Opportunity Title: USDA-ARS Postdoctoral Fellowship in Breeding and Genetics of Grapevines
Opportunity Reference Code: USDA-ARS-NE-2024-0028C

Organization	U.S. Department of Agriculture (USDA)
Reference Code	USDA-ARS-NE-2024-0028C
How to Apply	***Connect with ORISE...on the GO!*** Download the new ORISE GO mobile app in the Apple App Store or Google Play Store to help you stay engaged, connected, and informed during your ORISE experience and beyond! 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 • A copy of an abstract or reprint of an article All documents must be in English or include an official English translation.
Application Deadline	4/26/2024 3:00:00 PM Eastern Time Zone
Description	***Applications are 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), within the Grape Genetics Research Unit (GGRU) in Geneva, NY. 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:** This fellowship is part of a project aimed at the development of grape germplasm with stacked disease resistance alleles. Recent advances in our understanding of the genetics of important traits of grapevine, along with steady reductions in the costs of DNA sequencing have led to unique

opportunities in the development of novel grape germplasm for accelerating grape breeding. Of particular interest in grapevine breeding is the introgression of numerous identified disease resistance genes into single lines useful for further breeding and improvement through the development and use of rapid-cycling grape germplasm. This project offers a unique opportunity to conduct research under the guidance of a mentor to help develop grapevine scion and rootstock germplasm for supporting breeding programs to meet the U.S. grape industry needs.

The participant assigned to the project will help address the overall objectives, including:

- 1) Identify sources of desirable traits, quantitative trait loci (QTLs) and genes, and germplasm targets for trait integration;
- 2) Elucidate the genetics and genomics of relevant traits and help develop effective and efficient integration strategies, tools and methodologies;
- 3) Develop novel germplasm with target traits, QTLs and/or genes integrated and characterized; and
- 4) Transfer germplasm and associated information, knowledge, and tools to breeders and other researchers for grapevine breeding and improvement.

The participant will utilize existing populations and germplasm for characterizing traits of interest and their underlying molecular mechanisms through marker-trait and functional analyses and integrate desirable alleles into pre-breeding lines via molecular markers and development of rapid-cycling breeding systems to support the process of continuous germplasm improvement, discovery trait research and methodology optimization to reach greater breeding efficiency.

Learning Objectives: As a result of this training the participant will gain knowledge and experience in:

- 1) Utilizing, adapting and development of genomic and molecular tools;
- 2) Experimental design in develop disease resistance strategies through trait stacking;
- 3) Maintaining, evaluating, and utilizing grapevine germplasm;
- 4) Growth and experimentation with grapevine;
- 5) Use of high-performance computational resources through USDA-ARS SCINet.

The general research technologies/methodologies and approaches are derived from plant breeding, genomics, quantitative genetics, molecular biology, physiology, biotechnology, computational biology, and horticulture. High throughput and precise phenotyping and genotyping, innovative quantitative genetic, genomic and biotechnological methods for making crosses and selections, evaluating trait performance,

advancing breeding generations, and effective means for documenting and sharing research results with stakeholders are critically important for accomplishing the research objectives. This opportunity will provide significant exposure and professional development through robust collaborations with faculty at Cornell University, Cornell Agri-Tech (Geneva Campus), and USDA-ARS scientists. The successful candidate is expected to produce quality research that will be published in open-access, peer-reviewed journals relevant to the field, as well as communicate with research networks within the scientific community.

Mentor(s): The mentor for this opportunity is Dr. Fred Gouker (fred.gouker@usda.gov). If you have questions about the nature of the research, please contact the mentor(s).

Anticipated Appointment Start Date: Early 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 additional questions about the application process, please email ORISE.ARS.Northeast@orau.org and include the reference code for this opportunity.

Qualifications The qualified candidate should be in the process of completing or have recently received a doctoral degree in one of the

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relevant fields. Degree must have been received within the last five years or be currently pursuing.

Preferred skills:

- A Ph.D. in Plant Breeding, Horticulture, Genetics, Genomics, Plant Pathology, Molecular Biology, Transcriptomics, Bioinformatics, or a related discipline with experience in bioinformatics or computational biology.
- Knowledge and/or experience in molecular genetics, genomics, classical/molecular breeding, molecular biology, genomics, biotechnology, physiology, computational biology or horticulture.
- Familiarity with command-line tools and/or coding languages such as R, SAS, Python or others is highly appreciated.
- A proven track record reflected in recent or pending publications.
- Ability to effectively communicate scientific findings to the research community.
- Ability to effectively interact with team members and industry and academia stakeholders.

Eligibility Requirements

- **Degree:** Doctoral Degree received within the last 60 months or currently pursuing.
- **Academic Level(s):** Graduate Students, Postdoctoral, or Post-Master's.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (12 👁)
  - **Communications and Graphics Design** (1 👁)
  - **Computer, Information, and Data Sciences** (17 👁)
  - **Earth and Geosciences** (1 👁)
  - **Engineering** (9 👁)
  - **Environmental and Marine Sciences** (14 👁)
  - **Life Health and Medical Sciences** (51 👁)
  - **Mathematics and Statistics** (3 👁)
  - **Physics** (16 👁)
  - **Science & Engineering-related** (1 👁)
- **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).

Affirmation

I affirm that:

I am a US Citizen, OR

I am a non-US citizen currently living in the United States