Review of the existing maximum residue levels for etofenprox according to Article 12 of Regulation (EC) No 396/2005

European Food Safety Authority (EFSA), Alba Brancato, Daniela Brocca, Chloe De Lentdecker, Zoltan Erdos, Lucien Ferreira, Luna Greco, Samira Jarrah, Dimitra Kardassi, Renata Leuschner, Christopher Lythgo, Paula Medina, Ileana Miron, Tunde Molnar, Alexandre Nougadere, Ragnor Pedersen, Hermine Reich, Angela Sacchi, Miguel Santos, Alois Stanek, Juergen Sturma, Jose Tarazona, Anne Theobald, Benedicte Vagenende, Alessia Verani and Laura Villamar-Bouza

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 etofenprox. To assess the occurrence of etofenprox residues in plants, processed commodities, rotational crops and livestock, EFSA considered the conclusions derived in the framework of Directive 91/414/EEC, the MRLs established by the Codex Alimentarius Commission 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 some MRL proposals derived by EFSA still require further consideration by risk managers.

© 2017 European Food Safety Authority. EFSA Journal published by John Wiley and Sons Ltd on behalf of European Food Safety Authority.

Keywords: etofenprox, MRL review, Regulation (EC) No 396/2005, consumer risk assessment, pyrethroid ether, insecticide

Requestor: European Commission

Question number: EFSA-Q-2010-00189

Correspondence: pesticides.mrl@efsa.europa.eu
Amendment: An editorial correction was carried out that does not materially affect the contents or outcome of this scientific output. To avoid confusion, the older version has been removed from the EFSA Journal, but is available on request, as is a version showing all the changes made. The proposed MRL values for goat tissues and equine milk were not correctly reported. This mistake was found and corrected in Table 2 at pages 18 and in Appendix B.4 at page 44.

Acknowledgement: EFSA wishes to thank the rapporteur Member State Italy for the preparatory work on this scientific output.

Suggested citation: EFSA (European Food Safety Authority), Brancato A, Brocca D, De Lentdecker C, Erdos Z, Ferreira L, Greco L, Jarrah S, Kardassi D, Leuschner R, Lythgo C, Medina P, Miron I, Molnar T, Nougadere A, Pedersen R, Reich H, Sacchi A, Santos M, Stanek A, Sturma J, Tarazona J, Theobald A, Vagenende B, Verani A and Villamar-Bouza L, 2017. Reasoned opinion on the review of the existing maximum residue levels for etofenprox according to Article 12 of Regulation (EC) No 396/2005. EFSA Journal 2017;15(8):4964, 57 pp. https://doi.org/10.2903/j.efsa.2017.4964

ISSN: 1831-4732

© 2017 European Food Safety Authority. EFSA Journal published by John Wiley and Sons Ltd on behalf of European Food Safety Authority.

This is an open access article under the terms of the Creative Commons Attribution-NoDerivs License, which permits use and distribution in any medium, provided the original work is properly cited and no modifications or adaptations are made.
Summary

Etofenprox was included in Annex I to Directive 91/414/EEC on 1 January 2010 by Commission Directive 2009/77/EC, and has 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 substance was 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 MRLs for that active substance in compliance with Article 12(1) of the aforementioned regulation. To collect the relevant pesticide residues data, EFSA asked Italy, as the designated rapporteur Member State (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 8 June 2016 and finalised on 8 August 2016. After having considered all the information provided, EFSA prepared a completeness check report which was made available to Member States on 26 September 2016.

Based on the conclusions derived by EFSA in the framework of Directive 91/414/EEC the MRLs established by the Codex Alimentarius Commission and the additional information provided by the RMS and Member States, EFSA prepared in April 2017 a draft reasoned opinion, which was circulated to Member States for consultation via a written procedure. Comments received by 5 June 2017 were considered during the finalisation of this reasoned opinion. The following conclusions are derived.

The metabolism of etofenprox was investigated in representatives of three different crop categories: oilseeds (winter rape), fruit crops (vine plants including grapes) and leafy crops (lettuce) following foliar application. Based on all available metabolism studies, etofenprox was the main residue and alpha-CO represented a significant metabolite. EFSA proposes to simplify the residue definition for enforcement as parent compound only. The residue definition for risk assessment as proposed by the peer review and including the metabolite alpha-CO is still considered valid. The same residue definitions are applicable for rotational crops and for processed commodities. A validated analytical method for enforcement of the proposed residue definition (etofenprox) in all plant matrices with an limit of quantification (LOQ) of 0.01 mg/kg is available.

Etofenprox is authorised on crops which are non-permanent and according to soil degradation studies DT50 values of etofenprox ranged between 43 and 580 days and exceeded the trigger of 100 days. Therefore, an investigation of residues in rotational crops was required and provided by growing lettuce, carrots and spring barley on treated soils at rates relevant to the currently authorised uses. Based on the provided data it was concluded the etofenprox will not give rise to residues in rotational crops.

Storage stability of etofenprox and the metabolite alpha-CO was demonstrated for a period of 24 months at −20°C in commodities with high water, high acid and high oil content; however, it was not investigated in dry commodities.

The available data are considered sufficient to derive MRL proposals as well as risk assessment values for hazelnuts, chestnuts, pine nut kernels, peaches, apples, pears, potatoes, onions, garlic, olives, linseeds, sesame, mustard, borage, gold of pleasure and hemp seeds. Tentative MRL proposals could be derived for citrus fruits, cherries, wine and table grapes, kakis, kiwis, tomatoes, head cabbages, broccoli, cauliflower, lettuces and salad plants, spinaches, chards, fresh herbs, rapeseeds and beans with pods. For all other commodities, the available data were insufficient to derive MRLs and risk assessment values.

For most of the residue trials, residues were analysed according to the enforcement and risk assessment residue definition, therefore enabling to derive proper conversion factors from enforcement to risk assessment. However for cherries, tomatoes, flowering brassicas, head cabbages (northern European Union (NEU)), kiwi, salad plants, spinaches, chards, fresh herbs and rapeseeds (NEU) limited residue data for alpha-CO or only data for the parent compound were available. For these commodities, the highest conversion factors of 1.2 derived from other fruits crops and leafy vegetables and of 1.1 derived from metabolism studies on rapeseeds were tentatively used for risk assessment.

Robust processing factors could be derived for peach puree, peach juice, peach jam, apple juice, wine grape juice and red wine. For all other processed commodities, only indicative processing factors could be derived due to the limited data sets or residues analysed for the parent compound only.

Etofenprox is authorised for use on several crops that might be fed to livestock. The dietary burdens calculated for all groups of livestock were found to exceed the trigger value of 0.1 mg/kg dry
matter (DM). Behaviour of residues was therefore assessed in all commodities of animal origin. It is highlighted that for several feed items, no residue data were available (e.g. maize corn grain and straw, rice grain and straw, sugar beets, vetch). The animal intake of etofenprox residues via these commodities has therefore not been assessed and may have been underestimated.

In animal commodities, a residue definition for monitoring and risk assessment is proposed as etofenprox on a tentative basis only. Validated gas chromatography with mass spectrometric (GC–MS) and/or liquid chromatography with tandem mass spectrometric (LC–MS/MS) methods with an LOQ of 0.01 mg/kg are available for enforcement of the proposed residue definition in meat, fat, eggs and milk. MRLs and risk assessment values derived from cattle feeding study data can be extrapolated to all ruminants (e.g. goats and sheep), and other animals such as horses, pigs and rabbits. However, considering that the residue definition in livestock could be only tentatively derived, the lack of storage stability studies covering tissues others than liver and the lack of fully validated analytical methods for liver and kidney, all the derived MRLs should be considered tentative only.

Chronic and acute consumer exposure resulting from the authorised uses reported in the framework of this review was calculated using revision 2 of the EFSA Pesticide Residues Intake Model (PRIMo). According to the results of this calculation, the highest chronic exposure represented 52.2% of the acceptable daily intake (ADI) (UK, toddler) and the highest acute exposure amounted to 15.8% of the acute reference dose (ARfD) (scarole (broad-leaf endive)).

Apart from the MRLs evaluated in the framework of this review, internationally recommended CXLs have also been established for etofenprox. Additional calculations of the consumer exposure, considering these CXLs, were therefore carried out. The highest chronic exposure represented 52.6% of the ADI (UK toddler) and the highest acute exposure amounted to 17% of the ARfD (table grapes).
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 etofenprox was included in Annex I to Council Directive 91/414/EEC on 1 January 2010 by means of Commission Directive 2009/77/EC³, and has 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 MRLs for that active substance.

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 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.

Italy, the designated rapporteur Member State (RMS) in the framework of Directive 91/414/EEC, was asked to complete the PROFile for etofenprox and to prepare a supporting evaluation report (Italy, 2012). The PROFile and the supporting evaluation report were submitted to EFSA on 21 June 2012 and 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 8 June 2016 and finalised on 8 August 2016. Additional evaluation reports were submitted by the Czech Republic, France, Germany, Greece, Italy, Spain and EU Reference Laboratories (EURLs) (Czech Republic, 2016; EURLs, 2016; France, 2016; Germany, 2016; Greece, 2016; Italy, 2016a,b; Spain, 2016) and after having considered all the information provided by RMS and Member States, EFSA prepared a completeness check report which was made available to all Member States on 26 September 2016. Further clarifications were sought from Member States via a written procedure in September 2016.

Based on the conclusions derived by EFSA in the framework of Directive 91/414/EEC, the MRLs established by the Codex Alimentarius Commission (codex maximum residue limit (CXLs)) and the additional information provided by the Member States, EFSA prepared in April 2017 a draft reasoned

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 2009/77/EC of 1 July 2009 amending Council Directive 91/414/EEC to include chlorsulfuron, cyromazine, dimethachlor, etofenprox, lufenuron, penconazole, tri-allate and triflusulfuron as active substances. OJ L 172, 2.7.2009, p. 23–33.
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.
opinion, which was submitted to Member States for commenting via a written procedure. All comments received by 5 June 2017 were considered by EFSA during the finalisation of the reasoned opinion.

The evaluation report submitted by the RMS (Italy, 2012) and the evaluation reports submitted by the Czech Republic, France, Germany, Greece, Italy, Spain and EURLs (Czech Republic, 2016; EURL, 2016; France, 2016; Germany, 2016; Greece, 2016; Italy, 2016a,b; Spain, 2016) and the evaluation report submitted by the 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 completeness check report (EFSA, 2016) and the Member States consultation report (EFSA, 2017). These 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 PROFiler 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

Etofenprox is the ISO common name for 2-(4-ethoxyphenyl)-2-methylpropyl 3-phenoxybenzyl (IUPAC).

Etofenprox belongs to the group of pyrethroid ether compounds which are used as insecticides. It acts on the nervous system of insects disturbing the function of neurons by interaction with the sodium channel. Etofenprox has insecticide activity by contact and ingestion, has a broad spectrum of action on a wide variety of pests, with fast knockdown. Etofenprox is used in agriculture against sucking and biting insects including aphids, thrips, moths, leaf rollers and leafhoppers at adult and larval stage.

The chemical structure of the active substance and its main metabolite are reported in Appendix F. Etofenprox was evaluated in the framework of Directive 91/414/EEC with Italy designated as RMS. The representative uses supported for the peer review process were foliar spray applications on oilseed rape, head cabbage, grape, peach and apple. Following the peer review, which was carried out by EFSA, a decision on inclusion of the active substance in Annex I to Directive 91/414/EEC was published by means of Commission Directive 2009/77/EC, which entered into force on 1 January 2010. According to Regulation (EU) No 540/2011, as amended by Commission Implementing Regulation (EU) No 541/2011, etofenprox is deemed to have been approved under Regulation (EC) No 1107/2009. This approval is restricted to uses as insecticide only.

The EU MRLs for etofenprox are established in Annexes IIIA of Regulation (EC) No 396/2005 and CXLs for etofenprox were also established by the Codex Alimentarius Commission (CAC). An overview of the MRL changes that occurred since the entry into force of the Regulation mentioned above is provided below (Table 1).

Table 1: Overview of the MRL changes since the entry into force of Regulation (EC) No 396/2005

| Procedure               | Legal implementation | Remarks                                           |
|-------------------------|----------------------|---------------------------------------------------|
| Implementation of CAC 2012 | Reg. (EU) No 293/2013(a) | Modification of MRLs for beans and peaches |

(a): Commission Regulation (EU) No 293/2013 of 20 March 2013 amending Annexes II and III to Regulation (EC) No 396/2005 of the European Parliament and of the Council as regards maximum residue levels for emamectin benzoate, etofenprox, etoxazole, flutriafol, glyphosate, phosmet, pyraclostrobin, spinosad and spirotetramat in or on certain products. OJ L 96, 5.4.2013, p. 1–30.
For the purpose of this MRL review, the critical uses of etofenprox currently authorised within the European Union (EU), have been collected by the RMS and reported in the PROFile. The additional good agricultural practices (GAPs) reported by Member States during the completeness check were also considered. The details of the authorised GAPs for etofenprox 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.

Assessment

EFSA has based its assessment on the PROFile submitted by the RMS, the evaluation report accompanying the PROFile (Italy, 2012), the draft assessment report (DAR) and its addenda prepared under Council Directive 91/414/EEC (Italy, 2007, 2008), the conclusion on the peer review of the pesticide risk assessment of the active substance etofenprox (EFSA, 2009), the Joint Meeting on Pesticide residues (JMPR) Evaluation report (FAO, 2011) as well as the evaluation reports submitted during the completeness check (Czech Republic, 2016; EURLs, 2016; France, 2016; Germany, 2016; Greece, 2016; Italy, 2016a,b; Spain, 2016). 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 546/2011 and the currently applicable guidance documents relevant for the consumer risk assessment of pesticide residues (European Commission, 1997a–g, 2000, 2010a,b, 2016; 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 etofenprox was investigated in representatives of three different crop categories: oilseeds (winter rape), fruit crops (vine plants including grapes) and leafy crops (lettuce) following foliar application. In the experimental studies, a 1:1 labelled mixture of [14C-benzyl]-etofenprox and [14C-propyl]-etofenprox was used at representative dose rates and it has to be noted that results regarding metabolites provide qualitative however no quantitative information.

Etofenprox was the major compound in all studies and represented the main radioactive fraction (62–88% total radioactive residue (TRR)). The metabolite alpha-CO was the only metabolite occurring at more than 1% of the TRR in plant metabolism studies (1–7% TRR). Other minor metabolites remained below 1% TRR. A ratio of etofenprox to the metabolite alpha-CO from about 27:1 in lettuce to about 7:1 in rape foliage was reported (Italy, 2007). The metabolite alpha-CO is related in chemical structure to the parent and showed no higher toxicity than the parent. Therefore, the toxicological reference values of etofenprox were proposed to be used for this metabolite (EFSA, 2009).

1.1.2. Nature of residues in rotational crops

Etofenprox is authorised on non-permanent crops which can be grown in rotation. According to soil degradation studies evaluated in the framework of the peer review, the period required for 90% dissipation (DT90 values) of etofenprox was between 43 and 580 days. This is above the trigger value of 100 days (EFSA, 2009). Therefore, an investigation of residues in rotational crops is required.

A rotational crop study was reported during the peer review (Italy, 2007). Etofenprox was applied onto bare soil as a 1:1 mixture of both labelled forms at a dose rate of 312 g a.s./ha. Lettuce, carrots and spring barley were sown in the treated soil 4 weeks after application and showed only a very small uptake of radioactivity. The highest amount of radioactivity was found in the aerial parts of the crops (0.07 mg/kg in barley straw; 0.02 mg/kg in lettuce leaves), whereas a very small amount was found in carrots (0.007 mg/kg). The parent compound and individual metabolites were not identified (Italy, 2007).

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.
Based on the available data, it can be concluded that the investigated application of etofenprox will not give rise to residues in succeeding crops and additional studies with ageing of the soil for longer plant back intervals of 120 or 365 days would not be needed.

1.1.3. Nature of residues in processed commodities

The effect of processing on the nature of residues was not investigated in the framework of the peer review. The RMS considered waving these studies by assuming that, based on the chemical structure of etofenprox and alpha-CO, there would be a high probability that hydrolysis studies simulating processing conditions would show that the nature of the residue remains unchanged (Italy, 2007).

In the addendum to the DAR, standard hydrolysis studies were provided by the RMS (Italy, 2008). They were not evaluated during the peer review, however are considered in this review. Based on the results of these studies it is concluded that etofenprox and the metabolite alpha-CO remain stable during processing.

1.1.4. Methods of analysis in plants

In the framework of the peer review, a gas chromatography method with mass spectrometry (GC-MS) detection and its independent laboratory validation (ILV) were considered suitable for the monitoring of etofenprox and alpha-CO in high water, high acid and high oil commodities with a limit of quantification (LOQ) of 0.01 mg/kg, respectively (Italy, 2007; EFSA, 2009). An analytical method for enforcement in dry commodities is not available and is in principle still required. Nevertheless, during the completeness check, the EURLs provided a gas chromatography with tandem mass spectrometric (GC-MS/MS) method for etofenprox in all matrices, including dry commodities, with an LOQ of 0.01 mg/kg and a liquid chromatography with tandem mass spectrometric (LC-MS/MS) method for alpha-CO in all matrices with an LOQ of 0.01 mg/kg (EURL, 2016).

1.1.5. Stability of residues in plants

In the framework of the peer review, storage stability of etofenprox and the metabolite alpha-CO was demonstrated for a period of 24 months at −20°C in commodities with high water, high acid and high oil content (EFSA, 2009). It has to be noted that storage stability of etofenprox and alpha-CO was not investigated in dry commodities which represents a data gap.

1.1.6. Proposed residue definitions

Based on all three available metabolism studies, etofenprox was the main residue and alpha-CO represented a significant metabolite. During the peer review, it was noted that the alpha-CO metabolite was found in proportions higher than 10% of the etofenprox levels in supervised residue trials on grapes (22%), apples (14%) and peaches (12%). For this reason and considering that the limited residue data available during the peer review did not allow deriving proper conversion factors from enforcement to risk assessment, it was decided to define the residue definition for enforcement and risk assessment as the sum of etofenprox and alpha-CO (Italy, 2007; EFSA, 2009).

In the framework of this review, based on the metabolism data and the results from the available supervised residue trials (see Section 1.2.1) EFSA proposes to simplify the residue definition for enforcement as parent compound only. The residue definition (parent and metabolite alpha-CO) which was proposed by the peer review is still considered as appropriate for risk assessment. A validated analytical method for enforcement of the proposed residue definition (etofenprox) in all matrices with an LOQ of 0.01 mg/kg is available.

The same residue definitions are applicable for rotational crops and processed commodities.

1.2. Magnitude of residues in plants

1.2.1. Magnitude of residues in primary crops

To assess the magnitude of etofenprox residues resulting from the reported GAPs, EFSA considered all residue trials reported by the RMS in its evaluation report (Italy, 2012), including residue trials evaluated in the framework of the peer review (EFSA, 2009) and additional data submitted during the
completeness check by the Czech Republic, France, Germany, Greece, Italy and Spain (Czech Republic, 2016; France, 2016; Germany, 2016; Greece, 2016; Italy, 2016a,b; Spain, 2016).

Residue trial samples considered in this framework were stored in compliance with the demonstrated storage conditions with the exception of samples for wine grapes and kiwi fruits where storage information was not provided. Considering that storage stability in high water and acidic commodities was demonstrated for 2 years at $-20^\circ$C, it is assumed that in samples no significant degradation is expected to have had occurred; however further information on the storage conditions is still desirable. Storage stability in dry commodities was not demonstrated but this is not considered relevant since no residue trials on dry matrices were available.

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).

The available residue trials, MRL proposals and proposed conversion factors for risk assessment are summarised in Table B.1.2.1.

