Opportunity Title: USDA-ARS Evaluating the Performance of Different Cropping Systems Postdoctoral Fellowship
Opportunity Reference Code: USDA-ARS-HQPD-2026-0151

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-ARS-HQPD-2026-0151

How to Apply ***To submit your application, scroll to the bottom of this opportunity and click APPLY.***

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.

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Application Deadline 6/5/2026 3:00:00 PM Eastern Time Zone

Description ***Applications are 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), located in Columbia, Missouri.

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: A major challenge in designing cropping systems is matching the management practices with the local soils and climate. While research stations and test sites are valuable tools in designing cropping systems, experimental stations cannot be feasibly built across the wide range of environmental conditions present in U.S. croplands. To address this, computer simulations can evaluate the performance of different cropping systems across a wide variety of conditions. But the current generation of these models struggle to accurately capture interactions

between watershed hydrology and crop performance.

In collaboration with the mentor, the research participant will help develop a process-based crop model designed for watershed scales to address this limitation. This will be achieved by coupling an existing crop simulation model with an existing watershed hydrology model. The fellow will test the coupled model against big-datasets at the Central Mississippi River Basin (CMRB) site using observations of land atmosphere interactions from eddy covariance towers, watershed hydrology observations, and measurements of crop growth and yield. The fellow will use the SCINet infrastructure and random forest variable importance factors to understand the relative importance of processes in simulating the CMRB agroecosystem.

Learning Objectives: Under the guidance of the mentor, the participant will:

- Learn how cropping system design must align with local soil and climate conditions.
- Understand the strengths and limitations of crop simulation models across diverse environments.
- Learn to analyze interactions between watershed hydrology and crop performance.
- Develop skills in coupling crop and hydrology models at watershed scales.
- Gain experience validating models using large, multi-source datasets.
- Learn to apply high-performance computing and machine learning tools to evaluate agroecosystem processes.

Mentor(s): The mentor for this opportunity is Adam Schreiner-McGraw (adam.schreiner-mcgraw@usda.gov). If you have questions about the nature of the research, please contact the mentor(s).

Anticipated Appointment Start Date: June 1, 2026. Start date is flexible and will depend on a variety of factors.

Appointment Length: The appointment will initially be for two years.

Level of Participation: The appointment is full time.

Participant Stipend: The participant will receive a monthly stipend commensurate with educational level and experience. **The anticipated stipend range is $6,638 - $6,845 monthly.**

Citizenship Requirements: This opportunity is available to U.S. citizens only.

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,

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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.HQPostdoc@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 (natural resources, agricultural sciences, hydrologic sciences, or a related field). Degree must have been received within the past four years.

Preferred skills:

- Experience with crop models, hydrologic models, or both.
- Experience with process/physics based modeling approaches.
- Familiar with common scientific programming languages such as python, C++, or Fortran.
- Experience with high performance computing environments is welcome.

Candidates who do not strictly meet these preferred skills are still encouraged to apply.

Stipend

$6,638.00 – $6,845.00 Monthly

Point of Contact

Janeen

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree received within the last 48 month(s).
- **Discipline(s):**
  - **Earth and Geosciences** (3 👁)
  - **Engineering** (1 👁)
  - **Environmental and Marine Sciences** (3 👁)
  - **Life Health and Medical Sciences** (3 👁)