Re-evaluation Decision RVD2019-06

Imidacloprid and Its Associated End-use Products: Pollinator Re-evaluation

Final Decision

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Publications
Pest Management Regulatory Agency
Health Canada
2720 Riverside Drive
A.L. 6607 D
Ottawa, Ontario K1A 0K9

Internet: canada.ca/pesticides
hc.pmra.publications-arla.sc@canada.ca
Facsimile: 613-736-3758
Information Service:
1-800-267-6315 or 613-736-3799
hc.pmra.info-arla.sc@canada.ca

Canada

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Re-evaluation Decision

Under the authority of the *Pest Control Products Act*, Health Canada's Pest Management Regulatory Agency (PMRA) conducted a re-evaluation of all agricultural, turf and ornamental uses for imidacloprid and its associated end-use products, specifically to assess the risk to pollinators, such as honey bees, bumble bees, and solitary bees. This re-evaluation assessed the potential risk to pollinators in light of international updates to the pollinator risk assessment framework. Extensive information obtained from published literature was considered, as well as data received from registrants. Health Canada applied internationally accepted risk assessment methods as well as current risk management approaches and policies. In addition to the pollinator risk assessment, the value of the active ingredient to the use sector was considered.

Products containing imidacloprid are sold as sprays to be applied to plants and to bare soil. Imidacloprid is also used as a coating on crop seeds to prevent insects from eating the seeds when they are planted in the ground and to protect the plants grown from treated seeds. Some uses result in imidacloprid being taken up by the plants from the soil or through their leaves, where it then moves into parts of the flower where nectar and pollen are produced. As a result of bees using nectar and pollen as their primary sources of food, bees may be exposed to imidacloprid (and its breakdown products) when they visit certain flowers to collect pollen and nectar. Bees may also be accidentally sprayed or collect water containing imidacloprid. Currently registered products containing imidacloprid that are subject to this re-evaluation are listed in Appendix I.

This document presents the final regulatory decision[1] for the pollinator re-evaluation of imidacloprid, including the required risk mitigation measures to protect bees. Most products containing imidacloprid that are registered in Canada are subject to this regulatory decision. The proposed regulatory decision – PRVD2018-12, *Imidacloprid and Its Associated End-use Products: Pollinator Re-evaluation*[2] – has undergone a 90-day consultation that ended on 29 August 2018.

In addition to many comments expressing a concern for pollinator health, Health Canada received comments relating to both the value and pollinator risk assessments. These comments are in Appendix II along with the responses by Health Canada. These comments and new data/information resulted in a minor revision to the risk assessment (see the Science Evaluation Update section) and, subsequently, in changes to the proposed regulatory decision as described in PRVD2018-12. All of the data that were used as the basis for the proposed re-evaluation decision are published in PRVD2018-12. Further data used in the final re-evaluation decision, including data received during the consultation period, are listed in Appendix IV.

1 "Decision statement" as required by subsection 28(5) of the *Pest Control Products Act*.

2 As per subsection 35(1) of the *Pest Control Products Act*.

Outcome of Science Evaluation

This risk assessment, conducted according to the *Guidance for Assessing Pesticide Risks to Bees*,[3] determined that there are varying degrees of effects on bees. Some current uses of imidacloprid are not expected to affect bees. For some uses, mitigation measures (that is, changes to the conditions of registration) are required to minimize potential exposure to bees. Mitigation measures include changes to the use pattern and label improvements. When imidacloprid is used in accordance with these new risk reduction measures, the reduced environmental exposure is considered adequate and risks are acceptable. Label statements informing users of the potential for toxicity to pollinators are required on product labels. For other uses, risks to pollinators were not found to be acceptable; therefore, these uses are cancelled.

Regulatory Decision for Imidacloprid

Health Canada has completed the pollinator re-evaluation of imidacloprid. Under the authority of the *Pest Control Products Act*, Health Canada has determined that, with required amendments, continued registration of products containing imidacloprid is acceptable; however, certain uses of imidacloprid are cancelled to address potential risks of concern to pollinators. An evaluation of available scientific information found that some uses of imidacloprid products meet current standards for protection of pollinators when used according to the conditions of registration, which include required amendments to label directions. Label amendments, as summarized below and listed in Appendix III, are required for all end-use products. No additional data are requested.

Risk Mitigation Measures to Protect Pollinators

Registered pesticide product labels include specific direction for use. Directions include risk mitigation measures to protect the environment and must be followed by law. As a result of this re-evaluation of imidacloprid, further risk mitigation measures for product labels are required.

Certain crops are highly attractive to bees when their flowers are in bloom. Since large numbers of bees are attracted to these crops when they are in bloom and based on an assessment of the risks to bees, the application of pesticides containing imidacloprid can lead to effects that may have an impact on the survival of bee colonies or solitary bee species.

In order to protect pollinators, Health Canada is cancelling the following uses of imidacloprid:

- Foliar application to pome fruit, stone fruit, certain tree nuts with high pollinator attractiveness, lavender and rosemary;
- Soil application on legume, fruiting, and cucurbit vegetables when grown outdoors; herbs harvested after bloom; small fruit and berries (caneberry; bushberry; low-growing berry; berry and small fruit vine excluding grapes); and ornamentals that are attractive to pollinators and planted outside.

[3] United States Environmental Protection Agency (USEPA), Health Canada, California Department of Pesticide Regulation. USEPA Pollinator Risk Assessment Guidance webpage, https://www.epa.gov/pollinator-protection/pollinator-risk-assessment-guidance, accessed March 2019.

In order to protect pollinators, Health Canada is proposing that the following crops cannot be sprayed before or during bloom:

- Foliar application to fruiting vegetables, herbs that are harvested after bloom, legume vegetables (broad beans/fava beans/*Vicia faba* only), berry crops (with renovation after harvest for woody berries), tree nuts excluding those with high pollinator attractiveness.

In order to protect pollinators, Health Canada is proposing that the following crops cannot be sprayed during bloom:

- Foliar application to potato, grapes, legume vegetables (excluding broad beans/fava beans/*Vicia faba*), peanut, and tobacco.

To minimize bee exposure to dust during planting of treated seed, **additional label statements are proposed for the following use**:

- Seed treatment of cereal and legume crops.

Imidacloprid has value to crop production in Canada as an insecticide to control a variety of insect pests when applied as a foliar or soil application, as well as a seed treatment. An assessment of the registered products determined a lack of suitable alternatives for the following pests and sites:

- Cucurbits to control cucumber beetle;
- Caneberries, bushberries, and outdoor ornamentals to control European chafer and Japanese beetle;
- Low growing berries to control European chafer;
- Bushberries (except blueberry), low growing berries (except cranberry and blueberry), and herbs harvested after bloom to control leafhoppers.

The additional risk mitigation measures described above will be implemented over a 24-month period. The risks identified are not considered imminent because they are not expected to cause irreversible harm over this period. Potential effects include sublethal effects on colonies or solitary bees, but affected pollinator populations are expected to recover following implementation of the additional restrictions which will reduce exposure. Moreover, recovery is expected because risks to pollinators are geographically limited to areas where these products are applied and areas adjacent to application sites. The presence of unaffected solitary bees, bumble bees, and honey bees in areas where products are not being used will further facilitate recovery since unaffected bees in the environment can move back into areas where effects may have occurred. Overall, risk to pollinators is acceptable over the time period required to implement the mitigation measures.

As a result of this decision, growers will be required to change their pest management practices. Pesticides have extensive and precise instructions and often require specialized application and safety equipment and training. This transition period will allow for an orderly and safe implementation of these new restrictions, and should reduce the risk of product misuse or the improper disposal of products as users switch to alternatives, where required. This approach is

consistent with Health Canada's current policy and practice with respect to phase out of uses as a result of a re-evaluation (Regulatory Directive DIR2018-01, *Policy on Cancellations and Amendments Following Re-evaluation and Special Review*) and with the practice of other international regulators.

A small subset of uses were found to lack alternatives for the management of serious pests (European chafer, certain beetles, and leafhoppers) on a very few crops present in limited geographical areas of Canada. As a result, the implementation of the re-evaluation decision for these uses will be delayed for an additional year to allow growers to find pest management solutions. During this period, the overall exposure to pollinators will be significantly reduced through both removal of uses to control other pests on these crops and other crops that pose a risk to bees, as well as through implementation of additional restrictions in application timing which will further reduce pollinator exposure. The risks to pollinators are therefore considered acceptable for an additional year for this small subset of uses.

Next Steps

To comply with this decision, taking into account Regulatory Directive DIR2018-01, *Policy on Cancellations and Amendments Following Re-evaluation and Special Review*, the required mitigation measures must be implemented on all product labels sold by registrants no later than 24 months after the publication date of this decision document. Appendix I lists the products containing imidacloprid that are registered under the authority of the *Pest Control Products Act*.

Other Information

Any person may file a notice of objection[4] regarding this decision on imidacloprid within 60 days from the date of publication of this Re-evaluation Decision. For more information regarding the basis for objecting (which must be based on scientific grounds), please refer to the Pesticides section of the Canada.ca website (Request a Reconsideration of Decision) or contact the PMRA's Pest Management Information Service.

[4] As per subsection 35(1) of the *Pest Control Products Act*.

Science Evaluation Update

1.0 Environmental Risk Assessment Updates

The Pest Management Regulatory Agency (PMRA) received approximately 7340 comments on Proposed Re-evaluation Decision PRVD2018-12, *Imidacloprid and Its Associated End-use Products: Pollinator Re-evaluation,* during the consultation period. Of these, approximately 30 substantive comments were relevant to the pollinator risk assessment, and included comments on the selection of effect endpoints, exposure to bees, representativeness of the residue studies for Canadian labeled uses, and potential mitigation measures. Comments regarding the environmental risk assessment are addressed in Appendix II of this document.

Additional data were also reviewed, including new studies submitted by the registrant and newly available studies in the published literature. Summaries and evaluation of the additional studies are presented in the following section.

After consideration of comments received and additional studies, the overall environmental risk conclusions and mitigation measures presented in this RVD are mostly consistent with those presented in PRVD2018-12, other than changes to the required mitigation for foliar application to hops and clarification to mitigation for foliar application to berry crops.

1.1 Summary of the registrant studies and impact on the risk assessment (PMRA 2820112, 2820113, 2852071)

Acute toxicity to honey bee larvae (PMRA 2820112)

The study was conducted according to the Organization of Economic Co-operation and Development (OECD) Guideline No. 237, and determined a 72 hr LD_{50} of imidacloprid technical on honey bee larvae after a single exposure to be >15.7 µg a.i./larva, the highest test dose of the study. The study was considered scientifically sound and informative, although a definitive LD_{50} value could not be determined.

In PRVD2018-12, a definitive acute toxicity endpoint of imidacloprid to honey bee larvae was determined to be 4.17 µg a.i./larva. This endpoint was derived from a peer-reviewed journal article reported by Dai et al. (2017) and the study was conducted using a method similar to OECD guideline 237. The study was considered scientifically sound and informative; however, there were no raw data available for recalculations.

The endpoints from both studies are considered scientifically sound and informative. The endpoint value reported in PRVD2018-12 was definitive and more sensitive and is considered the appropriate endpoint for use in the Tier I risk assessment. The Tier I risk assessment for acute risk to honey bee larvae remains unchanged from that presented in the PRVD.

10-day chronic toxicity on honey bee adults (PMRA 2820113)

The study is scientifically sound, and provides additional information on the 10-day chronic oral toxicity of imidacloprid to honey bees. It was conducted according to a method similar to OECD

guideline 245, and met the validity criteria of the guideline. The study determined the 10-day No Observed Effect Dietary Dose (NOEDD) of 0.0033 µg/bee/day, and the 10-day No Observed Effect Concentration (NOEC) of 0.176 mg a.i./kg diet feeding solution on the basis of mortality.

In PRVD2018-12, the imidacloprid adult honey bee NOEC was determined to be 3.9 µg a.i./L diet (NOEDD 0.00016 µg a.i./bee/day). This chronic endpoint was determined based on consideration of the strengths and limitations of multiple relevant studies available at the time, including PMRA 2474493 (Kling, 2012), Boily et al., (2013), Alaux et al. (2010), Cresswell (2012 and 2013), Suchail et al. (2001), Schmuck (2004) and Moncharmont et al. (2002). All these studies were considered informative and there were limitations associated with each of the studies. The list of the available endpoints and limitations of available honey bee chronic adult studies are summarized in in Table 1.

It is noted that the NOEDD endpoint generated from the additional study is approximately 20 times higher than the endpoints determined from previously available studies. When the new endpoint is used to estimate the potential chronic risks to adult honey bees, the overall risk conclusion remained the same at the Tier I screening assessment, and remained unchanged at the Tier I refined risk assessment for the majority of cases where residue information were available. In addition, the risk conclusion for the Tier II assessment using colony level endpoints remained unchanged. Therefore, while the newly submitted study provides an additional piece of information on the potential chronic risk to individual bees at Tier I level assessment, the chronic risk to bees at the Tier II colony level remains the same as presented in the PRVD.

Table 1 No observed effect endpoints of imidacloprid (technical grade active ingredient and end-use products) based on the mortality of honey bee adults, *Apis mellifera*, after an exposure period ranging from 6-60 days and including limitations of the studies.

Test material	Type of oral endpoint	Value of endpoint (µg a.i./L diet)[a]	Limitations of study	Acceptability[b]	Citation (PMRA# or publication)
Imidacloprid EP	NOEC (10 d mortality and body weight)	3.9, equivalent to 0.00016 µg a.i./bee/day, converted based on estimated food consumption.	Not a guideline study No GLP Estimated food consumption (41 ul/bee/day) Not measured concentrations 28°C and 70% R.H. No reference chemical Raw data available	Informative	Boily et al., 2013
Imidacloprid TGAI	NOEC (10 d mortality)	100, the greatest test concentration, equivalent to 0.00282 µg a.i./bee/day based on food consumption	Not a guideline study GLP study Measured food consumption without correction of evaporation (33-47 mg/bee/day, mean with 40 mg/bee/day, 48 µl/bee/day) Measured concentrations 25°C with 65% R.H. No reference chemical Raw data available	Informative	2474493
Imidacloprid TGAI	NOEC (10 d mortality)	<0.7 µg/kg, estimated to be <0.84 µg/L, significantly higher mortality than in the control	Not a guideline study No GLP Measured food consumption (estimated from provided graph approximately 10 µl/bee/day in 10 h period) Not measured concentrations 25°C with 55% R.H. No reference chemical Raw data available	Informative	Alaux et al., 2010
Imidacloprid TGAI	NOEC (6 d with multiple parameters: syrup	125, the greatest test concentration without observed mortality	Not a guideline study No GLP Measured food consumption (estimated from	Informative	Cresswell et al., 2012, 2013

Test material	Type of oral endpoint	Value of endpoint (µg a.i./L diet)[a]	Limitations of study	Acceptability[b]	Citation (PMRA# or publication)
	consumption, locomotion and longevity)		provided graph, 25 mg/bee/day, 30 µl/bee/day)) Measured concentrations 23-27°C with 21-47% R.H. No reference chemical Raw data not available		
Imidacloprid TGAI	NOEL (D11 mortality)	24 µg/kg (estimated to be 29 µg/L) for winter bees 48 µg/kg (estimated to be 58 µg/L) for summer bees	Not a guideline study No GLP No measured food consumption Measured concentrations 25°C with 40% R.H. No reference chemical Raw data not available	Informative	Decourtye et al., 2003, also cited in Schmuck 2004
Imidacloprid TGAI	NOEC (10 d mortality)	<0.1 µg/L, the lowest test concentration, increased mortality	Not a guideline study No GLP Measured food consumption (12 µl /bee/day) Not measured concentrations 25°C with 60% R.H. No reference chemical Raw data not available	Informative	Suchail et al. (2001), also cited in Schmuck 2004
Imidacloprid TGAI	NOEC (up to 60 day, mortality)	<4 µg/L, the lowest test concentration, increased mortality	Not a guideline study No GLP Measured food consumption (20 µl/bee/day) Not measured concentrations 33°C with 50% R.H. Non-standard reference chemical (deltamethrin) Raw data not available	Informative	Moncharmont et al., 2002
Imidacloprid TGAI	NOEC (10 d mortality)	179 ug/kg diet, equivalent to 0.0033 µg a.i./bee/day, estimated to be 147 ug/L)	Guideline study GLP study Measured food consumption (16.5 mg diet/bee/day=19.8 µl/bee/day in all imidacloprid treatments) Measured concentrations	Acceptable	2820113

Test material	Type of oral endpoint	Value of endpoint (µg a.i./L diet)[a]	Limitations of study	Acceptability[b]	Citation (PMRA# or publication)
			33°C with 60% R.H. Standard reference chemical Raw data not available		
Arithmetic mean		52			
Geometric mean		11.7			
Range		<0.1-147			
Percentile rank of the previously selected endpoint (3.9 µg a.i./L diet)		30%			

Note:

[a] The unit of all listed values are in µg a.i./L diet, except for those specified. For unit conversion, 1 ppb is assumed to be equivalent to 1.2 µg a.i./L diet. Values with a "<" sign, the actual values after removal of "<" signs are used in the data analysis.

[b] Acceptable: where a study was conducted according to an internationally accepted guideline (for example, OECD 213, 214) under GLP conditions and a clear cause-effect relationship on typical environmental toxicity parameters was determined and raw data were provided for verifications. Informative: where the study had scientific value but may not be conducted according to any accepted guidelines or there was a lack of raw information for verification.

Melon residue study (PMRA 2852071)

The additional melon residue study (PMRA 2852071) was submitted after the completion of PRVD2018-12. The study examined watermelon plants treated with imidacloprid soil drench applications and pre-bloom foliar applications in Brazil in 2013-2014. The soil drench application was applied at 210 g imidacloprid a.i./ha, 2 days after transplanting. The pre-bloom foliar application was applied three times before flowering at 140 g a.i./ha per application with an interval of 6 -7 days. The samples for residue analysis were collected during the flowering period of the crop, 31-41 days after the soil application and 19-28 days after the last foliar application. Residues of imidacloprid (and its metabolites) in flowers, leaves, nectar and pollen from forager bees and combs, pollen from pollen traps and soil sampled from/around watermelon plants were determined. Honey bees were confined in tents as additional sampling tools. For soil application, the maximum imidacloprid residues reported were 38 ppb in pollen (from pollen traps) and 8.6 in nectar (nectar from bees). For foliar application, the maximum imidacloprid residues reported were 13 ppb in pollen (from comb pollen) and 3.5 ppb in nectar (nectar from bees).

In Canada, imidacloprid is currently registered for soil drench application but not for foliar application on melon. For melon, two similar melon residue studies had been previously considered in PRVD 2018-12, with the maximum imidacloprid residues being 27 ppb in pollen (comb pollen) and 16 ppb in nectar (nectar from bees). Using this data, risks to pollinators had been identified for soil drench application in the PRVD and removal of melon soil drench uses was proposed.

Compared to the residue concentrations that had been used in PRVD2018-12, the additional study presented similar maximum residue concentrations for the soil drench applications. Potential for risks to both honey bees and non-*Apis* bees are expected when the additional residue data are used. This conclusion is consistent with the risk assessment presented in PRVD2018-12. As stated in the PRVD, compared with maximum Canadian registered rates, the tested soil drench application rate of 210 g a.i./ha, was slightly lower than the maximum label rates in Canada (280 g a.i./ha).

Although foliar application on melon is not registered in Canada, the residue information from this study might be considered as a surrogate for relevant pre-bloom foliar uses, thus was further considered. The maximum residues in pollen and nectar reported in the previous melon residues studies for pre-bloom foliar application were 119 ppb in pollen (comb pollen) and 14 in nectar (nectar from bees). Compared to the residue concentrations that had been used in PRVD2018-12, the additional study presented a lower maximum residue concentration. Using the additional residue information, no risks are identified for honey bees, but the risks to bumble bees at Tier II could not be excluded, which is the same conclusion as presented in PRVD2018-12. The additional melon residue data for pre-bloom foliar is not expected to change the risk conclusions. It is noted that tested foliar application rate of 3 × 140 g a.i./ha is greater than the rates for most of crops registered in Canada, thus likely represents a conservative scenario for pre-bloom foliar applications conducted 19-28 days before the flowering of crop.

Overall, the new melon residue study provides additional evidence for the exposure assessment, but it does not change the risk assessment conclusion presented in PRV2018-12. The study

presented similar residue concentrations for the soil drench applications and lower residue concentrations for the pre-bloom foliar applications. Using the new residue data resulted in risks to bees being identified, which is consistent with the conclusion presented in PRVD2018-12.

1.2 Summary of additional literature studies and impact on the risk assessment

Bishop, C., Moran., A., Toshack, M., Elle, E., Maisonneuve, F., Elliot, J. 2018. Hummingbirds and bumble bees exposed to neonicotinoids and organophosphate insecticides in the Fraser Valley, British Columbia, Canada. Environmental Toxicity and Chemistry, Vol 37, issue 8 – pp. 2143-2152.

This study investigated pesticide exposure to hummingbirds and bumble bees in British Columbia near blueberry fields over two years in 2015 and 2016. The study included sampling from pesticide-exposed sites (<0.5 km from conventionally sprayed blueberry fields) and reference blueberry sites (>1 km from pesticide treatment fields). Exposure of hummingbirds was measured by residue analysis in fecal pellets and cloacal fluid (water passed directly through gut) of *Selesphorus rufus* and *Calypte anna*. The fecal pellets would primarily represent insects in the diet, while the cloacal fluid would represent exposure from nectar. Bumble bees (native to Canada) collected from 6 pesticide-exposed fields, and 6 organic farms farm sites, pollen collected from the bumble bees, blueberry flowers and leaves were also analysed for pesticide residues. Imidacloprid was known to be sprayed after blossom fall once a year on the conventionally sprayed blueberry fields. However, specific use information, such as application rates and dates, was not available in this study.

Over the two years, the combined concentration of the neonicotinoid insecticides imidacloprid, thiamethoxam, and clothianidin detected in hummingbird cloacal fluid from sites near conventionally sprayed blueberry fields was 3.63 ng/mL (ppb). The maximum detection for each neonicotinoid was 0.197 ng/mL for imidacloprid, 1.96 ng/mL for clothianidin and 1.47 ng/mL for thiamethoxam. Among the 18 compounds analysed for in fecal pellets, only piperonyl butoxide was detected (1.47–5.96 ng/g).

In the study portion relating to bees, only diazinon was detected in bumble bees (0.197 ng/g), whereas diazinon (1.54–1.7 ng/g) and imidacloprid (up to 18.4 ng/g) were detected in pollen collected from bumble bees. Imidacloprid concentrations in bumble bee pollen collected near organic farms was 18.4 ng/g, which was 3 times higher than that collected near conventionally sprayed blueberry farms (4.96 ng/g). Imidacloprid was detected at mean concentrations of 1880 ng/g (ranging from1770 to 1990 ng/g) in blueberry leaves collected 1 week post spray, with the concentrations declining to 208 ng/g (ranging from 14.5 to 508 ng/g) within 1 month post spray. Imidacloprid was also detected at 5.16 ng/g in blueberry flowers collected 1 year post spray from 1 of 6 conventionally sprayed blueberry farms.

The detected imidacloprid concentrations found in pollen in this study are lower than what was considered for the blueberry residues (38.5 ppb) in PRVD2018-12. The imidacloprid concentration in pollen detected in this study is greater than the Tier II endpoints determined for bumble bees, which indicated a potential risk. The results from this study do not change the risk conclusions presented in PRVD2018-12.

James D. Crall, Callin M. Switzer, Robert L. Oppenheimer, Ashlee N. Ford Versypt, Biswadip Dey, Andrea Brown, Mackay Eyster, Claire Guérin, Naomi E. Pierce, Stacey A. Combes and Benjamin L. de Bivort. 2018. Neonicotinoid exposure disrupts bumblebee nest behavior, social networks, and thermoregulation Science 362 (6415), 683-686. DOI: 10.1126/science.aat1598

The study reported that imidacloprid affected worker bee behaviour within the nest and thermoregulation of bumble bees when the colonies were fed with imidacloprid at 6 ppb in nectar for 12 days. The exposed worker bees showed less time active and less nursing activity, and tended to shift spatial occupancy toward the nest periphery. Bees fed with 1 ng of imidacloprid showed reduced levels of activity, nursing and initiation of foraging. Imidacloprid impaired thermoregulation of the developing brood, nest air temperature. Treated colonies were less likely to construct an insulating wax canopy around the developing brood, which is important for cold adaptation.

The findings of this study are consistent with and support the Tier II colony feeding study endpoints determined previously from other studies. The non-*Apis* (bumble bee) nectar colony feeding study endpoints used in PRVD2018-12 were 2.5 ppb.

1.3 Changes to Mitigation

Exposure Characterization for Hops

Additional information on the agronomic practices and pollinator attractiveness of hops was considered which affected the pollinator exposure characterization. Hops are wind pollinated, and only female hops (which have no pollen) are cultivated in agricultural hop fields. Hop floral resources (pollen and nectar) have negligible attractiveness to bees. Overall, there is negligible pollinator exposure expected through pollen or nectar from cultivated hops.

As exposure of bees to imidacloprid from treated hops is expected to be negligible, the proposed mitigation in PRVD2018-12 has been modified for foliar application on hops, with foliar applications during bloom being allowed in addition to the pre-bloom and post-bloom foliar application that were proposed in PRVD2018-12.

Clarification of Mitigation for Foliar Application to Berry Crops

Mitigation for foliar application to berry crops is considered as a change to application timing (restricted to application after bloom with renovation after harvest for woody berries).

1.4 Incident Reports

No incident reports related to imidacloprid have been received since publication of PRVD2018-12.

