/2009	18/02/2014	1d69315d8d8
SGS INSTITUT FRESENIUS GmbH	Taunusstein	Germany	18/07/2016	18/07/2021	1d69315d8d2
STAPHYT	Inchy en Artois	France	14/06/2016	13/06/2021	1d69315d997
Staphyt GmbH	Blaufelden	Germany	10/11/2015	10/11/2020	1d69315d90f
SynTech Research France S.A.S	La Chapelle-Guinchay	France	05/11/2012	30/10/2014	1d69315d686
			30/10/2009	30/10/2014	1d69315d311
SynTech Research Germany	Preetz	Germany	07/05/2016	02/08/2021	1d69315da62
NAT. SERVICE PLUS	Soudron	France	22/10/2013	22/10/2018	1d69315d895
Versuchswesen Pflanzenschutz	Burgwedel	Germany	19/09/2013	20/09/2018	1d69315d646

‡ http://www.gepcertibase.eu/

Appendix 1 Lists of data considered in support of the evaluation

List of data submitted by the applicant and relied on

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study	Owner
KCP 6	Belchim Crop Protection BV	2021	Draft Registration Report. Part B, Section 3. Efficacy Data and Information - Detailed Summary. Beloukha (BCP1004D).	N	Belchim Crop Protection NV

Appendix 1: Lists of data considered in support of the evaluation (2022-04-26)

List of data submitted by the applicant and relied on

Data Point	Author(s)	Year	Title Report-No. Source GLP/GEP Published Authority registration No./JKI-No.	Vertebrate study (J=Yes O=Open N=No)	Data protection claimed (J=Yes O=Open N=No)	Justification if data protection is claimed	Owner
KCP 6.2	Hiebler, A.	2020	Registration. Evaluate efficacy of Beloukha (BCP1004D, pelargonic acid 680 g/L)on weed control in European grapevine. Post-emergence application,Mediterranean and Maritime EPPO zone, 2018 HD18EUVITVI04-AT01 N/J N 4063252/652050	N	J		Belchim Crop Protection
KCP 6.2	Schwarz, J.	2020	Determination of Efficacy of PELARGONIC ACID against Weeds in GRAPEVINEOUTDOOR Austria 2018 HD18EUVITVI04-AT02 N/J N 4063253/652051	N	J		Belchim Crop Protection

KCP 6.2	Sniady, V.	2018	Determination of efficacy of Beloukha (BCP1004D, pelargonic acid,680 g/L) on weed control in European grapevine. Post-emergence application.Maritime EPPO zone. 1 Site in Germany 2018 HD18EUVITVI04-DE01 N/J N 4063254/652052	N	J		Belchim Crop Protection
KCP 6.2	Koch, M.	2018	Evaluate efficacy of Beloukha (BCP1004D, pelargonic acid 680 g/L) on weed control in European grapevine. Post-emergence application, Mediterranean, Maritime and North-East EPPO zones. GERMANY, 2018 HD18EUVITVI04-DE02 N/J N 4063255/652053	N	J		Belchim Crop Protection
KCP 6.2	Martin, T.	2018	Evaluate efficacy of Beloukha (BCP1004D, pelargonic Acid 680 g/L) on weed Control in European grapevine. Post-emergence application, Mediterranean and Maritime EPPO Zone, 2018 HD18EUVITVI04-DE03 N/J N 4063256/652054	N	J		Belchim Crop Protection

KCP 6.2	Hiebler, A.	2020	Evaluate efficacy of BCP1004D (pelargonic acid 680 g/L EC) on sucker control in European grapevine. Maritime EPPO zones, 2018 HD18EUVITVI05-AT01 N/J N 4063257/652055	N	J		Belchim Crop Protection
KCP 6.2	Schönhofen-Müller, M.	2020	Efficacy of BCP1004D (pelargonic acid 680 g/L EC) on sucker control in European grapevine. Maritime EPPO zones, 2018. HD18EUVITVI05-DE01 N/J N 4063258/652056	N	J		Belchim Crop Protection
KCP 6.2	Schönhofen-Müller, M.	2020	Efficacy of BCP1004D (pelargonic acid 680 g/L EC) on sucker control in European grapevine. Maritime EPPO zones, 2018 HD18EUVITVI05-DE02 N/J N 4063259/652057	N	J		Belchim Crop Protection
KCP 6.2	Sniady, V.	2020	Registration. Determination of Efficacy of BCP1004D (pelargonic acid 680 g/L, EC) on sucker control in European grapevine. Maritime EPPO zone. 1 Site in Germany 2018 HD18EUVITVI05-DE03 N/J N 4063260/652058	N	J		Belchim Crop Protection

MIIIA1 Sec 7	Belchim Crop Protection NV/SA	2020	dRR - B7 - core - AT - 008528-00/07 - BELOUKHA (vom Hauptantrag) O/O N 4063261/652059	N	O		Belchim Crop Protection
KCP 3.8	Anonymous	2020	Gebrauchsanleitung N/N J 4063263/652060	N	J		Belchim Crop Protection
MIIIA1 Sec 7	Belchim Crop Protection NV/SA	2020	dRR - B7 - core - DE - 008528-00/07 - BELOUKHA - Update - word O/O N 4091489/652061	N	O		Belchim Crop Protection
Document N	Belchim Crop Protection NV/SA	2020	dRR - A - DE - 008528-00/07 - BELOUKHA - word O/O N 4091490/652062	N	O		Belchim Crop Protection
MIIIA1 Sec 7	Belchim Crop Protection NV/SA	2020	dRR - B7 - core - DE - 008528-00/07 - BELOUKHA - Update O/O N 4091657/652063	N	O		Belchim Crop Protection

Document N	Belchim Crop Protection NV/SA	2020	dRR - A - DE - 008528-00/07 - BELOUKHA O/O N 4091658/652064	N	O		Belchim Crop Protection
Part D	Anonymous	2020	ZV1 008528-00/07 BELOUKHA Referenzliste (word) O/O N 4134109/652065	N	O		Belchim Crop Prot. Burgdorf
Part D	Anonymous	2020	ZV1 008528-00/07 BELOUKHA Referenzliste (pdf) O/O N 4135826/652066	N	O		Belchim Crop Prot. Burgdorf
Part D	Anonymous	2021	Referenzliste NL 03.11.2021 O/O N 4374381/710651	N	O		Belchim Crop Prot. Burgdorf
Part D	Anonymous	2021	Referenzliste NL 03.11.2021 O/O N 4375120/710652	N	O		Belchim Crop Prot. Burgdorf

KCP Section 6	Belchim Crop Protection NV	2021	DE BAD BCP1004D Beloukha master updated FINAL k.A. Belchim Crop Protection NV N/J N 4439231/710653	N	J		Belchim Londerzeel
KCP Section 6	Belchim Crop Protection NV	2021	Attachment: DE BAD BCP1004D Beloukha master updated FINAL k.A. Belchim Crop Protection NV N/N N 4439232/710654	N	J		Belchim Londerzeel
KCP Section 6	Belchim Crop Protection NV	2021	DE BAD BCP1004D Beloukha Appendix 3-10 master updated FINAL k.A. Belchim Crop Protection NV N/J N 4439233/710655	N	J		Belchim Londerzeel
KCP Section 6	Belchim Crop Protection NV	2021	Attachment: DE BAD BCP1004D Beloukha Appendix 3-10 master updated FINAL k.A. Belchim Crop Protection NV N/J N 4439234/710656	N	J		Belchim Londerzeel

