

# The Facts about Honey Bees and Pesticides

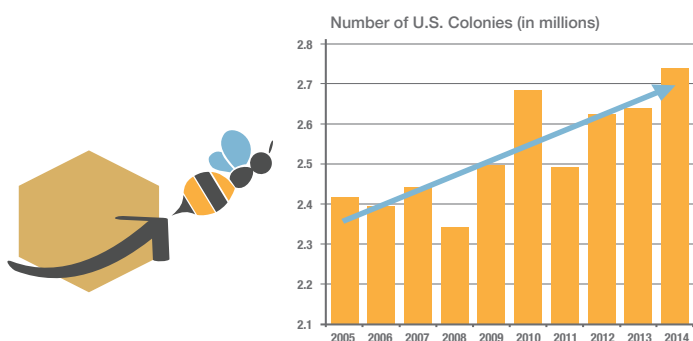


## 1 Fact: Honey bees help keep our grocery shelves stocked with nutritious food.

It is estimated that honey bees pollinate one out of every three bites of food that we eat. Much of our food is wind pollinated, including most of the grains we eat, but honey bees play an important role in pollinating many of our fruits, nuts and vegetables. These foods help contribute to a healthy, nutritious diet.

## 2 Fact: The number of honey bee colonies is increasing.

Most people are surprised to learn that honey bee colonies actually *increased* by 45 percent worldwide over the past 50 years.<sup>1</sup> And in the past five years, as awareness of honey bee health has grown, the number of colonies in the U.S. and Canada has increased by 13 percent and 18 percent, respectively.<sup>2</sup> Annual surveys conducted by the USDA show that the number of honey bee colonies has risen steadily over the past 10 years.<sup>3</sup>



## 3 Fact: Honey bee colony health should not be taken for granted.

Despite the growth in honey bee numbers, colonies are exposed to many factors that can affect their overall health. Most experts agree that factors such as parasites, diseases, inadequate nutrition or lack of available forage, adverse weather, pesticides and hive management practices play a role. Researchers are exploring many ways to help protect bee health, but there is much work yet to be done.

## 4 Fact: Neonicotinoid insecticides do not impact colony health when used according to the label.

Hundreds of studies on neonicotinoids and bees indicate that when used according to label instructions, “neonics” are not harmful to bee colonies. Large-scale studies in Europe and North America show that poor bee health correlates well with parasites and diseases, but not with pesticides, including neonicotinoids.<sup>4,5,6,7,8,9</sup>

## 5 Fact: Toxicity and hazard are not one in the same.

When used in typical field applications and according to label instructions neonics do not pose a significant hazard to bees, even though some neonics, like many insecticides, are toxic to bees. This is because at normal field doses, the potential exposure to bees is far below levels that would cause concern.<sup>10</sup> Distinguishing toxicity from hazard is a routine activity performed by most of us, although we may be unaware that we are doing so. For example, caffeine is more toxic than many pesticides, and yet we drink it in coffee without fear because the levels are so low (e.g., the hazard is very small).

## 6 Fact: A tiny parasite is one of the biggest threats to honey bee health today.

In the late-1980s a parasite called the Varroa mite invaded North American bee colonies and beekeeping has never been the same since. The Varroa mite is the “single most detrimental pest of honey bees,” according to the USDA.<sup>11</sup> This parasite weakens bees and helps transmit diseases that can wipe out entire colonies. Beekeepers try to control the mite with insecticides, but effective control is difficult to achieve.

## 7 Fact: Farmers and beekeepers have worked together for decades.

Lost in the discussion of bees and farming practices is the simple fact that farmers and beekeepers depend on each other where bees are needed to help pollinate crops. The farmer gets greater crop productivity and the beekeeper earns a fee for pollination services (and increases the colony's honey production). Even when bees are not needed, such as in cotton or citrus, farmers routinely make their fields available to beekeepers.

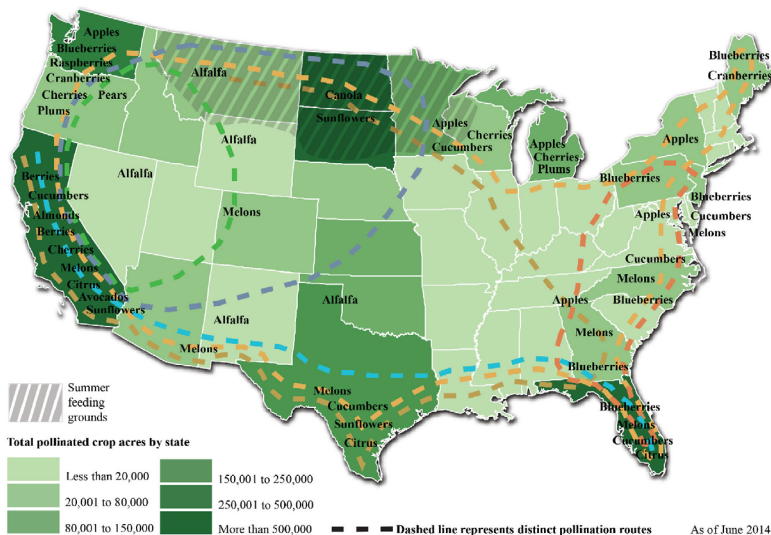
## 8 Fact: Beekeeping is a big business and bees are moved all over the country.

Modern beekeeping is principally aimed at crop pollination, rather than honey production. While many people enjoy keeping a few beehives as a hobby, commercial beekeepers manage hundreds or thousands of hives, often packing them on tractor-trailers and transporting them thousands of miles to help pollinate various crops throughout the season. Transporting hives under these conditions can be stressful for the colonies, so it is important to ensure they are well-fed and kept free of pests and diseases.

## 9 Fact: Many groups are working to improve bee health.

Fortunately, there are many groups working to protect and improve the health of honey bees, including universities, industry, government, beekeepers, farmers and consumers. Programs to help honey bees range from protecting against parasites and diseases to improving the amount of available food that can sustain bees before and after key crop seasons. Many backyard bee enthusiasts are doing their part by planting a variety of bee-friendly plants around their homes and gardens. While honey bees are not native to America, they have become an integral part of our food production. With a little help, we can make sure they thrive.

### Pollinator movement and crops in the U.S.



Source: USDA, Economic Research Service; Sautzman (2011), with input from commercial beekeepers and apiculture experts, including Dr. Jeff Pettis and Dr. David Epstein, an entomologist and authority on pollinators with the USDA's Pest Management Policy. Crop production acres are from USDA, National Agricultural Statistics Service, 2012 Agricultural Census.

#### REFERENCES

1. Aizen and Harder, Current Biology 19, 1–4, June 9, 2009 doi:10.1016/j.cub.2009.03.071.
2. Syngenta (January 19, 2015), Bee population rising around the world, *AgProfessional*.
3. USDA (2015) National Honey Report.
4. vanEngelsdorp D., et al. (2009) Colony Collapse Disorder: A Descriptive Study. *PLoS ONE* 4(8): e6481.
5. vanEngelsdorp D., et al. 2010. Weighing Risk Factors Associated with Bee Colony Collapse Disorder by Classification and Regression Tree Analysis. *J Econ Entomology* 103(5):1517–1523.
6. Rogers REL, and Kemp JR. 2004. Assessing Bee Health in the Maritimes: A survey of pesticide residues in honey bee, *Apis mellifera*, colonies. Final Report, Pei Adapt Council Project Number 319.02. October 15, 2004.
7. Nguyen, B.K., et al. 2009. Does Imidacloprid Seed-Treated Maize Have an Impact on Honey Bee Mortality? *J. Econ. Entomol.* 102(2): 616–623.
8. Chauzat M-P., et al. 2009. Influence of Pesticide Residues on Honey Bee (Hymenoptera: Apidae) Colony Health in France. *Environ. Entomol.* 38(3): 514–523 (2009).
9. Genersch E, et al. 2010. The German bee monitoring project: a long term study to understand periodically high winter losses of honey bee colonies. *Apidologie* 41 (2010) 332–352.
10. Maus C, et al. 2003. Safety of imidacloprid seed dressings to honey bees: a comprehensive overview and compilation of the current state of knowledge. *Bulletin of Insectology* 56(1):51–57.
11. USDA. 2013. Report on the National Stakeholders Conference on Honey Bee Health. 72 pages.

bee care



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