

# Neonicotinoids and Bee Health

## A Perspective on Government Regulations

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### Grain Farmers of Ontario

Grain Farmers of Ontario is the province's largest commodity organization, representing Ontario's 28,000 barley, corn, oat, soybean, and wheat farmers.



# Agenda

- **Introduction**
- **Federal Evaluation and Key Events**
- **Provincial Frameworks and Current State**
- **Discussion**



# Introduction

- Background and Disclosure



# About Grain Farmers of Ontario

**28,000**  
farmer-members

**6 million acres**  
Growing barley, corn,  
oats, soybeans, and  
wheat

**Mission**  
To build, defend, and  
promote an inclusive,  
innovative, and  
sustainable business  
environment that enables  
grain farmer-members  
the opportunity  
to prosper

**Vision**  
Thriving farms.  
Responsible  
production.  
Trusted grain  
farmers.



# Introduction

## Background

- Farming background
- BSc (Waterloo), PhD (Guelph)
- Syngenta
  - Ontario Bee Health Working Group
  - CropLife Pollinator Working Group
- Beekeeper
- Grain Farmers of Ontario



# Federal / National Overview

- Key Milestones / Events that Informed Provincial Action



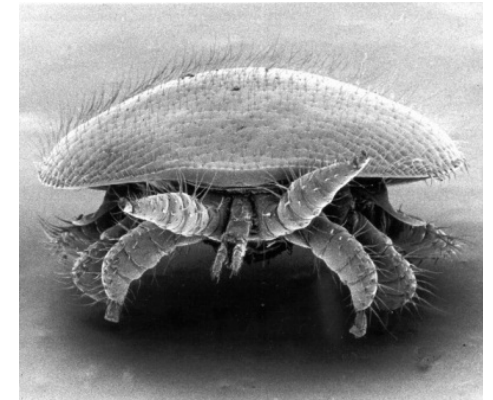
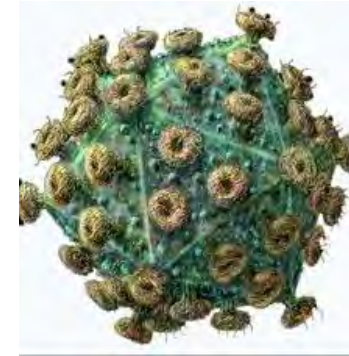
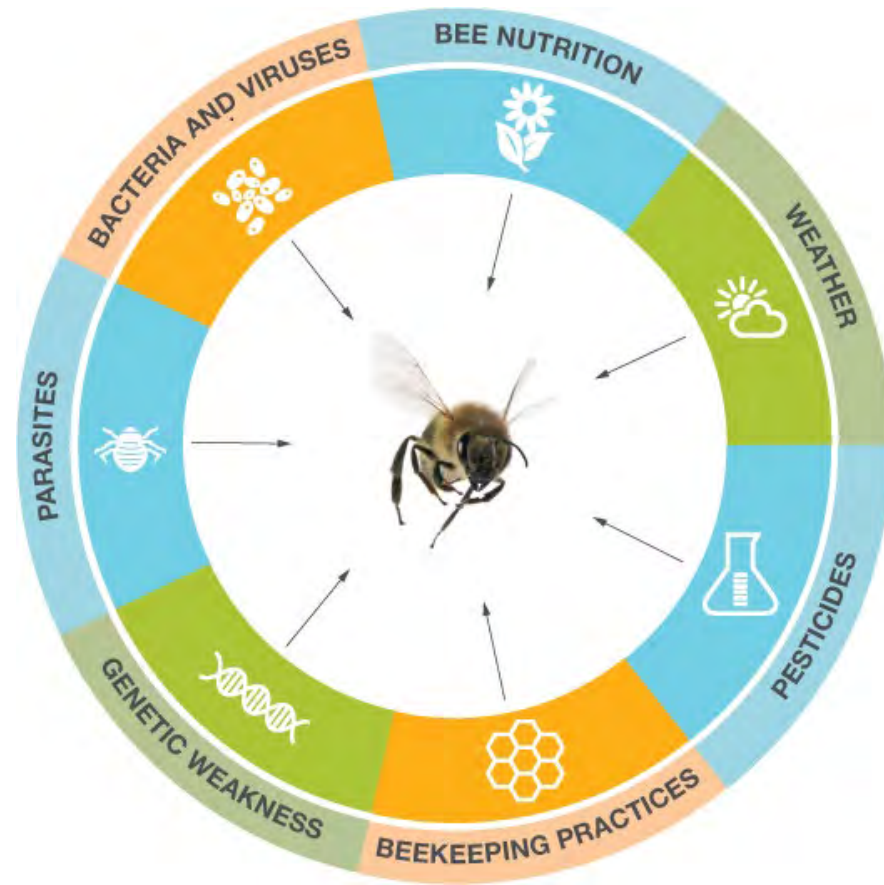
# Pest Management Regulatory Agency

