

BUZZWORTHY

Oregonians widely use a pesticide known to kill bees. Could you be doing more in your backyard to help our declining pollinator populations?

BY EMILY GREEN
STAFF WRITER

In June 2013, an insecticide containing neonicotinoids caused a massive bumblebee die-off at a Target in Wilsonville. The chemical was sprayed to treat linden trees covered with aphids, but the trees were also filled with bumblebees pollinating the blossoms. The result was a parking lot covered with the little corpses of an estimated 50,000 bumblebees.

Just a few days later, hundreds more died in Hillsboro, and it was in an area where the same product containing neonicotinoids had been sprayed, only it had been sprayed months earlier.

Oregon Department of Agriculture investigators determined neonicotinoids were the cause of death in both cases, but the chemicals continue to be widely used in both agricultural and residential settings across Oregon.

In North America, more than half of all bee species are declining, with one in four species at an increasing risk of extinction, according to report released earlier this year from the Center for Biological Diversity.

While there are roughly 4,000 species of native bees in North America, there are just 46 species of bumblebee – and in Oregon, six of them are at risk of extinction, according to The Xerces Society for Invertebrate Conservation.

Neonicotinoids are a class of chemical that is systemic, meaning once a plant – or even a seed – is treated, the toxins spread through the plant's tissues and into the pollen and nectar that attracts pollinators such as bees and butterflies.

Neonicotinoids also contain nicotine, and a 2015 recent study from researchers in the United Kingdom found bees appear to be getting addicted. They observed bees were seeking out plants treated with the pesticide, even though it's harmful to them.

When the leaves of a plant that's been treated with neonicotinoids fall and decompose in the earth, it contaminates the soil. The chemical is also water soluble and has been shown to have dramatic effects on aquatic

EASY BACKYARD BEEKEEPING

You can be a backyard beekeeper with minimal effort when you host native bees. Page 10

ecosystems, ultimately leading to a decline in songbirds who survive on aquatic insects in areas of the Midwest, said Aimée Code.

Code has a master's degree in environmental health and toxicology from Oregon State University and is the pesticide program director at The Xerces Society. This Portland-based nonprofit is staffed with biologists and horticulturists who agree that it is a clearly documented fact that legal applications of neonicotinoids have caused bee kills.

In the years following Wilsonville and Hillsboro bee die-offs, Oregon banned the use of neonicotinoids, but only on linden trees.

The city of Portland banned all use of the neonicotinoid chemical class on property it manages, with very rare exceptions. It doesn't purchase plants that have been treated with the chemical either, said Mark Ross, spokesperson for Portland Parks and Recreation.

But amateur gardeners can choose from an array of products containing neonicotinoids at their local hardware store, grocery store or pharmacy, and if they aren't careful, they can kill the very insects they need to make their garden grow.

There are seven chemicals with different names in the neonicotinoid class, and they can be found in dozens of pesticides manufactured for home use, including many popular Bayer and Ortho products. They are: Imidacloprid, Clothianidin, Acetamiprid, Thiamethoxam, Dinotefuran, Nitenpyram and Thiocloprid.

"The label on

the home use product allows greater application rates for home use than for professional use," said Lisa Arkin, executive director of Beyond Toxics in Eugene.

Her organization is behind a set of bills aimed at regulating neonicotinoids in Oregon. While one aimed at changing labeling requirements is not moving forward, another has a fighting chance.

Senate Bill 929 would make neonicotinoids a restricted-use pesticide, meaning only licensed pesticide applicators could purchase and spray the chemicals. It's modeled after a bill that recently passed in Maryland, making it the first state to ban consumer use of the pesticide.

Farming and nursery lobbies oppose the bill, arguing that the science is not conclusive and that because there are many complex causes of bee decline, neonicotinoids should not be singled out.

