

Postdoc Research Assistantship in Soil Microbiome & Environmental Microbiology

Dr. Roland Wilhelm, Assistant Professor of Agronomy

Project Summary:

The project aims to optimize the soil health benefits of cover crops by utilizing carbon isotope-tracing techniques to advance the understanding of soil organic carbon (SOC) formation in diverse cropping systems. This work will support carbon management experiments at long-term field trials across Indiana, examining the contributions of cover crops such as CoverCress, cereal rye, clover, and winter wheat.

Postdoctoral Researcher Responsibilities

1. Baseline SOC Data Generation

Collect high-quality baseline SOC data, contributing to long-term assessments of carbon management (support by undergraduate summer interns).

2. ¹³C-Root and Litter Carbon Tracing

Apply ¹³C-labeling techniques to trace carbon flow from cover crop exudates and litter into soil organic matter and microbial biomass, including SIP-DNA experiments.

3. Advancing Soil Health Metrics

Employ isotopic measurements to refine conventional soil health metrics (such as PO_xC, respiration rates, and enzyme assays), benchmarking SOC changes with stable carbon isotope techniques (support by undergraduate summer interns).

This work will provide critical insights into the interactions between cover crop species and their contributions to long-term soil health and SOC sequestration. The postdoctoral researcher will play a key role in ensuring the success of the project's experimental designs and data collection.

Funding: 2 years with the opportunity to extend

Starting Salary: \$47,500 - \$52,500 (negotiable based on experience) + full benefits

Start date: January 2025 (flexible: can be earlier or later)

Contact: Dr. Roli Wilhelm
(rcwilhelm@purdue.edu)