

POLLINATORS



We need honeybees and other pollinators for the successful growth of about one-third of U.S. food crops. But hard winters, habitat loss, unintended pesticide impacts and other environmental factors have these friends of ours under siege, both in Ohio and around the world. Protecting the state's pollinators — and in the process, securing farmers' income and food production — is among the key work being done by The Ohio State University.

HONEYBEES AND FIELD CROPS: BETTER TOGETHER

How do field crops affect honeybees? And how do honeybees affect field crops? Research by Ohio Agricultural Research and Development Center-funded scientists has found new answers and shows promising paths for more study. The scientists discovered, for instance, that foraging honeybees can pick up dust from insecticide-coated corn seeds. They can then carry the dust into their hives, where it can harm their young. Based on the new finding, the scientists have suggested ways to reduce bees' exposure to the dust, including by controlling weeds in corn before they flower so bees aren't attracted to the field; using seed planters that vent downward rather than upward to minimize the spread of the dust; and limiting the use of coated corn seeds to fields only where they're absolutely needed.

The OARDC scientists also found that nearly half of the Ohio honey they tested had soybean pollen in it, even though soybeans, as a self-pollinated crop, don't

need bees for pollination. It appears, the scientists say, that honeybees are visiting soybeans, the soybeans are contributing to honey production, and pollination by honeybees is somehow increasing soybean yields.

Looking ahead, based on the new findings, the scientists say there's good potential for joint research. It's a valuable opportunity, they say, to have two components of agriculture — field crops and beekeeping — come together to explore mutual benefits.

In all, about one-third of the food crops grown in the United States must be pollinated by honeybees or other pollinators. Those crops have a value of more than \$14 billion a year. Protecting honeybees will secure those major food sources and the billions they add to the economy.

Continuing to support Ohio's corn and soybean production will yield major benefits too. In 2015, the two crops earned \$1.9 billion and \$2.1 billion, respectively. Growing Ohio's soybean



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income by just 1 percent, for instance — if, say, honeybees could help bring that about — would mean \$21 million a year in added income for Ohio farmers.

More: go.osu.edu/BeesAndCrops

GROWING NEW HOMES FOR POLLINATORS

The land under electric transmission lines, which needs to be kept clear of trees, could soon aid bees and other pollinators, including the beleaguered monarch butterfly. A new project, called A Monarch Right-of-Way: A Pollinator Demonstration Plot, is underway at The Ohio State University at Mansfield. Its partners include experts from OARDC and OSU Extension.

The project involves growing four different plantings of native wildflowers under a FirstEnergy transmission line that crosses the campus. The end goal is threefold: give food and homes to pollinators; keep transmission lines free of tall vegetation; and further ensure safe, reliable electrical service for Ohioans.

“Encouraging the growth of these special plants in transmission line corridors is an idea gaining momentum in the utility industry,” says Steven A. Strah, president of FirstEnergy Utilities, a partner on the project. “We expect the outcome of the experiment to produce positive, environmentally friendly results that can be used in the 14,000 miles of transmission rights-of-way that FirstEnergy maintains.”

In Ohio alone, electric companies must maintain about 7,000 miles of high-voltage transmission lines. In the United States overall, about 200,000 miles are maintained.

Meanwhile, pollinator populations in the United States and around the world are declining. Of note, numbers of the beloved monarch butterfly have plummeted by 90 percent, partly due to the loss of milkweed in fields and along field edges.



Monarch butterfly

It's the only plant on which the butterflies lay their eggs, and the only one on which their larvae feed. That's why the Mansfield plantings had to include species of milkweed.

Project partners also include the national Pollinator Partnership, Ohio Prairie Nursery, Arnold's Landscaping, Davey Tree, and the Utility Arborists Association.

More: go.osu.edu/PollinatorsUnderPowerLines



Brian White, Ohio State Mansfield (middle left), with First Energy colleagues Rebecca Spach, Patrick Failor and Kate Bloss (left to right)