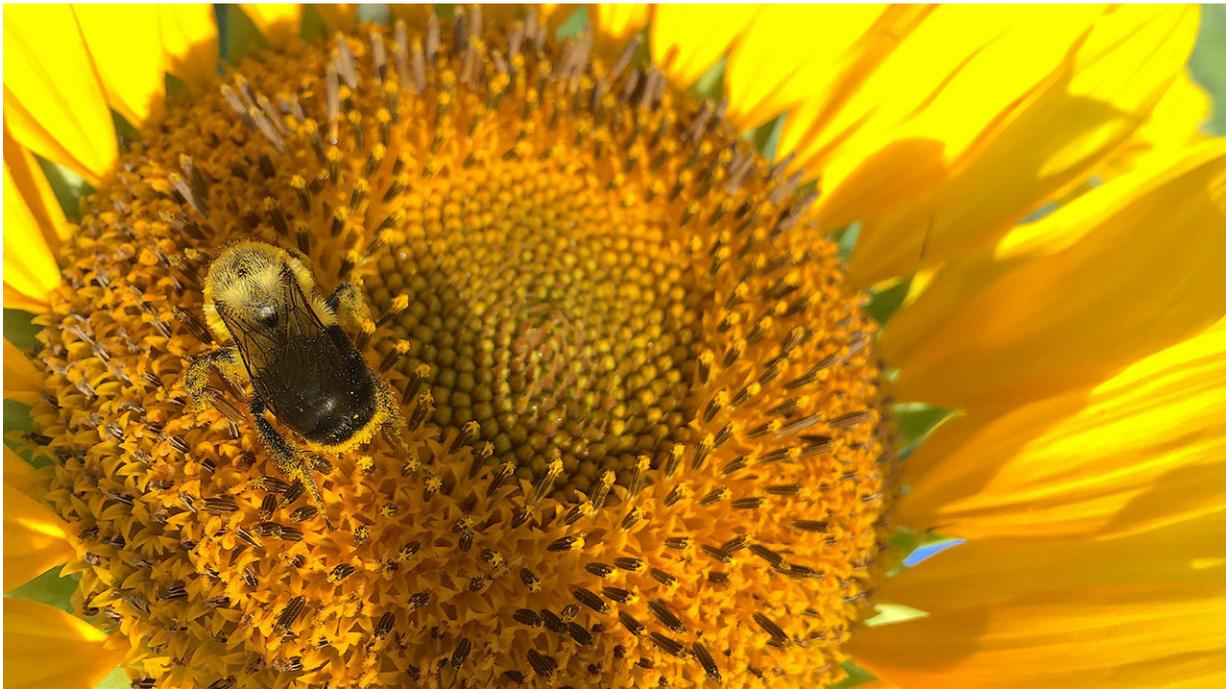


Sunflower pollen has medicinal, protective effects on bees

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Honey bees fed a diet of sunflower pollen show dramatically lower rates of infection by a specific pathogen. Credit: Jonathan Giacomini, NC State University

With bee populations in decline, a new study offers hope for a relatively simple mechanism to promote bee health and well-being: providing bees access to sunflowers.

The study, conducted by researchers at North Carolina State University and the University of Massachusetts Amherst, showed that two different species of [bees](#) fed a diet of [sunflower](#) pollen had dramatically lower rates of infection by specific pathogens. Bumble bees on the sunflower diet also had generally better colony health than bees fed on diets of other flower pollens.

The study showed that sunflower pollen reduced infection by a particular pathogen (*Crithidia bombi*) in [bumble bees](#) (*Bombus impatiens*). Sunflower pollen also protected European honey bees (*Apis mellifera*) from a different pathogen (*Nosema ceranae*). These pathogens have been implicated in slowing bee colony growth rates and increasing bee death.

The study also showed a deleterious effect, however, as honey bees on the sunflower diet had mortality rates roughly equivalent to honey bees not fed a pollen diet and four times higher than honey bees fed buckwheat pollen. This mortality effect was not observed in bumble bees.

Jonathan Giacomini, a Ph.D. student in applied ecology at NC State and corresponding author of a paper describing the research, said that bees already seem adept at collecting sunflower pollen. Annually, some two million acres in the United States and 10 million acres in Europe are devoted to sunflowers, he said, making sunflower pollen a ready and relevant bee food.

"We've tried other monofloral pollens, or pollens coming from one flower, but we seem to have hit the jackpot with sunflower pollen," said co-senior author Rebecca Irwin, a professor of applied ecology at NC State. "None of the others we've studied have had this consistent positive effect on bumble bee health."

Sunflower pollen is low in protein and some amino acids, so it should not

be considered as a standalone meal for [bee populations](#), Irwin said. "But sunflower could be a good addition to a diverse wildflower population for bees," she said, especially generalists like bumble bees and honey bees.

The NC State researchers are now planning to follow up on the study to examine whether other species of bees show the positive effects of sunflower pollen and to gauge the mechanism behind the mostly positive effects of sunflower pollen.

"We don't know if sunflower pollen is helping the host bees fight off pathogens or if sunflower [pollen](#) does something to the [pathogens](#)," Irwin said. Future research is aimed at figuring this out.

More information: Jonathan J. Giacomini et al, Medicinal value of sunflower pollen against bee pathogens, *Scientific Reports* (2018). [DOI: 10.1038/s41598-018-32681-y](#)

Provided by North Carolina State University

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