

Pollinating new ideas

Extension brings new solutions to the problem of bee population decline



Marla Spivak, Extension entomologist, is driven to bring bees back through awareness and education.

It's what Marla Spivak calls a "big bee bummer." The Extension researcher and entomology professor lays out the facts: Honey bees and wild bees pollinate more than 70 percent of our fruits and vegetables. From a monetary standpoint, their value is estimated at \$16 billion in U.S. farm income (insect pollinators in general account for \$29 billion). Yet our bees are dying at alarming rates. Since 2007, an average of 30 percent of all U.S. colonies have died every winter due to disease, parasites, lack of plant diversity, pesticides and a flowerless landscape.

But Spivak, a 2010 MacArthur Genius Award recipient, hates to end on a low note. "We can turn it around," she says. "We need to raise awareness."

Since 2007, when alarms began to sound about the state of bees, Spivak's bee lab has come into the national spotlight. She and her students engage in research regarding bee health. It's complex, but Spivak's approach with citizens is simple and immediate. "Plant flowers," she says. "Flowers provide bees with critical nutrition—protein from pollen and carbohydrates from nectar."

Extension Master Gardeners disseminate information statewide about which native plants and flowers are best for bees and other pollinators. Anise hyssop, lupine and aster are go-to meals for bees, but researchers are beginning to study the concept of using cover crops such as alfalfa to attract pollinators as well. Farmers have used cover crops for hundreds of years to improve soil quality and decrease erosion. "Thomas Jefferson talked about the benefits of farming with cover crops," says Jill Sackett, Extension crops educator. "But we've never used them with the specific purpose of attracting pollinators."

That may change. Extension cover crop specialists like Scottie Wells are researching ways in which farmland can support both grazing animals and pollinators.

Wells recently launched a study of a series of cover crop mixes, which include species such as red clover, rye grass and buckwheat. "These crops could provide a floral nectar reserve from early spring to late fall," he says. "Such fields could serve as islands for pollinators."

Fruit and vegetable farms are also prime candidates to provide such sanctuary. John



Bees and other pollinators are in mass decline

Knisely, owner of Alternative Roots Farm, an apple orchard and community supported agriculture program in New Ulm, has seen the effects of incorporating cover crops such as white clover, alfalfa and buckwheat on his land. Knisely has noted the presence of six native bee species on the farm. “If we don’t have pollinators, we don’t have production,” he says. “They are absolutely essential to our operation.”

In urban areas, however, cover crops like clover have long been considered weeds. Sam Bauer, an Extension turfgrass educator, works to change that perception. “Most weeds are simply plants that people have deemed unacceptable,” says Bauer. “For example, most households will not tolerate dandelions in their yards, but they’re attractive to pollinators so we’re trying to encourage people to accept some.”

That said, Bauer and his colleagues understand that people take pride in their yards. “We don’t encourage folks to allow every weed under the

sun to grow freely,” he says. “It is possible to strike a balance between aesthetics and ecology. The key is to plant species that grow at the same rate as the grass, such as white clover, so it appears less random.”

Through research and education, Extension hopes to turn the “big bee bummer” into actions that encourage folks across landscapes to take up the cause. “We need to inspire a cultural shift,” says Spivak. “The solution lies in simple acts and in everyone paying attention to the plight of our pollinators.”



Apple orchards and other small farms can benefit from planting cover crops that attract pollinators. Pictured: John Knisely, owner, Alternative Roots Farm.



Extension Master Gardeners show youth that some of the same “Smart Snack” plants that feed bees keep people healthy too.

FEED THE CREW, TOO

“From country residents to condo dwellers, everyone can provide for pollinators,” says Tim Kenny, Extension Master Gardener director and education director at the University of Minnesota Landscape Arboretum.

The Arboretum and Extension recently hosted a learning garden called “Smart Snacks.” Master Gardeners were there to share information about how to create community gardens at schools, churches, libraries and other public places.

The Smart Snack garden concept includes healthy snacks for both people and pollinators—cherry tomatoes, basil, and an array of flowers such as zinnias and verbenas. Signs displayed nutrition information for the edible plants and carried reminders to “feed the crew,” too.

“By ‘crew’ we mean bumblebees, the main pollinator of tomatoes,” says Kenny. “Tomato plants pollinated by bumblebees produce 45 percent more fruit, so it’s important to attract them to your garden with their own snacks—flowers.”

Why it matters

- 71 percent of flowering plants depend on pollinators to reproduce
- Insect-pollinated plants grow more than 30 percent of our foods and beverages
- \$29 billion in U.S. farm income is generated by pollinators

Why it’s happening

- Flowerless landscapes that lack plant diversity
- Pesticides
- Disease and parasites

What you can do

- Plant bee-friendly plants
- Tolerate small amounts of “weeds” like clover and dandelions in your yard
- Reduce the use of pesticides

Learn more: www.extension.umn.edu/garden/honey-bees