



H.706 – An act relating to banning the use of neonicotinoid pesticides

Emily May

Pollinator Conservation Biologist, Pesticide Program

The Xerces Society for Invertebrate Conservation

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Photo: Emily May



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Background



Pollinator garden photos: Tim Parsons/Middlebury

Protecting the natural world through the conservation of invertebrates and their habitats



Photos: Edward Ross, Tim Menard, Sarina Jepsen, Richard Greene, Piotr Naskrecki, Jennifer Hopwood, David H. Funk, Elise Fog

Main Office: Portland, Oregon

Regional Offices: 20+ states

It's About the Pollinators





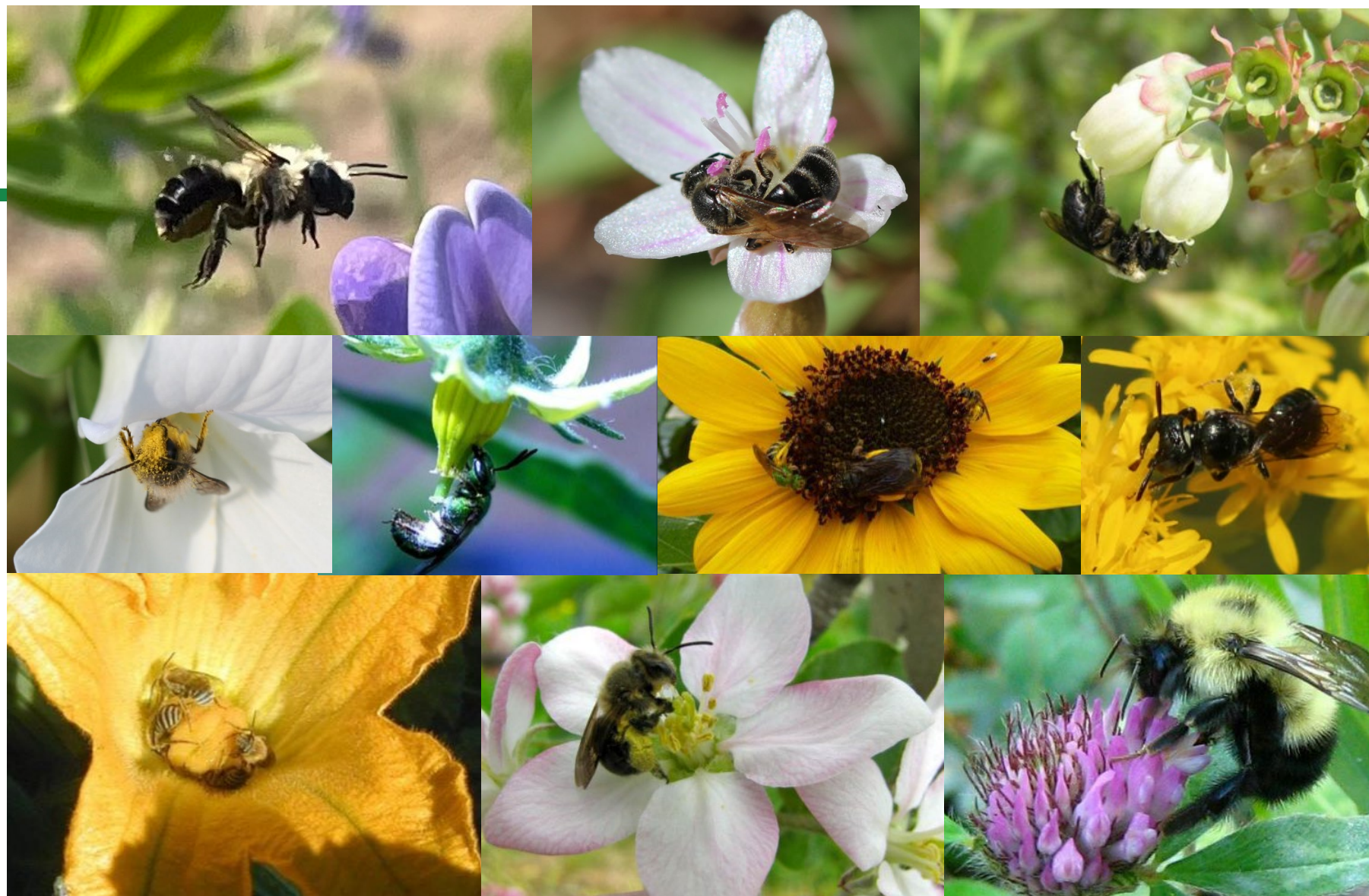
Wild Bees of Vermont



~353 spp

55 species in need of immediate conservation action

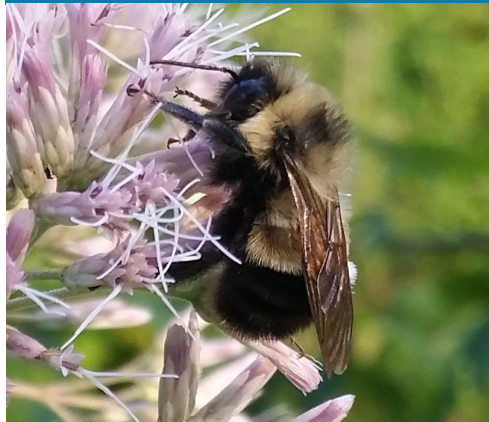
Nearly 90% of Vermont's wild bees nest in soil





