



# BEEKEEPING NEWS

April, May, June 2014

a local chapter of NORTH CAROLINA STATE BEEKEEPERS ASSOCIATION, INC.

## •Meetings & Programs

**April 13th-SUNDAY-2:00 p.m.--FIELD DAY**--New date, new time, new place. McLeansville Wildlife Club. You bring side dishes/desserts to share, the club provides hamburgers, hotdogs and the fixings to go with them. Bring the family and bring friends who might be interested in beekeeping. We will have practical demonstrations of various aspects of beekeeping and a tour through an active hive. This year we are also having a bean bag toss competition and a smoker lighting competition, so bring your smoker and fuel. For location and other information about the McLeansville Wildlife Club, follow this link: <http://mcleansvillewildlifeclub.com/location>

**May 13th-Tuesday-6:30 p.m.** (covered dish meal)

Jonathan Davis, one of our new members, will give a presentation about tech tools that can help with managing bees. The presentation will include an overview of the Hivetracks.com program, use of technology to track weather events and pollen forecasts, to trigger notifications about a variety of events, and about the future of IoT (Internet of Things) and agriculture, and what it means for bees.

**June 10th-Tuesday-7:00 p.m.** (No meal)

Debbie Roos, Agricultural Extension Agent for Chatham County, will give a presentation on plants that are attractive to bees and that grow in our area during June through September, our usual period of dearth.

## EPA's system of tracking pesticides harmful to honeybees, critics say

By Kendall Helblig, Published: December 22

The honeybees that pollinate one-third of Americans' daily diet are dying, and in the eyes of some environmentalists, one culprit may be a decades-old Environmental Protection Agency system.

The system, called “conditional registration,” is essentially a way to get pesticides on the market quickly. But to environmentalists and some experts, it has become too loose, letting potentially dangerous pesticides on the market, and letting some stay there too long.

Insecticides conditionally registered in the early 2000s have been blamed for impairing honeybees' immune systems; in the past five years, the honeybee population has declined 20 to 30 percent each year, according to the U.S. Department of Agriculture.

“To continue to risk the collapse of our honeybee population and other insects that support our ecosystems is a tragedy,” said Jonathan Evans of the Center for Biological Diversity, a national environmental advocacy group.....

“I think it's really concerning that they have acknowledged that they have all these problems and missing data, but they are still trying to go full steam ahead,” said Mae Wu, an attorney at the Natural Resources Defense Council, another advocacy group. For its part, the EPA said its 2012 review showed that record-keeping troubles have not affected the safety of products it has approved.

The EPA also said it was taking steps to improve the tracking of pesticides, seeking to “promote consistency and enhance transparency” of its system. The conditional registration system began in 1978 with an amendment to the law that governs insecticide use. It allows some pesticides to be sold before all necessary studies are completed, as long as the company follows up with required data by a designated date, the pesticide will not cause “any unreasonable risk to the environment” and “the use of the pesticide is in the public interest,” according to the EPA's Web site.

About 16,000 pesticides are registered with the EPA, and each manager in the agency's Office of Pesticide Programs is responsible for keeping track of about 800. (Washington Post)



# Disinfecting Honey Comb with Ozone

By Jan Suszkiw ARS News Service Read the [magazine story](#) to find out more. ARS research has found ozone gas can disinfect honeycomb of chalkbrood and foulbrood—diseases that may persist for years on beekeeping equipment—as well as degrade pesticide levels. *Photo by Stephen Ausmus.*

*Sometimes even honey bees need help with “housekeeping,” especially when it comes to cleaning their honeycombs once the honey’s been removed.*

***U.S. Department of Agriculture (USDA) research has shown that fumigating honeycombs with ozone gas can eliminate pests and pathogens that threaten honey bee health and productivity. Now, ozone fumigation may also help reduce pesticide levels in honeycombs.***

The findings come from a two-part study led by entomologist [Rosalind James](#) with the [Pollinating Insects-Biology, Management, and Systematics Research Unit](#) operated in Logan, Utah, by USDA’s [Agricultural Research Service](#) (ARS). Results from the first part of her team’s study, published in 2011 in the [Journal of Economic Entomology](#), demonstrated that fumigating honeycombs with ozone gas at concentrations of 215 to 430 parts per million (ppm) killed all life stages of the greater wax moth, depending on length of exposure.

