Review of the existing maximum residue levels for quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop according to Article 12 of Regulation (EC) No 396/2005

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Abstract
According to Article 12 of Regulation (EC) No 396/2005, EFSA has reviewed the maximum residue levels (MRLs) currently established at European level for the pesticide active substance quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop. To assess the occurrence of quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop residues in plants, processed commodities, rotational crops and livestock, EFSA considered the conclusions derived in the framework of Directive 91/414/EEC as well as the European authorisations reported by Member States (including the supporting residues data). Based on the assessment of the available data, MRL proposals were derived and a consumer risk assessment was carried out. Although no apparent risk to consumers was identified, some information required by the regulatory framework was missing. Hence, the consumer risk assessment is considered indicative only and all MRL proposals derived by EFSA still require further consideration by risk managers.

Keywords: quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop, MRL review, Regulation (EC) No 396/2005, consumer risk assessment, aryloxyphenoxypropionic, herbicide

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Review of the existing MRLs for quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop

Summary

Quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop were included in Annex I to Directive 91/414/EEC on 1 December 2009 by Commission Directive 2009/37/EC, and have been deemed to be approved under Regulation (EC) No 1107/2009, in accordance with Commission Implementing Regulation (EU) No 540/2011, as amended by Commission Implementing Regulation (EU) No 541/2011. As the active substances were approved after the entry into force of Regulation (EC) No 396/2005 on 2 September 2008, the European Food Safety Authority (EFSA) is required to provide a reasoned opinion on the review of the existing maximum residue levels (MRLs) for these active substances in compliance with Article 12(1) of the aforementioned regulation. To collect the relevant pesticide residues data, EFSA asked Finland and Italy, the designated rapporteur Member States (RMS), to complete the Pesticide Residues Overview File (PROFile) and to prepare a supporting evaluation report. The PROFile and evaluation report provided by the RMS were made available to the Member States. A request for additional information was addressed to the Member States in the framework of a completeness check period, which was initiated by EFSA on 18 March 2016 and finalised on 18 May 2016. After having considered all the information provided, EFSA prepared a completeness check report which was made available to Member States on 12 July 2016.

Based on the conclusions derived by EFSA in the framework of Directive 91/414/EEC and the additional information provided by the RMS and Member States, EFSA prepared in July 2017 a draft reasoned opinion, which was circulated to Member States for consultation via a written procedure. Comments received by 24 July 2017 were considered during the finalisation of this reasoned opinion. The following conclusions are derived.

The metabolism of quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop have been investigated in primary (roots and tuber vegetables, pulses and oilseeds, fruit crops and leafy vegetables) and in rotational crops (roots and tuber vegetables, pulses and oilseeds, fruit crops, leafy vegetables and cereals).

According to the results from all available metabolism studies in primary and rotational crops, once quizalofop is formed after hydrolysis of the ester link, the metabolic pathways of the different esters in plants are similar. The parent ester is rapidly degraded to quizalofop, which, together with its conjugates was always present at harvest. In most cases, the amount of other metabolites than quizalofop was low at harvest, with the exceptions of metabolites phenoxy acid, phenoxy propionate, quizalofop-phenol and hydroxy-quizalofop-phenol. During the peer review, a data gap was identified concerning the toxicological relevance of these metabolites and additional toxicological data is expected to be considered and evaluated under the renewal procedure. For the time being, these metabolites are not proposed for inclusion in the residue definition.

Based on the above considerations, it can be concluded that an overall residue definition for monitoring and risk assessment covering all ester variants of quizalofop can be proposed as the sum of quizalofop, its salts, its esters (including propaquizafop) and its conjugates, expressed as quizalofop (any ratio of constituent isomers). Based on the results from the available standard hydrolysis study, the proposed residue definition also applies to processed commodities.

EFSA emphasises that the proposed residue definition may be reconsidered following the evaluation of the additional information on the toxicological relevance of the above reported phenoxy metabolites under the renewal procedure.

An analytical method for enforcement of the proposed residue definition in high water and high oil content, acidic and dry commodities with a limit of quantification (LOQ) of 0.01 mg/kg is available, noting that extraction efficiency and hydrolysis of conjugates and other ester variants (e.g. propaquizafop) still needs to be demonstrated for this method, at least in one crop/matrix. Confirmation that the LOQ of 0.01 mg/kg is achievable in routine analysis has been received by the EURLs. A fully validated analytical method for enforcement in complex matrices (as herbal infusions and spices) is not available and it is still required.

Combining the assessment of quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop, the available data are considered sufficient to derive MRL proposals as well as risk assessment values for all commodities under evaluation, except for blueberries, currants, gooseberries, rose hips, elderberries, table olives, Jerusalem artichokes, cucurbits with edible and inedible peel, sweet peppers, okra, Brussels sprouts, Chinese cabbages, kales, kohlrabies, cresses and other sprouts and shoots, land cresses, roman rockets, red mustards, baby leaf crops, celeries, globe artichokes, leeks, olives for oil production, herbal infusion from roots where the available data were insufficient to derive MRLs. Nevertheless, all derived MRLs should be considered tentative only.
Based on the confined rotational crop studies conducted at 2.8N (propaquizafop), 1.2N (quizalofop-P-ethyl) and 2.5N (quizalofop-P-tefuryl) and the maximum application rates supported in the framework of this review, EFSA concludes that significant residues of all quizalofop ester variants (including propaquizafop) and their metabolites are not expected to be present in rotational crops, provided quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop are applied according to the existing Good Laboratory Practices (GAPs) considered in this review.

Quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop are authorised for use on several crops that might be fed to livestock. Considering that livestock may be exposed to residues originating from the three different variants of quizalofop-P, the calculation of the livestock dietary burden was performed combining the residues originating from the different ester variants currently authorised. For each feed item, risk assessment values obtained for quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop were compared and the most critical values selected for the exposure calculation. This approach is based on the assumption that the three ester variants are not used together on the same crop. According to the results for this calculation, the dietary burdens were found to exceed the trigger value of 0.1 mg/kg dry matter (DM) for all groups of livestock. Behaviour of residues was therefore assessed in all commodities of animal origin.

The metabolism of quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop in livestock has been investigated in lactating goats and in laying hens. Based on the results of all metabolism studies available for the three ester variants, the residue definition for enforcement and risk assessment in all animal commodities, except poultry liver and kidney, is proposed as the sum of quizalofop, its salts, its esters (including propaquizafop) and its conjugates, expressed as quizalofop (any ratio of constituent isomers). For poultry liver and kidney, where quizalofop pentanoic acid represented the main component of the residues, the pentanoic acid and its conjugates, are proposed for inclusion in the residue definition for both enforcement and risk assessment.

EFSA emphasises that the proposed residue definition may be reconsidered following the evaluation of the additional information on the toxicological relevance of the above reported metabolites under the renewal procedure.

Although the log P O/W of quizalofop esters is higher than 3, it is expected that livestock will mainly be exposed to quizalofop which has a lower log P O/W value. Furthermore, considering that quizalofop esters are further hydrolysed in livestock, the residue definition is not considered fat soluble. This is also consistent with the main results of the most recent metabolism studies where very low residues were found in fatty tissues.

A common moiety method where, after hydrolysis, residues are determined as 6-chloro-2-methoxyquinoxaline is available for the enforcement of the proposed residue definition. However, efficiency of extraction and hydrolysis steps included in the proposed analytical method still needs to be demonstrated. According to the information received by the EURLs during the completeness check, no validation data are available for quizalofop residues in commodities of animal origin. Moreover, during the Consultation of Member States, the EURLs informed EFSA that an analytical standard of the pentanoic acid metabolite is not available on the market. It is underlined that, in case risk managers wish to exclude the pentanoic acid and its conjugates from the residue definition for enforcement in poultry liver and kidney, considering that MRLs and risk assessment values are in any case derived from samples analysed by using a common moiety method possibly covering more compounds compared to the residue definition, this is not expected to have an impact on the present assessment.

Results from livestock feeding studies performed with quizalofop-P-tefuryl variant and analysing for the total residues of quizalofop-P-tefuryl and its metabolites convertible to 6-chloro-2-methoxyquinoxaline, were used to derive MRLs and risk assessment values for all animal commodities. According to the results of these feeding studies, MRLs higher than the LOQ are proposed for ruminant liver and kidney, for swine kidney, for milk and for poultry fat and liver. Nevertheless, considering that extraction efficiency and hydrolysis still needs to be demonstrated for the analytical method proposed for enforcement in animal commodities and that in the livestock feeding studies residues were analysed by using a common moiety method possibly covering more compounds compared to the residue definition, the derived MRLs should be considered tentative only.

Chronic and acute exposure calculations for all crops reported in the framework of this review were performed using revision 2 of the EFSA Pesticide Residues Intake Model (PRIMO). For each commodity, risk assessment values obtained for quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop were compared and the most critical values selected for the exposure calculation. This approach is based on the assumption that the three ester variants are not used together on the same crop. For certain commodities, however, the available residue trials were not sufficient to derive risk assessment values.
for the use of all the variants and could not be excluded that those uses not supported by data will result in higher residue levels, in particular when the existing EU MRL is higher than the MRL proposal derived. In these cases, EFSA decided, as a conservative approach, to use the existing EU MRL for an indicative exposure calculation. Also, for those commodities where data were insufficient to derive an MRL for any of the variants, EFSA considered the existing EU MRL for an indicative calculation. The contributions of other commodities, for which no GAP was reported in the framework of this review, were not included in the calculation. All input values refer to the residues in the raw agricultural commodities.

The highest chronic exposure was calculated for French toddlers, representing 31% of the acceptable daily intake (ADI), and the highest acute exposure was calculated for melons, representing 76% of the acute reference dose (ARfD). Although major uncertainties remain due to the data gaps identified in the previous sections, this indicative exposure calculation did not indicate a risk to consumers.

EFSA emphasises that the above assessment does not consider the possible impact of plant and livestock metabolism on the isomer ratio of active substance and further investigation on this matter would in principle be required. Since guidance on the consideration of isomer ratios in the consumer risk assessment is not yet available, EFSA recommends that this issue is reconsidered when such guidance is available.
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Background

Regulation (EC) No 396/20051 (hereinafter referred to as 'the Regulation') establishes the rules governing the setting and the review of pesticide maximum residue levels (MRLs) at European level. Article 12(1) of that Regulation stipulates that the European Food Safety Authority (EFSA) shall provide within 12 months from the date of the inclusion or non-inclusion of an active substance in Annex I to Directive 91/414/EEC2 a reasoned opinion on the review of the existing MRLs for that active substance. As quizalofop-P (quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop) were included in Annex I to Council Directive 91/414/EEC on 1 December 2009 by means of Commission Directive 2009/37/EC,3 and have been deemed to be approved under Regulation (EC) No 1107/20094, in accordance with Commission Implementing Regulation (EU) No 540/20115, as amended by Commission Implementing Regulation (EU) No 541/20116, EFSA initiated the review of all existing MRLs for those active substances.

According to the legal provisions, EFSA shall base its reasoned opinion in particular on the relevant assessment report prepared under Directive 91/414/EEC. It should be noted, however, that, in the framework of Directive 91/414/EEC, only a few representative uses are evaluated, whereas MRLs set out in Regulation (EC) No 396/2005 should accommodate all uses authorised within the European Union (EU), and uses authorised in third countries that have a significant impact on international trade. The information included in the assessment report prepared under Directive 91/414/EEC is therefore insufficient for the assessment of all existing MRLs for a given active substance.

To gain an overview of the pesticide residues data that have been considered for the setting of the existing MRLs, EFSA developed the Pesticide Residues Overview File (PROFile). The PROFile is an inventory of all pesticide residues data relevant to the risk assessment and MRL setting for a given active substance. This includes data on:

- the nature and magnitude of residues in primary crops;
- the nature and magnitude of residues in processed commodities;
- the nature and magnitude of residues in rotational crops;
- the nature and magnitude of residues in livestock commodities;
- the analytical methods for enforcement of the proposed MRLs.

Finland the designated rapporteur Member State (RMS) for quizalofop-P (quizalofop-P-ethyl and quizalofop-P-tefuryl variants) and Italy, the designated rapporteur Member State (RMS) for propaquizafop, in the framework of Directive 91/414/EEC, were asked to complete the PROFile for quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop and to prepare a supporting evaluation report (Italy, 2012; Finland, 2014, 2015). The PROFile and the supporting evaluation reports for quizalofop-P (quizalofop-P-ethyl and quizalofop-P-tefuryl) were submitted to EFSA on 13 February 2014 (quizalofop-P-ethyl) and 10 July 2015 (quizalofop-P-tefuryl). The PROFile and the supporting evaluation report for propaquizafop were submitted to EFSA on 1 April 2012. All documents were made available to the Member States. A request for additional information was addressed to the Member States in the framework of a completeness check period which was initiated by EFSA on 18 March 2016 and finalised on 18 May 2016. Evaluation report on the review of the existing MRLs for quizalofop-P (quizalofop-P-ethyl and quizalofop-P-tefuryl) was submitted by Finland (RMS) (Finland, 2016b). Additional evaluation reports for authorised uses to be considered for the review of the existing MRLs for quizalofop-P-ethyl have been submitted by Spain, Portugal, the Czech Republic, Italy, Finland, France and Greece (Czech Republic, 2016a; Finland, 2016a; France, 2016a; Greece, 2016a; Italy, 2016a).

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1 Regulation (EC) No 396/2005 of the European Parliament and of the Council of 23 February 2005 on maximum residue levels of pesticides in or on food and feed of plant and animal origin and amending Council Directive 91/414/EEC. OJ L 70, 16.3.2005, p. 1–16.
2 Council Directive 91/414/EEC of 15 July 1991 concerning the placing of plant protection products on the market. OJ L 230, 19.8.1991, p. 1–32. Repealed by Regulation (EC) No 1107/2009.
3 Commission Directive 2009/37/EC of 23 April 2009 amending Council Directive 91/414/EEC to include chlorimequat, copper compounds, propaquizafop, quizalofop-P, tebufluthrin and zeta-cypermethrin as active substances. OJ No L 104, 24.4.2009, p. 23–32.
4 Regulation (EC) No 1107/2009 of the European Parliament and of the Council of 21 October 2009 concerning the placing of plant protection products on the market and repealing Council Directives 79/117/EEC and 91/414/EEC. OJ L 309, 24.11.2009, p. 1–50.
5 Commission Implementing Regulation (EU) No 540/2011 of 25 May 2011 implementing Regulation (EC) No 1107/2009 of the European Parliament and of the Council as regards the list of approved active substances. OJ L 153, 11.6.2011, p. 1–186.
6 Commission Implementing Regulation (EU) No 541/2011 of 1 June 2011 amending Implementing Regulation (EU) No 540/2011 implementing Regulation (EC) No 1107/2009 of the European Parliament and of the Council as regards the list of approved active substances. OJ L 153, 11.6.2011, p. 187–188.
2016a; Portugal, 2016; Spain, 2016a). Additional evaluation reports for authorised uses to be considered for the review of the existing MRLs for quizalofop-P-tefuryl have been submitted by Greece, the Czech Republic, Spain, Hungary and Belgium (Belgium, 2016a; Czech Republic, 2016b; Greece, 2016b; Hungary, 2016a; Spain, 2016b). Additional evaluation reports for authorised uses to be considered for the review of the existing MRLs for propaquizafop were submitted by Greece, Austria, Germany, France, the Czech Republic, Italy, the United Kingdom, Spain, Hungary and Belgium (Greece, 2016c; Austria, 2016; Germany, 2016; France, 2016b; Czech Republic, 2016c; Italy, 2016b; the United Kingdom, 2016; Spain, 2016c; Hungary, 2016b; Belgium, 2016b). In addition, evaluation reports were submitted by the European Union Reference Laboratories for Pesticide Residues (EURLs) for quizalofop-P and propaquizafop. After having considered all the information provided by RMS and Member States, EFSA prepared three completeness check reports (one for each variant) which were made available to all Member States on 12 July 2016. Further clarifications were sought from Member States via a written procedure in July 2016.

Based on the conclusions derived by EFSA in the framework of Directive 91/414/EEC, and the additional information provided by the Member States, EFSA prepared in July 2017 a draft reasoned opinion, which was submitted to Member States for commenting via a written procedure. All comments received by 24 July 2017 were considered by EFSA during the finalisation of the reasoned opinion.

The evaluation reports submitted by the RMS (Italy, 2012; Finland, 2014, 2015) and the evaluation reports submitted by Member States Spain, Portugal, the Czech Republic, Italy, Finland, France, Greece, Austria, Germany, the United Kingdom, Belgium and Hungary (Spain, 2016a-c; Portugal, 2016; Czech Republic, 2016a-c; Italy, 2016a,b; Finland, 2016a,b; France, 2016a,b; Greece, 2016a-c; Austria, 2016; Germany, 2016; the United Kingdom, 2016; Belgium, 2016a,b; Hungary, 2016a,b) and EURLs (EURLs, 2016a,b) are considered as supporting documents to this reasoned opinion and, thus, are made publicly available.

In addition, key supporting documents to this reasoned opinion are the three completeness check reports, one for each variant (EFSA, 2017a-c) and the Member States consultation report (EFSA, 2017b). The reports are developed to address all issues raised in the course of the review, from the initial completeness check to the reasoned opinion. Also, the chronic and acute exposure calculations for all crops reported in the framework of this review performed using the EFSA Pesticide Residues Intake Model (PRIMo) (excel file) and the PROFile(s) are key supporting documents and made publicly available as background documents to this reasoned opinion. Furthermore, a screenshot of the Report sheet of the PRIMo is presented in Appendix C.

Terms of Reference

According to Article 12 of Regulation (EC) No 396/2005, EFSA shall provide a reasoned opinion on:

- the inclusion of the active substance in Annex IV to the Regulation, when appropriate;
- the necessity of setting new MRLs for the active substance or deleting/modifying existing MRLs set out in Annex II or III of the Regulation;
- the inclusion of the recommended MRLs in Annex II or III to the Regulation;
- the setting of specific processing factors as referred to in Article 20(2) of the Regulation.

The active substance and its use pattern

Quizalofop-P-ethyl is the ISO common name for ethyl (2R)-2-[4-(6-chloroquinoxalin-2-yl oxy)phenoxy] propionate (IUPAC). It is an ester variant of quizalofop-P. Quizalofop-P is the ISO common name for the R-enantiomer (R)-2-[4-(6-chloroquinoxalin-2-yl oxy)phenoxy]propionic acid (IUPAC). Quizalofop-P-ethyl belongs to the class of aryloxyphenoxypropionic herbicides (commonly called ‘FOPs’). It is a selective, post-emergence herbicide that is used to control annual and perennial weeds in various crops. Quizalofop-P-ethyl is absorbed from roots and leaf surface and is moved throughout the plant. The ester is hydrolysed in the plant to free acid which is the actual active form. The mode of action is by inhibition of lipid biosynthesis in target plants.

Quizalofop-P-tefuryl is the ISO common name for (RS)-tetrahydrofurfuryl-(R)-2-[4-(6-chloroquinoxalin-2-yl oxy)phenoxy]propionate (IUPAC). Quizalofop-P-tefuryl is an ester variant of quizalofop-P. Quizalofop-P-tefuryl belongs to the class of aryloxyphenoxypropionic herbicides as quizalofop-P-ethyl. It is a selective systemic herbicide that is used to control annual and perennial weeds in various broadleaved crops. Quizalofop-P-tefuryl is absorbed from the leaf surface and is
translocated throughout the plant and is accumulated in meristematic tissue. The ester is hydrolysed in the plant to free acid which is the actual active form. Quizalofop-P-tefuryl inhibits in target plants acetyl-coenzyme A carboxylase (ACCase) enzyme that is vital for new growth.

Propaquizafop is the ISO common name for 2-isopropyliden aminoxyethyl(R)-2-[4-(6-chloroquinoxalin-2-yl oxy)phenox y]propionate (IUPAC). Propaquizafop is an ester variant of quizalofop-P. As with the other ester variants, propaquizafop belongs to the class of aryloxypenoxypionate herbicides. They are absorbed by foliage and translocated into plants. They interfere with the synthesis of fatty acids by competitively binding to the ACCase.

The chemical structures of quizalofop-P-ethyl, quizalofop-P-tefuryl, propaquizafop and their main metabolites are reported in Appendix F.

Quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop were evaluated in the framework of Directive 91/414/EEC with Finland and Italy designated as RMS. The conclusion on quizalofop-P (quizalofop-P-ethyl and quizalofop-P-tefuryl variants) was reached on the basis of the evaluation of the representative uses comprised spraying tractor mounted on oilseed rape, sugar/fodder beet, potato, combining pea, field beans, linseed and sunflower. The conclusion on propaquizafop was reached on the basis of the evaluation of the representative uses comprised post-emergence foliar spraying on sugar beet and oilseed rape. Following the peer review, which was carried out by EFSA, a decision on inclusion of the active substances Quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop in Annex I to Directive 91/414/EEC was published by means of Commission Directive 2009/37/EC, which entered into force on 1 December 2009. According to Regulation (EU) No 540/2011, quizalofop-P variants (quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop) are deemed to have been approved under Regulation (EC) No 1107/2009. This approval is restricted to uses as herbicide only.

Separate EU MRLs for quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop are established in Annexes IIIA of Regulation (EC) No 396/2005. Codex maximum residue limits (CXLs) for those active substances are not available. An overview of the MRL changes that occurred since the entry into force of the Regulation mentioned above is provided in Table 1.

For the purpose of this MRL review, the critical uses of quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop currently authorised within the EU have been collected by the RMSs and reported in the PROFiles. The additional Good Agricultural Practices (GAPs) reported by Member States during the completeness check were also considered. The details of the authorised GAPs for quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop are given in Appendix A. The RMS did not report any use authorised in third countries that might have a significant impact on international trade but informed EFSA that an import tolerance request on maize is currently under evaluation with Finland as EMS.

**Assessment**

EFSA has based its assessment on the PROFiles submitted by the RMSs (one for each ester variant), the evaluation reports accompanying the PROFiles (Italy, 2012; Finland, 2014, 2015), the draft assessment reports (DAR) and its addenda prepared under Council Directive 91/414/EEC (Italy, 2005, 2008, Finland, 2007a,b, 2008a,b), the conclusion on the peer review of the pesticide risk
assessment of the active substance propaquizafop (EFSA, 2009a), the conclusion on the peer review of the pesticide risk assessment of the active substance quizalofop-P (considered variants quizalofop-P-ethyl and quizalofop-P-tefuryl) (EFSA, 2009b), the previous reasoned opinions on quizalofop-P (EFSA, 2010, 2012) and on propaquizafop (EFSA, 2016) as well as the evaluation reports submitted during the completeness check (Spain, 2016a–c; Portugal, 2016; Czech Republic, 2016a,b; Italy, 2016a,b; Finland, 2016a,b; France, 2016a,b; Greece, 2016a-c; Austria, 2016; Germany, 2016; the United Kingdom, 2016; Belgium, 2016a,b; Hungary, 2016a,b; EURoLS, 2016a,b). The assessment is performed in accordance with the legal provisions of the uniform principles for evaluation and authorisation of plant protection products as set out in Commission Regulation (EU) No 546/20117 and the currently applicable guidance documents relevant for the consumer risk assessment of pesticide residues (European Commission, 1997a–g, 2000, 2010a,b, 2016 and OECD, 2011, 2013).

More detailed information on the available data and on the conclusions derived by EFSA can be retrieved from the list of end points reported in Appendix B.

1. **Residues in plants**

1.1. **Nature of residues and methods of analysis in plants**

1.1.1. **Nature of residues in primary crops**

The metabolism of quizalofop-P-ethyl in plants has been studied in roots and tuber vegetables (potato, sugar beet) and in pulses and oilseeds (cotton, soya bean). The studies were conducted with 14C-quizalofop-P-ethyl (R-enantiomer) or 14C-quizalofop-ethyl (racemate R/S) either labelled on the phenyl or the quinoxaline moiety. On soybean, the studies were conducted using 14C-quizalofop-ethyl (racemate R/S), 14C-quizalofop-P-ethyl (R-enantiomer) and 14C-quizalofop-S-ethyl in order to investigate the metabolic pattern of the different isomers in the plant (Finland, 2007a).

The parent ester was generally not detected or was identified in low portions in mature plant parts at harvest, except in beet leaves (20% of the total radioactive residue (TRR)) and in soya straw (47% of the TRR). The high portion of quizalofop-P-ethyl in soya straw detected in one study was however not confirmed in two other studies conducted with similar treatment conditions. The major metabolite was quizalofop, which was always present at harvest and conjugates of quizalofop and quizalofop-phenol (CQOP)8 which were always present in soya beans and straw (15–33% TRR). The other identified metabolites were generally present in low levels (<10% of the TRR) with the exception of the phenoxy propionate (EPP)9 which accounted for 16% of the TRR (0.07 mg/kg) in sugar beet leaves, 92 days after quizalofop-P-ethyl application.

Studies performed on soya bean using the racemate (R/S), the S- and R-enantiomers, indicated some differences in the metabolic fate, but globally the metabolic pathways were considered as similar.

During the peer review, one study performed on sugar beet and one on potato were disregarded due to their low application rates and it was concluded that metabolism pattern was not sufficiently investigated (EFSA, 2009b). Additional metabolism studies on fruit crops (tomatoes) carried out with quizalofop-P-ethyl (R-enantiomer) labelled on the phenyl and the quinoxaline moiety and on root and tuber vegetables (sugar beet foliage) performed with quizalofop-P-ethyl (R-enantiomer) labelled on the phenyl moiety only, were submitted and evaluated in the framework of this review (Finland, 2014).

In tomatoes fruit, quizalofop-P-ethyl and quizalofop were always present at all sampling times. At harvest, 21 days after application, the parent ester and quizalofop accounted for up to 3.1% TRR and 3.9% TTR, respectively. Hydroxyphenoxypropionic acid (PPA)10 was the major metabolite in tomato fruit at harvest accounting for 40% TTR (0.11 mg/kg) following enzyme deconjugation.

In the sugar beet foliage, quizalofop was the major radioactive residue accounting for 16.3% TTR. In addition, quizalofop-phenol and PPA were identified but at low amounts (2.3% TTR and 1.0% TTR, respectively). EPP, accounting for 16% TTR in the previous study considered under the peer review, was not detected in the new study.

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7 Commission Regulation (EU) No 546/2011 of 10 June 2011 implementing Regulation (EC) No 1107/2009 of the European Parliament and of the Council as regards uniform principles for evaluation and authorisation of plant protection products. OJ L 155, 11.6.2011, p. 127-175.
8 Quizalofop-phenol (CQOP): see Appendix F.
9 Phenoxy propionate: see Appendix F.
10 Hydroxyphenoxypropionic acid (PPA): see Appendix F.
The metabolism of quizalofop-P-tefuryl in plants has been studied in root and tuber vegetables (potato) and in pulses and oilseeds (cotton and soya bean). The studies were conducted with $^{14}$C-quizalofop-P-tefuryl labelled on the phenylquinoxaline ring (Finland, 2007b).

In these studies, the parent ester was generally not detected or was identified in low portions in mature plant parts at harvest. The major metabolite was quizalofop, which was always present at harvest (up to 38% of TRR in potato tubers). The other identified metabolites were generally present in low levels (<10% of the TRR) except for the hydroxy-quizalofop-phenol metabolite ($\text{CQOPOH}$)\textsuperscript{11} which accounted for 20% TRR in the soya meal (0.17 mg/kg).

During the peer review, a data gap concerning additional metabolism studies performed with an additional labelling position (phenyl or furfuryl) has been identified (EFSA, 2009b). An additional metabolism study on soya beans performed with phenyl-labelled quizalofop-P-tefuryl was submitted and evaluated in the framework of this review (Finland, 2015).

According to the results from this new study, following treatment at the currently authorised application rate, the only significant metabolite in soya bean seeds is free quizalofop accounting for 7.4% TRR (0.005 mg/kg). In soya bean, forage and hay the major metabolites are quizalofop-P-tefuryl (up to 2.5% TRR corresponding to 0.23 mg/kg, in hay), free and conjugated quizalofop (up to 23.1% TRR corresponding to 2.11 mg/kg, in hay), free and conjugated quizalofop-phenol ($\text{CQOP}$) (up to 12.8% TRR corresponding to 1.307 mg/kg, in hay) and $\text{PPA}$ (only released following strong acid or base hydrolysis yielding to a total amount of maximum of 15.2% TRR (0.241 mg/kg) in forage and 7.9% TRR (0.559 mg/kg in hay).

The metabolism of propaquizafop in plants has been investigated in pulses and oil seeds (cotton, soya bean), leafy vegetables (lettuce) and root and tuber vegetables (sugar beets). Studies were performed using $^{14}$C-propaquizafop either labelled on the phenyl or the quinoxaline moiety (Italy, 2008).

Quizalofop-P generally represents the major constituent of the residue, accounting for up to 35% of the TRR at harvest (in lettuce, 77 days after treatment (DAT)). In mature soybean seeds and sugar beets roots, propaquizafop was present in similar amount to quizalofop-P accounting for approximately 7% of the TRR. In the sugar beet leaves and roots, the metabolites $\text{CQOP}$, $\text{CQOPOH}$, hydroxylquinoxaline ($\text{CHQ}$)\textsuperscript{12} and dihydroxy-quinoxaline ($\text{CHHQ}$)\textsuperscript{13} were also detected at similar levels compared to propaquizafop and quizalofop-P (<10% TRR).

Having regard to some deficiencies, clarification on the uncharacterised radioactivity in the leaves and roots of sugar beet and green parts and seeds of cotton or new metabolism studies in a root crop and a pulses/oilseeds crop were requested in the conclusion of the peer review (EFSA, 2009a). No additional studies were received in the framework of this review. However, considering that the metabolism of propaquizafop in plants proceeds primarily by the hydrolysis of the ester link to yield quizalofop and taking into account the metabolism data available for all the other variants, no additional metabolism studies are required.

## 1.1.2. Nature of residues in rotational crops

Quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop are authorised for use on crops that may be grown in rotation. All the three ester variants are of low persistence in soil with DT\textsubscript{90} values, under aerobic laboratory conditions, of 1.1–3.5 days (quizalofop-P-ethyl), 0.30–1.16 days (quizalofop-P-tefuryl) and 2–56 days (propaquizafop). Nevertheless, significantly higher DT\textsubscript{90} values were obtained for metabolites: up to 603 days for quizalofop, 230 days for hydroxy-quizalofop\textsuperscript{14} and 857 days for dihydroxy-quinoxaline (EFSA, 2009a,b). Therefore, further investigation on the nature and magnitude of residues in rotational crops is needed.

The metabolism of quizalofop-P-ethyl in rotational crops have been investigated in sugar beet, lettuce, cotton seeds, peanuts and wheat sown 30 and 60 days after bare soil application at 308 g/ha (1.2N compared to the maximum dose rate authorised for quizalofop-P-ethyl) of racemate quizalofop-P-ethyl labelled on either the quinoxaline or phenyl moiety (Finland, 2007a).

According to the results of this study, residue levels in lettuce, beet (foliage and root), cotton (forage and seed), wheat (straw and grain), peanut (vine, nut and hay) were not significant (<0.05 mg eq/kg) regardless of ageing period in soil (30 or 62 days). Quizalofop-P-ethyl accounted for a maximum of 0.001 mg eq/kg in all crop fractions. The major identifiable compounds were

\begin{itemize}
  \item $\text{Hydroxy-quizalofop-phenol (CQOPOH)}$: see Appendix F.
  \item $\text{Hydroxylquinoxaline (CHQ)}$: see Appendix F.
  \item $\text{Dihydroxy-quinoxaline (CHHQ)}$: see Appendix F.
  \item $\text{Hydroxy-quizalofop}$: see Appendix F.
\end{itemize}
quizalofop (35% TRR) and hydroxy-phenol\textsuperscript{15} (15% TRR). It was concluded that all compounds detected in the rotational crops were also present in primary crops suggesting a similar metabolic pathway between primary and rotational crops.

The metabolism of quizalofop-P-tefuryl in rotational crops has been investigated in wheat, turnips and lettuce sown 4, 8 and 18 months after bare soil application of quinoxaline moiety of quizalofop-P-tefuryl at 250 g a.s./ha (2.5N compared to the maximum dose rate authorised for quizalofop-P-tefuryl). At all the other plant back intervals, very low levels of radioactivity were taken up by the crops via the soil (Finland, 2007b). No significant residues were observed in crops at harvest, the maximum radioactivity being observed in straw (ca. 0.02 mg eq/kg) irrespective of the plant back intervals. Due to the low residues, no further characterisation/identification of the radioactivity was performed.

The metabolism of propaquizafop in rotational crops was investigated in sugar beet, spinach and wheat sown at plant-back intervals (PBIs) of 30, 120 and 270 days after harvest of soybeans treated twice with quinoxaline moiety of propaquizafop at 280 g/ha (2.8N compared to the maximum dose rate authorised for propaquizafop) (Italy, 2005). The concentrations of radioactive residues in all succeeding crops ranged from 0.004 mg eq/kg in sugar beet roots and foliage sown 270 days after the second treatment to 0.167 mg eq/kg in straw from spring wheat sown 30 days after the second treatment. The metabolic pathway in rotational crops was found to be similar to the primary crop metabolism. Parent material was extensively broken down into numerous metabolites with the majority of the residue being incorporated into the lignin fraction. At all PBIs, the radioactive residues were mainly composed of quizalofop-P (up to 25% of TRR in spinach corresponding to 0.01 mg eq/kg), CQOP and their hydroxy metabolites (up to 7.6% TRR corresponding to 0.003 mg eq/kg).

\textbf{1.1.3. Nature of residues in processed commodities}

Standard hydrolysis studies investigating the effect of processing on the nature of quizalofop-P-ethyl and propaquizafop are not available.

A standard hydrolysis study performed with quizalofop was reported in the framework of this review for the variant quizalofop-P-tefuryl. The study indicated that under normal practice, quizalofop is not expected to degrade hydrolytically. No hydrolysis or reaction products were formed under conditions representative of three different processing practices (Finland, 2015). This study is considered relevant for all the three ester variants and additional hydrolysis studies are not required for quizalofop-P-ethyl and propaquizafop.

\textbf{1.1.4. Methods of analysis in plants}

During the peer review of the three ester variants, a data gap concerning the availability of fully validated analytical methods for enforcement in plant commodities has been identified (EFSA, 2009a,b). In the framework of this review, different analytical methods were presented for the different variants.

\textbf{Quizalofop-P-ethyl:}

- A common moiety method using liquid chromatography with tandem mass spectrometry (LC–MS/MS) and monitoring of two transitions validated for quizalofop-P-ethyl and quizalofop (through hydrolysis) in dry (wheat grain and dry beans), acidic (oranges), high water (tomatoes) and high oil (cotton seed) content commodities at a combined limit of quantification (LOQ) of 0.01 mg/kg was submitted in the framework of a previous MRL application (EFSA, 2012) and during this review (Finland, 2014). An independent laboratory validation (ILV) for this method is available (Finland, 2016b). Nevertheless, extraction efficiency and hydrolysis of conjugates and other ester variants (e.g. propaquizafop) was not demonstrated.

- A second analytical method (PAU10-RESMM001) using high-performance liquid chromatography with tandem mass spectrometry (HPLC–MS/MS) was also reported in the framework of this review (Finland, 2014) and found to be acceptably validated for the analysis of quizalofop-P-ethyl, quizalofop and conjugates in high oil content (oilseed rape), high water content (pea whole plant), dry (dry pea) and acidic (grape) commodities. According to this method, residues of quizalofop-P-ethyl, quizalofop and conjugates are first extracted with acetone:water, acidic hydrolysis is followed by clean-up with solid supported liquid/liquid extraction (SSLLE). The LOQ is 0.02 mg/kg for the sum of quizalofop-P-ethyl and quizalofop and conjugates expressed as

\textsuperscript{15} Hydroxy-phenol: see Appendix F.
quizalofop. An ILV for this analytical method is not currently available. Extraction efficiency and hydrolysis of conjugates and other ester variants (e.g. propaquizafop) was also not demonstrated.

**Quizalofop-P-tefuryl:**
- Various analytical methods for enforcement of residues of quizalofop-P-tefuryl in food of plant origin were evaluated in the DAR (Finland 2007b). Residues were determined in high water and oil content commodities by high-performance liquid chromatography with ultra-violet detection (HPLC-UV) (quizalofop-P-tefuryl) and by high-performance liquid chromatography with fluorescence detection (HPLC-FLD) (quizalofop) with a LOQ of 0.02 mg/kg for each compound. The method covered all metabolites of quizalofop-P-tefuryl which can be converted to 2-methoxy-6-chloroquinoxaline (MCQ)\(^\text{16}\), but was validated for quizalofop-P-tefuryl and quizalofop only. ILVs were not submitted. A confirmatory method (gas chromatography with mass selective detection (GC-MSD)) is available for quizalofop only (Finland, 2007b).
- A new method has been submitted in the framework of this review. The method is based on the Quick, Easy, Cheap, Effective, Rugged, and Safe (QuEChERS) (EN 15662:2009-02) multiresidue enforcement method with LC–MS/MS and monitoring of two mass transitions. The method has been successfully validated for the determination of residues of quizalofop-P-tefuryl and quizalofop in dry commodities, high oil and high water content commodities with an LOQ of 0.01 mg/kg for each analyte. LC–MS/MS monitoring two mass transitions is considered highly specific. Therefore, additional confirmatory method is not considered necessary (Finland, 2015).

**Propaquizafop:**
- A method to monitor residues of propaquizafop in plants was evaluated under an MRL application (Austria, 2013; Italy 2015). The method involves the hydrolysis of propaquizafop to quizalofop and the quantification of quizalofop by high-performance liquid chromatography with tandem mass spectrometry (HPLC-MS/MS). This method was validated in high water content (apple, tomato), high oil content (oilseed rape) and dry commodities (wheat grain) with an LOQ of 0.005 mg/kg. According to the information provided by the RMS during the completeness check, this method has been independently validated in accordance with SANCO/825/00 rev. 8.1 (European Commission, 2010c) for the analysis of propaquizafop (determined as quizalofop) in acidic (orange), high water content (tomato), dry (wheat grain) and high oil content commodities (oilseed rape) with an LOQ of 0.01 mg/kg (Italy, 2016b).

1.1.5. **Stability of residues in plants**

The stability of residues in high water content commodities stored at -20°C has been demonstrated for up to 28 months in snap beans for the sum of quizalofop-P-ethyl and quizalofop-P (Spain, 2012), for up to 12 months for the sum of quizalofop-P-tefuryl and quizalofop-P in potatoes (Finland, 2007b) and for up to 24 months for the sum of propaquizafop, quizalofop and quizalofop-phenol in tomatoes, carrots and sugar beets (Italy, 2005).

The stability of residues in acidic commodities stored at -18°C has been demonstrated for up to 12 months for the sum of quizalofop-P-ethyl and quizalofop-P in orange (Finland, 2014, 2016b).

The stability of residues in high oil content commodities stored at -20°C has been demonstrated for 28 months for the sum of quizalofop-P-ethyl and quizalofop-P in cotton seed and in rape seed (Spain, 2012), for 24 months for the sum of quizalofop-P-tefuryl and quizalofop-P in cotton, rapeseed and soya beans (Finland, 2007b) and for the sum of propaquizafop, quizalofop and quizalofop-phenol in rape seed and soya beans (Italy, 2005).

The stability of the residues in dry commodities has been demonstrated for up to 12 months for the sum of quizalofop-P-ethyl and quizalofop-P in wheat grain stored at -18°C (Finland, 2014, 2016b).

The stability of residues in complex matrices, such as spices and herbal infusions, has not been investigated and is still required (relevant for quizalofop-P-ethyl).

\(^{16}\) 2-methoxy-6-chloroquinoxaline: see Appendix F.
1.1.6. Proposed residue definitions

According to the results from all available metabolism studies in primary and rotational crops conducted with the three different ester variants (quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop), once quizalofop is formed after hydrolysis of the ester link, the metabolic pathways of the different esters in plants are similar. The parent ester is rapidly degraded to quizalofop, which, together with its conjugates was always present at harvest. Further metabolism occurs through hydrolysis of the ether linkages, hydroxylation and conjugation. In most cases, the amount of other metabolites than quizalofop was low at harvest, with the following exceptions:

**Phenoxy acid (PPA):** According to the results of the new metabolism study on tomatoes, following treatment with quizalofop-P-ethyl, PPA was the main metabolite in tomato fruit at harvest accounting nearly 40% of the TRR (0.11 mg/kg) following enzyme deconjugation. Moreover, the new metabolism study on soya bean conducted with quizalofop-P-tefuryl labelled on the phenyl moiety indicated that bound/conjugated PPA was also a significant metabolite of quizalofop-P-tefuryl in soya bean forage (15.2% TRR, 0.241 mg/kg) and soya bean hay (7.9% TRR, 0.559 mg/kg). Considering that PPA is a common metabolite for a number of other aryloxyphenoxypropionic herbicides, that its toxicological relevance has never been discussed in the previous EFSA assessments and that there is lack of residue data analysing for this metabolite, it was considered not appropriate for the time being to include PPA in the residue definition. The relevance of PPA will be considered in the framework of the renewal of aryloxyphenoxypropionic herbicides.

**Phenoxy propionate (EPP):** During the peer review, a data gap was identified concerning the toxicological relevance of the metabolite EPP observed in beet leaves at harvest (16% of the TRR, 0.07 mg/kg) following quizalofop-P-ethyl application (EFSA, 2009b). In the more recent metabolism study with quizalofop-P-ethyl on sugar beet foliage considered in the framework of this review, the EPP was not identified at all. In addition, the RMS informed EFSA that new toxicological studies show that this metabolite is of the same or less toxicity than the parent compound (Finland, 2014). However, these new studies could not be evaluated in the framework of this review and will be considered by EFSA under the renewal of approval. Therefore, for the time being, EPP is not proposed for inclusion in the residue definition.

**Quizalofop-phenol (CQOP):** In a new metabolism study on soya bean conducted with quizalofop-P-tefuryl labelled on the phenyl moiety, free and conjugated CQOP was found in significant amounts in soya bean forage and hay. Being a rat metabolite, during the peer review was not considered to be of higher toxicity than the parent compound. In addition, this metabolite is probably considered in most of the available residue trials on quizalofop-P-tefuryl, as in most of these trials a common moiety method determining residue containing the MCQ moiety was used. Therefore, for the time being, CQOP is not proposed for inclusion in the residue definition.

**Hydroxy-quizalofop-phenol (CQOPOH):** During the peer review, a data gap was identified concerning the toxicological relevance of the CQOPOH metabolite accounting for 20% TRR in soya meal (0.17 mg/kg) following a quizalofop-P-tefuryl application (EFSA, 2009a). In the framework of this review, new residue trials on oilseeds, pulses and potatoes analysing for CQOPOH were submitted. No residues of CQOPOH were detected (< 0.01 mg/kg) in any of these trials. Nor the CQOPOH metabolite was detected (< 0.01 mg/kg) in any raw or processed samples of oilseed rape treated at 1–4N the authorised application rate. Moreover, it is also pointed out that the CQOPOH metabolite was only found at significant levels in a metabolism study performed with an exaggerated (6N) application rate while the amount of total radioactive residues and consequently CQOPOH residues are expected to be significantly lower following application at the authorised application rate. Therefore, considering the currently authorised uses, for the time being CQOPOH is not proposed to be included in the residue definition.

Based on the above considerations, it can be concluded that an overall residue definition for monitoring and risk assessment covering all ester variants of quizalofop can be proposed as the sum of quizalofop, its salts, its esters (including propaquizafop) and its conjugates, expressed as quizalofop (any ratio of constituent isomers). It is noted that previous conclusions and reasoned opinions have proposed to exclude conjugates from the residue definition (EFSA, 2009a,b). Nevertheless, considering the new metabolism data and the overall overview of data that is now obtained, EFSA proposes to reconsider this position.

Indeed, the metabolism studies reported for quizalofop-P-tefuryl in soya beans shows that conjugates may be present in significant amounts. Some residue trials performed on quizalofop-P-tefuryl on dry beans (Finland, 2015) also showed that residues from samples analysed for quizalofop-P-tefuryl and the
free and conjugated metabolites that can be converted to MCQ may be two to three times higher than residues analysed using a specific method allowing a separate analysis of quizalofop-P-tefuryl, quizalofop and the CQOPOH metabolite. Although in these trials there are no specific data that confirm conjugates levels, it was considered essential to include conjugates at least for risk assessment purposes. Furthermore, the vast majority of residue trials used analytical methods that included hydrolytic steps (meaning that conjugates are likely to be covered by the trial results), which does not allow distinguishing trial results compliant with the enforcement or risk assessment residue definition. Therefore, since the enforcement residue definition already includes different esters and modules for hydrolysis are nowadays being implemented by official EU laboratories for routine enforcement, it seemed more appropriate to include conjugates in the enforcement residue definition as well.

EFSA emphasises that the proposed residue definition may be reconsidered following the evaluation of the additional information on the toxicological relevance of the above reported phenoxy metabolites under the renewal procedure.

It is also noted that primary crop metabolism studies addressing the soil treatment in fruit crops, are currently not available (relevant for the uses on orchards). Nevertheless, considering the overall availability of metabolism data (also in rotational crops), this type of applications is considered to be addressed by the available data and no additional metabolism studies are required.

Based on the results from the available standard hydrolysis study, quizalofop is not expected to degrade under conditions representative of three different processing practices. Considering that the study was performed with quizalofop and that the three quizalofop-P variants share a common residue definition which is based on quizalofop, this study is also considered relevant for the other variants. Therefore, it can be concluded that the proposed residue definition also apply to processed commodities.

EFSA considered that the analytical method reported for quizalofop-P-ethyl is the most likely to cover the proposed residue definition since includes a hydrolysis step that may release conjugates of quizalofop and is validated at an LOQ feasible for routine enforcement. Therefore, it is concluded that an analytical method for enforcement of the proposed residue definition in high water and high oil content, acidic and dry commodities with an LOQ of 0.01 mg/kg is available, noting that extraction efficiency and hydrolysis of conjugates and other esters (e.g. propaquizafop) still needs to be demonstrated for this method, at least in one crop/matrix. Confirmation that the LOQ of 0.01 mg/kg is achievable in routine analysis (QuEChERS method, LC-MS/MS or liquid chromatography with triple quadrupole mass spectrometry (LC-QqQ-MS/MS) including alkaline hydrolysis) has been received by the EURs (2016a). A fully validated analytical method for enforcement in complex matrices (as herbal infusions and spices) is not available and it is still required.

In addition, EFSA emphasises that the above studies do not investigate the possible impact of plant metabolism on the isomer ratio of quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop and further investigation on this matter would in principle be required. Since guidance on the consideration of isomer ratios in the consumer risk assessment is not yet available, EFSA recommends that this issue is reconsidered when such guidance is available.

1.2. Magnitude of residues in plants

1.2.1. Magnitude of residues in primary crops

To assess the magnitude of quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop residues resulting from the reported GAPs, EFSA considered all residue trials reported by the RMSs in their evaluation reports (Italy 2012, Finland 2014, 2015), including residue trials evaluated in the framework of the peer reviews (EFSA, 2009a,b) or in the framework of a previous MRL applications (Greece, 2009; EFSA, 2010, 2012, 2016; Austria, 2013) and additional data submitted during the completeness check (Spain, 2016a-c; Portugal, 2016; Czech Republic, 2016a,b; Italy, 2016a,b; Finland, 2016a,b; France, 2016a,b; Greece, 2016a-c; Austria, 2016; Germany, 2016; the United Kingdom, 2016; Belgium, 2016a,b; Hungary, 2016a,b). Storage conditions for the residue trials performed with quizalofop-P-ethyl on herbal infusions and spices were not reported. Considering that storage stability in complex matrices has not investigated, this information is still required to confirm the validity of the residue trials reported. All other samples considered in this framework were stored in compliance with the demonstrated storage stability conditions. Decline of residues during storage of the trial samples is therefore not expected.
The number of residue trials and extrapolations were evaluated in accordance with the European guidelines on comparability, extrapolation, group tolerances and data requirements for setting MRLs (European Commission, 2016).

