

Opportunity Title: USDA-ARS Postdoctoral Fellowship to Address Carbon and Nutrient Cycling in Midwestern Cropping Systems

Opportunity Reference Code: USDA-ARS-2022-0359

Organization U.S. Department of Agriculture (USDA)

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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 research opportunity is available with the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS), National Laboratory for Agriculture and the Environment ([NLAE](#)), Agroecosystems Management Research Unit located in Ames, Iowa, on the campus of Iowa State University.

The Agricultural Research Service 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.

The mission of NLAE is to address critical problems in agriculture and watershed management. Our goal is to develop innovative solutions that increase the efficiency of agriculture systems and reduce environmental risk. Transdisciplinary teams address this through coordinated research in abiotic and biotic systems.

Research Project: This project investigates carbon and nutrient cycling in soil, air, water, and crop nutrient pools within Midwestern agricultural systems. Nutrient dynamics of conventional corn-soybean production systems are being compared with those of alternative systems, such as systems that include 4R nitrogen management, cover crops and relay



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cropping within a corn-soybean system, and organic production with extended crop rotations.

Learning Objectives: The intended outcome of this research is to improve nutrient-use efficiency in conventional Midwestern corn-soybean production systems, to increase the use of overwintering cover crops in these cropping systems, and to provide much-needed information to stakeholders practicing or considering organic production. The results will provide information to farmers, consultants, agribusiness partners, and state and federal agencies to help guide decisions on the effective use of these practices.

- The participant will be integrated within an interdisciplinary research team and develop or enhance his/her understanding of production practices that improve environmental quality and are of interest to research and policy groups addressing climate-smart agriculture.
- The participant will engage with 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 agricultural production.
- The participant will develop or enhance his/her knowledge of various soil, plant, and water measurement techniques.
- The participant will develop or enhance skills in the analysis of comprehensive crop, soil, and water datasets and have the opportunity to disseminate this information by publishing high-quality scientific articles and presenting at local, regional, or national meetings.

Mentor(s): The mentors for this opportunity are John L. Kovar (john.kovar@usda.gov) and Peter L. O'Brien (peter.obrien2@usda.gov). If you have questions about the nature of the research, please contact the mentors.

Anticipated Appointment Start Date: January 15, 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. **There will be additional funding for the participant's travel to meetings and conferences.**

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.

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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 31, 2022. Degree must have been received within the past five years.

Candidates that have published in peer-reviewed journals are encouraged to apply.

Preferred Skills:

- Field and laboratory experience in collecting soil, plant, and/or hydrologic data.
- Experience in the use of good laboratory practice in collecting and managing analyses performed in a research study.
- Experience with statistical analysis (e.g., R or SAS software packages) of datasets.

Eligibility Requirements

- **Degree:** Doctoral Degree received within the last 60 months or anticipated to be received by 12/31/2022 11:59:00 PM.
- **Discipline(s):**
 - **Chemistry and Materials Sciences** ([1](#) )
 - **Earth and Geosciences** ([2](#) )
 - **Engineering** ([2](#) )
 - **Environmental and Marine Sciences** ([3](#) )
 - **Life Health and Medical Sciences** ([6](#) )
- **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).