Synergistic effect of ‘agricultural chemical cocktails’ commonly used by farmers pose harm to pollinating insects

For bees, the threats are numerous, including habitat loss, climate change, and intensive agriculture. As fields of flowering plants are converted to roads and row crops, sources of food for wild pollinators dwindle. And when insects forage in farms, they suffer from poor nutrition due to a lack of diverse food sources and become exposed to agricultural chemicals. Honey bees—a managed, non-native species in the US—are transported into many farms to provide pollination, but still face threats from poor nutrition, pests, and pathogens.

A new analysis in the journal Nature shows that some of these threats, when put together, kill more bees than the combination of each threat alone. It turns out, cocktails of agricultural chemicals may have a synergistic effect on bee mortality. In other words, more bees die than would have if the effects of the chemicals simply added to each other.

The authors of the paper analyzed 90 studies that in total documented 356 effects from interacting bee stressors.

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“[The study] shows that you need to be thinking about exposure at a landscape level,” [ecologist Elizabeth Nicholls] says. “And it’s not okay just to test exposure from one crop and one chemical.”

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