Threats to Pollinators

Habitat Loss



Pesticides



Disease &
Nonnative
Species



Climate
Change

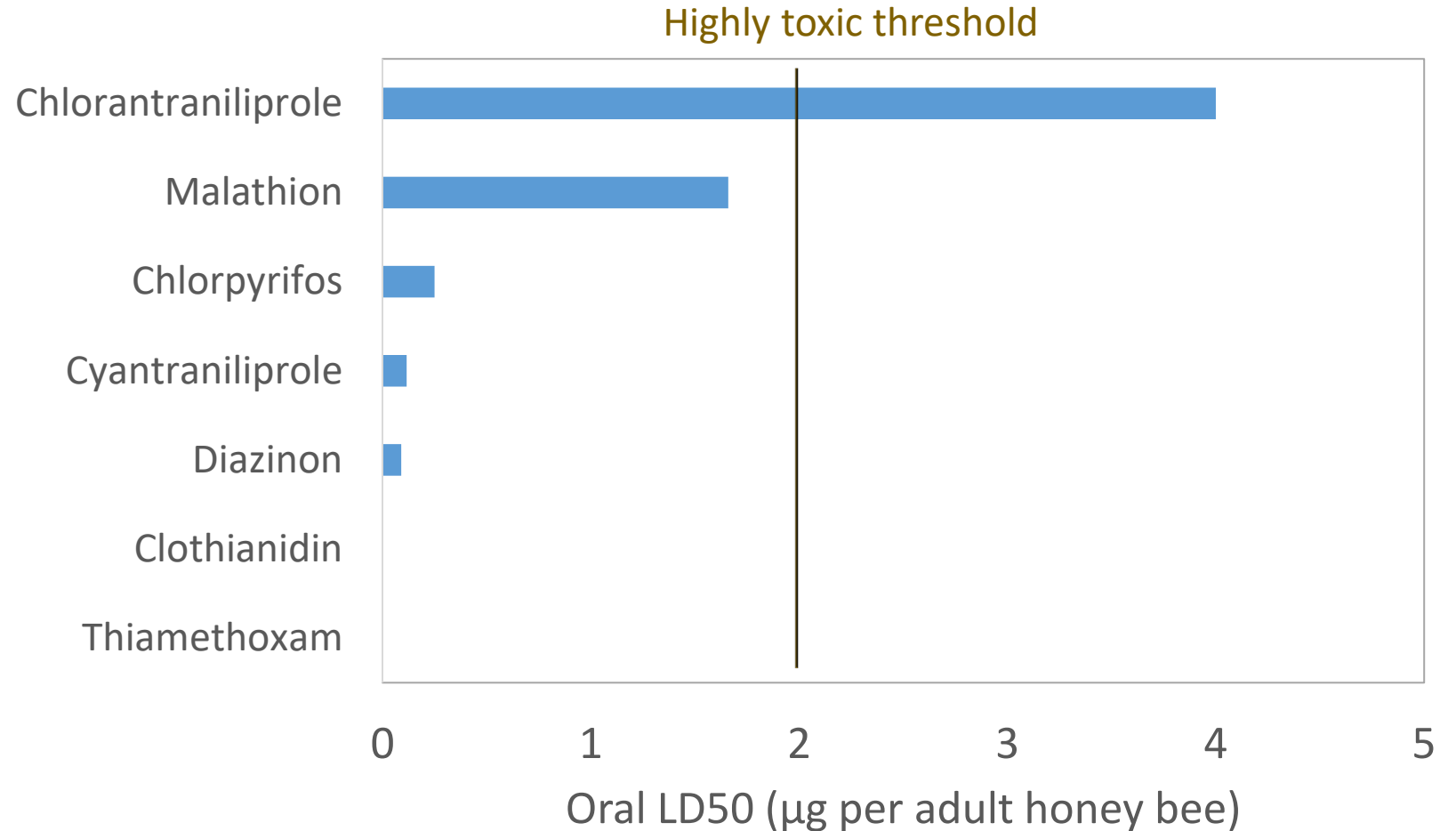


Photos: Xerces Society/Rich Hatfield; istock.com; Xerces Society/Eric Lee-Mäder; Xerces Society/Candace Fallon

Pounds Applied is Not the Same as Risk

Pesticide Risk =
Toxicity x Exposure

- Highly toxic pesticide applied at low rate can be more risky than less toxic pesticide applied at high rate
- Some neonics are 500-750x more toxic than “highly toxic” threshold for bees