KCP 6.2	Kolnik, M.	2013	Determination of efficacy of herbicide VVH 86086 against weeds (grassweeds and dicots) in grapevine. Austria, 2013. AU13-VIT-302-01 ATC - Agro Trial Center GmbH N/J N 4439235/710657	N	J		Belchim Londerzeel
KCP 6.2	Kolnik, M.	2013	Determination of efficacy of herbicide VVH 86086 against weeds (grassweeds and dicots) in grapevine. Austria, 2013. AU13-VIT-302-02 ATC - Agro Trial Center GmbH N/J N 4439236/710658	N	J		Belchim Londerzeel
KCP 6.2	Kolnik, M.	2014	Determination of efficacy of herbicide VVH 86086 against weeds (grassweeds and dicots) in grapevine. Austria, 2014. AU14-JAD-301-03 ATC - Agro Trial Center GmbH N/J N 4439237/710659	N	J		Belchim Londerzeel
KCP 6.2	Kolnik, M.	2014	Evaluation of efficacy of herbicide VVH 86086 against weeds on grapevines, 2014 AU14-JAD-301-04 ATC - Agro Trial Center GmbH N/J N 4439238/710660	N	J		Belchim Londerzeel

KCP 6.2	Bauer Zelena, V.	2013	Determination of efficacy of herbicide VVH 86086 against weeds (grassweeds and dicots) in grapevine. Czech Republic, 2013. CZ13-VIT-302-03 ATC - Agro Trial Center GmbH, organizacni slo�ka N/J N 4439239/710661	N	J		Belchim Londerzeel
KCP 6.2	Sonneborn, S.	2014	Determination of efficacy of herbicide VVH 86086 against weeds (grassweeds and dicots) in grapevine. Germany, 2013. GE13-VIT-302-04 Versuchswesen Pflanzenschutz N/J N 4439240/710662	N	J		Belchim Londerzeel
KCP 6.2	Sonneborn, S.	2014	Determination of efficacy of herbicide VVH 86086 against weeds (grassweeds and dicots) in grapevine. Germany, 2013. GE13-VIT-302-05 Versuchswesen Pflanzenschutz N/J N 4439241/710663	N	J		Belchim Londerzeel
KCP 6.2	Sonneborn, S.	2014	Determination of efficacy of herbicide VVH 86086 against weeds (grassweeds and dicots) in grapevine. Germany, 2013. GE13-VIT-302-06 Versuchswesen Pflanzenschutz N/J N 4439242/710664	N	J		Belchim Londerzeel

KCP 6.2	Heitsch, K.	2014	Evaluation of efficacy of herbicide VVH 86086 against weeds on grapevines, 2014 GE14-JAD-301-01 Versuchswesen Pflanzenschutz N/J N 4439243/710665	N	J		Belchim Londerzeel
KCP 6.2	Heitsch, K.	2014	Evaluation of efficacy of herbicide VVH 86086 against weeds on grapevines, 2014 GE14-JAD-301-02 Versuchswesen Pflanzenschutz N/J N 4439244/710666	N	J		Belchim Londerzeel
KCP 6.2	Kolnik, M.	2013	Determination of efficacy of VVH 86086 against suckers in grapevine. Austria, 2013. H-13-W-318-01 ATC - Agro Trial Center GmbH N/J N 4439245/710667	N	J		Belchim Londerzeel
KCP 6.2	Kolnik, M.	2013	Determination of efficacy of VVH 86086 against suckers in grapevine. Austria, 2013. H-13-W-318-02 ATC - Agro Trial Center GmbH N/J N 4439246/710668	N	J		Belchim Londerzeel

KCP 6.2	Hiebler, A.	2017	Registration. Evaluation of the efficacy of BCP1004D (pelargonic acid, 680 g ai/L, EC) with 2 applications on weeds in European grapvine. Post-emergence application. Maritime Zone.2017 H17VITVI10-AT01 Hiebler Agricultural Engineering Service N/J N 4439247/710669	N	J		Belchim Londerzeel
KCP 6.2	Hiebler, A.	2018	Registration. Evaluate efficacy of Beloukha (BCP1004D, pelargonic acid 680 g/L) on weed control in European grapevine. Post-emergence application, Mediterranean and Maritime EPPO zone, 2018. HD18EUVITVI04-AT01 Hiebler Agricultural Engineering Service N/J N 4439248/710670	N	J		Belchim Londerzeel
KCP 6.2	Schwarz, J.	2018	Registration. Evaluate efficacy of Beloukha (BCP1004D, pelargonic acid 680 g/L) on weed control in European grapevine. Post-emergence application, Mediterranean and Maritime EPPO zone, 2018. HD18EUVITVI04-AT02 EAS Austria N/J N 4439249/710671	N	J		Belchim Londerzeel

KCP 6.2	Sniady, V.	2018	Registration. Evaluate efficacy of Beloukha (BCP1004D, pelargonic acid 680 g/L) on weed control in European grapevine. Post-emergence application (S18-03951_HD18EUVITVI04-DE01), 1 site Germany. Mediterranean and Maritime EPPO zone, 2018. HD18EUVITVI04-DE01 EAS Germany, Heidelberg N/J N 4439250/710672	N	J		Belchim Londerzeel
KCP 6.2	Koch, M.	2018	Registration. Evaluate efficacy of Beloukha (BCP1004D, pelargonic acid 680 g/L) on weed control in European grapevine. Post-emergence application, Mediterranean and Maritime EPPO zone, 2018. HD18EUVITVI04-DE02 STAPHYT N/J N 4439251/710673	N	J		Belchim Londerzeel
KCP 6.2	Martin, T.	2018	Registration. Evaluate efficacy of Beloukha (BCP1004D, pelargonic acid 680 g/L) on weed control in European grapevine. Post-emergence application, Mediterranean and Maritime EPPO zone, 2018. HD18EUVITVI04-DE03 Martin Feldversuchswesen N/J N 4439252/710674	N	J		Belchim Londerzeel

KCP 6.2	Hiebler, A.	2018	Registration trials. Evaluate efficacy of BCP1004D (pelargonic acid 680 g/L EC) on sucker control in European grapevine. Maritime EPPO zones, 2018. HD18EUVITVI05-AT01 Hiebler Agricultural Engineering Service N/J N 4439253/710675	N	J		Belchim Londerzeel
KCP 6.2	Schönhofen-Müller, M.	2018	Registration trials. Evaluate efficacy of BCP1004D (pelargonic acid 680 g/L EC) on sucker control in European grapevine. Maritime EPPO zones, 2018. HD18EUVITVI05-DE01 Agrartest GmbH N/J N 4439254/710676	N	J		Belchim Londerzeel
KCP 6.2	Schönhofen-Müller, M.	2018	Registration trials. Evaluate efficacy of BCP1004D (pelargonic acid 680 g/L EC) on sucker control in European grapevine. Maritime EPPO zones, 2018. HD18EUVITVI05-DE02 Agrartest GmbH N/J N 4439255/710677	N	J		Belchim Londerzeel
KCP 6.2	V. Sniady	2018	Registration trials. Evaluate efficacy of BCP1004D (pelargonic acid 680 g/L EC) on sucker control in European grapevine (S18-03995_HD18EUVITVI05-DE03). Maritime EPPO zones, 2018. HD18EUVITVI05-DE03 EAS Germany, Heidelberg N/J N 4439256/710678	N	J		Belchim Londerzeel