2.0 Value Assessment

2.1 What is the Value of Imidacloprid

Imidacloprid has value to users as a broad spectrum insecticide when applied as a seed, soil or foliar treatment on a range of sites. For some uses, it is the only active ingredient registered to manage major pests and therefore has acceptable value to crop production in Canada.

During consultation, a number of stakeholders emphasized that for many of the registered uses of imidacloprid there are few or no alternatives registered and indicated that in some cases where alternative products are registered, they may be more costly than, and/or not as effective as imidacloprid. Health Canada acknowledges that there are no or limited alternative active ingredients registered for certain imidacloprid uses or that certain alternatives may be more costly to apply than imidacloprid.

An assessment of the registered products determined a lack of alternatives for the following pests and sites:

- Cucumber beetle on cucurbit vegetables;
- European chafer and Japanese beetle larvae on caneberries & bushberries (soil use only);
- European chafer on low growing berries;
- Leafhoppers on bushberries (except blueberry) and low growing berries (except cranberry and blueberry);
- Leafhoppers on herbs; and
- European chafer and Japanese beetle larvae on outdoor ornamentals (soil use).

3.0 Conclusion of Science Evaluation

Updates to the imidacloprid pollinator risk assessment considered the additional toxicity and residue information that were submitted by the registrant and collected from open literature sources, as well as information received as comments on PRVD2018-12 during the consultation period. The additional information did not change the overall risk conclusions that were described in PRVD2018-12, with the exception that hops were determined to have negligible pollinator exposure, and therefore during-bloom foliar application is allowed. Additionally, required mitigation for foliar application to berries has been clarified, and is considered as a change to application timing (restricted to application after bloom with renovation after harvest for woody berries). Therefore, Health Canada supports continued registration of imidacloprid for uses where risk to pollinators is acceptable when used according to the final label directions and with additional mitigation, including cancellation of certain uses, as outlined below and in the label amendments listed in Appendix II.

In order to protect pollinators, Health Canada is cancelling the following uses of imidacloprid:

- Foliar application to pome fruit, stone fruit, certain tree nuts with high pollinator attractiveness, and the herbs lavender and rosemary;

- Soil application on legume vegetables, fruiting vegetables, cucurbit vegetables, herbs harvested after bloom, small fruit and berries (caneberry; bushberry; low-growing berry; berry and small fruit vine excluding grapes);
- Soil application to ornamentals that will result in pollinator exposure.

In order to protect pollinators, Health Canada is changing the timing of application for the following uses of imidacloprid:

- The following crops cannot be sprayed before and during bloom:
    - Foliar application to fruiting vegetables, herbs harvested after bloom, legume vegetables (broad beans/fava beans/*Vicia faba* only), tree nuts excluding those with high pollinator attractiveness, and small fruit and berries with renovation required after harvest for woody berries (caneberry; bushberry; low-growing berry; berry and small fruit vine excluding grape).

- The following crops cannot be sprayed during bloom:
    - Foliar application to potato, grapes, legume vegetables (excluding broad beans/fava beans/*Vicia faba*), peanut, tobacco.

To minimize bee exposure to dust during planting of treated seed, additional label statements are required for the following use:

- Seed treatment of cereal and legume crops.

Imidacloprid has value to crop production in Canada as an insecticide to control a variety of insect pests when applied as a foliar or soil application, as well as a seed treatment. A lack of alternatives was identified for cucumber beetles in cucurbits; soil application to manage European chafer and Japanese beetle larvae on caneberries, bushberries, and outdoor ornamentals; European chafer on low growing berries; leafhoppers on some bushberries and low growing berries; and leafhoppers on herbs.

The additional risk mitigation measures described above will be implemented over a 24-month period. The risks identified are not considered imminent because they are not expected to cause irreversible harm over this period. Potential effects include sublethal effects on colonies or solitary bees, but affected pollinator populations are expected to recover following implementation of the additional restrictions which will reduce exposure. Moreover, recovery is expected because risks to pollinators are geographically limited to areas where these products are applied and areas adjacent to application sites. The presence of unaffected solitary bees, bumble bees, and honey bees in areas where products are not being used will further facilitate recovery since unaffected bees in the environment can move back into areas where effects may have occurred. Overall, risk to pollinators is acceptable over the time period required to implement the mitigation measures.

As a result of this decision, growers will be required to change their pest management practices. Pesticides have extensive and precise instructions and often require specialized application and safety equipment and training. This transition period will allow for an orderly and safe implementation of these new restrictions, and should reduce the risk of product misuse or the improper disposal of products as users switch to alternatives, where required. This approach is consistent with Health Canada's current policy and practice with respect to phase out of uses as a result of a re-evaluation (Regulatory Directive DIR2018-01, *Policy on Cancellations and Amendments Following Re-evaluation and Special Review*) and with the practice of other international regulators.

A small subset of uses were found to lack alternatives for the management of serious pests (European chafer, certain beetles, and leafhoppers) on a very few crops present in limited geographical areas of Canada. As a result, the implementation of the re-evaluation decision for these uses will be delayed for an additional year to allow growers to find pest management solutions. During this period, the overall exposure to pollinators will be significantly reduced through both removal of uses to control other pests on these crops and other crops that pose a risk to bees, as well as through implementation of additional restrictions in application timing which will further reduce pollinator exposure. The risks to pollinators are therefore considered acceptable for an additional year for this small subset of uses.

List of Abbreviations

a.i.	active ingredient
BB	bumble bee
c.e	clothianidin equivalents
CFS	colony feeding study
CG	crop group
CLO	clothianidin
COD	clothianidin
DALA	days after last application
DAP	days after planting
EEC	estimated environmental exposure concentration
EDD	estimated daily dose
EFSA	European Food Safety Authority
g	grams
ha	hectare
IPM	Integrated pest management
kg	kilogram
K_{oc}	organic-carbon partition coefficient
LD_{50}	Median lethal dose
LOAEC	Lowest observed adverse effect concentration
LOC	Level of concern
LOD	limit of detection
LOEC	lowest observed effect concentration
LOQ	limit of quantitation
mg	milligram
µg	microgram
ng	nanogram
NOEC	no observed effect concentration
NOED	No observed effect dose
NOEDD	No Observed Effect Dietary Dose
OECD	Organization of Economic Co-operation and Development
OM	organic matter
PRVD	Proposed re-evaluation decision
ppb	parts per billion
RQ	Risk quotient
RVD	Re-evaluation Decision Document
TGAI	Technical grade active ingredient
THE	thiamethoxam
TMX	thiamethoxam
TU	toxic unit
USEPA	Environmental Protection Agency
Y	year

Appendix I Registered Imidacloprid Products in Canada Subject to this Re-evaluation[5]

Registrant	Marketing Class	Registration Number	Product Name	Formulation type	Guarantee
Bayer CropScience Inc.	Technical grade active ingredient	24468	Bay NTN 33893 Technical Insecticide	Solid	Imidacloprid 98%
	Manufacturing concentrate	25390	Merit 75% Concentrate Insecticide	Wettable powder	Imidacloprid 75%
	Commercial	24094	Admire 240 Flowable Systemic Insecticide	Suspension	Imidacloprid 240 g/L
		25636	Merit 60 WP Greenhouse And Nursery Insecticide	Wettable powder	Imidacloprid 60%
		25932	Merit Solupack Insecticide		Imidacloprid 75%
		25933	Merit Granular	Granular	Imidacloprid 0.5%
		26124	Gaucho 480 FL Insecticide	Suspension	Imidacloprid 480 g/L
		27170	Gaucho 600 FL Insecticide		Imidacloprid 600 g/L
		27174	Gaucho CS FL (Insecticide/Fungicide Seed Treatment)		Carbathiin 47.6 g/L Thiram 95.3 g/L Imidacloprid 285.7 g/L
		27349	Genesis 240 Flowable Systemic Insecticide		Imidacloprid 240 g/L
		27357	Intercept 60 WP Greenhouse Insecticide	Wettable powder	Imidacloprid 60%
		27702	Admire 240 SPT Flowable Systemic Insecticide	Suspension	Imidacloprid 240 g/L
		29609	Stress Shield For Cereals	Suspension	Imidacloprid 480 g/L
		29610	Stress Shield For Cereals and Soybeans		
		29611	Concept Liquid Insecticide	Suspension	Imidacloprid 75 g/L deltamethrin 10 g/L
		30668	Stress Shield 600	Suspension	Imidacloprid 600 g/L
		30972	Sepresto 75 WS	Wettable Powder	Imidacloprid 18.75% clothianidin 56.25%
		31068	Acceleron IX-409 Insecticide Seed Treatment	Suspension	Imidacloprid 600 g/L
	Commercial + Restricted	29703	Confidor 200 SL	Solution	Imidacloprid 17.1%
Adama Agricultural Solutions Limited	Technical grade active ingredient	30374	MANA Imidacloprid Technical	Solid	Imidacloprid 98.3%
	Commercial	28475	Alias 240 SC Systemic Insecticide	Suspension	Imidacloprid 240 g/L
		29130	Quali-Pro Imidacloprid 75 WSP Insecticide	Wettable powder	Imidacloprid 75%
		29185	Quali-Pro Imidacloprid 0.5 Granular Insecticide	Granular	Imidacloprid 0.5%
		30505	Sombrero 600 FS	Suspension	Imidacloprid 600 g/L
FMC Corporation	Commercial	28726	Grapple Insecticide	Suspension	Imidacloprid 240 g/L
		29048	Grapple-2 Insecticide		
Arborjet Inc.	Commercial + Restricted	31375	IMA- Jet	Solution	Imidacloprid 58.5 g/L
		31479	IMA-Jet 10		Imidacloprid 117 g/L

[5] As of 12 February 2019, excluding discontinued products and products with a submission to discontinue.

Registrant	Marketing Class	Registration Number	Product Name	Formulation type	Guarantee
Sharda Cropchem Limited	Technical grade active ingredient	32645	Imidacloprid Technical Insecticide	Solid	Imidacloprid 98.53%
SBM Life Science Corporation	Domestic	29738	Bioadvanced Science-Based Solutions Season Long Grub Control	Granular	Imidacloprid 0.25%

Appendix II Comments and Responses

In response to the consultation for the imidacloprid proposed pollinator re-evaluation decision, the following comments were received, in addition to the information already discussed in the main body of the document:

1.0 Comments Related to the Environmental Risk Assessment

Topic of comment	Affiliation of Commenter	Comments	Health Canada Response
1. Toxicity: endpoint selections	Bayer Cropscience	Bayer Cropscience commented on the weight of evidence of approach and determination of endpoints. They submitted a new study that provides a new chronic adult endpoint. When multiple toxicity studies were available, the Agency tended to exclusively use endpoints from the study that reported the lowest effect level, rather than averaging across studies or choosing endpoints using a weight of evidence approach. This practice tends to bias the assessment toward a conclusion of risk. Such practices are appropriate in screening risk assessments where the intent is to identify potential risks that need further assessment. However, regulatory decisions are better informed by assessments that have been refined using probabilistic analysis and weight of the evidence approaches. Studies with limitations should be given less weight than studies conducted in accordance with Agency approved guidelines and protocols, including compliance with GLP regulations that ensures all raw data are available for Agency review. A proper weight-of-evidence assessment considers the totality of available information and the relevance, strength, and reliability of each study. Studies that report low	Health Canada considers all information available for the re-evaluation of a pesticide, including studies submitted by registrants and studies from the public scientific literature, such as peer-reviewed journal publications. For the imidacloprid pollinator risk assessment, only those studies that were scientifically sound and informative were included. Studies that were considered invalid for risk assessment purposes were excluded. Included studies that provided relevant scientific information (e.g. residues in pollen and nectar associated with a known application, adult chronic or acute toxicity, non-Apis bee information, field studies with honey bees or non-Apis bees) were considered as a line of evidence in the overall risk assessment while strengths and limitations of each were taken into consideration. The determination of the toxicity endpoints for use in the pollinator risk assessment was made after consideration of the strengths and limitations of all relevant studies available to Health Canada. For imidacloprid, multiple studies were considered in the determination of each endpoint. To determine the honeybee adult chronic toxicity endpoint, eight relevant studies were evaluated for PRVD2018-12(PMRA 2474493 (Kling, 2012), Boily et al., 2013, Alaux et al., 2010, Suchail et al., 2001,

Topic of comment	Affiliation of Commenter	Comments	Health Canada Response
		toxicity values but otherwise do not meet the criteria of high relevance, strength and reliability should be given little weight in an assessment. Published studies rarely meet restricted criteria from the agency and should give less weight. Bayer believes the chronic toxicity in honey bees reported by Boily et al., like the earlier Suchail et al. study, is likely flawed and unreliable. Bayer conducted a new study in 2017 that followed the proposed OECD guideline for chronic toxicity testing in honey bees and included a positive control. This new study (Exeler 2017, Bayer Report M-600686-02-1) was submitted to PMRA in November of 2017, but it was not included in the latest PMRA assessment. The new study reported a no effect level of 200 µg/L (3.8 ng/bee/d), which is in line with the other studies from the open literature. As it was conducted in accordance with the new OECD guideline, the Exeler 2017 study should meet all of the Agency's acceptability criteria. Bayer believes the Agency should reconsider their decision to classify the Boily et al. 2013 study as reliable for use in quantitative risk assessment and instead use the Exeler 2017 study results.	Decourtye et al., 2003 (also cited by Schmuck, 2004), Cresswell et al., 2012 and 2013, and Moncharmont et al., 2002). All studies were informative and all had certain limitations. The selected NOEC endpoint of 3.9 µg a.i./L diet was derived from Boily et al. (2013), along with the NOEDD of 0.00016 µg a.i./bee/day. This endpoint was also supported by another study (Moncharmont et al., 2002), which reported a similar endpoint (<4 µg a.i./L) based on increased mortality to newly emerged adults. The selected endpoint represented the 33 percentile of all available endpoints from all these studies. The additional study submitted by the registrant (Exeler 2017, Bayer Report M-600686-02-1) was received by Health Canada at the late stage of the PRVD preparation and was not able to be considered in the PRVD. This study has now been reviewed and is considered in this RVD. The study provides additional information on the chronic toxicity of imidacloprid to honey bee adults. The study was conducted according to methods similar to OECD guideline 245. The study reported the NOEC to be 0.176 mg a.i./kg diet, NOEDD to be 0.0033 µg/bee/day on the basis of mortality after recalculation using the data provided by the study author. The NOEDD endpoint generated from the additional study is approximately 20 times higher than the endpoints determined from previously available studies. When the new endpoint is used to estimate the potential chronic risks for adult honey bees, the risk conclusion remained the same for the Tier I screening assessment, but risks are reduced at the Tier 1 refined assessment. However, the risk conclusion for the Tier II assessment using colony level endpoints remains unchanged. Therefore, while the newly submitted study provides additional information on

Topic of comment	Affiliation of Commenter	Comments	Health Canada Response
			the potential chronic risk to individual bees at Tier I level assessment, the chronic risk to bees at the Tier II colony level remains the same as presented in the PRVD. Further details are found in the Science Evaluation Update of this RVD.
2. Exposure: use of residue studies	Bayer Cropscience	Bayer Cropscience believed the general approach PMRA used in the PRVD assessment was scientifically sound. However, from a design standpoint, it tended to overestimate the true level of risk. For example, defining point estimates for exposure as the maximum field residue measurement, rather than from the average or even a 90th percentile value of available measurements biases the assessment toward a conclusion of finding a risk.	Relevant residue information was considered as one line of evidence in the overall risk assessment. Other studies, such as semi-field effect studies and Tier III field studies were also considered in the overall risk characterization. Where relevant residue information was used, the detected maximum and highest mean for application scenarios were used in the risk assessment in order to identify any uses that potentially cause risks at a lower tier risk assessment. This was considered as many factors may impact the measured residue concentrations in a study. While 90th percentile and median provide insight of the residue distribution in the available studies, the detected maximum and highest means were considered as a conservative exposure scenario for the risk assessment.
3. Exposure: rule of proportionality	Bayer Cropscience	Bayer Cropscience believed that the rule of proportionality should be applied to properly reflect the registered label rates and use patterns available to Canadian growers. The studies that PMRA reviewed were based on labels from the United States or Brazil which often allow higher rates, higher numbers of applications, and different timing for treatments due to varying pests and pest pressure. The PMRA should correct these exposure values in pollen and nectar using the rule of proportionality to lower the exposure values in Appendix VII and VIII when the study used higher United States and Brazil rates.	The imidacloprid pollinator risk assessment considered multiple residue studies in addition to Tier I, Tier II and Tier III effect studies. However, although many studies were considered, correlation between the application rate/method and the measured residue concentrations in various bee-relevant matrices could not be established. No evidence is available to support the use of the rule of proportionality for imidacloprid based on currently available residue information. Imidacloprid is systemic and many factors may influence the level of residues in various bee-relevant matrices, especially in the field. Therefore, the proposed use of rule of proportionality could not be supported.

Topic of comment	Affiliation of Commenter	Comments	Health Canada Response
4. Risk assessment: use of bee bread	Bayer Cropscience	Bayer believed the Bee Bread method was not scientifically sound and flawed, and should not be used in regulatory assessments for imidacloprid. The comment was submitted for imidacloprid based on the Preliminary Pollinator Assessment for clothianidin and thiamethoxam and the "bee bread" method that was proposed by USEPA. The comments also questioned the mathematic correction of the residue calculation formula for bee bread.	In most cases, bees in the field can be exposed to residues in pollen and nectar simultaneously. Available information demonstrated that hives fed with imidacloprid in either pollen or nectar resulted in imidacloprid contamination in hive beebread. During the update of imidacloprid risk assessment for honey bees, in addition to the consideration for pollen only exposure route, estimated bee bread residues were also explored as an exposure route. The "bee bread" risk assessment approach used for imidacloprid was conducted based on a reasonable comparison of residues in the same matrix, in this case beebread. The residue in beebread estimated from measured concentrations in fresh pollen and nectar resulting from imidacloprid uses was compared with the pollen NOEC. The estimation of concentration in beebread was conducted using the following formula. It assumes that fresh beebread in hives is composed of 45% of nectar and 55% of pollen on a dry material weight basis. The water content is assumed 8.4% in the fresh pollen, and 70% in the nectar, and 25% in fresh beebread. $C_{fresh\ bee\ bread} = [0.55*C_{pollen}/0.916 + 0.45*C_{Nectar}/0.3]\times 0.75$ Where: $C_{fresh\ bee\ bread}$ is the concentration of imidacloprid in fresh bee bread (expressed as µg a.i./kg-ww); C_{pollen} and C_{nectar} are concentrations of imidacloprid in plant fresh pollen and nectar respectively (expressed as µg a.i./kg-ww) The commenter also questioned the formula for calculating of the residues in beebread. It appears that the commenter did not appropriately account for the different water contents in plant fresh pollen and nectar and in the fresh beebread. The calculation formula is correct based on the assumptions that were made from available studies.

Topic of comment	Affiliation of Commenter	Comments	Health Canada Response
5. Risk assessment: use of bumble bees	Bayer Cropscience	BCS suggested to PMRA to reconsider the re-evaluation of imidacloprid uses based on the bumble bee levels of concern selected from the open literature (Moffat et al. 2016; Feltham et al. 2014; Whitehorn et al. 2012). This approach sets a precedent that has no foundation on ecotoxicology principles. The current re-evaluation is premature to regulate the uses of imidacloprid in Canada based on endpoints selected from 3 published articles which were conducted with methodology that has not been vetted, and endpoints that have not been established as relevant to the colony growth, reproduction and survival. The studies contained limitations, such as lack of dose-response study design (Moffat et al. 2016; Feltham et al. 2014), lack of consumption data (Whitehorn et al. 2012), suffer from poor replication (2-3 colonies per treatment, Feltham et al. 2014). There is a great deal of intra- and inter-species variability, and test was mainly conducted on Bombus terrestris.	Health Canada considers all information available for the re-evaluation of pesticides, including studies from the registrant and studies from the available public scientific literature, such as peer-reviewed journal publications. For the pollinator risk assessment for imidacloprid, potential risks for non-Apis bees were assessed. The available studies submitted by the registrant on non-Apis bees suggested potential risks of imidacloprid for bumble bees for some uses at Tier II (e.g. ornamental soil uses), and available Tier III field studies were not able to exclude the risks. No colony feeding studies for non-Apis bees were available from the registrant. The endpoints for non-Apis bees, including bumble bees and other non-Apis bees, were determined to be reasonable based on 13 feeding studies that were available from open literature sources (Moffat et al., 2015 and 2016; Gill and Raine,2014; Gill et al., 2012; Scholer and Krischik, 2014; Mommaerts et al., 2010; Barbosa et al., 2015; Bryden et al., 2013; Laycock et al., 2012; Abbott et al., 2008; Morandin and Winston,2003; Whitehorn et al., 2012; and Feltham et al., 2014). While each study had its strengths and limitations, all these studies were scientifically sound and reported effects at consistent levels. The majority of these studies were tested with bumble bees. In addition, a study that was recently published (Crall et al., 2018) reported that imidacloprid affected worker bee behaviour within the nest and thermoregulation of bumble bees when the colonies were fed with imidacloprid at 6 ppb in nectar for 12 days. The exposed worker bees showed less time active and less nursing activity, and tended to have shifted spatial occupancy in nests. Bees fed with 1 ng of imidacloprid showed reduced level of activity, nursing and initiation of foraging. Imidacloprid impaired thermoregulation of the

Topic of comment	Affiliation of Commenter	Comments	Health Canada Response
			developing brood, and nest air temperature. Treated colonies were less likely to construct an insulating wax canopy around the developing brood, which is important for cold adaptation. The findings of this study are consistent with and support the Tier II endpoints determined previously based on other studies.
6. Risk assessment: tiered approach	Bayer Cropscience	The commenter suggested that the tiered risk assessment process is "broken" if a conclusion of minimal risk is reached in Tier 1, but a conclusion of high risk is reached if one proceeds to Tier 2, or Tier 3, etc. According to the assumptions of the Tier 1 risk assessment, residue levels in pollen are of relatively small importance in producing effects in comparison to similar residue levels in nectar. Tier 2 studies that report effects from low pollen exposures are therefore surprising and should be met with some skepticism. Yet PMRA has accepted such studies and derived effect endpoints which in turn are the sole basis for some conclusions of risks being of concern.	The imidacloprid pollinator re-evaluation used a tiered risk assessment approach, following the pollinator risk assessment guidance jointly developed by PMRA, USEPA and CDPR. The Tier I risk assessment was conducted on an individual bee basis using honey bee as a surrogate for all pollinators, while the Tier II risk assessment was conducted on a colony/population basis for both honey bees and non-Apis bees, separately. In addition, the Tier I assessment was conducted for individual bees at a specific stage or caste, while the Tier II studies assessed the overall effects at the colony level. The Tier II endpoint is expected to represent the integration of lethal and sublethal effects of a chemical on individual bees in the hive and interaction among individuals, including all stages and castes of the bees in hives. When risk was identified at the screening level (Tier 1), higher tier assessment was conducted to refine the risk using available relevant information. In doing so, there are times when a risk is identified at Tier II even though no risk was apparent at Tier I. This occurred mainly due to sensitive Tier II endpoints for non-Apis bees. Multiple studies have been considered and indicated that the Tier II endpoints for non-Apis bees may be lower than those for the honey bee species. In some cases, risks will be seen at Tier 2 and not at Tier 1 when the pollen exposure route was considered separately from the nectar exposure route for honey bees. This can be due to the fact that an

Topic of comment	Affiliation of Commenter	Comments	Health Canada Response
			individual bee consumes a lesser amount of pollen compared to nectar, which results in a low exposure to individual bees in the Tier I risk assessment. The Tier II endpoint for pollen is derived from colony studies that were fed with pollen. Available information demonstrated that although the hives were only fed with spiked pollen, hive bees were exposed to both contaminated pollen and nectar simultaneously as hive nectar was also contaminated resulting from the pollen feeding.
7. Risk assessment: EFSA review and multiple exposure	The David Suzuki Foundation, Équiterre, Environmental Defence, the Canadian Association of Physicians for the Environment (CAPE) and the Canadian Environmental Law Association	With respect to other applications of imidacloprid proposed for continued use in Canada, we are concerned that the re-evaluation takes an unrealistically narrow view of, and therefore underestimates, some exposure risks. We are also concerned that proposed mitigation measures are inadequate to reduce identified risks to pollinators to "acceptable" levels. The proposed re-evaluation decision generally mirrors the approach the European Union adopted in 2013, to protect honey bees, although the PMRA's proposal is considerably more limited in scope. EU Regulation No 485/2013 prohibited all uses of clothianidin, imidacloprid and thiamethoxam in bee-attractive crops with the exception of uses in greenhouses, on winter cereals, and on some crops after bloom. The measure was based on the European Food Safety Authority's (EFSA) 2012 pollinator risk assessments. Subsequently, EFSA has updated its pollinator risk assessments for neonicotinoids in light of new evidence of harm. While identifying some lower risk use/exposure scenarios, EFSA concludes that overall the risk to bees – both honey bees and wild bees - is confirmed. In most of the cases where some low risks were identified for a particular use,	The pollinator risk assessment conducted by Health Canada considered hundreds of studies on acute and chronic exposure to bees in the laboratory and field. Following conservative Tier I and Tier I refined assessments, higher tier semi-field and field studies (including residue and colony effect studies) were considered in the risk assessment and used in a weight of evidence approach. The assessment considered multiple sources of information (e.g., from other regulatory bodies, international organizations, scientific literature). In the assessment, conservative but realistic assumptions were used to account for the uncertainties identified in various studies and at various stages of the assessment. Health Canada's assessment considered exposure to Apis and non-Apis bees from exposure to imidacloprid from foliar application, soil application and seed treatment application to various crops throughout the season (before, during and after bloom; before and after harvest). For seed treatment applications, Health Canada considered exposure from residues translocated through the seed into pollen and nectar, and also from residues generated from dust during planting (i.e. residues in off field plants from movement of the pesticide away from the treated field/crop). The Health Canada assessment considered incident reporting information from

