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## Latest buzz on bee colony collapse disorder: a virus, NOT a pesticide, is the problem

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Bees, honeybees in particular, are crucial for our agricultural production. Pollination is basically a function of honeybees, and many fruits, vegetables and legumes are dependent upon these insects doing their job.

In the last decade, a massive decline in bee populations was detected: “Bee Colony Collapse Disorder” (BCCD) was the name given to this mysterious phenomenon, whose cause was unknown but was intensively sought. While the problem seemed to have abated somewhat after 2010, periodic declines continued, and fears of recurrent major extinctions persisted.

Some scientists and especially anti-pesticide organizations became devotees of the “pesticide theory” of BCCD and neonicotinoid pesticides were the prime suspect. These newer chemicals, “neonics” to those familiar with them, have been of increasing utility among farmers worldwide — until their use was severely restricted in the EU on the basis of suspected harm to bees. Our own regulatory and environmental agencies have been more circumspect, awaiting much better evidence of neonics’ involvement in BCCD.

Now, a [new report](#) issued by scientists affiliated with the Departments of Agriculture here and in China, and [reviewed](#) in *The Scientist* provides the first evidence that the bee problem in fact, stems from the tobacco ringspot virus (TRSV), not from pesticides. Investigators have determined that TRSV can be found in nearly all organs and tissues of infected bees, and also in mites that feed on the bees. They suggest that the bees may pick up the virus from the pollen of plants that they feed upon, and that the virus may be spread to other bees by mites that feed on them. Once it has gained a foothold in a bee, the researchers determined that TRSV can replicate itself in the bee’s body.

This process of a virus moving from one species to another is called “host shifting” and its occurrence is a warning signal for farmers and others involved in agriculture. The authors state “Pathogen host shifts represent a major source of new infectious diseases. The findings from this study showcase the need for increased surveillance for potential host-jumping events as an integrated part of insect pollinator management programs.”

ACSH’s Dr. Josh Bloom, a former researcher in the infectious disease area says, “Whenever I hear about mass die offs— whether in bees, dolphins, cattle or trees— I automatically think ‘infectious disease’. It isn’t universally true, but very often turns out to be so.”

He adds, “It is somewhat ironic that the proposed pathogen in this case comes from tobacco, since the first virus ever isolated and characterized (in the late 1800s) was tobacco mosaic virus—which infects and kills not only tobacco, but other member of its family, including tomatoes and cucumbers. It is easy to conclude that some environmental factor caused by humans is to blame, but this is a bad assumption to make.”

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