Residue trials are not available to support the authorisations on plums, berries, figs, granate apples, aubergines, peppers, cucurbits with inedible peel, Brussels sprouts, beans without pods, lentils, lupins, maize and rice grains, sugar beet and vetch. Therefore, MRLs and risk assessment values for these crops could not be derived by EFSA and the following data gaps were identified:

- Plums: six additional trials on plums compliant with the southern outdoor GAP are required.
- Strawberries: eight trials on strawberries compliant with the southern outdoor GAP are required.
- Black- and raspberries: four trials on black- and/or raspberries compliant with the southern outdoor GAP are required.
- Blue-, gooseberries and currants: four trials on currants compliant with the southern outdoor GAPs for blueberries, gooseberries and currants are required.
- Figs: four trials on figs compliant with the southern outdoor GAP are required.
- Granate apple: four trials on granate apples compliant with the southern outdoor GAP are required.
- Aubergines: four trials on aubergines compliant with the southern outdoor GAP are required.
- Peppers: one residue trial analysing parent compound only is available. Therefore, a complete dataset on peppers compliant with the southern outdoor GAP is required.
- Cucurbits with inedible peel: eight trials on melons compliant with the southern outdoor GAP for cucurbits with inedible peel are required.
- Brussels sprouts: four trials on Brussels sprouts compliant with the southern outdoor GAP are required.
- Beans (without pods): four trials on beans without pods compliant with the southern outdoor GAP are required.
- Lentils (fresh): four trials on lentils compliant with the southern outdoor GAP are required.
- Lupins (dry): four trials on lupins compliant with the southern outdoor GAP are required.
- Maize: eight trials on maize compliant with the southern outdoor GAP are required.
- Rice: eight trials on rice compliant with the southern outdoor GAP are required.
- Sugar beet: eight trials on sugar beet compliant with the southern outdoor GAP are required.
- Vetch: four trials on vetch compliant with the southern outdoor GAP are required.

All required trials should be performed analysing simultaneously for the enforcement and risk assessment residue definitions.

For some crops, the available residue trials were not fully compliant with the authorised GAPs or the number of residue trials was not compliant with the data requirements, only tentative MRLs and risk assessment values could be derived by EFSA and the following data gaps were identified:

- Citrus fruits: available residue trials supporting the southern outdoor GAP were all performed with two instead of one application. Although a tentative MRL could be derived from available data, eight additional trials on oranges and eight on lemons or mandarins compliant with the southern outdoor GAP are still required.
- Apricots: no residue trials on apricots are available. Although a tentative extrapolation from peaches is possible, at least 50% additional trials on apricots compliant with the southern outdoor GAP are still required.
- Cherries: available trials were only analysed for the parent and therefore four additional trials compliant with the southern outdoor GAP are still required.

- Table and wine grapes: available residue trials for the northern GAP were all performed with two applications instead of one. Available trials to support the southern GAP were all overdosed (performed at 4 × 150 instead of 1 × 115 g a.i./kg). Although tentative MRLs could be derived from southern data, eight trials supporting the northern outdoor GAP on wine grapes and eight residue trials supporting the southern GAP for table and wine grapes are still required.

- Kaki: one of the four available residue trials to support the southern GAP was overdosed with twice the application rate and only in one trial residues were analysed for the parent and alpha-CO. While a tentative MRL could be derived from the available data, three additional trials compliant with the southern outdoor GAP are still required.

- Kiwi: available trials on kiwis were all overdosed (210–240 g a.i./ha and one trial with two instead of one application). While a tentative MRL can be derived, eight additional trials on kiwi compliant with the southern outdoor GAP are still required.

- Tomatoes: four of nine available tomato trials were overdosed (performed at 2 × 400 g a.i./ha) and three trials were carried out according to a different GAP (1 × 300 g a.i./ha instead of 2 × 160 g a.i./ha). Moreover, all residues were analysed only for the parent. While a tentative MRL could be derived from the available data, eight additional trials on tomatoes compliant with the southern outdoor GAP are still required.

- Flowering \textit{Brassica}: eight available combined residue trials on cauliflower (three) and broccoli (five) are all performed with two instead of one application and all residues were analysed only for the parent. While a tentative MRL can be derived, four additional trials on cauliflower and on broccoli, respectively compliant with the northern outdoor GAP are still required.

- Head cabbage: available trials to support the northern GAP were performed with two applications instead of one and all residues were analysed only for the parent. While a tentative MRL can be derived from the available trials, eight additional trials on head cabbage compliant with the northern outdoor GAP are still required.

- Lettuces, lambs lettuce, escaroles, cresses, roman rocket, spinaches, chards and fresh herbs: the number of residue trials is not compliant with the data requirements for this crop (six instead of eight). Moreover, four available trials were performed on head-forming varieties while two (variety names: Lido, Dimar) could not be assigned to a variety. Only two of the six trials were analysed for parent and alpha-CO simultaneously. While a tentative MRL could be derived from the available trials, eight additional trials on lettuces (open leaf variety) compliant with the southern outdoor GAP are still required.

- Rapeseeds: the number of residue trials supporting the northern outdoor GAP is not compliant with the data requirements for this crop (seven instead of eight). Moreover, in all available residue trials, samples were analysed for parent compound only. While a tentative MRL can be derived from the available trials, eight additional trials on rapeseed compliant with the northern outdoor GAP are still required.

- Beans (with pods): four additional trials on beans with pods compliant with the southern outdoor GAP are required.

All required trials should be performed analysing simultaneously for enforcement and risk assessment residue definitions.

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

- Hazelnuts, chestnuts, pine nut kernels, potatoes, onions, garlic, olives: the number of residue trials supporting the southern outdoor GAPs is not compliant with the data requirements for these crops. However, the reduced number of residue trials is considered acceptable in these cases because all results were below the LOQ and a no residues situation is expected. Further residue trials are therefore not required.

- Linseeds, sesame, mustard, borage, gold of pleasure and hemp seeds: trials were performed with one instead of two applications. However, this is considered acceptable because the first application done at an early growth stage is not expected to have a significant impact on the final residue.
1.2.2. Magnitude of residues in rotational crops

Based on the results of the confined rotational crop study (Section 1.1.2) performed at 312 g a.i/ha and covering the most critical GAPs considered in this review (maximal application rates for grapes and strawberries of 320 g a.i./ha), it can be concluded that no significant residues of etofenprox and alpha-CO are expected in rotational crops.

1.2.3. Magnitude of residues in processed commodities

Studies on oilseed rape, grapes, peaches, apples and tomatoes were conducted and reported (Italy, 2007, 2012). Since residues in raw and processed commodities of oilseed rape were always below the LOQ of 0.01 mg/kg, it was not possible to derive processing factors.

An overview of all available processing studies is available in Appendix B.1.2.3. Robust processing factors could be derived for peach puree, peach juice, peach jam, apple juice, wine grape juice and red wine. For all other processed commodities only indicative processing factors could be derived due to the limited data sets or residues analysed for the parent compound only.

If more robust processing factors were to be required by the risk managers, in particular for enforcement purposes, additional processing studies would be needed.

1.2.4. Proposed MRLs

The available data are considered sufficient to derive MRL proposals as well as risk assessment values for hazelnuts, chestnuts, pine nut kernels, peaches, apples, pears, potatoes, onions, garlic, olives, linseeds, sesame, mustard, borage, gold of pleasure and hemp seeds. Tentative MRL proposals could be derived for citrus fruits, cherries, wine and table grapes, kakis, kiwis, tomatoes, head cabbages, broccoli, cauliflower, lettuces and salad plants, spinachs, chards, fresh herbs, rapeseeds and beans with pods. For all other commodities the available data were insufficient to derive MRLs and risk assessment values.

For most of the residue trials, residues were analysed according to the enforcement and risk assessment residue definition, therefore enabling to derive proper conversion factors from enforcement to risk assessment. However for cherries, tomatoes, flowering brassicas, head cabbages (northern European Union (NEU)), kiwi, salad plants, spinachs, chards, fresh herbs and rapeseeds (NEU) limited residue data for alpha-CO or only data for the parent compound were available. For these commodities, the highest conversion factors of 1.2 derived from other fruits crops and leafy vegetables and the CF of 1.1 derived from the metabolism study on rapeseeds were tentatively proposed for risk assessment.

2. Residues in livestock

Etofenprox is 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. The input values for all relevant commodities are summarised in Appendix D. The dietary burdens calculated for all groups of livestock were found to exceed the trigger value of 0.1 mg/kg DM. Behaviour of residues was therefore assessed in all commodities of animal origin.

It is highlighted that for several feed items, no residue data were available (e.g. maize corn grain and straw, rice grain and straw, sugar beets, vetch forage). The animal intake of etofenprox residues via these commodities has therefore not been assessed and may have been underestimated.

2.1. Nature of residues and methods of analysis in livestock

During the peer review, metabolism studies performed on domestic animals (goat and hen) dosed with etofenprox only, indicate that etofenprox should be defined as the residue of concern in food of animal origin (Italy, 2007). Most of the applied radioactivity (77–92%) was excreted. Transfer to milk and to eggs remained low (less than 1% of the applied dose). Residue levels in edible tissues, organs and blood reached 3.7% and were mostly located in fat (Italy, 2007).

The metabolite alpha-CO was only formed transiently and did not represent a significant residue. Nonetheless, during the peer review it was noted that additional information on the fate of alpha-CO would be needed (EFSA, 2009). No further information was received during this review. Metabolism studies performed with the parent and metabolite are therefore still required.
Pending the submission of new metabolism studies, to perform at least a tentative assessment based on the available information, a residue definition for monitoring and risk assessment is proposed as etofenprox only.

A validated GC–MS method for etofenprox and alpha-CO with an LOQ of 0.01 mg/kg each in meat, fat, eggs and milk is available. The inter-laboratory validation study conducted for meat, milk, egg and fat demonstrated good reproducibility (Italy, 2007). The EURLs provided a validated LC–MS/MS method for etofenprox for eggs and muscle with LOQs of 0.02 and 0.001 mg/kg, respectively. However, the lack of a validated analytical method for liver and kidney has to be noted.

Storage stability of etofenprox was demonstrated in liver only at –20°C for 12 months (Italy, 2007). Additional studies covering storage stability in all other tissues, milk and eggs are still required.

2.2. Magnitude of residues in livestock

One feeding study performed on dairy cattle was evaluated by the RMS in the DAR (Italy, 2007). Three dose levels were tested (0.018, 0.054 and 1.82 mg etofenprox/kg body weight (bw) per day), whereby the second dosing level covers the calculated dietary burden for cattle. Samples were stored at –20°C until analysis; however, since the storage period is not specified and because storage stability was only investigated in liver, a decline of residues during storage cannot be excluded.

For poultry, residue data were derived from a hen metabolism study with two dose levels (0.075 and 0.75 mg etofenprox/kg bw per day). The lower dose level covers the calculated dietary burden for poultry. Samples were stored at –20°C for no longer than 12 months and a decline of residues during storage is not expected in liver (Italy, 2007). However, for all the other tissues and for eggs since the storage stability was not investigated, a decline of residues during storage cannot be excluded.

MRLs and risk assessment values for animal products were derived according to the OECD guidance which was agreed upon at the European level (OECD, 2013). The overview of the study results used to derive the risk assessment values and the MRL proposals are summarised in Appendix B.2.2. According to the OECD guidance, MRLs and risk assessment values derived from cattle feeding study data can be extrapolated to all ruminants (e.g. goats and sheep), and other animals such as horses, pigs and rabbits. However, considering that the residue definition in livestock could be only tentatively derived, the lack of storage stability studies covering tissues others than liver and the lack of fully validated analytical methods for liver and kidney, all the derived MRLs should be considered tentative only.

3. Consumer risk assessment

In the framework of this review, only the uses of etofenprox reported by the RMS in Appendix A were considered; however, the use of etofenprox was previously also assessed by the Joint Meeting of the FAO Panel of Experts on Pesticide Residues in Food and the Environment and the WHO Expert Group on Pesticide Residues (Joint Meeting on Pesticide Residues (JMPR)) (FAO, 1993, 2011). The CXLs, resulting from these assessments by JMPR and adopted by the CAC, are now international recommendations that need to be considered by European risk managers when establishing MRLs. To facilitate consideration of these CXLs by risk managers, the consumer exposure was calculated both with and without consideration of the existing CXLs.

3.1. Consumer risk assessment without consideration of the existing CXLs

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. Hence, for those commodities where a (tentative) MRL could be derived by EFSA in the framework of this review, input values were derived according to the internationally agreed methodologies (FAO, 2009).

For those commodities where data were insufficient to derive an MRL in Section 3, EFSA considered the existing EU MRL multiplied by the following highest conversion factors for risk assessment derived from residue trials analysing simultaneously according to the residue definitions for enforcement and risk assessment: 1 for root and tuber vegetables and 1.2 for fruit crops, leafy vegetables and pulses. For maize and rice, in the absence of residue trials on other cereals analysing simultaneously for parent and alpha-CO, a conversion factor of 2 was considered based on the worst-case assumption that the metabolite alpha-CO is present at the same level as the parent compound. All input values included in the exposure calculations are summarised in Appendix D.
The exposures calculated were compared with the toxicological reference values for etofenprox, derived by EFSA (2009) under Directive 91/414/EEC. The highest chronic exposure was calculated for the UK toddler, representing 52.2% of the acceptable daily intake (ADI) with sugar beet root representing 38.1% followed by milk and cream with 3.6% and oranges with 2.6%. The highest acute exposure was calculated for scarole (broad-leaf endive), representing 15.8% 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.

3.2. Consumer risk assessment with consideration of the existing CXLs

To include the CXLs in the calculations of the consumer exposure, CXLs were compared with the EU MRL proposals in compliance with Appendix E and all data relevant to the consumer exposure assessment have been collected from JMPR evaluations. An overview of the input values used for this exposure calculation is also provided in Appendix D. Residue definition for risk assessment defined by the JMPR is different and does not include the metabolite alpha-CO. In order to consider the contribution of this metabolite to the dietary intake, the same conversion factors were tentatively applied to the CXLs as outlined in Section 3.1. Therefore, all the existing CXLs should be considered tentative only.

Chronic and acute exposure calculations were also performed using revision 2 of the EFSA PRIMo and the exposures calculated were compared with the toxicological reference values derived for etofenprox. The highest chronic exposure was calculated for UK toddler, representing 52.6% of the ADI, and the highest acute exposure was calculated for table grapes, representing 17% of the ARfD.

Based on these calculations, EFSA concludes that although major uncertainties remain due to the data gaps identified for these CXLs, this indicative exposure calculation did not indicate a risk to consumers.

Conclusions

The metabolism of etofenprox was investigated in representatives of three different crop categories: oilseeds (winter rape), fruit crops (vine plants including grapes) and leafy crops (lettuce) following foliar application. Based on all available metabolism studies, etofenprox was the main residue and alpha-CO represented a significant metabolite. EFSA proposes to simplify the residue definition for enforcement as parent compound only. The residue definition for risk assessment as proposed by the peer review and including the metabolite alpha-CO is still considered valid. The same residue definitions are applicable for rotational crops and for processed commodities. A validated analytical method for enforcement of the proposed residue definition (etofenprox) in all plant matrices with an LOQ of 0.01 mg/kg is available.

Etofenprox is authorised on crops which are non-permanent and according to soil degradation studies DT$_{90}$ values of etofenprox ranged between 43 and 580 days and exceeded the trigger of 100 days. Therefore, an investigation of residues in rotational crops was required and provided by growing lettuce, carrots and spring barley on treated soils at rates relevant to the currently authorised uses. Based on the provided data it was concluded the etofenprox will not give rise to residues in rotational crops.

Storage stability of etofenprox and the metabolite alpha-CO was demonstrated for a period of 24 months at –20°C in commodities with high water, high acid and high oil content however it was not investigated in dry commodities.

The available data are considered sufficient to derive MRL proposals as well as risk assessment values for hazelnuts, chestnuts, pine nut kernels, peaches, apples, pears, potatoes, onions, garlic, olives, linseeds, sesame, mustard, borage, gold of pleasure and hemp seeds. Tentative MRL proposals could be derived for citrus fruits, cherries, wine and table grapes, kakis, kiwis, tomatoes, head cabbages, broccoli, cauliflower, lettuces and salad plants, spinaches, chards, fresh herbs, rape seeds and beans with pods. For all other commodities, the available data were insufficient to derive MRLs and risk assessment values (Table 2).

For most of the residue trials, residues were analysed according to the enforcement and risk assessment residue definition, therefore enabling to derive proper conversion factors from enforcement to risk assessment. However for cherries, tomatoes, flowering brassicas, head cabbages (NEU), kiwi, salad plants, spinaches, chards, fresh herbs and rapeseeds (NEU) limited residue data for alpha-CO or only data for the parent compound were available. For these commodities, the highest conversion
factors of 1.2 derived from other fruits crops and leafy vegetables and of 1.1 derived from metabolism studies for rapeseeds were tentatively used for risk assessment.

Robust processing factors could be derived for peach puree, peach juice, peach jam, apple juice, wine grape juice and red wine. For all other processed commodities only indicative processing factors could be derived due to the limited data sets or residues analysed for the parent compound only.

Etofenprox is authorised for use on several crops that might be fed to livestock. The dietary burdens calculated for all groups of livestock were found to exceed the trigger value of 0.1 mg/kg DM. Behaviour of residues was therefore assessed in all commodities of animal origin. It is highlighted that for several feed items, no residue data were available (e.g. maize corn grain and straw, rice grain and straw, sugar beets, vetch). The animal intake of etofenprox residues via these commodities has therefore not been assessed and may have been underestimated.

In animal commodities, a residue definition for monitoring and risk assessment is proposed as etofenprox on a tentative basis only. Validated GC-MS and/or LC-MS/MS methods with an LOQ of 0.01 mg/kg are available for enforcement of the proposed residue definition in meat, fat, eggs and milk. MRLs and risk assessment values derived from cattle feeding study data can be extrapolated to all ruminants (e.g. goats and sheep), and other animals such as horses, pigs and rabbits. However, considering that the residue definition in livestock could be only tentatively derived, the lack of storage stability studies covering tissues others than liver and the lack of fully validated analytical methods for liver and kidney, all the derived MRLs should be considered tentative only.

Chronic and acute consumer exposure resulting from the authorised uses reported in the framework of this review was calculated using revision 2 of the EFSA PRIMo. According to the results of this calculation, the highest chronic exposure represented 52.2% of the ADI (UK, toddler) and the highest acute exposure amounted to 15.8% of the ARfD scarole (broad-leaf endive).

Apart from the MRLs evaluated in the framework of this review, internationally recommended CXLs have also been established for etofenprox. Additional calculations of the consumer exposure, considering these CXLs, were therefore carried out. The highest chronic exposure represented 52.6% of the ADI (UK toddler) and the highest acute exposure amounted to 17% of the ARfD (table grapes).

**Recommendations**

MRL recommendations were derived in compliance with the decision tree reported in Appendix E of the reasoned opinion (see summary table). All MRL values listed as ‘Recommended’ in the table are sufficiently supported by data and are therefore proposed for inclusion in Annex II to the Regulation. The remaining MRL values listed in the table are not recommended for inclusion in Annex II because they require further consideration by risk managers (see summary table footnotes for details). In particular, some tentative MRLs and existing EU MRLs need to be confirmed by the following data:

- storage stability studies investigating stability of etofenprox and alpha-CO residues in dry commodities;
- residue trials supporting the authorisation of citrus fruits, cherries, apricots, plums, wine and table grapes, berries, currants, figs, kaki, kiwi, granate apples, tomatoes, aubergines, sweet peppers, melons, pumpkins, watermelons, flowering brassica, Brussels sprout, head cabbages, lettuces, lambs lettuce, escaroles, cresses, roman rocket, spinaches, chards and fresh herbs, beans with and without pods, fresh lentils, dry lupins, rapeseeds, maize grain, rice grain and sugar beet roots analysing simultaneously for the residue definition of monitoring and risk assessment;
- metabolism studies in ruminants and poultry performed with the parent and the metabolite alpha-CO;
- a fully validated method for enforcement in kidney and liver;
- storage stability studies investigating stability of etofenprox in eggs, milk and animal tissues others than liver.