Regarding the use of quizalofop-P-ethyl, residue trials are not available or not sufficient to support the authorisations on citrus fruits, blueberries, currants, gooseberries, rose hips, elderberries, table olives, olives for oil production, Jerusalem artichokes, parsley roots, horseradishes, sweet peppers, cucurbits with edible peel, cucurbits with inedible peel, flowering brassicas, Brussels sprouts, Chinese cabbages, kales, kohlrabies, lamb’s lettuces, cresses, land cresses, roman rocket, red mustard, witloofs, asparagus, celeries, globe artichokes, leeks, lupins, poppy seeds and herbal infusions from roots. Therefore, MRL or risk assessment values from the GAPs for quizalofop-P-ethyl authorised on these crops could not be derived by EFSA and the following data gaps were identified:

- Citrus fruits: Eight trials on oranges and/or grapefruits and eight trials on lemons and/or mandarins and/or limes, all compliant with the southern outdoor GAP for citrus fruits;
- Blueberries, currants, gooseberries, rose hips and elderberries: Eight trials on currants compliant with the northern outdoor GAP for blueberries, currants, gooseberries, rose hips and elderberries;
- Table olives and olives for oil production: Eight trials on olives compliant with the southern outdoor GAP for table olives and olives for oil production;
- Jerusalem artichokes: Four residue trials compliant with the northern outdoor GAP for Jerusalem artichokes;
- Parsley roots: Four residue trials compliant with the northern outdoor GAP for parsley roots;
- Horseradishes: Four residue trials compliant with the northern outdoor GAP for horseradishes;
- Sweet peppers: Eight residue trials compliant with the southern outdoor GAP for sweet peppers;
- Cucurbits with edible peel: Eight trials compliant with the southern outdoor GAP for cucumbers and gherkins and eight trials compliant with the southern outdoor GAP for courgettes;
- Cucurbits with inedible peel: Eight trials on melons compliant with the southern outdoor GAP for cucurbits with inedible peel;
- Flowering brassicas: Four trials on broccoli and four trials on cauliflowers compliant with the southern outdoor GAP for flowering brassicas;
- Brussels sprouts: Four residue trials compliant with the southern outdoor GAP for Brussels sprouts;
- Chinese cabbages, kales: Four trials on kales compliant with the southern outdoor GAP for Chinese cabbages and kales;
- Kohlrabies: Four residue trials compliant with the southern outdoor GAP for kohlrabi;
- Lamb’s lettuces: Four trials on lettuces open leaf varieties compliant with the southern outdoor GAP for lamb’s lettuce and four trials on lettuces open leaf varieties compliant with the northern outdoor GAP for lamb’s lettuce;
- Cresses, land cresses, roman rocket, red mustards: Four trials on lettuces open leaf varieties compliant with the southern outdoor GAP for cresses, land cresses, roman rocket and red mustard;
- Witloofs: Four residue trials compliant with the northern outdoor GAP and four trials compliant with the southern outdoor GAP for witloof;
- Asparagus: Four residue trials compliant with the northern outdoor GAP and four trials compliant with the southern outdoor GAP for asparagus;
- Celeries: Four residue trials compliant with the northern outdoor GAP and four trials compliant with the southern outdoor GAP for celeries;
- Globe artichokes: Four residue trials compliant with the southern outdoor GAP for globe artichokes;
- Leeks: Eight residue trials compliant with the northern outdoor GAP and four trials compliant with the southern outdoor GAP for leeks;
- Lupins: Four residue trials compliant with the southern outdoor GAP for lupins;
- Poppy seeds: Four residue trials compliant with the northern outdoor GAP for poppy seeds;
- Herbal infusions from roots: Four residue trials compliant with the northern outdoor GAP for herbal infusion from roots;
For some crops, the residue trials reported are not compliant with the data requirements and/or with the authorised GAP, only tentative MRL and risk assessment values could be derived by EFSA and the following data gaps were identified:

- **Potatoes**: the number of residue trials supporting the southern outdoor GAP is not compliant with the data requirement for this crop. Therefore, four additional trials compliant with the southern outdoor GAP are still required.
- **Radishes and turnips**: available southern trials were all performed according to a more critical GAP. Although tentative MRL and risk assessment values can be derived from the southern data, a full data set compliant with the southern outdoor GAP for these crops is still required.
- **Swedes and chicory roots**: available northern trials were all performed according to a more critical GAP. Although two out of the four trials available are considered acceptable because results were below the LOQ, two additional trials compliant with the northern outdoor GAP for these crops are still required.
- **Head cabbages**: available southern trials were all performed according to a more critical GAP and no residue trials supporting the northern GAP are available. Therefore, full data sets compliant with the southern and northern outdoor GAPs for this crop are still required.
- **Spinaches and chards**: no residue trials supporting the southern GAP for spinach are available. Therefore, a full data set compliant with the southern GAP for spinaches and chards. Although tentative and risk assessment values can be derived from the available data, this information is still needed in order to confirm the MRL and risk assessment values derived from these trials.
- **Fresh herbs**: it is not clear if conjugates were covered by the analytical method used to analyse samples from northern trials. Although tentative MRL and risk assessment values can be derived from the southern data, this information is still needed in order to confirm the MRL and risk assessment values derived from northern trials.
- **Herbal infusions from flowers and from leaves and herbs, fruit spices and seed spices**: it is not clear if conjugates were covered by the analytical method used to analyse samples from northern trials. Although tentative MRL and risk assessment values can be derived from the available data, this information is still needed in order to confirm the MRL and risk assessment values derived from these trials.
- **Turnips tops**: although not clearly mentioned in the guidelines on extrapolation, southern and northern data on carrots leaves treated according to more critical GAPs were tentatively extrapolated to turnips tops. Full data set compliant with southern outdoor GAP and two additional trials compliant with the northern outdoor GAP for this crop are still required.
- **Clover and vetches forage**: available southern trials were all performed according to a more critical GAP. Therefore, a full data set compliant with the southern outdoor GAP for these crops is still required.

For all other crops, available residue trials are sufficient to derive MRL and risk assessment values, taking note of the following considerations:

- **Pome fruits, stone fruits, table and wine grapes, blackberries, raspberries, onions, garlic, shallots**: the number of residue trials supporting the southern outdoor GAP is not compliant with the data requirements for these crops. However, the reduced number of residue trials is considered acceptable in this case because all results were below the LOQ and a no residues situation is expected. Further residue trials supporting the southern outdoor GAPs are therefore not required. It is underlined, however, that full data sets supporting the northern outdoor GAPs for apples, pears, quinces, medlars, wine grapes, raspberries, onions, garlic and shallots are still required.
- **Strawberries**: the number of residue trials supporting the southern outdoor GAP is not compliant with the data requirements for this crop and no residue trials supporting the northern outdoor GAP are available. Nevertheless, considering that all results from the available southern trials were below the LOQ and that, according to the northern GAP, application is done immediately after harvest, a no residues situation is expected for both authorised uses. Further residue trials are therefore not required.
- Carrots: the number of residue trials supporting the northern outdoor GAP is not compliant with the data requirements for this crop. However, considering that the southern GAP is clearly the most critical, no additional trials supporting the northern GAP are required.
- Lettuces and escaroles: no residue trials supporting the northern GAP are available. Although MRL and risk assessment values can be derived from the southern data, a full data set performed on open leaf varieties and compliant with the northern outdoor GAP for these crops are still required.
- Tomatoes and aubergines: the number of residue trials supporting the northern outdoor GAP is not compliant with the data requirements for these crops. However, the reduced number of residue trials is considered acceptable in this case because all results were below the LOQ and a no residues situation is expected. Further residue trials supporting the northern outdoor GAP are therefore not required.
- Lentils (dry): although MRL and risk assessment values can be derived from the northern data, a full data set compliant with the southern outdoor GAP is still required.
- Sunflower seeds: available southern trials were overdosed (performed at 0.15 kg/ha instead of 0.08 kg/ha). However, considering that the northern GAP is clearly the most critical, no additional trials supporting the southern GAP are required.
- Sugar beet and beetroots: available trials were all performed according to more critical GAPs. Moreover, the number of residue trials supporting the northern outdoor GAP is not compliant with the data requirements for these crops. However, the overdosed trials and the reduced number of residue trials are considered acceptable because all results were below or close to the LOQ and a no residues situation is expected in roots at the authorised GAPs. Therefore, for sugar beet roots and beetroots, no additional trials are required. For sugar beet leaves, results from overdosed southern trials were scaled down according to the proportionality approach. According to the scaled values, the southern GAP can be considered the most critical. Therefore, no additional trials are required for sugar beet leaves.
- Alfalfa forage: although MRL and risk assessment values can be derived from the southern data, a complete data set compliant with the northern outdoor GAP is still required.

It is noted that more critical or different GAPs not supported by data are authorised for quizalofop-P-ethyl in northern EU for potatoes, beetroots, carrots, celeriacs, parsnips, salsifies, spinaches, parsley, beans (with pods) and fruit spices, and in southern EU for apples, pears, loquats, apricots, cherries, peaches, plums, table and wine grapes, strawberries, potatoes, head cabbages, lettuces, escaroles, peas (without pods), lentils (fresh), sunflower seeds, rapeseeds, soya beans and sugar beets (for details, see comment field of the GAP tables in Appendix A.1). Therefore, full data sets supporting these GAPs for quizalofop-P-ethyl are also still required.

Regarding the use of quizalofop-P-tefuryl, residue trials are not available to support the authorisations on table and wine grapes, strawberries, sweet peppers, beans and peas without pods, beans and peas with pods and clover forage. Therefore, MRL or risk assessment values from the GAPs for quizalofop-P-ethyl authorised on these crops could not be derived by EFSA and the following data gaps were identified:

- Table grapes: eight trials compliant with the northern outdoor GAP;
- Wine grapes: eight trials compliant with the northern outdoor GAP;
- Strawberries: eight trials compliant with the northern outdoor GAP;
- Sweet peppers: eight trials compliant with the northern outdoor GAP;
- Beans and peas (without pods): eight trials compliant with the northern outdoor GAP;
- Beans and peas (with pods): eight trials compliant with the northern outdoor GAP for peas with pods and eight trials compliant with southern outdoor GAP for beans and peas with pods;
- Clover forage: complete data set compliant with the northern outdoor GAP.

For some crops, the residue trials reported are not compliant with the GAP, only tentative MRL and risk assessment values could be derived by EFSA and the following data gaps were identified:

- Parsnips, parsley roots, radishes, salsifies: available residue trials supporting the northern GAP were all performed analysing the residues at a shorter preharvest interval (PHI) of 30 days instead of 60 days. Although tentative MRL can be the derived from these trials, a full data set compliant with the northern outdoor GAP is still required.
- Rapeseeds: available residue trials supporting the southern GAP were all performed with the last application done at a later growth stage compared to the GAP (BBCH 50-77 instead of
BBCH 16). Although a tentative MRL can be derived from these trials, a full data set compliant with the southern outdoor GAP is still required.

- Lentils (dry): available trials supporting the southern outdoor GAP were all performed with application at a later growth stage compared to the authorised GAP for lentils (BBCH of 65 instead of 16). Although a tentative MRL can be derived from the available data, a full data set compliant with southern outdoor GAP for lentils is still required.

For all other crops, available residue trials are sufficient to derive MRL and risk assessment values, taking note of the following considerations:

- Sunflower seeds: although MRL and risk assessment values can be derived from the southern data, six additional trials compliant with the northern GAP are still required.
- Soya beans: although MRL and risk assessment values can be derived from the southern data, a full data set compliant with the northern GAP is still required.

It is noted that more critical or different GAPs not supported by data are authorised for quizalofop-P-tefuryl in northern EU for potatoes, onions, sweet peppers, dry peas, sunflowers seeds, rapeseeds, soya beans and sugar beets (for details, see comment field of the GAP tables in Appendix A.2). Therefore, full data sets supporting these GAPs for quizalofop-P-tefuryl are also still required.

Regarding the use of propaquizafop, residue trials are not available or not sufficient to support the authorisations on okra, cucurbits with inedible peel, lamb's lettuce, cresses, land cresses, roman rocket, red mustard, baby leaf crops, basil and edible flowers, asparagus, globe artichokes and olives for oil production. Therefore, MRL or risk assessment values from the GAPs for propaquizafop authorised on these crops could not be derived by EFSA and the following data gaps were identified:

- Okra/lady's fingers: four trials compliant with the southern outdoor GAP;
- Lamb's lettuce, cresses, land cresses, roman rockets, red mustards, baby leaf crops, basil and edible flowers: eight trials on lettuce open-leaf varieties compliant with the southern outdoor GAPs;
- Asparagus: three additional trials compliant with the southern outdoor GAP (or 1 additional trial confirming the no residue situation);
- Globe artichokes: four trials compliant with the southern outdoor GAP;
- Olives for oil production: eight trials compliant with the southern outdoor GAP.

For some crops, the number of residue trials reported is not compliant with the data requirements, only tentative MRL and risk assessment values could be derived by EFSA and the following data gaps were identified:

- Tomatoes and aubergines: the number of residue trials supporting the southern outdoor GAP is not compliant with the data requirements for these crops. Although a tentative MRL can be derived from the available data, two additional trials compliant with the southern outdoor GAP are still required.
- Lettuces, escaroles and spinach: the number of northern and southern residue trials performed on open leaf varieties is not compliant with the data requirements for these crops. Moreover, for six out of the eight northern trials, and for four out of the seven southern trials, information on the varieties is not available. Although tentative MRL can be derived from the available data, a clarification on the varieties or additional trials performed on open leaf varieties (six compliant with the northern GAP and five compliant with the southern GAP) are still required.
- Sunflower seeds: the number of residue trials supporting the northern outdoor and the southern outdoor GAPs is not compliant with the data requirements for this crop. Moreover, northern trials were overdosed (performed at 0.2 kg/ha instead of 0.15 kg/ha). While the overdosed northern trials are considered acceptable because all results were below the LOQ, according to the results from trials on other oilseeds, a no residue situation cannot be anticipated. Therefore, four additional trials supporting the northern GAP and one additional trial supporting the southern GAP are still required.
- Cotton seeds: the number of residue trials supporting the southern outdoor GAP is not compliant with the data requirements for this crop. Although residues in these trials were always below the LOQ, according to the results from trials on other oilseeds, a no residue
situation cannot be anticipated. Therefore, four additional residue trials compliant with the southern outdoor GAP are still required.

For all other crops, available residue trials are sufficient to derive MRL and risk assessment values, taking note of the following considerations:

- **Kumquat:** the extrapolation from citrus fruits to kumquats is not foreseen in the current guidance document. However, considering that according to the authorised GAPs for citrus fruits and kumquat, the application is done before edible parts are formed, the proposed extrapolation is considered acceptable. Further residue trials are therefore not required.

- **Apples, pears, medlar, quinces and peaches:** the number of residue trials supporting the northern outdoor GAP is not compliant with the data requirements for these crops. However, the reduced number of residue trials is considered acceptable in this case because all results were below the LOQ and a no residues situation is expected. Further residue trials are therefore not required.

- **Table and wine grapes:** the number of residue trials supporting the southern and the northern outdoor GAPs is not compliant with the data requirements for these crops. Moreover, trials available to support the northern outdoor GAP for wine grapes were performed according to a more critical GAP. However, available residue trials are considered acceptable in this case because all results were below the LOQ and a no residues situation is expected. Further residue trials are therefore not required.

- **Strawberries:** the number of residue trials supporting the northern outdoor GAP is not compliant with the data requirements for this crop. However, the reduced number of residue trials is considered acceptable in this case because all results were below the LOQs of 0.01 and 0.02 mg/kg and a no residues situation is expected. Further residue trials are therefore not required. Moreover, considering that according to the GAP the application is done before consumable parts are formed (last application at BBCH 29) and that propaquizafop is not systemic, it is also proposed to set the MRL for this commodity at the LOQ of 0.01 mg/kg.

- **Potatoes:** the number of residue trials supporting the northern outdoor GAP is not compliant with the data requirements for this crop. Moreover, 4 out of the 10 trials available to support the southern outdoor GAP were overdosed (performed at 0.2 kg/ha instead of 0.15 kg/ha). While southern overdosed trials are considered acceptable because all results were below the LOQ, two additional residue trials supporting the northern outdoor GAP are still required.

- **Garlic, onions and shallots:** the number of residue trials supporting the southern outdoor GAP is not compliant with the data requirements for these crops. Although MRL and risk assessment values can be derived from the northern data, three additional trials compliant with the southern GAP are still required.

- **Florence fennels:** the number of residue trials supporting the southern outdoor GAP is not compliant with the data requirements for this crop. However, the reduced number of residue trials is considered acceptable in this case because all results were below the LOQ and a no residues situation is expected. Further residue trials are therefore not required.

- **Rapeseeds:** the number of residue trials supporting the southern outdoor GAP is not compliant with the data requirements for this crop. Although MRL and risk assessment values can be derived from the northern data, four additional trials compliant with the southern GAP are still required.

- **Soya beans:** the number of residue trials supporting the southern outdoor GAP is not compliant with the data requirements for this crop. Although MRL can be derived from the northern data, five additional trials supporting the southern outdoor GAP are still required.

- **Rice:** the number of residue trials supporting the southern outdoor GAP is not compliant with the data requirements for this crop. However, the reduced number of residue trials is considered acceptable in this case because all results were below the LOQ and a no residues situation is expected. Further residue trials are therefore not required.

- **Sugar beets, fodder beets and beetroots:** the number of residue trials supporting the southern outdoor GAP is not compliant with the data requirements for these crops. However, the reduced number of residue trials is considered acceptable in this case because all results were
below the LOQ and a no residues situation is expected in roots. Further residue trials are therefore not required. Nevertheless, for sugar beet and fodder beet leaves, three additional trials compliant with the southern outdoor GAP are still required.

It is noted that more critical or different GAPs not supported by data are authorised for propaquizafop in northern EU for potatoes, carrots, cauliflowers, sunflower seeds, soya beans and sugar beet and in southern EU for melons, lettuces, escaroles, sunflower seeds and soybeans (for details, see comment field of the GAP tables in Appendix A.3). Therefore, full data sets supporting these GAPs for propaquizafop are also still required.

1.2.2. Magnitude of residues in rotational crops

Considering the most critical GAP reported in this review (soil application of quizalofop-ethyl at the rate of 260 g a.s./ha), assuming a soil density of 1.5 kg/L, soil depth of 20 cm, no crop interception and considering the DT50 in soil of 182 days for quizalofop (corresponding to a DT90 of 603 days), the plateau concentration of quizalofop in soil, taking into account accumulation over the years, was calculated as 0.023 mg/kg soil. According to the information reported in the confined rotational crop study, this plateau concentration is covered by the confined study performed with quizalofop-P-ethyl, where quizalofop residues in the different soils tested were found at up to 0.109 mg eq/kg.

Therefore, based on the confined rotational crop studies conducted at 2.8N (propaquizafop), 1.2N (quizalofop-P-ethyl) and 2.5N (quizalofop-P-tefuryl) and the maximum application rates supported in the framework of this review, EFSA concludes that significant residues of all quizalofop ester variants (including propaquizafop) and their metabolites are not expected to be present in rotational crops, provided that quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop are applied according to the existing GAPs considered in this review.

1.2.3. Magnitude of residues in processed commodities

Studies investigating the effect of processing on the residue levels in sunflower seeds (quizalofop-P-ethyl; Spain, 2012), rapeseeds (quizalofop-P-tefuryl, Finland, 2015), cauliflowers, head cabbages (propaquizafop, Italy, 2015) and alfalfa (propaquizafop, Greece 2016c; France, 2016b; Italy, 2016b) were reported. An overview of all the available processing studies is reported in Appendix B.1.2.5. Robust processing factors could be derived only for rapeseed (crude and refined oil), alfalfa hay and cooked cauliflowers.

Due to the limited number of available studies, processing factors derived for head cabbages (sauerkraut), sunflower seeds (refined oil, meal/press cake) and rapeseeds (meal/press cake) should be considered indicative only.

Further processing studies are not required in this case as they are not expected to affect the outcome of the risk assessment. If more robust processing factors were to be required by risk managers, in particular for enforcement purposes, additional processing studies would be needed.

It is also noted that during the peer review a data gap concerning the submission of a new processing study in oilseed rape was identified for quizalofop-P-tefuryl (EFSA, 2009a). In the framework of this review, a new processing study on quizalofop-P-tefuryl in oilseed rape has been submitted and evaluated (Finland, 2015). In these studies, samples were analysed for quizalofop-P-tefuryl, quizalofop and the metabolite CQOPOH. Since parent ester and phenol metabolite were not found in any raw or processed commodities, processing factors derived from these studies are based on the levels of quizalofop.

1.2.4. Proposed MRLs

Consequently, combining the assessment of quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop, the available data are considered sufficient to derive MRL proposals as well as risk assessment values for all commodities under evaluation, except for blueberries, currants, gooseberries, rose hips, elderberries, table olives, Jerusalem artichokes, cucurbitis with edible and inedible peel, sweet peppers, okra, Brussels sprouts, Chinese cabbages, kales, kohlrabies, cresses and other sprouts and shoots, land cresses, roman rockets, red mustards, baby leaf crops, celeries, globe artichokes, leeks, olives for oil production and herbal infusion from roots, where the available data were insufficient to derive MRLs. Nevertheless, considering the data gaps identified in the previous sections all derived MRLs should be considered tentative only. Tentative MRLs were also derived for feed crops.
(e.g. sugar beet leaves, turnips leaves, alfalfa forage, clover forage and vetch forage) in view of the future need to set MRLs in feed items.

2. Residues in livestock

Quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop are authorised for use on several crops that might be fed to livestock. Livestock dietary burdens were therefore calculated for different groups of livestock according to OECD guidance (OECD, 2013), which has now also been agreed upon at European level. Considering that livestock may be exposed to residues originating from the three different variants of quizalofop-P, the calculation of the livestock dietary burden was performed combining the residues originating from the different ester variants currently authorised. For each feed item, risk assessment values obtained for quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop were compared and the most critical values were selected for the exposure calculation. This approach is based on the assumption that the three ester variants are not used together on the same crop. The input values for all relevant commodities are summarised in Appendix D. According to the results for this calculation, the dietary burdens were found to exceed the trigger value of 0.1 mg/kg dry matter (DM) for all groups of livestock. Behaviour of residues was therefore assessed in all commodities of animal origin.

2.1. Nature of residues and methods of analysis in livestock

The metabolism of quizalofop-P-ethyl in livestock has been investigated during the peer review in lactating goats (labelled on both the phenyl and the quinoxaline ring) and in laying hens (labelled on the quinoxaline ring) using the racemate 14C-quizalofop-ethyl (Finland, 2007a).

In the goat study, the animals were dosed during seven consecutive days with an exaggerate application rate of 1.1–1.2 mg/kg body weight (bw) per day (9–10N compared to maximum dietary burden for sheep). In the hens study, the animals were dosed during six consecutive days with an exaggerate application rate of 3.5 mg/kg bw per day (97N compared to maximum dietary burden for poultry).

The metabolism of quizalofop-P-tefuryl in livestock has been investigated during the peer review in lactating goats and in laying hens using quizalofop-P-tefuryl labelled on the quinoxaline ring only (Finland, 2007b).

In the goat study, the animals were dosed during three consecutive days with an exaggerated dose rate of 15 mg/kg bw per day (121N compared to maximum dietary burden for sheep). In the hens study, the animals were dosed during three consecutive days with an exaggerate application rate of 15 mg/kg bw per day (417N compared to maximum dietary burden for poultry).

In the goat studies for both variants, the metabolism occurred through rapid hydrolysis of the ester bond leading to the quizalofop following by hydroxylation or further hydrolysis to hydroxy-quizalofop17 and CQOP and their conjugates. Quizalofop was the major residue detected, accounting for 21–61% TRR in liver, 48–83% in kidney, 78–81% in muscle and up to 81% in milk. The parent esters were observed only in milk in low proportions. Additional metabolites were observed in the goat tissues but at lower proportions. In fat, quizalofop accounted for 15–25% TRR, while a large part of the radioactivity remained uncharacterised. Additional information on the TRR in fat were received in the framework of this review (Finland, 2014), allowing to conclude that, considering the low residue level in fat found in the metabolism study (maximum 0.07 mg/kg), no additional characterisation of the residue in fat is necessary. In the tefuryl variant study (performed at 283N), hydroxy-quizalofop and metabolite CQOP were detected in kidney and liver (respectively, 13% and 19%) and CQOP in kidney only (6%). These metabolites were not identified in the ethyl variant study, where the only additional metabolite identified was quizalofop methyl18 observed up to 25% TRR in milk.

The metabolism was more complex in hen. For both variants, quizalofop was the major residue in kidney (32–41% TTR) and eggs and mainly as glycerol conjugate (87% TTR) in the quizalofop-P-tefuryl study. Quizalofop pentanoic acid19 was shown to be the major metabolite in liver (57–83% TTR) and accounted for 16–29% in kidney. The parent ester was only detected as a major component in fat in the quizalofop-P-ethyl study (55% TTR) but no information was provided in the tefuryl study since fat was not analysed.

17 Hydroxy-quizalofop: equivalent to hydroxy quizalofop-P, see Appendix F.
18 Quizalofop methyl: see Appendix F.
19 Quizalofop pentanoic acid: see Appendix F.
During the peer review, the metabolism of propaquizafop in livestock has been investigated with hydroquinone- and quinoxaline-labelled propaquizafop in lactating goats and in laying hens (Italy, 2005).

In the goat study, the animals were dosed during 10 consecutive days with an exaggerate dose of 0.8–0.9 mg/kg bw per day (7N compared to maximum dietary burden for sheep). In the hens study, the animals were dosed during six consecutive days with an exaggerate dose of 50 mg/kg bw per day (1389N compared to maximum dietary burden for poultry).

These metabolism studies show that propaquizafop is rapidly metabolised and excreted by livestock. Radioactivity in milk reached a plateau level (0.95 mg/kg) at 3–4 days. Residues in ruminant tissues were generally low, with the highest being in the kidney (0.84 mg/kg) and in fat (0.275 mg/kg). The major component of the residues in liver, kidney and muscle was quizalofop-P. Further metabolism of quizalofop-P by hydroxylation to hydroxy-quizalofop-P and dealkylation to the metabolite CQOP was evident but these metabolites did not comprise significant portions of the total residue. The nature of the residues in fat was not determined. In milk, analyses were performed using a common moiety method that analysed propaquizafop, quizalofop and CQOP as MCQ, and hence, the exact nature of the residues remained unknown.

In hens, the highest residues were observed in liver and kidney (76 mg/kg and 75 mg/kg, respectively). Quizalofop-P was the only radioactive product found in tissues and eggs, with the exception of the metabolite CQOPOH that was found in one of the two liver samples analysed (25 mg/kg). However, from the information reported in the DAR, it was not clear if other metabolites were analysed and not found in the metabolism study. Residues were not sufficiently identified in fat and egg yolk.

On the basis on these studies on propaquizafop, the peer review concluded that a residue definition could not be established for livestock since the characterisation/identification of the radioactivity was not sufficiently investigated in different matrices (EFSA, 2009a). Nevertheless, since these studies demonstrate that propaquizafop is rapidly metabolised to quizalofop, the results from the metabolism studies performed with the other ester variants may be considered representative of the metabolism of propaquizafop as well.

Moreover, a new goat metabolism study on lactating goats dosed for seven consecutive days with 0.01 and 1.0 mg/kg bw per day of quinoxaline- and phenoxy- labelled propaquizafop (0.08–8N compared to maximum dietary burden for sheep) has been submitted and evaluated in the framework of a routine MRL application of propaquizafop in various crops (Austria, 2013). Results from this additional study confirm that, when propaquizafop is administered to lactating ruminants, it is almost exclusively converted to quizalofop-P. Quizalofop-P was the major metabolite determined in liver, kidney, muscle and in milk accounting for 39%, 44%, 73% and 79% of the TRR, respectively. In liver and kidney, additional components corresponding to hydroxy-quizalofop-P (17% of TRR, in both tissues) and PPA (13% of TRR, found in liver only), were also determined. In fat, total residue accounted 0.01% of the applied dose and characterisation was not possible.

Based on the results of all metabolism studies available for the three ester variants, the residue definition for enforcement and risk assessment in all animal commodities, except poultry liver and kidney, is proposed as the sum of quizalofop, its salts, its esters (including propaquizafop) and its conjugates, expressed as quizalofop (any ratio of constituent isomers). For poultry liver and kidney, where quizalofop pentanoic acid represented the main component of the residue, the pentanoic acid metabolite and its conjugates, are proposed for inclusion in the residue definition.

It is noted that conjugates and pentanoic acid were not proposed for inclusion in the enforcement residue definition during the peer review (EFSA, 2009b). However, metabolism and livestock feeding studies (see Section 2.2) indicated that conjugates may be present in much higher amounts than the free acid (in particular in liver and kidney). Although in the available feeding studies there are no specific data that confirm conjugates levels, since the enforcement residue definition already included different esters and modules for hydrolysis are nowadays being implemented by official EU laboratories for routine enforcement, it was considered more appropriate to include conjugates in the enforcement residue definition.

Regarding the pentanoic acid metabolite of quizalofop and its conjugates, it is noted that, as also confirmed by the EURLs during the Consultation of Member States, these compounds are also covered by the analytical method used in the most relevant feeding and storage stability studies. Therefore, results of the feeding studies do not allow EFSA to make a distinction between study results for enforcement and risk assessment. Consequently, it is proposed to include this metabolite and its conjugates also in the residue definition for enforcement. During the Consultation of Member States, EURLs informed EFSA that an analytical standard of the pentanoic acid metabolite is not available on
the market. It is underlined that, in case risk managers wish to exclude the pentanoic acid from the residue definition for enforcement in poultry liver and kidney, considering that MRLs and risk assessment values are derived from livestock feeding studies with residues analysed by using a common moiety method (see also Section 2.2), this is not expected to have an impact on the present assessment.

In any case, EFSA emphasises that the proposed residue definition may be reconsidered following the evaluation of the additional information on the toxicological relevance of the above reported metabolites under the renewal procedure.

Although the log $P_{O/W}$ of quizalofop esters is higher than 3, it is expected that livestock will mainly be exposed to quizalofop which has a lower log $P_{O/W}$ value. Furthermore, considering that quizalofop esters are further hydrolysed in livestock and that highest residue levels were observed in edible offals, the residue definition is not considered fat soluble. This is also consistent with the main results of the most recent metabolism study where very low residues were found in fat.

Two analytical methods for enforcement of residues were reported for the variant quizalofop-P-tefuryl (Finland, 2007b, 2015); no methods were reported for the other variants. Both methods were validated for quizalofop-P-tefuryl, the first determining quizalofop-P-tefuryl directly (GC-MSD method, LOQ of 0.01 mg/kg in milk, eggs and tissues, ILV available), the second using a common moiety method where, after hydrolysis, residues are determined as MCQ (liquid chromatography with fluorescence detection (LC-FD) method with LOQ is 0.01 mg/kg for cow milk and chicken eggs and 0.02 mg/kg for cow and chicken tissues, ILV and confirmatory data evaluated in this review).

The second method is likely to measure all compounds included in the proposed residue definition (including pentanoic acid) and therefore considered as the reference method. However, efficiency of extraction and hydrolysis still needs to be demonstrated for this method.

Based on the information received by the EURLs during the completeness check, no validation data are available for quizalofop residues in commodities of animal origin (EURLs, 2016b).

According to the EFSA Conclusion (2008b), the stability of the residues in animal matrices (both poultry and ruminants) was considered insufficiently demonstrated as the initial residue levels before freezing were not determined. The notifier was asked to provide new data supporting the stability of residues in animal matrices. In the framework of this review, new data have been generated to address storage stability in animal matrices. The stability of residues (sum of quizalofop-P-tefuryl and quizalofop-P, determined as MCQ with a common moiety method) in samples stored at -20°C have been demonstrated for up to 9 months in liver, kidney and fat tissues (from bovine and poultry) and for up to 3 and 6 months in milk and eggs, respectively (Finland, 2015).

It is noted that during the peer review the following data gaps were identified:

- To clarify, in the goat and in the hen metabolism studies, the nature of the residue in fat since only small part was identified (relevant for quizalofop-P-ethyl).
- A goat metabolism study performed with a second labelling position on quizalofop-P-tefuryl or with another variant has to be requested (relevant for quizalofop-P-tefuryl).
- Justification that a metabolism study in pig is not required since quantitative differences were observed in the biodistribution of the residues in rats and in ruminants for other ester variants (relevant for quizalofop-P-tefuryl).

Considering the overall availability of metabolism studies for the three ester variants and that the results from the additional metabolism study on propaquizafop confirm that the metabolic pattern in ruminants and rats is expected to be similar, the metabolism in livestock is considered sufficiently elucidated, results from ruminants can be extrapolated to pigs and the above-mentioned data gaps can be considered fulfilled in the framework of the present review.

### 2.2. Magnitude of residues in livestock

Considering all variants of quizalofop-P, two ruminant feeding studies were reported. The first study was submitted in the framework of an MRL application and investigated residues of quizalofop-P and quizalofop-P-ethyl in milk and animal tissues after administration, to lactating cows, of quizalofop-P-ethyl at 0.0035, 0.016 and 0.15 mg/kg bw per day (Spain, 2012). In the second livestock feeding study, cows were dosed with quizalofop-P-tefuryl at 0.025, 0.081 and 0.276 mg/kg bw per day. In this study, samples of tissues and milk were analysed using a method quantifying the tefuryl ester and the metabolites, free and conjugates that could be converted to the MCQ moiety (Finland, 2007b). Although both studies were performed with similar dose rates, residues in all tissues and in milk
analysed in the first study were below LOQ while the second study indicated measurable residue levels in liver and kidney. Considering that both esters were shown to hydrolyse quickly to quizalofop in livestock, this discrepancy is probably due to the different analytical methods used, highlighting the relevance of conjugates which were probably not covered by the analytical method used in the first study. EFSA therefore considered the study performed with quizalofop-P-tefuryl to be the most relevant for all ester variants of quizalofop-P.

A poultry feeding study was only reported for quizalofop-P-tefuryl. Considering that esters were shown to hydrolyse quickly to quizalofop in livestock, this study is considered relevant for all ester variants of quizalofop-P (Finland, 2007b). In this study, poultry tissues and eggs were analysed for all residues containing the MCQ moiety after administration of quizalofop-P-tefuryl.

Results from livestock feeding studies performed with quizalofop-P-tefuryl variant were therefore used to derive MRLs and risk assessment values for all animal commodities. Samples from the livestock feeding studies were stored in compliance with the demonstrated storage stability. Therefore no degradation of the residues is expected to have occurred.

As already mentioned, in the feeding studies performed with quizalofop-P-tefuryl, samples were determined for the total residues of quizalofop-P-tefuryl and its metabolites convertible to MCQ. Although extraction efficiency and hydrolysis of other compounds still needs to be demonstrated for this method, overall the analytical method applied in the feeding studies is expected to cover more components than the proposed residue definitions for both enforcement and risk assessment. Therefore, the studies were considered appropriate to derive at least tentative MRL proposals and risk assessment values. According to the results of the livestock feeding studies, MRLs higher than the LOQ are proposed for ruminant liver and kidney, for swine kidney, for milk and for poultry fat and liver.

3. Consumer risk assessment

Considering that the three ester variants share the same residue definition based on quizalofop, the lowest acceptable daily intake (ADI) set for quizalofop-P-ethyl (0.009 mg/kg bw per day) and the lowest acute reference dose (ARfD) set for quizalofop-P-tefuryl (0.1 mg/kg bw) were corrected by their molecular weights to a value of 0.0083 mg/kg bw day and 0.08 mg/kg bw, respectively, to be expressed as quizalofop equivalent.20 These values were taken into account to conduct an overall consumer risk assessments considering all quizalofop ester variants.

Chronic and acute exposure calculations for all crops reported in the framework of this review were performed using revision 2 of the EFSA PRIMO (EFSA, 2007). Input values for the exposure calculations were derived in compliance with the decision tree reported in Appendix E. For each commodity, risk assessment values obtained for quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop were compared and the most critical values selected for the exposure calculation. This approach is based on the assumption that the three ester variants are not used together on the same crop. For certain commodities, however, the available residue trials were not sufficient to derive risk assessment values for the use of all the variants and could not be excluded that those uses not supported by data will result in higher residue levels, in particular when the existing EU MRL is higher than the MRL proposal derived. In these cases, EFSA decided, as a conservative approach, to use the existing EU MRL for an indicative exposure calculation. Also for those commodities where data were insufficient to derive an MRL in Section 1.2.1 for any of the variants, EFSA considered the existing EU MRL for an indicative calculation. The contributions of other commodities, for which no GAP was reported in the framework of this review, were not included in the calculation. All input values refer to the residues in the raw agricultural commodities. The input values included in the exposure calculations are summarised in Appendix D.

The exposures calculated were compared with the toxicological reference values, derived by EFSA (2009b) under Directive 91/414/EEC and recalculated as quizalofop equivalents presented above. The highest chronic exposure was calculated for French toddlers, representing 31% of the ADI, and the highest acute exposure was calculated for melons, representing 76% of the ARfD. Although major uncertainties remain due to the data gaps identified in the previous sections, this indicative exposure calculation did not indicate a risk to consumers.

EFSA emphasises that the above assessment does not consider the possible impact of plant and livestock metabolism on the isomer ratio of active substance and further investigation on this matter.

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20 Molecular weight propaquizafop: 443.9; quizalofop and quizalofop-P: 344.8; quizalofop-P-ethyl: 372.8; quizalofop-P-tefuryl: 428.9
would in principle be required. Since guidance on the consideration of isomer ratios in the consumer risk assessment is not yet available, EFSA recommends that this issue is reconsidered when such guidance is available.

Conclusions

The metabolism of quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop have been investigated in primary (roots and tuber vegetables, pulses and oilseeds, fruit crops and leafy vegetables) and in rotational crops (roots and tuber vegetables, pulses and oilseeds, fruit crops, leafy vegetables and cereals).

According to the results from all available metabolism studies in primary and rotational crops, once quizalofop is formed after hydrolysis of the ester link, the metabolic pathways of the different esters in plants are similar. The parent ester is rapidly degraded to quizalofop, which, together with its conjugates was always present at harvest. In most cases, the amount of other metabolites than quizalofop was low at harvest, with the exceptions of metabolites phenoxy acid, phenoxy propionate, quizalofop-phenol and hydroxy-quizalofop-phenol. During the peer review, a data gap was identified concerning the toxicological relevance of these metabolites and additional toxicological data is expected to be considered and evaluated under the renewal procedure. For the time being, these metabolites are not proposed for inclusion in the residue definition.

Based on the above considerations, it can be concluded that an overall residue definition for monitoring and risk assessment covering all ester variants of quizalofop can be proposed as the sum of quizalofop, its salts, its esters (including propaquizafop) and its conjugates, expressed as quizalofop (any ratio of constituent isomers). Based on the results from the available standard hydrolysis study, the proposed residue definition also applies to processed commodities.

EFSA emphasises that the proposed residue definition may be reconsidered following the evaluation of the additional information on the toxicological relevance of the above reported phenoxy metabolites under the renewal procedure.

An analytical method for enforcement of the proposed residue definition in high water and high oil content, acidic and dry commodities with an LOQ of 0.01 mg/kg is available, noting that extraction efficiency and hydrolysis of conjugates and other ester variants (e.g. propaquizafop) still needs to be demonstrated for this method, at least in one crop/matrix. Confirmation that the LOQ of 0.01 mg/kg is achievable in routine analysis has been received by the EURLs. A fully validated analytical method for enforcement in complex matrices (as herbal infusions and spices) is not available and it is still required.

Combining the assessment of quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop, the available data are considered sufficient to derive MRL proposals as well as risk assessment values for all commodities under evaluation, except for blueberries, currants, gooseberries, rose hips, elderberries, table olives, Jerusalem artichokes, cucurbits with edible and inedible peel, sweet peppers, okra, Brussels sprouts, Chinese cabbages, kales, kohlrabies, cresses and other sprouts and shoots, land cresses, roman rockets, red mustards, baby leaf crops, celeries, globe artichokes, leeks, olives for oil production, herbal infusion from roots where the available data were insufficient to derive MRLs. Nevertheless, all derived MRLs should be considered tentative only.

Based on the confined rotational crop studies conducted at 2.8N (propaquizafop), 1.2N (quizalofop-P-ethyl) and 2.5N (quizalofop-P-tefuryl), and the maximum application rates supported in the framework of this review, EFSA concludes that significant residues of all quizalofop ester variants (including propaquizafop) and their metabolites are not expected to be present in rotational crops, provided quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop are applied according to the existing GAPs considered in this review.

Quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop are authorised for use on several crops that might be fed to livestock. Considering that livestock may be exposed to residues originating from the three different variants of quizalofop-P, the calculation of the livestock dietary burden was performed combining the residues originating from the different ester variants currently authorised. For each feed item, risk assessment values obtained for quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop were compared and the most critical values selected for the exposure calculation. This approach is based on the assumption that the three ester variants are not used together on the same crop. According to the results for this calculation, the dietary burdens were found to exceed the trigger value of 0.1 mg/kg DM for all groups of livestock. Behaviour of residues was therefore assessed in all commodities of animal origin.
The metabolism of quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop in livestock has been investigated in lactating goats and in laying hens. Based on the results of all metabolism studies available for the three ester variants, the residue definition for enforcement and risk assessment in all animal commodities, except poultry liver and kidney, is proposed as the sum of quizalofop, its salts, its esters (including propaquizafop) and its conjugates, expressed as quizalofop (any ratio of constituent isomers). For poultry liver and kidney, where quizalofop pentanoic acid represented the main component of the residues, the pentanoic acid and its conjugates, are proposed for inclusion in the residue definition for both enforcement and risk assessment.

EFSA emphasises that the proposed residue definition may be reconsidered following the evaluation of the additional information on the toxicological relevance of the above reported metabolites under the renewal procedure.

Although the log P<sub>O/W</sub> of quizalofop esters is higher than 3, it is expected that livestock will mainly be exposed to quizalofop which has a lower log P<sub>O/W</sub> value. Furthermore, considering that quizalofop esters are further hydrolysed in livestock, the residue definition is not considered fat soluble. This is also consistent with the main results of the most recent metabolism studies where very low residues were found in fatty tissues.

A common moiety method where, after hydrolysis, residues are determined as 6-chloro-2-methoxyquinoxaline is available for the enforcement of the proposed residue definition. However, efficiency of extraction and hydrolysis steps included in the proposed analytical method still needs to be demonstrated. According to the information received by the EURLs during the completeness check, no validation data are available for quizalofop residues in commodities of animal origin. Moreover, during the Consultation of Member States, the EURLs informed EFSA that an analytical standard of the pentanoic acid metabolite is not available on the market. It is underlined that, in case risk managers wish to exclude the pentanoic acid and its conjugates from the residue definition for enforcement in poultry liver and kidney, considering that MRLs and risk assessment values are in any case derived from samples analysed by using a common moiety method possibly covering more compounds compared to the residue definition, this is not expected to have an impact on the present assessment.

Results from livestock feeding studies performed with quizalofop-P-tefuryl variant and analysing for the total residues of quizalofop-P-tefuryl and its metabolites convertible to 6-chloro-2-methoxyquinoxaline, were used to derive MRLs and risk assessment values for all animal commodities. According to the results of these feeding studies, MRLs higher than the LOQ are proposed for ruminant liver and kidney, for swine kidney, for milk and for poultry fat and liver. Nevertheless, considering that extraction efficiency and hydrolysis still needs to be demonstrated for the analytical method proposed for enforcement in animal commodities and that in the livestock feeding studies residues were analysed by using a common moiety method possibly covering more compounds compared to the residue definition, the derived MRLs should be considered tentative only.

Chronic and acute exposure calculations for all crops reported in the framework of this review were performed using revision 2 of the EFSA PRIMo. For each commodity, risk assessment values obtained for quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop were compared and the most critical values selected for the exposure calculation. This approach is based on the assumption that the three ester variants are not used together on the same crop. For certain commodities, however, the available residue trials were not sufficient to derive risk assessment values for the use of all the variants and could not be excluded that those uses not supported by data will result in higher residue levels, in particular when the existing EU MRL is higher than the MRL proposal derived. In these cases, EFSA decided, as a conservative approach, to use the existing EU MRL for an indicative exposure calculation. Also for those commodities where data were insufficient to derive an MRL for any of the variants, EFSA considered the existing EU MRL for an indicative calculation. The contributions of other commodities, for which no GAP was reported in the framework of this review, were not included in the calculation. All input values refer to the residues in the raw agricultural commodities.

The highest chronic exposure was calculated for French toddlers, representing 31% of the ADI, and the highest acute exposure was calculated for melons, representing 76% of the ARfD. Although major uncertainties remain due to the data gaps identified in the previous sections, this indicative exposure calculation did not indicate a risk to consumers.

EFSA emphasises that the above assessment does not consider the possible impact of plant and livestock metabolism on the isomer ratio of active substance and further investigation on this matter would in principle be required. Since guidance on the consideration of isomer ratios in the consumer risk assessment is not yet available, EFSA recommends that this issue is reconsidered when such guidance is available.
Recommendations

MRL recommendations were derived in compliance with the decision tree reported in Appendix E of the reasoned opinion (see summary table). None of the MRL values listed in the table are recommended for inclusion in Annex II to the Regulation as they are not sufficiently supported by data. In particular, all tentative MRLs and existing EU MRLs need to be confirmed by the following data:

- further validation data demonstrating in at least one crop/matrix, the efficiency of the extraction and hydrolysis steps included in the proposed analytical method for enforcement in plant commodities;
- fully validated analytical methods for enforcement in complex matrices (relevant for the uses of quizalofop-P-ethyl on herbal infusions and spices);
- storage stability studies in complex matrices (relevant for the uses of quizalofop-P-ethyl on herbal infusions from flowers, leaves and herb and on spices);
- confirmation that conjugates were covered by the analytical method used in the analysis of samples from trials performed with quizalofop-P-ethyl on chards, herbal infusions and spices;
- residue trials supporting authorisations of quizalofop-P-ethyl on citrus fruits, blueberries, currents, gooseberries, rose hips, elderberries, table olives, Jerusalem artichokes, parsley roots, turnips, sweet peppers, cucurbits with edible and inedible peel, flowering brassicas, Brussels sprouts, head cabbages, Chinese cabbages, kales, kohlrabies, lamb’s lettuce, cresses and other sprouts and shoots, land cresses, roman rockets, red mustards, withloof, asparagus, celeries, globe artichokes, leeks, dry lupins, olives for oil production, herbal infusion from flowers, from leaves and herbs and from roots, seed spices and fruits spices;
- residue trials supporting authorisations of quizalofop-P-tefuryl on table and wine grapes, strawberries, parsnips, radishes, salsifies, sweet peppers, beans and peas with and without pods, dry lentils and rapeseeds;
- residue trials supporting authorisations of propaquizafop on tomatoes, aubergines, spinaches, okra, baby leaf crops, cucurbits with inedible peel, land cresses, roman rockets, red mustards, asparagus, globe artichokes and olives for oil production;
- further validation data demonstrating the efficiency of the extraction and hydrolysis steps included in the proposed analytical method for enforcement in livestock commodities and in the analytical method used in the livestock feeding studies.

Furthermore, it is highlighted that other GAPs reported by the RMSs were not fully supported by data. EFSA therefore identified the following data gaps which are not expected to impact on the validity of the MRLs derived but which might have an impact on national authorisations:

- residue trials supporting further authorisations of quizalofop-P-ethyl on pome fruits, wine grapes, strawberries, blackberries, raspberries, potatoes, radishes, swedes, chicory roots, horseradishes, garlic, onions, shallots, spinaches and poppy seeds;
- residue trials supporting further authorisations of quizalofop-P-tefuryl on parsley, parsley roots, sunflower seeds and soysbeans;
- residue trials supporting further authorisations of propaquizafop on potatoes, tomatoes, lamb’s lettuce, lettuces, escaroles, cresses, basil and edible flowers, sunflower seeds, cotton seeds and soya beans.