Topic of comment	Affiliation of Commenter	Comments	Health Canada Response
		high risks were also identified for the same use. The new EU regulations banning all outdoor uses of imidacloprid, clothianidin and thiamethoxam is a more reliable way to reduce overall risks to pollinators. We find it concerning that the PMRA is proposing to largely replicate the EU's now-outdated partial restrictions, when the EU itself has now adopted a more comprehensive approach. In our view, the approach used by EFSA in its updated assessments to address variability in the level of risk is preferable. It is recommended: PMRA should revise its risk assessment conclusions to recognize the overall risk to pollinators and deregister all outdoor uses.	beekeepers and other stakeholders, as well as results available to date from an investigation of the incidents. Health Canada assessed potential risk to bees resulting from water exposure (including guttation droplets and bee relevant surface water sources such as contaminated puddles). Based on the risk assessment, when a potential risk was identified, Health Canada proposed mitigation. Similarly, Health Canada had enough information and data to conclude when no risk was identified. In those latter cases, no mitigation was proposed. With respect to international regulation of neonicotinoids, Health Canada did review and consider the reviews from EFSA and Worldwide Integrated Assessment of the Impact of Systemic Pesticides on Biodiversity and Ecosystems as part of its assessment, as well as reviews from United States EPA (Environmental Protection Agency) and California Department of Pesticide Regulation. Health Canada reviewed the underlying studies that were considered in the reviews, and incorporated the information into the Health Canada risk assessment. Some of the key differences in the assessments which led to the differences in risk conclusions between Health Canada and EFSA included the following: • A different pollinator risk assessment framework in North America than the EU, with the North American framework incorporating a Tier II risk assessment that compares colony effects endpoints to pollen and nectar residues in the field from various application scenarios; • Consideration of the Canadian use pattern and agricultural practices, which are not the same as agricultural practices in Europe. There are different crops and rates of application in Canada

Topic of comment	Affiliation of Commenter	Comments	Health Canada Response
			compared to the EU. • For certain aspects of the risk assessment the EFSA assessment relied on modeled or default exposure values to estimate exposure to pollinators whereas the Canadian assessment used measured values, including measured values in treated and rotational crops and in water to estimate exposure to pollinators.
8. Risk assessment: bees (*Apis* and non-*Apis*) and pollinators	The David Suzuki Foundation, Équiterre, Environmental Defence, the Canadian Association of Physicians for the Environment (CAPE) and the Canadian Environmental Law Association	PRVD2018-12 does not evaluate risks to all pollinators and the title misrepresents its scope. The assessment purports to evaluate risks to apis and non-apis bees. However, with respect to non-apis bees, most of the referenced studies are on bumblebees and the assessment frequently relies on honey bee data as a surrogate. Kopit and Pitts-Singer note that testing only honey bees as the surrogate for all bees results in an incomplete assessment of pesticide effects on native bee species and other wild pollinators. There are some 800 species of bees in Canada. Uncertainties regarding effects on native bee species and the failure to consider unique behaviours that could increase exposure are critical gaps in the assessment. Cavity nesting bees, for example, can be exposed to neonicotinoids (and other systemic and translaminar pesticides) in the leaves they use in nest construction -- in addition to exposure from nectar and pollen while foraging (Kopit and Pitts-Singer). As well, soil and seed treatment applications may be expected to result in higher levels of exposure for ground-nesting solitary bees, which comprise about 70 per cent of native bee species. The assessment also fails to consider impacts on all other wild pollinators beyond bees that could be at risk from	While available data for other bee species are included in the tiered risk assessment process, the honey bee species is used as a surrogate for both *Apis* and non-*Apis* bees, as well as other insect pollinators. This surrogate approach is consistent with the approach taken for other taxa. Honey bees are chosen as a surrogate species because they are readily available and relatively easy to work with under both laboratory conditions and field conditions. In addition, the biology of the honey bee species is relatively well-known and multiple test protocols and guidelines have been established. Based on these guidelines, toxicity databases are available for many pesticides. Being an eusocial insect, honey bees allow investigation of the potential effect of test items at the colony level. The honey bee is one of the most common pollinators and provides important pollination services to agriculture. In addition to the honey bee, multiple non-*Apis* bee species were considered in the imidacloprid risk assessment (PRVD2018-12), including bumble bees (*Bombus terrestris, B. impatiens*), mason bees (*Osmia cornifrons, O. lignaria*), alfalfa leafcutting bee (*Megachile rotundata*) and stingless bees (*Melipona quadrifasciata, Nannotrigona perilampoides*). Additional information on squash bees *(Peponapis pruinosa)* that was received

Topic of comment	Affiliation of Commenter	Comments	Health Canada Response
		exposure to neonicotinoids. Whereas honey bees are managed by the Canadian honey industry, other pollinator populations are not similarly managed. For example, honey bee queens are produced or imported by beekeepers whereas no comparable intervention occurs for threatened wild pollinators to maintain healthy populations. Wild pollinators include: native bees, flies, butterflies, wasps, moths, beetles, and vertebrates, like bats, squirrels, birds and some primates. Beyond providing valuable ecosystem services, wild pollinators play a critical role within food webs. A loss of pollinating species has been shown to impair ecosystem functioning as a whole. According to the Worldwide Integrated Assessment of the Impact of Systemic Pesticides on Biodiversity and Ecosystems, "adverse impacts of wide-scale insect pollinator and predator loss can lead to cascade effects in biotic communities that can ultimately affect human populations." Some particular crops and plants are pollinated by unique pollinators, and the survival of certain host plants is directly linked to the survival of their pollinating species. Kearns and Inouye and Ollerton et al explain how hundreds of plant species are often dependent on a distinct and unique wasp species for pollination, and that those plant species often provide staple food or habitat for many vertebrates. The loss of the wasps in these cases as a keystone species has the potential to shift the whole structure of the biotic community. The PMRA has failed to identify if any of these kinds of unique pollinator-host plant species exist in Canada; they would merit a more in-depth risk assessment.	during the consultation period for the PRVD is considered in this RVD. The overall risk conclusions, based on consideration of all information received during the consultation process, have not changed. In addition to conducting a pollinator risk assessment, Health Canada also conducts a beneficial arthropod risk assessment which focuses on risks to invertebrate predators and parasitoids. While pollinating insects are considered beneficial, they are considered separately from other beneficial insects. The risk of imidacloprid to other beneficial arthropods such as predators and parasitoids is currently being assessed under the general re-evaluation. Typically, Health Canada would conduct a risk assessment on all aquatic and terrestrial organisms in the same review. In developing the work plan for imidacloprid, Health Canada has taken a risk-based approach to prioritize re-evaluations and special reviews where potential risk issues have been identified.

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		In sum, pollinators in general -- not just honey bees and bumblebees -- are instrumental in increasing the genetic diversity in plant species, and thus are not only important for healthy ecosystems and biodiversity but also for human diets, the resilience of our global food system, and the Canadian economy. It is recommended: The PMRA should more accurately present PRVD2018-12 as a re-evaluation of risks to bees (not all pollinators), and adopt a precautionary approach to protect solitary bees, given their potential for greater exposure and lack of data on effects. Even though the assessments were limited in that they did not consider impacts on all pollinators, the evidence of impacts on honey bees and bumblebees should be significant enough to deregister these pesticides immediately.	
9. Risk assessment: ground-nesting bees	U of Guelph	A manuscript of a study on squash bees was provided as part of comments on PRVD2018-12. D. Susan Willis Chan, Ryan S. Prosser, Jose L. Rodríguez-Gil, Nigel E. Raine. 2018. Risks of exposure to systemic insecticides in agricultural soil in Ontario, Canada for the hoary squash bee (Peponapis pruinosa) and other ground-nesting bee species. bioRxiv preprint online dated Oct. 31, 2018; (versions 1); doi: http://dx.doi.org/10.1101/434498	The exposure through the soil route for ground-nesting bees was considered qualitatively, but was not quantitatively assessed due to the lack of a quantitative assessment approach. However, Health Canada has been actively working on the development of risk assessment methodology for this route of exposure. Through collaboration with other regulatory agencies, stakeholders and national and international experts, a series of publications resulting from a workshop on pesticide exposure to non-Apis bees, including ground-nesting bees, was recently published. (https://academic.oup.com/ee/advance-article/doi/10.1093/ee/nvy134/5217038, accessed on Dec. 19, 2018) The study provided by the commenter described a new

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			risk assessment approach for ground-nesting solitary bees using the squash bee as a model. The paper suggested that the soil exposure route in cucurbit fields was of concern for ground-nesting squash bees, but that pollen and nectar exposure routes were unlikely to be of concern. The assessment was conducted using soil residues that are likely representative of the currently registered use patterns for cucurbits in Canada (both soil treatment and seed treatment). The soil application use of imidacloprid on cucurbits is to be phased out, leaving only seed treatment for cucurbits. Since the soil residues considered in this study likely include use from both soil and seed treatments, it may not be representative of the registered use pattern moving forward. While the study is scientifically sound and informative, there are uncertainties with the presented risk assessment for imidacloprid. The risks reported by the study authors may be overestimated due to conservative assumptions, such as that 100% of residues in soil is transported and exposed to bees. Other uncertainties also include the determination of effects endpoint values, and use of acute contact effect endpoint in both chronic and acute risk assessment. Therefore, the overall risk conclusions, based on consideration of all information received during the consultation process, have not changed.
10. Risk assessment: dust off	The David Suzuki Foundation, Équiterre, Environmental Defence, the Canadian	Dust mitigation measures are insufficient to protect pollinators. The PMRA and other leading authorities have previously identified dust generated from the planting of neonicotinoid-treated seed as a contributing factor in declining bee health, and PRVD2018-12 identifies	Health Canada agrees that there are many exposure routes of neonicotinoids that must be considered in the risk assessment. As well, Health Canada agrees that a reduction in incident reports does not correlate with acceptable risk, and incident reports are only one consideration among many other lines of evidence to be taken into account.

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	Association of Physicians for the Environment (CAPE) and the Canadian Environmental Law Association A citizen	a potential risk of exposure to imidacloprid in dust from certain crop groups (cereals and oilseeds). Yet the PMRA concludes the risk is minimal and proposes only label statements requiring best management practices to mitigate risks from dust. The proposed re-evaluation offers no assessment of the effectiveness of the best management practices apart from fewer reports of bee mortality incidents coinciding with the planting of seeds treated with other neonicotinoids following introduction of the BMPs (as well as requirements for dust-reducing fluency agents) in 2014. Honeybee incident report trends are an insufficient basis for dismissing risks to pollinators from treated seeds. In particular, the honeybee incident reporting mechanism is poorly suited to provide information about native bee exposure or known sublethal effects such as hygienic behaviour, and the abilities of colonies to sustain an actively laying queen overtime. It is reasonable to assume that the new best management practices and requirements for dust-reducing fluency agents, where they have been applied, may have reduced (not eliminated) dust generated during the planting of treated seeds. But the risk assessments offer no information about compliance rates or evaluation of pollinator exposure to residual levels of dust nor the extent to which the proposed label statements for treated seeds can be expected to improve compliance with BMPs. It was recommended: In the absence of evidence, it cannot be assumed that best management practices are sufficient to reduce neonicotinoid exposures to	Based on the results of the risk assessment, Health Canada proposed mitigation measures to reduce pollinator exposure, including removal of uses, changes to the use pattern, and label improvements for some uses. In reaching the risk conclusion Health Canada considered many lines of evidence including the results of the Tier I and Tier I refined risk assessment (based on laboratory data for adults and larvae from acute and chronic exposure, and on residues in pollen and nectar from field trials examining exposure), Tier II risk assessment (based on colony feeding studies with whole colonies of both Apis and non-Apis bees, as well as residues in pollen and nectar from field trials examining exposure), Tier II tunnel studies and also Tier III field studies (which both examine bee colonies following exposure to pesticides from label applications). In addition to the Tier I, Tier II and Tier III information, Health Canada also considered incident reports as a line of evidence in the risk assessments for pollinators. Incident reports can be an important post-registration indicator of potential concerns with use of a pesticide. Incident reports were the primary indicator that there was a potential risk to bees from dust generated during planting of neonicotinoid treated corn and soybean seed. Following the 2012 and 2013 incidents reported in Canada, Health Canada concluded that neonicotinoids present in fugitive dust at the time of planting corn and soybean seed contributed to the observed mortality. However, the investigation also indicated that the contribution of imidacloprid was low to the incidents that coincided with the planting of corn and soybean in Canada with a low frequency of detection and low concentrations of imidacloprid. To mitigate the risk resulting from the dust, at the start of the 2014 growing season, Health Canada

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		acceptable levels. A citizen also expressed concerns on the efficiency of BMP on the reduction of risks for dust from planting coated seed.	required the use of dust-reducing fluency agents and also provided guidance on Best Management Practices (BMPs) to reduce exposure of pollinators from dust produced during the planting of treated corn and soybean seeds, with certain BMPs being mandatory. A strong stewardship campaign involving multiple stakeholders was initiated along with these requirements in 2014. Data were collected in 2014 that demonstrated a very high percentage of growers were aware of and using both the dust-reducing fluency agent and the BMPs, particularly in Ontario, which has the largest number of corn and soy related incident reports. Starting in 2014 and continuing in subsequent years, there has been a large reduction in incidents reported during planting of corn and soybean seed. Please also see Incident Report Update in the Science Evaluation Update for further discussion of incident reports. For the purposes of the pollinator re-evaluations (PRVD2018-12 imidacloprid; PRVD2017-23 clothianidin; and PRVD2017-24 thiamethoxam), the analysis of risk from exposure to dust generated during planting of seed was based on all information available for all three neonicotinoids, and did not rely only on a reduction of incidents related to planting of corn and soybean. The assessment also included consideration of higher tier studies examining exposure from treated seed, including exposures both during planting as well as later in the season when off-field plants and the treated crop are blooming and exposure can occur through movement into pollen and nectar. The higher tier studies considered included colony feeding study effects endpoints compared to pollen and nectar residue information from crops grown from treated seeds. Higher tier studies also included field studies which considered exposure through multiple

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			routes, including: exposure to dust generated during planting (where dust has landed directly on bees or on pollen/nectar of other flowering plants where bees are foraging); translocation of residues to pollen and nectar of the crop grown from treated seed; translocation of residues to pollen and nectar of non-crop plants resulting from residue movement in soils (via dust or treated seed). With regard to the compliance with label statements, please refer to the response for comments on label compliance (Comment No. 18).
11. Risk assessment: seed treatment for crops producing seed	The David Suzuki Foundation, Équiterre, Environmental Defence, the Canadian Association of Physicians for the Environment (CAPE) and the Canadian Environmental Law Association	Risk mitigation measures are needed for seed crops The risk assessment concludes that use of imidacloprid on crops harvested before bloom pose negligible risk to pollinators because no exposure is expected (pre-bloom, these crops are not attractive to pollinators since there is no nectar or pollen source available). A potential risk is indicated when the same crops are grown for seed production yet no new risk mitigation measures are proposed. According to the Canadian Seed Growers' Association, 1.2 million acres of seed crops were planted in Canada in 2012 – mainly cereals, oilseeds and pulses, but also including 1,200 acres of "minor crops". It was recommended: If the PMRA continues registration of uses on crops that are typically harvested before bloom, as proposed, a label statement should be added prohibiting use on seed crops – even if these crops are not typically grown for seed in Canada at present.	Health Canada's pollinator assessment considered current agricultural practices to determine which crops are harvested before bloom, and whether any of these are grown for seed production in Canada. When crops are harvested before bloom, there is no pollen and nectar available for bee forage. However, when crops were harvested before bloom, Health Canada also considered whether or not these crops were grown for seed in Canada, as when they are grown for seed, the crops are allowed to flower, and pollen and nectar would be available for bee forage. Based on agricultural practices in Canada, the crops typically harvested before bloom for registered imidacloprid uses (Crop Group 1-root and tuber vegetables; Crop Group 2: Leaves of Root and Tuber Vegetables Crop Group 3- bulb vegetables; Crop Group 4- leafy vegetables; Crop group 5-brassica leafy vegetables) are not typically grown for seed in Canada. This information was noted in Appendix XII of PRVD2018-12 where these crop groups are discussed. In Appendix XII, information for these crop groups states in the Pollinator Exposure Potential column that these crops are "Typically harvested before bloom except when grown for seed. Generally not grown for seed in Canada." In addition, some herbs in crop group 19A are typically

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			harvested before bloom and are also listed in Appendix XII; they are also not typically grown for seed production in Canada. In cases where risks are identified, mitigations are proposed. As well, Appendix IV of the document outlines the Pollinator risk assessment framework, and indicates the criteria for the pollinator exposure characterization, which includes consideration of whether a crop is grown for seed production. In Appendix IV, as indicated under the criteria for "Seed Production", it is considered whether or not a crop is grown for seed production, and "If a crop harvested before bloom is grown for seed production in Canada, then consideration of the above pollinator exposure characteristics should be used to determine pollinator exposure when grown for seed." As outlined in Appendix IV, the other pollinator exposure characteristics considered include: Crop attractiveness to Apis and non-Apis bees; Pollination services and whether they are required for crop production; and Crop acreage. In summary, Health Canada took into consideration whether or not crops that are harvested before bloom were grown for seed production in Canada.
12. Risk assessment: Tree injections	The David Suzuki Foundation, Équiterre, Environmental Defence, the Canadian Association of Physicians for the Environment (CAPE) and	PRD2016-16 does not suffice to assess risks to pollinators from imidacloprid tree injections The PMRA claims to have assessed risks to pollinators from imidacloprid tree injections separately in the recent registration decision for the end-use product Confidor 200 SL (PRD2016-16) and therefore excludes it from the pollinator re-evaluation. In our view, this is an inappropriate omission and risks may be underestimated as a result. The assessment of pollinator risks in the Confidor 200 SL registration decision relied on a single	A comprehensive risk assessment for imidacloprid tree injections with Confidor 200 SL to non-target terrestrial and aquatic organisms was published in ERC2011-03, including the effect of imidacloprid residues in leaves after tree injection through leaf litter. Available information indicated that there is a potential for sublethal effects on litter-dwelling earthworms and decomposer organisms when exposed to leaves at realistic concentrations in a contained system under laboratory conditions. Under field conditions where exposure concentrations are expected to be lower, the potential for effects are expected to be limited. This route of exposure

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	the Canadian Environmental Law Association	unpublished study of residue levels in red maples and includes several uncertainties that generally result in less conservative – and in some cases unreliable – findings, as the PMRA notes in PRD2016-16. Nevertheless, the data presented in PRD2016-16 show maximum imidacloprid residues in the leaves of treated trees measured 14,963 ppb. Neither PRD2016-16 nor PRVD2018-12 present an assessment of the environmental fate of residues in deciduous tree leaves following abscission and potential risks to pollinators. Imidacloprid can persist in soil from one growing season to another. As leaf litter from treated trees decomposes, it is possible that non-target plants growing in the area (which in the urban setting would commonly include bee-attractive clover and dandelions) may take up residual imidacloprid from the soil. This suggests an additional source of exposure for bees. The final registration decision for Confidor 200 SL (RD2017-02) indicates that the PMRA received no comments on the proposed decision. As a procedural matter, we reasonably expect the opportunity to comment on all risks to pollinators during the present consultation on the pollinator re-evaluation of imidacloprid. Exclusion of tree injection applications from PRD2018-12 further demonstrates a fragmented approach to assessment that obscures overall exposure risks. It is recommended: PMRA should more thoroughly assess risks to pollinators from imidacloprid tree injections.	is of less of concern for pollinators. Furthermore, neonicotinoid residues in pollen and nectar of plants grown in fields or adjacent to agricultural fields where neonicotinoid treated crops were grown were low, and did not pose a risk to bees. Decomposition of leaf litter into soil is expected to result in soil residue levels that are much lower than those in agricultural fields. Therefore pollen and nectar of flowering plants such as clovers growing where leaf litter is present are not expected to pose a risk to bees. The overall risk conclusions, based on consideration of all information received during the consultation process, have not changed. PRD2016-16 revisited only the pollinator portion of the Confidor evaluation in light of additional information submitted and the newly developed risk assessment framework for pollinators. The assessment considered the best available information according to the new framework. The assessment was up to date for tree injection and used the same endpoints as those presented in PRVD2018-12. The registration was granted with required mitigation to ensure that risks to pollinators are acceptable. The mitigation included applying only once a year and applying post-bloom on tree species that are attractive to bees. No comments were received on the PRD2016-16. The registration decision for Confidor 200 SL tree injection was published in RD2016-28. The cited document (RD2017-02) is for another end use product containing imidacloprid, not for the tree injection of Confidor 200 SL.

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13. Risk assessment: off-field risk	The David Suzuki Foundation, Équiterre, Environmental Defence, the Canadian Association of Physicians for the Environment (CAPE) and the Canadian Environmental Law Association A citizen	Risks to pollinators from contamination of the broader environment A significant limitation of the risk assessment is its failure to adequately evaluate the potential for exposure to imidacloprid beyond the treated field. There is clear evidence of widespread environmental contamination by neonics. Imidacloprid (as well as clothianidin and thiamethoxam) is persistent in soil and has been detected in water samples across the country, likely as a result of agricultural runoff and leaching, as well as spray drift. It is reasonable to expect that plants in the vicinity of treated fields could also become contaminated. Non-treated plants – both adjacent agricultural crops and other vegetation – may take up neonics as the chemicals move through the soil and water, and also be contaminated by dust generated during the planting of treated seeds and spray drift. Residues in the pollen and nectar of these plants could become a source of exposure, especially if they are attractive to bees. Indeed the PRVD2018-12 reference list includes a small number of studies indicating potential risk from contaminated wildflowers. PRVD2018-12 inappropriately dismisses risks to pollinators from residues on non-target wildflowers. The Tier 2 assessment for seed treatment applications identified a potential risk to pollinators from imidacloprid residues on wildflowers adjacent to treated fields. We disagree with the PMRA's decision to summarily dismiss this risk on the basis that the single relevant study included in the assessment likely over-estimated exposure. While the study used residue levels in the whole flower as a surrogate for	The risks of off-field exposure routes to pollinators were assessed in PRVD2018-12 for imidacloprid foliar application, soil application, and seed treatment using available information. For foliar application, the Tier I assessment identified off-field risk using estimated off-field rates. Risks were also suggested in Tier II tunnel studies that were tested with rates similar to the estimated off-field spray drift rates on bee-attractive plants. The identified off-field risks are reduced through the restrictions to minimize the spray drift and to avoid spraying when crops or weeds in the treatment area are in bloom. For soil application, using available residues measured from off-field flowers, no off-field risks were identified. For seed treatment, the potential for off-field risk was identified at the Tier I refined assessment using residues measured in whole flowers (not residues in pollen and nectar) grown near seed treatment fields. The potential for risk was also identified at Tier II when the same whole flower residues were compared with the Tier II endpoints determined from available colony feeding studies. However, multiple Tier II semi-field tunnel studies and Tier III field studies specifically for imidacloprid seed treatment suggested that there were no overall on-field risks. It is expected that off-field risks are less than potential on-field risks. Therefore, when all lines of information at various tiers were considered, the off-field risk identified at Tier II based on whole flower residues and the colony feeding studies were likely overestimated. This conclusion considered not only that the whole flower was conservatively used as surrogate for pollen and nectar, but also that no overall risks were identified in

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		pollen and nectar, a conservative and precautionary approach is appropriate given the potential for harm. Furthermore, a separate study of hives near cornfields planted with neonicotinoid-treated corn identified residues in pollen from non-target plants at toxicologically relevant levels. Although this study focused on contamination from clothianidin seed treatments, its findings reinforce the potential risk to pollinators from neonicotinoid seed treatments via exposure to residues in non-target plants. Neonicotinoid treated seeds are a major source of environmental contamination, as seed treatments represent the most widespread use of neonics in the United States and likely in Canada and worldwide. In addition to the registered seed treatments listed in Appendix 1 of the consultation document, seeds treated in other countries may be imported and planted in Canada under the Seeds Act. PRVD2018-12 claims that corn and soybean seeds in Canada are not typically treated with imidacloprid, but in Ontario alone more than half a million hectares of these two crops were planted with imidacloprid-treated seed in 2017. The Tier 1 assessment of soil applications also identified a potential chronic risk to forager bees from residues in wildflowers, but in this case the Tier 2 refined assessment did not identify a risk (based on a single study). Strangely, the assessment of foliar applications does not address potential risks from residues in non-target plants and this is a notable gap. It is recommended: PMRA should not dismiss the identified risk from residues in wildflowers adjacent	multiple higher tier studies for seed treatment in the field. Health Canada also assessed the risks to bees from exposure through water, including off-field water. No risks to bees were identified using the conservative water consumption rates of bees, and measured residues in water bodies near agricultural fields and other shallow water sources that may be relevant for bees, such as puddles in agricultural fields. Therefore, the overall risk conclusions, based on consideration of all information received during the consultation process, have not changed.

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		to fields planted with imidacloprid-treated seeds and should assess risks from residues in non-target plants (including wildflowers) in connection with foliar applications. A citizen also expressed concerns on the effects of the chemical build-up in the water and soil.	
14. Risk assessment: pre- and post-bloom uses due to exposure to non-target plants in and off treatment fields	The David Suzuki Foundation, Équiterre, Environmental Defence, the Canadian Association of Physicians for the Environment (CAPE) and the Canadian Environmental Law Association	The use of imidacloprid on crops that are not attractive to bees or are harvested pre-bloom, as well as post-bloom foliar applications, may contaminate non-target plants with different bloom cycles. The PMRA proposes to restrict certain foliar applications of imidacloprid to prevent spraying before and/or during bloom for specific crops. This approach is intended to protect pollinators by ensuring the pesticide is not sprayed during times when bees may be foraging on the treated field. However, as noted above, contamination of non-target plants is a concern and these plants may have different bloom cycles. Furthermore, recent findings in ecotoxicology suggest that some chemicals, including neonicotinoids, can produce toxic effects at any concentration provided a sufficiently long time of exposure which means that limiting the timing of application is not an adequate risk management strategy. Similarly, the use of imidacloprid on crops that are not themselves attractive to bees and crops typically harvested pre-bloom may nevertheless affect bees via residues in non-target plants beyond the treated field. The PMRA's conclusion that these uses do not pose a risk to pollinators because exposure is not expected takes an unrealistically narrow view and fails to	The pollinator risk assessment for imidacloprid was conducted using all available information and considering both on-field and off-field exposure routes to attractive crop plants and non-target plants. In PRVD2018-12, mitigation was proposed where risks were identified. The risks for off-field exposure routes, including exposure to off-field non-target plants, were assessed for different uses based on all relevant information available. Refer to above response for comment on off-field risks (Comment No. 13).

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		consider the overall effect of widespread environmental contamination from all uses of imidacloprid (and other neonicotinoids). Because most neonicotinoid insecticides are persistent in soil and water, maintaining any neonicotinoid contamination in the environment is likely to potentially affect a broad range of biological organisms that provide ecosystem services, posing risks to ecosystem functioning and services. It is recommended: The assessment should take into account the contribution of all applications to environmental contamination and resulting risks to pollinators from residues in non-target plants. At a minimum, all foliar uses for which restrictions are proposed to prevent spraying pre-bloom and/or during bloom should be deregistered altogether.	
15. Risk assessment: total exposure and cumulative risks	The David Suzuki Foundation, Équiterre, Environmental Defence, the Canadian Association of Physicians for the Environment (CAPE) and the Canadian Environmental Law Association	Total exposure and cumulative risks PRVD2018-12 does not evaluate the total exposure risk to pollinators from all applications of imidacloprid The assessment evaluates each registered use of imidacloprid separately but fails to present an evaluation of total exposure risk to pollinators. In the case of several uses proposed for continued registration, potential risks to pollinators were identified but considered acceptable in isolation. Yet considering the widespread use of imidacloprid and the large radius covered by some pollinators (the typical foraging area for honey bees extends 3 km or more from the hive), it is reasonable to assume that pollinators are exposed to imidacloprid from multiple sources, including multiple applications and uses.	The current risk assessment included the potential for multiple routes of exposure. While the tier I assessment was conducted on an individual basis for each exposure method, the Tier II endpoints were derived from multiple open-field colony feeding studies. The exposure period in the colony feeding studies was typically 6 weeks or more. This time period is often longer than the blooming period for a single crop. Therefore, consideration of this effects endpoint includes consideration of effects resulting from multiple routes of exposure over an extended time period. In these open-field feeding studies, in addition to the artificial dosing, the free-flying test bees could additionally be exposed to residues that resulted from multiple applications and uses in the test area that bees may be foraging during the relatively long test period (up

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		Furthermore, measures of acute or even chronic exposure of adult bees likely inadequately address longer chronic toxicity, larval toxicity, or sublethal effects, particularly in the case of systemic insecticides like neonicotinoids that remain in plants for a long time, including through plant bloom and are then transferred to pollen and nectar. Individually minimal exposure risks add up in real-world scenarios. Recommendation: PMRA must evaluate the total exposure risk to pollinators from all applications and all uses of imidacloprid, including residues in non-target plants.	to 13 weeks). Contamination of imidacloprid and other pesticides in untreated controls was detected in some of the open-field studies. In addition, available Tier III field studies also showed the presence of exposure routes other than the designated test exposure routes to test bees. While the source of exposure routes could not be identified in those studies, contamination of the test chemical in untreated controls and other pesticides detected in test bees were likely the result of the pesticide being used on other plants within and outside of the test area. The detected contamination demonstrated that test bees were exposed to the test chemical and other pesticides from other sources of exposure. As such , the test scenarios in the Tier II open field feeding studies and Tier III field studies may represent the realistic potential for multiple and cumulative exposure scenarios in the field, including potential for uses of multiple applications and the exposure to non-target plants as described in the comment, although the contamination itself complicated the interpretation of the studies. It is noted that Canadian labels do not allow a subsequent application using a different application method for any neonicotinoids after use of imidacloprid in a single season. The labels are expected to minimize the potential total and multiple exposures, especially from the same crop. Therefore, the overall risk conclusions, based on consideration of all information received during the consultation process, have not changed.
16. Risk assessment: exposure to	The David Suzuki Foundation, Équiterre,	Additive and cumulative effects of exposure to multiple neonicotinoids, and other pesticides, have not been considered.	The effect of imidacloprid in addition to other pesticides was considered in the pollinator risk assessment for imidacloprid and was based on available information. Under laboratory conditions, there was no significant

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multiple pesticides	Environmental Defence, the Canadian Association of Physicians for the Environment (CAPE) and the Canadian Environmental Law Association	All neonicotinoids have the same mechanism of toxicity, which means that their impacts may be additive (or worse) in field conditions in which multiple neonicotinoids are used. Without conducting an assessment on cumulative effects that appreciates the scale at which neonicotinoids are concurrently used in Canada, the Minister cannot conclude that the risks posed by imidacloprid (and other individual neonicotinoids) are acceptable. There is also evidence that exposure to neonicotinoids can increase disease and pests that impact bees. A study in Quebec found honeybee colonies located in neonic-treated corn fields with significantly higher burdens of viruses and biomarkers of physiological stress than those in untreated fields suggesting an indirect weakening of honeybee health via induction of stress and increased pathogen loads. A second year of study on these hives found similar results. Although this particular study looked at hives near fields planted with thiamethoxam-treated seeds, the possibility of a similar and additive effect in the presence of imidacloprid should be investigated. It is recommended: The PMRA should assess additive and cumulative effects on pollinators based on the scale of use of neonicotinoids and other insecticides in common cropping systems in Canada. References: Alburaki, Mohamed, Sébastien Boutin, Pierre-Luc Mercier, Yves Loublier, Madeleine Chagnon, and Nicolas Derome. “Neonicotinoid-Coated Zea Mays Seeds Indirectly Affect Honeybee Performance and	increase of the imidacloprid acute toxicity to honey bees when imidacloprid was mixed with fenbuconazole (Biddinger et al., 2013), piperonyl butoxide, triflumizole or propiconazole (Iwasa, et al., 2004), or with several ergosterol biosynthesis inhibitor (EBI) fungicides (Thompson et al., 2014). However, honey bee mortality was slightly increased when an imidacloprid end use product was mixed with other pesticides at LC_{20} concentrations, including tetraconazole, sulfoxaflor, oxamyl (Zhu et al., 2017). The extent of the increases varied by the mode of action of the pesticides, and the study was only tested at LC_{20} concentrations. Combination effects of imidacloprid and other pesticides at concentrations other than the LC_{20} were not tested. Available information indicated that the combination effect, if there was any, was inconsistent. The two references cited in the comment were considered in the risk assessment for thiamethoxam and clothianidin. The study was not conducted with imidacloprid, and therefore was not incorporated into the imidacloprid PRVD. The study showed a weak link between the observed effects and treatment exposure in the field due to the low treatment exposure in the study, implied by the low measured treatment residues, low amount of pollen from the test crops in the test hives, and the contamination of other toxic pesticides in hives. Also refer to the response for the comment above on the potential multiple and cumulative exposure (Comment No.15).

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		Pathogen Susceptibility in Field Trials." Edited by Cesar Rodriguez-Saona. PLOS ONE 10, no. 5 (May 18, 2015): e0125790. https://doi.org/10.1371/journal.pone.0125790. Alburaki, M., B. Cheaib, L. Quesnel, P.-L. Mercier, M. Chagnon, and N. Derome. "Performance of Honeybee Colonies Located in Neonicotinoid-Treated and Untreated Cornfields in Quebec." Journal of Applied Entomology 141, no. 1–2 (February 2017): 112–21. https://doi.org/10.1111/jen.12336.	
17. Risk assessment: alternatives	Christian Farmers Federation of Ontario l'Association des producteurs maraîchers du Québec	The Christian Farmers Federation of Ontario indicated that they felt that the PRVD carefully considered the potential impact of exposure risks to pollinators (especially honey bees). The commenter described the value of imidacloprid for production of various crops and stated that the value was not sufficiently considered. The commenter recommended that PMRA consult with commodity organizations in Ontario; requested that Health Canada further investigate alternative use cases of imidacloprid to ensure sufficient protection of pollinators as well as sufficient crop protection; requested that the time period for testing and establishing proven alternative insecticides to replace imidacloprid for these use cases be established to allow transition away from neonicotinoids to other effective alternatives. l'Association des producteurs maraîchers du Québec expressed the value of imidacloprid on the management of resistance; alternatives have higher risk indices than imidacloprid; loss of imidacloprid makes less competitive compared to Americans. Examples were made on berries and eggplant.	The risks to pollinators from imidacloprid were assessed using crop specific use information. The mitigation measures were proposed according to identified risk profiles specifically for different crop uses registered in Canada (see Appendix VII to XII in the PRVD). During the risk assessment, risks to pollinators were identified for eggplant and berries using the available residue information measured from respective surrogate crops, including tomato and blueberry. The assessment indicated that the use of imidacloprid on these crops could pose a risk to bees. Risks to the environment, including pollinators from potential alternative pesticides are regularly assessed through Health Canada's pesticide re-evaluation program. New chemicals are fully assessed before they can be used in Canada. Only those uses for which the potential risk to the environment is acceptable are registered.

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18. Mitigation: Label compliance	The David Suzuki Foundation, Équiterre, Environmental Defence, the Canadian Association of Physicians for the Environment (CAPE) and the Canadian Environmental Law Association	The risk mitigation strategies proposed in PRVD2018-12, apart from the few uses that would be cancelled, rely on label statements to indicate restrictions on use. However, there is an important information gap in this approach. A recent literature review of studies published worldwide found critical gaps in knowledge regarding the efficacy of labelling for mitigating risks. While this review mainly included studies from developing countries and of migrant workers, it identified the lack of adequate data in the EU and elsewhere to assess efficacy of labelling. In the absence of our preferred approach of a full ban on imidacloprid and other neonicotinoids, we urge a robust, independent evaluation of the effectiveness of precautionary label statements on neonic pesticides within a Canadian context. Beyond these immediate concerns with the risks associated with neonics, such studies are more broadly necessary to ascertain with a high degree of confidence whether those applying pesticides and pesticide-treated seeds in Canada read, understand and follow label requirements aimed at reducing risk. We believe that tinkering with label requirements on multiple products is not a credible response to the immediate ecological risks posed by these pesticides. It is recommended: In the absence of a full ban on imidacloprid and other neonicotinoids, PMRA should investigate the effectiveness of label statements in reducing ecological risks and increase capacity to ensure monitoring and compliance	The pesticide label contains legally-binding conditions of use, including mitigation measures that must be followed. It is the responsibility of the user to comply with label directions. As stated in the *Pest Control Products Act*: *No person shall handle, store, transport, use or dispose of a pest control product in a way that is inconsistent with* *a) The regulations; or* *b) If the product is registered, the directions on the label recorded in the Register, subject to the regulations.* As such, it is an offence under the *Pest Control Products Act* not to follow the label directions when using the product. The PRVD2018-12 outlines in Table 5 as well as Appendix XII Health Canada's risk assessment outcome and mitigation requirements (i.e. conditions of registration), including label statements. The table in Appendix XII is organized by crop group, and includes a detailed summary of the required label mitigation for the crop group, which may differ for some specific crops within the crop group. The required mitigation and label statements were based on the risk assessment conclusions for each use. Each type of use (foliar, soil application, seed treatments) has different exposure scenarios, which may result in different risks. Rates and timing of application affect the potential for risk. As well, the crops on which the product is used also have an effect on the

Topic of comment	Affiliation of Commenter	Comments	Health Canada Response
			potential for risk, as there are differences in pollinator exposure depending on attractiveness and agronomic practices associated with the crop. Based on the risk characterization, appropriate mitigation to reduce the potential for risk to pollinators was proposed for each crop group as outlined in Appendix XII of the PRVD. The required label mitigation is also outlined in Appendix II label amendments for end-use products containing imidacloprid of the RVD.
19. Mitigation: turf uses	The David Suzuki Foundation, Équiterre, Environmental Defence, the Canadian Association of Physicians for the Environment (CAPE) and the Canadian Environmental Law Association	Risks from non-agricultural turf uses are underestimated and unacceptable. The cosmetic use of imidacloprid on private and public lawns poses needless risks to pollinators and therefore even minimal risk should be deemed unacceptable. Moreover, the assessment almost certainly underestimates actual risk by (a) assuming effective irrigation following application and (b) overlooking risks from residues on non-target plants adjacent to treated turf. As mentioned above, we are not aware of evidence to support the assumption that label restrictions are effective in reducing ecological risks to acceptable levels. This assumption is particularly questionable in the case of the domestic-class imidacloprid turf product. Residential sprinkler systems or hand watering may not provide effective irrigation of all treatment areas. Furthermore, ornamental gardens are common in proximity to residential turf and may include flowering plants that are attractive to bees. We expect levels of imidacloprid residues in non-target plants adjacent to treated residential turf might be higher than in other treatment settings because of proximity and because the general public can apply the domestic-class turf	There is potential for exposure to pollinators when imidacloprid is applied to turf fields where clover or other flowering plants that are attractive to bees are present. The current label requires that imidacloprid be applied only when bees are not visiting the treatment area and applications must be followed by irrigation. The risk assessment for turf uses was conducted using available residue information and higher tier tunnel studies. Potential for risk was indicated when comparing Tier I and Tier II effect endpoints to the residue information on blooming clover in turf or re-blooming clover following irrigation and mowing in turf. However, Tier II tunnel studies indicated that there were no effects on bumble bees when application was followed with irrigation, but that there were effects without follow-up irrigation. The tunnel study was conducted on turf fields containing significant amounts of flowering clovers, thus the off-field risk is expected to be less than what was found in the field. The available information suggests that the potential risks of application on turf can be effectively mitigated according to requirements on the current label. Therefore, the overall risk conclusions, based on

Topic of comment	Affiliation of Commenter	Comments	Health Canada Response
		product. It was recommended: PMRA should recognize risks from the cosmetic use of imidacloprid as unacceptable and deregister non-agricultural turf products.	consideration of all information received during the consultation process, have not changed. Regarding concerns related to compliance with label statements for the commercial and domestic uses, please refer to the response for comments on label compliance (Comment No. 18).
20. Mitigation: ginseng	Ontario Ginseng Growers Association Ontario Ministry of Agriculture, Food and Rural Affair (OMAFRA)	Ontario Ginseng Growers Association: Imidacloprid is used once to newly seeded garden in late summer when no plants are in the field. Thus, the risk of imidacloprid uses on ginseng to pollinators is low. The commenter feels the re-evaluation should have no influence on the use on ginseng. There is a negligible exposure. No additional mitigation was proposed. OMAFRA also indicated the value of imidacloprid for the production of ginseng, and cited the imidacloprid use information on ginseng from the grower group.	Imidacloprid is registered as a soil application on newly seeded ginseng beds before mulch is laid down. No risk was identified and no additional risk management was proposed in PRVD2018-12 for the uses on Ginseng. Use on ginseng is expected to result in minimal pollinator exposure. Ginseng is grown as a perennial crop for 3-5 years before harvest. Each autumn the stems and leaves fall off the plant. Imidacloprid is applied only once during this cycle to newly seeded beds in late summer when no flowering plants are present. Ginseng blooms over a period of 3-4 weeks in mid-summer, typically on plants 3 years old and older. By the time flowering occurs, minimal residues of imidacloprid are expected to be present in the plant. Furthermore, ginseng has low attractiveness to pollinators, and is typically grown under shade screens, further reducing attractiveness to pollinators. Therefore, the overall risk conclusions, based on consideration of all information received during the consultation process, have not changed.
21. Mitigation: hops	Hayhoe Hops Ontario Ministry of Agriculture, Food and Rural Affair (OMAFRA)	Hayhoe Hops: Imidacloprid is essential for hop production for control of aphids during the bloom period. There is no pollen or nectar in hopyards at any time of the season, not even during this long bloom period. OMAFRA also indicated the value and needs of imidacloprid for the production of hops, and cited the	Considering additional available information, it was determined that cultivated hops are not expected to be attractive to bees. Hops are wind pollinated. Only female hops are cultivated in agricultural hop fields. Hop floral resources (pollen and nectar) appear to have negligible attractiveness to bees. Overall, there is negligible pollinator exposure expected through pollen or nectar

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		information from the grower group that there is no pollen or nectar in the blooms and pollinating insects do not visit the crop.	from cultivated hops. As exposure of bees to imidacloprid from treated hops is not expected, the proposed mitigation in PRVD2018-12 has been modified for foliar application on hops, with foliar applications during bloom being allowed in addition to the pre-bloom and post-bloom foliar application that were proposed in the PRVD2018-12.
22. Mitigation: ornamentals	Flowers Canada Ontario Ministry of Agriculture, Food and Rural Affair (OMAFRA)	Flowers Canada expressed concerns on the vagueness of the language used in PRVD2018-12 on page 3: 'In order to protect pollinators, Health Canada is proposing to phase out the following uses of imidacloprid: Soil application to ornamentals that will result in pollinator exposure. The language could be used to infer that all non-exempted ornamentals (i.e. cut flowers) would be subject to a phase out. This proposed phase out is too arbitrary and captures many unintended crops. There are a multitude of ornamental crops that are not produced for their flowers (e.g. tropical plants, foliage plants), are produced in controlled environments outside of pollinator activity windows (e.g. poinsettias produced in greenhouses during the Autumn/Winter) or are grown with no potential that they would be planted outside (seasonal potted plants). OMAFRA also indicated the value and needs of imidacloprid for the production of outdoor container and field ornamentals.	Health Canada considers attractiveness of plants/crops in the pollinator risk assessment, including ornamentals. Health Canada acknowledges that ornamental plants have various degrees of attractiveness to bees. During the risk assessment, risk to bees was identified for ornamental uses based on residues measured in pollen and nectar of ornamental plants that were sold in retail stores and available higher tier effects studies. The proposed mitigation in PRVD2018-12 states that the phase out of imidacloprid soil applications includes ornamentals that will result in pollinator exposure. Ornamental uses that will not result in pollinator exposure, such as cut flowers, are not included. The exemption to the phase out also includes uses on coniferous evergreens (pine, fir, juniper, spruce, arborvitae, hemlock, cypress, yew) and ornamental grasses, as they are not attractive to pollinators. Additionally, greenhouse-grown ornamentals that are not to be planted outside are also not included in the restrictions, as there would be no pollinator exposure. While the information cited from page 3 of PRVD2018-12 is a high level summary only, the information is more clearly summarized in the overall conclusions of the pollinator risk assessment in Table 5 (page 50) and Appendix XII (page 338 – 339) of the PRVD2018-02.

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			Overall, for ornamental soil use, a potential for risk was identified for outdoor ornamentals that are attractive to pollinators and for greenhouse ornamentals that will be planted outdoors and are attractive to pollinators. It is noted that uses without pollinator exposure are maintained, including: **Coniferous evergreens** (pine, fir, juniper, spruce, arborvitae, hemlock, cypress, yew, live Christmas trees) (as they are not attractive to pollinators). **Ornamental Grasses**: (as they are not attractive to pollinators) **Greenhouse Grown Cut Flowers** (as they are not planted outside) **Indoor potted plants**: Plants grown in greenhouses for indoor use (e.g., potted plants maintained indoors) (as there would be no pollinator exposure since they are not planted outside).
23. Mitigation: Pome and stone fruit, apple and cherry	Ontario Tender Fruit Growers / Ontario Apple Growers Canadian Horticultural Council (CHC) Ontario Fruit &Vegetable Growers Association	The Ontario Tender Fruit Growers/ Ontario Apple Growers described the importance of imidacloprid and typical use information on apple and tender fruit production in Ontario. The commenter expressed that the residue information used in the risk assessment did not represent the normal orchard practices. The commenter proposed to keep the imidacloprid uses by reducing the number of applications and restricting application timing. The proposed used were a maximum of two applications for each of apple, cherry, peach and nectarine with different timings between petal fall and flower bud initiation of the crops. The commenter from CHC indicated that spring and	In addition to various tiers of effect information, the risk of imidacloprid to pollinators was assessed considering crop-specific use information and best available residue studies. Residue information for one crop may be representative for other crops within the same crop group. When crop-specific residue information is not available, surrogate crops are selected for conducting the risk assessment after taking into consideration all residue studies. Residue studies used for various crops and crop groups were based on their availability and their representativeness to Canadian labels, including crop species, application methods, rates and timing. The orchard crops that were commented on are highly attractive to pollinators. During the risk assessment,

Topic of comment	Affiliation of Commenter	Comments	Health Canada Response
	(OFVGA)) Ontario Ministry of Agriculture, Food and Rural Affair (OMAFRA) BC Cherry Association BC Ministry Agriculture Bayer Cropscience	summer applications at lower Canadian rates would drastically reduce imidacloprid residues in nectar and pollen, and application before bud initiation would especially ensure that there are no contaminating residues the following year. The CHC suggested that spring/summer applications of imidacloprid be permitted on fruit trees. OMAFRA also indicated the value and needs of imidacloprid for the production of apple and stone fruits (cherry, apricot, peach, nectarine, plum). BC Cherry Association expressed concerns regarding the proposed phase-out decision of imidacloprid on cherries due to the importance of imidacloprid products and limited available alternatives. Rationales for the continued use of this product on cherries and risk mitigation measures were provided. The rationales included: typically one spray application was applied per season with an interval of at least 6 weeks from the flowering period (crop normally flowers between April 15th and May 1st , whereas Imidacloprid is normally required and applied between June 1st and June 15th); Orchard floor vegetation does not attract native or wild foraging bees when Imidacloprid is being applied. The risk mitigation measures similar to cypermethrin product are proposed. BC Ministry Agriculture provided information why imidacloprid is important in cherry, apples, peaches, pears, blueberry, raspberry/blackberry. The comment references two residue trials on orchard crops that do not represent typical use scenarios in BC. The commenter requested to continue registration with	residues measured from cherry, apple and other orchard crops were used as representative or surrogate crops for these crops (cherry, apple and other pome fruits and stone fruits). The cherry study was conducted with 5 × 112 g a.i./ha post-bloom foliar applications at intervals of 8-10 days. The apple and other pome fruit studies were conducted after a soil application followed by two post-bloom foliar applications with a total seasonal rates of 0.56-0.57 kg a.i./ha. Available information did not support the use of rule of proportionality for the exposure estimation. Compared to post-harvest applications, applications between post-bloom and fruit harvest may cause reduced level of residues in pollen and nectar. However, risks to bees were identified at both Tier I and Tier II using the residue data that were conducted for post-bloom applications, including those uses before harvest in the cherry study. It was acknowledged that available residues for cherry, pome and stone fruit were generated under conservative test scenarios compared with the registered uses in Canada. However, no additional relevant residue information is available which might allow for further refinement. Identified risk could not be excluded based on the best available information. Therefore, the overall risk conclusions, based on consideration of all information received during the consultation process, have not changed. The mitigation measures proposed by the BC Cherry Association on the basis of cypermethrin cannot fully mitigate the risk resulting from the spray application of imidacloprid on cherry due to the difference in their fate

Topic of comment	Affiliation of Commenter	Comments	Health Canada Response
		modified label statements similar to cypermethrin products. Bayer Cropscience indicated that pome and stone fruit was recently restricted by PMRA on the Bayer use label to include only the post-bloom and pre-harvest phase of the growing season. Those residue studies with post-harvest sprays are not applicable to applications of Admire 240 Flowable in Canada. The pome and stone fruit residues could be proportionally reduced by as much as 80% to reflect the lower rates and lower number of applications available to Canadian growers. Bayer Cropscience expressed that application between post flower and lower bud initiation is possible in fruiting trees and bushes to minimize residues in the pollen and nectar in the flowers the following spring. Residue trials reported by Bayer (PMRA REFERENCE number 2486614, 2603451, and 2603450) indicate low residues in pollen and nectar when foliar applications are done in early summer compared to applications done after harvest when flower buds are present. Bayer CropScience proposes the following mitigation after their discussion with grower groups: **Crop group 11 and 12 r**epresent pome fruits and stone fruits, respectively: • Restrict the application timing to post-bloom only, and from petal fall to 30 days after petal fall in pome fruit, and from petal fall to 24 days after shuck fall in stone fruits.	and toxicity. Imidacloprid is systemic and persistent. Available residue information indicates that post-bloom foliar application can result in high level of residues in pollen and nectar of cherry in the next bloom season that may cause harm to bees.

Topic of comment	Affiliation of Commenter	Comments	Health Canada Response
		Restrict the number of applications to two for all pests and crops in crop groups 11 and 12. • For cherry, decreases from 1150 ml per ha and per year to 460 ml per year in cherries (2 applications at 230 ml/ha for the control of fruit flies). • For apple, remains unchanged at 760 ml per ha and per season (2 applications of 380 ml for mullein bugs). Refine residues using the rule of proportionality to the residues data to correct for the actual use pattern.	
24. Mitigation: tomato and eggplant	Bayer Cropscience Canadian Horticultural Council (CHC) Ontario Fruit &Vegetable Growers Association (OFVGA) Ontario processing vegetable growers ad Ontario fruit and vegetable processors association (OFVPA)	Bayer Crop Science indicated that tomatoes do not produce nectar and therefore are not attractive to pollinators. Tomatoes and other fruiting vegetables from the *solanacea* family are generally wind or self-pollinated. For crop group 8 and specifically field grown tomatoes, the following mitigation is proposed: • Limit soil-application methods to in-furrow at transplant only, and remove all other soil application methods from the label. Remove foliar use from the label. • Limit the soil application rate to 800 ml/ha. The risk assessment can be refined using the rule of proportionality to the residues data to correct for the actual use pattern. CHC described that: • Imidacloprid is critical for tomato and eggplant production for pest control. • Processing tomatoes are self-pollinating, and as such, bees and other pollinators are not attracted to the flowers.	Tomato is considered to have a moderate potential for exposure to bees. Multiple residue studies with various application scenarios were considered in the risk assessment and risks to bees were identified under all test scenarios for the foliar and soil applications, including a minimum test rate for chemigation (2 × 140 g a.i/ha) sampled 79-102 days after the last application. While the proposed rate of 800 ml/ha described in the comment (equivalent to 192 g a.i./ha) is less than the cumulative test rate, the proposed rate was greater than the single test rate. No information is available on the potential exposure for the proposed use scenario for any further refinement. The identified risk for tomato uses could not be excluded based on the best available information.

Topic of comment	Affiliation of Commenter	Comments	Health Canada Response
	Ontario Ministry of Agriculture, Food and Rural Affair (OMAFRA)	• Tomato should be treated as potato as minimal pollinator exposure is expected. The residue information used in the PRVD does not represent imidacloprid use in Canada OFVGA and OFVPA expressed the importance and the use of imidacloprid in tomato production and believed the risk to pollinator is negligible. OMAFRA also indicated the value and needs of imidacloprid for the production of field tomatoes, and cited the information from the processing tomato sector that only an in-furrow application is made at the transplanting stage and tomato flowers are not attractive to bees	
25. Mitigation: lowbush and highbush blueberry and other berries	Wild Blueberry Research Centre, Dalhousie University Canadian Wild Blueberry Industry Research & Development Institute Inc. Wild blueberry Producers Association of NS	For lowbush blueberry, a commenter from Wild Blueberry Research Center and Canadian Wild Blueberry Industry Research & Development Institute Inc. provided information about growth and development of low bush blueberries. Low bush blueberries are managed on a two-year cycle with the shoot being pruned in alternate years to maximize berry yield. There is a phenological stage referred to as tip dieback that occurs and corresponds with floral induction. The tip dieback is followed by floral bud growth and development. The tip dieback may be used as a cut off point where no further imidacloprid applications could occur during sprout year so that no flower buds are exposed to imidacloprid. The commenter from Canadian Wild Blueberry Industry Research & Development Institute Inc. Wild blueberry Producers Association of NS, and Bragg Lumber, indicated the value of imidacloprid and	The risk to pollinators from use of imidacloprid was assessed using different crop-specific use information along with the best available residue and effect studies. The risk to bees for imidacloprid blueberry uses was evaluated using measured residues in pollen and nectar collected by foraging bees and in hives. The hives were confined in blueberry fields treated with a post-bloom band application of imidacloprid (1 × 561 g a.i./ha) and the samples were collected 228 to 257 days after the application. This sampling interval after the application was long and likely represents the majority of the growth duration before flowering. It was acknowledged that the test application rate was relevant but slightly greater than the maximum Canadian label rate for blueberry, which is 480 g a.i./ha for surface band spray, and 288 g a.i./ha for soil drench. It is reasonable to expect that with a longer time interval between the application and blooming of the plant, the

Topic of comment	Affiliation of Commenter	Comments	Health Canada Response
	Bragg Lumber BC Blueberry BC Ministry Agriculture (part of Canadian Horticultural Council (CHC) Ontario Fruit &Vegetable Growers Association (OFVGA) Bayer Cropscience	requested revisions to the use pattern on wild blueberry: • no applications after tip dieback in the sprout (non fruiting year) • no applications prior to bloom in the cropping year; and • If crop year applications are made, the field must be pruned so that another cropping phase of production will not occur. For highbush blueberry, BC Blueberry provided general imidacloprid use information on highbush blueberry. Requesting two post bloom, pre-fruit harvest applications (no later than 30 days after petal fall) of imidacloprid I for control of aphids on highbush blueberries BC Ministry of Agriculture also expressed the need of imidacloprid for blueberry production in BC For blueberry, the commenter from CHC and OFVGA suggested that two selectively timed applications of imidacloprid, 30 days after petal fall, could be sufficient to protect the blueberry plants from aphid feeding, while still mitigating all pollinator exposure. Bayer CropScience proposes the following mitigation after their discussion with grower groups: **Crop Group 13 B** includes many small bush fruit trees. **low-bush blueberry:** for both Admire 240 Flowable and Concept Liquid insecticide product labels:	level of residues in the flower should be lower. However, for low bush blueberry, no relevant residue information is available related to the "tip dieback" stage, proposed as a cut off point for imidacloprid applications. No additional residue information is available that would allow further refinement of the risks that were identified for lowbush and highbush blueberry. Risk to pollinators as a result of application to blueberry could not be excluded based on the best available information. As proposed in the PRVD2018-02, mitigation for berries is as follows: For soil applications, berry applications were proposed to be removed except for grape; soil application on grape may be maintained with no change. For foliar applications, berry uses, except for strawberry and grape, included proposed removal of pre-bloom and during bloom application, but maintained post-bloom application only with renovation after harvest. The use directions would indicate: Application allowed only post-bloom with renovation after harvest. Do not apply pre-bloom or during bloom (Do not apply until petal fall). Do not apply when bees are present. When applying after petal fall, renovation of woody plants (cutting back of old growth) must occur after harvest and before the next season's bloom. For grape foliar applications, a change in application timing was proposed to exclude during-bloom application. For strawberry foliar applications, it was proposed to

Topic of comment	Affiliation of Commenter	Comments	Health Canada Response
		• Application restrictions during the fruit production year: Application is allowed only post-bloom with renovation after harvest. • Do not apply pre-bloom or during bloom (Do not apply until petal fall). • Do not apply when bees are present. • When applying after petal fall, renovation of woody plants (cutting back of old growth) must occur after harvest and before the next season's bloom. **For the other crops belonging to crop Group 13 B** • Restrict use post bloom and up to 30 days after petal fall. **Crop Group 13 F and 13 G (except strawberries)** Restricting uses to post-bloom only, and no later than 30 days after petal fall.	remove pre-bloom and during bloom application, and maintain post-bloom application only.
26. Mitigation: strawberry and other berry crops	l'Association des producteurs de fraises et framboises du Québec Canadian Horticultural Council (CHC) Ontario Fruit &Vegetable Growers Association (OFVGA)	l'Association des producteurs de fraises et framboises du Québec expressed the importance of imidacloprid for the production of strawberry, raspberry and other berry crops (CG13-07A, 13-07B and 13-07G). Alternatives have higher risk according to the provincial scale and the group is asking to maintain soil uses for these crops. For strawberry, the use of imidacloprid on row strawberries in the year of establishment should be permitted at all times (before and during flowering) as the flowers are cut off as soon as they appear. There is no risk to pollinators. BC Ministry Agriculture also indicated the need for imidacloprid for the production of raspberry/blackberry and proposed to continue the use with additional label statements.	The risk to pollinators from use of imidacloprid was assessed using crop-specific use information and available crop-specific residue studies. Most of the berry crops are highly attractive to pollinators, with strawberry being considered low to moderately attractive to pollinators. The risk to bees for imidacloprid uses on berry crops (crop group 13) was evaluated for soil applications using the residues measured from strawberry pollen directly from plants and blueberry pollen and nectar collected by bees. In the study, the test fields were previously treated with imidacloprid at 1 × 561 g a.i./ha. It was acknowledged that the test application rate was relevant to the Canadian uses, but slightly exceeded the maximum Canadian label rates, which is 480 g a.i/ha. For strawberry, removing flowers during the first year of plant establishment is expected to reduce the potential for

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	BC Ministry Agriculture	For strawberry, the CHC and OFVGA suggested that the first year strawberries is not a risk to pollinators, as first year strawberries have all their flowers cut off as soon as they appear in order to increase yield.	exposure to bees. However, there are uncertainties regarding the efficiency of the proposed flower removal, especially for ever-bearing strawberry varieties since the new flowers may open continuously in the field. Based on available agricultural information, the 1st year flower removal is normally conducted two times on most day-neutral ever-bearing varieties and one time on certain June bearing strawberry varieties along with the needs for other agriculture practices (e.g. hoeing or hand weeding). It appears that there are 1st flowers remaining in the field and bee exposure cannot be eliminated by current practices. Regarding alternatives, risks are assessed at the time of initial registration and regularly through the pesticide re-evaluation program. Only those uses where potential risk to the environment is acceptable are registered.
27. Bees in PEI	Citizen	Personal comment about experiences in PEI related to beekeeping and neonicotinoids, including that beekeepers in PEI have been experiencing high colony losses. There were studies conducted by the registrant for the use of imidacloprid on potato in PEI. Neonicotinoids were detected in hives in a national honey bee health survey in 2017.	Health Canada considered multiple lines of information to assess the potential risk for imidacloprid uses on potatoes, including field effect studies as well as a residue study conducted in PEI potato fields. Available information suggested that the level of exposure to honey bees in potato fields is low. Honey bees do not usually visit potato flowers, and imidacloprid residues in other plants in the treated potato fields were found to be low. Available field effect studies also indicated that there were no detectable risks for bumble bees foraging on potato fields treated with imidacloprid. The commenter also indicated concerns regarding high honey bee colony losses in PEI. Based on the re-evaluation, there was no clear evidence suggesting links between honey bee colony health and the use of imidacloprid on potatoes. It is noted that multiple factors

Topic of comment	Affiliation of Commenter	Comments	Health Canada Response
			may contribute to overall colony health, including nutrition, pathogens, beekeeping practices, loss of foraging habitat, as well as possible pesticide exposure.

2.0 Comments Related to the Value Assessment

Comments related to value were received from: growers, grower groups, provincial governments, members of the public, non-profit organizations, and registrants, including: Alberta Barley, Alberta Canola, Alberta Pulse Growers, Alberta Wheat Commission, Association des Producteurs de Fraises et Framboises du Québec, Association des Producteurs Maraîchers du Québec, Bayer CropScience Incorporated, Bragg Lumber, British Columbia Blueberries, British Columbia Cherry Association, British Columbia Ministry of Agriculture, Canola Council of Canada, Canadian Canola Growers Association, Canadian Horticultural Council, Canadian Wild Blueberry Industry Research & Development Institute Inc., Christian Farmers Federation of Ontario, Flowers Canada Growers, Ontario Apple Growers, Ontario Ginseng Growers Association, Ontario Fruit and Vegetable Growers' Association, Ontario Fruit and Vegetable Processing Association, Ontario Tender Fruit Growers, Ontario Ministry of Agriculture and Rural Affairs, David Suzuki Foundation/ Équiterre/ Environmental Defence/ Canadian Association of Physicians for the Environment (CAPE)/Canadian Environmental Law Association (CELA), Union des Producteurs Agricoles and Wild Blueberry Association of Nova Scotia.

2.1 Comment: There are limited or no alternatives to imidacloprid.

A number of stakeholders emphasized that for many of the registered uses of imidacloprid there are few or no alternatives registered. In some cases where alternative products are registered, they may be more costly than, and/or not as effective as imidacloprid. Where there are limited alternative chemistries available, the loss of imidacloprid could present increased challenges with managing pest resistance, and negatively impact Integrated Pest Management leading to major crop losses.

Health Canada Response

Health Canada acknowledges that there are no or limited alternative active ingredients registered for certain imidacloprid uses or that certain alternatives may be more costly to apply than imidacloprid. Health Canada also acknowledges the challenges in finding replacement products to imidacloprid where there are limited or no alternatives. Health Canada encourages grower groups to contact the registrants of potential alternative products, Agriculture and AgriFood Canada (AAFC), and their provincial minor use coordinator to discuss the possibility of pursuing new registrations to address their crop-specific needs.

2.2 Comment: Loss of imidacloprid will negatively affect the domestic and international competitiveness of Canadian producers.

In order to remain competitive growers need access to innovative and effective tools to manage weed, insect and disease problems that can threaten crops. Canadian farmers will become less competitive, and pay the price for the loss of these innovations.

Health Canada Response

Health Canada acknowledges the importance of producers being competitive in the domestic and international marketplace and recognizes the need for pest control products that are effective, but do not pose unacceptable risks to human health or the environment.

2.3 Comment: Value of uses that are proposed for cancellation.

The review of imidacloprid has carefully considered the potential impact of exposure risks to pollinators from the various crops, application methods, and other secondary exposure risks these may create for pollinators. However, what have not been as carefully considered are the value of these extensive and various uses of imidacloprid for all the different crops where they are currently used. It is not possible to weigh the value of imidacloprid against the risk when the full value of these actives has not been considered.

Health Canada Response

Health Canada acknowledges the value of imidacloprid to agricultural users. However, the primary mandate of Health Canada is to prevent unacceptable risk to individuals and the environment from the use of pest control products. Health Canada does not weigh risk versus benefit. The *Pest Control Products Act* requires that pesticides show acceptable risk in order to stay in the market. Health Canada encourages grower groups to contact the registrants of potential alternative products, AAFC, and their provincial minor use coordinator to discuss the possibility of pursuing new registrations to address their crop-specific needs.

2.4 Comment: The value of imidacloprid is limited.

PRVD2018-12 refers to the value assessment of the use of neonicotinoid corn and soybean seed treatments, which Health Canada published for consultation in 2016. The published document, REV2016-03, *Value Assessment of Corn and Soybean Seed Treatment Use of Clothianidin, Imidacloprid and Thiamethoxam*, concludes that neonicotinoids add limited value to corn and soybean production in Canada. REV2016-03 also refers to the need to seek additional information to finalize the value assessment for both corn and soybean seed treatment. PRVD2018-12 makes no mention of any subsequent efforts to address this data gap and also fails to review new evidence.

Research from around the world found that insect pest resistance to neonicotinoids is increasing, that economic benefits of seed treatments are limited or absent because, in many cases, pest populations are below levels that would cause significant damage, and that neonicotinoids cause adverse collateral effects on beneficial species, which undermines their overall value to agriculture. This research supports the fact that the systemic use of treated seeds in Canada can no longer be defended in value and risk assessments. The PMRA must revisit its value assessment for neonicotinoid seed treatments in light of the latest findings from the Task Force on Systemic Pesticides.

Health Canada Response

Comments submitted to Health Canada during the consultation period for REV2016-03 were reviewed and responses were published in PRVD2017-24 and PRVD2017-23. The comments provided through the consultation process did not change the conclusions in REV2016-03 that neonicotinoid seed treatments contribute to insect pest management in agriculture in Canada and complement current crop production practices such as use of reduced tillage or no-till for soybean and corn and earlier planting for corn and soybean.

Imidacloprid is effective in managing a wide variety of insect pests on many different crops. It can be applied by several application methods including soil, foliar and seed treatments to target the destructive life stage of the insect pest. Imidacloprid provides users with an effective tool that can be incorporated into their pest management program. For some uses, it is the only active ingredient registered to manage major pests.

3.0 Other Comments

3.1 Comments related to International Activities

- Comments were received regarding the international status of neonicotinoids; specifically, the European Union's decision to ban outdoor uses of three neonicotinoids.

Health Canada Response

Health Canada continues to monitor regulatory activities in other OECD countries related to pollinators and neonicotinoids. Health Canada assessments are based on internationally accepted risk assessment methods as well as current risk management approaches and policies. While Canada and other international regulators can be closely aligned in terms of the science assessment, differences in the final regulatory outcome (for example, cancellation of uses or type of restriction) can occur because of a variety of reasons that can include differences in the assessed data, registered use patterns, timing of the evaluations, as well as any legislative and policy requirements. The purpose of Health Canada's proposed re-evaluation decision documents is to outline the risk assessment and associated risk management of a pesticide, as it relates to the Canadian use pattern and regulatory framework.

3.2 Comments Relating to an Immediate Ban of Neonicotinoids

- A comment was received from Suzuki/Équiterre/Environmental Defence/ Canadian Association of Physicians for the Environment (CAPE)/Canadian Environmental Law Association (CELA), in addition to many received from individuals, that the PMRA should immediately ban neonicotinoid uses/products without any further delay, as well as expressing an overall concern for pollinator health.

Health Canada Response

Health Canada acknowledges the comments requesting an immediate ban or cancellation of neonicotinoids, and also shares in the concern for pollinator health and agrees with the importance of pollinators to food production.

For the pollinator re-evaluation of imidacloprid, Health Canada has concluded that continued registration of products containing this active ingredient are acceptable with required amendments; however, certain uses of imidacloprid are cancelled to address potential risk of concern to pollinators. The overall exposure to pollinators will be significantly reduced through both removal of many uses that pose a risk to bees and through implementation of additional restrictions in application timing that will further reduce pollinator exposure. As stated earlier, a two year period to allow for the implementation of the additional risk mitigation measures required to protect pollinators is considered acceptable. The risks identified are not considered imminent because they are not expected to cause irreversible harm over the phase-out period.

The risks to pollinators are also acceptable for one additional year for uses having critical pest management needs (the European chafer, certain beetles and leafhoppers). During this period, the overall exposure to pollinators will be significantly reduced through both removal of uses to control other pests on these crops and other crops that pose a risk to bees, as well as through implementation of additional restrictions in application timing thereby further reducing pollinator exposure.

3.3 Comments Relating to Compliance

A comment was received from David Suzuki Foundation/Équiterre/Environmental Defence/ Canadian Association of Physicians for the Environment (CAPE)/Canadian Environmental Law Association (CELA).

- The use of label modifications makes risk mitigation the responsibility of end users while the risk of non-compliance has far-reaching consequences. We appreciate that the PMRA has recently begun to report annually on its compliance and enforcement activities. While such efforts, and reporting on them, are laudable, the 2015-16 and 2016-17 Compliance and Enforcement Reports indicate how limited such inspection and enforcement efforts are at the farm level across a country as vast as Canada. Both the 2015-16 and 2016-17 reports note that uses contrary to the label were among the most common areas of non-compliance. Both reports also note that compliance and enforcement activities have focused in areas of particularly high risk. While such an approach makes the best use of scarce resources, the consequence is an inspection capacity that is woefully inadequate to monitor compliance with label restrictions.

  Given our overriding concern that these pesticides should be removed from such widespread use in light of the serious environmental risks discussed herein, we are not confident that the PMRA has the capacity to either ensure compliance with proposed label changes or assess their effectiveness.

Health Canada Response

Compliance with the *Pest Control Products Act* and its Regulations is monitored by Health Canada through its National Pesticide Compliance Program (NPCP). Health Canada inspectors verify the manufacture, possession, storage, handling, import, distribution and use of pest control products (pesticides). Annual compliance promotion and inspection priorities are determined by Health Canada after consultations with Provincial and Territorial partners to identify major compliance issues across the country. Previous inspection results, stakeholder concerns and changes in product registration status or use patterns are also considered. As inspections are risk-based, in some instances, when non-compliance is known or suspected, a targeted approach may be used. In other situations, random inspections are preferred.

As part of the verification of pesticide use, inspectors verify that approved pest control products are used according to label instructions. The labels of approved pest control products contain detailed information, including directions of use. Use outside of the instructions on the label is an offence under the *Pest Control Products Act*.

Inspections have found, as reported in the Compliance and Enforcement Annual Report (https://www.canada.ca/en/health-canada/services/consumer-product-safety/reports-publications/pesticides-pest-management/corporate-plans-reports.html), some instances of use of registered pesticides contrary to label instructions. This is an area of concern, and when identified, the user is notified of the contravention under the *Pest Control Products Act* and the corrective action requested to be compliant. When non-compliance is identified, Health Canada applies an enforcement response, using a risk management approach that is consistent with the nature and severity of the contravention. Health Canada may also conduct a follow up surveillance inspection to determine if the user returns to compliance. The return to compliance rate under surveillance for all inspections over the past 4 years has been 79%.

Appendix III Label Amendments for Products Containing Imidacloprid

The label amendments presented below do not include all label requirements for individual end-use products, such as first aid statements, disposal statements, precautionary statements and supplementary protective equipment. Information on labels of currently registered products should not be removed unless it contradicts the label statements provided below.

I) The following changes must be made to the labels as identified in the tables.

Table 1 Label amendments for imidacloprid products that contain turf, ornamental, and greenhouse uses

Product Information: **Product Registration Number; Use site; Registrant; Product Name; Application type [Foliar (FO); Soil (SO)]**						
25932 TURF Ground sprayer application (e.g.boom sprayer) Irrigation or rainfall (5-10 mm) required within 24 hours after application.	29130 TURF Ground sprayer application (e.g. boom sprayer) Irrigation or rainfall (5-10 mm) required within 24 hours after application.	25933 TURF Granular spreader, drop and rotary type. Irrigation or rainfall required within 24 hours after application	29185 TURF Granular spreader, drop and rotary type. Irrigation or rainfall required within 24 hours after application	29738 (Domestic) TURF- Domestic	25636 Greenhouse (vegetable and ornamentals) Ornamentals (greenhouse and outdoor)	27357 Greenhouse (vegetable and ornamentals) Ornamentals (greenhouse and outdoor)
Bayer CropScience	Adama Agricultural Solutions Canada LTD	Bayer CropScience	Adama Agricultural Solutions Canada LTD	SBM Life Science Corp	Bayer CropScience	Bayer CropScience
Merit Solupack Insecticide	Quali-pro Imidacloprid 75 WSP Insecticide	Merit Granular	Quali-pro Imidacloprid 0.5 Granular Insecticide	Bayer Advanced Season Long Grub Control Insecticide	Merit 60 WP Greenhouse and Nursery Insecticide	Intercept 60 WP Greenhouse Insecticide
FO- Turf	FO- Turf	SO- Turf	SO- Turf	SO Domestic-Residential turfgrass	SO	SO
Currently Registered Uses						
Turf: Turfgrass sites including golf courses; sod farms; professional lawn care on municipal, industrial, residential, recreational turfgrass (including home lawns, business and office complexes, shopping complexes, multi-family residential complexes, airports, cemeteries, parks, playgrounds, athletic fields)	Turf: Turfgrass sites including golf courses; sod farms; professional lawn care on municipal, industrial, residential, recreational turfgrass (including home lawns, business and office complexes, shopping complexes, multi-family residential complexes, airports, cemeteries, parks, playgrounds, athletic fields)	Turf: Turfgrass sites including golf courses; sod farms; professional lawn care on municipal, industrial, residential, recreational turfgrass (including home lawns, business and office complexes, shopping complexes, multi-family	Turf: Turfgrass sites including golf courses; sod farms; professional lawn care on municipal, industrial, residential, recreational turfgrass (including home lawns, business and office complexes, shopping complexes, multi-family	Turf: Domestic Use Turfgrass sites (e.g. residential lawns)	**Greenhouse vegetables:** **Mature plants in production greenhouse:** Cucumber Tomato Peppers Eggplant **Transplant Tray Plug Drench:**	**Greenhouse vegetables:** **Mature plants in production greenhouse:** Cucumber Tomato Peppers Eggplant **Transplant Tray Plug Drench:**

		residential complexes, airports, cemeteries, parks, playgrounds, athletic fields)	residential complexes, airports, cemeteries, parks, playgrounds, athletic fields)		Peppers Greenhouse Lettuce CG5A Head and Stem Brassica [including cabbage, broccoli, cauliflower, Nappa cabbage, chinese broccoli, Brussels sprouts, Chinese mustard cabbage, kohlrabi] **Greenhouse ornamentals:** **Container plants:** Herbaceous species Woody perennials **All container grown nursery stock, including:** Trees, shrubs, herbaceous perennials and ornamental grasses **Field grown nursery ornamentals, including:** Trees, shrubs, herbaceous perennials and ornamental grasses	Peppers Greenhouse Lettuce CG5A Head and Stem Brassica [including cabbage, broccoli, cauliflower, Nappa cabbage, chinese broccoli, Brussels sprouts, Chinese mustard cabbage, kohlrabi, cavolo broccolo] **Greenhouse ornamentals:** **Container plants:** Herbaceous species Woody perennials **All container grown nursery stock, including:** Trees, shrubs, herbaceous perennials and ornamental grasses **Field grown nursery ornamentals, including:** Trees, shrubs, herbaceous perennials and ornamental grasses
Current Label Statements relevant for Pollinators						
Environmental Hazards: *This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.* Directions for Use*:* *…followed by sufficient irrigation or rainfall (5 – 10 mm) to move the active ingredient through the thatch…*	Environmental Hazards: *This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.* Directions for Use*:* *…followed by sufficient irrigation or rainfall (5 – 10 mm) to move the active ingredient through the thatch…*	Environmental Hazards: *None related to bees* Directions for Use*:* *…followed by sufficient irrigation or rainfall (5 – 10 mm) to move the active ingredient through the thatch…* ***NOTE:** For*	Environmental Hazards: *None related to bees* Directions for Use*:* *…followed by sufficient irrigation or rainfall (5 – 10 mm) to move the active ingredient through the thatch…* ***NOTE:** For*	Environmental Hazards: *Toxic to bees. Bees can be exposed to product residues in flowers, leaves, pollen and/or nectar resulting from granule application.* Directions for Use: *The granules must be watered*	For systemic insect control on Ornamental and Vegetable Plants Grown in Greenhouses and Nurseries Environmental Hazards: *This product is highly toxic to bees*	For systemic insect control on Ornamental and Vegetable Plants Grown in Greenhouses and Nurseries Environmental Hazards: *This product is highly toxic to bees*