Jeff Stone, executive director of Oregon Association of Nurseries, testified that the agriculture industry relies on neonicotinoids to control pests and that they are less harmful to humans and mammals than other pesticides. He also pointed to research showing that when used correctly, neonicotinoids are not harmful to pollinators.

Code said it's important to look at the body of research as a whole, and at who funded the study.

She pointed to one example of an industry study of exposure during the summer that found no risk. But an independent study that followed bees into their winter hibernation found a queen's survival

rate dropped when she had been exposed to neonicotinoids during the summer.

"These studies done by industry wouldn't be looking at those subtle risks, but they are there," she said. "When you have an economic incentive to not find risk, if you look at the studies, you're less likely to find risk. Look at the independent studies, and you see harm."

When looking at the bulk of the data, the message, the science used and how researchers evaluated risk, she said, there is a growing body of science that demonstrates the risks of neonicotinoids.

"We're seeing significant concern for pollinators and water quality," she said.

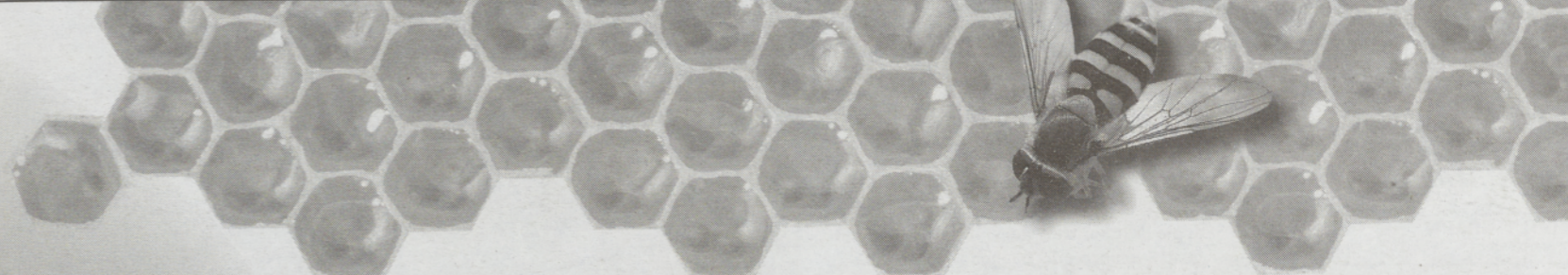
But regardless of disagreements over the science, both sides seem to agree: When the application instructions aren't followed correctly, neonicotinoids can kill bees.

With SB 929, however, licensed pesticide applicators could still spray neonicotinoids. The bill would not restrict agricultural use of the chemical, only residential use.

When nursery owner Lori Vollmer heard about the bee massacre at the Target in Wilsonville, she immediately pulled all pest control products containing neonicotinoids from the shelves of her store, Garden Fever.

Vollmer, who has been operating the boutique nursery in Northeast Portland for 15 years, said it's quite common for residential

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Plant a pollinator garden

You can help declining bee and butterfly species by turning your backyard into a pollinator habitat

BY EMILY GREEN
STAFF WRITER

Because many bee species native to Oregon are solitary bees with small flying ranges, your backyard could become a haven away from harmful pesticides if you provide continuing floral resources, said Aimée Code, the pesticide program director at The Xerces Society for Invertebrate Conservation.

"Recognizing there are hundreds of species out there, if you build a habitat, they will come. You will see an amazing diversity of pollinators in your yard if you start putting in native plants," she said.

Plotting your garden

Lori Vollmer, owner of Garden Fever in Northeast Portland, said the key to having a pollinator-friendly garden is to stock it with plants that have overlapping blooms at different times of year, making sure you have something in bloom for pollinators to feed on throughout the seasons.

"The hardest part is late winter," Vollmer said, "but there are a lot of native plants here in the Northwest that bloom during that time – all the Mahonias (such as the Oregon Grape), which are also a favorite of the hummingbird as an added bonus," she said. Waterleaf will bloom in early spring, and it's a species that bumblebees like, she said, "then you would go into the spring blooming bulbs and shrubs."

