

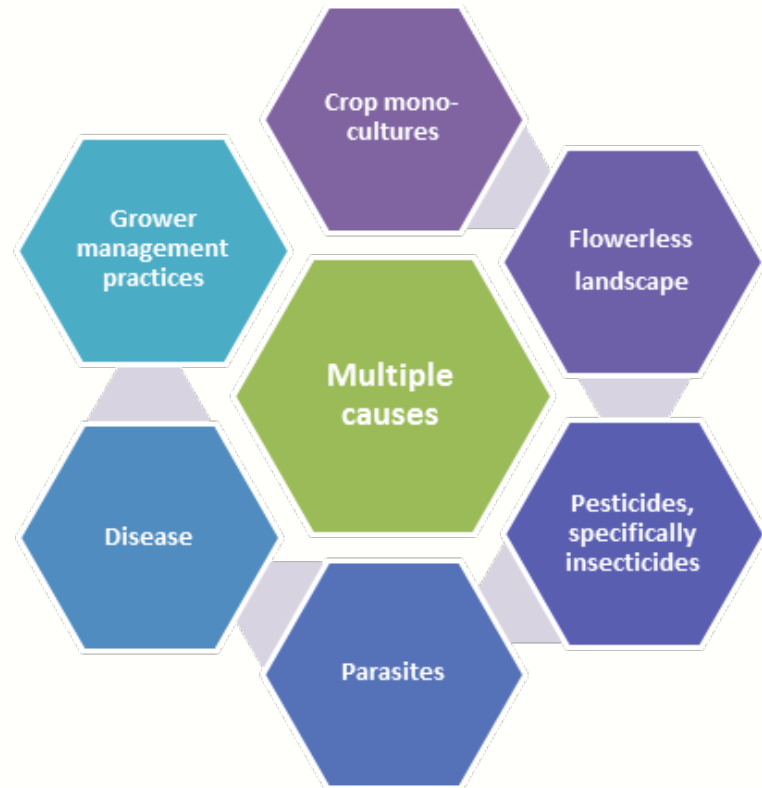
Pollinator Initiatives, Neonicotinoid Review and Action Steps

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What is Causing Pollinator Decline?

Loss of bees and other insect pollinators is linked to:

- Diseases (viruses, bacteria, fungi)
- Parasites, predators, and pests
- Beekeeper practices
- Climate change
- Loss of habitat
- Pesticides



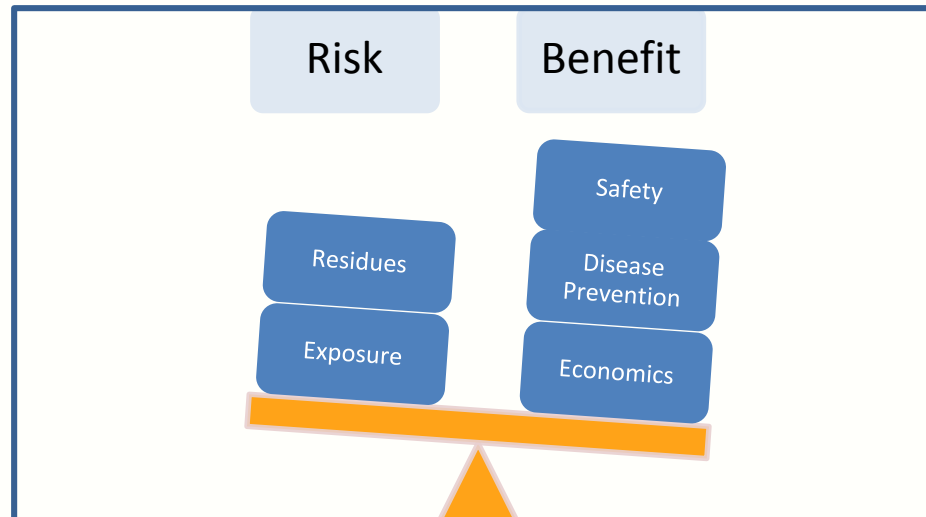
Pesticide Control Law

MDA

- Co-regulates Federal pesticide law
- “State Lead Agency” for registration and regulation of pesticides

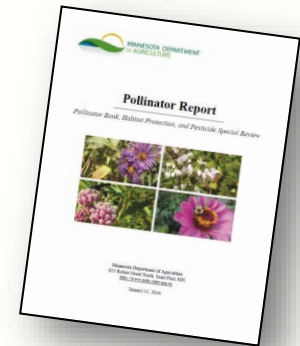
MN Stat Chap 18B (MDA)

Pesticide Registration



- A pesticide can be registered only if it does not cause *“unreasonable risks to humans or the environment, taking into account the economic, social, and environmental costs and benefits”*

2013 Directives



Pollinator Report: completed January 2014

- Ways to create and improve nesting and foraging habitat
- Outline process for conducting a review of neonicotinoids effects on pollinators

Habitat BMP Development

- Increase public awareness of pollinator habitat issues
- Develop pollinator habitat best management practices in conjunction with interested stakeholders
- Incorporate BMPs into pesticide applicator and ag inspector training

Ag Landscapes



Create new habitat

- Evaluate areas for habitat (unused areas, edges)
- Financial assistance (funding links)
- Plant living snow fences

Improve existing habitat

- Inter-seed grass stands
- Prairie mixes: >40% flowering plants

Reduce negative impact on habitat

- Control noxious weeds through spot spraying
- Integrated Pest Management supported by scouting
- **Look for the Bee Advisory Box**



Pollinator Awareness Across Minnesota

Phase I – urban outreach



Phase II – rural outreach



Outreach Efforts 2014 - 2016

- **BMPs – Total: 84,500**
 - Yards-n-Gardens
 - Ag Landscapes
 - Roadsides & ROW
- **Pollinator seed packets – Total: 160,000**
- **Pesticide recertification trainings –**
 - ≈ 2,150 applicators reached

2014 Law – Overview

Compensation for acute pesticide poisoning of bees

Effective July 1, 2014

- Beekeepers are compensated at a “fair market value”.
- Beekeepers may be compensated up to \$20,000 / year for an “acute pesticide poisoning” of honey bees.
- \$150,000 from pesticide regulatory account set aside on an annual basis to compensate beekeepers.
- \$100,000 set aside on an annual basis for consultation with pollinator experts to help determine the cause of pollinator death or illness.

2014 Law – What's been done?

Organized an advisory group consisting of local and national academic expert and beekeepers

Defined Terms

Acute pesticide bee poisoning: Based on a ratio of live : dead bees
≈2,400 live bees: 100 dead bees

Fair Market Value: \$230 / colony for 2015

2015 Change to Law: Effective: August 01, 2015

- To be eligible for compensation, the bee owner must be registered with a commonly utilized pesticide registry program, as designated by the commissioner.



Special Registration Reviews

- 2011: MDA reviewed neonicotinoid use concerns as part of its emerald ash borer insecticide review.
- 2013: Commissioner of Agriculture initiates Neonicotinoid Special Registration Review based on direction from the Minnesota Legislature
 - MDA Pesticide Management Unit staff developed a scoping document in collaboration with U of M, MPCA, DNR and BWSR outlining six broad criteria.
 - Draft scoping document made available for public comment (March 1 - May 2, 2014).
 - Received 444 comments. MDA provided written response to each unique comment and incorporated them into the scoping document when appropriate.
 - Revised scoping document was posted online (October 2014).
 - Review considered more than 300 peer reviewed research articles and government documents.

Federal, State, and other neonicotinoid registration policies and initiatives

International

- EU enacted a moratorium (December 2013–December 2015) on use of imidacloprid, clothianidin, and thiamethoxam to bee-attractive crops.
- Canada's province of Ontario implemented new laws that requires farmers to use treated seed only when pest problem exists.

Federal

- All pesticides sold or distributed in the United States registered by USEPA under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).
- USEPA registers a pesticide after determining that the pesticide meets the statutory standard and there are no outstanding data requirements.

Policies and Initiatives

Federal Continued

- Pesticide evaluation process for pollinators is based on toxicity studies using honey bees as surrogate species.
- In 2012, the USEPA developed a new risk assessment framework for bees.
- The new framework takes into account multiple lines of evidence including registrant-submitted data, open literature, and ecological incident data.
- EPA amended labels to add bee icon to outdoor foliar uses of neonicotinoid products in 2013.
- EPA is in process of conducting a cyclical 15 year registration review of all neonicotinoids (due by 2018).