It is noted that more critical GAPs not supported by data are authorised for quizalofop-P-ethyl in northern EU for potatoes, beetroots, carrots, celeriacs, parsnips, salsifies, spinaches, parsley, beans with pods and fruit spices, and in southern EU for apples, pears, loquats, apricots, cherries, peaches, plums, table and wine grapes, strawberries, potatoes, head cabbages, lettuces, escaroles, peas without pods, fresh lentils, sunflower seeds, rapeseeds, soybeans and sugar beets (for details, see comment field of the GAP tables in Appendix A.1).

It is noted that more critical or different GAPs not supported by data are authorised for quizalofop-P-tefuryl in northern EU for potatoes, onions, sweet peppers, dry peas, sunflowers seeds, rapeseeds, soybeans and sugar beets (for details, see comment field of the GAP tables in Appendix A.2).

It is noted that more critical or different GAPs not supported by data are authorised for propaquizafop in northern EU for potatoes, carrots, cauliflowers, sunflower seeds, soybeans and sugar beet and in southern EU for melons, lettuces, escaroles, sunflower seeds and soybeans (for details, see comment field of the GAP tables in Appendix A.3).
If the above-reported data gaps are not addressed in the future, Member States are recommended to withdraw or modify the relevant authorisations at national level.

Table 2: Summary table

| Code number(a) | Commodity                | Existing EU MRL 1 (mg/kg) | Existing EU MRL 2 (mg/kg) | Outcome of the review MRL (mg/kg) | Comment                                      |
|----------------|--------------------------|---------------------------|----------------------------|-----------------------------------|----------------------------------------------|
| 110010         | Grapefruits              | 0.05*                     | 0.05*                      | 0.05                              | Further consideration needed(b)             |
| 110020         | Oranges                  | 0.05*                     | 0.05*                      | 0.05                              | Further consideration needed(b)             |
| 110030         | Lemons                   | 0.05*                     | 0.05*                      | 0.05                              | Further consideration needed(b)             |
| 110040         | Limes                    | 0.05*                     | 0.05*                      | 0.05                              | Further consideration needed(b)             |
| 110050         | Mandarins                | 0.05*                     | 0.05*                      | 0.05                              | Further consideration needed(b)             |
| 120010         | Almonds                  | 0.05*                     | 0.05*                      | 0.01*                            | Further consideration needed(c)             |
| 120040         | Chestnuts                | 0.05*                     | 0.05*                      | 0.01*                            | Further consideration needed(c)             |
| 120060         | Hazelnuts/cobnuts        | 0.05*                     | 0.05*                      | 0.01*                            | Further consideration needed(c)             |
| 120090         | Pine nut kernels         | 0.05*                     | 0.05*                      | 0.01*                            | Further consideration needed(c)             |
| 120100         | Pistachios               | 0.05*                     | 0.05*                      | 0.01*                            | Further consideration needed(c)             |
| 120110         | Walnuts                  | 0.05*                     | 0.05*                      | 0.01*                            | Further consideration needed(c)             |
| 130010         | Apples                   | 0.05*                     | 0.05*                      | 0.02                              | Further consideration needed(d)             |
| 130020         | Pears                    | 0.05*                     | 0.05*                      | 0.02                              | Further consideration needed(d)             |
| 130030         | Quinces                  | 0.05*                     | 0.05*                      | 0.02                              | Further consideration needed(d)             |
| 130040         | Medlars                  | 0.05*                     | 0.05*                      | 0.02                              | Further consideration needed(d)             |
| 130050         | Loquats/Japanese medlars | 0.05*                     | 0.05*                      | 0.02                              | Further consideration needed(d)             |
| 140010         | Apricots                 | 0.05*                     | 0.05*                      | 0.02                              | Further consideration needed(d)             |
| 140020         | Cherries (sweet)         | 0.05*                     | 0.05*                      | 0.02                              | Further consideration needed(d)             |
| 140030         | Peaches                  | 0.05*                     | 0.2                       | 0.02                              | Further consideration needed(d)             |
| 140040         | Plums                    | 0.05*                     | 0.05*                      | 0.02                              | Further consideration needed(d)             |
| 151010         | Table grapes             | 0.05*                     | 0.05*                      | 0.05                              | Further consideration needed(e)             |
| 151020         | Wine grapes              | 0.05*                     | 0.05*                      | 0.05                              | Further consideration needed(e)             |
| 152000         | Strawberries             | 0.05*                     | 0.05*                      | 0.05                              | Further consideration needed(e)             |
| 153010         | Blackberries             | 0.05*                     | 0.05*                      | 0.02                              | Further consideration needed(e)             |
| 153030         | Raspberries (red and yellow) | 0.05*                       | 0.05*                      | 0.02                              | Further consideration needed(f)             |
| 154010         | Blueberries              | 0.05*                     | 0.05*                      | 0.05                              | Further consideration needed(g)             |
| 154030         | Currants (black, red and white) | 0.05*                       | 0.05*                      | 0.05                              | Further consideration needed(g)             |
| 154040         | Gooseberries (green, red and yellow) | 0.05*                       | 0.05*                      | 0.05                              | Further consideration needed(g)             |
| 154050         | Rose hips                | 0.05*                     | 0.05*                      | 0.05                              | Further consideration needed(g)             |
| 154080         | Elderberries             | 0.05*                     | 0.05*                      | 0.05                              | Further consideration needed(g)             |
| 161030         | Table olives             | 0.05*                     | 0.05*                      | 0.05                              | Further consideration needed(g)             |
| 161040         | Kumquats                 | 0.05*                     | 0.05*                      | 0.01                              | Further consideration needed(g)             |
| 211000         | Potatoes                 | 0.2                       | 0.1                       | 0.1                                | Further consideration needed(h)             |
| 213010         | Beetroots                | 0.4                       | 0.05*                      | 0.06                              | Further consideration needed(h)             |
| 213020         | Carrots                  | 0.4                       | 0.1                       | 0.2                                | Further consideration needed(h)             |
| 213030         | Celeriacs/turpin rooted celeries | 0.4                       | 0.15                       | 0.08                              | Further consideration needed(h)             |
| 213040         | Horseradishes            | 0.4                       | 0.05*                      | 0.4                                | Further consideration needed(i)             |
| Code number(a) | Commodity                      | Existing EU MRL 1 (mg/kg) | Existing EU MRL 2 (mg/kg) | MRL (mg/kg) | Outcome of the review               | Comment                  |
|----------------|--------------------------------|---------------------------|---------------------------|-------------|------------------------------------|--------------------------|
| 213050         | Jerusalem artichokes           | 0.4                       | 0.05*                     | 0.4         | Further consideration needed(g)     |                          |
| 213060         | Parsnips                       | 0.4                       | 0.15                      | 0.2         | Further consideration needed(h)     |                          |
| 213070         | Parsley roots/Hamburg roots parsley | 0.4                      | 0.15                      | 0.4         | Further consideration needed(h)     |                          |
| 213080         | Radishes                       | 0.4                       | 0.15                      | 0.2         | Further consideration needed(h)     |                          |
| 213090         | Salsifies                      | 0.4                       | 0.05*                     | 0.2         | Further consideration needed(h)     |                          |
| 213100         | Swedes/rutabagas               | 0.4                       | 0.05*                     | 0.06        | Further consideration needed(h)     |                          |
| 213110         | Turnips                        | 0.4                       | 0.05*                     | 0.08        | Further consideration needed(h)     |                          |
| 220010         | Garlic                         | 0.4                       | 0.05*                     | 0.04        | Further consideration needed(h)     |                          |
| 220020         | Onions                         | 0.4                       | 0.1                       | 0.04        | Further consideration needed(h)     |                          |
| 220030         | Shallots                       | 0.4                       | 0.05*                     | 0.04        | Further consideration needed(h)     |                          |
| 231010         | Tomatoes                       | 0.4                       | 0.05*                     | 0.05        | Further consideration needed(h)     |                          |
| 231020         | Sweet peppers/bell peppers     | 0.4                       | 0.05*                     | 0.4         | Further consideration needed(h)     |                          |
| 231030         | Aubergines/eggplants           | 0.4                       | 0.05*                     | 0.05        | Further consideration needed(h)     |                          |
| 231040         | Okra/lady’s fingers            | 0.4                       | 0.05*                     | 0.05        | Further consideration needed(h)     |                          |
| 232010         | Cucumbers                      | 0.4                       | 0.05*                     | 0.4         | Further consideration needed(h)     |                          |
| 232020         | Gherkins                       | 0.4                       | 0.05*                     | 0.4         | Further consideration needed(h)     |                          |
| 232030         | Courgettes                     | 0.4                       | 0.05*                     | 0.4         | Further consideration needed(h)     |                          |
| 233010         | Melons                         | 0.4                       | 0.05*                     | 0.4         | Further consideration needed(h)     |                          |
| 233020         | Pumpkins                       | 0.4                       | 0.05*                     | 0.4         | Further consideration needed(h)     |                          |
| 233030         | Watermelons                    | 0.4                       | 0.05*                     | 0.4         | Further consideration needed(h)     |                          |
| 241010         | Broccoli                       | 0.4                       | 0.2                       | 0.4         | Further consideration needed(h)     |                          |
| 241020         | Cauliflowers                   | 0.4                       | 0.3                       | 0.4         | Further consideration needed(h)     |                          |
| 242010         | Brussels sprouts               | 0.4                       | 0.05*                     | 0.4         | Further consideration needed(h)     |                          |
| 242020         | Head cabbages                  | 0.4                       | 0.2                       | 0.6         | Further consideration needed(h)     |                          |
| 243010         | Chinese cabbages/pe-tsai       | 0.4                       | 0.05*                     | 0.4         | Further consideration needed(h)     |                          |
| 243020         | Kales                          | 0.4                       | 0.05*                     | 0.4         | Further consideration needed(h)     |                          |
| 244000         | Kohlrabies                     | 0.4                       | 0.05*                     | 0.4         | Further consideration needed(h)     |                          |
| 251010         | Lamb’s lettuces/corn salads    | 0.4                       | 0.1                       | 0.4         | Further consideration needed(h)     |                          |
| 251020         | Lettuces                       | 0.4                       | 0.1                       | 0.2         | Further consideration needed(h)     |                          |
| 251030         | Escaroles/broad-leaved endives | 0.4                       | 0.1                       | 0.2         | Further consideration needed(h)     |                          |
| 251040         | Cresses and other sprouts and shoots | 0.4                   | 0.1                       | 0.4         | Further consideration needed(h)     |                          |
| 251050         | Land cresses                   | 0.4                       | 0.1                       | 0.4         | Further consideration needed(h)     |                          |
| 251060         | Roman rocket/rucola            | 0.4                       | 0.1                       | 0.4         | Further consideration needed(h)     |                          |
| 251070         | Red mustards                   | 0.4                       | 0.1                       | 0.4         | Further consideration needed(h)     |                          |
| 251080         | Baby leaf crops (including brassica species) | 0.4                   | 0.1                       | 0.1         | Further consideration needed(h)     |                          |
| 252010         | Spinaches                      | 0.4                       | 0.2                       | 0.2         | Further consideration needed(h)     |                          |
| 252030         | Chards/beet leaves             | 0.4                       | 0.05*                     | 0.04        | Further consideration needed(h)     |                          |
| 255000         | Witloofs/Belgian endives       | 0.4                       | 0.05*                     | 0.4         | Further consideration needed(h)     |                          |
| 256010         | Chervil                        | 0.4                       | 0.2                       | 0.2         | Further consideration needed(h)     |                          |
| 256020         | Chives                         | 0.4                       | 0.2                       | 0.2         | Further consideration needed(h)     |                          |
| Code number<sup>(a)</sup> | Commodity                       | Existing EU MRL 1 (mg/kg) | Existing EU MRL 2 (mg/kg) | MRL (mg/kg) | Comment                                      |
|-------------------------|---------------------------------|---------------------------|---------------------------|-------------|----------------------------------------------|
| 256030                  | Celery leaves                   | 0.4                       | 0.2                       | 0.2         | Further consideration needed<sup>(f)</sup>   |
| 256040                  | Parsley                         | 0.4                       | 0.2                       | 0.2         | Further consideration needed<sup>(f)</sup>   |
| 256050                  | Sage                            | 0.4                       | 0.2                       | 0.2         | Further consideration needed<sup>(f)</sup>   |
| 256060                  | Rosemary                        | 0.4                       | 0.2                       | 0.2         | Further consideration needed<sup>(f)</sup>   |
| 256070                  | Thyme                           | 0.4                       | 0.2                       | 0.2         | Further consideration needed<sup>(f)</sup>   |
| 256080                  | Basil and edible flowers        | 0.4                       | 0.2                       | 0.2         | Further consideration needed<sup>(f)</sup>   |
| 256090                  | Laurel/bay leaves               | 0.4                       | 0.2                       | 0.2         | Further consideration needed<sup>(f)</sup>   |
| 256100                  | Tarragon                        | 0.4                       | 0.2                       | 0.2         | Further consideration needed<sup>(f)</sup>   |
| 260010                  | Beans (with pods)               | 0.4                       | 0.05*                     | 0.4         | Further consideration needed<sup>(c)</sup>   |
| 260020                  | Beans (without pods)            | 0.4                       | 0.05*                     | 0.4         | Further consideration needed<sup>(c)</sup>   |
| 260030                  | Peas (with pods)                | 0.4                       | 0.2                       | 0.4         | Further consideration needed<sup>(c)</sup>   |
| 260040                  | Peas (without pods)             | 0.4                       | 0.05*                     | 0.4         | Further consideration needed<sup>(c)</sup>   |
| 260050                  | Lentils (fresh)                 | 0.4                       | 0.05*                     | 0.2         | Further consideration needed<sup>(f)</sup>   |
| 270010                  | Asparagus                       | 0.4                       | 0.1                       | 0.4         | Further consideration needed<sup>(g)</sup>   |
| 270030                  | Celeries                        | 0.4                       | 0.1                       | 0.4         | Further consideration needed<sup>(g)</sup>   |
| 270040                  | Florence fennels                | 0.4                       | 0.05*                     | 0.01*       | Further consideration needed<sup>(g)</sup>   |
| 270050                  | Globe artichokes                | 0.4                       | 0.1                       | 0.4         | Further consideration needed<sup>(g)</sup>   |
| 270060                  | Leeks                           | 0.4                       | 0.05*                     | 0.4         | Further consideration needed<sup>(g)</sup>   |
| 300010                  | Beans (dry)                     | 0.4                       | 0.05*                     | 0.2         | Further consideration needed<sup>(h)</sup>   |
| 300020                  | Lentils (dry)                   | 0.4                       | 0.05*                     | 0.2         | Further consideration needed<sup>(h)</sup>   |
| 300030                  | Peas (dry)                      | 0.4                       | 0.05*                     | 0.2         | Further consideration needed<sup>(h)</sup>   |
| 300040                  | Lupins/lupini beans (dry)       | 0.4                       | 0.05*                     | 0.4         | Further consideration needed<sup>(h)</sup>   |
| 401010                  | Linseeds                        | 0.2                       | 0.05*                     | 0.3         | Further consideration needed<sup>(m)</sup>   |
| 401030                  | Poppy seeds                     | 0.1*                      | 0.08                      | 0.7         | Further consideration needed<sup>(n)</sup>   |
| 401050                  | Sunflower seeds                 | 0.7                       | 0.2                       | 0.8         | Further consideration needed<sup>(h)</sup>   |
| 401060                  | Rapeseeds/canola seeds          | 0.5                       | 0.1                       | 2           | Further consideration needed<sup>(h)</sup>   |
| 401070                  | Soya beans                      | 0.1*                      | 0.08                      | 0.2         | Further consideration needed<sup>(h)</sup>   |
| 401080                  | Mustard seeds                   | 0.05*                     | 0.08                      | 0.7         | Further consideration needed<sup>(h)</sup>   |
| 401090                  | Cotton seeds                    | 0.15                      | 0.1                       | 0.1         | Further consideration needed<sup>(h)</sup>   |
| 402010                  | Olives for oil production       | 0.05*                     | 0.05*                     | 0.05        | Further consideration needed<sup>(n)</sup>   |
| 500060                  | Rice grains                      | 0.05*                     | 0.05*                     | 0.05        | Further consideration needed<sup>(c)</sup>   |
| 631000                  | Herbal infusions from flowers   | 1                         | 0.05*                     | 0.8         | Further consideration needed<sup>(f)</sup>   |
| 632000                  | Herbal infusions from leaves and herbs | 1 | 0.05* | 0.8 | Further consideration needed<sup>(f)</sup> |
| 633000                  | Herbal infusions from roots     | 1                         | 0.05*                     | 1           | Further consideration needed<sup>(g)</sup>   |
| 810000                  | Seed spices                     | –                         | 0.05*                     | 0.05        | Further consideration needed<sup>(f)</sup>   |
| 820000                  | Fruit spices                    | 0.05*                     | 0.05*                     | 0.05        | Further consideration needed<sup>(f)</sup>   |
| 900010                  | Sugar beet roots                | 0.1                       | 0.1                       | 0.06        | Further consideration needed<sup>(h)</sup>   |
| 900030                  | Chicory roots                   | 0.05*                     | 0.05*                     | 0.06        | Further consideration needed<sup>(f)</sup>   |
| –                      | Other commodities of plant origin |                         |                           |             | Further consideration needed<sup>(g)</sup>   |
| 1011010                 | Swine muscle                    | 0.1                       | 0.05*                     | 0.02*       | Further consideration needed<sup>(v)</sup>   |
| 1011020                 | Swine fat tissue                | 0.05*                     | 0.05*                     | 0.02*       | Further consideration needed<sup>(v)</sup>   |

Review of the existing MRLs for quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop
| Code number(a) | Commodity   | Existing EU MRL 1 (mg/kg) | Existing EU MRL 2 (mg/kg) | MRL (mg/kg) | Outcome of the review | Comment |
|---------------|-------------|---------------------------|---------------------------|-------------|-----------------------|---------|
| 1011030       | Swine liver | 0.05*                     | 0.05*                     | 0.02*       | Further consideration needed(v) |         |
| 1011040       | Swine kidney | 0.05*                    | 0.05*                    | 0.1         | Further consideration needed(v) |         |
| 1012010       | Bovine muscle | 0.1                      | 0.05*                    | 0.02*       | Further consideration needed(v) |         |
| 1012020       | Bovine fat tissue | 0.05*                   | 0.05*                    | 0.02*       | Further consideration needed(v) |         |
| 1012030       | Bovine liver | 0.05*                     | 0.05*                     | 0.03        | Further consideration needed(v) |         |
| 1012040       | Bovine kidney | 0.05*                    | 0.05*                    | 0.3         | Further consideration needed(v) |         |
| 1013010       | Sheep muscle | 0.05*                     | 0.05*                     | 0.02*       | Further consideration needed(v) |         |
| 1013020       | Sheep fat tissue | 0.05*                   | 0.05*                    | 0.02*       | Further consideration needed(v) |         |
| 1013030       | Sheep liver | 0.05*                     | 0.05*                     | 0.03        | Further consideration needed(v) |         |
| 1013040       | Sheep kidney | 0.05*                    | 0.05*                    | 0.3         | Further consideration needed(v) |         |
| 1014010       | Goat muscle | 0.05*                     | 0.05*                     | 0.02*       | Further consideration needed(v) |         |
| 1014020       | Goat fat tissue | 0.05*                   | 0.05*                    | 0.02*       | Further consideration needed(v) |         |
| 1014030       | Goat liver | 0.05*                      | 0.05*                    | 0.03        | Further consideration needed(v) |         |
| 1014040       | Goat kidney | 0.05*                      | 0.05*                    | 0.3         | Further consideration needed(v) |         |
| 1015010       | Equine muscle | 0.05*                    | 0.05*                    | 0.02*       | Further consideration needed(v) |         |
| 1015020       | Equine fat tissue | 0.05*                   | 0.05*                    | 0.02*       | Further consideration needed(v) |         |
| 1015030       | Equine liver | 0.05*                     | 0.05*                     | 0.03        | Further consideration needed(v) |         |
| 1015040       | Equine kidney | 0.05*                    | 0.05*                    | 0.3         | Further consideration needed(v) |         |
| 1016010       | Poultry muscle | 0.05*                   | 0.05*                    | 0.02*       | Further consideration needed(v) |         |
| 1016020       | Poultry fat tissue | 0.05*                  | 0.05*                    | 0.04        | Further consideration needed(v) |         |
| 1020010       | Cattle milk  | 0.05*                     | 0.05*                     | 0.015       | Further consideration needed(v) |         |
| 1020020       | Sheep milk  | 0.05*                     | 0.05*                     | 0.015       | Further consideration needed(v) |         |
| 1020030       | Goat milk  | 0.05*                     | 0.05*                     | 0.015       | Further consideration needed(v) |         |
| 1020040       | Horse milk  | 0.05*                     | 0.05*                     | 0.015       | Further consideration needed(v) |         |
| 1030000       | Birds eggs | 0.05*                     | 0.05*                     | 0.01*       | Further consideration needed(v) |         |

MRL: maximum residue level.

*: Indicates that the MRL is set/proposed at the limit of quantification.

(a): Commodity code number, as listed in Annex I of Regulation (EC) No 396/2005.

(b): GAP evaluated at EU level for quizalofop-P-ethyl is not supported by data but no risk to consumers was identified for the existing EU MRL. The GAP evaluated at EU level for propaquizafop is not fully supported by data but may serve as a basis for deriving a tentative fall-back MRL; there are no relevant authorisations or import tolerances reported at EU level for quizalofop-P-tefuryl.

(c): Tentative MRL is derived from a GAP evaluated at EU level for propaquizafop, which is not fully supported by data but for which no risk to consumers was identified. There are no relevant authorisations or import tolerances reported at EU level for quizalofop-P-ethyl and quizalofop-P-tefuryl.

(d): Tentative MRL is derived from a GAP evaluated at EU level for quizalofop-ethyl, which is not fully supported by data but for which no risk to consumers was identified. The GAP evaluated at EU level for propaquizafop is also not fully supported by data and is covered by the proposed MRL. There are no relevant authorisations or import tolerances reported at EU level for quizalofop-P-ethyl and quizalofop-P-tefuryl.

(e): GAP evaluated at EU level for quizalofop-P-tefuryl is not supported by data but no risk to consumers was identified for the existing EU MRL. The GAPs evaluated at EU level for quizalofop-P-ethyl and propaquizafop are not fully supported by data but may serve as a basis for deriving a tentative fall-back MRL.

(f): Tentative MRL is derived from a GAP evaluated at EU level for quizalofop-ethyl, which is not fully supported by data but for which no risk to consumers was identified. There are no relevant authorisations or import tolerances reported at EU level for quizalofop-P-tefuryl and propaquizafop.
(g): GAP evaluated at EU level for quizalofop-P-ethyl is not supported by data but no risk to consumers was identified for the existing EU MRL. There are no relevant authorisations or import tolerances reported at EU level for quizalofop-P-tefuryl and propaquizafop.

(h): Tentative MRL is derived from a GAP evaluated at EU level for quizalofop-tefuryl, which is not fully supported by data but for which no risk to consumers was identified. The GAPs evaluated at EU level for quizalofop-P-ethyl and propaquizafop are also not fully supported by data and are covered by the proposed MRL.

(i): Tentative MRL is derived from a GAP evaluated at EU level for propaquizafop, which is not fully supported by data but for which no risk to consumers was identified. The GAPs evaluated at EU level for quizalofop-P-ethyl and quizalofop-P-tefuryl are also not fully supported by data and are covered by the proposed MRL.

(j): GAP evaluated at EU level for quizalofop-P-ethyl is not supported by data but for which no risk to consumers was identified. The GAP evaluated at EU level for quizalofop-P-ethyl and propaquizafop are also not fully supported by data but may serve as a basis for deriving a tentative fall-back MRL. There are no relevant authorisations or import tolerances reported at EU level for propaquizafop.

(k): GAP evaluated at EU level for quizalofop-P-ethyl is not supported by data but no risk to consumers was identified for the existing EU MRL. The GAPs evaluated at EU level for quizalofop-P-tefuryl and propaquizafop are also not fully supported by data but may serve as a basis for deriving a tentative fall-back MRL.

(l): Tentative MRL is derived from a GAP evaluated at EU level for quizalofop-tefuryl, which is not fully supported by data but for which no risk to consumers was identified. The GAP evaluated at EU level for quizalofop-P-ethyl is also not fully supported by data and is covered by the proposed MRL. There are no relevant authorisations or import tolerances reported at EU level for propaquizafop.

(m): Tentative MRL is derived from a GAP evaluated at EU level for quizalofop-ethyl, which is not fully supported by data but for which no risk to consumers was identified. The GAP evaluated at EU level for quizalofop-P-tefuryl and propaquizafop are also not fully supported by data and are covered by the proposed MRL.

(n): GAP evaluated at EU level for quizalofop-P-ethyl and quizalofop-P-tefuryl are not supported by data but no risk to consumers was identified for the existing EU MRL. There are no relevant authorisations or import tolerances reported at EU level for propaquizafop.

(o): Tentative MRL is derived from a GAP evaluated at EU level for propaquizafop, which is not fully supported by data but for which no risk to consumers was identified. The GAP evaluated at EU level for quizalofop-P-ethyl is also not fully supported by data and is covered by the proposed MRL. There are no relevant authorisations or import tolerances reported at EU level for quizalofop-P-tefuryl.

(p): GAP evaluated at EU level for propaquizafop is not supported by data but no risk to consumers was identified for the existing EU MRL. There are no relevant authorisations or import tolerances reported at EU level for quizalofop-P-ethyl and quizalofop-P-tefuryl.

(q): GAP evaluated at EU level for quizalofop-P-ethyl and propaquizafop is not supported by data but no risk to consumers was identified for the existing EU MRL. There are no relevant authorisations or import tolerances reported at EU level for propaquizafop.

(r): Tentative MRL is derived from a GAP evaluated at EU level for quizalofop-ethyl, which is not fully supported by data but for which no risk to consumers was identified. GAP evaluated at EU level for propaquizafop is not supported by data but the existing MRL is covered by the proposed MRL. There are no relevant authorisations or import tolerances reported at EU level for quizalofop-P-tefuryl.

(s): Tentative MRL is derived from a GAP evaluated at EU level for quizalofop-tefuryl, which is not fully supported by data but for which no risk to consumers was identified. The GAP evaluated at EU level for propaquizafop is also not fully supported by data and is covered by the proposed MRL. GAP evaluated at EU level for quizalofop-P-ethyl is not supported by data but the existing MRL is covered by the proposed MRL.

(t): Tentative MRL is derived from a GAP evaluated at EU level for quizalofop-tefuryl, which is not fully supported by data but for which no risk to consumers was identified. The GAP evaluated at EU level for propaquizafop is also not fully supported by data and is covered by the proposed MRL. There are no relevant authorisations or import tolerances reported at EU level for quizalofop-P-ethyl.

(u): There are no relevant authorisations or import tolerances reported at EU level for quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop. Either a specific LOQ or the default MRL of 0.01 mg/kg may be considered.

(v): Tentative MRL is derived from the livestock dietary burden calculated for quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop, which is not fully supported by data but for which no risk to consumers was identified.

(w): Commission Regulation (EC) No 149/2008 of 29 January 2008 amending Regulation (EC) No 396/2005 of the European Parliament and of the Council by establishing Annexes II, III and IV setting maximum residue levels for products covered by Annex I thereto. OJ L 58, 1.3.2008, p. 1-398.

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**Abbreviations**

- **a.i.** active ingredient
- **a.s.** active substance
- **ACCase** acetyl-coenzyme A carboxylase
- **ADI** acceptable daily intake
- **AR** applied radioactivity
- **ARfD** acute reference dose
- **BBCH** growth stages of mono- and dicotyledonous plants
- **bw** body weight
- **CF** conversion factor for enforcement residue definition to risk assessment residue definition
- **cGAP** critical GAP
- **CXL** codex maximum residue limit
- **DALA** days after last application
- **DAR** draft assessment report
- **DAT** days after treatment
- **DB** dietary burden
- **DM** dry matter
- **DT50** period required for 50% dissipation (define method of estimation)
- **DT90** period required for 90% dissipation (define method of estimation)
- **EC** emulsifiable concentrate
- **EDI** estimated daily intake
- **EMS** evaluating Member State
- **EPP** phenoxy propionate
- **eq** residue expressed as a.s. equivalent
- **EURLs** EU Reference Laboratories (former CRLs)
- **FAO** Food and Agriculture Organization of the United Nations
- **FLD** fluorescence detector
- **GAP** Good Agricultural Practice
Review of the existing MRLs for quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop

GC-MSD gas chromatography with mass selective detector
GS growth stage
HPLC high-performance liquid chromatography
HPLC-MS/MS high-performance liquid chromatography with tandem mass spectrometry
HPLC-UVD high-performance liquid chromatography with ultra-violet detector
HR highest residue
IEDI international estimated daily intake
IESTI international estimated short-term intake
ILV independent laboratory validation
ISO International Organisation for Standardization
IUPAC International Union of Pure and Applied Chemistry
LC liquid chromatography
LC-FD liquid chromatography with fluorescence detection
LC-MS/MS liquid chromatography with tandem mass spectrometry
LC-QqQ-MS/MS liquid chromatography with triple quadrupole mass spectrometer
LOQ limit of quantification
MCQ 2-methoxy-6-chloroquinoxaline
MRL maximum residue level
MS Member States
MS/MS tandem mass spectrometry detector
NEU northern European Union
OECD Organisation for Economic Co-operation and Development
PBI plant-back interval
PF processing factor
PHI preharvest interval
Pow partition coefficient between n-octanol and water
PRIMO (EFSA) Pesticide Residues Intake Model
PROFILE (EFSA) Pesticide Residues Overview File
QuEChERS Quick, Easy, Cheap, Effective, Rugged, and Safe (analytical method)
Rber statistical calculation of the MRL by using a non-parametric method
Rmax statistical calculation of the MRL by using a parametric method
RA risk assessment
RAC raw agricultural commodity
RD residue definition
RMS rapporteur Member State
SANCO Directorate-General for Health and Consumers
SC suspension concentrate
SEU southern European Union
SSLLE solid supported liquid/liquid extraction
STMR supervised trials median residue
TRR total radioactive residue
UV ultraviolet (detector)
WHO World Health Organization
WP wettable powder
### Appendix A – Summary of authorised uses considered for the review of MRLs

#### A.1. Authorised uses for quizalofop-P-ethyl

| Common name | Scientific name | Region | Outdoor/Indoor | Member state or country | Pest controlled | Formulation | Application | PHI or waiting period (days) | Comments (max. 250 characters) |
|-------------|-----------------|--------|----------------|------------------------|----------------|-------------|-------------|-----------------------------|-------------------------------|
| Apples      | Malus domestica  | NEU    | Outdoor        | HU                     | Annual and perennial grasses | SC 50.0 g/L Soil treatment - general | Growth stage | Number | Interval (days) | Rate | Unit | |
|             |                 |        |                |                        |                |             |             | Min.   | Max.   | Min. | Max. | |
| Pears       | Pyrus communis  | NEU    | Outdoor        | FI                     | Annual and perennial grasses | SC 50.0 g/L Soil treatment - general |             | 1      | 0.15  | 0.20 | kg a.i./ha | 45 |
| Quinces     | Cydonia oblonga | NEU    | Outdoor        | FR                     | Annual grasses  | EC 120.0 g/L Soil treatment - general |             | 1      | 0.15  | kg a.i./ha | 63 |
| Medlars     | Mespilus germanica | NEU | Outdoor | FR | Annual grasses | EC 120.0 g/L Soil treatment - general | 0 | 81     | 1      | 0.10  | 0.15 | kg a.i./ha | 63 |
| Wine grapes | Vitis vinifera  | NEU    | Outdoor        | FR                     | Annual and perennial grasses | EC 120.0 g/L Soil treatment - general | 0 | 85     | 1      | 0.10  | 0.15 | kg a.i./ha | 35 |
| Strawberries | Fragaria × | NEU    | Outdoor        | FI                     | Annual and perennial grasses | SC 50.0 g/L Foliar treatment - spraying |             | 1      | 0.15  | kg a.i./ha | n.a. |
| Raspberries | Rubus idaeus    | NEU    | Outdoor        | FR                     | Annual and perennial grasses | EC 120.0 g/L Foliar treatment - spraying |             | 1      | 0.10  | 0.15 | kg a.i./ha | 30 |
| Blueberries | Vaccinium angustifolium; Vaccinium corymbosum; Vaccinium formosum; Vaccinium virgatum | NEU | Outdoor | FR | Annual and perennial grasses | EC 120.0 g/L Foliar treatment - spraying |             | 1      | 0.10  | 0.15 | kg a.i./ha | 30 |
| Currants    | Ribes nigrum; Ribes rubrum | NEU | Outdoor | FR | Annual and perennial grasses | EC 120.0 g/L Foliar treatment - spraying |             | 1      | 0.10  | 0.15 | kg a.i./ha | 30 |
## Critical outdoor GAPs for northern Europe – quizalofop-P-ethyl

| Crop | Scientific name, Variety | Region | Outdoor/Indoor | Member state or country | Pest controlled | Formulation | Application | PHI or waiting period (days) | Comments |
|------|--------------------------|--------|----------------|-------------------------|----------------|-------------|-------------|-------------------------------|----------|
| Gooseberries | Ribes uva-crispa | NEU | Outdoor | FR | Annual and perennial grasses | EC 120.0 g/L | Foliar treatment – spraying | 1 | 0.10 | kg a.i./ha | 30 |
| Rose hips | Rosa canina; Rosa majalis; Rosa rugosa | NEU | Outdoor | FR | Annual and perennial grasses | EC 120.0 g/L | Foliar treatment – spraying | 1 | 0.10 | kg a.i./ha | 30 |
| Elderberries | Sambucus nigra | NEU | Outdoor | FR | Annual and perennial grasses | EC 120.0 g/L | Foliar treatment – spraying | 1 | 0.10 | kg a.i./ha | 30 |
| Potatoes | Solanum tuberosum subsp. tuberosum | NEU | Outdoor | FI, HU, DE, CZ | Annual and perennial grasses | EC 100.0 g/L | Foliar treatment – spraying | 11 74 | 1 | 0.10 | kg a.i./ha | 45 More cGAP in FR (150/45) not supported by data |
| Beetroots | Beta vulgaris var. vulgaris | NEU | Outdoor | FI | Annual grasses | EC 120.0 g/L | Foliar treatment – spraying | 11 39 | 1 | 0.15 | kg a.i./ha | 60 Less cGAP in the UK (125/105) is covered. More cGAP in FR (PHI: 21 days) not supported by data |
| Carrots | Daucus carota subsp. sativus | NEU | Outdoor | SK | Annual and perennial grasses | EC 100.0 g/L | Foliar treatment – spraying | 11 49 | 1 | 0.15 | kg a.i./ha | 40 More cGAP in FR (PHI: 21 days) not supported by data |
| Celeriacs | Apium graveolens var. rapaceum | NEU | Outdoor | FI | Annual and perennial grasses | SC 50.0 g/L | Foliar treatment – spraying | 11 39 | 1 | 0.15 | kg a.i./ha | 45 More cGAP in FR (PHI: 21 days) not supported by data |
| Horseradishes | Armoracia rusticana | NEU | Outdoor | FR | Annual and perennial grasses | EC 120.0 g/L | Foliar treatment – spraying | 11 49 | 1 | 0.15 | kg a.i./ha | 21 |
| Jerusalem artichokes | Helianthus tuberosus | NEU | Outdoor | FR | Annual and perennial grasses | EC 120.0 g/L | Foliar treatment – spraying | 11 49 | 1 | 0.15 | kg a.i./ha | 21 |
### Critical outdoor GAPs for northern Europe – quizalofop-P-ethyl

| Common name        | Scientific name | Region | Outdoor/Indoor | Member state or country | Pest controlled                  | Formulation | Application | PHI or waiting period (days) | Comments |
|--------------------|-----------------|--------|----------------|-------------------------|-----------------------------------|-------------|-------------|-------------------------------|----------|
| Parsnips           | Pastinaca sativa| NEU    | Outdoor        | FI                      | Annual and perennial grasses      | SC          | Foliar treatment – spraying   | 11-39 1 | 0.15 kg a.i./ha               | 45       |
| Parsley roots      | Petroselinum crispum convar. radicosum | NEU    | Outdoor        | FR                      | Annual and perennial grasses      | EC          | Foliar treatment – spraying   | 11-49 1 | 0.15 kg a.i./ha               | 21       |
| Radishes           | Raphanus sativus Radish group | NEU    | Outdoor        | FR                      | Annual grasses                    | EC          | Foliar treatment – spraying   | 1       | 0.15 kg a.i./ha               | 35       |
| Salsifles          | Tragopogon porrifolius | NEU    | Outdoor        | FR                      | Annual and perennial grasses      | EC          | Foliar treatment – spraying   | 1       | 0.15 kg a.i./ha               | 35       |
| Swedes             | Brassica napus subsp. napobrassica | NEU    | Outdoor        | FI                      | Annual and perennial grasses      | EC          | Foliar treatment – spraying   | 11-39 1 | 0.15 kg a.i./ha               | 65       |
| Turnips            | Brassica rapa subsp. rapa | NEU    | Outdoor        | FR                      | Annual and perennial grasses      | EC          | Foliar treatment – spraying   | 1       | 0.15 kg a.i./ha               | 35       |
| Garlic             | Allium sativum   | NEU    | Outdoor        | BE, FR                  | Annual and perennial grasses      | Foliar      | treatment – spraying          | 1       | 0.15 kg a.i./ha               | 28       |
| Onions             | Allium cepa Common onion group | NEU    | Outdoor        | BE                      | Annual and perennial grasses      | Foliar      | treatment – spraying          | 1       | 0.15 kg a.i./ha               | 28       |
| Shallots           | Allium cepa Aggregatum group, syn. Allium ascalonicum | NEU    | Outdoor        | BE, FR                  | Annual and perennial grasses      | Foliar      | treatment – spraying          | 1       | 0.15 kg a.i./ha               | 28       |
| Tomatoes           | Lycopersicon esculentum | NEU    | Outdoor        | SK, HJ                  | Annual and perennial grasses      | EC          | Foliar treatment – spraying   | 11-81 1 | 0.15 kg a.i./ha               | 21       |
| Head cabbages      | Brassica oleracea var. capitata | NEU    | Outdoor        | FR                      | Annual and perennial grasses      | SC          | Foliar treatment – spraying   | 1       | 0.06 kg a.i./ha               | 56       |
| Common name | Scientific name | Region | Outdoor/Indoor | Member state or country | Pest controlled | Formulation Type | Conc. Unit | Method | Growth stage From BBCH Until BBCH | Number | Interval (days) Min. Max. | Max. Min. | Rate | PHI or waiting period (days) | Comments (max. 250 characters) |
|-------------|-----------------|--------|----------------|-------------------------|-----------------|------------------|------------|--------|------------------------|---------|----------------|---------|------|------------------------|----------------------------------|
| Lamb’s lettuce | Valerianella locusta | NEU | Outdoor | FR | Annual grasses | EC | 120.0 g/L | Foliar treatment – spraying | 1 | 0.15 kg a.i./ha | 28 |
| Lettuces | Lactuca sativa | NEU | Outdoor | FR | Annual grasses | EC | 120.0 g/L | Foliar treatment – spraying | 1 | 0.15 kg a.i./ha | 28 |
| Escaroles | Cichorium endivia var. latifolia | NEU | Outdoor | FR | Annual and perennial grasses | EC | 120.0 g/L | Foliar treatment – spraying | 19 | 1 | 0.15 kg a.i./ha | 28 |
| Spinaches | Spinacia oleracea | NEU | Outdoor | DE | Annual monocotyledonous weeds | EC | 46.3 g/L | Foliar treatment – spraying | 10 | 45 | 1 | 0.06 kg a.i./ha | 28 | More cGAP in FR (1 x 0.15 kg a.s./ha, PHI 28 days) is not supported by data |
| Chards | Beta vulgaris var. flavescens | NEU | Outdoor | DE | Annual monocotyledonous weeds | EC | 46.3 g/L | Foliar treatment – spraying | 1 | 0.06 kg a.i./ha | 28 |
| Witloofs | Cichorium intybus Foliosum group | NEU | Outdoor | BE | Annual and perennial weeds | EC | Foliar treatment – spraying | 1 | 0.15 kg a.i./ha | 28 |
| Chervil | Anthriscus cerefolium | NEU | Outdoor | DE | Quackgrass (Agropyron repens L.) | EC | 46.3 g/L | Foliar treatment – spraying | 11 | 1 | 0.09 kg a.i./ha | 90 | Application post-emergence (in case of seeding) or after beginning of root growth (in case of a planted crop) |
| Chives | Allium schoenoprasum | NEU | Outdoor | DE | Quackgrass (Agropyron repens L.) | EC | 46.3 g/L | Foliar treatment – spraying | 11 | 1 | 0.09 kg a.i./ha | 90 | Application post-emergence (in case of seeding) or after beginning of root growth (in case of a planted crop) |
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| Crop | Region | Outdoor/Indoor | Member state or country | Pest controlled | Formulation | Application | PHI or waiting period (days) | Comments |
|------|--------|----------------|-------------------------|-----------------|-------------|-------------|-----------------------------|----------|
| Celery leaves | Apium graveolens var. secalinum | NEU | Outdoor | DE | Quackgrass (Agropyron repens L.) | EC 46.3 g/L | Foliar treatment – spraying | 11 1 | 0.09 kg a.i./ha | 90 Application post-emergence (in case of seeding) or after beginning of root growth (in case of a planted crop) |
| Parsley | Petroselinum crispum | NEU | Outdoor | DE | Quackgrass (Agropyron repens L.) | EC 46.3 g/L | Foliar treatment – spraying | 11 1 | 0.09 kg a.i./ha | 90 Application post-emergence (in case of seeding) or after beginning of root growth (in case of a planted crop). More cGAP in BE and FR (1 = 0.15 kg a.s./ha, PHI 28 days) is not supported by data |
| Sage | Salvia officinalis | NEU | Outdoor | DE | Quackgrass (Agropyron repens L.) | EC 46.3 g/L | Foliar treatment – spraying | 11 1 | 0.09 kg a.i./ha | 90 Application post-emergence (in case of seeding) or after beginning of root growth (in case of a planted crop) |
| Rosemary | Rosmarinus officinalis | NEU | Outdoor | DE | Quackgrass (Agropyron repens L.) | EC 46.3 g/L | Foliar treatment – spraying | 11 1 | 0.09 kg a.i./ha | 90 Application post-emergence (in case of seeding) or after beginning of root growth (in case of a planted crop) |
## Critical outdoor GAPs for northern Europe – quizalofop-P-ethyl

| Crop | Common name | Scientific name | Region | Outdoor/Indoor | Member state or country | Pest controlled | Formulation | Application | PHI or waiting period (days) | Comments (max. 250 characters) |
|------|-------------|----------------|--------|----------------|------------------------|-----------------|-------------|-------------|-----------------------------|-------------------------------|
| Thyme | Thymus vulgaris | NEU Outdoor DE | Quackgrass (Agropyron repens L.) | EC 46.3 g/L Foliar treatment – spraying | 11 1 0.09 kg a.i./ha 90 | Application post-emergence (in case of seeding) or after beginning of root growth (in case of a planted crop) |
| Basil | Ocimum basilicum | NEU Outdoor DE | Quackgrass (Agropyron repens L.) | EC 46.3 g/L Foliar treatment – spraying | 11 1 0.09 kg a.i./ha 90 | Application post-emergence (in case of seeding) or after beginning of root growth (in case of a planted crop) |
| Laurel | Laurus nobilis | NEU Outdoor DE | Quackgrass (Agropyron repens L.) | EC 46.3 g/L Foliar treatment – spraying | 11 1 0.09 kg a.i./ha 90 | Application post-emergence (in case of seeding) or after beginning of root growth (in case of a planted crop) |
| Tarragon | Artemisia dracunculus | NEU Outdoor DE | Quackgrass (Agropyron repens L.) | EC 46.3 g/L Foliar treatment – spraying | 11 1 0.09 kg a.i./ha 90 | Application post-emergence (in case of seeding) or after beginning of root growth (in case of a planted crop) |
| Beans (with pods) | Phaseolus vulgaris | NEU Outdoor SK | Annual and perennial grasses | EC 100.0 g/L Foliar treatment – spraying | 11 75 1 | A more cGAP authorised in FR (PHI: 28 days) is not supported by data |
| Beans (without pods) | Phaseolus vulgaris | NEU Outdoor FR | Annual and perennial grasses | EC 100.0 g/L Foliar treatment – spraying | 11 89 1 | 0.15 kg a.i./ha 35 |
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| Common name | Scientific name | Region | Outdoor/Indoor | Member state or country | Pest controlled | Formulation | Application |
|-------------|----------------|--------|----------------|-------------------------|-----------------|-------------|-------------|
| Peas (with pods) | Pisum sativum | NEU | Outdoor | FR | Annual and perennial grasses | EC 120.0 g/L | Foliar treatment – spraying | PHI or waiting period (days) |
| Peas (without pods) | Pisum sativum | NEU | Outdoor | FI, FR | Annual and perennial grasses | EC 100.0 g/L | Foliar treatment – spraying | 11 89 1 0.15 kg a.i./ha |
| Asparagus | Asparagus officinalis | NEU | Outdoor | FR | Annual grasses | EC 120.0 g/L | Foliar treatment – spraying | 1 1 0.15 kg a.i./ha |
| Celeries | Apium graveolens var. dulce | NEU | Outdoor | FR | Annual grasses | EC 120.0 g/L | Foliar treatment – spraying | 1 1 0.15 kg a.i./ha |
| Leeks | Allium ampeloprasum ampeloprasum | NEU | Outdoor | NL | Annual and perennial grasses | EC 50.0 g/L | Foliar treatment – spraying | 1 0.05 0.15 kg a.i./ha |
| Beans (dry) | Phaseolus vulgaris | NEU | Outdoor | SK, HU | Annual and perennial grasses | EC 100.0 g/L | Foliar treatment – spraying | 11 79 1 0.15 kg a.i./ha |
| Lentils (dry) | Lens culinaris, syn: Lens esculenta | NEU | Outdoor | FR, CZ | Annual and perennial grasses | EC 120.0 g/L | Foliar treatment – spraying | 11 79 1 0.15 kg a.i./ha |
| Peas (dry) | Pisum sativum | NEU | Outdoor | SK, HU, CZ | Annual and perennial grasses | EC 100.0 g/L | Foliar treatment – spraying | 11 79 1 0.15 kg a.i./ha |
| Linseeds | Linum usitatissimum | NEU | Outdoor | SK, CZ, FR, HU | Annual and perennial grasses | EC 50.0 g/L | Foliar treatment – spraying | 11 76 1 0.05 0.15 kg a.i./ha |
| Poppy seeds | Papaver somniferum subsp. somniferum | NEU | Outdoor | SK | Annual and perennial grasses | EC 50.0 g/L | Foliar treatment – spraying | 11 71 1 0.05 0.15 kg a.i./ha |
| Sunflower seeds | Helianthus annuus | NEU | Outdoor | SK, CZ, FR, HU | Annual and perennial grasses | EC 100.0 g/L | Foliar treatment – spraying | 11 71 1 0.15 kg a.i./ha |
## Critical outdoor GAPs for northern Europe – quizalofop-P-ethyl

| Crop | Scientific name | Region | Outdoor/Indoor | Member state or country | Pest controlled | Formulation | Application | PHI or waiting period (days) | Comments |
|------|----------------|--------|----------------|-------------------------|----------------|-------------|-------------|-----------------------------|----------|
| Rapeseeds | *Brassica napus* subsp. *napus* | NEU Outdoor | SK, FR, HU | Annual and perennial grasses | EC 100.0 g/L | Foliar treatment – spraying | 11 | 65 | 1 | 0.15 kg a.i./ha | 90 |
| Soya beans | *Glycine max* | NEU Outdoor | SK, HU | Annual and perennial grasses | EC 100.0 g/L | Foliar treatment – spraying | 11 | 65 | 1 | 0.15 kg a.i./ha | 90 |
| Herbal infusions from flowers | Not specified | NEU Outdoor | DE | Quackgrass (*Agropyron repens* L.) | EC 46.3 g/L | Foliar treatment – spraying | 11 | 1 | | 0.09 kg a.i./ha | 40 |
| Herbal infusions from leaves and herbs | Not specified | NEU Outdoor | DE | Quackgrass (*Agropyron repens* L.) | EC 46.3 g/L | Foliar treatment – spraying | 11 | 1 | | 0.09 kg a.i./ha | 40 |
| Herbal infusions from roots | Not specified | NEU Outdoor | DE | Quackgrass (*Agropyron repens* L.) | EC 46.3 g/L | Foliar treatment – spraying | 14 | 1 | | 0.09 kg a.i./ha | n.a. |
| Seed spices | Not specified | NEU Outdoor | DE | Quackgrass (*Agropyron repens* L.) | EC 46.3 g/L | Foliar treatment – spraying | 10 | 33 | 1 | 0.09 kg a.i./ha | n.a. |
| Fruit spices | Not specified | NEU Outdoor | DE | Quackgrass (*Agropyron repens* L.) | EC 46.3 g/L | Foliar treatment – spraying | 10 | 33 | 1 | 0.09 kg a.i./ha | n.a. |
| Sugar beets | *Beta vulgaris* subsp. *vulgaris var. altissima* | NEU Outdoor | FI | Annual and perennial grasses | EC 100.0 g/L | Foliar treatment – spraying | 13 | 39 | 1 | 0.10 kg a.i./ha | 60 |
| Chicory roots | *Cichorium intybus*; Sativum group | NEU Outdoor | DE | Annual monocotyledonous weeds | EC 46.3 g/L | Foliar treatment – spraying | 10 | 45 | 1 | 0.06 kg a.i./ha | n.a. |
| Alfalfa (for forage) | *Medicago sativa* | NEU Outdoor | FR | Annual and perennial grasses | EC 120.0 g/L | Foliar treatment – spraying | 1 | | | 0.06 kg a.i./ha | 45 |
### Critical outdoor GAPs for northern Europe – quizalofop-P-ethyl

| Common name | Scientific name | Region | Outdoor/Indoor | Member state or country | Pest controlled | Formulation | Application |
|-------------|-----------------|--------|----------------|-------------------------|-----------------|-------------|-------------|
| Fodder beets | Beta vulgaris subsp. vulgaris var. crassa | NEU | Outdoor | SK | Annual and perennial grasses | EC | 50.0 g/L | Foliar treatment – spraying | PHI: 13 days, waiting period: 49 days, rate: 0.15 kg a.i./ha |

GAP: Good Agricultural Practice; MRL: maximum residue level; EC: emulsifiable concentrate; SC: suspension concentrate; NEU: northern European Union; BBCH: growth stages of mono- and dicotyledonous plants; a.i.: active ingredient; cGAP: critical GAP; PHI: preharvest interval; a.s.: active substance.