Pounds Applied is Not the Same as Risk

Very tiny amounts are harmful

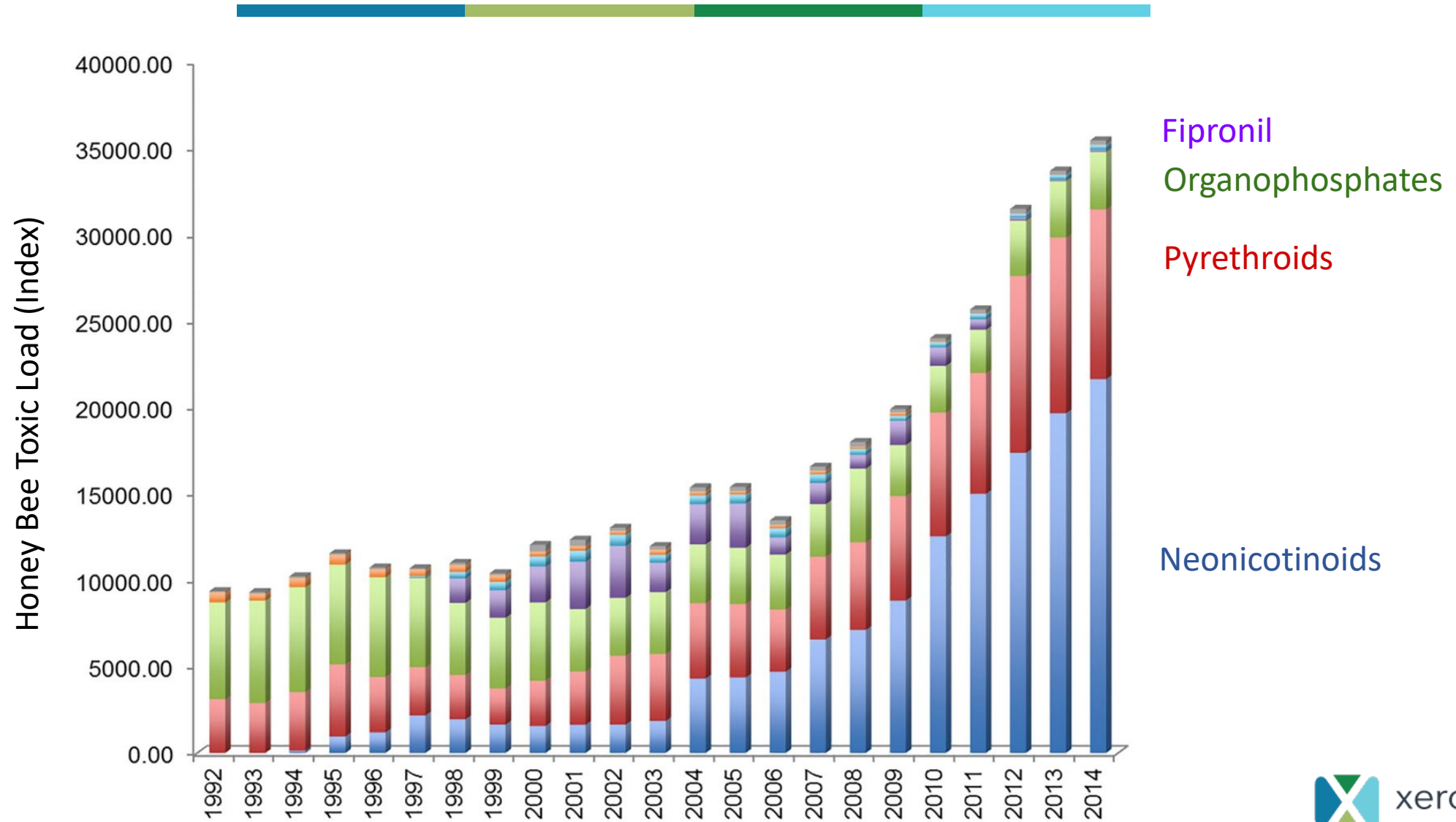
- A grain of salt is ~60,000 ug
- Same amount of thiamethoxam is enough to kill 10 million bees



Photo: Emily May



Increased Toxic Load for Pollinators (1992-2014)



