

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 animals 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, even 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 (nonlethal) 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.

Examples of Neonicotinoid Garden Products Used in the United States

Neonicotinoid	Garden and ornamental uses	Garden product trademark names
Imidacloprid	Foliar spray for turf and ornamental flowers, trees, and shrubs; soil drench for garden fruits and vegetables, and ornamental flowers, trees, and shrubs; trunk injection for trees; granules for turf and ornamental flowers, shrubs or trees.	Bayler Advanced 3-in-1 Insect, Disease, & Mite Control Bayler Advanced 12 Month Tree & Shrub Insect Control Bayler Advanced 12 Month Tree & Shrub Protect & Feed Bayler Advanced Fruit, Citrus & Vegetable Insect Control Bayler Advanced All-in-One Rose & Flower Care concentrate DIY Tree Care Products Multi-Insect Killer Fertilome 2-N-1 Systemic Hi-Yield Systemic Insect Spray Knockout Ready-To-Use Grub Killer Monterey Once a Year Insect Control III Ortho Bug B Gon Year-Long Tree & Shrub Insect Control Ortho MAX Tree & Shrub Insect Control Surrender Brand GrubZ Out
Clothianidin	Granules for turf and ornamental flowers, shrubs or trees.	Bayler Advanced All-in-One Rose & Flower Care granules Green Light Grub Control with Arena
Thiamethoxam	Foliar spray for turf and ornamental flowers, trees, and shrubs; granules for turf and ornamental flowers, trees, and shrubs.	Amdro Quick Kill Lawn & Landscape Insect Killer granules Amdro Rose & Flower Care Moxiade Dual Action Insect Killer
Acetamiprid	Foliar spray for garden fruits and vegetables, and ornamental flowers, trees, and shrubs.	Ortho Bug B Gon Garden Insect Killer Ortho Bug B Gon for Lawns Ortho Flower, Fruit and Vegetable Insect Killer Ortho Rose and Flower Insect Killer Ortho RosePride Insect Killer
Dinotefuran	Granules for turf and ornamental flowers, shrubs or trees; soil drench for ornamental flowers, trees, and shrubs.	Green Light Tree & Shrub Insect Control with Safari 2 G Ortho Tree & Shrub Insect Control Plus Miracle Gro Plant Food

To learn more, read the article, “Neonicotinoids in Your Garden,” from *Wings* magazine, or the scientific report, *Are Neonicotinoids Killing Bees?* Both are available at www.xerces.org/pesticides/