

HOW YOU CAN HELP

1. Avoid using neonicotinoids in your garden or yard. Read the label to determine whether a product contains neonicotinoids; look out for imidacloprid, acetamiprid, dinotefuran, clothianidin, and thiamethoxam.
2. When purchasing plants, ask nursery or garden center staff if the plants were treated with neonicotinoids.
3. Encourage your city or park district to use alternatives to neonicotinoids on plants that are bee-visited (e.g., maple trees) or bee-pollinated (e.g., linden trees, roses).
4. Create patches of pesticide-free, pollinator-friendly flowers in your garden or neighborhood. For regional lists of recommended pollinator plants, visit www.xerces.org/plant-lists.
5. Share this information with your neighbors and local community!
6. Show your commitment to providing safe pollinator habitat by signing the Xerces Society's Bring Back the Pollinators pledge, available at www.bringbackthepollinators.org.



Neonicotinoid insecticides have been implicated in the die-off of bees. This brochure will help you identify hazardous products and make your garden more bee-friendly.



Protecting Bees from Neonicotinoid Insecticides in Your Garden



Established in 1971, the Xerces[®] Society is at the forefront of invertebrate protection, harnessing the knowledge of scientists and the enthusiasm of citizens to implement conservation programs worldwide. The Society uses advocacy, education, and applied research to promote invertebrate conservation.

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CREDITS: Cover photo by Mace Vaughan, The Xerces Society. Pollinator habitat sign photo by Sara Morris, The Xerces Society. Pesticides photo by Matthew Shepherd, The Xerces Society. Inside photo (large carpenter bee on lupine) courtesy of Leithen M'Gonigle. Design, Kaitlyn Rich, The Xerces Society. Revised April 2016 by Aimee Code, Jennifer Hopwood, Sara Morris, Matthew Shepherd, and Mace Vaughan of the Xerces Society. The Xerces Society is an equal opportunity employer and provider. Xerces is a trademark registered to the U.S. Patent and Trademark Office.



WHAT ARE NEONICOTINOIDS?

Neonicotinoids are a group of insecticides that are used widely on farms, as well as around our homes, schools, and city landscapes.

Neonicotinoids are systemic chemicals. They are absorbed by the plant and dispersed through plant tissues, including pollen and nectar.

Because they target nerve impulses in insects and other invertebrates, neonicotinoids are deemed “safe” since harm to humans and other mammals is minimal. However, neonicotinoids are toxic to bees and many other beneficial insects. Imidacloprid and clothianidin, common ingredients in garden insecticides, can linger in the soil for months or even years, from where they can be picked up by the next season’s plants. Imidacloprid can remain active in flowers, shrubs, or trees for a year or more.

WHY ARE THEY A RISK TO BEES?

Bees are exposed to neonicotinoids in many ways, including contact with spray residue on plants or by eating contaminated and toxic pollen or nectar.

Even when used according to printed instructions, garden products containing neonicotinoids can be applied to plants in concentrations dozens of times greater than on farm crops. This means that bees can be exposed to lethal doses of neonicotinoids in gardens. Even if bees are not killed outright, smaller (non-lethal) doses can impact their health.

When exposed to very small amounts of neonicotinoids, bumble bee colonies grow more slowly and produce fewer new queens, which impacts overall bumble bee populations. Honey bees are also affected by low doses; exposure can impair their ability to fly, navigate, and forage for food.

To learn more, read the article, “Neonicotinoids in Your Garden,” from Wings magazine, or the scientific reports, *Are Neonicotinoids Killing Bees?* and *Beyond the Birds and the Bees*, all available for free download at www.xerces.org/pesticides.

Examples of Neonicotinoid Garden Products Used in the United States

Neonicotinoid	Registered Use in the United States	Example Product Trademark Names
Acetamiprid	Garden: foliar spray for fruits, leafy vegetables, and fruiting vegetables Ornamental: foliar spray for flowers, trees, and shrubs	<ul style="list-style-type: none"> ▶ Ortho Flower, Fruit and Vegetable Insect Killer* ▶ Ortho Rose and Flower Insect Killer*
Clothianidin	Ornamental: granules, soil drench, or foliar spray for turf, flowers, trees, and shrubs	<ul style="list-style-type: none"> ▶ Aloft ▶ Green Light Grub Control with Arena
Dinotefuran	Garden: soil drench or foliar spray for leafy and fruiting vegetables Ornamental: granules, soil drench, or foliar spray for turf, flowers, trees, and shrubs Residential: bait or granules for cockroach control	<ul style="list-style-type: none"> ▶ Green Light Tree & Shrub Insect Control with Safari ▶ Safari
Imidacloprid	Garden: foliar spray, soil drench, or trunk injection (trees) for fruits, leafy vegetables, and fruiting vegetables Ornamental: soil drench, granules, trunk injection, or foliar spray for turf, flowers, trees, and shrubs Residential: topical application on pets for flea control and to buildings for termite control	<ul style="list-style-type: none"> ▶ Bandit ▶ Bayer Advanced 3-in-1 Insect, Disease, & Mite Control ▶ Bayer Advanced 12 Month Tree & Shrub Insect Control ▶ Bayer Advanced 12 Month Tree & Shrub Protect & Feed ▶ Bayer Advanced Fruit, Citrus & Vegetable Insect Control ▶ Bayer Advanced All-in-One Rose & Flower Care concentrate ▶ Marathon ▶ Merit ▶ Monterey Once a Year Insect Control II ▶ Ortho Bug B Gon Year-Long Tree & Shrub Insect Control†
Thiamethoxam	Ornamental: soil drench, trunk injection, granules, or foliar spray for turf, flowers, trees, and shrubs	<ul style="list-style-type: none"> ▶ Flagship ▶ Meridian



Note: In April 2016, Ortho announced the planned phase out of all neonicotinoid active ingredients in its lawn and garden products by 2021(*), with the most toxic neonicotinoid ingredients to be phased out by 2017(†).