She said snowdrops and flowering currants are good early spring choices, and then as you move into summer and fall, there are many colorful options to choose from.

Herbs can also be a good addition, as long as you allow a couple of them to flower, she said. Pollinators especially love dill, parsley and mustards.

Vollmer also recommends planting in clumps, with 3-foot wide patches of the same plant grouped together. This will help pollinators to see the flowers.

You will also want to leave some undisturbed areas of dirt because many native bees nest in the ground.

Vollmer said she usually leaves some space between her garden and

her house, and the area along her fence, about 6 to 8 inches, unplanted and free of any mulch or other cover.

Bee educator Rebekah Golden suggests leaving an un-mowed, patchy area of yard with south or southeastern sun exposure in the morning, which "will help them get warm and flying in the mornings."

Don't compact or till the soil in these areas because there may be eggs that will develop into larvae and pupa over the winter and through the year, Code said. "They will only be adults for a couple of weeks."

It's also important to provide pollinators with a source of drinking water, which can be as easy as keeping a saucer that's lost its teacup full of water, Vollmer said. Garden Fever also has pollinator baths made by a local potter that can be attached to the top of copper tubing.

Just make sure the water source is shallow and has an incline that pollinators can use to get close to the water without drowning, and maintain the water level throughout the week.

When selecting your plants, note these important guidelines:

■ Choose plant species that are native to your region. Research shows that most native bees prefer native flowers. For a comprehensive list of native plants and their blooming schedule, visit Xerces.org.

■ Also make sure you plant species that are right for the amount of sunlight your garden receives. A healthy plant won't get infested, so keep an eye on your plants throughout the season, and make sure they're getting what they need.

■ Do not use pesticides. If you do resort to pest control, look for natural alternatives and make sure you aren't spraying pollinators directly. Ask your local nursery about nontoxic alternatives. Vollmer successfully rid her plants of aphids by simply knocking them off with hose water – once they fall, they can't get back up.

Golden, an educator at Bee Thinking, warns, however, that some concentrated plant compound-based pest control products can be harmful to pollinators. She recommends sprinkling

diatomaceous earth, a very fine sand, in areas where aphids and



PHOTO BY EMILY GREEN
You can find pollinator garden supplies at most neighborhood nurseries. Pictured here, from Garden Fever in Northeast Portland: native plant seeds from Native Ideals and other pollinator favorites such as dill, cosmos and milkweed; a mason bee home from local nonprofit Swarm Portland; a pollinator bath; and a book on how to plant a bee-friendly garden from The Xerces Society.

crawling insects are found. But again, avoid bees and their nesting areas when using it.

■ If buying plants that have already started growing, check the label to make sure they have not been treated with neonicotinoids.

■ Choose a variety of bloom colors. This will attract a diversity of pollinators.

■ If you want to build a habitat for butterflies, don't forget about the plants that their larvae, caterpillars, need to survive. For example, Monarch butterflies will only lay eggs on milkweed.

■ And remember: The key is to plant species that bloom at different times of year so that pollinators always have something to feed on.

■ Visit xerces.org for a wealth of information on making nests for native bees, selecting the right plants and more.

■ And finally, register your garden with the Million Pollinator Garden Challenge at millionpollinatorgardens.org.

Keeping a pollinator garden means you will have visible insect activity in your garden.

"We really need to get away from seeing insect activity in our yard as a negative thing," Code said. "Lots of our native bees actually use leaves from plants to line their nests, so you might see a plant that has a little hole cut out of it, and think you have a pest, when in reality you have a native bee that's using your yard to create their nest. So taking a step back and appreciating the insects in our yard is really important."

"I know when I'm losing faith with the world, and at this time when the news can be so depressing, the best thing I can do is go out in my yard and know that I'm creating habitat in my own little area," she said.