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. Minor deficiencies were also identified but these deficiencies are not expected to impact either on the validity of the MRLs derived or on the national authorisations. The following data are therefore considered desirable but are not essential:

- Information on storage conditions of samples for residue trials on wine grapes (southern European Union (SEU)) and kiwis (SEU).
## Table 2: Summary table

| Code number | Commodity                        | Existing EU MRL (mg/kg) | Existing CXL (mg/kg) | Outcome of the review | Comment                      |
|-------------|----------------------------------|-------------------------|----------------------|------------------------|------------------------------|
| 110010      | Grapefruits                      | 1                       | –                    | 1.5                    | Further consideration needed |
| 110020      | Oranges                          | 1                       | –                    | 1.5                    | Further consideration needed |
| 110030      | Lemons                           | 1                       | –                    | 1.5                    | Further consideration needed |
| 110040      | Limes                            | 1                       | –                    | 1.5                    | Further consideration needed |
| 110050      | Mandarins                        | 1                       | –                    | 1.5                    | Further consideration needed |
| 120040      | Chestnuts                        | 0.5                     | –                    | 0.01*                  | Recommended                   |
| 120060      | Hazelnuts/cobnuts                | 0.5                     | –                    | 0.01*                  | Recommended                   |
| 130010      | Apples                           | 1                       | 0.6                  | 0.7                    | Recommended                   |
| 130020      | Pears                            | 1                       | 0.6                  | 0.7                    | Recommended                   |
| 140010      | Apricots                         | 1                       | –                    | 0.6                    | Further consideration needed |
| 140020      | Cherries (sweet)                 | 1                       | –                    | 0.8                    | Further consideration needed |
| 140030      | Peaches                          | 0.6                     | 0.6                  | 0.6                    | Recommended                   |
| 151010      | Table grapes                     | 5                       | 4                    | 4                      | Further consideration needed |
| 151020      | Wine grapes                      | 5                       | 4                    | 4                      | Further consideration needed |
| 152000      | Strawberries                     | 1                       | –                    | 1                      | Further consideration needed |
| 153010      | Blackberries                     | 1                       | –                    | 1                      | Further consideration needed |
| 153030      | Raspberries (red and yellow)     | 1                       | –                    | 1                      | Further consideration needed |
| 154010      | Blueberries                      | 1                       | –                    | 1                      | Further consideration needed |
| 154030      | Currants (black, red and white)  | 1                       | –                    | 1                      | Further consideration needed |
| 154040      | Gooseberries (green, red and yellow) | 1 | – | 1 | Further consideration needed |
| 161020      | Figs                             | 1                       | –                    | 1                      | Further consideration needed |
| 161030      | Table olives                     | 0.01*                   | –                    | 0.01*                  | Recommended                   |
| 161060      | Kaki/Japanese persimmons         | 1                       | –                    | 0.8                    | Further consideration needed |
| 162010      | Kiwi fruits (green, red, yellow) | 1                       | –                    | 1                      | Further consideration needed |
| 163050      | Granate apples/pomegranates      | 1                       | –                    | 1                      | Further consideration needed |
| 211000      | Potatoes                         | 0.5                     | –                    | 0.01*                  | Recommended                   |
| 220010      | Garlic                           | 0.5                     | –                    | 0.01*                  | Recommended                   |
| 220020      | Onions                           | 0.5                     | –                    | 0.01*                  | Recommended                   |
| 231010      | Tomatoes                         | 1                       | –                    | 0.7                    | Further consideration needed |
| 231020      | Sweet peppers/bell peppers       | 2                       | –                    | 2                      | Further consideration needed |
| 231030      | Aubergines/eggplants             | 0.5                     | –                    | 0.5                    | Further consideration needed |
| 233010      | Melons                           | 0.5                     | –                    | 0.5                    | Further consideration needed |
| 233020      | Pumpkins                         | 0.5                     | –                    | 0.5                    | Further consideration needed |
| 233030      | Watermelons                      | 0.5                     | –                    | 0.5                    | Further consideration needed |
| 241010      | Broccoli                         | 0.2                     | –                    | 0.4                    | Further consideration needed |
| 241020      | Cauliflowers                     | 0.2                     | –                    | 0.4                    | Further consideration needed |
| 242010      | Brussels sprouts                 | 2                       | –                    | 2                      | Further consideration needed |

**Enforcement residue definition:** Etofenprox (F)
| Code number(a) | Commodity                                      | Existing EU MRL (mg/kg) | Existing CXL (mg/kg) | Outcome of the review                  | MRL (mg/kg) | Comment                        |
|---------------|------------------------------------------------|------------------------|----------------------|----------------------------------------|-------------|---------------------------------|
| 242020        | Head cabbages                                  | 2                      | –                    | Further consideration needed(b)        | 0.7         |                                 |
| 251010        | Lamb’s lettuces/corn salads                    | 3                      | –                    | Further consideration needed(b)        | 3           |                                 |
| 251020        | Lettuces                                       | 3                      | –                    | Further consideration needed(b)        | 3           |                                 |
| 251030        | Escaroles/broad-leaved endives                 | 3                      | –                    | Further consideration needed(b)        | 3           |                                 |
| 251040        | Cresses and other sprouts and shoots           | 3                      | –                    | Further consideration needed(b)        | 3           |                                 |
| 251060        | Roman rocket/rucola                            | 3                      | –                    | Further consideration needed(b)        | 3           |                                 |
| 252010        | Spinaches                                      | 3                      | –                    | Further consideration needed(b)        | 3           |                                 |
| 252030        | Chards/beet leaves                             | 3                      | –                    | Further consideration needed(b)        | 3           |                                 |
| 256010        | Chervil                                        | 3                      | –                    | Further consideration needed(b)        | 3           |                                 |
| 256020        | Chives                                         | 3                      | –                    | Further consideration needed(b)        | 3           |                                 |
| 256030        | Celery leaves                                  | 3                      | –                    | Further consideration needed(b)        | 3           |                                 |
| 256040        | Parsley                                        | 3                      | –                    | Further consideration needed(b)        | 3           |                                 |
| 256050        | Sage                                           | 3                      | –                    | Further consideration needed(b)        | 3           |                                 |
| 256060        | Rosemary                                       | 3                      | –                    | Further consideration needed(b)        | 3           |                                 |
| 256070        | Thyme                                          | 3                      | –                    | Further consideration needed(b)        | 3           |                                 |
| 256080        | Basil and edible flowers                       | 3                      | –                    | Further consideration needed(b)        | 3           |                                 |
| 256090        | Laurel/bay leaf                                | 3                      | –                    | Further consideration needed(b)        | 3           |                                 |
| 256100        | Tarragon                                       | 3                      | –                    | Further consideration needed(b)        | 3           |                                 |
| 260010        | Beans (with pods)                              | 0.5                    | –                    | Further consideration needed(b)        | 0.4         |                                 |
| 260020        | Beans (without pods)                           | 0.5                    | –                    | Further consideration needed(b)        | 0.5         |                                 |
| 260050        | Lentils (fresh)                                | 0.01*                  | –                    | Further consideration needed(b)        | 0.01*       |                                 |
| 300010        | Beans (dry)                                    | 0.05                   | 0.05                 | Further consideration needed(b)        | 0.05        |                                 |
| 300040        | Lupins/lupini beans (dry)                      | 0.5                    | –                    | Further consideration needed(b)        | 0.5         |                                 |
| 401010        | Linseeds                                       | 0.01*                  | –                    | Recommended(c)                         | 0.01*       |                                 |
| 401040        | Sesame seeds                                   | 0.01*                  | –                    | Recommended(c)                         | 0.01*       |                                 |
| 401060        | Rapeseeds/canola seeds                         | 0.05                   | 0.01*                | Further consideration needed(b)        | 0.05        |                                 |
| 401080        | Mustard seeds                                  | 0.01*                  | –                    | Recommended(c)                         | 0.01*       |                                 |
| 401120        | Borage seeds                                   | 0.01*                  | –                    | Recommended(c)                         | 0.01*       |                                 |
| 401130        | Gold of pleasure seeds                         | 0.01*                  | –                    | Recommended(c)                         | 0.01*       |                                 |
| 401140        | Hemp seeds                                     | 0.01*                  | –                    | Recommended(c)                         | 0.01*       |                                 |
| 402010        | Olives for oil production                      | 0.01*                  | –                    | Recommended(c)                         | 0.01*       |                                 |
| 500030        | Maize/corn grains                              | 0.5                    | 0.05*                | Further consideration needed(b)        | 0.5         |                                 |
| 500060        | Rice grains                                    | 0.5                    | 0.01*                | Further consideration needed(b)        | 0.5         |                                 |
| 900010        | Sugar beet roots                               | 0.5                    | –                    | Further consideration needed(b)        | 0.5         |                                 |
| 1011010       | Swine muscle                                   | 0.5                    | 0.03*                | Further consideration needed(b)        | 0.05        |                                 |
| 1011020       | Swine fat tissue                               | 0.5                    | 0.5                  | Further consideration needed(b)        | 1.5         |                                 |
| 1011030       | Swine liver                                    | 0.5                    | 0.05                 | Further consideration needed(b)        | 0.05        |                                 |
| 1011040       | Swine kidney                                   | 0.5                    | 0.05                 | Further consideration needed(b)        | 0.05        |                                 |
| 1012010       | Bovine muscle                                  | 0.5                    | 0.03*                | Further consideration needed(b)        | 0.06        |                                 |
| 1012020       | Bovine fat tissue                              | 0.5                    | 0.5                  | Further consideration needed(b)        | 2           |                                 |
| Code number(a) | Commodity          | Existing EU MRL (mg/kg) | Existing CXL (mg/kg) | Outcome of the review                                      |
|---------------|--------------------|-------------------------|----------------------|-----------------------------------------------------------|
| 1012030       | Bovine liver       | 0.5                     | 0.05                 | Further consideration needed(h)                           |
| 1012040       | Bovine kidney      | 0.5                     | 0.05                 | Further consideration needed(h)                           |
| 1013010       | Sheep muscle       | 0.5                     | 0.03*                | Further consideration needed(h)                           |
| 1013020       | Sheep fat tissue   | 0.5                     | 0.5                  | Further consideration needed(h)                           |
| 1013030       | Sheep liver        | 0.5                     | 0.05                 | Further consideration needed(h)                           |
| 1013040       | Sheep kidney       | 0.5                     | 0.05                 | Further consideration needed(h)                           |
| 1014010       | Goat muscle        | 0.5                     | 0.03*                | Further consideration needed(h)                           |
| 1014020       | Goat fat tissue    | 0.5                     | 0.5                  | Further consideration needed(h)                           |
| 1014030       | Goat liver         | 0.5                     | 0.05                 | Further consideration needed(h)                           |
| 1014040       | Goat kidney        | 0.5                     | 0.05                 | Further consideration needed(h)                           |
| 1015010       | Equine muscle      | 0.5                     | 0.03*                | Further consideration needed(h)                           |
| 1015020       | Equine fat tissue  | 0.5                     | 0.5                  | Further consideration needed(h)                           |
| 1015030       | Equine liver       | 0.5                     | 0.05                 | Further consideration needed(h)                           |
| 1015040       | Equine kidney      | 0.5                     | 0.05                 | Further consideration needed(h)                           |
| 1016010       | Poultry muscle     | 0.01*                   | 0.01*                | Further consideration needed(h)                           |
| 1016020       | Poultry fat tissue | 0.01*                   | 0.01*                | Further consideration needed(h)                           |
| 1016030       | Poultry liver      | 0.01*                   | 0.01*                | Further consideration needed(h)                           |
| 1020010       | Cattle milk        | 0.05                    | 0.02                 | Further consideration needed(h)                           |
| 1020020       | Sheep milk         | 0.05                    | 0.02                 | Further consideration needed(h)                           |
| 1020030       | Goat milk          | 0.05                    | 0.02                 | Further consideration needed(h)                           |
| 1020040       | Horse milk         | 0.05                    | 0.02                 | Further consideration needed(h)                           |
| 1030000       | Birds eggs         | Regulation (EC) No 149/ 2008(k) | 0.01*            | Further consideration needed(h)                           |

Other commodities of plant and animal origin

| Code number(a) | Commodity       | Existing EU MRL (mg/kg) | Existing CXL (mg/kg) | Outcome of the review                                      |
|---------------|-----------------|-------------------------|----------------------|-----------------------------------------------------------|
| 1013030       | Sheep liver     | 0.5                     | 0.05                 | Further consideration needed(h)                           |
| 1013040       | Sheep kidney    | 0.5                     | 0.05                 | Further consideration needed(h)                           |
| 1014010       | Goat muscle     | 0.5                     | 0.05                 | Further consideration needed(h)                           |
| 1014020       | Goat fat tissue | 0.5                     | 0.5                  | Further consideration needed(h)                           |
| 1014030       | Goat liver      | 0.5                     | 0.05                 | Further consideration needed(h)                           |
| 1014040       | Goat kidney     | 0.5                     | 0.05                 | Further consideration needed(h)                           |
| 1015010       | Equine muscle   | 0.5                     | 0.03*                | Further consideration needed(h)                           |
| 1015020       | Equine fat tissue | 0.5                  | 0.5                  | Further consideration needed(h)                           |
| 1015030       | Equine liver    | 0.5                     | 0.05                 | Further consideration needed(h)                           |
| 1015040       | Equine kidney   | 0.5                     | 0.05                 | Further consideration needed(h)                           |
| 1016010       | Poultry muscle  | 0.01*                   | 0.01*                | Further consideration needed(h)                           |
| 1016020       | Poultry fat tissue | 0.01*                  | 0.01*                | Further consideration needed(h)                           |
| 1016030       | Poultry liver   | 0.01*                   | 0.01*                | Further consideration needed(h)                           |
| 1020010       | Cattle milk     | 0.05                    | 0.02                 | Further consideration needed(h)                           |
| 1020020       | Sheep milk      | 0.05                    | 0.02                 | Further consideration needed(h)                           |
| 1020030       | Goat milk       | 0.05                    | 0.02                 | Further consideration needed(h)                           |
| 1020040       | Horse milk      | 0.05                    | 0.02                 | Further consideration needed(h)                           |
| 1030000       | Birds eggs      | Regulation (EC) No 149/ 2008(k) | 0.01*            | Further consideration needed(h)                           |

MRL: maximum residue level; CXL: codex maximum residue limit.
*: Indicates that the MRL is set/proposed at the limit of quantification.

(F): Residue is fat soluble.
(a): Commodity code number, as listed in Annex I of Regulation (EC) No 396/2005.
(b): Tentative MRL is derived from a GAP evaluated at EU level, which is not fully supported by data but for which no risk to consumers was identified (assuming the existing residue definition); no CXL is available (combination E-I in Appendix E).
(c): MRL is derived from a GAP evaluated at EU level, which is fully supported by data and for which no risk to consumers is identified; no CXL is available (combination G-I in Appendix E).
(d): MRL is derived from a GAP evaluated at EU level, which is fully supported by data and for which no risk to consumers is identified; existing CXL is covered by the recommended MRL (combination G-III in Appendix E).
(e): GAP evaluated at EU level is not supported by data but no risk to consumers was identified for the existing European Union MRL (also assuming the existing residue definition); no CXL is available (combination C-I in Appendix E).
(f): MRL is derived from the existing CXL, which is not sufficiently supported by data but for which no risk to consumers is identified (assuming the existing residue definition); GAP evaluated at EU level, which is also not fully supported by data, would lead to a lower tentative MRL (combination E-V in Appendix E).
(g): MRL is derived from the existing CXL, which is not sufficiently supported by data but for which no risk to consumers is identified (assuming the existing residue definition); there are no relevant authorisations or import tolerances reported at EU level (combination A-V in Appendix E).
(h): Tentative MRL is derived from a GAP evaluated at EU level, which is not fully supported by data but for which no risk to consumers was identified (assuming the existing residue definition); existing CXL is covered by the tentative MRL (combination E-III in Appendix E).
(i): GAP evaluated at EU level is not supported by data but no risk to consumers was identified for the existing European Union MRL (also assuming the existing residue definition); existing CXL is covered by the existing European Union MRL (combination C-III in Appendix E).
(j): There are no relevant authorisations or import tolerances reported at EU level; no CXL is available. Either a specific LOQ or the default MRL of 0.01 mg/kg may be considered (combination A-I in Appendix E).
(k): 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.
References

Czech Republic, 2016. Evaluation report prepared under Article 12 of Regulation (EC) No 396/2005. Authorised uses to be considered for the review of the existing EU MRLs for etofenprox, August 2016. Available online: www.efsa.europa.eu

EFSA (European Food Safety Authority), 2007. Reasoned opinion on the potential chronic and acute risk to consumers' health arising from proposed temporary EU MRLs. EFSA Journal 2007;5(3):32r, 1141 pp. https://doi.org/10.2903/j.efsa.2007.32r

EFSA (European Food Safety Authority), 2009. Conclusion on the peer review of the pesticide risk assessment of the active substance etofenprox. EFSA Journal 2009;7(4):213r, 131 pp. https://doi.org/10.2903/j.efsa.2009.213r

EFSA (European Food Safety Authority), 2016. Completeness check report on the review of the existing MRLs of etofenprox prepared by EFSA in the framework of Article 12 of Regulation (EC) No 396/2005, 17 October 2016. Available online: www.efsa.europa.eu

EFSA (European Food Safety Authority), 2017. Member States consultation report on the review of the existing MRLs of etofenprox prepared by EFSA in the framework of Article 12 of Regulation (EC) No 396/2005, 7 July 2017. Available online: www.efsa.europa.eu

EURL (European Union Reference Laboratories for Pesticide Residues), 2016. Evaluation report prepared under Article 12 of Regulation (EC) No 396/2005. Analytical methods validated by the EURLs and overall capability of official laboratories to be considered for the review of the existing MRLs for etofenprox, August 2016. Available online: www.efsa.europa.eu

European Commission, 1997a. Appendix A. Metabolism and distribution in plants. 7028/IV/95-rev., 22 July 1996.

European Commission, 1997b. Appendix B. General recommendations for the design, preparation and realization of residue trials. Annex 2. Classification of (minor) crops not listed in the Appendix of Council Directive 90/642/EEC. 7029/VI/95-rev. 6, 22 July 1997.

European Commission, 1997c. Appendix C. Testing of plant protection products in rotational crops. 7524/VI/95-rev. 2, 22 July 1997.

European Commission, 1997d. Appendix E. Processing studies. 7035/VI/95-rev. 5, 22 July 1997.

European Commission, 1997e. Appendix F. Metabolism and distribution in domestic animals. 7030/VI/95-rev. 3, 22 July 1997.

European Commission, 1997f. Appendix H. Storage stability of residue samples. 7032/VI/95-rev. 5, 22 July 1997.

European Commission, 1997g. Appendix I. Calculation of maximum residue level and safety intervals.7039/VI/95, 22 July 1997. As amended by the document: classes to be used for the setting of EU pesticide maximum residue levels (MRLs). SANCO 10634/2010, finalised in the Standing Committee on the Food Chain and Animal Health at its meeting of 23–24 March 2010.

European Commission, 2000. Residue analytical methods. For pre-registration data requirement for Annex II (part A, section 4) and Annex III (part A, section 5 of Directive 91/414. SANCO/3029/99-rev. 4.

European Commission, 2010a. Classes to be used for the setting of EU pesticide Maximum Residue Levels (MRLs). SANCO 10634/2010-rev. 0, Finalised in the Standing Committee on the Food Chain and Animal Health at its meeting of 23–24 March 2010.

European Commission, 2010b. Residue analytical methods. For post-registration control. SANCO/825/00-rev. 8.1, 16 November 2010.

European Commission, 2016. Appendix D. Guidelines on comparability, extrapolation, group tolerances and data requirements for setting MRLs. 7525/VI/95-rev. 10.2, September 2016.

FAO (Food and Agriculture Organization of the United Nations), 1993. Etofenprox. In: Report of the Joint Meeting of the FAO Panel of Experts on Pesticide Residues in Food and the Environment and the WHO Expert Group on Pesticide Residues. FAO Plant Production and Protection Paper 122, 180 pp.

FAO (Food and Agriculture Organization of the United Nations), 2009. Submission and evaluation of pesticide residues data for the estimation of Maximum Residue Levels in food and feed. Pesticide Residues. 2nd Edition.

