

Report on the National Stakeholders Conference on Honey Bee Health: Key Findings

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Since formation of the Colony Collapse Disorder (CCD) Steering Committee early in 2007, the U.S. Department of Agriculture (USDA), U.S. Environmental Protection Agency (EPA) and public and private partners have invested considerable resources to better address pollinator declines and major factors adversely affecting bee health. Several individuals from the Committee, along with Pennsylvania State University, organized and convened a conference on in October 2012 that brought together stakeholders with expertise in honey bee health. This new report is the product of unprecedented collaboration and shows that there is much work yet to do. The key findings are summarized below.

There are multiple factors playing a role in pollinator declines, including parasites and disease, genetics, poor nutrition and pesticide exposure.

Parasites and Disease:

The parasitic Varroa mite is recognized as the major factor underlying colony loss in the U.S. and other countries. There is widespread resistance to the chemicals beekeepers use to control mites within the hive. New virus species have been found in bees in the U.S. and several of these have been associated with CCD. The Varroa mite is the primary factor known to increase levels of some bee viruses.

Genetics:

U.S. honeybee colonies need increased genetic diversity. Genetic variation improves bee thermoregulation (the ability to keep body temperature steady even the surrounding environment is different), disease resistance and worker productivity.

Poor Nutrition:

Nutrition has a major impact on individual bee and colony longevity. Poor nutrition can make bees more susceptible to harm from disease and parasites. Bees need better forage and a variety of plants to support colony health.

Pesticide Exposure:

Acute and sublethal effects of pesticides on honey bees have been increasingly documented, and are a concern but it is not clear, based on current research, whether a pesticide exposure is a major factor associated with U.S. honey bee health declines. The most pressing research questions relate to determining actual pesticide exposures bees receive in the field.

Consensus is building that a complex set of stressors contribute to pollinator declines, and researchers are increasingly studying multiple factors of colony losses. Steering committee members and stakeholders agreed that the following research questions and policy actions should be considered:

- Undernourished or malnourished bees appear to be more susceptible to pathogens, parasites, and other stressors, including pesticides and other environmental contaminants. Research is needed on forage, pollen quality, artificial and natural food sources, and food processing and storage in the hive.
- Federal and state partners should consider actions affecting land management to maximize available nutritional forage to promote and enhance good bee health and to protect bees by keeping them away from pesticide-treated crop acreage.
- Pathogens and parasites have major negative impacts on colonies. The management of the parasitic Varroa mite and viruses needs special attention.
- More outreach to farmers on managing potential exposure of honey bees to pesticides is needed. Efforts would benefit from involvement of beekeepers, crop consultants, pesticide manufacturers, pesticide applicators, state lead agencies and extension agents.
- Best management practices associated with bees and pesticide use exist, but are not widely or systematically followed by members of the crop producing industry. We need informed and coordinated communication between growers and beekeepers and effective collaboration between stakeholders.
- Beekeepers accentuated the need for accurate and timely beekill incident reporting, monitoring, and

enforcement.

- Breeding should emphasize traits such as hygienic behavior that confer improved resistance to Varroa mites and diseases (such as American Foulbrood).

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