New Studies Add to Growing Evidence That Notorious Pesticides Harm Bees

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By Nadia Prupis, staff writer, Common Dreams 4/23/15
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Two new studies published in *Nature* on Wednesday show that neonicotinoid pesticides—or neonics for short—may be even more harmful to bees than previously thought.

Those studies, *Bees Prefer Foods Containing Neonicotinoid Pesticides* and *Ecology: Tasteless Pesticides Affect Bees in the Field*, add to the growing list of evidence that neonics are a major contributing factor to bee population decline and reinforce the case for restricting the use of those pesticides.

In the first study, researchers from Newcastle University conducted a test to determine how honeybees and bumblebees responded to nectar laced with three of the most commonly used neonics, and found that both species actually preferred those solutions. The data also indicated that the bees preferred the pesticides—imidacloprid (IMD), thiamethoxam (TMX), and clothianidin (CLO)—even though they could not taste them and the consumption of the pesticides caused the bees to eat less overall.

"Like nicotine they are essentially amplifying the rewarding properties of the sucrose solution that they are located in and the bees think its more rewarding so they go back to that food tube to drink more of it," Professor Geraldine Wright, who led Newcastle University's study, told the *Guardian*on Wednesday.

It was unclear if that preference would remain in the wild. However, the researchers note, "Sublethal concentrations alter the behavior of social bees and reduce survival of entire colonies... This work shows that bees cannot control their exposure to neonicotinoids in food and implies that treating flowering crops with IMD and TMX presents a sizeable hazard to foraging bees."

In a separate 'real world' experiment, scientists from Sweden's Lund University found that wild bee populations were cut in half around fields where neonics were used to treat crops. In those areas, bumblebee hives stopped growing and produced fewer queens.

As Jennifer Sass, senior scientist with the Natural Resources Defense Council, explains, "This is an especially dangerous effect in wild bees that nest in small colonies of only ten to one hundred bees, or solitary bee species that live alone, and may not be able to survive a reduction in their numbers."

Dave Goulson, a bee expert at Sussex University who was not involved in the studies, said the conclusions were hugely significant. "At this point in time it is no longer credible to argue that agricultural use of neonicotinoids does not harm wild bees," he told the *Guardian*, adding that the second study was "a major step forwards in clarifying the neonicotinoid debate... This was the first fully field-realistic, well-replicated trial so far, an impressive piece of work."

The EU has temporarily banned IMD, TMX, and CLO over concerns that they may hurt pollinators, but there are no such restrictions in the U.S., and the EU's moratorium will be up for review in December.

The studies show that "such insecticidal use can pose a substantial risk to wild bees in agricultural landscapes, and the contribution of pesticides to the global decline of wild bees may have been underestimated," the researchers stated.

Over 100 scientists and researchers sent a letter to the U.S. Department of Agriculture head Tom Vilsack and Environmental Protection Agency chief Gina McCarthy in November, urging them to take immediate action on pesticides and abolish bee-harming neonics.

Pollinators play a crucial role in larger global ecosystem, the letter states—and allowing them to fall victim to harmful pesticides "is not sustainable."

Earlier this month, the EPA announced it would restrict use of neonic pesticides that could harm bees and other pollinators, but environmental groups said the ban did not go far enough, as it did not include products that were already on the market.

"These studies demonstrate why the White House task force reviewing the issue should move quickly to tighten U.S. regulations," Sass continued.