REASONED OPINION

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

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Abstract

According to Article 12 of Regulation (EC) No 396/2005, EFSA has reviewed the maximum residue levels (MRLs) currently established at European level for the pesticide active substance chlorantraniliprole. To assess the occurrence of chlorantraniliprole residues in plants, processed commodities, rotational crops and livestock, EFSA considered the conclusions derived in the framework of Commission Regulation (EU) No 188/2011, the MRLs established by the Codex Alimentarius Commission as well as the import tolerances and 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.

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Keywords: chlorantraniliprole, MRL review, Regulation (EC) No 396/2005, consumer risk assessment, insecticide.

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Summary

Chlorantraniliprole was approved on 1 May 2014 by means of Commission Implementing Regulation (EU) No 1199/2013 in the framework of Regulation (EC) No 1107/2009 as amended by Commission Implementing Regulations (EU) No 540/2011 and 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 maximum residue levels (MRLs) for that active substance in compliance with Article 12(1) of the aforementioned regulation.

As the basis for the MRL review, on 15 December 2017, EFSA initiated the collection of data for this active substance. In a first step, Member States were invited to submit by 15 January 2018 their national Good Agricultural Practices (GAPs) in a standardised way, in the format of specific GAP forms, allowing the designated rapporteur Member State IE to identify the critical GAPs in the format of a specific GAP overview file. Subsequently, Member States were requested to provide residue data supporting the critical GAPs, within a period of 1 month, by 1 June 2018. On the basis of all the data submitted by Member States and by the EU Reference Laboratories for Pesticides Residues (EURL), EFSA asked the RMS to complete the Pesticide Residues Overview File (PROFile) and to prepare a supporting evaluation report. The PROFile and evaluation report together with Pesticide Residues Intake Model (PRIMO) calculations were provided by the RMS to EFSA on 18 December 2018. Subsequently, EFSA performed the completeness check of these documents with the RMS. The outcome of this exercise including the clarifications provided by the RMS, if any, was compiled in the completeness check report.

Based on the information provided by the RMS, Member States and the EURL, and taking into account the conclusions derived by EFSA in the framework of Commission Regulation (EU) No 188/2011 and the MRLs established by the Codex Alimentarius Commission, EFSA prepared in May 2020 a draft reasoned opinion, which was circulated to Member States for consultation via a written procedure. Comments received by 22 June 2020 were considered during the finalisation of this reasoned opinion. The following conclusions are derived.

The metabolism of chlorantraniliprole in plant was investigated in primary and rotational crops. According to the results of the metabolism studies, the residue definition for enforcement and risk assessment can be proposed as chlorantraniliprole. This residue definition is also applicable to processed commodities. Fully validated analytical methods are available for the enforcement of the proposed residue definition in the four main matrix groups, as well as in hops and coffee beans (validation details still desirable for coffee beans) at the limit of quantification (LOQ) of 0.01 mg/kg. According to the EURLs, the LOQ of 0.01 mg/kg is achievable in high water, high acid and high oil content commodities, and 0.005 mg/kg in dry commodities, by using multiresidue methods in routine analyses.

Available residue trials data were considered sufficient to derive (tentative) MRL proposals as well as risk assessment values for all commodities under evaluation, except for sweet potatoes, Brussels sprouts, Chinese cabbages/pe-tsai, kales, kohlrabies, witloofs/Belgian endives, beans and peas (without pods), lentils (fresh), soyabees and chicory roots, for which no data are available to derive MRL and risk assessment values.

Chlorantraniliprole is authorised for use on crops that might be fed to livestock. Livestock dietary burden calculations were therefore performed for different groups of livestock according to OECD guidance. 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.

The metabolism of chlorantraniliprole residues in livestock was investigated in lactating goats and laying hens at dose rate covering the maximum dietary burdens calculated in this review. Different metabolic patterns were observed for ruminants and poultry, with parent chlorantraniliprole identified as a good marker. The residue definition for enforcement in all livestock commodities was therefore proposed as chlorantraniliprole. For risk assessment, attending to the different metabolic patterns observed in ruminants and poultry and the results of the feeding studies, different residue definitions were proposed, namely, sum of chlorantraniliprole, IN-HXH44 and IN-K9T00, expressed as chlorantraniliprole, for ruminants and swine products; and parent chlorantraniliprole only, for poultry tissues and eggs. An analytical method for the enforcement of the proposed residue definition at the LOQ of 0.01 mg/kg in all matrices is available. According to the EURLs, a screening detection limit (SDL) of 0.0025 mg/kg is achievable in meat and milk, and of 0.005 mg/kg in egg, by using multiresidue methods in routine analyses.
A livestock feeding study with lactating cows was used to derive MRL and risk assessment values in milk and tissues of ruminants. Since extrapolation from ruminants to pigs is acceptable, results of the livestock feeding study on ruminants were relied upon to derive the MRL and risk assessment values in swine products. For poultry, the metabolism study was sufficient to conclude that, at the calculated dietary burden, residue levels would remain below the enforcement LOQ of 0.01 mg/kg in tissues; however, the occurrence of residues in eggs could not be excluded from the metabolism study. A feeding study conducted with laying hens was used to derive MRL and risk assessment values in eggs.

Chronic consumer exposure resulting from the authorised uses reported in the framework of this review was calculated using revision 3.1 of the EFSA PRIMo. For those commodities where data were insufficient to derive an MRL, EFSA considered the existing EU MRL for an indicative calculation. The highest chronic exposure was calculated for Dutch toddler, representing 1% of the acceptable daily intake (ADI). Acute exposure calculations were not carried out because an acute reference dose (ARfD) was not deemed necessary for this active substance.

Apart from the MRLs evaluated in the framework of this review, internationally recommended CXLs have also been established for chlorantraniliprole. Additional calculations of the consumer exposure, considering these CXLs, were therefore carried out. The highest chronic exposure was calculated for Dutch toddler, representing 0.8% of the ADI.
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Background

Regulation (EC) No 396/20051 (hereinafter referred to as 'the Regulation') establishes the rules governing the setting and the review of pesticide maximum residue levels (MRLs) at European level. Article 12(1) of that Regulation stipulates that the European Food Safety Authority (EFSA) shall provide, within 12 months from the date of the inclusion or non-Inclusion of an active substance in Annex I to Directive 91/414/EEC2 a reasoned opinion on the review of the existing MRLs for that active substance.

As chlorantraniliprole was approved on 1 May 2014 by means of Commission Implementing Regulation (EU) No 188/20117 Chlorantraniliprole was evaluated by Ireland, designated as rapporteur Member State (RMS). Subsequently, a peer review on the initial evaluation of the RMS was conducted by EFSA, leading to the conclusions as set out in the EFSA scientific output (EFSA, 2013a).

According to the legal provisions, EFSA shall base its reasoned opinion in particular on the relevant assessment report prepared under Directive 91/414/EEC repealed by Regulation (EC) No 1107/2009. It shall be noted, however, that, in the framework of Regulation (EC) No 1107/2009, only a few representative uses are evaluated, whereas MRLs set out in Regulation (EC) No 396/2005 should accommodate all uses authorised within the European Union (EU), and uses authorised in third countries that have a significant impact on international trade. The information included in the assessment report prepared under Regulation (EC) No 1107/2009 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.

As the basis for the MRL review, on 15 December 2017, EFSA initiated the collection of data for this active substance. In a first step, Member States were invited to submit by 15 January 2018 their Good Agricultural Practices (GAPs) that are authorised nationally, in a standardised way, in the format of specific GAP forms. In the framework of this consultation, 16 Member States provided feedback on their national authorisations of chlorantraniliprole. Based on the GAP data submitted, the designated RMS Ireland was asked to identify the critical GAPs to be further considered in the assessment, in the format of a specific GAP overview file. Subsequently, in a second step, Member States were requested to provide residue data supporting the critical GAPs by 28 May 2018.

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1 Regulation (EC) No 396/2005 of the European Parliament and of the Council of 23 February 2005 on maximum residue levels of pesticides in or on food and feed of plant and animal origin and amending Council Directive 91/414/EEC. OJ L 70, 16.3.2005, p. 1–16.
2 Council Directive 91/414/EEC of 15 July 1991 concerning the placing of plant protection products on the market. OJ L 230, 19.8.1991, p. 1–32. Repealed by Regulation (EC) No 1107/2009.
3 Commission Implementing Regulation (EU) No 1199/2013 of 25 November 2013 approving the active substance chlorantraniliprole, in accordance with Regulation (EC) No 1107/2009 of the European Parliament and of the Council concerning the placing of plant protection products on the market, and amending the Annex to Commission Implementing Regulation (EU) No 540/2011. OJ L 315, 26.11.2013, p. 69–73.
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.
7 Commission Regulation (EU) No 188/2011 of 25 February 2011 laying down detailed rules for the implementation of Council Directive 91/414/EEC as regards the procedure for the assessment of active substances which were not on the market 2 years after the date of notification of that Directive. OJ No L 53, 26.2.2011, p. 51–55.

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On the basis of all the data submitted by Member States and the EU Reference Laboratories for Pesticides Residues (EURL), EFSA asked Ireland to complete the PROFile and to prepare a supporting evaluation report. The PROFile and the supporting evaluation report, together with the Pesticide Residues Intake Model (PRIMo) calculations, were submitted to EFSA on 18 December 2018. Subsequently, EFSA performed the completeness check of these documents with the RMS. The outcome of this exercise including the clarifications provided by the RMS, if any, was compiled in the completeness check report.

Considering all the available information, and taking into account the MRLs established by the Codex Alimentarius Commission (CAC) (i.e. codex maximum residue limit; CXLs), EFSA prepared in May 2020 a draft reasoned opinion, which was circulated to Member States for commenting via a written procedure. All comments received by 22 June 2020 were evaluated by EFSA during the finalisation of the reasoned opinion.

The evaluation report submitted by the RMS (Ireland, 2018), the evaluation reports provided by Member States during the collection of data (France, 2018; Greece, 2018; Italy, 2018; Netherlands, 2018; Portugal, 2018; United Kingdom, 2018) and the EURL report on analytical methods (EURL, 2018) are considered as main supporting documents to this reasoned opinion and, thus, made publicly available.

In addition, further supporting documents to this reasoned opinion are the completeness check report (EFSA, 2020a) and the Member States consultation report (EFSA, 2020b). These reports are developed to address all issues raised in the course of the review, from the initial completeness check to the reasoned opinion. Furthermore, the exposure calculations for all crops reported in the framework of this review performed using the EFSA Pesticide Residues Intake Model (PRIMo) and the PROFile as well as the GAP overview file listing all authorised uses and import tolerances are key supporting documents and made publicly available as background documents to this reasoned opinion. 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

Chlorantraniliprole is the ISO common name for 3-bromo-4'-chloro-1-(3-chloro-2-pyridyl)-2'-methyl-6'-[methylcarbamoyl]pyrazole-5-carboxanilide (IUPAC).

The chemical structure of the active substance and its main metabolite is reported in Appendix F.

The EU MRLs for chlorantraniliprole are established in Annexes IIIA of Regulation (EC) No 396/2005. Codex maximum residue limits (CXLs) for chlorantraniliprole 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                                                                 |
|---------------------------------|----------------------|-------------------------------------------------------------------------|
| MRL application                 | Not yet implemented  | Setting of import tolerances for chlorantraniliprole in oil palms fruits and oil palms kernels (EFSA, 2019a) |
| Commission Regulation (EU) 2019/50 | In hops (EFSA, 2018a)                                           |
| Commission Regulation (EU) 2016/567 | Modify and setting import tolerances in various crops (EFSA, 2015a) |
| Commission Regulation (EU) 36/2014 | Several roots, oilseeds and tuber (EFSA, 2013b)                      |
| Commission Regulation (EU) 241/2013 | Carrots, parsnips, parsley root and celeriac (EFSA, 2012a)            |
For the purpose of this MRL review, all the uses of chlorantraniliprole currently authorised within the EU and in third countries as submitted by the Member States during the GAP collection, have been reported by the RMS in the GAP overview files. The critical GAPs identified in the GAP overview files were then summarised in the PROFile and considered in the assessment. The details of the authorised critical GAPs for chlorantraniliprole are given in Appendix A.

Assessment

EFSA has based its assessment on the following documents:

- the PROFile submitted by the RMS;
- the evaluation report accompanying the PROFile (Ireland, 2018);
- the draft assessment report (DAR) and its addenda prepared under Council Directive 91/414/EEC (Ireland, 2010, 2013);
- the conclusion on the peer review of the pesticide risk assessment of the active substance chlorantraniliprole (EFSA, 2013a);
- the review report on chlorantraniliprole (European Commission, 2018);
- the Joint Meeting on Pesticide residues (JMPR) Evaluation report (FAO, 2008, 2010, 2013, 2014, 2016);
- the previous reasoned opinions on chlorantraniliprole (EFSA, 2010, 2011a, 2012a,b, 2013b, 2015a, 2016, 2018a, 2019a).

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, 2017; 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 chlorantraniliprole was investigated after foliar treatment in fruits (apples and tomatoes), leafy vegetables (lettuces) and pulses and oilseeds (cotton), and after soil drench in cereals (rice) (Ireland, 2010). The studies were conducted with $^{14}$C-chlorantraniliprole, either radiolabelled in the benzamide carbonyl or pyrazole carbonyl moiety (apple and cotton) or with a mixture containing

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The table below shows the legal implementation and remarks for the application of chlorantraniliprole in different crops:

| Procedure | Legal implementation | Remarks |
|-----------|----------------------|---------|
| Commission Regulation (EU) 441/2012 | Citrus fruits, strawberries, cranberries, currants, gooseberries, rose hips, mulberries and elderberries, globe artichokes, rice, sugar cane, swine, ruminants and equine tissues, milks and eggs (2012b) |
| Commission Regulation (EU) 978/2011 | Various crops (EFSA, 2011a) |
| Commission Regulation (EU) 460/2011 | Carrots (EFSA, 2010) |
| Specific request | Commission Regulation (EU) 2017/1016 | Emergency use in hops (EFSA, 2016) |
| Implementation of CAC | | |
| Commission Regulation (EU) 2018/687 | CCPR 49th (EFSA, 2017) |
| Commission Regulation (EU) 2016/567 | CCPR 47th (EFSA, 2015b) |
| Commission Regulation (EU) 2015/845 | CCPR 46th (EFSA, 2014) |
| Commission Regulation (EU) 2012/441 | CCPR 43th (EFSA, 2011b) |
| Commission Regulation (EU) 2010/459 | CCPR 41st |

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8 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, 11.06.2011, p. 127–175.
both radiolabelled forms in a ratio (1:1) (tomatoes, lettuces and rice). All studies were assessed in the framework of the peer review (EFSA, 2013a).

Following three foliar applications in apples, tomatoes and lettuces, one foliar application or incubation in a medicated solution in cotton, chlorantraniliprole was metabolised to a very limited extent, representing more than 80% of the total radioactive residues (TRR) in all plant samples collected up to 30 days after the last application (DALA) and 57% TRR in the mature cotton seeds harvested 126 DALA. No significant metabolites (≥ 0.01 mg eq/kg) were detected. No differences in the results that can be ascribed to the two labels were observed. It is noted that the metabolism study on fruits and oilseeds was underdosed, 0.5 N and 0.7 N, respectively, when compared to the most critical GAPs under assessment for citrus fruits (import tolerance) and oil seeds (import tolerance). However, this is not expected to have a significant impact since chlorantraniliprole was not metabolised to a great extent after foliar treatment.

After one soil application in rice, the metabolism was more extensive, with a total of 14 minor metabolites identified in addition to the parent in the different crop parts and in the soil/sediment matrices. At harvest, parent chlorantraniliprole was still the major component, representing more than 50% TRR in rice grain (0.08 mg eq/kg), straw and leaves. None of the metabolites accounted for more than 6% TRR.

The metabolism of chlorantraniliprole was sufficiently addressed in the four crop categories. Even if a specific study investigating metabolism in rice following seed treatment is not available, the results from the metabolism study after soil drench were considered as representative for the authorised use on rice in the frame of a previous MRL application (EFSA, 2011a).

### 1.1.2. Nature of residues in rotational crops

Chlorantraniliprole is authorised on crops that may be grown in rotation. The field DT$_{90}$ reported in the soil degradation studies evaluated in the framework of the peer review was 5,628 days for parent compound, while for metabolites IN-EQW78, IN-ECD73 and IN-GAZ70, the laboratory DT$_{90}$ was reported to be higher than 2,000 days. Moreover, laboratory DT$_{90}$ for metabolite IN-F6L99 was 259 days (EFSA, 2013a). Therefore, an investigation of residues in rotational crops following single and multiannual application is required.

One confined rotational crop study was available for this review (Ireland, 2010; EFSA, 2013a). Seeds of spring wheat (cereals), lettuce (leafy crops) and red beet (root and tuber vegetables) were sown into bare soil at nominal plant back intervals (PBI) of 0, 30, 120 and 365 days after treatment (DAT) with 300 g a.s/ha (2.4 N compared to the most critical European GAP under assessment for crops that can be rotated) of [pyrazole carbonyl-$_{14}$C]-chlorantraniliprole and at 30 days after treatment with 300 g a.s/ha of [benzamide carbonyl-$_{14}$C]-chlorantraniliprole. Spring wheat was also sown at 0 and 365 DAT after treatment with [pyrazole carbonyl-$_{14}$C]-chlorantraniliprole at 900 g a.s/ha (7 N).

Residues in lettuce increased over time, while residues in spring wheat increased until 120 DAT and decreased afterwards. Residues in red beet did not show a consistent pattern over time. The TRR in food commodities (wheat grain, lettuce, red beet roots) ranged from < 0.01 to 0.046 mg eq/kg, while in animal feed items (wheat forage, hay and straw, red beet forage), TRR was higher, ranging from 0.045 to 2.085 mg eq/kg.

In lettuce and spring wheat, chlorantraniliprole was the major residue in food items, in lettuce from 0 to 365 DAT, it ranged from 85 to 64% TRR; in wheat grain chlorantraniliprole represented 48% TRR at 120 DAT. Minor components were present at a maximum of 5% TRR, individually. Chlorantraniliprole was the main component in animal feed items as well (up to 84% TRR). In red beet, the metabolism was quite extensive. In tops no more than 4.8% (or 0.005 mg eq/kg) of TRR was detected as parent compound together with several metabolites, individually accounting for less than 10% TRR, with the exception of metabolite IN-F6L99 (11% TRR, 0.01 mg eq/kg). No characterisation was accomplished in roots as TRR was below 0.01 mg eq/kg. Following the application of either labelled compound or the exaggerated dose, no relevant differences in the metabolic profile were observed.

The metabolism and distribution of chlorantraniliprole in rotational crops are similar to the metabolic pathway observed in primary crops.

### 1.1.3. Nature of residues in processed commodities

A study investigating the nature of residues in processed commodities was assessed in the framework of the peer review (Ireland, 2010; EFSA, 2013a). The study was conducted with chlorantraniliprole radiolabelled in either the benzamide or pyrazole carbonyl positions simulating
representative hydrolytic conditions for pasteurisation (20 min at 90°C, pH 4), boiling/brewing/baking (60 min at 100°C, pH 5) and sterilisation (20 min at 120°C, pH 6).

The study demonstrated that chlorantraniliprole is hydrolytically stable under the conditions representative of pasteurisation and sterilisation. Nonetheless, under boiling conditions, it degraded slightly, forming the degradates IN-F6L99 (14% of total applied radioactivity – TAR), IN-EQW78 (4% TAR) and IN-ECD73 (11% TAR). Data from processing studies on apple, grape, tomato, plum and cotton showed that these metabolites were only detected at low levels (0.007–0.016 mg/kg) in processed tomato fractions (sterilised tomato paste and tomato ketchup, see Section 1.2.3) and the magnitude of parent compound was always significantly higher (86–87% TRR). Moreover, in the peer review report, it is stated that the three metabolites are considered of low toxicological relevance (EFSA, 2013c). Overall, EFSA considers the nature of residues in processed commodities was sufficiently elucidated.

1.1.4. Methods of analysis in plants

The multiresidue analytical method DFG S19 based on HPLC coupled to MS/MS detection was validated for the determination of chlorantraniliprole in high water (tomato), high acid (orange), high oil content (almond) and dry commodities (wheat grain) with an LOQ of 0.01 mg/kg. An independent laboratory validation (ILV) was also available. The studies were assessed in the framework of the peer review (Ireland, 2010; EFSA, 2013a).

In the frame of an MRL application (EFSA, 2018a), the DFG S19 multiresidue method was specifically validated for hops, with an LOQ of 0.01 mg/kg. An ILV conducted specifically for hops was also provided. Coffee beans are considered as matrix difficult to analyse and thus specific validation data should be provided for this matrix. However, since the DFG S19 multiresidue method was validated for the four main matrices and for hops, with the same LOQ (0.01 mg/kg), EFSA considers this method to be also applicable for coffee beans; nonetheless, the validation details for coffee beans are still desirable.

A single residue method (LC-MS/MS) provided in the DAR (Ireland, 2010) can be used for the enforcement of chlorantraniliprole in maize/corn stover, sorghum stover, rice and common millet straw, with LOQ 0.01 mg/kg, in view of the future need to set MRLs in feed items. An ILV on these matrices difficult to analyse was not conducted, and it is considered desirable.

During the completeness check, the EURLs provided validation results on QuEChERS multi-residue method using LC-MS/MS with an LOQ of 0.01 mg/kg in high water content, high acid content, high oil content and dry commodities for the enforcement of chlorantraniliprole in routine analysis (EURL, 2018). During the Member States consultation, EURLs provided additional information on the enforcement LOQ achieved in routine analysis for dry matrices. The new reported value is 0.005 mg/kg (EFSA, 2020b).

1.1.5. Stability of residues in plants

The storage stability of parent chlorantraniliprole was investigated in the framework of the peer review (EFSA, 2013a) in high water content (apple, tomato, lettuce, cauliflower), high acid content (grape), high oil content (cotton seed), high protein (wheat grain) and high starch contain (potato) commodities. Storage stability was also investigated in wheat straw and alfalfa hay (no group). These studies demonstrated storage stability of parent compound for a period of 24 months when stored at −20°C in all investigated matrices (Ireland, 2010; EFSA, 2013a).

Moreover, the storage stability of metabolites IN-EQW78, IN-ECD73 and IN-F6L99 was investigated in processed commodities (apple juice, tomato ketchup, cottonseed oil, cotton seed meal, raisins; see Section 1.1.2), and found to be stable for at least 12 months when stored at −20°C (Ireland, 2010; EFSA, 2013a).

It is noted that no specific study is available for the storage stability in coffee beans, hops and cereals’ stover. However, since storage stability was investigated and demonstrated in wheat straw and alfalfa hay, and it was found to be the same as for the four main plant matrices, the storage stability conditions demonstrated for cereals’ straw and oilseeds’ hay are assumed to be applicable to coffee beans, hops and cereals’ stover.
1.1.6. Proposed residue definitions

The metabolism of chlorantraniliprole was similar in all crops assessed. The metabolism in rotational crops is similar to the metabolism observed in primary crops.

Following foliar and soil drench treatments, parent chlorantraniliprole was by far the largest component of the radioactive residues in fruits, leafy vegetables, pulses and oilseeds and cereals. Although a specific metabolism study with cereals following seed treatment is not currently available, the metabolic profile in cereals after soil drench is deemed as representative to cover the authorised use on rice following seed treatment. Under processing, it was observed that baking, brewing and boiling degraded chlorantraniliprole up to 14%, whereas it was found to be stable under pasteurisation and sterilisation. Overall, parent chlorantraniliprole was still a sufficient marker for processed commodities. For risk assessment, besides parent, the inclusion of metabolites IN-F6L99, IN-EQW78 and IN-ECD73 (all formed under hydrolysis) was discussed during the peer review, and it was disregarded as they were considered as being of low toxicological relevance, they were only detected at low levels in some processed tomato fractions (tomato sauce, paste and ketchup) and their contributions to the overall consumer intake is negligible. Based on the above, the plant residue definition for monitoring and risk assessment set as chlorantraniliprole during the peer review, is still considered valid in this MRL review. This residue definition is applicable to raw and processed commodities.

A multiresidue analytical method for the enforcement of the proposed residue definition at the LOQ of 0.01 mg/kg in all matrices is available (Ireland, 2010; EFSA, 2013a). According to the EURLs, the LOQ of 0.01 mg/kg is achievable in high water, high acid and high oil content matrices by using multiresidue QuEChERS in routine analyses (EURL, 2018). For dry commodities, the LOQ in routine analysis was reported to be 0.005 mg/kg (EFSA, 2020b).

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

1.2. Magnitude of residues in plants

1.2.1. Magnitude of residues in primary crops

To assess the magnitude of chlorantraniliprole residues resulting from the reported GAPs, EFSA considered all residue trials reported by the RMS in its evaluation report (Ireland, 2018) as well as the residue trials evaluated in the framework of the peer review (Ireland, 2010; EFSA, 2013a), the supporting trials submitted by Member States (France, 2018; Greece, 2018; Italy, 2018; Netherlands, 2018; Portugal, 2018; United Kingdom 2018) and in the framework of a previous MRL applications (EFSA, 2011a, 2012a,b, 2013b, 2015a, 2018a). All residue trial samples considered in this framework were stored in compliance with the conditions for which storage stability of residues was demonstrated, except for two northern and four southern trials performed on apples, four (whole data set) southern trials on apricots, four (whole data set) northern trials on peaches, eight (whole data set) indoor trials on strawberries, four indoor trials on normal size tomatoes, five (whole data set) southern trials on head cabbage, two northern and two southern trials on lettuce (closed leaf varieties), four (whole data set) southern trials on grape leaves, for which additional information is required (see details below). In all other samples decline of residues during storage of the trial samples is therefore not expected.

The number of residue trials and extrapolations were evaluated in accordance with the European guidelines on comparability, extrapolation, group tolerances and data requirements for setting MRLs (European Commission, 2017).

Residue trials are not available to support the authorisations on sweet potatoes, Brussels sprouts, Chinese cabbages/pe-tsai, kales, kohlrabies, witloofs/Belgian endives, beans and peas (without pods), lentils (fresh), soyabeans and chicory roots. Therefore, MRL and risk assessment values could not be derived for these crops and the following data gaps were identified:

- Sweet potatoes: four trials on sweet potatoes compliant with the northern outdoor GAP are required.
Brussels sprouts: four trials on Brussels sprouts compliant with the northern outdoor GAP, four trials compliant with the southern outdoor GAP and four trials compliant with the import tolerance GAP are required.

Chinese cabbage/pe-tsai: four trials on Chinese cabbage compliant with the northern outdoor GAP, four trials compliant with the southern outdoor GAP, four trials compliant with the indoor GAP and four trials compliant with the import tolerance in place (US) are required.

Kales: four trials on kales compliant with the northern outdoor GAP, four trials compliant with the southern outdoor GAP and four trials compliant with the import tolerance in place (US) are required.

Kohlrabies: four trials on Kohlrabies compliant with the southern outdoor GAP are required.

Witloofs/Belgian endives: four trials on witloofs compliant with the northern outdoor GAP, four trials compliant with the southern outdoor GAP and four trials compliant with the indoor GAP are required.

Beans (without pods): four trials on beans (without pods) compliant with the import tolerance in place (US) are required.

Peas (without pods): eight trials on peas (without pods) compliant with the import tolerance in place (US) are required.

Lentils (fresh): four trials on lentils compliant with the import tolerance in place (US) are required.

Soyabeans: eight trials on soyabeans compliant with the import tolerance in place (Australia and Japan) are required.

Chicory roots: four trials on chicory roots compliant with the northern outdoor GAP are required.

Moreover, no residue trials are available to support the authorisations on the following feed items: common millet, maize/corn and sorghum forage, sorghum and maize/corn stover, common millet straw and turnip tops. Therefore, eight trials compliant with the northern and/or southern GAPs of these feed items are required, noting that the number of trials is indicative considering that MRLs and data requirements are not currently set for feed items.

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

- Citrus fruits: no residue trials are available to support the southern outdoor GAP. Nevertheless, considering that the application is done early in the season (before the edible part is formed), significant residues are not expected in citrus fruits according to this use. Therefore, no additional trials are required to support the southern outdoor GAP.
- Almonds, chestnuts, hazelnuts/cobnuts and pistachios: Although MRL and risk assessment values for these crops can be derived from the data supporting the import tolerance GAP, four trials compliant with the southern outdoor GAP for these crops are still required.
- Pome fruits: trials supporting the southern outdoor GAP for quinces, medlars and loquats were performed according to a more critical GAP. Nevertheless, considering that the import tolerance GAP is clearly more critical, no additional trials supporting the southern outdoor GAP for these crops are required. It is also noted that information on the storage stability of samples from two out of the 12 northern trials and for four out of the 14 southern trials, is not available. Nevertheless, considering that results from these trials are in the same range compared to the others, additional information on the storage conditions are only desirable.
- Apricots: although a tentative MRL can be derived based on a reduced data set supporting the southern outdoor GAP, four additional trials compliant with the southern outdoor GAP and eight residue trials compliant with the import tolerance GAP, are still required. Moreover, additional information on the storage conditions of the samples from all southern outdoor trials is still required.
- Peaches: although MRL and risk assessment values for this crop can be derived from the data supporting the import tolerance GAP, information of the storage conditions of the samples from all northern outdoor trials is still required.
- Strawberries: although a tentative MRL can be derived based on the data set supporting the indoor GAP, information of the storage conditions of these samples and eight trials compliant with the import tolerance GAP, are still required.
• Blueberries: although MRL and risk assessment values for this crop can be derived from the data supporting the import tolerance GAP, four trials compliant with the northern outdoor GAP are still required.
• Parsley roots/Hamburg roots parsley: although MRL and risk assessment values for this crop can be derived from the data supporting the southern outdoor GAP, four residue trials compliant with the indoor GAP are still required.
• Tomatoes: although MRL and risk assessment values for this crop can be derived from the data supporting the import tolerance GAP, eight residue trials compliant with the northern outdoor GAP are still required. It is noted that information on the storage stability of the samples from four out of the 25 indoor trials available is missing. Nevertheless, considering that results from these trials are in the same range compared to the others, additional information on the storage conditions are only desirable.
• Sweet peppers: the number of residue trials supporting the southern outdoor and the indoor GAPs is not compliant with the data requirement for this crop. Therefore, three additional trials compliant with the southern outdoor GAP and one additional trial compliant with the indoor GAP are still required. It is noted that during the peer review, residue levels in bell peppers were found to be significantly lower than in hot peppers, and thus, the additional trials should be performed on hot peppers.
• Cucumbers and gherkins: although MRL and risk assessment values for these crops can be derived from the data supporting the indoor GAP, eight residue trials on cucumbers and four residue trials on gherkins are still required to support the northern outdoor GAP of these crops.
• Melons and watermelons: although a tentative MRL can be derived based on a reduced data set supporting the import tolerance GAP, one additional trial compliant with the import tolerance GAP is still required.
• Cauliﬂowers and broccoli: although MRL and risk assessment values can be derived from the data supporting the import tolerance GAP (broccoli) and the southern outdoor GAP (cauliﬂowers), four residue trials on broccoli and four residue trials on cauliflowers are still required to support the indoor GAP for these crops.
• Head cabbages: although MRL and risk assessment values can be derived from the data supporting the import tolerance GAP, additional information on the storage conditions of the samples from all southern outdoor trials are still required.
• Lettuces and salad plants, spinaches and similar leaves, herbs and edible ﬂowers: the number of residue trials supporting the northern outdoor (lamb’s lettuce/corn salads, lettuces, roman rocket/rucoila, red mustards, escaroles/broad-leaved endives, whole subgroups of spinaches and similar leaves and herbs and edible ﬂowers (except laurel/bay leaf)), southern outdoor (lamb’s lettuce/corn salad, roman rocket/rucoila, red mustards and baby leaf crops (including brassica species), escaroles/broad-leaved endives, cresses and land cresses, whole subgroups of spinaches and similar leaves and herbs and edible ﬂowers) and indoor GAPs (escaroles/broad-leaved endives, cresses and land cresses, whole subgroups of spinaches and similar leaves, and herbs and edible ﬂowers) was not compliant with the data requirements for these crops. Moreover, the three residue trials available on open leaf lettuce varieties and one on closed leaf lettuce varieties were found to be overdosed when compared to the outdoor northern GAP. Nevertheless, considering that the import tolerance GAP is clearly more critical, no additional trials are required for these crops. It is noted that, as proposed by the RMS (Ireland, 2018), a combined data set on open leaf lettuce varieties and spinaches was used to support the import tolerance GAP on lettuces and salad plants, spinaches and similar leaves, herbs and edible ﬂowers. This is not fully in line with the extrapolation guidelines; however, based on the overall data available, the extrapolation is considered acceptable in this case. Furthermore, information on the storage stability of the samples from two out of the six northern trials and from two out of the 11 southern trials available on lettuces is missing. Nevertheless, considering that results from these trials are in the same range compared to the others, additional information on the storage conditions are only desirable.
• Grape leaves: although a tentative MRL can be derived based on the data set supporting the southern outdoor GAP, information of the storage conditions of these samples are still required.
• Beans (with pods): the number of residue trials supporting the northern outdoor GAP is not compliant with the data requirement for this crop. Moreover, all the northern trials were overdosed. Nevertheless, considering that the indoor GAP is clearly more critical, no additional trials compliant with the northern outdoor GAP are required.
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- Peas (with pods): although MRL and risk assessment values can be derived from the data supporting the import tolerance GAP, four trials compliant with the northern outdoor GAP are still required.
- Globe artichokes: although MRL and risk assessment values can be derived from the data supporting the import tolerance GAP, four trials compliant with the northern outdoor GAP are still required.
- Peanuts: although a tentative MRL can be derived based on a reduced data set supporting the import tolerance GAP, two additional trials compliant with this GAP are still required.
- Sunflower seeds: although a tentative MRL can be derived based on a reduced data set supporting the import tolerance GAP, two additional trials compliant with this GAP are still required.
- Rapeseeds: although a tentative MRL can be derived based on a reduced data set supporting the import tolerance GAP, two additional trials compliant with this GAP are still required.
- Cotton seed: although MRL and risk assessment values for this crop can be derived from the data supporting the import tolerance GAP, eight residue trials compliant with the southern outdoor GAP are still required.
- Maize, sweet corn, common millet and sorghum: the number of residue trials supporting the northern and the southern outdoor GAPs is not compliant with the data requirement for these crops. Moreover, all northern trials on maize grains were overdosed. However, the northern overdosed trials and the reduced number of southern and northern residue trials are considered acceptable in this case as all results were below the LOQ and a no residue situation is expected. Further residue trials are therefore not required.
- Rice grain: the number of residue trials supporting the southern outdoor GAP is not compliant with the data requirement for this crop. Nevertheless, considering that the import tolerance GAP is clearly more critical, no additional trials are required to support the southern outdoor GAP.

1.2.2. Magnitude of residues in rotational crops

Field rotational crop studies carried out in the EU and in the US were available for this review (Ireland, 2010, 2013; EFSA, 2013a). The EU studies were conducted at an application rate of 80 g a.s/ha (0.6 N of the maximum seasonal application rate currently authorised on crops that can be rotated), while the US studies were performed at application rates of 200–225 or 600 g a.s/ha (1.8 N and 4.8 N). The US studies are thus considered more appropriate to investigate the magnitude of residues in rotational crops. Representatives of root crops, leafy vegetables, cereal crops, as well as soybeans were sown/planted at the plant back intervals (PBI) of 13–61 days, 122–151 and 238–279 days. Residues of chlorantraniliprole were below the LOQ of 0.01 mg/kg in the edible parts of the plants, and mostly below 0.05 mg/kg in feed items (tops of root vegetables, cereal forage, hay and straw). The residues of soil metabolites were not searched for as they were below the relevant trigger values in the confined rotational crop study.

Given the high persistence of chlorantraniliprole in soil (see Section 1.1.2), the potential occurrence of residues following multiannual applications should also be investigated. According to the soil accumulation studies assessed in the peer review, the predicted environmental concentration of chlorantraniliprole in soil (the so-called plateau level) was estimated to be 0.11 mg/kg (20 cm soil) following applications of chlorantraniliprole on lettuce at an annual rate of 80 g a.s/ha over 20 consecutive years (EFSA, 2013a). The peer review stated that the US field trials conducted at ca. 0.8–1.7 N plateau level were sufficient to conclude that no chlorantraniliprole residues are expected to occur in rotational crops when the active substance was used according to the EU GAPs. Since the most critical EU GAP for crops that can be rotated was evaluated under the peer review is the same as the one under this assessment, this conclusion is also applicable to this MRL review, and therefore, significant residue levels of chlorantraniliprole are not expected in succeeding crops, provided that the active substance is applied in compliance with the European GAPs reported in Appendix A.

1.2.3. Magnitude of residues in processed commodities

The effect of industrial processing and/or household preparation was assessed on studies conducted on apples, plums, table and wine grapes, tomatoes, cotton seeds and oil palm fruits. Moreover, peeling factors were also derived for melons (Ireland, 2010; EFSA, 2013a). An overview of all available processing studies is available in Appendix B.1.2.3. Robust processing factors (fully supported by data) could be derived for apple juice, sauce, dry and wet pomace; peeled and canned tomato, and tomato sauce, paste, ketchup and juice; crude palm oil and mesocarp cake. Sufficient
data were also available to derive robust peeling factors for melons. Tentative processing factors (not fully supported by data) were derived for dried plums (prunes); dried table grapes (raisins); wine grapes juice, dry and wet pomace, must, red and white wine. Tentative processing factors were also derived for cotton seeds refined oil and meal/press cake.

Residues of metabolites IN-F6L99, IN-EQW78 and IN-ECD73 were detected at low levels (0.007–0.016 mg/kg) in tomato sauce, paste, ketchup, crushed and reduced tomato (Ireland, 2010), while they were not reported in the processing studies conducted with oil palm fruits. These metabolites were not included in the residue definition for risk assessment for processed commodities (see Sections 1.1.3 and 1.1.6). Nonetheless, it should be stressed that if new uses are authorised in the future, the levels of these metabolites (IN-F6L99, IN-EQW78 and IN-ECD73) should be analysed in processed commodities and, if significant levels are found, their inclusion in the risk assessment residue definition should be reconsidered.

Further processing studies are not required as they are not expected to affect the outcome of the risk assessment. However, if more robust processing factors were to be required by 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 (tentative) MRL proposals as well as risk assessment values for all commodities under evaluation, except for sweet potatoes, Brussels sprouts, Chinese cabbages/pe-tsai, kales, kohlrabies, witloofs/Belgian endives, beans and peas (without pods), lentils (fresh), soybeans and chicory roots, for which no data are available to derive MRL and risk assessment values.

Tentative MRLs were also derived for feed crops (rice straw) in view of the future need to set MRLs in feed items; nonetheless, no residue trials were available to derive tentative MRLs on common millet, maize/corn and sorghum forage, sorghum and maize/corn stover, common millet straw and turnip tops.

2. Residues in livestock

Chlorantraniliprole is authorised for use on crops that might be fed to livestock. Livestock dietary burden calculations were therefore performed 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 (common millet, maize/corn and sorghum forage, sorghum and maize/corn stover, common millet straw and turnip tops), no residue data were available. The animal intake of chlorantraniliprole residues via these commodities has therefore not been assessed and may have been underestimated. However, this is not expected to have a major impact on the outcome of the dietary burden considering the high/overwhelming contribution of head cabbage.

