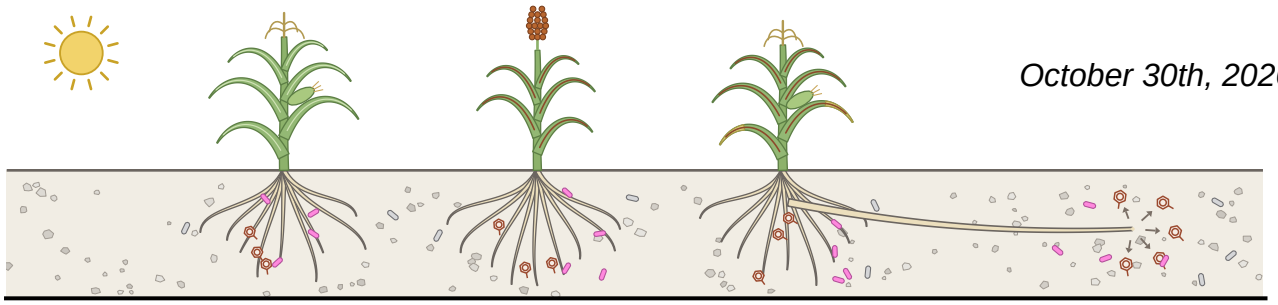


October 30th, 2026

The *Managed Ecosystems Microbial Ecology* Lab is recruiting an MS or PhD student to research how phenolic compounds released by roots shape the microbiomes of maize and sorghum. Phenolic acids select for bacteria that can degrade them while suppressing others, a 'push-pull' dynamic that may help beneficial, nitrogen-fixing bioinoculants establish in crops. Through this USDA NIFA project, the student will lead greenhouse experiments pairing brown midrib (BMR) mutants and nitrogen limitation with root exudate profiling, Casparian strip histology, and microbiome characterization. The student will learn and practice (i) methods for growing, phenotyping, and sampling plants and their exudates, (ii) profiling microbiomes using 'omics' data and stable isotope probing, and (iii) using bioinformatics tools to link root physiology with microbial activity.

The student will be co-advised by a microbiologist, Dr. Roland Wilhelm (Agronomy), and a plant physiologist, Dr. Morgan Furze (Botany and Plant Pathology). We are looking for someone with either a strong background in plant physiology (e.g., roots, exudation, or nutrient stress) and a strong interest in the microbiome, or a strong background in microbiology and a strong interest in root physiology. Experience in both is ideal.

Personal development is valued and will be supported through conference attendance, teaching, outreach opportunities, and customized development planning. We value a diversity of lived experiences and opinions, a collaborative work environment, and a test-fail-learn-repeat mindset. Liquid handling robots and student support are available to complement physical needs.

There are several different directions this research can progress, playing to the strengths of a candidate. The following are study systems and collaborations involved in this project:

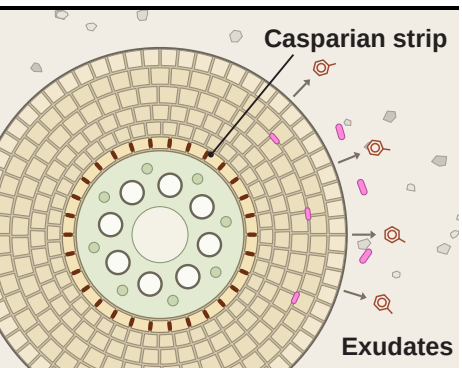
Study systems

- maize and sorghum (wild-type / brown midrib)
- greenhouse and field trials (Purdue ACRE)
- bioinoculants and synthetic communities
- 'omics' / stable isotope probing / *in silico*

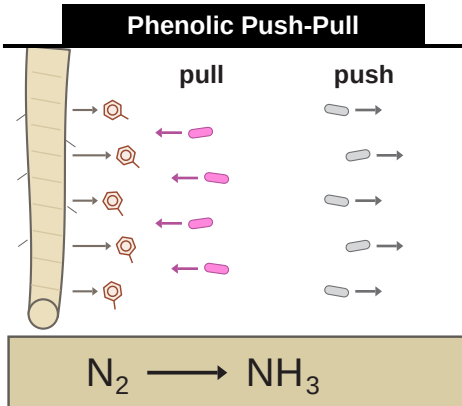
Collaborations / Applications

- Plant breeding and field trials (Dr. Tesfaye Tesso, Agronomy)
- Synthetic biology (Dr. Leo Green, Biomedical Engineering)
- High-throughput microbiome workflows (Purdue Applied Microbiome Sciences)

The position includes a research assistantship (stipend and tuition remission). To apply, please send a resume and a short cover letter to **rcwilhelm@purdue.edu** describing your research interests. Review of applications begins **December 15th, 2026** and continues until the position is filled. The start date is flexible.



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Start Building Your Career in Microbiome Sciences at Purdue

- New investment in the Purdue Applied Microbiome Sciences program
- State-of-the-Art Plant Phenotyping Facility
- Agricultural programs ranked 15th globally in 2021
- One of the world's most powerful super computers at your fingertips

Living in West Lafayette, IN

- WL is ranked the 15th safest and 8th best college town in the US
- Excellent biking and car sharing infrastructure
- A diverse and international community calls WestLafa home.
- World class recreational facilities / intramural leagues on campus
- Free public disc golf course and running / biking trails in town.
- Hotspot for college sports
- Great if you like being close to big cities *AND* affordable living
  - 4 daily trains to downtown Chicago (3.5 hr) and Indianapolis (1.75 hr)
- Easy weekend retreats to Indiana Dunes National Park on Lake Michigan

Apply and Visit Before you Decide!







