



THESIS OPPORTUNITY: Use of a methane inhibitor and intensive management to optimize the environmental and animal performance of grazing cattle.

Summary of the project:

Methane (CH₄) emissions from the enteric fermentation of ruminants account for 40% of the emissions from Quebec's agricultural sector. Due to its strong short-term warming potential, all scenarios limiting global warming to 1.5 degrees Celsius imply a sharp reduction in CH₄ emissions, including those from ruminants. As for long-term climate stabilization, it will require removing carbon dioxide already emitted into the atmosphere. Improved pasture management is a practice with a high potential for carbon sequestration and storage. Consequently, it is imperative to develop new strategies that increase animal productivity and significantly reduce CH₄ emissions while keeping animals on pasture.

Unfortunately, the vast majority of studies on ruminant CH₄ emissions are conducted in confined environments or in vitro, and currently available CH₄ reduction strategies for grazing animals are limited.

To address these various challenges, this project aims to evaluate the impact and interaction of two avant-garde pasture management strategies on the average daily gain and enteric CH₄ emissions in beef cattle. These strategies are the intensive grazing management and supplementation with a CH₄ inhibitor directly in the drinking water.

Specifically, the selected PhD student will work on the following sub-objectives:

- Study the quantities and daily distribution of water consumption by grazing cattle in response to pasture management and weather conditions.
- Evaluate the impact of pasture management intensity on CH₄ emissions and cattle weight gain.
- Evaluate the impact of additive concentration in drinking water on CH₄ emissions and weight gain of grazing cattle.
- Determine the cost of emission reductions achieved through intensive pasture management and supplementation.

Start date: September 2026 or January 2027

Financial support: The selected candidate will receive a stipend of \$26,000/year for three years. Financial support for participating in conventions and conferences is also provided.

Team: The doctoral program will be supervised by Simon Lafontaine, Ph. D., Rodolpho Martin do Prado, Ph. D. (Université Laval) and Bart Lardner, Ph. D. (University of Saskatchewan)

Candidate Profile:

The successful candidate must be on track to complete a master's degree in agriculture, animal sciences, biology, or a related discipline. They must demonstrate intellectual rigor, meticulousness, autonomy, and organizational skills, along with a strong interest in research. This individual is dynamic, benevolent, and easily integrates into a new environment. The selected candidate will be required to apply for the [customized PhD program in agriculture \(1482\)](#) at UQAT and will be guided by the professor through this process.



Your Responsibilities:

- Conduct a literature review
- Carry out fieldwork
- Perform laboratory analyses
- Analyze the obtained results using statistical methods
- Present research findings at scientific conferences and regional events
- Write a doctoral thesis
- Author and draft scientific articles

Location:

The PhD program will take place at UQAT's Agriculture and Agri-Food Research Institute (IRAA), specifically at the Dupuy silvopasture experimental site and the Témiscamingue Centre in Notre-Dame-du-Nord. The IRAA team consists of approximately fifteen full-time staff members. Student residences, built in 2025, are located within walking distance of the Témiscamingue Centre. Housing options near the Dupuy site are also available. Hybrid work is available when field and lab schedules permit.

Contact Person and Contact Information:

Interested candidates must send their cover letter, curriculum vitae, and a copy of their academic transcripts, specifying the title of the offer, to:

Simon Lafontaine, Ph. D., agr.

Assistant Professor

Université du Québec en Abitibi-Témiscamingue (UQAT) | Institut de recherche en agriculture et agroalimentaire (IRAA)

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