FAO (Food and Agriculture Organization of the United Nations), 2011. Etofenprox. In: Pesticide residues in food – 2011. Report of the Joint Meeting of the FAO Panel of Experts on Pesticide Residues in Food and the Environment and the WHO Expert Group on Pesticide Residues. FAO Plant Production and Protection Paper 211.

France, 2016. Evaluation report prepared under Article 12.1 of Regulation (EC) No 396/2005. Authorised uses to be considered for the review of the existing EU MRLs for etofenprox, August 2016. Available online: www.efsa.europa.eu

Germany, 2016. Evaluation report prepared under Article 12.1 of Regulation (EC) No 396/2005. Authorised uses to be considered for the review of the existing EU MRLs for etofenprox, July 2016. Available online: www.efsa.europa.eu

Greece, 2016. Evaluation report prepared under Article 12.1 of Regulation (EC) No 396/2005. Authorised uses to be considered for the review of the existing EU MRLs for etofenprox, August 2016. Available online: www.efsa.europa.eu
Italy, 2007. Draft assessment report on the active substance etofenprox prepared by the rapporteur Member State Italy in the framework of Council Directive 91/414/EEC, March 2007.

Italy, 2008. Addendum to the draft assessment report on the active substance etofenprox prepared by the rapporteur Member State Italy in the framework of Council Directive 91/414/EEC, November 2008.

Italy, 2012. Evaluation report prepared under Article 12.1 of Regulation (EC) No 396/2005. Authorised uses to be considered for the review of the existing MRLs for etofenprox, June 2012. Available online: www.efsa.europa.eu

Italy, 2016a. Evaluation report prepared under Article 12.1 of Regulation (EC) No 396/2005. Authorised uses to be considered for the review of the existing MRLs for etofenprox, August 2016. Available online: www.efsa.europa.eu

Italy, 2016b. Evaluation report prepared under Article 12.1 of Regulation (EC) No 396/2005. Authorised uses to be considered for the review of the existing MRLs for etofenprox, October 2016. Available online: www.efsa.europa.eu

OECD (Organisation for Economic Co-operation and Development), 2011. OECD MRL calculator: spreadsheet for single data set and spreadsheet for multiple data set, 2 March 2011. In: Pesticide Publications/Publications on Pesticide Residues. Available online: http://www.oecd.org

OECD (Organisation for Economic Co-operation and Development), 2013. Guidance document on residues in livestock. In: Series on Pesticides No 73. ENV/JM/MONO(2013)8, 4 September 2013.

Spain, 2016. Evaluation report prepared under Article 12.1 of Regulation (EC) No 396/2005. Authorised uses to be considered for the review of the existing EU MRLs for etofenprox, August, 2016. Available online: www.efsa.europa.eu

Abbreviations

a.i. active ingredient
a.s. active substance
ADI acceptable daily intake
ARfd acute reference dose
BBCH growth stages of mono- and dicotyledonous plants
bw body weight
CAC Codex Alimentarius Commission
CAS Chemical Abstract Service
CCPR Codex Committee on Pesticide Residues
CF conversion factor for enforcement residue definition to risk assessment residue definition
cGAP critical GAP
CXL codex maximum residue limit
DAR draft assessment report
DAT days after treatment
DB dietary burden
DM dry matter
DS powder for dry seed treatment
DT90 period required for 90% dissipation (define method of estimation)
EC emulsifiable concentrate
eMS evaluating Member State
EURLs EU Reference Laboratories (former CRLs)
FAO Food and Agriculture Organization of the United Nations
GAP Good Agricultural Practice
GC Gas chromatography
GC-MS gas chromatography with mass spectrometry
GC-MS/MS gas chromatography with tandem mass spectrometry
GS growth stage
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
JMPR Joint Meeting of the FAO Panel of Experts on Pesticide Residues in Food and the Environment and the WHO Expert Group on Pesticide Residues (Joint Meeting on Pesticide Residues)
| Abbreviation | Description                                      |
|--------------|--------------------------------------------------|
| LC           | liquid chromatography                            |
| LC-MS/MS     | liquid chromatography with tandem mass spectrometry |
| LOQ          | limit of quantification                          |
| ME           | microemulsion                                    |
| Mo           | monitoring                                       |
| MRL          | maximum residue level                            |
| MS           | Member States                                    |
| MS/MS        | tandem mass spectrometry detector                |
| MW           | molecular weight                                 |
| NEU          | northern European Union                          |
| NOAEL        | no observed adverse effect level                  |
| OECD         | Organisation for Economic Co-operation and Development |
| PBI          | plant-back interval                              |
| PF           | processing factor                                |
| PHI          | preharvest interval                              |
| PRIMo        | (EFSA) Pesticide Residues Intake Model           |
| PROFile      | (EFSA) Pesticide Residues Overview File          |
| 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                          |
| SMILES       | simplified molecular-input line-entry system     |
| SP           | water soluble powder                             |
| STMR         | supervised trials median residue                 |
| TAR          | total applied radioactivity                      |
| TRR          | total radioactive residue                         |
| UV           | ultraviolet (detector)                           |
| WHO          | World Health Organization                        |
### Appendix A – Summary of authorised uses considered for the review of MRLs

| Crop | Common name | Region | Outdoor/indoor | Member state or country | Pest controlled | Formulation | Application | PHI or waiting period (days) | Comments (max. 250 characters) |
|------|-------------|--------|----------------|--------------------------|-----------------|-------------|-------------|-----------------------------|-----------------------------|
| **Critical outdoor GAPs for Northern Europe** | | | | | | | | | |
| Wine grapes | Vitis vinifera | NEU | Outdoor | FR | Grape berry moths | EC 287.5 g/L | Foliar treatment – spraying | 69 | 89 | 1 | 115.00 g a.i./ha | 14 |
| Broccoli | Brassica oleracea var. italica | DE | Outdoor | NEU | Eupoecilia ambiguella/ Clysia | EC 287.5 g/L | Foliar treatment – spraying | 13 | 81 | 1 | 57.50 g a.i./ha | 7 |
| Cauliflowers | Brassica oleracea var. botrytis | DE | Outdoor | NEU | Lobesia botrana | EC 287.5 g/L | Foliar treatment – spraying | 13 | 81 | 1 | 57.50 g a.i./ha | 7 |
| Head cabbages | Brassica oleracea var. capitata | DE | Outdoor | NEU | Blossom beetle, rape stem weevil, cabbage stem weevil | EC 287.5 g/L | Foliar treatment – spraying | 1 | | | 57.50 g a.i./ha | 3 |
| Linseeds | Linum usitatissimum | NEU | Outdoor | FR | Blossom beetle, rape stem weevil, cabbage stem weevil | EC 287.5 g/L | Foliar treatment – spraying | 11 | 61 | 2 | 90 | 57.50 g a.i./ha | n.a. |
| Rapeseeds | Brassica napus subsp. napus | CZ, DE | Outdoor | NEU | Flea beetles, stem weevil, Pollen beetles | EC 287.5 g/L | Foliar treatment – spraying | 65 | | 2 | 7 | 57.50 g a.i./ha | n.a. Covers also FR GAP with maximum interval of 90 days |
| Mustard seeds | Brassica juncea; Brassica nigra; Sinapis alba | | Outdoor | NEU | Flea beetles, stem weevil, Pollen beetles | EC 287.5 g/L | Foliar treatment – spraying | 11 | 61 | 2 | 90 | 57.50 g a.i./ha | n.a. |
| Borage seeds | Borago officinalis | NEU | Outdoor | FR | Ceutorhynchus napii, Ceutorhynchus quadridens, Ceutorhynchus obstrictus, Meligethes aeneus | EC 287.5 g/L | Foliar treatment – spraying | 11 | 61 | 2 | 90 | 57.50 g a.i./ha | n.a. |
| Crop | Scientific name | Region | Outdoor/ indoor | Pest controlled | Formulation | Method | Growth stage | Application | Comments |
|------|-----------------|--------|----------------|-----------------|-------------|--------|--------------|-------------|----------|
| Gold of pleasure seeds | Camelina sativa | NEU | Outdoor | FR | Flea beetles, stem weevil, Pollen beetles | EC 287.5 g/L | Foliar treatment – spraying | 11 | 61 | 2 | 90 | 57.50 g a.i./ha | n.a. |
| Hemp seeds | Cannabis sativa subsp. sativa; Cannabis sativa subsp. spontanea | NEU | Outdoor | FR | Flea beetles, stem weevil, Pollen beetles | EC 287.5 g/L | Foliar treatment – spraying | 11 | 61 | 2 | 90 | 57.50 g a.i./ha | n.a. |

### Critical outdoor GAPs for Southern Europe

| Crop | Scientific name | Region | Outdoor/ indoor | Pest controlled | Formulation | Method | Growth stage | Application | Comments |
|------|-----------------|--------|----------------|-----------------|-------------|--------|--------------|-------------|----------|
| Grapefruits | Citrus paradisi | SEU | Outdoor | IT | Leaf hoppers, Ceratitis capitata | ME 158.0 g/L | Foliar treatment – spraying | 85 | 1 | 240 | g a.i./ha | 7 |
| Oranges | Citrus sinensis | SEU | Outdoor | IT | Leaf hoppers, Ceratitis capitata | ME 158.0 g/L | Foliar treatment – spraying | 85 | 1 | 240 | g a.i./ha | 7 |
| Lemons | Citrus limon | SEU | Outdoor | IT | Leaf hoppers, Ceratitis capitata | ME 158.0 g/L | Foliar treatment – spraying | 85 | 1 | 240 | g a.i./ha | 7 |
| Limes | Citrus aurantifolia | SEU | Outdoor | IT | Leaf hoppers, Ceratitis capitata | ME 158.0 g/L | Foliar treatment – spraying | 85 | 1 | 240 | g a.i./ha | 7 |
| Mandarins | Citrus reticulata, syn: Citrus deliciosa | SEU | Outdoor | IT | Leaf hoppers, Ceratitis capitata | ME 158.0 g/L | Foliar treatment – spraying | 85 | 1 | 240 | g a.i./ha | 7 |
| Chestnuts | Castanea crenata; Castanea dentata; Castanea mollisima; Castanea sativa | SEU | Outdoor | IT | Stink bug Curculio nucum (Coleoptera beetle) | ME 158.0 g/L | Foliar treatment – spraying | 85 | 1 | 240 | g a.i./ha | 14 |
| Hazelnuts | Corylus avellana | SEU | Outdoor | IT | Stink bug Curculio nucum (Coleoptera beetle) | ME 158.0 g/L | Foliar treatment – spraying | 85 | 1 | 240 | g a.i./ha | 14 |
| Crop                     | 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) |
|-------------------------|--------------------------|--------|----------------|-------------------------|-------------------------------------------|-------------|--------------------|--------------|-------------|-----------------------------|-------------------------------|
| Pine nut kernels        | Pinus pinea              | SEU    | Outdoor        | ES                      | Processionary caterpillar                 | EC          | Foliar treatment   | 300.0 g/L    | 1           | 50 g a.i./ha n.a.            |                               |
| Apples                  | Malus domestica          | SEU    | Outdoor        | IT                      | Aphids, Leaf hoppers, Metcalfa pruinosa, Codling moth, Oriental fruit moth, Leaf rollers, Psyllae, Leaf miners spp., Ceratitis capitata | ME          | Foliar treatment   | 158.0 g/L    | 3 7         | 240 g a.i./ha 7             |                               |
| Pears                   | Pyrus communis           | SEU    | Outdoor        | IT                      | Aphids, Leaf hoppers, Metcalfa pruinosa, Codling moth, Oriental fruit moth, Leaf rollers, Psyllae, Leaf miners spp., Ceratitis capitata | ME          | Foliar treatment   | 158.0 g/L    | 3 7         | 240 g a.i./ha 7             |                               |
| Apricots                | Armeniaca vulgaris, syn: Prunus armeniaca | SEU    | Outdoor        | IT                      | Peach twig borer, Ceratitis capitata      | ME          | Foliar treatment   | 158.0 g/L    | 1           | 240 g a.i./ha 7             |                               |
| Cherries                | Cerasus avium, syn: Prunus avium | SEU    | Outdoor        | IT                      | Aphids, Rhagoletis cerasi, Stink bug      | ME          | Foliar treatment   | 158.0 g/L    | 1           | 240 g a.i./ha 7             |                               |
| Peaches                 | Persica vulgaris, syn: Prunus persica | SEU    | Outdoor        | IT                      | Aphids, Ceratitis capitata, Oriental fruit moth, Peach twig borer, Leaf hoppers, Metcalfa pruinosa, Ired bug, fruit tree tortrix, Thrips | ME          | Foliar treatment   | 158.0 g/L    | 1 2 7       | 240 g a.i./ha 7             |                               |
| Plums                   | Prunus domestica         | SEU    | Outdoor        | IT                      | Cydia funebrana, Aphids, Anarsia lineatella, leaf hopper, fruit tree tortrix, Thrips         | ME          | Foliar treatment   | 158.0 g/L    | 1           | 240 g a.i./ha 7             |                               |
| Crop | Common name       | Scientific name | Region | Outdoor/Indoor | Member state or country | Pest controlled                                                                 | Formulation | Content | Method      | Application | PHI or waiting period (days) | Rate | Comments (max. 250 characters) |
|------|------------------|-----------------|--------|----------------|-------------------------|----------------------------------------------------------------------------------|--------------|---------|-------------|-------------|-----------------------------|------|--------------------------------|
| Table grapes | Vitis vinifera | SEU Outdoor FR | Leaf hoppers, Metcalfa pruinosa, Grape berry moth, Grape fruit moth, Ceratitis c., Thrips | EC | 287.5 g/L | Foliar treatment – spraying | 69 | 89 | 1 | 115 g a.i./ha | 14 | A more critical GAP is authorised in IT however not supported by data (2 × 320 g a.i./ha) |
| Wine grapes | Vitis vinifera | SEU Outdoor FR | Leaf hoppers, Metcalfa pruinosa, Grape berry moth, Grape fruit moth, Ceratitis c., Thrips | EC | 287.5 g/L | Foliar treatment – spraying | 69 | 89 | 1 | 115 g a.i./ha | 14 | A more critical GAP is authorised in IT however not supported by data (2 × 320 g a.i./ha) |
| Strawberries | Fragaria × ananassa | SEU Outdoor IT | Aphids, Leaf hoppers Thrips | ME | 158.0 g/L | Foliar treatment – spraying | 85 | 1 | 160 320 | g a.i./ha | 7 |
| Blackberries | Rubus sect. Rubus | SEU Outdoor IT | Aphids, Leaf hoppers, Noctuide, Thrips | EC | 280.0 g/L | Foliar treatment – spraying | 85 | 1 | 140 170 | g a.i./ha | 7 |
| Raspberries | Rubus idaeus | SEU Outdoor IT | Aphids, Leaf hoppers, Noctuide, Thrips | EC | 280.0 g/L | Foliar treatment – spraying | 85 | 1 | 140 170 | g a.i./ha | 7 |
| Blueberries | Vaccinium angustifolium; Vaccinium corymbosum; Vaccinium forearm; Vaccinium virginatum | SEU Outdoor IT | Aphids, Leaf hoppers, Noctuide, Thrips | EC | 280.0 g/L | Foliar treatment – spraying | 85 | 1 | 140 170 | g a.i./ha | 7 |
| Currants | Ribes nigrum; Ribes rubrum | SEU Outdoor IT | Aphids, Leaf hoppers, Noctuide, Thrips | EC | 280.0 g/L | Foliar treatment – spraying | 85 | 1 | 140 170 | g a.i./ha | 7 |
| Gooseberries | Ribes uva-crispa | SEU Outdoor IT | Aphids, Leaf hoppers, Noctuide, Thrips | EC | 280.0 g/L | Foliar treatment – spraying | 85 | 1 | 140 170 | g a.i./ha | 7 |
| 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) |
|------|-------------|-----------------|--------|----------------|-------------------------|---------------|-------------|-------------|----------------------------|--------------------------------|
| Figs | Ficus carica | SEU | Outdoor | IT | Metcalfa pruinosa | ME | 158.0 g/L | Foliar treatment – spraying | 85 | 1 | 160 g a.i./ha | 7 |
| Table olives | Olea europaea | SEU | Outdoor | ES | Prays olea (antophagous generations) | EC | 300.0 g/L | Foliar treatment – spraying | 30 | 65 | 2 | 10 | 30 | 40 g a.i./ha | n.a. |
| Kaki | Diospyros kaki | SEU | Outdoor | IT | Metcalfa pruinosa | ME | 158.0 g/L | Foliar treatment – spraying | 85 | 1 | 240 g a.i./ha | 7 |
| Kiwi fruits | Actinidia delicosa, Actinidia chinensis | SEU | Outdoor | IT | Metcalfa pruinosa, Ceratitis capitata | ME | 158.0 g/L | Foliar treatment – spraying | 85 | 1 | 160 g a.i./ha | 7 |
| Granate apples | Punica granatum | SEU | Outdoor | IT | Metcalfa pruinosa | ME | 158.0 g/L | Foliar treatment – spraying | 85 | 1 | 160 g a.i./ha | 7 |
| Potatoes | Solanum tuberosum subsp. tuberosum | SEU | Outdoor | IT | Colorado potato beetle | ME | 158.0 g/L | Foliar treatment – spraying | 85 | 1 | 100 | 160 | g a.i./ha | 7 |
| Garlic | Allium sativum | SEU | Outdoor | IT | Aphids, Noctuidae, other Lepidoptera Thrips | ME | 158.0 g/L | Foliar treatment – spraying | 85 | 1 | 160 | 320 | g a.i./ha | 7 |
| Onions | Allium cepa Common Onion Group | SEU | Outdoor | IT | Aphids, Noctuidae, other Lepidoptera Thrips | ME | 158.0 g/L | Foliar treatment – spraying | 85 | 1 | 160 | 320 | g a.i./ha | 14 |
| Tomatoes | Lycopersicon esculentum | SEU | Outdoor | IT | Aphids, White flies | ME | 158.0 g/L | Foliar treatment – spraying | 85 | 2 | 14 | 160 g a.i./ha | 3 | A more critical GAP was notified by ES with 3 applications and not supported by trials |
| Sweet peppers | Capsicum annuum | SEU | Outdoor | IT | Aphids, White flies, Corn moth Thrips | ME | 158.0 g/L | Foliar treatment – spraying | 85 | 1 | 160 | 320 | g a.i./ha | 7 |
| Common name | Scientific name | Region | Outdoor/indoor | Member state or country | Pest controlled | Formulation | Application | PHI or waiting period (days) | Comments |
|-------------|-----------------|--------|----------------|--------------------------|-----------------|-------------|-------------|-----------------------------|----------|
| Aubergines  | Solanum melongena | SEU    | Outdoor IT, ES | Aphids, Moths, White flies, Noctuidae, other Lepidoptera, Thrips | ME 158.0 g/L Foliar treatment – spraying | 85 3 10 160 320 g a.i./ha | 3 |
| Melons      | Cucumis melo     | SEU    | Outdoor IT     | Aphids, White flies, Noctuidae, Lepidoptera, Aphis gossypii, Thrips | EC 280.0 g/L Foliar treatment – spraying | 12 89 2 10 150 210 g a.i./ha | 3 |
| Pumpkins    | Cucurbita maxima | SEU    | Outdoor IT     | Aphids, White flies, Noctuidae, Lepidoptera | EC 280.0 g/L Foliar treatment – spraying | 12 89 2 10 150 210 g a.i./ha | 3 |
| Watermelons | Citrullus vulgaris, syn: Citrullus lanatus | SEU    | Outdoor IT     | Aphids, White flies, Noctuidae, Lepidoptera | EC 280.0 g/L Foliar treatment – spraying | 12 89 2 10 150 210 g a.i./ha | 3 |
| Brussels sprouts | Brassica oleracea var. gemmifera | SEU    | Outdoor IT     | Aphids, Noctuidae, other Lepidoptera | EC 280.0 g/L Foliar treatment – spraying | 85 3 7 140 g a.i./ha | 7 |
| Head cabbages | Brassica oleracea - capitata | SEU    | Outdoor EL     | Pieris Brassicae | EC 287.5 g/L Foliar treatment – spraying | 2 7 14 140 g a.i./ha | 7 |
| Lamb’s lettuces | Valerianella locusta | SEU    | Outdoor IT     | Noctuidae, Mirid bug | ME 158.0 g/L Foliar treatment – spraying | 85 1 160 g a.i./ha | 7 |
| Lettuces    | Lactuca sativa   | SEU    | Outdoor IT     | Noctuidae, Mirid bug | ME 158.0 g/L Foliar treatment – spraying | 85 1 160 g a.i./ha | 7 |
| Escaroles   | Ochotorn endivia – latifolia | SEU    | Outdoor IT     | Noctuidae, Mirid bug | ME 158.0 g/L Foliar treatment – spraying | 85 1 160 g a.i./ha | 7 |
| Cresses     | Lepidum sativum – sativum | SEU    | Outdoor IT     | Noctuidae, Mirid bug | ME 158.0 g/L Foliar treatment – spraying | 85 1 160 g a.i./ha | 7 |
| Roman rocket | Eruca sativa     | SEU    | Outdoor IT     | Noctuidae, Mirid bug | ME 158.0 g/L Foliar treatment – spraying | 85 1 160 g a.i./ha | 7 |
| Spinaches   | Spinacia oleracea | SEU    | Outdoor IT     | Noctuidae, Mirid bug | ME 158.0 g/L Foliar treatment – spraying | 85 1 160 g a.i./ha | 7 |
| Common name | Scientific name | Region | Outdoor/ indoor | Member state or country | Pest controlled | Formulation | Application | Comments |
|-------------|----------------|--------|-----------------|-------------------------|-----------------|-------------|-------------|----------|
| Chards      | Beta vulgaris – flavescens | SEU | Outdoor | IT | Noctuidae, Mirid bug | ME | 158.0 g/L | Foliar treatment – spraying | 85 1 160 g a.i./ha 7 |
| Chervil     | Anthriscus cerefolium | SEU | Outdoor | IT | Noctuidae, Mirid bug | ME | 158.0 g/L | Foliar treatment – spraying | 85 1 160 g a.i./ha 7 |
| Chives      | Allium schoenoprasum | SEU | Outdoor | IT | Noctuidae, Mirid bug | ME | 158.0 g/L | Foliar treatment – spraying | 85 1 160 g a.i./ha 7 |
| Celery leaves | Apium graveolens – secalinum | SEU | Outdoor | IT | Noctuidae, Mirid bug | ME | 158.0 g/L | Foliar treatment – spraying | 85 1 160 g a.i./ha 7 |
| Parsley     | Petroselinum crispum | SEU | Outdoor | IT | Noctuidae, Mirid bug | ME | 158.0 g/L | Foliar treatment – spraying | 85 1 160 g a.i./ha 7 |
| Sage        | Salvia officinalis | SEU | Outdoor | IT | Noctuidae, Mirid bug | ME | 158.0 g/L | Foliar treatment – spraying | 85 1 160 g a.i./ha 7 |
| Rosemary    | Rosmarinus officinalis | SEU | Outdoor | IT | Noctuidae, Mirid bug | ME | 158.0 g/L | Foliar treatment – spraying | 85 1 160 g a.i./ha 7 |
| Thyme       | Thymus vulgaris | SEU | Outdoor | IT | Noctuidae, Mirid bug | ME | 158.0 g/L | Foliar treatment – spraying | 85 1 160 g a.i./ha 7 |
| Basil       | Ocimum basilicum | SEU | Outdoor | IT | Noctuidae, Mirid bug | ME | 158.0 g/L | Foliar treatment – spraying | 85 1 160 g a.i./ha 7 |
| Laurel      | Laurus nobilis | SEU | Outdoor | IT | Noctuidae, Mirid bug | ME | 158.0 g/L | Foliar treatment – spraying | 85 1 160 g a.i./ha 7 |
| Tarragon    | Artemisia dracunculus | SEU | Outdoor | IT | Noctuidae, Mirid bug | ME | 158.0 g/L | Foliar treatment – spraying | 85 1 160 g a.i./ha 7 |
| Beans (with pods) | Phaseolus vulgaris | SEU | Outdoor | IT | Aphids, White flies, Noctuidae, other Lepidoptera | EC | 280.0 g/L | Foliar treatment – spraying | 85 3 7 140 g a.i./ha 7 |
| Beans (without pods) | Phaseolus vulgaris | SEU | Outdoor | IT | Aphids, White flies, Noctuidae, other Lepidoptera | ME | 158.0 g/L | Foliar treatment – spraying | 85 3 7 160 g a.i./ha 7 |
| Common name | Scientific name | Region | Outdoor/ indoor | Pest controlled | Formulation Type | Content Conc. | Unit | Method Application | Growth stage From BBCH | Until BBCH | Number | Interval (days) Min. | Max. | Rate Min. | Max. | PHI or waiting period (days) | Comments (max. 250 characters) |
|-------------|-----------------|--------|----------------|----------------|-----------------|---------------|-------|-----------------|------------------------|------------|--------|-----------------|------|-----------|------|------------------|-----------------------------|
| Lentils (fresh) | Lens culinaris, syn: Lens esculenta | SEU | Outdoor | IT | Aphids, White flies, Noctuidae, other Lepidoptera | ME | 158.0 | g/L | Foliar treatment – spraying | 85 | 3 | 7 | 160 | g a.i./ha | 7 | |
| Lupins (dry) | Lupinus albus subsp. albus; Lupinus angustifolius; Lupinus luteus; Lupinus mutabilis | SEU | Outdoor | IT | Aphids, White flies, Noctuidae, other Lepidoptera | ME | 158.0 | g/L | Foliar treatment – spraying | 85 | 3 | 7 | 160 | g a.i./ha | 7 | |
| Sesame seeds | Sesamum indicum | SEU | Outdoor | FR | Flea beetles, stem weevil, Pollen beetles | EC | 287.5 | g/L | Foliar treatment – spraying | 11 | 61 | 2 | 57.5 | g a.i./ha | n.a. | |
| Rapseseeds | Brassica napus subsp. napus | SEU | Outdoor | FR | Flea beetles, stem weevil, Pollen beetles | EC | 287.5 | g/L | Foliar treatment – spraying | 11 | 61 | 2 | 90 | 57.5 | g a.i./ha | n.a. | |
| Borage seeds | Borago officinalis | SEU | Outdoor | FR | Flea beetles, stem weevil, Pollen beetles | EC | 287.5 | g/L | Foliar treatment – spraying | 11 | 61 | 2 | 90 | 57.5 | g a.i./ha | n.a. | |
| Gold of pleasure seeds | Camelina sativa | SEU | Outdoor | FR | Flea beetles, stem weevil, Pollen beetles | EC | 287.5 | g/L | Foliar treatment – spraying | 11 | 61 | 2 | 90 | 60.0 | g a.i./ha | 70 | |
| Hemp seeds | Cannabis sativa subsp. Sativa, Cannabis sativa subsp. spontanea | SEU | Outdoor | FR | Flea beetles, stem weevil, Pollen beetles | EC | 287.5 | g/L | Foliar treatment – spraying | 11 | 61 | 2 | 90 | 57.5 | g a.i./ha | n.a. | |
| Olives for oil production | Olea europaea var. europaea | SEU | Outdoor | ES | Prays olea (antophagous generations) | EC | 300.0 | g/L | Foliar treatment – spraying | 30 | 65 | 2 | 10 | 60 | 30 | 40 | g a.i./ha | n.a. | |
| Maize | Zea mays | SEU | Outdoor | IT | Noctuidae, Pyrausta nubilalis | ME | 158.0 | g/L | Foliar treatment – spraying | 85 | 1 | | 160 | g a.i./ha | 28 | |
| Rice | Oryza sativa | SEU | Outdoor | ES | Eusarcoris sp. Chironomids, Diptera larvae | EC | 300.0 | g/L | Foliar treatment – spraying | 7 | 58 | 2 | 25 | 60 | 150 | 230 | g a.i./ha | 49 | |
| Crop | Scientific name | Region | Outdoor/indoor | Pest controlled | Formulation | Application |
|------|----------------|--------|----------------|-----------------|-------------|-------------|
| Sugar beets | Beta vulgaris subsp. vulgaris var. altissima | SEU | Outdoor | IT | Flea-beetles, Mamestra spp. | ME | 158.0 | g/L | Foliar treatment – spraying | 85 | 1 | 130 | 160 | g a.i./ha | 14 |
| Vetch (for forage) | Vicia spp. | SEU | Outdoor | IT | Aphids, White flies, Noctuidae, other Lepidoptera | EC | 280.0 | g/L | Foliar treatment – spraying | 85 | 3 | 7 | 140 | g a.i./ha | 7 |