KCP 6.2	Blaskó, D.	2019	Registration. Evaluate efficacy of Beloukha (BCP1004D, pelargonic acid 680 g/L) on weed control in European grapevine. Post-emergence application, South-East EPPO zone, 2019. HD19EUVITVI01-HU02 Anadiag Hungary Kft. N/J N 4439257/710679	N	J		Belchim Londerzeel
KCP 6.2	Karolyi, M.	2019	Registration. Evaluate efficacy of Beloukha (BCP1004D, pelargonic acid 680 g/L) on weed control in European grapevine. Post-emergence application, South-East EPPO zone, 2019. HD19EUVITVI01-HU01 EAS Hungary, Sz[illegible]kesfeh[illegible]rv[illegible]r N/J N 4439258/710680	N	J		Belchim Londerzeel
KCP 6.2	Blaskó, D.	2011	Registration. Evaluate efficacy of Beloukha (BCP1004D, pelargonic acid 680 g/L) on weed control in European grapevine. Post-emergence application, South-East EPPO zone, 2019. HD19EUVITVI01-HU03 Anadiag Hungary Kft. N/J N 4439259/710681	N	J		Belchim Londerzeel

KCP 6.2	Karolyi, M.	2019	Registration. Evaluate efficacy of Beloukha (BCP1004D, pelargonic acid 680 g/L) on weed control in European grapevine. Post-emergence application, South-East EPPO zone, 2019. HD19EUVITVI01-HU04 EAS Hungary, Sz**?**kesfeh**?**rv**?**r N/J N 4439260/710682	N	J		Belchim Londerzeel
KCP 6.2	Tuna, V.	2019	Registration. Evaluate efficacy of Beloukha (BCP1004D, pelargonic acid 680 g/L) on weed control in European grapevine. Post-emergence application, South-East EPPO zone, 2019. HD19EUVITVI01-RO01 EAS Romania, Timisoara N/J N 4439261/710683	N	J		Belchim Londerzeel
KCP 6.2	Tuna, V.	2019	Registration. Evaluate efficacy of Beloukha (BCP1004D, pelargonic acid 680 g/L) on weed control in European grapevine. Post-emergence application, South-East EPPO zone, 2019. HD19EUVITVI01-RO02 EAS Romania, Timisoara N/J N 4439262/710684	N	J		Belchim Londerzeel

KCP 6.2	Tuna, V.	2019	Registration. Evaluate efficacy of Beloukha (BCP1004D, pelargonic acid 680 g/L) on weed control in European grapevine. Post-emergence application, South-East EPPO zone, 2019. HD19EUVITVI01-RO03 EAS Romania, Timisoara N/J N 4439263/710685	N	J		Belchim Londerzeel
KCP 6.2	Eschenbrenner, P.	2012	Préciser l'intêret de 2 formulations de VVH pour la destruction des rejets de la vigne. SRFR12-133-152HE Syntech Research France N/J N 4439264/710686	N	J		Belchim Londerzeel
KCP 6.2	Bonvallet, G., Lorphelin M.	2013	ESSAI EFFICACITE HERBICIDE DU VVH 86 086 EN VIGNE COMBINE AVEC LE TRAVAIL DU SOL AMM-VI-EU-2013 Vitivista S.A.S. N/J N 4439265/710687	N	J		Belchim Londerzeel
KCP 6.2	Gales, J.	2014	CONFIRMER LA DOSE AMM DE VVH 86086 - DESHERBAGE VIGNE SRFR13-253-152HE SynTech Research France S.A.S N/J N 4439266/710688	N	J		Belchim Londerzeel

KCP 6.2	Chene, J.	2013	Efficacy trial led spot treatment on the vine branches AMM-VI-EU 01-2013 SARL VITACONSULT N/J N 4439267/710689	N	J		Belchim Londerzeel
KCP 6.2	Reynens, P.	2018	Registration. Evaluate efficacy of Beloukha (BCP1004D, pelargonic acid 680 g/L) on weed control in apple orchards. Post-emergence application, Mediterranean, Maritime and North-East EPPO zones, 2018. HD18EUMABSD04-BE01 Redebel s.a. N/J N 4439268/710691	N	J		Belchim Londerzeel
KCP 6.2	Koch, M.	2018	Registration. Evaluate efficacy of Beloukha (BCP1004D, pelargonic acid 680 g/L) on weed control in apple orchards. Post-emergence application, Mediterranean, Maritime and North-East EPPO zones, 2018. HD18EUMABSD04-DE01 STAPHYT N/J N 4439269/710692	N	J		Belchim Londerzeel

KCP 6.2	Sniady, V.	2018	Registration. Evaluate efficacy of Beloukha (BCP1004D, pelargonic acid 680 g/L) on weed control in pear orchards (S18-03942-01_HD18EUPYUCO01-DE01), 1 site Germany. Post-emergence application, Mediterranean and Maritime EPPO zones, 2018. HD18EUPYUCO01-DE01 EAS Germany, Heidelberg N/J N 4439270/710693	N	J		Belchim Londerzeel
KCP 6.2	Martin, P.	2016	Evaluation of efficacy of herbicide VVH 86086 on pome fruits orchards against dicotyledonous and grass weeds, 2016 UK16-JAD-201-02 AgroChemex Ltd N/J N 4439271/710694	N	J		Belchim Londerzeel
KCP 6.2	Reynens, P.	2016	Evaluation of efficacy of herbicide VVH 86086 on pome fruits orchards against dicotyledonous and grass weeds, 2016 BE16-JAD-201-01 Redebel s.a N/J N 4439272/710695	N	J		Belchim Londerzeel
KCP 6.2	Ing. F.W.G. van Tilburg	2016	Evaluation of the efficacy of BCP1004D (pelargonic acid, 680 g/L) in post-ermergence of weeds in apple orchards. Registration trials in The Netherlands, 2016. H16MABSD03-NL01+NL02 De Bredelaar B.V. N/J N 4439273/710696	N	J		Belchim Londerzeel

KCP 6.2	Ing. F.W.G. van Tilburg	2016	Evaluation of the efficacy of BCP1004D (pelargonic acid, 680 g/L) in post-ermergence of weeds in apple orchards. Registration trials in The Netherlands, 2016. H16MABSD03-NL01+NL02 De Bredelaar B.V. N/J N 4439274/710697	N	J		Belchim Londerzeel
KCP 6.2	Reynens, P.	2017	Registration. Evaluation of the efficacy and selectivity of BCP1004D (680 g/l pelargonic acid) on emerged weeds, in apple orchards. Maritime, North-East and South-East EPPO-zones, 2017. H17MABSD02-BE01 Redebel s.a. N/J N 4439275/710698	N	J		Belchim Londerzeel
KCP 6.2	Hiebler, A.	2017	Registration. Evaluation of the efficacy and selectivity of BCP1004D (680 g/l pelargonic acid) on emerged weeds, in apple orchards. Maritime, North-East and South-East EPPO-zones, 2017. H17MABSD07-AT01 Hiebler Agricultural Engineering Service N/J N 4439276/710699	N	J		Belchim Londerzeel