Local

- About 12 Minnesota cities, townships, school districts including Minneapolis and Saint Paul have limited the use of neonicotinoid insecticides on the land they own.

Neonicotinoid Use and Sales in Minnesota

- Accounted for 0.26 % of all crop chemicals.
- 127,970 pounds (all neonicotinoid active ingredients) sold in MN as compared to 791,948 pounds of chlorpyrifos (16% of chlorpyrifos's use) in 2011.
- Bulk (>99%) of neonicotinoid sales in agricultural crops from three neonicotinoid compounds: clothianidin, thiamethoxam and imidacloprid.
- Based on estimates about 90% of corn and about 40% of soybean acreage in Minnesota is planted with neonicotinoid treated seeds.
- State does not have the authority to manage the sale and use of pesticide treated seeds because they are considered "Treated Articles" and are exempt from all provisions of FIFIRA.

Neonicotinoid background, chemistry, and mode of action

- Move systemically within plant tissues and can stay in plant parts for days to over a year.
- Highly toxic to bees both through contact and ingestion.
- The maximum half- life for the most commonly used neonicotinoids; clothianidin, imidacloprid, thiamethoxam is more than one year.
- Half-life varies with soil type, climate, soil pH, moisture, temperature, light intensity, fertilizer use, and presence or absence of ground cover etc.

Neonicotinoid Risks to Pollinators

- Pollinators may be exposed to neonicotinoids primarily via treated seed planting dust and contaminated plant parts (pollen and nectar).
- Neonicotinoid concentrations found in abraded dust from the treated seed have been found as high as 12,400 ppb (thousands time higher than the LD₅₀).
- Neonicotinoid concentrations in pollen or nectar of some plants has been found to be up to 8.6 times higher than the honey bee oral LD₅₀
- LD₅₀ is the concentration that will kill 50% of the test population at certain exposure time.
- Potential toxicity is based on sensitivity of the organisms (LD₅₀), concentration and the duration of the exposure.

Neonicotinoid Risks to Pollinators

- Based on acute LD₅₀: Four of the six neonicotinoids (clothianidin, dinotefuran, imidacloprid, thiamethoxam) are highly toxic to pollinators.
- Toxic to pollinators at very low concentrations (clothianidin LD₅₀ - 0.0039 µg/bee).
- In one study 161 pesticides have been found in honey bee hives. Concentrations found were too low to cause immediate bee deaths from acute poisoning.
- Pesticides including ones applied for managing bee pests are commonly detected in bee hives.
- Risk to pollinators depend on variety of factors such as pollinator species, attractiveness of pollen and nectar sources, temperature, and wind speed and direction.



Registration Review Actions

MDA Recommended Action

#1: Create a Treated Seed Program (*Requires Legislative Action*)

Why create a “Treated Seed Program”?

- Seed treatments protect young plants against early-season soil and foliage pests.
- Lack of uniform economic thresholds, scouting methods for early season pests, and limited availability of untreated seed may result in unnecessary use.
- Less than 20% of active ingredient on treated seed is absorbed by a plant root in soil or air.
- EPA’s Biological and Economic Analysis Division suggested that “seed treatments provide negligible overall benefit to soybean production in most situations and much of the existing usage of seed treatments in soybeans is prophylactic in nature.”
- Soybean entomologists from Midwest states support the use of seed treatments for “managing early-season pests in targeted high-risk situations”. However, “current use of neonicotinoid seed treatments in soybeans and other crops far exceeds pest pressures”.
- Increased number of neonicotinoid detections in groundwater and surface water

#1: Create a Treated Seed Program

Goal: Manage treated seed to base use decisions on the best available science and Minnesota specific conditions.

The Treated Seed Program will help the State to:

- Quantify total amount and types of pesticides applied to seed for use within Minnesota;
- Allow deeper understanding of the dynamics influencing pesticide movement in the environment;
- Develop strategies to protect Minnesota's environment from potential unintended consequences of neonicotinoids and other active ingredients applied to treated seed; and
- Identify where educational resources should be developed or where educational outreach should be increased.

MDA Recommended Action

#2: Create a Dedicated Pollinator Protection Account *(Requires Legislative Action)*

Goal: Support activities related to pollinators through a dedicated Pollinator Protection Account that is funded through the general fund and increased fees on the registration of pesticides classified by the USEPA as moderately or highly toxic to pollinators.