GAP: Good Agricultural Practice; BBCH: growth stages of mono- and dicotyledonous plants; PHI: preharvest interval; NEU: northern European Union; SEU: southern European Union; a.i.: active ingredient; EC: emulsifiable concentrate; ME: microemulsion.
## 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

| Primary crops (available studies) | Crop groups          | Crop(s)          | Application(s)                  | Sampling (DAT) |
|-----------------------------------|----------------------|------------------|---------------------------------|----------------|
| Fruit crops                       | Vine plants          | Foliar, 1 × 300 g a.s./ha | 14, 28                          |
|                                   |                      | Foliar, 1 × 3,000 g a.s./ha | 14, 28                          |
| Leafy crops                       | Lettuce              | Foliar, 1 × 180 g a.s./ha | 8                               |
|                                   |                      | Foliar, 1 × 1,800 g a.s./ha | 8                               |
| Pulses/oilseeds                   | Winter rape          | Foliar, 1 × 120 g a.s./ha | 56                              |
|                                   |                      | Foliar, 1 × 1,200 g a.s./ha | 56                              |

Reference: Italy (2007)

| Rotational crops (available studies) | Crop groups          | Crop(s)          | Application(s)                  | PBI (DAT) |
|-------------------------------------|----------------------|------------------|---------------------------------|-----------|
| Root/tuber crops                    | Carrots              | Bare soil, 311.8 g a.s./ha | 28                              |
| Leafy crops                         | Lettuce              | Bare soil, 311.8 g a.s./ha | 28                              |
| Cereal (small grain)                | Barley               | Bare soil, 311.8 g a.s./ha | 28                              |

Reference: Italy (2007)

| 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           |

Available hydrolysis studies cover the stability of both etofenprox and alpha-CO

Reference: Italy (2007)

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) Etofenprox

Plant residue definition for risk assessment (RD-RA) Sum of etofenprox plus alpha-CO, expressed as etofenprox

Conversion factor (monitoring to risk assessment) See Appendix B.1.2.1

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

- High water, high acid and high oil commodities:
  - GC–MS, LOQ: 0.01 mg/kg for etofenprox and for alpha-CO in head cabbage, grapes, peach, apple and oil seed rape, respectively; ILV available (Italy, 2007)
  - Confirmatory method GC–MS, LOQ: 0.01 mg/kg for etofenprox and for alpha-CO, respectively
### B.1.1.2. Stability of residues in plants

| Plant products (available studies) | Category       | Commodity       | T (°C) | Stability (Months) |
|-----------------------------------|----------------|-----------------|--------|--------------------|
| High water content                | Head cabbage   | −20             | 24     |
|                                   | Peach, apple   | −20             | 24     |
| High oil content                  | Oil seed rape  | −20             | 24     |
| Dry/high starch                   |                |                 |        |
| High acid content                 | Grape          | −20             | 24     |

Reference: Italy (2007)

Stability was investigated for etofenprox and alpha-CO in the indicated commodities. A storage stability study in dry matrices is not available and is required.
### B.1.2. Magnitude of residues in plants

#### B.1.2.1. Summary of residues data from the supervised residue trials

| 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<sub>Mo</sub> (mg/kg)<sup>(b)</sup> | STMR<sub>Mo</sub> (mg/kg)<sup>(c)</sup> | CF<sup>(d)</sup> |
|-------------------------------|------------------|------------------------------------------------------------------------------------------------|---------------------------------------------|-----------------------|----------------|-----------------|-----------|
| Citrus fruits                 | SEU              | Mo: 0.249; 0.431; 0.276; 0.254; 0.492; 0.521; RA: 0.285; 0.524; 0.326; 0.277; 0.531; 0.543 | Trials on oranges performed with 2 applications instead of 1 (Italy, 2016b). Grapefruits, lemons, limes, mandarins are extrapolated from oranges. Tentative extrapolation to citrus fruits is proposed. | 1.5<sup>(e),(f)</sup> (tentative) | 0.52         | 0.35            | 1.1       |
| Hazelnuts/cobnuts, chestnuts and pine nut kernels | SEU              | Mo: < 0.01; < 0.01; RA: < 0.02; < 0.02 | Trials on hazelnuts compliant with GAP (Italy, 2012). Extrapolation to chestnuts and pine nut kernel (less critical GAP and residues < LOQ). | 0.01* | 0.01 | 0.01 | 1.0<sup>(g)</sup> |
| Apples, pears                 | SEU              | Mo: 0.13; 0.27; 0.10; 0.34; 0.25; 0.20; 0.18; 0.22; 0.14; 0.37; RA: 0.15; 0.30; 0.11; 0.36; 0.29; 0.23; 0.21; 0.26; 0.16; 0.39 | Trials on apples performed with dose rates within 25% deviation (Italy, 2016b). Extrapolation to pears possible | 0.7 | 0.37 | 0.21 | 1.2 |
| Cherries (sweet)              | SEU              | Mo: 0.22; 0.20; 0.31; 0.33 | Trials on cherries compliant with GAP (Italy, 2016b). | 0.8<sup>(tentative)<sup>(f)</sup> | 0.33         | 0.27            | 1.2<sup>(h)</sup> |
| Peaches                       | SEU              | Mo: 0.01; 0.08; 0.08; 0.14; 0.18; 0.18; 0.20; 0.23; 0.23; 0.37; RA: 0.03; 0.08; 0.08; 0.16; 0.20; 0.20; 0.22; 0.26; 0.28; 0.41 | Trials on peaches according to GAP (Italy, 2007) | 0.6 | 0.37 | 0.18 | 1.1 |
| Apricots                      | SEU              | Mo: 0.01; 0.08; 0.08; 0.14; 0.18; 0.18; 0.20; 0.23; 0.23; 0.37; RA: 0.03; 0.08; 0.08; 0.16; 0.20; 0.20; 0.22; 0.26; 0.28; 0.41 | Trials on peaches according to GAP (Italy, 2007). Tentatively extrapolated to apricots | 0.6<sup>(f)</sup> (tentative) | 0.37         | 0.18            | 1.1       |
| Plums                         | SEU              | Mo: 0.03; 0.07; RA: 0.04; 0.08 | Trials on plums compliant with GAP (Italy, 2012). Number of trials insufficient | – | – | – | – |
| Wine and table grapes         | NEU              | Mo: 0.20; 0.21; 0.26; 0.28; 0.32; 0.32; 0.35; 0.36; RA: 0.28; 0.26; 0.29; 0.33; 0.35; 0.36; 0.42; 0.38 | Trials on grapes according to a more critical GAP with 2 applications instead of 1 (Italy, 2007). Not authorised for use on table grapes in NEU | 0.9<sup>(e)</sup> (tentative) | 0.36         | 0.30            | 1.2       |
| 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<sub>Mo</sub> (mg/kg)<sup>(b)</sup> | STMR<sub>Mo</sub> (mg/kg)<sup>(c)</sup> | CF<sup>(d)</sup> |
|-------------------------------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|----------------------|-----------------------------|-----------------------------|--------|
| Strawberries                        | SEU                          | Mo: 0.29; 0.35; 0.38; 0.39; 0.53; 0.96; 1.37 RA: 0.37; 0.38; 0.44; 0.53; 0.57; 0.59; 1.04; 1.68                             | Trials on grapes performed according to a more critical GAP (4 × 150 g a.i./ha instead of 1 × 150 g a.i./ha). Information on the sample storage conditions was not available and is still desirable (Italy, 2007) | 3<sup>(e)</sup> (tentative) | 1.37                        | 0.39                        | 1.2    |
| Blackberries                        | SEU                          | No GAP-compliant trials available                                                                                               |                                                                     | –                    | –                           | –                           | –      |
| Raspberries (red and yellow)        | SEU                          | No trials available                                                                                                             |                                                                     | –                    | –                           | –                           | –      |
| Blueberries                         | SEU                          | No trials available                                                                                                             |                                                                     | –                    | –                           | –                           | –      |
| Strawberries                        | SEU                          | No GAP-compliant trials available                                                                                               |                                                                     | –                    | –                           | –                           | –      |
| Currants (black, red and white)     | SEU                          | No trials available                                                                                                             |                                                                     | –                    | –                           | –                           | –      |
| Gooseberries (green, red and yellow)| SEU                          | No trials available                                                                                                             |                                                                     | –                    | –                           | –                           | –      |
| Figs                                | SEU                          | No trials available                                                                                                             |                                                                     | –                    | –                           | –                           | –      |
| Kaki/Japanese persimmons            | SEU                          | Mo: 0.17; 0.05; 0.31; 0.135 RA: – → –; 0.145                                                                                       | Trials on kaki compliant with GAP (3) (Italy, 2016b). Last trial performed with 2x application rate (Spain, 2016) | 0.8<sup>(e),(f)</sup> (tentative) | 0.31                        | 0.15                        | 1.2<sup>(i)</sup> |
| Kiwi fruits (green, red, yellow)    | SEU                          | Mo: 0.14; 0.15; 0.21; 0.36; 0.16; 0.58 RA: 0.15; 0.16; 0.22; 0.37; 0.17; 0.61                                            | Trials on kiwi with an exaggerated application rate (210–240 g a.i./ha); last 2 trials with 2 applications instead of 1. Information on the sample storage conditions was not available (Italy, 2016b) | 1<sup>(e),(f)</sup> (tentative) | 0.58                        | 0.19                        | 1.1    |
| Granate apples/ pomegranates        | SEU                          | –                                                                                                                               | No trials available                                                                                             | –                    | –                           | –                           | –      |
| Potatoes                            | SEU                          | Mo: < 0.01; < 0.01 RA: < 0.02; < 0.02                                                                                           | Trials on potatoes compliant with GAP (Italy, 2012)                                                             | 0.01*                | 0.01                        | 0.01                        | 1.0<sup>(g)</sup> |
| Onions, garlic                      | SEU                          | Mo: < 0.01; < 0.01 RA: < 0.02; < 0.02                                                                                           | Trials on onions compliant with GAP (Italy, 2012). Extrapolation to garlic                                       | 0.01*                | 0.01                        | 0.01                        | 1.0<sup>(g)</sup> |
| Tomatoes                            | SEU                          | Mo: 0.13; 0.14; 0.20; 0.26; 0.4; 0.25; 0.14; 0.14; 0.24 RA: –                                                                        | Combined data set on tomatoes compliant with GAP (2); overdosed 2 × 400 g a.i./ha (4); with 1 × 300 g a.i./ha (3) (Italy, 2016b) | 0.7<sup>(e)</sup> (tentative) | 0.40                        | 0.20                        | 1.2<sup>(h)</sup> |
| 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) | HRMo (mg/kg)(b) | STMRMo(d) | CF(d) |
|----------------------------------------|------------------|-----------------------------------------------------------------------------------------------|---------------------------------------------|-----------------------|----------------|------------|-------|
| Aubergines/eggplants                   | SEU              | --                                                                                           | No GAP compliant trials available           | --                    | --             | --         | --    |
| Sweet peppers/bell peppers             | SEU              | Mo: 0.71                                                                                      | Trial on peppers compliant with GAP (Italy, 2016b). Number of trials insufficient | --                    | --             | --         | --    |
| Melons                                 | SEU              | --                                                                                           | No GAP compliant trials available           | --                    | --             | --         | --    |
| Pumpkins                               | SEU              | --                                                                                           | No trials available                         | --                    | --             | --         | --    |
| Watermelons                            | SEU              | --                                                                                           | No trials available                         | --                    | --             | --         | --    |
| Broccoli, cauliflowers                 | NEU              | Mo: < 0.005; < 0.01; 0.05; 0.028; 0.10; 0.11; 0.12; 0.20                                       | Combined data set on cauliflower (3) and broccoli (5) with 2 applications instead of 1 (Germany, 2016). Tentative extrapolation to flowering Brassica | 0.4(e) (tentative)    | 0.20           | 0.08       | 1.2(i) |
| Brussels sprouts                       | SEU              | --                                                                                           | No trials available                         | --                    | --             | --         | --    |
| Head cabbages                          | NEU              | Mo: < 0.005; 0.01; 0.02; 0.02; 0.14; 0.19; 0.37                                               | Trials on head cabbage with 2 applications instead of 1 (Germany, 2016) | 0.7(e),(f) (tentative) | 0.37           | 0.08       | 1.2(i) |
|                                        | SEU              | Mo: < 0.01; < 0.01; < 0.01; < 0.01; 0.01; 0.01; < 0.04; 0.12                                 | Trials on head cabbage compliant with GAP (Italy, 2007; Greece, 2016). Information on the sample storage conditions was provided (6–12 months at –20°C) (Greece, 2016) | 0.2                   | 0.12           | 0.01       | 1.2    |
| Lamb's lettuce, lettuces, escaroles, cresses, romarockets, spinachases, chards, fresh herbs | SEU | No info on varieties: Mo: 1.06; 1.51 RA: –                                                   | Trials on lettuce compliant with GAP (Italy, 2016a). Tentatively extrapolated to other salad plants, spinachases, chards and fresh herbs | 3(e),(f) (tentative) | 1.51           | 0.75       | 1.2(i) |
| Beans (with pods)                      | SEU              | Mo: 0.028; 0.057; 0.15; 0.12                                                                 | GAP–compliant trials (only on whole pod) (Italy, 2016b) | 0.4(f) (tentative)    | 0.15           | 0.09       | 1.2(i) |
| Beans (without pods)                   | SEU              | --                                                                                           | No GAP-compliant trials available           | --                    | --             | --         | --    |
| Lentils (fresh)                        | SEU              | --                                                                                           | No 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) | HRMo (mg/kg)(b) | STMRMo (mg/kg)(c) | CF(d) |
|------|------------------|------------------------------------------------------------------------------------------------|---------------------------------------------|----------------------|----------------|------------------|------|
| Lupins/lupini beans (dry) | SEU | – | No trials available | – | – | – | – |
| Rapeseeds/ canola seeds | NEU | Mo: < 0.01; < 0.01; < 0.01; < 0.01; < 0.01; 0.02; 0.03 RA: – | GAP-compliant trials on oilseed rape analysed for etofenprox only (7) (Czech Republic, 2016; Germany, 2016). A tentative MRL can be derived | 0.04 | 0.03 | 0.01 | 1.1(j) |
| | SEU | Mo: < 0.01; < 0.01 RA: < 0.02; < 0.02 | Trials on rapeseeds performed with 1 application instead of 2. This is acceptable since first application done at an early growth stage is not expected to have impact on final residue (France, 2016) | 0.01* | 0.01 | 0.01 | 1.0(g) |
| Borage seeds, gold of pleasure seeds, hemp seeds | NEU | Mo: < 0.01; < 0.01; < 0.01; < 0.01; < 0.01; < 0.01; < 0.01; < 0.01 RA: < 0.02; < 0.02; < 0.02; < 0.02; < 0.02; < 0.02; < 0.02; < 0.02 | Trials on rapeseeds performed with 1 instead of 2 applications (Italy, 2007; France, 2016). This is acceptable since first application done at an early growth stage is not expected to have impact on final residue (France, 2016). Extrapolation to other oilseeds possible | 0.01* | 0.01 | 0.01 | 1.0(g) |
| | SEU | Mo: < 0.01; < 0.01 RA: < 0.02; < 0.02 | Trials on rapeseeds performed with 1 application instead of 2. This is acceptable since first application done at an early growth stage is not expected to have impact on final residue (France, 2016). Extrapolation to other oilseeds possible | 0.01* | 0.01 | 0.01 | 1.0(g) |
| Olives for oil production, table olives | SEU | Mo: < 0.01; < 0.01 RA: < 0.02; < 0.02 | Trials on olive compliant with GAP (Spain, 2016). Extrapolation to table olives possible | 0.01* | 0.01 | 0.01 | 1.0(g) |
| Maize/corn grains | SEU | – | No GAP-compliant trials available | – | – | – | – |
| Rice grains | SEU | – | No GAP-compliant trials available | – | – | – | – |
| Sugar beet roots | SEU | – | No trials available | – | – | – | – |
| Vetch forage | SEU | – | No GAP-compliant trials available | – | – | – | – |
| Maize/corn stover | SEU | – | No 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) | \(\text{HR}_{\text{Mo}}\) (mg/kg)(b) | \(\text{STMR}_{\text{Mo}}\) (mg/kg)(c) | CF\(\text{d})              |
|----------------------|-------------------|---------------------------------------------------------------------------------------------|------------------------------------------------|-----------------------|---------------------------------|---------------------------------|--------------------------|
| Rice straw           | SEU               | –                                                                                           | No trials available                             | –                     | –                               | –                               | –                        |
| Sugar beet tops      | SEU               | –                                                                                           | No trials available                             | –                     | –                               | –                               | –                        |

