

**SUBSCRIBE:**

Subscribe & receive new posts by email

Enter your email :

SUBSCRIBE

**ESA NEWS**

[Tom Baker to Deliver 2015 Founders' Memorial Lecture](#)

[New Tick Species Found at USNTC](#)

[ESA's Eastern Branch Meeting in Rehoboth, DE](#)

[Phyllis Weintraub Welcomed as JIS Editor-in-Chief](#)

[Oriental Rat Fleas Found on NYC Rats](#)

**OTHER INSECT BLOGS**

[Beetles in the Bush](#)

[Biodiversity in Focus](#)

[Bug Eric](#)

[Bugs of Popo Agie](#)

[Bugwitch Blog](#)

[Charismatic Minifauna](#)

[Entomological Society of Canada](#)

[Insects in the City](#)

## Study Finds Imidacloprid Safe for Honey Bees at Realistic Exposure Levels

March 19, 2015 by [Entomology Today](#) 6 Comments



Honey bees were fed with imidacloprid-dosed pollen patties, like the one seen here. Photo by Galen Dively.

Honey bee colony declines are a major threat worldwide. Among the lineup of possible causes — including parasites, disease, climate stress, and malnutrition — many have pointed the finger squarely at insecticides as a prime suspect, especially at a class of pesticides known as neonicotinoids.

However, a new study from the University of Maryland shows that the world's most common insecticide — imidacloprid — does not significantly harm honey bee colonies at real-world dosage levels.

“Everyone is pointing the finger at these insecticides,” said Galen Dively, emeritus professor of entomology at UMD and lead author of the study. “If you pull up a search on the Internet, that’s practically all anyone is talking about. This paper says no, it’s not the sole cause. It contributes, but there is a bigger picture.”

The study, which was published in the journal *PLOS ONE*, looked at the effects of imidacloprid on honey bee colonies over a three-year period. Insecticides in the neonicotinoid class are chemically derived from nicotine. In tobacco and other related plants, nicotine acts as a deterrent by poisoning insects that bite the plants. In fact, nicotine used to be commonly used as an insecticide, but it has fallen out of favor because it is highly toxic to humans and breaks down rapidly in sunlight. Neonicotinoids have been engineered specifically to address these shortcomings.

“Imidacloprid is the most widely used insecticide in the world. It’s not restricted because it is very safe — an order of magnitude safer than organophosphates,” Dively said, drawing a comparison with a class of chemicals known to be highly toxic to nearly all living things.

**TWEETS FROM ESA**

[My Tweets](#)

**Entomology- Entomological Society of America**

Like

9,082 people like Entomology- Entomological Society of America.

**Synergy in Science: Partnering for Solutions**

ASA • CSSA • SSSA • ESA

**2015 MEETING**

Nov. 15-18 | Minneapolis, MN

ENTOMOLOGY WITHOUT BORDERS

**ICE 2016**

XXV International Congress of Entomology

Orlando, Florida, USA

September 25–30

ENTOMOLOGICAL SOCIETY OF AMERICA

Sharing Insect Science Globally

Follow

[Louisiana Rice Insects](#)

[Lyman Entomological Museum](#)

[Myrmecos Blog](#)

[NC State Insect Museum](#)

[Normal Biology](#)

[Northern Biodiversity Program](#)

[The Bug Chicks](#)

For the study, Dively and his colleagues fed pollen dosed with imidacloprid to honey bee colonies. The team purposely constructed a worst-case scenario, even at lower exposure levels. For example, they fed the colonies tainted food for up to 12 continuous weeks. This is a much longer exposure than bee colonies would experience in real-world scenarios, because most crops do not bloom for such an extended period of time.

Even at these longer exposure periods, realistic dosage levels of imidacloprid did not cause significant effects in the honey bee colonies. Only at higher levels did the colonies start to have trouble producing healthy offspring and surviving through the winter.

“A lot of attention has been paid to neonicotinoids, but there isn’t a lot of field data,” said Dennis vanEngelsdorp, an assistant professor of entomology at UMD who was not involved in the study. “This study is among the first to address that gap. It’s not surprising that higher levels will hurt insects. They’re insecticides after all. But this study is saying that neonicotinoids probably aren’t the sole culprit at lower, real-world doses.”