Ozone, a highly reactive state of oxygen, also destroyed spores of the chalkbrood fungus after 24 to 36 hours of exposure using 1,500 ppm. Another honeybee pathogen, the American foulbrood bacterium, required substantially longer exposure times and an ozone concentration twice as high.



Both pathogens can persist for years on beekeeping equipment and in hives as dormant spores. They germinate when conditions are optimal, and attack the colony’s larvae. Methyl oxide and gamma irradiation are among treatments that have proven effective for disinfecting honeycombs, but these treatments can be costly and impractical, according to James. An ozone fumigation chamber is something beekeepers can set up on their own.

In January 2013, James’ team [published results](#) from the second part of the study in the journal [Agricultural Science](#). That paper details ozone’s breakdown of coumaphos, fluvalinate, and several other pesticides that can accumulate in hives. Higher ozone concentrations and longer exposure times were required to reduce pesticide concentrations in wax and honeycomb samples. The treatments also degraded the pesticides better in new honeycombs (less than three years old) than in older ones (more than 10 years old).

[Read more](#) about these findings in the March 2014 issue of Agricultural Research magazine. ARS is USDA’s chief intramural scientific research agency.

To subscribe to the American Bee Journal [http://www.americanbeejournal.com/site/epage/79331\\_828.htm](http://www.americanbeejournal.com/site/epage/79331_828.htm)

<http://video.foxnews.com/v/3266316566001/bees-v-beetles-beekeeper-fights-beetles-with-new-invention/?intcmp=obnetwork#sp=show-clips>

**Check this out:** A beekeeper in Mississippi has developed a hive beetle trap that seems all too easy and really works!!! *editor*

# *Single Gene Separates Queen from Workers*

EAST LANSING, Mich. -- Scientists have identified how a single gene in honey bees separates the queens from the workers.

A team of scientists from Michigan State University and Wayne State University unraveled the gene's inner workings and published the results in the current issue of *Biology Letters*. The gene, which is responsible for leg and wing development, plays a crucial role in the evolution of bees' ability to carry pollen.

"This gene is critical in making the hind legs of workers distinct so they have the physical features necessary to carry pollen," said Zachary Huang, MSU entomologist. "Other studies have shed some light on this gene's role in this realm, but our team examined in great detail how the modifications take place."

The gene in question is *Ultrabithorax*, or *Ubx*. Specifically, the gene allows workers to develop a smooth spot on their hind legs that hosts their pollen baskets. On another part of their legs, the gene promotes the formation of 11 neatly spaced bristles, a section known as the "pollen comb."

The gene also promotes the development of a pollen press, a protrusion also found on hind legs, that helps pack and transport pollen back to the hive.

While workers have these distinct features, queens do not. The research team was able to confirm this by isolating and silencing *Ubx*, the target gene. This made the pollen baskets, specialized leg features used to collect and transport pollen, completely disappear. It also inhibited the growth of pollen combs and reduced the size of pollen presses.

In bumble bees, which are in the same family as honey bees, queens have pollen baskets similar to workers. In this species, *Ubx* played a similar role in modifying hind legs because the gene is more highly expressed in hind legs compared to front and mid legs.



Besides honey bees, which aren't native to North America, there are more than 300 species of other bees in Michigan alone. These include solitary leaf cutter bees, communal sweat bees and social bumble bees.

"The pollen baskets are much less elaborate or completely absent in bees that are less socially complex," Huang said. "We conclude that the evolution of pollen baskets is a major innovation among social

insects and is tied directly to more-complex social behaviors."

Future research by Huang may pursue investigating how bees could be improved to become better pollinators. While this won't provide a solution to bee colony collapse disorder, it could provide an option for improving the shrinking population of bees' pollen-collecting capacity.

