

# New Insecticides Are Being Developed to Target Honey Bee Enemies

## World Bee Day receives a significant research boost

Precision insecticides are the most recent weapon in the battle against bee pests. Learn how Sydney scientists are creating these to protect honey bees around the world.

Scientists at the **University of Sydney** are working on insecticides that target two major pests of honey bees while remaining completely safe for the bees and other animals. They intend to combat the Varroa mite and the small hive beetle, which are the leading causes of colony losses worldwide, today and in the future.

The **Varroa mite** is widespread throughout the world, but it is not yet endemic in Australia. Small hive beetles, on the other hand, are a major issue on Australia's east coast. They thrive in warm, humid environments and feed on hive products such as pollen, honey, and bee larvae, causing hives to become "slimed out."

Not only are honey bees worth saving in and of themselves, but pollination is essential to 30% of global agricultural systems, and honey bees are our most valuable commercial pollinators. Honey bees, for example, contributed an estimated \$14.2 billion to Australia's agricultural economy in 2017. Honey bees could have contributed nearly a third of the \$62.2 billion gross value of Australian agriculture in 2018-19.

## Buzzkills Should Be Avoided

**Dr. Emily Remnant** of the BEE Lab is co-leading the project, which builds on the work of Honorary Professor Ron Hill, one of her research partners, who has been working on it for over a decade. She described how the new insecticides will function: "They will include molecules that take advantage of differences in a protein found in honey bees, Varroa mites, and small hive beetles." They will inhibit the operation of the protein in the pests, which is a receptor for the essential insect hormone ecdysone, while leaving the corresponding protein in honeybees unaffected."

Their research was sparked by a philanthropic gift to the University and has recently received additional funding from Horticulture Innovation Australia.

Research by: **University of Sydney**