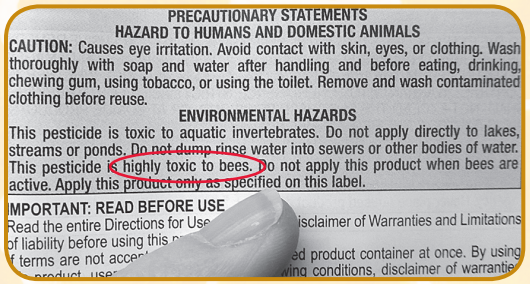
# How You Can Help Protect Our Bees

1. Follow integrated pest management practices to first evaluate if a pesticide application is really necessary. If the damage has already been done and is largely cosmetic, treating will not improve the plant's health or appearance.
2. Read each pesticide label to determine if it is toxic to bees. The Environmental Hazards Statement will list animals that may be harmed from an application of that product.



PRECAUTIONARY STATEMENTS
HAZARD TO HUMANS AND DOMESTIC ANIMALS

**CAUTION:** Causes eye irritation. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove and wash contaminated clothing before reuse.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to aquatic invertebrates. Do not apply directly to lakes, streams or ponds. Do not dump rinse water into sewers or other bodies of water. This pesticide is highly toxic to bees. Do not apply this product when bees are active. Apply this product only as specified on this label.

IMPORTANT: READ BEFORE USE

Read the entire Directions for Use isclaimer of Warranties and Limitations of liability before using this p

f terms are not accep ed product container at once. By using product, use ing conditions, disclaimer of warranties

Photo credit: Laura Jesse

3. Purchase formulations that are less toxic to bees. Granules and emulsifiable concentrates are safer to use than wettable powders, dusts, or microencapsulated products.
4. Avoid applying any pesticides (especially insecticides and fungicides) to ***any*** blooming plant. Bees and other pollinators may be harmed if they contact the pesticide or if they consume nectar or pollen containing pesticides.
5. Apply pesticides only after flower petals have fallen if the plant is in need of pest protection.
6. If using a white grub insecticide with imidacloprid, mow the lawn within a week of the application to minimize exposure to bees visiting clovers.
7. Use products that are less toxic to bees, such as insecticidal soap or *Bacillus thuringiensis*.

Photo credit: Irina Tischenko

**The new bee icon helps signal the pesticide's potential hazard to bees.**

8. Avoid using any systemic insecticide on plants even after blooming if that product lasts until next season's blooming. Imidacloprid is one of those products that persists, but dinotefuran is active only during the current season.
9. When purchasing ornamental plants that are known to attract pollinators, try to purchase ones that do not have insect and plant pathogen pests.
10. Learn more online:
    ***www.beeinformed.org***
    ***www.entomology.umn.edu/cues/pollinators***
    ***www.npic.orst.edu***
    ***www.pesticidestewardship.org***
    ***www.pollinator.org***
    ***www.xerces.org***

Prepared by L Jesse, D Lewis, J Coats, and M Shour, Department of Entomology.

