

MSc/PhD Position



University of Guelph

School of Environmental Science (SES)

POSITION: *MSc OR PHD STUDENT*
ADVISOR: *DR. BRANDON GILROYED*
START DATE: *JANUARY, 2018*
DURATION: *2-3 YEARS*
STIPEND: *\$20,000/YEAR*

Project Description:

Rapid, biosecure, and environmentally responsible disposal of deadstock is an important issue for Ontario livestock producers, particularly during emergency events in which catastrophic mass mortalities occur. During an emergency event, minimizing the time between animal death and biosecure disposal is essential for ensuring biosecurity and limiting environmental impact. The number of mortality management options available for mass disposal is limited and each has significant disadvantages. Some pose biosecurity risks (e.g. landfilling), others environmental risk (e.g. burial), while others require additional materials and expertise (e.g. composting), or are not high throughput to keep up with animal death due to disease or euthanasia (e.g. incineration). We propose to evaluate ambient alkaline hydrolysis, in which alkaline hydroxide chemicals are used to degrade mortalities at ambient temperature and pressure, as a biosecure method of mortality management for consideration during emergency events. Alkaline hydrolysis is known to eliminate pathogens and prevent putrefaction of animal tissues, but the remaining hydrolysate is highly caustic. We propose to test three neutralization techniques, including mixing with silage, CO₂ sparging, and inorganic acid addition, as means to neutralize hydrolysates. We also propose to determine the biogas and fertilizer value of hydrolysates when they are further processed via anaerobic digestion.

Pre-Requisites:

B.Sc. in Environmental Sciences, Biology, Chemistry, Animal Agriculture, or Engineering.

Stipend & Awards:

The standard University of Guelph, SES stipend rate will apply (see SES website for more information). The successful candidate will be encouraged (and mentored) to apply for a range of scholarships. Only successful applicants will be contacted for an interview. Position to remain open until a suitable candidate is found.

Please Contact *Brandon Gilroyed* at bgilroye@uoguelph.ca for more information or to apply for the position. For additional information, please visit: <https://www.ugrc-cares.com/project-1>. **To Apply**, please send cover

letter, resume/CV, a sample of your written work (e.g., undergraduate written report, graduate thesis), a copy of your unofficial transcript and statement of interest (1 page only) to: bgilroye@uoguelph.ca