Neonicotinoids: High risk for pollinators

Highly toxic



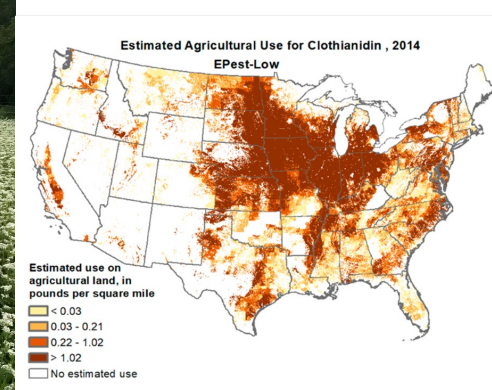
Systemic



Persistent



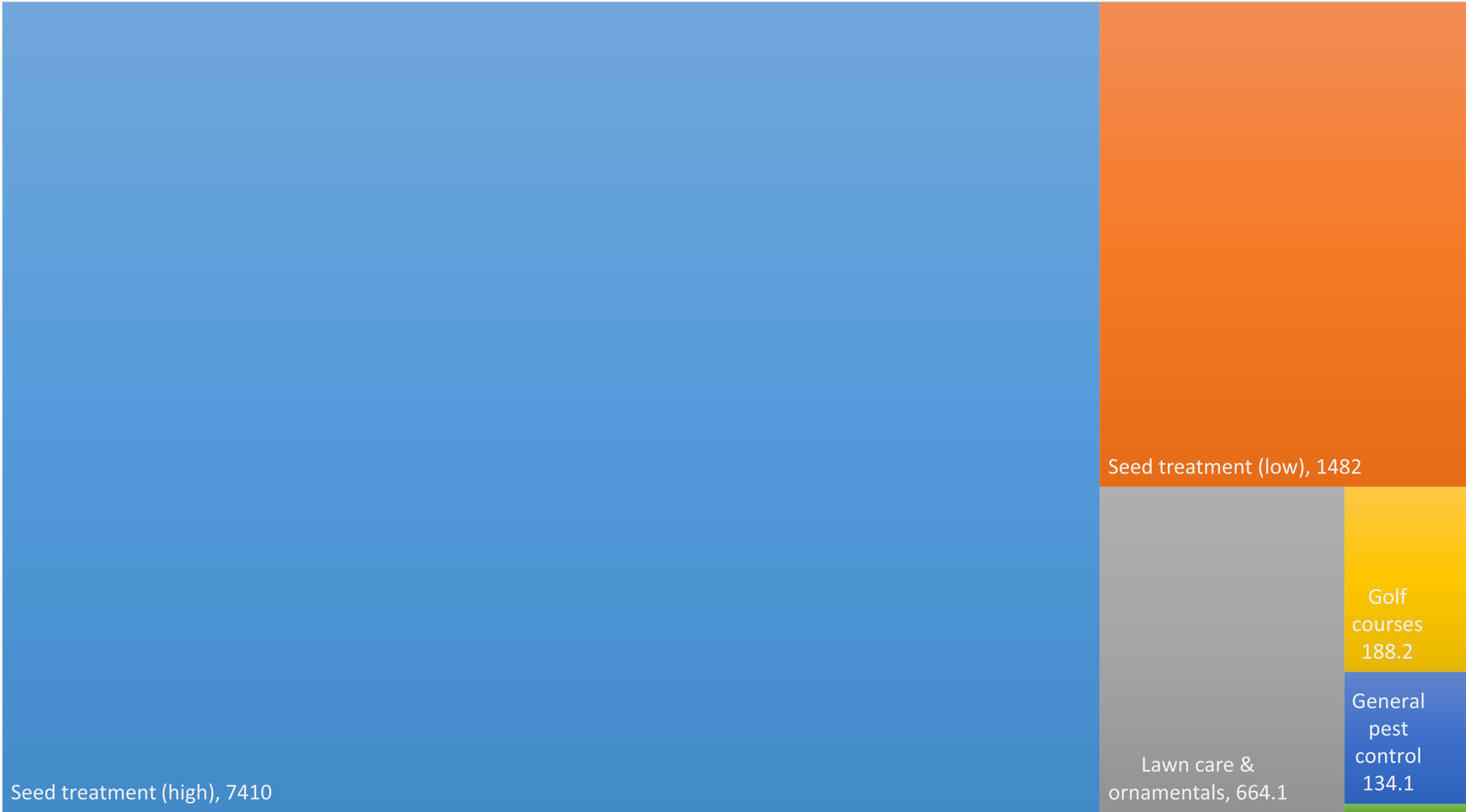
Widespread



Photos: Emily May, Xerces, Karin Jokela, USGS NAWQA



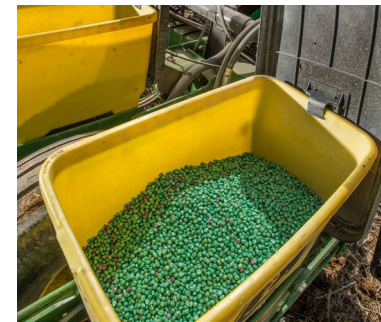
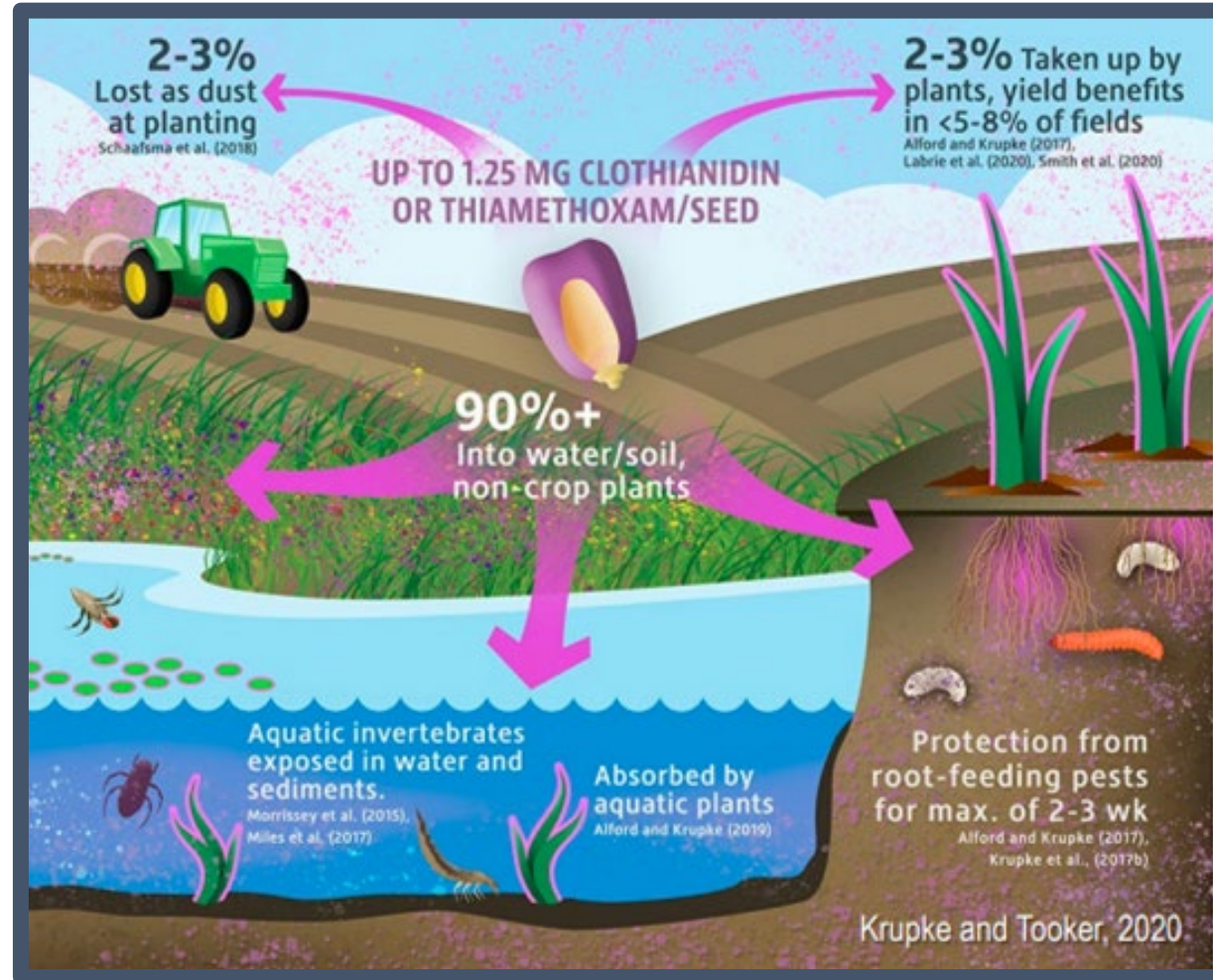
Neonicotinoid use in Vermont by source (2021)



