

PhD position available – May 2025

PhD graduate student position in a Canadian N₂O flux network study


A fully funded 4-year graduate student position (PhD level) is available in a collaborative project between the Mueller Irrigation Research Group at Lethbridge Polytechnic (Lethbridge, AB) and the Department of Civil, Geological, and Environmental Engineering at the University of Saskatchewan (Saskatoon, SK).

The project is part of CANN2ONET, a collaboration network led by Dr Claudia Wagner-Riddle (U Guelph) between leading experts from post-secondary institutions across Canada with partners spanning industry, government, and producer organizations with the aims of better understanding nitrogen cycling in agroecosystems and developing strategies to guide partners' decisions towards emissions reduction goals.

The PhD student will be involved in a field experiment at the Lethbridge Polytechnic Research Farm, in which N₂O emissions are measured year-round over four large plots with the flux-gradient approach. The management treatments include irrigation and fertilizer types over a four-year rotation of cereals, canola, and pulses. The PhD project will focus on process-level understanding of N₂O emission pathways in irrigated systems before, during, and after the growing season and contextualizing this understanding in southern Alberta's environmental and climatic conditions.

We are looking for candidates with a background in environmental or agricultural sciences and a strong interest in micrometeorology and field-based research. Candidates should be highly motivated, well-organized, and skilled to work with large datasets in programming languages such as R, Python, or Matlab. A main responsibility of the PhD student will be operation of in-field scientific equipment (micro-meteorological sensors and a trace gas analyzer); prior experience with such equipment is considered an asset. Technical support is provided by technicians and research assistants at Lethbridge Polytechnic and CANN2ONET project partners. The PhD student will be expected to contribute to the larger CANN2ONET project goals by contributing to collection and processing of soil and biomass samples for other project partners, assisting with the preparation of reports, and presenting at progress meetings.

The student will be primarily based at Lethbridge Polytechnic. We offer a dynamic working environment within the Centre for Applied Research, Innovation, and Entrepreneurship with access to state-of-the-art field and laboratory equipment for soil, water, and biomass analysis. Lethbridge is a hub for agricultural research and strong relations exist between researchers at the Polytechnic, University of Lethbridge, and Agriculture and Agri-Food Canada. The student will complete coursework during the non-growing season at the University of Saskatchewan in Saskatoon, Saskatchewan. The PhD student will be enrolled in the NSERC-CREATE Food-Water Nexus Education and Training (FWNET) program at the University of Saskatchewan (<https://water.usask.ca/fwnet-create/>)

 The starting date is May 2025. Please email enquiries and applications, which should consist of a cover letter, email addresses of 2-3 references, and a CV, to **Dr. Warren Helgason**, warren.helgason@usask.ca and **Dr. Willemijn Appels**, willemijn.appels@lethpolytech.ca.