2.1. Nature of residues and methods of analysis in livestock

The metabolism of chlorantraniliprole residues in livestock was investigated in lactating goats and laying hens at dose rate covering the maximum dietary burdens calculated in this review (Ireland, 2010). These studies were assessed in the framework of the peer review (EFSA, 2013a). Animals were dosed with a mixture (1:1) of 14C-pyralzol-carbonyl and 14C-benzamide-carbonyl-chlorantraniliprole over 7 (goat) and 14 (poultry) consecutive days.

The studies performed with lactating goats and laying hens indicate that chlorantraniliprole was extensively eliminated and less than 4% (poultry) and 1% (goat) of the administered radioactivity was recovered in eggs, milk and animal tissues. The study performed on laying hens shows that the metabolism is quite extensive, with several metabolites identified. In liver and muscle, none of the metabolites represented more than 10% TRR.

In fat, chlorantraniliprole was the major component of the extracted radioactivity, accounting for 18% TRR (0.01 mg eq/kg). The major components of the radioactivity observed in eggs at plateau were parent chlorantraniliprole (32% TRR, 0.256 mg eq/kg) and IN-GAZ70 (40% TRR, 0.377 mg eq/kg). Metabolites IN-H2H20 and IN-K7H29 were also identified in significant proportions in egg yolk (11–24% TRR, 0.05–0.08 mg eq/kg).
In lactating goats, the highest TRR were found in liver and kidney (0.09–2.6 mg eq/kg). Lower levels were found in muscle (0.015 mg eq/kg). The main compound identified in kidney, muscle and fat was parent chlorantraniliprole (19–75% TRR, 0.017–0.051 mg eq/kg). In liver, chlorantraniliprole was also identified together with several metabolites, all present at low levels (< 10% TRR). In milk, in addition to parent chlorantraniliprole, which accounted for 24% TRR (0.016 mg eq/kg), two metabolites were also identified at similar proportions as the parent: IN-K9T00 and IN-HXH44, both at 26% TRR, 0.02 mg eq/kg.

EFSA concludes that the metabolism of chlorantraniliprole in livestock is adequately elucidated. The metabolism exhibited a different pattern in ruminants and poultry, with parent and metabolites IN-GAZ70, IN-H2H20 as the most relevant components of the residue in hen, while parent and metabolites IN-HXH44 and IN-K9T00 were the most relevant components in goat.

The storage stability of parent chlorantraniliprole and metabolites IN-K9T00, IN-HXH44, IN-GAZ70 and IN-EQW78 was demonstrated for a period of 12 months at –20°C in muscle, fat, liver, kidney and milk (Ireland, 2010; EFSA, 2013a). No studies are available for eggs, but they are not deemed necessary at the time of this MRL review (see Section 2.2).

As the parent compound was found to be a sufficient marker in all livestock commodities, the residue definition for enforcement is proposed as chlorantraniliprole, and considered to be fat soluble.

An analytical method and its ILV for the enforcement of the proposed residue definition at the LOQ of 0.01 mg/kg in all matrices is available (Ireland, 2010; EFSA, 2013a). Screening data generated by EURLs for commodities of animal origin showed that chlorantraniliprole can be screened in meat and milk with a screening detection limit (SDL) of 0.0025 mg/kg and in egg with an SDL of 0.005 mg/kg, in routine analysis (EURL, 2018).

For risk assessment in ruminants, metabolites IN-HXH44 and IN-K9T00 represent a significant part of the residue in milk, they were found in the rat metabolism and considered to be covered by the toxicological profile of the parent (EFSA, 2013a). Hence, the peer review defined the residue for risk assessment as the sum of chlorantraniliprole, IN-HXH44 and IN-K9T00, expressed as chlorantraniliprole. EFSA considers this residue definition as still valid for ruminants and swine. For poultry, however, the dietary burden was not triggered at the time of the peer review, but it is triggered in this assessment. As indicated above, the metabolic pattern in ruminants and poultry was found to be different. In poultry tissues, no metabolites were found at significant levels of the applied radioactivity, and therefore, the risk assessment residue definition for poultry tissues is expressed as chlorantraniliprole. In eggs, metabolite IN-GAZ70 was encountered in the white at significant level, even when scaled down to the calculated dietary burden. Metabolite IN-H2H20 was also found at significant level in egg yolk in the overdosed metabolism study. Both metabolites were found in the rat metabolism and their toxicity can be considered as covered by that of the parent (EFSA, 2013c). In view of the results of the feeding studies conducted with poultry (see Section 2.2), where at the closest feeding level, residues of metabolites IN-GAZ70 and IN-H2H20 remained at or below the LOQ and were twice lower than those of chlorantraniliprole, and the large margin of safety in the exposure calculations (see Section 3), the residue definition for risk assessment for eggs is proposed as chlorantraniliprole only. EFSA emphasises that if new authorisations on crops significantly contributing to the poultry diets are granted in the future, the inclusion of these metabolites should be reconsidered.

2.2. Magnitude of residues in livestock

In the framework of the peer review, a feeding study was performed with dairy cows (Ireland, 2010). In the study, chlorantraniliprole was administered to four groups of lactating cows at dosing levels of 0.029 mg/kg, 0.083 mg/kg, 0.287 mg/kg and 1.354 mg/kg body weight (bw) per day. In addition to this, a feeding study with laying hens was made available by the RMS for this review (Ireland, 2018). Chlorantraniliprole was administrated to laying hens at three different dosing levels, namely 0.230 mg/kg, 0.746 mg/kg and 2.419 mg/kg bw per day.

The study conducted with dairy cows was used to derive MRL and risk assessment values in milk and tissues of ruminants. Since extrapolation from ruminants to pigs is acceptable, results of the livestock feeding study on ruminants were relied upon to derive the MRL and risk assessment values in pigs. In the study, samples of tissues and milk were analysed for the risk assessment residue definition set for ruminants and swine. The storage period of the samples was covered by the conditions for which storage stability was demonstrated, thus decline of residues during storage of the trial samples is not expected.
Based on these studies, MRL and risk assessment values were derived for all commodities of dairy ruminants, meat ruminants and pigs, in compliance with the latest recommendations on this matter (FAO, 2009). It is noted that significant levels of chlorantraniliprole are only expected in cattle fat and liver, while for other tissues and milk, MRLs are proposed at the LOQ. Based on the available feeding study, EFSA also derived conversion factors (CF) of 1.8 and 1.9 for risk assessment in ruminants’ liver and kidney, respectively. For swine tissues and ruminants’ milk, muscle and fat, a conversion factor of 1 could be proposed as parent and metabolites included in the risk assessment residue definition were all below the LOQ of 0.01 mg/kg, at the calculated dietary burden.

For poultry, the metabolism study, performed at 23 N rate compared to the maximum dietary burden, is sufficient to conclude that residue levels would remain below the enforcement LOQ of 0.01 mg/kg in muscle, fat and liver tissues. The results of the available feeding studies performed with laying hens at 6.6, 21.3 and 69.1 N rate compared to the maximum dietary burden confirmed this conclusion. However, the occurrence of residues in eggs cannot be excluded from the metabolism study, and thus, the feeding study with laying hens was used to derive MRL and risk assessment values in eggs. In this study, egg and tissue samples were analysed for parent chlorantraniliprole and metabolites IN-GAZ70, IN-H2H20, IN-F9N04, IN-K7H29 and IN-EQW78. Samples were stored for less than one month at –80°C before the analysis. Hence, storage stability studies with eggs are not required and decline of residues during storage of the trial samples is not expected. Based on the studies, MRL and risk assessment values were derived for eggs, in compliance with the latest recommendations on this matter (FAO, 2009). Only residue levels of parent chlorantraniliprole are expected to be higher than the LOQ at the calculated dietary burden.

3. Consumer risk assessment

In the framework of this review, only the uses of chlorantraniliprole reported by the RMS in Appendix A were considered; however, the use of chlorantraniliprole was previously also assessed by the JMPR (FAO, 2008, 2010, 2013, 2014, 2016). 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 exposure calculations for all crops reported in the framework of this review were performed using revision 3.1 of the EFSA PRIMo (EFSA, 2018b, 2019b). 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 1, EFSA considered the existing EU MRL for an indicative calculation. All input values included in the exposure calculations are summarised in Appendix D. Acute exposure calculations were not carried out because an acute reference dose (ARfD) was not deemed necessary for this active substance.

The exposure values calculated were compared with the toxicological reference value for chlorantraniliprole, derived by EFSA (2013a). The highest chronic exposure was calculated for Dutch toddler, representing 1% of the acceptable daily intake (ADI). These calculations indicate that the uses assessed under this review result in a consumer exposure lower than the toxicological reference values. Therefore, these uses are unlikely to pose a risk to consumer’s health.

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. For those commodities having a CXL higher than the EU MRL proposal, risk assessment values used in the EU scenario were replaced by the risk assessment values derived by JMPR, bearing in mind the following considerations:
CXLs for broccoli, cauliflower, brussels sprouts, head cabbage, kohlrabi, peas with and without pods, coffee beans and hops were not legally implemented in the EU Regulation due to reservations related to different polices of extrapolation, raised by the EU delegation. The CXLs for these commodities were not considered further in the consumer risk assessment.

For poultry tissues and eggs, the EU and JMPR residue definitions for risk assessment are comparable. However, the EU residue definition for risk assessment of ruminants and swine comprises two additional metabolites, i.e. HXH44 and IN-K9T00, not considered by JMPR. Since the CXLs for livestock are higher compared to the MRLs derived considering the EU uses (below the LOQ for most of the commodities) and the levels of the metabolites HXH44 and IN-K9T00 coming from JMPR were not specified, to take into account the contribution of these metabolites, the more conservative conversion factors (mainly for milk) from enforcement to risk assessment as derived by the peer review (EFSA, 2013a) for liver, kidney and muscle (CF of 1.5), fat (CF of 1) and milk (CF of 3) were applied to the risk assessment values derived by JMPR, and the input values calculated accordingly (see Appendix D.2).

Chronic exposure calculations were also performed using revision 3.1 of the EFSA PRIMo and the exposure values calculated were compared with the toxicological reference value derived for chlorantraniliprole. Acute exposure calculations were not carried out because an acute reference dose (ARfD) was not deemed necessary for this active substance. The highest chronic exposure was calculated for Dutch toddler, representing 0.8% of the ADI. Based on these calculations, EFSA concludes that the CXLs are not expected to be of concern for European consumers.

EFSA emphasises that the above assessment does not consider the possible impact of plant and livestock metabolism on the isomer ratio of chlorantraniliprole, and further investigation on this matter would in principle be required. Nonetheless, EFSA notes that in view of the large margin of safety in the exposure calculations, the potential change of isomer ratios in the final residue will not be of concern for the authorised uses reported in the framework of this review. In case future uses of chlorantraniliprole would lead to a higher consumer exposure, further information regarding the impact of plant and livestock metabolism on the isomer ratio might be required.

Conclusions

The metabolism of chlorantraniliprole in plant was investigated in primary and rotational crops. According to the results of the metabolism studies, the residue definition for enforcement and risk assessment can be proposed as chlorantraniliprole. This residue definition is also applicable to processed commodities. Fully validated analytical methods are available for the enforcement of the proposed residue definition in the four main matrix groups, as well as in hops and coffee beans (validation details still desirable for coffee beans) at the LOQ of 0.01 mg/kg. According to the EURLs, the LOQ of 0.01 mg/kg is achievable in high water, high acid and high oil content commodities, and 0.005 mg/kg in dry commodities, by using multiresidue methods in routine analyses.

Available residue trials data were considered sufficient to derive (tentative) MRL proposals as well as risk assessment values for all commodities under evaluation, except for sweet potatoes, Brussels sprouts, Chinese cabbages/pe-tsai, kales, kohlrabies, witloofs/Belgian endives, beans and peas (without pods), lentils (fresh), soyabeans and chicory roots, for which no data are available to derive MRL and risk assessment values.

Chlorantraniliprole is authorised for use on crops that might be fed to livestock. Livestock dietary burden calculations were therefore performed for different groups of livestock according to OECD guidance. 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.

The metabolism of chlorantraniliprole residues in livestock was investigated in lactating goats and laying hens at dose rate covering the maximum dietary burdens calculated in this review. Different metabolic patterns were observed for ruminants and poultry, with parent chlorantraniliprole identified as a good marker. The residue definition for enforcement in all livestock commodities was therefore proposed as chlorantraniliprole. For risk assessment, attending to the different metabolic patterns observed in ruminants and poultry and the results of the feeding studies, different residue definitions were proposed, namely, sum of chlorantraniliprole, IN-HXH44 and IN-K9T00, expressed as chlorantraniliprole, for ruminants and swine; and parent chlorantraniliprole only, for poultry tissues and eggs. An analytical method for the enforcement of the proposed residue definition at the LOQ of 0.01 mg/kg in all matrices is available. According to the EURLs, a screening detection limit (SDL) of 0.0025 mg/kg is achievable in meat and milk, and of 0.005 mg/kg in egg, by using multiresidue methods in routine analyses.
A livestock feeding study with lactating cows was used to derive MRL and risk assessment values in milk and tissues of ruminants. Since extrapolation from ruminants to pigs is acceptable, results of the livestock feeding study on ruminants were relied upon to derive the MRL and risk assessment values in pigs. For poultry, the metabolism study was sufficient to conclude that, at the calculated dietary burden, residue levels would remain below the enforcement LOQ of 0.01 mg/kg in tissues; however, the occurrence of residues in eggs could not be excluded from the metabolism study. A feeding study conducted with laying hens was used to derive MRL and risk assessment values in eggs.

Chronic consumer exposure resulting from the authorised uses reported in the framework of this review was calculated using revision 3.1 of the EFSA PRIMo. For those commodities where data were insufficient to derive an MRL, EFSA considered the existing EU MRL for an indicative calculation. The highest chronic exposure was calculated for Dutch toddler, representing 1% of the acceptable daily intake (ADI). Acute exposure calculations were not carried out because an ARfD was not deemed necessary for this active substance.

Apart from the MRLs evaluated in the framework of this review, internationally recommended CXLs have also been established for chlorantraniliprole. Additional calculations of the consumer exposure, considering these CXLs, were therefore carried out. The highest chronic exposure was calculated for Dutch toddler, representing 0.8% of the ADI.

Recommendations

MRL recommendations were derived in compliance with the decision tree reported in Appendix E of the reasoned opinion (see Table 2). 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 Table 2 footnotes for details). In particular, some tentative MRL(s) and existing EU MRL(s) need to be confirmed by the following data:

- GAP compliant residue trials to support the authorised uses on Brussels sprouts, kohlrabies, beans and peas (without pods), lentils (fresh) and chicory roots;
- one additional trial on hot pepper supporting the authorised indoor use on peppers;
- one additional trial on melon supporting the authorised import tolerance in place for melons and watermelons;
- information on storage conditions of the whole data set of samples supporting the authorised southern use on grape leaves, to confirm the results of the available trials;
- two additional residue trials supporting the authorised import tolerance in place for peanuts;
- two additional residue trials supporting the authorised import tolerance in place for sunflower seeds;
- two additional residue trials supporting the authorised import tolerance in place for rapeseeds;

It is highlighted, however, that some of the MRLs derived result from a CXL or from a GAP in one climatic zone only, whereas other GAPs reported by the RMS were not fully supported by data. EFSA therefore identified the following data gaps which are not expected to impact on the validity of the MRLs derived but which might have an impact on national authorisations:

- additional residue trials supporting the authorised GAPs on almonds (SEU), chestnuts (SEU), hazelnuts/cobnuts (SEU), pistachios (SEU), apricots (SEU and IT), strawberries (IT), blueberries (NEU), parsley/Hamburg roots (indoor), tomatoes (NEU), hot peppers (SEU), cucumbers (NEU), gherkins (NEU), broccoli (indoor), cauliflower (indoor), peas with pods (NEU), globe artichokes (NEU), cotton seeds (SEU), sweet potatoes (NEU), witloofs/Belgian endives (NEU, SEU and indoor), soyabean (IT), Chinese cabbages/pe-tsai (NEU, SEU, indoor and IT) and kales (NEU, SEU and IT);
- information on storage conditions of the whole data set of samples of apricots (SEU), peaches (NEU), strawberries (indoor) and head cabbage (SEU), to confirm the results of the available trials.

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 in the assessment, 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 not essential:
• validation details of an analytical method for enforcement of residues in coffee beans;
• storage conditions of some trials’ samples (see Table B.1.2.1. for details) of apples and pears (NEU and SEU), tomatoes (indoor) and lettuces (NEU and SEU), to confirm the results of the available trials;
• eight trials compliant with the northern and/or southern GAPs of the following feed items: common millet, maize/corn and sorghum forage, sorghum and maize/corn stover, common millet straw and turnip tops. The number of trials is indicative considering that MRLs and data requirements are not currently set for feed items.

During the finalisation of the reasoned opinion, an import tolerance application to set MRLs in oil palm fruits and kernel was published by EFSA (EFSA, 2019a). Although not yet implemented, the MRLs recommended by EFSA in the said application have been included in the recommendations of this MRL review for consideration by risk managers when establishing the MRL for these commodities.

Table 2: Summary table

| Code number | Commodity    | Existing EU MRL (mg/kg) | Existing CXL (mg/kg) | Outcome of the review MRL (mg/kg) | Comment |
|-------------|--------------|-------------------------|----------------------|----------------------------------|---------|
| 110010      | Grapefruit   | 0.7                     | 0.7                  | 0.7                              | Recommended (a) |
| 110020      | Oranges      | 0.7                     | 0.7                  | 0.7                              | Recommended (a) |
| 110030      | Lemons       | 0.7                     | 0.7                  | 0.7                              | Recommended (a) |
| 110040      | Limes        | 0.7                     | 0.7                  | 0.7                              | Recommended (a) |
| 110050      | Mandarins    | 0.7                     | 0.7                  | 0.7                              | Recommended (a) |
| 120010      | Almonds      | 0.05                    | 0.02                 | 0.03                             | Recommended (a) |
| 120020      | Brazil nuts  | 0.05                    | 0.02                 | 0.03                             | Recommended (a) |
| 120030      | Cashew nuts  | 0.05                    | 0.02                 | 0.03                             | Recommended (a) |
| 120040      | Chestnuts    | 0.05                    | 0.02                 | 0.03                             | Recommended (a) |
| 120050      | Coconuts     | 0.05                    | 0.02                 | 0.03                             | Recommended (a) |
| 120060      | Hazelnuts    | 0.05                    | 0.02                 | 0.03                             | Recommended (a) |
| 120070      | Macadamia    | 0.05                    | 0.02                 | 0.03                             | Recommended (a) |
| 120080      | Pecans       | 0.05                    | 0.02                 | 0.03                             | Recommended (a) |
| 120090      | Pine nuts    | 0.05                    | 0.02                 | 0.03                             | Recommended (a) |
| 120100      | Pistachios   | 0.05                    | 0.02                 | 0.03                             | Recommended (a) |
| 120110      | Walnuts      | 0.05                    | 0.02                 | 0.03                             | Recommended (a) |
| 130010      | Apples       | 0.5                     | 0.4                  | 0.4                              | Recommended (a) |
| 130020      | Pears        | 0.5                     | 0.4                  | 0.4                              | Recommended (a) |
| 130030      | Quinces      | 0.5                     | 0.4                  | 0.4                              | Recommended (a) |
| 130040      | Medlar       | 0.5                     | 0.4                  | 0.4                              | Recommended (a) |
| 130050      | Loquat       | 0.5                     | 0.4                  | 0.4                              | Recommended (a) |
| 140010      | Apricots     | 1                       | 1                    | 1                                | Recommended (a) |
| 140020      | Cherries     | 1                       | 1                    | 1                                | Recommended (a) |
| 140030      | Peaches      | 1                       | 1                    | 1                                | Recommended (a) |
| 140040      | Plums        | 1                       | 1                    | 1                                | Recommended (a) |
| 151010      | Table grapes | 1                       | 1                    | 1                                | Recommended (a) |
| 151020      | Wine grapes  | 1                       | 1                    | 1                                | Recommended (a) |
| 152000      | Strawberries | 1                       | 1                    | 1                                | Recommended (a) |
| 153010      | Blackberries | 1                       | 1                    | 1.5                              | Recommended (a) |
| 153020      | Dewberries   | 1                       | 1                    | 1.5                              | Recommended (a) |
| 153030      | Raspberries  | 1                       | 1                    | 1.5                              | Recommended (a) |
| 154010      | Blueberries  | 1.5                     | 1                    | 1.5                              | Recommended (a) |
| 154020      | Cranberries  | 1                       | 1                    | 1                                | Recommended (a) |

Enforcement residue definition: chlorantraniliprole (F)
| Code number | Commodity                                      | Existing EU MRL (mg/kg) | Existing CXL (mg/kg) | Outcome of the review MRL (mg/kg) | Comment     |
|-------------|-----------------------------------------------|-------------------------|----------------------|----------------------------------|-------------|
| 154030      | Currants (red, black and white)               | 1                       | 1                    | 1                                | Recommended |
| 154040      | Gooseberries                                  | 1                       | 1                    | 1                                | Recommended |
| 154050      | Rose hips                                     | 1                       | 1                    | 1                                | Recommended |
| 154060      | Mulberries                                    | 1                       | 1                    | 1                                | Recommended |
| 154070      | Azarole (mediterranean medlar)                | 0.01*                   | 1                    | 1                                | Recommended |
| 154080      | Elderberries                                  | 1                       | 1                    | 1                                | Recommended |
| 161040      | Kumquats                                      | 0.01*                   | 0.7                  | 0.7                              | Recommended |
| 163050      | Pomegranate                                   | 0.4                     | 0.4                  | 0.4                              | Recommended |
| 211000      | Potatoes                                      | 0.02                    | 0.02                 | 0.03                             | Recommended |
| 212010      | Cassava                                       | 0.02                    | 0.02                 | 0.02                             | Recommended |
| 212020      | Sweet potatoes                                | 0.02                    | 0.02                 | 0.02                             | Recommended |
| 212030      | Yams                                          | 0.02                    | 0.02                 | 0.02                             | Recommended |
| 212040      | Arrowroot                                     | 0.02                    | 0.02                 | 0.02                             | Recommended |
| 213010      | Beetroot                                      | 0.06                    | 0.02                 | 0.06                             | Recommended |
| 213020      | Carrots                                       | 0.08                    | 0.08                 | 0.08                             | Recommended |
| 213030      | Celeriac                                      | 0.06                    | 0.02                 | 0.06                             | Recommended |
| 213040      | Horseradish                                   | 0.06                    | 0.02                 | 0.06                             | Recommended |
| 213050      | Jerusalem artichokes                          | 0.06                    | 0.02                 | 0.06                             | Recommended |
| 213060      | Parsnips                                      | 0.06                    | 0.02                 | 0.06                             | Recommended |
| 213070      | Parsley root                                  | 0.06                    | 0.02                 | 0.06                             | Recommended |
| 213080      | Radishes                                      | 0.5                     | 0.5                  | 0.5                              | Recommended |
| 213090      | Salsify                                       | 0.06                    | 0.02                 | 0.06                             | Recommended |
| 213100      | Swedes                                        | 0.06                    | 0.02                 | 0.06                             | Recommended |
| 213110      | Turnips                                       | 0.06                    | 0.02                 | 0.06                             | Recommended |
| 231010      | Tomatoes                                      | 0.6                     | 0.6                  | 0.6                              | Recommended |
| 231020      | Peppers                                       | 1                       | 0.6                  | 1                                | Further consideration needed |
| 231030      | Aubergines (egg plants)                       | 0.6                     | 0.6                  | 0.6                              | Recommended |
| 231040      | Okra, lady's fingers                          | 0.6                     | 0.6                  | 0.6                              | Recommended |
| 232010      | Cucumbers                                     | 0.3                     | 0.3                  | 0.3                              | Recommended |
| 232020      | Gherkins                                      | 0.3                     | 0.3                  | 0.3                              | Recommended |
| 232030      | Courgettes                                    | 0.3                     | 0.3                  | 0.3                              | Recommended |
| 233010      | Melons                                        | 0.3                     | 0.3                  | 0.3                              | Further consideration needed |
| 233020      | Pumpkins                                      | 0.3                     | 0.3                  | 0.3                              | Recommended |
| 233030      | Watermelons                                   | 0.3                     | 0.3                  | 0.3                              | Further consideration needed |
| 234000      | Sweet corn                                    | 0.2                     | 0.01*                | 0.01*                            | Recommended |
| 241010      | Broccoli                                      | 1                       | 2                    | 1.5                              | Recommended |
| 241020      | Cauliflower                                   | 0.6                     | 2                    | 0.5                              | Recommended |
| 242010      | Brussels sprouts                              | 0.01*                   | 2                    | 0.01*                            | Further consideration needed |
| 242020      | Head cabbage                                  | 2                       | 2                    | 2                                | Recommended |
| 243010      | Chinese cabbage                               | 20                      | 20                   | 20                               | Recommended |
| 243020      | Kale                                          | 20                      | 20                   | 20                               | Recommended |
| 244000      | Kohlrabi                                      | 0.01*                   | 2                    | 0.01*                            | Further consideration needed |
| 251010      | Lamb's lettuce                                | 20                      | 20                   | 20                               | Recommended |
| Code number | Commodity                                      | Existing EU MRL (mg/kg) | Existing CXL (mg/kg) | Outcome of the review MRL (mg/kg) | Comment                                      |
|-------------|-----------------------------------------------|-------------------------|----------------------|-----------------------------------|----------------------------------------------|
| 251020      | Lettuce                                        | 20                      | 20                   | 20                                | Recommended (a)                              |
| 251030      | Scarole (broad-leaf endive)                   | 20                      | 20                   | 20                                | Recommended (a)                              |
| 251040      | Cress                                          | 20                      | 20                   | 20                                | Recommended (a)                              |
| 251050      | Land cress                                     | 20                      | 20                   | 20                                | Recommended (a)                              |
| 251060      | Rocket, Rucola                                 | 20                      | 20                   | 20                                | Recommended (a)                              |
| 251070      | Red mustard                                    | 20                      | 20                   | 20                                | Recommended (a)                              |
| 251080      | Leaves and sprouts of Brassica spp             | 20                      | 40                   | 40                                | Recommended (c)                              |
| 252010      | Spinach                                        | 20                      | 20                   | 20                                | Recommended (a)                              |
| 252020      | Purslane                                       | 20                      | 20                   | 20                                | Recommended (a)                              |
| 252030      | Beet leaves (chard)                            | 20                      | 20                   | 20                                | Recommended (a)                              |
| 253000      | Vine leaves (grape leaves)                    | 20                      | 20                   | 20                                | Further consideration needed (f)             |
| 254000      | Water cress                                    | 20                      | 20                   | 20                                | Recommended (a)                              |
| 255000      | Witloof                                        | 20                      | 20                   | 20                                | Recommended (a)                              |
| 256010      | Chervil                                        | 20                      | 20                   | 20                                | Recommended (a)                              |
| 256020      | Chives                                         | 20                      | 20                   | 20                                | Recommended (a)                              |
| 256030      | Celery leaves                                  | 20                      | 20                   | 20                                | Recommended (a)                              |
| 256040      | Parsley                                        | 20                      | 20                   | 20                                | Recommended (a)                              |
| 256050      | Sage                                           | 20                      | 20                   | 20                                | Recommended (a)                              |
| 256060      | Rosemary                                       | 20                      | 20                   | 20                                | Recommended (a)                              |
| 256070      | Thyme                                          | 20                      | 20                   | 20                                | Recommended (a)                              |
| 256080      | Basil                                          | 20                      | 15                   | 20                                | Recommended (a)                              |
| 256090      | Bay leaves (laurel)                            | 20                      | 20                   | 20                                | Recommended (a)                              |
| 256100      | Tarragon                                       | 20                      | 20                   | 20                                | Recommended (a)                              |
| 260010      | Beans (fresh, with pods)                       | 0.8                     | 0.8                  | 0.8                               | Recommended (a)                              |
| 260020      | Beans (fresh, without pods)                   | 0.01*                   | –                    | 0.01*                            | Further consideration needed (i)             |
| 260030      | Peas (fresh, with pods)                        | 2                       | 2                    | 2                                 | Recommended (a)                              |
| 260040      | Peas (fresh, without pods)                    | 0.01*                   | 0.05                 | 0.01*                            | Further consideration needed (h)             |
| 260050      | Lentils (fresh)                                | 0.01*                   | –                    | 0.01*                            | Further consideration needed (h)             |
| 270020      | Cardoons                                       | 0.01*                   | –                    | 8                                 | Recommended (i)                              |
| 270030      | Celery                                         | 10                      | 7                    | 8                                 | Recommended (i)                              |
| 270040      | Fennel                                         | 0.01*                   | –                    | 8                                 | Recommended (i)                              |
| 270050      | Globe artichokes                               | 2                       | 2                    | 2                                 | Recommended (i)                              |
| 270070      | Rhubarb                                        | 0.01*                   | –                    | 8                                 | Recommended (i)                              |
| 401010      | Linseed                                        | 0.01*                   | –                    | 2                                 | Recommended (i)                              |
| 401020      | Peanuts                                        | 0.06                    | 0.06                 | 0.06                              | Further consideration needed (f)             |
| 401030      | Poppy seed                                     | 0.01*                   | –                    | 2                                 | Recommended (i)                              |
| 401040      | Sesame seed                                    | 0.01*                   | –                    | 2                                 | Recommended (i)                              |
| 401050      | Sunflower seed                                 | 2                       | 2                    | 2                                 | Further consideration needed (f)             |
| 401060      | Rape seed                                      | 2                       | 2                    | 2                                 | Further consideration needed (f)             |
| 401070      | Soyabean                                       | 0.05                    | 0.05                 | 0.05                              | Recommended (e)                              |
| 401080      | Mustard seed                                   | 0.01*                   | –                    | 2                                 | Recommended (i)                              |
| Code number | Commodity                           | Existing EU MRL (mg/kg) | Existing CXL (mg/kg) | Outcome of the review | Comment |
|-------------|-------------------------------------|-------------------------|---------------------|-----------------------|---------|
| 401090      | Cotton seed                         | 0.3                     | 0.3                 | 0.3                   | Recommended |
| 401100      | Pumpkin seeds                       | 0.01*                   | –                   | 2                     | Recommended |
| 401110      | Safflower                           | 0.01*                   | –                   | 2                     | Recommended |
| 401120      | Borage                              | 0.01*                   | –                   | 2                     | Recommended |
| 401130      | Gold of pleasure                    | 0.01*                   | –                   | 2                     | Recommended |
| 401140      | Hempseed                            | 0.01*                   | –                   | 2                     | Recommended |
| 401150      | Castor bean                         | 0.01*                   | –                   | 2                     | Recommended |
| 402020      | Oil palm nuts (palm oil kernels)    | 0.01*                   | –                   | 0.01*                 | Recommended |
| 402030      | Oil palm fruit                      | 0.01*                   | –                   | 0.8                   | Recommended |
| 500010      | Barley grain                        | 0.02                    | 0.02                | 0.02                  | Recommended |
| 500020      | Buckwheat grain                     | 0.02                    | 0.02                | 0.02                  | Recommended |
| 500030      | Maize grain                         | 0.02                    | 0.02                | 0.02                  | Recommended |
| 500040      | Millet grain                        | 0.02                    | 0.02                | 0.02                  | Recommended |
| 500050      | Oats grain                          | 0.02                    | 0.02                | 0.02                  | Recommended |
| 500060      | Rice grain                          | 0.4                     | 0.4                 | 0.4                   | Recommended |
| 500070      | Rye grain                           | 0.02                    | 0.02                | 0.02                  | Recommended |
| 500080      | Sorghum grain                       | 0.02                    | 0.02                | 0.02                  | Recommended |
| 500090      | Wheat grain                         | 0.02                    | 0.02                | 0.02                  | Recommended |
| 620000      | Coffee beans                        | 0.02*                   | 0.05                | 0.01*                 | Recommended |
| 700000      | ‘Hops (dried), including hop pellets and unconcentrated powder’ | 40                      | 40                  | 40                    | Recommended |
| 900020      | Sugar cane                          | 0.5                     | 0.5                 | 0.5                   | Recommended |
| 900030      | Chicory roots                       | 0.02                    | –                   | 0.02                  | Further consideration needed |
| 1011010     | Swine meat                          | 0.2                     | 0.03                | 0.03                  | Recommended |
| 1011020     | Swine fat (free of lean meat)       | 0.2                     | 0.2                 | 0.2                   | Recommended |
| 1011030     | Swine liver                         | 0.2                     | 0.2                 | 0.2                   | Recommended |
| 1011040     | Swine kidney                        | 0.2                     | 0.2                 | 0.2                   | Recommended |
| 1012010     | Bovine meat                         | 0.2                     | 0.03                | 0.03                  | Recommended |
| 1012020     | Bovine fat                          | 0.2                     | 0.2                 | 0.2                   | Recommended |
| 1012030     | Bovine liver                        | 0.2                     | 0.2                 | 0.2                   | Recommended |
| 1012040     | Bovine kidney                       | 0.2                     | 0.2                 | 0.2                   | Recommended |
| 1013010     | Sheep meat                          | 0.2                     | 0.03                | 0.03                  | Recommended |
| 1013020     | Sheep fat                           | 0.2                     | 0.2                 | 0.2                   | Recommended |
| 1013030     | Sheep liver                         | 0.2                     | 0.2                 | 0.2                   | Recommended |
| 1013040     | Sheep kidney                        | 0.2                     | 0.2                 | 0.2                   | Recommended |
| 1014010     | Goat meat                           | 0.2                     | 0.03                | 0.03                  | Recommended |
| 1014020     | Goat fat                            | 0.2                     | 0.2                 | 0.2                   | Recommended |
| 1014030     | Goat liver                          | 0.2                     | 0.2                 | 0.2                   | Recommended |
| 1014040     | Goat kidney                         | 0.2                     | 0.2                 | 0.2                   | Recommended |
| 1015010     | Horse meat                          | 0.2                     | 0.03                | 0.03                  | Recommended |
| 1015020     | Horse fat                           | 0.2                     | 0.2                 | 0.2                   | Recommended |
| 1015030     | Horse liver                         | 0.2                     | 0.2                 | 0.2                   | Recommended |
| 1015040     | Horse kidney                        | 0.2                     | 0.2                 | 0.2                   | Recommended |
| 1016010     | Poultry meat                        | 0.01*                   | 0.02                | 0.02                  | Recommended |
| 1016020     | Poultry fat                         | 0.08                    | 0.08                | 0.08                  | Recommended |
| 1016030     | Poultry liver                       | 0.07                    | 0.07                | 0.07                  | Recommended |
Review of the existing MRLs for chlorantraniliprole

| Code number | Commodity                  | Existing EU MRL (mg/kg) | Existing CXL (mg/kg) | Outcome of the review  |
|-------------|----------------------------|-------------------------|----------------------|------------------------|
| 1020010     | Cattle milk                | 0.05                    | 0.05                 | Recommended *(c)*      |
| 1020020     | Sheep milk                 | 0.05                    | 0.05                 | Recommended *(c)*      |
| 1020030     | Goat milk                  | 0.05                    | 0.05                 | Recommended *(c)*      |
| 1020040     | Horse milk                 | 0.05                    | 0.05                 | Recommended *(c)*      |
| 1030000     | Birds’ eggs               | 0.2                     | 0.2                  | Recommended *(c)*      |
| –           | Other commodities of plant and/or animal origin | See Reg. (EU) 2019/50 | –                    | Further consideration needed *(k)* |

MRL: maximum residue level; CXL: codex maximum residue limit.
*(c)*: Indicates that the MRL is set at the limit of quantification.

(F): The residue definition is fat soluble.

(a): 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 H-III in Appendix E).
(b): MRL is derived from the existing CXL, which is supported by data and for which no risk to consumers is identified; GAP evaluated at EU level, which is not fully supported by data, leads to a lower tentative MRL (combination F-VII in Appendix E).
(c): MRL is derived from the existing CXL, which is supported by data and for which no risk to consumers is identified; GAP evaluated at EU level, which is also fully supported by data, leads to a lower MRL (combination H-VII in Appendix E).
(d): MRL is derived from the existing CXL, which is supported by data and for which no risk to consumers is identified; there are no relevant authorisations or import tolerances reported at EU level (combination A-VII in Appendix E).
(e): MRL is derived from the existing CXL, which is supported by data and for which no risk to consumers is identified; GAP evaluated at EU level is not supported by data; existing EU MRL is covered by the existing CXL (combination D-VII in Appendix E).
(f): 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 F-III in Appendix E).
(g): 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; CXL is not compatible with EU residue definitions (combination H-II in Appendix E).
(h): 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); CXL is not compatible with EU residue definitions (combination D-II 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); no CXL is available (combination D-I in Appendix E).
(j): 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 H-I in Appendix E).
(k): 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).