### Critical outdoor GAPs for southern Europe – quizalofop-P-ethyl

| Common name | Scientific name | Region | Outdoor/Indoor | Member state or country | Pest controlled | Formulation | Application |
|-------------|-----------------|--------|----------------|-------------------------|-----------------|-------------|-------------|
| Grapefruits | Citrus paradisi | SEU | Outdoor | ES | Annual and perennial grasses | EC | 100.0 g/L | Soil treatment – general | PHI from BBCH 0 days, until BBCH 89 days, interval (days) 1, rate: 0.13 kg a.i./ha |
| Oranges | Citrus sinensis | SEU | Outdoor | ES | Annual and perennial grasses | EC | 100.0 g/L | Soil treatment – general | PHI from BBCH 0 days, until BBCH 89 days, interval (days) 1, rate: 0.13 kg a.i./ha |
| Lemons | Citrus limon | SEU | Outdoor | ES | Annual and perennial grasses | EC | 100.0 g/L | Soil treatment – general | PHI from BBCH 0 days, until BBCH 89 days, interval (days) 1, rate: 0.13 kg a.i./ha |
| Limes | Citrus aurantifolia | SEU | Outdoor | ES | Annual and perennial grasses | EC | 100.0 g/L | Soil treatment – general | PHI from BBCH 0 days, until BBCH 89 days, interval (days) 1, rate: 0.13 kg a.i./ha |
| Mandarins | Citrus reticulata, syn: Citrus deliciosa | SEU | Outdoor | ES | Annual and perennial grasses | EC | 100.0 g/L | Soil treatment – general | PHI from BBCH 0 days, until BBCH 89 days, interval (days) 1, rate: 0.13 kg a.i./ha |
| Apples | Malus domestica | SEU | Outdoor | IT | Annual and perennial grasses | EC | 50.0 g/L | Soil treatment – general | PHI from BBCH 0 days, until BBCH 79 days, interval (days) 1, rate: 0.15 kg a.i./ha |

More cGAP in ES (1 x 0.125 - 0.2 kg a.s./ha, PHI 21 days) is not supported by data.

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| Crop                  | Common name    | Scientific name       | Region | Outdoor/Indoor | Member state or country | Pest controlled          | Formulation | Application | PHI or waiting period (days) | Rate | PHI or waiting period (days) | Comments |
|-----------------------|----------------|-----------------------|--------|----------------|-------------------------|--------------------------|--------------|-------------|-----------------------------|------|-----------------------------|----------|
|                       |                |                       |        |                |                         |                          |              |             |                             |      |                             |          |
| Pears                 | Pyrus communis | SEU Outdoor IT        | IT     | Annual and perennial grasses | EC                      | 50.0 g/L Soil treatment – general | 0 79 1    | 0.15 kg a.i./ha              | 30               | FR GAP (150/63) less critical, ES (200/21) more critical. FR GAP may be supported by apples (3) + peaches (3) at 150/35 |
| Quinces               | Cydonia oblonga | SEU Outdoor FR       | FR     | Annual and perennial grasses | EC                      | 120.0 g/L Soil treatment – general | 0 81 1    | 0.15 kg a.i./ha              | 63               |                             |          |
| Medlars               | Mespilus germanica | SEU Outdoor FR      | FR     | Annual and perennial grasses | EC                      | 120.0 g/L Soil treatment – general | 0 81 1    | 0.15 kg a.i./ha              | 63               |                             |          |
| Loquats               | Eriobotrya japonica | SEU Outdoor IT    | IT     | Annual and perennial grasses | EC                      | 50.0 g/L Soil treatment – general | 0 79 1    | 0.15 kg a.i./ha              | 30               | FR GAP (150/63) less critical, ES (200/21) more critical. FR GAP may be supported by apples (3) + peaches (3) at 150/35 |
| Apricots              | Armeniaca vulgaris, syn: Prunus armeniaca | SEU Outdoor IT | IT     | Annual and perennial grasses | EC                      | 50.0 g/L Soil treatment – general (see also comment field) | 0 70 1    | 0.15 kg a.i./ha              | 30               | Spraying overall. More cGAP in ES (1 × 0.125–0.2 kg a.s./ha, PHI 21 days) is not supported by data. FR GAP less critical (150/35). Extrapolation from apples + peaches |
### Critical outdoor GAPs for southern Europe – quizalofop-P-ethyl

| Crop | Common name | Scientific name | Region | Outdoor/Indoor | Member state or country | Pest controlled | Formulation | Application | PHI or waiting period (days) | Rate | Comments (max. 250 characters) |
|------|-------------|-----------------|--------|---------------|------------------------|----------------|--------------|-------------|-------------------------------|------|-------------------------------|
| Cherries | *Cerasus avium*, syn: *Prunus avium* | SEU | Outdoor | IT | Annual and perennial grasses | EC | 50.0 g/L Soil treatment – general (see also comment field) | 0 | 70 | 1 | 0.15 kg a.i./ha | 30 | Spraying overall. More cGAP in ES (1 × 0.125–0.2 kg a.s./ha, PHI 21 days) is not supported by data. FR GAP less critical (150/35). Extrapolation from apples + peaches |
| Peaches | *Persica vulgaris*, syn: *Prunus persica* | SEU | Outdoor | IT | Annual and perennial grasses | EC | 50.0 g/L Soil treatment – general (see also comment field) | 0 | 79 | 1 | 0.15 kg a.i./ha | 30 | Spraying overall. More cGAP in ES (1 × 0.125–0.2 kg a.s./ha, PHI 21 days) is not supported by data. FR GAP less critical (150/35). Extrapolation from apples + peaches |
| Plums | *Prunus domestica* | SEU | Outdoor | IT | Annual and perennial grasses | EC | 50.0 g/L Soil treatment – general (see also comment field) | 0 | 70 | 1 | 0.15 kg a.i./ha | 30 | Spraying overall. More cGAP in ES (1 × 0.125–0.2 kg a.s./ha, PHI 21 days) is not supported by data. FR GAP less critical (150/35). Extrapolation from apples + peaches |
| Table grapes | *Vitis vinifera* | SEU | Outdoor | FR | Annual and perennial grasses | EC | 120.0 g/L Soil treatment – general | 85 | 1 | | 0.15 kg a.i./ha | 35 | More cGAP in ES (1 × 0.125–0.2 kg a.s./ha, PHI 21 days) is not supported by data |
## Critical outdoor GAPs for southern Europe – quizalofop-P-ethyl

| Crop | Scientific name | Region | Outdoor/Indoor | Member state or country | Pest controlled | Formulation | Application | PHI or waiting period (days) | Comments |
|------|----------------|--------|----------------|-------------------------|-----------------|-------------|-------------|-----------------------------|----------|
| Wine grapes | Vitis vinifera | SEU | Outdoor | FR | Annual and perennial grasses | EC 120.0 | g/L Soil treatment – general | 85 | 1 | 0.15 kg a.i./ha | 35 More cGAP in ES (1 × 0.125 - 0.2 kg a.s./ha, PHI 21 days) is not supported by data |
| Strawberries | Fragaria x ananassa | SEU | Outdoor | FR | Annual and perennial grasses | EC 120.0 | g/L Foliage treatment – spraying | 0 | 85 | 1 | 0.15 kg a.i./ha | 35 More cGAP in ES (1 × 0.125 - 0.2 kg a.s./ha, PHI 21 days) is not supported by data. More cGAP in IT, FR, not supported by data |
| Blackberries | Rubus sect. Rubus | SEU | Outdoor | PT | Annual and perennial grasses | EC 50.0 | g/kg Soil treatment – general | 1 | | 0.05 0.15 kg a.i./ha | 42 |
| Raspberries | Rubus idaeus | SEU | Outdoor | BG | Annual and perennial grasses | EC | Soil treatment – general | 1 | | 0.08 0.15 kg a.i./ha | 60 |
| Table olives | Olea europaea | SEU | Outdoor | ES | Perennial grasses | EC 100.0 | g/L Foliage treatment – spraying | 0 | 92 | 1 | 0.20 kg a.i./ha | 21 Tractor mounted boom sprayer |
| Potatoes | Solanum tuberosum subsp. tuberosum | SEU | Outdoor | IT | Annual and perennial grasses | EC 100.0 | g/L Foliage treatment – spraying | 11 | 74 | 1 | 0.15 kg a.i./ha | 30 More cGAP in ES (1 × 0.125 - 0.2 kg a.s./ha, PHI 21 days) is not supported by data |
| Beetroots | Beta vulgaris var. vulgaris | SEU | Outdoor | PT | Annual and perennial grasses | EC 50.0 | g/kg Soil treatment – general | 1 | | 0.05 0.15 kg a.i./ha | 60 |
| Carrots | Daucus carota subsp. sativus | SEU | Outdoor | EL, FR, PT | Annual and perennial grasses | EC 100.0 | g/L Foliage treatment – spraying | 11 | 49 | 1 | 0.15 kg a.i./ha | 21 |
| Radishes | Raphanus sativus Radish group | SEU | Outdoor | FR | Annual grasses | EC 120.0 | g/L Foliage treatment – spraying | 1 | | 0.15 kg a.i./ha | 35 |
## Critical outdoor GAPs for southern Europe – quizalofop-P-ethyl

| Crop | Scientific name | Region | Formulation Type | Control of | Number | PHI or waiting period (days) | Comments (max. 250 characters) |
|------|----------------|--------|------------------|------------|--------|-----------------------------|---------------------------------|
| Turnips | *Brassica rapa* subsp. *rapa* | SEU Outdoor IT | Annual and perennial grasses | 50.0 g/L | 11 39 1 | 0.13 kg a.i./ha | 30 |
| Garlic | *Allium sativum* | SEU Outdoor ES | Annual and perennial grasses | 50.0 g/L | 12 69 1 | 0.20 kg a.i./ha | 21 |
| Onions | *Allium cepa* Common Onion group | SEU Outdoor ES | Annual and perennial grasses | 50.0 g/L | 12 69 1 | 0.20 kg a.i./ha | 21 |
| Shallots | *Allium cepa* Aggregateum group, sync. *Allium ascalonicum* | SEU Outdoor IT | Annual and perennial grasses | 50.0 g/L | 11 39 1 | 0.13 kg a.i./ha | 30 |
| Tomatoes | *LYcopersicon esculentum* | SEU Outdoor ES | Annual and perennial grasses | 100.0 g/L | 12 81 1 | 0.20 kg a.i./ha | 21 |
| Sweet peppers | *Capsicum annuum* | SEU Outdoor ES | Annual and perennial grasses | 100.0 g/L | 12 81 1 | 0.20 kg a.i./ha | 21 |
| Aubergines | *Solanum melongena* | SEU Outdoor ES | Annual and perennial grasses | 100.0 g/L | 12 81 1 | 0.20 kg a.i./ha | 21 |
| Cucumbers | *Cucumis sativus* | SEU Outdoor ES | Annual and perennial grasses | 100.0 g/L | 12 69 1 | 0.20 kg a.i./ha | 21 |
| Gherkins | *Cucumis sativus* | SEU Outdoor ES | Annual and perennial grasses | 100.0 g/L | 12 69 1 | 0.20 kg a.i./ha | 21 |
| Courgettes | *Cucurbita pepo* Zucchini group | SEU Outdoor EL, FR | Annual and perennial grasses | 120.0 g/L | 12 69 1 | 0.15 kg a.i./ha | 7 Different GAP approved in ES (200/21) |
| Melons | *Cucumis melo* | SEU Outdoor ES | Annual and perennial grasses | 100.0 g/L | 12 69 1 | 0.20 kg a.i./ha | 21 |
| Pumpkins | *Cucurbita maxima* | SEU Outdoor ES | Annual and perennial grasses | 100.0 g/L | 12 69 1 | 0.20 kg a.i./ha | 21 |
## Critical outdoor GAPs for southern Europe – quizalofop-P-ethyl

| Crop                      | Scientific name                        | Region | Outdoor/Indoor | Member state or country | Pest controlled | Formulation | Application | PHI or waiting period (days) | Comments (max. 250 characters) |
|---------------------------|----------------------------------------|--------|----------------|-------------------------|-----------------|-------------|-------------|-----------------------------|--------------------------------|
| Watermelons               | Citrullus vulgaris, syn: Citrullus lanatus | SEU    | Outdoor        | ES                      | Annual and perennial grasses | EC 100.0 g/L   | Foliar treatment – spraying | 12 69 1            | 0.13 0.20 kg a.i./ha           | 21                             |
| Broccoli                  | Brassica oleracea var. italica         | SEU    | Outdoor        | ES                      | Annual and perennial grasses | EC 100.0 g/L   | Foliar treatment – spraying | 11 59 1            | 0.13 0.20 kg a.i./ha           | 21                             |
| Cauliflower              | Brassica oleracea var. botrydis        | SEU    | Outdoor        | ES                      | Annual and perennial grasses | EC 100.0 g/L   | Foliar treatment – spraying | 11 59 1            | 0.13 0.20 kg a.i./ha           | 21                             |
| Brussels sprouts         | Brassica oleracea var. gemmifera       | SEU    | Outdoor        | ES                      | Annual and perennial grasses | EC 100.0 g/L   | Foliar treatment – spraying | 11 59 1            | 0.13 0.20 kg a.i./ha           | 21                             |
| Head cabbages            | Brassica oleracea var. capitata        | SEU    | Outdoor        | IT                      | Annual and perennial grasses | EC 50.0 g/L    | Foliar treatment – spraying | 0 40 1             | 0.15 kg a.i./ha                | 30 More critical in ES (200/21) not supported by data |
| Chinese cabbages         | Brassica rapa subsp. pekinensis        | SEU    | Outdoor        | ES                      | Annual and perennial grasses | EC 100.0 g/L   | Foliar treatment – spraying | 11 59 1            | 0.13 0.20 kg a.i./ha           | 21                             |
| Kales                     | Brassica oleracea var. sabellica; Brassica oleracea var. viridis | SEU    | Outdoor        | ES                      | Annual and perennial grasses | EC 100.0 g/L   | Foliar treatment – spraying | 11 59 1            | 0.13 0.20 kg a.i./ha           | 21                             |
| Kohlrabi                  | Brassica oleracea var. gongylodes      | SEU    | Outdoor        | ES                      | Annual and perennial grasses | EC 100.0 g/L   | Foliar treatment – spraying | 11 59 1            | 0.13 0.20 kg a.i./ha           | 21                             |
| Lamb's lettuces          | Valerianella locusta                   | SEU    | Outdoor        | IT                      | Annual and perennial grasses | EC 50.0 g/L    | Foliar treatment – spraying | 11 70 1 2           | 0.13 kg a.i./ha                | 15                             |
| Lettuces                  | Lactuca sativa                         | SEU    | Outdoor        | FR                      | Annual and perennial grasses | EC 120.0 g/L   | Foliar treatment – spraying | 1               | 0.15 kg a.i./ha                | 28 More cGAP in IT GAP (2*125/15) not supported by data |
| Escaroles                 | Cichorium endivia var. latifolia       | SEU    | Outdoor        | FR                      | Annual and perennial grasses | EC 120.0 g/L   | Foliar treatment – spraying | 1               | 0.15 kg a.i./ha                | 28 A different GAP in IT GAP (2*125/15) is not supported by data |
## Critical outdoor GAPs for southern Europe – quizalofop-P-ethyl

| Common name          | Scientific name            | Region | Outdoor/Indoor | Member state or country | Pest controlled                        | Formulation | Application | PHI or waiting period (days) | Comments (max. 250 characters) |
|----------------------|-----------------------------|--------|----------------|-------------------------|----------------------------------------|-------------|-------------|-----------------------------|---------------------------------|
| Cresses              | Lepidium sativum subsp. sativum | SEU   | Outdoor        | IT                      | Annual and perennial grasses           | EC 50.0 g/L | Foliar treatment – spraying | 11 70 1 2 0.13 kg a.i./ha | 15                              |
| Land cresses         | Barbarea verna              | SEU   | Outdoor        | IT                      | Annual and perennial grasses           | EC 50.0 g/L | Foliar treatment – spraying | 11 70 1 2 0.13 kg a.i./ha | 15                              |
| Roman rocket         | Eruca sativa                | SEU   | Outdoor        | IT                      | Annual and perennial grasses           | EC 50.0 g/L | Foliar treatment – spraying | 11 70 1 2 0.13 kg a.i./ha | 15                              |
| Red mustards         | Brassica juncea var. rugosa | SEU   | Outdoor        | IT                      | Annual and perennial grasses           | EC 50.0 g/L | Foliar treatment – spraying | 11 70 1 2 0.13 kg a.i./ha | 15                              |
| Spinaches            | Spinacia oleracea           | SEU   | Outdoor        | EL                      | Annual and perennial grasses           | EC 50.0 g/L | Foliar treatment – spraying | 13 20 1 0.15 kg a.i./ha | 21                              |
| Witloofs             | Cichorium intybus Foliosum group | SEU   | Outdoor        | EL                      | Annual and perennial grasses           | EC 50.0 g/L | Foliar treatment – spraying | 13 20 1 0.15 kg a.i./ha | 49                              |
| Chervil              | Anthriscus cerefolium       | SEU   | Outdoor        | FR                      | Annual and perennial grasses           | EC 120.0 g/L | Foliar treatment – spraying | 19 1 0.15 kg a.i./ha | 28                              |
| Chives               | Allium schoenoprasum        | SEU   | Outdoor        | FR                      | Annual and perennial grasses           | EC 120.0 g/L | Foliar treatment – spraying | 19 1 0.15 kg a.i./ha | 28                              |
| Celery leaves        | Apium graveolens var. secalinum | SEU   | Outdoor        | FR                      | Annual and perennial grasses           | EC 120.0 g/L | Foliar treatment – spraying | 19 1 0.15 kg a.i./ha | 28                              |
| Parsley              | Petroselinum crispum        | SEU   | Outdoor        | FR                      | Annual and perennial grasses           | EC 120.0 g/L | Foliar treatment – spraying | 19 1 0.15 kg a.i./ha | 28                              |
| Sage                 | Salvia officinalis          | SEU   | Outdoor        | FR                      | Annual and perennial grasses           | EC 120.0 g/L | Foliar treatment – spraying | 19 1 0.15 kg a.i./ha | 28                              |
| Rosemary             | Rosmarinus officinalis      | SEU   | Outdoor        | FR                      | Annual and perennial grasses           | EC 120.0 g/L | Foliar treatment – spraying | 19 1 0.15 kg a.i./ha | 28                              |
| Common name          | Scientific name          | Region | Outdoor/ Indoor | Member state or country | Pest controlled                  | Formulation | Content Type | Growth stage | Method | Application | PHI or waiting period (days) | Rate (max. 250 characters) |
|---------------------|--------------------------|--------|-----------------|-------------------------|-----------------------------------|-------------|--------------|--------------|--------|-------------|-------------------------------|---------------------------|
| Thyme               | *Thymus vulgaris*        | SEU    | Outdoor         | FR                      | Annual and perennial grasses      | EC 120.0 g/L | Foliar treatment - spraying | 19           | 1      | 0.15 kg a.i./ha | 28                           |                           |
| Basil               | *Ocimum basilicum*       | SEU    | Outdoor         | FR                      | Annual and perennial grasses      | EC 120.0 g/L | Foliar treatment - spraying | 19           | 1      | 0.15 kg a.i./ha | 28                           |                           |
| Laurel              | *Laurus nobilis*         | SEU    | Outdoor         | FR                      | Annual and perennial grasses      | EC 120.0 g/L | Foliar treatment - spraying | 19           | 1      | 0.15 kg a.i./ha | 28                           |                           |
| Tarragon            | *Artemisia dracunculus*  | SEU    | Outdoor         | FR                      | Annual and perennial grasses      | EC 120.0 g/L | Foliar treatment - spraying | 19           | 1      | 0.15 kg a.i./ha | 28                           |                           |
| Beans (with pods)   | *Phaseolus vulgaris*     | SEU    | Outdoor         | ES                      | Annual and perennial grasses      | EC 100.0 g/L | Foliar treatment - spraying | 11           | 75     | 0.20 kg a.i./ha | 21                           |                           |
| Beans (without pods)| *Phaseolus vulgaris*     | SEU    | Outdoor         | ES                      | Annual and perennial grasses      | EC 50.0 g/L  | Foliar treatment - spraying | 1            |        | 0.20 kg a.i./ha | 21                           |                           |
| Peas (with pods)    | *Pisum sativum*          | SEU    | Outdoor         | ES                      | Annual and perennial grasses      | EC 120.0 g/L | Foliar treatment - spraying | 69           | 1      | 0.20 kg a.i./ha | 45                           |                           |
| Peas (without pods) | *Pisum sativum*          | SEU    | Outdoor         | EL, PT                  | Annual and perennial grasses      | EC 100.0 g/L | Foliar treatment - spraying | 11           | 89     | 0.15 kg a.i./ha | 21                           | More cGAP in ES (200/21) not fully supported by data, IT GAP is covered (125/42) |
| Lentils (fresh)     | *Lens culinaris*, syn: *Lens esculenta* | SEU    | Outdoor         | EL                      | Annual and perennial grasses      | EC 50.0 g/L  | Foliar treatment - spraying | 1            |        | 0.15 kg a.i./ha | 21                           | More cGAP in ES (200/21) not fully supported by data |
| Asparagus           | *Asparagus officinalis*  | SEU    | Outdoor         | FR                      | Annual grasses                    | SC 50.0 g/L  | Foliar treatment - spraying | 1            |        | 0.15 kg a.i./ha | 28                           |                           |
| Celeries            | *Apium graveolens var. dulce* | SEU    | Outdoor         | FR                      | Annual grasses                    | EC 120.0 g/L | Foliar treatment - spraying | 1            |        | 0.15 kg a.i./ha | 28                           |                           |
| Crop | Scientific name | Region | Outdoor/Indoor | Member state or country | Pest controlled | Formulation | Application | PHI or waiting period (days) | Comments |
|------|-----------------|--------|----------------|------------------------|----------------|-------------|-------------|-----------------------------|----------|
| Globe artichokes | *Cynara cardunculus* Globe artichoke group | SEU | Outdoor | IT | Annual and perennial grasses | EC 50.0 g/L | Foliar treatment - spraying | 11 | 0.13 kg a.i./ha | 30 |
| Leeks | *Allium ampeloprasum* *Allium porrum* Leek group, syn: *Allium porrum* | SEU | Outdoor | FR | Annual grasses | EC 120.0 g/L | Foliar treatment - spraying | 1 | 0.15 kg a.i./ha | 28 |
| Beans (dry) | *Phaseolus vulgaris* | SEU | Outdoor | PT | Annual and perennial grasses | EC 100.0 g/L | Foliar treatment - spraying | 11 | 0.15 kg a.i./ha | 45 |
| Lentils (dry) | *Lens culinaris,* syn: *Lens esculenta* | SEU | Outdoor | ES | Annual grasses | EC 50.0 g/L | Foliar treatment - spraying | 1 | 0.20 kg a.i./ha | 21 |
| Peas (dry) | *Pisum sativum* | SEU | Outdoor | PT | Annual and perennial grasses | EC 100.0 g/L | Foliar treatment - spraying | 11 | 0.15 kg a.i./ha | 45 |
| Lupins (dry) | *Lupinus albus* subsp. *albus;* *Lupinus angustifolius;* *Lupinus luteus;* *Lupinus mutabilis* | SEU | Outdoor | ES | Annual and perennial grasses | EC 100.0 g/L | Foliar treatment - spraying | 12 | 0.20 kg a.i./ha | 21 |
| Linseeds | *Linum usitatissimum* | SEU | Outdoor | IT | Annual grasses | EC 50.0 g/L | Foliar treatment - spraying | 11 | 0.15 kg a.i./ha | n.a. |
| Sunflower seeds | *Helianthus annuus* | SEU | Outdoor | PT | Annual and perennial grasses | EC 50.0 g/L | Foliar treatment - spraying | 11 | 0.08 kg a.i./ha | 45 |
| Rapeseeds | *Brassica napus* subsp. *napus* | SEU | Outdoor | EL, FR | Annual and perennial grasses | EC 100.0 g/L | Foliar treatment - spraying | 11 | 0.15 kg a.i./ha | 90 |
### Critical outdoor GAPs for southern Europe – quizalofop-P-ethyl

| Crop                        | Scientific name          | Region | Outdoor/Indoor | Member state or country | Pest controlled | Formulation | Application | PHI or waiting period (days) | Comments                                                                 |
|-----------------------------|--------------------------|--------|----------------|-------------------------|----------------|-------------|-------------|-----------------------------|-------------------------------------------------------------------------|
| Soya beans                  | Glycine max              | SEU    | Outdoor        | IT                      | Annual grasses | EC 50.0 g/L | Foliar treatment – spraying | 11 39 1 | 0.13 kg a.i./ha | 60 More cGAP in EL not supported by data. Different GAP in FR (150 g a.s./100 and PHI 90 days) is supported by data |
| Cotton seeds                | Gossypium barbadense; Gossypium herbaceum | SEU    | Outdoor        | FR                      | Annual and perennial grasses | EC 100.0 g/L | Foliar treatment – spraying | 11 76 1 | 0.15 kg a.i./ha | 45                                                                 |
| Olives for oil production   | Olea europaea var. europaea | SEU    | Outdoor        | ES                      | Annual and perennial grasses | EC 100.0 g/L | Foliar treatment – spraying | 0 92 1 | 0.13 0.20 kg a.i./ha | 21                                                                 |
| Sugar beets                 | Beta vulgaris subsp. vulgaris var. altissima | SEU    | Outdoor        | EL, PT                  | Annual and perennial grasses | EC 50.0 g/L | Foliar treatment – spraying | 1 | 0.15 kg a.i./ha | 60 More cGAP in ES (1 × 0.125–0.2 kg a.s./ha, PHI 21 days) is not supported by data |
| Alfalfa (for forage)        | Medicago sativa          | SEU    | Outdoor        | ES                      | Annual and perennial grasses | EC 100.0 g/L | Foliar treatment – spraying | 12 81 1 | 0.13 0.20 kg a.i./ha | 21                                                                 |
| Clover (for forage)         | Trifolium spp.           | SEU    | Outdoor        | FR                      | Annual grasses   | EC 50.0 g/L | Foliar treatment – spraying | 11 39 1 | 0.15 kg a.i./ha | n.a.                                                             |
| Vetch (for forage)          | Vicia spp.               | SEU    | Outdoor        | IT                      | Annual grasses   | EC 50.0 g/L | Foliar treatment – spraying | 11 39 1 | 0.15 kg a.i./ha | n.a.                                                             |
| Fodder beets                | Beta vulgaris subsp. vulgaris var. crassa | SEU    | Outdoor        | IT                      | Annual grasses   | EC 50.0 g/L | Foliar treatment – spraying | 11 39 1 | 0.15 kg a.i./ha | 60                                                                 |

GAP: Good Agricultural Practice; MRL: maximum residue level; EC: emulsifiable concentrate; SEU: southern European Union; BBCH: growth stages of mono- and dicotyledonous plants; a.i.: active ingredient; cGAP: critical GAP; PHI: preharvest interval; a.s.: active substance.
## A.2. Authorised uses for quizalofop-P-tefuryl

| Crop                        | Scientific name | Region | Outdoor/Indoor | Member state or country | Pest controlled | Formulation | Application | PHI or waiting period (days) | Comments |
|-----------------------------|-----------------|--------|----------------|-------------------------|-----------------|-------------|-------------|-------------------------------|----------|
| Table grapes                | Vitis vinifera  | NEU    | Outdoor        | RO                      | Grass weeds     | EC 40.0 g/L | Soil treatment - general     | 73 1 120.00 g a.i./ha         | 60       |
| Wine grapes                 | Vitis vinifera  | NEU    | Outdoor        | RO                      | Grass weeds     | EC 40.0 g/L | Soil treatment - general     | n.a. 1 120.00 g a.i./ha        | 14       |
| Strawberries                | Fragaria x ananassa | NEU | Outdoor    | BE                     | Grass weeds     | EC 40.0 g/L | Foliar treatment - spraying  | n.a. 1 90.00 g a.i./ha         | 60       |
| Potatoes                    | Solanum tuberosum subsp. tuberosum | NEU | Outdoor    | AT, CZ, SK             | Grass weeds     | EC 40.0 g/L | Foliar treatment - spraying  | 79 1 90.00 g a.i./ha           | 60       |
| Beetroots                   | Beta vulgaris var. vulgaris | NEU | Outdoor    | CZ                      | Grass weeds     | EC 40.0 g/L | Foliar treatment - spraying  | 45 1 90.00 g a.i./ha           | 60       |
| Carrots                     | Daucus carota subsp. sativus | NEU | Outdoor    | SK                      | Grass weeds     | EC 40.0 g/L | Foliar treatment - spraying  | 45 1 90.00 g a.i./ha           | 30       |
| Celeriacs                   | Apium graveolens var. rapaceum | NEU | Outdoor    | BE                      | Grass weeds     | EC 40.0 g/L | Foliar treatment - spraying  | n.a. 1 90.00 g a.i./ha         | 60       |
| Horseradishes               | Armoracia rusticana | NEU | Outdoor    | BE                      | Grass weeds     | EC 40.0 g/L | Foliar treatment - spraying  | n.a. 1 90.00 g a.i./ha         | 60       |
| Parsnips                    | Pastinaca sativa | NEU | Outdoor    | BE                      | Grass weeds     | EC 40.0 g/L | Foliar treatment - spraying  | n.a. 1 90.00 g a.i./ha         | 60       |
| Parsley roots               | Petroselinum crispum convar. radicosum | NEU | Outdoor    | BE                      | Grass weeds     | EC 40.0 g/L | Foliar treatment - spraying  | n.a. 1 90.00 g a.i./ha         | 60       |
## Critical outdoor GAPs for northern Europe – quizalofop-P-tefuryl

| Crop Common name | Scientific name | Region | Outdoor/ Indoor | Pest controlled | Formulation Type | Content Conc. | Unit | Method | PHI or waiting period (days) | Comments (max. 250 characters) |
|------------------|-----------------|--------|-----------------|-----------------|------------------|---------------|------|--------|-----------------------------|-----------------------------|
| Radishes         | Raphanus sativus Radish group | NEU Outdoor BE | Grass weeds | EC 40.0 g/L | Foliar treatment – spraying | n.a. | 1 | 90.00 g a.i./ha | 60 |
| Salsifises       | Tragopogon porrifolius | NEU Outdoor BE | Grass weeds | EC 40.0 g/L | Foliar treatment – spraying | n.a. | 1 | 90.00 g a.i./ha | 60 |
| Swedes           | Brassica napus subsp. napobrassica | NEU Outdoor BE | Grass weeds | EC 40.0 g/L | Foliar treatment – spraying | n.a. | 1 | 90.00 g a.i./ha | 60 |
| Turnips          | Brassica rapa subsp. rapa | NEU Outdoor BE | Grass weeds | EC 40.0 g/L | Foliar treatment – spraying | n.a. | 1 | 90.00 g a.i./ha | 60 |
| Garlic           | Allium sativum | NEU Outdoor SK | Grass weeds | EC 40.0 g/L | Foliar treatment – spraying | 48 | 1 | 90.00 g a.i./ha | 30 |
| Onions           | Allium cepa Common Onion group | NEU Outdoor SK | Grass weeds | EC 40.0 g/L | Foliar treatment – spraying | 48 | 1 | 90.00 g a.i./ha | 30 |
| Shallots         | Allium cepa Aggregatum group, syn: Allium ascalonicum | NEU Outdoor BE | Grass weeds | EC 40.0 g/L | Foliar treatment – spraying | n.a. | 1 | 90.00 g a.i./ha | 60 |
| Sweet peppers    | Capsicum annuum | NEU Outdoor RO | Grass weeds | EC 40.0 g/L | Foliar treatment – spraying | n.a. | 1 | 60.00 g a.i./ha | 14 |
| Witloofs         | Cichorium intybus Foliosum group | NEU Outdoor BE | Grass weeds | EC 40.0 g/L | Foliar treatment – spraying | n.a. | 1 | 90.00 g a.i./ha | 60 |
| Beans (without pods) | Phaseolus vulgaris | NEU Outdoor BE | Grass weeds | EC 40.0 g/L | Foliar treatment – spraying | n.a. | 1 | 90.00 g a.i./ha | 60 |
### Critical outdoor GAPs for northern Europe – quizalofop-P-tefuryl

| Crop | Common name | Scientific name | Region | Outdoor/Indoor | Member state or country | Pest controlled | Formulation | Application | PHI or waiting period (days) | Comments |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Peas (with pods) | Pisum sativum | NEU | Outdoor | BE | Grass weeds | EC 40.0 g/L | Foliar treatment – spraying | n.a. | 1 | 90.00 g ai./ha | 60 |
| Peas (without pods) | Pisum sativum | NEU | Outdoor | BE | Grass weeds | EC 40.0 g/L | Foliar treatment – spraying | n.a. | 1 | 90.00 g ai./ha | 60 |
| Beans (dry) | Phaseolus vulgaris | NEU | Outdoor | AT, BE, SK | Grass weeds | EC 40.0 g/L | Foliar treatment – spraying | 72 | 1 | 90.00 g ai./ha | 60 |
| Lentils (dry) | Lens culinaris, syn: Lens esculenta | NEU | Outdoor | SK | Grass weeds | EC 40.0 g/L | Foliar treatment – spraying | 75 | 1 | 90.00 g ai./ha | 60 |
| Peas (dry) | Pisum sativum | NEU | Outdoor | AT, SK | Grass weeds | EC 40.0 g/L | Foliar treatment – spraying | 75 | 1 | 90.00 g ai./ha | 60 |
| Linseeds | Linum usitatissimum | NEU | Outdoor | AT, BE, CZ, UK, SK | Grass weeds | EC 40.0 g/L | Foliar treatment – spraying | 75 | 1 | 90.00 g ai./ha | 60 |
| Poppy seeds | Papaver somniferum subsp. somniferum | NEU | Outdoor | CZ | Grass weeds | EC 40.0 g/L | Foliar treatment – spraying | 12 | 69 | 1 | 90.00 g ai./ha | 60 |
| Sunflower seeds | Helianthus annuus | NEU | Outdoor | CZ, SK | Grass weeds | EC 40.0 g/L | Foliar treatment – spraying | 75 | 1 | 90.00 g ai./ha | 60 |
| Rapeseeds | Brassica napus subsp. napus | NEU | Outdoor | AT, BE, CZ, SK | Grass weeds | EC 40.0 g/L | Foliar treatment – spraying | 69 | 1 | 90.00 g ai./ha | 60 |
| Crop                                      | Scientific name                  | Region     | Outdoor/Indoor | Member state or country | Pest controlled | Formulation | Application | PHI or waiting period (days) | Comments |
|------------------------------------------|----------------------------------|------------|----------------|-------------------------|-----------------|-------------|-------------|----------------------------|----------|
| Soya beans                               | Glycine max                      | NEU        | Outdoor        | SK                      | Grass weeds     | EC          | 40.0 g/L     | Foliar treatment – spraying | 75       |
|                                          |                                  |            |                |                         |                 |             |             | 1                          | 90.00 g a.i./ha        | 60       |
|                                          |                                  |            |                |                         |                 |             |             |                            | Different GAP in HU (1 x 0.14 kg a.s./ha, no BBCH GS, no PHI) is not supported by data. |
| Mustard seeds                            | Brassica juncea; Brassica nigra; Sinapis alba | NEU        | Outdoor        | CZ                      | Grass weeds     | EC          | 40.0 g/L     | Foliar treatment – spraying | 12       |
|                                          |                                  |            |                |                         |                 |             |             | 69                         | 1                    | 90.00 g a.i./ha        | 60       |
| Sugar beets                              | Beta vulgaris subsp. vulgaris var. altissima | NEU        | Outdoor        | AT, BE, CZ, SK          | Grass weeds     | EC          | 40.0 g/L     | Foliar treatment – spraying | 45       |
|                                          |                                  |            |                |                         |                 |             |             | 1                          | 90.00 g a.i./ha        | 60       |
|                                          |                                  |            |                |                         |                 |             |             |                            | Different GAP in HU (1 x 0.14 kg a.s./ha, no PHI) is not supported by data. |
| Chicory roots                            | Cichorium intybus; Sativum group | NEU        | Outdoor        | BE                      | Grass weeds     | EC          | 40.0 g/L     | Foliar treatment – spraying | n.a.     |
|                                          |                                  |            |                |                         |                 |             |             | 1                          | 90.00 g a.i./ha        | 60       |
| Clover (for forage)                      | Trifolium spp.                   | NEU        | Outdoor        | RO                      | Grass weeds     | EC          | 40.0 g/L     | Foliar treatment – spraying | n.a.     |
|                                          |                                  |            |                |                         |                 |             |             | 1                          | 70.00 g a.i./ha        | 14       |
| Fodder beets                             | Beta vulgaris subsp. vulgaris var. crassa | NEU        | Outdoor        | AT, BE, CZ, UK          | Grass weeds     | EC          | 40.0 g/L     | Foliar treatment – spraying | 45       |
|                                          |                                  |            |                |                         |                 |             |             | 1                          | 90.00 g a.i./ha        | 60       |

GAP: Good Agricultural Practice; MRL: maximum residue level; EC: emulsifiable concentrate; NEU: northern European Union; BBCH: growth stages of mono- and dicotyledonous plants; a.i.: active ingredient; PHI: preharvest interval; GS: growth stage; a.s.: active substance.
### Critical outdoor GAPs for southern Europe – quizalofop-P-tefuryl

| Common name          | Scientific name                     | Region | Outdoor/Indoor | Member state or country | Pest controlled | Formulation Type | Content | Method                                      | Growth stage | Application | PHI or waiting period (days) | Comments (max. 250 characters) |
|----------------------|-------------------------------------|--------|----------------|-------------------------|-----------------|------------------|---------|--------------------------------------------|--------------|-------------|-----------------------------|---------------------------------|
| Potatoes              | Solanum tuberosum subsp. tuberosum  | SEU    | Outdoor        | ES                      | Grass weeds     | EC               | 40.0    | g/L                                       | Foliar treatment - spraying | 12          | 16             | 1                           | 100.00 g a.i./ha                  |
| Tomatoes              | Lycopersicon esculentum             | SEU    | Outdoor        | EL                      | Grass weeds     | EC               | 40.0    | g/L                                       | Foliar treatment - spraying | n.a.        | 1                           | 100.00 g a.i./ha                  |
| Beans (with pods)     | Phaseolus vulgaris                  | SEU    | Outdoor        | ES                      | Grass weeds     | EC               | 40.0    | g/L                                       | Foliar treatment - spraying | 16          | 1                           | 100.00 g a.i./ha                  |
| Peas (with pods)      | Pisum sativum                       | SEU    | Outdoor        | ES                      | Grass weeds     | EC               | 40.0    | g/L                                       | Foliar treatment - spraying | 16          | 1                           | 100.00 g a.i./ha                  |
| Beans (dry)           | Phaseolus vulgaris                  | SEU    | Outdoor        | EL                      | Grass weeds     | EC               | 40.0    | g/L                                       | Foliar treatment - spraying | n.a.        | 1                           | 100.00 g a.i./ha                  |
| Lentils (dry)         | Lens culinaris, sync: Lens esculenta| SEU    | Outdoor        | ES                      | Grass weeds     | EC               | 40.0    | g/L                                       | Foliar treatment - spraying | 16          | 1                           | 100.00 g a.i./ha                  |
| Peas (dry)            | Pisum sativum                       | SEU    | Outdoor        | EL                      | Grass weeds     | EC               | 40.0    | g/L                                       | Foliar treatment - spraying | n.a.        | 1                           | 100.00 g a.i./ha                  |
| Sunflower seeds       | Helianthus annuus                   | SEU    | Outdoor        | EL                      | Grass weeds     | EC               | 40.0    | g/L                                       | Foliar treatment - spraying | 12          | 31             | 1                           | 40.00 g a.i./ha                  |
| Rapeseed             | Brassica napus subsp. napus         | SEU    | Outdoor        | ES                      | Grass weeds     | EC               | 40.0    | g/L                                       | Foliar treatment - spraying | 16          | 1                           | 100.00 g a.i./ha                  |
| Soya beans            | Glycine max                         | SEU    | Outdoor        | BG                      | Grass weeds     | EC               | 40.0    | g/L                                       | Foliar treatment - spraying | n.a.        | 1                           | 100.00 g a.i./ha                  |
| Cotton seeds          | Gossypium barbadense; Gossypium herbaceum | SEU | Outdoor   | EL                      | Grass weeds     | EC               | 40.0    | g/L                                       | Foliar treatment - spraying | 12          | 31             | 1                           | 40.00 g a.i./ha                  |
| Sugar beets           | Beta vulgaris subsp. vulgaris var. altissima | SEU | Outdoor | EL                      | Grass weeds     | EC               | 40.0    | g/L                                       | Foliar treatment - spraying | n.a.        | 1                           | 100.00 g a.i./ha                  |

GAP: Good Agricultural Practice; MRL: maximum residue level; EC: emulsifiable concentrate; SEU: southern European Union; BBCH: growth stages of mono- and dicotyledonous plants; a.i.: active ingredient; PHI: preharvest interval.
## A.3. Authorised uses for propaquizafop

### Critical outdoor GAPs for northern Europe – propaquizafop

| Common name | Scientific name | Region | Outdoor/Indoor | Member state or country | Pest controlled | Formulation | Application | PHI or waiting period (days) |
|-------------|-----------------|--------|----------------|------------------------|-----------------|-------------|-------------|-------------------------------|
| Apples      | *Malus domestica* | NEU    | Outdoor        | FR                     | Grass weed      | EC 100.0 g/L | Foliar treatment – spraying   | 0 86 1 1 0.10 0.20 kg a.i./ha |
| Pears       | *Pyrus communis* | NEU    | Outdoor        | FR                     | Grass weed      | EC 100.0 g/L | Foliar treatment – spraying   | 0 86 1 1 0.10 0.20 kg a.i./ha |
| Quinces     | *Cydonia oblonga* | NEU    | Outdoor        | FR                     | Grass weed      | EC 100.0 g/L | Foliar treatment – spraying   | 0 86 1 1 0.10 0.20 kg a.i./ha |
| Medlars     | *Mespilus germanica* | NEU    | Outdoor        | FR                     | Grass weed      | EC 100.0 g/L | Foliar treatment – spraying   | 0 86 1 1 0.10 0.20 kg a.i./ha |
| Peaches     | *Prunus persica* | NEU    | Outdoor        | CZ                     | Grass weed      | EC 100.0 g/L | Foliar treatment – spraying   | 13 29 1 1 0.05 0.15 kg a.i./ha |
| Table grapes| *Vitis vinifera* | NEU    | Outdoor        | HU                     | Grass weed      | EC 100.0 g/L | Foliar treatment – spraying   | n.a. n.a. 1 1 0.12 0.15 kg a.i./ha |
| Wine grapes | *Vitis vinifera* | NEU    | Outdoor        | FR                     | Grass weed      | EC 100.0 g/L | Foliar treatment – spraying   | n.a. n.a. 1 1 0.20 0.20 kg a.i./ha |
| Strawberries| *Fragaria x ananassa* | NEU    | Outdoor        | BE, CZ                 | Grass weed      | EC 100.0 g/L | Foliar treatment – spraying   | 13 29 1 1 0.05 0.15 kg a.i./ha |
| Potatoes    | *Solanum tuberosum* subsp. *tuberosum* | NEU    | Outdoor        | UK                     | Grass weed      | EC 100.0 g/L | Foliar treatment – spraying   | n.a. n.a. 1 1 0.15 0.15 kg a.i./ha |
| Beetroots   | *Beta vulgaris* var. *vulgaris* | NEU    | Outdoor        | UK                     | Grass weed      | EC 100.0 g/L | Foliar treatment – spraying   | n.a. n.a. 1 1 0.15 0.15 kg a.i./ha |

