



GRADUATE STUDENT POSITION

Project Title: Greenhouse Gases Emissions during Transition to Organic Agriculture

Sought degree: M.Sc.

Supervisor:

Dr. Guillermo Hernandez Ramirez, Associate Prof., Depart. of Renewable Resources at UAlberta.

Timeline for applications: until filled

Desirable timeline for beginning the program: January 2024 (this is a preferred start date, but this start date is flexible)

Project Description:

We are seeking candidates for a research project focusing on the transition from conventional agriculture to organic farming. Organic agriculture is a representative way of crop production, yet its sustainability is still unclear in terms of its impacts on greenhouse gas (GHG) emissions and soil carbon (C) sequestration. When practice during the transition from conventional agriculture to organic farming, conservation tillage can have the potential to mitigate GHG emissions and increase C sequestration in soils. However, adopting reduced tillage systems in organic crop production can be challenging, in part because tillage is a common practice for weed and nutrient managements.

This research opportunity aims at discovery new knowledge of whether and how organic agriculture can reduce GHG emissions and improve soil C sequestration. This effort encompasses the side-by-side evaluation of annual croplands as well as the integration of crop-livestock systems, including direct grazing. The goal is to undertake a whole system approach to alleviate GHG emissions and increase C sequestration while sustaining other ecological benefits of organic food production, and to overall advance net zero in agriculture.

We are seeking for a responsible student interested in this unique project.

Entry requirements:

Knowledge of soils, plants as well as nitrogen and carbon cyclings,

Proactive, flexible, dedicated, well-centered, responsible

Open to undertake scientific approaches and to engage intense numerical analyses, data interpretation and writing up of thesis findings, and publications.

Other key assets:

A teamwork aptitude — ability to work independently and with others,
A desire to deliver, share and present results in public,
A consistent willingness and availability to work outdoors in agricultural settings,
Computer skills,
A 3.3 GPA or better, and
A valid driver license and clean driving record/abstract.

This collaborative research project entails field activities in experimental and farm sites in Lacombe, Alberta. The MSc student will be conducting work in the outdoors in agricultural settings. For this project, the selected MSc student will be based in Edmonton, with day trips to Lacombe as necessary for completing research goals and activities in fields and laboratory spaces. Further laboratory activities and coursework will take place at UAlberta campus in Edmonton to complete degree requirements.

Please e-mail transcripts (scanned unofficial copy), CV, a letter describing any research experience and interests (1-page), and a list of three references with their corresponding contacts.

Keywords: Soil, Tillage and no-tillage systems, Green manures, Nitrogen fixation, Annual crops, Perennial crops, Direct grazing, Greenhouse gases emissions

Annual stipend: CAD 30,000

Contact Information: ghernand@ualberta.ca

Additional Information

University of Alberta is consistently rated as one of the top 5 universities in Canada, and one of the top 100 universities worldwide. Located in Alberta's capital city, Edmonton (population of one million people), University of Alberta provides a dynamic mixture of a large research intensive university, urban culture and recreation. More than 39,000 students (including 7,700 graduate students) from across Canada and 144 other countries participate in nearly 400 programs and 18 faculties.

Website

<https://www.ualberta.ca/agriculture-life-environment-sciences/about-us/contact-us/facultylecturer-directory/guillermo-hernandez-ramirez>
<https://landecosystems.ualberta.ca/>
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