



Agriculture et
Agroalimentaire Canada

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Agri-Food Canada

Lethbridge Research Centre, Lethbridge, Canada

Post Doctoral Fellowship Opportunity (2012)

“Modelling Greenhouse Gas Emissions from Beef and Dairy Farms”

Keywords: greenhouse gas modelling, methane, life cycle assessment, carbon footprint of milk and beef

Background: Canadian agriculture is faced with the challenge of reducing its contribution to greenhouse gas (GHG) emissions while meeting an increase in food demand. As such, researchers at Agriculture and Agri-Food’s (AAFC) Lethbridge Research Centre have been studying the potential of mitigating GHG emissions from Canadian beef and dairy farms. The focus of the research has been on reducing enteric methane production through changes in diet and animal husbandry. However, beef and dairy farms are complex ecosystems, and changes in one part of the farming enterprise can have consequences elsewhere. To reliably evaluate the net overall benefits of a mitigation practice, it is necessary to consider its effect on the whole ecosystem with all its multiple constituent processes. The only practical way of doing this is through the use of models and life cycle assessment.

Description of the post-doctoral work: The candidate will work as part of a team of scientists with expertise in animal nutrition, animal husbandry, soils, cropping systems, and micro-meteorology. With the assistance of a computer programmer, the candidate will be involved in enhancing Holos, a whole farm GHG model developed by AAFC scientists. The emphasis will be on developing improved approaches for estimating enteric methane production from cattle that account for diet composition and mitigation using feed additives. The candidate would also assist with expanding Holos to estimate ammonia emissions from ruminant livestock. The intent is to conduct explorations using the improved Holos model to develop an understanding of the GHG emissions from current beef and dairy production systems in Canada, and to assess the potential impact that changes in diet and animal husbandry may have on reducing the carbon foot print associated with producing meat and milk. The candidate will also have an opportunity to participate in other aspects of GHG research, including studies to measure dietary effects on methane emissions using whole animal chambers, tracer gases, or micro-meteorological techniques.

Qualifications of the Candidate: The candidate requires a PhD, with expertise in ruminant nutrition, environmental modelling or related field.

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

Conditions: The position is for 1 year minimum, renewable for another 2 years (renewal dependent upon progress and funding). Tentative start date is Feb-May, 2012 (negotiable). The stipend under the Fellowship Program presently is \$47,234 per year. The candidate must be eligible to hold a “Visiting Fellowship in Canadian Government Laboratories” through NSERC

http://www.nserc-crsng.gc.ca/Students-Etudiants/PD-NP/Laboratories-Laboratoires/index_eng.asp

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