**Comments (max. 250 characters)**

- Covers also FR, HU and DE GAPs. A more critical GAP (2 × 0.2 kg/ha; PHI: 30 days) not supported by data is authorised in BE.
- Covers also AT GAP.
| Crop | Scientific name | Region | Outdoor/Indoor | Member state or country | Pest controlled | Formulation | Application | PHI or waiting period (days) | Comments |
|------|----------------|--------|----------------|------------------------|-----------------|-------------|-------------|---------------------------|----------|
| Carrots | *Daucus carota* subsp. *sativus* | NEU | Outdoor | CZ, UK | Grass weed | EC 100.0 g/L | Foliar treatment – spraying | 13 29 1 1 0.05 0.15 kg a.i./ha | Covers also the FR GAP. A more critical GAP (2 × 0.12 kg/ha; PHI: 30 days) not supported by data is authorised in BE |
| Celeriacs | *Apium graveolens var. rapaceum* | NEU | Outdoor | Grass weed | EC 100.0 g/L | Foliar treatment – spraying | 9 1 1 0.15 kg a.i./ha | EFSA (2016). GAP not confirmed by MSs during the completeness check but included in the review since was legally implemented in the meanwhile |
| Parsnips | *Pastinaca sativa* | NEU | Outdoor | BE | Grass weed | EC 100.0 g/L | Foliar treatment – spraying | 9 1 1 0.15 kg a.i./ha | EFSA (2016) |
| Parsley roots | *Petroselinum crispum convar. radicosum* | NEU | Outdoor | Grass weed | EC 100.0 g/L | Foliar treatment – spraying | 9 1 1 0.15 kg a.i./ha | EFSA (2016). GAP not confirmed by MSs during the completeness check but included in the review since was legally implemented in the meanwhile |
| Radishes | *Raphanus sativus* Radish Group | NEU | Outdoor | Grass weed | EC 100.0 g/L | Foliar treatment – spraying | 9 1 1 0.15 kg a.i./ha | EFSA (2016). GAP not confirmed by MSs during the completeness check but included in the review since was legally implemented in the meanwhile |
| Sweedes | *Brassica napus* subsp. napobrassica | NEU | Outdoor | BE | Grass weed | EC 100.0 g/L | Foliar treatment – spraying | n.a. n.a. 1 1 0.12 0.20 kg a.i./ha | |
### Critical outdoor GAPs for northern Europe – propaquizafop

| Common name | Scientific name | Region | Outdoor/Indoor | Member state or country | Pest controlled | Pest | Formulation | Application | PHI or waiting period (days) | Comments (max. 250 characters) |
|-------------|----------------|--------|----------------|-------------------------|----------------|------|--------------|-------------|----------------------------|---------------------------------|
| Turnips     | Brassica rapa subsp. rapa | NEU Outdoor | UK | Grass weed | EC 100.0 g/L | Foliar treatment – spraying | n.a. | n.a. | 1 | 1 | 0.15 | 0.15 kg a.i./ha | 30 |
| Garlic      | Allium sativum | NEU Outdoor | BE | Grass weed | EC 100.0 g/L | Foliar treatment – spraying | n.a. | n.a. | 1 | 1 | 0.20 | 0.20 kg a.i./ha | 30 |
| Onions      | Allium cepa Common Onion group | NEU Outdoor | BE | Grass weed | EC 100.0 g/L | Foliar treatment – spraying | n.a. | n.a. | 1 | 1 | 0.20 | 0.20 kg a.i./ha | 30 |
| Shallots    | Allium cepa Aggregatum group, sync: Allium ascalonicum | NEU Outdoor | BE | Grass weed | EC 100.0 g/L | Foliar treatment – spraying | n.a. | n.a. | 1 | 1 | 0.20 | 0.20 kg a.i./ha | 30 |
| Broccoli    | Brassica oleracea var. italica | NEU Outdoor | BE | Grass weed | EC 100.0 g/L | Foliar treatment – spraying | n.a. | n.a. | 1 | 1 | 0.15 | 0.15 kg a.i./ha | 30 |
| Cauliflowers | Brassica oleracea var. botrydis | NEU Outdoor | EE, LV, LT, FI | Grass weed | EC 100.0 g/L | Foliar treatment – spraying | 9 | 1 | 1 | 1 | 0.05 | 0.15 kg a.i./ha | 30 |
| Head cabbages | Brassica oleracea var. capitata | NEU Outdoor | BE, CZ | Grass weed | EC 100.0 g/L | Foliar treatment – spraying | 13 | 29 | 1 | 1 | 0.05 | 0.15 kg a.i./ha | 30 |
| Lettuces    | Lactuca sativa | NEU Outdoor | FR | Grass weed | EC 100.0 g/L | Foliar treatment – spraying | n.a. | n.a. | 1 | 1 | 0.05 | 0.12 kg a.i./ha | 30 |
| Escaroles   | Cichorium endivia var. latifolia | NEU Outdoor | FR | Grass weed | EC 100.0 g/L | Foliar treatment – spraying | n.a. | n.a. | 1 | 1 | 0.05 | 0.12 kg a.i./ha | 30 |
| Peas (with pods) | Pisum sativum | NEU Outdoor | CZ | Grass weed | EC 100.0 g/L | Foliar treatment – spraying | 11 | 39 | 1 | 1 | 0.05 | 0.15 kg a.i./ha | 40 |

EFSA (2016). Another GAP is authorised in BE, NL and LU with 2 × 0.10 g/ha PHI: 30 days (no residue data available in EFSA, 2016)
### Critical outdoor GAPs for northern Europe – propaquizafop

| Common name | Scientific name | Region | Outdoor/Indoor | Member state or country | Pest controlled | Formulation | Application | PHI or waiting period (days) | Comments (max. 250 characters) |
|-------------|-----------------|--------|----------------|-------------------------|-----------------|-------------|-------------|-----------------------------|-------------------------------|
| Peas (without pods) | *Pisum sativum* | NEU | Outdoor | FR | Grass weed | EC 100.0 g/L | Foliar treatment – spraying | 11 39 1 1 | 0.05 0.20 kg a.i./ha | Soil directed application. Covers also the BE GAP |
| Lentils (fresh) | *Lens culinaris*, syn: *Lens esculenta* | NEU | Outdoor | FR | Grass weed | EC 100.0 g/L | Foliar treatment – spraying | 11 39 1 1 | 0.05 0.20 kg a.i./ha | Soil directed application |
| Beans (dry) | *Phaseolus vulgaris* | NEU | Outdoor | FR | Grass weed | EC 100.0 g/L | Foliar treatment – spraying | 11 39 1 1 | 0.05 0.20 kg a.i./ha | Soil directed application. Covers also UK, AT and DE GAPs |
| Peas (dry) | *Pisum sativum* | NEU | Outdoor | FR | Grass weed | EC 100.0 g/L | Foliar treatment – spraying | 11 39 1 1 | 0.05 0.20 kg a.i./ha | Soil directed application. Covers also UK GAP |
| Lupins (dry) | *Lupinus albus* subsp. *albus*; *Lupinus angustifolius*; *Lupinus luteus*; *Lupinus mutabilis* | NEU | Outdoor | FR | Grass weed | EC 100.0 g/L | Foliar treatment – spraying | 11 39 1 1 | 0.05 0.20 kg a.i./ha | Soil directed application. Covers also UK GAP |
| Linseeds | *Linum usitatissimum* | NEU | Outdoor | FR | Grass weed | EC 100.0 g/L | Foliar treatment – spraying | 30 32 1 1 | 0.10 0.20 kg a.i./ha | Soil directed application. Covers also UK and CZ GAPs |
| Poppy seeds | *Papaver somniferum* subsp. *somniferum* | NEU | Outdoor | Grass weed | EC 100.0 g/L | Foliar treatment – spraying | 09 1 1 | 0.15 0.20 kg a.i./ha | EFSA (2016). GAP not confirmed by MS during the completeness check but included in the review since was legally implemented in the meanwhile |
### Critical outdoor GAPs for northern Europe – propaquizafop

| Common name            | Scientific name | Region | Outdoor/Indoor | Member state or country | Pest controlled | Formulation | Application | PHI or waiting period (days) | Comments (max. 250 characters) |
|------------------------|-----------------|--------|----------------|-------------------------|-----------------|-------------|-------------|-----------------------------|-------------------------------|
| Sunflower seeds        | *Helianthus annuus* | NEU    | Outdoor        | CZ                      | Grass weed      | EC 100.0 g/L | Foliar treatment – spraying | 0.05 – 0.15 kg a.i./ha         | Covers also AT and DE GAPs. A more critical GAP (1 > 0.15 kg/ha; PHI: 45 days) authorised in HU is not supported by residue trials |
| Rapeseeds              | *Brassica napus* subsp. *napus* | NEU    | Outdoor        | FR                      | Grass weed      | EC 100.0 g/L | Foliar treatment – spraying | 0.05 – 0.20 kg a.i./ha         | Soil directed application. Covers also UK, HU, CZ, AT and DE GAPs |
| Soya beans             | *Glycine max*    | NEU    | Outdoor        |                          | Grass weed      | EC 100.0 g/L | Foliar treatment – spraying | 0.15 kg a.i./ha                | EFSA (2016). GAP not confirmed by MSs during the completeness check but included in the review since was legally implemented in the meanwhile A more critical GAP authorised in HU not supported by data (0.15 kg/ha; PHI: 45) |
| Mustard seeds          | *Brassica juncea*; *Brassica nigra*; *Sinapis alba* | NEU    | Outdoor        |                          | Grass weed      | EC 100.0 g/L | Foliar treatment – spraying | 0.15 kg a.i./ha                | EFSA (2016). GAP not confirmed by MSs during the completeness check but included in the review since was legally implemented in the meanwhile |
### Critical outdoor GAPs for northern Europe – propaquizafop

| Crop                  | Scientific name          | Region           | Outdoor/Indoor | Member state or country | Pest controlled | Formulation Type | Content Conc. Unit | Method                  | Growth stage From BBCH | Growth stage Until BBCH | Number | Interval (days) | Rate | PHI or waiting period (days) | Comments (max. 250 characters) |
|-----------------------|--------------------------|------------------|----------------|-------------------------|-----------------|------------------|--------------------|------------------------|-------------------------|-------------------------|--------|----------------|------|-----------------------------|---------------------------|
| Sugar beets           | Beta vulgaris subsp. vulgaris var. altissima | NEU              | Outdoor       | BE, CZ, FR              | Grass weed      | EC 100.0 g/L     | Foliar treatment – spraying | 11 37 1 1               | 0.05 0.20 kg a.i./ha     | Soil directed application. A different GAP not supported by data is authorised in HU (1 x 0.15 kg/ha; PHI: 45 days) |
| Alfalfa (for forage)  | Medicago sativa          | NEU              | Outdoor       | CZ                      | Grass weed      | EC 100.0 g/L     | Foliar treatment – spraying | 13 29 1 1               | 0.05 0.15 kg a.i./ha     | Covers also the FR GAP |
| Clover (for forage)   | Trifolium spp.           | NEU              | Outdoor       | CZ                      | Grass weed      | EC 100.0 g/L     | Foliar treatment – spraying | 13 29 1 1               | 0.05 0.15 kg a.i./ha     |                     |
| Fodder beets          | Beta vulgaris subsp. vulgaris var. crassa | NEU              | Outdoor       | FR                      | Grass weed      | EC 100.0 g/L     | Foliar treatment – spraying | 11 37 1 1               | 0.05 0.20 kg a.i./ha     | Soil directed application |

GAP: Good Agricultural Practice; MRL: maximum residue level; EC: emulsifiable concentrate; NEU: northern European Union; BBCH: growth stages of mono- and dicotyledonous plants; a.i.: active ingredient; PHI: preharvest interval; MS: Member State.

### Critical outdoor GAPs for southern Europe – propaquizafop

| Crop                  | Scientific name          | Region | Outdoor/Indoor | Member state or country | Pest controlled | Formulation Type | Content Conc. Unit | Method                  | Growth stage From BBCH | Growth stage Until BBCH | Number | Interval (days) | Rate | PHI or waiting period (days) | Comments (max. 250 characters) |
|-----------------------|--------------------------|--------|----------------|-------------------------|-----------------|------------------|--------------------|------------------------|-------------------------|-------------------------|--------|----------------|------|-----------------------------|---------------------------|
| Grapefruits           | Citrus paradisi          | SEU    | Outdoor       | IT                      | Grass weed      | EC 100.0 g/L     | Foliar treatment – spraying | 0 85 1 1               | 0.08 0.20 kg a.i./ha     | Soil directed application. Covers also ES and EL GAPs |
| Oranges               | Citrus sinensis          | SEU    | Outdoor       | IT                      | Grass weed      | EC 100.0 g/L     | Foliar treatment – spraying | 0 85 1 1               | 0.08 0.20 kg a.i./ha     | Soil directed application. Covers also ES and EL GAPs |
### Critical outdoor GAPs for southern Europe – propaquizafop

| Crop | Common name | Scientific name | Region | Outdoor/Indoor | Member state or country | Pest controlled | Formulation Type | Content Conc. | Unit | Method | Growth stage | From BBCH | Until BBCH | Number | Interval (days) | Rate | PHI or waiting period (days) | Comments (max. 250 characters) |
|------|-------------|-----------------|--------|----------------|-------------------------|-----------------|------------------|----------------|-------|--------|---------------|----------|-----------|--------|----------------|------|-----------------------------|-------------------------------|
| Lemons | Citrus limon | SEU Outdoor IT Grass weed EC 100.0 g/L Foliar treatment – spraying | 0 | 85 | 1 | 1 | 0.08 | 0.20 kg a.i./ha | n.a. | Soil directed application. Covers also ES and EL GAPs |
| Limes | Citrus aurantifolia | SEU Outdoor IT Grass weed EC 100.0 g/L Foliar treatment – spraying | 0 | 85 | 1 | 1 | 0.08 | 0.20 kg a.i./ha | n.a. | Soil directed application. Covers also ES and EL GAPs |
| Mandarin | Citrus reticulata, syn: Citrus deliciosa | SEU Outdoor IT Grass weed EC 100.0 g/L Foliar treatment – spraying | 0 | 85 | 1 | 1 | 0.08 | 0.20 kg a.i./ha | n.a. | Soil directed application. Covers also ES and EL GAPs |
| Almonds | Amygdalus communis, syn: Prunus dulcis | SEU Outdoor IT Grass weed EC 100.0 g/L Foliar treatment – spraying | 0 | 85 | 1 | 1 | 0.08 | 0.20 kg a.i./ha | n.a. | Soil directed application. Covers also ES and EL GAPs |
| Chestnuts | Castanea crenata; Castanea dentata; Castanea mollissima; Castanea sativa | SEU Outdoor IT Grass weed EC 100.0 g/L Foliar treatment – spraying | 0 | 85 | 1 | 1 | 0.08 | 0.20 kg a.i./ha | n.a. | Soil directed application. Covers also ES and EL GAPs |
| Hazelnuts | Corylus avellana | SEU Outdoor IT Grass weed EC 100.0 g/L Foliar treatment – spraying | 0 | 85 | 1 | 1 | 0.08 | 0.20 kg a.i./ha | n.a. | Soil directed application. Covers also ES and EL GAPs |
| Pine nut kernels | Pinus pinea | SEU Outdoor IT Grass weed EC 100.0 g/L Foliar treatment – spraying | 0 | 85 | 1 | 1 | 0.08 | 0.20 kg a.i./ha | n.a. | Soil directed application. Covers also ES and EL GAPs |
| Pistachios | Pistacia vera | SEU Outdoor IT Grass weed EC 100.0 g/L Foliar treatment – spraying | 0 | 85 | 1 | 1 | 0.08 | 0.20 kg a.i./ha | n.a. | Soil directed application. Covers also ES and EL GAPs |
| Walnuts | Juglans nigra; Juglans regia | SEU Outdoor IT Grass weed EC 100.0 g/L Foliar treatment – spraying | 0 | 85 | 1 | 1 | 0.08 | 0.20 kg a.i./ha | n.a. | Soil directed application. Covers also ES and EL GAPs |
### Critical outdoor GAPs for southern Europe – propaquizafop

| Crop | Common name | Scientific name | Region | Outdoor/Indoor | Member state or country | Pest controlled | Formulation | Application | PHI or waiting period (days) | Comments (max. 250 characters) |
|------|-------------|-----------------|--------|----------------|-------------------------|-----------------|-------------|-------------|-----------------------------|-------------------------------|
| Apples | Malus domestica | SEU Outdoor FR, ES | Grass weed | EC 100.0 g/L | Foliar treatment - spraying | 0 – 85 | 1 – 1 | 0.10 – 0.20 kg a.i./ha | Soil directed application |
| Pears | Pyrus communis | SEU Outdoor FR, ES | Grass weed | EC 100.0 g/L | Foliar treatment - spraying | 0 – 85 | 1 – 1 | 0.10 – 0.20 kg a.i./ha | Soil directed application |
| Quinces | Cydonia oblonga | SEU Outdoor IT | Grass weed | EC 100.0 g/L | Foliar treatment - spraying | 0 – 85 | 1 – 1 | 0.08 – 0.20 kg a.i./ha | Soil directed application |
| Medlars | Mespilus germanica | SEU Outdoor FR | Grass weed | EC 100.0 g/L | Foliar treatment - spraying | 0 – 85 | 1 – 1 | 0.10 – 0.20 kg a.i./ha | Soil directed application |
| Loquats | Eriobotrya japonica | SEU Outdoor IT | Grass weed | EC 100.0 g/L | Foliar treatment - spraying | 0 – 85 | 1 – 1 | 0.08 – 0.20 kg a.i./ha | Soil directed application |
| Apricots | Armeniaca vulgaris, syn: Prunus armeniaca | SEU Outdoor ES, IT | Grass weed | EC 100.0 g/L | Foliar treatment - spraying | 0 – 85 | 1 – 1 | 0.08 – 0.20 kg a.i./ha | Soil directed application. Covers also EL GAP |
| Cherries | Cerasus avium, syn: Prunus armeniaca | SEU Outdoor IT | Grass weed | EC 100.0 g/L | Foliar treatment - spraying | 0 – 85 | 1 – 1 | 0.08 – 0.20 kg a.i./ha | Soil directed application. Covers also EL and ES GAP |
| Peaches | Persica vulgaris, syn: Prunus persica | SEU Outdoor ES, IT | Grass weed | EC 100.0 g/L | Foliar treatment - spraying | 0 – 85 | 1 – 1 | 0.20 – 0.20 kg a.i./ha | Soil directed application. Covers also EL and ES GAP |
| Plums | Prunus domestica | SEU Outdoor IT | Grass weed | EC 100.0 g/L | Foliar treatment - spraying | 0 – 85 | 1 – 1 | 0.08 – 0.20 kg a.i./ha | Soil directed application. Covers also EL and ES GAP |
| Table grapes | Vitis vinifera | SEU Outdoor FR, ES | Grass weed | EC 100.0 g/L | Foliar treatment - spraying | 0 – 85 | 1 – 1 | 0.20 – 0.20 kg a.i./ha | Covers also EL GAP |
| Wine grapes | Vitis vinifera | SEU Outdoor FR, ES | Grass weed | EC 100.0 g/L | Foliar treatment - spraying | 0 – 85 | 1 – 1 | 0.20 – 0.20 kg a.i./ha | Covers also EL GAP |
| Crop                     | Common name | Scientific name | Region | Outdoor/ Indoor | Member state or country | Pest controlled | Formulation | Type | Content | Method | Growth stage | Application | PHI or waiting period (days) | Comments (max. 250 characters) |
|-------------------------|-------------|-----------------|--------|-----------------|-------------------------|-----------------|-------------|-------|---------|--------|---------------|-------------|-----------------------------|---------------------------------|
| Kumquats                | Fortunella japonica; Fortunella margarita | SEU | Outdoor | EL              | Grass weed              | EC 100.0 g/L    | Foliar treatment | spraying   | 0 59     | 1 1 1 | 0.08 0.20 kg a.i./ha | n.a.                       |                             |                                  |
| Potatoes                | Solanum tuberosum subsp. tuberosum    | SEU | Outdoor | ES, IT          | Grass weed              | EC 100.0 g/L    | Foliar treatment | spraying   | 11 1 1 | 1 1 1 | 0.08 0.15 kg a.i./ha | 40 Soil directed application. Covers also FR GAP |                             |                                  |
| Beetroots               | Beta vulgaris var. vulgaris            | SEU | Outdoor | EL              | Grass weed              | EC 100.0 g/L    | Foliar treatment | spraying   | 11 1 1 | 1 1 1 | 0.08 0.20 kg a.i./ha | 45                         |                             |                                  |
| Carrots                 | Daucus carota subsp. sativus          | SEU | Outdoor | ES, IT, EL      | Grass weed              | EC 100.0 g/L    | Foliar treatment | spraying   | 11 1 1 | 1 1 1 | 0.08 0.15 kg a.i./ha | 30 Soil directed application. Covers also FR GAP |                             |                                  |
| Parsley roots           | Petroselinum crispum convar. radicosum | SEU | Outdoor | ES, IT, EL      | Grass weed              | EC 100.0 g/L    | Foliar treatment | spraying   | 11 1 1 | 1 1 1 | 0.08 0.15 kg a.i./ha | 30 Soil directed application |                             |                                  |
| Garlic                  | Allium sativum                        | SEU | Outdoor | ES              | Grass weed              | EC 100.0 g/L    | Foliar treatment | spraying   | 11 1 1 | 1 1 1 | 0.15 0.20 kg a.i./ha | 30 Covers also EL and IT GAPs |                             |                                  |
| Onions                  | Allium cepa Common Onion group        | SEU | Outdoor | ES              | Grass weed              | EC 100.0 g/L    | Foliar treatment | spraying   | 11 1 1 | 1 1 1 | 0.15 0.20 kg a.i./ha | 30 Covers also EL and IT GAPs |                             |                                  |
| Shallots                | Allium cepa Aggregatum group, syn: Allium ascalonicum | SEU | Outdoor | ES              | Grass weed              | EC 100.0 g/L    | Foliar treatment | spraying   | 11 1 1 | 1 1 1 | 0.15 0.20 kg a.i./ha | 30 Covers also EL and IT GAPs |                             |                                  |
| Tomatoes                | Lycopersicon esculentum               | SEU | Outdoor | IT              | Grass weed              | EC 100.0 g/L    | Foliar treatment | spraying   | 11 1 1 | 1 1 1 | 0.08 0.20 kg a.i./ha | 30 Covers also ES GAP |                             |                                  |
| Aubergines              | Solanum melongena                     | SEU | Outdoor | IT              | Grass weed              | EC 100.0 g/L    | Foliar treatment | spraying   | 11 1 1 | 1 1 1 | 0.08 0.20 kg a.i./ha | 30 Covers also ES GAP |                             |                                  |
| Okra                    | Abelmoschus esculentus                | SEU | Outdoor | EL              | Grass weed              | EC 100.0 g/L    | Foliar treatment | spraying   | 11 1 1 | 1 1 1 | 0.08 0.20 kg a.i./ha | 45                         |                             |                                  |
### Critical outdoor GAPs for southern Europe – propaquizafop

| Crop                           | Common name | Scientific name                     | Formulation | Region | Outdoor/Indoor | Member state or country | Pest controlled | Chemical name | Type | Conc. Unit | Method | Growth stage | PHI or waiting period (days) | Rate | Comments                                                                 |
|--------------------------------|-------------|-------------------------------------|-------------|--------|----------------|--------------------------|-----------------|---------------|------|-------------|--------|--------------|-----------------------------|------|--------------------------------------------------------------------------|
| Melons                         | Cucumis melo| SEU Outdoor ES Grass weed EC 100.0 g/L | Foliar treatment - spraying | 11     | 1 1           | 0.08 0.20 kg a.i./ha     | 45              | A more critical GAP authorised in EL (PHI: 30 days) and a different GAP authorised in IT (1 = 0.12 kg/ha; PHI: 30 days) are not supported by data |
| Pumpkins                       | Cucurbita maxima | SEU Outdoor ES Grass weed EC 100.0 g/L | Foliar treatment - spraying | 11     | 1 1           | 0.15 0.20 kg a.i./ha     | 45              |                                                                 |
| Watermelons                    | Citrullus vulgaris, syn: Citrullus lanatus | SEU Outdoor ES Grass weed EC 100.0 g/L | Foliar treatment - spraying | 11     | 1 1           | 0.15 0.20 kg a.i./ha     | 45              |                                                                 |
| Broccoli                       | Brassica oleracea var. italica | SEU Outdoor ES Grass weed EC 100.0 g/L | Foliar treatment - spraying | 1 1    | 0.20 0.20 kg a.i./ha | 30 | Covers also EL and IT GAPs                                                                 |
| Head cabbages                  | Brassica oleracea var. capitata | SEU Outdoor PT, ES Grass weed EC 100.0 g/L | Foliar treatment - spraying | 1 1    | 0.20 0.20 kg a.i./ha | 30 | EFSA, 2016. Covers also IT GAP                                                                 |
| Lamb’s lettuces                | Valerianella locusta | SEU Outdoor IT Grass weed EC 100.0 g/L | Foliar treatment - spraying | 11     | 1 1           | 0.08 0.12 kg a.i./ha     | 15 | Soil directed application                                                                 |
| Lettuces                       | Lactuca sativa | SEU Outdoor FR Grass weed EC 100.0 g/L | Foliar treatment - spraying | 0 18   | 1 1           | 0.05 0.12 kg a.i./ha     | 30 | Soil directed application. A more critical GAP (PHI: 15 days) authorised in IT is not supported by residue data |
| Escaroles                      | Cichorium endivia var. latifolia | SEU Outdoor FR Grass weed EC 100.0 g/L | Foliar treatment - spraying | 11     | 1 1           | 0.05 0.12 kg a.i./ha     | 30 | Soil directed application. A more critical GAP (PHI: 15 days) authorised in IT is not supported by residue data |
| Common name            | Scientific name         | Region | Outdoor/Indoor | Pest controlled | Formulation | Application | PHI or waiting period (days) | Comments |
|------------------------|--------------------------|--------|----------------|----------------|-------------|-------------|-----------------------------|----------|
| Baby leaf crops        | Not specified            | SEU    | Outdoor        | Grass weed      | EC 100.0 g/L | Foliar treatment - spraying | Soil directed application |
| Beans (with pods)      | Phaseolus vulgaris       | SEU    | Outdoor        | Grass weed      | EC 100.0 g/L | Foliar treatment - spraying | Soil directed application |
| Beans (without pods)   | Phaseolus vulgaris       | SEU    | Outdoor        | Grass weed      | EC 100.0 g/L | Foliar treatment - spraying | Soil directed application |
| Peas (with pods)       | Pisum sativum            | SEU    | Outdoor        | Grass weed      | EC 100.0 g/L | Foliar treatment - spraying | Soil directed application |
| Peas (without pods)    | Pisum sativum            | SEU    | Outdoor        | Grass weed      | EC 100.0 g/L | Foliar treatment - spraying | Soil directed application |
| Asparagus              | Asparagus officinalis    | SEU    | Outdoor        | Grass weed      | EC 100.0 g/L | Foliar treatment - spraying | Soil directed application |
### Critical outdoor GAPs for southern Europe – propaquizafop

| Crop Common name | Scientific name | Region | Outdoor/Indoor | Member state or country | Pest controlled | Formulation Type | Content | Method | Growth stage | Application | PHI or waiting period (days) | Comments (max. 250 characters) |
|------------------|-----------------|--------|----------------|-------------------------|-----------------|------------------|---------|--------|-------------|-------------|-----------------------------|-------------------------------|
| Florence fennels | Foeniculum vulgare var. azoricum | SEU Outdoor | EL, IT | Grass weed | EC | 100.0 | g/L | Foliar treatment – spraying | 11 | 1 | 1 | 0.10 | 0.13 kg a.i./ha | 30 |
| Globe artichokes | Cynara cardunculus Globe artichoke group | SEU Outdoor | IT | Grass weed | EC | 100.0 | g/L | Foliar treatment – spraying | 11 | 1 | 1 | 0.10 | 0.12 kg a.i./ha | 30 Soil directed application |
| Beans (dry) | Phaseolus vulgaris | SEU Outdoor | ES | Grass weed | EC | 100.0 | g/L | Foliar treatment – spraying | 11 | 1 | 1 | 0.15 | 0.20 kg a.i./ha | 40 Covers also IT GAP |
| Lentils (dry) | Lens culinaris, syn: Lens esculenta | SEU Outdoor | ES | Grass weed | EC | 100.0 | g/L | Foliar treatment – spraying | 11 | 1 | 1 | 0.15 | 0.20 kg a.i./ha | 40 Covers also IT and EL GAPs |
| Peas (dry) | Pisum sativum | SEU Outdoor | ES | Grass weed | EC | 100.0 | g/L | Foliar treatment – spraying | 11 | 1 | 1 | 0.15 | 0.20 kg a.i./ha | 40 Covers also IT GAP |
| Lupins (dry) | Lupinus albus subsp. albus; Lupinus angustifolius; Lupinus luteus; Lupinus mutabilis | SEU Outdoor | ES | Grass weed | EC | 100.0 | g/L | Foliar treatment – spraying | 11 | 1 | 1 | 0.15 | 0.20 kg a.i./ha | 40 Covers also IT and EL GAPs |
| Linseeds | Linum usitatissimum | SEU Outdoor | EL | Grass weed | EC | 100.0 | g/L | Foliar treatment – spraying | 11 | 1 | 1 | 0.08 | 0.20 kg a.i./ha | 90 |
| Sunflower seeds | Helianthus annuus | SEU Outdoor | EL | Grass weed | EC | 100.0 | g/L | Foliar treatment – spraying | 11 | 1 | 1 | 0.08 | 0.12 kg a.i./ha | 90 More critical GAP not supported by data are authorised in ES (1 = 0.2 kg/ha; PHI: 60 days) and IT (1 = 0.2 kg/ha; PHI: 90 days) |
| Rapseeds | Brassica napus subsp. napus | SEU Outdoor | IT, EL, ES, FR | Grass weed | EC | 100.0 | g/L | Foliar treatment – spraying | 11 | 31 | 1 | 1 | 0.05 | 0.20 kg a.i./ha | 90 Soil directed application |
| Crop                        | Common name                      | Scientific name                        | Region | Outdoor/Indoor | Member state or country | Pest controlled | Formulation | Method                    | Growth stage | Application | PHI or waiting period (days) | Comments (max. 250 characters)                                                                 |
|-----------------------------|----------------------------------|----------------------------------------|--------|----------------|-------------------------|-----------------|-------------|---------------------------|--------------|-------------|-----------------------------|------------------------------------------------------------------------------------------------|
| Soya beans                  | Glycine max                      | SEU Outdoor FR, IT                     | Grass weed | EC              | 100.0 g/L               | Foliar treatment - spraying | 11-49          | 1-1                       | 0.08-0.20 kg a.i./ha | 90          | Soil directed application. Covers EL GAP. A more critical GAP authorised in ES (1 x 0.2 kg/ha; PHI: 60 days) is not supported by data |
| Cotton seeds                | Gossypium barbadense; Gossypium herbaceum | SEU Outdoor ES                         | Grass weed | EC              | 100.0 g/L               | Foliar treatment - spraying | 1-1            | 0.15-0.20 kg a.i./ha | n.a.         | 60          | Covers also IT and EL GAPs |
| Olives for oil production   | Olea europaea var. europaea       | SEU Outdoor ES                         | Grass weed | EC              | 100.0 g/L               | Foliar treatment - spraying | 59-1           | 0.15-0.20 kg a.i./ha | n.a.         | n.a.        | Application done in the dry paddy on the target plant (wild rice) before seeding. The paddy is flooded 24-48 h after the application. Seeding is done not earlier than 48-72 h of flooding |
| Rice                        | Oryza sativa                     | SEU Outdoor ES                         | Grass weed | EC              | 100.0 g/L               | Soil treatment - general (see also comment field) | 0-1           | 0.15-0.15 kg a.i./ha | n.a.         | n.a.        |                                                                                            |
| Sugar beets                 | Beta vulgaris subsp. vulgaris var. altissima | SEU Outdoor IT, EL, ES                | Grass weed | EC              | 100.0 g/L               | Foliar treatment - spraying | 1-1            | 0.20-0.20 kg a.i./ha | 45           |                                      |                                                                                            |
| Alfalfa (for forage)        | Medicago sativa                 | SEU Outdoor ES                         | Grass weed | EC              | 100.0 g/L               | Foliar treatment - spraying | 1-1            | 0.08-0.15 kg a.i./ha | 45           | Covers also FR GAP |
| Clover (for forage)         | Trifolium spp.                   | SEU Outdoor ES                         | Grass weed | EC              | 100.0 g/L               | Foliar treatment - spraying | 1-1            | 0.08-0.15 kg a.i./ha | 45           | Covers also EL GAP |
### Critical outdoor GAPs for southern Europe – propaquizafop

| Crop Common name | Scientific name | Region | Outdoor/Indoor | Member state or country | Pest controlled | Formulation Type | Content Conc. Unit | Method | Growth stage From BBCH | Until BBCH | Number | Interval (days) | Rate Min. | Rate Max. | PHI or waiting period (days) | Comments (max. 250 characters) |
|------------------|-----------------|--------|----------------|-------------------------|----------------|------------------|-------------------|--------|------------------------|------------|--------|----------------|----------|----------|-----------------------------|--------------------------------|
| Vetch (for forage) | *Vicia* spp. | SEU | Outdoor | ES, IT | Grass weed | EC 100.0 g/L | Foliar treatment – spraying | 1 | 1 | 0.08 | 0.15 kg a.i./ha | 45 | Covers also EL GAP |
| Fodder beets | *Beta vulgaris* subsp. *vulgaris* var. *crassa* | SEU | Outdoor | ES, IT | Grass weed | EC 100.0 g/L | Foliar treatment – spraying | 11 | 1 | 0.20 | 0.20 kg a.i./ha | 45 |

GAP: Good Agricultural Practice; MRL: maximum residue level; EC: emulsifiable concentrate; SEU: southern European Union; BBCH: growth stages of mono- and dicotyledonous plants; a.i.: active ingredient; PHI: preharvest interval.
Appendix B – List of end points

B.1. Residues in plants

B.1.1. Nature of residues and methods of analysis in plants

B.1.1.1. Metabolism studies, methods of analysis and residue definitions in plants

| Crop groups (available studies) | Quizalofop-P-ethyl |
|---------------------------------|--------------------|
| **Primary crops**               | Crop(s)            | Application(s) | Sampling<sup>(a)</sup> (DAT) |
| Fruit crops                     | Tomatoes<sup>(b)</sup> | Foliar, 1 × 167–173 g a.s./ha | 0, 12 and 105 |
| Root crops                      | Sugar beets<sup>(b)</sup> | Foliar, 1 × 280 g a.s./ha | 31, 60 and 90 |
|                                 | Sugar beets<sup>(c)</sup> | Foliar, 1 × 6 g a.s./ha | 28 |
|                                 | Potatoes<sup>(c)</sup> | Foliar, 1 × 6 g a.s./ha | 14 |
|                                 | Sugar beets<sup>(d)</sup> | Foliar, 1 × 316 g a.s./ha | 31 |
| Pulses/oilseeds                 | Cotton<sup>(e)</sup> | Foliar, 1 × 260 g a.s./ha | 0, 7, 21 and 42 |
|                                 | Soya beans<sup>(e)</sup> | Foliar, 1 × 273–287 g a.s./ha | 0, 7, 21 and 42 |
|                                 | Soya beans<sup>(f)</sup> | Foliar, 1 × 280 g a.s./ha | 0, 7, 14, 29 and 63 |
|                                 | Soya beans<sup>(g)</sup> | Foliar, 1 × 340 g a.s./ha (R/S); 1 × 160 g a.s./ha (R + S) | 1, 14 and 105 |

Sources: Finland (2007a, 2014)

| Crop groups (available studies) | Quizalofop-P-ethyl |
|---------------------------------|--------------------|
| **Rotational crops**            | Crop(s)            | Application(s) | PBI<sup>(DAT)</sup> |
| Root/tuber crops                | Sugar beets<sup>(e)</sup> | Bare soil, 308 g a.s./ha | 30, 60 |
| Leafy crops                     | Lettuce<sup>(e)</sup> | Bare soil, 308 g a.s./ha | 30, 60 |
| Pulses and oilseeds             | Cotton seeds<sup>(e)</sup> | Bare soil, 308 g a.s./ha | 30, 60 |
| Cereal (small grain)            | Wheat<sup>(e)</sup> | Bare soil, 308 g a.s./ha | 30, 60 |

Source: Finland (2007a)

| Processed commodities (hydrolysis study) | Quizalofop-P-ethyl |
|------------------------------------------|--------------------|
| Conditions                               | Investigated? |
| Pasteurisation (20 min, 90°C, pH 4)      | No |
| Baking, brewing and boiling (60 min, 100°C, pH 5) | No |
| Sterilisation (20 min, 120°C, pH 6)      | No |

Not available for quizalofop-P-ethyl but not required since study performed with quizalofop in the framework of the MRL review for quizalofop-P-tefuryl is expected to cover all three ester variants.

a.s.: active substance; PBI: plant-back interval.

(a): DAT: days after treatment.

(b): Phenyl- and quinoxaline-labelled quizalofop-P-ethyl (R-enantiomer).

(c): Phenyl-labelled quizalofop-ethyl (Racemate (R/S)). Study results used for information only considering the low application rate.

(d): Phenyl-labelled quizalofop-P-ethyl (R-enantiomer). Residues analysed in foliage only.

(e): Phenyl- and quinoxaline-labelled quizalofop-ethyl (racemate (R/S)).

(f): Phenyl- and quinoxaline-labelled quizalofop-ethyl (racemate (R/S) and R-enantiomer).

(g): Quinoxaline-labelled quizalofop-ethyl (racemate (R/S) and R- and S-enantiomer).
### Primary crops (available studies)

| Crop groups | Crop(s) | Application(s) | Sampling\(^{(a)}\) (DAT) |
|-------------|---------|----------------|---------------------------|
| Root crops  | Potatoes\(^{(b)}\) | Foliar, 2 × 105–545 g a.s./ha | 40, 62 |
| Pulses/oilseeds | Cotton\(^{(b)}\) | Foliar, 2 × 209–580 g a.s./ha | 180 |
| Soya beans\(^{(c)}\) | Foliar, 1 × 2.78 kg a.s./ha | 10 |
| Soya beans\(^{(b)}\) | Foliar, 1 × 100–400 g a.s./ha | 14, 34, 61 |
| Soya beans\(^{(b)}\) | Foliar, 2 × 290–580 g a.s./ha | 84 |
| Soya beans\(^{(b)}\) | Foliar, 2 × 2.2 kg a.s./ha | 10 |
| Soya beans\(^{(b)}\) | Foliar, 2 × 120–480 g a.s./ha | 6, 18, 49 |

Sources: Finland (2007b, 2015)

### Rotational crops (available studies)

| Crop groups | Crop(s) | Application(s) | PBI (DAT) |
|-------------|---------|----------------|-----------|
| Root/tuber crops | Turnips\(^{(d)}\) | Bare soil, 250 g a.s./ha | 30, 120, 240, 540 |
| Leafy crops | Lettuce\(^{(d)}\) | Bare soil, 250 g a.s./ha | 30, 120, 240, 540 |
| Cereal (small grain) | Wheat\(^{(d)}\) | Bare soil, 250 g a.s./ha | 30, 120, 240, 540 |

Source: Finland (2007b)

The crops planted one month after the treatment (30 DAT) were lost because of crop failure.

### Processed commodities (hydrolysis study)

| Conditions | Investigated? |
|------------|---------------|
| Pasteurisation (20 min, 90°C, pH 4) | Yes |
| Baking, brewing and boiling (60 min, 100°C, pH 5) | Yes |
| Sterilisation (20 min, 120°C, pH 6) | Yes |

Study performed with quizalofop in the framework of the MRL review for quizalofop-P-tefuryl and expected to cover all three ester variants.

Source: Finland (2015)

\(^{(a)}\) DAT: days after treatment.

\(^{(b)}\) Phenyl- and quinoxaline-labelled quizalofop-P-tefuryl.

\(^{(c)}\) Phenyl-labelled quizalofop-P-tefuryl.

\(^{(d)}\) Quinoxaline-labelled quizalofop-P-tefuryl.

### Primary crops (available studies)

| Crop groups | Crop(s) | Application(s) | Sampling\(^{(a)}\) |
|-------------|---------|----------------|-------------------|
| Root crops  | Sugar beets\(^{(b)}\) | Foliar, 2 × 200 g a.s./ha | 98-114 DALA |
| Leafy crops | Lettuce\(^{(c)}\) | Foliar, 1 × 200 g a.s./ha | 77 DAT |
| Lettuce\(^{(d)}\) | Foliar, 1 × 1,000 g a.s./ha | 77 DAT |
| Pulses/oilseeds | Cotton\(^{(c)}\) | Onto leaf, 180 g a.s./ha | 0-51 DAT |
| Cotton\(^{(b)}\) | Foliar, 1 × 200 g a.s./ha | 0, 6, 12, 22 DAT |
| Cotton\(^{(d)}\) | Foliar, 1 × 214 g a.s./ha | 0, 15, 22 DALA |
| Soya beans\(^{(d)}\) | Onto leaf, 1 × 100 g a.s./ha | 0 to 28 |
| Cotton\(^{(b)}\) | Foliar, 1 × 190 g a.s./ha | 0, 7, 14 DAT |
| Cotton\(^{(d)}\) | Foliar, 2 × 268-298 g a.s./ha | 66, 70 DAT |
| Soya beans\(^{(b)}\) | Foliar, 1 × 200 g a.s./ha | 8, 15 DAT |
| Soya beans\(^{(b)}\) | Foliar, 2 × 280 g a.s./ha | 66, 100 DALA |

Source: Italy (2008)
Rotational crops  
(available studies)

| Crop groups       | Crop(s)                  | Application(s)               | PBI (e) |
|-------------------|--------------------------|-------------------------------|---------|
| Root/tuber crops  | Sugar beet(b)            | Soybeans, 2 \( \times \) 280 g a.s./ha | 30, 120, 270 |
| Leafy crops       | Spinach(g)               | Soybeans, 2 \( \times \) 280 g a.s./ha | 30, 120, 270 |
| Cereal (small grain) | Wheat(b)                | Soybeans, 2 \( \times \) 280 g a.s./ha | 30, 120, 270 |

Source: Italy (2005)

Processed commodities  
(hydrolysis study)

| Conditions                                    | Investigated? |
|----------------------------------------------|---------------|
| Pasteurisation (20 min, 90°C, pH 4)          | No            |
| Baking, brewing and boiling (60 min, 100°C, pH 5) | No            |
| Sterilisation (20 min, 120°C, pH 6)         | No            |

Not available for propaquizafop but not required since study performed with quizalofop in the framework of the MRL review for quizalofop-P-teturyl is expected to cover all three ester variants.

a.s.: active substance; PBI: plant-back interval.
(a): DAT: days after treatment, DALA: days after the last application.
(b): Quinoxaline-labelled propaquizafop.
(c): Hydroquinone and chlorophenyl-labelled propaquizafop.
(d): Hydroquinone-labelled propaquizafop.
(e): Days after harvest of the treated soya beans.

Can a general residue definition be proposed for primary crops?  
Yes

Rotational crop and primary crop metabolism similar?  
Yes

Residue pattern in processed commodities similar to residue pattern in raw commodities?  
Yes

Plant residue definition for monitoring (RD-Mo)  
Sum of quizalofop, its salts, its esters (including propaquizafop) and its conjugates, expressed as quizalofop (any ratio of constituent isomers)

Plant residue definition for risk assessment (RD-RA)  
Sum of quizalofop, its salts, its esters (including propaquizafop) and its conjugates, expressed as quizalofop (any ratio of constituent isomers)

Conversion factor (monitoring to risk assessment)  
Not applicable

Methods of analysis for monitoring of residues (analytical technique, crop groups, LOQs)  
HPLC-MS/MS, high water, high acid, high oil content and dry commodities; LOQ: 0.01 mg/kg; ILV available (Finland, 2014, 2016b). Extraction efficiency and hydrolysis step need to be demonstrated at least in one crop/matrix. An LOQ of 0.01 mg/kg is achievable during routine analysis (EURLs, 2016a). Fully validated analytical method in complex matrices still required (relevant for the authorisations of quizalofop-P-ethyl on herbal infusions and spices)

HPLC-MS/MS: high-performance liquid chromatography with tandem mass spectrometry; LOQ: limit of quantification; ILV: independent laboratory validation.
### B.1.1.2. Stability of residues in plants

| Plant products (available studies) | Category         | Commodity      | T (°C) | Stability (Months/years) |
|-----------------------------------|------------------|----------------|--------|-------------------------|
|                                     | High water content| Snaps beans    | –20    | 28                      |
|                                     | High oil content  | Cotton seeds   | –20    | 28                      |
|                                     |                   | Rape seeds     |        |                         |
|                                     | Dry               | Wheat grain    | –18    | 12                      |
|                                     | High acid content | Oranges        | –18    | 12                      |

Since conjugates may only degrade to the acid form, the reported storage stability studies are expected to cover all compounds included in the residue definition, including conjugates.

