

PARTNERING WITH SWEDEN TO GROW THE BIOECONOMY

Michigan and Sweden have 4,500 miles and the Arctic Circle between them. But the state and country have surprising similarities once you get beyond the blond hair and the mountains.

The population of each is roughly the same, as is the determination to reduce dependence on petroleum products. Sweden has a national initiative to eliminate all uses of fossil fuel-based products by 2020 and instead use products made from renewable resources. In 2006, MSU President Lou Anna K. Simon created the MSU Office of Biobased Technologies to marshal MSU research and resources to help foster connections with public and private sector initiatives designed to expand Michigan's bioeconomic sector.

Neither Michigan nor Sweden has enormous amounts of investment capital, so each is developing innovative approaches to push the transition to a bioeconomy. By harnessing the power of collaboration toward a shared goal, the state and the country are going places neither could go alone.

MSU researchers are working closely with Swedish scientists and entrepreneurs to create new bio-products and bioprocesses. The collaborations are pointing the way to a more thoughtful relationship with the environment and improving the economies.

Potential collaborations:

- **Developing guidelines and**

demonstration projects for whole-tree harvesting that ensure sustainability. In Sweden, whole-tree harvesting guidelines have been in place since 2001 and are being revised. This is a good opportunity to collaborate and share experiences in developing and implementing the guidelines. Demonstration areas in Michigan's Upper Peninsula and northern Sweden also are a possibility.

- **Developing multiple-use forest management plans.** In both Michigan and Sweden there is a need to manage forests for increased wood production, wood fuel extraction, and hunting and other leisure activities.

- **Research on short-rotation forestry.** Short-rotation systems aren't used widely in either country; research could focus on incentives that could make short-rotation forest biomass economically feasible.

- **Techniques to gather logging residues during tree harvest.** The emerging bioenergy sector has increased interest in extracting logging residues (scrap branches and wood) after harvest. In Sweden, extracting logging residues has been an important source of wood-based energy for more than 25 years. In Michigan, large-scale harvest of logging residues is still in its infancy.

- **Research on mechanized harvest of small trees.** Small trees usually are expensive to harvest. Several Swedish concept machines are ready to be commercialized, but the Swedish (and Finnish) markets are too small to support commercial production. Co-development of the harvesting machines in Sweden and Michigan could be beneficial for both entities.

- **Commercialization of combined heat and power (CHP) systems.** In Sweden, district heating and CHP systems that use biomass (including solid municipal waste) is the norm. Almost every city has district heating systems that supply the majority of households. Sharing experiences and establishing demonstration plants could provide an important development boost and be a first step toward commercialization.

**MICHIGAN STATE
UNIVERSITY**

EXPANDING THE BIOECONOMY
WITH WOODY BIOMASS

FACT SHEET

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June 2009