

**University of Guelph
School of Environmental Sciences**

MSc and PhD positions in project 'Diverse cropping systems as a best management practice: Insight from lysimeters on soil health, air, and water quality' available at University of Guelph for Fall 2016 and Winter 2017

We are seeking highly motivated individuals to study the impact of crop rotation diversification soil, air and water quality, specifically addressing the questions: (i) are diverse cropping systems actually beneficial for air and water quality? (ii) what are the trade-offs between soil, water, and air quality upon implementing a diverse cropping rotation?

We will address these questions using a newly-funded \$2 million soil lysimeter infrastructure, comprised of eighteen precision-weighting soil lysimeters instrumented for mass balance (carbon, nitrogen, water, etc.) studies, installed at the Elora Research Station. Each lysimeter is equipped with sampling ports and sensors (soil temperature and water content, soil matric potential, soil gas samplers, soil solution samplers) at 5 depths, sample collection of drainage as well as a soil gas chamber. Contrasting soil types (silt loam, sandy loam) and management (diverse vs. non-diverse crop rotations) will be studied with this infrastructure. The projects using this infrastructure are a collaboration with the Ontario Ministry of Agriculture and Rural Affairs, Grain Farmers of Ontario and Ontario Soil Crop Improvement Association. The students will have opportunities to interact with these organizations through meetings and presentation of research results to these stakeholders.

The ideal candidates will have a background in soil and crop science, particularly, soil water transport and greenhouse gas emissions. Field experience and knowledge of software for analyzing high frequency data (Matlab, R) would be an asset.

The minimum stipend will be \$16,500 for MSc and \$21,000 for PhD students. There are opportunities for additional funding through Teaching Assistantships and performance awards.

Please e-mail a statement of interest that highlights related experience, CV and transcript (unofficial copy is sufficient) to Prof. Claudia Wagner-Riddle (cwagnerr@uoguelph.ca) by July 31, 2016.