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AGENCY OF AGRICULTURE, FOOD & MARKETS
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Health Canada Neonicotinoid Treated Seed Regulatory Overview

References & Resources

Neonicotinoid insecticides - Canada.ca

Pollinator protection - Canada.ca

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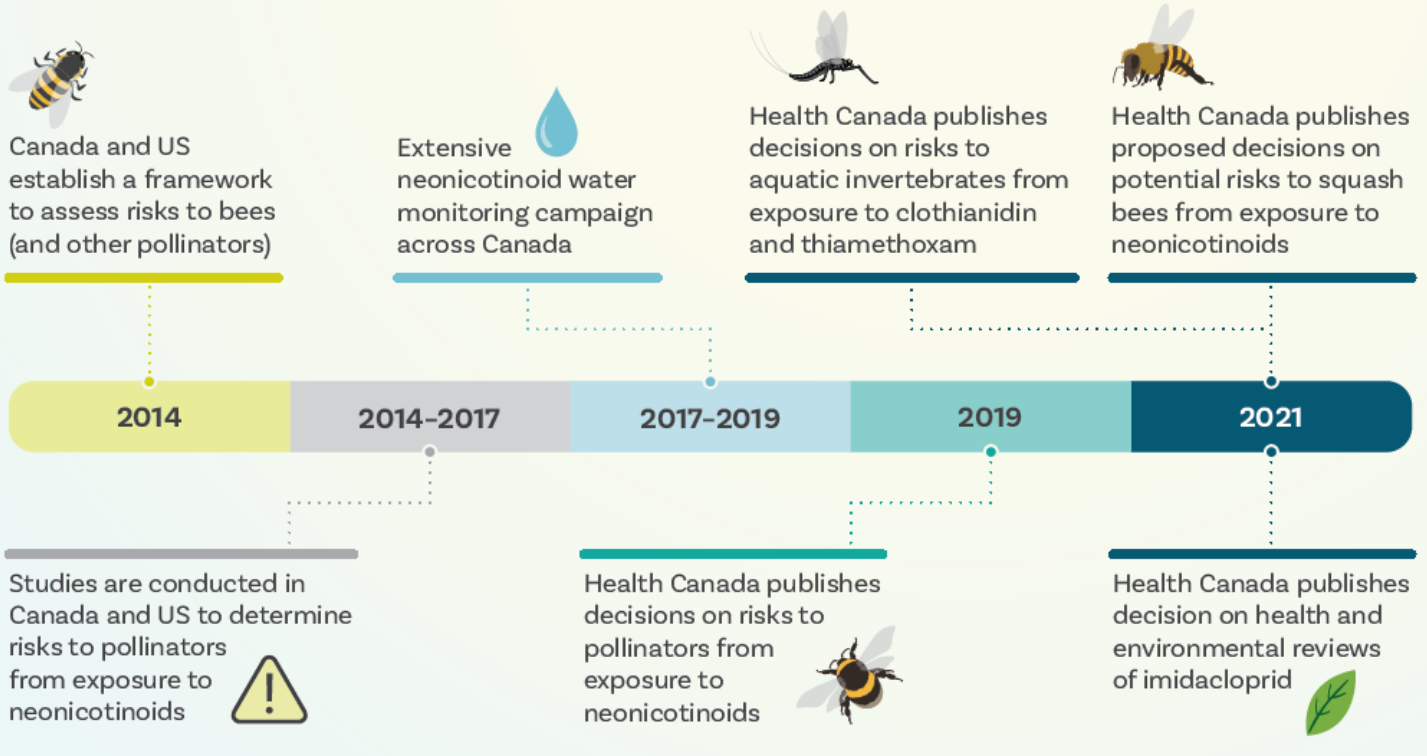
Health Canada Neonic Timeline

Health Canada's Pest Management Regulatory Agency (PMRA) is responsible for pesticide regulation in Canada. To be approved for sale in Canada, all pesticides must undergo a rigorous science-based review. Health Canada periodically reviews all registered pesticides to ensure they meet modern health and safety standards for protecting human health and the environment, and also reviews registered pesticides to respond to emerging concerns.