# Deadly Honeybee Diseases Likely Spreading to Bumblebees

A bumblebee alights on the bloom of a thistle in Berlin, Vt. Increasingly sick domesticated honeybee populations are infecting the world's wild bumblebees, a new study in the journal *Nature* finds.

Wild bumblebees worldwide are in trouble, likely contracting deadly diseases from their commercialized honeybee cousins, a new study shows.

That's a problem even though bumblebees aren't trucked from farm to farm like honeybees. They provide a significant chunk of the world's pollination of flowers and food, especially greenhouse tomatoes, insect experts said. And the ailments are hurting bumblebees even more, according to a study published Wednesday in the journal *Nature*. "Wild populations of bumblebees appear to be in significant decline across Europe, North America, South America and also in Asia," said study author Mark Brown of the University of London.

He said his study confirmed that a major source of the decline was "the spillover of parasites and pathogens and disease" from managed honeybee hives. Smaller studies have shown disease going back and forth between the two kinds of bees. Brown said his is the first to look at the problem in a larger country-wide scale and include three diseases and parasites.



The study tracked nearly 750 bees in 26 sites throughout Great Britain. And it also did lab work on captive bees to show disease spread. What the study shows is that "the spillover for bees is turning into (a) boilover," University of Illinois entomology professor May Berenbaum, who wasn't part of the study, said in an email.

Study co-author Matthias Furst of the University of London said the team's research does not definitely prove the diseases go from honeybees to bumblebees. But the evidence points heavily in that direction because virus levels and infection rates are higher in the honeybees, he said.— The Associated PressFirst published February 19th 2014, 4:54 pm

**THIS WEEK**, the European Commission began a two-year moratorium on the nerve-agent pesticides known as neonicotinoids, which are suspected in a global decline in bee colonies — a phenomenon that, in turn, dealt a serious blow to fruits and vegetables that depend on bee pollination. The commission banned clothianidin, imidacloprid, and thiametoxam, which are meant to kill unwanted insects but also get absorbed by bees through pollen, nectar, dust, and sap.

**According to the National Food & Drug Administration *Manuka Honey is NOT an approved product*: An interested bee keeper made that specific inquiry: "The following is the usual typical and "matter of fact" reply I received from the FDA:**  
"Thank you for writing to the Division of Drug Information, Small Business Assistance, in the FDA's Center for Drug Evaluation and Research (CDER). It should be noted that Manuka Honey is not a currently FDA approved drug product. A listing of FDA approved drug products may be found in [Drugs@FDA](#):

# Genetic Weapon Against Insects Raises Hope and Fear in Farming

Energy & Environment//By Andrew Pollack:Jan 27' 2014

Scientists and biotechnology companies are developing what could become the next powerful weapon in the war on pests — one that harnesses a Nobel Prize-winning discovery to kill insects and pathogens by disabling their genes.

By zeroing in on a genetic sequence unique to one species, the technique has the potential to kill a pest without harming beneficial insects. That would be a big advance over chemical pesticides.

“If you use a neuro-poison, it kills everything,” said Subba Reddy Palli, an entomologist at the University of Kentucky who is researching the technology, which is called RNA interference. “But this one is very target-specific.”

But some specialists fear that releasing gene-silencing agents into fields could harm beneficial insects, especially among organisms that have a common genetic makeup, and possibly even human health. The controversy echoes the larger debate over genetic modification of crops that has been raging for years. The Environmental Protection Agency, which regulates pesticides, will hold a [meeting](#) of scientific advisers on Tuesday to discuss the potential risks of RNA interference.

“To attempt to use this technology at this current stage of understanding would be more naïve than our use of DDT in the 1950s,” the National Honey Bee Advisory Board said in comments submitted to the E.P.A. before the meeting, at the agency’s conference center in Arlington, Va.

RNA interference is of interest to beekeepers because one possible use, under development by Monsanto, is to kill a mite that is believed to be at least partly responsible for the mass die-offs of honeybees in recent years.

Monsanto has applied for regulatory approval of corn that is genetically engineered to use RNAi, as the approach is called for short, to kill the western corn rootworm, one of the costliest of agricultural pests. In another project it is trying to develop a spray that would restore the ability of its Roundup herbicide to kill weeds that have grown impervious to it.

## Decline of bee colonies: The sting of pesticides

DECEMBER 07, 2013 [Boston Globe](#)

Those pesticides are also widely used in the United States, where bee pollination is annually responsible for \$15 billion of the nation’s fruits, vegetables, and nuts. The number of domestic bee colonies has crashed .... California almond growers alone need at least 1.5 million colonies for pollination, Washington state apple growers need 250,000, and even Maine’s wild blueberry crop this year reportedly required up to 70,000 colonies, or about 3 billion bees, to convert blooms to berries. In a federal report this year, researchers said at the current rate of loss, there is no cushion left for bees to meet the pollination demands of US agricultural crops... no cushion left for bees “to meet the pollination demands of US agricultural crops.”

Other factors, such as mites, fungus, and viruses, may be at play in the collapse, but researchers have repeatedly identified neonicotinoids as a key culprit. Last month, the Oregon agriculture department restricted two neonicotinoid pesticides after 50,000 bees were found dead or dying this summer in a Target parking lot. The bees were pollinating a tree sprayed with pesticides. ... The Environmental Protection Agency says its scientific conclusions thus far “are similar to those expressed” by the Europeans and this year ordered new labeling on neonicotinoid products, saying the product can kill bees if applied in their presence....critics say the pesticide, whether sprayed or applied as a seed treatment, is absorbed into plants and remains toxic to bees all season long. There may be no single solution to the loss of bees, but these pesticides are sufficiently implicated that the EPA should match the European moratorium. The bees have already been stung enough.

# U.S. funds research to reduce use of pesticides harmful to bees

Wed Jan 8, 2014 2:25pm EST

Jan 8 (Reuters) - The United States said it will fund more than \$450,000 in research projects to reduce the use of pesticides that may harm honey bees, crucial in the pollination of many key U.S. crops.

A total of \$459,264 will be divided among Louisiana State University, Penn State University and the University of Vermont to develop practices that reduce the use of potentially harmful pesticides, the Environmental Protection Agency said in a statement Wednesday.



Over the past few years, bee populations have been dying at a rate the U.S. government says is unsustainable. Honey bees pollinate plants that produce about a quarter of the food consumed by Americans, including apples, almonds, watermelons and beans, according to government reports.

Scientists, consumer groups and bee keepers say the devastating rate of bee deaths is due to the growing use of pesticides, sold by agricultural companies to boost yields of staple crops such as corn.

However, Monsanto, [finance/stocks/overview?symbol=SYT&lc=int\\_mb\\_1001" class="mandelbrot\\_refrag">](#)Syngenta, Bayer and other agricultural companies say the bees are being killed by other factors, such as mites.

The Louisiana State University project is focused on minimizing the impact to bees from insecticides used for mosquito control.

The University of Vermont project focuses on reducing pesticide use and improving pest control while increasing crop yields on 75 acres of hops in the Northeast. The project's goal is to reduce herbicide and fungicide applications by 50 percent while decreasing downy mildew, a plant disease.

And the Pennsylvania State University project is exploring the benefits of growing crops without relying on neonicotinoid pesticide seed treatments. The so-called 'neonics' are a chief suspect in honey bee deaths.

"Protection of bee populations is among EPA's top priorities," the agency said.

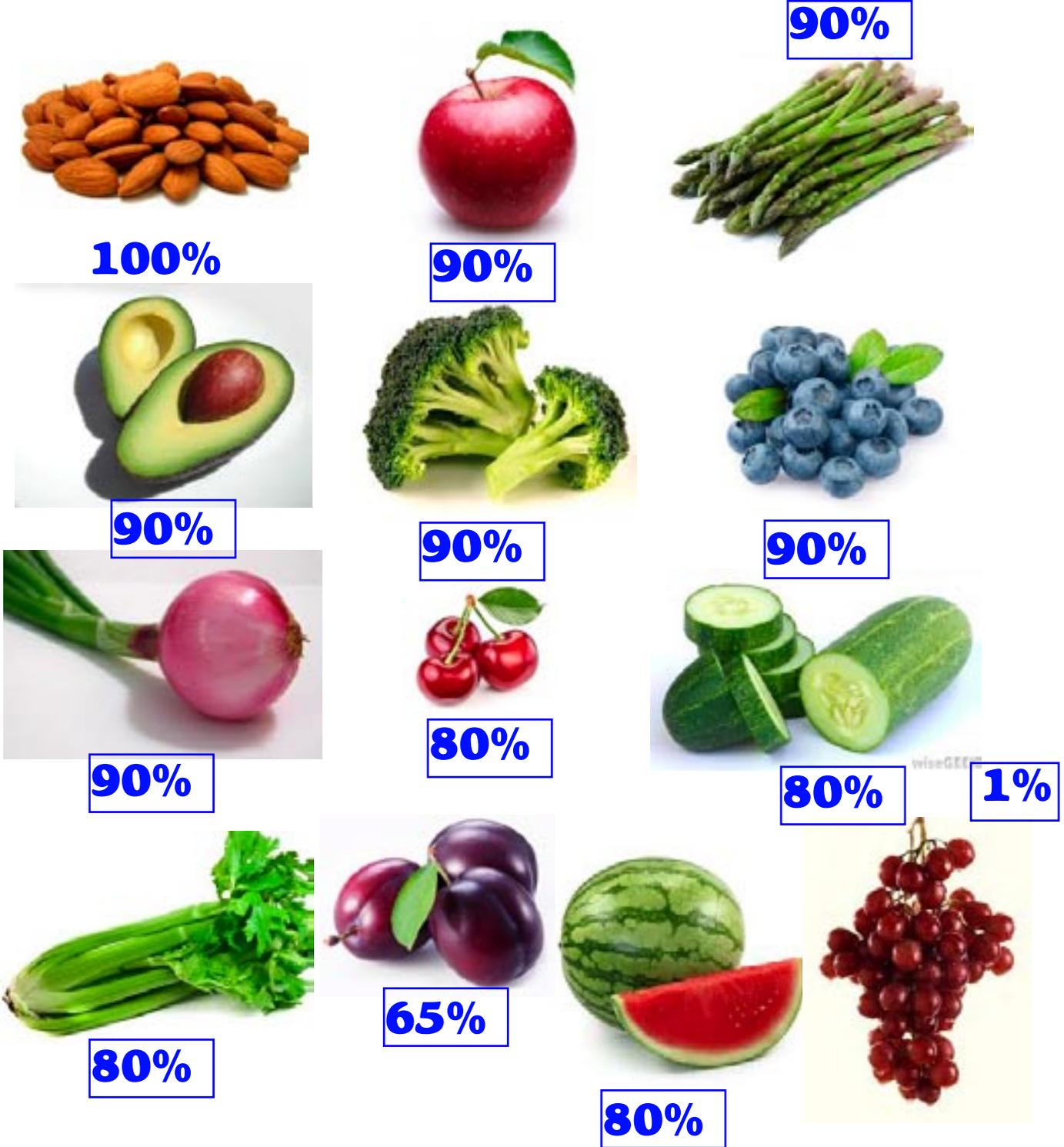
The EPA said bee populations were also being hurt by parasites, disease and poor nutrition.

The agency has been working with bee keepers, pesticide manufacturers, the U.S. Department of Agriculture and states to try to combat pesticide exposure to bees.

**This booklet from Perdue University has some good information & worth a look, about protecting your bees from pesticides. Look it up on line. Editor**



Although many crops are only partially dependant on bee pol-  
 lination, others, like the Almond cannot get by without it.  
 According to the USDA, one-third of the food within our diet  
 relies to some extent on bee pollination.



Project Apis is a web site worth visiting. Lots of information here.

**Our web site, [www.guilfordbeekeepers.org](http://www.guilfordbeekeepers.org) is your source for local beekeeping information, questions, and answers. Sign up for our forum board and join the conversation!**

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**Guilford County Beekeepers Association**  
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 Norman Faircloth, editor (nfaircloth@northstate.net)