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Abbreviations

a.i. active ingredient
a.s. active substance
ADI acceptable daily intake
ARfD acute reference dose
| Acronym | Description |
|---------|-------------|
| 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 |
| CIRCA   | (EU) Communication & Information Resource Centre Administrator |
| CS      | capsule suspension |
| CV      | coefficient of variation (relative standard deviation) |
| CXL     | codex maximum residue limit |
| DALA    | days after last application |
| DAR     | draft assessment report |
| DAT     | days after treatment |
| DB      | dietary burden |
| DM      | dry matter |
| DP      | dustable powder |
| DS      | powder for dry seed treatment |
| DT<sub>90</sub> | period required for 90% dissipation (define method of estimation) |
| EC      | emulsi<sub>f</sub>ible concentrate |
| EDI     | estimated daily intake |
| EMS     | evaluating Member State |
| eq      | residue expressed as a.s. equivalent |
| EUURLs  | European Union Reference Laboratories for Pesticide Residues (former CRLs) |
| FAO     | Food and Agriculture Organization of the United Nations |
| FID     | flame ionisation detector |
| GAP     | Good Agricultural Practice |
| GC      | gas chromatography |
| GC-FID  | gas chromatography with flame ionisation detector |
| GC-MS   | gas chromatography with mass spectrometry |
| GC-MS/MS| gas chromatography with tandem mass spectrometry |
| GS      | growth stage |
| HPLC    | high-performance liquid chromatography |
| HPLC-MS | high-performance liquid chromatography with mass spectrometry |
| HPLC-MS/MS| high-performance liquid chromatography with tandem mass spectrometry |
| HR      | highest residue |
| IEDI    | international estimated daily 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) |
| LC      | liquid chromatography |
| LC-MS/MS| liquid chromatography with tandem mass spectrometry |
| LOQ     | limit of quantification |
| Mo      | monitoring |
| MRL     | maximum residue level |
| MS      | Member States |
| MS      | mass spectrometry detector |
| MS/MS   | tandem mass spectrometry detector |
| MW      | molecular weight |
| NEU     | northern European Union |
| OECD    | Organisation for Economic Co-operation and Development |
| PBI     | plant back interval |
| PF      | processing factor |
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| Abbreviation | Definition |
|--------------|------------|
| PHI          | pre-harvest interval |
| PRIMo        | (EFSA) Pesticide Residues Intake Model |
| PROFile      | (EFSA) Pesticide Residues Overview File |
| QuEChERS    | Quick, Easy, Cheap, Effective, Rugged, and Safe (analytical method) |
| RA           | risk assessment |
| RD           | residue definition |
| 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 |
| SL           | soluble concentrate |
| SP           | water soluble powder |
| STMR         | supervised trials median residue |
| TAR          | total applied radioactivity |
| TMDI         | theoretical maximum daily intake |
| TRR          | total radioactive residue |
| UV           | ultraviolet (detector) |
| WHO          | World Health Organization |
| WP           | wettable powder |
## Appendix A – Summary of authorised uses considered for the review of MRLs

### A.1. Authorised outdoor uses in northern EU

| Crop and/or situation | MS or country | FG or T(3) | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days)(d) | Remarks |
|-----------------------|---------------|------------|-----------------------------------|-------------|------------|--------------------------------|--------------|---------|
|                       |               |            |                                   | Type(b) Conc. a.s. | Method kind | Range of growth stages & season(3) | Number min–max | Interval between application (min) | Rate and unit | |
| Apples                | SI            | F          | Cydia pomonella, Adoxophyes orana, Pendemis heparana, Cydia molesta, Phyllonorchter blancardella, Phyllonorchter corylifoliella, Leucoptera scitella | SC 200 g/L | Foliar treatment – general (see also comment field) | 70–87 | 1–2 | 12 | – | – | 54 g a.i./ha | 14 | 18 ml product/ hl, 500 L water/ ha/1 m height |
| Pears                 | SI            | F          | Cydia pomonella, Adoxophyes orana, Pendemis heparana, Cydia molesta, Phyllonorchter blancardella, Phyllonorchter corylifoliella, Leucoptera scitella | SC 200 g/L | Foliar treatment – general (see also comment field) | 70–87 | 1–2 | 12 | – | – | 54 g a.i./ha | 14 | 18 ml product/ hl, 500 L water/ ha/1 m height |
| Crop and/or situation | MS or country | F or G or T(a) | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days)(d) | Remarks |
|-----------------------|---------------|----------------|---------------------------------|-------------|----------------|-----------------------------|---------------|---------|
| Quinces               | AT, DE        | F              | Cydia pomonella                 | SC          | 200 g/L       | Foliar treatment – general (see also comment field) | 71–87 2 | – – 52.5 g a.i./ha 14 – |
| Medlars              | AT, DE        | F              | Cydia pomonella                 | SC          | 200 g/L       | Foliar treatment – general (see also comment field) | 71–87 2 | – – 52.5 g a.i./ha 14 – |
| Loquats              | AT, DE        | F              | Cydia pomonella                 | SC          | 200 g/L       | Foliar treatment – general (see also comment field) | 71–87 2 | – – 52.5 g a.i./ha 14 – |
| Peaches              | SI            | F              | Cydia molestella                | SC          | 200 g/L       | Foliar treatment – general (see also comment field) | 70–85 1–2 12 | – – 60 g a.i./ha 14 18–20 ml product/hL, 500 L water/ha/1 m height |
| Plums                | SI            | F              | Cydia fumnebrana, Operophtera brumata | SC          | 200 g/L       | Foliar treatment – general (see also comment field) | 70–85 1–2 12 | – – 60 g a.i./ha 14 18–20 ml product/hL, 500 L water/ha/1 m height |
| Table grapes         | HU            | F              | American grapevine leafhopper (Scaphoideus titanus), citrus flatid planthopper | WG          | 200 g/kg      | Foliar treatment – broadcast spraying | 70–85 1 | – – 50 g a.i./ha 30 – |
| Crop and/or situation | MS or country | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days) | Remarks |
|----------------------|--------------|----------------------------------|-------------|-------------|--------------------------------|------------|---------|
|                      |              | Metcalfa pruinosa, European grapevine moth (Lobesia botrana), vine moth (Eupoecilia ambiguella), Sparganothis pilleriana | (Metcalfa pruinosa), European grapevine moth (Lobesia botrana), vine moth (Eupoecilia ambiguella), Sparganothis pilleriana | Foliar treatment – broadcast spraying | 200 g/kg | 30 | – |
| Wine grapes           | HU           | American grapevine leafhopper (Scaphoideus titanus), citrus flatid planthopper (Metcalfa pruinosa), European grapevine moth (Lobesia botrana), vine moth (Eupoecilia ambiguella), Sparganothis pilleriana | WG          | 70-85       | 1 | 50 a.i./ha | – |
|                      | F            |                                  |             |             |                                | 30         |         |
| Crop and/or situation | MS or country | F G or T | Pests or Group of pests controlled | Preparation | Method kind | Type(b) | Conc. a.s. | Application | a.s./hL | Water L/ha | Rate and unit | PHI (days)(d) | Remarks |
|-----------------------|--------------|---------|----------------------------------|-------------|------------|---------|-----------|-------------|--------|----------|---------------|-------------|---------|
| Blueberries           | DE           | F       | Codling moth eggs and larvae     | SC          | Foliar – ultra low volume spraying | 200 g/L  | 200 g/L   | 71 2 14     | –      | –        | 52.5 g a.i./ha | 14          | Application for Aronia berries; At the beginning of oviposition; 87.5 mL product/ha and per m crown height = 262.5 mL product/ha; standard crown height in Germany: 3 m |
| Potatoes              | AT, NL, FR, DE, SI | F | L. decemlineata                  | SC          | Foliar – general (see also comment field) | 200 g/L  | 200 g/L   | 31 69      | –      | –        | 12 g a.i./ha | 14          | –       |
| Sweet potatoes        | DE           | F       | Carrot fly, noctuid moths        | SC          | Foliar – broadcast spraying         | 200 g/L  | 200 g/L   | 15 49      | –      | –        | 35 g a.i./ha | 21          | At beginning of infestation and/or when first symptoms become visible |
| Beetroots             | UK           | F       |                                   | WG          | Foliar – general (see also comment field) |          |          | 2 10       | –      | –        | 42 g a.i./ha | 21          | –       |
| Carrots               | UK           | F       |                                   | WG          | Foliar – general (see also comment field) |          |          | 2 10       | –      | –        | 42 g a.i./ha | 21          | –       |
| Crop and/or situation | MS or country | F or G or I(\(^{(a)}\)) | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days)(\(^{(d)}\)) | Remarks |
|-----------------------|---------------|-------------------|-----------------------------------|------------|------------|-------------------------------|----------------|---------|
| Celeriacs             | UK            | F                 | Foliar treatment – general (see also comment field) | 2          | 10         | –                             | 42 g a.i./ha  | 21      |
| Horseradishes         | UK            | F                 | Foliar treatment – general (see also comment field) | 2          | 10         | –                             | 42 g a.i./ha  | 21      |
| Jerusalem artichokes  | UK            | F                 | Foliar treatment – general (see also comment field) | 2          | 10         | –                             | 42 g a.i./ha  | 21      |
| Parsnips              | UK            | F                 | Foliar treatment – general (see also comment field) | 2          | 10         | –                             | 42 g a.i./ha  | 21      |
| Parsley roots         | UK            | F                 | Foliar treatment – general (see also comment field) | 2          | 10         | –                             | 42 g a.i./ha  | 21      |
| Radishes              | UK            | F                 | Foliar treatment – general (see also comment field) | 2          | 10         | –                             | 42 g a.i./ha  | 21      |
| Crop and/or situation | MS or country | F or T<sup>(a)</sup> | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days)<sup>(d)</sup> | Remarks |
|-----------------------|--------------|----------------------|------------------------------------|-------------|----------------|-------------------------------|----------------|---------|
| Salsifies             | UK           | F                    | Foliar treatment – general (see also comment field) | 2–10 | 42 g a.i./ha | 21 | |
| Swedes                | UK           | F                    | Foliar treatment – general (see also comment field) | 2–10 | 42 g a.i./ha | 21 | |
| Turnips               | UK           | F                    | Foliar treatment – general (see also comment field) | 2–10 | 42 g a.i./ha | 21 | |
| Tomatoes              | SI           | F                    | Tuta absoluta, Helicoverpa armigera, Spodoptera exigua, Spodoptera littoralis, Autographa gamma | 15–89 | 1–2 | 35 g a.i./ha | 3 | |
| Cucumbers             | FR           | F                    | Helicoverpa armigera, Spodoptera exigua, Spodoptera littoralis, Autographa gamma | 51–89 | 1–2 | 29.75 g a.i./ha | 1 | Application: broadcast mist blower, hydraulic ground directed boom |
| Crop and/or situation | MS or country | FG or T | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days) | Remarks |
|-----------------------|---------------|---------|-----------------------------------|-------------|-------------|--------------------------------|-----------|---------|
| Gherkins             | FR            | F       | ‘Helicoverpa armigera’ Spodoptera   | WG          | Foliar treatment – broadcast spraying | 51-89 | 1-2 | 7 | – | – | 29.75 g a.i./ha | 1 | Application: broadcast mist blower, hydraulic ground directed boom |
| Sweet corn            | HU            | F       | ‘European corn borer (Ostrinia nubilalis), cotton bollworm (Helicoverpa armigera)’ | SC          | Foliar treatment – broadcast spraying | 71 | 2 | 14 | – | – | 30 g a.i./ha | 10 | – |
| Broccoli             | UK            | F       |                                   | WG          | Foliar treatment – general (see also comment field) | 2 | – | – | 35 g a.i./ha | 1 | – |
| Cauliflowers         | UK            | F       |                                   | WG          | Foliar treatment – general (see also comment field) | 2 | – | – | 35 g a.i./ha | 1 | – |
| Brussels sprouts     | PL            | F       |                                   | SC          | Foliar treatment – general (see also comment field) | 12-89 | 1-2 | – | – | 25 g a.i./ha | 14 | – |
### Crop and/or situation

| Crop and/or situation | MS or country | FG or T | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days) | Remarks |
|-----------------------|---------------|---------|-------------------------------------|-------------|-------------|-------------------------------|-----------|---------|
| Head cabbages         | NL, SI, IE, FR| F       | ‘Plutella xylostella, Pieris spp., Clepsis spectrana, Mamestra brassicae, Evergestis forficalis’ | SC 200 g/L | Foliar treatment – broadcast spraying | a.s./hl min–max | 25 g a.i./ha | 1 – |
| Chinese cabbages      | FR            | F       | ‘Helicoverpa armigera Autographa gamma’ | WG 350 g/kg | Foliar treatment – broadcast spraying | 12–49 1–2 7 | 29.75 g a.i./ha | 1 – |
| Kales                 | DE            | F       | carrot fly, noctuid moths           | SC 200 g/L | Foliar treatment – broadcast spraying | 15–49 2 | 35 g a.i./ha | 21 – |
| Lamb’s lettuces       | FR            | F       | ‘Helicoverpa armigera Autographa gamma’ | WG 350 g/kg | Foliar treatment – broadcast spraying | 12–49 1–2 7 | 29.75 g a.i./ha | 1 – |
| Lettuces              | FR            | F       | ‘Helicoverpa armigera Autographa gamma’ | WG 350 g/kg | Foliar treatment – broadcast spraying | 12–49 1–2 7 | 29.75 g a.i./ha | 1 – |

**Notes:**
- **Type:** SC – suspension concentrate, WG – water dispersible granule, HC – high concentrate.
- **Conc. a.s.:** concentrate of active substance.
- **Method kind:** Foliar treatment – broadcast spraying.
- **Range of growth stages & season:**
  - 21 Application: broadcast mist blower, hydraulic ground directed boom.
  - 29 Application: broadcast mist blower, hydraulic ground directed boom.
| Crop and/or situation | MS or country | FGR or T(3) | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days)(d) | Remarks |
|-----------------------|--------------|-------------|-----------------------------------|-------------|-------------|-------------------------------|--------------|---------|
| Escaroles             | FR           | F           | ’Helicoverpa armigera Autographa gamma’ | WG          | Foliar treatment – broadcast spraying | 12-49           | 1-2                             | 7          | –       | 29.75 g a.i./ha | 1          | Application: broadcast mist blower, hydraulic ground directed boom |
| Roman rocket          | FR           | F           | ’Helicoverpa armigera Autographa gamma’ | WG          | Foliar treatment – broadcast spraying | 12-49           | 1-2                             | 7          | –       | 29.75 g a.i./ha | 1          | Application: broadcast mist blower, hydraulic ground directed boom |
| Red mustards          | FR           | F           | ’Helicoverpa armigera Autographa gamma’ | WG          | Foliar treatment – broadcast spraying | 12-49           | 1-2                             | 7          | –       | 29.75 g a.i./ha | 1          | Application: broadcast mist blower, hydraulic ground directed boom |
| Spinaches             | FR           | F           | ’Helicoverpa armigera Spodoptera exigua Spodoptera littoralis Autographa gamma’ | WG          | Foliar treatment – broadcast spraying | 12-49           | 1-2                             | 7          | –       | 29.75 g a.i./ha | 1          | Application: broadcast mist blower, hydraulic ground directed boom |
| Purslanes             | FR           | F           | ’Helicoverpa armigera Spodoptera exigua Spodoptera littoralis Autographa gamma’ | WG          | Foliar treatment – broadcast spraying | 12-49           | 1-2                             | 7          | –       | 29.75 g a.i./ha | 1          | Application: broadcast mist blower, hydraulic ground directed boom |
| Crop and/or situation | MS or country | FG or T | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days) | Remarks |
|-----------------------|---------------|---------|----------------------------------|-------------|-------------|-------------------------------|------------|---------|
| Chards FR | F | ‘Helicoverpa armigera Spodoptera exigua Spodoptera littoralis Autographa gamma’ | WG | 350 g/kg | Foliar treatment – broadcast spraying | 12-49 | 1-2 | 7 | 29.75 g a.i./ha | 1 | Application: broadcast mist blower, hydraulic ground directed boom |
| Witloofs NL | F | Pieris spp., Autographa gamma, Plusia spp. | SC | 200 g/L | Foliar treatment – broadcast spraying | 2-4 | 14 | – | – | 25 g a.i./ha | 21 | Only for authorisation in witloof chicory (root cultivation) |
| Chervil FR | F | ‘Helicoverpa armigera Spodoptera exigua Spodoptera littoralis Autographa gamma’ | WG | 350 g/kg | Foliar treatment – broadcast spraying | 12-49 | 1-2 | 7 | 29.75 g a.i./ha | 1 | Application: broadcast mist blower, hydraulic ground directed boom |
| Chives FR | F | ‘Helicoverpa armigera Spodoptera exigua Spodoptera littoralis Autographa gamma’ | WG | 350 g/kg | Foliar treatment – broadcast spraying | 12-49 | 1-2 | 7 | 29.75 g a.i./ha | 1 | Application: broadcast mist blower, hydraulic ground directed boom |
| Crop and/or situation | MS or country | F G or T(3) | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days)(d) | Remarks |
|-----------------------|--------------|------------|-----------------------------------|-------------|------------|-----------------------------|--------------|---------|
| Celery leaves         | FR F         |            | Helicoverpa armigera Spodoptera exigua Spodoptera littoralis Autographa gamma’ | WG 350 g/kg | Foliar treatment – broadcast spraying | 12-49 1-2 7 | 29.75 g a.i./ha | 1 Application: broadcast mist blower, hydraulic ground directed boom |
| Parsley               | FR F         |            | Helicoverpa armigera Spodoptera exigua Spodoptera littoralis Autographa gamma’ | WG 350 g/kg | Foliar treatment – broadcast spraying | 12-49 1-2 7 | 29.75 g a.i./ha | 1 Application: broadcast mist blower, hydraulic ground directed boom |
| Sage                  | FR F         |            | Helicoverpa armigera Spodoptera exigua Spodoptera littoralis Autographa gamma’ | WG 350 g/kg | Foliar treatment – broadcast spraying | 12-49 1-2 7 | 29.75 g a.i./ha | 1 Application: broadcast mist blower, hydraulic ground directed boom |
| Rosemary              | HU F         |            | Noctuid moth | ZC 100 g/L | Foliar treatment – broadcast spraying | 2 7 | 30 g a.i./ha | 14 |
| Crop and/or situation | MS or country | F or G or T | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days) | Remarks |
|-----------------------|---------------|-------------|-----------------------------------|-------------|-------------|-------------------------------|-----------|---------|
| Thyme                 | FR            | F           | 'Helicoverpa armigera Spodoptera exigua Spodoptera littoralis Autographa gamma' | WG          | Foliar treatment – broadcast spraying | 29.75 g a.i./ha | 1 | Application: broadcast mist blower, hydraulic ground directed boom |
| Basil                 | FR            | F           | 'Helicoverpa armigera Spodoptera exigua Spodoptera littoralis Autographa gamma' | WG          | Foliar treatment – broadcast spraying | 29.75 g a.i./ha | 1 | Application: broadcast mist blower, hydraulic ground directed boom |
| Tarragon              | HU            | F           | Noctuid moth | ZC          | 100 g/L | Foliar treatment – broadcast spraying | 30 g a.i./ha | 14 | |
| Beans (with pods)     | FR            | F           | 'Ostrinia nubilalis Helicoverpa armigera Autographa gamma' | WG          | Foliar treatment – broadcast spraying | 29.75 g a.i./ha | 1 | Application: broadcast mist blower, hydraulic ground directed boom |
| Peas (with pods)      | UK            | F           | SC | Foliar treatment – general (see also comment field) | 36 g a.i./ha | 3 | |
| Crop and/or situation | MS or country | F or G or T(1) | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days)(d) | Remarks |
|-----------------------|---------------|---------------|-----------------------------------|-------------|------------|-----------------------------|-------------|---------|
| Globe artichokes      | UK            | F             | ZC                                | Foliar      | 12-49      | 30 g a.i./ha                | 3           |         |
|                       |               |               | treatment – general (see also comment field) | treatment | 2          |                             |             |         |
| Maize                 | HU            | F             | European corn borer (Ostrinia nubilalis), noctuid moth | Foliar      | 87         | 30 g a.i./ha                | 7           |         |
|                       |               |               | treatment – broadcast spraying    | treatment   | 1          |                             |             |         |
| Common millet         | FR            | F             | ’Ostrinia nubilalis Sesamia sp. Helicoverpa armigera Spodoptera exigua Spodoptera littoralis’ | Foliar      | 34-77      | 25 g a.i./ha                | n.a.        | This equates to a PHI of approximately 40 days. Application: tractor mounted hydraulic sprayer |
|                       |               |               | treatment – broadcast spraying    | treatment   | 2          |                             |             |         |
| Chicory roots         | NL            | F             | Pieris spp., Autographa gamma, Plusia spp. | Foliar      | 2          | 25 g a.i./ha                | 21          | Only for authorisation in witloof chicory (root cultivation) |
|                       |               |               | treatment – broadcast spraying    | treatment   | 14         |                             |             |         |
| Common millet (for forage) | FR | F             | ’Ostrinia nubilalis Sesamia sp. Helicoverpa armigera Spodoptera exigua Spodoptera littoralis’ | Foliar      | 34-77      | 25 g a.i./ha                | n.a.        | This equates to a PHI of approximately 40 days. Application: tractor mounted hydraulic sprayer |
| Crop and/or situation | MS or country | F G or T | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days) | Remarks |
|-----------------------|--------------|----------|-----------------------------------|-------------|------------|-------------------------------|----------|---------|
| Maize (for forage)    | FR           | F        | ‘Ostrinia nubilalis, Sesamia sp. Helicoverpa armigera Spodoptera exigua Spodoptera littoralis’ | SC          | 200 g/L    | Foliar treatment – broadcast spraying | 34–77    | 2–10    | 25 g a.i./ha, n.a. This equates to a PHI of approximately 40 days. Application: tractor mounted hydraulic sprayer |
# A.2. Authorised outdoor uses in southern EU

| Crop and/or situation | MS or country | F G or Y(1) | Pests or Group of pests controlled | Preparation Type(b) | Conc. a.s. | Method kind | Range of growth stages & season(c) | Number min–max | Interval between application (min) | PHI(d) | Remarks |
|-----------------------|---------------|------------|-----------------------------------|-------------------|----------|------------|-----------------------------------|----------------|---------------------------------|--------|---------|
| Grapefruits           | IT, HR        | F          | Ph. Citrella                      | SC                | 200 g/L  | Foliar treatment – general (see also comment field) | 31-50          | 1–2                             | 10     | 15 g a.i./ha | "Non-bearing crop. Water volume: 100-500 l/ha. Minimum recommended application rate is 10 g a.i./ha irrespective of the water volume adopted (adjust concentration). Maximum application rate is 15 g a.i./ha per application."
| Oranges               | IT, HR        | F          | Ph. Citrella                      | SC                | 200 g/L  | Foliar treatment – general (see also comment field) | 31-50          | 1–2                             | 10     | 15 g a.i./ha | "Non-bearing crop. Water volume: 100-500 l/ha. Minimum recommended application rate is 10 g a.i./ha irrespective of the water volume adopted (adjust concentration). Maximum application rate is 15 g a.i./ha per application."
| Crop and/or situation | MS or country | F G or T(s) | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days)(d) | Remarks |
|-----------------------|---------------|-------------|-----------------------------------|-------------|------------|-------------------------------|--------------|---------|
|                       |               |             |                                   |             |            | a.s./hL min-max | Water L/ha min-max | Rate and unit |         |
| Lemons                | IT, HR        | F           | Ph. Citrella                      | SC          | Foliar     | 31-50            | 1-2          | 10      | 15 g a.i./ha | n.a. | 'Non-bearing crop. Water volume: 100–500 l/ha. Minimum recommended application rate is 10 g a.i./ha irrespective of the water volume adopted (adjust concentration). Maximum application rate is 15 g a.i./ha per application.' |
| Limes                 | IT, HR        | F           | Ph. Citrella                      | SC          | Foliar     | 31-50            | 1-2          | 10      | 15 g a.i./ha | n.a. | 'Non-bearing crop. Water volume: 100–500 l/ha. Minimum recommended application rate is 10 g a.i./ha irrespective of the water volume adopted (adjust concentration). Maximum application rate is 15 g a.i./ha per application.' |
| Crop and/or situation | MS or country | F/G or T | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days) | Remarks |
|-----------------------|--------------|----------|-----------------------------------|-------------|-------------|--------------------------------|------------|---------|
| Mandarins             | IT, HR       | F        | Ph. Citrella                      | SC          | 203 g/L     | Foliar treatment – general (see also comment field) | 31-50      | 1-2     | 10     | 15 g a.i./ha | n.a. | “Non-bearing crop. Water volume: 100-500 l/ha. Minimum recommended application rate is 10 g a.i./ha irrespective of the water volume adopted (adjust concentration). Maximum application rate is 15 g a.i./ha per application.” |
| Almonds               | ES           | F        | Coleoptera, caterpillars          | SC          | 200 g/L     | Foliar treatment – general (see also comment field) | 1-2        | 10      | –      | 60 g a.i./ha | 14   | Foliar spraying. Volume: 1000-1500 l/ha. Manual application or application with tractor |
| Chestnuts             | ES           | F        | Coleoptera, caterpillars          | SC          | 200 g/L     | Foliar treatment – general (see also comment field) | 1-2        | 10      | –      | 60 g a.i./ha | 14   | Foliar spraying. Volume: 1000-1500 l/ha. Manual application or application with tractor |
| Hazelnuts             | ES           | F        | Coleoptera, caterpillars          | SC          | 200 g/L     | Foliar treatment – general (see also comment field) | 1          | –       | –      | 60 g a.i./ha | 14   | Foliar spraying. Volume: 1000-1500 l/ha. Manual application or application with tractor |
| Crop and/or situation | MS or country F G or T(3) | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days)(4) | Remarks |
|-----------------------|-----------------------------|-----------------------------------|-------------|------------|-------------------------------|--------------|---------|
| Pistachios ES F       | Coleoptera, caterpillars    | SC 200 g/L                        | Foliar treatment – general (see also comment field) | 73–87 1–2 10 | – – 60 g a.i./ha | 14 | Foliar spraying. Volume: 1000–1500 l/ha. Manual application or application with tractor |
| Walnuts IT F          | Cydia pomonella             | SC 200 g/L                        | Foliar treatment – general (see also comment field) | 73–87 1–2 10 | – – 60 g a.i./ha | 21 | Water volume: 1000–1500 l/ha. Minimum recommended application rate is 36 g a.i./ha irrespective of the water volume adopted (adjust concentration). Maximum application rate is 60 g a.i./ha per application. Fall-back GAP. |
| Apples ES, IT, PT F   | Adoxophyes orana, Cydia pomonella, leafminers | SC 200 g/L                        | Foliar treatment – general (see also comment field) | 73–87 1–2 10 | – – 60 g a.i./ha | 14 | Foliar spraying. Manual application or application with tractor. Maximum rate: 0,3 l fp/ha |
| Pears ES, IT, PT F    | Adoxophyes orana, Cydia pomonella, leafminers | SC 200 g/L                        | Foliar treatment – general (see also comment field) | 73–87 1–2 10 | – – 60 g a.i./ha | 14 | Foliar spraying. Manual application or application with tractor. Maximum rate: 0,3 l fp/ha |
| Crop and/or situation | MS or country | F or G or T(1) | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days)(d) | Remarks |
|-----------------------|--------------|----------------|-----------------------------------|-------------|-------------|-------------------------------|---------------|---------|
|                       |              |                |                                   | Type(b)     | Conc. a.s.(a) | Method kind | Range of growth stages & season(c) | Number min–max | Interval between application (min) | Rate a.s./Lmin–max | Water L/ha min–max | Rate and unit | Remarks                                      |
| Quinces               | EL           | F              | Cydia pomonella Leafminers Leafrollers Ostrinia nubilalis Cydia molesta | SC          | 200 gr/L  | Foliar treatment – broadcast spraying | 71–87 | 1–2 | 12 | – | – | 32 g a.i./ha | 14 | Minimum recommended application rate is 160 mL fp/ha irrespective of the water volume adopted (adjust concentration). Quinces is registered as minor use. |
| Medlars               | FR           | F              | Argyrotaenia ljungiana Leafrollers (Pandemis heparana, Capua reticulana, Archips sp) | SC          | 200 g/L   | Foliar treatment – broadcast spraying | 69–87 | 1 | – | – | 36 g a.i./ha | 14 | Application: high pressure mist blower. |
| Loquats               | FR           | F              | Cydia pomonella Cydia molesta Leafminers Argyrotaenia ljungiana Leafrollers (Pandemis heparana, Capua reticulana, Archips sp) | SC          | 200 g/L   | Foliar treatment – broadcast spraying | 69–87 | 1 | – | – | 36 g a.i./ha | 14 | Application: high pressure mist blower. |
| Crop and/or situation | MS or country | F G T | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days) | Remarks |
|-----------------------|---------------|------|------------------------------------|-------------|------------|---------------------------------|------------|--------|
|                       |               |      |                                    | Type(b) Conc. a.s. Method kind Range of growth stages & season(c) Number min–max Interval between application (min) a.s./hl min–max Water L/ha min–max Rate and unit |           |        |
| Apricots              | PT, IT        | F    | Insects                            | SC          | 200 g/L    | Foliar treatment – general (see also comment field) 11-89  2  10  –  – | 60 g a.i./ha | 14     |
|                       |               |      |                                    |             |            | Water volume: 1000-1500 l/ha. Crop includes Nectarines. Minimum recommended application rate is 32 g a.i./ha irrespective of the water volume adopted (adjust concentration). Maximum application rate is 60 g a.i./ha per application.’ |           |        |
| Peaches               | PT, IT        | F    | Insects                            | SC          | 200 g/L    | Foliar treatment – general (see also comment field) 11-89  2  10  –  – | 60 g a.i./ha | 14     |
|                       |               |      |                                    |             |            | Water volume: 1000-1500 l/ha. Crop includes Nectarines. Minimum recommended application rate is 32 g a.i./ha irrespective of the water volume adopted (adjust concentration). Maximum application rate is 60 g a.i./ha per application.’ |           |        |
| Crop and/or situation | MS or country | F or G | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days) | Remarks |
|-----------------------|---------------|--------|----------------------------------|-------------|------------|-------------------------------|-----------|---------|
|                       |               |        |                                  | Type(b) | Conc. a.s. | Method kind | Range of growth stages & season(c) | Number min-max | Interval between application (min) | Rate and unit |        |
| Plums                 | PT, IT, ES    | F      | Insects                          | SC        | 200 g/L   | Foliar treatment – general (see also comment field) | 11-89     | 2       | 10     | –       | –       | 60 g a.i./ha | 14       |         |
|                       |               |        |                                  |           |           |                 |                        |             |         |       |         |         |         |         |
| Table grapes          | IT, ES, PT    | F      | ‘L. botrana E. ambiguella, A. pulchellana P. vitegenella’ | SC | 200 g/L | Foliar treatment – general (see also comment field) | 57-85 | 1-2 | 10 | – | – | 43 g a.i./ha | 3 |         |

Water volume: 1000–1500 L/ha. Minimum recommended application rate is 32 g a.i./ha irrespective of the water volume adopted (adjust concentration). Maximum application rate is 60 g a.i./ha per application.

Water volume: 800–1200 L/ha. Minimum recommended application rate at full foliage is 30 g a.i./ha, irrespective of the water volume adopted (adjust concentration). Maximum application rate is 43.2 g a.i./ha per application.
| Crop and/or situation | MS or country | FG or T | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days) | Remarks |
|----------------------|--------------|--------|-----------------------------------|-------------|-------------|-------------------------------|------------|---------|
| Wine grapes          | IT           | F      | 'L. botrana, E. ambiguella, A. pulchellana, P. viticella' | SC          | Foliar treatment – general (see also comment field) | 200 g/L | 57-83 | 1-1 | – | 54 g a.i./ha | 30 | 'Water volume: 800–1500 l/ha. Minimum recommended application rate at full foliage is 30 g a.i./ha, irrespective of the water volume adopted (adjust concentration). Maximum application rate is 54 g a.i./ha per application.' |
| Potatoes             | PT, FR, IT, EL | F      | insects | SC | Foliar treatment – general (see also comment field) | 200 g/L | 11-89 | 2 | 14 | – | 12 g a.i./ha | 14 | Fall-back GAP |
| Beetroots            | EL           | F      | 'Autographa gamma H. armiger Spodoptera spp. Psila rosae' | WG | Foliar treatment – broadcast spraying | 350 gr/kg | 15-89 | 1-2 | 7 | – | 42 g a.i./ha | 21 | 'Minimum recommended application rate is 100 g fp/ha irrespective of the water volume adopted (adjust concentration)' |
| Carrots              | IT, EL       | F      | H. armiger Spodoptera spp Psila rosae | WG | Foliar treatment – broadcast spraying | 35 % (w/w) | 15-89 | 1-2 | 10 | – | 42 g a.i./ha | 21 | 'Water volume: 300–800 l/ha. Carrots for food production max BBCH 49 Carrots for seed production max BBCH 89' |
| Crop and/or situation | MS or country | F G or T(a) | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days)(d) | Remarks |
|-----------------------|--------------|-------------|-----------------------------------|-------------|------------|-----------------------------|--------------|---------|
|                       |              |             |                                   | Type(b)    | Conc. a.s. | Method kind                  | Range of growth stages & season(c) | Number min-max | Interval between application (min) | a.s./hL min-max | Water L/ha min-max | Rate and unit | |
| Celeriacs              | EL F         |             | 'Autographa gamma H. armigera Spodoptera spp. Psila rosae’ | WG 350 gr/kg | Foliar treatment – broadcast spraying | 15-89 | 1-2 | 7 | – | – | 42 g a.i./ha | 21 | 'Minimum recommended application rate is 100 g fp/ha irrespective of the water volume adopted (adjust concentration)' |
| Horseradishes         | EL F         |             | 'Autographa gamma H. armigera Spodoptera spp. Psila rosae’ | WG 350 gr/kg | Foliar treatment – broadcast spraying | 15-89 | 1-2 | 7 | – | – | 42 g a.i./ha | 21 | 'Minimum recommended application rate is 100 g fp/ha irrespective of the water volume adopted (adjust concentration)' |
| Jerusalem artichokes   | EL F         |             | 'Autographa gamma H. armigera Spodoptera spp. Psila rosae’ | WG 350 gr/kg | Foliar treatment – broadcast spraying | 15-89 | 1-2 | 7 | – | – | 42 g a.i./ha | 21 | 'Minimum recommended application rate is 100 g fp/ha irrespective of the water volume adopted (adjust concentration)' |
| Parsnips               | EL F         |             | Autographa gamma H. armigera Spodoptera spp. Psila rosae | WG 350 gr/kg | Foliar treatment – broadcast spraying | 15-89 | 1-2 | 7 | – | – | 42 g a.i./ha | 21 | 'Minimum recommended application rate is 100 g fp/ha irrespective of the water volume adopted (adjust concentration)' |
| Crop and/or situation | MS or country | F G or T (a) | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days) | Remarks |
|-----------------------|--------------|-------------|-----------------------------------|-------------|------------|--------------------------------|------------|------------------|
|                       |              |             |                                   | Type (b)    | Conc. a.s. | Method kind                      | Range of growth stages & season (c) | Number min-max | Interval between application (min) | a.s./hL min-max | Water L/ha min-max | Rate and unit |          |          |
| Parsley roots          | EL           | F           | Autographa gamma H. armigera Spodoptera spp. Psila rosae | WG          | 350 gr/kg | Foliar treatment – broadcast spraying | 15-89 | 1-2                          | 7           | –                | –              | 42 g a.i./ha       | 21        | Minimum recommended application rate is 100 g fp/ha irrespective of the water volume adopted (adjust concentration) |
| Radishes              | EL           | F           | ' Autographa gamma H. armigera Spodoptera spp. Psila rosae’ | WG          | 350 gr/kg | Foliar treatment – broadcast spraying | 15-89 | 1-2                          | 7           | –                | –              | 42 g a.i./ha       | 21        | Minimum recommended application rate is 100 g fp/ha irrespective of the water volume adopted (adjust concentration)’|
| Salsifies             | EL           | F           | Autographa gamma H. armigera Spodoptera spp. Psila rosae | WG          | 350 gr/kg | Foliar treatment – broadcast spraying | 15-89 | 1-2                          | 7           | –                | –              | 42 g a.i./ha       | 21        | Minimum recommended application rate is 100 g fp/ha irrespective of the water volume adopted (adjust concentration)’ |
| Swedes                | EL           | F           | Autographa gamma H. armigera Spodoptera spp. Psila rosae | WG          | 350 gr/kg | Foliar treatment – broadcast spraying | 15-89 | 1-2                          | 7           | –                | –              | 42 g a.i./ha       | 21        | Minimum recommended application rate is 100 g fp/ha irrespective of the water volume adopted (adjust concentration)’ |
| Crop and/or situation | MS or country | Pests or Group of pests controlled | Preparation | Type(b) | Conc. a.s. | Method kind | Range of growth stages & season(c) | Number min–max | Interval between application (min) | Application rate per treatment | PHI (days)(d) | Remarks |
|-----------------------|--------------|-----------------------------------|-------------|---------|------------|-------------|-----------------------------|-----------------|-----------------------------|-------------------------------|-----------|---------|
| Turnips               | EL           | Autographa gamma H. armigera Spodoptera spp. Psila rosae | WG          | 350 g/kg | Foliar treatment – broadcast spraying | 15–89 | 1–2 | 7 | – | – | 42 g a.i./ha | 21 | ‘Minimum recommended application rate is 100 g fp/ha irrespective of the water volume adopted (adjust concentration)’ |
| Tomatoes              | ES           | Caterpillars                      | WG          | 350 g/kg | Foliar treatment – general (see also comment field) | 71–89 | 1–2 | 7 | – | – | 42 g a.i./ha | 1 | Outdoor: Manual application (knapsack and backpack) or application with tractor. Volume: 500–1500 l/ha |
| Sweet peppers         | ES, EL       | Caterpillars                      | WG          | 350 g/kg | Foliar treatment – general (see also comment field) | 71–89 | 1–2 | 7 | – | – | 42 g a.i./ha | 1 | Outdoor: Manual application (knapsack and backpack). Volume: 300–1250 l/ha |
| Aubergines            | ES, EL       | Caterpillars                      | WG          | 350 g/kg | Foliar treatment – general (see also comment field) | 71–89 | 1–2 | 7 | – | – | 42 g a.i./ha | 1 | Outdoor: Manual application (knapsack and backpack) or application with tractor. Volume: 250–1500 l/ha. Maximum rate (tall-short crops): 120–100 g fp/ha (outdoor) |
| Crop and/or situation | MS or country | Pests or Group of pests controlled | Preparation Type | Conc. a.s. | Application Method kind | Range of growth stages & season(c) | Number min-max | Interval between application (min) | Application rate per treatment a.s./L ha min-max | PHI (days)(d) | Rate and unit | Remarks |
|-----------------------|---------------|-----------------------------------|------------------|-----------|-------------------------|----------------------------------|---------------|----------------------------------|---------------------------------------------|------------|-------------|---------|
| Cucumbers EL F        | 'H. armigera S. exigua A. gamma S. littoralis Trichoplusia spp. Ostrinia nubilalis' | WG 350 gr/kg | Foliar treatment – broadcast spraying | 71-89 | 1-2 | 7 | – | – | 42 g a.i./ha | 1 | – |
| Gherkins EL F         | 'H. armigera S. exigua A. gamma S. littoralis Trichoplusia spp. Ostrinia nubilalis' | WG 350 gr/kg | Foliar treatment – broadcast spraying | 71-89 | 1-2 | 7 | – | – | 42 g a.i./ha | 1 | – |
| Courgettes EL F       | 'H. armigera S. exigua A. gamma S. littoralis Trichoplusia spp. Ostrinia nubilalis' | WG 350 gr/kg | Foliar treatment – broadcast spraying | 71-89 | 1-2 | 7 | – | – | 42 g a.i./ha | 1 | – |
| Melons EL F           | H. armigera S. exigua A. gamma S. littoralis Trichoplusia spp. Ostrinia nubilalis | WG 350 gr/kg | Foliar treatment – broadcast spraying | 71-89 | 1-2 | 7 | – | – | 42 g a.i./ha | 1 | – |
| Crop and/or situation | MS or country | FG or T(1) | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | Remarks |
|-----------------------|--------------|------------|-----------------------------------|-------------|------------|-----------------------------|---------|
|                       |              |            |                                   | Type(2)     | Conc. a.s. | Method kind                 | PHI (days)(4) |        |
|                       |              |            |                                   | Range of growth stages & season(3) | Number min–max | Interval between application (min) | Rate and unit |        |
|                       |              |            |                                   | Water L/ha | min–max | Water L/ha | min–max |        |        |
|                       |              |            |                                   | a.s./hL | min–max | a.s./hL | min–max |        |        |
| Pumpkins              | EL           | F          | H. armigera S. exigua A. gamma S. littoralis Trichoplusia spp. Ostrinia nubilalis | WG          | 350 gr/kg | Foliar treatment – broadcast spraying | 71–89 | 1–2 | 7 | – | – | 42 g a.i./ha | 1 | – |
| Watermelons           | EL           | F          | H. armigera S. exigua A. gamma S. littoralis Trichoplusia spp. Ostrinia nubilalis | WG          | 350 gr/kg | Foliar treatment – broadcast spraying | 71–89 | 1–2 | 7 | – | – | 42 g a.i./ha | 1 | – |
| Sweet corn            | ES, IT, EL, PT | F          | Caterpillars                     | SC          | 200 g/L | Foliar treatment – general (see also comment field) | 71–89 | 1–2 | 10 | – | – | 30 g a.i./ha | 7 | Foliar spraying. Volume: 200–1000 l/ha. Manual application or application with tractor |
| Broccoli              | EL           | F          | P. brassicae S. littoralis S. exigua | WG          | 350 gr/kg | Foliar treatment – broadcast spraying | 12–89 | 1–2 | 7 | – | – | 35 g a.i./ha | 1 | Fall-back GAP |
| Cauliflowers          | EL           | F          | ‘P. xylostella M. brassicae P. rapae P. brassicae S. littoralis S. exigua’ | WG          | 350 gr/kg | Foliar treatment – broadcast spraying | 12–89 | 1–2 | 7 | – | – | 35 g a.i./ha | 1 | Fall-back GAP |
| Crop and/or situation | MS or country | F G or T(1) | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days)(d) | Remarks |
|-----------------------|---------------|-------------|-----------------------------------|-------------|------------|-------------------------------|---------------|---------|
|                       |               |             |                                   | Type(b) Conc. a.s. | Method kind | Range of growth stages & season(c) | Number min-max | Interval between application (min) | a.s./hL | Water L/ha | Rate and unit |               |
| Brussels sprouts      | ES F         | Caterpillars | ZC                                | 100 g/L      | Foliar treatment – general (see also comment field) | 1-2 7 | – | – | 40 g a.i./ha | 7 | Foliar spraying. Volume: 200–1000 l/ha. Manual application (backpack) or application with tractor |
| Head cabbages         | EL F         | ‘P. xylostella M. brassicae P. rapae P. brassicae S. littoralis S. exigua’ | WG | 350 gr/kg | Foliar treatment – broadcast spraying | 12-89 1-2 7 | – | – | 35 g a.i./ha | 1 | – |
| Chinese cabbages      | FR F         | ‘Helicoverpa armigera Autographa gamma’ | WG | 350 g/kg | Foliar treatment – broadcast spraying | 12-49 1-2 7 | – | – | 29.75 g a.i./ha | 1 | – |
| Kales                 | PT F         | insects     | WG | 35 % (w/w) | Foliar treatment – general (see also comment field) | 12-49 2 7 | – | – | 35 g a.i./ha | 3 | – |
| Kohlrabies            | ES F         | Caterpillars | ZC | 100 g/L | Foliar treatment – general (see also comment field) | 1-2 7 | – | – | 40 g a.i./ha | 7 | Foliar spraying. Volume: 200–1000 l/ha. Manual application (backpack) or application with tractor |
| Crop and/or situation | MS or country | F or G | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days) | Remarks |
|-----------------------|--------------|--------|-----------------------------------|-------------|-------------|-----------------------------|------------|---------|
|                       |              |        |                                   | Type(b)     | Conc. a.s.  | Method kind                  | Range of growth stages & season(c) | Number min-max | Interval between application (min) | a.s./hL min-max | Water L/ha min-max | Rate and unit |            |         |
| Lamb's lettuces       | EL           | F       | 'S. exigua S. littoralis H. armigera Autographa gamma' | WG          | 350 gr/kg  | Foliar treatment - broadcast spraying | 12-89 | 1-2 | 7 | – | – | 42 g a.i./ha | 1 | 'Use top end rate for control of H. armigera and S. littoralis. For food production max BBCH 49. For seed production max BBCH 89' |
| Lettuces              | EL           | F       | 'S. exigua S. littoralis H. armigera Autographa gamma' | WG          | 350 gr/kg  | Foliar treatment - broadcast spraying | 12-89 | 1-2 | 7 | – | – | 42 g a.i./ha | 1 | 'Use top end rate for control of H. armigera and S. littoralis. Lettuce for food production max BBCH 49. Lettuce for seed production max BBCH 89' |
| Escaroles             | EL           | F       | 'S. exigua S. littoralis H. armigera Autographa gamma' | WG          | 350 gr/kg  | Foliar treatment - broadcast spraying | 12-89 | 1-2 | 7 | – | – | 42 g a.i./ha | 1 | 'Use top end rate for control of H. armigera and S. littoralis. For food production max BBCH 49. For seed production max BBCH 89' |
| Cresses               | EL           | F       | 'S. exigua S. littoralis H. armigera Autographa gamma' | WG          | 350 gr/kg  | Foliar treatment - broadcast spraying | 12-89 | 1-2 | 7 | – | – | 42 g a.i./ha | 1 | 'Use top end rate for control of H. armigera and S. littoralis. For food production max BBCH 49. For seed production max BBCH 89' |
| Crop and/or situation | MS or country | F G or T | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days) | Remarks |
|-----------------------|---------------|----------|-----------------------------------|-------------|------------|-----------------------------|-----------|---------|
| Land cresses          | EL            | F        | 'S. exigua S. littoralis H. armigera Autographa gamma' | WG          | Foliar treatment – broadcast spraying | 12-89 1-2 7 | – – | 42 g a.i./ha 1 | 'Use top end rate for control of H. armigera and S. littoralis. For food production max BBCH 49. For seed production max BBCH 89' |
| Roman rocket          | EL            | F        | 'S. exigua S. littoralis H. armigera Autographa gamma' | WG          | Foliar treatment – broadcast spraying | 12-89 1-2 7 | – – | 42 g a.i./ha 1 | 'Use top end rate for control of H. armigera and S. littoralis. For food production max BBCH 49. For seed production max BBCH 89' |
| Red mustards          | EL            | F        | 'S. exigua S. littoralis H. armigera Autographa gamma' | WG          | Foliar treatment – broadcast spraying | 12-89 1-2 7 | – – | 42 g a.i./ha 1 | 'Use top end rate for control of H. armigera and S. littoralis. For food production max BBCH 49. For seed production max BBCH 89' |
| Baby leaf crops       | EL            | F        | 'S. exigua S. littoralis H. armigera Autographa gamma' | WG          | Foliar treatment – broadcast spraying | 12-89 1-2 7 | – – | 42 g a.i./ha 1 | 'Use top end rate for control of H. armigera and S. littoralis. For food production max BBCH 49. For seed production max BBCH 89' |
| Crop and/or situation | MS or country | F or T | MS or country | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days) | Remarks |
|-----------------------|--------------|-------|--------------|-----------------------------------|-------------|------------|--------------------------------|------------|---------|
| Spinaches             | EL F         |       |              | ‘S. exigua S. littoralis H. armigera Autographa gamma’ | WG 350 gr/kg | Foliar treatment – broadcast spraying | 12-89 1-2 7 | – – 42 g a.i./ha | 1 ‘Use top end rate for control of H. armigera and S. littoralis. For food production max BBCH 49. For seed production max BBCH 89’ |
| Purslanes             | EL F         |       |              | ‘S. exigua S. littoralis H. armigera Autographa gamma’ | WG 350 gr/kg | Foliar treatment – broadcast spraying | 12-89 1-2 7 | – – 42 g a.i./ha | 1 ‘Use top end rate for control of H. armigera and S. littoralis. For food production max BBCH 49. For seed production max BBCH 89’ |
| Chards                | EL F         |       |              | ‘S. exigua S. littoralis H. armigera Autographa gamma’ | WG 350 gr/kg | Foliar treatment – broadcast spraying | 12-89 1-2 7 | – – 42 g a.i./ha | 1 ‘Use top end rate for control of H. armigera and S. littoralis. For food production max BBCH 49. For seed production max BBCH 89’ |
| Grape leaves          | IT, EL F     |       |              | SC 200 g/kg | Foliar treatment – spraying | 2 | – – 42 g a.i./ha | 1 | – |
| Crop and/or situation | MS or country | FG or T | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days) | Remarks |
|-----------------------|---------------|---------|-----------------------------------|-------------|------------|-------------------------------|-----------|---------|
|                        |               |         |                                   |             |            |                               |           |         |
| Witloofs              | ES            | F       | Caterpillars                      | WG          |            | Foliar treatment – general (see also comment field) | 3          | Foliar spraying. Outdoor: Manual application (knapsack and backpack) or application with tractor. Indoor: Manual application (knapsack/handheld). Volume: 300–1000 l/ha |
| Chervil               | EL            | F       | 'S. exigua S. littoralis H. armigera Autographa gamma' | WG          |            | Foliar treatment – broadcast spraying | 1          | 'Minimum recommended application rate is 100 g fp/ha irrespective of the water volume adopted (adjust concentration)' |
| Chives                | EL            | F       | S. exigua S. littoralis H. armigera Autographa gamma | WG          |            | Foliar treatment – broadcast spraying | 1          | 'Minimum recommended application rate is 100 g fp/ha irrespective of the water volume adopted (adjust concentration)' |
| Crop and/or situation | MS or country | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days) | Remarks |
|-----------------------|---------------|-----------------------------------|-------------|-------------|------------------------------|------------|---------|
|                        |               |                                    | Type(b) Conc. a.s. Method kind Range of growth stages & season(c) Number min–max Interval between application (min) a.s./L min–max Water L/ha min–max Rate and unit |              |               | |
| **Celery leaves**      | EL            | F S. exigua S. littoralis H. armigera Autographa gamma | WG 350 gr/kg Foliar treatment – broadcast spraying 12-89 1-2 7 – – 42 g a.i./ha 1 | Minimum recommended application rate is 100 g fp/ha irrespective of the water volume adopted (adjust concentration) |
| **Parsley**            | EL            | F S. exigua S. littoralis H. armigera Autographa gamma | WG 350 gr/kg Foliar treatment – broadcast spraying 12-89 1-2 7 – – 42 g a.i./ha 1 | Minimum recommended application rate is 100 g fp/ha irrespective of the water volume adopted (adjust concentration) |
| **Sage**               | EL            | F S. exigua S. littoralis H. armigera Autographa gamma | WG 350 gr/kg Foliar treatment – broadcast spraying 12-89 1-2 7 – – 42 g a.i./ha 1 | Minimum recommended application rate is 100 g fp/ha irrespective of the water volume adopted (adjust concentration) |
| **Rosemary**           | EL            | F S. exigua S. littoralis H. armigera Autographa gamma | WG 350 gr/kg Foliar treatment – broadcast spraying 12-89 1-2 7 – – 42 g a.i./ha 1 | Minimum recommended application rate is 100 g fp/ha irrespective of the water volume adopted (adjust concentration) |
### Crop and/or situation | MS or country | FG or T | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days) | Remarks
--- | --- | --- | --- | --- | --- | --- | --- | ---
Thyme | EL | F | S. exigua S. littoralis H. armigera Autographa gamma | WG 350 gr/kg | Foliar treatment – broadcast spraying | 12-89 | 1-2 | 7 | 42 g a.i./ha | Minimum recommended application rate is 100 g fp/ha irrespective of the water volume adopted (adjust concentration)
Basil | EL | F | ‘S. exigua S. littoralis H. armigera Autographa gamma’ | WG 350 gr/kg | Foliar treatment – broadcast spraying | 12-89 | 1-2 | 7 | 42 g a.i./ha | Minimum recommended application rate is 100 g fp/ha irrespective of the water volume adopted (adjust concentration)
Laurel | EL | F | S. exigua S. littoralis H. armigera Autographa gamma | WG 350 gr/kg | Foliar treatment – broadcast spraying | 12-89 | 1-2 | 7 | 42 g a.i./ha | Minimum recommended application rate is 100 g fp/ha irrespective of the water volume adopted (adjust concentration)
Tarragon | EL | F | S. exigua S. littoralis H. armigera Autographa gamma | WG 350 gr/kg | Foliar treatment – broadcast spraying | 12-89 | 1-2 | 7 | 42 g a.i./ha | Minimum recommended application rate is 100 g fp/ha irrespective of the water volume adopted (adjust concentration)
| Crop and/or situation | MS or country | F G or T(a) | Pests or Group of pests controlled | Preparation Type(b) | Conc. a.s. | Method kind | Range of growth stages & season(c) | Number min-max | Interval between application (min) | Remarks |
|-----------------------|---------------|------------|------------------------------------|---------------------|-----------|------------|----------------------------------|----------------|--------------------------|---------|
| Beans (with pods)     | EL            | F          | ‘S. exigua S. littoralis A. gamma H. armigera O. nubilalis’ | WG 350 gr/kg | Foliar treatment – broadcast spraying | 15-89 | 1-2 | 7 | – | – | 42 g a.i./ha | 1 | – |
| Globe artichokes      | IT, EL, PT    | F          | ‘Spodoptera exigua, Spodoptera littoralis, Chrysodeixis chalcites, Brachycaudus cardui, Brachycaudus persicae, Macrosiphum sp.’ | ZC 100 g/L | Foliar treatment – general (see also comment field) | 12-49 | 2 | 7 | – | – | 30 g a.i./ha | 3 | mixture with lambda-cyhalothrin; lambda-cyhalothrin Product Renewal zonal evaluation ongoing (IT = zRMS) with cat. 4 studies (submission Dec 2018) |
| Cotton seeds          | ES            | F          | Helicoverpa armigera               | SC 200 g/L | Foliar treatment – general (see also comment field) | 34-77 | 1-2 | 7 | – | – | 40 g a.i./ha | 10 | Foliar spraying. Manual application or application with tractor. |
| Crop and/or situation | MS or country | F G or T | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days) | Remarks |
|-----------------------|----------------|---------|-----------------------------------|-------------|-------------|--------------------------------|------------|---------|
| Maize EL, IT, ES F | O. nubilalis Sesamia spp H armigera S. exigua | SC | 200 g/L | Foliar treatment – broadcast spraying | 14–73 | 1–2 | 10 | 30 g a.i./ha | 7 |
| Rice IT, ES F | Lissorhoptrus oryzophilus Chironomidae (e.g. Chironomus cavazzai Orthocladius spp. Cricotopus spp.) | FS | 625 g/L | Seed treatment – general (see also comment field) | 0–0 | 1–1 | – | – | n.a. |
| Sorghum FR F | ‘Ostrinia nubilalis Sesamia sp Helicoverta armigera Spodoptera exigua Spodoptera littoralis’ | SC | 200 g/L | Foliar treatment – broadcast spraying | 34–77 | 2 | 10 | 25 g a.i./ha | n.a. |

Minimum recommended application rate is 100 mL fp/ha irrespective of the water volume adopted. Including sweet corn.

PHI = BBCH14-BBCH55 T2 = BBCH73-BBCH87 Minimum recommended application rate is 100 mL fp/ha irrespective of the water volume adopted. Including sweet corn.

This equates to a PHI of approximately 40 days. Application: tractor mounted hydraulic sprayer.
| Crop and/or situation | MS or country | F G or T | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days) | Remarks |
|-----------------------|---------------|----------|-----------------------------------|-------------|------------|-------------------------------|------------|---------|
|                       |               |          |                                   | Type(b) Conc. a.s. Method kind Range of growth stages & season(c) Number min-max Interval between application (min) | a.s./hL min-max Water L/ha min-max Rate and unit | | |
| Maize (for forage)    | FR            | F        | ‘Ostrinia nubilalis Sesamia sp Helicoverpa armigera. Spodoptera exigua Spodoptera littoralis’ | SC 200 g/L Foliar treatment – broadcast spraying 34 to 77 2 10 | – – | 25 g a.i./ha | n.a. | This equates to a PHI of approximately 40 days. Application: tractor mounted hydraulic sprayer |
| Sorghum (for forage)  | FR            | F        | ‘Ostrinia nubilalis Sesamia sp Helicoverpa armigera. Spodoptera exigua Spodoptera littoralis’ | SC 200 g/L Foliar treatment – broadcast spraying 34-77 2 10 | – – | 25 g a.i./ha | n.a. | This equates to a PHI of approximately 40 days. Application: tractor mounted hydraulic sprayer |
### A.3. Authorised indoor uses in EU

| Crop and/or situation | MS or country | F or G or T | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days) | Remarks |
|-----------------------|---------------|-------------|-----------------------------------|-------------|-------------|-------------------------------|------------|---------|
| Strawberries          | EL, CZ, IT, PT| I           | SC                                | 4.50%       | Foliar      | 0.04 kg ai/Ha                  | 3          | –       |
|                       |               |             | Treatment – general (see also comment field) |             | treatment – general (see also comment field) |              |           |         |
| Parsley roots         | NL            | I           | Caterpillars                      | WG          | 350 g/kg    | 35 g a.i./ha                   | 1          | Also for authorisation in lovage root, angelica and burnet saxifrage root |
| Radishes              | NL            | I           | Delia radicum                     | WG          | 350 g/kg    | 35 g a.i./ha                   | 7          |         |
| Tomatoes              | ES            | I           | Caterpillars                      | WG          | 350 g/kg    | 63 g a.i./ha                   | 1          | Indoor: Manual application (knapsack/handheld). Volume: 500–1500 l/ha |
| Sweet peppers         | ES            | I           | Caterpillars                      | WG          | 350 g/kg    | 44 g a.i./ha                   | 1          | Indoor: Manual application (knapsack/handheld). Volume: 300–1250 l/ha |
| Crop and/or situation | MS or country | F G T | Pests or Group of pests controlled | Preparation | Conc. a.s. | Method kind | Application | Application rate per treatment | Remarks |
|-----------------------|---------------|-------|-----------------------------------|-------------|-----------|------------|-------------|-------------------------------|---------|
|                       |               |       |                                    |             |           |            | Range of growth stages & season | a.s./hl min-max | PHI (days) |
|                       |               |       |                                    |             |           |            | Number min-max | Water L/ha min-max | Rate and unit |
|                       |               |       |                                    |             |           |            | Interval between application (min) | |
|                       |               |       |                                    |             |           |            |                          |                          |  |
| Aubergines            | ES            | I     | Caterpillars                       | WG          | 350 g/kg  | Foliar treatment – general (see also comment field) | 71–89 | 1–2 | 7 | – | – | 63 g a.i./ha | 1 | Indoor: Manual application (knapsack/handheld). Volume: 250–1500 l/ha. Maximum rate (tall-short crops) 180–100 g fp/ha |
| Cucumbers             | NL            | I     | Caterpillars                       | WG          | 350 g/kg  | Foliar treatment – broadcast spraying | 2 | 7 | – | – | 52.5 g a.i./ha | 1 | 'Soilbound cultivation Fall-back GAP' |
| Gherkins              | NL            | I     | Caterpillars                       | WG          | 350 g/kg  | Foliar treatment – broadcast spraying | 2 | 7 | – | – | 52.5 g a.i./ha | 1 | 'Soilbound cultivation. Fall-back GAP' |
| Courgettes            | NL            | I     | Caterpillars                       | WG          | 350 g/kg  | Foliar treatment – broadcast spraying | 2 | 7 | – | – | 52.5 g a.i./ha | 1 | Soilbound cultivation |
| Melons                | NL            | I     | Caterpillars                       | WG          | 350 g/kg  | Foliar treatment – broadcast spraying | 2 | 7 | – | – | 52.5 g a.i./ha | 1 | 'Soilbound cultivation. Fall-back GAP' |
| Pumpkins              | NL            | I     | Caterpillars                       | WG          | 350 g/kg  | Foliar treatment – broadcast spraying | 2 | 7 | – | – | 52.5 g a.i./ha | 1 | 'Soilbound cultivation. Fall-back GAP' |
| Watermelons           | NL            | I     | Caterpillars                       | WG          | 350 g/kg  | Foliar treatment – broadcast spraying | 2 | 7 | – | – | 52.5 g a.i./ha | 1 | 'Soilbound cultivation. Fall-back GAP' |

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| Crop and/or situation | MS or country | FG or IP(a) | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days)(d) | Remarks |
|-----------------------|---------------|-------------|-----------------------------------|-------------|-----------|-------------------------------|--------------|---------|
| Broccoli              | EL I          | ‘S. exigua S. littoralis H. armigera Autographa gamma’ | WG 350 gr/kg Foliar treatment – broadcast spraying | 12–89 1–2 7 | – – | 42 g a.i./ha | 1 | 'Use top end rate for control of H. armigera and S. littoralis. For food production max BBCH 49. For seed production max BBCH 89' |
| Cauliflowers          | EL I          | ‘S. exigua S. littoralis H. armigera Autographa gamma’ | WG 350 gr/kg Foliar treatment – broadcast spraying | 12–89 1–2 7 | – – | 42 g a.i./ha | 1 | 'Use top end rate for control of H. armigera and S. littoralis. For food production max BBCH 49. For seed production max BBCH 89' |
| Chinese cabbages      | FR I          | ‘Helicoverpa armigera Autographa gamma’ | WG 350 g/kg Foliar treatment – broadcast spraying | 12–49 1–2 7 | – – | 29.75 g a.i./ha | 1 | – |
| Lamb’s lettuces       | EL I          | ‘S. exigua S. littoralis H. armigera Autographa gamma’ | WG 350 gr/kg Foliar treatment – broadcast spraying | 12–89 1–2 7 | – – | 42 g a.i./ha | 1 | 'Use top end rate for control of H. armigera and S. littoralis. For food production max BBCH 49. For seed production max BBCH 89' |
| Crop and/or situation | MS or country | Pest Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days) | Remarks |
|-----------------------|---------------|-------------------------------|-------------|-------------|-------------------------------|------------|---------|
| **Lettuces** EL I     | 'S. exigua S. littoralis H. armigera Autographa gamma' | WG 350 gr/kg | Foliar treatment – broadcast spraying | 12–89 1–2 | 7 | 42 g a.i./ha | 1 | 'Use top end rate for control of H. armigera and S. littoralis. For food production max BBCH 49. For seed production max BBCH 89' |
| **Escaroles** EL I    | 'S. exigua S. littoralis H. armigera Autographa gamma' | WG 350 gr/kg | Foliar treatment – broadcast spraying | 12–89 1–2 | 7 | 42 g a.i./ha | 1 | 'Use top end rate for control of H. armigera and S. littoralis. For food production max BBCH 49. For seed production max BBCH 89' |
| **Cresses** EL I      | 'S. exigua S. littoralis H. armigera Autographa gamma' | WG 350 gr/kg | Foliar treatment – broadcast spraying | 12–89 1–2 | 7 | 42 g a.i./ha | 1 | 'Use top end rate for control of H. armigera and S. littoralis. For food production max BBCH 49. For seed production max BBCH 89' |
| **Land cresses** EL I | 'S. exigua S. littoralis H. armigera Autographa gamma' | WG 350 gr/kg | Foliar treatment – broadcast spraying | 12–89 1–2 | 7 | 42 g a.i./ha | 1 | 'Use top end rate for control of H. armigera and S. littoralis. For food production max BBCH 49. For seed production max BBCH 89' |
| Crop and/or situation       | MS or country | F G or I | Pests or Group of pests controlled                        | Preparation | Application | Application rate per treatment | PHI (days) | Remarks                                                                 |
|----------------------------|---------------|----------|-------------------------------------------------------------|-------------|-------------|-------------------------------|-------------|--------------------------------------------------------------------------|
| Roman rocket               | EL I          | 'S. exigua S. littoralis H. armigera Autographa gamma' | WG 350 gr/kg | Foliar treatment - broadcast spraying | 12-89 1-2 7 | – | – | 42 g a.i./ha 1 | 'Use top end rate for control of H. armigera and S. littoralis. For food production max BBCH 49. For seed production max BBCH 89' |
| Red mustards               | EL I          | 'S. exigua S. littoralis H. armigera Autographa gamma' | WG 350 gr/kg | Foliar treatment - broadcast spraying | 12-89 1-2 7 | – | – | 42 g a.i./ha 1 | – |
| Baby leaf crops            | EL I          | 'S. exigua S. littoralis H. armigera Autographa gamma' | WG 350 gr/kg | Foliar treatment - broadcast spraying | 12-89 1-2 7 | – | – | 42 g a.i./ha 1 | – |
| Spinaches                  | EL I          | 'S. exigua S. littoralis H. armigera Autographa gamma' | WG 350 gr/kg | Foliar treatment - broadcast spraying | 12-89 1-2 7 | – | – | 42 g a.i./ha 1 | 'Use top end rate for control of H. armigera and S. littoralis. For food production max BBCH 49. For seed production max BBCH 89' |
| Crop and/or situation | MS or country | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days) | Remarks |
|----------------------|--------------|-----------------------------------|-------------|-------------|-------------------------------|------------|---------|
| Purslanes EL I       | "S. exigua  
S. littoralis  
H. armigera  
Autographa gamma’ | "WG 350 gr/kg  
Foliar treatment – broadcast spraying" | 12–89 | 1–2 | 7 | 42 g a.i./ha | 'Use top end rate for control of H. armigera and S. littoralis. For food production max BBCH 49. For seed production max BBCH 89’ |
| Chards EL I          | "S. exigua  
S. littoralis  
H. armigera  
Autographa gamma’ | "WG 350 gr/kg  
Foliar treatment – broadcast spraying" | 12–89 | 1–2 | 7 | 42 g a.i./ha | 'Use top end rate for control of H. armigera and S. littoralis. For food production max BBCH 49. For seed production max BBCH 89’ |
| Witloofs ES I        | Caterpillars  
WG 350 g/kg  
Foliar treatment – general (see also comment field) | 12–89 | 1–2 | 7 | 40.25 g a.i./ha | Foliar spraying. Outdoor: Manual application (knapsack and backpack) or application with tractor. Indoor: Manual application (knapsack/handheld). Volume: 300–1000 l/ha |
| Crop and/or situation | MS or country | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days) | Remarks |
|-----------------------|---------------|-----------------------------------|-------------|-------------|--------------------------|------------|---------|
|                        |               |                                   | Type(b) Conc. a.s. Method kind Range of growth stages & season(c) Number min-max Interval between application (min) a.s./hl min-max Water L/ha min-max Rate and unit |           |                             |            |
| Chervil EL I           |               | ‘S. exigua S. littoralis H. armigera Autographa gamma’ | WG 350 gr/kg Foliar treatment – broadcast spraying 12–89 1–2 7 – – | 42 g a.i./ha | 1 | ‘Use top end rate for control of H. armigera and S. littoralis. For food production max BBCH 49. For seed production max BBCH 89’ |
| Chives EL I            |               | ‘S. exigua S. littoralis H. armigera Autographa gamma’ | WG 350 gr/kg Foliar treatment – broadcast spraying 12–89 1–2 7 – – | 42 g a.i./ha | 1 | ‘Use top end rate for control of H. armigera and S. littoralis. For food production max BBCH 49. For seed production max BBCH 89’ |
| Celery leaves EL I     |               | ‘S. exigua S. littoralis H. armigera Autographa gamma’ | WG 350 gr/kg Foliar treatment – broadcast spraying 12–89 1–2 7 – – | 42 g a.i./ha | 1 | ‘Use top end rate for control of H. armigera and S. littoralis. For food production max BBCH 49. For seed production max BBCH 89’ |
| Parsley EL I           |               | ‘S. exigua S. littoralis H. armigera Autographa gamma’ | WG 350 gr/kg Foliar treatment – broadcast spraying 12–89 1–2 7 – – | 42 g a.i./ha | 1 | ‘Use top end rate for control of H. armigera and S. littoralis. For food production max BBCH 49. For seed production max BBCH 89’ |
| Crop and/or situation | MS or country | F G T | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days) | Remarks |
|-----------------------|---------------|------|------------------------------------|-------------|------------|--------------------------------|------------|---------|
| Sage                  | EL            | I    | ‘S. exigua S. littoralis H. armigera Autographa gamma’ | WG 350 gr/kg, Foliar treatment – broadcast spraying | 12–89 1–2 7 | 42 g a.i./ha | 1 | ‘Use top end rate for control of H. armigera and S. littoralis. For food production max BBCH 49. For seed production max BBCH 89’ |
| Rosemary              | EL            | I    | ‘S. exigua S. littoralis H. armigera Autographa gamma’ | WG 350 gr/kg, Foliar treatment – broadcast spraying | 12–89 1–2 7 | 42 g a.i./ha | 1 | ‘Use top end rate for control of H. armigera and S. littoralis. For food production max BBCH 49. For seed production max BBCH 89’ |
| Thyme                 | EL            | I    | ‘S. exigua S. littoralis H. armigera Autographa gamma’ | WG 350 gr/kg, Foliar treatment – broadcast spraying | 12–89 1–2 7 | 42 g a.i./ha | 1 | ‘Use top end rate for control of H. armigera and S. littoralis. For food production max BBCH 49. For seed production max BBCH 89’ |
| Basil                 | EL            | I    | ‘S. exigua S. littoralis H. armigera Autographa gamma’ | WG 350 gr/kg, Foliar treatment – broadcast spraying | 12–89 1–2 7 | 42 g a.i./ha | 1 | ‘Use top end rate for control of H. armigera and S. littoralis. For food production max BBCH 49. For seed production max BBCH 89’ |
| Crop and/or situation | MS or country | FG or T | Pests or Group of pests controlled | Preparation | Conc. a.s. | Method kind | Range of growth stages & season | Number min-max | Interval between application (min) | PHI (days) | Remarks |
|-----------------------|---------------|---------|----------------------------------|-------------|-----------|------------|-------------------------------|----------------|-------------------------------|------------|---------|
| Laurel                | EL            | I       | ‘S. exigua S. littoralis H. armigera Autographa gamma’ | WG          | 350 gr/kg | Foliar treatment – broadcast spraying | 12-89 | 1-2 | 7 | – | 42 g a.i./ha | 1 | ‘Use top end rate for control of H. armigera and S. littoralis. For food production max BBCH 49. For seed production max BBCH 89.’ |
| Tarragon              | EL            | I       | ‘S. exigua S. littoralis H. armigera Autographa gamma’ | WG          | 350 gr/kg | Foliar treatment – broadcast spraying | 12-89 | 1-2 | 7 | – | 42 g a.i./ha | 1 | ‘Use top end rate for control of H. armigera and S. littoralis. For food production max BBCH 49. For seed production max BBCH 89.’ |
| Beans (with pods)     | NL            | I       | Caterpillars | WG          | 350 g/kg | Foliar treatment – broadcast spraying | 2 | 7 | – | – | 52.5 g a.i./ha | 1 | Upstanding crop |
### A.4. Import tolerance

| Crop and/or situation | MS or country | F or I(a) | Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days)(d) | Remarks |
|-----------------------|---------------|-----------|---------------------------|-------------|-------------|-------------------------------|---------------|---------|
|                       |               |           |                           | Type(b)     | Conc. a.s.  | Method kind                    |               |         |
|                       |               |           |                           | Range of growth stages & season(c) | Number min-max | Interval between application (min) | Water L/ha min-max | Rate and unit |         |
|                       |               |           |                           |             |             |                               |               |          |
| Grapefruits           | ZA            | F         | SC                        | Foliar treatment – broadcast spraying | 2            | –                             | –             | 297.5 g a.i./ha | 7       |
| Oranges               | ZA            | F         | SC                        | Foliar treatment – broadcast spraying | 2            | –                             | –             | 297.5 g a.i./ha | 7       |
| Lemons                | ZA            | F         | SC                        | Foliar treatment – broadcast spraying | 2            | –                             | –             | 297.5 g a.i./ha | 7       |
| Limes                 | ZA            | F         | SC                        | Foliar treatment – broadcast spraying | 2            | –                             | –             | 297.5 g a.i./ha | 7       |
| Mandarins             | ZA            | F         | SC                        | Foliar treatment – broadcast spraying | 2            | –                             | –             | 297.5 g a.i./ha | 7       |
| Almonds               | US            | F         | WG                        | Foliar treatment – broadcast spraying | 4            | –                             | –             | 110.5 g a.i./ha | 10      | High volume broadcast spraying, low vol aerial |
| Brazil nuts           | US            | F         | WG                        | Foliar treatment – broadcast spraying | 4            | –                             | –             | 110.5 g a.i./ha | 10      | High volume broadcast spraying, low vol aerial |
| Crop and/or situation | MS or country | FG or I(a) | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days)(d) | Remarks |
|-----------------------|---------------|------------|-----------------------------------|-------------|------------|--------------------------------|---------------|---------|
| Cashew nuts           | US            | F          | WG                                | Foliar treatment – broadcast spraying | 4          | – –                            | 110.5 g a.i./ha | 10      | High volume broadcast spraying, low vol aerial |
| Chestnuts             | US            | F          | WG                                | Foliar treatment – broadcast spraying | 4          | – –                            | 110.5 g a.i./ha | 10      | High volume broadcast spraying, low vol aerial |
| Coconuts              | US            | F          | WG                                | Foliar treatment – broadcast spraying | 4          | – –                            | 110.5 g a.i./ha | 10      | High volume broadcast spraying, low vol aerial |
| Hazelnuts             | US            | F          | WG                                | Foliar treatment – broadcast spraying | 4          | – –                            | 110.5 g a.i./ha | 10      | High volume broadcast spraying, low vol aerial |
| Macadamias            | US            | F          | WG                                | Foliar treatment – broadcast spraying | 4          | – –                            | 110.5 g a.i./ha | 10      | High volume broadcast spraying, low vol aerial |
| Pecans                | US            | F          | WG                                | Foliar treatment – broadcast spraying | 4          | – –                            | 110.5 g a.i./ha | 10      | High volume broadcast spraying, low vol aerial |
| Pine nut kernels      | US            | F          | WG                                | Foliar treatment – broadcast spraying | 4          | – –                            | 110.5 g a.i./ha | 10      | High volume broadcast spraying, low vol aerial |
| Pistachios            | US            | F          | WG                                | Foliar treatment – broadcast spraying | 4          | – –                            | 110.5 g a.i./ha | 10      | High volume broadcast spraying, low vol aerial |
| Crop and/or situation | MS or country | Type(b) | Conc. a.s. | Preparation | Application | Application rate per treatment | PHI (days)(d) | Remarks |
|-----------------------|--------------|---------|------------|-------------|-------------|-------------------------------|---------------|---------|
| Walnuts               | US           | F       | WG         | Foliar treatment – broadcast spraying | 4           | 110.5 g a.i./ha                | 10            | High volume broadcast spraying, low vol aerial |
| Apples                | AUS          | F       | SC         | Foliar treatment – broadcast spraying | 3           | 78 g a.i./ha                   | 14            | ‘& non-ionic surfactant Maximum seasonal application rate = 236 g ai/ha’ |
| Pears                 | AUS          | F       | SC         | Foliar treatment – broadcast spraying | 3           | 78 g a.i./ha                   | 14            | High volume broadcast spraying, low vol aerial |
| Quinces               | AUS          | F       | SC         | Foliar treatment – broadcast spraying | 3           | 78 g a.i./ha                   | 14            | High volume broadcast spraying, low vol aerial |
| Medlars               | AUS          | F       | SC         | Foliar treatment – broadcast spraying | 3           | 78 g a.i./ha                   | 14            | High volume broadcast spraying, low vol aerial |
| Loquats               | AUS          | F       | SC         | Foliar treatment – broadcast spraying | 3           | 78 g a.i./ha                   | 14            | High volume broadcast spraying, low vol aerial |
| Apricots              | US           | F       | WG         | Foliar treatment – general (see also comment field) | 2           | 110 g a.i./ha                   | 10            | –       |
| Crop and/or situation | MS or country | F, G or I(a) | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days)(d) | Remarks |
|-----------------------|--------------|-------------|-----------------------------------|-------------|-------------|-------------------------------|-------------|---------|
|                       |              |             |                                   | Type(b)     | Conc. a.s.  | Method kind                    | Range of growth stages & season(c) | Number min-max | Interval between application (min) | a.s./hl min-max | Water L/ha min-max | Rate and unit | |
| Cherries              | US           | F           | WG                                | Foliar treatment – general (see also comment field) | 2           | – –                              | 110 g a.i./ha | 10 – | – |
| Peaches               | US           | F           | WG                                | Foliar treatment – general (see also comment field) | 2           | – –                              | 110 g a.i./ha | 10 – | – |
| Plums                 | US           | F           | WG                                | Foliar treatment – general (see also comment field) | 2           | – –                              | 110 g a.i./ha | 10 – | – |
| Table grapes          | US           | F           | WG                                | Foliar treatment – broadcast spraying | 4           | – –                              | 110.5 g a.i./ha | 14 | High volume broadcast spraying, low vol aerial. The US label allows maximum 110.5 g a.i/ha per application and maximum 224 g a.i/ha per year |
| Wine grapes           | US           | F           | WG                                | Foliar treatment – broadcast spraying | 4           | – –                              | 110.5 g a.i./ha | 14 | High volume broadcast spraying, low vol aerial. The US label allows maximum 110.5 g a.i/ha per application and maximum 224 g a.i/ha per year |
| Crop and/or situation | MS or country | F or G or I(a) | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days)(d) | Remarks |
|-----------------------|---------------|----------------|----------------------------------|-------------|----------------|-------------------------------|---------------|---------|
|                       |               |                |                                  | Type(b)     | Conc. a.s. | Method kind                  | Range of growth stages & season(c) | Number min-max | Interval between application (min) | Water L/ha min-max | Rate and unit |                      |               |                     |
| Strawberries          | US F          |                |                                  | WG          |           | Foliar treatment – general (see also comment field) | 3 | – | – | 110.5 g a.i./ha | 3 | Ground sprayer |
| Blackberries          | US F          |                |                                  | WG          |           | Foliar treatment – general (see also comment field) | 3 | – | – | 110.5 g a.i./ha | 3 | Ground sprayer. The US label allows maximum 110.5 g ai/ha per application and maximum 224 g ai/ha per year |
| Dewberries            | US F          |                |                                  | WG          |           | Foliar treatment – general (see also comment field) | 3 | – | – | 110.5 g a.i./ha | 3 | Ground sprayer. The US label allows maximum 110.5 g ai/ha per application and maximum 224 g ai/ha per year |
| Raspberries           | US F          |                |                                  | WG          |           | Foliar treatment – general (see also comment field) | 3 | – | – | 110.5 g a.i./ha | 3 | Ground sprayer. The US label allows maximum 110.5 g ai/ha per application and maximum 224 g ai/ha per year |
| Blueberries           | US F          |                |                                  | WG          |           | Foliar treatment – general (see also comment field) | 3 | – | – | 110.5 g a.i./ha | 3 | Ground sprayer. The US label allows maximum 110.5 g ai/ha per application and maximum 224 g ai/ha per year |
| Crop and/or situation | MS or country | F G or I(a) | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days)(d) | Remarks |
|-----------------------|---------------|-------------|-----------------------------------|-------------|------------|-------------------------------|---------------|---------|
| Cranberries           | US            | F           | WG                                | Foliar treatment – general (see also comment field) | 3          | –, –                         | 110.5 g a.i./ha | 3       | Ground sprayer. The US label allows maximum 110.5 g ai/ha per application and maximum 224 g ai/ha per year |
| Granate apples        | US            | F           | WG                                | Foliar treatment – general (see also comment field) | 3          | –, –                         | 110.5 g a.i./ha | 1       | The US label allows maximum 110.5 g ai/ha per application and maximum 224 g ai/ha per year |
| Potatoes              | CA            | F           | WG                                | Foliar treatment – broadcast spraying                  | 4          | –, –                         | 75 g a.i./ha    | 14      | High and low volume broadcast spraying, aerial low volume spraying. The EU MRL was set based on US residue data. The maximum seasonal rate allowed by the US label is 224 g ai/ha |
| Radishes              | US            | F           | SC                                | Foliar treatment – general (see also comment field)   | 4          | –, –                         | 109.5 g a.i./ha | 1       | Low volume ground sprayer, aerial and high volume drip chemigation |
### Crop and/or situation
- **Tomatoes**
- **Sweet peppers**
- **Aubergines**