- 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 reviews registered pesticides to respond to emerging concerns





# Bee Health is Complex



Credit: CropLife Canada



# Neonicotinoid Insecticides (NNIs) - Background

- Seed treatments, while discovered hundreds of years ago, have been used routinely in agriculture for a century, and in Canada since the early 1950s
- Seed treatment is a targeted approach to pest control
  - Precisely applied; protecting the most sensitive stage of growth
  - Application of the pesticide on the seed reduces exposure to farmers
- Neonicotinoid insecticides (NNIs) were developed in the early 2000s as a replacement to older chemistries, including other seed treatments and foliar applications
  - Reports from the UK are saying farmers are doing 2.5 passes to 4 passes of foliar since the moratorium was put into place
- Benefit to productivity, efficiency, and sustainability of farm operations
  - [AgInformatics](#) and [PMRA NNI Value Assessment](#) as examples



# Neonicotinoids (NNIs) and Bee Incidents



2012-2013

For two seasons, a high incidence of bee deaths was reported when neonicotinoid-treated corn and soybean seeds were planted. It turned out that the bees were exposed to neonicotinoids in the dust generated during planting.



2014

Leading into the planting season, Health Canada introduced new requirements to limit the release of dust during planting of treated corn and soybean seeds.



2014-2016

Number of bee incidents


- Weather
- Communication
- BMPs
- Advanced Seed Lubricant






Canada and US establish a framework to assess risks to bees (and other pollinators)

2014



Extensive neonicotinoid water monitoring campaign across Canada

2014-2017



Health Canada publishes decisions on risks to aquatic invertebrates from exposure to clothianidin and thiamethoxam


2017-2019



Health Canada publishes proposed decisions on potential risks to squash bees from exposure to neonicotinoids

2019

Studies are conducted in Canada and US to determine risks to pollinators from exposure to neonicotinoids



Health Canada publishes decisions on risks to pollinators from exposure to neonicotinoids

