Biological Science Technician Position

Baumgartner Lab

USDA, Agricultural Research Service, Davis, CA

A full-time technician position at the USDA GS07 level is available starting May 1, 2021 to support research on host resistance to infection by fungal wood pathogens, specifically pathogens that cause trunk diseases of grape and Armillaria root disease of almond. This is a temporary position starting for 20 weeks, with possible extension for longer, depending on performance and funding. Send letter of interest, CV, and contact information for three references to Kendra.Baumgartner@usda.gov by April 16, 2021.

Grapevine Trunk Diseases. The objective of this project is to identify fungicides that protect grapevines from trunk diseases, which attack vines through the pruning wounds in winter. This is the 3rd year of a 3-year field trial in Washington wine grapes and the 2nd year of a 3-year field trial in California table grapes. We examine fungicides for protection against the following fungal pathogens: Botryosphaeria-dieback pathogen *Neofusicoccum parvum*, Esca pathogens *Phaeoacremonium minimum* and *Phaeomoniella chlamydospora*, Eutypa-dieback pathogen *Eutypa lata*, and Phomopsis-dieback pathogen *Diaporthe ampelina*. In the vineyard, we prune the vines in winter, treat the pruning wounds with various fungicides, inoculate the pruning wounds with the fungal pathogens, and then collect the inoculated canes after a month to bring back to the lab for pathogen detection. In the lab, we try to detect the pathogens by culturing out pieces of the wood or by grinding up the wood and using a DNA-based detection assay, depending on the pathogen. This project involves driving to field sites in California using a valid California driver's license, pruning and other sometimes strenuous activities for several hours at a time in the field, cutting thick pieces of wood in the lab with hand pruners, grinding wood using a tissue grinder, extracting DNA, and then doing qPCR to detect the pathogens from the woody tissues to which they were inoculated.

Armillaria Root Disease. The objective of this project is to identify almond rootstocks with resistance to Armillaria root disease. Almond and other *Prunus* species (e.g., peach, apricot, plum) are economically-important tree crops in California, and their woody roots are the most susceptible tree crop to attack by the fungal pathogen *Armillaria mellea*. Past research shows that rootstocks with an exclusively-peach parentage are the most susceptible, and at the opposite extreme there are the very resistant rootstocks with plum parentage. Almond compatibility with plum rootstocks is extremely variable, however, and so we focus on the plum hybrids that are known to be compatible with almond scions. We also will test peach x almond hybrids, which are of building interest among almond growers, and are the focus of a USDA breeding program in Parlier, CA. This project involves propagating plants in the lab and greenhouse from green cuttings for replicated experiments, inoculating plants in large replicate numbers, tracking development of symptoms at weekly intervals following inoculation, and then confirming infection of inoculated plants by culture or DNA-based methods.

MAJOR DUTIES:

-Provides technical support in laboratory dedicated to basic and applied research on the biology, epidemiology, and control of grapevine diseases.

-Participates with the scientist in all phases of the research process.

-Prepares, establishes, and maintains lab and greenhouse experiments.

-Performs a variety of technical duties including, but not limited to: culturing plant-pathogenic fungi from plant tissues and soil; maintaining collections of fungi; examining microscopic microbial and plant features; maintaining greenhouse plants; applying qPCR and related nucleic acid-based techniques to identify and quantify pathogens in plant tissue; and collecting and maintaining written and computer databases.

-Schedules tasks associated with experiments based on research needs, plant-growth cycles, and disease cycles.

-Must be willing to occasionally work in heat, at distant field sites and in the greenhouse. Tasks in the greenhouse, field, and lab require repetitive use for up to several hours at a time, the following sometimes strenuous tasks: use of pruning shears to cut thick wood, walking outdoors in the vineyard rows, and lifting potted plants in the greenhouse.

WHO MAY BE CONSIDERED:

-United States citizens and nationals.

-A B.S. in biology or a related scientific discipline is required. Salary will be offered commensurate with experience (range of ~$47,450 per year).

-A valid California driver's license.

REQUIRED SKILLS:

-Sterile technique

-Making buffers and other reagents in the lab

-Basic nucleic-acid techniques (DNA extraction, PCR, gel electrophoresis)

-Chemical safety in the lab

-data entry using MS Excel spreadsheets

DESIRED SKILLS:

-qPCR

-fungal culture

-plant tissue culture

-maintenance of collections of plants in the greenhouse, lab, or field

Send letter of interest, CV, and contact information for three references by April 16, 2021 to:

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