

GREAT SITE AND ARTICLE

<http://www.enn.com/agriculture/commentary/24292>

From: Bay Paul Tukey, Author and HGTV Host

Published November 6, 2007 05:23 PM

What's Killing the Bees?

RELATED ARTICLES

- [Italy Bans Pesticides Linked to Bee Devastation](#)
- [Scientists Examine Cause of Bee Die-Off](#)
- [Mystery Ailment Strikes Honeybees](#)
- [Bee Expert: Insecticides, Climate, Malnutrition, Paracites And Microbes Collapsing Bee Colonies](#)



The author of this commentary is Paul J. Tukey, HGTV Co-Host & Executive Producer, Publisher, named by People, Places & Plants magazine the 2006 COMMUNICATOR OF THE YEAR by the American Horticultural Society, the author of The Organic Lawn Care Manual, National Spokesperson and the co-founder of safelawns.org.

The CBS TV investigative newsmagazine "60 Minutes" is on the case. NPR recently published an expose'. The media everywhere is scrambling for an angle on one of the most chilling and compelling questions of our time: what is killing the bees?

And while it's exciting to see all the attention on this subject — since bees' pollination accounts for about one third of the food we consume daily — it's also enormously frustrating for beekeepers when many of our media brethren stop just short of telling the beekeepers' version of the story. They believe that Colony Collapse Disorder (CCD), which has already wiped out tens of thousands of [hives](#) of bees across North America again this fall, is caused by a pesticide you can purchase today at Wal-Mart and Home Depot.

The cause is imidacloprid, plain and simple," said David Hackenberg, the beekeeper who was the subject of a 60 Minutes story that aired Oct. 28. Hackenberg, who has tended bees his entire adult life, said he told 60 Minutes about this imidacloprid theory in these same direct terms. After editing Hackenberg's comments, however, the venerable CBS program quoted some scientists who said they weren't sure, thereby leaving doubt in everyone's mind.

Here's the background you need to understand: The primary product used to control grubs on your lawn, or insects on your fruit trees, or termites in your basement, contains a [chemical](#) compound known as imidacloprid, a synthetic [nicotine](#), which is most commonly marketed as Merit. No one debates that imidacloprid is toxic to bees, yet Bayer, the exclusive patent holder from 1988 until this year, denies its product causes CCD. Many countries including France and Brazil are employing the "precautionary principle" and pulling products containing imidacloprid from the shelves. But in the U.S., homeowners and farms are using more and more of it — especially since many competing products (which relied on the compound diazinon to kill grubs and other insects) have already been banned due to their proven toxicity.

Colony Collapse Disorder is a term coined in 2006 as catch phrase for a disturbing, unexplained phenomenon that caused nearly a quarter of U.S. honeybee colonies to disappear within a few months. Though many thought the problem was limited to western North America, beekeepers across the United States, Canada and Europe also reported the problem that is posing a threat to the world's food supply.

In addition to the production of honey, honeybees pollinate approximately one-third of the food consumed by Americans, according to a Cornell University study. Among the most common crops that require pollination by bees are nuts, soybeans, squash and cucumbers. Numerous fruits also need bees, including apples, citrus, avocados, peaches, kiwi, cherries, blueberries, cranberries, strawberries, blueberries, cantaloupe and other melons. In all, the bee pollination industry is worth \$14-\$20 billion.

The cause of CCD has been greatly disputed. Everything from radio waves to cell phone towers were blamed initially, with the most recent high-profile theory involving Israeli acute paralysis virus that was detailed in a scientific paper released Sept. 4. Many beekeepers and other scientists, however, state that the Israeli virus is only a [symptom](#) and that imidacloprid is the true culprit. Products that contain imidacloprid other than Merit include Admire, Confidor, Connect, Evidence, Leverage, Muralla, Provado, Trimax, Premise and Winne.

Though imidacloprid has been patented since 1988, its use on American crops escalated significantly in the past three years, just as products containing diazinon came off store shelves. In the case of bees, the imidacloprid apparently does not directly kill the hives, but disorients the bees and causes them to disband — at least according to beekeepers who are closely observing bees' behavior. That's why, when Colony Collapse Disorder is the problem, no dead bees can be found near the hive. That, said Hackenberg and others, is the biggest indicator that imidacloprid is involved.

"Before last November I knew very little about (imidacloprid)," said Hackenberg, owner of Hackenberg Apiaries in Lewisburg, Pa., and past president of the American Beekeeping Association. "In the past few months I have come to know more than I want to know about this newer type of pesticide. From what I have learned so far, I am convinced that imidacloprid plays a role in CCD."

Eric Lane agrees. The California beekeeper said he can trace the origin of Colony Collapse Disorder to 2003, the year imidacloprid was approved for use in his state. He estimates he lost 80 percent of his bees last winter and said he was not surprised, based on his prior research.

"When an adult bee goes out to forage for pollen (on plants affected by imidacloprid), by the fourth day the bee loses the ability to smell," he said. "Young bees do their normal duties around the hive for five days. Then they go and fill up with nectar and realize they don't know where home is. Old bees hang around the hive but eventually wander off and die. Young bees fly off and never come home."

Stan Sandler has seen the same phenomenon on Prince Edward Island in Canada for years. He first began writing about bee decline nearly a decade ago and has long linked the problem to imidacloprid.