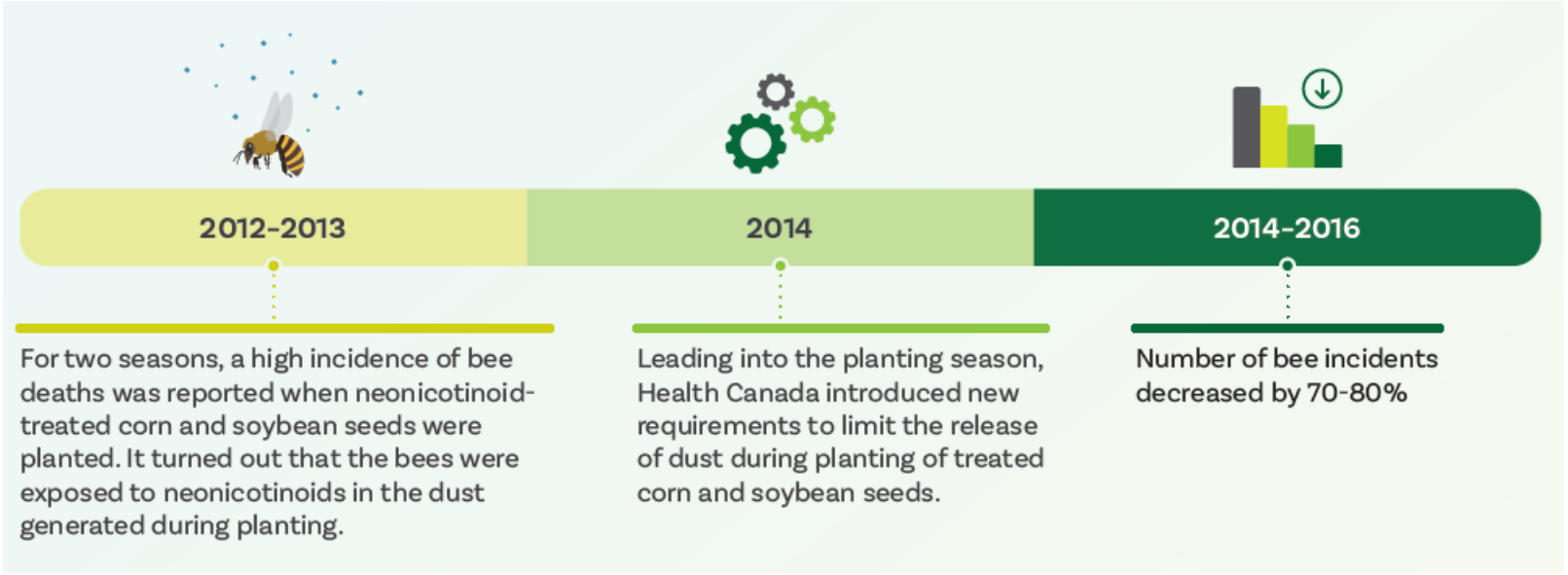
An example of this would be the series of scientific reviews for neonics that began in 2012. These reviews addressed the risks to honey bees, native pollinators and the level of neonics found in water. Over the past years, Health Canada has identified, and immediately addressed, human health and environmental issues that have come up during science-based reviews for neonics, and in doing so, has created the following changes to registration:



[Neonicotinoids in Canada - Canada.ca]

Health Canada Neonic Timeline

- 2012: Health Canada began receiving large numbers of bee incident reports
- 2014: Health Canada implemented restrictions when planting neonicotinoid treated corn and soybean seeds to protect pollinators from dust generated during planting
- 2014 – 2016: Bee incidents 70-80% lower than 2013
- 2017 – 2021: Incident reports remain low



Update on Canadian Bee Incident Reports 2012-2016 - Canada.ca

Neonicotinoids in Canada - Canada.ca

Pest Management Regulatory Agency
Requirement when using Treated Corn / Soybean Seed

