
Pesticides make honeybees picky eaters and reluctant waggle-dancers (Wired UK)

Even a small dose of crop pesticide is enough to turn honeybees into «picky eaters» and reluctant waggle «dancers», according to a [study by biologists at UC San Diego](#).

Honeybee populations throughout the world have depleted over the last decade thanks to «colony collapse disorder». Its precise cause is unknown, but it is thought that pesticides – in particular a group called «neonicotinoids» have played a role. Since 2006, North America and Europe have lost a third of their managed bee colonies to the condition.

The researchers focused their study on a particular neonicotinoid called «imidacloprid», which has been banned for use in certain crops in some European countries and is coming [under increasing scrutiny in the US](#).

James Nieh, a professor of biology at UC San Diego, said: «In 2006, it was the sixth most commonly used pesticide in California and is sold for agricultural and home garden use. It is known to affect bee learning and memory.»

Nieh, along with graduate student Daren Eiri, the first author of the study, treated bees with a small single dose of the pesticide, similar to what they would receive in nectar. They discovered that they became «picky eaters», preferring to only feed on sweeter nectar and refusing nectars of lower sweetness that they would usually feed on.

«In addition, bees typically recruit their nestmates to good food with waggle dances, and we discovered that the treated bees also danced less.»

The picky honeybees brought back dramatically reduced resources to the colony, which led to an overall smaller food store. This was exacerbated by the reduced levels of waggle-dancing and the associated loss of communication as to where other bees could find food sources. «Remarkably, bees that fed on the pesticide reduced the number of their waggle dances between fourfold and tenfold,» said Eiri. «In some cases, the affected bees stopped dancing completely.»

To test the bee preferences, the team had to individually harness bees so that only their heads could move. They stimulated their antennae with sugar water in order to determine at which concentrations the sugar water – from zero to 50 percent – was deemed rewarding enough to feed on. Researchers looked to see if the bees extended their mouthparts when their antennae were touched with the sugar water. Bees that were treated with the pesticide were less willing to feed on lower concentrations.

«Exposure to amounts of pesticide formerly considered safe may negatively affect the health of honey bee colonies,» said Nieh.

The study appears in the [Journal of Experimental Biology](#)

Image: [Flickr.com/Zuzkins/CC BY 2.0](#)