Opportunity Title: USDA-ARS Postdoctoral Research Fellow: Advanced Genomic & Transcriptomic Approaches in Invasive Insect Biological Control
Opportunity Reference Code: USDA-ARS-NEA-2026-0137A

Organization U.S. Department of Agriculture (USDA)

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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
  - In your cover letter, please explicitly detail your experience with genomic and transcriptomic approaches, highlighting how your skills align with the research focus of this fellowship and your vision for applying these technologies to invasive insect biological control.
- Two educational or professional recommendations

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

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Application Deadline 7/10/2026 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 Newark, Delaware, within the Beneficial Insects Introduction Research Unite.

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 postdoctoral research fellowship is immediately available at the Beneficial Insects Introduction Research Unit in Newark, DE. We are seeking a highly motivated Postdoctoral Research Fellow for a learning opportunity using cutting-edge genomic and transcriptomic

methodologies to drive innovative biological control strategies against high-impact invasive insect pests. Under the guidance of a mentor, you will engage in collaborative research to build comprehensive knowledge bases on the behavior, ecology, physiology, and genetics of invasive insect pests and their natural enemies. This research will leverage advanced 'omics' technologies and 'big data' analytics to unravel complex pest-natural enemy interactions, understand host associations, and identify adaptation mechanisms at a molecular level. Research will occur both in a state-of-the-art laboratory quarantine facility and in agricultural fields or forests across the U.S.

This fellowship offers a unique opportunity to be a part of transformative research by applying advanced genomic and transcriptomic approaches to questions in invasive insect biological control. The core of this research program will harness state-of-the-art 'omics' technologies, including comparative genomics, population genomics, and transcriptomics, to:

- Utilize genomic and transcriptomic data to build comprehensive knowledge bases on the behavior, ecology, physiology, and genetic underpinnings of invasive insect pests and their natural enemies, directly informing the development of effective biological control strategies.
- Collaborate with ARS and University scientists, employing genomic tools and molecular markers to aid in the discovery and characterization of novel biological control agents.
- Conduct rigorous evaluation of biocontrol agent host ranges, integrating laboratory specificity testing with advanced genomic analysis to elucidate the genetic architecture governing host association and adaptation.
- Investigate post-introduction adaptation of biocontrol agents through a combination of laboratory studies and cutting-edge genomic and transcriptomic analysis, examining how genetic changes influence adaptation to diverse environmental conditions and enhance biological control efficacy.
- Focus on high-impact invasive insect pests such as:
  - Spotted Lanternfly, *Lycorma delicatula* (Hemiptera: Fulgoridae)
  - Spotted Wing Drosophila, *Drosophila suzukii* (Diptera: Drosophilidae)
  - Asian Longhorned Beetle, *Anoplophora glabripennis* (Coleoptera: Cerambycidae)
  - Emerald Ash Borer, *Agrilus planipennis* (Coleoptera: Buprestidae)
  - Brown Marmorated Stink Bug, *Halyomorpha halys* (Hemiptera: Pentatomidae)
  - Newly emerging pests such as Cotton Jassid, *Amrasca biguttula* (Hemiptera: Cicadellidae)

Learning Objectives: Under the guidance of a mentor, the fellow will gain experience in:

- Cooperating with ARS and University scientists to discover new

biological control agents;
- Evaluating host ranges of newly discovered or previously introduced biocontrol agents both by laboratory testing and genomic analysis of the genetic architecture underlying the host association of concerned natural enemies, and;
- Conducting both laboratory-host specificity testing and genomic analysis of post-introduction adaptation of previously introduced agents to various environmental conditions for enhanced biological control efficacy.

Mentor(s): The mentors for this opportunity are Jian Duan (jian.duan@usda.gov) and Jo Anne Crouch (joanne.crouch@usda.gov). If you have questions about the nature of the research, please contact the mentor(s).

Anticipated Appointment Start Date: 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 $5,000 - $6,800 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, 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.Northeast@orau.org and include the reference code for this opportunity.

Qualifications The qualified candidate should have received or be currently pursuing a doctoral degree in one of the relevant fields (Entomology, Insect Ecology, Evolutionary Biology, Molecular Biology, Genetics, Bioinformatics, or a closely related field). Degree must have been received within the past five years, or be pursuing and anticipated to receive by 9/30/2026.

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Preferred skills:

- Demonstrated experience and extensive practical experience in modern genomic and transcriptomic methods, including but not limited to comparative genomics, population genomics, RNA-seq, genome assembly, variant calling, and other high-throughput sequencing approaches.
- Advanced proficiency in bioinformatics tools, pipelines, and statistical methods for the analysis of large-scale genomic and transcriptomic datasets ('big data'), with hands-on experience in high-performance computing (HPC) environments (e.g., command-line interface, scripting in R/Python, use of common bioinformatics software).
- Strong foundation in experimental design, advanced statistical analysis, and scientific writing.
- Proven research experience in insect biology, ecology, or biological control, with a clear understanding of how genomic approaches can address applied questions.
- Ability to research independently and collaborate effectively within a multidisciplinary team.
- Strong communication skills, both written and oral.

Stipend $5,000.00 – $6,800.00 Monthly

Point of Contact Janeen

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree received within the last 60 months or anticipated to be received by 9/30/2026 11:59:00 PM.
- **Discipline(s):**
  - **Life Health and Medical Sciences** (51 👁)
- **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).