KCP 6.2	Hartvig, P.	2017	Registration. Evaluation of the efficacy and selectivity of BCP1004D (680 g/l pelargonic acid) on emerged weeds, in apple orchards. Maritime, North-East and South-East EPPO-zones, 2017. H17MABSD07-DK01 Dept. of Agroecology, Aarhus University N/J N 4439277/710700	N	J		Belchim Londerzeel
KCP 6.2	F.W.G. van Tilburg	2017	Registration. Evaluation of the efficacy and selectivity of BCP1004D (680 g/l pelargonic acid) on emerged weeds, in apple orchards. Maritime, North-East and South-East EPPO-zones, 2017. H17MABSD07-NL01 De Bredelaar B.V. N/J N 4439278/710701	N	J		Belchim Londerzeel
KCP 6.2	Reynens, P.	2018	Registration. Evaluate efficacy of Beloukha (BCP1004D, pelargonic acid 680 g/L) on weed control in cherry orchard. Post-emergence application, Maritime EPPO zone, 2018. HD18EUPRNCE01-BE01 Redebel s.a. N/J N 4439279/710702	N	J		Belchim Londerzeel

KCP 6.2	Meier, S.	2018	Registration. Evaluate efficacy of Beloukha (BCP1004D, pelargonic acid 680 g/L) on weed control in plum orchard. Post-emergence application, Maritime EPPO zone, 2018. HD18EUPRNDO01-DE01 SynTech Research Germany GmbH N/J N 4439280/710703	N	J		Belchim Londerzeel
KCP 6.2	F.W.G van Tilburg	2018	Registration. Evaluate efficacy of Beloukha (BCP1004D, pelargonic acid 680 g/L) on weed control in plum orchard. Post-emergence application, Maritime EPPO zone, 2018. HD18EUPRNDO01-NL01 De Bredelaar B.V. N/J N 4439281/710704	N	J		Belchim Londerzeel
KCP 6.2	Thomas, M.	2017	Registration. Evaluation of the efficacy and selectivity of BCP1004D (680 g/l pelargonic acid) on emerged weeds, in cherry orchards.Maritime, North-East and South-East EPPO-zones, 2017. H17PRNAV01-DE01 Martin Feldversuchswesen N/J N 4439282/710705	N	J		Belchim Londerzeel

KCP 6.2	Dutt, E.	2017	Registration. Evaluation of the efficacy and selectivity of BCP1004D (680 g/l pelargonic acid) on emerged weeds, in plum orchards. Maritime and South-East EPPO-zones, 2017. H17PRNDO01-DE01 Eurofins Agroscience Services GmbH N/J N 4439283/710706	N	J		Belchim Londerzeel
KCP 6.2	Kolnik, M.	2016	Evaluation of efficacy of herbicide VVH 86086 on stone fruits orchards against dicotyledonous and grass weeds CZ16-JAD-203-03 ATC ◆Agro Trial Center GmbH N/J N 4439284/710707	N	J		Belchim Londerzeel
KCP 6.2	Lorenz, B.	2017	An evaluation of the efficacy of herbicide VVH 86086 sprayed during two applications against weeds in stone fruits orchards in Germany 2016 GE16-JAD-203-01 CropTrials GmbH N/J N 4439285/710708	N	J		Belchim Londerzeel
KCP 6.2	Ing. W. van de Ven	2018	Registration. evaluate efficacy of Beloukha (BCP1004D), pelargonic acid, 680 g/l) on weed control in pear orchards. post-emergence application, Mediterranean and maritime EPPO zones, 2018. HD18EUPYUCO01-NL01 De Bredelaar B.V. N/J N 4439286/710709	N	J		Belchim Londerzeel

KCP 6.2	C. Oostingh	2016	Evaluation of efficacy of herbicide VVH 86086 on stone fruits orchards against dicotyledonous and grass weeds, 2016 NL16-JAD-203-02 Proeftuin Zwaagdijk N/J N 4439287/710710	N	J		Belchim Londerzeel
KCP 6.2	G. Wallart	2017	Screening/registration. Evaluation of the efficacy of BCP1004D (pelargonic acid 680 g ai/L, EC) solo and in mixtures on weeds in onion. Just before the emergence of the crops. MAR EPPO zone. 2017. H17ALLCE01-FR01 SARL EPHYDIA N/J N 4439288/710711	N	J		Belchim Londerzeel
KCP 6.2	De Rooster, L.	2018	Registration. Evaluate the efficacy and the crop safety of BCP1004D (pelargonic acid, 680 g a.i./L, EC) on young weeds when is applied, in post-sowing, just before the emergence of the onion. Maritime, and Mediterranean EPPO-zone. 2018 HD18EUALLCE01-BE01 Proefstation voor de Groenteteelt N/J N 4439289/710712	N	J		Belchim Londerzeel

KCP 6.2	Biondaro, S.	2018	Registration. Evaluate the efficacy and the crop safety of BCP1004D (pelargonic acid, 680 g a.i./L, EC) on young weeds when is applied on false soil bed preparation, in pre-emergence of soybean. Maritime, and Mediterranean EPPO-zone. 2018 HD18EUGLXMA09-IT01 Agri 2000 Net S.r.l. N/J N 4439290/710713	N	J		Belchim Londerzeel
KCP 6.2	Carrasset, S.	2018	Registration. Evaluate the efficacy and the crop safety of BCP1004D (pelargonic acid, 680 g a.i./L, EC) on young weeds when is applied on false soil bed preparation, in pre-emergence of sunflower. Maritime, and Mediterranean EPPO-zone. 2018 HD18EUHELAN05-FR01 Syntech Research France N/J N 4439291/710714	N	J		Belchim Londerzeel
KCP 6.2	Bulgarelli, E.	2018	Registration. Evaluate the efficacy and the crop safety of BCP1004D (pelargonic acid, 680 g a.i./L, EC) on young weeds when is applied on false soil bed preparation, in pre-emergence of sunflower. Maritime, and Mediterranean EPPO-zone. 2018 HD18EUHELAN05-IT01 Agri 2000 Net S.r.l. N/J N 4439292/710715	N	J		Belchim Londerzeel

KCP 6.2	J.M. Rigail	2018	Registration. Evaluate the efficacy and the crop safety of BCP1004D (pelargonic acid, 680 g a.i./L, EC) on young weeds when is applied, post sowing, just before the emergence of the peas. Maritime, and Mediterranean EPPO-zone. 2018 HD18EUPIBST03-FF01 BELCHIM CROP PROTECTION N/J N 4439293/710716	N	J		Belchim Londerzeel
KCP 6.2	Buysens, S.	2018	Registration. Evaluate the efficacy and the crop safety of BCP1004D (pelargonic acid, 680 g a.i./L, EC) on young weeds when is applied, post sowing, just before the emergence of the spinach. Maritime, and Mediterranean EPPO-zone. 2018 HD18EUSPQOL01-BE01 PCG N/J N 4439294/710717	N	J		Belchim Londerzeel
KCP 6.2	Cagnano, M.	2018	Registration. Evaluate the efficacy and the crop safety of BCP1004D (pelargonic acid, 680 g a.i./L, EC) on young weeds when is applied, post sowing, just before the emergence of the spinach. Maritime, and Mediterranean EPPO-zone. 2018 HD18EUSPQOL01-IT01 Agri 2000 Net S.r.l N/J N 4439295/710718	N	J		Belchim Londerzeel

