

Honeybees as plant 'bodyguards'

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Honeybees are important to plants for reasons that go beyond pollination, according to a new study published in the December 23rd issue of *Current Biology*, a Cell Press publication. The insects' buzz also defends plants against the caterpillars that would otherwise munch on them undisturbed.

The researchers, led by Jürgen Tautz of Biozentrum Universität Würzburg, Germany, earlier found that many caterpillars possess fine sensory hairs on the front portions of their bodies that enable them to detect air vibrations, such as the sound of an approaching predatory wasp or honeybee.

"These sensory hairs are not fine-tuned," Tautz said. "Therefore,

caterpillars cannot distinguish between hunting wasps and harmless bees." If an "unidentified flying object" approaches, generating air vibrations in the proper range, caterpillars stop moving or drop from the plant. If caterpillars are constantly stressed by buzzing bees, as they likely are in fruiting trees heavily laden with blossoms, they will feed a lot less, he said.

In the study, the researchers found that bell pepper plants without fruit suffered 60 to almost 70 percent less damage to their leaves when confined in a tent with bees and caterpillars in comparison to those in a tent with caterpillars alone. The amount of leaf damage was less on fruit-bearing plants as the beet armyworm caterpillars moved into the maturing peppers, they report.

"Our findings indicate for the first time that visiting honeybees provide plants with a totally unexpected advantage," the researchers said. "They not only transport pollen from flower to flower, but in addition also reduce plant destruction by herbivores."

The findings highlight the importance of indirect effects between apparently unrelated members of food webs in nature, Tautz said. They might also have some practical application for sustainable agriculture.

If crops are combined with attractive flowers in such a way that honeybees from nearby beehives constantly buzz around them, it may lead to significantly higher yields in areas with lots of leaf-eating pests—a notion Tautz's team intends to test. "Our finding may be the start of a totally new biological control method," he said.

Source: Cell Press

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