■ Seed treatment (high) ■ Seed treatment (low) ■ Lawn care & ornamentals ■ Golf courses ■ General pest control ■ Produce

Contamination from seed treatments

- Only 2-3% taken up by plant
- Same amount moves off-site as pesticide dust during planting
- >90% moves into soil, water, and non-crop plants



Impacts of seed treatment use

Higher mortality and slower growth in honey bees



Decline in aquatic insects



Fewer native bee species next to fields with higher neonics in soil



Photos: Emily May (left, center), Keith Williams (Flickr CC)

Most seed treatment use is not necessary

- Nearly 100% of conventional corn is treated with no evidence of pest pressure or damage – not a good practice
- Research from Quebec finds that seed treatments are useful in **less than 5% of corn fields**
- Use of seeds with no neonic *or* diamide treatment continues to grow in QC based on lack of pest pressure

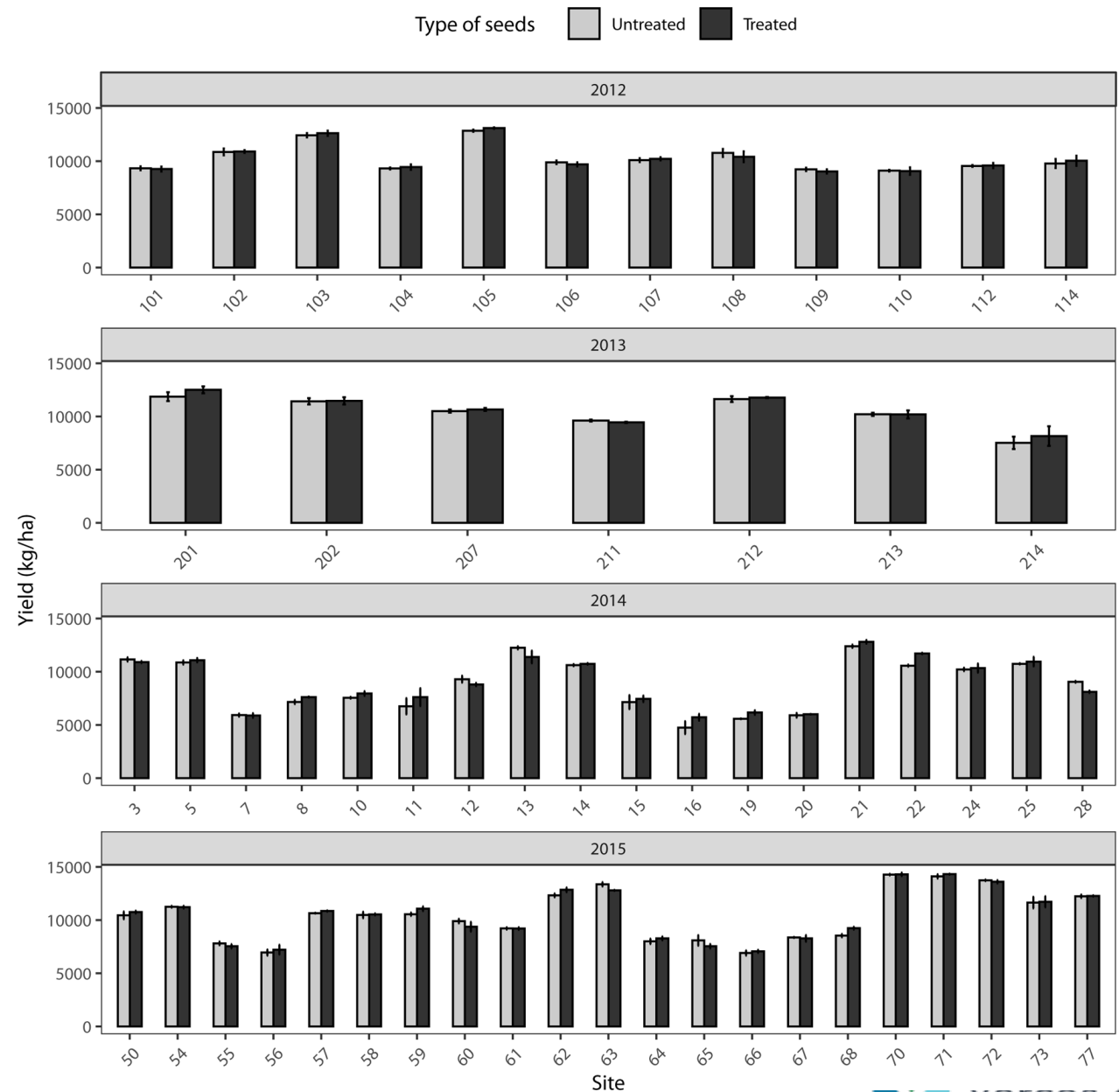


Figure: Labrie et al (2020)