[Requirement when using Treated Corn / Soybean Seed - Canada.ca]

- Use only a dust-reducing fluency agent
  - Talc and graphite are not permitted
    - Exceptions:
      1) Planting machinery that does not require seed flow lubricant
      2) Graphite can be used as mechanical lubricant in finger pickup / mechanical type planters (non-pneumatic)
- Follow all label instructions

- Do not load or clean planting equipment near bee colonies or bee forage areas (flowering crops and weeds)
- When turning on planter, avoid engaging 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

Protecting Pollinators When Using Treated Seed – Best Management Practices

REQUIREMENT
When using a seed flow lubricant for planting corn or soybean seed treated with neonicotinoid insecticides clothianidin, thiamethoxam or imidacloprid, only a dust-reducing fluency agent is permitted in order to minimize the potential for abrasion that produces insecticidal seed dust. Talc and graphite are not permitted to be used as a seed flow lubricant for corn or soybean seed treated with these insecticides. Carefully follow the use directions provided with the dust-reducing fluency agent.

"The BMPs provide a toolbox of options that should be used in combination wherever possible."

- Read and adhere to the pesticide label and seed tag directions (i.e. PPE and buffer zones)
- Practice IPM when choosing seed treatments
  - Scout fields to determine if soil pests exceed threshold levels
  - Use insecticide treated seed only where necessary
  - If necessary, use the lowest effective seed treatment rate
  - "Most seed companies can accommodate orders for non-insecticide treated seed. Talk to your seed dealer about timing and options."
- Develop and Maintain shared communication with beekeepers
  - Beekeepers should inform growers of hive locations
  - Growers should inform beekeepers of timing of planting treated seed and pesticide applications
  - Provide advance notice of planting so beekeepers can temporarily protect or relocate hives and ensure clean water sources are available
- Recognize pollinator habitat and take special care to reduce dust exposure

Protecting pollinators when using treated seed - best management practices - Canada.ca

Protecting Pollinators When Using Treated Seed – Best Management Practices

- Recognize pollinator habitat and take special care to reduce dust exposure
  - Weeds and flowering trees are important pollinator foraging resources during planting season
  - Avoid planting treated seed under very dry and/or windy conditions if flowering resources, standing water, or bee yards are located downwind
  - Control flowering weeds in the field before planting
- Avoid generating dust when handling and loading
  - Handle bags with care to reduce abrasion, dust generation and spillage
  - Avoid loading in places where bees may be foraging
  - Avoid engaging system where dust may contact foraging pollinators or honeybee colonies
- Manage planting equipment to decrease dust drift
  - Follow planter manufacturer directions and keep up to date on new practices
  - Clean and maintain equipment regularly, including the fan housing and hoppers of air-assisted planters (vacuum any dust remaining in those areas)
  - Use deflector equipment to direct dust to the ground level to reduce drift
- Ensure proper cleanup and disposal
- Spilled seeds should be incorporated into the soil or cleaned from soil surface
- Keep treated seed and dust away from surface water
- Empty seed bags should not be left out or participate in seed bag collection programs
- Report suspect pollinator pesticide poisonings

Protecting pollinators when using treated seed - best management practices - Canada.ca

Pollinator Assessments

Re-evaluations of Imidacloprid, Clothianidin and Thiamethoxam

- Re-evaluation of all agricultural, turf and ornamental uses for 3 neonics and their associated end-use products, specifically to assess the risk to pollinators, such as honey bees, bumble bees, and solitary bees.
- Published in April 2019 and mitigation measures and label amendments have to be implemented by April 2021

Re-evaluation Decision RVD2019-06, Imidacloprid and Its Associated End-use Products: Pollinator Re-evaluation - Canada.ca

Re-evaluation Decision RVD2019-05, Clothianidin and Its Associated End-use Products: Pollinator Re-evaluation - Canada.ca

Re-evaluation Decision RVD2019-04, Thiamethoxam and Its Associated End-use Products: Pollinator Re-evaluation - Canada.ca

Imidacloprid Pollinator Re-evaluation Decision

- Health Canada cancelled and removed the following uses
  - 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, and ornamentals that are attractive to pollinators and planted outside
- Health Canada added the following crops that cannot be sprayed before or during bloom
  - 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.
- Health Canada added the following crops that cannot be sprayed during bloom
  - 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.