NOTE: *For optimum control, irrigation or rainfall should occur within 24 hours after application to move the active ingredient through the thatch. On golf courses, irrigate treated areas following application. Avoid mowing turf or lawn area until after irrigation or rainfall has occurred so that uniformity of application will not be affected. Apply MERIT SOLUPAK Insecticide only once per year as directed by this label.*	***NOTE:*** *For optimum control, irrigation or rainfall should occur within 24 hours after application to move the active ingredient through the thatch. On golf courses, irrigate treated areas following application. Avoid mowing turf or lawn area until after irrigation or rainfall has occurred so that uniformity of application will not be affected. Apply [Product] Insecticide only once per year as directed by this label.*	*optimum control, irrigation or rainfall should occur within 24 hours after application to move the active ingredient through the thatch. On golf courses, irrigate treated areas following application. Avoid mowing turf or lawn area until after irrigation or rainfall has occurred so that uniformity of application will not be affected. Apply [Product] Insecticide only once per year as directed by this label.* **Proposed in PRVD2016-20 Imidacloprid**: To further reduce the potential risk to birds from granular turf application, it is recommended that the current label direction on commercial granular product labels requiring irrigation or rainfall within 24 hours after application of granules, be reduced to a watering period within 12 hours after application: ***The granules must be watered within 12 hours after application by sufficient irrigation (5-10 mm) to ensure the active moves through the thatch.***	*optimum control, irrigation or rainfall should occur within 24 hours after application to move the active ingredient through the thatch. On golf courses, irrigate treated areas following application. Avoid mowing turf or lawn area until after irrigation or rainfall has occurred so that uniformity of application will not be affected. Apply [Product] Insecticide only once per year as directed by this label.* **Proposed in PRVD2016-20 Imidacloprid**: To further reduce the potential risk to birds from granular turf application, it is recommended that the current label direction on commercial granular product labels requiring irrigation or rainfall within 24 hours after application of granules, be reduced to a watering period within 12 hours after application: ***The granules must be watered within 12 hours after application by sufficient irrigation (5-10 mm) to ensure the active moves through the thatch.***	*immediately after application (within 1 hour) by sufficient irrigation (5-10 mm) to ensure the active moves through the thatch. Avoid overwatering (more than 20 mm). Avoid runoff or puddling of irrigation water following application.*	*exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.* *Toxic to pollinators and certain beneficial insects. This product is systemic, and residues may be transported through plants into leaves, pollen and nectar. May harm pollinators and certain beneficial insects, including those used in greenhouse production.* Directions for Use: For APPLICATION IN NURSERIES; GREENHOUSES: *Repellency of bumble bee pollinators and negative effects on some beneficials (Orius sp.) can occur when MERIT 60 WP is applied.* Note: The above use directions are also included in the specific application directions for **Mature plants in production**	*exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.* *Toxic to pollinators and certain beneficial insects. This product is systemic, and residues may be transported through plants into leaves, pollen and nectar. May harm pollinators and certain beneficial insects, including those used in greenhouse production.* Directions for Use: For APPLICATION IN NURSERIES; GREENHOUSES: *Repellency of bumble bee pollinators and negative effects on some beneficials (Orius sp.) can occur when INTERCEPT 60 WP is applied.* Note: The above use directions are also included in the specific application directions for **Mature plants in**

					greenhouse: Cucumber Tomato Peppers Eggplant **All container grown nursery stock, including:** Trees, shrubs, herbaceous perennials and ornamental grasses **Field grown nursery ornamentals, including:** Trees, shrubs, herbaceous perennials and ornamental grasses	**production greenhouse:** Cucumber Tomato Peppers Eggplant **All container grown nursery stock, including:** Trees, shrubs, herbaceous perennials and ornamental grasses **Field grown nursery ornamentals, including:** Trees, shrubs, herbaceous perennials and ornamental grasses
Required risk mitigation and label updates to protect pollinators						
Maintain use based on risk characterization of low risk when use directions are followed (including irrigation after application). No additional risk mitigation **Label update:** **Add under:** Environmental Hazards/ Precautions (following the other bee statements): *To further minimize exposure to pollinators, refer to the complete guidance "Protecting Pollinators during Pesticide Spraying- Best Management Practices" on the Health Canada website (www.canada.ca/pollinators). Follow crop specific directions.*	**Maintain use based on risk characterization of low risk when use directions are followed (including irrigation after application).** No additional risk mitigation **Label update:** **Add under:** Environmental Hazards/ Precautions (following the other bee statements): *To further minimize exposure to pollinators, refer to the complete guidance "Protecting Pollinators during Pesticide Spraying- Best Management Practices" on the Health Canada website (www.canada.ca/pollinators). Follow crop specific directions.*	**Maintain use based on risk characterization of low risk when use directions are followed (including irrigation after application).** No additional risk mitigation **Label update:** **Add under:** Environmental Hazards/Precautions: *Toxic to bees. Bees can be exposed to product residues in flowers, pollen and/or nectar resulting from granule application. When used according to label directions minimal*	**Maintain use based on risk characterization of low risk when use directions are followed (including irrigation after application).** No additional risk mitigation **Label update:** **Add under:** Environmental Hazards/Precautions: *Toxic to bees. Bees can be exposed to product residues in flowers, pollen and/or nectar resulting from granule application. When used according to label directions minimal*	**Maintain use based on risk characterization of low risk when use directions are followed (including irrigation after application).** No additional risk mitigation **Label update:** May update label language to include the following: **Add under:** Environmental Hazards/Precautions: *When used according to label directions minimal exposure or risk is expected.*	**<u>Greenhouse vegetables</u>:** **Maintain uses (no change):** Mature plants in production greenhouse: Cucumber Tomato Peppers Eggplant Transplant Tray Plug Drench: Greenhouse Lettuce CG5A Head and Stem Brassica Peppers that will be grown in greenhouse **Remove Use:** Transplant Tray Plug Drench: Peppers that will be planted outdoors	**<u>Greenhouse vegetables</u>:** **Maintain uses (no change):** Mature plants in production greenhouse: Cucumber Tomato Peppers Eggplant Transplant Tray Plug Drench: Greenhouse Lettuce CG5A Head and Stem Brassica **Remove Use:** Transplant Tray Plug Drench: Peppers **Additional Label Updates**

		exposure or risk is expected	*exposure or risk is expected.*	Example: Environmental Hazards: *Toxic to bees. Bees can be exposed to product residues in flowers, leaves, pollen and/or nectar resulting from granule application.* ***When used according to label directions minimal exposure or risk is expected***.	**Additional Label Updates (Greenhouse vegetables):** **Add under:** **Directions for use for greenhouse production of tomato, eggplant, pepper, cucumber**: *Toxic to pollinators and certain beneficial insects. This product is systemic, and residues may be transported through plants into leaves, pollen and nectar. May harm pollinators and certain beneficial insects, including those used in greenhouse production.* **<u>Ornamentals (greenhouse and outdoor):</u>** **Remove use for pollinator-attractive ornamentals based on potential for risk.** **Potential risk identified for both outdoor ornamentals and greenhouse ornamentals that will be planted outdoors and are attractive to**	**(Greenhouse vegetables):** **Add under:** **Directions for use for greenhouse production of tomato, eggplant, pepper, cucumber**: *Toxic to pollinators and certain beneficial insects. This product is systemic, and residues may be transported through plants into leaves, pollen and nectar. May harm pollinators and certain beneficial insects, including those used in greenhouse production.* **<u>Ornamentals (greenhouse and outdoor):</u>** **Remove use for pollinator-attractive ornamentals based on potential for risk.** **Potential risk identified for both outdoor ornamentals and greenhouse ornamentals that will be planted outdoors and are attractive to pollinators.** **Uses without pollinator**

					pollinators. **Uses without pollinator exposure as identified below are maintained:** **Coniferous evergreens** (pine, fir, juniper, spruce, arborvitae, hemlock, cypress, yew, live Christmas trees). (as they are not attractive to pollinators) **Ornamental Grasses**: (as they are not attractive to pollinators) **Greenhouse Grown Cut flowers** (as they are not planted outside) **Indoor potted plants**: Plants grown for indoor use only (e.g., potted plants maintained indoors) (as there would be no pollinator exposure since they are not planted outside).	**exposure as identified below are maintained:** **Coniferous evergreens** (pine, fir, juniper, spruce, arborvitae, hemlock, cypress, yew, live Christmas trees). (as they are not attractive to pollinators) **Ornamental Grasses**: (as they are not attractive to pollinators) **Greenhouse Grown Cut flowers** (as they are not planted outside) **Indoor potted plants**: Plants grown for indoor use only (e.g., potted plants maintained indoors) (as there would be no pollinator exposure since they are not planted outside).

Table 2 Label amendments for imidacloprid products that contain mixed application methods (i.e., foliar, soil, and seed treatment applications) on vegetable and fruit crops.

Product Information: **Product Registration Number; Registrant; Product Name; Application type [Foliar (FO); Soil (SO); Seed Treatment (ST)]**				
24094	28475	28726	29048	29611
Bayer CropScience	Adama Agricultural Solutions	FMC Corporation	FMC Corporation	Bayer CropScience
Admire 240 Flowable Systemic Insecticide	Alias 240 SC Systemic Insecticide	Grapple Insecticide	Grapple-2 Insecticide	Concept Liquid Insecticide
FO, SO, ST (ST: potato seed piece)	FO, SO, ST (ST: potato seed piece; wheat, barley, oat, soybean)	FO, SO, ST (ST: potato seed piece)	FO, SO, ST (ST: potato seed piece)	FO
Currently Registered Uses				
Many crops- fruits, vegetables, Christmas trees **Potatoes:** **SO in-furrow, field drench** **ST seed piece** **FO** **CG1B, 1D [note: includes sweet potato]:** **SO in-furrow, field drench** **FO (except ginseng and sweet potato)** CROP SUBGROUP 1-B: Root vegetables (except sugarbeet): Beet, garden; burdock, edible; carrot; celeriac; chervil, turnip-rooted; chicory; ginseng*; horseradish; parsley, turnip-rooted; parsnip; radish; radish, oriental; rutabaga; salsify; salsify, black; salsify, Spanish; skirret; turnip. CROP SUBGROUP 1-D: Tuberous and corm vegetables (except potatoes): Arracacha; arrowroot; artichoke, Chinese; artichoke, Jerusalem; canna, edible; cassava, bitter and sweet; chayote, root; chufa; dasheen; ginger; leren; sweet potato*; tanier; turmeric; yam bean; yam, true. (* NOTE: Ginseng and Sweet potato have soil application only. Seespecific use directions for ginseng-CG1B and sweet potato-CG1D.) **CG2 Leaves of root and tuber**	Many crops- fruits, vegetables, seed treatments- cereals, soybean **Potatoes:** **SO in-furrow, field drench** **ST seed piece** **FO** **Tomato (field grown) [ON, QC, Atlantic Canada only]** **SO in-furrow, transplant** **FO** **Field lettuce (Head and Leaf) [BC, ON, QC, PEI, NS only]** **SO in-furrow, drench, transplant tray plug drench** **FO** **CG5 Brassica (cole) leafy vegetables** **SO side dress** **FO** Crop Group 5: Broccoli, Chinese Broccoli (gai lon), Broccoli raab (rapini), Brussels sprouts, Cabbage, Chinese Cabbage (bok choy and napa), Chinese Cabbage Mustard (gai choy), Cauliflower, Cavalo broccoli, Collards, Kale, Kohlrabi, Mizuna, Mustard Greens, Mustard Spinach, Rape Greens **Apple** **FO** **Peach, Nectarine** **FO** **Cherries [BC,ON only]** **FO** **Highbush Blueberries [BC only]** **FO** **Brussels sprouts** **SO** **FO**	Many crops- fruits, vegetables **Potatoes:** **SO in-furrow** **ST seed piece** **FO** **Tomato (field grown) [ON, QC, Atlantic Canada only]** **SO in-furrow, transplant** **FO** **Field lettuce (Head and Leaf) [BC, ON, QC, PEI, NS only]** **SO in-furrow, drench at transplant, transplant tray plug drench** **FO** **CG5 Brassica (cole) leafy vegetables** **SO side dress** **FO** Crop Group 5: Broccoli, Chinese Broccoli (gai lon), Broccoli raab (rapini), Brussels sprouts, Cabbage, Chinese Cabbage (bok choy and napa), Chinese Cabbage Mustard (gai choy), Cauliflower, Cavalo broccoli, Collards, Kale, Kohlrabi, Mizuna, Mustard Greens, Mustard Spinach, Rape Greens **Apple** **FO** **Peach, Nectarine** **FO** **Cherries [BC,ON only]** **FO** **Highbush Blueberries [BC only]** **FO** **Highbush Blueberries [ON, QC only]** **SO** **Eggplant** **SO-at transplant**	Many crops- fruits, vegetables **Potatoes:** **SO in-furrow** **ST seed piece** **FO** **Tomato (field grown) [ON, QC, Atlantic Canada only]** **SO in-furrow, transplant** **FO** **Field lettuce (Head and Leaf) [BC, ON, QC, NS only]** **SO in-furrow, drench at transplant, transplant tray plug drench** **FO** **CG5 Brassica (cole) leafy vegetables** **SO side dress** **FO** Crop Group 5: Broccoli, Chinese Broccoli (gai lon), Broccoli raab (rapini), Brussels sprouts, Cabbage, Chinese Cabbage (bok choy and napa), Chinese Cabbage Mustard (gai choy), Cauliflower, Cavalo broccoli, Collards, Kale, Kohlrabi, Mizuna, Mustard Greens, Mustard Spinach, Rape Greens **Apple** **FO** **Peach, Nectarine** **FO** **Cherries [BC,ON only]** **FO** **Highbush Blueberries [BC only]** **FO** **Highbush Blueberries [ON, QC only]** **SO** **Eggplant** **SO- in-furrow at transplant**	Many crops- fruits, vegetables **Potatoes:** **FO ground, aerial** **Tomato** **FO** **CG5A Head and Steam Brassica** **FO** Head and stem brassica crop sub-group 5A: Broccoli, Chinese broccoli, Brussels sprouts, Cabbage, Chinese cabbage (napa), Chinese mustard cabbage, Cauliflower, Cavalo broccolo, Kohlrabi **Blueberry** **FO** **Soybean** **FO ground, aerial**

vegetables: **SO in-furrow, field drench** **FO** CROP GROUP 2: Leaves of root and tuber vegetables: Beet, garden; burdock, edible; carrot; cassava, bitter and sweet; celeriac; chervil, turnip-rooted; chicory; dasheen (taro); parsnip; radish; radish, oriental; rutabaga; salsify, black; sweet potato; tanier (cocoyam); turnip; and yam, true. **CG4A Leafy greens subgroup** **SO in-furrow; transplant tray plug drench; post-seeding drench** **FO** CROP SUBGROUP 4-A: Leafy greens subgroup of leafy vegetables (except Brassica) group: Amaranth; Arugula; Chervil; Chrysanthemum, edible-leaved and garland; Corn salad; Cress, garden and upland; Dandelion; Dock; Endive; Lettuce, head and leaf; Orach; Parsley; Purslane, garden and winter; Radicchio (red chicory); Spinach [including New Zealand and vine (Malabar spinach, Indian spinach)]; Watercress. **CG4B Leafy petioles vegetables of leafy vegetables** **SO in-furrow; transplant drench; post-seeding drench** CROP SUBGROUP 4-B: Leafy petioles vegetables of leafy vegetables (except Brassica) group: cardoon, celery, chinese celery (fresh leaves and stalk only), celtuce, florence fennel (including sweet anise, sweet fennel, finocchio), rhubarb, swiss chard. **CG5 Brassica (cole) leafy vegetables** **SO in-furrow; seeding and post-seeding drench** **FO**	**Eggplant** **SO-at transplant** **FO** **Highbush Blueberries [ON, QC only]** **SO** **Saskatoon Berry** **SO** **CG13A Caneberries** **SO** **FO** Crop Subgroup 13-A.: Caneberries (including blackberry; raspberry, red and black; wild raspberry; loganberry; cultivars and/or hybrids of these.) **Sweet Potato [ON, QC only]** **SO** **Ginseng** **SO** **CG9 Cucurbits [MB, ON, QC, Maritimes]** **SO-in furrow, at planting, transplant water** Crop Group 9: Citron melon, Muskmelon, Water melon, Summer and Winter Squash, Pumpkin, Cucumber, Chayote (fruit), Chinese waxgourd, Gherkin, Edible Gourd, Momordica ssp., **Strawberries** **SO** **Wheat (durum, spring, winter), Barley, Oats** **ST** **Soybeans** **ST**	**FO** **Sweet Potato [ON, QC only]** **SO** **Ginseng** **SO** **Strawberries** **SO** **CG9 Cucurbits [MB, ON, QC, Maritimes]** **SO-in furrow, at planting, transplant water, post-seeding drench** Crop Group 9: Citron melon, Muskmelon, Water melon, Summer and Winter Squash, Pumpkin, Cucumber, Chayote (fruit), Chinese waxgourd, Gherkin, Edible Gourd, Momordica ssp.,	**FO** **Sweet Potato [ON, QC only]** **SO** **Ginseng** **SO** **Strawberries** **SO** **CG9 Cucurbits [MB, ON, QC, Maritimes]** **SO-in furrow, at planting, transplant water, post-seeding drench** Crop Group 9: Citron melon, Muskmelon, Water melon, Summer and Winter Squash, Pumpkin, Cucumber, Chayote (fruit), Chinese waxgourd, Gherkin, Edible Gourd, Momordica ssp.,	

CROP GROUP 5: Brassica (cole) leafy vegetables: Broccoli, Broccoli raab (rapini), Brussels sprouts, Cabbage, Cauliflower, Cavalo broccolo, Chinese broccoli (gai lon), Chinese cabbage (bok choy), Chinese cabbage (napa), Chinese mustard cabbage (gai choy), Collards, Kale, Kohlrabi, Mizuna, Mustard greens, Mustard spinach, Rape greens, Turnip greens. **CG6 Legume vegetables** **SO in-furrow; seeding and post-seeding drench** **FO** CROP GROUP 6: Legume vegetables (except dry soybean): Edible Podded, Succulent Shelled Pea and Bean and Dried Shelled Pea and Bean: Bean (Lupinus spp., includes grain lupin, sweet lupin, white lupin, and white sweet lupin); Bean (Phaseolus spp., includes field bean, kidney bean, lima bean, navy bean, pinto bean, runner bean, snap bean, tepary bean, wax bean); Bean (Vigna spp., includes adzuki bean, asparagus bean, blackeyed pea, catjang, Chinese longbean, cowpea, Crowder pea, moth bean, mung bean, rice bean, Southern pea, urd bean, yardlong bean); Pea (Pisum spp., includes dwarf pea, edible-pod pea, English pea, field pea, garden pea, green pea, snow pea, sugar snap pea); Other Beans and Peas Broad bean (fava), Chickpea (garbanzo bean), Guar, Jackbean, Lablab bean (hyacinth bean), Lentil, Pigeon pea, Soybean (immature seed), Sword bean. **CG8 Fruiting vegetables** **SO in-furrow; seeding and post-seeding drench**				

FO CROP GROUP 8: Fruiting vegetables except cucurbits: Eggplant; Groundcherry; Okra; Pepino; Peppers (including all peppers i.e. bell, non-bell, hot, sweet, etc., and cultivars and/or hybrids of these); Tomatillo; Tomato (including cultivars and/or hybrids of this). **CG9 Cucurbit vegetables** **SO in-furrow; seeding and post-seeding drench; transplant drench** CROP GROUP 9: Cucurbit vegetables: Chayote (fruit); Chinese waxgourd (Chinese preserving melon); Citron melon; Cucumber; Gherkin; Gourd (edible, includes hyotan, cucuzza, hechima, Chinese okra); Momordica spp. (includes balsam apple, balsam pear, bitter melon, Chinese cucumber); Muskmelon (hybrids and/or cultivars of Cucumis melo including true cantaloupe, cantaloupe, casaba, Crenshaw melon, golden pershaw melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon, snake melon); Pumpkin; Squash (includes summer squash types such as: crookneck squash, scallop squash, straightneck squash, vegetable marrow, zucchini, and winter squash types such as acorn squash, butternut squash, calabaza, Hubbard squash, spaghetti squash); Watermelon (includes hybrids and/or varieties of Citrullus lanatus). **CG11 Pome fruit** **FO** CROP GROUP 11: Pome fruit: Apple; Crabapples (Chinese apple, Chinese crab apple, Chinese flowering apple, Crab				

apple, Cutleaf crab apple, Florentine crab apple, Hall crab apple, Iowa crab apple, Japanese crab apple, Kai do crab apple, Manchurian crab apple, Paradise apple, Sargent's crab apple, Siberian crab apple, Soulard crab apple, Southern crab apple, Sweet crab apple, Tea crab apple, Toringa crab apple, Western Crabapple, Yunnan crab apple, and varieties and/or hybrids of these); Loquat; Mayhaw; Medlar; Pear; Oriental pear; Quince; Chinese quince; Tejocote, and all varieties and/or hybrids of these. **CG12 Stone fruit** **FO** CROP GROUP 12: Stone fruit: Apricot, Cherry (sweet and tart), Nectarine, Peach, Plum (includes Chickasaw, Damson, and Japanese), Plumcot, Prune (fresh and dried). **CG13A Berry and small Fruit- Caneberry** **SO** **FO** CROP SUBGROUP 13-A: Berry and small fruit – caneberry: blackberry; raspberry, red, black and wild; loganberry; cultivars and/or hybrids of these. **CG13B Berry and small Fruit- Bushberry** **SO** **FO** CROP SUBGROUP 13-B: Berry and small fruit – bushberry: Berry, aronia; Blueberry, highbush, and/or hybrids of these; Blueberry, lowbush; Currant, buffalo, black, and red; Elderberry; Gooseberry; Cranberry, highbush; Honeysuckle; Huckleberry; Jostaberry; and Juneberry (Service berry or				

Saskatoon berry). **CG13F Berry and small Fruit- vine including grapes** **SO** **FO** CROP SUBGROUP 13-F: Berry and small fruit – vine including grapes: Grape, American bunch, Muscadine, and Vinifera; Gooseberry; Kiwifruit, hardy; Maypop; Schisandra berry. **CG13G Berry and small Fruit- low growing berries including strawberries** **SO** **FO** CROP SUBGROUP 13-G: Berry and small fruit – low growing berries including strawberries: Bearberry; Bilberry; Blueberry, lowbush; Cloudberry; Lingonberry; Muntries; Partridgeberry; Strawberry. **Cranberry** **SO** **CG14 Tree nuts plus Pistachio** **FO** CROP GROUP 14: Tree nuts plus Pistachio Including: Almond, Beechnut, Brazil nut, Butternut, Cashew, Chestnut, Chinquapin, Filbert (hazelnut), Hickory nut, Macadamia nut (bush nut), Pecan, Pistachio, Walnut [black and English (Persian)]. **CG19A Herbs** **SO** **FO** CROP SUBGROUP 19-A: Herbs: Angelica, Balm (lemon balm), Basil (fresh and dried), Borage, Bumet, Camomile, Catnip, Chervil (dried), Chinese chive, Chive, Clary, Coriander (cilantro or Chinese parsley leaves), Costmary, Culantro (leaf), Curry (leaf),				