GAP: Good Agricultural Practice; OECD: Organisation for Economic Co-operation and Development; MRL: maximum residue level; Mo: monitoring; RA: risk assessment.

*: 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 according to the residue definition for monitoring.

(c): Supervised trials median residue according to the residue definition for monitoring.

(d): Conversion factor for risk assessment; median of the individual conversion factors at the supported PHI for each residues trial.

(e): Tentative MRL derived from trials according to a more critical GAP.

(f): Tentative MRL derived from a reduced number of trials.

(g): Since both parent and metabolite alpha-CO were below the LOQ, a conversion factor of 1 is proposed for risk assessment.

(h): In absence of residue trials analysing simultaneously according to the residue definitions for enforcement and risk assessment, the highest conversion factor of 1.2 derived from other fruit crops is tentatively proposed for risk assessment.

(i): In absence of residue trials analysing simultaneously according to the residue definitions for enforcement and risk assessment, the highest conversion factor of 1.2 derived from other leafy crops is tentatively proposed for risk assessment.

(j): In absence of residue trials analysing simultaneously according to the residue definitions for enforcement and risk assessment, the conversion factor of 1.1 derived from the metabolism study on rapeseeds is tentatively proposed for risk assessment.
B.1.2.2. Residues in succeeding crops

| Study type                                      | Conclusion                                                                 |
|------------------------------------------------|---------------------------------------------------------------------------|
| Confined rotational crop study (quantitative aspect) | Based on the available information it can be concluded that no significant residues of etofenprox and alpha-CO are expected in rotational crops |
| Field rotational crop study                    | Not available and not required                                             |

B.1.2.3. Processing factors

| Processed commodity                  | Number of studies\(^{(a)}\) | Processing factor (PF) | C\(_{Fp}\)'\(^{(b)}\) |
|-------------------------------------|-----------------------------|------------------------|----------------------|
|                                    |                             | Individual values       | Median PF            |
|                                    |                             |                        |                      |
| **Robust processing factors (sufficiently supported by data)** |
| Peach, puree                        | 4                           | 0.33; 0.68; 1.57; 9    | 1.13                 | 1.2                  |
| Peach, juice                        | 3                           | 0.04; 0.04; 0.33       | 0.04\(^{(c)}\)       | 1.7                  |
| Peach, jam                          | 4                           | 0.04; 0.4; 0.1; 4      | 0.07\(^{(c)}\)       | 1.3                  |
| Apples, juice                       | 3                           | 0.05; 0.06; 0.08       | 0.06\(^{(c)}\)       | 1                    |
| Wine grapes, juice                  | 5                           | 0.05; 0.07; 0.07; 0.08; 0.08 | 0.07\(^{(c)}\)       | 1                    |
| Wine grapes, red wine (unheated)    | 3                           | 0.05; 0.07; 0.08       | 0.07\(^{(c)}\)       | 1                    |
| **Indicative processing factors (limited dataset and/or residue analysed for parent only)** |
| Peach, canned                       | 1                           | 0.1                    | 0.1\(^{(c)}\)        | 1                    |
| Peach, wet pomace                   | 1                           | 3.3                    | 3.3                  | 1.3                  |
| Peach, dry pomace                   | 1                           | 20                     | 20                   | 1.1                  |
| Tomato, juice                       | 3                           | 0.14; 0.21; 0.21       | 0.21\(^{(c)}\)       | 1.2\(^{(d)}\)        |
| Tomato, puree                       | 3                           | 0.21; 0.25; 0.57       | 0.25\(^{(c)}\)       | 1.2\(^{(d)}\)        |
| Tomato, preserve                    | 3                           | 0.07; 0.21; 0.36       | 0.21\(^{(c)}\)       | 1.2\(^{(d)}\)        |
| Apples, dry pomace                  | 1                           | 12.1                   | 12.1                 | 1.1                  |
| Apples, wet pomace                  | 1                           | 3.21                   | 3.21                 | 1.1                  |
| Table grapes, dried (raisins)       | 2                           | 1.6; 2.5               | 2                    | 1.1                  |

\(^{(a)}\): Studies with residues in the RAC at or close to the LOQ were disregarded (unless concentration may occur).
\(^{(b)}\): Conversion factor for risk assessment in the processed commodity; median of the individual conversion factors for each residues trial.
\(^{(c)}\): Residues were < LOQ in this processed item; therefore, the calculated processing factor (considering the LOQ of 0.01 mg/kg in processed items) may be overestimated.
\(^{(d)}\): In the absence of residue trials analysing simultaneously according to the residue definitions for enforcement and risk assessment, the highest conversion factor of 1.2 derived from other raw fruit crops is tentatively proposed for risk assessment.

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)         | 0.039 | 0.057 | 1.01 | 1.48 | Cattle (dairy)          | Grapefruits, dried pulp | Yes                 |
| Cattle (dairy only)        | 0.039 | 0.057 | 1.01 | 1.48 | Cattle (dairy)          | Grapefruits, dried pulp | Yes                 |
| Sheep (all diets)          | 0.011 | 0.021 | 0.26 | 0.50 | Sheep (ram/ewe)         | Cabbage, heads, leaves  | Yes                 |
| Sheep (ewe only)           | 0.009 | 0.017 | 0.26 | 0.50 | Sheep (ram/ewe)         | Cabbage, heads, leaves  | Yes                 |
Relevant groups

| Relevant groups | Dietary burden expressed in | Most critical diet(a) | Most critical commodity(a) | Trigger exceeded (Y/N) |
|-----------------|-----------------------------|-----------------------|----------------------------|------------------------|
|                 | mg/kg bw per day | mg/kg DM | Med. | Max. | Med. | Max. |                                   |                                      |
| Swine (all diets) | 0.017 | 0.022 | 0.74 | 0.97 | Swine (breeding) | Grapefruits, dried pulp | Yes |
| Poultry (all diets) | 0.003 | 0.011 | 0.04 | 0.16 | Poultry (layer) | Cabbage, heads, leaves | Yes |
| Poultry (layer only) | 0.003 | 0.011 | 0.04 | 0.16 | Poultry (layer) | Cabbage, heads, leaves | Yes |

bw: body weight; DM: dry matter.
(a): Calculated for the maximum dietary burden.

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                    | 0.075; 0.75 | 14 | 6.8N; 68N; compared to poultry maximum dietary burden |
| Lactating goat                | 0.075; 0.675 | 7 | 1.3N; 11.9N; compared to cattle all maximum dietary burden |

Reference: Italy (2007)

Time needed to reach a plateau concentration in milk and eggs (days)

Metabolism in rat and ruminant similar (Yes/No)

Animal residue definition for monitoring (RD-Mo)

Animal residue definition for risk assessment (RD-RA)

Conversion factor (monitoring to risk assessment)

Fat soluble residues (Yes/No)

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

Animal commodities:
- GC–MS, LOQ: 0.01 mg/kg each for etofenprox and alpha-CO in milk, eggs, meat and fat; ILV available (Italy, 2007)
- LC–MS/MS (qqq), LOQ: 0.001 mg/kg for etofenprox in muscle (EURLs, 2016)
- LC–MS/MS (qqq), LOQ: 0.02 mg/kg for etofenprox in hen eggs (EURLs, 2016)

A validated method for liver and kidney is not available and is required.

bw: body weight; GC–MS: gas chromatography with mass spectrometry; LC–MS/MS: liquid chromatography with tandem mass spectrometry; LOQ: limit of quantification; ILV: independent laboratory validation.
### B.2.1.2. Stability of residues in livestock

| Animal products (available studies) | Animal | Commodity | T (°C) | Stability (Months/years) |
|------------------------------------|--------|-----------|--------|--------------------------|
|                                    | Muscle | –        | –      | –                        |
| Laying hen<sup>(a)</sup>           | Liver  | –20      | 12     |                          |
|                                    | Kidney | –        | –      |                          |
|                                    | Milk   | –        | –      |                          |
|                                    | Egg    | –        | –      |                          |

Reference: Italy (2007)
Storage stability studies on muscle, kidney, milk and egg are not available and required.

<sup>(a)</sup>: Indirect evidence from laying hen metabolism study.

### 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) | Estimated value at 1N | MRL proposal (mg/kg) |
|------------------|---------------------------------------------|-----------------------|----------------------|
|                  | Mean Highest STMR<sup>(e)</sup> (mg/kg) | HR<sup>(b)</sup> (mg/kg) |                      |
| Cattle (all diets) | Muscle<sup>(d)</sup> | <0.05 | <0.05 | 0.05 | 0.05 | 0.05 | <0.05 | <0.05 |
|                  | Fat | 0.743 | 1.89 | 0.55 | 1.91 | 0.55 | 1.91 |
|                  | Liver | <0.05 | <0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
|                  | Kidney | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| Cattle (dairy only) | Milk<sup>(d)</sup> | 0.05 | n.a. | 0.05 | 0.07 | 0.07 | 0.07 |
| Sheep (all diets)<sup>(e)</sup> | Muscle<sup>(d)</sup> | <0.05 | <0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
|                  | Fat | 0.74 | 1.89 | 0.17 | 1.10 | 0.17 | 1.10 |
|                  | Liver | <0.05 | <0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
|                  | Kidney | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| Sheep (dairy only)<sup>(e)</sup> | Milk<sup>(d)</sup> | <0.05 | <0.05 | 0.05* | 0.05* | 0.05* | 0.05* |
| Swine<sup>(e)</sup> | Muscle | <0.05 | <0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
|                  | Fat | 0.743 | 1.89 | 0.45 | 1.11 | 0.45 | 1.11 |
|                  | Liver | <0.05 | <0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
|                  | Kidney | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| Poultry (all diets) | Muscle | 0.004 | 0.004 | <0.001 | 0.001 | 0.001 | 0.001 |
|                  | Fat | 0.217 | 0.217 | 0.009 | 0.034 | 0.009 | 0.034 |
|                  | Liver | 0.035 | 0.035 | 0.001 | 0.005 | 0.001 | 0.005 |

www.efs.europa.eu/efsajournal 40 EFSA Journal 2017;15(8):4964
### Animal commodity

| Animal commodity | Residues at the closest feeding level (mg/kg) | Estimated value at 1N | MRL proposal (mg/kg) |
|------------------|---------------------------------------------|-----------------------|----------------------|
|                  | Mean | Highest | STMR\(^{(a)}\) (mg/kg) | HR\(^{(b)}\) (mg/kg) |
| Poultry (layer only) | 0.09 | 0.09 | 0.004 | 0.014 | 0.015\(^{(f),(g),(h)}\) (tentative) |

MRL: maximum residue level; STMR: supervised trials median residue; HR: highest residue; bw: body weight; n.a: not applicable.

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

(a): As the mean residue levels were not reported for tissues and eggs (minor deficiency), the mean residue level for milk and the highest residue levels for eggs and tissues were recalculated at the 1N rate for the median dietary burden.

(b): 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.

(c): Closest feeding level and N dose rate related to the maximum dietary burden.

(d): Highest residue level from day 1 to day 28 (daily mean of 3 cows).

(e): 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.

(f): In the absence of metabolism studies investigating etofenprox and alpha-CO only tentative MRLs can be derived.

(g): MRL proposal is tentative because a validated analytical method for enforcement is not available.

(h): MRL proposal is tentative because a storage stability study is not available.

### B.3. Consumer risk assessment

#### B.3.1. Consumer risk assessment without consideration of the existing CXLs

| ADI | 0.03 mg/kg bw per day (EFSA, 2009) |
|-----|----------------------------------|
| Highest IEDI, according to EFSA PRIMo | 52.2 % ADI (UK, toddler) |
| Assumptions made for the calculations | The calculation is based on the median residue levels in the raw agricultural commodities. For those commodities where data were insufficient to derive an MRL, EFSA considered the existing EU MRL multiplied by the following conversion factors for an indicative calculation: 1.2 for fruit crops, leafy vegetables and pulses; 1 for root and tuber vegetables; 2 for cereals. The contributions of commodities where no GAP was reported in the framework of this review were not included in the calculation. |

| ARID | 1.0 mg/kg bw (EFSA, 2009) |
|------|--------------------------|
| Highest IESTI, according to EFSA PRIMo | 15.8 % ARID (scarole (broad-leaf endive)) |
| Assumptions made for the calculations | The calculation is based on the highest residue levels in the raw agricultural commodities. For those commodities where data were insufficient to derive an MRL, EFSA considered the existing EU MRL multiplied by the following conversion factors for an indicative calculation: 1.2 for fruit crops, leafy vegetables and pulses; 1 for root and tuber vegetables; 2 for cereals. |

ADI: acceptable daily intake; bw: body weight; IEDI: international estimated daily intake; PRIMo: (EFSA) Pesticide Residues Intake Model; WHO: World Health Organization; ARID: acute reference dose; IESTI: international estimated short-term intake.
B.3.2. Consumer risk assessment with consideration of the existing CXLs

| ADI | 0.03 mg/kg bw per day (EFSA, 2009) |
| Highest IEDI, according to EFSA PRIMo | 52.6% ADI (UK, toddler) |
| Assumptions made for the calculations | The calculation is based on the median residue levels in the raw agricultural commodities. The same conversion factors as outlined in Section B.3.1 were applied to the CXLs of the plant derived commodities. |

| ARfD | 1 mg/kg bw (EFSA, 2009) |
| Highest IESTI, according to EFSA PRIMo | 17% ARfD (table grapes) |
| Assumptions made for the calculations | The calculation is based on the median residue levels in the raw agricultural commodities. The same conversion factors as outlined in Section B.3.1 were applied to the CXLs of the plant derived commodities. |

ADI: acceptable daily intake; bw: body weight; IEDI: international estimated daily intake; CXL: codex maximum residue limit; ARfD: acute reference dose; IESTI: international estimated short-term intake.