Clothianidin Pollinator Re-evaluation Decision

- Health Canada is cancelling the following uses
  - Foliar application to orchard trees and strawberries
  - Foliar application to municipal, industrial and residential turf sites
- In order to protect pollinators, Health Canada is changing the conditions of use of clothianidin:
  - Reduce maximum number of foliar applications to cucurbit vegetables to one per season
- To minimize bee exposure to dust during planting of treated seed, additional label statements are proposed for the following use:
  - Seed treatment of cereal crops.

Thiamethoxam Pollinator Re-evaluation Decision

- Health Canada is cancelling the following uses
  - Foliar and soil application to ornamental crops that are planted outdoors and attractive to pollinators
  - Soil application to berry crops, cucurbit crops and fruiting vegetablesy
  - Foliar application to orchard trees
- The following crops cannot be sprayed before or during bloom
  - Foliar application to legume and outdoor fruiting vegetables, and
  - Foliar application to berry crops (with renovation required for woody berries)
- The following crops cannot be sprayed during bloom
  - Foliar application to sweet potato and potato
- 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.

Seed Tag Required Language
Gaucho 480 FL Insecticide

Health Canada (Reg No 26124)

LABELLING TREATED SEED:
All bags containing treated seed must be labelled or tagged as follows: "This seed has been treated with Gaucho 480 FL Insecticide seed protectant which contains imidacloprid. Do not use for feed, food or oil processing. Store away from feeds and other foodstuffs. Wear long-sleeves, long pants and chemical resistant gloves while handling treated seed. Do not use leather or cloth gloves."

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.canada.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 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.

United States EPA (EPA Reg No 264-957)

NOTIFICATION of the crop rotational restriction must be conveyed to the grower by appropriate seed tag labeling or bag printing on all seed units.

Treated seed must not be used for or mixed with food or animal feed or processed for oil. Seed commercially treated with GAUCHO 480 Flowable must be labeled in accordance with all applicable requirements of the Federal Seed Act.

Labels for commercially treated seed must include the following addition to the Environmental Hazards statements:

- Exposed treated seed may be hazardous to birds. Dispose of all excess treated seed and seed packaging by burial away from bodies of water. Cover or incorporate spilled treated seeds.

ENVIRONMENTAL HAZARDS

This product is highly toxic to bees, birds and aquatic invertebrates. For terrestrial uses, do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters. Cover or incorporate spilled treated seeds.

Ensure that planting equipment is functioning properly in accordance with manufacturing specifications to minimize seed coat abrasion during planting to reduce dust which can drift to blooming crops or weeds.

Seed Tag Required Language
Gaucho 480 FL Insecticide

Health Canada (Reg No 26124)

LABELLING TREATED SEED:
All bags containing treated seed must be labelled or tagged as follows: "This seed has been treated with Gaucho 480 FL Insecticide seed protectant which contains imidacloprid. Do not use for feed, food or oil processing. Store away from feeds and other foodstuffs. Wear long-sleeves, long pants and chemical resistant gloves while handling treated seed. Do not use leather or cloth gloves."

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.canada.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 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.

United States EPA (EPA Reg No 264-957)

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Treated seed must not be used for or mixed with food or animal feed or processed for oil. Seed commercially treated with GAUCHO 480 Flowable must be labeled in accordance with all applicable requirements of the Federal Seed Act.

Labels for commercially treated seed must include the following addition to the Environmental Hazards statements:

- Exposed treated seed may be hazardous to birds. Dispose of all excess treated seed and seed packaging by burial away from bodies of water. Cover or incorporate spilled treated seeds.