Sources: Spain (2012); Finland (2014)
### B.1.2. Magnitude of residues in plants

#### B.1.2.1. Summary of residues data from the supervised residue trials performed with quizalofop-P-ethyl

| Crop | Residue levels observed in the supervised residue trials relevant to the supported GAPs (mg/kg) | Recommendations/comments (OECD calculations) | MRL proposals (mg/kg) | HR (mg/kg) | STMR (mg/kg) |
|------|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|----------------------|------------|--------------|
|      | Region/Indoor(a)                                                                               |                                                                 |                      |            |              |
|      | SEU                                                                                           | No residue trials available                                     | –                    | –          | –            |
| Citrus fruits | –                                                                                         |                                                                 |                      |            |              |
| Pome fruits | –                                                                                         | No residue trials available. No authorised for use on stone fruits in NEU | –                    | –          | –            |
| Stone fruits | SEU                                                                                         | 6 ×< 0.02 Combined data set of apples (3) and peaches (3) (Finland, 2014). Extrapolation to all pome fruits and stone fruits possible. MRL\(_{\text{OECD}}\) = 0.02 | 0.02\((d)\) (tentative) | 0.02 | 0.02 |
| Table grapes | NEU                                                                                         | No residue trials available. No authorised for use on table grapes in NEU | –                    | –          | –            |
| Wine grapes | SEU                                                                                         | 6 ×< 0.02 Combined data set of grapes (3) and strawberries (3) compliant with GAP (Finland, 2007a, 2014). \(\text{MRL}_{\text{OECD}}\) = 0.02 | 0.02\((d)\) (tentative) | 0.02 | 0.02 |
| Strawberries | NEU                                                                                         | As the application is done after harvest, no residues are expected to occur (Finland, 2016a) | 0.01\((d)\) (tentative) | 0.01 | 0.01 |
| SEU | 6 ×< 0.02 Combined data set of grapes (3) and strawberries (3) compliant with GAP (Finland, 2007a, 2014). \(\text{MRL}_{\text{OECD}}\) = 0.02 | 0.02\((d)\) (tentative) | 0.02 | 0.02 |
| Blackberries | NEU                                                                                         | No residue trials available. No authorised for use on blackberries in NEU | –                    | –          | –            |
| Raspberries (red and yellow) | –                                                                                         |                                                                 |                      |            |              |
| SEU | 6 ×< 0.02 Combined data set of grapes (3) and strawberries (3) compliant with GAP (Finland, 2007a, 2014). Extrapolation to blackberries and raspberries possible. \(\text{MRL}_{\text{OECD}}\) = 0.02 | 0.02\((d)\) (tentative) | 0.02 | 0.02 |

(a) SEU – Spraying outside, NEU – Spraying indoor
| Crop                      | Region/Indoor | Residue levels observed in the supervised residue trials relevant to the supported GAPs (mg/kg) | Recommendations/comments (OECD calculations) | MRL proposals (mg/kg) | HR (mg/kg) | STMR (mg/kg) |
|---------------------------|---------------|------------------------------------------------------------------------------------------------|---------------------------------------------|-----------------------|------------|--------------|
| Blueberries/Currants     | NEU           | –                                                                                               | No residue trials available                | –                     | –          | –            |
| (black, red and white)   |               |                                                  |                                             |                       |            |              |
| Gooseberries/Gooseberries|               |                                                  |                                             |                       |            |              |
| (green, red and yellow)  |               |                                                  |                                             |                       |            |              |
| Rose hips/Elderberries   |               |                                                  |                                             |                       |            |              |
| Table olives             | SEU           | –                                                                                               | No residue trials available                | –                     | –          | –            |
| Potatoes                 | NEU           | 7 × < 0.01; 0.0154                                                                             | Trials compliant with GAP (Finland, 2016a)  | 0.02(d)               | 0.02       | 0.01         |
|                          |               |                                                  | MRL\_OECD = 0.02                           |                       |            |              |
|                          | SEU           | < 0.01; 0.0173; 0.0252; 0.0302                                                                | Trials compliant with GAP (Finland, 2016a)  | 0.06(d),(e)           | 0.03       | 0.02         |
|                          |               |                                                  | MRL\_OECD = 0.06                           |                       |            |              |
| Carrots                  | NEU           | 2 × < 0.005; 2 × 0.02                                                                           | Trials on carrots. First two trials performed at 0.20 kg/ha instead of 0.15 kg/ha acceptable since residues were below the LOQ (Finland, 2014). MRL\_OECD = 0.05 | 0.05(d)               | 0.02       | 0.01         |
|                          | SEU           | 2 × 0.01; 2 × 0.02; 3 × 0.03; 3 × 0.04                                                            | Trials on carrots compliant with GAP (Finland, 2014) MRL\_OECD = 0.08 | 0.08(d)               | 0.04       | 0.03         |
| Radishes/Turnips/Salsifies/Celeriacs/Parsnips | NEU          | 2 × < 0.005; 2 × 0.02                                                                           | Trials on carrots performed at PHI within the 25% deviation (Finland, 2014). First two trials performed at 0.20 kg/ha instead of 0.15 kg/ha acceptable since residues were below the LOQ. Extrapolation to celeriacs, parsnips, radishes, salsifies and turnips possible. MRL\_OECD = 0.05 | 0.05(d)               | 0.02       | 0.01         |
|                          | SEU           | 2 × 0.01; 2 × 0.02; 3 × 0.03; 3 × 0.04                                                            | Trials on carrots performed at a more critical GAP tentatively extrapolated to radishes and turnips (Finland, 2014). No authorised for use on celeriacs, parsnips and salsifies in SEU. MRL\_OECD = 0.08 | 0.08(d),(f)           | 0.04       | 0.03         |
| Swedes/Chicory roots     | NEU           | 2 × < 0.005; 2 × 0.02                                                                           | Trials on carrots performed at a more critical GAP tentatively extrapolated to swedes and chicory roots (Finland, 2014). First two trials acceptable since residues were below the LOQ. MRL\_OECD = 0.05 | 0.05(d),(f)           | 0.02       | 0.01         |

(d) Tentative level
(e) The value is 0.03 mg/kg for GAP (Finland, 2016a) for SEU. It is 0.02 mg/kg for GAP 2014 for SEU.
(f) The value is 0.04 mg/kg for GAP (Finland, 2014) for SEU.
| Crop                        | Region/ Indoor<sup>(a)</sup> | Residue levels observed in the supervised residue trials relevant to the supported GAPs (mg/kg) | Recommendations/comments (OECD calculations) | MRL proposals (mg/kg) | HR (mg/kg)<sup>(b)</sup> | STMR (mg/kg)<sup>(c)</sup> |
|-----------------------------|-----------------------------|-------------------------------------------------------------------------------------------------|-----------------------------------------------|----------------------|--------------------------|--------------------------|
| Jerusalem artichokes        | NEU                         | --                                                                                              | No residue trials available                   | --                   | --                       | --                       |
| Horseradishes               | NEU                         | --                                                                                              | No residue trials available                   | --                   | --                       | --                       |
| Parsley roots               | NEU                         | --                                                                                              | No residue trials available                   | --                   | --                       | --                       |
| Garlic                      | NEU                         | --                                                                                              | No residue trials available                   | --                   | --                       | --                       |
| Onions                      | SEU                         | Onions: 3 × < 0.02 Garlic: < 0.02                                                                | Combined data set of trials on onions (3) and garlic (1) compliant with GAP (Finland, 2014; Italy, 2016a); extrapolation to less critical GAP on shallots possible since residues were < LOQ. MRL<sub>OECD</sub> = 0.02 | 0.02<sup>(d)</sup> (tentative) | 0.02 | 0.02 |
| Shallots                    | SEU                         | --                                                                                              | -- residue trials available                    | --                   | --                       | --                       |
| Tomatoes                    | NEU                         | 4 × < 0.005                                                                                     | Trials on tomatoes compliant with GAP (Finland, 2014). No authorised for use on aubergines in NEU. MRL<sub>OECD</sub> = 0.01 | 0.01<sup>d</sup> (tentative) | 0.01 | 0.01 |
| Aubergines (egg plants)     | SEU                         | 9 × < 0.005; 2 × 0.01; 0.02                                                                      | Trials on tomatoes with dose rate within the 25% deviation compared with GAP (Finland, 2014); extrapolation to aubergines possible. MRL<sub>OECD</sub> = 0.03 | 0.03<sup>d</sup> (tentative) | 0.02 | 0.01 |
| Sweet peppers/bell peppers  | SEU                         | --                                                                                              | No residue trials available                    | --                   | --                       | --                       |
| Cucurbits with edible peel  | SEU                         | --                                                                                              | No residue trials available                    | --                   | --                       | --                       |
| Cucurbits with inedible peel| SEU                         | --                                                                                              | -- residue trials available                    | --                   | --                       | --                       |
| Flowering brassicas         | SEU                         | --                                                                                              | No residue trials available                    | --                   | --                       | --                       |
| Brussels sprouts            | SEU                         | --                                                                                              | No residue trials available                    | --                   | --                       | --                       |
| Head cabbages               | NEU                         | --                                                                                              | No residue trials available                    | --                   | --                       | --                       |
| Chinese cabbages/ pe-tsai   | SEU                         | --                                                                                              | No residue trials available                    | --                   | --                       | --                       |

<sup>(a)</sup> Indoor testing was not performed for these crops.

<sup>(b)</sup> This value is tentative according to the OECD guidelines.

<sup>(c)</sup> This value is tentative according to the OECD guidelines.

<sup>(d)</sup> Overdosed trials on head cabbages performed according to a more critical GAP (200 g a.s. with PHI 30) (Italy, 2016a). MRL<sub>OECD</sub> = 0.43

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| Crop | Region/ Indoor(a) | Residue levels observed in the supervised residue trials relevant to the supported GAPs (mg/kg) | Recommendations/comments (OECD calculations) | MRL proposals (mg/kg) | HR (mg/kg)(b) | STMR (mg/kg)(c) |
|------|------------------|-------------------------------------------------|-----------------------------------------------|----------------------|-------------|--------------|
| Kales | SEU              | –                                               | No residue trials available                   |                      |             |              |
| Kohlrabies | SEU              | –                                               | No residue trials available                   |                      |             |              |
| Lamb's lettuces/corn salads | NEU             | –                                               | No residue trials available                   |                      |             |              |
| SEU       | –                | No residue trials available                     |                                               |                      |             |              |
| Lettuces Escaroles | NEU             | Open-leaf: 5 × < 0.02; 0.02; 0.04; 0.12      | Trials on lettuce compliant with GAP (Finland, 2014; Italy, 2016a). Extrapolation to escarole possible. MRL\(_\text{OECD}\) = 0.18 |                      |             |              |
| Cresses and other sprouts and shoots | SEU             | –                                               | No residue trials available                   |                      |             |              |
| Spinaches Chards/beet leaves | NEU             | 4 × < 0.04                                       | Trials on spinach compliant with GAP (Finland, 2014); extrapolation to chards possible. It remains unclear whether conjugates were included in the analytical method. MRL\(_\text{OECD}\) = 0.04 |                      |             |              |
| SEU       | –                | No residue trials available                     |                                               |                      |             |              |
| Witloofs/ Belgian endives | NEU             | –                                               | No residue trials available                   |                      |             |              |
| SEU       | –                | No residue trials available                     |                                               |                      |             |              |
| Fresh herbs | NEU             | Thyme: 3 × < 0.05; Marjoram: 4 × < 0.05       | Trials on thyme (3) and marjoram (4) compliant with GAP (Finland, 2014); extrapolation to herbs possible. It remains unclear whether conjugates were included in the analytical method. MRL\(_\text{OECD}\) = 0.05 |                      |             |              |
| SEU       | Open-leaf: 5 × < 0.02; 0.02; 0.04; 0.12 | Trials on lettuce compliant with GAP (Finland, 2014; Italy, 2016a). Extrapolation to fresh herbs possible |                                               |                      |             |              |
| Crop | Region/Indoor(a) | Residue levels observed in the supervised residue trials relevant to the supported GAPs (mg/kg) | Recommendations/comments (OECD calculations) | MRL proposals (mg/kg) | HR (mg/kg)(b) | STMR (mg/kg)(c) |
|------|------------------|-----------------------------------------------------------------------------------------------|---------------------------------------------|----------------------|----------------|-----------------|
| Beans (with pods) | NEU | $8 < 0.005$; $0.01$; $3 < 0.01$; $0.0181$; $0.0122$; $0.0443$ | Trials on fresh beans with pods compliant with GAP or with dose rate within 25% deviation (Finland, 2014, 2016a). MRL$^\text{OECD} = 0.05$ | $0.05^{(d)}$ (tentative) | 0.04 | 0.01 |
| | SEU | $0.01$; $3 < 0.02$; $0.05$; $2 < 0.06$; $0.0164$; $0.167$ | Trials on fresh beans with pods performed with dose rate within 25% deviation (Finland, 2014, 2016a). MRL$^\text{OECD} = 0.23$ | $0.3^{(d)}$ (tentative) | 0.17 | 0.02 |
| Peas (with pods) | NEU | $5 < 0.005$; $< 0.01$; $0.0181$ | Trials on fresh beans with pods with dose rate within 25% deviation (Finland, 2014, 2016a). Extrapolation to peas with pods possible. MRL$^\text{OECD} = 0.03$ | $0.03^{(d)}$ (tentative) | 0.02 | 0.01 |
| | SEU | $8 < 0.02$ | Trials on fresh peas with pods performed with dose rate within 25% deviation (Finland, 2014). MRL$^\text{OECD} = 0.02$ | $0.02^{(d)}$ (tentative) | 0.02 | 0.02 |
| Beans (without pods) | NEU | $0.02$; $0.03$; $4 < 0.01$; $3 < 0.01$; $0.0115$; $0.0231$ | Trials on fresh peas without pods compliant with GAP (Finland, 2014, 2016a). Extrapolation to beans without pods possible. MRL$^\text{OECD} = 0.04$ | $0.04^{(d)}$ (tentative) | 0.03 | 0.01 |
| | SEU | $0.02$; $0.04$; $2 < 0.07$; $< 0.01$ | Trials on fresh peas without pods with dose rate between the 25% deviation (Finland, 2014, 2016a). Extrapolation to beans without pods possible. MRL$^\text{OECD} = 0.15$ | $0.2^{(d)}$ (tentative) | 0.07 | 0.04 |
| Peas (without pods) Lentils (fresh) | NEU | $0.02$; $0.03$; $4 < 0.01$; $3 < 0.01$; $0.0115$; $0.0231$ | Trials on fresh peas without pods compliant with GAP (Finland, 2014, 2016a). No authorised for use on fresh lentils in NEU. MRL$^\text{OECD} = 0.04$ | $0.04^{(d)}$ (tentative) | 0.03 | 0.01 |
| | SEU | $0.02$; $0.04$; $0.07$; $0.07$; $< 0.01$; $< 0.01$; $0.11$ | Trials on fresh peas without pods compliant with GAP or with dose rate within the 25% deviation (Finland, 2014, 2016a). Extrapolation to fresh lentils possible. MRL$^\text{OECD} = 0.19$ | $0.2^{(d)}$ (tentative) | 0.11 | 0.03 |
| Asparagus Celeris Leeks | NEU | – | No residue trials available | – | – | – |
| | SEU | – | No residue trials available | – | – | – |
| Globe artichokes | SEU | – | No residue trials available | – | – | – |
| Crop                  | Region/ Indoor\(^{(a)}\) | Residue levels observed in the supervised residue trials relevant to the supported GAPs (mg/kg) | Recommendations/comments (OECD calculations)                                                                 | MRL proposals (mg/kg) | HR (mg/kg)\(^{(b)}\) | STMR (mg/kg)\(^{(c)}\) |
|----------------------|---------------------------|-----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|-----------------------|----------------------|----------------------|
| Beans (dry)          | NEU                        | Beans: 4 < 0.04; Peas: 4 < 0.10                                                                 | Combined data set of trials on dry beans (4) and dry peas (4) with dose rate within the 25% deviation (Czech Republic, 2016a). MRL\(_{OECD} = 0.1\) | 0.1\(^{(d)}\) (tentative) | 0.10                 | 0.07                 |
| Peas (dry)           |                            |                                                                                              | Trials on dry beans compliant with GAP (Finland, 2014); extrapolation to dry peas possible. MRL\(_{OECD} = 0.12\) | 0.15\(^{(d)}\) (tentative) | 0.07                 | 0.01                 |
| Lentils (dry)        | NEU                        | Beans: 4 < 0.04; Peas: 4 < 0.10                                                                 | Combined data set of trials on dry beans (4) and dry peas (4) with dose rate within the 25% deviation (Czech Republic, 2016a). Extrapolation to dry lentils possible. MRL\(_{OECD} = 0.1\) | 0.1\(^{(d)}\) (tentative) | 0.10                 | 0.07                 |
|                      | SEU                        | No residue trials available                                                                  |                                                                                                              |                       |                      |                      |
| Lupins/lupini beans (dry) | SEU                        | No residue trials available                                                                  |                                                                                                              |                       |                      |                      |
| Poppy seeds          | NEU                        | No residue trials available                                                                  |                                                                                                              |                       |                      |                      |
| Sunflower seeds      | NEU                        | 0.06; 0.15; 0.29; 4 < 0.01; 0.0158; 0.0185; 0.0480; 0.0514                                       | Trials compliant with GAP (Spain, 2012; Finland, 2016a). MRL\(_{OECD} = 0.4\)                              | 0.4\(^{(d)}\) (tentative) | 0.29                 | 0.02                 |
|                      | SEU                        | 0.04; 0.07; 0.08; 0.09; 0.11; 0.12; 0.18; 0.19                                               | Trials on sunflower seeds overdosed (performed at 0.15 kg a.s. instead of 0.075 kg/ha) (Spain, 2012). Additional trials compliant with GAP are not required since NEU GAP is more critical. MRL\(_{OECD} = 0.33\) | 0.4\(^{(d)}\) (tentative) | 0.19                 | 0.10                 |
| Rapseeds/ canola seeds Linseeds | NEU                        | 0.02; 0.03; 0.07; 5 < 0.1; 0.14                                                                | Trials on rapeseed compliant with GAP (Spain, 2012; Italy, 2016a); extrapolation to linseed possible. MRL\(_{OECD} = 0.3\) | 0.3\(^{(d)}\) (tentative) | 0.14                 | 0.10                 |
|                      | SEU                        | < 0.01; 0.03; 0.07; 0.07; 0.0232; 0.0349; 0.01; 0.022                                          | Trials on rapeseed compliant with GAP (Spain, 2012; Finland, 2016a); extrapolation to linseed possible. MRL\(_{OECD} = 0.13\) | 0.15\(^{(d)}\) (tentative) | 0.07                 | 0.03                 |
| Soya beans           | NEU                        | 8 < 0.01                                                                                     | Trials compliant with GAP (Finland, 2016a). MRL\(_{OECD} = 0.01\)                                            | 0.01\(^{*}\)(tentative) | 0.01                 | 0.01                 |
|                      | SEU                        | 8 < 0.01; 0.015                                                                              | Trials compliant with GAP (Italy, 2016a). Rber = 0.02 Rmax = 0.02 MRL\(_{OECD} = 0.02\)                  | 0.02\(^{(d)}\) (tentative) | 0.02                 | 0.01                 |

\(^{(a)}\) Region: NEU (Northeastern European Union), SEU (Southern European Union).

\(^{(b)}\) HR (health risk).

\(^{(c)}\) STMR (safe threshold for multiple residue occurrence).

\(^{(d)}\) Tentative values.
| Crop                          | Region/Indoor | Residue levels observed in the supervised residue trials relevant to the supported GAPs (mg/kg) | Recommendations/comments (OECD calculations) | MRL proposals (mg/kg) | HR (mg/kg) | STMR (mg/kg) |
|------------------------------|---------------|-------------------------------------------------------------------------------------------------|-----------------------------------------------|-----------------------|------------|-------------|
| Cotton seeds                 | SEU           | < 0.01; 2 × 0.01; 0.0163; 0.0137; 0.0292; 0.03; 0.06                                               | Trials compliant with GAP (Finland, 2014, 2016a). MRL\(_{OECD} = 0.09\). | 0.1\((d)\) (tentative) | 0.06       | 0.02        |
| Olives for oil production    | SEU           | --                                                                                              | No residue trials available                   | --                    | --         | --          |
| Herbal infusions from flowers | NEU           | Chamomile: < 0.025 Mint: 0.05; 0.46; Plantain: 2 × < 0.025 Lemon balm: < 0.025; < 0.05           | Trials on dried chamomile, mint, plantain and lemon balm compliant with GAP for herbal infusions (flowers and leaves) (Finland, 2014). It remains unclear whether conjugates were included in the analytical method. MRL\(_{OECD} = 0.74\). | 0.8\((g),(h)\) (tentative) | 0.46       | 0.03        |
| Herbal infusions from roots  | NEU           | --                                                                                              | No residue trials available                   | --                    | --         | --          |
| Fruit spices                 | NEU           | Caraway: < 0.025 Dill seeds: 4 × < 0.05                                                          | Trials on caraway (1) and dill seed (4) compliant with GAP on seed spices and fruit spices (Finland, 2014). It remains unclear whether conjugates were included in the analytical method. MRL\(_{OECD} = 0.05\). | 0.05\((g),(h)\) (tentative) | 0.05       | 0.05        |
| Sugar beet roots             | NEU           | 4 × < 0.01                                                                                        | Trials on sugar beet overdosed (performed at 1 × 200 g a.s./ha instead of 2 × 100 g/ha) (Finland, 2016a). Extrapolation to beetroots possible. MRL\(_{OECD} = 0.01\). | 0.01\((g)\) (tentative) | 0.01       | 0.01        |
| SEU                          | 3 × < 0.005; 0.006; 0.008; 2 × 0.009                                                                | Trials on sugar beet overdosed (performed at 200 g a.s./ha instead of 150 g/ha) (Finland, 2007a). Extrapolation to beetroots possible. MRL\(_{OECD} = 0.01\). | 0.01\((g)\) (tentative) | 0.01       | 0.01        |
| Fodder beets roots           | NEU           | 5 × < 0.005                                                                                        | Trials on sugar beet compliant with GAP for fodder beet (Finland, 2007a). MRL\(_{OECD} = 0.01\). | 0.01\((g)\) (tentative) | 0.01       | 0.01        |
| SEU                          | 3 × < 0.005; 0.006; 0.008; 2 × 0.009                                                                | Trials on sugar beet overdosed (performed at 200 g a.s./ha instead of 150 g/ha) (Finland, 2007a). Extrapolation to fodder beet possible. MRL\(_{OECD} = 0.01\). | 0.01\((g)\) (tentative) | 0.01       | 0.01        |
| Crop               | Region/Indoor<sup>(a)</sup> | Residue levels observed in the supervised residue trials relevant to the supported GAPs (mg/kg) | Recommendations/comments (OECD calculations)                                                                 | MRL proposals (mg/kg) | HR (mg/kg)<sup>(b)</sup> | STMR (mg/kg)<sup>(c)</sup> |
|-------------------|-----------------------------|-------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|----------------------|------------------------|-----------------------------|
| Sugar beet tops   | NEU                         | 0.019; 0.0278; 0.0312; 0.0578                                                                   | Trials on sugar beet overdosed (performed at 1 × 200 g a.s./ha instead of 2 × 100 g/ha) (Finland, 2016a). MRL<sub>OECD</sub> = 0.1 | 0.15<sup>(d), (f), (i)</sup> (tentative)                                                                 | 0.06                  | 0.03                        |
|                   | SEU                         | 2 × < 0.01; 0.015; 0.023; 0.03; 0.038; 0.083                                               | Trials on sugar beet overdosed (performed at 200 g a.s./ha instead of 150 g/ha) (Finland, 2007a). Results were scaled down according to the proportionality approach. Extrapolation to fodder beet possible. MRL<sub>OECD</sub> = 0.13 | 0.15<sup>(d), (i)</sup> (tentative)                                                                 | 0.08                  | 0.02                        |
| Fodder beet tops  | NEU                         | 4 × < 0.005; 0.01                                                                             | Trials on sugar beet compliant with GAP for fodder beet (Finland, 2007a). MRL<sub>OECD</sub> = 0.01              | 0.01*<sup>(d), (i)</sup> (tentative)                                                                 | 0.01                  | 0.01                        |
|                   | SEU                         | 2 × < 0.01; 0.015; 0.023; 0.03; 0.038; 0.083                                               | Trials on sugar beet overdosed (performed at 200 g a.s./ha instead of 150 g/ha) (Finland, 2007a). Results were scaled down according to the proportionality approach. Extrapolation to fodder beet possible. MRL<sub>OECD</sub> = 0.13 | 0.15<sup>(d), (i)</sup> (tentative)                                                                 | 0.08                  | 0.02                        |
| Alfalfa forage    | NEU                         | –                                                                                                | No residue trials available                                                                                 | –                    | –                      | –                           |
|                   | SEU                         | 0.052; 0.150; 0.011; 0.261; 3 × < 0.01; 0.022                                              | Trials compliant with GAP (Italy, 2016a). MRL<sub>OECD</sub> = 0.43                                          | 0.5<sup>(d), (i)</sup> (tentative)                                                                 | 0.26                  | 0.02                        |
| Clover forage     | SEU                         | 0.052; 0.150; 0.011; 0.261; 3 × < 0.01; 0.022                                              | Trials on alfalfa performed at a more critical GAP tentatively extrapolated to clover forage and vetch forage (Italy, 2016a). MRL<sub>OECD</sub> = 0.43 | 0.5<sup>(d), (f), (i)</sup> (tentative)                                                                 | 0.26                  | 0.02                        |
| Vetch forage      |                             |                                                                                                 |                                                                                                              |                      |                        |                             |

<sup>(a)</sup> Indications: Indoor(a)

<sup>(b)</sup> HR: hazard ratio

<sup>(c)</sup> STMR: sustainable target residue model

<sup>(d)</sup> Tentative MRL for use in Regulation (EC) No 396/2005

<sup>(f)</sup> Tentative MRL for use in Regulation (EC) No 1107/2009

<sup>(i)</sup> Tentative MRL for use in Regulation (EC) No 1830/2005

 reviewer of the existing MRLs for quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop
| Crop                | Region/ Indoor<sup>(a)</sup> | Residue levels observed in the supervised residue trials relevant to the supported GAPs (mg/kg) | Recommendations/comments (OECD calculations)                                                                                                                                                                                                 | MRL proposals (mg/kg) | HR (mg/kg)<sup>(b)</sup> | STMR (mg/kg)<sup>(c)</sup> |
|---------------------|-----------------------------|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------------------|----------------------------|
| Turnip tops         | NEU                         | 0.14; 0.15; 0.18; 0.40 Trials on carrot foliage tentatively extrapolated to turnip tops. Last 2 trials overdosed (performed at 0.20 instead of 0.15 kg/ha) (Finland, 2014). MRL<sub>OECD</sub> = 0.71 | 0.8<sup>(d),(f),(i)</sup> (tentative)                                                                                                                                                                                                                                                                   | 0.40                  | 0.17                     |
|                     | SEU                         | 0.15; 0.27; 0.32; 0.40 Trials on carrot foliage performed at 0.15 kg a.i./ha; PHI: 21 days instead of 0.125 kg/ha; PHI: 30 days (Finland, 2014); tentative extrapolation to turnip tops proposed. MRL<sub>OECD</sub> = 0.86 | 0.9<sup>(d),(f),(i)</sup> (tentative)                                                                                                                                                                                                                                                                   | 0.40                  | 0.30                     |

GAP: Good Agricultural Practice; OECD: Organisation for Economic Co-operation and Development; MRL: maximum residue level; a.s: active substance; a.i.: active ingredient; PHI: preharvest interval.
* Indicates that the MRL is proposed at the limit of quantification.
(a): NEU: Outdoor trials conducted in northern Europe, SEU: Outdoor trials conducted in southern Europe, Indoor: indoor EU trials or Country code: if non-EU trials.
(b): Highest residue.
(c): Supervised trials median residue.
(d): Tentative MRL is derived, as extraction and hydrolysis steps included in the analytical method for enforcement, still need to be validated.
(e): Tentative MRL is derived from a reduced number of trials.
(f): Tentative MRL is derived from trials performed according to a more critical GAP.
(g): Tentative MRL is derived pending the confirmation that conjugates were covered by the analytical method used in the analysis of trial samples.
(h): Storage stability studies in herbal infusion and spices and fully validated analytical method for enforcement in complex matrices are not available. No information available on storage conditions.
(i): Tentative MRL derived in view of the future need to set MRLs in feed items.
### B.1.2.2. Summary of residues data from the supervised residue trials performed with quizalofop-P-tefuryl

#### Residue trials performed with quizalofop-P-tefuryl

| Crop                      | Region/Indoor(a) | Residue levels observed in the supervised residue trials relevant to the supported GAPs (mg/kg) | Recommendations/comments (OECD calculations) | MRL proposals (mg/kg) | HR (mg/kg)(b) | STMR (mg/kg)(c) |
|---------------------------|------------------|-------------------------------------------------------------------------------------------------|---------------------------------------------|-----------------------|---------------|-----------------|
| Table grapes              | NEU              | –                                                                                               | No residue trials available                | –                     | –             | –               |
| Wine grapes               |                  |                                                                                                 |                                             |                       |               |                 |
| Strawberries              |                  |                                                                                                 |                                             |                       |               |                 |
| Potatoes                  | NEU              | 2 × < 0.02; 2 × 0.02; 0.03; 5 × < 0.04; 3 × 0.04; 0.05; 0.08                                      | Trials compliant with GAP (Finland, 2007b, 2015).  
MRL<sub>OECD</sub> = 0.1 | 0.1<sup>(d)</sup>  
(tentative) | 0.08 | 0.04 |
| SEU                       | 8 × < 0.04       | Trials performed according to a more critical GAP (last application done at 43–79 and PHI: 60 days) acceptable since residues were below the LOQ (Finland, 2007b).  
MRL<sub>OECD</sub> = 0.04 | 0.04<sup>(d)</sup>  
(tentative) | 0.04 | 0.04 |
| Carrots                   | NEU              | 4 × < 0.04; 2 × 0.07; 0.09; 0.10                                                               | Trials on carrots compliant with GAP (Finland, 2015).  
MRL<sub>OECD</sub> = 0.16 | 0.2<sup>(d)</sup>  
(tentative) | 0.10 | 0.06 |
| Parsnips                  |                  |                                                                                                 |                                             |                       |               |                 |
| Parsley roots/ Hamburg roots parsley Radishes  
Salsifies                 | NEU              | 4 × < 0.04; 2 × 0.07; 0.09; 0.10                                                               | Trials on carrots performed according to a more critical GAP (Finland, 2015) tentatively extrapolated to parsnips, parsley root, radishes and salsifies.  
MRL<sub>OECD</sub> = 0.16 | 0.2<sup>(d),(e)</sup>  
(tentative) | 0.10 | 0.06 |
| Beetroots                 |                  |                                                                                                 |                                             |                       |               |                 |
| Celereics/ turnip rooted celeries Horseradishes Swedes/ rutabagas Turnips | NEU              | 7 × < 0.04; 0.05                                                                               | Trials on sugar beet compliant with GAP (Finland 2007b, 2015); extrapolation to beetroot, celeriac, horseradish, swedes and turnips possible.  
MRL<sub>OECD</sub> = 0.06 | 0.06<sup>(d)</sup>  
(tentative) | 0.05 | 0.04 |
| Garlic                    |                  |                                                                                                 |                                             |                       |               |                 |
| Onions                    |                  |                                                                                                 |                                             |                       |               |                 |
| Shallots                  |                  |                                                                                                 |                                             |                       |               |                 |
| Tomatoes                  | SEU              | 8 × < 0.04                                                                                     | Trials on tomatoes compliant with GAP (Greece, 2016b)  
MRL<sub>OECD</sub> = 0.04 | 0.04<sup>(d)</sup>  
(tentative) | 0.04 | 0.04 |
| Crop | Region/Indoor<sup>(a)</sup> | Residue levels observed in the supervised residue trials relevant to the supported GAPs (mg/kg) | Recommendations/comments (OECD calculations) | MRL proposals (mg/kg) | HR (mg/kg)<sup>(b)</sup> | STMR (mg/kg)<sup>(c)</sup> |
|------|-----------------|-------------------------------------------------|---------------------------------------------|----------------------|----------------------|----------------------|
| Sweet peppers/bell peppers | NEU | – | No residue trials available | – | – | – |
| Witloofs/ Belgian endives Chicory roots | NEU | $7 \times < 0.04; 0.05$ | Trials on sugar beet compliant with GAP (Finland 2007b, 2015); extrapolation to witloof (roots) and chicory roots possible. MRL<sub>OECD</sub> = 0.06 | 0.06<sup>(d)</sup> (tentative) | 0.05 | 0.04 |
| Beans (without pods) Peas (without pods) | NEU | – | No residue trials available | – | – | – |
| Peas (with pods) Beans (with pods) | NEU | – | No residue trials available. No authorised for use on beans (with pods) in NEU | – | – | – |
| Beans (dry) Lentils (dry) Peas (dry) | NEU | Dry beans: $3 \times < 0.04; 0.05; 0.06; 0.07; 0.13$ Dry peas: $2 \times < 0.04; 2 \times 0.04$ | Trials on dry beans and dry peas compliant with GAP (Finland, 2007b, 2015); extrapolation to pulses possible. NEU/SEU data sets are merged for MRL calculation. MRL<sub>OECD</sub> = 0.16 | 0.2<sup>(d)</sup> (tentative) | 0.14 | 0.05 |
| SEU | Dry beans: $< 0.04; 0.05; 0.07; 0.10; 0.13; 0.14$ Dry peas: $2 \times < 0.04; 0.09; 0.12$ Dry lentils: $< 0.04; 0.05$ | Trials on dry beans, dry peas and dry lentils compliant with GAP (Finland, 2007b, 2015); extrapolation to lentils tentatively possible (less critical GAP). NEU/SEU data sets are merged for MRL calculation. MRL<sub>OECD</sub> = 0.23 | 0.2<sup>(d),(e)</sup> (tentative) | 0.14 | 0.05 |
| Linseeds | NEU | $< 0.04; < 0.04; < 0.04; < 0.04; 0.06; 0.07; 0.08; 0.09; 0.10$ | Trials compliant with GAP (Finland, 2007b, 2015). MRL<sub>OECD</sub> = 0.16 | 0.2<sup>(d)</sup> (tentative) | 0.10 | 0.06 |
| Sunflower seeds | NEU | 0.25; 0.83 | Trials on sunflower seed compliant with GAP (Finland, 2007b, 2015) | – | – | – |
| SEU | $2 \times < 0.04; 0.07; 0.10; 2 \times 0.13; 0.15; 0.50$ | Trials on sunflower seed compliant with GAP (Finland, 2007b, 2015). MRL<sub>OECD</sub> = 0.74 | 0.8<sup>(d)</sup> (tentative) | 0.50 | 0.12 |
| Crop                        | Region/ Indoor<sup>(a)</sup> | Residue levels observed in the supervised residue trials relevant to the supported GAPs (mg/kg) | Recommendations/comments (OECD calculations)                                                                 | MRL proposals (mg/kg) | HR (mg/kg)<sup>(b)</sup> | STMR (mg/kg)<sup>(c)</sup> |
|-----------------------------|-----------------------------|-------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|----------------------|------------------------|--------------------------|
| Rapeseeds/ canola seeds     | NEU                         | < 0.04; 0.07; 0.09; 0.14; 0.17; 0.18; 2 × 0.20; 0.22; 0.28; 0.31; 0.34; 0.45                  | Trials compliant with GAP (Finland, 2007b). Extrapolation to poppy seeds and mustard seeds possible. MRL<sub>OECD</sub> = 0.67 | 0.7<sup>(d)</sup> (tentative) | 0.45                   | 0.20                     |
| Poppy seeds                 | SEU                         | < 0.04; 2 × 0.04; 0.07; 0.16; 2 × 0.19; 0.21; 0.23; 0.28; 0.31; 0.35; 0.40; 0.44; 0.59; 0.95; 1.17 | Trials at BBCH 50-77 instead of BBCH 16; application rate compliant with GAP (Finland, 2007b, 2015). No authorised for use on poppy seeds and mustard seeds in SEU. MRL<sub>OECD</sub> = 1.59 | 2<sup>(d), (e)</sup> (tentative) | 1.17                   | 0.23                     |
| Mustard seeds               |                             |                                                                                               |                                                                    |                      |                        |                          |
| Soya beans                  | NEU                         | –                                                                                              | No residue trials available                                      | –                    | –                      | –                        |
| Cotton seeds                | SEU                         | 6 × < 0.04; 0.04; 2 × 0.07; 0.14                                                                | Trials on soybeans compliant with GAP (Finland, 2007b, 2015). MRL<sub>OECD</sub> = 0.18                      | 0.2<sup>(d)</sup> (tentative) | 0.14                   | 0.04                     |
| Sugar beet roots            | SEU                         | 3 × < 0.04; 2 × 0.04; 0.05; 2 × 0.06                                                            | Trials compliant with GAP (Greece, 2009; Finland, 2015). MRL<sub>OECD</sub> = 0.1                           | 0.1<sup>(d)</sup> (tentative) | 0.06                   | 0.04                     |
| Fodder beet roots           | NEU                         | 7 × < 0.04; 0.05                                                                               | Trials on sugar beet compliant with GAP (Finland 2007b, 2015); extrapolation to fodder beet possible. MRL<sub>OECD</sub> = 0.06 | 0.06<sup>(d)</sup> (tentative) | 0.05                   | 0.04                     |
| Sugar beet tops             | NEU                         | 0.14; 0.15; 0.16; 0.17; 0.19; 0.21; 0.24; 0.25                                                | Trials on sugar beet leaves compliant with GAP (Finland 2007b, 2015); extrapolation to fodder beet leaves and turnips leaves possible. MRL<sub>OECD</sub> = 0.57 | 0.6<sup>(d), (f)</sup> (tentative) | 0.25                   | 0.18                     |
| Fodder beet tops            |                             |                                                                                               |                                                                    |                      |                        |                          |
| Turnip tops                 | SEU                         | 2 × < 0.04; 3 × 0.04; 0.05; 0.10; 0.11                                                         | Trials on sugar beet leaves compliant with GAP (Finland, 2007b, 2015), no authorised for use on fodder beet and turnips in SEU. MRL<sub>OECD</sub> = 0.18 | 0.2<sup>(d), (f)</sup> (tentative) | 0.11                   | 0.04                     |
| Clover forage               | NEU                         | –                                                                                              | No residue trials available                                      | –                    | –                      | –                        |

GAP: Good Agricultural Practice; OECD: Organisation for Economic Co-operation and Development; MRL: maximum residue level; PHI: preharvest interval; BBCH: growth stages of mono- and dicotyledonous plants.

(a): NEU: Outdoor trials conducted in northern Europe, SEU: Outdoor trials conducted in southern Europe, Indoor: indoor EU trials or Country code: if non-EU trials.
(b): Highest residue.
(c): Supervised trials median residue.
(d): Tentative MRL is derived, as extraction and hydrolysis steps included in the analytical method for enforcement, still need to be validated.
(e): Tentative MRL is derived from trials performed according to a more critical GAP.
(f): Tentative MRL derived in view of the future need to set MRLs in feed items.
### B.1.2.3. Summary of residues data from the supervised residue trials performed with propaquizafop

| Crop                     | Region/ indoor(a) | Residue levels observed in the supervised residue trials relevant to the supported GAPs (mg/kg) | Recommendations/comments (OECD calculations)                                                                 | MRL proposals (mg/kg) | HR (mg/kg)(b) | STMR (mg/kg)(c) |
|--------------------------|-------------------|-------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|----------------------|--------------|-----------------|
| **Citrus fruits**        | NEU               | 5 × < 0.01                                                                                      | Trials on apples compliant with GAP (Italy, 2012). Considering that the application is done directly on the soil, that the substance is not systemic and that residues were below the LOQ, extrapolation to pears, medlar, quinces and peaches acceptable. No authorised for use on citrus fruits, tree nuts, loquats, apricots, cherries, plums and kumquats in NEU. | 0.01*(d) (tentative) | 0.01 | 0.01 |
|  Tree nuts               | **SEU**           | **Apples: 4 × < 0.01** Peaches: 4 × < 0.01                                                      | Combined data set on apples and peaches (Italy, 2012; Greece, 2016c). Considering that the application is done directly on the soil, that the substance is not systemic and that residues were below the LOQ, extrapolation to all tree fruits and kumquats acceptable. | 0.01*(d) (tentative) | 0.01 | 0.01 |
|  Stone fruits            |                   |                                                                                                 |                                                                                                            |                      |              |                 |
|  Kumquats                |                   |                                                                                                 |                                                                                                            |                      |              |                 |
| **Table grapes**         | NEU               | 4 × < 0.01                                                                                      | Trials on grapes compliant with GAP (Italy, 2012). Extrapolation to wine grapes acceptable (GAP less critical and residues below the LOQ). | 0.01*(d) (tentative) | 0.01 | 0.01 |
|  Wine grapes             | **SEU**           | 4 × < 0.01                                                                                      | Trials on grapes compliant with GAP. Extrapolation to wine grapes possible (Italy, 2012).                    | 0.01*(d) (tentative) | 0.01 | 0.01 |
| **Strawberries**         | NEU               | 3 × < 0.01; < 0.02                                                                               | Trials on strawberries compliant with GAP (Austria, 2016; Czech Republic, 2016c). Considering that the application is done at an early growth stage and that propaquizafop is not systemic, a no residue situation can be anticipated and the MRL can be set at the LOQ of 0.01 mg/kg. | 0.01*(d) (tentative) | 0.01 | 0.01 |
| **Potatoes**             | NEU               | 2 × < 0.02; 4 × < 0.01                                                                           | Trials on potatoes with dose rate within 25% deviation (Austria, 2016; France, 2016b). MRL_{OECD} = 0.02.   | 0.02^(d),(e) (tentative) | 0.02 | 0.01 |
|  SEU                     | 4 × < 0.01; 6 × < 0.02 |                                                                                                 | Trials on potatoes with dose rate within 25% deviation (6) or overdosed (4) (performed at 0.2 kg/ha) acceptable since residues were below the LOQ (France, 2016b; Italy, 2016b). MRL_{OECD} = 0.02. | 0.02^(d) (tentative) | 0.02 | 0.02 |

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(a) Indoor trials performed with propaquizafop.

(b) FAO/WHO concept for acute risk assessment.

(c) FAO/WHO concept for chronic risk assessment.

(d) Tentative.
| Crop                  | Region/ indoor<sup>(a)</sup> | Residue levels observed in the supervised residue trials relevant to the supported GAPs (mg/kg)                                                                                       | Recommendations/comments (OECD calculations)                                                                                                                                                                                                 | MRL proposals (mg/kg) | HR (mg/kg)<sup>(b)</sup> | STMR (mg/kg)<sup>(c)</sup> |
|-----------------------|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-------------------------|--------------------------|
| Carrots               | NEU                           | 3 × < 0.01; 0.012; 0.016; 0.017; 2 × < 0.02; 0.025; 0.061                                                                                                                                | Trials on carrots with dose rate within 25% deviation (Italy, 2012; Austria, 2016; Czech Republic, 2016c; France, 2016b). Extrapolation to celeriacs, parsnips, parsley roots and radishes possible. MRL<sub>OECD</sub> = 0.08                         | 0.08<sup>(d)</sup>    | 0.06                    | 0.02                     |
| Parsnips              |                               | < 0.01; < 0.01; 0.017; 0.017; < 0.02; < 0.02; < 0.02                                                                                                                                   | Trials on carrots with dose rate within 25% deviation (France, 2016b; Greece, 2016c; Italy, 2016b). Extrapolation to parsley roots possible. No authorised for use on celeriacs, parsnips and radishes in SEU. MRL<sub>OECD</sub> = 0.03                         | 0.03<sup>(d)</sup>    | 0.02                    | 0.02                     |
| Parsley               | SEU                           | 2 × < 0.02; 2 × < 0.05                                                                                                                                                               | Trials on sugar beet compliant with GAP or with dose rate within 25% deviation compared to the GAP for swedes (Italy, 2012). MRL<sub>OECD</sub> = 0.05                                                                                                                  | 0.05<sup>(d)</sup>    | 0.05                    | 0.04                     |
| Radishes              |                               | 4 × < 0.02                                                                                                                                                                          | Trials on sugar beet compliant with GAP or with dose rate within 25% deviation compared to the GAP for turnips (Italy, 2012). MRL<sub>OECD</sub> = 0.02                                                                                                                  | 0.02<sup>(d)</sup>    | 0.02                    | 0.02                     |
| Celeriacs/ turnip rooted celeries | NEU | 2 × 0.02; < 0.05; 0.06                                                                                                                                          | Residue trials on sugar beet compliant with GAP or with dose rate within 25% variation (Italy, 2012). MRL<sub>OECD</sub> = 0.12                                                                                                                 | 0.15<sup>(d)</sup>    | 0.06                    | 0.04                     |
| Swedes/ rutabagas     | NEU                           | 7 × < 0.01; 2 × < 0.02; 0.025                                                                                                                                                | Trials on onions compliant with GAP for bulb vegetables (Italy, 2012; Austria, 2016). MRL<sub>OECD</sub> = 0.04                                                                                                                  | 0.04<sup>(d)</sup>    | 0.03                    | 0.01                     |
| Turnips               | NEU                           | Onions: 4 × < 0.01 Garlic: < 0.02                                                                                                                                           | Combined data set on onions and garlic compliant with GAP for bulb vegetables (Italy, 2012; Greece, 2016c). MRL<sub>OECD</sub> = 0.02                                                                                                                      | 0.02<sup>(d)</sup>    | 0.02                    | 0.01                     |
| Turnip tops           | NEU                           | 4 × < 0.01; < 0.02; < 0.05                                                                                                                                                    | First 4 trials compliant with GAP. Other trials performed with dose rate within 25% variation (Italy, 2012; Greece, 2016c). Extrapolation to aubergines possible. MRL<sub>OECD</sub> = 0.05                                                                 | 0.05<sup>(d),(e)</sup> | 0.05                    | 0.01                     |
| Garlic                | NEU                           | Onions compliant with GAP for bulb vegetables (Italy, 2012; Greece, 2016c). MRL<sub>OECD</sub> = 0.04                                                                                                                      | 0.04<sup>(d)</sup>    | 0.03                    | 0.01                     |
| Onions                | SEU                           | –                                                                                                           | No residue trials available                                                                                                                                                                                                                              | –                     | –                       | –                        |
| Shallots              |                               | –                                                                                                                                                                              | –                                                                                                                                  | –                     | –                       | –                        |
| Tomatoes              | SEU                           | –                                                                                                                                                                              | –                                                                                                                                  | –                     | –                       | –                        |
| Aubergines/ eggplants | SEU                           | –                                                                                                                                                                              | –                                                                                                                                  | –                     | –                       | –                        |
| Okra/lady's fingers   | SEU                           | –                                                                                                                                                                              | –                                                                                                                                  | –                     | –                       | –                        |
| Cucurbits with inedible peel | SEU | < 0.006                                                                                                                 | Trial on melon compliant with GAP (Italy, 2012). Number of residue trials not sufficient to derive an MRL proposal                                                                                                           | –                     | –                       | –                        |
| Crop                        | Region/ indoor(a) | Residue levels observed in the supervised residue trials relevant to the supported GAPs (mg/kg) | Recommendations/comments (OECD calculations) | MRL proposals (mg/kg) | HR (mg/kg)(b) | STMR (mg/kg)(c) |
|-----------------------------|-------------------|-------------------------------------------------------------------------------------------------|---------------------------------------------|-----------------------|---------------|---------------|
| Broccoli Cauliflowes       | NEU               | Cauliflowers: 0.013; 0.017; 0.025; 0.030; 0.041; 0.044; 0.100; 0.109 Broccoli: 3 × < 0.01; 0.015; 0.017 | Combined data set on cauliflowers and broccoli overdosed (performed at 1.3–1.4N). Residues scaled down applying the proportionality approach (Austria, 2013, 2016). MRL\textsubscript{OECD} = 0.17 | 0.2\textsuperscript{(d)} (tentative) | 0.11          | 0.02          |
|                            | SEU               | Broccoli: 0.019; 0.043; 0.048; 0.067 Cauliflowers: 0.02; 0.021; 0.077; 0.110; 0.147; 0.258 | Combined data set on broccoli and cauliflowers compliant with GAP for broccoli (Italy, 2012; Austria, 2013; Greece, 2016c). No authorised for use on cauliflowers in SEU MRL\textsubscript{OECD} = 0.38 | 0.4\textsuperscript{(d)} (tentative) | 0.26          | 0.06          |
| Head cabbages              | NEU               | 4 × < 0.01; 0.012; 0.013; 0.014; 0.017; 0.018; 0.020; 0.023; 0.039; 0.081 | Trials on head cabbages overdosed (performed at 1.3–1.4N). Residues were recalculated applying the proportionality approach (Italy, 2015; Czech Republic, 2016c). MRL\textsubscript{OECD} = 0.1 | 0.1\textsuperscript{(d)} (tentative) | 0.08          | 0.01          |
|                            | SEU               | 0.018; 2 × 0.027; 0.112 | Trials on head cabbages compliant with GAP (Italy, 2012, 2015). MRL\textsubscript{OECD} = 0.22 | 0.3\textsuperscript{(d)} (tentative) | 0.11          | 0.03          |
| Lamb’s lettuces/corn salads| SEU               | – | No GAP-compliant trials available | – | – | – |
| Lettuces Escaroles/ broad-leaved endives Spinaches | NEU               | Open leaf varieties: 2 × < 0.02 No info on varieties: 4 × < 0.01; 2 × < 0.02 | Trials on lettuce compliant with GAP (Italy, 2012; France, 2016b). Tentative extrapolation to escaroles proposed. No authorised for use on spinaches in NEU. MRL\textsubscript{OECD} = 0.02 | 0.02\textsuperscript{(d),(f)} (tentative) | 0.02          | 0.02          |
|                            | SEU               | Open leaf varieties: 3 × < 0.01; < 0.02 No info on varieties: 3 × < 0.02; 0.026; 0.12 | Trials compliant with GAP (Italy, 2012, 2015, 2016b; France, 2016b; Greece, 2016c). Tentative extrapolation to escaroles and spinach (dose rate within 25% deviation) proposed. MRL\textsubscript{OECD} = 0.17 | 0.2\textsuperscript{(d),(f)} (tentative) | 0.12          | 0.02          |
| Crop | Region/indoor(a) | Residue levels observed in the supervised residue trials relevant to the supported GAPs (mg/kg) | Recommendations/comments (OECD calculations) | MRL proposals (mg/kg) | HR (mg/kg)(b) | STMR (mg/kg)(c) |
|------|-----------------|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|-----------------------|-------------|-------------|
| Cresses and other sprouts and shoots Land cresses Roman rocket/ rucola Red mustards Baby leaf crops (including brassica species) Basil and edible flowers | SEU | – | No residue trials available | – | – | – |
| Beans (with pods) Beans (without pods) Peas (with pods) Peas (without pods) Lentils (fresh) | NEU | $4 \times < 0.01$ | Combined data set on beans with pods (2) and peas with pods (2) compliant with GAP (Italy, 2012). Extrapolation to peas without pods and lentils possible (application before consumable parts are formed) No authorised for use on beans with and without pods in NEU. $\text{MRL}_{\text{OECD}} = 0.01$ | $0.01^{*(d)}$ (tentative) | 0.01 | 0.01 |
| SEU | $< 0.006; 4 \times < 0.01$ | Combined data set on beans with pods (3) and peas with pods (2) compliant with GAP (Italy, 2012). Extrapolation to bean and peas without pods proposed pending the confirmation that the last application is done before the edible parts are formed. No authorised for use on lentils in SEU. $\text{MRL}_{\text{OECD}} = 0.01$ | $0.01^{*(d)}$ (tentative) | 0.01 | 0.01 |
| Asparagus | SEU | $< 0.004$ | Trial on asparagus compliant with GAP (Greece, 2016c; Italy, 2016b). Number of residue trials not sufficient to derive an MRL proposal | – | – | – |
| Florence fennels | SEU | $2 \times < 0.01$ | Trials on fennel within the 25% deviation (Greece, 2016c; Italy, 2016b) | $0.01^{*(d)}$ (tentative) | 0.01 | 0.01 |
| Globe artichokes | SEU | – | No residue trials available | – | – | – |
| Crop                  | Region/indoor(a) | Residue levels observed in the supervised residue trials relevant to the supported GAPs (mg/kg) | Recommendations/comments (OECD calculations) | MRL proposals (mg/kg) | HR (mg/kg)(b) | STMR (mg/kg)(c) |
|-----------------------|-------------------|-----------------------------------------------------------------------------------------------|---------------------------------------------|-----------------------|--------------|-----------------|
| Pulses                | NEU               | Dry beans: < 0.05; Dry peas: 2 × < 0.05; 6 × < 0.02                                               | Combined data set on dry beans and dry peas compliant with GAP or within the 25% deviation (Italy, 2012; France, 2016b). Extrapolation to lupins possible. No authorised on dry lentils in NEU. MRL_{OECD} = 0.05 | 0.05(d) (tentative) | 0.05         | 0.02            |
|                       | SEU               | Dry beans: < 0.01; 0.01; 0.021; Dry peas: < 0.02; 0.02; 0.03                                   | Combined data set on dry beans (3) and dry peas (3) within 25% deviation (Italy, 2012; Greece, 2016c). Extrapolation to pulses possible. MRL_{OECD} = 0.05 | 0.05(d) (tentative) | 0.03         | 0.02            |
| Sunflower seeds       | NEU               | 4 × < 0.02                                                                                   | Trials on sunflower seeds overdosed (performed at 0.2 kg/ha) acceptable since residues were below the LOQ (Czech Republic, 2016c). MRL_{OECD} = 0.02 | 0.02(d),(e) (tentative) | 0.02         | 0.02            |
|                       | SEU               | 4 × < 0.01; 2 × < 0.02; < 0.05                                                               | Trials on sunflower seeds compliant with GAP (Italy, 2012). MRL_{OECD} = 0.05 | 0.05(d),(e) (tentative) | 0.05         | 0.01            |
| Rapeseeds/canola seeds Linseeds | NEU               | 5 × < 0.01; 0.01; 0.02; 0.014; 0.015; 0.017; 0.019; < 0.02; 0.022; 0.03; < 0.05; 0.062        | Trials on rapeseed compliant with GAP. Extrapolation to linseed possible (Italy, 2012; Greece, 2016c). MRL_{OECD} = 0.08 | 0.08(d) (tentative) | 0.06         | 0.02            |
|                       | SEU               | 4 × < 0.01                                                                                   | Trials on rapeseed compliant with GAP (Italy, 2012; Greece, 2016c). Extrapolation to linseed possible. MRL_{OECD} = 0.01 | 0.01* (d) (tentative) | 0.01         | 0.01            |
| Soya beans            | NEU               | 5 × < 0.01; 0.011; 0.014; 0.015; 0.017; 0.047                                                | Trial on rapeseed overdosed (performed at 1.3N). Residues scaled down according to the proportionality approach (Austria, 2013). Extrapolation to soya beans possible (edible part is still not formed at the time of last application). MRL_{OECD} = 0.06 | 0.06(d) (tentative) | 0.05         | 0.01            |
|                       | SEU               | 3 × < 0.05                                                                                   | Trials on soya beans (Italy, 2012). Trials overdosed or performed at shorter PHI acceptable since residues were below the LOQ. MRL_{OECD} = 0.05 | 0.05(d),(e) (tentative) | 0.05         | 0.05            |
| Mustard seeds         | NEU               | < 0.01; < 0.01; < 0.01; < 0.01; < 0.01; 0.011; 0.014; 0.015; 0.017; 0.047                      | Trials on rapeseed overdosed performed at 1.3N. Residue scaled down according to the proportionality approach (Austria, 2013). Extrapolation to poppy seeds and mustard seeds possible. MRL_{OECD} = 0.06 | 0.06(d) (tentative) | 0.05         | 0.01            |
| Poppy seeds           |                   |                                                                                               |                                                                                            |                       |              |                 |
| Crop                  | Region/indoor(a) | Residue levels observed in the supervised residue trials relevant to the supported GAPs (mg/kg) | Recommendations/comments (OECD calculations)                                                                                                                                   | MRL proposals (mg/kg) | HR (mg/kg)(b) | STMR (mg/kg)(c) |
|----------------------|------------------|-------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------|-----------------|
| Cotton seeds         | SEU              | $4 \times < 0.01$                                                                                 | Trials on cotton seed compliant with GAP (Italy, 2012). MRL$_{OECD} = 0.01$                                                                                                | $0.01^{(d),(e)}$ (tentative) | 0.01         | 0.01            |
| Olives for oil production | SEU             | —                                                                                                 | No residue trials available                                                                                                                                                  | —                     | —            | —               |
| Rice grains          | SEU              | $4 \times < 0.05$                                                                                 | Trials on rice compliant with GAP (Italy, 2012). MRL$_{OECD} = 0.05$                                                                                                | $0.05^{(d)}$ (tentative) | 0.05         | 0.05            |
| Rice straw           | SEU              | $4 \times < 0.02$                                                                                 | Trials compliant with GAP (Italy, 2012). MRL$_{OECD} = 0.02$                                                                                                            | $0.02^{(d),(g)}$ (tentative) | 0.02         | 0.02            |
| Sugar beet roots     | NEU              | $15 \times < 0.02; 7 \times < 0.05$                                                                | Trials on sugar beet compliant with GAP or within the 25% variation (Italy, 2005, 2012). Extrapolation to beetroots possible (less critical GAP and residues below the LOQ). MRL$_{OECD} = 0.05$ | $0.05^{(d)}$ (tentative) | 0.05         | 0.05            |
| Fodder beet roots    | SEU              | $2 \times < 0.02$                                                                                 | Trials on sugar beet compliant with GAP (Italy, 2012). Extrapolation to beetroots possible. MRL$_{OECD} = 0.02$                                                              | $0.02^{(d)}$ (tentative) | 0.02         | 0.02            |
| Beetroots            | SEU              | $8 \times < 0.02; 0.03; 0.03; 0.04; 7 \times < 0.05; 0.052; 0.06; 0.1; 0.18; 0.514                   | Trials on sugar beet tops compliant with GAP (Italy, 2012). MRL$_{OECD} = 0.19$                                                                                     | $0.2^{(d),(g)}$ (tentative) | 0.18         | 0.05            |
| Sugar beet tops      | NEU              | $0.052$                                                                                           | Trial on sugar beet compliant with GAP (Italy, 2012)                                                                                                                         | —                     | —            | —               |
| Fodder beet tops     | SEU              | $< 0.01; < 0.02; < 0.02; < 0.02; < 0.02; < 0.02; < 0.02; < 0.02; < 0.02; 0.05; 0.087                 | Trials on alfalfa with dose rate within 25% deviation. Extrapolation to clover possible (Czech Republic, 2016c; France, 2016b). No authorised for use on vetch in NEU. MRL$_{OECD} = 0.81$ | $0.8^{(d),(g)}$ (tentative) | 0.51         | 0.02            |
| Alfalfa forage       | NEU              | $< 0.01; < 0.01; < 0.02; < 0.02; < 0.02; < 0.02; < 0.02; 0.05; 0.087                              | Trials on alfalfa with dose rate within 25% deviation (France, 2016b; Greece, 2016c; Italy, 2016b). Extrapolation to clover and vetch possible. MRL$_{OECD} = 0.13$                          | $0.15^{(d),(g)}$ (tentative) | 0.09         | 0.02            |
| Clover forage        | SEU              | —                                                                                                 | —                                                                                                                                  | —                     | —            | —               |
| Vetch forage         | —                | —                                                                                                 | —                                                                                                                                  | —                     | —            | —               |