Pollinator Protection Account will:

- Fund program activities related to pesticides and pollinators including:
 - support on scouting methods, economic thresholds, etc.;
 - develop stewardship materials, BMPs, etc.;
 - develop an educational campaign on use of pesticides.
- Fund treated seed program projects

MDA Recommended Action

#3: Require formal verification of need prior to use of neonicotinoid pesticides, where appropriate

What is already on the label?



Do not apply this product while bees are foraging. Do not apply this product until flowering is complete and all petals have fallen unless...

- **The application is made due to an imminent threat of significant crop loss, and a documented determination consistent with an IPM plan or predetermined economic threshold is met.**

Continued

#3: Verification of need

Goal: Work with the ag community to make sure neonicotinoids are used in a manner that minimizes the risk to pollinators while ensuring that products are available when needed.

The MDA will work with U of M and other stakeholders to:

- Certify or develop pest thresholds based on IPM criteria for use as justification for product application.
- Require verification of need is performed by a qualified individual
- Develop a formal process for documenting verification of need

Continued

#3: Verification of need

- Verification of need prior to use does not apply to neonicotinoid treated seeds.
- Phase in these requirements over time as Minnesota specific pest thresholds and similar need based guidance becomes available.
- Education period to encourage use of need based guidance and IPM techniques.

Continued

#3: Verification of need

Education through:

- Discussion with affected commodity groups
- Work with U of M and Extension faculty in coordinating education messages
- Website
- Public comment period
- Pesticide applicator certification

Exploring additional engagement through:

- List Servers
- IPM training

MDA Recommended Action

#7: Increase Use Inspections for Insecticides that are Highly Toxic to Pollinators

Goal: To increase applicator awareness and compliance with pollinator language related to moderately and highly toxic pesticide product labels.

Increased pesticide use inspections are intended to:

- Compliment action 3, “verification of need prior to the use of neonicotinoid insecticides” by increasing more attention on label requirements; and
- Provide the State a mechanism to quantify label compliance related to pollinator label requirements.

Continued

#7: Increase Use Inspections

Process for pesticide use inspections:

- The MDA conducts pesticide use inspections throughout the state to determine if pesticide applicators are following the label while applying pesticides.
- Inspections are unannounced and focus on compliance issues identified for a given year.
- The MDA works to achieve compliance and educate users on the applicable regulations.
- Inspections are regulatory in nature and enforcement actions may be issued for more serious infractions.

Education and outreach may consist of communication through:

- Agricultural Chemical Investigator (ACI) distributed factsheet;
- Direct communication with commodity groups;
- MDA Update;
- Pesticide applicator training;
- List server; and MDA Website

Other Actions Regarding Neonicotinoid Use

- **Action 4:** Develop an Educational Campaign for Homeowners and Residential Users of Insecticides
 - Yards and Gardens Pollinator Habitat BMP
 - Emerald Ash Borer: Homeowner Guide to Insecticide Selection, Use, & Protection
- **Action 5:** Review Product Labels for Appropriate Use of Neonicotinoids for Homeowners and Residential Users
- **Action 6:** Develop Minnesota Specific Pollinator Stewardship Materials
 - Neonicotinoid treated seed use
 - Soil and foliar applied neonicotinoid insecticides
 - Home and residential use of neonicotinoid products
- **Action 8:** Review Label Requirements for Individual Neonicotinoid Products

MDA website

Full review available at the MDA website:

<http://www.mda.state.mn.us/neonicsreview>

Special registration review of neonicotinoid insecticides

The Minnesota Department of Agriculture (MDA) have conducted a special registration review of neonicotinoid insecticides. In order to conduct this review, the MDA followed a scoping document that solicited input from the public and a number of interested stakeholders. Based on the review, the MDA identified several opportunities for action to minimize the impact of neonicotinoids on pollinators.

NEW: [Proposed action steps to minimize the impact of neonicotinoid insecticides on pollinators](#)

NEW: [Executive summary special registration review of neonicotinoids \(PDF: 1.10 MB / 10 pages\)](#)

NEW: [Special registration review of neonicotinoids \(PDF: 3.31 MB / 120 pages\)](#)

NEW: [Frequently asked questions about the special registration review of neonicotinoids](#)

NEW: [Pollinators Summit Outcomes Report \(PDF: 819 KB / 59 pages\)](#)

Thank You

