

What a scientist didn't tell the New York Times about his study on bee deaths



Jerry Bromenshenk, bee investigator

COURTESY: JERRY BROMENSHENK

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By Katherine Eban, contributor October 8, 2010: 1:42 PM ET

FORTUNE -- Few ecological disasters have been as confounding as the massive and devastating die-off of the world's honeybees. The phenomenon of Colony Collapse Disorder (CCD) -- in which disoriented honeybees die far from their hives -- has kept scientists, beekeepers, and regulators desperately seeking the cause. After all, the honeybee, nature's ultimate utility player, pollinates a third of all the food we eat and contributes an estimated \$15 billion in annual agriculture revenue to the U.S. economy.

The long list of possible suspects has included pests, viruses, fungi, and also pesticides, particularly so-called neonicotinoids, a class of neurotoxins that kills insects by attacking their nervous systems. For years, their leading manufacturer, Bayer Crop Science, a subsidiary of the German pharmaceutical giant Bayer AG (**BAYRY**), has tangled with regulators and fended off lawsuits from angry beekeepers who allege that the pesticides have disoriented and ultimately killed their bees. The company has countered that, when used correctly, the pesticides pose little risk.

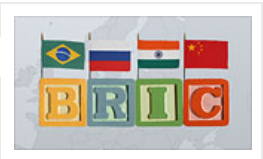
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A cheer must have gone up at Bayer on Thursday when a **front-page New York Times article**, under the headline "Scientists and Soldiers Solve a Bee Mystery," described how a newly released study pinpoints a different cause for the die-off: "a fungus tag-teaming with a virus." The study, written in collaboration with Army scientists at the Edgewood Chemical Biological Center outside Baltimore, analyzed the proteins of afflicted bees using a

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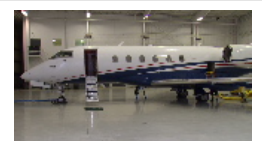
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new Army software system. The Bayer pesticides, however, go unmentioned.

What the *Times* article did not explore -- nor did the study disclose -- was the relationship between the study's lead author, Montana bee researcher Dr. Jerry Bromenshenk, and Bayer Crop Science. In recent years Bromenshenk has received a significant research grant from

Bayer to study bee pollination. Indeed, before receiving the Bayer funding, Bromenshenk was lined up on the opposite side: He had signed on to serve as an expert witness for beekeepers who brought a class-action lawsuit against Bayer in 2003. He then dropped out and received the grant.

Reporter: scientist "did not volunteer" funding sources

Bromenshenk's company, Bee Alert Technology, which is developing hand-held acoustic scanners that use sound to detect various bee ailments, will profit more from a finding that disease, and not pesticides, is harming bees. Two years ago Bromenshenk acknowledged as much to me when I was reporting on the possible neonicotinoid/CCD connection for *Conde Nast Portfolio* magazine, which folded before I completed my reporting.

Bromenshenk defends the study and emphasized that it did not examine the impact of pesticides. "It wasn't on the table because others are funded to do that," he says, noting that no Bayer funds were used on the new study. Bromenshenk vociferously denies that receiving funding from Bayer (to study bee pollination of onions) had anything to do with his decision to withdraw from the plaintiff's side in the litigation against Bayer. "We got no money from Bayer," he says. "We did no work for Bayer; Bayer was sending us warning letters by lawyers."

A Bayer publicist reached last night said she was not authorized to comment on the topic but was trying to reach an official company spokesperson.

The *Times* reporter who authored the recent article, Kirk Johnson, responded in an e-mail that Dr. Bromenshenk "did not volunteer his funding sources." Johnson's e-mail notes that he found the peer-reviewed scientific paper cautious and that he "tried to convey that caution in my story." Adds Johnson: The study "doesn't say pesticides aren't a cause of the underlying vulnerability that the virus-fungus combo then exploits...."

At least one scientist questions the new study. Dr. James Frazier, professor of entomology at Penn State University, who is currently researching the sublethal impact of pesticides on bees, said that while Bromenshenk's study generated some useful data, Bromenshenk has a conflict of interest as CEO of a company developing scanners to diagnose bee diseases. "He could benefit financially from that if this thing gets popularized," Frazier says, "so it's a difficult situation to deal with." He adds that his own research has shown that pesticides affect bees "absolutely, in multiple ways."

Underlying cause of bee deaths still unclear

Dr. Jennifer Sass, a senior scientist with the health group at the Natural Resources Defense Council, says that while the Bromenshenk/Army study is interesting, it fails to ask the underlying question "Why are colonies dying? Is it because they're getting weak? People who have HIV don't die of HIV. They die of other diseases they get because their immune systems are knocked off, making them more susceptible." In other words, pesticides could weaken the bees -- and then the virus/fungus combination finishes

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them off. That notion, however, is not explored in the new study.

