

**Southwest Florida Research and Education Center**

**PhD Position: Biological Soil Crusts in Agroecosystems at the University of Florida**

A Ph.D. Research position is available in the Soil and Water Sciences Department for the exciting opportunity to characterize and examine the impact of biological soil crusts (BSCs) in agroecosystems. This is a joint project between the Soil Microbiology Lab at the Southwest Florida Research and Education Center (SWFREC) in Immokalee, FL, the Wetland Biogeochemistry Lab (Gainesville, FL), and the USDA-ARS Columbia Plateau Research Lab in Pendleton, OR.

Sustainable agricultural practices are increasingly important due to rising input costs and greater concern about environmental impacts. Biological soil crusts (BSCs), a naturally-occurring phototrophic consortium of microorganisms on the soil surface, were recently identified in local producer fields. BSCs are well-documented in arid ecosystems where they are a source of fixed nitrogen (N) and help improve soil moisture. This student will have the opportunity to participate in one of the first projects to characterize BSCs in agroecosystems, where they could benefit crop production by increasing soil N availability and enhancing water retention

Research will focus on characterizing the microbial community structure, metabolism, nitrogen cycling, and impact of BSCs on plants in agroecosystems in Florida and Oregon. Additional work will involve manipulation experiments to assess environmental factors driving BSC development and function, as well as <sup>15</sup>N tracer techniques to determine the uptake and fate of BSC nitrogen.

The candidate is expected to work in the laboratory as well as in the greenhouse and field with periods of work under hot and humid conditions. A Master's degree in soil science, microbiology, plant biology, or a related discipline from an accredited institution and experience in microbial ecology, next-generation sequencing, and/or bioinformatics is preferred.

Students will enroll in the Soil and Water Science Program, with tuition waver and assistantship. This project is based both on main campus ([www.ufl.edu](http://www.ufl.edu)) in Gainesville, FL, and at the SWFREC located in the heart of citrus and vegetable production in Florida. Visit the Department (<http://soils.ifas.ufl.edu>) and SWFREC ([swfrec.ifas.ufl.edu](http://swfrec.ifas.ufl.edu)) webpages for additional information. Interested candidates should contact Dr. Sarah Strauss ([strauss@ufl.edu](mailto:strauss@ufl.edu)) or Dr. Patrick Inglett ([pinglett@ufl.edu](mailto:pinglett@ufl.edu)). Complete application packets are due Jan. 15, 2018. Details regarding application can be found at <http://soils.ifas.ufl.edu/academics/graduate-studies/>.