GAP: Good Agricultural Practice; OECD: Organisation for Economic Co-operation and Development; MRL: maximum residue level; LOQ: limit of quantification.

*: Indicates that the MRL is proposed at the limit of quantification.
(a): NEU: Outdoor trials conducted in northern Europe, SEU: Outdoor trials conducted in southern Europe, Indoor: indoor EU trials or Country code: if non-EU trials.
(b): Highest residue.
(c): Supervised trials median residue.
(d): Tentative MRL is derived, as extraction and hydrolysis steps included in the analytical method for enforcement, still need to be validated.
(e): Tentative MRL is derived from a reduced number of trials.
(f): Tentative MRL is derived pending additional trials on open leaf varieties or additional information on tested varieties.
(g): Tentative MRL derived in view of the future need to set MRLs in feed items.
B.1.2.4. Residues in succeeding crops

Based on the confined rotational crop studies conducted at 2.8N (propaquizafop), 1.2N (quizalofop-P-ethyl) and 2.5N (quizalofop-P-tefuryl) and the maximum application rates supported in the framework of this review, significant residues of all quizalofop ester variants (including propaquizafop) and their metabolites are not expected to be present in rotational crops, provided that quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop are applied according to the existing GAPs considered in this review.

Field rotational crop study
Not available and not required

B.1.2.5. Processing factors

| Processed commodity                      | Number of studies(a) | Processing factor (PF) | Median PF |
|-----------------------------------------|----------------------|------------------------|-----------|
| **Robust processing factors (sufficiently supported by data)** |                      | Individual values      |           |
| Rapeseeds, crude oil(b)                 | 8                    | 5 × 0.02; 0.03; 0.04; 0.05 | 0.02      |
| Rapeseeds, refined oil(b)               | 8                    | 3 × 0.002; 0.004; 3 × 0.01; 0.02 | 0.01      |
| Alfalfa, hay(c)                         | 5                    | 0.8; 0.9; 1.6; 1.7; 3.3  | 1.6       |
| Cauliflower, cooked(d)                  | 4                    | 0.40, 0.48, 0.53, 0.78  | 0.5       |
| **Indicative processing factors (limited data set)** |                      | Individual values      |           |
| Sunflower seeds, refined oil(e)         | 1                    | 0.02                   | 0.02      |
| Sunflowers seeds, meal/press cake(e)    | 1                    | 1.17                   | 1.17      |
| Rapeseeds, meal/press cake(b)           | 2                    | 1.56; 2.06             | 1.81      |
| Head cabbage, Sauerkraut(d)             | 2                    | 0.59, 0.91             | 0.75      |

(a): Studies with residues in the RAC at or close to the LOQ were disregarded (unless concentration may occur).
(b): Studies performed with quizalofop-P-tefuryl. Processing factors derived from the levels of quizalofop since parent ester and phenol metabolite were not found in any raw and processed commodities (Finland, 2015).
(c): Studies performed with propaquizafop. Residues analysed for ‘total quizalofop’ therefore covering the proposed residue definition (Greece, 2016c).
(d): Studies performed with propaquizafop. Residues analysed for ‘total quizalofop’ therefore covering the proposed residue definition (Italy, 2015).
(e): Study performed with quizalofop P-ethyl. The processing factor for refined oil is based on a residue level of <0.05 mg/kg in the refined oil (Spain, 2012).

B.2. Residues in livestock

| Relevant groups     | Dietary burden expressed in mg/kg bw per day | Most critical diet(a) | Most critical commodity(a) | Trigger exceeded (Y/N) |
|---------------------|---------------------------------------------|-----------------------|----------------------------|------------------------|
|                     | Med. | Max. | Med. | Max.                       |                        |                        |
| Cattle (all diets)  | 0.092| 0.109| 3.14(b) | 3.55(b) | Cattle (dairy) | Potato, process waste | Y                      |
| Cattle (dairy only) | 0.092| 0.109| 0.71  | 1.14   | Cattle (dairy) | Potato, process waste | Y                      |
| Sheep (all diets)   | 0.103| 0.124| 3.08  | 3.71   | Sheep (ram/ewe) | Potato, process waste | Y                      |
| Sheep (ewe only)    | 0.103| 0.124| 3.08  | 3.71   | Sheep (ram/ewe) | Potato, process waste | Y                      |
| Swine (all diets)   | 0.039| 0.044| 1.69  | 1.90   | Swine (breeding) | Potato, process waste | Y                      |
| Poultry (all diets) | 0.029| 0.036| 0.41  | 0.53   | Poultry (layer) | Potato, dried pulp   | Y                      |
### Relevant groups

| Relevant groups | Dietary burden expressed in | Most critical diet<sup>(a)</sup> | Most critical commodity<sup>(a)</sup> | Trigger exceeded (Y/N) |
|-----------------|-----------------------------|-------------------------------|------------------------------------------|------------------------|
|                 | mg/kg bw per day | mg/kg DM | Med. | Max. | Med. | Max. | Poultry (layer) | Clover, hay | Y |
| Poultry (layer only) | 0.025 | 0.036 | 0.36 | 0.53 | Poultry (layer) | Clover, hay | Y |

bw: body weight; DM: dry matter.
(a): Calculated for the maximum dietary burden.
(b): The highest dietary burdens expressed in mg/kg DM result from beef cattle.

### B.2.1. Nature of residues and methods of analysis in livestock

#### B.2.1.1. Metabolism studies, methods of analysis and residue definitions in livestock

#### Livestock (available studies)

| Animal | Dose (mg/kg bw per day) | Duration (days) | N rate/comment |
|--------|------------------------|-----------------|----------------|
| Laying hen | 3.5<sup>(a)</sup> | 6 | 97N compared to the maximum dietary burden for poultry |
| Lactating goat | 1.1–1.2<sup>(b)</sup> | 7 | 9–10N compared to the maximum dietary burden for sheep |

Source: Finland (2007a)

#### Livestock (available studies)

| Animal | Dose (mg/kg bw per day) | Duration (days) | N rate/comment |
|--------|------------------------|-----------------|----------------|
| Laying hen | 15<sup>(c)</sup> | 3 | 417N compared to the maximum dietary burden for poultry |
| Lactating goat | 15<sup>(c)</sup> | 3 | 121N compared to the maximum dietary burden for sheep |

Source: Finland (2007b)

#### Livestock (available studies)

| Animal | Dose (mg/kg bw per day) | Duration (days) | N rate/comment |
|--------|------------------------|-----------------|----------------|
| Laying hen | 50<sup>(d)</sup> | 6 | 1389N compared to the maximum dietary burden for poultry |
| Lactating goat | 0.8–0.9<sup>(d)</sup> | 10 | 7N/0.08-8N compared to the maximum dietary burden for sheep |

Sources: Italy (2005); Austria (2013)

bw: body weight.
(a): Study performed with quinoxaline-labelled quizalofop-ethyl (racemate).
(b): Study performed with phenyl- and quinoxaline-labelled quizalofop-ethyl (racemate).
(c): Study performed with quinoxaline-labelled quizalofop-P-tefuryl.
(d): Study performed with hydroquinone- and quinoxaline-labelled propaquizafop.
(e): Study performed with phenoxy- and quinoxaline-labelled propaquizafop.
Time needed to reach a plateau concentration in milk and eggs (days)

|                      | 14 days (eggs, quizalofop-P, EFSA, 2009b) | 4 days (milk, quizalofop-P, EFSA, 2009b) | 3–4 days (milk, propaquizafop, EFSA, 2009a) | 6 days (milk, propaquizafop, Austria 2013) |
|----------------------|------------------------------------------|------------------------------------------|-------------------------------------------|------------------------------------------|

Metabolism in rat and ruminant similar (Yes/No)

|                      | Yes |

Animal residue definition for monitoring (RD-Mo)

|                      | For poultry liver and kidney: sum of quizalofop, its salts, its esters (including propaquizafop), its conjugates, its pentanoic acid metabolite and its conjugates, expressed as quizalofop (any ratio of constituent isomers) |
|                      | For all other commodities of animal origin including milks and eggs: sum of quizalofop, its salts, its esters (including propaquizafop) and its conjugates, expressed as quizalofop (any ratio of constituent isomers) |

Animal residue definition for risk assessment (RD-RA)

|                      | For poultry liver and kidney: sum of quizalofop, its salts, its esters (including propaquizafop), its conjugates, its pentanoic acid metabolite and its conjugates, expressed as quizalofop (any ratio of constituent isomers) |
|                      | For all other commodities of animal origin including milks and eggs: sum of quizalofop, its salts, its esters (including propaquizafop) and its conjugates, expressed as quizalofop (any ratio of constituent isomers) |

Conversion factor (monitoring to risk assessment)

|                      | Not applicable |

Fat soluble residues (Yes/No)

|                      | No |

Methods of analysis for monitoring of residues (analytical technique, crop groups, LOQs)

|                      | HPLC-FLD (common moiety method), 0.01 mg/kg (milk and eggs) 0.02 mg/kg (tissues) (Finland, 2015). ILV and confirmatory methods available. Extraction efficiency and hydrolysis step need to be demonstrated. No validation data available to the EURLs (EURLs, 2016a) |

B.2.1.2. Stability of residues in livestock

| Animal products (available studies) | Animal | Commodity | T (°C) | Stability (months/years) |
|-------------------------------------|--------|-----------|--------|-------------------------|
|                                     | Bovine and hen | Muscle | –20 | 9 months |
|                                     | Bovine and hen | Liver | –20 | 9 months |
|                                     | Bovine and hen | Kidney | –20 | 9 months |
|                                     | Bovine | Milk | –20 | 3 months |
|                                     | Hen | Egg | –20 | 6 months |

Source: Finland (2015)

Storage stability studies cover the sum of all residues convertible to 6-chloro-2-methoxyquinoxaline (MCQ), as analysed in the livestock feeding studies.

B.2.2. Magnitude of residues in livestock

B.2.2.1. Summary of the residue data from livestock feeding studies

| Animal commodity | Residues at the closest feeding level (mg/kg)(a) | Estimated value at 1N | MRL proposal (mg/kg) |
|------------------|-----------------------------------------------|-----------------------|----------------------|
|                  | Mean | Highest | STMR(b) (mg/kg) | HR(c) (mg/kg) | |
| Cattle (all diets) |      |         |               |               | 0.02* (tentative)(e) |
| Muscle           | < 0.02 | < 0.02 | < 0.02 | < 0.02 | 0.02* (tentative)(e) |
| Fat              | < 0.02 | < 0.02 | < 0.02 | < 0.02 | 0.02* (tentative)(e) |
| Liver            | < 0.02 | < 0.02 | 0.02   | 0.03   | 0.03 (tentative)(e) |
| Kidney           | 0.15  | 0.19   | 0.16   | 0.22   | 0.3 (tentative)(e) |

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| Animal commodity | Residues at the closest feeding level (mg/kg)\(^{(a)}\) | Estimated value at 1N MRL proposal (mg/kg) | MRL proposal (mg/kg) |
|------------------|---------------------------------------------------|--------------------------------|---------------------|
|                  | Mean | Highest | STMR\(^{(b)}\) (mg/kg) | HR\(^{(c)}\) (mg/kg) | |
| **Cattle (dairy only)** | | | | | |
| Closest feeding level (0.08 mg/kg bw; 0.7 N rate)\(^{(d)}\) | | | | | |
| Milk\(^{(f)}\) | < 0.01 | n.a. | 0.01 | 0.01 | 0.015 (tentative)\(^{(e)}\) |
| **Sheep (all diets)** | | | | | |
| Closest feeding level (0.08 mg/kg bw; 0.7 N rate)\(^{(d)}\) | | | | | |
| Muscle | < 0.02 | < 0.02 | < 0.02 | < 0.02 | 0.02* (tentative)\(^{(e)}\) |
| Fat | < 0.02 | < 0.02 | < 0.02 | < 0.02 | 0.02* (tentative)\(^{(e)}\) |
| Liver | < 0.02 | < 0.02 | 0.03 | 0.03 | 0.03 (tentative)\(^{(e)}\) |
| Kidney | 0.15 | 0.19 | 0.17 | 0.24 | 0.3 (tentative)\(^{(e)}\) |
| **Sheep (dairy only)** | | | | | |
| Closest feeding level (0.08 mg/kg bw; 0.7 N rate)\(^{(d)}\) | | | | | |
| Milk\(^{(f)}\) | < 0.01 | n.a. | 0.01 | 0.01 | 0.015 (tentative)\(^{(e)}\) |
| **Swine** | | | | | |
| Closest feeding level (0.025 mg/kg bw; 0.6 N rate)\(^{(d)}\) | | | | | |
| Muscle | < 0.02 | < 0.02 | < 0.02 | < 0.02 | 0.02* (tentative)\(^{(e)}\) |
| Fat | < 0.02 | < 0.02 | < 0.02 | < 0.02 | 0.02* (tentative)\(^{(e)}\) |
| Liver | < 0.02 | < 0.02 | 0.02 | < 0.02 | 0.02* (tentative)\(^{(e)}\) |
| Kidney | 0.04 | 0.04 | 0.07 | 0.10 | 0.10 (tentative)\(^{(e)}\) |
| **Poultry (all diets)** | | | | | |
| Closest feeding level (0.04 mg/kg bw; 1.1 N rate)\(^{(d)}\) | | | | | |
| Muscle | < 0.02 | < 0.02 | < 0.02 | < 0.02 | 0.02* (tentative)\(^{(e)}\) |
| Fat | 0.03 | 0.03 | 0.03 | 0.03 | 0.04 (tentative)\(^{(e)}\) |
| Liver | 0.04 | 0.04 | 0.03 | 0.04 | 0.04 (tentative)\(^{(e)}\) |
| **Poultry (layer only)** | | | | | |
| Closest feeding level (0.04 mg/kg bw; 1.1 N rate)\(^{(d)}\) | | | | | |
| Egg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | 0.01* (tentative)\(^{(e)}\) |

MRL: maximum residue level; n.a.: not applicable; n.r.: not reported; bw: body weight.
* : Indicates that the MRL is proposed at the limit of quantification.
(a): Livestock feeding studies performed with quizalofop-P-tefuryl variant.
(b): The mean residue level for milk, eggs and tissues were recalculated at the 1N rate for the median dietary burden.
(c): The mean residue level in milk and the highest residue levels in eggs and tissues were recalculated at the 1N rate for the maximum dietary burden.
(d): Closest feeding level and N dose rate related to the maximum dietary burden.
(e): MRL proposal is tentative because efficiency of extraction and hydrolysis steps of the analytical method used in the livestock feeding studies and proposed for enforcement needs to be demonstrated.
(f): Highest residue level from day 1 to day 28 (daily mean of 3 cows).
(g): Since extrapolation from cattle to other ruminants and swine is acceptable, results of the livestock feeding study on ruminants were relied upon to derive the MRL and risk assessment values in sheep and swine.
B.3. Consumer risk assessment

ADI 0.0083 mg/kg bw per day
(based on the lowest ADI of 0.009 mg/kg bw per day derived for quizalofop-P-ethyl (EFSA, 2009b) and recalculated as quizalofop equivalents)

Highest IEDI, according to EFSA PRIMo
31% ADI (FR, toddler)

Assumptions made for the calculations

For each commodity, the median residue levels obtained for quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop were compared and the most critical values were selected for the exposure calculation.

For certain commodities, however, the available residue trials were not sufficient to derive risk assessment values for the use of all the variants and could not be excluded that those uses not supported by data will result in higher residue levels, in particular when the existing EU MRL is higher than the MRL proposal derived. In these cases, EFSA decided, as a conservative approach, to use the existing EU MRL for an indicative exposure calculation.

Also for those commodities where data were insufficient to derive an MRL for any of the variants, EFSA considered the existing EU MRL for an indicative calculation.

The contributions of other commodities, for which no GAP was reported in the framework of this review, were not included in the calculation.

All input values refer to the residues in the raw agricultural commodities

ARfD 0.08 mg/kg bw
(based on the lowest ARfD of 0.1 mg/kg bw derived for quizalofop-P-tefuryl (EFSA, 2009b) and recalculated as quizalofop equivalents)

Highest IESTI, according to EFSA PRIMo
76% ARfD (melons)

Assumptions made for the calculations

For each commodity, the highest residue levels obtained for quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop were compared and the most critical values were selected for the exposure calculation.

For certain commodities, however, the available residue trials were not sufficient to derive risk assessment values for the use of all the variants and could not be excluded that those uses not supported by data will result in higher residue levels, in particular when the existing EU MRL is higher than the MRL proposal derived. In these cases, EFSA decided, as a conservative approach, to use the existing EU MRL for an indicative exposure calculation.

Also for those commodities where data were insufficient to derive an MRL for any of the variants, EFSA considered the existing EU MRL for an indicative calculation.

All input values refer to the residues in the raw agricultural commodities

B.4. Proposed MRLs

| Code number(a) | Commodity | Existing EU MRL 1 (mg/kg) | Existing EU MRL 2 (mg/kg) | Outcome of the review | Comment |
|---------------|-----------|---------------------------|---------------------------|-----------------------|---------|
|               |           |                           |                           |                       |         |
|               | Enforcement residue definition 1 (existing): quizalofop including quizalofop-P |
| 110010        | Grapefruits | 0.05*                     | 0.05*                     | 0.05                  | Further consideration needed(b) |
| 110020        | Oranges    | 0.05*                     | 0.05*                     | 0.05                  | Further consideration needed(b) |
| 110030        | Lemons     | 0.05*                     | 0.05*                     | 0.05                  | Further consideration needed(b) |
| 110040        | Limes      | 0.05*                     | 0.05*                     | 0.05                  | Further consideration needed(b) |
| 110050        | Mandarins  | 0.05*                     | 0.05*                     | 0.05                  | Further consideration needed(b) |
| 120010        | Almonds    | 0.05*                     | 0.05*                     | 0.01*                 | Further consideration needed(c) |
| 120040        | Chestnuts  | 0.05*                     | 0.05*                     | 0.01*                 | Further consideration needed(c) |

AR: acceptable daily intake; bw: body weight; IEDI: international estimated daily intake; PRIMo; ARfD: acute reference dose; IESTI: international estimated short-term intake; MRL: maximum residue level.

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| Code number (a) | Commodity                        | Existing EU MRL 1 (mg/kg) | Existing EU MRL 2 (mg/kg) | Outcome of the review | MRL (mg/kg) | Comment                        |
|----------------|----------------------------------|---------------------------|---------------------------|-----------------------|-------------|--------------------------------|
| 120060         | Hazelnuts/cobnuts                | 0.05*                     | 0.05*                     | Further consideration needed (c) | 0.01*       |                                |
| 120090         | Pine nut kernels                 | 0.05*                     | 0.05*                     | Further consideration needed (c) | 0.01*       |                                |
| 120100         | Pistachios                       | 0.05*                     | 0.05*                     | Further consideration needed (c) | 0.01*       |                                |
| 120110         | Walnuts                          | 0.05*                     | 0.05*                     | Further consideration needed (c) | 0.01*       |                                |
| 130010         | Apples                           | 0.05*                     | 0.05*                     | Further consideration needed (c) | 0.02        |                                |
| 130020         | Pears                            | 0.05*                     | 0.05*                     | Further consideration needed (c) | 0.02        |                                |
| 130030         | Quinces                          | 0.05*                     | 0.05*                     | Further consideration needed (c) | 0.02        |                                |
| 130040         | Medlars                          | 0.05*                     | 0.05*                     | Further consideration needed (c) | 0.02        |                                |
| 130050         | Loquats/Japanese medlars          | 0.05*                     | 0.05*                     | Further consideration needed (c) | 0.02        |                                |
| 140010         | Apricots                         | 0.05*                     | 0.05*                     | Further consideration needed (c) | 0.02        |                                |
| 140020         | Cherries (sweet)                 | 0.05*                     | 0.05*                     | Further consideration needed (c) | 0.02        |                                |
| 140030         | Peaches                          | 0.05*                     | 0.2                      | Further consideration needed (c) | 0.02        |                                |
| 140040         | Plums                            | 0.05*                     | 0.05*                     | Further consideration needed (c) | 0.02        |                                |
| 151010         | Table grapes                     | 0.05*                     | 0.05*                     | Further consideration needed (c) | 0.05        |                                |
| 151020         | Wine grapes                      | 0.05*                     | 0.05*                     | Further consideration needed (c) | 0.05        |                                |
| 152000         | Strawberries                     | 0.05*                     | 0.05*                     | Further consideration needed (c) | 0.05        |                                |
| 153010         | Blackberries                     | 0.05*                     | 0.05*                     | Further consideration needed (c) | 0.02        |                                |
| 153030         | Raspberries (red and yellow)     | 0.05*                     | 0.05*                     | Further consideration needed (c) | 0.02        |                                |
| 154010         | Blueberries                      | 0.05*                     | 0.05*                     | Further consideration needed (c) | 0.05        |                                |
| 154030         | Currants (black, red and white)  | 0.05*                     | 0.05*                     | Further consideration needed (c) | 0.05        |                                |
| 154040         | Gooseberries (green, red and yellow) | 0.05*                    | 0.05*                     | Further consideration needed (c) | 0.05        |                                |
| 154050         | Rose hips                        | 0.05*                     | 0.05*                     | Further consideration needed (c) | 0.05        |                                |
| 154080         | Elderberries                     | 0.05*                     | 0.05*                     | Further consideration needed (c) | 0.05        |                                |
| 161030         | Table olives                     | 0.05*                     | 0.05*                     | Further consideration needed (c) | 0.05        |                                |
| 161040         | Kumquats                         | 0.05*                     | 0.05*                     | Further consideration needed (c) | 0.01        |                                |
| 211000         | Potatoes                         | 0.2                       | 0.1                      | Further consideration needed (c) | 0.1         |                                |
| 213010         | Beetroots                        | 0.4                       | 0.05*                     | Further consideration needed (c) | 0.06        |                                |
| 213020         | Carrots                          | 0.4                       | 0.1                      | Further consideration needed (c) | 0.2         |                                |
| 213030         | Celeriacs/turip rooted celeries  | 0.4                       | 0.15                     | Further consideration needed (c) | 0.08        |                                |
| 213040         | Horseradishes                    | 0.4                       | 0.05*                     | Further consideration needed (c) | 0.4         |                                |
| 213050         | Jerusalem artichokes             | 0.4                       | 0.05*                     | Further consideration needed (c) | 0.4         |                                |
| 213060         | Parsnips                         | 0.4                       | 0.15                     | Further consideration needed (c) | 0.2         |                                |
| 213070         | Parsley roots/Hamburg roots parsley | 0.4                       | 0.15                     | Further consideration needed (c) | 0.4         |                                |
| 213080         | Radishes                         | 0.4                       | 0.15                     | Further consideration needed (c) | 0.2         |                                |
| 213090         | Salsifies                        | 0.4                       | 0.05*                     | Further consideration needed (c) | 0.2         |                                |
| 213100         | Swedes/rutabagas                 | 0.4                       | 0.05*                     | Further consideration needed (c) | 0.06        |                                |
| 213110         | Turnips                          | 0.4                       | 0.05*                     | Further consideration needed (c) | 0.08        |                                |
| 220010         | Garlic                            | 0.4                       | 0.05*                     | Further consideration needed (c) | 0.04        |                                |
| 220020         | Onions                            | 0.4                       | 0.1                      | Further consideration needed (c) | 0.04        |                                |
| 220030         | Shallots                          | 0.4                       | 0.05*                     | Further consideration needed (c) | 0.04        |                                |
| 231010         | Tomatoes                          | 0.4                       | 0.05*                     | Further consideration needed (c) | 0.05        |                                |

**Review of the existing MRLs for quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop**

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EFSA Journal 2017;15(12):5050
| Code number(a) | Commodity | Existing EU MRL 1 (mg/kg) | Existing EU MRL 2 (mg/kg) | Outcome of the review | MRL (mg/kg) | Comment |
|---------------|-----------|---------------------------|---------------------------|-----------------------|-------------|---------|
| 231020        | Sweet peppers/bell peppers | 0.4 | 0.05* | 0.4 | Further consideration needed(g) |
| 231030        | Aubergines/eggplants | 0.4 | 0.05* | 0.05 | Further consideration needed(g) |
| 231040        | Okra/lady's fingers | 0.4 | 0.05* | 0.05 | Further consideration needed(g) |
| 232010        | Cucumbers | 0.4 | 0.05* | 0.4 | Further consideration needed(g) |
| 232020        | Gherkins | 0.4 | 0.05* | 0.4 | Further consideration needed(g) |
| 232030        | Courgettes | 0.4 | 0.05* | 0.4 | Further consideration needed(g) |
| 233010        | Melons | 0.4 | 0.05* | 0.4 | Further consideration needed(g) |
| 233020        | Pumpkins | 0.4 | 0.05* | 0.4 | Further consideration needed(g) |
| 233030        | Watermelons | 0.4 | 0.05* | 0.4 | Further consideration needed(g) |
| 241010        | Broccoli | 0.4 | 0.2 | 0.4 | Further consideration needed(g) |
| 241020        | Cauliflowers | 0.4 | 0.2 | 0.4 | Further consideration needed(g) |
| 242010        | Brussels sprouts | 0.4 | 0.05* | 0.4 | Further consideration needed(g) |
| 242020        | Head cabbages | 0.4 | 0.2 | 0.6 | Further consideration needed(g) |
| 243010        | Chinese cabbages/pe-tsai | 0.4 | 0.05* | 0.4 | Further consideration needed(g) |
| 244000        | Kohlrabies | 0.4 | 0.05* | 0.4 | Further consideration needed(g) |
| 251010        | Lamb's lettuces/corn salads | 0.4 | 0.1 | 0.4 | Further consideration needed(g) |
| 251020        | Lettuces | 0.4 | 0.1 | 0.2 | Further consideration needed(g) |
| 251030        | Escaroles/broad-leaved endives | 0.4 | 0.1 | 0.2 | Further consideration needed(g) |
| 251040        | Cresses and other sprouts and shoots | 0.4 | 0.1 | 0.4 | Further consideration needed(g) |
| 251050        | Land cresses | 0.4 | 0.1 | 0.4 | Further consideration needed(g) |
| 251060        | Roman rocket/rucola | 0.4 | 0.1 | 0.4 | Further consideration needed(g) |
| 251070        | Red mustards | 0.4 | 0.1 | 0.4 | Further consideration needed(g) |
| 251080        | Baby leaf crops (including brassica species) | 0.4 | 0.1 | 0.1 | Further consideration needed(g) |
| 252010        | Spinaches | 0.4 | 0.2 | 0.2 | Further consideration needed(g) |
| 252030        | Chards/beet leaves | 0.4 | 0.05* | 0.04 | Further consideration needed(g) |
| 255000        | Witloofs/Belgian endives | 0.4 | 0.05* | 0.4 | Further consideration needed(g) |
| 256010        | Chervil | 0.4 | 0.2 | 0.2 | Further consideration needed(g) |
| 256020        | Chives | 0.4 | 0.2 | 0.2 | Further consideration needed(g) |
| 256030        | Celery leaves | 0.4 | 0.2 | 0.2 | Further consideration needed(g) |
| 256040        | Parsley | 0.4 | 0.2 | 0.2 | Further consideration needed(g) |
| 256050        | Sage | 0.4 | 0.2 | 0.2 | Further consideration needed(g) |
| 256060        | Rosemary | 0.4 | 0.2 | 0.2 | Further consideration needed(g) |
| 256070        | Thyme | 0.4 | 0.2 | 0.2 | Further consideration needed(g) |
| 256080        | Basil and edible flowers | 0.4 | 0.2 | 0.2 | Further consideration needed(g) |
| 256090        | Laurel/bay leave | 0.4 | 0.2 | 0.2 | Further consideration needed(g) |
| 256100        | Tarragon | 0.4 | 0.2 | 0.2 | Further consideration needed(g) |
| 260010        | Beans (with pods) | 0.4 | 0.05* | 0.4 | Further consideration needed(g) |
| 260020        | Beans (without pods) | 0.4 | 0.05* | 0.4 | Further consideration needed(g) |
| 260030        | Peas (with pods) | 0.4 | 0.2 | 0.4 | Further consideration needed(g) |
| Code number | Commodity                        | Existing EU MRL 1 (mg/kg) | Existing EU MRL 2 (mg/kg) | Outcome of the review | Comment       |
|-------------|----------------------------------|---------------------------|---------------------------|-----------------------|---------------|
| 260040      | Peas (without pods)              | 0.4                       | 0.05*                     | 0.4                   | Further consideration needed (g) |
| 260050      | Lentils (fresh)                  | 0.4                       | 0.05*                     | 0.2                   | Further consideration needed (g) |
| 270010      | Asparagus                        | 0.4                       | 0.1                       | 0.4                   | Further consideration needed (g) |
| 270030      | Celeries                         | 0.4                       | 0.1                       | 0.4                   | Further consideration needed (g) |
| 270040      | Florence fennels                 | 0.4                       | 0.05*                     | 0.01*                 | Further consideration needed (g) |
| 270050      | Globe artichokes                 | 0.4                       | 0.1                       | 0.4                   | Further consideration needed (g) |
| 270060      | Leeks                            | 0.4                       | 0.05*                     | 0.4                   | Further consideration needed (g) |
| 300010      | Beans (dry)                      | 0.4                       | 0.05*                     | 0.2                   | Further consideration needed (g) |
| 300020      | Lentils (dry)                    | 0.4                       | 0.05*                     | 0.2                   | Further consideration needed (g) |
| 300030      | Peas (dry)                       | 0.4                       | 0.05*                     | 0.2                   | Further consideration needed (g) |
| 300040      | Lupins/lupini beans (dry)        | 0.4                       | 0.05*                     | 0.4                   | Further consideration needed (g) |
| 401010      | Linseeds                         | 0.2                       | 0.05*                     | 0.3                   | Further consideration needed (m) |
| 401030      | Poppy seeds                      | 0.1*                      | 0.08                      | 0.7                   | Further consideration needed (g) |
| 401050      | Sunflower seeds                  | 0.7                       | 0.2                       | 0.8                   | Further consideration needed (g) |
| 401060      | Rapeseeds/canola seeds           | 0.5                       | 0.1                       | 2                     | Further consideration needed (g) |
| 401070      | Soya beans                       | 0.1*                      | 0.08                      | 0.2                   | Further consideration needed (g) |
| 401080      | Mustard seeds                    | 0.05*                     | 0.08                      | 0.7                   | Further consideration needed (g) |
| 401090      | Cotton seeds                     | 0.15                      | 0.1                       | 0.1                   | Further consideration needed (g) |
| 402010      | Olives for oil production        | 0.05*                     | 0.05*                     | 0.05                  | Further consideration needed (g) |
| 500060      | Rice grains                      | 0.05*                     | 0.05*                     | 0.05                  | Further consideration needed (g) |
| 631000      | Herbal infusions from flowers    | 1                         | 0.05*                     | 0.8                   | Further consideration needed (f) |
| 632000      | Herbal infusions from leaves and herbs | 1 | 0.05* | 0.8 | Further consideration needed (f) |
| 633000      | Herbal infusions from roots      | 1                         | 0.05*                     | 1                     | Further consideration needed (g) |
| 810000      | Seed spices                      | –                         | 0.05*                     | 0.05                  | Further consideration needed (f) |
| 820000      | Fruit spices                     | 0.05*                     | 0.05*                     | 0.05                  | Further consideration needed (f) |
| 900010      | Sugar beet roots                 | 0.1                       | 0.1                       | 0.06                  | Further consideration needed (h) |
| 900030      | Chicory roots                    | 0.05*                     | 0.05*                     | 0.06                  | Further consideration needed (h) |
| – Other commodities of plant origin | – | – | – | Further consideration needed (h) |
| 1011010     | Swine muscle                     | 0.1                       | 0.05*                     | 0.02*                 | Further consideration needed (v) |
| 1011020     | Swine fat tissue                 | 0.05*                     | 0.05*                     | 0.02*                 | Further consideration needed (v) |
| 1011030     | Swine liver                      | 0.05*                     | 0.05*                     | 0.02*                 | Further consideration needed (v) |
| 1011040     | Swine kidney                     | 0.05*                     | 0.05*                     | 0.1                   | Further consideration needed (v) |
| 1012010     | Bovine muscle                    | 0.1                       | 0.05*                     | 0.02*                 | Further consideration needed (v) |
| 1012020     | Bovine fat tissue                | 0.05*                     | 0.05*                     | 0.02*                 | Further consideration needed (v) |
| 1012030     | Bovine liver                     | 0.05*                     | 0.05*                     | 0.03                  | Further consideration needed (v) |
| 1012040     | Bovine kidney                    | 0.05*                     | 0.05*                     | 0.3                   | Further consideration needed (v) |
| 1013010     | Sheep muscle                     | 0.05*                     | 0.05*                     | 0.02*                 | Further consideration needed (v) |
| 1013020     | Sheep fat tissue                 | 0.05*                     | 0.05*                     | 0.02*                 | Further consideration needed (v) |
| 1013030     | Sheep liver                      | 0.05*                     | 0.05*                     | 0.03                  | Further consideration needed (v) |
| 1013040     | Sheep kidney                     | 0.05*                     | 0.05*                     | 0.3                   | Further consideration needed (v) |
### Review of the existing MRLs for quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop

| Code number\(^{(a)}\) | Commodity                  | Existing EU MRL \(1\) (mg/kg) | Existing EU MRL \(2\) (mg/kg) | MRL (mg/kg) | Comment                                      |
|-------------------------|----------------------------|-------------------------------|-------------------------------|-------------|----------------------------------------------|
| 1014010                 | Goat muscle                | 0.05*                         | 0.05*                         | 0.02*       | Further consideration needed\(^{(v)}\)       |
| 1014020                 | Goat fat tissue            | 0.05*                         | 0.05*                         | 0.02*       | Further consideration needed\(^{(v)}\)       |
| 1014030                 | Goat liver                 | 0.05*                         | 0.05*                         | 0.03        | Further consideration needed\(^{(v)}\)       |
| 1014040                 | Goat kidney                | 0.05*                         | 0.05*                         | 0.3         | Further consideration needed\(^{(v)}\)       |
| 1015010                 | Equine muscle              | 0.05*                         | 0.05*                         | 0.02*       | Further consideration needed\(^{(v)}\)       |
| 1015020                 | Equine fat tissue          | 0.05*                         | 0.05*                         | 0.02*       | Further consideration needed\(^{(v)}\)       |
| 1015030                 | Equine liver               | 0.05*                         | 0.05*                         | 0.3         | Further consideration needed\(^{(v)}\)       |
| 1015040                 | Equine kidney              | 0.05*                         | 0.05*                         | 0.3         | Further consideration needed\(^{(v)}\)       |
| 1016010                 | Poultry muscle             | 0.05*                         | 0.05*                         | 0.02*       | Further consideration needed\(^{(v)}\)       |
| 1016020                 | Poultry fat tissue         | 0.05*                         | 0.05*                         | 0.04        | Further consideration needed\(^{(v)}\)       |
| 1020010                 | Cattle milk                | 0.05*                         | 0.05*                         | 0.015       | Further consideration needed\(^{(v)}\)       |
| 1020020                 | Sheep milk                 | 0.05*                         | 0.05*                         | 0.015       | Further consideration needed\(^{(v)}\)       |
| 1020030                 | Goat milk                  | 0.05*                         | 0.05*                         | 0.015       | Further consideration needed\(^{(v)}\)       |
| 1020040                 | Horse milk                 | 0.05*                         | 0.05*                         | 0.015       | Further consideration needed\(^{(v)}\)       |
| 1030000                 | Birds eggs                 | 0.05*                         | 0.05*                         | 0.01*       | Further consideration needed\(^{(v)}\)       |
|                         | Other commodities of plant and animal origin \(^{(a)}\) | See Reg. (EU) No 149/2008 | See Reg. (EU) No 149/2008 | –           | Further consideration needed\(^{(v)}\)       |

### Enforcement residue definition

**1 (existing):** quizalofop including quizalofop-P, its conjugates and its pentanoic acid metabolite, expressed as quizalofop (any ratio of constituent isomers)

**2 (existing):** propaquizafop

**3 (proposed):** sum of quizalofop, its salts, its esters (including propaquizafop), and its conjugates and its pentanoic acid metabolite, expressed as quizalofop (any ratio of constituent isomers)

\(^{(a)}\) Commodity code number, as listed in Annex I of Regulation (EC) No 396/2005.

\(^{(b)}\) GAP evaluated at EU level for quizalofop-P-ethyl is not supported by data but no risk to consumers was identified for the existing EU MRL. The GAP evaluated at EU level for propaquizafop is not fully supported by data but may serve as a basis for deriving a tentative fall-back MRL. There are no relevant authorisations or import tolerances reported at EU level for quizalofop-P-tefuryl.

\(^{(c)}\) Tentative MRL is derived from a GAP evaluated at EU level for propaquizafop, which is not fully supported by data but for which no risk to consumers was identified. There are no relevant authorisations or import tolerances reported at EU level for quizalofop-P-ethyl and quizalofop-P-tefuryl.

\(^{(d)}\) Tentative MRL is derived from a GAP evaluated at EU level for quizalofop-ethyl, which is not fully supported by data but for which no risk to consumers was identified. The GAP evaluated at EU level for propaquizafop is also not fully supported by data and is covered by the proposed MRL. There are no relevant authorisations or import tolerances reported at EU level for quizalofop-P-tefuryl.

\(^{(e)}\) GAP evaluated at EU level for quizalofop-P-tefuryl is not supported by data but no risk to consumers was identified for the existing EU MRL. The GAPs evaluated at EU level for quizalofop-P-ethyl and propaquizafop are not fully supported by data but may serve as a basis for deriving a tentative fall-back MRL.

\(^{(f)}\) Tentative MRL is derived from a GAP evaluated at EU level for quizalofop-ethyl, which is not fully supported by data but for which no risk to consumers was identified. There are no relevant authorisations or import tolerances reported at EU level for quizalofop-P-ethyl and quizalofop-P-tefuryl.

\(^{(g)}\) GAP evaluated at EU level for quizalofop-P-ethyl is not supported by data but no risk to consumers was identified for the existing EU MRL. There are no relevant authorisations or import tolerances reported at EU level for quizalofop-P-tefuryl and propaquizafop.

\(^{(h)}\) Tentative MRL is derived from a GAP evaluated at EU level for quizalofop-tefuryl, which is not fully supported by data but for which no risk to consumers was identified. The GAPs evaluated at EU level for quizalofop-P-ethyl and propaquizafop are also not fully supported by data and are covered by the proposed MRL.

\(^{(i)}\) Tentative MRL is derived from a GAP evaluated at EU level for propaquizafop, which is not fully supported by data but for which no risk to consumers was identified. The GAPs evaluated at EU level for quizalofop-P-ethyl and quizalofop-P-tefuryl are also not fully supported by data and are covered by the proposed MRL.

\(^{(j)}\) GAP evaluated at EU level for quizalofop-P-ethyl is not supported by data but no risk to consumers was identified for the existing EU MRL. The GAP evaluated at EU level for quizalofop-P-tefuryl is not fully supported by data but may serve as a basis for deriving a tentative fall-back MRL. There are no relevant authorisations or import tolerances reported at EU level for propaquizafop.
(k): GAP evaluated at EU level for quizalofop-P-ethyl is not supported by data but no risk to consumers was identified for the existing EU MRL. The GAPs evaluated at EU level for quizalofop-P-tefuryl and propaquizafop are also not fully supported by data but may serve as a basis for deriving a tentative fall-back MRL.

(l): Tentative MRL is derived from a GAP evaluated at EU level for quizalofop-tefuryl, which is not fully supported by data but for which no risk to consumers was identified. The GAP evaluated at EU level for quizalofop-P-ethyl is also not fully supported by data and is covered by the proposed MRL. There are no relevant authorisations or import tolerances reported at EU level for propaquizafop.

(m): Tentative MRL is derived from a GAP evaluated at EU level for quizalofop-ethyl, which is not fully supported by data but for which no risk to consumers was identified. The GAP evaluated at EU level for quizalofop-P-tefuryl and propaquizafop are also not fully supported by data and are covered by the proposed MRL.

(n): GAP evaluated at EU level for quizalofop-P-ethyl and quizalofop-P-tefuryl are not supported by data but no risk to consumers was identified for the existing EU MRL. There are no relevant authorisations or import tolerances reported at EU level for propaquizafop.

(o): Tentative MRL is derived from a GAP evaluated at EU level for propaquizafop, which is not fully supported by data but for which no risk to consumers was identified. The GAP evaluated at EU level for quizalofop-P-ethyl is also not fully supported by data and is covered by the proposed MRL. There are no relevant authorisations or import tolerances reported at EU level for quizalofop-P-tefuryl.

(p): GAP evaluated at EU level for propaquizafop is not supported by data but no risk to consumers was identified for the existing EU MRL. There are no relevant authorisations or import tolerances reported at EU level for quizalofop-P-ethyl and quizalofop-P-tefuryl.

