

Opportunity Title: USDA-ARS Postdoctoral Fellowship in Plant Genetics

Opportunity Reference Code: USDA-ARS-PW-2023-0132

Organization U.S. Department of Agriculture (USDA)

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A complete application consists of:

- An application
- Transcripts – [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 7/7/2023 3:00:00 PM Eastern Time Zone

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

ARS Office/Lab and Location: A postdoctoral research opportunities is available within the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS) with the Water Management and Conservation Research Unit at the U.S. Arid Land Agricultural Research Center (ALARC) in Maricopa, Arizona.

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.

For more information about the ARS Research Participation Program, please visit the Program Website <https://orise.orau.gov/usda-ars>

Research Project: The research project is focused on development of new germplasm of different turfgrass species for improved drought, heat, and salinity tolerance. The major research activities of the participants include developing mapping populations and molecular markers using next-generation sequencing, high throughput phenotyping system, and bioinformatic technologies to identify genetic factors associated with stress tolerance and improved turfgrass quality attributes. The incumbent will plan and execute laboratory, growth chamber, greenhouse, and field experiments, conduct statistical analyses, interpret results, and publishing research results. The participants will also develop functional DNA markers for marker-assisted selection in turfgrass breeding.



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Research Objectives and Methodology: The incumbent will participate as a member of the turfgrass breeding and agronomy team in generating and characterizing germplasm for warm-season turfgrasses and adaptable native grasses.

Learning Objectives: Collaborative studies using laboratory- and field-based phenotyping of germplasm for drought and heat tolerance and associated agronomic and seasonal turfgrass quality traits is expected. Objectives will also include use of genomic, transcriptomic, and metabolomic approaches to isolate the causative candidate genes, examine their expression, and define their biological functions.

Research is expected to improve our understanding of gene involvement in turfgrass stress tolerance at the genetic, whole plant, and cellular levels, as well as the potential for using these genes to improve overall turfgrass performance in the desert U.S. Southwest, with a special emphasis on abiotic stress tolerance, in bermudagrass, zoysiagrass, and several native grasses. It is anticipated that this work will provide insight into genomics of stress tolerance in turfgrasses.

The incumbent may provide intermittent technical guidance to technical support staff and graduate students.

Mentor: The mentor for this opportunity is Desalegn D. Serba (des.serba@usda.gov). If you have questions about the nature of the research, please contact the mentor.

Anticipated Appointment Start Date: June 2023. Start date is flexible and selected candidate can begin earlier or as soon as available.

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. The participant will receive a supplement for health and medical insurance which can be obtained through ORISE.

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

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required for participation in this program. Health insurance can be obtained through ORISE.


While participants will not enter into an employment relationship with ARS, this appointment requires a pre-appointment check and a full background investigation.

Questions: Please visit our [Program Website](#). After reading, if you have additional questions about the application process please email ORISE.ARS.PacificWest@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 Breeding and Genetics, Plant Physiology, Bioinformatics), or be currently pursuing the degree with completion before start of appointment.

Preferred Skills:

- Working knowledge of current methods in plant breeding and genetics, including techniques used in plant molecular biology, genomics, transcriptomics, bioinformatics, and statistics.
- Demonstrated experience in plant genetics and breeding, growth of plants in chambers, greenhouses, and field.
- Demonstrated skill and practical experience in molecular biology techniques (e.g., nucleic acid purification, polymerase chain reaction (PCR), bioinformatic analysis of genomic data, and data interpretation).
- Knowledge and experience in plant physiology.
- Demonstrated experience in design of experiments, development of laboratory protocols and keeping a thorough and detailed laboratory notebook.
- Ability to research independently as well as part of a team, with good oral and written communication skills to keep team members informed and disseminate results at meetings and in refereed scientific journals.

- Eligibility Requirements**
- **Degree:** Doctoral Degree.
 - **Academic Level(s):** Graduate Students or Postdoctoral.
 - **Discipline(s):**
 - **Life Health and Medical Sciences** ([48](#) )