KCP 6.2	Reynens, P.	2018	Registration. Evaluate the efficacy and the crop safety of BCP1004D (pelargonic acid, 680 g a.i./L, EC) on young weeds when is applied on false soil bed preparation, in post-sowing and pre-emergence of corn. Maritime, and Mediterranean EPPO 2018 HD18EUZEAMX12-BE01 Redebel s.a. N/J N 4439296/710719	N	J		Belchim Londerzeel
KCP 6.2	Kolnik, M.	2016	Evaluation of efficacy of herbicide VVH 86086 on onions against dicotyledonous and grass weeds AU16-JAD-209-03 ATC ◆Agro Trial Center GmbH N/J N 4439297/710720	N	J		Belchim Londerzeel
KCP 6.2	Reynens, P.	2018	Registration. Evaluate the efficacy and the crop safety of BCP1004D (pelargonic acid, 680 g a.i./L, EC) on young weeds when is applied in post transplanting. as shielded application between and within the row, on celery. Maritime EPPO-zone. 2018 HD18EUAPUGV01-BF01 Redebel s.a. N/J N 4439298/710721	N	J		Belchim Londerzeel

KCP 6.2	Heitsch, K.	2018	Registration. Evaluation of efficacy and selectivity of BC1004D (pelargonic acid 680 g ai/L, EC), solo and in mixture with BCP259H (metobromuron 400 g a.i./L) on weeds in asparagus. Maritime EPPO zone. 2018. HD18EUASPOF01-DE01 CropTrials GmbH N/J N 4439299/710722	N	J		Belchim Londerzeel
KCP 6.2	Reynens, P.	2018	Registration. Evaluate the efficacy and the crop safety of BCP1004D (pelargonic acid, 680 g a.i./L, EC) on young weeds when is applied in post transplanting. as shielded application between and within the row, on brassicae crops. Maritime EPPO-zone. HD18EUBRSSS01-BF01 Redebel s.a. N/J N 4439300/710723	N	J		Belchim Londerzeel
KCP 6.2	Strbac, S.	2018	Registration. Evaluate the efficacy and the crop safety of BCP1004D (pelargonic acid, 680 g a.i./L, EC) on young weeds when is applied in post transplanting. as shielded application between and within the row, on brassicae crops. Maritime EPPO-zone. HD18EUBRSSS01-DE01 Syntech Research Germany GmbH N/J N 4439301/710724	N	J		Belchim Londerzeel

KCP 6.2	Hansen Kemezys, A.; Hertvig, P.	2018	Registration. Evaluate the efficacy and the crop safety of BCP1004D (pelargonic acid, 680 g a.i./L, EC) on young weeds when is applied in post transplanting. as shielded application between and within the row, on brassicae crops. Maritime EPPO-zone. HD18EUBRSSS01-DK01 Aarhus University, Department of Agroecology N/J N 4439302/710725	N	J		Belchim Londerzeel
KCP 6.2	Hansen Kemezys, A.	2018	Registration. Evaluate efficacy and the selectivity of BCP1004D (pelargonic acid 680 g/L) on weed control in outdoor strawberries. Inter-row application on young weeds. North-East EPPO zone, 2018. HD18EUFRAAN01-DK01 Aarhus University, Department of Agroecology N/J N 4439303/710726	N	J		Belchim Londerzeel
KCP 6.2	C. Leymarie	2018	Registration. Evaluate the efficacy and the crop safety of BCP1004D (pelargonic acid, 680 g a.i./L, EC) on young weeds when is applied in post transplanting. as shielded application between the row, on lettuce. Maritime EPPO-zone. 2018 HD18EULACSS01-FF01 BELCHIM CROP PROTECTION N/J N 4439304/710727	N	J		Belchim Londerzeel

KCP 6.2	Heitsch, K.	2017	Screening/registration. Evaluation of the efficacy of BC1004D (pelargonic acid 680 g ai/L, EC) solo and mixtures on weeds in asparagus. One and/or two application on emerged weeds. Maritime EPPO zone. 2017. H17ASPOF01-DE01 CropTrials GmbH N/J N 4439305/710728	N	J		Belchim Londerzeel
KCP 6.2	Embrechts, A.	2017	Screening/registration. Evaluation of the efficacy of BC1004D (pelargonic acid 680 g ai/L, EC) straight and in combination with BCP280H and BCP259H on weeds in asparagus. One and/or two application on emerged weeds. Maritime EPPO zone. 2017. H17ASPOF01-NL01 Exploras Agro Development BV N/J N 4439306/710729	N	J		Belchim Londerzeel
KCP 6.2	Graf Luckner, M.	2019	Registration. Evaluation of efficacy and selectivity of BCP1004D (pelargonic acid 680 g/L EC) on emerged weeds in ornamental crops after under leaf or row application. HD18EUNNNZZ02-DE01 Syntech Research Germany GmbH N/J N 4439307/710730	N	J		Belchim Londerzeel

KCP 6.2	Embrechts, A.	2018	Registration. Evaluation of efficacy and selectivity of BCP1004D (pelargonic acid 680 g/L EC) on emerged weeds in ornamental crops after under leaf or row application. HD18EUNNNZZ02-NL01 Exploras Agro Development BV N/J N 4439308/710731	N	J		Belchim Londerzeel
KCP 6.2	Stognienko, M.	2018	Registration. Evaluation of efficacy and selectivity of BCP1004D (pelargonic acid 680 g/L EC) and BCP1010H (pelargonic acid 500 g/L EC) on emerged weeds in ornamental crops under leaf or row application. Maritime EPPO zone. 2018. HD18EUNNNZZ04-DE03 BioChem agrar GmbH; Gerichshain N/J N 4439309/710732	N	J		Belchim Londerzeel
KCP 6.2	Embrechts, A.	2018	Registration. Evaluation of efficacy and selectivity of BCP1004D (pelargonic acid 680 g/L EC) and BCP1010H (pelargonic acid 500 g/L EC) on emerged weeds in ornamental crops under leaf or row application. Maritime EPPO zone. 2018. HD18EUNNNZZ04-NL02 Exploras Agro Development BV N/J N 4439310/710733	N	J		Belchim Londerzeel

KCP 6.2	Reynens, P.	2017	Screening. Evaluation of the efficacy and selectivity of BCP1004D (680 g/l pelargonic acid) on emerged weeds after under leaf or row application in ornamental crops. Maritime EPPO zone 2017. H17NNNZZ02-BE01 Redebel s.a. N/J N 4439311/710734	N	J		Belchim Londerzeel
KCP 6.2	Brand, E.	2017	Screening. Evaluation of the efficacy and selectivity of BCP1004D (680 g/l pelargonic acid) on emerged weeds after under leaf or row application in ornamental crops. Maritime EPPO zone 2017. H17NNNZZ02-DE01 SGS INSTITUT FRESENIUS GmbH N/J N 4439312/710735	N	J		Belchim Londerzeel
KCP 6.2	Eriksson, M.	2017	Screening. Evaluation of the efficacy and selectivity of BCP1004D (680 g/l pelargonic acid) on emerged weeds after under leaf or row application in ornamental crops. Maritime EPPO zone 2017. H17NNNZZ02-DK01 Agrolab A/S N/J N 4439313/710736	N	J		Belchim Londerzeel

