



LSP *Myth Buster* #37

An ongoing Land Stewardship Project series on ag myths and ways of deflating them.

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→ **Myth:** A New Class of Pesticides is Harmless to the Environment

→ **Fact:**

Over the years, a class of pesticides called neonicotinoids have become increasingly popular on farms, as well as in backyards and greenhouses. Derived from nicotine (yes, the same stuff that makes a body crave Marlboros and Copenhagen), these bug killers are systemic, meaning they are put on a plant's seed, or injected straight into the roots or stem. They work their way up to the leaves, killing insect pests that feed on the plant.

The advantages to these kinds of bug killers are many. For one thing, farmers, greenhouse keepers and homeowners aren't spraying toxins in the open air, reducing the chance of the chemical going where it's not supposed to. In addition, it works specifically on insects, offering little threat to other creatures, including humans.

That's the main reason neonicotinoids have fast become one of the most widely used pesticides, replacing chemicals such as organophosphates, which are outright toxic to mammals and birds. If you bought a potted plant recently, it's likely been fortified with neonicotinoids. And over 90 percent of all seed corn planted in the U.S. this spring was coated with neonicotinoid insecticides.

"I can't impress on you how common this is on everything," University of Minnesota entomologist Vera Krischik told the *Land Stewardship Letter*, adding that these types of pesticides can stay in a plant for up to a year.

A few years ago, Krischik noticed that after feeding on some potted plants that were in her backyard, bumblebees would become disoriented and fall to the ground where they would suffer from tremors before dying: a classic sign of neonicotinoid poisoning. She did follow-up research and found that plants containing the neonicotinoid insecticide imidacloprid caused high death rates in beneficial insects like pink lady beetles, green lacewings and parasitic wasps.

It also turns out this class of pesticides may not "stay put" as much as we'd like, and that's bad news for an important class of insects: pollinators such as bees. A Purdue University study found that bees near corn fields are exposed to "extremely high concentrations of neonicotinoids in waste talc" during the spring. In other words, all that dust formed when a planter passes over a field isn't just soil—it also contains neonicotinoids, and bees may be getting doused in it. This spring beekeepers reported finding honey bees that were suffering from tremors and dying the same day that neighboring fields were being planted with neonicotinoid-coated corn.

The stakes are huge: every third bite of food we take can be linked to the activities of pollinators like bees. That's why 15 European Union countries recently voted to ban neonicotinoid chemicals after they were linked with bee die-offs there. Bayer CropScience, the major manufacturer of neonicotinoids for corn, denies there is any evidence that its pesticide is linked to bee die-offs. But the scientific evidence is getting increasingly hard to ignore.

Entomologists say it's unlikely pesticides are the only cause of the mass bee die-offs we've seen in recent years. Lack of a diverse, healthy habitat in a landscape dominated by monocrops of corn and soybeans, as well as the prevalence of new diseases, are also contributing factors. But systemic insecticides could be one more nail in the coffin for these key insects.

→ **More Information**

- The Purdue University study, "Multiple Routes of Pesticide Exposure for Honey Bees Living Near Agricultural Fields," is available at www.plosone.org.
- The Summer 2009 *Land Stewardship Letter* (www.landstewardshipproject.org/about/landstewardshipletter) describes the threats faced by bees and other pollinators.

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