



ENVIRONMENTAL, HYDRAULICS, WATER RESOURCES SEMINAR

Dr. Mario Tenuta

Canada Research Chair in Applied Soil Ecology
Department of Soil Science
University of Manitoba

Are Greenhouse Gas Neutral Cropping Systems Possible?

Despite the goal of cropping systems being to convert carbon dioxide (CO₂) in the atmosphere to organic carbon for caloric needs of humans and animals, these systems are considerable sources of greenhouse gases. The long-term sustainability of cropping systems arguably depends upon neutralizing greenhouse gas emissions. This presentation presents the examination of two approaches to create greenhouse gas neutral carbon systems.

Perennial legume forages have the potential to increase soil carbon sequestration and decrease nitrous oxide (N₂O) emissions to the atmosphere when introduced into annual cropping systems. However, little is known about what short-term effect the return to annual cropping following termination of perennial legume forage would have on CO₂ and N₂O emissions. A long-term field experiment to continuously measure CO₂ and N₂O fluxes was established at the Trace Gas Manitoba (TGAS-MAN) Long Term Greenhouse Gas Monitoring Site in Manitoba.

From the studies, creating greenhouse gas neutral cropping systems proves to be a daunting challenge. It is hoped that a lively discussion will ensue about current and future means to obtaining greenhouse gas neutral cropping systems.

Date: Monday, March 10th 2014

Place: ETRL 101

Time: 4:10 p.m.