| Crop and/or situation | MS or country | FG or Gal (a) | Pests or Group of pests controlled | Preparation Type(b) | Conc. a.s. | Method kind | Application Range of growth stages & season(c) | Number min-max | Interval between application (min) | Application rate per treatment a.s./hL min-max | Water L/ha min-max |
|-----------------------|---------------|---------------|------------------------------------|---------------------|-----------|------------|-----------------------------------------------|---------------|-------------------------------|-----------------------------------------------|------------------|
| Tomatoes              | US            | F             | SC                                 | Foliar treatment – broadcast spraying | 4         | –          | –                                             | –             | 109.5 g a.i./ha                | 1 High and low volume broadcast spraying, high volume drip chemigation, low vol aerial. The US label allows maximum 110.5 g a.i./ha per application and maximum 224 g a.i./ha per year |
| Sweet peppers        | US            | F             | SC                                 | Foliar treatment – broadcast spraying | 4         | –          | –                                             | –             | 109.5 g a.i./ha                | 1 High and low volume broadcast spraying, high volume drip chemigation, low vol aerial. The maximum seasonal rate allowed by the US label is 224 g a.i./ha |
| Aubergines           | US            | F             | SC                                 | Foliar treatment – general (see also comment field) | 4         | –          | –                                             | –             | 109.5 g a.i./ha                | 1 High and low volume broadcast spraying, high volume drip chemigation, low vol aerial Extrapolation from tomato |
| Crop and/or situation | MS or country | F G or I\(^{(a)}\) | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days)\(^{(d)}\) | Remarks |
|-----------------------|--------------|-------------------|-----------------------------------|-------------|------------|-------------------------------|-----------------|---------|
|                       |              |                   |                                   |             | Method kind | Range of growth stages & season\(^{(c)}\) | Number min-max | Interval between application (min) | a.s./hl min-max | Water L/ha min-max | Rate and unit | |
| Cucumbers             | US           | F                 | SC                                | Foliar treatment – broadcast spraying | 4           | – – | 109.5 g a.i./ha | 1 | High and low volume broadcast spraying, high volume drip chemigation, low vol aerial |
| Gherkins              | US           | F                 | SC                                | Foliar treatment – broadcast spraying | 4           | – – | 109.5 g a.i./ha | 1 | High and low volume broadcast spraying, high volume drip chemigation, low vol aerial |
| Courgettes            | US           | F                 | SC                                | Foliar treatment – broadcast spraying | 4           | – – | 109.5 g a.i./ha | 1 | High and low volume broadcast spraying, high volume drip chemigation, low vol aerial |
| Melons                | US           | F                 | SC                                | Foliar treatment – broadcast spraying | 4           | – – | 109.5 g a.i./ha | 1 | High and low volume broadcast spraying, high volume drip chemigation, low vol aerial |
| Pumpkins              | US           | F                 | SC                                | Foliar treatment – broadcast spraying | 4           | – – | 109.5 g a.i./ha | 1 | High and low volume broadcast spraying, high volume drip chemigation, low vol aerial |
| Crop and/or situation | MS or country | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days) | Remarks |
|-----------------------|--------------|-----------------------------------|-------------|-------------|-----------------------------|-----------|---------|
| Watermelons US        | F            | SC                                | Foliar treatment – broadcast spraying | 4           | –   | –   | 109.5 g a.i./ha | 1 High and low volume broadcast spraying, high volume drip chemigation, low vol aerial |
| Broccoli US           | F            | SC                                | Foliar treatment – general (see also comment field) | 4           | –   | –   | 109.5 g a.i./ha | 3 The maximum seasonal rate allowed by the US label is 224 g ai/ha |
| Brussels sprouts AU   | F            | SC                                | Foliar treatment – general (see also comment field) | 3           | –   | –   | 20 g a.i./ha | 7 High and low volume broadcast spraying |
| Head cabbages US      | F            | SC                                | Foliar treatment – general (see also comment field) | 4           | –   | –   | 109.5 g a.i./ha | 3 – |
| Chinese cabbages US   | F            | SC                                | Foliar treatment – broadcast spraying | 4           | –   | –   | 109.5 g a.i./ha | 3 High and low volume broadcast spraying, high volume drip chemigation, low vol aerial |
| Kales US              | F            | SC                                | Foliar treatment – broadcast spraying | 4           | –   | –   | 109.5 g a.i./ha | 3 High and low volume broadcast spraying, high volume drip chemigation, low vol aerial |
| Crop and/or situation | MS or country | F Group or I | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days) | Remarks |
|-----------------------|---------------|--------------|-----------------------------------|-------------|------------|-------------------------------|------------|---------|
|                       |               |              |                                   |             |            |                               |            |         |
| Lamb's lettuces       | US            | F            | SC                                | Foliar treatment – broadcast spraying | 4          | –                             | 109.5 g a.i./ha | 1       | High and low volume broadcast spraying, high volume drip chemigation, low vol aerial. The maximum seasonal rate allowed by the US label is 224 g ai/ha |
| Lettuces              | US            | F            | SC                                | Foliar treatment – broadcast spraying | 4          | –                             | 109.5 g a.i./ha | 1       | High and low volume broadcast spraying, high volume drip chemigation, low vol aerial. The maximum seasonal rate allowed by the US label is 224 g ai/ha |
| Escaroles             | US            | F            | SC                                | Foliar treatment – broadcast spraying | 4          | –                             | 109.5 g a.i./ha | 1       | High and low volume broadcast spraying, high volume drip chemigation, low vol aerial. The maximum seasonal rate allowed by the US label is 224 g ai/ha |
| Crop and/or situation | MS or country | F G or I | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days) | Remarks |
|-----------------------|---------------|----------|----------------------------------|-------------|-------------|--------------------------------|-------------|---------|
|                       |               |          |                                  |             | Method kind | Range of growth stages & season | Number min–max | Interval between application (min) | a.s./hl min–max | Water L/ha min–max | Rate and unit |          |
| Cresses               | US F          | SC       | Foliar treatment – broadcast spraying | 4           | –           | –                              | 109.5 g a.i./ha | 1 | High and low volume broadcast spraying, high volume drip chemigation, low vol aerial. The maximum seasonal rate allowed by the US label is 224 g a.i./ha |
| Land cresses          | US F          | SC       | Foliar treatment – broadcast spraying | 4           | –           | –                              | 109.5 g a.i./ha | 1 | High and low volume broadcast spraying, high volume drip chemigation, low vol aerial. The maximum seasonal rate allowed by the US label is 224 g a.i./ha |
| Roman rocket         | US F          | SC       | Foliar treatment – broadcast spraying | 4           | –           | –                              | 109.5 g a.i./ha | 1 | High and low volume broadcast spraying, high volume drip chemigation, low vol aerial. The maximum seasonal rate allowed by the US label is 224 g a.i./ha |
### Review of the existing MRLs for chlorantraniliprole

| Crop and/or situation | MS or country | Preparation | Application | Application rate per treatment | PHI (days) | Remarks |
|-----------------------|---------------|-------------|-------------|-------------------------------|------------|---------|
| **Red mustards**      | US            | F           | SC          | Foliar treatment – broadcast spraying | 4          | – – 109.5 g a.i./ha  | 1 High and low volume broadcast spraying, high volume drip chemigation, low vol aerial. The maximum seasonal rate allowed by the US label is 224 g a.i/ha |
| **Baby leaf crops**   | US            | F           | SC          | Foliar treatment – broadcast spraying | 4          | – – 109.5 g a.i./ha  | 1 High and low volume broadcast spraying, high volume drip chemigation, low vol aerial. The maximum seasonal rate allowed by the US label is 224 g a.i/ha |
| **Spinaches**         | US            | F           | SC          | Foliar treatment – broadcast spraying | 4          | – – 109.5 g a.i./ha  | 1 High and low volume broadcast spraying, high volume drip chemigation, low vol aerial. The maximum seasonal rate allowed by the US label is 224 g a.i/ha |
| Crop and/or situation | MS or country | F or G or I(a) | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days)(d) | Remarks |
|-----------------------|--------------|----------------|-----------------------------------|-------------|------------|-------------------------------|--------------|---------|
|                       |              |                |                                   | Type(b)     | Conc. a.s. | Method kind                   | Number min-max | Water L/ha min-max | Rate and unit | | |
| Purslanes             | CA           | F              | SC                                | Foliar treatment – broadcast spraying | 4           | –                             | –             | 50 g a.i./ha | 1 | Low volume broadcast spraying. The maximum seasonal rate allowed by the US label is 224 g a.i./ha |
| Chards                | CA           | F              | SC                                | Foliar treatment – broadcast spraying | 4           | –                             | –             | 50 g a.i./ha | 1 | Low volume broadcast spraying. The maximum seasonal rate allowed by the US label is 224 g a.i./ha |
| Chervil               | US           | F              | SC                                | Foliar treatment – broadcast spraying | 4           | –                             | –             | 109.5 g a.i./ha | 1 | High and low volume broadcast spraying, high volume drip chemigation, low vol aerial. Extrapolation from spinach. The maximum seasonal rate allowed by the US label is 224 g a.i./ha |
| Crop and/or situation | MS or country | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days) | Remarks |
|-----------------------|---------------|-----------------------------------|-------------|-------------|-------------------------------|------------|---------|
|                      |               |                                   | Type(b) Conc. a.s. Method kind | Range of growth stages & season(c) | Number min–max | Interval between application (min) | a.s./hl min–max | Water L/ha min–max | Rate and unit | |
| Chives               | US            | F                                 | SC          | Foliar treatment – broadcast spraying | 4           | –                              | –           | 109.5 g a.i./ha | 1               | High and low volume broadcast spraying, high volume drip chemigation, low vol aerial. Extrapolation from spinach. The maximum seasonal rate allowed by the US label is 224 g ai/ha |
| Celery leaves        | US            | F                                 | SC          | Foliar treatment – broadcast spraying | 4           | –                              | –           | 109.5 g a.i./ha | 1               | High and low volume broadcast spraying, high volume drip chemigation, low vol aerial. Extrapolation from spinach. The maximum seasonal rate allowed by the US label is 224 g ai/ha |
| Crop and/or situation | MS or country | F G or I | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days) | Remarks |
|-----------------------|---------------|----------|-----------------------------------|-------------|-------------|--------------------------------|------------|---------|
|                       |               |          |                                   |             |             |                                |            |         |
| Parsley               | US            | F        | SC                                | Foliar treatment – broadcast spraying | 4           | –                               | 109.5 g a.i./ha | 1       | High and low volume broadcast spraying, high volume drip chemigation, low vol aerial. Extrapolation from spinach. The maximum seasonal rate allowed by the US label is 224 g ai/ha |
| Sage                  | US            | F        | SC                                | Foliar treatment – broadcast spraying | 4           | –                               | 109.5 g a.i./ha | 1       | High and low volume broadcast spraying, high volume drip chemigation, low vol aerial. Extrapolation from spinach. The US cGAP is 3 applications at 75 g ai/ha with 1-day PHI |
| Crop and/or situation | MS or country | F G or I(a) | Pests or Group of pests controlled | Preparation Type(b) | Conc. a.s. | Method kind | Application Range of growth stages & season(c) | Number min-max | Interval between application (min) | Application rate per treatment a.s./hl min-max | Water L/ha min-max | Rate and unit a.i./ha | PHI (days)(d) | Remarks |
|-----------------------|--------------|------------|-----------------------------------|---------------------|-----------|------------|-----------------------------|--------------|-----------------------------|------------------|----------------|----------------|-----------|---------|
| Rosemary              | US           | F          | SC foliar treatment – broadcast spraying | 4                   | –         | –          | 109.5 g a.i./ha             | 1            | High and low volume broadcast spraying, high volume drip chemigation, low vol aerial. Extrapolation from spinach. The US cGAP is 3 applications at 75 g ai/ha with 1-day PHI |
| Thyme                 | US           | F          | SC foliar treatment – broadcast spraying | 4                   | –         | –          | 109.5 g a.i./ha             | 1            | High and low volume broadcast spraying, high volume drip chemigation, low vol aerial. Extrapolation from spinach. The US cGAP is 3 applications at 75 g ai/ha with 1-day PHI |
| Crop and/or situation | MS or country | F, G or I(a) | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days)(d) | Remarks |
|-----------------------|---------------|--------------|------------------------------------|-------------|-------------|-------------------------------|--------------|---------|
|                       |               |              |                                    | Type(b)     | Conc. a.s.  | Range of growth stages & season(c) | Number min-max | Interval between application (min) | a.s./hl min-max | Water L/ha min-max | Rate and unit |          |
| Basil                 | US            | F            | SC                                 | Foliar treatment – broadcast spraying | 4           | –                | –            | –                        | 109.5 g a.i./ha | –               | –             | 1          |
|                       |               |              |                                    |             |             |                               |              | –                        |              |                 |               | High and low volume broadcast spraying, high volume drip chemigation, low vol aerial. Extrapolation from spinach. The US cGAP is three applications at 75 g ai/ha with 1-day PHI |
| Laurel                | US            | F            | SC                                 | Foliar treatment – broadcast spraying | 4           | –                | –            | –                        | 109.5 g a.i./ha | –               | –             | 1          |
|                       |               |              |                                    |             |             |                               |              | –                        |              |                 |               | High and low volume broadcast spraying, high volume drip chemigation, low vol aerial. Extrapolation from spinach. The maximum seasonal rate allowed by the US label is 224 g ai/ha |
| Crop and/or situation | MS or country | Type(b) | Conc. a.s. | Method kind | Range of growth stages & season(c) | Number min-max | Interval between application (min) | Application rate per treatment a.s./hL min-max | Water L/ha min-max | PHI (days)(d) | Remarks |
|----------------------|---------------|---------|------------|-------------|----------------------------------|----------------|----------------------------------|-----------------------------------------------|-------------------|------------|---------|
| Tarragon             | US F          | SC      | Foliar treatment – broadcast spraying | 4            | – –                              | 109.5 g a.i./ha | 1                                | High and low volume broadcast spraying, high volume drip chemigation, low vol aerial. Extrapolation from spinach. The US cGAP is 3 applications at 75 g ai/ha with 1-day PHI |
| Beans (with pods)    | US F          | SC      | Foliar treatment – broadcast spraying | 4            | – –                              | 110.5 g a.i./ha | 1                                | Maximum seasonal application rate: 219 g/ha (2 applications at the maximum rate) |
| Beans (without pods) | US F          | SC      | Foliar treatment – broadcast spraying | 4            | – –                              | 75 g a.i./ha | 1                                | – |
| Peas (with pods)     | US F          | SC      | Foliar treatment – broadcast spraying | 4            | – –                              | 110.5 g a.i./ha | 1                                | Maximum seasonal application rate: 219 g/ha (2 applications at the maximum rate) |
| Peas (without pods)  | US F          | SC      | Foliar treatment – broadcast spraying | 4            | – –                              | 75 g a.i./ha | 1                                | – |
| Crop and/or situation | MS or country | F or G or I(a) | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days)(d) | Remarks |
|-----------------------|---------------|----------------|-----------------------------------|-------------|----------------|-------------------------------|--------------|---------|
| **Lentils (fresh)**   | US            | F              | SC                                | Foliar treatment – broadcast spraying | 4           | – – 75 g a.i./ha               | 1            | –       |
| **Cardoons**          | US            | F              | SC                                | Foliar treatment – broadcast spraying | 4           | – – 109.5 g a.i./ha            | 1            | High and low volume broadcast spraying, high volume drip chemigation, low vol aerial |
| **Celeries**          | US            | F              | SC                                | Foliar treatment – broadcast spraying | 4           | – – 109.5 g a.i./ha            | 1            | High and low volume broadcast spraying, high volume drip chemigation, low vol aerial |
| **Florence fennels**  | US            | F              | SC                                | Foliar treatment – broadcast spraying | 4           | – – 109.5 g a.i./ha            | 1            | High and low volume broadcast spraying, high volume drip chemigation, low vol aerial |
| **Globe artichokes**  | US            | F              | WG                                | Foliar treatment – broadcast spraying | 11-89       | 4 – – 109.5 g a.i./ha          | 3            | Maximum seasonal application rate: 219 g/ha (2 applications at the maximum rate) |
| **Rhubarbs**          | US            | F              | SC                                | Foliar treatment – broadcast spraying | 4           | – – 109.5 g a.i./ha            | 1            | High and low volume broadcast spraying, high volume drip chemigation, low vol aerial |

(a) Crop or plant to which the MRLs are applicable.

(b) Type: a.s. = Active substance; hL = High L Every unit (g/L); lL = Low L Every unit (g/L).

(c) Range of growth stages & season: 4-5 = Short time window for application.

(d) PHI (Precautionary Harvest Interval) is the interval between the last application and harvest of the crop or fruit (in days).
| Crop and/or situation | MS or country | F Group or Tier (a) | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days)(d) | Remarks |
|-----------------------|---------------|---------------------|-----------------------------------|-------------|------------|--------------------------------|--------------|---------|
| Linseeds              | US            | F                   | SC                                | Foliar treatment – general (see also comment field) | 31–89       | 4                 | –            | –           | 109.5 g a.i./ha | 1 | Except peanuts, soyabean and cotton seed. US import tolerance |
| Peanuts               | US            | F                   | SC                                | Foliar treatment – spraying | 89          | 2                 | –            | –           | 110 g a.i./ha | 1 | – |
| Poppy seeds           | US            | F                   | SC                                | Foliar treatment – general (see also comment field) | 31–89       | 4                 | –            | –           | 109.5 g a.i./ha | 1 | Except peanuts, soyabean and cotton seed. US import tolerance |
| Sesame seeds          | US            | F                   | SC                                | Foliar treatment – general (see also comment field) | 31–89       | 4                 | –            | –           | 109.5 g a.i./ha | 1 | Except peanuts, soyabean and cotton seed. US import tolerance |
| Sunflower seeds       | US            | F                   | SC                                | Foliar treatment – general (see also comment field) | 31–89       | 4                 | –            | –           | 109.5 g a.i./ha | 1 | The cGAP in US is 2 applications at 110.5 g ai/ha with 1-day PHI. The maximum seasonal rate is 224 g ai/ha |
| Rapeseeds             | US            | F                   | SC                                | Foliar treatment – general (see also comment field) | 31–89       | 4                 | –            | –           | 109.5 g a.i./ha | 1 | The cGAP in US is 2 applications at 110.5 g ai/ha with 1-day PHI. The maximum seasonal rate is 224 g ai/ha |
| Crop and/or situation | MS or country | F GT | Pests or Group of pests controlled | Preparation Type | Conc. a.s. | Method kind | Range of growth stages & season | Number min-max | Interval between application (min) | a.s./hl min-max | Water L/ha min-max | Rate and unit | PHI (days) | Remarks |
|-----------------------|---------------|------|-----------------------------------|------------------|-----------|-------------|-----------------------------|----------------|----------------------------------|----------------|------------------|-------------|----------|---------|
| Soyabean              | AUS, JPN      | F    | General                           | Foliar treatment |          | General     | 4                          |                |                                  |                |                  |             |          |         |
| Mustard seeds         | US            | F    | General                           | Foliar treatment |          | General     | 31-89                      | 4              |                                  |                |                  |             |          |         |
| Cotton seeds          | US            | F    | General                           | Foliar treatment |          | Broadcast   | 4                          |                |                                  |                |                  |             |          |         |
| Pumpkin seeds         | US            | F    | General                           | Foliar treatment |          | General     | 31-89                      | 4              |                                  |                |                  |             |          |         |
| Safflower seeds       | US            | F    | General                           | Foliar treatment |          | General     | 31-89                      | 4              |                                  |                |                  |             |          |         |
| Crop and/or situation | MS or country | FG or I(a) Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days)(d) | Remarks |
|-----------------------|--------------|----------------------------------------------|-------------|-------------|-------------------------------|----------------|---------|
| Borage seeds          | US F         | SC                                          | Foliar treatment – general (see also comment field) | 31–89 4 | – – 109.5 g a.i./ha | 1 | Except peanuts, soyabean and cotton seed. US import tolerance |
| Gold of pleasure seeds| US F         | SC                                          | Foliar treatment – general (see also comment field) | 31–89 4 | – – 109.5 g a.i./ha | 1 | Except peanuts, soyabean and cotton seed. US import tolerance |
| Hemp seeds            | US F         | SC                                          | Foliar treatment – general (see also comment field) | 31–89 4 | – – 109.5 g a.i./ha | 1 | Except peanuts, soyabean and cotton seed. US import tolerance |
| Castor beans          | US F         | SC                                          | Foliar treatment – general (see also comment field) | 31–89 4 | – – 109.5 g a.i./ha | 1 | Except peanuts, soyabean and cotton seed. US import tolerance |
| Oil palms kernels     | MY F         | WG 350 g/kg Foliar treatment – spraying     | 11–89 1–2 14 | – – 30 g a.i./ha | 1 | There are two harvests per year in oil palm plantations such that two applications are made to each crop cycle with a maximum of 4 applications per year |
| Crop and/or situation | MS or country | F G or I(a) | Pests or Group of pests controlled | Preparation | Application | Application rate per treatment | PHI (days)(d) | Remarks |
|------------------------|--------------|-------------|-----------------------------------|-------------|------------|--------------------------------|---------------|---------|
| Oil palms fruits       | MY           | F           | WG                                | 350 g/kg    | Foliar treatment – spraying | FGWG 350 g/kg | 30 g a.i./ha | 1       | There are two harvests per year in oil palm plantations such that two applications are made to each crop cycle with a maximum of 4 applications per year. |
| Rice                   | BR           | F           | WG                                | 1           | Foliar treatment – general (see also comment field) | FGWG Foliar treatment – general | 30 g a.i./ha | 15      | Import tolerance from Brazil, ground and aerial foliar application. |
| Coffee beans           | BR           | F           | WG                                | 60-89       | Foliar treatment – general (see also comment field) | FGWG Foliar treatment – general | 31.5 g a.i./ha | 21      | Ground foliar. |
| Hops                   | US           | F           | SC                                | 11-89       | Foliar treatment – spraying | FGWG Foliar treatment – spraying | 110 g a.i./ha | 0       | Maximum seasonal application rate: 219 g a.s./ha |
| Sugar canes            | BR           | F           | WG                                | 2           | Foliar treatment – spraying | FGWG Foliar treatment – spraying | 158 g a.i./ha | 56      | 1 soil and 1 foliar treatment. |

MS: Member State. 
(a): Outdoor or field use (F), greenhouse application (G) or indoor application (I). 
(b): CropLife International Technical Monograph no 2, 7th Edition. Revised March 2017. Catalogue of pesticide formulation types and international coding system. 
(c): Growth stage range from first to last treatment (BBCH Monograph, Growth Stages of Plants, 1997, Blackwell, ISBN 3-8263-3152-4), including, where relevant, information on season at time of application. 
(d): PHI – minimum pre-harvest interval.
### Appendix B – List of end points

#### B.1. Residues in plants

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

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

| Primary crops (available studies) | Crop groups | Crop(s) | Application(s) | Sampling (DAT) | Comment/Source |
|-----------------------------------|-------------|---------|----------------|---------------|----------------|
| Fruit crops                       |             |         |                |               |                |
|                                   |             | Apples  | Foliar: 3 × 100 g a.s./ha; BBCH 71, 75, 77 | 0 DAT_{1,2,3} (immature leaves and fruits); 15 and 30 DALA (maturity) | Radiolabelled active substance: [benzamide carbonyl-^{14}C] chlorantraniliprole and [pyrazole carbonyl-^{14}C]-chlorantraniliprole (EFSA, 2011a, 2013a) |
|                                   |             | Tomatoes| Foliar: 3 × 100 g a.s./ha; BBCH 61, 73; 81 | 0 DAT_{1,2,3} (immature leaves and fruits); 7 and 15 DALA (maturity) | Radiolabelled active substance: mixture (1:1) [benzamide carbonyl-^{14}C] chlorantraniliprole and [pyrazole carbonyl-^{14}C]-chlorantraniliprole (EFSA, 2011a, 2013a) |
| Leafy crops                       |             | Lettuces| Foliar: 3 × 100 g a.s./ha; BBCH 13, 19 | 0 DAT_{1,2,3}; 7 and 15 DALA (maturity) | Radiolabelled active substance: mixture (1:1) [benzamide carbonyl-^{14}C] chlorantraniliprole and [pyrazole carbonyl-^{14}C]-chlorantraniliprole (EFSA, 2011a, 2013a) |
| Cereals/grass                     |             | Rice    | Soil drench: 1 × 300 g a.s./ha; BBCH 11-12 | 14, 28, 56 DAT (immature), 132 DAT (maturity) | Radiolabelled active substance: mixture (1:1) [benzamide carbonyl-^{14}C] chlorantraniliprole and [pyrazole carbonyl-^{14}C]-chlorantraniliprole (EFSA, 2011a, 2013a) |
| Pulses/oilseeds                  |             | Cotton  | Foliar, 1 × 150 g a.s./ha; 41 day seedling | 8, 15, 22, 86 DAT (immature), 126 DAT (maturity) | Radiolabelled active substance: [benzamide carbonyl-^{14}C] chlorantraniliprole and [pyrazole carbonyl-^{14}C]-chlorantraniliprole (EFSA, 2011a, 2013a) |
|                                   |             |         | Foliar, 1 × 150 g a.s./ha; 57-day seedling | 8, 21, 48 DAT (foliage) |                |
|                                   |             |         | Excised plant: 18 day seedling | 4 days incubated in solution containing 50 mg as/kg |                |
| Rotational crops (available studies) | Crop groups       | Crop(s)      | Application(s)                      | PBI (DAT)    | Comment/Source                                                                 |
|-------------------------------------|-------------------|--------------|-------------------------------------|--------------|----------------------------------------------------------------------------|
|                                     | Root/tuber crops  | Red beet     | Bare soil: 1 × 300 g a.s/ha         | 0, 30, 120, 365 | Radiolabelled active substance: [pyrazole carbonyl-\textsuperscript{14}C]-chlorantraniliprole (EFSA, 2013a) |
|                                     |                   | Bare soil: 1 × 300 g a.s/ha | 30 | [benzamide carbonyl-\textsuperscript{14}C] chlorantraniliprole (EFSA, 2013a) |
|                                     | Leafy crops       | Lettuce      | Bare soil: 1 × 300 g a.s/ha         | 30           | Radiolabelled active substance: [pyrazole carbonyl-\textsuperscript{14}C]-chlorantraniliprole (EFSA, 2013a) |
|                                     |                   | Bare soil: 1 × 300 g a.s/ha | 0, 30, 120, 365 | [benzamide carbonyl-\textsuperscript{14}C] chlorantraniliprole (EFSA, 2013a) |
|                                     | Cereal (small grain) | Wheat     | Bare soil: 1 × 300 g a.s/ha         | 0, 30, 120, 365 | Radiolabelled active substance: [pyrazole carbonyl-\textsuperscript{14}C]-chlorantraniliprole (EFSA, 2013a) |
|                                     |                   | Bare soil: 1 × 300 g a.s/ha | 900 | [benzamide carbonyl-\textsuperscript{14}C] chlorantraniliprole (EFSA, 2013a) |
|                                     |                   | Bare soil: 1 × 900 g a.s/ha | 30 | [benzamide carbonyl-\textsuperscript{14}C] chlorantraniliprole (EFSA, 2013a) |
| Processed commodities (hydrolysis study) | Conditions       | Stable?      |                                      |              | Comment/Source                                                                 |
|                                     | Pasteurisation (20 min, 90°C, pH 4) | Yes   |                                      |              | (EFSA, 2013a)                                                                |
|                                     | Baking, brewing and boiling (60 min, 100°C, pH 5) | Yes/partially |                                      |              | Parent (86-87% TAR) slightly degraded to IN-F6L99, IN-ECD73 and IN-EQW78 (4-14% TAR). (EFSA, 2013a) |
|                                     | Sterilisation (20 min, 120°C, pH 6) | Yes   |                                      |              | (EFSA, 2013a)                                                                |
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

Chlorantraniliprole is stable under pasteurisation and sterilisation conditions, but it is slightly degraded to IN-F6L99, IN-ECD73 and IN-EQW78 under baking/brewing/boiling conditions (11–14% TRR). Processing studies indicate the presence of low residues of these metabolites in only few processed commodities, being the magnitude of parent chlorantraniliprole always significantly higher than the magnitude of degradates.

| Plant residue definition for monitoring (RD-Mo) | Chlorantraniliprole |
|---|---|
| Plant residue definition for risk assessment (RD-RA) | Chlorantraniliprole |
| Methods of analysis for monitoring of residues (analytical technique, matrix groups, LOQs) | High water, high acid, high oil content commodities, dry commodities, hops and coffee beans (EFSA, 2013a; EFSA, 2018a):
  - Multiresidue Method DFG S19 (LC–MS/MS)
  - LOQ 0.01 mg/kg
  - Confirmation by monitoring 1 additional MRM transition
  - ILV (LC–MS/MS) available
  - No specific validation details for coffee beans (desirable)
  - QuEChERS (LC–MS/MS) for enforcement in routine analysis, LOQ 0.01 mg/kg for high water, high acid, and high oil content commodities; LOQ 0.005 mg/kg for dry commodities (EURL, 2018; EFSA, 2020b).
| Maize/corn stover, sorghum stover, rice and common millet straw (Ireland, 2010):
  - Single residue Method (LC–MS/MS)
  - LOQ 0.01 mg/kg
  - Confirmation by monitoring 1 additional MRM transition
  - ILV not available (desirable)

a.s.: active substance; DAT: days after treatment; DALA: days after last application; BBCH: growth stages of mono- and dicotyledonous plants; PBI: plant-back interval; LC–MS/MS: liquid chromatography with tandem mass spectrometry; LOQ: limit of quantification; ILV: independent laboratory validation; QuEChERS: Quick, Easy, Cheap, Effective, Rugged, and Safe.
### B.1.1.2. Stability of residues in plants

| Plant products (available studies) | Category | Commodity | T (°C) | Stability period Value | Stability period Unit | Compounds covered | Comment/Source |
|-----------------------------------|----------|-----------|--------|------------------------|-----------------------|-------------------|----------------|
|                                   | High water content | Apple, tomato, lettuce, cauliflower | –20 | 24 | Months | Chlorantraniliprole | (EFSA, 2013a) |
|                                   | High oil content | Cotton seed | –20 | 24 | Months | Chlorantraniliprole | (EFSA, 2013a) |
|                                   | High protein content | Wheat grain | –20 | 24 | Months | Chlorantraniliprole | (EFSA, 2013a) |
|                                   | High starch content | Potato | –20 | 24 | Months | Chlorantraniliprole | (EFSA, 2013a) |
|                                   | High acid content | Grape | –20 | 24 | Months | Chlorantraniliprole | (EFSA, 2013a) |
|                                   | Processed products | Apple juice, tomato ketchup, cottonseed oil, cotton seed meal, raisins | –20 | 12 | Months | Chlorantraniliprole, IN-EQW78, IN-ECD73, IN-F6L99 | (EFSA, 2013a) |
|                                   | Others | Wheat straw | –20 | 24 | Months | Chlorantraniliprole | (EFSA, 2013a) |
|                                   |         | Alfalfa hay | –20 | 24 | Months | Chlorantraniliprole | (EFSA, 2013a) |

### B.1.2. Magnitude of residues in plants

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

| Commodity | Region/Indoor(a) | Residue levels observed in the supervised residue trials (mg/kg) | Comments/Source | Calculated MRL (mg/kg) | HR(b) (mg/kg) | STMR(c) (mg/kg) |
|-----------|------------------|---------------------------------------------------------------|-----------------|------------------------|--------------|--------------|
| Citrus fruits | SEU               | –                                                             | Absence of residue trials accepted as application is done early in the season (BBCH 50), before the edible part is formed. No residues are expected | 0.01* | 0.01* | 0.01* |
| Import (ZA) | 0.11; 2 \times 0.14; 3 \times 0.15; 0.18; 0.20; 3 \times 0.22; 0.24; 0.25; 0.27; 0.30; 0.35 | Combined data set of trials on oranges (8), tangelo (1), mandarins (4) and clementines (3) compliant with GAP (EFSA, 2012b). Extrapolation to the whole group of citrus fruits is applicable. MRL_{OECD} = 0.62 | 0.7 | 0.35 | 0.21 |

