zintellect
climb higher

Opportunity Title: USDA-ARS Research Opportunity on Crop Physiological and Soil Responses to Humic Product Application
Opportunity Reference Code: USDA-ARS-MW-2023-0359

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-ARS-MW-2023-0359

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

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

Application Deadline 10/13/2023 3:00:00 PM Eastern Time Zone

Description ***Applications may be 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) within the National Laboratory for Agriculture and the Environment located in Ames, Iowa.

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: The USDA-ARS National Laboratory for Agriculture and the Environment conducts research that integrates fundamental principles of soil, water, and air in cropping, animal, and watershed systems to enable more sustainable crop production, enhanced agricultural system efficiency, and improved environmental quality. Its research agenda includes process-level investigations into the chemical, biochemical, and physical processes underlying these systems. Specifically, this project will investigate three aspects of how humic products, a type of biostimulant, affect the soil-plant system. First, the project will determine whether humic product application increases the rate of plant photosynthesis in corn, soybean, and alfalfa in field experiments. Second, the project will develop and perform laboratory assays to identify the plant processes underlying or associated with the

increased plant photosynthesis, including starch synthase and H+-ATPase enzyme activities and accumulation of leaf soluble sugars and other plant carbohydrate pools. Finally, the project will measure the benefits of long-term humic product application in field experiments to soil carbon accumulation and related soil physical properties, including water-holding capacity, bulk density, and aggregate stability. These analyses will be conducted at multiple soil depths.

Learning Objectives: As a result of this training, the participant will acquire novel skills for crop physiological measurements in both field and laboratory settings. They will also improve their skills for measuring soil physical properties.

Mentor(s): The mentor(s) for this opportunity is Daniel Olk (dan.olk@usda.gov). If you have questions about the nature of the research project, please contact the mentor(s).

Anticipated Appointment Start Date: October 2023. Start date is flexible and will depend on a variety of factors.

Appointment Length: The appointment will initially be for 32 months 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 current stipend for this opportunity is $4,000 per month, equal to $48,000 per year.**

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.Midwest@orau.org and include the reference code for this opportunity.

Qualifications The qualified candidate should have received an associate's, bachelor's, or master's degree in one of the relevant fields, or be currently pursuing one

of the degrees to be received before June 30, 2024.

Preferred Skills:

- Interests in plant physiology and soil science.
- Interest in performing laboratory analyses.
- Attention to detail.

Eligibility Requirements

- **Degree:** Associate's Degree, Bachelor's Degree, or Master's Degree.
- **Discipline(s):**
  - **Earth and Geosciences** (2 👁)
  - **Environmental and Marine Sciences** (1 👁)
  - **Life Health and Medical Sciences** (4 👁)