

MS Research in Agriculture and Climate Change, starting Summer 2017
Rubenstein School of Environment and Natural Resources (RSENR)
University of Vermont

Position: MS in agriculture and climate change

Project Overview

As climate changes increasingly affect agriculture, farmers and policy makers are challenged by how to best address climate change mitigation and adaptation. Central to this challenge is developing agroecosystems that improve soil health, increase soil carbon storage and mitigate agriculture's contribution to greenhouse gas (GHG) emissions, all while remaining economically viable. Most agricultural soils are currently a source of CO₂ and N₂O (a powerful GHG) but changing management practices have great potential to reduce these emissions and to even mitigate climate change. This project focuses on the capacity for different tillage practices, cover crops, and nutrient application methods to mitigate climate change by reducing GHG emissions and increasing soil carbon storage.

We seek a student to work with our team to quantify carbon storage and GHG emissions in conventional and alternative agricultural management systems (cropland). This work will address the potential for agricultural systems to be both productive (from the farmer's perspective) and provide a valuable service by mitigating climate change.

Responsibilities

The student will work with Dr. Adair (RSENR) and Dr. Heather Darby (UVM Extension) to quantify soil carbon storage and greenhouse gas emissions from two experiments in N. Vermont. These experiments will focus on the impacts of tillage (conventional vs. no till), cover crop usage, and manure application method and timing on yield, crop quality, soil health and carbon storage, and GHG emissions.

Duties will include writing a study plan, implementing sampling protocols, analyzing data, supervising technicians/undergraduate assistants, and preparing publications and presentations for scientific and lay audiences (e.g., to farmers and service providers). Applicants must be comfortable working independently and in inclement weather, operating field equipment and storing and processing soil samples after they are obtained. The position is currently funded for two years; during the first academic year, the graduate student will serve as a teaching assistant (TA) in RSENR.

Qualifications

- Applicants should demonstrate a strong interest in agroecology and biogeochemistry.
- The student should have a BS in ecology, plant and soil science, hydrology, environmental sciences (or related field) or have equivalent work experience.
- While not required, priority will be given to applicants with experience greenhouse gas sampling, using and maintaining lab equipment, and/or ecosystem modeling.

Application

Interested applicants should submit a letter of interest, names and contact information of three references, GRE scores, and CV to Carol Adair.

Carol Adair
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