

Research Assignment

The position is a Postdoctoral Research Associate under the supervision of Dr. Julia D. Fine at the USDA-ARS located in Davis, California. The research assignment is to study and assess factors that contribute to managed honey bee population losses and to develop and implement methods to assess the effects of biotic and abiotic stressors on honey bee reproduction. The focus will be on conducting laboratory experiments in conjunction with large scale field experiments to identify both the individual physiological effects and population level responses to stressors. Initial funding is for two years with renewal dependent on performance and availability of funds.

1. Assigned Responsibility

The incumbent will conduct independent and collaborative research on the effects of pesticides, parasites, pathogens, and nutrition on honey bee health, behavior, and development to support the objectives of the long-term research project. The primary focus will be the elucidation of factors that enhance or hinder the longevity and performance of honey bee colonies, examining the effects of stressors both alone and in combination on various aspects of honey bee biology. The incumbent will work as a member of a research team that includes a supporting technician. With approval from the supervisor, the incumbent will work with other scientists within the Research Unit, in other Units at the WRRC, and with scientists outside of ARS, such as entomologists within the University of California and the California Department of Food and Agriculture.

2. Research Objectives and Methodology

The objective of the research is to characterize threats to honey bee colony populations and identify methods to mitigate them, with particular focus on identifying the effects of stressors on honey bee queens and on interactions between queens and workers. Examples of known threats include exposure to agrochemicals, limited nutritional options, parasitic infestations, and exposure to new or worsening pathogen infections. The incumbent will use both novel and established tools to assay queen and worker performance, reproductive output, and brood development when exposed to various stressors both in the laboratory and in the field. The work will be published in support of cooperative research efforts conducted by USDA-ARS and regional, state, and Federal agencies that manage land and/or water resources.

3. Expected Results

The research will help identify how stressors affect honey bee reproduction, development and behavior, and how these effects contribute to the long-term success or failure of colonies. It is expected that the research conducted by the incumbent will be used to inform colony management practices and enhance honey bee population

survival, contributing to the reliability of pollination services and increased national food security.

4. Knowledge Required

This position requires a thorough knowledge of entomology, insect biology, and physiology, and associated techniques for investigating physiological, behavioral, and genetic responses to stress. Supplemental knowledge of statistics and experimental design is required. Demonstrated ability in oral and written communication of research results is required.

To apply, please send an application package that includes a cover letter, current CV and contact information for 3 references to julia.fine@usda.gov.

Selected candidate must provide proof of completion of the degree before the appointment can start. USDA-ARS is an Equal Opportunity Provider and Employer.