KCP 6.2	Vlieger, S.	2018	Registration. Determining the efficacy of BCP1004D (pelargonic acid, 680 g a.i./L, EC) on young weeds on non-cultivated field/bare soil. Maritime EPPO-zone. 2018 HD18EUNNNAC07-BE01 EUROFINS AGROSCIENCE SERVICES BELGIUM N/J N 4439314/710737	N	J		Belchim Londerzeel
KCP 6.2	Carasset, S.	2018	Registration. Determining the efficacy of BCP1004D (pelargonic acid, 680 g a.i./L, EC) on young weeds on non-cultivated field/bare soil. Maritime EPPO-zone. 2018 HD18EUNNNAC07-FR01 SynTech Research France N/J N 4439315/710738	N	J		Belchim Londerzeel
KCP 6.2	Pitiot S.	2018	Registration. Determining the efficacy of BCP1004D (pelargonic acid, 680 g a.i./L, EC) on young weeds on non-cultivated field/bare soil. France 2018 HD18EUNNNAC07-FR02 ANADIAG FRANCE N/J N 4439316/710739	N	J		Belchim Londerzeel

KCP 6.2	Sedano A.	2018	Registration. Determining the efficacy of BCP1004D (pelargonic acid, 680 g a.i./L, EC) on young weeds on non-cultivated field/bare soil. Maritime EPPO-zone. 2018 HD18EUNNNAC07-FR03 STAPHYT N/J N 4439317/710740	N	J		Belchim Londerzeel
KCP 6.2	Embrechts A.	2018	Registration. Determining the efficacy of BCP1004D (pelargonic acid, 680 g a.i./L, EC) on young weeds on non-cultivated field/bare soil. Maritime EPPO-zone. 2018 HD18EUNNNAC07-NL01 Exploras Agro Development BV N/J N 4439318/710741	N	J		Belchim Londerzeel
KCP 6.4	Kolnik M.	2014	Evaluation of crop safety of herbicide VVH 86086 on grapevines, 2014 AU14-JAD-302-02 ATC - Agro Trial Center GmbH N/J N 4439319/710742	N	J		Belchim Londerzeel
KCP 6.4	Kolnik M.	2015	Evaluation of crop safety of herbicide VVH 86086 on grapevines, 2015 AU15-JAD-101-02 ATC - Agro Trial Center GmbH N/J N 4439320/710743	N	J		Belchim Londerzeel

KCP 6.4	Heitsch K.	2014	Evaluation of crop safety of herbicide VVH 86086 on grapevines, 2014 GE14-JAD-302-01 Versuchswesen Pflanzenschutz N/J N 4439321/710744	N	J		Belchim Londerzeel
KCP 6.4	Ewert A.	2015	Evaluation of crop safety of herbicide VVH 86086 on grapevines, 2015 GE15-JAD-101-01 Field Research Support N/J N 4439322/710745	N	J		Belchim Londerzeel
KCP 6.4	Bucchi R.	2018	Registration. Evaluation of the selectivity of BCP1004D (pelargonic acid, 680 g/L EC) in table grape. Mediterranean EPPO-zone, 2018. HD18EUVITVI06-GR01 Agri 2000 Hellas Ltd. N/J N 4439323/710746	N	J		Belchim Londerzeel
KCP 6.4	Bucchi R.	2018	Registration. Evaluation of the selectivity of BCP1004D (pelargonic acid, 680 g/L EC) in table grape. Mediterranean EPPO-zone, 2018. HD18EUVITVI06-GR02 Agri 2000 Hellas Ltd N/J N 4439324/710747	N	J		Belchim Londerzeel

KCP 6.4	Goyne L., Bloy C.	2012	Etude des effets non intentionnels de la preparation herbicide experimentale vvh 86083 sur l'elaboration et la qualite des mouts et des vins. Study of unintentional effects of the experimental herbicide compound vvh 86083 on production and quality of VTV/AMMENI 01-2011 Staphyt N/J N 4439325/710748	N	J		Belchim Londerzeel
KCP 6.4	Goyne L., Bloy C.	2012	Etude des effets non intentionnels des preparations herbicides experimentales vvh 86081 et vvh 86083 sur l'elaboration et la qualite des mouts et des vins. Study of unintentional effects of experimental herbicide compounds vvh 86081 and vvh 86083 on VTV/AMMENI 02-2011 Staphyt N/J N 4439326/710749	N	J		Belchim Londerzeel
KCP 6.4	Baton, M. S.	2012	Evaluation des effets non intentionnels de vvh 86083 et vvh 86081 sur l'elaboration et la qualite des vins. SBN-11-9713-FR01 Staphyt N/J N 4439327/710750	N	J		Belchim Londerzeel
KCP 6.4	Baton, M. S.	2012	Evaluation des effets non intentionnels de vvh 86083 sur l'elaboration et la qualite des vins. SBN-11-10459-FR01 Staphyt N/J N 4439328/710751	N	J		Belchim Londerzeel

KCP 6.4	Baton, M. S.	2012	Evaluation des effets non intentionnels de vvh 86083 sur l'elaboration et la qualite des vins. SBN-11-10459-FR02 Staphyt N/J N 4439329/710752	N	J		Belchim Londerzeel
Part B Section 3	Belchim Crop Protection NV	2021	dRR - B3 - core - 008528-00/07 - BELOUKHA k.A. Belchim Crop Protection NV N/N N 4439330/710753	N	J		Belchim Londerzeel
Part B Section 3	Belchim Crop Protection NV	2021	dRR - B3 - core - 008528-00/07 - BELOUKHA (word) k.A. Belchim Crop Protection NV N/N N 4439331/710754	N	J		Belchim Londerzeel
Part D	Anonymous	2022	Reference list k.A. Belchim Crop Protection NV N/N N 4439332/710755	N	J		Belchim Londerzeel
Part D	Anonymous	2022	Reference list (word) k.A. Belchim Crop Protection NV N/N N 4439333/710756	N	J		Belchim Londerzeel

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

Data Point	Author(s)	Year	Title Report-No. Source GLP/GEP Published Authority registration No./JKI-No.	Vertebrate study (J=Yes O=Open N=No)	Data protection claimed (J=Yes O=Open N=No)	Justification if data protection is claimed	Owner

List of data submitted by the applicant and not relied on

Data Point	Author(s)	Year	Title Report-No. Source GLP/GEP Published Authority registration No./JKI-No.	Vertebrate study (J=Yes O=Open N=No)	Data protection claimed (J=Yes O=Open N=No)	Justification if data protection is claimed	Owner

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

Data Point	Author(s)	Year	Title Report-No. Source GLP/GEP Published Authority registration No./JKI-No.	Vertebrate study (J=Yes O=Open N=No)	Data protection claimed (J=Yes O=Open N=No)	Justification if data protection is claimed	Owner

Appendix 2 Critical Uses – justification and GAP tables

GAP rev. 0, date: 2021-09-29

PPP (product name/code) Beloukha (BCP1004D)
active substance 1 Pelargonic acid
Applicant: Belchim Crop Protection NV.
Zone(s): Central (DE)
Verified by MS: northern/central/southern

Formulation type: EC
Conc. of as 1: 680 g/L
professional use

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)	**Conclusions DE**
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	kg or L product / ha a) max. rate per appl. b) max. total rate per crop/season	g or kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
1	DE	**Grapevine** (VITVI)	F	Annual dicotyledonous weeds (3ANDIT) and annual monocotyledonous weeds (3ANMNT)	Directed shielded spray - row treatment	BBCH 00 to 77	a) 2 b) 2	14 days	a) 16.0 L/ha b) 32.0 L/ha	a) 10880 g/ha b) 21760 g/ha	200-400	-	Row treatment. - max 50% of the vineyard surface is treated.	
2	DE	**Grapevine** (VITVI)	F	Control of suckers (VITVI)	Directed shielded spray – base of plant	BBCH 11 to 77	a) 2 b) 2	14 days	a) 16.0 L/ha b) 32.0 L/ha	a) 10880 g/ha b) 21760 g/ha	150-250	-	6-10 L/hL	

Draft Product label

Beloukha®

Herbicide against monocotyledonous and dicotyledonous weeds and suckers in grapevines

Active ingredient: Pelargonic acid 680 g/kg (71.96% by weight)

Formulation: Emulsifiable Concentrate (EC)

Net amount: 10 L; 15L

® = eingetragene Marke des Industrieverbandes Agrar e. V.

