

## First vaccine for honey bees

The World's First Vaccine for Honeybees Is Here. It could be a game-changer for beekeepers fighting American foulbrood, a disease that can wipe out entire colonies

By Sarah Kuta, Daily Correspondent, January 9, 2023

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Pollinators—like honeybees, moths, hummingbirds and bats—are in trouble. While they're crucial for promoting biodiversity and producing food for healthy human diets, pollinators face myriad threats, including habitat loss, climate change, pesticides, air pollution and disease-causing organisms.

But now, there's a glimmer of hope for helping honeybees fight back against one of the many stressors they face, a deadly infectious disease known as American foulbrood. To combat the disease, which is capable of wiping out entire colonies, the U.S. Department of Agriculture approved for use the world's first honeybee vaccine, developed by Dalan Animal Health, the biotech company announced in a statement last week.

Bacteria called *Paenibacillus larvae* cause American foulbrood, which spreads through spores and kills honeybees while they are in the pre-pupal or pupal stage. "It reduces the larvae to this brown goo that has a rancid stink to it," Keith Delaplane, an entomologist at the University of Georgia, which partnered with the company to develop the vaccine, says to the Guardian's Oliver Milman.

Until now, there was no "safe and sustainable" way to prevent American foulbrood, per the statement. The only treatment involved antibiotics, which are expensive, have limited effectiveness and take lots of time and energy for beekeepers to apply.

To stop the spread, beekeepers are often forced to burn infected hives and bees. That makes the vaccine a game-changer, the company's executives say.

"Our vaccine is a breakthrough in protecting honeybees," says Annette Kleiser, CEO of Dalan Animal Health, in the statement. "We are ready to change how we care for insects, impacting food production on a global scale."

Beekeepers will mix the vaccine, which contains dead *P. larvae* bacteria cells, into the food that worker bees eat. Then, when the worker bees secrete their milky royal jelly, the queen will ingest it and the vaccine. From there, the vaccine will make its way to her ovaries, where it will immunize developing larvae.

According to the company, the vaccine is not genetically modified and can be used in organic farming.

Under a conditional license from the USDA, Dalan Animal Health now plans to distribute limited amounts of the vaccine to commercial beekeepers. From there, they hope to offer it for sale throughout the U.S. sometime this year.

The federal agriculture agency awards conditional licenses to products that "meet an emergency situation, limited market, local situation or special circumstance," according to a USDA memo. The USDA requires products that receive these types of licenses to be "pure and safe, and have a reasonable expectation of efficacy," per the agency. Generally, conditional licenses come with restrictions and cover a limited period of time. Once that period ends, the agency evaluates the product's effectiveness to determine whether to renew the conditional license or award a regular product license.

"This is an exciting step forward for beekeepers," says Trevor Tauzer, owner of Tauzer Apiaries and board member of the California State Beekeepers Association, in the statement. "If we can prevent an infection in our hives, we can avoid costly treatments and focus our energy on other important elements of keeping our bees healthy."