(a) SEU = Southern Europe
| Commodity       | Region/Indoor$^{(a)}$ | Residue levels observed in the supervised residue trials (mg/kg) | Comments/Source                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Calculated MRL (mg/kg) | HR$^{(b)}$ (mg/kg) | STMR$^{(c)}$ (mg/kg) |
|-----------------|------------------------|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------------------|-------------------|
| Tree nuts       | SEU                    | 4 × < 0.01                                                    | Trials on walnuts compliant with GAP (Italy, 2018). **No GAP compliant trials to support the SEU use on almonds, chestnuts, hazelnuts/cobnuts and pistachios. No authorised SEU uses on brazil nuts, cashew nuts, coconuts, macadamias, pecans and pine nut kernels.** MRL$^{OECED} = 0.01$                                                                                     | 0.01* (applicable to walnuts only) | < 0.01 | < 0.01 |
| Import (US)     | 9 × < 0.01; 0.011; 2 × 0.016 | Combined data set of trials on almonds (6) and pecans (6) compliant with GAP (United Kingdom, 2018; Ireland, 2018). Extrapolation to the whole group of tree nuts is applicable. MRL$^{OECED} = 0.02$                                                                 | 0.03 | 0.02 | 0.01 |
| Pome fruits     | NEU                    | < 0.01; 0.01; 0.046; 0.054; 0.068; 0.069; 0.07$^{(d)}$; 0.082; 0.09; 0.11$^{(d)}$; 0.11; 0.13 | Combined data set of trials on apples (8) and pears (4) compliant with GAP (EFSA, 2013a; Ireland, 2010; Greece, 2018). Extrapolation to the whole group of pome fruits is applicable. MRL$^{OECED} = 0.22$                                                                 | 0.3 | 0.13 | 0.07 |
| SEU             | 0.022; 2 × 0.024; 0.034; 0.039; 0.048; 0.053; 0.06$^{(d)}$; 0.066; 0.07$^{(d)}$; 0.077; 0.096; 2 × 0.1$^{(d)}$ | Combined data set of trials on apples (10) and pears (4) compliant with GAP (EFSA, 2013a; Ireland, 2010; Greece, 2018). Tentative extrapolation to quinces, medlars and loquats (less cGAP) is proposed; however, no additional trials are required since the import tolerance GAP is clearly more critical. MRL$^{OECED} = 0.17$ | 0.2 | 0.10 | 0.06 |
| Import (US)     | 0.01; 0.013; 0.022; 0.027; 0.031; 0.034; 0.038; 0.041; 0.045; < 0.06; 2 × 0.061; 0.065; 0.066; 0.07; 0.075; 0.076; 0.078; 2 × 0.081; 2 × 0.091; 0.098; 0.1; 2 × 0.11; 4 × 0.12; 0.14; 0.18; 0.19; 0.193; 0.25; 0.3; 0.32 | Combined data set of trials on apples (23) and pears (14), compliant with GAP (Ireland, 2010, 2018). Extrapolation to the whole group of pome fruits is applicable. MRL$^{OECED} = 0.39$                                                                 | 0.4 | 0.32 | 0.08 |
| Commodity     | Region/Indoor<sup>(a)</sup> | Residue levels observed in the supervised residue trials (mg/kg) | Comments/Source                                                                 | Calculated MRL (mg/kg) | HR<sup>(b)</sup> (mg/kg) | STMR<sup>(c)</sup> (mg/kg) |
|---------------|-----------------------------|---------------------------------------------------------------|-------------------------------------------------------------------------------|------------------------|--------------------------|--------------------------|
| Apricots      | SEU                         | 0.04<sup>(d)</sup>; 0.05<sup>(d)</sup>; 0.08<sup>(d)</sup>; 0.09<sup>(d)</sup> | Reduced data set of trials on apricots performed with application rates within 25% deviation (Greece, 2018). MRL<sub>OECD</sub> = 0.2 | 0.2<sup>(e), (f)</sup> (tentative) | 0.09                      | 0.07                      |
|               | Import (US)                 | –                                                             | No GAP compliant trials available.                                             |                        |                          |                          |
| Cherries (sweet) | Import (US)          | 0.072; 0.12; 0.13; 0.19; 0.23; 0.27; 0.37; 0.48 | Trials on cherries compliant with GAP (United Kingdom, 2018; Ireland, 2018). MRL<sub>OECD</sub> = 0.78 | 0.8                    | 0.48                      | 0.21                      |
| Peaches       | NEU                         | 0.03<sup>(d)</sup>; 0.06<sup>(d)</sup>; 0.07<sup>(d)</sup>; 0.13<sup>(d)</sup> | Trials on peaches performed with application rates within the 25% deviation (Greece, 2018). MRL<sub>OECD</sub> = 0.24 | 0.3<sup>(f)</sup> (tentative) | 0.13                      | 0.07                      |
|               | SEU                         | 0.019; 0.022; 0.027; 0.028; 0.030; 0.033; 0.040; 0.043 | Trials on peaches compliant with GAP, evaluated in the peer review (EFSA, 2013a; Ireland, 2010). MRL<sub>OECD</sub> = 0.09 | 0.09                   | 0.04                      | 0.03                      |
|               | Import (US)                 | 0.078; 0.099; 0.107; 0.13; 0.14; 0.151; 0.155; 0.171; 0.204; 0.268; 0.311; 0.352 | Trials on peaches compliant with GAP (United Kingdom, 2018; Ireland, 2018). MRL<sub>OECD</sub> = 0.54 | 0.6                    | 0.35                      | 0.15                      |
| Plums         | NEU                         | 2 × < 0.01; 0.01; 0.026; 0.034; 0.038; 0.066; 0.081 | Trials on plums performed with application rates within the 25% deviation (Netherlands, 2018). MRL<sub>OECD</sub> = 0.14 | 0.15                   | 0.08                      | 0.03                      |
|               | SEU                         | 2 × 0.014; 0.02; 0.021; 0.024; 0.030; 0.032; 0.056 | Trials on plums compliant with GAP (France, 2018; Portugal, 2018). MRL<sub>OECD</sub> = 0.08 | 0.08                   | 0.06                      | 0.02                      |
|               | Import (US)                 | 5 × < 0.01; 0.01; 0.016; 0.076 | Trials on plums compliant with GAP (United Kingdom, 2018; Ireland, 2018). MRL<sub>OECD</sub> = 0.11 | 0.15                   | 0.08                      | 0.01                      |
| Table grapes  | SEU                         | 0.02; 0.035; 2 × 0.069; 0.087<sup>(g)</sup>; 0.1; 0.12<sup>(g)</sup>; 0.12 0.13<sup>(g)</sup>; 0.23 | Trials on table grapes compliant with GAP, evaluated in the peer review (EFSA, 2013a; Ireland, 2010). MRL<sub>OECD</sub> = 0.33 | 0.4                    | 0.23                      | 0.09                      |
| Wine grapes   | SEU                         | < 0.01; 0.031; 0.033; 0.036; 0.039; 0.061; 0.08; 0.13; 0.15 | Trials on wine grapes compliant with GAP, evaluated in the peer review (EFSA 2013a; Ireland, 2010). MRL<sub>OECD</sub> = 0.26 | 0.3                    | 0.15                      | 0.04                      |
| Wine and Table grapes | NEU                 | 0.014; 0.021; 0.022; 0.03; 0.036; 0.044; 0.068; 0.074; 0.12 | Trials on wine grapes compliant with GAP, evaluated in the peer review (EFSA, 2013a; Ireland, 2010). Extrapolation to table grapes is applicable. MRL<sub>OECD</sub> = 0.18 | 0.2                    | 0.12                      | 0.04                      |
| Commodity                      | Region/Indoor (a)   | Residue levels observed in the supervised residue trials (mg/kg) | Comments/Source                                                                 | Calculated MRL (mg/kg) | HR(b) (mg/kg) | STMR(c) (mg/kg) |
|-------------------------------|---------------------|-----------------------------------------------------------------|---------------------------------------------------------------------------------|------------------------|--------------|---------------|
| Import (US)                   |                     | 0.0182(g); 0.058; 0.086; 0.1; 0.113; 0.132; 0.197; 0.217; 0.226; 0.31; 0.365; 0.385; 0.528; 0.589; 0.591 | Combined data set of trials on table grapes and wine grapes compliant with GAP evaluated by EFSA (2011a). MRL<sub>OECD</sub> = 1.03 | 1                      | 0.59         | 0.22          |
| Strawberries                  | EU                  | 4 × 0.03(d); 0.04(d); 2 × 0.05(d); 0.24(d)                      | Trials on strawberries compliant with GAP (Greece, 2018). MRL<sub>OECD</sub> = 0.35 | 0.4<sup>(f)</sup> (tentative) | 0.24         | 0.04          |
| Import (US)                   | –                   | No GAP compliant trials available.                              |                                                                                  |                        |              |               |
| Cane fruits                   | Import (US)         | 0.088; 0.092; 0.108; 0.246; 0.445; 0.521; 0.536; 0.543          | Combined data set of trials on raspberries (6) and blackberries (2) compliant with GAP (EFSA, 2011a). Extrapolation to the whole group of cane fruits is applicable. MRL<sub>OECD</sub> = 1.16 | 1.5                    | 0.54         | 0.35          |
| Blueberries                   | NEU                 | –                                                               | No GAP compliant trials available.                                              |                        |              |               |
| Import (US)                   |                     | 0.14; 0.143; 0.15; 0.167; 0.206; 0.21; 0.223; 0.247; 0.426; 0.826; 0.908 | Trials on blueberries compliant with GAP (EFSA, 2011a). MRL<sub>OECD</sub> = 1.44 | 1.5                    | 0.91         | 0.21          |
| Cranberries                   | Import (US)         | 0.131; 0.145; 0.154; 0.279; 0.331; 0.351                       | Trials on cranberries compliant with GAP (EFSA, 2011a). MRL<sub>OECD</sub> = 0.7 | 0.7                    | 0.35         | 0.22          |
| Granate apples/pomegranates   | Import (US)         | 0.09; 0.097; 0.101; 0.125                                      | Trials on granate apples compliant with GAP (EFSA, 2015a). MRL<sub>OECD</sub> = 0.31 | 0.3                    | 0.13         | 0.10          |
| Potatoes                      | NEU                 | 6 × < 0.01                                                     | Reduced data set of trials on potatoes compliant with GAP, evaluated in the peer review (EFSA, 2013a; Ireland, 2010), deemed acceptable as all residues were below LOQ. MRL<sub>OECD</sub> = 0.01 | 0.01*                  | < 0.01       | < 0.01        |
| SEU                           | 4 × < 0.01          | Reduced data set of trials on potatoes compliant with GAP, evaluated in the peer review (EFSA, 2013a; Ireland, 2010), deemed acceptable as all residues were below LOQ. MRL<sub>OECD</sub> = 0.01 | 0.01*                  | < 0.01       | < 0.01        |
| Import (CA)                   | 27 × 0.01           | Trials on potatoes compliant with GAP (United Kingdom, 2018; Ireland, 2018). MRL<sub>OECD</sub> = 0.03 | 0.03                    | 0.01*        | 0.01*         |
| Commodity                  | Region/Indoor<sup>a</sup> | Residue levels observed in the supervised residue trials (mg/kg) | Comments/Source                                                                                                                                                                                                 | Calculated MRL (mg/kg) | HR<sup>b</sup> (mg/kg) | STMR<sup>c</sup> (mg/kg) |
|---------------------------|---------------------------|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------------------|------------------------|
| Sweet potatoes            | NEU                       | –                                                              | No GAP compliant trials available                                                                                                                                                                          | –                      | –                      | –                      |
| Carrots                   | NEU                       | $5 \times < 0.01; 0.01; 0.014; 0.021; 0.027$                  | Trials on carrots compliant with GAP (EFSA, 2013b). Extrapolation to the whole subgroup of ‘other root and tuber vegetables, except sugar beets’ is applicable. MRL<sub>OECD</sub> = 0.04                           | 0.04                   | 0.03                   | 0.01                   |
| Beetroots                 | SEU                       | $6 \times < 0.01; 0.025; 0.030; 0.036$                        | Trials on carrots compliant with GAP (EFSA, 2013b). Extrapolation to the whole subgroup of ‘other root and tuber vegetables, except sugar beets’ is applicable. MRL<sub>OECD</sub> = 0.06                           | 0.06                   | 0.04                   | 0.01                   |
| Celeriacs/turnip-rooted celeries | SEU                   | $4 \times < 0.01$                                             | Trials on radishes compliant with GAP (Netherlands, 2018). **No GAP compliant trials to support the EU use on parsley roots/Hamburg roots parsley. No EU uses authorised on the other root and tuber vegetables.** MRL<sub>OECD</sub> = 0.01 | 0.01*                  | < 0.01                 | < 0.01                 |
| Jerusalem artichokes      | EU                        | Import (US)                                                   | Trials on radishes compliant with GAP (EFSA, 2011a). **Import tolerance in place for radishes only.** MRL<sub>OECD</sub> = 0.43                                                                  | 0.5                    | 0.26                   | 0.05                   |
| Parsnips                  | NEU                       | –                                                              | No GAP compliant trials available                                                                                                                                                                          | –                      | –                      | –                      |
| Parsley roots/Hamburg roots parsley | SEU       | –                                                              | No GAP compliant trials available                                                                                                                                                                          | –                      | –                      | –                      |
| Radishes                  | EU                        | –                                                              | No GAP compliant trials available                                                                                                                                                                          | –                      | –                      | –                      |
| Salsifises                | SEU                       | –                                                              | No GAP compliant trials available                                                                                                                                                                          | –                      | –                      | –                      |
| Swedes/rutabagas          | SEU                       | –                                                              | No GAP compliant trials available                                                                                                                                                                          | –                      | –                      | –                      |
| Turnips                   | NEU                       | –                                                              | No GAP compliant trials available                                                                                                                                                                          | –                      | –                      | –                      |
| Turnip tops               | SEU                       | –                                                              | No GAP compliant trials available                                                                                                                                                                          | –                      | –                      | –                      |
| Tomatoes                  | NEU                       | –                                                              | No GAP compliant trials available                                                                                                                                                                          | –                      | –                      | –                      |
| TOMATOES                  | SEU                       | $0.013; 0.018; 0.023; 0.025; 0.029; 0.030; 0.033; 0.036; 0.041; 0.055; 0.062$ | Trials on normal sized tomato compliant with the GAP, evaluated in the peer review (EFSA, 2013a; Ireland, 2010). Extrapolation to aubergines is applicable. MRL<sub>OECD</sub> = 0.1                              | 0.1                    | 0.06                   | 0.03                   |
| EU                        | $2 \times < 0.01; 0.012; 2 \times 0.015; 0.018; 0.028; 0.034; 0.037; 0.04^{(a)}; 0.06^{(a)}; 0.061; 0.07^{(a)}; 2 \times 0.079; 0.082; 0.090; 0.091; 0.095; 0.099; 0.10; 0.11^{(a)}; 0.11; 0.15; 0.19$ | Combined data set on normal sized tomato (17) and cherry tomato (8) performed with application rates within the 25% deviation (EFSA, 2013a; Ireland, 2010; Netherlands, 2018; Greece, 2018). MRL<sub>OECD</sub> = 0.25 | 0.3                    | 0.19                   | 0.07                   |

*OECD = Organisation for Economic Co-operation and Development.

<sup>a</sup> NEU = North-Eastern Union (EMEA); SEU = Southern European Union (EMEA); EU = Europe (EMEA).

<sup>b</sup> HR = Harmonised Reference Value.

<sup>c</sup> STMR = Scientifically derived Threshold for Major Residues.
| Commodity | Region/Indoor<sup>(a)</sup> | Residue levels observed in the supervised residue trials (mg/kg) | Comments/Source | Calculated MRL (mg/kg) | HR<sup>(b)</sup> (mg/kg) | STMR<sup>(c)</sup> (mg/kg) |
|-----------|----------------------------|---------------------------------------------------------------|-----------------|------------------------|----------------------|------------------------|
| Import (US) | 0.018; 2 × 0.034; 0.045; 0.049; 0.05; 0.052; 0.065; 0.071; 0.074; 0.076; 0.088; 0.099; 2 × 0.12; 0.13; 0.14; 0.15; 0.18; 0.19 | Trials on normal size tomato compliant with GAP (United Kingdom, 2018; Ireland, 2018). Extrapolation to aubergines is applicable. MRL<sub>OECD</sub> = 0.29 | | 0.3 | 0.19 | 0.08 |
| Sweet peppers/bell peppers | SEU | 0.089; 0.11; 0.13; 0.18; 0.20 | Reduced data set on hot peppers compliant with GAP, evaluated in the peer review (EFSA, 2013a; Ireland, 2010). MRL<sub>OECD</sub> = 0.43 | 0.5<sup>(e)</sup> (tentative) | 0.20 | 0.13 |
| EU | 0.064; 0.071; 0.11; 0.16; 0.17; 0.39; 0.57 | Reduced data set on hot peppers compliant with GAP (EFSA, 2013a; Ireland, 2010; Italy, 2018). MRL<sub>OECD</sub> = 0.98 | 1<sup>(e)</sup> (tentative) | 0.57 | 0.16 |
| Import (US) | 0.021; 0.037; 2 × 0.07; 0.071; 0.083; 0.14; 0.22; 0.43 | Trials on hot peppers compliant with GAP (United Kingdom, 2018; Ireland, 2018). MRL<sub>OECD</sub> = 0.64 | | 0.7 | 0.43 | 0.07 |
| Aubergines/eggplants | SEU | 0.013; 0.018; 0.023; 0.025; 0.029; 0.030; 0.033; 0.036; 0.041; 0.055; 0.062 | Trials on normal sized tomato compliant with the GAP, evaluated in the peer review (EFSA, 2013a; Ireland, 2010). Extrapolation to aubergines is applicable. MRL<sub>OECD</sub> = 0.1 | | 0.1 | 0.06 | 0.03 |
| EU | < 0.01; 0.012; 2 × 0.015; 0.018; 0.034; 0.037; 0.04<sup>(d)</sup>; 0.06<sup>(d)</sup>; 0.061; 0.07<sup>(d)</sup>; 0.079; 0.082; 0.09; 0.095; 0.1; 0.11<sup>(d)</sup> | Trials on normal sized tomato performed with application rates within the 25% deviation (EFSA, 2013a; Ireland, 2010; Netherlands, 2018; Greece, 2018). Extrapolation to aubergines is applicable. MRL<sub>OECD</sub> = 0.19 | | 0.2 | 0.11 | 0.06 |
| Import (US) | 0.018; 2 × 0.034; 0.045; 0.049; 0.05; 0.052; 0.065; 0.071; 0.074; 0.076; 0.088; 0.099; 2 × 0.12; 0.13; 0.14; 0.15; 0.18; 0.19 | Trials on normal size tomato compliant with GAP (United Kingdom, 2018; Ireland, 2018). Extrapolation to aubergines is applicable. MRL<sub>OECD</sub> = 0.29 | | 0.3 | 0.19 | 0.08 |
| Cucumbers Gherkins Courgettes | NEU | – | No GAP compliant trials available. **Use authorised on cucumber and gherkins only** | – | – | – |
| SEU | < 0.01; 0.011; 0.013; 0.016; 0.023; 0.037; 0.049; 0.056; 0.082 | Combined data set on cucumbers (4) and courgettes (5) performed with the application rates within the 25% deviation (France, 2018). Extrapolation to gherkins is applicable. MRL<sub>OECD</sub> = 0.13 | | 0.15 | 0.08 | 0.02 |
| Commodity                  | Region/Indoor<sup>(a)</sup> | Residue levels observed in the supervised residue trials (mg/kg) | Comments/Source                                                                                                                                                                                                 | Calculated MRL (mg/kg) | HR<sup>(b)</sup> (mg/kg) | STMR<sup>(c)</sup> (mg/kg) |
|---------------------------|-----------------------------|-----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------------|--------------------------|
| EU                        |                             | < 0.01; 0.016; 0.021; 0.039; 0.058; 0.064; 0.083; 0.10; 0.130     | Combined data set on cucumbers (5) and courgettes (4) compliant with GAP, evaluated in the peer review (EFSA, 2013a; Ireland, 2010). Extrapolation to gherkins is applicable. MRL<sub>OECD</sub> = 0.22                                      | 0.3                    | 0.13                     | 0.06                     |
| Import (US)               |                             | 0.01; 0.013; 0.014; 0.017; 2 × 0.022; 0.037; 0.044; 0.058; 0.078; 0.081; 0.083; 0.093 | Combined dataset on cucumbers (7) and courgettes (6) compliant with GAP, evaluated in the peer review (EFSA, 2013a; Ireland, 2010). Extrapolation to gherkins is applicable. MRL<sub>OECD</sub> = 0.17                                      | 0.2                    | 0.09                     | 0.04                     |
| MelonsPumpkins            | SEU                         | 2 × < 0.01; 0.013; 0.014; 0.015; 0.024; 0.025; 0.027; 0.075      | Trials on melons performed with application rates within the 25% deviation (France, 2018). Extrapolation to pumpkins and watermelons is applicable. MRL<sub>OECD</sub> = 0.1                                      | 0.1                    | 0.08                     | 0.02                     |
| Watermelons               | EU                          | 0.010; 2 × 0.019; 0.023; 0.030; 2 × 0.032; 0.038; 0.068          | Trials on melons compliant with GAP, evaluated in the peer review (EFSA, 2013a; Ireland, 2010). Extrapolation to pumpkins and watermelons is applicable. MRL<sub>OECD</sub> = 0.1                                      | 0.1                    | 0.07                     | 0.03                     |
|                          | Import (US)                 | 0.011; 0.028; 0.082; 0.084; 0.087; 0.1; 0.12                   | Reduced data set on melons compliant with the GAP (United Kingdom, 2018; Ireland, 2018). Extrapolation to pumpkins and watermelons is applicable. MRL<sub>OECD</sub> = 0.23                                      | 0.12                   | 0.08                     |                          |
| Cauliflowers              | NEU                         | 4 × < 0.01; 0.019; 0.027; 0.047; 0.064; 0.082; 0.10; 2 × 0.12; 0.14 | Combined data set on cauliflowers (9) and broccoli (4) compliant with GAP (EFSA, 2011a; Italy, 2018). MRL<sub>OECD</sub> = 0.25                                      | 0.3                    | 0.14                     | 0.06                     |
| Broccoli                  | SEU                         | 3 × < 0.01; 2 × 0.010; 0.016; 0.025; 0.036; 0.043; 0.082; 0.10; 0.19; 0.37 | Combined data set on cauliflowers (9) and broccoli (4) compliant with GAP (EFSA, 2015a; Italy, 2018). MRL<sub>OECD</sub> = 0.49                                      | 0.5                    | 0.37                     | 0.03                     |
|                          | EU                          | –                                                               | No GAP compliant trials available                                                                                       | –                      | –                        | –                        |
| Import (US)               |                             | 0.13; 0.34; 2 × 0.36; 0.38; 0.4; 0.41; 0.44; 0.71              | Trials on broccoli compliant with GAP (United Kingdom, 2018). **Import Tolerance in place for broccoli only.** MRL<sub>OECD</sub> = 1.18                                      | 1.5                    | 0.71                     | 0.38                     |

<sup>(a)</sup> Region/Indoor: EU = Europe, Import (US) = Import from the United States, NEU = North East United States, SEU = South East United States.

<sup>(b)</sup> HR: Harmful Risk

<sup>(c)</sup> STMR: Short Term Maximum Residue.
| Commodity            | Region/Indoor<sup>(a)</sup> | Residue levels observed in the supervised residue trials<sup>(mg/kg)</sup> | Comments/Source                                                                 | Calculated MRL<sup>(mg/kg)</sup> | HR<sup>(b)</sup> (mg/kg) | STMR<sup>(c)</sup> (mg/kg) |
|----------------------|-----------------------------|-------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------|------------------------|-------------------------|
| Brussels sprouts     | NEU                         | No GAP compliant trials available                |                                                                               |                                 |                        |                         |
|                      | SEU                         | No GAP compliant trials available                |                                                                               |                                 |                        |                         |
|                      | Import (AU)                 | No GAP compliant trials available                |                                                                               |                                 |                        |                         |
| Head cabbages        | NEU                         | $5 \times < 0.01$                               | Reduced data set on head cabbages compliant with GAP (France, 2018), deemed acceptable as all residues were below LOQ. | 0.01*                           | < 0.01                 | < 0.01                  |
|                      | SEU                         | $< 0.01^{(d)}$; $2 \times 0.012^{(d)}$; $0.015^{(d)}$; $0.1^{(d)}$ | Trials on head cabbages compliant with GAP (Portugal, 2018). MRL<sub>OECD</sub> = 0.01 | $0.2^{(f)}$ (tentative)         | 0.10                   | 0.01                    |
|                      | Import (US)                 | $0.043$; $0.082$; $0.31$; $0.32$; $0.52$; $0.64$; $0.72$; $0.78$; $1.2$ | Trial on head cabbages compliant with GAP (United Kingdom, 2018). MRL<sub>OECD</sub> = 1.99 | 2                               | 1.20                   | 0.52                    |
| Chinese cabbages/pe-tsai | NEU                         | No GAP compliant trials available                |                                                                               |                                 |                        |                         |
|                      | SEU                         | No GAP compliant trials available                |                                                                               |                                 |                        |                         |
|                      | EU                          | No GAP compliant trials available                |                                                                               |                                 |                        |                         |
|                      | Import (US)                 | No GAP compliant trials available                |                                                                               |                                 |                        |                         |
| Kales                | NEU                         | No GAP compliant trials available                |                                                                               |                                 |                        |                         |
|                      | SEU                         | No GAP compliant trials available                |                                                                               |                                 |                        |                         |
|                      | Import (US)                 | No GAP compliant trials available                |                                                                               |                                 |                        |                         |
| Kohlrabies           | SEU                         | No GAP compliant trials available                |                                                                               |                                 |                        |                         |
| Lettuces             | NEU                         | Open leaf varieties: $0.36^{(b)}$; $0.83^{(b)}$; $1.0^{(b)}$; Closed leaf varieties: $0.16^{(d)}$; $0.28^{(d)}$; $0.42^{(d)}$ | 4 overdosed trials (1.3N) and 2 GAP compliant trials on lettuces (open and closed leaf varieties) (Ireland, 2010; France, 2018; Greece, 2018). No additional trials are required since the IT GAP is clearly more critical. MRL<sub>OECD</sub> = 1.83 | 2                               | 1.00                   | 0.39                    |
|                      | SEU                         | Open leaf varieties: $< 0.01$; $0.31$; $0.45$; $0.86$; $1.7$; Closed varieties: $< 0.01$; $0.37$; $0.46$; $0.88$; $1.18^{(d)}$; $1.89^{(d)}$ | Trials on open (5) and close (6) leaf lettuce varieties compliant with the GAP (EFSA, 2013a; Ireland, 2010; Greece, 2018). MRL<sub>OECD</sub> = 3.27 | 4                               | 1.89                   | 0.46                    |
| Commodity                  | Region/Indoor<sup>(a)</sup> | Residue levels observed in the supervised residue trials (mg/kg) | Comments/Source                                                                                                                                                                                                 | Calculated MRL (mg/kg) | HR<sup>(b)</sup> (mg/kg) | STMR<sup>(c)</sup> (mg/kg) |
|---------------------------|-----------------------------|-----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------------|---------------------------|
| EU                        | Open leaf varieties: 1.3; 1.8; 2.3  
Closed leaf varieties: 0.09; 0.15; 0.38; 1.4; 1.6; 2.0 | Trials on open (3) and closed (6) leaf lettuce varieties compliant with the GAP (EFSA, 2013a; Ireland, 2010). MRL<sub>OECD</sub> = 4.52 |                                                                                                                                                    | 5                     | 2.30                     | 1.40                      |
| Import (US)               | Lettuces open leaf varieties: 3.2; 2 × 3.9; 4.0; 4.5; 5.3; 6.2  
Spinaches: 3.5; 5.8; 2 × 7.3; 7.9; 8.7; 9.7 | Combined data on lettuces (7) (open leaf varieties) and spinaches (7) compliant with GAP (Ireland, 2018). Extrapolation to the whole group of lettuces and salad plants, spinaches and similar leaves and, herbs and edible flowers is acceptable. MRL<sub>OECD</sub> = 17.4 |                                                                                                                                                    | 20                    | 9.70                     | 5.55                      |
| Lamb’s lettuce/corn salads | NEU                         | 0.36<sup>(h)</sup>; 0.83<sup>(h)</sup>; 1.0<sup>(h)</sup>      | Reduced data set of overdosed trials on lettuce (open leaf varieties) (Ireland, 2010; France, 2018). Tentative extrapolation to lamb’s lettuce is proposed (not enough number of GAP compliant trials); however, no additional trials are required since the indoor and IT GAPs are clearly more critical. MRL<sub>OECD</sub> = 2.19 | 4                     | 1.00                     | 0.83                      |
| SEU                       | < 0.01; 0.31; 0.45; 0.86; 1.7  | Reduced data set on open leaf lettuce varieties compliant with GAP (EFSA, 2013a; Ireland, 2010). Tentative extrapolation to lamb’s lettuce is proposed (not enough number of GAP compliant trials); however, no additional trials are required since the indoor and IT GAPs are clearly more critical. MRL<sub>OECD</sub> = 3.28 |                                                                                                                                                    | 4                     | 1.70                     | 0.45                      |
| EU                        | 3.2; 2 × 4.1; 7.8; 8.0       | Trials on Lamb’s lettuces compliant with the GAP evaluated in the peer review (EFSA, 2013a; Ireland, 2010). MRL<sub>OECD</sub> = 16.32 |                                                                                                                                                    | 20                    | 8.00                     | 4.10                      |
| Import (US)               | Lettuces open leaf varieties: 3.2; 2 × 3.9; 4.0; 4.5; 5.3; 6.2  
Spinaches: 3.5; 5.8; 2 × 7.3; 7.9; 8.7; 9.7 | Combined data set on lettuces (7) and spinaches (7) compliant with GAP (Ireland, 2018). Extrapolation to lamb’s lettuce is acceptable. MRL<sub>OECD</sub> = 17.4 |                                                                                                                                                    | 20                    | 9.70                     | 5.55                      |
| Roman rocket/rucola       | NEU                         | 0.36<sup>(h)</sup>; 0.83<sup>(h)</sup>; 1.0<sup>(h)</sup>      | Reduced data set of overdosed trials on lettuce (open leaf varieties) (Ireland, 2010; France, 2018). Tentative extrapolation to roman rocket/rucola and red mustards is applicable to roman rocket/ | 4                     | 1.00                     | 0.83                      |

<sup>(a)</sup> Commodity Region/Indoor: EU (European Union), Import (US) (United States), SEU (South Eastern Union), NEU (North Eastern Union).

<sup>(b)</sup> HR: Highest Residue.

<sup>(c)</sup> STMR: Short Term Maximum Residue.
### Commodity Region/Indoor\(^{(a)}\) Residue levels observed in the supervised residue trials (mg/kg) Comments/Source Calculated MRL (mg/kg) HR\(^{(b)}\) (mg/kg) STMR\(^{(c)}\) (mg/kg)

| Commodity | Region/Indoor\(^{(a)}\) | Residue levels observed in the supervised residue trials (mg/kg) | Comments/Source | Calculated MRL (mg/kg) | HR\(^{(b)}\) (mg/kg) | STMR\(^{(c)}\) (mg/kg) |
|-----------|-------------------------|---------------------------------------------------------------|-----------------|------------------------|---------------------|---------------------|
| Baby leaf crops (including brassica species) | | | proposed (not enough number of GAP compliant trials); however, no additional trials are required since the IT GAP is clearly more critical. **No NEU uses are authorised for baby leaf crops (including brassica species).** MRL\(_{OECD} = 2.19\) | | | |
| SEU | | \(< 0.01; 0.31; 0.45; 0.86; 1.7 \times 4.1; 7.8; 8.0\) | Reduced data set on lettuce (open leaf varieties) compliant with GAP (EFSA, 2013a; Ireland, 2010). Tentative extrapolation to roman rocket/rucola, red mustards and baby leaf crops is proposed (not enough number of GAP compliant trials); however, no additional trials are required since the IT GAP is clearly more critical. MRL\(_{OECD} = 3.28\) | 4 | 1.70 | 0.45 |
| EU | Lettuces open leaf varieties: 3.2; 2 × 3.9; 4.0; 4.5; 5.3; 6.2 Spinaches: 3.5; 5.8; 2 × 7.3; 7.9; 8.7; 9.7 | Combined data set on open leaf lettuce (3) and lamb's lettuce (5) compliant with GAP (EFSA, 2013a; Ireland, 2010). Extrapolation to roman rocket/rucola, red mustards and baby leaf crops is applicable. MRL\(_{OECD} = 14.34\) | | 15 | 8.00 | 3.65 |
| Import (US) | Lettuces open leaf varieties: 3.2; 2 × 3.9; 4.0; 4.5; 5.3; 6.2 Spinaches: 3.5; 5.8; 2 × 7.3; 7.9; 8.7; 9.7 | Combined data set on lettuces (7) and spinaches (7) compliant with GAP (Ireland, 2018). Extrapolation roman rocket/rucola, red mustards and baby leaf crops is acceptable. MRL\(_{OECD} = 17.4\) | | 20 | 9.70 | 5.55 |
| Escaroles/broad-leaved endives Cresses and other sprouts and shoots Land cresses Spinaches and similar leaves Herbs and edible flowers | | | Reduced data set of overdosed trials on lettuce (open leaf varieties) (Ireland, 2010; France, 2018). Tentative extrapolation to escaroles, cresses and land cresses, and the whole subgroups of spinaches and similar leaves, and herbs and edible flowers is proposed (not enough number of GAP compliant trials), also noting that a less cGAP is authorised for rosemary and tarragon, and no NEU uses are authorised for cresses and other sprouts and shoots, land cresses and laurel/bay leave. No additional trials are required since the IT GAP is clearly more critical. MRL\(_{OECD} = 2.19\) | | 4 | 1.00 | 0.83 |
### Commodity Region/Indoor (a) Residue levels observed in the supervised residue trials (mg/kg) Comments/Source Calculated MRL (mg/kg) HR(b) (mg/kg) STMR(c) (mg/kg)

| Commodity                        | Region/Indoor | Residue levels observed in the supervised residue trials (mg/kg) | Comments/Source                                                                 | Calculated MRL (mg/kg) | HR(b) (mg/kg) | STMR(c) (mg/kg) |
|---------------------------------|---------------|----------------------------------------------------------------|--------------------------------------------------------------------------------|------------------------|---------------|----------------|
| SEU                             | < 0.01; 0.31; 0.45; 0.86; 1.7 | Reduced data set on lettuce (open leaf varieties) compliant with GAP (EFSA, 2013a; Ireland, 2010). Tentative extrapolation to escaroles, cresses and land cresses, and the whole subgroups of spinaches and similar leaves, and herbs and edible flowers is proposed (not enough number of GAP compliant trials); however, no additional trials are required since the IT GAP is clearly more critical. MRL_{OECD} = 3.28 | 4                       | 1.70          | 0.45          |
| EU                              | 1.3; 1.8; 2.3 | Reduced data set on lettuce (open leaf varieties) compliant with GAP (EFSA, 2013a; Ireland, 2010). Tentative extrapolation to escaroles, cresses and land cresses, and the whole subgroups of spinaches and similar leaves, and herbs and edible flowers is proposed (not enough number of GAP compliant trials); however, no additional trials are required since the IT GAP is clearly more critical. MRL_{OECD} = 5.4 | 6                       | 2.30          | 1.80          |
| Import (US)                     | Lettuces open leaf varieties: 3.2; 2 × 3.9; 4.0; 4.5; 5.3; 6.2 Spinaches: 3.5; 5.8; 2 × 7.3; 7.5; 8.7; 9.7 | Combined data set on lettuces (7) (open leaf varieties) and spinaches (7) compliant with GAP (Ireland, 2018). Extrapolation to escaroles, cresses and land cresses, and the whole subgroups of spinaches and similar leaves, and herbs and edible flowers is acceptable. MRL_{OECD} = 17.4 | 20                      | 9.70          | 5.55          |
| Grape leaves and similar species | SEU            | 3.1(d); 4.6(d); 7.0(d); 8.7(d) | Trials on grape leaves compliant with GAP (Ireland, 2018). MRL_{OECD} = 17.55 | 20(f) (tentative)      | 8.70          | 5.80          |
| Witloofs/Belgian endives        | NEU            | – | No GAP compliant trials available | – | – | – |
|                                 | SEU            | – | No GAP compliant trials available | – | – | – |
|                                 | EU             | – | No GAP compliant trials available | – | – | – |
| Beans (with pods)               | NEU            | 0.024(h); 0.031(h); 0.055(h); 0.093(h); 0.19(h) | Reduced data set of overdosed trials (1.4N) on beans with pods, used on a tentative basis (EFSA, 2011a); however, no additional trials are required since the indoor GAP is clearly more critical. MRL_{OECD} = 0.35 | 0.4 | 0.19 | 0.06 |
| Commodity | Region/Indoor(a) | Residue levels observed in the supervised residue trials(mg/kg) | Comments/Source | Calculated MRL (mg/kg) | HR(b) (mg/kg) | STMR(c) (mg/kg) |
|-----------|-----------------|---------------------------------------------------------------|----------------|---------------------------|----------------|----------------|
| SEU       | 0.066; 0.083; 0.088; 0.12; 0.16; 0.21; 0.25; 0.26 | Trials on beans with pods compliant with GAP (EFSA, 2011a; France, 2018). MRL_{OECD} = 0.46 | 0.5 | 0.26 | 0.14 |
| EU        | 0.081; 3 × 0.11; 2 × 0.13; 0.14; 0.15; 0.29; 0.3; 2 × 0.4; 0.47 | Trials on beans with pods performed with application rates within the 25% deviation (EFSA, 2011a, 2012b). MRL_{OECD} = 0.76 | 0.8 | 0.47 | 0.14 |
| Import (US) | < 0.01; 0.097; 0.118; 0.123; 0.136; 0.145; 0.161; 0.407 | Trials on beans with pods compliant with GAP (EFSA, 2015a). MRL_{OECD} = 0.6 | 0.6 | 0.41 | 0.13 |
| Peas (with pods) | NEU | – | No GAP compliant trials available | – | – | – |
| Import (US) | 0.449; 0.476; 0.611; 0.64 | Trials on peas with pods compliant with GAP (EFSA 2015a). MRL_{OECD} = 1.63 | 2 | 0.64 | 0.54 |
| Beans and Peas (without pods) | Import (US) | – | No GAP compliant trials available | – | – | – |
| Lentils (fresh) | Import (US) | – | No GAP compliant trials available | – | – | – |
| Celeries Cardoons Florence fennels Rhubarbs | Import (US) | 1.1; 1.4; 2.1; 2.6; 2.8; 3.7; 3.8 | Trials on celeries compliant with GAP (United Kingdom, 2018). Extrapolation to cardoons, Florence fennels and rhubarbs is applicable. MRL_{OECD} = 7.5 | 8 | 3.80 | 2.60 |
| Globe artichokes | NEU | – | No GAP compliant trials available | – | – | – |
| SEU | 0.06; 0.07; 0.08; 0.16 | Trials on globe artichokes compliant with GAP (EFSA, 2012b). MRL_{OECD} = 0.28 | 0.4 | 0.16 | 0.08 |
| Import (US) | 0.470; 0.535; 0.594; 0.690 | Trials on globe artichokes compliant with GAP (EFSA, 2015a). MRL_{OECD} = 1.72 | 2 | 0.69 | 0.56 |
| Peanuts/groundnuts | Import (US) | 2 × < 0.01; 2 × 0.01; 0.012; 0.034 | Reduced data set on peanuts compliant with GAP (EFSA, 2015a). MRL_{OECD} = 0.05 | 0.06(e) (tentative) | 0.03 | 0.01 |
| Sunflower seeds | Import (US) | 0.03; 0.12; 0.16; 0.21; 0.79; 0.82 | Reduced data set on sunflower seeds compliant with GAP (EFSA 2013b). MRL_{OECD} = 1.77 | 2(e) (tentative) | 0.82 | 0.19 |
| Commodity                  | Region/Indoor<sup>(a)</sup> | Residue levels observed in the supervised residue trials (mg/kg) | Comments/Source                                                                 | Calculated MRL (mg/kg) | HR<sup>(b)</sup> (mg/kg) | STMR<sup>(c)</sup> (mg/kg) |
|---------------------------|-----------------------------|---------------------------------------------------------------|-------------------------------------------------------------------------------|-----------------------|-------------------------|--------------------------|
| Rapeseeds/canola seeds    | Import (US)                 | 0.14; 0.23; 0.26; 0.34; 0.84; 1.02                            | Reduced data set on rapeseeds compliant with GAP (EFSA, 2013b). MRL<sub>OECD</sub> = 1.93 | 2<sup>(e)</sup>       | 1.02                    | 0.30                     |
| Soyabeanrs                | Import (AUS, JPN)           | –                                                             | No GAP compliant trials available                                            | –                     | –                       | –                        |
| Mustard seeds             | Import (US)                 | 0.03; 0.12; 0.14; 0.21; 0.23; 0.26; 0.34; 0.79; 0.82; 0.84; 1.02 | Combined data set on sunflower seeds (6) and rapeseeds (6) compliant with GAP (EFSA 2013b). Extrapolation to other minor oilseeds is applicable. MRL<sub>OECD</sub> = 1.68 | 2                     | 1.02                    | 0.25                     |
| Linseeds                  |                             |                                                                |                                                                                |                       |                         |                          |
| Poppy seeds               |                             |                                                                |                                                                                |                       |                         |                          |
| Sesame seeds              |                             |                                                                |                                                                                |                       |                         |                          |
| Pumpkin seeds             |                             |                                                                |                                                                                |                       |                         |                          |
| Safflower seeds           |                             |                                                                |                                                                                |                       |                         |                          |
| Borage seeds              |                             |                                                                |                                                                                |                       |                         |                          |
| Gold of pleasure seeds    |                             |                                                                |                                                                                |                       |                         |                          |
| Hemp seeds                |                             |                                                                |                                                                                |                       |                         |                          |
| Castor beans              |                             |                                                                |                                                                                |                       |                         |                          |
| Cotton seeds              | SEU                         | –                                                             | No GAP compliant trials available                                            | –                     | –                       | –                        |
| Import (US)               |                             | 0.01; 2 × 0.019; 0.022; 0.029; 0.032; 0.051; 0.054; 0.063; 0.084; 2 × 0.085; 0.15; 0.23 | Trials on cotton seeds compliant with GAP (Ireland, 2018). MRL<sub>OECD</sub> = 0.31 | 0.3                   | 0.23                    | 0.05                     |
| Oil palms kernels         | Import (MY)                 | 4 × < 0.01                                                    | Trials on oil palms compliant with GAP, evaluated in the framework of an MRL application (EFSA, 2019a) | 0.01*                 | < 0.01                  | < 0.01                   |
| Oil palms fruits          | Import (MY)                 | 0.19; 0.21; 0.25; 0.38                                       | Trials on oil palms compliant with GAP, evaluated in the framework of an MRL application (EFSA, 2019a) | 0.8                   | 0.38                    | 0.23                     |
| Maize/corn grains         | NEU                         | 5 × < 0.01                                                   | Reduced data set of 5 overdosed trials on maize grains, performed with 2 instead of 1 application (Ireland, 2018), deemed acceptable as all residues were below LOQ. Extrapolation to sweet corn and common millet is proposed since trials on maize grain were overdosed and no residues were observed. **No NEU uses are authorised for sorghum grains.** MRL<sub>OECD</sub> = 0.01 | 0.01*                 | < 0.01                  | < 0.01                   |
| Commodity | Region/Indoor (a) | Residue levels observed in the supervised residue trials (mg/kg) | Comments/Source | Calculated MRL (mg/kg) | HR (b) (mg/kg) | STMR (c) (mg/kg) |
|-----------|------------------|---------------------------------------------------------------|----------------|------------------------|---------------|----------------|
| Maize/corn forage | SEU | 5 × < 0.01 | Reduced data set on maize grains compliant with GAP (Ireland, 2018), deemed acceptable as all residues were below LOQ. Extrapolation to sweet corn is applicable. Extrapolation to sorghum is proposed (less cGAP). **No SEU uses authorised for common millet grains.** MRL<sub>OECD</sub> = 0.01 | 0.01* | < 0.01 | < 0.01 |
| Maize/corn stover | NEU | – | No GAP compliant trials available | – | – | – |
| Maize/corn stover | SEU | – | No GAP compliant trials available | – | – | – |
| Common millet forage | NEU | – | No GAP compliant trials available | – | – | – |
| Common millet straw | NEU | – | No GAP compliant trials available | – | – | – |
| Sorghum forage | SEU | – | No GAP compliant trials available | – | – | – |
| Sorghum stover | SEU | – | No GAP compliant trials available | – | – | – |
| Rice grains | SEU | 4 × < 0.01; 0.022; 0.028 | Reduced data set on rice grains performed with application rates within the 25% deviation (Italy, 2018); however, no additional trials are required since the import tolerance is clearly more critical. MRL<sub>OECD</sub> = 0.05 | 0.05 | 0.03 | 0.01 |
| Import (BR) | < 0.01; 0.02; 0.03; 0.1; 2 × 0.13; 2 × 0.16 | Trials on rice grains compliant with GAP (EFSA, 2012b). MRL<sub>OECD</sub> = 0.35 | 0.4 | 0.16 | 0.12 |
| Rice straw | SEU | 2 × < 0.01; 0.012; 0.056; 0.21 | Trials on rice straw performed with application rates within the 25% deviation (Italy, 2018). MRL<sub>OECD</sub> = 0.4 | 0.5<sup>(i)</sup> (tentative) | 0.21 | 0.01 |
| Import (BR) | – | Not relevant for import tolerance | – | – | – |
| Coffee beans | Import (BR) | 4 × < 0.01 | Reduced data set on coffee beans compliant with GAP, deemed acceptable as all residues were below LOQ (EFSA, 2012b). MRL<sub>OECD</sub> = 0.01 | 0.01* | < 0.01 | < 0.01 |

<sup>(a)</sup> Commodity Region/Indoor: SEU = Southern Europe, NEU = Northern Europe, BR = Brazil.

<sup>(b)</sup> HR: Hazard Ratio.