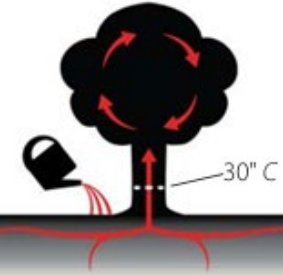
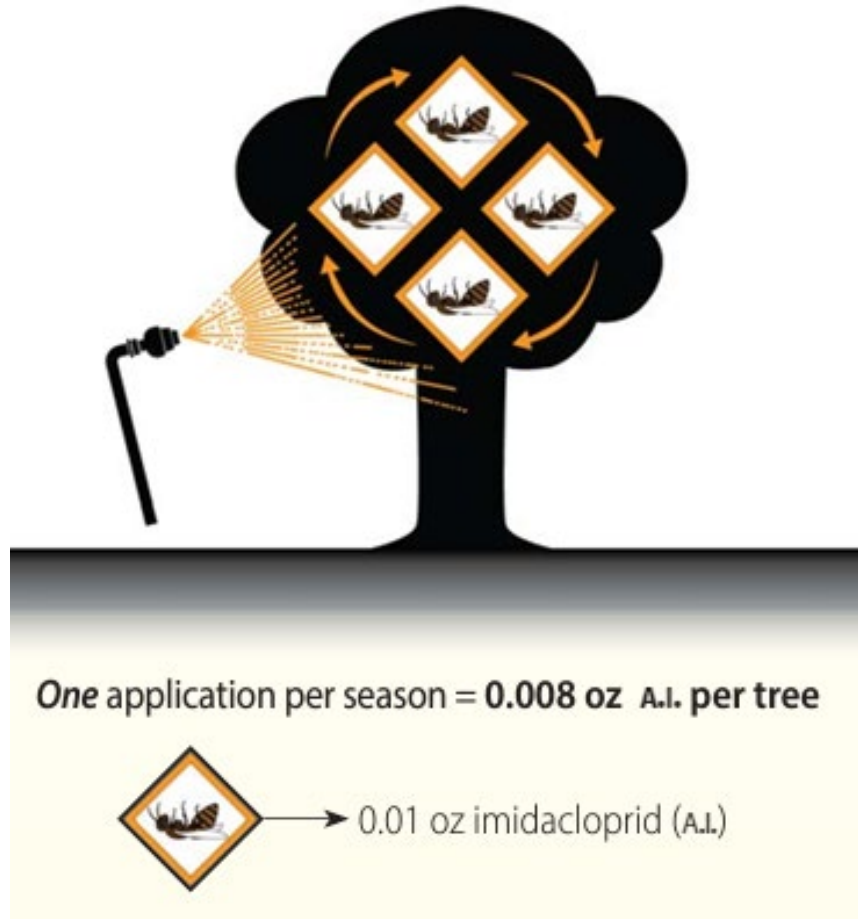
Risks of lawn and ornamental uses



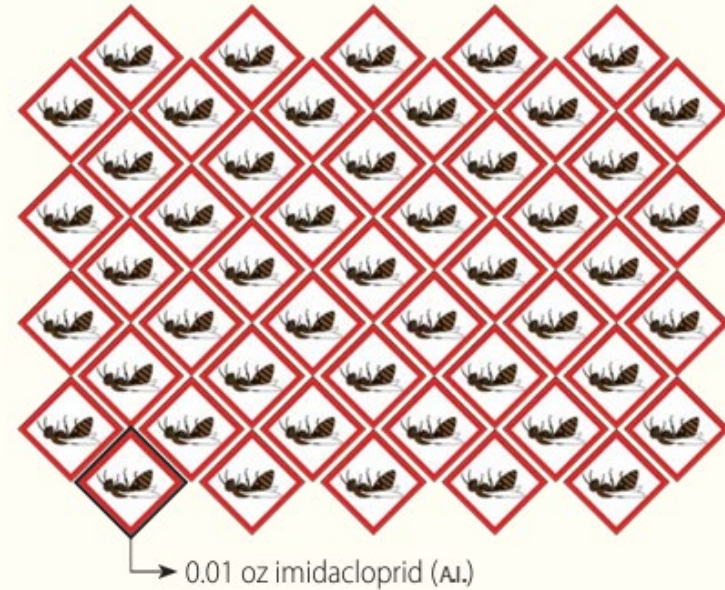
Figure: Emily May

Label rates for ornamental use can be much higher

Five applications per season = 0.04 oz a.i. per tree



One application per season = 0.4875 oz A.I. per tree:



Figures: Hopwood et al. 2018

Ornamental uses can harm pollinators at label rates



Photo: Josh Kulla/Wilsonville Spokesman, Sara Morris

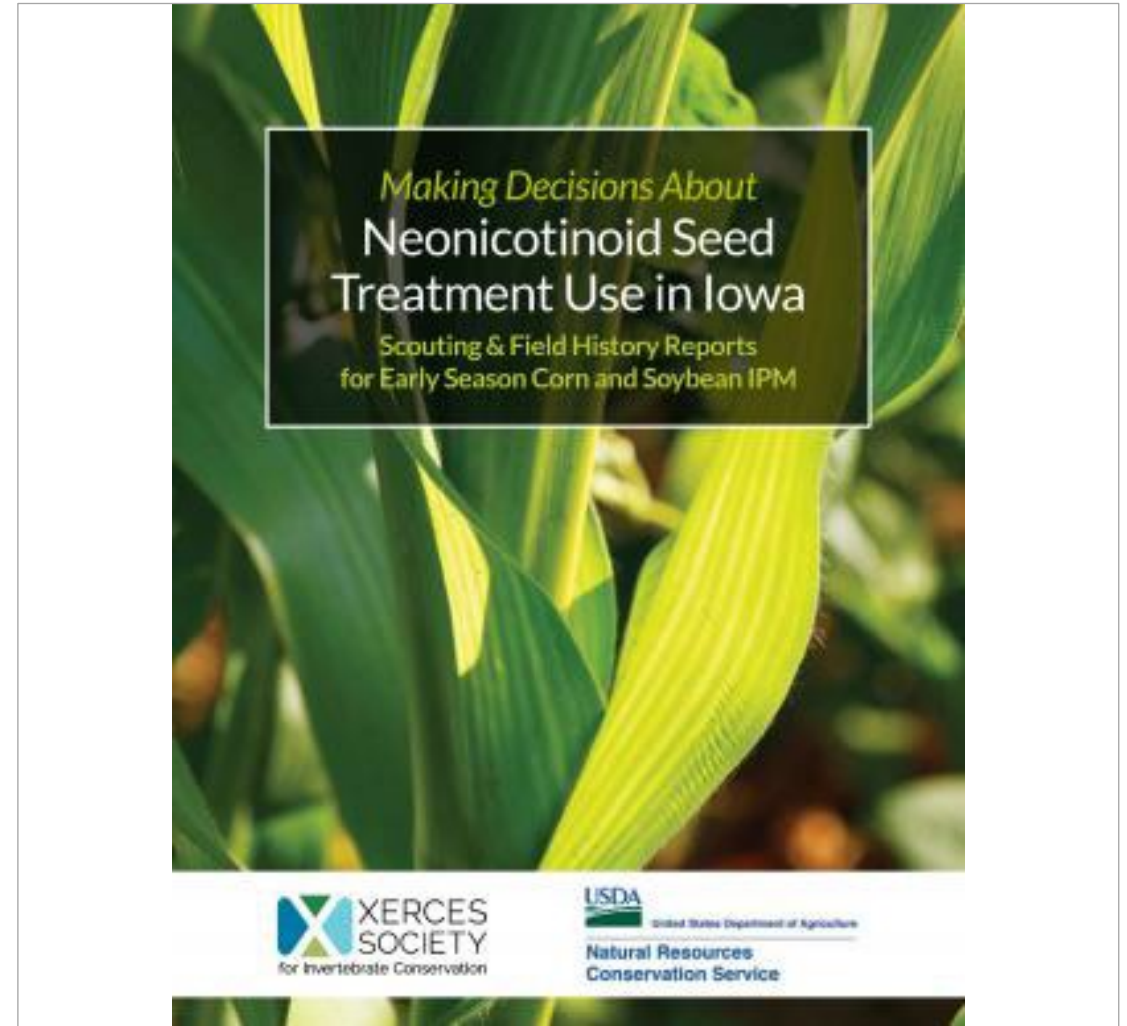




We know enough to act now



Photo: Lance Cheung/USDA (Flickr CC)





Summary

Neonicotinoid insecticides are highly toxic at very small doses to bees, other insects, and birds.

They are used widely with little evidence of pest pressure or damage.

They are the largest contributor to insecticide use in the state.

The harms are evident and we know enough to act now.

Questions??

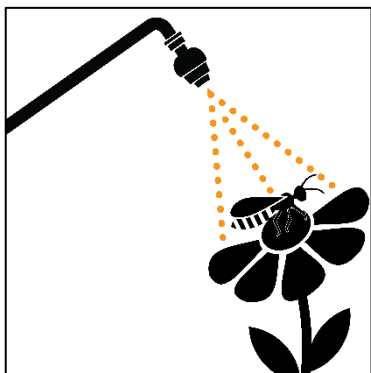
Emily May

emily.may@xerces.org

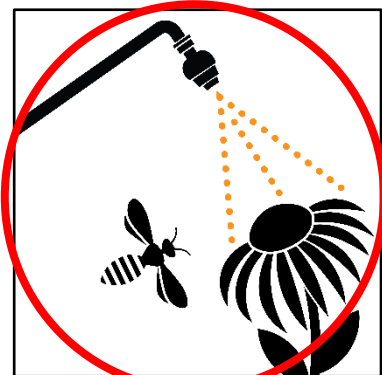


Photos: Emily May

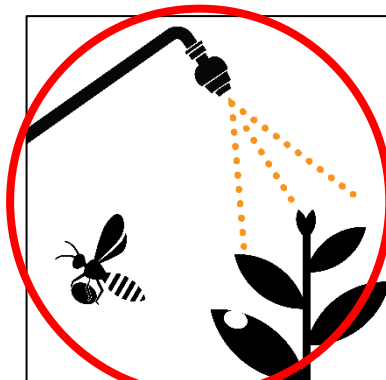
How Pollinators Can Be Exposed to Pesticide Contamination



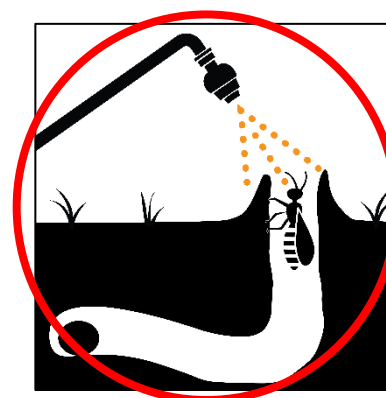
Pollinator sprayed directly



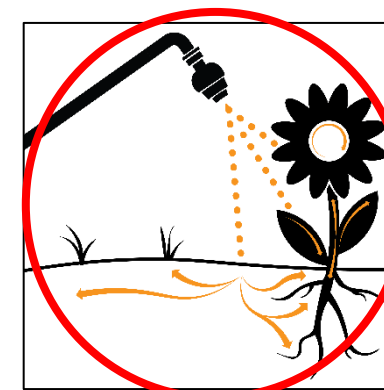
Pollinator visits flowers that were previously sprayed



