

Opportunity Title: USDA-ARS Entomopathogenic Fungi for Biocontrol of Nematodes and Insects

Opportunity Reference Code: USDA-ARS-NEA-2026-0387

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
- Two educational or professional recommendations

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

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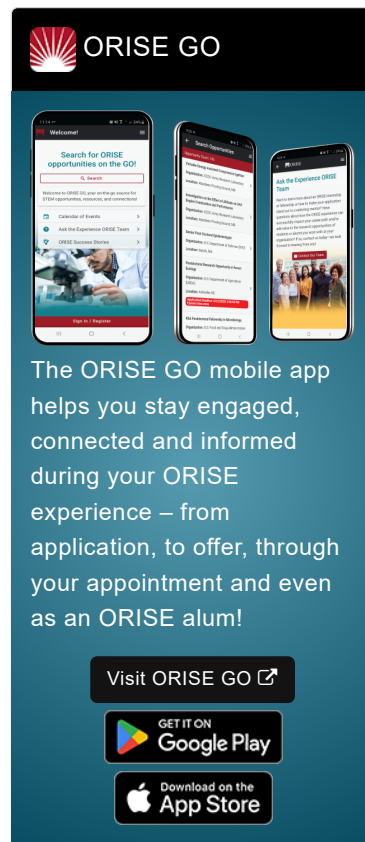
Application Deadline 12/4/2026 3:00:00 PM Eastern Time Zone

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 Ithaca, New York.

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: Under guidance of the mentor, you will participate in research investigating the use of entomopathogenic fungi for protection of plants against invertebrate pests, including the invasive beetle (emerald ash borer) and nematode (soybean and potato cyst nematodes) pests. A major focus of this project is investigating the role of microbial metabolites and toxins in antagonism of invertebrate pests and developing methods for formulating fungal and bacterial consortia for biocontrol. Training will be provided in sterile culturing of microorganisms (bacteria and fungi) and isolation of microbes from environmental samples. Research will also involve functional bioassays and growth chamber experiments to test biocontrol efficacy of fungi and microbial consortia against invertebrate pests and isolation



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of DNA and RNA for genome and transcriptome sequencing to understand mechanisms of antagonism of microbes against invertebrate pests.

Learning Objectives: During the appointment, you will;

- Learn how entomopathogenic fungi and microbial communities can be used as biological controls for plant-damaging invertebrate pests.
- Gain knowledge of invasive and agricultural pests, including emerald ash borer and soybean and potato cyst nematodes.
- Develop sterile laboratory culturing skills for bacteria and fungi.
- Gain hands-on experience isolating microorganisms from environmental samples and maintaining microbial cultures.
- Learn how microbial metabolites and toxins contribute to antagonism against insect and nematode pests.
- Develop familiarity with formulating fungal and bacterial consortia for practical biocontrol applications.
- Gain experience conducting functional bioassays and growth-chamber experiments to evaluate biocontrol effectiveness.
- Learn to collect, isolate, and prepare DNA and RNA samples for genome and transcriptome sequencing.
- Develop an understanding of how genomic and transcriptomic data can be used to investigate microbial mechanisms of pest antagonism.
- Build research skills in experimental design, data collection, and interpretation related to sustainable pest-management strategies.

Mentor(s): The mentor for this opportunity is Dr. Kathryn Bushley (Kathryn.Bushley@usda.gov). If you have questions about the nature of the research, please contact the mentor(s).

Anticipated Appointment Start Date: November 1, 2026 - March 1, 2027. Start date is flexible and will depend on a variety of factors.

Appointment Length: The appointment will initially be for ten months, but may be renewed upon recommendation of ARS and is contingent on the availability of funds.

Level of Participation: The appointment is full time.

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

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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 bachelor's or master's degree in one of the relevant fields (biological science, microbiology, mycology, entomology, nematology, plant sciences, molecular biology and genetics, plant pathology or related field). Degree must have been received within the past three years, or be anticipated to receive by 12/31/2026.

Preferred skills:

- Experience culturing and isolating microbes into pure culture and identifying them using DNA sequencing approaches.
- Experience extracting DNA and RNA from microbial and environmental samples and training in mycology, entomology, and/or nematology desirable.

Stipend \$3,500.00 – \$4,300.00 Monthly

Point of Contact [Janeen](#)

Eligibility • **Citizenship:** U.S. Citizen Only

- Requirements**
- **Degree:** Bachelor's Degree or Master's Degree received within the last 36 months or anticipated to be received by 12/31/2026 11:59:00 PM.
 - **Discipline(s):**
 - **Chemistry and Materials Sciences** ([2](#) )
 - **Environmental and Marine Sciences** ([2](#) )
 - **Life Health and Medical Sciences** ([19](#) )
 - **Age:** Must be 18 years of age