<sup>(c)</sup> STMR: Short-Term Maximum Residue Level.
| Commodity      | Region/Indoor<sup>(a)</sup> | Residue levels observed in the supervised residue trials (mg/kg) | Comments/Source                                                                 | Calculated MRL (mg/kg) | HR<sup>(b)</sup> (mg/kg) | STMR<sup>(c)</sup> (mg/kg) |
|----------------|-----------------------------|-----------------------------------------------------------------|--------------------------------------------------------------------------------|------------------------|--------------------------|--------------------------|
| Hops           | Import (US)                 | 7.5; 8.4; 12.5; 17.5                                            | Trials on hops compliant with GAP (EFSA, 2018a). MRL<sub>OECD</sub> = 34.42     | 40                     | 17.50                    | 10.45                    |
| Sugar canes    | Import (BR)                 | 0.09; 0.13; 2 × 0.16                                            | Trials on sugar canes compliant with GAP (Ireland, 2018). MRL<sub>OECD</sub> = 0.4 | 0.4                    | 0.16                     | 0.15                     |
| Chicory roots  | NEU                         | –                                                               | No GAP compliant trials available                                               | –                      | –                        | –                        |

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

<sup>a</sup>: Indicates that the MRL is proposed at the limit of quantification.

Mo: residue levels expressed according to the monitoring residue definition; RA: residue levels expressed according to risk assessment residue definition.

<sup>(a)</sup>: 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.

<sup>(b)</sup>: Highest residue. The highest residue for risk assessment (RA) refers to the whole commodity and not to the edible portion.

<sup>(c)</sup>: Supervised trials median residue. The median residue for risk assessment (RA) refers to the whole commodity and not to the edible portion.

<sup>(d)</sup>: No information on storage conditions of these samples is available.

<sup>(e)</sup>: Tentative MRL in the absence of sufficient number of GAP-compliant trials.

<sup>(f)</sup>: Tentative MRL in the absence of information on storage conditions of all samples.

<sup>(g)</sup>: Selected value corresponds to higher residue levels observed at a longer PHI.

<sup>(h)</sup>: Residue values coming from overdosed trials.

<sup>(i)</sup>: A tentative MRL is derived in view of the future need to set MRLs in livestock feed items.
B.1.2.2. Residues in rotational crops

Overall summary

Residues in rotational and succeeding crops expected based on confined rotational crop study?

Yes

In the available confined rotational crop study performed following bare soil application at 2.4N, the maximum seasonal application rate assessed in this review, chlorantraniliprole was the predominant component of the TRR (48–85% TRR, > 0.01 mg/kg). Since chlorantraniliprole is very persistent in soil, a potential uptake from soil might occur.

Residues in rotational and succeeding crops expected based on field rotational crop study?

No

In the US rotational field studies conducted at a dose rate of 200–225 or 600 g a.s./ha (ca. 0.8–1.7N plateau level in soil), residues of chlorantraniliprole in succeeding crops were < 0.01 mg/kg in leafy vegetables, roots of root vegetables, cereal grains and soyabean seeds, and mostly ≤ 0.05 mg/kg in tops of root vegetables, cereal forage, hay and straw for rotational crops grown under realistic field conditions. Significant residue levels of chlorantraniliprole are not expected in succeeding crops, provided that chlorantraniliprole is applied in compliance with the EU GAPs reported in Appendix A.

TRR: total radioactive residue; GAP: Good Agricultural Practice; a.s.: active substance.

B.1.2.3. Processing factors

| Processed commodity                | Number of valid studies(a) | Processing Factor (PF) | Comment/ Source |
|-----------------------------------|-----------------------------|------------------------|-----------------|
|                                   |                             | Individual values      | Median PF       |                 |
| Apples, juice                     | 4                           | < 0.062; < 0.091; 2 × < 0.19 | < 0.14          | (Ireland, 2010) |
| Apples, dry pomace                | 4                           | 9.3; 10.9; 12.3; 13.0   | 11.6            | (Ireland, 2010; EFSA 2013a) |
| Apples, wet pomace                | 4                           | 1.8; 2 × 2.2; 4.2       | 2.2             | (Ireland, 2010; EFSA 2013a) |
| Apples, sauce                     | 4                           | < 0.091; 2 × < 0.19; 0.27 | < 0.19          | (Ireland, 2010) |
| Plums, dried (prunes)             | 1                           | 1.92                   | 1.92            | Tentative(b) (Ireland, 2010) |
| Table grapes, dried (raisins)     | 2                           | 2.92; 7.14             | 5.03            | Tentative(b) (Ireland, 2010) |
| Wine grapes, juice                | 2                           | 0.43; 0.97             | 0.7             | Tentative(b) (Ireland, 2010) |
| Wine grapes, dry pomace           | 2                           | 6.06; 12.0             | 9.03            | Tentative(b) (Ireland, 2010) |
| Wine grapes, wet pomace           | 2                           | 1.79; 3.56             | 2.67            | Tentative(b) (Ireland, 2010) |
| Wine grapes, must                 | 2                           | 0.42; 1.52             | 0.97            | Tentative(b) (Ireland, 2010) |
### Processed commodity

| Processed commodity                  | Number of valid studies\(^a\) | Processing Factor (PF) | Comment/ Source                  |
|-------------------------------------|--------------------------------|------------------------|----------------------------------|
|                                     |                                | Individual values      | Median PF                        |                                  |
| W. grapes, red wine (unheated)      | 2                              | 0.76; 1.64             | 1.2                              | Tentative\(^b\) (Ireland, 2010; EFSA 2013a) |
| Wine grapes, white wine             | 2                              | < 0.15; < 0.29         | < 0.22                           | Tentative\(^b\) (Ireland, 2010)    |
| Tomatoes, peeled and canned         | 4                              | 0.23; 0.33; 0.56; 0.65 | 0.45                            | (Ireland, 2010; EFSA 2013a)        |
| Tomatoes, sauce                     | 4                              | 1.22; 1.43; 1.49; 1.67 | 1.46                            | (Ireland, 2010; EFSA 2013a)        |
| Tomatoes, paste                     | 4                              | 0.61; 1.06; 2.03; 2.39 | 1.54                            | (Ireland, 2010; EFSA 2013a)        |
| Tomatoes, ketchup                   | 4                              | 0.72; 0.74; 1.16; 1.56 | 0.95                             | (Ireland, 2010; EFSA 2013a)        |
| Tomatoes, juice                     | 4                              | 0.57; 0.78; 0.89; 1.14 | 0.83                             | (Ireland, 2010; EFSA 2013a)        |
| Melons, peeled                      | 9                              | < 0.15; < 0.26; 2 × < 0.31; < 0.33; < 0.43; 2 × < 0.53; < 1.0 | < 0.33                           | (Ireland, 2010)                    |
| Cotton seeds, refined oil           | 1                              | 0.25                   | 0.25                             | Tentative\(^b\) (Ireland, 2010)    |
| Cotton seeds, meal/press cake       | 1                              | 0.75                   | 0.75                             | Tentative\(^b\) (Ireland, 2010)    |
| Oil palm kernels, palm kernel oil (crude oil) | –                              | –                      | –                                | One study indicated processing of palm kernel to palm kernel oil may result in a concentration of residues. No PF derived since residues in palm kernel were below the LOQ (EFSA, 2019a) |
| Oil palms fruits, mesocarp oil (crudepalm oil) | 6                              | 1.6; 1.9; 1.9; 3.3; 3.4; 3.9 | 2.6                             | (EFSA, 2019a)                      |
| Oil palms fruits, cake (mesocarp cake) | 6                              | 0.38; 0.9; 1.1; 1.2; 1.4; 1.9 | 1.2                             | (EFSA, 2019a)                      |

\(^a\): Studies with residues in the RAC at or close to the LOQ were disregarded (unless concentration may occur).

\(^b\): A tentative PF is derived based on a limited data set.

### B.2. Residues in livestock

| Relevant groups (subgroups) | Dietary burden expressed in mg/kg bw per day | Dietary burden expressed in mg/kg DM DM | Most critical subgroup\(^a\) | Most critical commodity\(^b\) | Trigger exceeded (Y/N) | Comments |
|----------------------------|---------------------------------------------|----------------------------------------|-----------------------------|-----------------------------|------------------------|----------|
|                            | Median | Maximum | Median | Maximum |                         |                       |          |
| Cattle (all diets)         | 0.051  | 0.088   | 1.40   | 2.41    | Dairy cattle             | Cabbage, heads leaves  | Yes      | –        |
| Cattle (dairy only)        | 0.051  | 0.088   | 1.34   | 2.30    | Dairy cattle             | Cabbage, heads leaves  | Yes      | –        |

PF: Processing factor (=Residue level in processed commodity expressed according to RD-Mo/Residue level in raw commodity expressed according to RD-Mo).

\(a\): Studies with residues in the RAC at or close to the LOQ were disregarded (unless concentration may occur).

\(b\): A tentative PF is derived based on a limited data set.
### Relevant groups (subgroups)

| Relevant groups (subgroups) | Dietary burden expressed in | Most critical subgroup<sup>a</sup> | Most critical commodity<sup>b</sup> | Trigger exceeded (Y/N) | Comments |
|-----------------------------|----------------------------|----------------------------------|---------------------------------|------------------------|----------|
|                             | mg/kg bw per day | mg/kg DM |                            |                         |          |
|                             | Median | Maximum | Median | Maximum |
| Sheep (all diets)           | 0.035  | 0.055   | 1.05  | 1.58    | Lamb         | Cabbage, heads leaves | Yes      | –        |
| Sheep (ewe only)            | 0.035  | 0.053   | 1.05  | 1.58    | Ram/Ewe      | Cabbage, heads leaves | Yes      | –        |
| Swine (all diets)           | 0.017  | 0.030   | 0.74  | 1.29    | Swine (breeding) | Cabbage, heads leaves | Yes      | –        |
| Poultry (all diets)         | 0.018  | 0.035   | 0.26  | 0.51    | Poultry layer | Cabbage, heads leaves | Yes      | –        |
| Poultry (layer only)        | 0.018  | 0.035   | 0.26  | 0.51    | Poultry layer | Cabbage, heads leaves | Yes      | –        |
| Fish                        | –      | –       | –     | –       | –            | –          | –        | –        |

<sup>a</sup>: When one group of livestock includes several subgroups (e.g. poultry 'all' including broiler, layer and turkey), the result of the most critical subgroup is identified from the maximum dietary burdens expressed as 'mg/kg bw per day'.

<sup>b</sup>: The most critical commodity is the major contributor identified from the maximum dietary burden expressed as 'mg/kg bw per day'.

### 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 d) | Duration (days) | Comment/Source |
|-------------------------------|--------|-----------------------|-----------------|----------------|
| Laying hen                    | 0.81   | 14                    | 23N compared to the maximum dietary burden calculated for layer poultry. Radiolabelled active substance: mixture (1:1) [benzamide carbonyl-14C] chlorantraniliprole and [pyrazole carbonyl-14C]-chlorantraniliprole (EFSA, 2013a) |
| Lactating goat                | 0.36   | 7                     | 4N compared to the maximum dietary burden calculated for dairy cattle. Radiolabelled active substance: mixture (1:1) [benzamide carbonyl-14C] chlorantraniliprole and [pyrazole carbonyl-14C]-chlorantraniliprole (EFSA, 2013a) |
| Pig                           | –      | –                     | Not available and not required (extrapolated from ruminants) |
Time needed to reach a plateau concentration in milk and eggs (days)

- Milk: 2–3
- Eggs: 10–14

Metabolism in rat and ruminant similar

Can a general residue definition be proposed for animals?

- Yes
- No

Animal residue definition for monitoring (RD-Mo)

- All livestock commodities: chlorantraniliprole

Animal residue definition for risk assessment (RD-RA)

- Ruminants and swine: sum of chlorantraniliprole, IN-HXH44 and IN-K9T00, expressed as chlorantraniliprole
- Poultry tissues and eggs: chlorantraniliprole

Fat soluble residues

- Yes

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

- Multiresidue Method DFG S19 (LC–MS/MS)
- LOQ 0.01 mg/kg for parent, metabolites IN-K9T00, IN-HXH44, IN-GAZ70 and IN-EQW78, individually
- Confirmation by monitoring 1 additional MRM transition.
- ILV (LC–MS/MS) available for milk, eggs, meat and liver. ILV failed for IN-K9T00 in muscle and IN-EQW78 in milk.
- QuEChERS-citrate (LC–MS-qToF) for screening of parent in routine analysis with screening detection limit (SDL) = 0.0025 mg/kg in meat and milk; SDL = 0.005 mg/kg in eggs (EURL, 2018).

LC–MS/MS: liquid chromatography with tandem mass spectrometry; LOQ: limit of quantification; ILV: independent laboratory validation; qToF: quadrupole time-of-flight.
### B.2.1.2. Stability of residues in livestock

| Animal products (available studies) | Animal | Commodity | T (°C) | Stability period | Compounds covered                                                                 | Comment/Source |
|------------------------------------|--------|-----------|--------|------------------|----------------------------------------------------------------------------------|----------------|
|                                    | Bovine | Muscle    | –20    | 12 months        | Chlorantraniliprole, IN-K9T00, IN-HXH44, IN-GAZ70 and IN-EQW78                   | (Ireland, 2010; EFSA, 2013a) |
|                                    | Bovine | Fat       | –20    | 12 months        | Chlorantraniliprole, IN-K9T00, IN-HXH44, IN-GAZ70 and IN-EQW78                   | (Ireland, 2010; EFSA, 2013a) |
|                                    | Bovine | Liver     | –20    | 12 months        | Chlorantraniliprole, IN-K9T00, IN-HXH44, IN-GAZ70 and IN-EQW78                   | (Ireland, 2010; EFSA, 2013a) |
|                                    | Bovine | Kidney    | –20    | 12 months        | Chlorantraniliprole, IN-K9T00, IN-HXH44, IN-GAZ70 and IN-EQW78                   | (Ireland, 2010; EFSA, 2013a) |
|                                    | Bovine | Milk      | –20    | 12 months        | Chlorantraniliprole, IN-K9T00, IN-HXH44, IN-GAZ70 and IN-EQW78                   | (Ireland, 2010; EFSA, 2013a) |
|                                    | Poultry| Eggs      | –      | –                | –                                                                               | Not available and not required (samples analysed with 1 month after collection) |

Not available and not required (samples analysed with 1 month after collection)
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) | CF<sup>(c)</sup> |
|------------------|---------------------------------------------|-----------------------|----------------------|-----------------|
|                  | Mean | Highest | STMR<sub>Mo</sub><sup>(a)</sup> (mg/kg) | HR<sub>Mo</sub><sup>(b)</sup> (mg/kg) |                  |
| Cattle (all)     |      |         |                                      |                   |                 |
| Muscle           | 0.003 | 0.004   | < 0.01                                | < 0.01            | 0.01* 1.0       |
| Fat              | 0.008 | 0.015   | < 0.01                                | 0.016             | 0.02 1.0        |
| Liver            | 0.009 | 0.014   | < 0.01                                | 0.015             | 0.015 1.8       |
| Kidney           | 0.006 | 0.009   | < 0.01                                | 0.01              | 0.01* 1.9       |
| Cattle (dairy only) |      |         |                                      |                   |                 |
| Milk<sup>(e)</sup> | 0.003 | n.a.    | < 0.01                                | < 0.01            | 0.01* 1.0       |
| Sheep (all)      |      |         |                                      |                   |                 |
| Muscle           | 0.003 | 0.003   | < 0.01                                | < 0.01            | 0.01* 1.0       |
| Fat              | 0.003 | 0.004   | < 0.01                                | 0.01              | 0.01* 1.9       |
| Liver            | 0.004 | 0.005   | < 0.01                                | 0.01              | 0.01* 1.8       |
| Kidney           | 0.003 | 0.003   | < 0.01                                | 0.01              | 0.01* 1.9       |
| Sheep (ewe only) |      |         |                                      |                   |                 |
| Milk<sup>(e)</sup> | 0.003 | n.a.    | < 0.01                                | < 0.01            | 0.01* 1.0       |
| Swine (all)      |      |         |                                      |                   |                 |
| Muscle           | 0.003 | 0.003   | < 0.01                                | < 0.01            | 0.01* 1.0       |
| Fat              | 0.003 | 0.004   | < 0.01                                | < 0.01            | 0.01* 1.0       |
| Liver            | 0.004 | 0.005   | < 0.01                                | < 0.01            | 0.01* 1.0       |
| Kidney           | 0.003 | 0.003   | < 0.01                                | < 0.01            | 0.01* 1.0       |
| Poultry (all)    |      |         |                                      |                   |                 |
| Muscle           | 0.011 | 0.016   | < 0.01                                | < 0.01            | 0.01* 1.0       |
| Fat              | 0.043 | 0.066   | < 0.01                                | 0.01              | 0.01* 1.0       |
| Liver            | 0.038 | 0.054   | < 0.01                                | 0.01              | 0.01* 1.0       |
| Poultry (layer only) |      |         |                                      |                   |                 |
| Eggs<sup>(g)</sup> | 0.146 | 0.162   | 0.011                                 | 0.025             | 0.03 1.0        |

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

n.a.: not applicable.
n.r.: not reported.

(a): Median residues expressed according to the residue definition for monitoring, recalculated at the 1N rate for the median dietary burden.
(b): Highest residues expressed according to the residue definition for monitoring, recalculated at the 1N rate for the maximum dietary burden.
(c): Conversion factor to recalculate residues according to the residue definition for monitoring to the residue definition for risk assessment.
(d): Closest feeding level and N dose rate related to the maximum dietary burden.
(e): For milk, mean was derived from samplings performed from day 7 to day 10 (daily mean of 3 cows).
(f): For sheep, mean and highest residue levels were derived from samplings performed from day 10 to day 14 (daily mean or daily highest of 3 laying hens).
B.3. Consumer risk assessment

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

Not relevant since no acute reference dose (ARfD) has been considered necessary.

| Calculation                        | Description                                                                 |
|------------------------------------|-----------------------------------------------------------------------------|
| ADI                                | 1.56 mg/kg bw per day (EFSA, 2013a)                                         |
| TMDI according to EFSA PRIMo       | Not assessed in this review                                                  |
| NTMDI, according to (to be specified) | Not assessed in this review                                                  |
| Highest IEDI, according to EFSA PRIMo (rev.3.1) | 1% ADI (NL toddler)                                                         |
| NEDI (% ADI)                       | Not assessed in this review                                                  |
| Assumptions made for the calculations | The calculation is based on the median residue levels derived for raw agricultural commodities, except for melons where the peeling factor was also applied. For animal commodities, the median residue levels were multiplied by the conversion factor for risk assessment. For those plant commodities where data were insufficient to derive an MRL, EFSA considered the existing EU MRL for an indicative calculation. The contributions of commodities where no GAP was reported in the framework of the MRL review were not included in the calculation. |

Consumer exposure assessment through drinking water resulting from groundwater metabolite(s) according to SANCO/221/2000 rev.10 Final (25/02/2003)

| Metabolite(s) | Description |
|---------------|-------------|
|               | Not assessed in this review |
| ADI (mg/kg bw per day) | Not assessed in this review |
| Intake of groundwater metabolites (% ADI) | Not assessed in this review |
B.3.2. Consumer risk assessment with consideration of the existing CXLs

Not relevant since no ARfD has been considered necessary.

| ADI | 1.56 mg/kg bw per day (EFSA, 2013a) |
| TMDI according to EFSA PRIMo | Not assessed in this review |
| NTMDI, according to (to be specified) | Not assessed in this review |
| Highest IEDI, according to EFSA PRIMo (rev.3.1) | 0.8% ADI (NL toddler) |
| NEDI (% ADI) | Not assessed in this review |

Assumptions made for the calculations:

For those commodities having a CXL higher than the EU MRL proposal, median residue levels applied in the EU scenario were replaced by the median residue levels derived by JMPR. As the EU residue definition for risk assessment of ruminants and swine comprises two additional metabolites not considered by JMPR, the median residue levels derived by JMPR for these commodities were multiplied by the conversion factors for risk assessment of 1.5 for liver, kidney and muscle, 1 for fat and 3 for milk, as derived by the peer review.

CXLs for broccoli, cauliflower, brussels sprouts, head cabbage, kohlrabi, peas with and without pods, coffee beans and hops were not legally implemented in the EU Regulation due to reservations related to different policies of extrapolation, raised by the EU delegation. The CXLs for these commodities were not considered in the calculations.

AD: acceptable daily intake; bw: body weight; NEDI: national estimated daily intake; PRIMo: (EFSA) Pesticide Residues Intake Model; WHO: World Health Organization; TMDI: theoretical maximum daily intake; NTMDI: national theoretical maximum daily intake; CXL: codex maximum residue limit.

B.4. Proposed MRLs

Table B.1: Summary table

| Code number | Commodity     | Existing EU MRL (mg/kg) | Existing CXL (mg/kg) | Outcome of the review |
|-------------|---------------|------------------------|----------------------|-----------------------|
| 110010      | Grapefruit    | 0.7                    | 0.7                  | Recommended (a)       |
| 110020      | Oranges       | 0.7                    | 0.7                  | Recommended (a)       |
| 110030      | Lemons        | 0.7                    | 0.7                  | Recommended (a)       |
| 110040      | Limes         | 0.7                    | 0.7                  | Recommended (a)       |
| 110050      | Mandarins     | 0.7                    | 0.7                  | Recommended (a)       |
| 120010      | Almonds       | 0.05                   | 0.02                 | Recommended (a)       |
| 120020      | Brazil nuts   | 0.05                   | 0.02                 | Recommended (a)       |
| 120030      | Cashew nuts   | 0.05                   | 0.02                 | Recommended (a)       |
| 120040      | Chestnuts     | 0.05                   | 0.02                 | Recommended (a)       |
| 120050      | Coconuts      | 0.05                   | 0.02                 | Recommended (a)       |
| 120060      | Hazelnuts     | 0.05                   | 0.02                 | Recommended (a)       |
| 120070      | Macadamia     | 0.05                   | 0.02                 | Recommended (a)       |
| 120080      | Pecans        | 0.05                   | 0.02                 | Recommended (a)       |
| 120090      | Pine nuts     | 0.05                   | 0.02                 | Recommended (a)       |
| Code number | Commodity                        | Existing EU MRL (mg/kg) | Existing CXL (mg/kg) | Outcome of the review |
|-------------|----------------------------------|-------------------------|----------------------|-----------------------|
| 120100      | Pistachios                        | 0.05                    | 0.02                 | 0.03                  | Recommended (a)       |
| 120110      | Walnuts                           | 0.05                    | 0.02                 | 0.03                  | Recommended (a)       |
| 130010      | Apples                            | 0.5                     | 0.4                  | 0.4                   | Recommended (a)       |
| 130020      | Pears                             | 0.5                     | 0.4                  | 0.4                   | Recommended (a)       |
| 130030      | Quinces                           | 0.5                     | 0.4                  | 0.4                   | Recommended (a)       |
| 130040      | Medlar                            | 0.5                     | 0.4                  | 0.4                   | Recommended (a)       |
| 130050      | Loquat                            | 0.5                     | 0.4                  | 0.4                   | Recommended (a)       |
| 140010      | Apricots                          | 1                       | 1                    | 1                     | Recommended (b)       |
| 140020      | Cherries                          | 1                       | 1                    | 1                     | Recommended (c)       |
| 140030      | Peaches                           | 1                       | 1                    | 1                     | Recommended (c)       |
| 140040      | Plums                             | 1                       | 1                    | 1                     | Recommended (c)       |
| 151010      | Table grapes                      | 1                       | 1                    | 1                     | Recommended (a)       |
| 151020      | Wine grapes                       | 1                       | 1                    | 1                     | Recommended (a)       |
| 152000      | Strawberries                      | 1                       | 1                    | 1                     | Recommended (b)       |
| 153010      | Blackberries                      | 1                       | 1                    | 1.5                   | Recommended (a)       |
| 153020      | Dewberries                        | 1                       | 1                    | 1.5                   | Recommended (a)       |
| 153030      | Raspberries                       | 1                       | 1                    | 1.5                   | Recommended (a)       |
| 154010      | Blueberries                       | 1.5                     | 1                    | 1.5                   | Recommended (a)       |
| 154020      | Cranberries                       | 1                       | 1                    | 1                     | Recommended (c)       |
| 154030      | Currants (red, black and white)   | 1                       | 1                    | 1                     | Recommended (d)       |
| 154040      | Gooseberries                      | 1                       | 1                    | 1                     | Recommended (d)       |
| 154050      | Rose hips                         | 1                       | 1                    | 1                     | Recommended (d)       |
| 154060      | Mulberries                        | 1                       | 1                    | 1                     | Recommended (d)       |
| 154070      | Azarole (mediterranean medlar)    | 0.01*                   | 1                    | 1                     | Recommended (c)       |
| 154080      | Elderberries                      | 1                       | 1                    | 1                     | Recommended (d)       |
| 161040      | Kumquats                          | 0.01*                   | 0.7                  | 0.7                   | Recommended (d)       |
| 163050      | Pomegranate                       | 0.4                     | 0.4                  | 0.4                   | Recommended (c)       |
| 211000      | Potatoes                          | 0.02                    | 0.02                 | 0.03                  | Recommended (a)       |
| 212010      | Cassava                           | 0.02                    | 0.02                 | 0.02                  | Recommended (d)       |
| 212020      | Sweet potatoes                    | 0.02                    | 0.02                 | 0.02                  | Recommended (a)       |
| 212030      | Yams                              | 0.02                    | 0.02                 | 0.02                  | Recommended (d)       |
| 212040      | Arrowroot                         | 0.02                    | 0.02                 | 0.02                  | Recommended (d)       |
| 213010      | Beetroot                          | 0.06                    | 0.02                 | 0.06                  | Recommended (a)       |
| 213020      | Carrots                           | 0.08                    | 0.08                 | 0.08                  | Recommended (c)       |
| 213030      | Celeriac                          | 0.06                    | 0.02                 | 0.06                  | Recommended (a)       |
| 213040      | Horseradish                       | 0.06                    | 0.02                 | 0.06                  | Recommended (a)       |
| 213050      | Jerusalem artichokes              | 0.06                    | 0.02                 | 0.06                  | Recommended (a)       |
| 213060      | Parsnips                          | 0.06                    | 0.02                 | 0.06                  | Recommended (a)       |
| 213070      | Parsley root                      | 0.06                    | 0.02                 | 0.06                  | Recommended (a)       |
| 213080      | Radishes                          | 0.5                     | 0.5                  | 0.5                   | Recommended (a)       |
| 213090      | Salsify                           | 0.06                    | 0.02                 | 0.06                  | Recommended (a)       |
| 213100      | Swedes                            | 0.06                    | 0.02                 | 0.06                  | Recommended (a)       |
| 213110      | Turnips                           | 0.06                    | 0.02                 | 0.06                  | Recommended (a)       |
| 231010      | Tomatoes                          | 0.6                     | 0.6                  | 0.6                   | Recommended (c)       |
| 231020      | Peppers                           | 1                       | 0.6                  | 1                     | Further consideration needed (f) |
| 231030      | Aubergines (egg plants)           | 0.6                     | 0.6                  | 0.6                   | Recommended (c)       |
| Code number | Commodity                  | Existing EU MRL (mg/kg) | Existing CXL (mg/kg) | Outcome of the review MRL (mg/kg) | Comment |
|-------------|---------------------------|-------------------------|---------------------|---------------------------------|---------|
| 231040      | Okra, lady's fingers      | 0.6                     | 0.6                 | 0.6                             | Recommended<sup>(d)</sup> |
| 232010      | Cucumbers                 | 0.3                     | 0.3                 | 0.3                             | Recommended<sup>(a)</sup> |
| 232020      | Gherkins                  | 0.3                     | 0.3                 | 0.3                             | Recommended<sup>(a)</sup> |
| 232030      | Courgettes                | 0.3                     | 0.3                 | 0.3                             | Recommended<sup>(a)</sup> |
| 233010      | Melons                    | 0.3                     | 0.3                 | 0.3                             | Further consideration needed<sup>(f)</sup> |
| 233020      | Pumpkins                  | 0.3                     | 0.3                 | 0.3                             | Recommended<sup>(a)</sup> |
| 233030      | Watermelons               | 0.3                     | 0.3                 | 0.3                             | Further consideration needed<sup>(f)</sup> |
| 234000      | Sweet corn                | 0.2                     | 0.01*               | 0.01*                           | Recommended<sup>(a)</sup> |
| 241010      | Broccoli                  | 1                       | 2                   | 1.5                             | Recommended<sup>(g)</sup> |
| 241020      | Cauliflower               | 0.6                     | 2                   | 0.5                             | Recommended<sup>(g)</sup> |
| 242010      | Brussels sprouts          | 0.01*                   | 2                   | 0.01*                           | Further consideration needed<sup>(h)</sup> |
| 242020      | Head cabbage              | 2                       | 2                   | 2                               | Recommended<sup>(g)</sup> |
| 243010      | Chinese cabbage           | 20                      | 20                  | 20                              | Recommended<sup>(e)</sup> |
| 243020      | Kale                      | 20                      | 20                  | 20                              | Recommended<sup>(e)</sup> |
| 244000      | Kohlrabi                  | 0.01*                   | 2                   | 0.01*                           | Further consideration needed<sup>(h)</sup> |
| 251010      | Lamb's lettuce            | 20                      | 20                  | 20                              | Recommended<sup>(a)</sup> |
| 251020      | Lettuce                   | 20                      | 20                  | 20                              | Recommended<sup>(a)</sup> |
| 251030      | Scarole (broad-leaf endive)| 20                     | 20                  | 20                              | Recommended<sup>(a)</sup> |
| 251040      | Cress                     | 20                      | 20                  | 20                              | Recommended<sup>(a)</sup> |
| 251050      | Land cress                | 20                      | 20                  | 20                              | Recommended<sup>(a)</sup> |
| 251060      | Rocket, Rucola            | 20                      | 20                  | 20                              | Recommended<sup>(a)</sup> |
| 251070      | Red mustard               | 20                      | 20                  | 20                              | Recommended<sup>(a)</sup> |
| 251080      | Leaves and sprouts of Brassica spp | 20 | 40 | 40 | Recommended<sup>(c)</sup> |
| 252010      | Spinach                   | 20                      | 20                  | 20                              | Recommended<sup>(a)</sup> |
| 252020      | Purslane                  | 20                      | 20                  | 20                              | Recommended<sup>(a)</sup> |
| 252030      | Beet leaves (chard)       | 20                      | 20                  | 20                              | Recommended<sup>(a)</sup> |
| 253000      | Vine leaves (grape leaves)| 20                      | 20                  | 20                              | Further consideration needed<sup>(f)</sup> |
| 254000      | Water cress               | 20                      | 20                  | 20                              | Recommended<sup>(d)</sup> |
| 255000      | Witloof                   | 20                      | 20                  | 20                              | Recommended<sup>(e)</sup> |
| 256010      | Chervil                   | 20                      | 20                  | 20                              | Recommended<sup>(a)</sup> |
| 256020      | Chives                    | 20                      | 20                  | 20                              | Recommended<sup>(a)</sup> |
| 256030      | Celery leaves             | 20                      | 20                  | 20                              | Recommended<sup>(a)</sup> |
| 256040      | Parsley                   | 20                      | 20                  | 20                              | Recommended<sup>(a)</sup> |
| 256050      | Sage                      | 20                      | 20                  | 20                              | Recommended<sup>(a)</sup> |
| 256060      | Rosemary                  | 20                      | 20                  | 20                              | Recommended<sup>(a)</sup> |
| 256070      | Thyme                     | 20                      | 20                  | 20                              | Recommended<sup>(a)</sup> |
| 256080      | Basil                     | 20                      | 15                  | 20                              | Recommended<sup>(a)</sup> |
| 256090      | Bay leaves (laurel)       | 20                      | 20                  | 20                              | Recommended<sup>(a)</sup> |
| 256100      | Tarragon                  | 20                      | 20                  | 20                              | Recommended<sup>(a)</sup> |
| 260010      | Beans (fresh, with pods)  | 0.8                     | 0.8                 | 0.8                             | Recommended<sup>(a)</sup> |
| 260020      | Beans (fresh, without pods)| 0.01*               | –                   | 0.01*                           | Further consideration needed<sup>(l)</sup> |
| 260030      | Peas (fresh, with pods)   | 2                       | 2                   | 2                               | Recommended<sup>(g)</sup> |
| Code number | Commodity                                 | Existing EU MRL (mg/kg) | Existing CXL (mg/kg) | MRL (mg/kg) | Comment                          |
|-------------|-------------------------------------------|-------------------------|----------------------|-------------|----------------------------------|
| 260040      | Peas (fresh, without pods)                | 0.01*                   | 0.05                 | 0.01*       | Further consideration needed(h)  |
| 260050      | Lentils (fresh)                           | 0.01*                   | –                    | 0.01*       | Further consideration needed(i)  |
| 270020      | Cardoons                                 | 0.01*                   | –                    | 8           | Recommended(j)                   |
| 270030      | Celery                                    | 10                      | 7                    | 8           | Recommended(a)                   |
| 270040      | Fennel                                    | 0.01*                   | –                    | 8           | Recommended(i)                   |
| 270050      | Globe artichokes                          | 2                       | 2                    | 2           | Recommended(a)                   |
| 270070      | Rhubarb                                   | 0.01*                   | –                    | 8           | Recommended(i)                   |
| 401010      | Linseed                                   | 0.01*                   | –                    | 2           | Recommended(j)                   |
| 401020      | Peanuts                                   | 0.06                    | 0.06                 | 0.06        | Further consideration needed(f)  |
| 401030      | Poppy seed                                | 0.01*                   | –                    | 2           | Recommended(i)                   |
| 401040      | Sesame seed                               | 0.01*                   | –                    | 2           | Recommended(i)                   |
| 401050      | Sunflower seed                            | 2                       | 2                    | 2           | Further consideration needed(f)  |
| 401060      | Rape seed                                 | 2                       | 2                    | 2           | Further consideration needed(f)  |
| 401070      | Soyabean                                  | 0.05                    | 0.05                 | 0.05        | Recommended(e)                   |
| 401080      | Mustard seed                              | 0.01*                   | –                    | 2           | Recommended(i)                   |
| 401090      | Cotton seed                               | 0.3                     | 0.3                  | 0.3         | Recommended(a)                   |
| 401100      | Pumpkin seeds                             | 0.01*                   | –                    | 2           | Recommended(i)                   |
| 401110      | Safflower                                 | 0.01*                   | –                    | 2           | Recommended(i)                   |
| 401120      | Borage                                    | 0.01*                   | –                    | 2           | Recommended(i)                   |
| 401130      | Gold of pleasure                          | 0.01*                   | –                    | 2           | Recommended(i)                   |
| 401140      | Hempseed                                  | 0.01*                   | –                    | 2           | Recommended(i)                   |
| 401150      | Castor bean                               | 0.01*                   | –                    | 2           | Recommended(i)                   |
| 402020      | Oil palm nuts (palm oil kernels)          | 0.01*                   | –                    | 0.01*       | Recommended(i)                   |
| 402030      | Oil palm fruit                            | 0.01*                   | –                    | 0.8         | Recommended(i)                   |
| 500010      | Barley grain                              | 0.02                    | 0.02                 | 0.02        | Recommended(d)                   |
| 500020      | Buckwheat grain                           | 0.02                    | 0.02                 | 0.02        | Recommended(d)                   |
| 500030      | Maize grain                               | 0.02                    | 0.02                 | 0.02        | Recommended(c)                   |
| 500040      | Millet grain                              | 0.02                    | 0.02                 | 0.02        | Recommended(c)                   |
| 500050      | Oats grain                                | 0.02                    | 0.02                 | 0.02        | Recommended(d)                   |
| 500060      | Rice grain                                | 0.4                     | 0.4                  | 0.4         | Recommended(a)                   |
| 500070      | Rye grain                                 | 0.02                    | 0.02                 | 0.02        | Recommended(d)                   |
| 500080      | Sorghum grain                             | 0.02                    | 0.02                 | 0.02        | Recommended(c)                   |
| 500090      | Wheat grain                               | 0.02                    | 0.02                 | 0.02        | Recommended(d)                   |
| 620000      | Coffee beans                              | 0.02*                   | 0.05                 | 0.01*       | Recommended(g)                   |
| 700000      | ‘Hops (dried), including hop pellets and unconcentrated powder’ | 40                      | 40                   | 40          | Recommended(g)                   |
| 900020      | Sugar cane                                | 0.5                     | 0.5                  | 0.5         | Recommended(c)                   |
| 900030      | Chicory roots                             | 0.02                    | –                    | 0.02        | Further consideration needed(i)  |
| 1011010     | Swine meat                                | 0.2                     | 0.03                 | 0.03        | Recommended(e)                   |
| 1011020     | Swine fat (free of lean meat)             | 0.2                     | 0.2                  | 0.2         | Recommended(c)                   |
| 1011030     | Swine liver                               | 0.2                     | 0.2                  | 0.2         | Recommended(c)                   |
| 1011040     | Swine kidney                              | 0.2                     | 0.2                  | 0.2         | Recommended(c)                   |
| 1012010     | Bovine meat                               | 0.2                     | 0.03                 | 0.03        | Recommended(c)                   |
| Code number | Commodity       | Existing EU MRL (mg/kg) | Existing CXL (mg/kg) | Outcome of the review | MRL (mg/kg) | Comment       |
|-------------|-----------------|-------------------------|----------------------|-----------------------|-------------|---------------|
| 1012020     | Bovine fat      | 0.2                     | 0.2                  | Recommended (c)       | 0.2         |               |
| 1012030     | Bovine liver    | 0.2                     | 0.2                  | Recommended (c)       | 0.2         |               |
| 1012040     | Bovine kidney   | 0.2                     | 0.2                  | Recommended (c)       | 0.2         |               |
| 1013010     | Sheep meat      | 0.2                     | 0.03                 | Recommended (c)       | 0.03        |               |
| 1013020     | Sheep fat       | 0.2                     | 0.2                  | Recommended (c)       | 0.2         |               |
| 1013030     | Sheep liver     | 0.2                     | 0.2                  | Recommended (c)       | 0.2         |               |
| 1013040     | Sheep kidney    | 0.2                     | 0.2                  | Recommended (c)       | 0.2         |               |
| 1014010     | Goat meat       | 0.2                     | 0.03                 | Recommended (c)       | 0.03        |               |
| 1014020     | Goat fat        | 0.2                     | 0.2                  | Recommended (c)       | 0.2         |               |
| 1014030     | Goat liver      | 0.2                     | 0.2                  | Recommended (c)       | 0.2         |               |
| 1014040     | Goat kidney     | 0.2                     | 0.2                  | Recommended (c)       | 0.2         |               |
| 1015010     | Horse meat      | 0.2                     | 0.03                 | Recommended (c)       | 0.03        |               |
| 1015020     | Horse fat       | 0.2                     | 0.2                  | Recommended (c)       | 0.2         |               |
| 1015030     | Horse liver     | 0.2                     | 0.2                  | Recommended (c)       | 0.2         |               |
| 1015040     | Horse kidney    | 0.2                     | 0.2                  | Recommended (c)       | 0.2         |               |
| 1016010     | Poultry meat    | 0.01*                   | 0.02                 | Recommended (c)       | 0.02        |               |
| 1016020     | Poultry fat     | 0.08                    | 0.08                 | Recommended (c)       | 0.08        |               |
| 1016030     | Poultry liver   | 0.07                    | 0.07                 | Recommended (c)       | 0.07        |               |
| 1020010     | Cattle milk     | 0.05                    | 0.05                 | Recommended (c)       | 0.05        |               |
| 1020020     | Sheep milk      | 0.05                    | 0.05                 | Recommended (c)       | 0.05        |               |
| 1020030     | Goat milk       | 0.05                    | 0.05                 | Recommended (c)       | 0.05        |               |
| 1020040     | Horse milk      | 0.05                    | 0.05                 | Recommended (c)       | 0.05        |               |
| 1030000     | Birds’ eggs     | 0.2                     | 0.2                  | Recommended (c)       | 0.2         |               |
|             | Other commodities of plant and/or animal origin | See Reg. (EU) 2019/50 | –                    | –                     | Further consideration needed (k) |               |

MRL: maximum residue level; CXL: codex maximum residue limit.

