

We are seeking 2 PhD students to work on a large multidisciplinary/multi-institutional project investigating the use of biodegradable plastic mulches in agriculture. These mulches are used to conserve water, suppress weeds and increase soil temperature, and they are a more environmentally friendly alternative to plastics. This project involves research (from faculty) on all aspects of mulch utilization including: material design (bioprocess engineers), application (specialty crop agronomists), biodegradation and soil quality (soil scientists), barriers to adoption (economists), and public perception (social scientists). Potential areas of study include:

1. Biogeochemistry: Determine how use of these materials influences soil carbon storage and nitrogen cycling, and what environmental factors influence mulch degradation rates in soils.
2. Microbiology: Identify the microbes and pathways involved in biodegradation of these materials, using both cultivation-dependent and independent (i.e. molecular) techniques.

Projects will involve both laboratory and field work at the University of Tennessee and Washington State University. Assistantships include tuition, 12 month stipend and health insurance.

The University of Tennessee-Knoxville is the state's flagship research institution. We are located in East Tennessee close to Oak Ridge National Laboratory and the Great Smoky Mountains National Park. The Department of Biosystems Engineering and Soil Science comprises an energetic group of tenure-track, research, teaching, and extension faculty, and >100 graduate and undergraduate students.

Qualifications:

- MS in Soil Science, Environmental Science, Microbiology or related field; OR a BS in one of these fields plus research experience
- Excellent written and oral English skills
- Willingness to conduct field research and ability to drive a motor vehicle
- Experience in stable isotopes, biogeochemistry and/or molecular microbial ecology desirable

Start date: January 2015

To apply, please submit a CV and a cover letter describing your experience and qualifications to:
Dr. Jennifer DeBruyn (jdebruyn@utk.edu) and Dr. Sean Schaeffer (sschaef5@utk.edu)