

## 2014: The year of the bee, or year of yet fewer bees?

*Ongoing efforts to monitor consequences of insecticide application*

BY JEFFREY CARTER

Hundreds of bee-kill incidents linked to neonicotinoid seed treatment insecticides over the past two years have yet to spur the Canadian government to action. Neither has the concerns raised by beekeepers, researchers, environmentalists and farmers.

That could change in the coming months.

"The point I want to make is that this is not trivial. If the number (of kill incidents) goes up in 2014, I can guarantee they, Health Canada's Pest Management Regulatory Agency (PMRA), are going to take some type of action. That's the impression we get," field crop biologist Dr. Art Schaafsma said.

The University of Guelph researcher, together with Ontario agriculture agronomist Tracey Baute, evaluated a new seed lubricant developed by Bayer CropScience, in 2013. The alternative to talc was intended to reduce the amount of neonicotinoid-laced dust emitted during spring planting operations.

Industry had claimed dust-reduction numbers as high as 90 per cent. What Schaafsma and Baute found was that neonicotinoids being emitted were reduced by 21 per cent.

The pair also looked at field puddles. Neonicotinoid levels in the water were, as Schaafsma put it, "problematic" for bees.

That's no surprise to Laval University entomologist Valérie Fournier. She and other Quebec scientists have been researching the impact neonicotinoids have been having on honeybees in Montérégie, Quebec's grain and oilseed belt.

"Pollinators risk poisoning if they are exposed through the wind current transporting fragments of insecticides, or by collecting contaminated nectar and pollen from exposed nearby vegetation or by collecting surface water from fields," she said.

Surface water is especially concerning for beekeepers.

Fournier and her associates found enough contamination at planting time enough to make bees sick. By the end of June, levels had increased to the point of acute toxicity.

"There was a shocking concentration of the insecticides. It was more than a 100 times higher than what we had found in May," Fournier said.

Schaafsma said supplying a source of clean water at hive sites could help and that's a theory Fournier plans to test.

At Guelph, Ontario beekeeper Tibor Szabo is skeptical. He said he and his father have been supplying water to hives for years.

"It doesn't help the wild bee population or butterflies and you can't get all your bees to go to the water source you've set out," he said.



Tracey Baute and Art Schaafsma led a study in Ontario examining the impact of neonicotinoid seed treatments on bees.

Szabo said typical honeybee colonies access water from 15 or 16 locations. Water from field puddles is especially attractive.

The Ontario Beekeepers' Association has been calling for an outright ban of the insecticides.

While the products are effective in controlling soil-borne pests, the extent to which they're used is under increasing scrutiny.

Ontario research puts the overall yield benefit at just two to three per cent. In Quebec, Fournier estimates just five per cent of the corn acreage benefits from their use.

Most seed companies, until last year, have only marketed corn seed treated with both a fungicide and insecticide in Canada. With the connection to bee deaths confirmed, the offer of a fungicide-only seed was extended.

Now there's a push to go further.

According to Alexander Noël, communications specialist with Quebec's agriculture ministry, "Quebec's Union des producteurs agricoles carried a resolution at their last provincial convention in December concerning the neonicotinoid treated seeds issue. One of the sentences of the resolution asked the seed companies to offer neonicotinoid-untreated seeds in priority and the neonicotinoid-treated seeds on needs."

Also advocating for change is the Canadian Environmental Law Association (CELA) and two environmental groups, Ecojustice and Sierra Club Canada. They're objecting to the federal government's July 2013 decision to renew a conditional registration of clothianidin under the Pest Control Products Act.

CELA Counsel Joseph Castrilli said original registration was conditional because the federal government wanted additional studies, including an evaluation of the long-term toxic affect on bees. Those studies have not been carried out to the satisfaction of the PMRA, he said.

"The acute toxicity data they have is really the only toxicity data they have," Castrilli said.

"I think for me the problem is registering a product even though they don't have all the data."

Fournier also questions the approval of neonicotinoid seed treatments in Canada. "Yes, I do think it was (a regulatory) failure but there were unknowns at the time . . . Now we have them everywhere and I think the honeybees are just the tip of the problem."

Fournier suspects the PMRA was not aware of how widely neonicotinoids would be used.