

# California Honey Bee Breeder Tech Transfer Team

**Project Leaders:** Marla Spivak, University of Minnesota; Katie Lee, Coordinator, UCCE Butte County

**Project Cooperators:** Susan Cobey, University of California, Davis; Steve Sheppard and Timothy Lawrence, Washington State University

The almond industry is challenged by colony collapse disorder (CCD) and other adverse conditions that affect the health of bees and thereby pollinator-dependent crops such as almonds.

To help address these issues, we are forming a **Tech Transfer Team**. This team of experienced and professional consultants will provide the all-essential bee breeders in Northern CA with hands-on assistance to accomplish the following **Short-Term Objectives**:

**Objective 2.** Help bee breeders reduce the use of chemical treatments in all colonies, but especially in breeder colonies, by providing up-to-date disease and pest data.

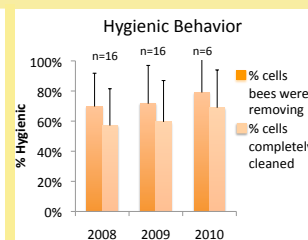
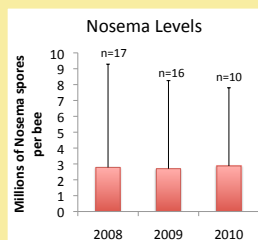
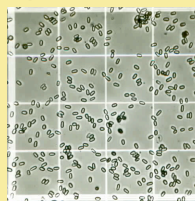


**Objective 3.** Enhance genetic diversity of bee stocks. With S. Cobey and S. Sheppard, we will assist bee breeders in supplementing their own stock with imported germplasm.



**Objective 1.** Stock selection and breeding for traits that enable bees to resist pathogens and parasites. From each of 16 bee breeders in Northern CA, 100 colonies will be tested for:

- 1) *Nosema* (pathogenic gut fungus) – tested by collecting 120 older bees and using a microscope to look for spores.



- 2) *Varroa destructor* (parasitic mite) – tested by collecting 300 bees and using powdered sugar to remove the mites.



- 3) Hygienic Behavior – tested with the freeze-killed brood assay; correlated to disease resistance.



**Objective 4.** Collaborate with other breeders and researchers in working on key issues like sperm quantity and viability, and bee nutrition.



Our **Long-Term Goals** are:

- Find permanent funding for 3 professionals.
- Be model for the nation.
- Form 2<sup>nd</sup> team in Southeast for large scale queen producers.
- Other team(s) could assist small, regional queen producers who want to select locally adapted and resistant stock.