

Common pesticide gives bees a sweet-tooth



honey bee

A single small dose of a commonly used pesticide can give honey-bees a sweet-tooth and that could be a problem as bees turn their noses up to nutritious but less sweet nectar. It's yet another problem that is being laid at the door of the neonicotinoids.

Small single dose of pesticide changed honey-bee behaviour.

This latest research saw biologists at University of California San Diego administer a small single dose of imidacloprid. The level would be the same as they would receive through nectar in the wild. The result was that the honey-bees became 'picky eaters' and would only feed on the sweetest nectar and ignored less sweet nectar.

bees that fed on the pesticide reduced the number of their waggle dances between fourfold and tenfold, and in some cases, the affected bees stopped dancing completely,

"In other words, the bees preferred to only feed on sweeter nectar and refused nectars of lower sweetness that they would normally feed on and that would have provided important sustenance for the colony," said graduate student Daren Eiri, the first author of the study. *"In addition, bees typically recruit their nestmates to good food with waggle dances, and we discovered that the treated bees also danced less."*

This sweet-tooth and a reduction in communication to other bees could have implications for the survival of the hive as less resources were bought back for use by the colony.

Imidacloprid is a common pesticide that is used around the world in both agriculture and domestic settings. As one of the neonicotinoids pesticides there is growing evidence that it may be adversely affecting the bee populations of many countries and could be contributing to colony collapse disorder. This disorder is seeing bee-keepers in the US and Europe lose up to a third of their hives each year.

Pesticide can give bees a sweet-tooth and stop them waggle dancing.

The impact of just a single small dose on the behaviour of bees is worrisome as explained by James Nieh, a professor of biology at UC San Diego who headed the research project, *"Exposure to amounts of pesticide formerly considered safe may negatively affect the health of honey bee colonies"*

He went on to describe that Imidacloprid "... is known to affect bee learning and memory."

Eiri described the concerns of the researchers over the impact of Imidacloprid on the bee dance as, "Re-

Common pesticide gives bees a sweet-tooth

markably, bees that fed on the pesticide reduced the number of their waggle dances between fourfold and tenfold, and in some cases, the affected bees stopped dancing completely.“

To test how the preference of sugary sources changed due to imidacloprid, the scientists individually harnessed the bees so only their heads could move. By stimulating the bees' antennae with sugar water, the researchers were able to determine at what concentrations the sugar water was rewarding enough to feed on. Using an ascending range of sugar water from 0 to 50 percent, the researchers touched the antennae of each bee to see if it extended its mouthparts. Bees that were treated with imidacloprid were less willing to feed on low concentrations of sugar water than those that were not treated.

The research was published in this weeks *Journal of Experimental Biology*.

External sites:

Journal of Experimental Biology: [A nicotinic acetylcholine receptor agonist affects honey bee sucrose responsiveness and decreases waggle dancing.](#)

Incoming search terms: