Ag quick CAST

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Why Does Bee Health Matter? The Science Surrounding Honey Bee Health Concerns and What We Can Do About It

A colony of honey bees is an amazing organism when it is healthy; it is a superorganism in many senses of the word.

- The individual bees that make up a honey bee colony deliver to the superorganism what it needs.
- Honey bees with access to better and more complete nutrition exhibit improved immune system function and behavioral defenses for fighting off effects of pathogens and pesticides.
- Bee colonies are chronically exposed to parasitic mites, viruses, diseases, miticides, pesticides, and poor nutrition.

Since 2006, there has been a tragic breakdown in honey bee health.

- Honey bees depend entirely on flowering plants for their nutrition.
- In turn, human nutrition depends heavily on honey bees for pollination of fruits and vegetables.
- Aside from the direct and indirect benefits derived from their pollination services, honey bees support diverse assemblages of plant communities that sustain wildlife and, intangibly, add to the quality of life.
- Some of our native bees, such as certain species of bumble bee, are in more severe decline than our managed honey bees, emphasizing the need for more research on native pollinators.

Most scientists agree that there are four main stressors all bees are facing: parasites, pathogens, pesticides, and poor nutrition.

- Parasitic *Varroa destructor* mites acquire and transfer bee viruses as they feed on and move from bee to bee.
- Exposure to pesticides in many areas is common, yet mechanisms for reporting colony losses and identifying the source of contamination are deficient and variable based on state and local government agencies.
- Good nutrition, which for bees comes from the landscape, is the foundation of a healthy, productive colony.

There are concrete ways that bees and beneficial insects could be protected from unwanted and unintentional pesticide exposure.

- One best management practice (BMP) is to curtail the off-target drift of all pesticides.
- The use of integrated pest management approaches in both grower and beekeeper operations is another BMP that will improve the timing and effectiveness of chemicals and decrease pesticide exposure on bees.
- Improvements could be made to pesticide labels and regulations to further decrease pesticide exposure on bees.
- Establishment and maintenance of publicly available, commercial pesticide-use records and apiary locations would allow beekeepers, researchers, and regulators to investigate bee incidents from pesticide exposure or eliminate pesticides as a potential cause.

The large proportion of privately owned lands in the United States highlights the role that landowner decisions play in the creation or elimination of habitat for honey bees, especially in rural parts of the country.

- It is imperative to provide clean sources of high-quality floral nutrition for bees in urban and agricultural landscapes.
- Land management activities and policy decisions that are informed through science will act to secure healthy populations of honey bees and wild pollinators over the long term, as well as a healthy and diverse agricultural food production system.

Finding solutions means realizing that there is a problem.

- Most scientists and beekeepers agree that honey bee health decline is the result of multiple stressors.
- Although some are simple enough, most of the stressors are interacting in nature.

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