B.4. Proposed MRLs

| Code number(a) | Commodity | Existing EU MRL (mg/kg) | Existing CXL (mg/kg) | MRL (mg/kg) | Outcome of the review | Comment |
|----------------|-----------|------------------------|---------------------|-------------|----------------------|---------|
| 110010 | Grapefruits | 1 | – | 1.5 | Further consideration needed(b) |
| 110020 | Oranges | 1 | – | 1.5 | Further consideration needed(b) |
| 110030 | Lemons | 1 | – | 1.5 | Further consideration needed(b) |
| 110040 | Limes | 1 | – | 1.5 | Further consideration needed(b) |
| 110050 | Mandarins | 1 | – | 1.5 | Further consideration needed(b) |
| 120040 | Chestnuts | 0.5 | – | 0.01* | Recommended(c) |
| 120060 | Hazelnuts/cobnuts | 0.5 | – | 0.01* | Recommended(c) |
| 120090 | Pine nut kernels | 0.01* | – | 0.01* | Recommended(c) |
| 130010 | Apples | 1 | 0.6 | 0.7 | Recommended(d) |
| 130020 | Pears | 1 | 0.6 | 0.7 | Recommended(d) |
| 140010 | Apricots | 1 | – | 0.6 | Further consideration needed(b) |
| 140020 | Cherries (sweet) | 1 | – | 0.8 | Further consideration needed(b) |
| 140030 | Peaches | 0.6 | 0.6 | 0.6 | Recommended(d) |
| 140040 | Plums | 1 | – | 1 | Further consideration needed(e) |
| 151010 | Table grapes | 5 | 4 | 4 | Further consideration needed(f) |
| 151020 | Wine grapes | 5 | 4 | 4 | Further consideration needed(f) |
| 152000 | Strawberries | 1 | – | 1 | Further consideration needed(e) |
| 153010 | Blackberries | 1 | – | 1 | Further consideration needed(e) |
| 153030 | Raspberries (red and yellow) | 1 | – | 1 | Further consideration needed(e) |
| 154010 | Blueberries | 1 | – | 1 | Further consideration needed(e) |
| 154030 | Currants (black, red and white) | 1 | – | 1 | Further consideration needed(e) |
| 154040 | Gooseberries (green, red and yellow) | 1 | – | 1 | Further consideration needed(e) |
| 161020 | Figs | 1 | – | 1 | Further consideration needed(e) |
| 161030 | Table olives | 0.01* | – | 0.01* | Recommended(e) |
| 161060 | Kaki/Japanese persimmons | 1 | – | 0.8 | Further consideration needed(e) |
| Code number | Commodity | Existing EU MRL (mg/kg) | Existing CXL (mg/kg) | Outcome of the review |
|-------------|-----------|-------------------------|----------------------|-----------------------|
| 162010      | Kiwi fruits (green, red, yellow) | 1 | – | 1 | Further consideration needed<sup>(b)</sup> |
| 163050      | Granate apples/pomegranates | 1 | – | 1 | Further consideration needed<sup>(b)</sup> |
| 211000      | Potatoes | 0.5 | – | 0.01* | Recommended<sup>(c)</sup> |
| 220010      | Garlic | 0.5 | – | 0.01* | Recommended<sup>(c)</sup> |
| 220020      | Onions | 0.5 | – | 0.01* | Recommended<sup>(c)</sup> |
| 231010      | Tomatoes | 1 | – | 0.7 | Further consideration needed<sup>(b)</sup> |
| 231020      | Sweet peppers/bell peppers | 2 | – | 2 | Further consideration needed<sup>(b)</sup> |
| 231030      | Aubergines/eggplants | 0.5 | – | 0.5 | Further consideration needed<sup>(b)</sup> |
| 233010      | Melons | 0.5 | – | 0.5 | Further consideration needed<sup>(b)</sup> |
| 233020      | Pumpkins | 0.5 | – | 0.5 | Further consideration needed<sup>(b)</sup> |
| 233030      | Watermelons | 0.5 | – | 0.5 | Further consideration needed<sup>(b)</sup> |
| 241010      | Broccoli | 0.2 | – | 0.4 | Further consideration needed<sup>(b)</sup> |
| 241020      | Cauliflowers | 0.2 | – | 0.4 | Further consideration needed<sup>(b)</sup> |
| 242010      | Brussels sprouts | 2 | – | 2 | Further consideration needed<sup>(b)</sup> |
| 242020      | Head cabbages | 2 | – | 0.7 | Further consideration needed<sup>(b)</sup> |
| 251010      | Lamb’s lettuces/corn salads | 3 | – | 3 | Further consideration needed<sup>(b)</sup> |
| 251020      | Lettuces | 3 | – | 3 | Further consideration needed<sup>(b)</sup> |
| 251030      | Escaroles/broad-leaved endives | 3 | – | 3 | Further consideration needed<sup>(b)</sup> |
| 251040      | Cresses and other sprouts and shoots | 3 | – | 3 | Further consideration needed<sup>(b)</sup> |
| 251060      | Roman rocket/rucola | 3 | – | 3 | Further consideration needed<sup>(b)</sup> |
| 252010      | Spinaches | 3 | – | 3 | Further consideration needed<sup>(b)</sup> |
| 252030      | Chards/beet leaves | 3 | – | 3 | Further consideration needed<sup>(b)</sup> |
| 256010      | Chervil | 3 | – | 3 | Further consideration needed<sup>(b)</sup> |
| 256020      | Chives | 3 | – | 3 | Further consideration needed<sup>(b)</sup> |
| 256030      | Celery leaves | 3 | – | 3 | Further consideration needed<sup>(b)</sup> |
| 256040      | Parsley | 3 | – | 3 | Further consideration needed<sup>(b)</sup> |
| 256050      | Sage | 3 | – | 3 | Further consideration needed<sup>(b)</sup> |
| 256060      | Rosemary | 3 | – | 3 | Further consideration needed<sup>(b)</sup> |
| 256070      | Thyme | 3 | – | 3 | Further consideration needed<sup>(b)</sup> |
| 256080      | Basil and edible flowers | 3 | – | 3 | Further consideration needed<sup>(b)</sup> |
| 256090      | Laurel/bay leave | 3 | – | 3 | Further consideration needed<sup>(b)</sup> |
| 256100      | Tarragon | 3 | – | 3 | Further consideration needed<sup>(b)</sup> |
| 260010      | Beans (with pods) | 0.5 | – | 0.4 | Further consideration needed<sup>(b)</sup> |
| 260020      | Beans (without pods) | 0.5 | – | 0.5 | Further consideration needed<sup>(b)</sup> |
| 260050      | Lentils (fresh) | 0.01* | – | 0.01* | Further consideration needed<sup>(b)</sup> |
| 300010      | Beans (dry) | 0.05 | 0.05 | 0.05 | Further consideration needed<sup>(b)</sup> |
| 300040      | Lupins/lupini beans (dry) | 0.5 | – | 0.5 | Further consideration needed<sup>(b)</sup> |
| 401010      | Linseeds | 0.01* | – | 0.01* | Recommended<sup>(c)</sup> |
| 401040      | Sesame seeds | 0.01* | – | 0.01* | Recommended<sup>(c)</sup> |
| 401060      | Rapeseeds/canola seeds | 0.05 | 0.01* | 0.05 | Further consideration needed<sup>(b)</sup> |
| Code number(a) | Commodity                      | Existing EU MRL (mg/kg) | Existing CXL (mg/kg) | Outcome of the review | Comment                        |
|----------------|--------------------------------|-------------------------|----------------------|-----------------------|--------------------------------|
| 401080         | Mustard seeds                  | 0.01*                   | –                    | 0.01*                 | Recommended(c)                 |
| 401120         | Borage seeds                   | 0.01*                   | –                    | 0.01*                 | Recommended(c)                 |
| 401130         | Gold of pleasure seeds         | 0.01*                   | –                    | 0.01*                 | Recommended(c)                 |
| 401140         | Hemp seeds                     | 0.01*                   | –                    | 0.01*                 | Recommended(c)                 |
| 402010         | Olives for oil production      | 0.01*                   | –                    | 0.01*                 | Recommended(c)                 |
| 500030         | Maize/corn grains              | 0.5                     | 0.05*                | 0.5                   | Further consideration needed(j) |
| 500060         | Rice grains                    | 0.5                     | 0.01*                | 0.5                   | Further consideration needed(j) |
| 900010         | Sugar beet roots               | 0.5                     | –                    | 0.5                   | Further consideration needed(j) |
| 1011010        | Swine muscle                   | 0.5                     | 0.03*                | 0.05                  | Further consideration needed(j) |
| 1011020        | Swine fat tissue               | 0.5                     | 0.5                  | 1.5                   | Further consideration needed(j) |
| 1011030        | Swine liver                    | 0.5                     | 0.5                  | 0.05                  | Further consideration needed(j) |
| 1011040        | Swine kidney                   | 0.5                     | 0.05                 | 0.05                  | Further consideration needed(j) |
| 1012010        | Bovine muscle                  | 0.5                     | 0.03*                | 0.06                  | Further consideration needed(j) |
| 1012020        | Bovine fat tissue              | 0.5                     | 0.5                  | 2                    | Further consideration needed(j) |
| 1012030        | Bovine liver                   | 0.5                     | 0.05                 | 0.06                  | Further consideration needed(j) |
| 1012040        | Bovine kidney                  | 0.5                     | 0.05                 | 0.07                  | Further consideration needed(j) |
| 1013010        | Sheep muscle                   | 0.5                     | 0.03*                | 0.05                  | Further consideration needed(j) |
| 1013020        | Sheep fat tissue               | 0.5                     | 0.5                  | 1.5                   | Further consideration needed(j) |
| 1013030        | Sheep liver                    | 0.5                     | 0.05                 | 0.05                  | Further consideration needed(j) |
| 1013040        | Sheep kidney                   | 0.5                     | 0.05                 | 0.05                  | Further consideration needed(j) |
| 1014010        | Goat muscle                    | 0.5                     | 0.03*                | 0.05                  | Further consideration needed(j) |
| 1014020        | Goat fat tissue                | 0.5                     | 0.5                  | 1.5                   | Further consideration needed(j) |
| 1014030        | Goat liver                     | 0.5                     | 0.05                 | 0.05                  | Further consideration needed(j) |
| 1014040        | Goat kidney                    | 0.5                     | 0.05                 | 0.05                  | Further consideration needed(j) |
| 1015010        | Equine muscle                  | 0.5                     | 0.03*                | 0.06                  | Further consideration needed(j) |
| 1015020        | Equine fat tissue              | 0.5                     | 0.5                  | 2                    | Further consideration needed(j) |
| 1015030        | Equine liver                   | 0.5                     | 0.05                 | 0.06                  | Further consideration needed(j) |
| 1015040        | Equine kidney                  | 0.5                     | 0.05                 | 0.07                  | Further consideration needed(j) |
| 1016010        | Poultry muscle                 | 0.01*                   | 0.01*                | 0.01*                 | Further consideration needed(j) |
| 1016020        | Poultry fat tissue             | 0.01*                   | 0.01*                | 0.04                  | Further consideration needed(j) |
| 1016030        | Poultry liver                  | 0.01*                   | 0.01*                | 0.01*                 | Further consideration needed(j) |
| 1020010        | Cattle milk                    | 0.05                    | 0.02                 | 0.07                  | Further consideration needed(j) |
| 1020020        | Sheep milk                     | 0.05                    | 0.02                 | 0.04                  | Further consideration needed(j) |
| 1020030        | Goat milk                      | 0.05                    | 0.02                 | 0.04                  | Further consideration needed(j) |
| 1020040        | Horse milk                     | 0.05                    | 0.02                 | 0.07                  | Further consideration needed(j) |
| 1030000        | Birds eggs                     | 0.01*                   | 0.01*                | 0.015                 | Further consideration needed(j) |

Other commodities of plant and animal origin

Regulation (EC) No 149/2008

| MRL: maximum residue level; CXL: codex maximum residue limit. |
| *: Indicates that the MRL is set/proposed at the limit of quantification. |
| (F): Residue is fat soluable. |
| (a): Commodity code number, as listed in Annex I of Regulation (EC) No 396/2005. |
| (b): Tentative MRL is derived from a GAP evaluated at EU level, which is not fully supported by data but for which no risk to consumers was identified (assuming the existing residue definition); no CXL is available (combination E-I in Appendix E). |
| (c): MRL is derived from a GAP evaluated at EU level, which is fully supported by data and for which no risk to consumers is identified; no CXL is available (combination G-I in Appendix E). |
| (d): MRL is derived from a GAP evaluated at EU level, which is fully supported by data and for which no risk to consumers is identified; existing CXL is covered by the recommended MRL (combination G-III in Appendix E). |
(e): GAP evaluated at EU level is not supported by data but no risk to consumers was identified for the existing EU MRL (also assuming the existing residue definition); no CXL is available (combination C-I in Appendix E).

(f): MRL is derived from the existing CXL, which is not sufficiently supported by data but for which no risk to consumers is identified (assuming the existing residue definition); GAP evaluated at EU level, which is also not fully supported by data, would lead to a lower tentative MRL (combination E-V in Appendix E).

(g): MRL is derived from the existing CXL, which is not sufficiently supported by data but for which no risk to consumers is identified (assuming the existing residue definition); there are no relevant authorisations or import tolerances reported at EU level (combination A-V in Appendix E).

(h): Tentative MRL is derived from a GAP evaluated at EU level, which is not fully supported by data but for which no risk to consumers was identified (assuming the existing residue definition); existing CXL is covered by the tentative MRL (combination E-III in Appendix E).

(i): GAP evaluated at EU level is not supported by data but no risk to consumers was identified for the existing EU MRL (also assuming the existing residue definition); existing CXL is covered by the existing EU MRL (combination C-III in Appendix E).

(j): There are no relevant authorisations or import tolerances reported at EU level; no CXL is available. Either a specific LOQ or the default MRL of 0.01 mg/kg may be considered (combination A-I in Appendix E).
Appendix C – Pesticide Residue Intake Model (PRIMo)

C.1. PRIMo (EU)

### Etofenprox

| Status of the active substance: | Included |
|---------------------------------|----------|
| Code no.                         | LOQ (mg/kg bw): 0.01 |
| Source of ADI                    | EFSA     |
| Source of ARfD                   | EFSA     |
| Year of evaluation               | 2009     |
| Year of evaluation               | 2009     |

| No of diets exceeding ADI        | --- |

#### Chronic risk assessment – refined calculations

| Commodity / group of commodities | TMDI (range) in % of ADI | Source of LOQ | Toxicological end points |
|----------------------------------|---------------------------|---------------|--------------------------|
|                                  | Maximum – Minimum         |               |                          |
| Milk and cream                   | 6.7 – 3.4                 | EFSA          | ADI (mg/kg bw):          |
|                                  |                           |               | 0.03                     |
| Maize                            | 1.9 – 0.1                 | EFSA          | ARfD (mg/kg bw):         |
|                                  |                           |               | 1                        |

### Conclusion:

The estimated Theoretical Maximum Daily Intakes (TMDI), based on pTMRLs were below the ADI. A long-term intake of residues of etofenprox 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 calculation, 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 lead to an exposure equivalent to 100% of the ARfD.

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

### No of commodities for which ARfD/ADI is exceeded (IESTI 1):

| Commodity            | pTMRL (mg/kg) | pMRL (mg/kg) |
|----------------------|---------------|--------------|
| Scarole (broad-leaf) | 1.812/–       |              |
| Peppers              | 2.4/–         |              |
| Table grapes         | 1.63315789473|              |
| Melon                | 0.65/–        |              |
| Oranges              | 0.58225123327|              |

### No of commodities for which ARfD/ADI is exceeded (IESTI 2):

| Commodity            | pTMRL (mg/kg) | pMRL (mg/kg) |
|----------------------|---------------|--------------|
| Scarole (broad-leaf) | 1.812/–       |              |
| Peppers              | 2.4/–         |              |
| Table grapes         | 1.63315789473|              |
| Melon                | 0.65/–        |              |
| Oranges              | 0.58225123327|              |

### No of critical MRLs (IESTI 1):

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

### No of critical MRLs (IESTI 2):

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

### Conclusion:

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

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

For processed commodities, no exceedance of the ARfD/ADI was identified.
C.2. PRIMo (CXL)

**Etofenprox**

| Status of the active substance | Included |
|-------------------------------|---------|
| LOQ (mg/kg bw)                | 0.01    |
| Toxicological end points      |         |
| ADI (mg/kg bw per day)        | 0.03    |
| Source of ADI                 | EFSA    |
| Year of evaluation            | 2009    |

**Source of ARfD:** EFSA, **Year of evaluation:** 2009

| Code no. | LOQ (mg/kg bw) | Proposed LOQ | ADI (mg/kg bw per day) | ARfD (mg/kg bw) | Source of ARfD |
|----------|----------------|--------------|------------------------|----------------|---------------|
|          |                |              |                        |                |               |

**Year of evaluation:** 2009

| No of diets exceeding ADI | TMDI (range) in % of ADI |
|---------------------------|--------------------------|

| Commodity/group of commodities | TMDI (range) in % of ADI |
|--------------------------------|--------------------------|
|                                 |                          |

| Commodity/group of commodities | TMDI (range) in % of ADI |
|--------------------------------|--------------------------|
|                                 |                          |

| Commodity/group of commodities | TMDI (range) in % of ADI |
|--------------------------------|--------------------------|
|                                 |                          |

**Conclusion:**

The estimated Theoretical Maximum Daily Intakes (TMDI), based on pTMRLs were below the ADI. A long-term intake of residues of etofenprox 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.

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

For processed commodities, no exceedance of the ARfD/ADI was identified.

**Review of the existing MRLs for etofenprox**
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                |
| Grapefruits, dried pulp         | 3.95                  | STMR × CF × 10 (tentative) | 3.95                  | STMR × CF × 10 (tentative) |
| Oranges, dried pulp             | 3.95                  | STMR × CF × 10 (tentative) | 3.95                  | STMR × CF × 10 (tentative) |
| Lemons, dried pulp              | 3.95                  | STMR × CF × 10 (tentative) | 3.95                  | STMR × CF × 10 (tentative) |
| Limes, dried pulp               | 3.95                  | STMR × CF × 10 (tentative) | 3.95                  | STMR × CF × 10 (tentative) |
| Mandarins, dried pulp           | 3.95                  | STMR × CF × 10 (tentative) | 3.95                  | STMR × CF × 10 (tentative) |
| Apple, pomace, wet              | 0.74                  | STMR × CF × PF (tentative) | 0.74                  | STMR × CF × PF (tentative) |
| Potato, culls                   | 0.01*                 | STMR × CF               | 0.01*                 | HR × CF                 |
| Potato, process waste           | 0.01*                 | STMR(a) × CF            | 0.01*                 | STMR(a) × CF            |
| Potato, dried pulp              | 0.01*                 | STMR(a) × CF            | 0.01*                 | STMR(a) × CF            |
| Cabbage, heads, leaves          | 0.10                  | STMR × CF (tentative)   | 0.44                  | HR × CF (tentative)     |
| Flaxseed/Linseed, meal          | 0.01*                 | STMR(a)                 | 0.01*                 | STMR(a)                 |
| Canola (Rapeseed), meal         | 0.02                  | STMR(b) × CF            | 0.02                  | STMR(b) × CF            |
| Rape, meal                      | 0.02                  | STMR(b) × CF            | 0.02                  | STMR(b) × CF            |

**Risk assessment residue definition:** sum of etofenprox and alpha-CO, expressed as etofenprox

| STMR: supervised trials median residue; HR: highest residue; PF: processing factor. |
| *: Indicates that the input value is proposed at the limit of quantification. |
| (a): For potatoes by-products and linseed meal, no default processing factor was applied because etofenprox is applied early in the growing season and residues are expected to be below the LOQ in the raw commodities. Concentration of residues in these commodities is therefore not expected. |
| (b): For canola and rape meal, in the absence of processing factors supported by data, a default processing factor of 2 was included in the calculation to consider the potential concentration of residues in these commodities. |

D.2. Consumer risk assessment without consideration of the existing CXLs

| Commodity                  | Chronic risk assessment | Acute risk assessment |
|----------------------------|-------------------------|-----------------------|
|                            | Input value (mg/kg)    | Comment                | Input value (mg/kg)    | Comment                |
| Citrus fruits              | 0.40                    | STMR × CF (tentative)  | 0.58                   | HR × CF (tentative)    |
| Chestnuts                  | 0.01*                   | STMR × CF              | 0.01*                  | HR × CF                |
| Hazelnuts/cobnuts          | 0.01*                   | STMR × CF              | 0.01*                  | HR × CF                |
| Pine nut kernels           | 0.24                    | STMR × CF              | 0.42                   | HR × CF                |
| Apples, pears              | 0.24                    | STMR × CF              | 0.42                   | HR × CF                |

