Opportunity Title: USDA-ARS Postdoctoral Fellowship in Conservation Practices to Reduce N Loss in Drained Agriculture
Opportunity Reference Code: USDA-ARS-2022-0353

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-ARS-2022-0353

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 12/5/2022 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), National Laboratory for Agriculture and the Environment (NLAE), 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 National Laboratory for Agriculture and the Environment (NLAE) generates information addressing critical problems in agriculture and watershed management to develop innovative solutions which increase the efficiency of agriculture systems and reduce environmental risk. Transdisciplinary teams address this through coordinated research in abiotic and biotic systems. The specific project is to improve our knowledge of conservation practices that reduce N loss to streams such as saturated riparian buffers and winter cover crops in subsurface drained agricultural systems using several years of collected field data, and to apply hydrologic and water quality models such as SWAT to these systems to extend our understanding of these practices. The participant will gain deep knowledge in conservation practices of intense

interest to conservation research and policy groups. The participant will utilize and gain knowledge of important research networks such as the Long-Term Agroecosystem Research (LTAR) Network that has a vision to develop national strategies for the sustainable intensification of agriculture production and the Conservation Effects Assessment Project (CEAP) that is a multi-agency effort to quantify the environmental effects of conservation practices and programs and develop the science base for managing the agricultural landscape for environmental quality. Participant will gain skills in analysis of comprehensive field datasets and use of models such as SWAT which overwhelmingly dominates catchment/watershed/basin scale water quality modeling studies and disseminate this information by publishing high quality scientific articles.

Learning Objectives:

- The participant will be integrated with an established multi-disciplinary team with expertise in conservation practice effectiveness with subsurface drained agriculture and crop and soil modeling, and learn about impacts on agriculture, crop and soil responses to environment and management inputs, and how to evaluate and model such responses.
- The participant will develop new skills in areas of conservation practice effectiveness, model application, and a broader understanding of agricultural systems challenges.
- The participant will be trained on the use of equipment to measure effectiveness of conservation practices such as winter cover crops and saturated buffers.
- The participant will be trained in the development and use of mechanistic, process level crop and soil simulation models to evaluate conservation practice impacts on carbon/nitrogen cycling in with U.S. Agriculture.

Mentor(s): The mentor for this opportunity is Robert Malone (rob.malone@usda.gov). If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: January 2023. 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. 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

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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 USDA-ARS@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, or be currently pursuing the degree with completion before December 30, 2022. Degree must have been received within the past ten years.

Preferred Skills:

- Familiarity with principles of agronomy, crop science, soil science, or related field
- Familiarity with soil carbon and nitrogen cycling
- Experience publishing in high quality peer reviewed journals
- Knowledge of programming languages such as FORTRAN, C++, PYTHON, or R
- Experience in crop, soil, or hydrological model application

Eligibility Requirements

- **Degree:** Doctoral Degree received within the last 120 months or anticipated to be received by 12/30/2022 12:00:00 AM.
- **Overall GPA:** 3.00
- **Discipline(s):**
  - **Engineering** (4 👁)
  - **Environmental and Marine Sciences** (5 👁)
  - **Life Health and Medical Sciences** (5 👁)