

The more kinds of bees, the better for humans, study finds

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Brown-belted bumble bee at work on a blueberry flower. Credit: Rutgers University, Rachael Winfree

The larger an area, the more species of wild bees are needed to pollinate crops, a Rutgers University study shows.

The findings appear today in the journal *Science*.

Many controlled ecological experiments have shown increased pollination results from having more [species](#), but the Rutgers-led study is one of the first to confirm that increase in nature. The researchers observed, collected and identified more than 100 species of [wild bees](#) pollinating crop flowers on 48 farms in New Jersey and Pennsylvania over several years. More than half (55) of these species were needed for pollination at one or more farms in one or more years.

Pollination is an "ecosystem service" - one of the life-sustaining benefits, like clean air and water, we receive from nature.

"Our results confirm the importance of biodiversity in keeping the planet habitable for human beings, at least if our findings apply to other [ecosystem functions](#) as well," said lead author Rachael Winfree, a Rutgers University-New Brunswick ecologist.

Scientists estimate that wild pollinators provide as much as half the [crop pollination](#) that occurs worldwide. At a time when domestic honeybees in North America are beset with colony collapse and other problems, the role of wild pollinators becomes even more important.

"I like to think of this as a real-world question," Winfree said. "These are real farms and real farmers, and each farmer needs his [crops](#) pollinated. The answer turns out to be, that when you require that all farms are pollinated, you need an order of magnitude more bee species than has been needed in experiments."

In her earlier work, Winfree made several suggestions for farmers and landowners who wanted to encourage wild pollinators to pollinate their crops.

"Farmers can plant fallow fields and road edges with flowering plants, preferably plants whose flowering periods are different, because wild pollinators need to be supported throughout the growing season," Winfree said. "They can reduce pesticide use and avoid spraying during crop bloom when more bees are in the crop field."

More information: R. Winfree et al., "Species turnover promotes the importance of bee diversity for crop pollination at regional scales," *Science* (2018). [science.sciencemag.org/cgi/doi ... 1126/science.aao2117](https://science.sciencemag.org/cgi/doi/10.1126/science.aao2117)

Provided by Rutgers University

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