**Risk assessment residue definition for plant commodities:** Sum of etofenprox plus alpha-CO, expressed as etofenprox
| Commodity                        | Chronic risk assessment | Acute risk assessment |
|---------------------------------|-------------------------|-----------------------|
|                                 | Input value (mg/kg)     | Comment               | Input value (mg/kg)     | Comment               |
| Apricots                        | 0.20                    | STMR × CF (tentative) | 0.41                    | HR × CF (tentative)   |
| Cherries (sweet)                | 0.32                    | STMR × CF (tentative) | 0.40                    | HR × CF (tentative)   |
| Peaches                         | 0.20                    | STMR × CF             | 0.41                    | HR × CF               |
| Plums                           | 1.20                    | EU MRL × CF (tentative) | 1.20                    | EU MRL × CF (tentative) |
| Table grapes, wine grapes       | 0.46                    | STMR × CF (tentative) | 1.63                    | HR × CF (tentative)   |
| Strawberries                    | 1.20                    | EU MRL × CF (tentative) | 1.20                    | EU MRL × CF (tentative) |
| Figs                            | 1.20                    | EU MRL × CF (tentative) | 1.20                    | EU MRL × CF (tentative) |
| Table olives                    | 0.01*                   | STMR × CF             | 0.01*                   | HR × CF               |
| Kaki/Japanese persimmons        | 0.18                    | STMR × CF (tentative) | 0.37                    | HR × CF (tentative)   |
| Kiwi fruits (green, red, yellow)| 0.20                    | STMR × CF (tentative) | 0.61                    | HR × CF (tentative)   |
| Granate apples/pomegranates     | 1.20                    | EU MRL × CF (tentative) | 1.20                    | EU MRL × CF (tentative) |
| Potatoes                        | 0.01*                   | STMR × CF             | 0.01*                   | HR × CF               |
| Garlic                          | 0.01*                   | STMR × CF             | 0.01*                   | HR × CF               |
| Onions                          | 0.01*                   | STMR × CF             | 0.01*                   | HR × CF               |
| Tomatoes                        | 0.24                    | STMR × CF (tentative) | 0.48                    | HR × CF (tentative)   |
| Sweet peppers/bell peppers      | 2.40                    | EU MRL × CF (tentative) | 2.40                    | EU MRL × CF (tentative) |
| Aubergines/eggplants            | 0.6                     | EU MRL × CF (tentative) | 0.6                     | EU MRL × CF (tentative) |
| Melons                          | 0.60                    | EU MRL × CF (tentative) | 0.60                    | EU MRL × CF (tentative) |
| Pumpkins                        | 0.60                    | EU MRL × CF (tentative) | 0.60                    | EU MRL × CF (tentative) |
| Watermelons                     | 0.60                    | EU MRL × CF (tentative) | 0.60                    | EU MRL × CF (tentative) |
| Broccoli                        | 0.09                    | EU MRL × CF (tentative) | 0.24                    | HR × CF (tentative)   |
| Cauliflowers                    | 0.09                    | EU MRL × CF (tentative) | 0.24                    | HR × CF (tentative)   |
| Brussels sprouts                | 2.40                    | EU MRL × CF (tentative) | 2.40                    | EU MRL × CF (tentative) |
| Head cabbages                   | 0.10                    | EU MRL × CF (tentative) | 0.44                    | HR × CF (tentative)   |
| Lettuces, lambs lettuce, escaroles, cresses, roman rocket, spinach, chards, fresh herbs | 0.90 | STMR × CF (tentative) | 1.81                    | HR × CF (tentative)   |
| Beans (with pods)               | 0.1                     | STMR × CF (tentative) | 0.17                    | HR × CF (tentative)   |
| Beans (without pods)            | 0.06                    | EU MRL × CF (tentative) | 0.06                    | EU MRL × CF (tentative) |
| Lentils fresh Lupins            |                        |                       |                        |                       |
| Linseeds                        | 0.01*                   | STMR × CF             | 0.01*                   | HR × CF               |
| Sesame seeds                    | 0.01*                   | STMR × CF             | 0.01*                   | HR × CF               |
| Rapeseeds/canola seeds          | 0.01                    | STMR × CF (tentative) | 0.03                    | HR × CF (tentative)   |
| Mustard seeds                   | 0.01*                   | STMR × CF             | 0.01*                   | HR × CF               |
| Borage seeds                    | 0.01*                   | STMR × CF             | 0.01*                   | HR × CF               |
| Gold of pleasure seeds          | 0.01*                   | STMR × CF             | 0.01*                   | HR × CF               |
| Hemp seeds                      | 0.01*                   | STMR × CF             | 0.01*                   | HR × CF               |
| Olives for oil production       | 0.01*                   | STMR × CF             | 0.01*                   | HR × CF               |
| Maize corn grains, rice grains  | 1.00                    | EU MRL × CF (tentative) | 1.00                    | EU MRL × CF (tentative) |
| Sugar beet roots                | 0.5                     | EU MRL × CF (tentative) | 0.5                     | EU MRL × CF (tentative) |

www.efsa.europa.eu/efsajournal 51 EFSA Journal 2017;15(8):4964
### Commodity

| Commodity                  | Chronic risk assessment | Acute risk assessment |
|----------------------------|-------------------------|-----------------------|
|                            | Input value (mg/kg)     | Comment               | Input value (mg/kg) | Comment               |
| **Swine meat**             | 0.13                    | 0.8 × STMR muscle + 0.2 × STMR fat (tentative) | 0.26 | 0.8 × HR muscle + 0.2 × STMR fat (tentative) |
| **Swine fat tissue**       | 0.45                    | STMR (tentative)      | 1.11 | HR (tentative) |
| **Swine liver**            | 0.05                    | STMR (tentative)      | 0.05 | HR (tentative) |
| **Swine kidney**           | 0.05                    | STMR (tentative)      | 0.05 | HR (tentative) |
| **Bovine meat**            | 0.15                    | 0.8 × STMR muscle + 0.2 × STMR fat (tentative) | 0.43 | 0.8 × HR muscle + 0.2 × HR fat (tentative) |
| **Bovine fat tissue**      | 0.55                    | STMR (tentative)      | 1.91 | HR (tentative) |
| **Bovine liver**           | 0.05                    | STMR (tentative)      | 0.06 | HR (tentative) |
| **Bovine kidney**          | 0.05                    | STMR (tentative)      | 0.06 | HR (tentative) |
| **Sheep meat**             | 0.07                    | 0.8 × STMR muscle + 0.2 × STMR fat (tentative) | 0.26 | 0.8 × HR muscle + 0.2 × HR fat (tentative) |
| **Sheep fat tissue**       | 0.17                    | STMR (tentative)      | 1.10 | HR (tentative) |
| **Sheep liver**            | 0.05                    | STMR (tentative)      | 0.05 | HR (tentative) |
| **Sheep kidney**           | 0.05                    | STMR (tentative)      | 0.05 | HR (tentative) |
| **Goat meat**              | 0.07                    | 0.8 × STMR muscle + 0.2 × STMR fat | 0.26 | 0.8 × HR muscle + 0.2 × HR fat |
| **Goat fat tissue**        | 0.17                    | STMR (tentative)      | 1.10 | HR (tentative) |
| **Goat liver**             | 0.05                    | STMR (tentative)      | 0.05 | HR (tentative) |
| **Goat kidney**            | 0.05                    | STMR (tentative)      | 0.05 | HR (tentative) |
| **Equine meat**            | 0.15                    | 0.8 × STMR muscle + 0.2 × STMR fat (tentative) | 0.43 | 0.8 × HR muscle + 0.2 × HR fat (tentative) |
| **Equine fat tissue**      | 0.55                    | STMR (tentative)      | 1.91 | HR (tentative) |
| **Equine liver**           | 0.05                    | STMR (tentative)      | 0.06 | HR (tentative) |
| **Equine kidney**          | 0.05                    | STMR (tentative)      | 0.06 | HR (tentative) |
| **Poultry meat**           | 0.001                   | 0.9 × STMR muscle + 0.1 × STMR fat (tentative) | 0.004 | 0.9 × HR muscle + 0.1 × HR fat (tentative) |
| **Poultry fat tissue**     | 0.009                   | STMR (tentative)      | 0.03 | HR (tentative) |
| **Poultry liver**          | 0.001                   | STMR (tentative)      | 0.005 | HR (tentative) |
| **Cattle milk**            | 0.05                    | STMR (tentative)      | 0.07 | HR (tentative) |
| **Sheep milk**             | 0.05                    | STMR (tentative)      | 0.04 | HR (tentative) |
| **Goat milk**              | 0.05                    | STMR (tentative)      | 0.04 | HR (tentative) |
| **Horse milk**             | 0.05                    | STMR (tentative)      | 0.07 | HR (tentative) |
| **Birds eggs**             | 0.004                   | STMR (tentative)      | 0.014 | HR (tentative) |

**Risk assessment residue definition for animal commodities:** etofenprox

STMR: supervised trials median residue; HR: highest residue; CF: conversion factor for enforcement residue definition to risk assessment residue definition; MRL: maximum residue level.

*: Indicates that the input value is proposed at the limit of quantification. HR (tentative).
### D.3. Consumer risk assessment with consideration of the existing CXLs

| Commodity                                      | Chronic risk assessment | Acute risk assessment |
|------------------------------------------------|-------------------------|-----------------------|
|                                                | Input value (mg/kg)     | Comment               |
|                                                |                         | Input value (mg/kg)   | Comment               |
| **Citrus fruits**                              | 0.40 STMR × CF (tentative) | 0.58 HR × CF (tentative) |
| **Chesnuts, Hazelnuts, cobnuts, Pine nut kernels** | 0.01* STMR × CF         | 0.01* HR × CF         |
| **Apples, pears**                              | 0.24 STMR × CF          | 0.42 HR × CF          |
| **Apricots**                                   | 0.20 STMR × CF (tentative) | 0.41 HR × CF (tentative) |
| **Cherries (sweet)**                           | 0.32 STMR × CF (tentative) | 0.40 HR × CF (tentative) |
| **Peaches**                                    | 0.20 STMR × CF          | 0.41 HR × CF          |
| **Plums**                                      | 1.20 EU MRL × CF (tentative) | 1.20 EU MRL × CF (tentative) |
| **Table grapes, wine grapes**                  | 0.88 STMR × CF (CXL, tentative) | 3.12 HR × CF (CXL, tentative) |
| **Strawberries, Blackberries, Raspberries, Blueberries, Currants, Gooseberries** | 1.20 EU MRL × CF (tentative) | 1.20 EU MRL × CF (tentative) |
| **Figs**                                       | 1.20 EU MRL × CF (tentative) | 1.20 EU MRL × CF (tentative) |
| **Table olives**                               | 0.01* STMR × CF         | 0.01* HR × CF         |
| **Kaki/Japanese persimmons**                   | 0.18 STMR × CF (tentative) | 0.37 HR × CF (tentative) |
| **Kiwi fruits (green, red, yellow)**           | 0.20 STMR × CF (tentative) | 0.61 HR × CF (tentative) |
| **Granate apples/pomegranates**                | 1.20 EU MRL × CF (tentative) | 1.20 EU MRL × CF (tentative) |
| **Potatoes**                                   | 0.01* STMR × CF         | 0.01* HR × CF         |
| **Garlic**                                     | 0.01* STMR × CF         | 0.01* HR × CF         |
| **Onions**                                     | 0.01* STMR × CF         | 0.01* HR × CF         |
| **Tomatoes**                                   | 0.24 STMR × CF (tentative) | 0.48 HR × CF (tentative) |
| **Sweet peppers/bell peppers**                | 2.40 EU MRL × CF (tentative) | 2.40 EU MRL × CF (tentative) |
| **Aubergines/eggplants**                       | 0.60 EU MRL × CF (tentative) | 0.60 EU MRL × CF (tentative) |
| **Melons**                                     | 0.60 EU MRL × CF (tentative) | 0.60 EU MRL × CF (tentative) |
| **Pumpkins**                                   | 0.60 EU MRL × CF (tentative) | 0.60 EU MRL × CF (tentative) |
| **Watermelons**                                | 0.60 EU MRL × CF (tentative) | 0.60 EU MRL × CF (tentative) |
| **Broccoli**                                   | 0.09 STMR × CF (tentative) | 0.24 HR × CF (tentative) |
| **Cauliflowers**                               | 0.09 STMR × CF (tentative) | 0.24 HR × CF (tentative) |
| **Brussels sprouts**                           | 2.40 EU MRL × CF (tentative) | 2.40 EU MRL × CF (tentative) |
| **Head cabbages**                              | 0.10 STMR × CF (tentative) | 0.44 HR × CF (tentative) |
| **Lettuces, lambs lettuce, escaroles, cresses, roman rocket, spinaches, chards, fresh herbs** | 0.9 STMR × CF (tentative) | 1.81 HR × CF (tentative) |
| **Beans (with pods)**                          | 0.10 STMR × CF (tentative) | 0.17 HR × CF (tentative) |
| **Beans (without pods)**                       | 0.06 EU MRL × CF (tentative) | 0.06 EU MRL × CF (tentative) |
| **Beans (dry)**                                | 0.06 STMR × CF (CXL, tentative) | 0.06 HR × CF (CXL, tentative) |

**Risk assessment residue definition for plant commodities:** Sum of etofenprox plus alpha-CO, expressed as etofenprox.
### Review of the existing MRLs for etofenprox

| Commodity                          | Chronic risk assessment            | Acute risk assessment             |
|-----------------------------------|------------------------------------|-----------------------------------|
| Linseeds                          | 0.01* STMR × CF                    | 0.01* HR × CF                     |
| Sesame seeds                      | 0.01* STMR × CF                    | 0.01* HR × CF                     |
| Rapseeds/canola seeds             | 0.01 STMR × CF (tentative)         | 0.03 HR × CF (tentative)          |
| Mustard seeds                     | 0.01* STMR × CF                    | 0.01* HR × CF                     |
| Borage seeds                      | 0.01* STMR × CF                    | 0.01* HR × CF                     |
| Gold of pleasure seeds            | 0.01* STMR × CF                    | 0.01* HR × CF                     |
| Hemp seeds                        | 0.01* STMR × CF                    | 0.01* HR × CF                     |
| Olives for oil production         | 0.01* STMR × CF                    | 0.01* HR × CF                     |
| Maize corn grains, rice grains     | 1.00 EU MRL × CF (tentative)        | 1.00 EU MRL × CF (tentative)      |
| Sugar beet roots                  | 0.5 EU MRL × CF (tentative)         | 0.5 EU MRL × CF (tentative)       |

### Risk assessment residue definition for animal commodities: etofenprox

| Commodity       | Input value (mg/kg) | Comment                                      | Input value (mg/kg) | Comment                                      |
|-----------------|---------------------|----------------------------------------------|---------------------|----------------------------------------------|
| Swine meat      | 0.13                | 0.8 × STMR muscle + 0.2 × STMR fat (tentative) | 0.26                | 0.8 × HR muscle + 0.2 × STMR fat (tentative) |
| Swine fat tissue| 0.45                | STMR (tentative)                             | 1.11                | HR (tentative)                               |
| Swine liver     | 0.05                | STMR (tentative)                             | 0.05                | HR (tentative)                               |
| Swine kidney    | 0.05                | STMR (tentative)                             | 0.05                | HR (tentative)                               |
| Bovine meat     | 0.15                | 0.8 × STMR muscle + 0.2 × STMR fat (tentative) | 0.43                | 0.8 × HR muscle + 0.2 × HR fat (tentative)   |
| Bovine fat tissue| 0.55               | STMR (tentative)                             | 1.91                | HR (tentative)                               |
| Bovine liver    | 0.05                | STMR (tentative)                             | 0.06                | HR (tentative)                               |
| Bovine kidney   | 0.05                | STMR (tentative)                             | 0.06                | HR (tentative)                               |
| Sheep meat      | 0.07                | 0.8 × STMR muscle + 0.2 × STMR fat (tentative) | 0.26                | 0.8 × HR muscle + 0.2 × HR fat (tentative)   |
| Sheep fat tissue| 0.17                | STMR (tentative)                             | 1.10                | HR (tentative)                               |
| Sheep liver     | 0.05                | STMR (tentative)                             | 0.05                | HR (tentative)                               |
| Sheep kidney    | 0.05                | STMR (tentative)                             | 0.05                | HR (tentative)                               |
| Goat meat       | 0.07                | 0.8 × STMR muscle + 0.2 × STMR fat (tentative) | 0.26                | 0.8 × HR muscle + 0.2 × HR fat (tentative)   |
| Goat fat tissue | 0.17                | STMR (tentative)                             | 1.10                | HR (tentative)                               |
| Goat liver      | 0.05                | STMR (tentative)                             | 0.05                | HR (tentative)                               |
| Goat kidney     | 0.05                | STMR (tentative)                             | 0.05                | HR (tentative)                               |
| Equine meat     | 0.15                | 0.8 × STMR muscle + 0.2 × STMR fat (tentative) | 0.43                | 0.8 × HR muscle + 0.2 × HR fat (tentative)   |
| Equine fat tissue| 0.55               | STMR (tentative)                             | 1.91                | HR (tentative)                               |
| Equine liver    | 0.05                | STMR (tentative)                             | 0.06                | HR (tentative)                               |
| Equine kidney   | 0.05                | STMR (tentative)                             | 0.06                | HR (tentative)                               |
| Poultry meat    | 0.001               | 0.9 × STMR muscle + 0.1 × STMR fat (tentative) | 0.004               | 0.9 × HR muscle + 0.1 × HR fat (tentative)   |
| Poultry fat tissue| 0.009              | STMR (tentative)                             | 0.03                | HR (tentative)                               |
| Poultry liver   | 0.001               | STMR (tentative)                             | 0.005               | HR (tentative)                               |
| Cattle milk     | 0.05                | STMR (tentative)                             | 0.07                | HR (tentative)                               |
| Sheep milk      | 0.05                | STMR (tentative)                             | 0.04                | HR (tentative)                               |
| Goat milk       | 0.05                | STMR (tentative)                             | 0.04                | HR (tentative)                               |
| Horse milk      | 0.05                | STMR (tentative)                             | 0.07                | HR (tentative)                               |
| Birds eggs      | 0.004               | STMR (tentative)                             | 0.014               | HR (tentative)                               |

**STMR**: supervised trials median residue; **HR**: highest residue; **CF**: conversion factor for enforcement residue definition to risk assessment residue definition; **MRL**: maximum residue level.

*:* 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?
   - No
   - Yes
     - MRL derived in Section 3?
       - No
       - Yes
         - MRL fully supported by data?
           - No
           - Yes

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

2. Not considered for the RA.
   - Yes
   - No
     - Current EU MRL is included in the RA.
       - Risk identified?
         - Yes
         - No

3. Tentative median/highest values are included in the RA.
   - Risk identified?
     - Yes
     - No

4. Median/highest values are included in the RA.
   - Risk identified?
     - Yes
     - No

5. Fall-back MRL available?
   - No
   - Yes

Recommendations resulting from EU authorisations and import tolerances

6. [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
Review of the existing MRLs for etofenprox

Comparison of the EU recommendation with the existing CXL

CXL available? Yes

RD comparable?

Yes

CXL higher?

No

No

Yes

Consumer risk assessment with consideration of the existing CXL

CXL supported by data?

Yes

No

Risk identified?

Yes

No

Risk identified?

Yes

No

Input values for the RA remain unchanged.

Input values for the RA remain unchanged.

Input values for the RA remain unchanged.

CXL is included in the RA.

Codex median/highest residues are included in the RA.

Recommendations with consideration of the existing CXL

(I) Maintain EU recommendation indicating that no CXL is available.

(II) Maintain EU recommendation indicating CXL is not compatible.

(III) Maintain EU recommendation indicating that CXL is covered.

(IV) Maintain EU recommendation; higher CXL is not safe for consumer.

(V) Maintain current CXL or EU recommendation?

(VI) Maintain EU recommendation; higher CXL is not safe for consumer.

(VII) CXL is recommended; EU recommendation is covered as well.
## Appendix F – Used compound codes

| Code/trivial name | Chemical name/SMILES notation | Structural formula |
|-------------------|-------------------------------|--------------------|
| Etofenprox        | 2-(4-ethoxyphenyl)-2-methylpropyl 3-phenoxybenzyl ether CCOc1ccc(cc1)C(C)(C)COCc3cc(Oc2cccccc2)ccc3 | ![Structural formula for Etofenprox] |
| alpha-CO          | 2-(4-ethoxyphenyl)-2-methylpropyl 3-phenoxybenzoate CCOc1ccc(cc1)C(C)(C)COC(=O)c3cc(Oc2cccccc2)ccc3 | ![Structural formula for alpha-CO] |

SMILES: simplified molecular-input line-entry system.