Dively and vanEngelsdorp both agree that a synergistic combination of many factors is most likely to blame for colony declines. Climate stress could be taking a toll, and malnutrition could be a factor as well. The latter is a particular concern for industrial bee colonies that are rented to large-scale agricultural operations. These bees spend much of their time eating pollen from one or two crops, which throws their diet out of balance.

“Except for the imidacloprid exposure, our test colonies were treated well,” said coauthor David Hawthorne, associate professor of entomology at UMD and director of education at the National Socio-Environmental Synthesis Center. “They weren’t exposed to additional real-world stressors such as malnourishment or multiple pesticides. Colonies coping with these additional pressures may be more sensitive to imidacloprid.”

Dively, Hawthorne, and their colleagues found some evidence for at least one synergistic combination. At the highest dosage levels — 20 times the realistic dosage — colonies became more susceptible to Varroa mites, parasites that target honey bee colonies. A mite infestation can cause a whole variety of problems, including viral infections and an increased need for other pesticides to control the mites.

“It’s a multifactorial issue, with lots of stress factors,” Dively said. “Honey bees have a lot of pests and diseases to deal with. Insecticide exposure is one factor among many. It’s not the lone villain.”

**Read more at:**

– [Assessment of Chronic Sublethal Effects of Imidacloprid on Honey Bee Colony Health](#)

**Share this:**

[Twitter](#)
[Facebook](#)
[StumbleUpon](#)
[Google+](#)
[Email](#)
[LinkedIn](#)
[Print](#)
[Reddit](#)
[Tumblr](#)
[Pinterest](#)
[Pocket](#)

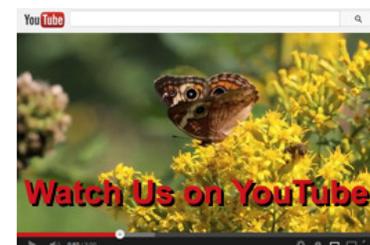
Loading...

GET CERTIFIED ...



**ESA ENTOMOLOGY NETWORKS**

<p>WOMEN-IN-ENTOMOLOGY NETWORK</p> <p>253 members</p> <p>22 21</p>	<p>INTERNATIONAL ENTOMOLOGY</p> <p>128 members</p> <p>5</p>	<p>ENTOMOLOGY EDUCATION AND...</p> <p>122 members</p> <p>11</p>
<p>INVASIVE ARTHROPOD NETWORK</p>	<p>Students ENTOMOLOGY STUDENTS NETWORK</p>	<p>INSECT CONSERVATION</p>



Follow

Filed Under: [Entomology News](#) Tagged With: [apis mellifera](#), [Dennis vanEngelsdorp](#), [Galen Dively](#), [honey bees](#), [imidacloprid](#), [Neonicotinoids](#)

« [Planthopper Wing Shape Controlled by Two Insulin Receptors](#)

[Three New Millipede Species Discovered in Australia](#) »

## Comments



**crush davis says:**

March 19, 2015 at 12:02 pm

Now the work of undoing years of erroneous, false information from the beekeepers and anti-pesticide cabals can begin in earnest. As part of that work we should be telling people that two of the biggest toxicological stresses on colonies were found to be acaricides applied by beekeepers.

[Reply](#)



**colluvial says:**

March 19, 2015 at 9:29 pm

“Imidacloprid Safe for Honey Bees at Realistic Exposure Levels”

“neonicotinoids probably aren’t the sole culprit”

The statements above are not nearly the same. Misleading title?

[Reply](#)



**Entomology Today says:**

March 20, 2015 at 9:45 am

Colluvial, according to a UMD press release, “To see significant negative effects, including a sharp decrease in winter survival rates, the researchers had to expose the colonies to at least four times as much insecticide encountered under normal circumstances.”

At realistic exposure levels, they saw nothing. At FOUR TIMES those levels, they saw negative results. Hence the title.

[Reply](#)



**nadiats says:**

March 20, 2015 at 11:27 am

Here is another study, similar methodology different results  
Different types of neonic tested

<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0103592>

[Reply](#)



**Anna Wadhurst says:**

March 20, 2015 at 1:47 pm

“It’s not restricted because it is very safe” REALLY?? You know that this is BANNED across the WHOLE of the EUROPEAN UNION COUNTRIES ...right? So you are prepared to believe a single new ‘independent’ study... The US. has clearly eaten so much GM chemically produced frankenfood that you have all gone completely mad. Good luck with your future dead bees if you keep ignoring the

[Follow](#)

facts and continue allowing the Petrochemical giants to rule your country.

