school of environmental sciences

The Research Seminar Presentation by

Zack Debruyn

will be held on

Tuesday November 24, 2015

At 11:10 am

ALEXANDER HALL 337

Title: Inferring methane emission rates from anaerobic digestion on a dairy farm.

Abstract

The agricultural sector is a large source of greenhouse gases. CH_4 emissions from the management of livestock manure are estimated to be around 470 Mt CO_2e/year globally. Manure management systems which use liquid storage will encounter CH_4 as a result of anaerobic bacterial activity. Anaerobic digestion is a manure management practice which seeks to capture and combust the CH_4-containing biogas produced from liquid agricultural waste. The production of biogas presents an opportunity to reduce GHG emissions through fuel substitution. However, biogas capture efficiencies, as well as emission rates from processed waste (digestate) are not well quantified. This study will use micrometeorological measurements to estimate CH_4 emissions from manure management on a dairy farm operating an anaerobic biodigester. Whole-farm emission rates may be calculated using inverse dispersion modeling. A micrometeorological mass balance method will be used to measure emissions from digestate. Both techniques will be tested for accuracy and sources of error through controlled release trials. The results of this study will inform the construction of agricultural GHG inventories.

Everyone is welcome to attend

(This is a Research Proposal presentation by students in ENVS*6900)