ENVIRONMENTAL HAZARDS

This product is highly toxic to bees, birds and aquatic invertebrates. For terrestrial uses, do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters. Cover or incorporate spilled treated seeds.

Ensure that planting equipment is functioning properly in accordance with manufacturing specifications to minimize seed coat abrasion during planting to reduce dust which can drift to blooming crops or weeds.

Federal Seed Act 201.31a Labeling treated seed

Treated with [Brand name or commonly accepted chemical name of treatment]. Do not use for food, feed, or oil purposes.

Aquatic Invertebrate Assessments

Special Reviews of Clothianidin and Thiamethoxam

- Health Canada reviewed environmental data submitted by registrants and neonic water monitoring data from ag use areas across Canada
- Aug 2018 published proposed special review decisions. Based on info at the time, Health Canada proposed cancellation of all ag uses.
- Received large amounts of neonic water monitoring data & facilitated a stakeholder forum to examine use of neonics in ag
- Health Canada considered the extensive comments and additional info and published special reviews of clothianidin and thiamethoxam in March 2021
  - Some uses cancelled
  - Additional mitigation measures and restrictions
  - Must be implemented by March 2023

Special Review Decision: Clothianidin Risk to Aquatic Invertebrates

In order to protect aquatic invertebrate communities, **Health Canada is cancelling the following uses of clothianidin:**

- In-furrow application on potato.
- Seed treatment for field sown leafy vegetables and bunching onion. Planting rates for these crops exceed the maximum allowable application rate of 100 g a.i./ha.

Health Canada is changing the conditions of use of clothianidin for the following crops:

- The maximum seed treatment rate for field corn is reduced to 150 g a.i./100 kg seed. This results in the cancellation of the use for corn rootworm. No change is required for popcorn or sweet corn.
- For seed treatment uses on vegetables, the yearly maximum rate per hectare is limited to 100 g a.i./ha. This limits the planting rates used on broccoli, bulb onion, carrot, cabbage, cucumber and leek to meet this yearly maximum rate.
- The maximum foliar rate for use on cucurbits is reduced to a single application of 70 g a.i./ha per season. This results in the cancellation of use for brown marmorated stink bug.
- The maximum foliar rate for use on potatoes is reduced to a single application of 52.5 g a.i./ha per season.
- The maximum foliar rate for use on turf is reduced to a single application of 125 g a.i./ha per season. This results in the cancellation of use for hairy chinch bug, annual bluegrass weevil, bluegrass billbug and European crane fly.
- Cancellation of greenhouse seed treatment use for onion maggot and seed corn maggot on bulb onions, as these are only pests found in field production.
- New or revised spray buffer zones are required for freshwater habitats.

Special Review Decision SRD2021-03, Special Review Decision: Clothianidin Risk to Aquatic Invertebrates - Canada.ca

Special Review Decision: Thiamethoxam Risk to Aquatic Invertebrates

In order to protect aquatic invertebrate communities, **Health Canada is cancelling the following uses of thiamethoxam**:

- Soil drench application on potato.
- Foliar application on lowbush blueberries.

Health Canada is changing the conditions of use of thiamethoxam for the following crops:

- The maximum seed treatment rate for field corn (including seed corn production) is reduced to 200 g a.i./100 kg seed. This will result in the cancellation of the use for planting in Canada for corn rootworm (including for seed corn production). No change is required for popcorn or sweet corn.
- The maximum seed treatment rate for soybean is reduced to 30 g a.i./100 kg seed. This will result in the cancellation of the use for bean leaf beetle, European chafer, soybean aphid, and wireworm.
- The maximum soil drench and in-furrow rate for leafy vegetables is reduced to 90 g a.i./ha. This will result in the cancellation of the use for cabbage looper, beet armyworm, corn earworm and fall armyworm.
- The maximum soil drench and in-furrow rate for brassica vegetables is reduced to 90 g a.i./ha. This will result in the cancellation of the use for dipteran leafminers, cabbage looper, diamondback moth, imported cabbageworm, thrips, beet armyworm, corn earworm, fall armyworm, and yellowstriped armyworm.
- The number of foliar applications is reduced to one per year on dry shelled bean, potato, soybean.
- The number of foliar applications is reduced to one per year for the following vegetables and listed pests: all pests on celeriac and for pepper weevil on peppers. In the case of fruiting vegetables, for stink bug, tarnished plant bug and brown marmorated stink bug the number of applications at the highest application rate (52.5 g a.i./ha) is reduced to one per year.
- The number of foliar applications is reduced to one per year on cranberry. There is also a requirement to hold flood water for 30 days for cranberries that require flooding.
- New or revised spray buffer zones are required for freshwater and terrestrial habitats.