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

(F): The residue definition is fat soluble.

(a): 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 H-III in Appendix E).

(b): MRL is derived from the existing CXL, which is supported by data and for which no risk to consumers is identified; GAP evaluated at EU level, which is not fully supported by data, leads to a lower tentative MRL (combination F-VII in Appendix E).

(c): MRL is derived from the existing CXL, which is supported by data and for which no risk to consumers is identified; GAP evaluated at EU level, which is also fully supported by data, leads to a lower MRL (combination H-VII in Appendix E).

(d): MRL is derived from the existing CXL, which is supported by data and for which no risk to consumers is identified; there are no relevant authorisations or import tolerances reported at EU level (combination A-VII in Appendix E).

(e): MRL is derived from the existing CXL, which is supported by data and for which no risk to consumers is identified; GAP evaluated at EU level is not supported by data; existing EU MRL is covered by the existing CXL (combination D-VII in Appendix E).

(f): 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 F-III in Appendix E).

(g): 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; CXL is not compatible with EU residue definitions (combination H-II in Appendix E).

(h): 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); CXL is not compatible with EU residue definitions (combination D-II 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); no CXL is available (combination D-I in Appendix E).

(j): 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 H-I in Appendix E).

(k): 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)

**PRIMo(EU)**

### Chlorantraniliprole (F)

#### CoE guidelines/maximum levels

**ARfD (mg/kg bw):** 0.01

#### Textological reference values

- **Dietary exposure (mg/kg bw per day):** 1.36
- **Dietary intake (mg/kg bw):** Not necessary

#### Source of ARfD:

- **Milk:** Cattle (LOQs (mg/kg) range from: 0.01 to: 0.4)

### Pesticide Residue Intake Model (PRIMo)

#### PRIMo(EU)

**Input values**

**Chlorantraniliprole (F):** 0.01

**LOQs (mg/kg) range from:** 0.01 to: 0.4

**Details – chronic risk**

- **ADI (mg/kg bw per day):**
- **ARfD (mg/kg bw):**

**Details – acute risk**

**Chronic risk assessment:** JMPR methodology (IEDI/TMDI)

**No of diets exceeding the ADI:** ---

**Exposure resulting from:**

- **Commodity:**
- **group of commodities:**

**Highest contributor to:**

- **(in % of ADI)**

**2nd contributor to:**

- **(in % of ADI)**

**3rd contributor to:**

- **(in % of ADI)**

**Comments:**

- **Normal mode**
- **Conclusion:** The long-term intake of residues of Chlorantraniliprole (F) is unlikely to present a public health concern.

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As an ARfD is not necessary/not applicable, no acute risk assessment is performed.

### Table: Acute Risk Assessment

| Commodity Type       | ARfD/ADI Exceeded (IESTI) | MRL/Input for RA (mg/kg) | Exposure (µg/kg bw) | ARfD/ADI Exceeded (IESTI) | MRL/Input for RA (mg/kg) | Exposure (µg/kg bw) |
|----------------------|---------------------------|--------------------------|---------------------|---------------------------|--------------------------|---------------------|
| **Processed Commodities** |                           |                          |                     |                           |                          |                     |
| Results for children |                           |                          |                     | Results for adults        |                          |                     |
| No. of commodities for which ARfD/ADI is exceeded (IESTI): | | | | No. of commodities for which ARfD/ADI is exceeded (IESTI): | | |

**Conclusion:**

Total number of commodities exceeding the ARfD/ADI in children and adult diets (IESTI calculation)
### Chlorantraniliprole (F)

**Normal mode**

#### Chronic risk assessment: JMPR methodology (IEDI/TMDI)

| Commodity/group of commodities | % of ADI | Commodity/Group of commodities | % of ADI | Commodity/Group of commodities | % of ADI |
|--------------------------------|----------|---------------------------------|----------|---------------------------------|----------|
| Escaroles/broad-leaved endives  | 0.1%     | Lettuces                        | 0.1%     | Fruits                          | 0.1%     |
| NL toddler                     | 0.3%     | Chinese cabbages/pe-tsai        | 0.3%     | Spices                          | 0.1%     |
| Se general                     | 0.2%     | Oranges                         | 0.3%     | Spinaches                       | 0.1%     |
| DE child                       | 0.2%     | Kales                           | 0.3%     | Spinaches                       | 0.1%     |
| FI toddler 2-3 yr              | 0.3%     | Spinaches                       | 0.1%     | Spices                          | 0.1%     |
| ES cold                        | 0.4%     | Spices                          | 0.1%     | Spices                          | 0.1%     |
| NL child                       | 0.3%     | Spices                          | 0.1%     | Spices                          | 0.1%     |
| GEMS/Food G08                  | 0.1%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| US child                       | 0.1%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| US general                     | 0.1%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| US toddler                     | 0.2%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| DE child                       | 0.2%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| FI toddler 2-3 yr              | 0.3%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| ES child                       | 0.4%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| NL child                       | 0.3%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| GEMS/Food G08                  | 0.1%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| US child                       | 0.1%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| US general                     | 0.1%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| US toddler                     | 0.2%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| DE child                       | 0.2%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| FI toddler 2-3 yr              | 0.3%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| ES child                       | 0.4%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| NL child                       | 0.3%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| GEMS/Food G08                  | 0.1%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| US child                       | 0.1%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| US general                     | 0.1%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| US toddler                     | 0.2%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| DE child                       | 0.2%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| FI toddler 2-3 yr              | 0.3%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| ES child                       | 0.4%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| NL child                       | 0.3%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| GEMS/Food G08                  | 0.1%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| US child                       | 0.1%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| US general                     | 0.1%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| US toddler                     | 0.2%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| DE child                       | 0.2%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| FI toddler 2-3 yr              | 0.3%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| ES child                       | 0.4%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| NL child                       | 0.3%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| GEMS/Food G08                  | 0.1%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| US child                       | 0.1%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| US general                     | 0.1%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |
| US toddler                     | 0.2%     | Milk: Cattle                    | 0.3%     | Milk: Cattle                    | 0.3%     |

#### Conclusion:

The estimated long-term dietary intake (TMDI/IEDI/NEDI) was below the ADI. The long-term intake of residues of Chlorantraniliprole (F) is unlikely to present a public health concern.

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**Notes:**
- **LOQs:** (mg/kg) range from:
  - 0.01
  - 0.03
  - 0.1
  - 0.2
  - 0.5
  - 1
  - 2
  - 5
  - 10
  - 20
  - 50
  - 100

**Details – acute risk assessment:**
- Source of ADI:
  - Toxicological reference values
- ADI (mg/kg bw per day): not necessary
- ARfD (mg/kg bw): details

**Details – chronic risk assessment:**
- Source of ADI:
  - Year of evaluation: EFSA PRIMo revision 3.1; 2019/03/19
As an ARfD is not necessary/not applicable, no acute risk assessment is performed.

### Acute risk assessment/children

| Highest % of ARfD/ADI | Commodities | MRL/input for RA (mg/kg) | Exposure (µg/kg bw) |
|-----------------------|-------------|--------------------------|---------------------|
| IESTI                 |             |                          |                     |

### Acute risk assessment/adults/general population

| Highest % of ARfD/ADI | Commodities | MRL/input for RA (mg/kg) | Exposure (µg/kg bw) |
|-----------------------|-------------|--------------------------|---------------------|
| IESTI                 |             |                          |                     |

#### Show results for all crops

| Unprocessed commodities | Results for children | No. of commodities for which ARfD/ADI is exceeded (IESTI): | Results for adults | No of commodities for which ARfD/ADI is exceeded (IESTI): |
|-------------------------|-----------------------|---------------------------------------------------------------|-------------------|--------------------------------------------------------|
| IESTI                   |                       |                                                               |                   |                                                        |

#### Total number of commodities exceeding the ARfD/ADI in children and adult diets (IESTI calculation)

| Processed commodities | Results for children | No of processed commodities for which ARfD/ADI is exceeded (IESTI): | Results for adults | No. of commodities for which ARfD/ADI is exceeded (IESTI): |
|-----------------------|----------------------|---------------------------------------------------------------------|-------------------|--------------------------------------------------------|
| IESTI                 |                      |                                                                     |                   |                                                        |

### Conclusion:

Review of the existing MRLs for chlorantraniliprole

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## 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                |
| Cabbage, heads leaves                 | 0.52                  | STMR                   | 1.2                    | HR                     |
| Rice straw                            | 0.01                  | STMR                   | 0.21                   | HR                     |
| Carrot culls                          | 0.01                  | STMR                   | 0.04                   | HR                     |
| Potato culls                          | 0.01*                 | STMR                   | 0.01*                  | HR                     |
| Swede roots                           | 0.01                  | STMR                   | 0.04                   | HR                     |
| Turnip roots                          | 0.01                  | STMR                   | 0.04                   | HR                     |
| Corn, field (Maize) grain             | 0.01*                 | STMR                   | 0.01*                  | STMR                   |
| Corn, pop grain                       | 0.01*                 | STMR                   | 0.01*                  | STMR                   |
| Cotton undelinted seed               | 0.05                  | STMR                   | 0.05                   | STMR                   |
| Millet grain                          | 0.01*                 | STMR                   | 0.01*                  | STMR                   |
| Sorghum grain                         | 0.01*                 | STMR                   | 0.01*                  | STMR                   |
| Apple pomace, wet                     | 0.18                  | STMR × PF (2.2)        | 0.18                   | STMR × PF (2.2)        |
| Canola (Rape seed) meal               | 0.6                   | STMR × default PF (2)\(a)\ | 0.6                   | STMR × default PF (2)\(a)\ |
| Citrus dried pulp                     | 2.1                   | STMR × default PF (10)\(a)\ | 2.1                   | STMR × default PF (10)\(a)\ |
| Coconut meal                          | 0.02                  | STMR × default PF (1.5)\(a)\ | 0.02                   | STMR × default PF (1.5)\(a)\ |
| Corn, field milled by-products        | 0.01*                 | STMR\(b)               | 0.01*                  | STMR\(b)               |
| Corn, field hominy meal               | 0.01*                 | STMR\(b)               | 0.01*                  | STMR\(b)               |
| Corn, field gluten feed               | 0.01*                 | STMR\(b)               | 0.01*                  | STMR\(b)               |
| Corn, field gluten meal               | 0.01*                 | STMR\(b)               | 0.01*                  | STMR\(b)               |
| Cotton meal                           | 0.04                  | STMR × PF (0.8)\(c)\    | 0.04                   | STMR × PF (0.8)\(c)\    |
| Distiller’s grain dried               | 0.03                  | STMR × default PF (3.3)\(a)\ | 0.03                   | STMR × default PF (3.3)\(a)\ |
| Flaxseed/Linseed meal                 | 0.49                  | STMR × default PF (2)\(a)\ | 0.49                   | STMR × default PF (2)\(a)\ |
| Palm (hearts) kernel meal             | 0.01*                 | STMR                   | 0.01*                  | STMR                   |
| Peanut meal                           | 0.02                  | STMR × default PF (2)\(a)\ | 0.02                   | STMR × default PF (2)\(a)\ |
| Potato process waste                  | 0.2                   | STMR × default PF (20)\(a)\ | 0.2                    | STMR × default PF (20)\(a)\ |
| Potato dried pulp                     | 0.38                  | STMR × default PF (38)\(a)\ | 0.38                   | STMR × default PF (38)\(a)\ |
| Rape meal                             | 0.6                   | STMR × default PF (2)\(a)\ | 0.6                    | STMR × default PF (2)\(a)\ |
| Rice bran/pollard                     | 1.15                  | STMR × default PF (10)\(a)\ | 1.15                   | STMR × default PF (10)\(a)\ |
| Safflower meal                        | 0.49                  | STMR × default PF (2)\(a)\ | 0.49                   | STMR × default PF (2)\(a)\ |
| Sugarcane molasses                    | 4.64                  | STMR × default PF (32)\(a)\ | 4.64                   | STMR × default PF (32)\(a)\ |
| Sunflower meal                        | 0.37                  | STMR × default PF (2)\(a)\ | 0.37                   | STMR × default PF (2)\(a)\ |

**STMR:** supervised trials median residue; **HR:** highest residue; **PF:** processing factor.  
*: Indicates that the input value is proposed at the limit of quantification.  
(a): In the absence of processing factors supported by data, default the processing factor of was included in the calculation to consider the potential concentration of residues in these commodities.
(b): For corn milled by-products, hominy meal, gluten feed and gluten meal, and palm kernel meal no default processing factor was applied because residues are expected to be below the LOQ. Concentration of residues in these commodities is therefore not expected.

(c): The tentative derived processing factors were 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 residue definition 1: chlorantraniliprole |
|----------------------------------|---------------------------------------------------------------|
| Commodity                        | Input value (mg/kg) Comment                                  |
|----------------------------------|---------------------------------------------------------------|
| Grapefruits                      | 0.21 STMR                                                   |
| Oranges                          | 0.21 STMR                                                   |
| Lemons                           | 0.21 STMR                                                   |
| Limes                            | 0.21 STMR                                                   |
| Mandarins                        | 0.21 STMR                                                   |
| Almonds                          | 0.01 STMR                                                   |
| Brazil nuts                      | 0.01 STMR                                                   |
| Cashew nuts                      | 0.01 STMR                                                   |
| Chestnuts                        | 0.01 STMR                                                   |
| Coconuts                         | 0.01 STMR                                                   |
| Hazelnuts/cobnuts                | 0.01 STMR                                                   |
| Macadamias                       | 0.01 STMR                                                   |
| Pecans                           | 0.01 STMR                                                   |
| Pine nut kernels                 | 0.01 STMR                                                   |
| Pistachios                       | 0.01 STMR                                                   |
| Walnuts                          | 0.01 STMR                                                   |
| Apples                           | 0.08 STMR                                                   |
| Pears                            | 0.08 STMR                                                   |
| Quinces                          | 0.08 STMR                                                   |
| Medlars                          | 0.08 STMR                                                   |
| Loquats/Japanese medlars          | 0.08 STMR                                                   |
| Apricots                         | 0.07 STMR (tentative)                                        |
| Cherries (sweet)                 | 0.21 STMR                                                   |
| Peaches                          | 0.15 STMR                                                   |
| Plums                            | 0.03 STMR                                                   |
| Table grapes                     | 0.22 STMR                                                   |
| Wine grapes                      | 0.22 STMR                                                   |
| Strawberries                     | 0.04 STMR (tentative)                                        |
| Blackberries                     | 0.35 STMR                                                   |
| Dewberries                       | 0.35 STMR                                                   |
| Raspberries (red and yellow)     | 0.35 STMR                                                   |
| Blueberries                      | 0.21 STMR                                                   |
| Cranberries                      | 0.22 STMR                                                   |
| Granate apples/pomegranates      | 0.10 STMR                                                   |
| Potatoes                         | 0.01 STMR                                                   |
| Sweet potatoes                   | 0.02 EU MRL                                                 |
| Beetroots                        | 0.01 STMR                                                   |
| Carrots                          | 0.01 STMR                                                   |
| Celeriacs/turnip-rooted celeries | 0.01 STMR                                                   |
| Horseradishes                    | 0.01 STMR                                                   |
| Commodity                              | Input value (mg/kg) | Comment                  |
|---------------------------------------|---------------------|--------------------------|
| Jerusalem artichokes                  | 0.01                | STMR                     |
| Parsnips                              | 0.01                | STMR                     |
| Parsley roots/Hamburg roots parsley   | 0.01                | STMR                     |
| Radishes                              | 0.05                | STMR                     |
| Salsiflies                            | 0.01                | STMR                     |
| Swedes/rutabagas                      | 0.01                | STMR                     |
| Turnips                               | 0.01                | STMR                     |
| Tomatoes                              | 0.08                | STMR                     |
| Sweet peppers/bell peppers            | 0.16                | STMR (tentative)         |
| Aubergines/eggplants                  | 0.08                | STMR                     |
| Courgettes                            | 0.06                | STMR                     |
| Melons                                | 0.03                | STMR × PF (0.33) (tentative) |
| Pumpkins                              | 0.08                | STMR                     |
| Watermelons                           | 0.08                | STMR (tentative)         |
| Sweet corn                            | 0.01*               | STMR                     |
| Cauliflowers                          | 0.38                | STMR                     |
| Brussels sprouts                      | 0.01*               | EU MRL                   |
| Head cabbages                         | 0.52                | STMR                     |
| Chinese cabbages/pe-tsai              | 20                  | EU MRL                   |
| Kales                                 | 20                  | EU MRL                   |
| Kohlrabies                            | 0.01*               | EU MRL                   |
| Lamb's lettuces/corn salads           | 5.55                | STMR                     |
| Lettuces                              | 5.55                | STMR                     |
| Escaroles/broad-leaved endives        | 5.55                | STMR                     |
| Cresses and other sprouts and shoots  | 5.55                | STMR                     |
| Land cresses                          | 5.55                | STMR                     |
| Roman rocket/rucoola                  | 5.55                | STMR                     |
| Red mustards                          | 5.55                | STMR                     |
| Baby leaf crops (including brassica species) | 5.55       | STMR                     |
| Spinaches                             | 5.55                | STMR                     |
| Purslanes                             | 5.55                | STMR                     |
| Chards/beet leaves                    | 5.55                | STMR                     |
| Grape leaves and similar species      | 5.80                | STMR (tentative)         |
| Witloofs/Belgian endives              | 20                  | EU MRL                   |
| Chervil                               | 5.55                | STMR                     |
| Chives                                | 5.55                | STMR                     |
| Celery leaves                         | 5.55                | STMR                     |
| Parsley                               | 5.55                | STMR                     |
| Sage                                  | 5.55                | STMR                     |
| Rosemary                              | 5.55                | STMR                     |
| Thyme                                 | 5.55                | STMR                     |
| Basil and edible flowers              | 5.55                | STMR                     |
| Laurel/bay leaf                      | 5.55                | STMR                     |
| Tarragon                              | 5.55                | STMR                     |
| Beans (with pods)                     | 0.14                | STMR                     |
| Commodity                        | Input value (mg/kg) | Comment       |
|---------------------------------|---------------------|---------------|
| Beans (without pods)            | 0.01*               | EU MRL        |
| Peas (with pods)                | 0.54                | STMR          |
| Peas (without pods)             | 0.01*               | EU MRL        |
| Lentils (fresh)                 | 0.01*               | EU MRL        |
| Cardoons                        | 2.60                | STMR          |
| Celeries                        | 2.60                | STMR          |
| Florence fennels                | 2.60                | STMR          |
| Globe artichokes                | 0.56                | STMR          |
| Rhubarbs                        | 2.60                | STMR          |
| Linseeds                        | 0.25                | STMR          |
| Peanuts/groundnuts              | 0.01                | STMR (tentative) |
| Poppy seeds                     | 0.25                | STMR          |
| Sesame seeds                    | 0.25                | STMR          |
| Sunflower seeds                 | 0.19                | STMR (tentative) |
| Rapeseeds/canola seeds          | 0.30                | STMR (tentative) |
| Soyabeans                       | 0.05                | EU MRL        |
| Mustard seeds                   | 0.25                | STMR          |
| Cotton seeds                    | 0.05                | STMR          |
| Pumpkin seeds                   | 0.25                | STMR          |
| Safflower seeds                 | 0.25                | STMR          |
| Borage seeds                    | 0.25                | STMR          |
| Gold of pleasure seeds          | 0.25                | STMR          |
| Hemp seeds                      | 0.25                | STMR          |
| Castor beans                    | 0.25                | STMR          |
| Oil palm kernels                | 0.01*               | STMR          |
| Oil palm fruits                 | 0.23                | STMR          |
| Maize/corn grains               | 0.01*               | STMR          |
| Common millet/proso millet grains | 0.01*                | STMR          |
| Rice grains                     | 0.12                | STMR          |
| Sorghum grains                  | 0.01*               | STMR          |
| Coffee beans                    | 0.01*               | STMR          |
| Hops                            | 10.45               | STMR          |
| Sugar canes                     | 0.15                | STMR          |
| Chicory roots                   | 0.02                | EU MRL        |
| Poultry meat                    | 0.01*               | 0.9 × STMR × CF (1.0) muscle+ 0.1 × STMR fat |
| Poultry fat tissue              | 0.01*               | STMR          |
| Poultry liver                   | 0.01*               | STMR          |
| Birds’ eggs                     | 0.01                | STMR          |

Risk assessment residue definition 2: sum of chlorantraniliprole, HXH44, IN-K9T00, expressed as chlorantraniliprole

| Swine meat                      | 0.01*               | 0.8 × STMR × CF (1.0) muscle+ 0.2 × STMR × CF (1.0) fat |
| Swine fat                       | 0.01*               | STMR × CF (1.0) |
| Swine liver                     | 0.01*               | STMR × CF (1.0) |
| Swine kidney                    | 0.01*               | STMR × CF (1.0) |
| Bovine and equine meat          | 0.01*               | 0.8 × STMR × CF (1.0) muscle+ 0.2 × STMR × CF (1.0) fat |
| Bovine and equine fat           | 0.01*               | STMR × CF (1.0) |
| Bovine and equine liver         | 0.02                | STMR × CF (1.0) |
### Commodity

| Commodity                  | Input value (mg/kg) | Comment                                      |
|----------------------------|--------------------|----------------------------------------------|
| Bovine and equine kidney   | 0.02               | STMR × CF (1.9)                              |
| Sheep and goat meat        | 0.01*              | 0.8 × STMR × CF (1.0) muscle + 0.2 × STMR × CF (1.0) fat |
| Sheep and goat fat         | 0.01*              | STMR × CF (1.0)                              |
| Sheep and goat liver       | 0.02               | STMR × CF (1.8)                              |
| Sheep and goat kidney      | 0.02               | STMR × CF (1.9)                              |
| Cattle and horse milk      | 0.01*              | STMR × CF (1.0)                              |
| Sheep and goat milk        | 0.01*              | STMR × CF (1.0)                              |
| Sheep and goat milk        | 0.01*              | STMR × CF (1.0)                              |

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

### D.3. Consumer risk assessment with consideration of the existing CXLs

| Commodity                  | Input value (mg/kg) | Comment | Risk assessment residue definition 1: chlorantraniliprole |
|----------------------------|--------------------|---------|----------------------------------------------------------|
| Grapefruits                | 0.21               | STMR    | chlorantraniliprole                                       |
| Oranges                    | 0.21               | STMR    |                                                          |
| Lemons                     | 0.21               | STMR    |                                                          |
| Limes                      | 0.21               | STMR    |                                                          |
| Mandarins                  | 0.21               | STMR    |                                                          |
| Almonds                    | 0.01               | STMR    |                                                          |
| Brazil nuts                | 0.01               | STMR    |                                                          |
| Cashew nuts                | 0.01               | STMR    |                                                          |
| Chestnuts                  | 0.01               | STMR    |                                                          |
| Coconuts                   | 0.01               | STMR    |                                                          |
| Hazelnuts/cobnuts          | 0.01               | STMR    |                                                          |
| Macadamias                 | 0.01               | STMR    |                                                          |
| Pecans                     | 0.01               | STMR    |                                                          |
| Pine nut kernels           | 0.01               | STMR    |                                                          |
| Pistachios                 | 0.01               | STMR    |                                                          |
| Walnuts                    | 0.01               | STMR    |                                                          |
| Apples                     | 0.08               | STMR    |                                                          |
| Pears                      | 0.08               | STMR    |                                                          |
| Quinces                    | 0.08               | STMR    |                                                          |
| Medlars                    | 0.08               | STMR    |                                                          |
| Loquats/Japanese medlars   | 0.08               | STMR    |                                                          |
| Apricots                   | 0.20               | STMR (CXL) |                                                 |
| Cherries (sweet)           | 0.20               | STMR (CXL) |                                                 |
| Peaches                    | 0.20               | STMR (CXL) |                                                 |
| Plums                      | 0.20               | STMR (CXL) |                                                 |
| Table grapes               | 0.22               | STMR    |                                                          |
| Wine grapes                | 0.22               | STMR    |                                                          |
| Strawberries               | 0.34               | STMR (CXL) |                                                 |
| Blackberries               | 0.35               | STMR    |                                                          |
| Dewberries                 | 0.35               | STMR    |                                                          |
| Commodity                                      | Input value (mg/kg) | Chronic risk assessment |
|-----------------------------------------------|---------------------|-------------------------|
| Raspberries (red and yellow)                  | 0.35                | STMR                    |
| Blueberries                                   | 0.21                | STMR                    |
| Cranberries                                   | 0.34                | STMR (CXL)              |
| Currants (red, black and white)               | 0.34                | STMR (CXL)              |
| Gooseberries                                  | 0.34                | STMR (CXL)              |
| Rose hips                                     | 0.34                | STMR (CXL)              |
| Mulberries                                    | 0.34                | STMR (CXL)              |
| Azarole (mediterranean medlar)                | 0.34                | STMR (CXL)              |
| Elderberries                                  | 0.34                | STMR (CXL)              |
| Kumquats                                      | 0.22                | STMR (CXL)              |
| Granate apples/pomegranates                   | 0.10                | STMR (CXL)              |
| Potatoes                                      | 0.01                | STMR                    |
| Cassava                                       | 0.01                | STMR (CXL)              |
| Sweet potatoes                                | 0.01                | STMR (CXL)              |
| Yams                                          | 0.01                | STMR (CXL)              |
| Arrowroot                                     | 0.01                | STMR (CXL)              |
| Beetroots                                     | 0.01                | STMR                    |
| Carrots                                       | 0.02                | STMR (CXL)              |
| Celeriacs/turnip rooted celeries              | 0.01                | STMR                    |
| Horseradishes                                 | 0.01                | STMR                    |
| Jerusalem artichokes                          | 0.01                | STMR                    |
| Parsnips                                      | 0.01                | STMR                    |
| Parsley roots/Hamburg roots parsley           | 0.01                | STMR                    |
| Radishes                                      | 0.05                | STMR                    |
| Salsifies                                     | 0.01                | STMR                    |
| Swedes/rutabagas                              | 0.01                | STMR                    |
| Turnips                                       | 0.01                | STMR                    |
| Tomatoes                                      | 0.07                | STMR (CXL)              |
| Sweet peppers/bell peppers                   | 0.16                | STMR (tentative)        |
| Aubergines/eggplants                          | 0.07                | STMR (CXL)              |
| Okra, lady's fingers                          | 0.07                | STMR (CXL)              |
| Cucumbers                                     | 0.06                | STMR                    |
| Gherkins                                      | 0.06                | STMR                    |
| Courgettes                                    | 0.06                | STMR                    |
| Melons                                        | 0.03                | STMR × PF (0.33) (tentative) |
| Pumpkins                                      | 0.08                | STMR                    |
| Watermelons                                   | 0.08                | STMR (tentative)        |
| Sweet corn                                    | 0.01*               | STMR                    |
| Broccoli                                      | 0.38                | STMR                    |
| Cauliflowers                                  | 0.06                | STMR                    |
| Brussels sprouts                              | 0.01*               | STMR                    |
| Head cabbages                                 | 0.52                | STMR                    |
| Chinese cabbages/pe-tsai                      | 7.30                | STMR (CXL)              |
| Kales                                         | 7.30                | STMR (CXL)              |
| Kohlrabies                                    | 0.01*               | EU MRL                  |
| Lamb's lettuces/corn salads                   | 5.55                | STMR                    |
| Lettuces                                      | 5.55                | STMR                    |
| Commodity                                      | Input value (mg/kg) | Comment          |
|-----------------------------------------------|--------------------|------------------|
| Escaroles/broad-leaved endives                | 5.55               | STMR             |
| Cresses and other sprouts and shoots          | 5.55               | STMR             |
| Land cresses                                  | 5.55               | STMR             |
| Roman rocket/rucola                           | 5.55               | STMR             |
| Red mustards                                  | 5.55               | STMR             |
| Baby leaf crops (including brassica species)  | 10.50              | STMR (CXL)       |
| Spinaches                                     | 5.55               | STMR             |
| Purslanes                                     | 5.55               | STMR             |
| Chards/beet leaves                            | 5.55               | STMR             |
| Grape leaves and similar species              | 5.80               | STMR (tentative) |
| Water cress                                   | 7.30               | STMR (CXL)       |
| Witloofs/Belgian endives                      | 7.30               | STMR (CXL)       |
| Chervil                                       | 5.55               | STMR             |
| Chives                                        | 5.55               | STMR             |
| Celery leaves                                 | 5.55               | STMR             |
| Parsley                                       | 5.55               | STMR             |
| Sage                                          | 5.55               | STMR             |
| Rosemary                                      | 5.55               | STMR             |
| Thyme                                         | 5.55               | STMR             |
| Basil and edible flowers                     | 5.55               | STMR             |
| Laurel/bay leave                              | 5.55               | STMR             |
| Tarragon                                      | 5.55               | STMR             |
| Beans (with pods)                             | 0.14               | STMR             |
| Beans (without pods)                          | 0.01*              | EU MRL           |
| Peas (with pods)                              | 0.54               | STMR             |
| Peas (without pods)                           | 0.01*              | EU MRL           |
| Lentils (fresh)                               | 0.01*              | EU MRL           |
| Cardoons                                      | 2.60               | STMR             |
| Celeries                                      | 2.60               | STMR             |
| Florence fennels                              | 2.60               | STMR             |
| Globe artichokes                              | 0.56               | STMR             |
| Rhubarbs                                      | 2.60               | STMR             |
| Linseeds                                      | 0.25               | STMR             |
| Peanuts/groundnuts                            | 0.01               | STMR (tentative) |
| Poppy seeds                                   | 0.25               | STMR             |
| Sesame seeds                                  | 0.25               | STMR             |
| Sunflower seeds                               | 0.19               | STMR (tentative) |
| Rapeseeds/canola seeds                        | 0.30               | STMR (tentative) |
| Soya beans                                    | 0.01               | STMR (CXL)       |
| Mustard seeds                                 | 0.25               | STMR             |
| Cotton seeds                                  | 0.05               | STMR             |
| Pumpkin seeds                                 | 0.25               | STMR             |
| Safflower seeds                               | 0.25               | STMR             |
| Borage seeds                                  | 0.25               | STMR             |
| Gold of pleasure seeds                        | 0.25               | STMR             |
| Hemp seeds                                    | 0.25               | STMR             |
| Castor beans                                  | 0.25               | STMR             |
### Commodity Chronic risk assessment

| Commodity                                      | Input value (mg/kg) | Comment         |
|------------------------------------------------|---------------------|-----------------|
| Oil palm kernels                              | 0.01*               | STMR            |
| Oil palm fruits                               | 0.23                | STMR            |
| Barley grain                                   | 0.01                | STMR (CXL)      |
| Buckwheat grain                                | 0.01                | STMR (CXL)      |
| Maize/corn grains                              | 0.01                | STMR (CXL)      |
| Common millet/proso millet grains              | 0.01                | STMR (CXL)      |
| Oats grain                                     | 0.01                | STMR (CXL)      |
| Rice grains                                    | 0.12                | STMR            |
| Rye grain                                      | 0.01                | STMR (CXL)      |
| Sorghum grains                                 | 0.01                | STMR (CXL)      |
| Wheat grain                                    | 0.01                | STMR (CXL)      |
| Coffee beans                                   | 0.01*               | STMR            |
| Hops                                           | 10.45               | STMR            |
| Sugar canes                                    | 0.15                | STMR (CXL)      |
| Chicory roots                                  | 0.02                | EU MRL          |
| Poultry meat                                   | 0.01                | 0.9 × STMR muscle (CXL) + 0.1 × STMR fat (CXL) |
| Poultry fat tissue                             | 0.03                | STMR (CXL)      |
| Poultry liver                                  | 0.03                | STMR (CXL)      |
| Birds’ eggs                                    | 0.1                 | STMR (CXL)      |

Risk assessment residue definition 2: sum of chlorantraniliprole, HXH44, IN-K9T00, expressed as chlorantraniliprole

| Commodity                                      | Input value (mg/kg) | Comment         |
|------------------------------------------------|---------------------|-----------------|
| Swine meat                                     | 0.03                | 0.8 × STMR × CF (1.5) muscle (CXL) + 0.2 × STMR × CF (1.0) fat (CXL) |
| Swine fat                                      | 0.05                | STMR × CF (1.0) (CXL) |
| Swine liver                                    | 0.07                | STMR × CF (1.5) (CXL) |
| Swine kidney                                   | 0.05                | STMR × CF (1.5) (CXL) |
| Bovine and equine meat                         | 0.03                | 0.8 × STMR × CF (1.5) muscle (CXL) + 0.2 × STMR × CF (1.0) fat (CXL) |
| Bovine and equine fat                          | 0.05                | STMR × CF (1.0) (CXL) |
| Bovine and equine liver                        | 0.07                | STMR × CF (1.5) (CXL) |
| Bovine and equine kidney                       | 0.05                | STMR × CF (1.5) (CXL) |
| Sheep and goat meat                            | 0.03                | 0.8 × STMR × CF (1.5) muscle (CXL) + 0.2 × STMR × CF (1.0) fat (CXL) |
| Sheep and goat fat                             | 0.05                | STMR × CF (1.0) (CXL) |
| Sheep and goat liver                           | 0.07                | STMR × CF (1.5) (CXL) |
| Sheep and goat kidney                          | 0.05                | STMR × CF (1.5) (CXL) |
| Cattle and horse milk                          | 0.02                | STMR × CF (3.0) (CXL) |
| Sheep and goat milk                            | 0.02                | STMR × CF (3.0) (CXL) |
| Sheep and goat milk                            | 0.02                | STMR × CF (3.0) (CXL) |

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

Comparison of the EU recommendation with the existing CXL

- CXL available? (Yes/No)
- RD comparable? (Yes/No)
- CXL higher? (Yes/No)

Consumer risk assessment with consideration of the existing CXL

- Input values for the RA remain unchanged.
- CXL is included in the RA.
- Codex median/ highest residues are included in the RA.
- Risk identified? (Yes/No)

Recommendations with consideration of the existing CXL

- Maintain EU recommendation indicating that no CXL is available.
- Maintain EU recommendation indicating CXL is not compatible.
- Maintain EU recommendation indicating that CXL is covered.
- Maintain EU recommendation; higher CXL is not safe for consumer.
- Maintain current CXL or EU recommendation?
- Maintain EU recommendation; higher CXL is not safe for consumer.
- CXL is recommended; EU recommendation is covered as well.
## Appendix F – Used compound codes

| Code/trivial name(a) | IUPAC name/SMILES notation/InChiKey(b) | Structural formula(c) |
|---------------------|---------------------------------------|-----------------------|
| Chlorantraniliprole (DPX E-2Y45) | 3-bromo-4'-chloro-1-(3-chloro-2-pyridyl)-2'-methyl-6'-(methylcarbamoyl)-1H-pyrazole-5-carboxanilide CNC(\(-O\))c3cc(Cl)cc(C)c3NC(\(-O\))c2cc(Br) nn2c1ncccc1Cl PSOVNZZNOMJUBI-UHFFFAOYSA-N | ![Structural formula](image1.png) |
| IN-F6L99            | 3-bromo-N-methyl-1H-pyrazole-5-carboxamide Brcc(ccn1)C(\(-O\))NC LOYJZLKXTLAMJX-UHFFFAOYAC | ![Structural formula](image2.png) |
| IN-F9N04            | 3-bromo-N-(2-carbamoyl-4-chloro-6-methylphenyl)-1-(3-chloropyridin-2-yl)-1H-pyrazole-5-carboxamide NC(\(-O\))c1cc(Cl)cc(C)c1NC(\(-O\))c1cc(Br) nn1c1ncccc1Cl YUXYKQSPWFRRSY-UHFFFAOYSA-N | ![Structural formula](image3.png) |
| IN-EQW78            | 2-[3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazol-5-yl]-6-chloro-3,8-dimethylquinazolin-4(3H)-one Cc4cc(Cl)cc3c4N=C(c2cc(Br)nn2c1ncccc1Cl) N(C)C3=OQTUSYEIQINABS-UHFFFAOYAD | ![Structural formula](image4.png) |
| IN-GAZ70            | 2-[3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazol-5-yl]-6-chloro-8-methylquinazolin-4(3H)-one Cc1cc(Cl)cc2c1N=C(NC2=O)c1cc(Br)nn1c1ncccc1Cl SKGIOUHBCFJRT-UHFFFAOYSA-N | ![Structural formula](image5.png) |
| Code/trivial name⁽ᵃ⁾ | IUPAC name/SMILES notation/InChiKey⁽ᵇ⁾ | Structural formula⁽ᶜ⁾ |
|----------------------|----------------------------------------|-----------------------|
| IN-H2H20             | 3-bromo-N-\{4-chloro-2-\[(hydroxymethyl) carbamoyl\]-6-methyl[phenyl]-1-(3-chloro-2-pyridinyl)-1H-pyrazole-5-carboxamide | ![Structural formula](image) |
|                      | OCN(-O)c1cc(C)c1NC(-O)c1cc(Br) nn1incccc1Cl | YUXYKQSPWRRSY-UHFFFAOYSA-N |
|                      | DNHBCUJYBOXXH-UHFFFAOYSA-N |
| IN-K7H29             | 2-[3-bromo-1\{3-chloropyridin-2-yl\}-1H-pyrazol-5-yl]-6-chloro-8-(hydroxymethyl)quinazolin-4(3H)-one | ![Structural formula](image) |
|                      | OCc1cc(C)c1cc1N\{-C(NC2=O)c1cc(Br) nn1incccc1Cl | QDOVDMHUGOVNBU-UHFFFAOYSA-N |
| IN-HXH44             | 3-bromo-N\{-4-chloro-2-(hydroxymethyl)-6-(methylcarbamoyl)phenyl\}-1-(3-chloropyridin-2-yl)-1H-pyrazole-5-carboxamide | ![Structural formula](image) |
|                      | CNC(-O)c1cc(C)c1cc(C)cc1NC(-O)c1cc(Br) nn1incccc1Cl | TUGOTPWXTGSGDB-UHFFFAOYSA-N |
| IN-K9T00             | 3-bromo-N\{-4-chloro-2-(hydroxymethyl)-6-\[(hydroxymethyl)carbamoyl\]phenyl\}-1-(3-chloropyridin-2-yl)-1H-pyrazole-5-carboxamide | ![Structural formula](image) |
|                      | OCN(-O)c1cc(C)c1cc(C)cc1NC(-O)c1cc(Br) nn1incccc1Cl | PVGVXPUGCQISDM-UHFFFAOYSA-N |
| IN-ECD73             | 2,6-dichloro-4-methyl-11H-pyrido[2,1-b]quinazolin-11-one | ![Structural formula](image) |
|                      | Cc3cc(C)c1cc2c3N\{-C1C(C)\}=CC\{-CN1C2-\=O | HWZYDXZSGZCN-EA-UHFFFAOYAQ |

⁽ᵃ⁾: The metabolite name in bold is the name used in the conclusion.

⁽ᵇ⁾: ACD/Name 2019.1.1 ACD/Labs 2019 Release (File version N05E41, Build 110555, 18 Jul 2019).

⁽ᶜ⁾: ACD/ChemSketch 2019.1.1 ACD/Labs 2019 Release (File version C05H41, Build 110712, 24 Jul 2019).