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Bee Health in the News

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Abstract

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Bee Health in the News

By Matt O'Neal and Erin Hodgson, Department of Entomology

Last week saw two big events related to bees: the announcement by the European Union (EU) of a restriction on use of neonicotinoids insecticides and a joint report on the health of honey bees by the USDA and EPA. These events share a similar theme of preventing a widespread decline in pollinator abundance. In this article, we discuss what these events may mean for the on-going efforts to conserve pollinators and the future of insecticide registration in the United States.

Neonicotinoids banned in Europe

On April 29, 2013, the EU voted to restrict the use of neonicotinoids (specifically clothianidin, imidacloprid and thiamethoxam) beginning December 2013. Globally, these insecticides are used in a variety of agricultural and landscape settings, including the production of field crops, fruits, vegetables, and home gardens. Many neonicotinoids are systemic, capable of moving through the plant. Because they are used to combat a wide variety of pests, there is the risk that non-target insects, like pollinators, can be exposed to them.

As noted by scientists in the EU, it is not clear the extent to which the widespread use of neonicotinoids is responsible for declines in pollinator health, abundance and diversity. As many news agencies have reported, the goal of this two-year restriction is to allow time for additional studies and data to be assessed, while potentially allowing for improvements in pollinator abundance.

Honey bee health in the United States continues to decline

The USDA and EPA released a [summary report](#) last week on the multiple factors influencing honey bee decline in recent years. In 2006, U.S. honey bee colonies first started experiencing large-scale, unexplained losses. Scientists described the sudden loss of worker bees and subsequent rapid colony death as Colony Collapse Disorder (CCD). Suspected factors contributing to CCD likely include a combination of pests, pathogens, pesticides, nutritional deficiencies and hive management practices.

There are 2.5 million colonies in the United States now compared to 6 million colonies in 1947. Since 2006, the United States is losing about 30 percent of honey bee colonies every year. At this steady declining rate, pollinated crops are at risk of not having enough bees. As an example, the almond industry needs about 1.5-1.7 million colonies for pollination services; that need is projected to increase to a point that exceeds the number of U.S. colonies.

The report indicated an important link between agriculture and honey bee

health. Key findings include:

- The parasitic *Varroa* mite is the single most detrimental pest of honey bees.
- Honey bee breeding should focus on genetic diversity and select for resistance to pests and diseases.
- A nutritionally poor diet can make colonies more susceptible to pests and diseases.
- Sublethal exposure to pesticides also contributes to poor colony health.
- Complex interactions between all the above factors likely responsible for honey bee declines.



Honey bees are responsible for \$15 billion in increased crop value each year. Pollination services contribute to 33 percent of our diet. Photo by Adam Varenhorst.

What does this mean for U.S. farmers?

These two events share a similar topic, but there are some differences. One is that the EU ruling is addressing a decline in all pollinators, not just honey bees. Although honey bees are currently the most important pollinator of crops, many other species are used. Second, the EU is focused on restricting neonicotinoids, while the EPA report on CCD had an emphasis on all pesticides and other possible contributing factors.

As more is learned about the impact of any insecticide on honey bees, and potentially pollinators in general, there may be future restrictions to how neonicotinoids, or any pesticide, can be used in the United States. Every pesticide has to go through a regular, ongoing registration process with the EPA. Neonicotinoids are under close scrutiny by the public, and the upcoming labeled use could change to protect pollinators.

Best management practices for landowners

Although there are many factors that can negatively affect pollinators (specifically honey bees), there are some practices that landowners can adopt to help conserve them.

- Diversify the landscape around agricultural areas to improve foraging habitat. Include a variety of perennial, flowering plants. This could be native plants commonly found in Iowa prairies. Use this [fact sheet](#) for more ideas.
- Use the recommended rate of seed lubricant for proper planting.
- Be aware of wind speed and direction, especially near flowering plants.
- Do not clean plant equipment/hoppers near fields.

- Minimize off-site dust movement from treated seeds.
- Alert local beekeepers of upcoming foliar pesticide applications using the [Sensitive Crops directory](#).
- Target pesticide applications to minimize exposure by reducing drift potential and only applying products when necessary.
- Avoid spraying during daylight, especially morning hours. Bees visit flowers during the day. Spraying at dusk can reduce the potential of exposure.

To learn more about CCD and pollinator awareness, visit these websites:

[“Europe bans pesticides thought harmful to bees”](#), April 29, 2013. The New York Times.

[“Bee deaths: EU to ban neonicotinoid pesticides”](#), April 29, 2013, BBC.

[USDA-ARS](#)

[EPA](#)

[Xerces Society](#)

[Pollinator Partnership](#)

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