Dillweed, Horehound, Hyssop, Lavender, Lemongrass, Lovage (leaf), Marigold, Marjoram, Nasturtium, Parsley (dried), Pennyroyal, Rosemary, Rue, Sage, Savory (summer and winter), Sweet bay (bay leaf), Tansy, Tarragon, Thyme, Wintergreen, Woodruff, Wormwood. **Hop** **FO** **Peanut** **SO** **FO** **Globe Artichoke** **FO** **Tobacco** **SO** **FO** **Christmas Trees** **FO**				
Current Label Statements relevant for Pollinators				
24094: Environmental Precautions: *Toxic to bees. This product is systemic and residues from soil may be transported through plants into leaves, pollen and nectar. Bees may be exposed directly, through spray drift, or to residues on/in leaves, pollen and nectar in flowering crops and weeds. To minimize exposure to bees from foliar application, DO NOT apply this product to flowering crops or weeds if bees are visiting the treatment area. Minimize spray drift to reduce harmful effects on bees in habitats close to the application site.* 24094: Use Directions: Sweet Potato-CG1D- specific use directions (SO): *Apply as a single soil drench application after transplanting and before crop foliage covers more than 25% of the planting bed to*	28475: Environmental Hazards: *This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.* *Imidacloprid is toxic to bees. Dust generated during planting of treated seed may be harmful to bees and other pollinators.* *• To help minimize the dust generated during planting, refer to the complete guidance "Pollinator Protection and Responsible Use of Treated Seed- Best Management Practices" on the Health Canada webpage on pollinator protection at www.healthcanada.gc.ca/pollinators* *• When using a seed flow lubricant with this treated seed, only the Fluency Agent by Bayer CropScience is permitted. Carefully follow use directions for this seed flow lubricant.*	28726: Environmental Hazards: *This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.* 28726: Directions for Use: Apple- specific use directions (FO): *Post-bloom Applications. Apply specified dosage as a dilute or concentrate foliar spray as needed after pollination is complete and bees have been removed from the orchard.* Peach and Nectarine- specific use directions (FO): *Post-bloom Applications. Apply specified dosage as a dilute or concentrate foliar spray as needed after pollination is complete and bees have been removed from the orchard.* Cherries (BC, ON only)- specific use directions (FO):	29048: Environmental Hazards: *This product is TOXIC to aquatic organisms, birds,bees and beneficial insects.DO NOT apply this product to flowering crops or weeds if bees are visiting the treatment area. Minimize spray drift to reduce harmful effects on bees and beneficial insects in habitats close to the application site.* 29048: Directions for Use: Apple- specific use directions (FO): *Post-bloom Applications: Apply specified dosage as a dilute or concentrate foliar spray as needed after pollination is complete and bees have been removed from the orchard.* Peach and Nectarine- specific use directions (FO): *Post-bloom Applications: Apply specified dosage as a foliar spray after pollination is complete and bees have been removed from the orchard.* Cherries (BC, ON only)- specific use	29611: Environmental Hazards: *This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. DO NOT apply this product to flowering crops or weeds if bees are visiting the treatment area. Minimize spray drift to reduce harmful effects on bees in habitats close to the application site.* 29611: Directions for Use: Blueberry-specific use directions (FO): *In low bush blueberries, apply post bloom during fruit producing years and anytime during the vegetative year.* *In high bush blueberries, apply post bloom.*

ensure adequate soil penetration. DO NOT apply ADMIRE 240 Flowable Systemic Insecticide during flowering of the crop. *Note: When CG1, CG2 soil drenches are not applied at /near planting, they are applied as drench around field edges followed by irrigation.* Ginseng-CG1B- specific use directions (SO): *Apply to entire newly seeded ginseng beds before mulch is laid down. Apply ADMIRE 240 Flowable Systemic Insecticide only once per ginseng garden life. Allow 3 years between application of ADMIRE 240 Flowable Systemic Insecticide and harvest.* Pome fruit- specific use directions (FO): *Apply post-bloom only. Do not apply post-harvest. Apply specified dosage as a dilute or concentrate foliar spray as needed after pollination is complete and bees have been removed from the orchard.* Stone fruit- specific use directions (FO): *Apply post-bloom only. Do not apply post-harvest. Apply specified dosage as a dilute or concentrate foliar spray as needed after pollination is complete and bees have been removed from the orchard.* CG13A Berry and small fruit-Caneberry- specific use directions (SO, FO): *Do not apply pre-bloom or during bloom or when bees are actively foraging.*	*• Do not load or clean planting equipment near bee colonies, and avoid places where bees may be foraging, such as flowering crops or weeds.* *• When turning on the planter, avoid engaging the system where emitted dust may contact honey bee colonies.* *• Spilled or exposed seeds and dust must be incorporated into the soil or cleaned up from the soil surface.* 28475 Directions for Use: Apple- specific use directions (FO): *Post-bloom Applications. Apply specified dosage as a dilute or concentrate foliar spray as needed after pollination is complete and bees have been removed from the orchard.* Peach and Nectarine- specific use directions (FO): *Post-bloom Applications. Apply specified dosage as a dilute or concentrate foliar spray as needed after pollination is complete and bees have been removed from the orchard.* Cherries (BC, ON only)- specific use directions (FO): *Post-bloom Applications.* Highbush Blueberries (BC only)- specific use directions (FO): *Apply post-bloom after bees have been removed.* Highbush Blueberries (ON,QC only)- specific use directions (SO): *DO NOT apply ALIAS 240 SC Systemic Insecticide during flowering of blueberries.* Saskatoon Berry-specific use directions (SO): *Do not apply pre-bloom or during bloom or when bees are actively foraging.*	*Post-bloom Applications.* Highbush Blueberries (BC only)- specific use directions (FO): *Apply post-bloom after bees have been removed.* Highbush Blueberries (ON,QC only)- specific use directions (SO): *DO NOT apply Grapple Insecticide during flowering of blueberries.* Sweet potato (ON, QC only)- specific use directions (SO): *Apply to sweet potato rows, headlands and other grassy areas around the sweet potato field. Apply as a single soil drench application after transplanting and before sweet potato foliage covers more than 25% of the planting bed to ensure adequate soil penetration. DO NOT apply Grapple Insecticide during flowering of sweet potatoes.* Strawberries-specific use directions (SO): *Do not apply immediately prior to bud opening or during bloom or when bees are actively foraging.*	directions (FO): *Post-bloom Applications* Highbush Blueberries (ON,QC only)- specific use directions (SO): *DO NOT apply Grapple2 Insecticide during flowering of blueberries.* Highbush Blueberries (BC only)- specific use directions (FO): *Apply post-bloom after bees have been removed.* Sweet potato (ON, QC only)- specific use directions (SO): *Apply to sweet potato rows, headlands and other grassy areas around the sweet potato field. Apply as a single soil drench application after transplanting and before sweet potato foliage covers more than 25% of the planting bed to ensure adequate soil penetration. DO NOT apply GRAPPLE2 Insecticide during flowering of sweet potatoes.* Strawberries-specific use directions (SO): *Do not apply immediately prior to bud opening or during bloom or when bees are actively foraging.*	

CG13B Berry and small fruit-Bushberry-For Juneberry (Serviceberry or Saskatoon berry only) for suppression of Woolly elm aphid, woolly apple aphid- specific use directions (SO): *Do not apply pre-bloom or during bloom or when bees are actively foraging.* [Note: these use directions are not included for other CG13B SO and FO uses] CG13G Berry and small fruit-Low Growing Berries including strawberries- specific use directions (SO, FO): *Do not apply immediately prior to bud opening or during bloom or when bees are actively foraging.* [Note: For soil application to reduce numbers of larvae of European chafer, this statement is not included, but does include: *For strawberries, apply to fields before mulch is laid down.*] CG14 Tree nuts plus Pistachio-specific use directions (FO): *Do not apply immediately prior to bud opening or during bloom or when bees are actively foraging.* CG19A Herbs- specific use directions (FO): *Do not apply immediately prior to bud opening or during bloom or when bees are actively foraging.*	CG13A Caneberries- specific use directions (FO, SO): *Do not apply pre-bloom or during bloom or when bees are actively foraging.* *Postbloom Applications* (FO) Strawberries-specific use directions (SO): *Do not apply immediately prior to bud opening or during bloom or when bees are actively foraging.* Sweet potato (ON, QC only)- specific use directions (SO).Sweet potato-soil application: *Apply to sweet potato rows, headlands and other grassy areas around the sweet potato field. Apply as a single soil drench application after transplanting and before sweet potato foliage covers more than 25% of the planting bed to ensure adequate soil penetration. DO NOT apply ALIAS 240 SC Systemic Insecticide during flowering of sweet potatoes.* FOR TREATED SEED All neonicotinoid treated corn and soybean seed for sale or use in Canada must be labelled or tagged with the following information: *Imidacloprid is toxic to bees. Dust generated during planting of treated seed may be harmful to* *bees and other pollinators.* *• To help minimize the dust generated during planting, refer to the complete guidance* *"Pollinator Protection and Responsible Use of Treated Seed- Best Management Practices" on the Health Canada webpage on pollinator protection at www.healthcanada.gc.ca/pollinators* *• When using a seed flow lubricant with this treated seed, only the Fluency Agent by Bayer CropScience is permitted. Carefully follow use directions for this seed flow lubricant.* *• Do not load or clean planting equipment near bee colonies, and avoid places where bees may* *be foraging, such as flowering crops or*			

	weeds. *• When turning on the planter, avoid engaging the system where emitted dust may contact* *honey bee colonies.* *• Spilled or exposed seeds and dust must be incorporated into the soil or cleaned up from the soil surface.*			
Required risk mitigation and label updates to protect pollinators				
<u>Maintain use, no change</u>: CG1B, 1D root and tuber vegetables [excluding potato and sweet potato] (SO; FO) From CG1 Potato (ST) From CG1 Potato and sweet potato (SO) CG2 Leaves of root and tuber vegetables (SO; FO) CG4A Leafy greens subgroup (SO; FO) CG4B Leafy petioles vegetables of leafy vegetables (SO) CG5 Brassica (cole) leafy vegetables (SO; FO) From CG13F Berry and small Fruit- grapes only (SO) Christmas Trees (FO) Peanut, tobacco (SO) Hops (FO) Globe artichoke (FO) **<u>Changes to use directions</u>**: From CG1 potato (FO): Maintain pre-bloom and post-	**<u>Maintain use, no change</u>** Potatoes (SO; ST) Sweet Potato [ON, QC only] SO Ginseng (SO) Field lettuce (Head and Leaf) [BC, ON, QC, PEI, NS only] (SO; FO) CG5 Brassica (cole) leafy vegetables (SO; FO) Brussels sprouts (SO; FO) Soybeans (ST) Wheat (durum, spring, winter), Barley, Oats (ST) *Addition of Best Management Practices to seed tag label required (as indicated in Additional Label Updates) **<u>Change to use directions</u>:** Potato (FO): Maintain pre-bloom and post-bloom (remove during-bloom): **Add to directions for use:** *Do not apply during bloom or when bees are actively foraging.* Tomato (field grown) [ON, QC, Atlantic Canada only] (FO): Maintain post-bloom only (remove pre-bloom and during-bloom application): **Add to directions for use:** *Do not apply pre-bloom or during bloom or when bees are actively foraging.*	**<u>Maintain use, no change</u>** Potatoes (SO; ST) Sweet Potato [ON, QC only] SO Ginseng (SO) Field lettuce (Head and Leaf) [BC, ON, QC, PEI, NS only] (SO; FO) CG5 Brassica (cole) leafy vegetables (SO; FO) **<u>Change to use directions</u>:** Potato (FO): Maintain pre-bloom and post-bloom (remove during-bloom): **Add to directions for use**: *Do not apply during bloom or when bees are actively foraging.* Tomato (field grown) [ON, QC, Atlantic Canada only] (FO): Maintain post-bloom only (remove pre-bloom and during-bloom application): **Add to directions for use:** *Do not apply pre-bloom or during bloom or when bees are actively foraging.* *Apply post-bloom only* Eggplant (FO): Maintain post-bloom only (remove pre-bloom and during-bloom application): **Add to directions for use:** *Do not apply pre-bloom or during bloom or when bees are actively foraging.* *Apply post-bloom only*	**<u>Maintain use, no change</u>** Potatoes (SO; ST) Sweet Potato [ON, QC only] SO Ginseng (SO) Field lettuce (Head and Leaf) [BC, ON, QC, PEI, NS only] (SO; FO) CG5 Brassica (cole) leafy vegetables (SO; FO) **<u>Change to use directions</u>:** Potato (FO): Maintain pre-bloom and post-bloom (remove during-bloom): **Add to directions for use**: *Do not apply during bloom or when bees are actively foraging.* Tomato (field grown) [ON, QC, Atlantic Canada only] (FO): Maintain post-bloom only (remove pre-bloom and during-bloom application): **Add to directions for use:** *Do not apply pre-bloom or during bloom or when bees are actively foraging.* *Apply post-bloom only* Eggplant (FO): Maintain post-bloom only (remove pre-bloom and during-bloom application): **Add to directions for use**: *Do not apply pre-bloom or during bloom or when bees are actively foraging.* *Apply post-bloom only*	**<u>Maintain use, no change</u>** CG5A Head and Stem Brassica (cole) leafy vegetables (FO) **<u>Change to use directions</u>:** Potato (FO): Maintain pre-bloom and post-bloom (remove during-bloom): **Add to directions for use**: *Do not apply during bloom or when bees are actively foraging.* Tomato (FO): Maintain post-bloom only (remove pre-bloom and during-bloom application): **Add to directions for use:** *Do not apply pre-bloom or during bloom or when bees are actively foraging.* *Apply post-bloom only* Soybean (FO): Maintain pre-bloom and post-bloom (remove during-bloom): **Add to directions for use:** *Do not apply during bloom or when bees are actively foraging.* Blueberries (FO): May maintain post-bloom FO with renovation after harvest. **Add to directions for use**: *Application allowed only post-bloom with renovation after harvest.* *Do not apply pre-bloom or during bloom (Do not apply until petal fall). Do not apply when bees are present. When applying after petal fall, renovation of woody plants (cutting back of old*

bloom (remove during-bloom): **Add to directions for use**: *Do not apply during bloom or when bees are actively foraging.* CG6 Legume vegetables (FO): CG6: broad beans/fava beans/*Vicia faba* only: Maintain post-bloom only (remove pre-bloom and during-bloom): CG6: all CG6 except broad beans/fava beans/*Vicia faba* Maintain pre-bloom and post-bloom (remove during-bloom): **Add to directions for use:** *For CG6 broad beans/fava beans/Vicia faba: Do not apply pre-bloom or during bloom or when bees are actively foraging. Apply post-bloom only.* *For all other CG6 excluding broad beans/ fava beans/ Vicia faba: Do not apply during bloom or when bees are actively foraging.* CG8 Fruiting vegetables (FO): Maintain post-bloom only (remove pre-bloom and during-bloom application): **Add to directions for use:** *Do not apply pre-bloom or during bloom or when bees are actively foraging. Apply post-bloom only.* From CG13G Berry and small Fruit- low growing berries **strawberries only** (FO): Maintain post-bloom only (remove pre-bloom and during bloom) **Add to directions for use**: *Do not apply pre-bloom or during bloom or when bees are actively foraging. Apply post-bloom only.*	*Apply post-bloom only* Eggplant (FO): Maintain post-bloom only (remove pre-bloom and during-bloom application): **Add to directions for use:** *Do not apply pre-bloom or during bloom or when bees are actively foraging.* *Apply post-bloom only* Highbush Blueberries [BC only] (FO): May maintain post-bloom FO with renovation after harvest. **Add to directions for use**: *Application allowed only post-bloom with renovation after harvest.* *Do not apply pre-bloom or during bloom (Do not apply until petal fall). Do not apply when bees are present. When applying after petal fall, renovation of woody plants (cutting back of old growth) must occur after harvest and before the next season's bloom.* CG13A Caneberries (FO): May maintain post-bloom FO with renovation after harvest. **Add to directions for use**: *Application allowed only post-bloom with renovation after harvest.* *Do not apply pre-bloom or during bloom (Do not apply until petal fall). Do not apply when bees are present. When applying after petal fall, renovation of woody plants (cutting back of old growth) must occur after harvest and before the next season's bloom.* **REMOVAL of USES:** CG9 Cucurbits [MB, ON, QC, Maritimes] (SO) Tomato (field grown) [ON, QC, Atlantic Canada only] (SO) Eggplant (SO) Apple (FO) Peach, Nectarine (FO)	Highbush Blueberries [BC only] (FO): May maintain post-bloom FO with renovation after harvest. **Add to directions for use**: *Application allowed only post-bloom with renovation after harvest.* *Do not apply pre-bloom or during bloom (Do not apply until petal fall). Do not apply when bees are present. When applying after petal fall, renovation of woody plants (cutting back of old growth) must occur after harvest and before the next season's bloom.* **REMOVAL of USES:** CG9 Cucurbits [MB, ON, QC, Maritimes] (SO) Tomato (field grown) [ON, QC, Atlantic Canada only] (SO) Eggplant (SO) Apple (FO) Peach, Nectarine (FO) Cherries [BC,ON only] (FO) Strawberries (SO) Highbush Blueberries [ON, QC only] (SO) **Additional Label Updates:** **Add under:** Environmental Precautions, after the other bee statements: *To further minimize exposure to pollinators, refer to the complete guidance "Protecting Pollinators during Pesticide Spraying- Best Management Practices" on the Health Canada website (www.canada.ca/pollinators). Follow crop specific directions for application timing.*	Highbush Blueberries [BC only] (FO): May maintain post-bloom FO with renovation after harvest. **Add to directions for use:** *Application allowed only post-bloom with renovation after harvest.* *Do not apply pre-bloom or during bloom (Do not apply until petal fall). Do not apply when bees are present. When applying after petal fall, renovation of woody plants (cutting back of old growth) must occur after harvest and before the next season's bloom.* **REMOVAL of USES:** CG9 Cucurbits [MB, ON, QC, Maritimes] (SO) Tomato (field grown) [ON, QC, Atlantic Canada only] (SO) Eggplant (SO) Apple (FO) Peach, Nectarine (FO) Cherries [BC,ON only] (FO) Strawberries (SO) Highbush Blueberries [ON, QC only] (SO) **Additional Label Updates:** **Add under:** Environmental Precautions, after the other bee statements: *To further minimize exposure to pollinators, refer to the complete guidance "Protecting Pollinators during Pesticide Spraying- Best Management Practices" on the Health Canada website (www.canada.ca/pollinators). Follow crop specific directions for application timing.*	*growth) must occur after harvest and before the next season's bloom.* **Additional Label Updates:** **Add under:** Environmental Precautions, after the other bee statements: *To further minimize exposure to pollinators, refer to the complete guidance "Protecting Pollinators during Pesticide Spraying- Best Management Practices" on the Health Canada website (www.canada.ca/pollinators). Follow crop specific directions for application timing.*

From CG13F Berry and small Fruit- **grapes only** (FO): Maintain pre-bloom and post-bloom (remove during bloom) **Add to directions for use**: *Do not apply during bloom or when bees are actively foraging.* CG13A Berry and small Fruit-Caneberry (FO) CG13B Berry and small Fruit-Bushberry (FO) CG13F Berry and small Fruit-vine **excluding grapes** (FO) CG13G Berry and small Fruit-low growing berries **excluding strawberries** (FO) May maintain post-bloom FO with renovation after harvest. **Add to directions for use**: *Application allowed only post-bloom with renovation after harvest.* *Do not apply pre-bloom or during bloom (Do not apply until petal fall). Do not apply when bees are present. When applying after petal fall, renovation of woody plants (cutting back of old growth) must occur after harvest and before the next season's bloom.* CG14 Tree nuts and pistachio-specific use directions (FO): Maintain post-bloom only (remove pre-bloom application; note that during-bloom application was already prohibited); also remove uses for highly attractive tree crops: **Add to directions for use**: *Do not apply pre-bloom or during bloom or when bees are actively foraging. Apply only during post-bloom period. Do not apply to Almond, Chestnuts, Chinquapin nuts, Japanese horse-chestnuts.*	Cherries [BC,ON only] (FO) Strawberries (SO) Saskatoon Berry (SO) Highbush Blueberries [ON, QC only] (SO) **<u>Additional Label Updates</u>:** **Add under:** Environmental Precautions, after the other bee statements: *To further minimize exposure to pollinators, refer to the complete guidance "Protecting Pollinators during Pesticide Spraying- Best Management Practices" on the Health Canada website (www.canada.ca/pollinators). Follow crop specific directions for application timing.* **Add under:** LABELLING TREATED SEED (wheat, oat, barley): *Additionally, all treated wheat, oat, barley cereal seed for sale or use in Canada must be labeled with the following information:* *Imidacloprid is toxic to bees. Dust generated during planting of treated seed may be harmful to bees and other pollinators.* *To help minimize the dust generated during planting, refer to the "Pollinator Protection and Responsible Use of Treated Seed- Best Management Practices" on the Health Canada webpage on pollinator protection at www.canada.ca/pollinators.* *Do not load or clean planting equipment near bee colonies, and avoid places where bees may be foraging, such as*			

CG19A Herbs- specific use directions (FO): Maintain post-bloom only (remove pre-bloom application; note that during-bloom application was already prohibited): **Add to directions for use**: *Do not apply pre-bloom* or during bloom or when bees are actively foraging. Apply only during post-bloom period. Do not apply to rosemary or lavender.* **Exception: Pre-bloom application is allowed only when herbs will be harvested prior to bloom.* CG19A Herbs- specific use directions (SO): Maintain use only for herbs that will be harvested before bloom: **Add to directions for use:** *Soil application is allowed only when herbs will be harvested prior to bloom.* Peanut, Tobacco (FO): Maintain pre-bloom and post-bloom (remove during bloom): **Add to directions for use:** *Do not apply during bloom when blooms are present or when bees are actively foraging.* **<u>REMOVAL of USES</u>:** CG6 Legume vegetables (SO) CG8 Fruiting vegetables (SO) CG9 Cucurbit vegetables (SO) CG11 Pome fruit (FO) CG12 Stone fruit (FO) Cranberry (SO)	*flowering crops or weeds.* *When turning on the planter, avoid engaging the system where emitted dust may contact honey bee colonies.* *Spilled or exposed seeds and dust must be incorporated into the soil or cleaned up from the soil surface.*			

CG13A Berry and small Fruit-Caneberry (SO) CG13B Berry and small Fruit-Bushberry (SO) CG13F Berry and small Fruit-vine **excluding grapes** (SO) CG13G Berry and small Fruit-low growing berries including strawberries (SO) CG14 Tree nuts plus Pistachio (FO): almond, chestnuts, Chinquapin nuts, Japanese horse-chestnuts [Maintain other Tree nuts with further mitigation] CG19A Herbs- specific use directions (FO): rosemary, lavender [Maintain other herbs with further mitigation] CG19A Herbs (SO)* *Exception: Maintain use only for herbs that will be harvested before bloom. **<u>Additional Label Updates</u>:** **Add under:** Environmental Precautions, after the other bee statements: *To further minimize exposure to pollinators, refer to the complete guidance "Protecting Pollinators during Pesticide Spraying- Best Management Practices" on the Health Canada website (www.canada.ca/pollinators). Follow crop specific directions for application timing.*				

Table 3 Label amendments for imidacloprid products that are applied as seed treatments.

Product Information: **Product Registration Number; Registrant; Product Name; Application type [Seed Treatment (ST)]**											
30972	25556	27170	27174	30505	26124	30668	29609	29610	31068	27349	27702
Bayer Crop Science	Bayer Crop Science	Bayer Crop Science	Bayer Crop Science	Adama Agricultural Solutions Canada LTD	Bayer Crop Science	Bayer Crop Science	Bayer Crop Science	Bayer Crop Science	Bayer Crop Science	Bayer Crop Science	Bayer Crop Science
Sepresto 75 WS	Gaucho 75 ST	Gaucho 600 FL Insecticide	Gaucho CS FL (Insecticide/Fungicide Seed Treatment)	Sombrero 600 FS	Gaucho 480 FL Insecticide	Stress Shield 600	Stress Sheild for Cereals	Stress Sheild for Cereals and Soybeans	Acceleron IX-409 Insecticide seed treatement	Genesis 240 Flowable Systemic Insecticide	Admire 240 SPT Flowable Systemic Insecticde
ST	ST	ST	ST	ST	ST	ST	ST	ST	ST	ST	ST
Currently Registered Seed Treatment Uses											
Many vegetables: CG1B Root Vegetables [Carrot only] CG3 Bulb Vegetables [onion (bulb and bunching); leek only] CG4A Leafy Greens [lettuce (head and leaf) only] CG5 Brassica (Cole) Leafy Vegetables [cabbage; broccoli only] CG8 Fruiting vegetables (except Cucurbits) [tomato and pepper only]	Canola; Mustard; Rapeseed	Canola; Mustard; Rapeseed; Corn-field	Canola; Mustard; Rapeseed	Canola; Mustard; Rapeseed; Corn-field; Cereals (wheat-durum, winter, spring; barley; oats); Soybeans	Canola; Mustard; Rapeseed; Corn-field and sweet [Corn ST restricted to ON only] Legumes: **CG6A Edible podded beans (except peas)** [Bean (Phaseolus spp.) (includes runner bean, snap bean, wax bean); Bean (Vigna spp.) (Includes asparagus bean, Chinese longbean, moth bean, yardlong bean);	Cereals [Wheat (durum, winter,spring); barley (spring, winter); oats] Legumes: **CG6A Edible podded beans (except peas)** [Bean (Phaseolus spp.) (includes runner bean, snap bean, wax bean); Bean (Vigna spp.) (Includes asparagus bean, Chinese longbean, moth bean, yardlong bean); Jackbean] **CG6C Dry**	Cereals: [Wheat (durum, winter, spring); Barley; Oats]	Cereals: [Wheat (durum, winter, spring); Barley; Oats]; Soybeans	Soybeans	Potato	Potato

CG9 Cucurbit vegetables [squash (winter and summer); melon; cucumber only]					Jackbean] **CG6C Dry shelled pea and bean (except soybeans and dry shelled peas)** [Bean (Lupinus spp.) (includes grain lupin, sweet lupin, white lupin, white sweet lupin); Bean (Phaseolus spp.) (includes field bean (dry common and coloured) such as kidney, black cranberry pink and navy bean, lima bean, pinto bean, tepary bean); Bean (Vigna spp.) (includes adzuki bean, blackeyed pea, catjang, cowpea, Crowder pea, moth bean, mung bean, rice bean, southern pea, urd bean); Broad bean (fava bean)]	**shelled pea and bean (except soybeans and dry shelled peas)** [Bean (Lupinus spp.) (includes grain lupin, sweet lupin, white lupin, white sweet lupin); Bean (Phaseolus spp.) (includes field bean (dry common and coloured) such as kidney, black cranberry pink and navy bean, lima bean, pinto bean, tepary bean); Bean (Vigna spp.) (includes adzuki bean, blackeyed pea, catjang, cowpea, Crowder pea, moth bean, mung bean, rice bean, southern pea, urd bean); Broad bean (fava bean)]; **Soybeans;** **Field peas;** **Fababean; Chickpeas; Lentils**					