"After the initial application, the pesticide remains in the soil and is taken up by plants the following year," he explained. "The imidacloprid then shows up in the pollen of plants like clover in subsequent years. When the bees forage the clover, it's only a matter of time before they'll weaken, get disoriented, then fly off and die."

Though Bayer steadfastly denies its product is killing bees, it does produce the directions for its termite control that also contains imidacloprid. With termites, explains Bayer, the product doesn't kill the insects directly, but instead disorients them so they forget to eat and eventually die. Bees and termites, entomologists will tell you, have similar navigational systems.

The evidence grows

Hackenberg, Lane and many other beekeepers have asked their customers to eliminate the use of imidacloprid on their crops and they'd like to see government officials at the EPA take imidacloprid away from homeowners, too. They're getting some solid scientific backing, with research at Penn State and elsewhere suggesting potential links to bee decline and the widespread use of the pesticide.

"If bees are eating fresh or stored pollen contaminated with these chemicals at low levels, they may not cause mortality but may impact the bees' ability to learn or make memories," stated a Penn State report published in December 2006. "If this is the case, young bees leaving the hive to make orientation flights may not be able to learn the location of the hive and may not be returning, causing the colonies to dwindle and eventually die."

Dr. Jerry J. Bromenshenk, a research scientist at the University of Montana is a member of the nationwide CCD working group of scientists that convened to study the phenomenon last year. Though he said he is still skeptical that imidacloprid is the entire cause of the bee decline, he has testified on behalf of beekeepers who have lost hives due to imidacloprid exposure.

"The problem is that imidacloprid and similar chemicals were supposed to have been used in controlled, specific situations," he said. "Now we have people drenching it into the soil and applying in by air as a foliar application. In those situations, absolutely, you're laying yourself open for a bee poisoning event."

In Florida, where CCD was first observed in 2006, Dr. Jerry Hayes also sits on the CCD working group. As the state's head bee inspector and expert, he is calling on the government to get more involved with emergency research and funding.

"I'm coming from a government bureaucratic environment here, but the proper course of action would be to get the scientific data that proves this, submit the scientific data to the EPA and then they would have no choice but to pull the products," he said. "It appears to me that, in all likelihood, people who approved this product were not looking closely enough."

The U.S. government is certainly aware of the problem. In June, Senators Barbara Boxer and Hilary Clinton co-sponsored legislation to protect bees. In a report published that same month by the Congressional Research Service, imidacloprid was named as a likely cause of the bees' demise. "The scientists studying CCD note that the doses taken up by bees are not lethal, but they are concerned about possible chronic problems caused by long-term exposure," according to the CRS report. "As noted by the National Research Council, some studies report sublethal effects of [pesticides](#) that may impair the navigational and foraging abilities of honeybees."

Lawmakers in France and several other European countries have long restricted certain applications of imidacloprid based on evidence that the product harms bees. In Canada, the Sierra Club has taken a particularly strong stand against imidacloprid's impact on species other than bees. "It has been shown to cause acute [health](#) effects, including spasms and thyroid lesions," the Sierra Club stated. "No chronic toxicity tests have been made available to the public, but we do know that it has effects on mammalian reproduction. The reproductive health of birds is also affected, with reduced egg production and egg thinning. It affects a multitude of beneficial insects, as well as earthworms."

According to registration papers filed with the U.S. Environmental Protection Agency, imidacloprid is moderately toxic to humans, and manufacturers are required to place a "Caution" or "Warning" designation on product labels. The EPA further classifies imidacloprid as highly toxic to bees and upland game birds. Avoidance is the best option

Given all of this information, many American farmers aren't willing to take any chances and are forsaking all products containing imidacloprid, which puts them in step with European farmers and with the common sense based Precautionary Principle.

"Pollination is so important to us, we agreed not to use these new materials," said Darren Hammond, farm manager for Jasper Wyman & Sons of Maine, the nation's largest producer of wild blueberries. "Our primary competitor and all of our outside growers have also agreed not to use these products. We're not saying there's definitely a link between bees and imidacloprid; that's for the researchers to decide. We're just not willing to take the risk."

Homeowners shouldn't either. When you're maintaining a landscape for aesthetic values, no net gain can be worth endangering bees' lives. I'm involved with a foundation known as SafeLawns.org that is dedicated to educating the public about environmentally friendly alternatives to the chemicals which, time and time again, have proven to be questionable for either our health, our pets' health or the environment in general.

Chemicals, nearly all chemicals, pose risks if used improperly; some are problems no matter what.

"For generations, every time a new classification of chemicals is introduced to the public, it comes with unexpected consequences," said Dr. Bromenshenk. "In the case of imidacloprid, the recent widespread use is a major concern and I don't think the warning labels go far enough to protect the American public." For the beekeeping brethren, no further warning is necessary. It appears, according to Dr. Hayes, that "the bees are trying to tell us something" and the question is, are we willing to listen?

"The last three years, people have just been pouring this chemical on crops and grass," said Hackenburg, among the first American beekeepers to discover CCD in 2006. "Imidacloprid is approved for everything. All I'm saying is, you go buy this stuff at Wal-Mart to use on aphids or grubs or whatnot, and the little insert from the chemical company says straight out that it, one, makes bugs quit eating, and two, induces memory loss and confusion.

Then, three, it gives them a [nervous system](#) disorder. And that's exactly what's happening to bees. I know many of the scientists refuse to go out on a limb and state emphatically that there's a link here, but what about common sense? But then I'm just a dumb beekeeper who's been beekeeping for 45 years. What do I know?"