Approval Number: 008528-00

Marketing authorization holder:

Belchim Crop Protection NV / SA

Technologielaan 7

1840 Londerzeel

BELGIUM

www.belchim.be

Distribution:

Belchim Crop Protection Deutschland GmbH

Wollenweberstrasse 22, D 31303 Burgdorf

Tel 05136 - 92038-0 | info-de@belchim.com | www.belchim-agro.de

® registered trademark of: Belchim Crop Protection

Beloukha®

Contains: Pelargonic acid

Warning

Hazard statements (H-Phrases):

H315 Causes skin irritation.

H319 Causes serious eye irritation.

Safety instructions (P-Phrases):

P101 If medical advice is required, have container or label to hand.

P102 Keep out of reach of children.

P280 Wear protective gloves, protective clothing, eye protection, face protection.

P305+P351+P338 BEI KONTAKT MIT DEN AUGEN: Rise carefully with water for several minutes. Remove contact lenses, if possible. Continue rinsing.

P308+P313 If exposed or concerned: Seek medical advice / assistance.

P501 Dispose of contents/container via appropriate disposal.

Additional hazard warnings:

EUH401 Follow the instructions for use to avoid risks to people and the environment.

Belchim Crop Protection Deutschland GmbH,

Wollenweberstraße 22, 31303 Burgdorf

Telephone: +49(0)5136 920380

Properties and mode of action

Beloukha is a herbicide against annual monocotyledonous and dicotyledonous weeds and suckers in grapevines.

Beloukha contains the active ingredient pelargonic acid, which is 100% of vegetable origin.

Beloukha has a pure contact effect - the treated plant tissue dies 2-3 hours after application due to dehydration. As Beloukha has no systemic effect, the roots of the plants are not killed.

Mode of Action (HRAC group): 0

(proposed) Applications

Application number	xxx
Crop	Grapevine (Use as Table and Wine grapes)
Harmful organism/ Intended purpose	Annual monocotyledonous and dicotyledonous weeds
Field of application	Outdoors
Application area	Grapevine
Application rate	16 L/ha in 200 – 400 L water/ha
Time of application	During the growing season, BBCH 00-77 of the crop
Application technology	Spray as a sequential treatment
Frequency of use in this application for the crop or per year	 2 2
Time interval in Days	Min. 14
Waiting period in Days	The waiting period is covered by the conditions of use and / or the vegetation period that remains between application and use (e.g. harvest) or it is not necessary to set a waiting period in days.

WEED CONTROL:

Beloukha is a non-selective contact acting herbicide, so should be applied within the rows of grapevines, being careful to avoid the leaves, fruits or green shoots of the grapevines. Application should be made post-emergence, to small, actively growing weeds, preferably no larger than BBCH 16-18 of the broad-leaved weeds and BBCH 12-13 of the grass weeds. Where the weed spectrum includes perennial weeds, these may be adequately controlled using one application of Beloukha at 16 L/ha. However, to provide more consistent control of these difficult to control perennial weeds, it may be necessary to apply a second application of Beloukha at 16 L/ha. Also, as Beloukha is a contact acting herbicide, it has no residual activity, so weeds germinating or emerging after application will not be controlled.

A single application of 16 L/ha Beloukha will control annual broad-leaved and grass weeds, including:

Weed species	EPPO code	Weed growth stages controlled (BBCH)	Weed susceptibility rating
Amaranthus retroflexus	AMARE	10-18	MS
Capsella bursa-pastoris	CAPBP	10-18	S
Chenopodium album	CHEAL	10-18	S
Galinsoga parvifora	GASPA	10-18	S

Geranium dissectum	GERDI	10-18	S
Lamium amplexicule	LAMAM	10-18	S
Lamium purpureum	LAMPU	10-18	S
Matricaria species	MATSS	10-18	S
Polygonum species	POLSS	10-18	S
Portulaca oleracea	POROL	10-18	S
Senecio vulgaris	SENVU	10-18	S
Solanum nigrum	SOLNI	10-18	S
Stellaria media	STEME	10-18	S
Urtica urens	URTUR	10-18	S
Veronica species	VERSS	10-18	S
Digitaria sanguinalis	DIGSA	10-13	S
Poa annua	POAAN	10-13	S

A single application of 16 L/ha Beloukha will provide useful control of perennial broad-leaved and grass weeds, but may require a second application (minimum interval 14 days) to provide adequate control of these weeds, including:

Weed species	**EPPO code**	**Weed growth stages controlled (BBCH)**	**Weed susceptibility rating**
Plantago species	PLASS	10-16	S
Taraxacum officinale	TAROF	10-16	S

Application number	xxx
Crop	Grapevine (Use as Table and Wine grapes)
Harmful organism/ Intended purpose	Suckers
Field of application	Outdoors
Application area	Grapevine
Application rate	16 L/ha in 200 – 400 L water/ha
Time of application	During the growing season, BBCH 11-77 of the crop
Application technology	Spray as a sequential treatment
Frequency of use in this application for the crop or per year	 2 2
Time interval in Days	Min. 14
Waiting period in Days	The waiting period is covered by the conditions of use and / or the vegetation period that remains between application and use (e.g. harvest) or it is not necessary to set a waiting period in days.

For optimum control of suckers, apply to suckers less than 25cm long.

Application recommendation

For an optimal effectiveness of Beloukha as a solo application, the following points should be observed:

- A concentration of 6-8% if the application rate of 16 l / ha is adhered to.
- In the days after application, the air temperature should be at least 15°C, solar radiation promotes the effect.
- If the temperature is very high on the day of application, the treatment should take place early in the morning or in the evening.
- Ensure complete coverage.

Application technology (Preparation of the spray liquid)

Never prepare more spray liquid than necessary. Empty the container completely.

Half fill the spray tank with the required amount of water and switch on the agitator. Add the required amount of Beloukha and fill with the remaining amount of water. Do not switch off the agitator during application.

Apply spray liquid with constant agitation.

Cleaning the spray equipment

Thoroughly clean the application equipment after using Beloukha. Dilute any remaining residual amount in a ratio of 1:10 with water and apply to the treated area. Spray the inner walls of the spray tank with a jet of water or use integrated cleaning nozzles. Rinse the spray tank again with clean water and apply the rinsing liquid to the previously treated area. Have spray equipment checked regularly!

