

Fungicides and Bees

For many years it had been assumed that there should be no problem for bees in fields where fungicides were routinely sprayed since fungicides were not developed to harm insects. However, new studies have implicated fungicides as posing **multiple risks to both honey bees and bumble bees**.

In a 2013 study by the U.S. Department of Agriculture found that fungicides were the **most frequently found chemical substances in pollen samples**. When **honey bees** were fed pollen that contained the fungicide *chlorothalonil*, they were almost three times more likely to become infected when exposed to the parasite *Nosema ceranae* compared with control bees.

A 2016 study found that *chlorothalonil* has significant impact on the gut microbiomes of **honey bees**, reinforcing previous research suggesting a **connection between fungicides and bees' immune systems**.

A 2016 study done at the University of Maryland found that elevated levels of fungicides found in individual hives were associated with **colony deaths for honey bees**.

Research published in 2017 by Cornell University found that fungicide use, particularly *chlorothalonil*, was compounding risk of **toxicity for bumble bee** species. Field studies of *chlorothalonil* found impaired colony growth and reduced queen body size in bumble bees.

Also, fungicides in **combination with some pesticides** can short-circuit bees' natural ability to detoxify the pesticides. And research has shown that fungicides interfere with honey bees' ability to metabolize pesticides used by beekeepers to kill parasitic mites that infest their hives.

Add to this the results of a study done this year (2018) by the University of Illinois which showed that **bees actually preferred sugar syrup laced with the fungicide chlorothalonil** as compared to sugar syrup alone.

In addition to *chlorothalonil*, fungicides that have been shown to have negative effects on bees include ***Preston-Mix, Signum, Rovral, Captan, Ziram, Neem oil, and propiconazole***.

Clearly **more research** needs to be done. Since fungicides are widely used and are found as the most frequent contaminant in pollen samples, the impact of various fungicides (some are worse than others) needs to be investigated. Only a few fungicides have been tested for their impact on bee health, either alone in or combination with pesticides. Until more research has been done, caution should be used in terms of minimizing the use of fungicides and timing of applications.

