

The Plight of the Honey Bee: Honey Bee Health and Colony Collapse Disorder

Dr. Frank Drummond, Professor of Insect Ecology, University of Maine

- I. What is the value of honey bees?
 - a. Crop pollination: 130 crops @ \$15,000,000,000 annually
 - b. Products from the hive: honey, pollen royal jelly, propolis
 - c. Natural ecosystem services: pollination of native plants
- II. A sudden panic!
 - a. 2006...US and Europe
 - b. Not just honey bees...a canary in the coal mine?
 - c. Current situation
- III. Potential causes?...a theme here, most are fairly recent
 - a. Parasitic mites: tracheal mite and *Varroa* mite
 - b. Virus pathogens (more than 18)
 - c. Bacteria (2 common species, and others)
 - d. Fungal pathogens: three species
 - e. Competition: small hive beetle
 - f. Pesticide exposure
 - g. Migratory stress
 - h. Nutrition: pollen composition and corn syrup
 - i. Honey bee stock genetic diversity
- IV. What is the CURRENT Hypothesis? MULTIPLE STRESSOR
- V. So what is being done?

- a. Many projects funded by many countries
- b. United States Department of Agriculture – CAPS EMERGENCY

RESEARCH PROJECT

- VI. Preliminary study: migratory vs stationary hives
- VII. CAPS – Stationary hive project involving 7 states
 - a. Participants from Universities and USDA
 - b. Apiary setup and experimental design
- VIII. Results
 - a. Were there differences among apiary losses across U.S.? YES
 - b. Does climate play a role in colony losses? YES
 - c. Does the landscape play a role in losses? YES
 - d. Do pesticides have an effect? YES
 - e. What about pathogens and parasites, are there differences in their dynamics between different geographic regions? YES
 - f. Can statistical models explain the colony losses across the U.S.?
 - i. Pathogenic viruses and fungi in combination with geographic effects explain the colony losses.
- IX. Are these research results from the 2009 and 2010 stationary apiaries in-line with other studies? YES
- X. Are honey bees the only pollinators in danger? NO...similar problems?
- XI. What can be done now that we have insight into what might be the cause?

AND WHAT CAN WE ALL DO TO HELP SOLVE THE PROBLEM?

For more information go to: <http://www.extension.org/pages/21780/bee-health-community-page>