Current Label Statements relevant for Pollinators											
30972: Environmental Precautions and Information: *Toxic to bees. Bees may be exposed to product residues in flowers, leaves, pollen and/or nectar resulting from seed treatment application. Do not expose treated seeds on the soil surface. Any spilled or exposed seeds should be incorporated into the soil or otherwise cleaned up from the soil surface.*	**25556: Environmental Precautions:** *Cover or incorporate spilled treated seeds. Left over treated seed should be doublesown around the headland, or buried away from water sources.*	**27170: Environmental Precautions:** *Imidacloprid is toxic to bees. To help minimize the dust generated during planting, refer to the complete guidance "Pollinator Protection and Responsible Use of Treated Seed-Best Management Practices" on the Health Canada webpage on pollinator protection at www.healthcanada.gc.ca/pollinators . When using a seed flow lubricant with corn seed treated with GAUCHO 600 FL Insecticide, only a dust-reducing fluency agent the is permitted. Talc and graphite are not permitted to be used as a seed flow*	**27174: Environmental Precautions:** *Cover or incorporate spilled treated seeds. Left over treated seed should be doublesown around the headland, or buried away from water sources.*	**30505: Environmental hazards:** *Dispose of all excess and any spilled treated seed pieces by covering or incorporating into the soil. Left over treated seed should be double sown around the headland, or buried away from water sources such as lakes, streams, ponds or other aquatic systems.* *Imidacloprid is toxic to bees. Dust generated during planting of treated seed may be harmful to bees and other pollinators. To help minimize the dust generated during planting, refer to the complete guidance "Pollinator Protection and*	**26124: Environmental Precautions:** *Imidacloprid is toxic to bees. Dust generated during planting of treated seed may be harmful to bees and other pollinators. To help minimize the dust generated during planting, refer to the complete guidance "Pollinator Protection and Responsible Use of Treated Seed-Best Management Practices" on the Health Canada webpage on pollinator protection at www.healthcanada.gc.ca/pollinators . When using a seed flow lubricant with corn seed treated with Gaucho 480 FL Insecticide this treated*	**30668: Environmental hazards**: *Imidacloprid is toxic to bees. Dust generated during planting of treated seed may be harmful to bees and other pollinators. To help minimize the dust generated during planting, refer to the complete guidance "Pollinator Protection and Responsible Use of Treated Seed-Best Management Practices" on the Health Canada webpage on pollinator protection at www.healthcanada.gc.ca/pollinators . When using a seed flow lubricant with soybean seed treated with Stress Shield 600, only a dust reducing fluency agent*	**29609: Environmental Precautions:** *Cover or incorporate spilled treated seeds. Left over treated seed should be doublesown around the headland, or buried away from water sources.*	**29610: Environmental Precautions:** *Left over treated seed should be double-sown around the headland, or buried away from water sources. Imidacloprid is toxic to bees. Dust generated during planting of treated seed may be harmful to bees and other pollinators To help minimize the dust generated during planting, refer to the complete guidance "Pollinator Protection and Responsible Use of Treated Seed-Best Management Practices" on the Health Canada webpage on pollinator protection at www.healthcanada.gc.ca/pollinators*	**31068: Environmental hazards:** *Imidacloprid is toxic to bees. Dust generated during planting of treated seed may be harmful to bees and other pollinators. To help minimize the dust generated during planting, refer to the complete guidance "Pollinator Protection and Responsible Use of Treated Seed-Best Management Practices" on the Health Canada webpage on pollinator protection at www.healthcanada.gc.ca/pollinators When using a seed flow lubricant with this treated seed, only a dust-reducing seed flow lubricant is permitted.*	**27349: Environmental hazards:** *Dispose of all excess and any spilled treated seed pieces by covering or incorporating into the soil. Left over treated seed should be doublesown around the headland, or buried away from water sources such as lakes, streams, ponds or other aquatic systems.*	**27702: Environmental hazards:** *Dispose of all excess and any spilled treated seed pieces by covering or incorporating into the soil. Left over treated seed should be doublesown around the headland, or buried away from water sources such as lakes, streams, ponds or other aquatic systems.*

		lubricant for corn seed treated with this insecticide. Carefully follow use directions for the seed flow lubricant. Do not load or clean planting equipment near bee colonies, and avoid places where bees may be foraging, such as flowering crops or weeds. When turning on the planter, avoid engaging the system where emitted dust may contact honey bee colonies. Spilled or exposed seeds and dust must be incorporated into the soil or cleaned up from the soil surface. **27170: LABELLING TREATED SEED:** *Additionally, all treated corn seed for sale or use in Canada must*		*Responsible Use of Treated Seed-Best Management Practices" on the Health Canada webpage on pollinator protection at www.healthcanada.gc.ca/pollinators When using a seed flow lubricant with this treated seed, only the Fluency Agent by Bayer CropScience is permitted. Carefully follow use directions for this seed flow lubricant. Do not load or clean planting equipment near bee colonies, and avoid places where bees may be foraging, such as flowering crops or weeds. When turning on the planter, avoid engaging the system where emitted dust may contact honey bee colonies. Spilled or exposed seeds and dust must*	*seed, only a dust-reducing fluency agent is permitted. Talc and graphite are not permitted to be used as a seed flow lubricant for corn seed treated with this insecticide. Carefully follow use directions for the seed flow lubricant. Do not load or clean planting equipment near bee colonies, and avoid places where bees may be foraging, such as flowering crops or weeds. When turning on the planter, avoid engaging the system where emitted dust may contact honey bee colonies. Spilled or exposed seeds and dust must be incorporated into the soil or cleaned up from the soil surface.* **26124: LABELLIN**	*is permitted. Talc and graphite are not permitted to be used as a seed flow lubricant for soybean seed treated with this insecticide. Carefully follow use directions for the seed flow lubricant. Do not load or clean planting equipment near bee colonies, and avoid places where bees may be foraging, such as flowering crops or weeds. When turning on the planter, avoid engaging the system where emitted dust may contact honey bee colonies. Spilled or exposed seeds and dust must be incorporated into the soil or cleaned up from the soil surface.* **30668: LABELLIN G TREATED**		*.When using a seed flow lubricant with soybean seed treated with Stress Shield, only a dust-reducing fluency agent is permitted. Talc and graphite are not permitted to be used as a seed flow lubricant for soybean seed treated with this insecticide. Carefully follow use directions for the seed flow lubricant. Do not load or clean planting equipment near bee colonies, and avoid places where bees may be foraging, such as flowering crops or weeds. When turning on the planter, avoid engaging the system where emitted dust may contact honey bee colonies. Spilled or exposed seeds and dust must be incorporated into the soil*	*Talc and graphite are not permitted to be used as a seed flow lubricant for soybean seed treated with this insecticide. Carefully follow use directions for this seed flow lubricant. Do not load or clean planting equipment near bee colonies, and avoid places where bees may be foraging, such as flowering crops or weeds. When turning on the planter, avoid engaging the system where emitted dust may contact honey bee colonies. Spilled or exposed seeds and dust must be incorporated into the soil or cleaned up from the soil surface.* **31068: LABELLIN G TREATED SEED:**		

		be labelled with the following information: Imidacloprid is toxic to bees. Dust generated during planting of treated seed may be harmful to bees and other pollinators. To help minimize the dust generated during planting, refer to the complete guidance "Pollinator Protection and Responsible Use of Treated Seed-Best Management Practices" on the Health Canada webpage on pollinator protection at www.healthcanada.gc.ca/pollinators. When using a seed flow lubricant with this treated seed, only a dust-reducing fluency agent is permitted. Talc and		*be incorporated into the soil or cleaned up from the soil surface.* **30505: LABELLING TREATED SEED:** *All treated canola, mustard and corn seed for sale or use in Canada must be labelled with the following information: Imidacloprid is toxic to bees. Dust generated during planting of treated seed may be harmful to bees and other pollinators. To help minimize the dust generated during planting, refer to the complete guidance "Pollinator Protection and Responsible Use of Treated Seed-Best*	**G TREATED SEED:** *Additionally, all treated corn seed for sale or use in Canada must be labelled with the following information: Imidacloprid is toxic to bees. Dust generated during planting of treated seed may be harmful to bees and other pollinators. To help minimize the dust generated during planting, refer to the complete guidance "Pollinator Protection and Responsible Use of Treated Seed-Best Management Practices" on the Health Canada webpage on pollinator protection at www.healthcanada.gc.ca/pollinators.*	**SEED:** *Additionally, all treated soybean seed for sale or use in Canada must be labelled with the following information: • Imidacloprid is toxic to bees. Dust generated during planting of treated seed may be harmful to bees and other pollinators. • To help minimize the dust generated during planting, refer to the complete guidance "Pollinator Protection and Responsible Use of Treated Seed-Best Management Practices" on the Health Canada webpage on pollinator protection at www.healthcanada.gc.ca/pollinators. • When using a seed flow*		*or cleaned up from the soil surface.* **29610: LABELLING TREATED SEED**: *Additionally, all treated soybean seed for sale or use in Canada must be labelled with the following information: • Imidacloprid is toxic to bees. Dust generated during planting of treated seed may be harmful to bees and other pollinators. • To help minimize the dust generated during planting, refer to the complete guidance "Pollinator Protection and Responsible Use of Treated Seed-Best Management Practices" on the Health Canada*	**Missing required language.**		

		graphite are not permitted to be used as a seed flow lubricant for corn seed treated with this insecticide. Carefully follow use directions for the seed flow lubricant. Do not load or clean planting equipment near bee colonies, and avoid places where bees may be foraging, such as flowering crops or weeds. When turning on the planter, avoid engaging the system where emitted dust may contact honey bee colonies. Spilled or exposed seeds and dust must be incorporated into the soil or cleaned up from the soil surface.		*Management Practices" on the Health Canada webpage on pollinator protection at www.healthcanada.gc.ca/pollinators. When using a seed flow lubricant with this treated seed, only the Fluency Agent by Bayer CropScience is permitted. Carefully follow use directions for this seed flow lubricant. Do not load or clean planting equipment near bee colonies, and avoid places where bees may be foraging, such as flowering crops or weeds. When turning on the planter, avoid engaging the system where emitted dust may contact honey bee colonies. Spilled or exposed seeds and dust must be incorporated into the soil or cleaned up*	*When using a seed flow lubricant with this treated seed, only a dust-reducing fluency agent is permitted. Talc and graphite are not permitted to be used as a seed flow lubricant for corn seed treated with this insecticide. Carefully follow use directions for the seed flow lubricant. Do not load or clean planting equipment near bee colonies, and avoid places where bees may be foraging, such as flowering crops or weeds. When turning on the planter, avoid engaging the system where emitted dust may contact honey bee colonies. Spilled or exposed seeds and dust must be incorporated into the soil or cleaned up from the soil*	*lubricant with this treated seed, only a dust-reducing fluency agent is permitted. Talc and graphite are not permitted to be used as a seed flow lubricant for soybean seed treated with this insecticide. Carefully follow use directions for the seed flow lubricant. • Do not load or clean planting equipment near bee colonies, and avoid places where bees may be foraging, such as flowering crops or weeds. • When turning on the planter, avoid engaging the system where emitted dust may contact honey bee colonies. • Spilled or exposed seeds and dust must be incorporated into the soil or cleaned up from the soil*		*webpage on pollinator protection at www.healthcanada.gc.ca/pollinators. • When using a seed flow lubricant with this treated seed, only a dust-reducing fluency agent is permitted. Talc and graphite are not permitted to be used as a seed flow lubricant for soybean seed treated with this insecticide. Carefully follow use directions for the seed flow lubricant. • Do not load or clean planting equipment near bee colonies, and avoid places where bees may be foraging, such as flowering crops or weeds. • When turning on the planter, avoid engaging the system where emitted dust may contact honey bee colonies. •*			

				from the soil.	*surface.*	*surface.*		*Spilled or exposed seeds and dust must be incorporated into the soil or cleaned up from the soil surface.*			
Required risk mitigation and label updates to protect pollinators											
30972 **Maintain uses, no change.** **Label updates:** May update label language to include the following: 30972: Environmental Precautions and Information: Add (after current bee statements): *When used according to label directions minimal exposure or risk is expected.* Example: Where states the following, the additional sentence may be added: *Toxic to bees. Bees can be*	**25556** **Maintain uses, no change.** **Label updates:** Environmental Precautions/ Environmental Hazards: **Add:** *Toxic to bees. Bees can be exposed to product residues in flowers, leaves, pollen and/or nectar resulting from seed treatment applications. When used according to label directions minimal exposure or risk is expected.*	**27170** **Maintain uses, no change.** **Label updates:** Environmental Precautions/ Environmental Hazards: **Add:** *Toxic to bees. Bees can be exposed to product residues in flowers, leaves, pollen and/or nectar resulting from seed treatment applications. When used according to label directions minimal exposure or risk is expected*	**27174** **Maintain uses, no change.** **Label updates:** Environmental Precautions/ Environmental Hazards: **Add:** *Toxic to bees. Bees can be exposed to product residues in flowers, leaves, pollen and/or nectar resulting from seed treatment applications. When used according to label directions minimal exposure or risk is expected*	**30505** **Maintain uses, no change.*** *For wheat, barley, oat: Addition of Best Management Practices to seed tag label required **Label updates:** Environmental Precautions/ Environmental Hazards: **Add:** *Toxic to bees. Bees can be exposed to product residues in flowers, leaves, pollen and/or nectar resulting from seed treatment applications. When used according to label directions*	**26124** **Maintain uses, no change.*** *For legumes CG6), excluding soybean: Addition of Best Management Practices to seed tag label required **Label updates:** Environmental Precautions/ Environmental Hazards: **Add:** *Toxic to bees. Bees can be exposed to product residues in flowers, leaves, pollen and/or nectar resulting from seed treatment applications. When used according to*	**30668** **Maintain uses, no change.*** *For wheat, barley, oat, legumes (CG6) excluding soybean: Addition of Best Management Practices to seed tag label required **Label updates:** Environmental Precautions/ Environmental Hazards: **Add:** *Toxic to bees. Bees can be exposed to product residues in flowers, leaves, pollen and/or nectar resulting from seed treatment applications.*	**29609** **Maintain uses, no change.*** *For wheat, barley, oat: Addition of Best Management Practices to seed tag label required **Label updates:** Environmental Precautions/ Environmental Hazards: **Add:** *Toxic to bees. Bees can be exposed to product residues in flowers, leaves, pollen and/or nectar resulting from seed treatment applications. When used according to label directions*	**29610** **Maintain uses, no change.*** *For wheat, barley, oat: Addition of Best Management Practices to seed tag label required **Label updates:** Environmental Precautions/ Environmental Hazards: **Add:** *Toxic to bees. Bees can be exposed to product residues in flowers, leaves, pollen and/or nectar resulting from seed treatment applications. When used according to label directions*	**31068** **Maintain uses, no change.** **Label updates:** Environmental Precautions/ Environmental Hazards: **Add:** *Toxic to bees. Bees can be exposed to product residues in flowers, leaves, pollen and/or nectar resulting from seed treatment applications. When used according to label directions minimal exposure or risk is expected* **Label correction** is required, as information to be added to	**27349** **Maintain uses, no change.** **Label updates:** Environmental Precautions/ Environmental Hazards: **Add:** *Toxic to bees. Bees can be exposed to product residues in flowers, leaves, pollen and/or nectar resulting from seed treatment applications. When used according to label directions minimal exposure or risk is expected*	**27702** **Maintain uses, no change.** **Label updates:** Environmental Precautions/ Environmental Hazards: **Add:** *Toxic to bees. Bees can be exposed to product residues in flowers, leaves, pollen and/or nectar resulting from seed treatment applications. When used according to label directions minimal exposure or risk is expected*

exposed to product residues in flowers, leaves, pollen and/or nectar resulting from seed treatment applications. ***When used according to label directions minimal exposure or risk is expected.***				*minimal exposure or risk is expected* **Add under:** LABELLING TREATED SEED (wheat, oat, barley): *Additionally, all treated wheat, oat, barley seed for sale or use in Canada must be labeled with the following information:* *Imidacloprid is toxic to bees. Dust generated during planting of treated seed may be harmful to bees and other pollinators.* *To help minimize the dust generated during planting, refer to the "Pollinator Protection and Responsible Use of Treated Seed-Best Management Practices" on*	*label directions minimal exposure or risk is expected* **Add under:** LABELLING TREATED SEED (CG6: Legumes): *Additionally, all treated Legume seed excluding soybean (all Crop Group 6 treated seed, excluding soybean) for sale or use in Canada must be labeled with the following information:* *Imidacloprid is toxic to bees. Dust generated during planting of treated seed may be harmful to bees and other pollinators.* *To help minimize the dust generated during planting, refer to the "Pollinator Protection*	*When used according to label directions minimal exposure or risk is expected* **Add under:** LABELLING TREATED SEED (CG6: Legumes): *Additionally, all treated wheat, oat, barley seed and treated legume seed excluding soybean (all Crop Group 6 treated seed, excluding soybean) for sale or use in Canada must be labeled with the following information:* *Imidacloprid is toxic to bees. Dust generated during planting of treated seed may be harmful to bees and other pollinators.* *To help minimize the dust generated*	*minimal exposure or risk is expected* **Add under:** LABELLING TREATED SEED (wheat, oat, barley): *Additionally, all treated wheat, oat, barley seed for sale or use in Canada must be labeled with the following information:* *Imidacloprid is toxic to bees. Dust generated during planting of treated seed may be harmful to bees and other pollinators.* *To help minimize the dust generated during planting, refer to the "Pollinator Protection and Responsible Use of Treated Seed-Best Management Practices" on*	*minimal exposure or risk is expected* **Add under:** LABELLING TREATED SEED (wheat, oat, barley): *Additionally, all treated wheat, oat, barley seed for sale or use in Canada must be labeled with the following information:* *Imidacloprid is toxic to bees. Dust generated during planting of treated seed may be harmful to bees and other pollinators.* *To help minimize the dust generated during planting, refer to the "Pollinator Protection and Responsible Use of Treated Seed-Best Management Practices" on*	treated seed containers is missing. **Add under:** **31068: LABELLING TREATED SEED:** *Additionally, all treated soybean seed for sale or use in Canada must be labelled with the following information:* *Imidacloprid is toxic to bees. Dust generated during planting of treated seed may be harmful to bees and other pollinators. To help minimize the dust generated during planting, refer to the complete guidance "Pollinator Protection and Responsible Use of Treated Seed-Best Management*		

				the Health Canada webpage on pollinator protection at www.canada.ca/pollinators. *Do not load or clean planting equipment near bee colonies, and avoid places where bees may be foraging, such as flowering crops or weeds.* *When turning on the planter, avoid engaging the system where emitted dust may contact honey bee colonies.* *Spilled or exposed seeds and dust must be incorporated into the soil or cleaned up from the soil surface.* **Correction to Current Label:** For current seed tag labelling, soybean and	*and Responsible Use of Treated Seed-Best Management Practices" on the Health Canada webpage on pollinator protection at www.canada.ca/pollinators.* *Do not load or clean planting equipment near bee colonies, and avoid places where bees may be foraging, such as flowering crops or weeds.* *When turning on the planter, avoid engaging the system where emitted dust may contact honey bee colonies.* *Spilled or exposed seeds and dust must be incorporated into the soil or cleaned up from the soil surface.*	*during planting, refer to the "Pollinator Protection and Responsible Use of Treated Seed-Best Management Practices" on the Health Canada webpage on pollinator protection at www.canada.ca/pollinators.* *Do not load or clean planting equipment near bee colonies, and avoid places where bees may be foraging, such as flowering crops or weeds.* *When turning on the planter, avoid engaging the system where emitted dust may contact honey bee colonies.* *Spilled or exposed seeds and dust must be incorporated into the soil or cleaned up*	*the Health Canada webpage on pollinator protection at www.canada.ca/pollinators.* *Do not load or clean planting equipment near bee colonies, and avoid places where bees may be foraging, such as flowering crops or weeds.* *When turning on the planter, avoid engaging the system where emitted dust may contact honey bee colonies.* *Spilled or exposed seeds and dust must be incorporated into the soil or cleaned up from the soil surface.*	*the Health Canada webpage on pollinator protection at www.canada.ca/pollinators.* *Do not load or clean planting equipment near bee colonies, and avoid places where bees may be foraging, such as flowering crops or weeds.* *When turning on the planter, avoid engaging the system where emitted dust may contact honey bee colonies.* *Spilled or exposed seeds and dust must be incorporated into the soil or cleaned up from the soil surface.*	*Practices" on the Health Canada webpage on pollinator protection at www.canada.ca/pollinators When using a seed flow lubricant with this treated seed, only a dust-reducing seed flow lubricant is permitted. Talc and graphite are not permitted to be used as a seed flow lubricant for soybean seed treated with this insecticide. Carefully follow use directions for this seed flow lubricant. Do not load or clean planting equipment near bee colonies, and avoid places where bees may be foraging, such as flowering crops or weeds. When turning on the planter, avoid engaging the system where emitted dust may contact honey bee*		

				corn should be labelled, while canola and mustard should not be labelled. **30505:Correction: LABELLING TREATED SEED:** *All treated ~~canola, mustard and~~ corn **and soybean** seed for sale or use in Canada must be labelled with the following information: Imidacloprid is toxic to bees. Dust generated during planting of treated seed may be harmful to bees and other pollinators. To help minimize the dust generated during planting, refer to the complete guidance "Pollinator Protection and Responsible*		*from the soil surface.*			*colonies. Spilled or exposed seeds and dust must be incorporated into the soil or cleaned up from the soil surface.*		

				Use of Treated Seed-Best Management Practices" on the Health Canada webpage on pollinator protection at www.canada.ca/pollinators. When using a seed flow lubricant with this treated seed, only the Fluency Agent by Bayer CropScience is permitted. Carefully follow use directions for this seed flow lubricant. Do not load or clean planting equipment near bee colonies, and avoid places where bees may be foraging, such as flowering crops or weeds. When turning on the planter, avoid engaging the system where emitted dust may contact honey bee colonies. Spilled or exposed seeds and dust must be incorporated							

				into the soil or cleaned up from the soil.							

II) In order to allow for an additional year for uses that do not have alternatives, the following tables must be added to the front page of imidacloprid labels for the specific end use products.

1. Reg. No. 24094, Admire 240 Flowable Systemic Insecticide

Crop	Pest	Last Date of Use
Crop group 9: Cucurbits	Cucumber beetle	[date of decision + 3 years]
Crop Group 13-07A: Caneberries (soil only)	European chafer & Japanese beetle	[date of decision + 3 years]
Crop Group 13-07B: Bushberries (soil only)	European chafer & Japanese beetle	[date of decision + 3 years]
Crop Group 13-07G: Low growing berries	European chafer	[date of decision + 3 years]
Crop Group 13-07B: Bushberries (except blueberry) and Crop Group 13-07G: Low growing berries (except cranberry and blueberry)	Leafhoppers	[date of decision + 3 years]
Crop Group 19-A: Herbs	Leafhoppers	[date of decision + 3 years]

2. Reg. No. 28475, Alias 240 SC Systemic Insecticide

Crop	Pest	Last Date of Use
Crop group 9: Cucurbits	Cucumber beetle	[date of decision + 3 years]
Crop Group 13-7A: Caneberries (soil only)	European chafer & Japanese beetle	[date of decision + 3 years]
Blueberries (soil use only)	European chafer & Japanese beetle	[date of decision + 3 years]

3. Reg. No. 28726, Grapple Insecticide; Reg. No. 29048, Grapple – 2 Insecticide

Crop	Pest	Last Date of Use
Crop group 9: Cucurbits	Cucumber beetle	[date of decision + 3 years]
Blueberries (soil use only)	European chafer & Japanese beetle	[date of decision + 3 years]

4. Reg. No. 25636, Merit 60 WP Greenhouse and Nursery Insecticide and Reg. No. 27357, Intercept 60 WP Greenhouse insecticide

Crop	Pest	Last Date of Use
Outdoor ornamentals (soil use only)	European chafer and Japanese beetle	[date of decision + 3 years]

III) For all imidacloprid end-use products listed in Appendix I, the following label amendments must be made:

1. On the front panel of all imidacloprid labels, replace ‘guarantee’ with ‘active ingredient.’
2. On all imidacloprid labels, replace ‘control of certain insect pests’ with ‘control of listed insect pests.’
3. As per Section 3.10 of Regulatory Directive DIR2016-02, *Notifications/Non-notifications*, remove any vague or non-specific claims that the product can be tank mixed with another pesticide (fungicide, insecticide or herbicide).

4. As per Regulatory Directive DIR2013-04, *Pesticide Resistance Management Labelling Based on Target Site / Mode of Action*, verify that the resistance management statement on each end use product label is updated to reflect the wording in there.
5. All locations where website of *www.healthcanada.gc.ca/pollinators* is found should be updated to *www.canada.ca/pollinators*

Appendix IV References Considered Following Publication of PRVD2018-12

A. Information Considered in the Environmental Assessment

List of Studies/Information Submitted by Registrant

PMRA 2820112. *2017, Imidacloprid tech. - Single Exposure of Honey Bee (Apis mellifera L.) Larvae under Laboratory Conditions (in vitro), DACO: 9.2.4.2*

PMRA 2820113. 2017, Amendment No 1 to: Ten Day Oral Toxicity Test with Imidacloprid tech. on the Honey Bee (Apis mellifera L.) in the Laboratory, DACO: 9.9

PMRA 2852071. 2016, Report amendment no. 1 to study no. S13-05002: Determination of residues of imidacloprid in flowers, leaves, soil, nectar and pollen of watermelon, after drench or foliar applications with Evidence 700 WG or Provado 200 SC in a semi-field study in Brazil, DACO: 9.9

Published Information

Bishop, C., Moran., A., Toshack, M., Elle, E., Maisonneuve, F., Elliot, J. 2018. Hummingbirds and bumble bees exposed to neonicotinoids and organophosphate insecticides in the Fraser Valley, British Columbia, Canada. Environmental Toxicity and Chemistry, Vol 37, issue 8 – pp. 2143-2152.

James D. Crall, Callin M. Switzer, Robert L. Oppenheimer, Ashlee N. Ford Versypt, Biswadip Dey, Andrea Brown, Mackay Eyster, Claire Guérin, Naomi E. Pierce, Stacey A. Combes and Benjamin L. de Bivort. 2018. Neonicotinoid exposure disrupts bumblebee nest behavior, social networks, and thermoregulation Science 362 (6415), 683-686. DOI: 10.1126/science.aat1598