

Honeybees play a vital role in the agricultural industry

August 29 2014, by Shelley Littin



The next time you tuck into a salad, thank a honeybee.

"Honeybees are responsible for pollinating [agricultural crops](#) that make up one-third of our diet, including fruits and vegetables. They're the cornerstones of heart-healthy and cancer prevention diets," says Gloria DeGrandi-Hoffman, an adjunct professor in the Department of Entomology in the College of Agriculture and Life Sciences at the University of Arizona and a research leader at the Carl Hayden Bee Research Center in the Agricultural Research Service of the U.S. Department of Agriculture.

"We're the [honeybee](#) nutrition lab," DeGrandi-Hoffman said. "Humans are healthier when we have good nutrition and so are [bees](#). We study the effects of malnutrition on bees, including the effects of fungicides and pesticides and how they alter the ability of bees to acquire nutrients from flower nectar."

The lab also looks at the role of microbes in the ability of bees to digest their food and acquire nutrients from it.

"Just like in humans, microbes play an important role in digestion and overall health and immunity in bees. Honeybee colonies are healthier if they have a diverse micro-biome," she explained.

The lab is currently working on the honeybee microbiome project, modeled after the Human Microbiome Project, and aiming to understand the roles and interactions of microbes that live on or inside bees.

Honeybees are essential for agricultural pollination because they can be housed in colonies, transported to fields at the right time to pollinate flowers, and released.

"We can manage them and bring pollinating populations into key agricultural systems," DeGrandi-Hoffman explained.

"For example, in February bees are brought from all over the country to pollinate almond trees," she said. "There aren't enough native pollinators to pollinate all the almond crops, but we can bring honeybees into the orchards, open up the colonies and instantly have thousands and thousands of pollinators working with those trees."

Every winter, beekeepers lose about 30 percent of their colonies, she said. Drought also can be devastating to honeybees, she noted, because

plants that are essential sources of honeybee food fail to bloom.

Thankfully, "Tucson has a healthy honeybee and native pollinator population," DeGrandi-Hoffman noted. "A healthy population of honeybees to pollinate crops comes back to influence human health."

Homeowners can promote a healthy pollinator population by growing plants such as sunflowers and asters. The Arizona-Sonora Desert Museum's pollinator partnership website lists plants that serve as food sources for different types of pollinating insects including honeybees and [native bees](#).

"Be very careful with pesticides," DeGrandi-Hoffman warned.

"Homeowners sometimes use pesticides and fungicides without thinking of their possible effects on non-target organisms like bees. These products can cause bee kills."

But are bees dangerous to encourage around the home and garden?

"Unless you step on one, the only time bees are defensive and could possibly sting you is if you get near their nest," DeGrandi-Hoffman said.

Provided by University of Arizona

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