## Questions?
## Contact Iowa State University Extension and Outreach.



SP 455 November 2013

IOWA STATE UNIVERSITY
Extension and Outreach

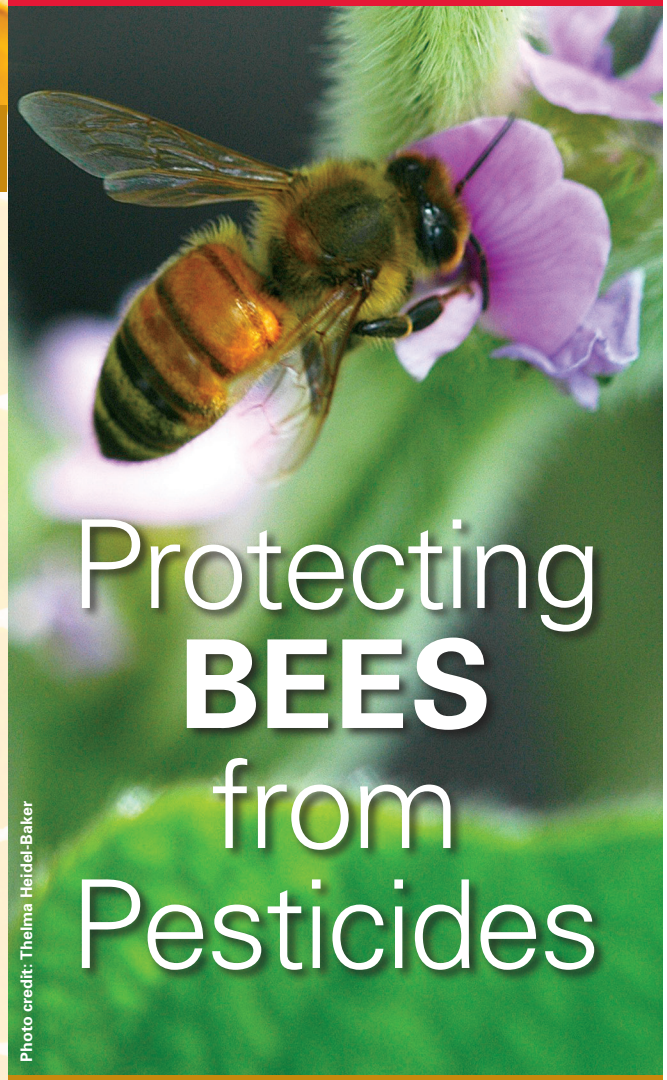


Photo credit: Thelma Heidel-Baker

# Protecting **BEES** from Pesticides

**Honey bees, bumble bees, orchard bees, mason bees, and various other insects pollinate our fruit and vegetable plants, as well as uncultivated plants. Pollinators are critical for our environment and economy, and they need our help!**




**Pollinators**, and particularly honey bees, particularly honey bees, are in decline. No one factor is believed to be the cause of bee losses; rather it appears to be a combination of problems (e.g., habitat loss, poor diet, fatigue, parasites, and pesticide exposure).

By nature, insecticides are toxic to insects, especially pollinators such as honey bees, bumble bees, native solitary bees, and others, but we can lessen impacts to them by reducing exposure.

**Neonicotinoids** are a group of insecticides that have been under greater scrutiny. Imidacloprid is the most widely available neonicotinoid used by homeowners. Other neonicotinoid active ingredients are acetamiprid, clothianidin, dinotefuran, thiacloprid, and thiamethoxam.

**ACTIVE INGREDIENT:**
Imidacloprid, 1-[(6-Chloro-3-pyridinyl)methyl]
-N-nitro-2-imidazolidinimine..... 0.2%
**OTHER INGREDIENTS** ..... 99.8%
**TOTAL**..... 100.0%
EPA Est. No. 4-NY-1 EPA Reg. No. 228-587-4

Neonicotinoids are being closely examined for several reasons:

1. they are a relatively new type of insecticide that has quickly attained worldwide use;
2. they are systemic, meaning they move throughout the plant into various tissues, including pollen and nectar, and can be a source of exposure to pollinators;
3. they can be present in the ecosystem for a long time; and
4. they are highly toxic to bees.

An insecticide does not have to kill in order to have a negative impact. Recent research suggests that exposure to neonicotinoids may affect a bee's ability to fly and navigate, learn, and reproduce.

The amount of potential harm to pollinators from insecticide applications varies with the plant to be treated, time of year, the surrounding environment, and other considerations. For example, treating when the tree, crop, or nearby weeds are in bloom is highly dangerous to pollinators.

A careful application of imidacloprid to protect your ash tree from emerald ash borer will have minimal risks to pollinators since this tree is wind-pollinated and the flowers bloom early in the spring and are not attractive to pollinators.

Applications to protect a linden tree from Japanese beetles, however, produce a very high risk to bees and other insects. Iowa State University Extension and Outreach does not recommend using imidacloprid just prior to or during bloom since it is so toxic to bees.