(q): GAP evaluated at EU level for quizalofop-P-ethyl and propaquizafop is not supported by data but no risk to consumers was identified for the existing EU MRL. There are no relevant authorisations or import tolerances reported at EU level for quizalofop-P-tefuryl.

(r): Tentative MRL is derived from a GAP evaluated at EU level for quizalofop-ethyl, which is not fully supported by data but for which no risk to consumers was identified. GAP evaluated at EU level for propaquizafop is not supported by data but the existing MRL is covered by the proposed MRL. There are no relevant authorisations or import tolerances reported at EU level for quizalofop-P-tefuryl.

(s): Tentative MRL is derived from a GAP evaluated at EU level for quizalofop-tefuryl, which is not fully supported by data but for which no risk to consumers was identified. The GAP evaluated at EU level for propaquizafop is also not fully supported by data and is covered by the proposed MRL. GAP evaluated at EU level for quizalofop-P-ethyl is not supported by data but the existing MRL is covered by the proposed MRL.

(t): Tentative MRL is derived from a GAP evaluated at EU level for quizalofop-tefuryl, which is not fully supported by data but for which no risk to consumers was identified. The GAP evaluated at EU level for propaquizafop is also not fully supported by data and is covered by the proposed MRL. There are no relevant authorisations or import tolerances reported at EU level for quizalofop-P-ethyl.

(u): There are no relevant authorisations or import tolerances reported at EU level for quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop. Either a specific LOQ or the default MRL of 0.01 mg/kg may be considered.

(v): Tentative MRL is derived from the livestock dietary burden calculated for quizalofop-P-ethyl, quizalofop-P-tefuryl and propaquizafop, which is not fully supported by data but for which no risk to consumers was identified.
Appendix C – Pesticide Residue Intake Model (PRIMo)

### Quizalofop-P

| Toxicological end points |
|--------------------------|
| LOQ (mg/kg bw) | 0.01 |
| ADI (mg/kg bw per day) | 0.0083 |
| Source of ADI | EFSA |
| Year of evaluation | 2008 |

#### Status of the active substance: Code no.

| LOQ (mg/kg bw) | Code no. | Proposed LOQ | Source of ADI | Year of evaluation |
|----------------|----------|--------------|---------------|-------------------|
| 0.01           |          |              | EFSA          | 2008              |

#### ADI (mg/kg bw)

| ADI (mg/kg bw per day) | Source of ADI | Year of evaluation |
|------------------------|---------------|-------------------|
| 0.0083                 | EFSA          | 2008              |

#### ARfD (mg/kg bw)

| ARfD (mg/kg bw) | Source of ADI | Year of evaluation |
|-----------------|---------------|-------------------|
| 0.08            | EFSA          | 2008              |

#### No of diets exceeding ADI:

| No of diets exceeding ADI | TMDI values in % of ADI |
|----------------------------|--------------------------|
| 5 – 30                    |                         |

#### Highest calculated TMDI values in % of ADI

| Commodity/group of commodities | TMDI (range) in % of ADI |
|---------------------------------|--------------------------|
| Beams (with pods)               | 3.5                      |
| Milk and cream                  | 2.1                      |
| Potatoes                        | 2.4                      |
| Beams (with pods)               | 2.8                      |
| Potatoes                        | 2.4                      |
| Beams (with pods)               | 2.0                      |
| Potatoes                        | 2.4                      |
| Beams (with pods)               | 1.5                      |
| Potatoes                        | 1.5                      |

#### Commodity/group of commodities

| Commodity/group of commodities | TMDI (range) in % of ADI |
|---------------------------------|--------------------------|
| Beams (with pods)               | 3.3                      |
| Milk and cream                  | 2.1                      |
| Potatoes                        | 2.4                      |
| Beams (with pods)               | 2.8                      |
| Potatoes                        | 2.4                      |
| Beams (with pods)               | 2.0                      |
| Potatoes                        | 2.4                      |
| Beams (with pods)               | 1.5                      |
| Potatoes                        | 1.5                      |

#### Highest contributor to MS diet (in % of ADI)

| Commodity/group of commodities | TMDI (range) in % of ADI |
|---------------------------------|--------------------------|
| Beams (with pods)               | 3.5                      |
| Milk and cream                  | 2.1                      |
| Potatoes                        | 2.4                      |
| Beams (with pods)               | 2.8                      |
| Potatoes                        | 2.4                      |
| Beams (with pods)               | 2.0                      |
| Potatoes                        | 2.4                      |
| Beams (with pods)               | 1.5                      |
| Potatoes                        | 1.5                      |

#### 2nd contributor to MS diet (in % of ADI)

| Commodity/group of commodities | TMDI (range) in % of ADI |
|---------------------------------|--------------------------|
| Beams (with pods)               | 3.3                      |
| Milk and cream                  | 2.1                      |
| Potatoes                        | 2.4                      |
| Beams (with pods)               | 2.8                      |
| Potatoes                        | 2.4                      |
| Beams (with pods)               | 2.0                      |
| Potatoes                        | 2.4                      |
| Beams (with pods)               | 1.5                      |
| Potatoes                        | 1.5                      |

#### 3rd contributor to MS diet (in % of ADI)

| Commodity/group of commodities | TMDI (range) in % of ADI |
|---------------------------------|--------------------------|
| Beams (with pods)               | 3.3                      |
| Milk and cream                  | 2.1                      |
| Potatoes                        | 2.4                      |
| Beams (with pods)               | 2.8                      |
| Potatoes                        | 2.4                      |
| Beams (with pods)               | 2.0                      |
| Potatoes                        | 2.4                      |
| Beams (with pods)               | 1.5                      |
| Potatoes                        | 1.5                      |

#### Chronic risk assessment – refined calculations

| Commodity/group of commodities | TMDI (range) in % of ADI |
|---------------------------------|--------------------------|
| Beams (with pods)               | 3.5                      |
| Milk and cream                  | 2.1                      |
| Potatoes                        | 2.4                      |
| Beams (with pods)               | 2.8                      |
| Potatoes                        | 2.4                      |
| Beams (with pods)               | 2.0                      |
| Potatoes                        | 2.4                      |
| Beams (with pods)               | 1.5                      |
| Potatoes                        | 1.5                      |

#### Conclusion:

The estimated Theoretical Maximum Daily Intakes (TMDI), based on pTMRLs were below the ADI. A long-term intake of residues of Quizalofop-P is unlikely to present a public health concern.
The acute risk assessment is based on the ARfD.

For each commodity, the calculation is based on the highest reported MS consumption per kg bw and the corresponding unit weight from the MS, with the critical consumption. If no data on the unit weight was available from that MS an average European unit weight was used for the IESTI calculation.

In the IESTI 1 calculation, the variability factors were 10, 7 or 5 (according to JMPR manual 2002); for lettuce, a variability factor of 5 was used.

In the IESTI 2 calculations, the variability factors of 10 and 7 were replaced by 5. For lettuce, the calculation was performed with a variability factor of 3.

Threshold MRL, is the calculated residue level which would leads to an exposure equivalent to 100% of the ARfD.

| Highest % of ARfD/ADI Commodities | pTMRL/threshold MRL (mg/kg) | Highest % of ARfD/ADI Commodities | pTMRL/threshold MRL (mg/kg) | Highest % of ARfD/ADI Commodities | pTMRL/threshold MRL (mg/kg) | Highest % of ARfD/ADI Commodities | pTMRL/threshold MRL (mg/kg) |
|-----------------------------------|-----------------------------|-----------------------------------|-----------------------------|-----------------------------------|-----------------------------|-----------------------------------|-----------------------------|
| 75.8 Melons 0.4/- | 75.8 Melons 0.4/- | 26.5 Pumpkins 0.4/- | 26.5 Pumpkins 0.4/- | 75.8 Melons 0.4/- |
| 61.1 Watermelons 0.4/- | 61.1 Watermelons 0.4/- | 20.3 Watermelons 0.4/- | 20.3 Watermelons 0.4/- | 61.1 Watermelons 0.4/- |
| 33.8 Kale 0.4/- | 33.0 Cauliflower 0.4/- | 19.7 Melons 0.4/- | 19.7 Melons 0.4/- | 33.8 Kale 0.4/- |
| 33.0 Cauliflower 0.4/- | 29.2 Cucumbers 0.4/- | 17.9 Chinese cabbage 0.4/- | 17.9 Chinese cabbage 0.4/- | 33.0 Cauliflower 0.4/- |
| 31.5 Peppers 0.4/- | 25.0 Kohlrabi 0.4/- | 15.9 Cauliflower 0.4/- | 15.9 Cauliflower 0.4/- | 31.5 Peppers 0.4/- |

No exceedance of the ARfD/ADI was identified for any unprocessed commodity.

| No of commodities for which ARfD/ADI is exceeded (IESTI 1): | | No of commodities for which ARfD/ADI is exceeded (IESTI 2): | |
|----------------------------------------------------------|----------------------------------------------------------|
| **(*) The results of the IESTI calculations are reported for at least 5 commodities. If the ARfD is exceeded for more than 5 commodities, all IESTI values > 90% of ARfD are reported.** | | **(**) pTMRL: provisional temporary MRL.** | |
| **No exceedance of the ARfD/ADI was identified for any unprocessed commodity.** | | **No exceedance of the ARfD/ADI was identified.** | |

**Conclusion:**

For Quizalofop-P, IESTI 1 and IESTI 2 were calculated for food commodities for which pTMRLs were submitted and for which consumption data are available.

For processed commodities, no exceedance of the ARfD/ADI was identified.
# Appendix D – Input values for the exposure calculations

## D.1. Livestock dietary burden calculations

| Feed commodity          | Median dietary burden | Maximum dietary burden |
|-------------------------|-----------------------|------------------------|
|                         | Input value (mg/kg)   | Comment                | Input value (mg/kg) | Comment                |
| **Risk assessment residue definition**: sum of quizalofop, its salts, its esters (including propaquizafop) and its conjugates, expressed as quizalofop (any ratio of constituent isomers) |
| Alfalfa, forage         | 0.02                  | STMR (propaquizafop)   | 0.51                | HR (propaquizafop)     |
|                         |                       | (tentative)            |                      | (tentative)            |
| Alfalfa, hay            | 0.03                  | STMR × PF (1.6)        | 0.82                | HR × PF (1.6)          |
|                         |                       | (propaquizafop)         |                      | (propaquizafop)         |
|                         |                       | (tentative)            |                      | (tentative)            |
| Alfalfa, meal           | 0.05                  | STMR × 2.5            | 1.29                | HR × 2.5               |
|                         |                       | (propaquizafop)         |                      | (propaquizafop)         |
|                         |                       | (tentative)            |                      | (tentative)            |
| Alfalfa, silage         | 0.02                  | STMR × 1.1            | 0.57                | HR × 1.1               |
|                         |                       | (propaquizafop)         |                      | (propaquizafop)         |
|                         |                       | (tentative)            |                      | (tentative)            |
| Beet, mangel (roots)    | 0.04                  | STMR                  | 0.05                | STMR                   |
|                         |                       | (quizalofop-P-tefuryl)  |                      | (quizalofop-P-tefuryl)  |
|                         |                       | (tentative)            |                      | (tentative)            |
| Beet, mangel (tops)     | 0.18                  | STMR                  | 0.25                | STMR                   |
|                         |                       | (quizalofop-P-tefuryl)  |                      | (quizalofop-P-tefuryl)  |
|                         |                       | (tentative)            |                      | (tentative)            |
| Beet, sugar (tops)      | 0.18                  | STMR                  | 0.25                | STMR                   |
|                         |                       | (quizalofop-P-tefuryl)  |                      | (quizalofop-P-tefuryl)  |
|                         |                       | (tentative)            |                      | (tentative)            |
| Cabbage, heads          | 0.05                  | STMR                  | 0.20                | HR                     |
|                         |                       | (quizalofop-P-ethyl)    |                      | (quizalofop-P-ethyl)    |
|                         |                       | (tentative)            |                      | (tentative)            |
| Clover, forage          | 0.02                  | STMR                  | 0.51                | HR                     |
|                         |                       | (propaquizafop)         |                      | (propaquizafop)         |
|                         |                       | (tentative)            |                      | (tentative)            |
| Clover, hay             | 0.06                  | STMR × 3             | 1.54                | HR × 3                 |
|                         |                       | (propaquizafop)         |                      | (propaquizafop)         |
|                         |                       | (tentative)            |                      | (tentative)            |
| Clover, silage          | 0.02                  | STMR × 1             | 0.51                | HR × 1                 |
|                         |                       | (propaquizafop)         |                      | (propaquizafop)         |
|                         |                       | (tentative)            |                      | (tentative)            |
| Rice, straw             | 0.02                  | STMR                  | 0.02                | HR                     |
|                         |                       | (propaquizafop)         |                      | (propaquizafop)         |
|                         |                       | (tentative)            |                      | (tentative)            |
| Turnip, tops            | 0.30                  | STMR                  | 0.40                | HR                     |
|                         |                       | (quizalofop-P-ethyl)    |                      | (quizalofop-P-ethyl)    |
|                         |                       | (tentative)            |                      | (tentative)            |
| Vetch, forage           | 0.02                  | STMR                  | 0.26                | HR                     |
|                         |                       | (quizalofop-P-ethyl)    |                      | (quizalofop-P-ethyl)    |
|                         |                       | (tentative)            |                      | (tentative)            |
| Vetch, hay              | 0.05                  | STMR × 2.8           | 0.73                | HR × 2.8               |
|                         |                       | (quizalofop-P-ethyl)    |                      | (quizalofop-P-ethyl)    |
|                         |                       | (tentative)            |                      | (tentative)            |
| Carrot, culls           | 0.06                  | STMR                  | 0.10                | HR                     |
|                         |                       | (quizalofop-P-tefuryl)  |                      | (quizalofop-P-tefuryl)  |
|                         |                       | (tentative)            |                      | (tentative)            |
| Feed commodity                        | Median dietary burden | Maximum dietary burden |
|---------------------------------------|-----------------------|------------------------|
| Potato, culls                         | Input value (mg/kg)   | Comment                |
|                                       | 0.04                  | STMR (quizalofop-P-tefuryl) (tentative) |
|                                       |                       | 0.08                   | HR (quizalofop-P-tefuryl) (tentative) |
| Swede, roots                          | Input value (mg/kg)   | Comment                |
|                                       | 0.04                  | STMR (quizalofop-P-tefuryl) (tentative) |
|                                       |                       | 0.05                   | HR (quizalofop-P-tefuryl) (tentative) |
| Turnip, roots                         | Input value (mg/kg)   | Comment                |
|                                       | 0.04                  | STMR (quizalofop-P-tefuryl) (tentative) |
|                                       |                       | 0.05                   | HR (quizalofop-P-tefuryl) (tentative) |
| Beans, dry                           | Input value (mg/kg)   | Comment                |
| Cowpeas, dry                         | 0.07                  | STMR (quizalofop-P-ethyl) (tentative) |
| Peas, dry                            |                       | 0.07                   | STMR (quizalofop-P-ethyl) (tentative) |
| Cotton, seeds                        | Input value (mg/kg)   | Comment                |
|                                       | 0.04                  | STMR (quizalofop-P-tefuryl) (tentative) |
|                                       |                       | 0.04                   | STMR (quizalofop-P-tefuryl) (tentative) |
| Soybean, seeds                       | Input value (mg/kg)   | Comment                |
|                                       | 0.04                  | STMR (quizalofop-P-tefuryl) (tentative) |
|                                       |                       | 0.04                   | STMR (quizalofop-P-tefuryl) (tentative) |
| Apple, pomace wet                     | Input value (mg/kg)   | Comment                |
|                                       | 0.10                  | STMR × 5<sup>a</sup> (quizalofop-P-ethyl) (tentative) |
|                                       |                       | 0.10                   | HR × 5<sup>a</sup> (quizalofop-P-ethyl) (tentative) |
| Sugar beet, dried pulp               | Input value (mg/kg)   | Comment                |
|                                       | 0.72                  | STMR × 18<sup>a</sup> (quizalofop-P-tefuryl) (tentative) |
|                                       |                       | 0.72                   | STMR × 18<sup>a</sup> (quizalofop-P-tefuryl) (tentative) |
| Sugar beet, ensiled pulp             | Input value (mg/kg)   | Comment                |
|                                       | 0.12                  | STMR × 3<sup>a</sup> (quizalofop-P-tefuryl) (tentative) |
|                                       |                       | 0.12                   | STMR × 3<sup>a</sup> (quizalofop-P-tefuryl) (tentative) |
| Sugar beet, molasses                  | Input value (mg/kg)   | Comment                |
|                                       | 1.12                  | STMR × 28<sup>a</sup> (quizalofop-P-tefuryl) (tentative) |
|                                       |                       | 1.12                   | STMR × 28<sup>a</sup> (quizalofop-P-tefuryl) (tentative) |
| Rapeseed (canola), meal              | Input value (mg/kg)   | Comment                |
|                                       | 0.42                  | STMR × PF (1.81) (quizalofop-P-tefuryl) (tentative) |
|                                       |                       | 0.42                   | STMR × PF (1.81) (quizalofop-P-tefuryl) (tentative) |
| Cotton, meal                         | Input value (mg/kg)   | Comment                |
|                                       | 0.05                  | STMR × 1.25<sup>a</sup> (quizalofop-P-tefuryl) (tentative) |
|                                       |                       | 0.05                   | STMR × 1.25<sup>a</sup> (quizalofop-P-tefuryl) (tentative) |
| Flaxseed/Linseed, meal               | Input value (mg/kg)   | Comment                |
|                                       | 0.2                   | STMR × 2<sup>a</sup> (quizalofop-P-ethyl) (tentative) |
|                                       |                       | 0.2                    | STMR × 2<sup>a</sup> (quizalofop-P-ethyl) (tentative) |
| Potato process waste                 | Input value (mg/kg)   | Comment                |
|                                       | 0.80                  | STMR × 20<sup>a</sup> (quizalofop-P-tefuryl) (tentative) |
|                                       |                       | 0.80                   | STMR × 20<sup>a</sup> (quizalofop-P-tefuryl) (tentative) |
| Potato dried pulp                    | Input value (mg/kg)   | Comment                |
|                                       | 1.52                  | STMR × 38<sup>a</sup> (quizalofop-P-tefuryl) (tentative) |
|                                       |                       | 1.52                   | STMR × 38<sup>a</sup> (quizalofop-P-tefuryl) (tentative) |
| Rape meal                            | Input value (mg/kg)   | Comment                |
|                                       | 0.42                  | STMR × PF (1.81) (quizalofop-P-tefuryl) (tentative) |
|                                       |                       | 0.42                   | STMR × PF (1.81) (quizalofop-P-tefuryl) (tentative) |
| Rice, bran/pollard                   | Input value (mg/kg)   | Comment                |
|                                       | 0.50                  | STMR × 10<sup>a</sup> (propaquizafop) (tentative) |
|                                       |                       | 0.50                   | HR × 10<sup>a</sup> (propaquizafop) (tentative) |
| Feed commodity          | Median dietary burden                  | Maximum dietary burden                  |
|------------------------|----------------------------------------|-----------------------------------------|
|                        | Input value (mg/kg) | Comment                               | Input value (mg/kg) | Comment                               |
| Soya bean, meal        | 0.05                    | STMR × 1.3\(^{(a)}\) (quizalofop-P-tefuryl) (tentative) | 0.05                    | STMR × 1.3\(^{(a)}\) (quizalofop-P-tefuryl) (tentative) |
| Soya bean, hulls       | 0.52                    | STMR × 13\(^{(a)}\) (quizalofop-P-tefuryl) (tentative) | 0.52                    | STMR × 13\(^{(a)}\) (quizalofop-P-tefuryl) (tentative) |
| Sunflowers, meal       | 0.23                    | STMR × 2\(^{(a)}\) (quizalofop-P-tefuryl) (tentative) | 0.23                    | STMR × 2\(^{(a)}\) (quizalofop-P-tefuryl) (tentative) |

STMR: supervised trials median residue; HR: highest residue; PF: processing factor.

(a): For alfalfa meal and silage, clover hay and silage, vetch hay, apple pomace, sugar beet dry pulp, ensiled pulp and molasses, linseeds, sunflowers and cotton seeds meal, soya beans meal and hulls, potatoes process waste, potato dried pulp, rice bran, in the absence of processing factors supported by data, default processing factors were included in the calculation to consider the potential concentration of residues in these commodities.

### D.2. Consumer risk assessment

| Commodity | Chronic risk assessment | Acute risk assessment |
|-----------|-------------------------|-----------------------|
|           | Input value (mg/kg) | Comment | Input value (mg/kg) | Comment |
| Risk assessment residue definition: sum of quizalofop, its salts, its esters (including propaquizafop) and its conjugates, expressed as quizalofop (any ratio of constituent isomers) |
| Grapefruits | 0.05 | EU MRL (quizalofop-P) | 0.05 | EU MRL (quizalofop-P) |
| Oranges    | 0.05 | EU MRL (quizalofop-P) | 0.05 | EU MRL (quizalofop-P) |
| Lemons     | 0.05 | EU MRL (quizalofop-P) | 0.05 | EU MRL (quizalofop-P) |
| Limes      | 0.05 | EU MRL (quizalofop-P) | 0.05 | EU MRL (quizalofop-P) |
| Mandarins  | 0.05 | EU MRL (quizalofop-P) | 0.05 | EU MRL (quizalofop-P) |
| Almonds    | 0.01* | STMR (propaquizafop) (tentative) | 0.01* | HR (propaquizafop) (tentative) |
| Chestnuts  | 0.01* | STMR (propaquizafop) (tentative) | 0.01* | HR (propaquizafop) (tentative) |
| Hazelnuts/ cobnuts | 0.01* | STMR (propaquizafop) (tentative) | 0.01* | HR (propaquizafop) (tentative) |
| Pine nut kernels   | 0.01* | STMR (propaquizafop) (tentative) | 0.01* | HR (propaquizafop) (tentative) |
| Pistachios | 0.01* | STMR (propaquizafop) (tentative) | 0.01* | HR (propaquizafop) (tentative) |
| Walnuts    | 0.01* | STMR (propaquizafop) (tentative) | 0.01* | HR (propaquizafop) (tentative) |
| Apples     | 0.02 | STMR (quizalofop-ethyl) (tentative) | 0.02 | HR (quizalofop-ethyl) (tentative) |
| Pears      | 0.02 | STMR (quizalofop-ethyl) (tentative) | 0.02 | HR (quizalofop-ethyl) (tentative) |
| Quinces    | 0.02 | STMR (quizalofop-ethyl) (tentative) | 0.02 | HR (quizalofop-ethyl) (tentative) |
| Medlars    | 0.02 | STMR (quizalofop-ethyl) (tentative) | 0.02 | HR (quizalofop-ethyl) (tentative) |
| Loquats/ Japanese medlars | 0.02 | STMR (quizalofop-ethyl) (tentative) | 0.02 | HR (quizalofop-ethyl) (tentative) |
| Apricots   | 0.02 | STMR (quizalofop-ethyl) (tentative) | 0.02 | HR (quizalofop-ethyl) (tentative) |
| Cherries   | 0.02 | STMR (quizalofop-ethyl) (tentative) | 0.02 | HR (quizalofop-ethyl) (tentative) |
| Peaches    | 0.02 | STMR (quizalofop-ethyl) (tentative) | 0.02 | HR (quizalofop-ethyl) (tentative) |
| Commodity | Chronic risk assessment | Acute risk assessment |
|-----------|-------------------------|-----------------------|
| Plums     | 0.02 STMR (quizalofop-ethyl) (tentative) | 0.02 HR (quizalofop-ethyl) (tentative) |
| Table grapes | 0.05 EU MRL (quizalofop-P) | 0.05 EU MRL (quizalofop-P) |
| Wine grapes | 0.05 EU MRL (quizalofop-P) | 0.05 EU MRL (quizalofop-P) |
| Strawberries | 0.05 EU MRL (quizalofop-P) | 0.05 EU MRL (quizalofop-P) |
| Blackberries | 0.02 STMR (quizalofop-ethyl) (tentative) | 0.02 HR (quizalofop-ethyl) (tentative) |
| Raspberries (red and yellow) | 0.02 STMR (quizalofop-ethyl) (tentative) | 0.02 HR (quizalofop-ethyl) (tentative) |
| Blueberries | 0.05 EU MRL (quizalofop-P) | 0.05 EU MRL (quizalofop-P) |
| Currants (black, red and white) | 0.05 EU MRL (quizalofop-P) | 0.05 EU MRL (quizalofop-P) |
| Gooseberries (green, red and yellow) | 0.05 EU MRL (quizalofop-P) | 0.05 EU MRL (quizalofop-P) |
| Rose hips | 0.05 EU MRL (quizalofop-P) | 0.05 EU MRL (quizalofop-P) |
| Elderberries | 0.05 EU MRL (quizalofop-P) | 0.05 EU MRL (quizalofop-P) |
| Table olives | 0.05 EU MRL (quizalofop-P) | 0.05 EU MRL (quizalofop-P) |
| Kumquats | 0.01* STMR (propaquizafop) (tentative) | 0.01* HR (propaquizafop) (tentative) |
| Potatoes | 0.04 STMR (quizalofop-tefuryl) (tentative) | 0.08 HR (quizalofop-tefuryl) (tentative) |
| Beetroot | 0.04 STMR (quizalofop-tefuryl) (tentative) | 0.05 HR (quizalofop-tefuryl) (tentative) |
| Carrots | 0.06 STMR (quizalofop-tefuryl) (tentative) | 0.10 HR (quizalofop-tefuryl) (tentative) |
| Celeriacs/turnip rooted celeries | 0.02 STMR (propaquizafop) (tentative) | 0.06 HR (propaquizafop) (tentative) |
| Horseradishes | 0.40 EU MRL (quizalofop-P) | 0.40 EU MRL (quizalofop-P) |
| Jerusalem artichokes | 0.40 EU MRL (quizalofop-P) | 0.40 EU MRL (quizalofop-P) |
| Parsnips | 0.06 STMR (quizalofop-tefuryl) (tentative) | 0.10 HR (quizalofop-tefuryl) (tentative) |
| Parsley roots/Hamburg roots parsley | 0.40 EU MRL (quizalofop-P) | 0.40 EU MRL (quizalofop-P) |
| Radishes | 0.06 STMR (quizalofop-tefuryl) (tentative) | 0.10 HR (quizalofop-tefuryl) (tentative) |
| Salsifies | 0.06 STMR (quizalofop-tefuryl) (tentative) | 0.10 HR (quizalofop-tefuryl) (tentative) |
| Swedes/rutabagas | 0.04 STMR (quizalofop-tefuryl) (tentative) | 0.05 HR (quizalofop-tefuryl) (tentative) |
| Turnips | 0.03 STMR (quizalofop-ethyl) (tentative) | 0.04 HR (quizalofop-ethyl) (tentative) |
| Garlic | 0.04 STMR (quizalofop-tefuryl) (tentative) | 0.04 HR (quizalofop-tefuryl) (tentative) |
| Onions | 0.04 STMR (quizalofop-tefuryl) (tentative) | 0.04 HR (quizalofop-tefuryl) (tentative) |
| Shallots | 0.04 STMR (quizalofop-tefuryl) (tentative) | 0.04 HR (quizalofop-tefuryl) (tentative) |
| Tomatoes | 0.01 STMR (propaquizafop) (tentative) | 0.05 HR (propaquizafop) (tentative) |
| Sweet peppers/bell peppers | 0.40 EU MRL (quizalofop-P) | 0.40 EU MRL (quizalofop-P) |
| Aubergines/eggplants | 0.01 STMR (propaquizafop) (tentative) | 0.05 HR (propaquizafop) (tentative) |
| Okra/lady's fingers | 0.05 EU MRL (propaquizafop) (tentative) | 0.05 EU MRL (propaquizafop) (tentative) |
| Cucumbers | 0.40 EU MRL (quizalofop-P) | 0.40 EU MRL (quizalofop-P) |
| Commodity                  | Chronic risk assessment | Acute risk assessment |
|---------------------------|-------------------------|-----------------------|
|                           | Input value (mg/kg)     | Comment              |
|                           |                        | Input value (mg/kg)   | Comment              |
| Gherkins                  | 0.40                    | EU MRL (quizalofop-P) | 0.40                  |
| Courgettes                | 0.40                    | EU MRL (quizalofop-P) | 0.40                  |
| Melons                    | 0.40                    | EU MRL (quizalofop-P) | 0.40                  |
| Pumpkins                  | 0.40                    | EU MRL (quizalofop-P) | 0.40                  |
| Watermelons               | 0.40                    | EU MRL (quizalofop-P) | 0.40                  |
| Broccoli                  | 0.40                    | EU MRL (quizalofop-P) | 0.40                  |
| Cauliflowers              | 0.40                    | EU MRL (quizalofop-P) | 0.40                  |
| Brussels sprouts          | 0.40                    | EU MRL (quizalofop-P) | 0.40                  |
| Head cabbages             | 0.05                    | STMR (quizalofop-ethyl) (tentative) | 0.20 | HR (quizalofop-ethyl) (tentative) |
| Chinese cabbages/pe-tsai  | 0.40                    | EU MRL (quizalofop-P) | 0.40                  |
| Kales                     | 0.40                    | EU MRL (quizalofop-P) | 0.40                  |
| Kohlrabies                | 0.40                    | EU MRL (quizalofop-P) | 0.40                  |
| Lamb's lettuces/corn salads | 0.40  | EU MRL (quizalofop-P) | 0.40                  |
| Lettuces                  | 0.02                    | STMR (quizalofop-ethyl) (tentative) | 0.12 | HR (quizalofop-ethyl) (tentative) |
| Escaroles/broad-leaved endives | 0.02  | STMR (quizalofop-ethyl) (tentative) | 0.12 | HR (quizalofop-ethyl) (tentative) |
| Cresses and other sprouts and shoots | 0.40  | EU MRL (quizalofop-P) | 0.40                  |
| Land cresses              | 0.40                    | EU MRL (quizalofop-P) | 0.40                  |
| Roman rocket/rucola       | 0.40                    | EU MRL (quizalofop-P) | 0.40                  |
| Red mustards              | 0.40                    | EU MRL (quizalofop-P) | 0.40                  |
| Baby leaf crops (including brassica species) | 0.10  | EU MRL (propaquizafop) (tentative) | 0.10 | EU MRL (propaquizafop) (tentative) |
| Spinaches                 | 0.02                    | STMR (propaquizafop) (tentative) | 0.12 | HR (propaquizafop) (tentative) |
| Chards/beet leaves        | 0.04                    | STMR (quizalofop-ethyl) (tentative) | 0.04 | HR (quizalofop-ethyl) (tentative) |
| Witloofs/Belgian endives  | 0.40                    | EU MRL (quizalofop-P) | 0.40                  |
| Chervil                   | 0.05                    | STMR (quizalofop-ethyl) (tentative) | 0.12 | HR (quizalofop-ethyl) (tentative) |
| Chives                    | 0.05                    | STMR (quizalofop-ethyl) (tentative) | 0.12 | HR (quizalofop-ethyl) (tentative) |
| Celery leaves             | 0.05                    | STMR (quizalofop-ethyl) (tentative) | 0.12 | HR (quizalofop-ethyl) (tentative) |
| Parsley                   | 0.05                    | STMR (quizalofop-ethyl) (tentative) | 0.12 | HR (quizalofop-ethyl) (tentative) |
| Sage                      | 0.05                    | STMR (quizalofop-ethyl) (tentative) | 0.12 | HR (quizalofop-ethyl) (tentative) |
| Rosemary                  | 0.05                    | STMR (quizalofop-ethyl) (tentative) | 0.12 | HR (quizalofop-ethyl) (tentative) |
| Thyme                     | 0.05                    | STMR (quizalofop-ethyl) (tentative) | 0.12 | HR (quizalofop-ethyl) (tentative) |
| Basil and edible flowers  | 0.05                    | STMR (quizalofop-ethyl) (tentative) | 0.12 | HR (quizalofop-ethyl) (tentative) |
| Commodity                  | Chronic risk assessment | Acute risk assessment |
|----------------------------|-------------------------|-----------------------|
|                            | Input value (mg/kg)     | Comment               | Input value (mg/kg) | Comment               |
| Laurel/bay leave           | 0.05                    | STMR (quizalofop-ethyl) (tentative) | 0.12               | HR (quizalofop-ethyl) (tentative) |
| Tarragon                   | 0.05                    | STMR (quizalofop-ethyl) (tentative) | 0.12               | HR (quizalofop-ethyl) (tentative) |
| Beans (with pods)          | 0.40                    | EU MRL (quizalofop-P)  | 0.40               | EU MRL (quizalofop-P)  |
| Beans (without pods)       | 0.40                    | EU MRL (quizalofop-P)  | 0.40               | EU MRL (quizalofop-P)  |
| Peas (with pods)           | 0.40                    | EU MRL (quizalofop-P)  | 0.40               | EU MRL (quizalofop-P)  |
| Peas (without pods)        | 0.40                    | EU MRL (quizalofop-P)  | 0.40               | EU MRL (quizalofop-P)  |
| Lentils (fresh)            | 0.03                    | STMR (quizalofop-ethyl) (tentative) | 0.11               | HR (quizalofop-ethyl) (tentative) |
| Asparagus                  | 0.40                    | EU MRL (quizalofop-P)  | 0.40               | EU MRL (quizalofop-P)  |
| Celeries                   | 0.40                    | EU MRL (quizalofop-P)  | 0.40               | EU MRL (quizalofop-P)  |
| Florence fennels           | 0.01                    | STMR (propaquizafop) (tentative) | 0.01               | HR (propaquizafop) (tentative) |
| Globe artichokes           | 0.40                    | EU MRL (quizalofop-P)  | 0.40               | EU MRL (quizalofop-P)  |
| Leeks                      | 0.40                    | EU MRL (quizalofop-P)  | 0.40               | EU MRL (quizalofop-P)  |
| Beans (dry)                | 0.05                    | STMR (quizalofop-tefuryl) (tentative) | 0.14               | HR (quizalofop-tefuryl) (tentative) |
| Lentils (dry)              | 0.05                    | STMR (quizalofop-tefuryl) (tentative) | 0.14               | HR (quizalofop-tefuryl) (tentative) |
| Peas (dry)                 | 0.05                    | STMR (quizalofop-tefuryl) (tentative) | 0.14               | HR (quizalofop-tefuryl) (tentative) |
| Lupins/lupini beans (dry)  | 0.40                    | EU MRL (quizalofop-P)  | 0.40               | EU MRL (quizalofop-P)  |
| Linseeds                   | 0.10                    | STMR (quizalofop-ethyl) (tentative) | 0.14               | HR (quizalofop-ethyl) (tentative) |
| Poppy seeds                | 0.20                    | STMR (quizalofop-tefuryl) (tentative) | 0.45               | HR (quizalofop-tefuryl) (tentative) |
| Sunflower seeds            | 0.12                    | STMR (quizalofop-tefuryl) (tentative) | 0.50               | HR (quizalofop-tefuryl) (tentative) |
| Rapeseeds/canola seeds     | 0.23                    | STMR (quizalofop-tefuryl) (tentative) | 1.17               | HR (quizalofop-tefuryl) (tentative) |
| Soya beans                 | 0.04                    | STMR (quizalofop-tefuryl) (tentative) | 0.14               | HR (quizalofop-tefuryl) (tentative) |
| Mustard seeds              | 0.20                    | STMR (quizalofop-tefuryl) (tentative) | 0.45               | HR (quizalofop-tefuryl) (tentative) |
| Cotton seeds               | 0.04                    | STMR (quizalofop-tefuryl) (tentative) | 0.06               | HR (quizalofop-tefuryl) (tentative) |
| Olives for oil production  | 0.05                    | EU MRL (quizalofop-P)  | 0.05               | EU MRL (quizalofop-P)  |
| Rice grains                | 0.05                    | STMR (propaquizafop) (tentative) | 0.05               | HR (propaquizafop) (tentative) |
| Herbal infusions from flowers | 0.03                   | STMR (quizalofop-ethyl) (tentative) | 0.46               | HR (quizalofop-ethyl) (tentative) |
| Herbal infusions from leaves and herbs | 0.03 | STMR (quizalofop-ethyl) (tentative) | 0.46               | HR (quizalofop-ethyl) (tentative) |
| Herbal infusions from roots | 1.00                    | EU MRL (quizalofop-P)  | 1.00               | EU MRL (quizalofop-P)  |
| Seed spices                | 0.05                    | STMR (quizalofop-ethyl) (tentative) | 0.05               | HR (quizalofop-ethyl) (tentative) |
| Fruit spices               | 0.05                    | STMR (quizalofop-ethyl) (tentative) | 0.05               | HR (quizalofop-ethyl) (tentative) |
| Sugar beet roots           | 0.04                    | STMR (quizalofop-tefuryl) (tentative) | 0.05               | HR (quizalofop-tefuryl) (tentative) |
| Commodity               | Chronic risk assessment | Acute risk assessment |
|------------------------|-------------------------|-----------------------|
|                        | Input value (mg/kg)     | Comment               | Input value (mg/kg)     | Comment               |
| Chicory roots          | 0.04                    | STMR (quizalofop-tefuryl) (tentative) | 0.05                   | HR (quizalofop-tefuryl) (tentative) |
| Swine meat             | 0.02*                   | HR (tentative)        | 0.02*                  | STMR (tentative)      |
| Swine fat tissue       | 0.02*                   | HR (tentative)        | 0.02*                  | STMR (tentative)      |
| Swine liver            | 0.02*                   | HR (tentative)        | 0.02*                  | STMR (tentative)      |
| Swine kidney           | 0.07                    | HR (tentative)        | 0.10                   | STMR (tentative)      |
| Bovine meat            | 0.02*                   | HR (tentative)        | 0.02*                  | STMR (tentative)      |
| Bovine fat tissue      | 0.02*                   | HR (tentative)        | 0.02*                  | STMR (tentative)      |
| Bovine liver           | 0.02                    | HR (tentative)        | 0.03                   | STMR (tentative)      |
| Bovine kidney          | 0.16                    | HR (tentative)        | 0.22                   | STMR (tentative)      |
| Sheep meat             | 0.02*                   | HR (tentative)        | 0.02                   | STMR (tentative)      |
| Sheep fat tissue       | 0.02*                   | HR (tentative)        | 0.02                   | STMR (tentative)      |
| Sheep liver            | 0.03                    | HR (tentative)        | 0.03                   | STMR (tentative)      |
| Sheep kidney           | 0.17                    | HR (tentative)        | 0.24                   | STMR (tentative)      |
| Goat meat              | 0.02*                   | HR (tentative)        | 0.02                   | STMR (tentative)      |
| Goat fat tissue        | 0.02*                   | HR (tentative)        | 0.02                   | STMR (tentative)      |
| Goat liver             | 0.03                    | HR (tentative)        | 0.03                   | STMR (tentative)      |
| Goat kidney            | 0.17                    | HR (tentative)        | 0.24                   | STMR (tentative)      |
| Equine meat            | 0.02*                   | HR (tentative)        | 0.02                   | STMR (tentative)      |
| Equine fat tissue      | 0.02*                   | HR (tentative)        | 0.02                   | STMR (tentative)      |
| Equine liver           | 0.02                    | HR (tentative)        | 0.03                   | STMR (tentative)      |
| Equine kidney          | 0.16                    | HR (tentative)        | 0.22                   | STMR (tentative)      |
| Poultry meat           | 0.02*                   | HR (tentative)        | 0.02                   | STMR (tentative)      |
| Poultry fat tissue     | 0.03                    | HR (tentative)        | 0.03                   | STMR (tentative)      |
| Cattle milk            | 0.01                    | HR (tentative)        | 0.01                   | STMR (tentative)      |
| Sheep milk             | 0.01                    | HR (tentative)        | 0.01                   | STMR (tentative)      |
| Goat milk              | 0.01                    | HR (tentative)        | 0.01                   | STMR (tentative)      |
| Horse milk             | 0.01                    | HR (tentative)        | 0.01                   | STMR (tentative)      |
| Eggs                   | 0.01*                   | HR (tentative)        | 0.01*                  | STMR (tentative)      |
| Poultry liver          | 0.03                    | HR (tentative)        | 0.04                   | STMR (tentative)      |

**Risk assessment residue definition:** sum of quizalofop, its salts, its esters (including propaquizafop), its conjugates, its pentanoic acid metabolite and its conjugates, expressed as quizalofop (any ratio of constituent isomers)

MRL: maximum residue level; STMR: supervised trials median residue; HR: highest residue.

*: Indicates that the input value is proposed at the limit of quantification.
Appendix E – Decision tree for deriving MRL recommendations

Evaluation of the GAPs and available residues data at EU level

1. GAP or DB > 0.1 mg/kg DM in EU?
   - Yes
     - MRL derived in Section 3?
       - Yes
         - MRL fully supported by data?
           - Yes
             - MRL is recommended.
           - No
             - Risk identified?
               - Yes
                 - No
               - No
                 - Fall-back MRL available?
                   - Yes
                     - MRL is recommended.
                   - No
                     - No
                       - No
2. No
   - Not considered for the RA.
   - Current EU MRL is included in the RA.
   - Median/highest values are included in the RA.
   - Tentative median/highest values are included in the RA.
   - Current EU MRL is included in the RA.
   - Fall-back MRL available?
     - Yes
       - MRL is recommended.
     - No
       - No

Consumer risk assessment for GAPs evaluated at EU level – EU scenarios

1. Risk identified?
   - Yes
     - No
   - No
   - Risk identified?
     - Yes
     - No
     - Fall-back MRL available?
       - Yes
         - MRL is recommended.
       - No
         - No

Recommendations resulting from EU authorisations and import tolerances

1. (A) Specific LOQ or default MRL?
   - (B) Specific LOQ or default MRL?
   - (C) Maintain current EU MRL?
   - (D) Specific LOQ or default MRL?
   - (E) Establish tentative EU MRL?
   - (F) Specific LOQ or default MRL?
   - (G) MRL is recommended.

Comparison with CXLs
Comparison of the EU recommendation with the existing CXL

- CXL available?
  - Yes
    - RD comparable?
      - Yes
        - CXL higher?
          - Yes
          - No
      - No
    - No
  - No

Consumer risk assessment with consideration of the existing CXL

- CXL supported by data?
  - Yes
  - No
- CXL is included in the RA?
  - Yes
  - No
- Risk identified?
  - Yes
  - No
- Input values for the RA remain unchanged?
  - Yes
  - No

Recommendations with consideration of the existing CXL

1. Maintain EU recommendation indicating that no CXL is available.
2. Maintain EU recommendation indicating CXL is not compatible.
3. Maintain EU recommendation indicating that CXL is covered.
4. Maintain EU recommendation; higher CXL is not safe for consumer.
5. Maintain current CXL or EU recommendation?
6. Maintain EU recommendation; higher CXL is not safe for consumer.
7. CXL is recommended; EU recommendation is covered as well.
### Appendix F – Used compound codes

| Code/trivial name | Chemical name/SMILES notation | Structural formula |
|-------------------|--------------------------------|--------------------|
| Quizalofop-P-ethyl | ethyl (2R)-2-[4-(6-chloroquinoxalin-2-yl)oxy]phenoxypionate O=C(OCC)[C@@H](C)OC1ccc(cc1) Oc2ccn3 cc(Cl)ccc3n2 | ![Quizalofop-P-ethyl](image) |
| Quizalofop-P-tefuryl | (RS)-tetrahydrofurfuryl (R)-2-[4-(6-chloroquinoxalin-2-yl)oxy]phenoxypionate O=C(OCC1CCCCO1)[C@@H](C) Oc4ccc(Oc2ccn3 cc(Cl)ccc3n2)cc4 | ![Quizalofop-P-tefuryl](image) |
| Quizalofop-S-ethyl | ethyl (2S)-2-[4-{(6-chloroquinoxalin-2-yl)oxy}phenoxy]-propanoate | ![Quizalofop-S-ethyl](image) |
| Quizalofop-ethyl | ethyl-2-{4-{(6-chloroquinoxalin-2-yl)oxy}phenoxy}-propanoate | ![Quizalofop-ethyl](image) |
| Propaquizafop | 2-isopropylideneaminoxyethyl (R)-2-[4-(6-chloroquinoxalin-2-yl)oxy]phenoxy]propionic acid C(C)=N[OCCOC(-O)[C@@H](C) Oc1ccc(cc1)Oc2ccn3 cc(Cl)ccc3n2 | ![Propaquizafop](image) |
| Quizalofop-P | (R)-2-[4-(6-chloroquinoxalin-2-yl)oxy]phenoxy]propionic acid O=C(O)[C@@H](C)Oc1ccc(cc1) Oc2ccn3 cc(Cl)ccc3n2 | ![Quizalofop-P](image) |
| Quizalofop | (RS)-2-[4-(6-chloroquinoxalin-2-yl)oxy]phenoxy]propionic acid O=C(O)(C)Oc1ccc(cc1) Oc2ccn3 cc(Cl)ccc3n2 | ![Quizalofop](image) |
| Phenoxy propionate (EPP) | 2-(4-hydroxyphenoxy)-2-methylbutanoate [O-]C(-O)(C)(CC)Oc1ccc(O)cc1 | ![Phenoxy propionate (EPP)](image) |
| Phenoxy acid | (R)-2-(4-hydroxyphenoxy)propionic acid C[C@@H](Oc1ccc(O)cc1)C(-O)O | ![Phenoxy acid](image) |
| Quizalofop-phenol | 4-(6-chloroquinoxalin-2-yl)oxy)phenol Oc1ccc(cc1)Oc2ccn3 cc(Cl)ccc3n2 | ![Quizalofop-phenol](image) |
| Hydoxy-quizalofop-phenol (CQOPOH) | 7-chloro-3-(4-hydroxyphenoxy)quinoxalin-2(1H)-one Oc1ccc(cc1)Oc2ccn3ccc(Cl)cc3nc2O | ![Hydoxy-quizalofop-phenol (CQOPOH)](image) |
| Code/trivial name          | Chemical name/SMILES notation | Structural formula |
|---------------------------|-------------------------------|--------------------|
| Hydroxylquinoxaline (CHQ) | 6-chloroquinoxalin-2(1H)-one 6-chloroquinoxalin-2-ol Clc1ccc2nc(O)cnc2c1.Clc2ccc1c (N=CC(-O)N1)c2 | ![Structural formula for CHQ] |
|                           | [6-chloroquinoxalin-2(1H)-one or 6-chloroquinoxalin-2-ol Clc1ccc2nc(O)cnc2c1.Clc2ccc1c (N=CC(-O)N1)c2](image) | [SMILES: simplified molecular-input line-entry system.](image) |
| Dihydroxy-quinoxaline (CHHQ) | 6-chloroquinoxaline-2,3-diol or 6-chloro-1,4-dihydroquinoxaline-2,3-dione Clc1cc2nc(O)c(O)cnc2 cc1 | ![Structural formula for CHHQ] |
| Hydroxy phenol            | hydroquinone. Oc1cccc(O)cc1 | ![Structural formula for hydroquinone] |
| Hydroxy-quizalofop        | (2RS)-2-[-4-[[6-chloro-3-hydroxyquinoxalin-2-yl]oxy]phenoxy]propionic acid O-C(O)C(C)Oc1ccc(cc1) Oc2nc3 ccc(Cl)ccc3nc2O | ![Structural formula for hydroxy-quizalofop] |
| Quizalofop methyl         | methyl (2RS)-2-[4-(6-chloroquinoxalin-2-yloxy)phenoxy] propionate O-C(OC)C(C)Oc1ccc(cc1) Oc2nc3 ccc(Cl)ccc3nc2O | ![Structural formula for methyl (2RS)-2-[4-(6-chloroquinoxalin-2-yloxy)phenoxy] propionate] |
| Quizalofop pentanoic acid | (4RS)-4-[-4-[[6-chloroquinoxalin-2-yl]oxy]phenoxy]pentanoic acid O-C(O)CCCC(C)Oc1ccc(cc1) Oc2nc3cc(Cl)ccc3nc2 | ![Structural formula for (4RS)-4-[-4-[[6-chloroquinoxalin-2-yl]oxy]phenoxy]pentanoic acid] |
| MCQ                       | 6-chloro-2-methoxyquinoxaline Clc1ccc2nc(cnc2c1)OC | ![Structural formula for MCQ] |