**Opportunity Title:** USDA-ARS Postdoctoral Research Fellowship in Geospatial Technologies for Precision Weed Management
**Opportunity Reference Code:** USDA-ARS-SEA-2025-0219

**Organization** U.S. Department of Agriculture (USDA)

**Reference Code** USDA-ARS-SEA-2025-0219

**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

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

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**Application Deadline** 3/27/2026 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 Stoneville, Mississippi.

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 fellow is a recent Ph.D. graduate who will be a postdoctoral research fellow at the USDA-ARS Crop Production Systems Research Unit, Stoneville, MS. The fellowship will involve collaborating with USDA-ARS scientists on research programs focusing on geospatial technologies to advance precision weed management in cropping systems. This research is a component of ARS National Programs 305 (Crop Production) and 304 (Crop Protection & Quarantine).

The fellow is assigned to a mentor to learn from and to gain skills with a personal and

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collaborative team research project aimed at leveraging U.S.-compliant unmanned aerial systems (UASs) and AI tools to detect, map, and control herbicide-resistant weeds, supporting the development of sustainable agricultural practices. The successful candidate is expected to (1) help develop novel methods that incorporate advanced technologies for detecting and mapping broadleaf and grass weeds in cropping systems (2) help develop smart protocols and internet-based dashboards for spray drone applicators that will improve herbicide deposition while minimizing spray drift in crop production systems and, (3) help develop ecology-based approaches to managing weeds with herbicide-susceptible versus herbicide-resistant characteristics. The project focuses on conducting preliminary weed surveys and collecting data with fixed-wing UAVs equipped with RGB, multispectral, and thermal cameras, or with handheld spectroradiometers under field and greenhouse conditions. The outcomes will be scalable to large agricultural systems and benefit stakeholders across government, industry, and farming communities. The selected candidate will learn how to manage field and greenhouse studies and establish new experiments to develop geospatial technologies for precision weed management.

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

- Develop expertise in designing and conducting experiments in the field and greenhouse settings to address problematic weeds in Mississippi cropping systems supporting all stakeholders.
- Acquire skills in advanced technologies such as UAVs, drones, spectroradiometers with multispectral and hyperspectral sensors for detecting and mapping herbicide resistant weeds in crop production systems.
- Learn integrated weed management approaches to managing weeds such as Palmer amaranth, sedges, and grasses.
- Gain writing and communication skills through publications and presentations of research findings.

**Mentor(s):** The mentor for this opportunity is Krishna Reddy (krishna.reddy@usda.gov). If you have questions about the nature of the research, please contact the mentor(s).

**Anticipated Appointment Start Date: February 2026.** 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. **The anticipated stipend range is $73,939 - $76,403 annually.**

**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, 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.Southeast@orau.org and include the reference code for this opportunity.

**Qualifications**

The qualified candidate should have received or be pursuing a doctoral degree in one of the relevant fields (Agronomy, Crop Science, Weed Science, Agricultural Engineering, Remote Sensing, Computer Science, or a closely related discipline). Degree must have been received within the past five years or is anticipated to be received by the appointment start date.

**Preferred skills:**

- Demonstrated experience with remote sensing technologies, including unmanned aerial systems (UASs), RGB/multispectral/thermal cameras, and spectroradiometers.
- Ability to apply AI tools and machine learning for advanced image analysis, weed-crop detection, and mapping.
- Experience in data collection, processing, and interpretation.
- Strong background in precision agriculture and integrated weed management strategies.
- Demonstrated ability to collaborate in diverse and interdisciplinary teams.
- Evidence of ability to conduct independent and collaborative research.
- Demonstrated ability to publish research findings in peer reviewed journal.
- Knowledge of crop production systems of major crops.
- Knowledge of herbicide resistance and weed ecology.
- Strong communication skills for collaboration with USDA scientists and stakeholders.
- Demonstrated proficiency with R, SAS or another statistical program.

**Stipend** $73,939.00 – $76,403.00 Yearly

**Point of Contact** Sara Beth

**Eligibility Requirements**

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree.
- **Discipline(s):**
  - **Computer, Information, and Data Sciences** (2 👁)
  - **Life Health and Medical Sciences** (4 👁)
- **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).

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