Succeeding and adjacent crops

Beloukha degrades rapidly on contact with the soil.

Allow a minimum of 7 days after application before replanting or sowing crops.

Avoid drift onto adjacent crops.

Conditions of use / requirements for safe handling

- Avoid any unnecessary contact with the product. Misuse can lead to damage to health.
- If medical advice is required, have the product packaging or label ready.
- Keep out of the reach of children.
- For the requirements for personal protective equipment when handling the plant protection product, the information in the safety data sheet and in the instructions for use of the plant protection product as well as the BVL guideline “Personal protective equipment when handling plant protection products” of the Federal Office for Consumer Protection and Food Safety (www.bvl.bund. de) to be observed.
- Do not eat, drink or smoke when handling the product.
- Wear tightly fitting protective goggles when handling the undiluted product.
- It must be ensured that treated areas / crops are only entered again after the pesticide has dried off.
- Protective gloves (plant protection) must be worn when handling the undiluted product.
- Wear work clothes (if no specific protective clothing is required) and sturdy shoes (e.g. rubber boots) when applying / handling pesticides.
- Wear protective clothing against pesticides and sturdy shoes (e.g. rubber boots) when handling the undiluted product.

First aid / advice for the doctor:

- If swallowed: Immediately consult a poison control centre or doctor and show the packaging or label. Do not induce vomiting.
- If in contact with skin contact: Remove contaminated clothing and rinse the affected skin areas immediately and thoroughly with water.
- If in contact with eyes: Rinse immediately and thoroughly with plenty of water for at least 15 to 20 minutes with the eyelids open. Seek medical advice.
- If inhaled: Move to fresh air.

Water / groundwater protection

Do not allow application liquids and their residues, product and their residues, emptied containers or packs as well as cleaning and rinsing liquids to get into water bodies. This also applies to indirect inputs via the sewer system, yard and street drains, as well as rain and sewer channels.

Bees

NB6641 The product is classified as not dangerous for bees up to the highest application rate or application concentration specified by the approval, if an application rate is not intended (B4).

Storage

Storage>8°C. Storage class 12 (according to TRGS 510)

Keep out of reach of children. Store separately from food, beverages, animal feed and luxury foods. Do not store near medicines or cosmetics. Keep product in the original container in a cool, well-ventilated place. Protect from excessive heat and cold and direct sunlight.

Disposal

Do not reuse empty packaging. Empty and carefully rinsed packaging with the PAMIRA brand must be returned to the authorized collection points of the PAMIRA disposal system with a separate closure. You can obtain information on the time and place of the collections from your dealer, from the regional press or on the Internet at www.pamira.de. Do not dispose of product residues in the household waste, but deliver them to the hazardous waste disposal facility at your place of residence in their original packaging. You can obtain further information from your city or district administration.

General instructions for use / liability

Careful testing has shown that the product is suitable for the recommended purposes if our instructions for use are complied with. Since storage and use are beyond our control and we cannot foresee all relevant circumstances, we exclude any liability for any damage resulting from storage and use. We are liable for the constant quality of the product, we do not bear the storage and use risk.

The use of the product in areas of application that are not described in the instructions for use, especially in cultures other than those mentioned there, has not been checked by us. This applies in particular to applications that are covered by an approval or approval by the approval authority, but are not recommended by us here. We therefore exclude any liability for any damage resulting from such an application.

A wide range of influencing factors, especially those that are locally or regionally determined, can influence the effect of the product. These include, for example, weather and soil conditions, cultivated plants, crop rotation, treatment dates, application rates, mixtures with other products that do not correspond to the above information on miscibility, occurrence of active ingredient-resistant organisms (such as fungi, plants, insects), spraying technology, etc. Therefore, under particularly unfavourable conditions, a change in the effectiveness of the agent or damage to crop plants cannot be ruled out. The manufacturer or distributor cannot accept any liability for such consequences.

REGISTRATION REPORT

Part B

Section 6: Ecotoxicological Studies

Detailed Summary of the Risk Assessment

Product Code: BELOUKHA (VVH 86 086)

Reg. No.: 008528-00/07

Active Substance: 680 g/L PELARGONIC ACID / NONANOIC ACID (EC) (CAS No.112-05-0)

Central Zone

Zonal Rapporteur Member State: Germany

CORE ASSESSMENT

Applicant: Certis Belchim BV

Date: 14.01.2021

Evaluator: Julius Kühn-Institut

Date: 10.05.2022

Table of Contents

IIIA 10.4 Effects on Bees (KCP 10.3.1)

Under consideration of the honey bee risk assessment for the main application (008528-00/00 ZV3), DE concluded on national level that the risk to bees is acceptable when BELOUKHA (VVH 86 086) is used up to 16 L/ha in bee attractive crops. Since the recommended application rate does not exceed this rate no further risk assessment is required.

IIIA 10.4.1 Hazard quotients for bees

Refer to IIIA 10.4.

IIIA 10.4.1.1 Oral exposure Q_{HO}

Refer to IIIA 10.4.

IIIA 10.4.1.2 Contact exposure Q_{HC}

Refer to IIIA 10.4.

IIIA 10.4.2 Acute toxicity of the formulation to bees

Refer to IIIA 10.4.

IIIA 10.4.2.1 Oral

Refer to IIIA 10.4.

IIIA 10.4.2.2 Contact

Refer to IIIA 10.4.

IIIA 10.4.3 Effects on bees of residues on crops

Refer to IIIA 10.4.

IIIA 10.4.4 Cage tests

Refer to IIIA 10.4.

IIIA 10.4.5 Field tests

Refer to IIIA 10.4.

IIIA 10.4.6 Investigation into special effects

Refer to IIIA 10.4.

IIIA 10.4.6.1 Larval toxicity

Refer to IIIA 10.4.

IIIA 10.4.6.2 Long residual effects

Refer to IIIA 10.4.

IIIA 10.4.6.3 Disorienting effects on bees

Refer to IIIA 10.4.

IIIA 10.4.7 Tunnel tests

Refer to IIIA 10.4.

Appendix 1: List of data submitted in support of the evaluation

List of data submitted by the applicant and relied on

Data Point	Au-thor(s)	Year	Title Report-No. Source GLP/GEP Published Authority regis-tration No./JKI-No.	Verte-brate study (J=Yes O=Open N=No)	Data protec-tion claimed (J=Yes O=Open N=No)	Justification if data protection is claimed	Owner

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

Data Point	Au-thor(s)	Year	Title Report-No. Source GLP/GEP Published Authority regis-tration No./JKI-No.	Verte-brate study (J=Yes O=Open N=No)	Data protec-tion claimed (J=Yes O=Open N=No)	Justification if data protection is claimed	Owner

List of data submitted by the applicant and not relied on

Data Point	Au-thor(s)	Year	Title Report-No. Source GLP/GEP Published Authority regis-tration No./JKI-No.	Verte-brate study (J=Yes O=Open N=No)	Data protec-tion claimed (J=Yes O=Open N=No)	Justification if data protection is claimed	Owner

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

Data Point	Au-thor(s)	Year	Title Report-No. Source GLP/GEP Published Authority regis-tration No./JKI-No.	Verte-brate study (J=Yes O=Open N=No)	Data protec-tion claimed (J=Yes O=Open N=No)	Justification if data protection is claimed	Owner