



Abstract:

Allan Thomson, Dalhousie University

Research Advisor: Dr. Kenny Corscadden

Category: Alternative Energy & Sustainability

Evaluation of Nova Scotia Agricultural Resources Available for Biomass Production and Utilization

The agricultural industry, especially the greenhouse, mink and poultry industries are heavy users of heat throughout the year. Coupled with available land resources, this places the industry in a unique position of being able to develop and provide both the supply and the demand of biomass based products, with the added benefit of available markets out-with the industry.

While there is a broad understanding of some of the available resources necessary in Nova Scotia for the development of a biomass based sector, there are a large number of gaps missing before its feasibility can be fully determined. The primary objective of this research is to develop a process which can be used to make informed decisions regarding the development and future outlook of a biomass industry and the use of biomass systems and products.

The preliminary questions raised include: what are the available and required resources for the production of biomass crops? How can these crops be used and what final product yields can be expected? What is the current energy practices within the agricultural industry? And, how ag-biomass production impact upon the environment, energy consumption and agricultural producers' bottom line?

A major component of this research aimed at answering these questions, focuses around the Life Cycle Analysis (LCA) of viable biomass suitable for the province, identified as: Short Rotation Coppice (SRC) Willow, Switchgrass, Reed Canary Grass and Miscanthus.

The LCA approach will look at individual case studies, focusing on current production trials, for the production, processing and utilization of the selected biomass feedstocks. The LCA approach will identify emissions and energy throughput and allow for comparisons to be made against the traditional fossil fuels.

By filling in the missing 'information gaps', this research is intended to benefit the agricultural and energy industries in the future development of an agricultural biomass industry.