

Graduate Student Assistantship

M.Sc. or Ph.D. Assessing the Impacts of Nitrogen Management on N Cycle Processes and Nitrate Leaching in Potato Production

Supervision: Dr. David Burton, Environmental Sciences, NSAC
Dr. Bernie Zearth, Agriculture and Agri-Food Canada

Location: Field work will be conducted at AAFC Harrington Research Station located in Charlottetown, PEI. Course work will be at the Nova Scotia Agricultural College, Truro, NS.

Project: Nitrogen is an essential nutrient required for crop production, and crop N supply plays a critical role in determining yield and quality of agricultural crops, however, significant environmental losses of N can occur. The primary mechanism of N loss in intensive agricultural production systems is through nitrate leaching which may result in elevated groundwater nitrate concentrations. In particular there concern has been expressed regarding the potential for nitrate leaching associated with potato production. The magnitude and timing of nitrate loss from the root zone, and the degree to which this is influenced by N management, is not well understood. Similarly, the processes that control soil nitrate concentrations in potato rotations are poorly understood. Using a combination of innovative environmental sampling and stable isotope techniques, this study will 1) Quantify nitrate leaching under conventional and reduced input three-year potato rotations, and 2) quantify the major N processes controlling soil nitrate concentrations under potato cropping systems. This project is one component of a national inter-disciplinary project to assess linkages between management of agricultural crops and nitrate loading to groundwater.

Qualifications: Applicants must possess a minimum of a B.Sc. honours degree in soil science, agriculture, biochemistry, microbiology, environmental sciences, or a related field. A minimum GPA of 3.0 in the last two years of study is required for admission. Interest in and knowledge of nitrogen cycling processes, stable isotopic techniques and/or the agronomy of potato production would be a strong asset. Strong written and oral communication skills are expected of the successful candidate. Candidates wishing to pursue PhD studies will be required to register at an affiliated university offered a PhD program.

Stipend: The successful candidate will be eligible to receive a stipend (M.Sc.: \$21,000 per year for two years; PhD: \$25,000 per year for three years) plus medical and dental benefits.

Start Date: Immediately with a January of 2010 official start date in the M.Sc. or PhD program.

To Apply: For additional information on the research project and to submit the application, please contact: Dr. D.L. Burton, Department of Environmental Science, Nova Scotia Agricultural College, P.O. Box 550, Truro, NS B2N 5E3, Canada; e-mail: dburton@nsac.ca Phone: +1 902 893 6250.

For further information about the M.Sc. Program at NSAC contact Marie Law at mLaw@nsac.ca or visit the NSAC web site at nsac.ca/research/graduatestudies/

The Master of Science program with a specialization in Agriculture is offered by NSAC in conjunction with Dalhousie University