In 2008 the NRDC sued the Environmental Protection Agency after it failed to release Bayer's underlying studies on the safety of its neonicotinoids. The federal agency has since changed course, and NRDC researchers are being allowed to sift through the Bayer studies, an NRDC spokesman says.

The EPA has based its approval of neonicotinoids on the fact that the amounts found in pollen and nectar were low enough to not be lethal to the bees -- the only metric they have to measure whether to approve a pesticide or not. But studies have shown that at low doses, the neonicotinoids have sublethal effects that impair bees' learning and memory. The USDA's chief researcher, Jeff Pettis, told me in 2008 that pesticides were definitely "on the list" as a primary stressor that could make bees more vulnerable to other factors, like pests and bacteria.

In 1999, France banned Imidacloprid after the death of a third of its honeybees. A subsequent report prepared for the French agricultural ministry found that even tiny sublethal amounts could disorient bees, diminish their foraging activities, and thus endanger the entire colony. Other countries, including Italy, have banned certain neonicotinoids.

Bayer v. beekeepers

As for the Bayer-Bromenshenk connection, in 2003 a group of 13 North Dakota beekeepers brought a class-action lawsuit against Bayer, alleging that the company's neonicotinoid, Imidacloprid, which had been used in nearby fields, was responsible for the loss of more than 60% of their hives. "My bees were getting drunk," Chris Charles, a beekeeper in Carrington, N.D., and a plaintiff in the lawsuit, told me in 2008. "They couldn't walk a white line anymore -- they just hung around outside the hive. They couldn't work."

Charles and the other North Dakota beekeepers hired Bromenshenk as an expert witness. Bayer did not dispute that Imidacloprid was found among the bees and their hives. The company simply argued that the amount had not been enough to kill them.

As the North Dakota lawsuit moved forward, an expert witness for the beekeepers, Dr. Daniel Mayer, a now retired bee expert from Washington State University, traveled to 17 different bee yards in North Dakota and observed dead bees and bees in the throes of what looked like Imidacloprid poisoning, he told me in 2008. He theorized that after foraging in planted fields where the seeds had been treated with Imidacloprid, the bees then brought the pesticide back to the hive, where it built up in the wax combs.

The beekeepers tried to enlist more expert witnesses, but others declined, according to two of the beekeeper plaintiffs, in large part because they had taken research money from Bayer and did not want to testify against the company. One who agreed -- Bromenshenk -- subsequently backed out and got a research grant from Bayer. Bromenshenk insists the two actions were unrelated. "It was a personal decision," he says. "I, in good conscience, couldn't charge beekeepers for services when I couldn't help them." He adds, "Eventually, the lawyers stopped calling. I didn't quit. They just stopped calling."

In June 2008 a district court judge in Pennsylvania defanged the beekeepers' lawsuit by siding with Bayer to exclude Mayer's testimony and the initial test results from a laboratory in Jacksonville, Fla., that had found significant amounts of Imidacloprid in the honeybee samples.

That same year Bromenshenk brokered a meeting between Bayer and beekeepers. When I interviewed Bromenshenk that year, he said that increasing frustration with the accusations against Bayer, which he described as a "runaway train," led him to contact the company in an effort

to create a dialogue between Bayer and the beekeepers. Because of his efforts, in November 2008, Bayer scientists sat down in Lake Tahoe, Nev., with a small group of American beekeepers to establish a dialogue. The issues discussed were "trust and transparency," Bromenshenk told me. "How did Bayer do its testing, and do we trust the results?" Generally beekeepers and scientists have been highly critical of the design of Bayer's studies and deeply suspicious over who is or isn't on Bayer's payroll.

After the meeting, Bayer tentatively agreed to appoint a beekeeper advisory board to help redesign studies so that beekeepers could trust the results. But many beekeepers see the advisory board and grant money as a ruse on Bayer's part to silence its enemies by holding them close. "They have the bee industry so un-united," says Jim Doan, once New York State's busiest beekeeper until CCD decimated his business. "Even the researchers are off working on anything but the pesticide issue."

Bromenshenk's study acknowledges that the research does not "clearly define" whether the concurrent virus and fungus, which were found in all the afflicted bee samples, is "a marker, a cause, or a consequence of CCD." It also notes uncertainty as to how, exactly, the combination kills the bees, and whether other factors like weather and bee digestion play a role. Scientists like Sass at NRDC believe the mystery is far from resolved: "We're even concerned that based on this, beekeepers will use more pesticides trying to treat these viruses," says Sass. ■

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First Published: October 8, 2010: 12:48 PM ET

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