

Opportunity Title: USDA-ARS Postdoctoral Research Fellowship in Plant Pathology

Opportunity Reference Code: USDA-ARS-SE-2024-0003

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-ARS-SE-2024-0003

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A complete application consists of:

- An application
- Transcript(s) – For this opportunity, an unofficial transcript or copy of the student academic records printed by the applicant or by academic advisors from internal institution systems may be submitted. Click [here](#) for detailed information about acceptable transcripts.
- A current resume/CV, including academic history, employment history, relevant experiences, and publication list
- Two educational or professional recommendations

All documents must be in English or include an official English translation.

Application Deadline 2/2/2024 3:00:00 PM Eastern Time Zone

Description *Applications are reviewed on a rolling-basis.

ARS Office/Lab and Location: A research opportunity is currently available with the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS), located in Fort Pierce, Florida.

The Agricultural Research Service (ARS) is the U.S. Department of Agriculture's chief scientific in-house research agency with a mission to find solutions to agricultural problems that affect Americans every day from field to table. ARS will deliver cutting-edge, scientific tools and innovative solutions for American farmers, producers, industry, and communities to support the nourishment and well-being of all people; sustain our nation's agroecosystems and natural resources; and ensure the economic competitiveness and excellence of our agriculture. The vision of the agency is to provide global leadership in agricultural discoveries through scientific excellence.

The U.S. Horticultural Research Laboratory (USHRL) in Fort Pierce, Florida houses a state-of-the-art research facility. In addition to fully equipped laboratories, it contains numerous ample growth chambers and three acres of greenhouse facilities to support the research programs of each scientist stationed there. The laboratory can support 125 staff, of which 22 are research scientists. A 200-acre research farm is located one mile from the USHRL and is associated with the laboratory and accessible to conduct field and microplot research.

Research Project: The objectives for this project are to:

- 1) Optimize anaerobic soil disinfestation (ASD) for Florida strawberry growers
- 2) Determine which aspects of ASD manages soilborne pathogens



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Previous research on ASD was optimized for tomatoes, however, preliminary trials showed that the current ASD technique must be adjusted for strawberry growers. Preliminary data has shown that the current formulation of ASD encourages strawberry plants to produce runners and strawberry fruit do not have a very long shelf life. Additionally, field trials will be conducted to determine if solarization will offer better soilborne pest management than soil treated with ASD, and ASD combined with solarization. The solarization trials will also compare raised vs flat bedding. Temporal sampling of the soil during the ASD process will take place to measure the effect the treatments have on the soil nutrients and microbiome. The participant will help investigate the effect the soil treatments have on the soil microbiome and native strawberry pathogens and pests. Soil and plant tissue will be collected throughout the experiments to measure the concentration of nutrients. Furthermore, soil will be sampled throughout the ASD treatment and the concentration of organic acids will be measured. These trials will additionally include various cultivars of strawberries to be planted in the soil treatments to test whether a strawberry cultivar responds differently to the preplant soil treatments. Effect on strawberry cultivars will be assessed by comparing strawberry biometric assessments, plant nutrient content, pathogen and pest damage ratings, and fruit yield and post-harvest. Throughout the trials, soil samples will be taken periodically, and total DNA will be extracted from the soil for microbiome. The soil microbiome will be identified and correlated to the meta-datasets to determine if specific microbial populations correlate to soil and plant health, and pathogen management. Ideally, the participant will have expertise with strawberry pathogens, bioinformatics, and molecular skills.

Learning Objectives: The participant will be trained in conducting laboratory, greenhouse, and field plant pathology experiments, with the focus on managing soilborne pathogens and pests with a biologically based technique. Additionally, the participant will learn techniques associated with soil microbial ecology, such as identification and analysis of microbial populations and microbially produced metabolites.

Mentor(s): The mentor for this opportunity is Jason Hong (jason.hong@usda.gov). If you have questions about the nature of the research, please contact the mentor(s).

Anticipated Appointment Start Date: 2024, soonest available. Start date is flexible and will depend on a variety of factors.

Appointment Length: The appointment will initially be for one year, but may be renewed upon recommendation of ARS and is contingent on the availability of funds.

Level of Participation: The appointment is full time.

Participant Stipend: The participant will receive a monthly stipend commensurate with educational level and experience.

Citizenship Requirements: This opportunity is available to U.S.

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citizens, Lawful Permanent Residents (LPR), and foreign nationals. Non-U.S. citizen applicants should refer to the [Guidelines for Non-U.S. Citizens Details page](#) of the program website for information about the valid immigration statuses that are acceptable for program participation.

ORISE Information: This program, administered by ORAU through its contract with the U.S. Department of Energy (DOE) to manage the Oak Ridge Institute for Science and Education (ORISE), was established through an interagency agreement between DOE and ARS. Participants do not become employees of USDA, ARS, DOE or the program administrator, and there are no employment-related benefits. Proof of health insurance is required for participation in this program. Health insurance can be obtained through ORISE.

Questions: Please visit our [Program Website](#). After reading, if you have additional questions about the application process, please email ORISE.ARS.Southeast@orau.org and include the reference code for this opportunity.

Qualifications The qualified candidate should have received a doctoral degree in the one of the relevant fields. Degree must have been received within the past five years.

- Eligibility Requirements**
- **Degree:** Doctoral Degree received within the last 60 month(s).
 - **Discipline(s):**
 - **Environmental and Marine Sciences** ([1](#))
 - **Life Health and Medical Sciences** ([16](#))
 - **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).