



Crew of Hiatt Honey Co., Ephrata, Wash., split honey bee hives March 28, 2012, in preparation for bee pollination in tree fruit orchards that spring. A 2016 WSU study says insecticide RISK to honey bees is low.

Neonicotinoids Pose Low Risk For Honey Bees

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Selected And Adapted Excerpts

Summary

Hazardous exposures of bees to Neonicotinoid Insecticides are NOT LIKELY TO OCCUR in a real-life setting.

A study by researchers at Washington State University (WSU) shows that Neonicotinoid Insecticides POSE LITTLE RISK TO BEES IN REAL-WORLD SETTINGS.

Based on residues found by researchers in APIARIES AROUND WASHINGTON STATE, their results suggest NO RISK OF HARMFUL EFFECTS in rural and urban landscapes, and arguably VERY LOW RISKS FROM EXPOSURE in agricultural landscapes.

After calculating the RISK based on a DIETARY NO OBSERVABLE ADVERSE EFFECT CONCENTRATION — the highest experimental point before there is an ADVERSE EFFECT on a species — of FIVE PARTS PER BILLION, the study results suggest LOW POTENTIAL for Neonicotinoid Insecticides to harm bee behavior or colony health.

Neonicotinoids Pose Low Risk For Honey Bees

A class of insecticides that has been linked to Bee Colony Collapse Disorder of honey bees MAY NOT BE AS MUCH OF A CULPRIT AS THOUGHT.

Neonicotinoid Insecticides, sometimes called Neonics, are neuro-active insecticides chemically similar to nicotine.

One of them, imidacloprid, is the most widely used insecticide in the world.

Compared to organophosphates and carbamates, Neonicotinoid Insecticides CAUSE LESS TOXICITY IN BIRDS AND MAMMALS AND INSECTS.

While Neonicotinoid Insecticides can harm honey bees, a new study by Washington State University (WSU) researchers shows Neonicotinoid Insecticides POSE LITTLE RISK TO BEES IN REAL-WORLD SETTINGS.

A team of entomologists at Washington State University studied apiaries, collections of beehives, in urban, rural and agricultural areas in Washington looking for potential honey bee colony exposure to Neonicotinoid Insecticides from bees foraging for pollen.

After calculating the RISK based on a « *dietary no observable adverse effect concentration* » — the highest experimental point before there is an ADVERSE EFFECT on a species — of FIVE PARTS PER BILLION, study results suggest LOW POTENTIAL for Neonicotinoid Insecticides to harm bee behavior or colony health.

According to co-author Dr Allan S Felsot, Washington State University Tri-Cities Professor of Entomology and Environmental Toxicology —

Calculating RISK, which is the likelihood that bad things will happen to a species based on a specific HAZARD or dose, is very different from calculating HAZARD, which is the potential to cause harm under a specific set of circumstances.

Most of what has dominated the literature recently regarding Neonicotinoids and honey bees has been HAZARD IDENTIFICATION.

But HAZARDOUS EXPOSURES ARE NOT LIKELY TO OCCUR IN A REAL-LIFE SETTING.

Dr Felsot said the study shows that the RISK OF BEE EXPOSURE TO NEONICOTINOIDS IS SMALL because bees aren't exposed to enough of the insecticide to cause much harm in a real-world scenario.

Lead author Timothy Lawrence, Assistant Professor and Director of Washington State University Island County Extension, said many sub-lethal toxicity studies, whether at the organism level or colony level, have not done formal dose-response analyses.

According to Dr Lawrence —

The question we posed focused on the RISK OF EXPOSURE to actively managed honey bee colonies in different landscapes.

With the cooperation of 92 Washington bee-keepers, the team collected samples of beebread, or stored pollen, from 149 apiaries across the state.

Throughout the one-year trial, NEONICOTINOID INSECTICIDE RESIDUE WAS DETECTED IN FEWER THAN FIVE PER CENT of apiaries in rural and urban landscapes.

Two Neonicotinoid Insecticides, clothianidin and thiamethoxam, were found in about 50 per cent of apiaries in agricultural landscapes.

Although Neonicotinoid Insecticide residues were detectable, the amounts were SUBSTANTIALLY SMALLER than levels shown in other studies to not have effects on honey bee colonies.

The Washington State University researchers referenced 13 studies to identify NO OBSERVABLE ADVERSE EFFECT CONCENTRATIONS FOR BEE POPULATIONS, which they used to perform a RISK ASSESSMENT based on detected residues.

According to Dr Felsot —

Based on residues we found in APIARIES AROUND WASHINGTON STATE, our results suggest NO RISK OF HARMFUL EFFECTS in rural and urban landscapes, and arguably VERY LOW RISKS FROM EXPOSURE in agricultural landscapes.

While EXPOSURE LEVELS were found to be SMALL, Dr Lawrence said it is still important to be careful with the use of Neonicotinoid Insecticides and follow product label directions.

For example, insecticides should not be used during plant flowering stages when bees are likely to be foraging.

According to Dr Lawrence —

While we found that bees DID NOT HAVE CHRONIC EXPOSURE TO ADVERSE CONCENTRATIONS OF NEONICOTINOIDS, we are not saying that they are not harmful to bees — they are.

People need to be careful with pesticide use to avoid acute exposure.

Other researchers on the study included Elizabeth Culbert, WSU Food and Environmental Quality Lab (GEOL) Research Technician; Vincent Hebert,

WSU Associate Professor of Entomology and Laboratory Research Director;
and Steven Sheppard, WSU Professor and Department Chair of Entomology.