[Special Review Decision SRD2021-04, Special Review Decision: Thiamethoxam Risk to Aquatic Invertebrates - Canada.ca]

Health, Environmental and Value Assessments

Re-evaluations of Imidacloprid, Clothianidin, and Thiamethoxam

- Published imidacloprid re-evaluation in May 2021
  - Human health risks associated with imidacloprid are considered to be acceptable when used according to revised label instructions
  - Identified risks of exposure to aquatic invertebrates, birds and mammals
- Imidacloprid risk mitigation measures and label updates have to be implemented by May 2023
- Cancelled imidacloprid products will be phased out:
  - 1 year of sale by registrant from the publication date of this decision document, followed by;
  - 1 year of sale by retailer from the last date of sale by registrant, followed by;
  - 1 year of permitted use from the last date of sale by retailer.
- Re-evaluation of clothianidin and thiamethoxam are in progress. Proposed re-evaluation decisions expected in 2023 for public consultation

Re-evaluation Decision RVD2021-05, Imidacloprid and Its Associated End-use Products - Canada.ca

Imidacloprid Risk Mitigation Measures

- Cancelled due to risk to environment
  - Seed treatment for corn flea beetle on field and sweet corn
  - Direct field seeding of brassica and leafy vegetables and listed pests (continued registration for transplants only)
  - In-furrow application on brassica, leafy, and root and tuber vegetables and listed pests
  - In-furrow application on tobacco and listed pests
  - Soil drench application on brassica, leafy, and root and tuber vegetables and listed pests
  - Field application of tray plug drench application on leafy vegetables
  - Foliar and granular application on turf and listed pests
  - Foliar application on lowbush blueberry and listed pests

Re-evaluation Decision RVD2021-05, Imidacloprid and Its Associated End-use Products - Canada.ca

Imidacloprid Risk Mitigation Measures

- Human health risk mitigation
  - PPE and engineering controls for seed treatment uses
  - Update labels to current standards concerning REI and drift precautions
- Environment risk mitigation
  - Field corn seed treatment: Max application rate reduced to 13 g a.i./80 000 seeds.
  - Sweet corn seed treatment: Max application rate reduced to 67.2 g a.i./100 kg seed.
  - Soybean seed treatment: Max application rate reduced to 62.5 g a.i./100 kg seed.
  - Vegetable seed treatment: Lettuce, broccoli and cabbage seed treatment restricted to crops grown or started (transplant) in greenhouse (no direct seeding to fields permitted).
  - Vegetable, potato, legume (except soybean) and tobacco foliar applications: Max number of applications reduced to 1 per season.
  - Soybean foliar application: Max number of applications reduced to 1 per season, and max application rate reduced to 24.4 g a.i./ha.
- Environmental risk mitigation label requirements
  - Spray buffer zones are required to mitigate risks from spray drift.
  - Standard label statements to inform users of the potential toxic effects to sensitive biota.
  - Additional restrictions for use of treated seed, including revisions to seed disposal instructions and the prohibition of broadcast seeding of treated seed.

Re-evaluation Decision RVD2021-05, Imidacloprid and Its Associated End-use Products - Canada.ca

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Morgan Griffith, AAFM
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Questions ?

References & Resources

Neonicotinoid insecticides - Canada.ca

Pollinator protection - Canada.ca

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