

**Opportunity Title:** USDA-ARS Postdoctoral Fellowship in Crops Genomics and Genetics

**Opportunity Reference Code:** USDA-ARS-SEA-2024-0269

**Organization** U.S. Department of Agriculture (USDA)

**Reference Code** USDA-ARS-SEA-2024-0269

**How to Apply** *To submit your application, scroll to the bottom of this opportunity and click **APPLY**.*

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.

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**Application Deadline** 11/30/2024 3:00:00 PM Eastern Time Zone

**Description** **\*Applications may be reviewed on a rolling-basis.**

**ARS Office/Lab and Location:** A postdoctoral research opportunity is currently available with the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS), Subtropical Horticulture Research Station, located in Miami, 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.

**Research Project:** Some of the primary missions of the USDA-ARS, Subtropical Horticulture Research Station, Miami, FL are to: 1) to preserve and distribute tropical and subtropical fruit crops to stakeholders, and 2) to characterize and improve this germplasm using state-of-the-art tools and approaches in genomics, bioinformatics, and phenotyping, including molecular phenotyping. The overall goal of the projects that the fellow will be involved with is characterizing and improving avocados and mangos germplasm.

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Participant will be involved in the following learning activities:

- Genomic characterization and genome-wide single nucleotide polymorphism (SNP) discovery in avocado and mango germplasm and breeding populations,
- Evaluation of horticultural and fruit quality traits of avocado and mango germplasm using traditional as well as molecular phenotyping approaches, and
- Genome-Wide Association Studies - GWAS - for associating SNP markers with horticultural and fruit quality traits.

**Learning Objectives:** The participant will learn how to apply transdisciplinary approaches from the fields of Bioinformatics, Genetics, Genomics and Horticulture to characterize fruit crops at the genetic and phenotypic levels, and to associate molecular markers with horticulturally important traits, which will eventually accelerate genetic gains in breeding these crops. These learning activities will train the fellow to apply genomics-enabled breeding approaches and genomic selection (GS) methods for accelerating breeding of fruit crops including avocado and mangos, which have lagged other tree fruits in adapting these tools.

**Mentor(s):** The mentor for this opportunity is Gul Ali ([Gul.Ali@usda.gov](mailto:Gul.Ali@usda.gov)). If you have questions about the nature of the research, please contact the mentor(s).

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

**Appointment Length:** The appointment will initially be for two years, 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. 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

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additional questions about the application process, please email [ORISE.ARS.Southeast@orau.org](mailto:ORISE.ARS.Southeast@orau.org) and include the reference code for this opportunity.

**Qualifications** The qualified candidate should have received a doctoral degree in one of the relevant fields (e.g. Plant Biology, preferably Genetics or Horticulture with an emphasis on using molecular genetics and genomics approaches), or currently be pursuing to receive by start of appointment. Degree must have been received within the past three years.

**Preferred Skills:**

- Whole genome sequencing (WGS) and analyses using major high throughput sequencing platforms.
- Variant discovery and analyses using Bioinformatics tools.
- Phenotypic evaluation including high throughput phenotyping.
- Statistical and bioinformatics tools applied to conducting Genome-wide association studies (GWAS).
- Experience in collecting and analyzing horticultural and physiological traits using non-destructive sensors is a plus.
- Experience with biochemical analysis and metabolomics is a plus

**Eligibility Requirements**

- **Degree:** Doctoral Degree received within the last 36 months or currently pursuing.
- **Discipline(s):**
  - **Life Health and Medical Sciences** ([5](#) )