Effects of Pollen Quality on Honey Bee Nutritional Status/Designing a Field Test to Assess Nutritional Status of Colonies in the Field

Project No.: **09-POLL2-Sagili**

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Objectives:

1) Evaluating and comparing the effects of single source pollen consumption versus multi source pollen consumption on hypopharyngeal gland protein content, bee mass, lipid content and colony growth in the honey bee. Single source pollens being studied include almond funded by this project and other pollens like blueberry, meadowfoam and corn from other funding.

2) Designing a field test to assess the nutritional status of honey bee colonies in the field.

Interpretive Summary:

This project is not fully underway.

Nutritional stress or poor nutrition is one among several potential factors attributed for colony collapse disorder. Improved nutrition is the key in dealing with major problems such as *Varroa* and Nosema in honey bee colonies. In the wake of deteriorating honey bee health, honey bee nutrition has attained greater importance than ever.

This study will increase our understanding of possible effects of consumption of single source pollen versus multiple source pollen on honey bee physiology and colony growth. Findings from this study will be helpful in providing appropriate suggestions to beekeepers to maintain optimal nutrition and thus healthy colonies. Also, the parameters measured here can be used along with other known stress factors in constructing models to predict colony health.

This study is also a first step towards exploring the possibility of designing a reliable field test to assess the nutritional status of bees. Currently there is no simple quick field test available to beekeepers for assessing the nutritional status of colonies. Hence availability of such field test will be of immense benefit to the beekeepers.

We have completed 4 replications pertaining to the first objective and expect to finish this experiment by June 2010. Experiment 2 which includes the second objective has just been initiated, and we plan to finish it by the end of June 2010.