2021

**Use of NNIs on corn and soybeans was deemed safe\***

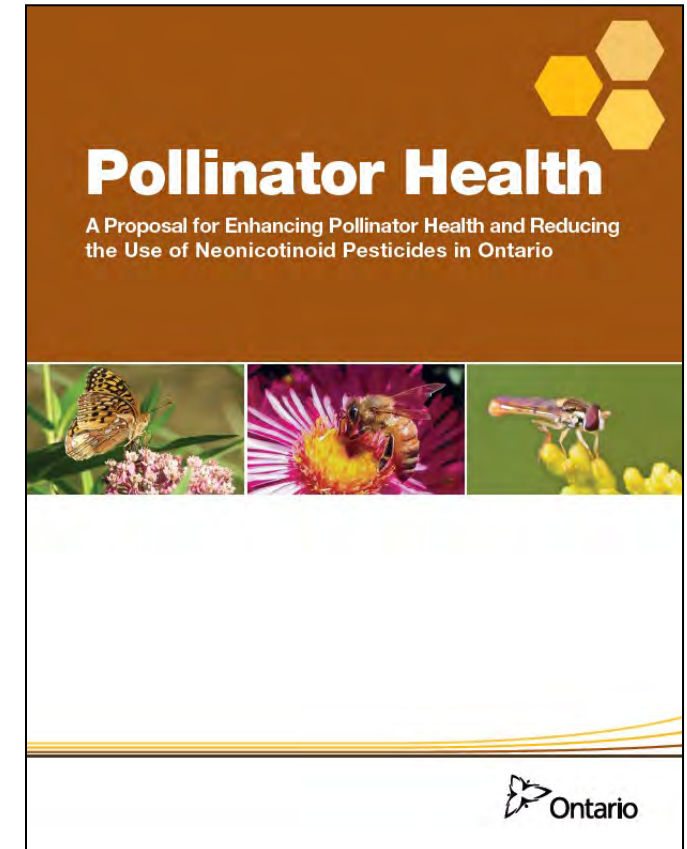
# Provincial Activity

- Concurrent Activity by Ontario Government and Farmer Response



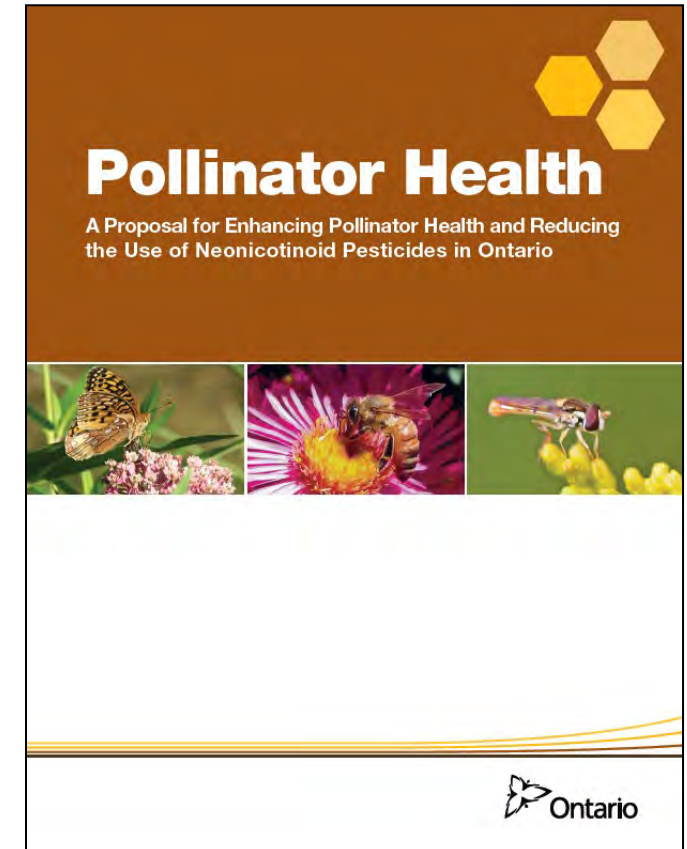
# Concurrent Provincial Activity (2015)

- Aspirational Goals:
  - 80% reduction in NNI-treated corn and soybean acres
  - 15% overwinter loss by 2020
- Regulated Approach:
  - Restricted sale and use of NNI-treated corn and soybean
  - Increased training, reporting, and field-specific testing by farmers (transitioning to a third-party)
  - Class 12: NNI-treated corn and soybean seeds



# Initial Provincial Restrictions

- 2016
  - Treated seed for up to 50% acres
- 2017
  - IPM training mandatory (every 5 years)
  - IPM declaration
  - Completed Pest Assessment Report (PAR) – farmer
- 2018 and beyond
  - IPM certificate and declaration
  - Phase-in of CCA-conducted PAR – independent
- Restrictions to seed vendors, retailers on advertisement, sale, and reporting/record retention of treated seed





# Pest Assessment Report

Wireworm damaged corn  
Credit: [Saussure et al. \(2015\)](#)

- 2 methods:
  - Scouting
  - Crop damage assessment (i.e. stand loss)
- Phase-in of professional pest advisor requirement (cannot be the farmer)
- S/he cannot receive a specific financial incentive (above and beyond their salary or commission) to promote the sale of NNI treated corn or soybean seed over the sale of non-NNI seed



Bean leaf beetle feeding on soybean leaf  
Credit: [Pamela Smith](#)



# Farmer Response (2015) - highlights

- Proposed regulations ignore the federal regulatory system for pesticides
- Regulations are burdensome and do not support science or innovation
  - Ignores ongoing safety and value assessments by the PMRA
  - Arbitrary protection goals
  - Despite statistics on bee numbers, no evidence that bee health will improve
  - Economic impact to farmers will negatively impact the viability of farms (e.g. 15% - 30% threshold for stand loss is unacceptable)
- Regulations were ill-conceived and unworkable – not implementable
  - Ignores cumulative damage from various pests, logistical challenges of farming, time-sensitive nature of pest management, window for seed purchase, inherent structure of agronomy support in the province, etc.
  - PAR not practical (e.g. shift from corn to soybeans due to weather, etc.)
  - Ignores IPM and resistance management principles
  - Undermines Ontario's stated goals and objectives regarding the environment and climate change

# Current Provincial Regulations of NNIs

- Ontario Regulations of Treated Corn and Soybean with a Neonicotinoid Seed Treatment



# Current State of Province Regulations (2019)

- To buy and use NNI-treated corn and soybean seeds, farmers must:
  - Complete the integrated pest management (IPM) training
  - Complete a pest risk assessment
    - Scouting
    - Crop damage assessment
    - Pest risk criteria (new)
  - Sign a IPM Written Declaration Form stating that IPM principles have been considered to decrease the risk of early season insect damage
- Information is provided to seed vendor at time of purchase
- No requirements for using non-NNI treated seed or fungicide-only treated seed



# Lessons Learned

## Challenges

- Removal of tools needed by farmers without considering intended consequences (to food security, sustainability, etc.)
- Arbitrary reduction goals (e.g. NNI usage, bee health)
- Burdensome, uninformative diagnostic tests
- Excessive paperwork and processes with no value
- Taking away the ability of farmers to assess their own land and needs

## Positive

- Provincial regulations more aligned with federal, science-based/risk-based system
- Communication among stakeholders
- Adoption of Best Management Practices to mitigate exposure
- Training connected with existing programs
- Recognition of the complexity and time-sensitive nature of farming and that farmers know their needs the best

# Thank you for your time

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