Bee collects contaminated nest materials

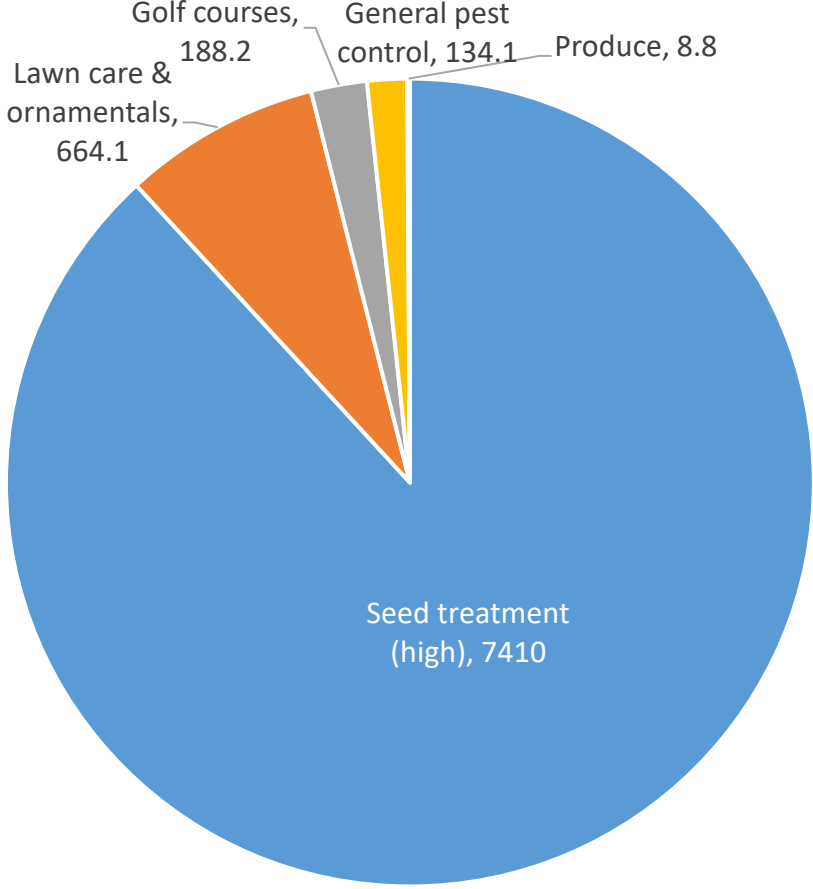
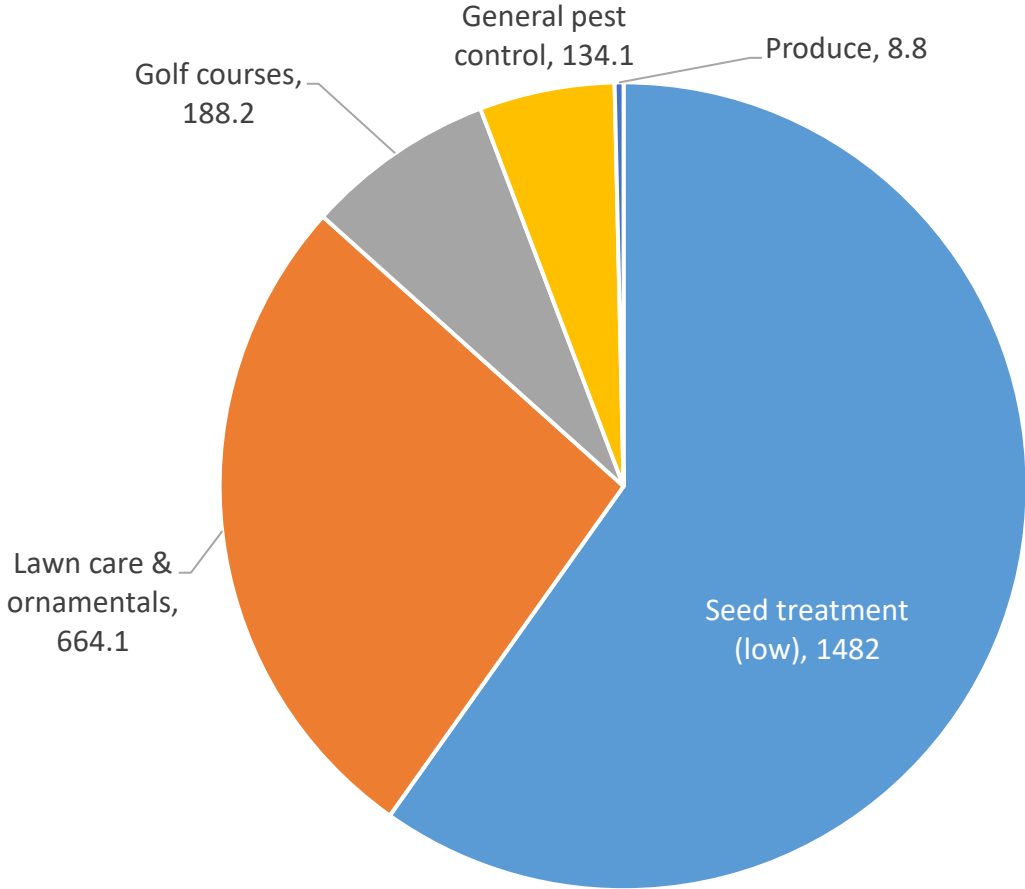


Bee nest sites contaminated



Systemic treatments contaminate plants from the inside.

Neonic use in Vermont by source (2021)



Data: Vermont Agency of Agriculture, Food, and Markets