



Lethbridge Research Centre, Lethbridge, Canada

Postdoctoral Fellowship Opportunity (2013)

farm LCA / farm energy budgeting

Background: On behalf of the Government of Canada, Agriculture and Agri-Food Canada (AAFC) undertakes research to achieve security of the food system, health of the environment and innovation for growth. Within this broad mandate, an important objective is to assess and to manage the risks to environmental quality and public health created by agriculture. We are therefore focussing our current research efforts on developing the life cycle assessment capabilities of the Holos model in order to provide producer, producer groups, and scientists with a tool to assess the energy efficiency of Canadian farming systems, an estimate that will contribute to the accuracy of carbon footprint calculations and to assessing environmental footprints.

Description of the post-doctoral work: The successful candidate will focus on creating a life cycle inventory with respect to Canadian farm energy use for the Holos model, an AAFC farm-level greenhouse gas calculator intended for development as an environmental impact tool. To start, the candidate will revisit existing farm energy models (e.g., GHGenius and F4E2), and use the gained insight to improve farm machine use considerations (energy use, GHG emissions) within the Holos model. This involves assessing the types of energy used in consultation with the Holos development team. The candidate will build an energy budget (in- vs. outputs), based on understanding gleaned from scientific literature and other sources. The candidate will report findings to collaborating scientists and at Holos workshops. Scientific publications will focus on a) life cycle inventory building, b) model development, and c) scenario analysis. The candidate will join the HOLOS development team at the Lethbridge Research Centre.

Qualifications of the Candidate: Candidates preferably have a background in life cycle analysis, agriculture or modelling ecosystems; demonstrated expertise in model development and environmental impacts from farming systems would be an asset. Also required is the ability to design, conduct, and present the results of research projects.

Location and Scientific Supervision: [Lethbridge Research Centre](#), located about 200 km SE of Calgary, Alberta, Canada.

Conditions: The candidate must be Canadian citizen or Canadian permanent resident. The PDF position is available immediately or as soon as a suitable candidate is found. The stipend under the Fellowship Program presently is \$47,234 per year CDN. Fellowships are awarded annually, and up to a maximum duration of 3 years. The successful candidate will be supported by the NSERC and thus must be eligible to hold a "[Visiting Fellowship in Canadian Government Laboratories](#)".

Application: Please email a CV, a statement describing your motivation and eligibility to apply, and names of three potential referees **as a single PDF file** to [Dr. Roland Kroebe](#) (use subject line: postdoctoral fellowship Energy-Budget 2013). To qualify, the candidate will have to [apply formally through NSERC](#).

Postdoctoral work tasks:

Tasks 2013 / 2014	Q1	Q2	Q3	Q4
Literature review on LCA, inventories, impact factors, indicators	X	X		
Review GHGenius and F4E2 model, Alberta Farm Energy Carbon Calculator		X	X	
Derive a simplified calculation approach for machinery energy use (publish)			X	X
Stakeholder workshop (progress, planning, and feedback)				X
Tasks 2014 / 2015				
PDF 2				
Build energy budget for Holos based on lit review and LCA databases	X	X		
Investigate and create climate dependent LCA inventory values (publish)			X	X
Stakeholder workshop (progress, planning, and feedback)				X
Tasks 2015 / 2016				
PDF 2				
LCA of Canadian farming systems (publish)	X	X	X	X
Stakeholder workshop (progress, planning, and feedback)				X