

Minnesota and Neonicotinoids

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Pollinators

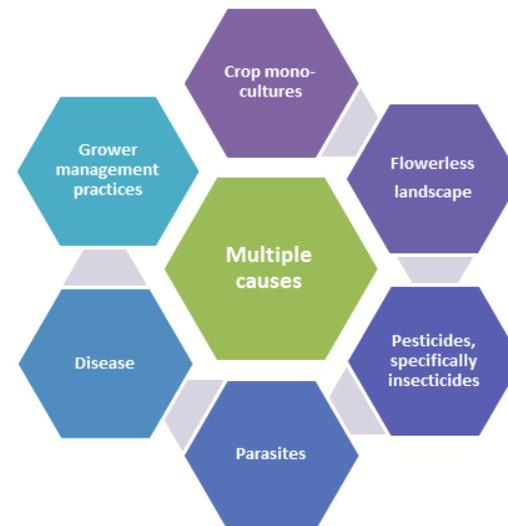
- 65% of all flowering plants require insects for pollination.
- Bees are the most important pollinators.
- Bees depend on nectar and pollen for food.
- Bee colonies continue to die in US and elsewhere.



Pollinator Decline

Loss of bees and other insect pollinators is linked to:

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



What are Neonicotinoids?

- Systemic insecticides, provide very effective control of piercing and sucking insect pests and some difficult-to-control pests.
- Registered as “reduced risk” pesticides by the USEPA (safe to applicators and farm workers).
- Seed treatment provides protection when plants are small and most vulnerable to pests and limit direct exposure to non-target organisms.
- Alternative pesticides to neonicotinoids (organophosphates, synthetic pyrethroids) may be more toxic to bees, mammals, birds and aquatic organisms.

Minnesota Special Registration Review of Neonicotinoids

- November 2013 – Minnesota Legislature directed Commissioner of Agriculture to initiate a Special Registration Review of Neonicotinoids:
 - MDA developed a scoping document in collaboration with U of M, MPCA, DNR and BWSR outlining into six broad criteria.
 - Received 444 comments on scoping document. MDA provided written response to unique comments and incorporated them into the scoping document when appropriate.
 - Revised scoping document was posted online October 2014.
 - Pollinator summit- February 2016.
 - Review considered more than 300 peer reviewed research articles and government documents.

Neonicotinoid Use and Sales in Minnesota

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

Neonicotinoid Risks to Pollinators

- Move systemically and can stay in plant parts for days to months.
- Highly toxic to bees both through contact and ingestion.
- Toxic to pollinators at very low concentrations.
- Half-life varies with soil type, climate, soil pH, moisture, temperature, light intensity, fertilizer use, and presence or absence of ground cover etc.
- The maximum half- life for the most commonly used neonicotinoids; clothianidin, imidacloprid, thiamethoxam is more than one year.
- Pollinators may be exposed to neonicotinoids primarily via treated seed planting dust and contaminated plant parts (pollen and nectar).

Neonicotinoid Risks to Pollinators

- Pesticides are commonly detected in bee hives.
- In one study 161 pesticides were found in hives. Concentrations found were too low to cause immediate bee deaths from acute poisoning.
- 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 has been found up to 8.6 times higher than the honey bee oral LD₅₀.

Federal, State and other Neonicotinoid Registration Policies and Initiatives

- 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 2017) .
- About 12 Minnesota cities, townships, school districts including Minneapolis and Saint Paul have limited the use of neonicotinoid insecticides on the land they own.
- Canada's province of Ontario implemented new laws that requires farmers to use treated seed only when pest problem exists.
- EU enacted a moratorium (December 2013–December 2015) on use of imidacloprid, clothianidin, and thiamethoxam to bee-attractive crops.

MDA Recommended Action Steps

#1: Create a Treated Seed Program

(Requires Legislative Action)

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

The Treated Seed Program will:

- Provide the State with the authority to regulate the sale and use of pesticide treated seeds.
- Fund research on seed treatment projects such as efficacy of seed treatment rates, economic thresholds, planting technology differences, etc.
- The program may require that untreated seeds and seeds treated at lower pesticide application rates are available in the market.

MDA Recommended Action Steps

#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 fees on sale of pesticide treated seeds and on pesticides classified by the USEPA as moderately or highly toxic to pollinators.

Pollinator Protection Account will:

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

MDA Recommended Action Steps

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

Goal: To make sure that products are available but used only when needed.

- Develop pest thresholds and other need based guidance to justify application.
- Develop process for verification of need by a trained and approved individual prior to the use of neonicotinoid pesticides on crops.
- Educate farmers about the verification of need.
- Fund research on scouting methods, treatment thresholds, etc.
- Phase in requirements over time as MN specific pest thresholds and similar need based guidance becomes available.

***Verification of need prior to use does not apply to neonicotinoid treated seed.**



**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.**

This language is currently on neonicotinoid labels for foliar applications

MDA Recommended Action Steps

#4: Develop educational campaign for residential use of neonicotinoids

Goal: To ensure homeowner and residential users of pesticides are aware of their impact on pollinator populations and encourage appropriate use of neonicotinoids.

#5: Review product labels for appropriate residential use of neonicotinoids

Goal: Review product labels for appropriate urban and suburban uses of neonicotinoids to minimize the impact to pollinators.

MDA Recommended Action Steps

#6: Develop Minnesota specific pollinator stewardship materials

Goal: Work with registrants to develop a stewardship program targeted at minimizing pesticide exposure to pollinators.

Stewardship material would be developed to address exposure concerns related to:

- Insecticide treated seed
- Agricultural use of soil and foliar applied neonicotinoids
- Home and residential use of neonicotinoids

MDA Recommended Action Steps

#7: Increase use inspections for insecticides that are highly toxic to pollinators

Goal: Increase awareness among applicators that language contained in the pollinator protection box is important and product use provisions are being enforced.

The MDA would:

- Increase use inspections for insecticides that are classified as highly toxic to pollinators on acute exposure basis.
- Emphasis on insecticides with pollinator protection box.

MDA Recommended Action Steps:

#8: Review label requirements for individual neonicotinoid products

Goal: Ensure that label requirements for neonicotinoid products are appropriate for Minnesota specific conditions and are clear, unambiguous and enforceable.

The MDA would:

- Review individual neonicotinoid products for enforceable language and appropriate requirements.
- Conduct research to better define Minnesota-specific conditions.
- Take steps to clarify and revise the label language for Minnesota specific conditions.

MDA Pollinator 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 \(PDF: 819 KB / 59 pages\)](#)



Questions?

Do not apply this product while bees are foraging. Do not apply this product until flowering is complete and all petals have fallen unless one of the following conditions is met:



- **The application is made to the target site after sunset**
- **The application is made to the target site when temperatures are below 55°F**
- The application is made in accordance with a government-initiated public health response
- The application is made in accordance with an active state administered apiary registry program where beekeepers are notified no less than 48-hours prior to the time of the planned application so that the bees can be removed, covered or otherwise protected prior to spraying
- **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. Every effort should be made to notify beekeepers no less than 48-hours prior to the time of the planned application so that the bees can be removed, covered or otherwise protected prior to spraying.**