[Reply](#)



**Entomology Today says:**  
March 20, 2015 at 2:33 pm

Anna, “very safe” for humans compared to other classes of insecticide: YES, absolutely. Same goes for the GMOs you mentioned. They have been deemed safe by many scientific organizations, including the UK’s Royal Society of Medicine: <http://www.axismundionline.com/blog/wp-content/uploads/2013/06/GMAuthorities.jpg>

Our “Frankenfoods” (Bt crops) have allowed us to eliminate millions of kilos of pesticide active ingredients, according to the U.S. Department of Agriculture and other organizations (Bt, by the way has been used for more than 50 years by organic farmers). Others (herbicide resistant crops) allow the employment of “no-till” farming (try Googling it), which prevents erosion and saves top soil. We do thank you for your concerns about our health, though.

[Reply](#)

## Leave a Reply



Email (required) (Address never made public)

Name (required)

Website

Notify me of new comments via email.

Notify me of new posts via email.

[Post Comment](#)

### ENTOMOLOGICAL SOCIETY OF AMERICA

3 Park Place, Suite 307  
Annapolis, MD 21401-3722  
301-731-4535  
9:00 AM - 5:00 PM, EST

### ARCHIVES

[March 2015](#)

[February 2015](#)

[January 2015](#)

[December 2014](#)

[November 2014](#)

[October 2014](#)

[September 2014](#)

### ENTOMOLOGY TERMS

[Aedes aegypti](#) [Aedes albopictus](#)  
[Annals of the Entomological Society of America](#) [Anopheles gambiae](#) [ants](#) [apis](#)  
[mellifera](#) [asian](#) [citrus psyllid](#) [asian tiger mosquito](#) [Australia](#) [bacillus thuringiensis](#) [bacteria](#) [bed bugs](#) [bees](#)  
[Beetle](#) [beetles](#) [biocontrol](#)  
[biological control](#) [bmsb](#) [Brazil](#)  
[brown marmorated stink bug](#) [Bug](#)  
[Girl](#) [ccd](#) [Chikungunya](#) [china](#) [citrus greening](#)



[August 2014](#)

[July 2014](#)

[June 2014](#)

[May 2014](#)

[April 2014](#)

[March 2014](#)

[February 2014](#)

[January 2014](#)

[December 2013](#)

[November 2013](#)

[October 2013](#)

[September 2013](#)

[August 2013](#)

[July 2013](#)

[June 2013](#)

[May 2013](#)

[April 2013](#)

[February 2013](#)

disease [Cockroach](#) [Coleoptera](#)  
[colony collapse disorder](#) [Customs and Border Protection](#) [dengue](#) [Derek Woller](#)  
[Dominic Evangelista](#) [eab](#) [emerald ash borer](#) [Entomological Society of America](#) [Entomological Society of Canada](#)  
[entomology 2013](#)  
[Entomology 2014](#) [entomophagy](#) [esa](#)  
[Famous Female Entomologists](#) [fossil](#) [gmo](#) [gwen pearson](#) [Halyomorpha halys](#) [Honey bee](#)  
[honeybees](#) [honey bees](#)  
[Huanglongbing](#) [ice 2016](#) [integrated pest management](#) [international congress of entomology](#) [Invasive species](#) [ipm](#) [Ixodes scapularis](#) [Journal of Economic Entomology](#) [Journal of Integrated Pest Management](#) [lyme disease](#)  
[Malaria](#) [Mexico](#) [Mosquito](#)  
[mosquitoes](#) [orlando](#) [Oxitec](#) [parasitoid](#)  
[Parasitoid wasp](#) [spiders](#) [Staphylinidae](#) [stink bugs](#) [ticks](#) [university of florida](#) [wasp](#) [wasps](#)  
[West Nile virus](#) [Yellow fever](#)

[RETURN TO TOP OF PAGE](#)

[BLOG AT WORDPRESS.COM.](#) · [THE MODERN NEWS THEME.](#)

[Follow](#)