

UNIVERSITY OF MINNESOTA

**EXTENSION**

# **Local Opportunities for Biomass Energy Production**

Michael Sparby & Randy Hilliard, Agricultural Utilization Research Institute

Fueling the Future:

The Role of Woody and Agriculture Biomass for Energy Workshop

February 18, 2009

Roosevelt

Sponsored by:

University of Minnesota Extension, Roseau and Lake of the Wood Counties;  
Minnesota Department of Natural Resources

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Agricultural Utilization Research Institute**

# AURI Mission

- Identification and expansion of markets for new or existing commodities, ingredients and products;
- The development of new uses or value improvements for Minnesota agricultural commodities;
- The development of ag-based, renewable energy opportunities

# What we do

Sole focus is adding value to MN agriculture

- Scientific, technical assistance
  - *R&D for MN agriculture and rural processors*
  - *Technical and market feasibility*
  - *Analytical testing of processes/products*
- Broad impact initiatives
  - *Identify emerging opportunities with potential to impact large number of producers*

# AURI Facilities

- Meat Lab, Marshall
- Fats & Oils Lab, Marshall
- Coproducts Lab, Waseca
- Product Development Kitchen, Crookston
- Microbiology Lab, Crookston



# Biomass

- **Abundant resource**
- **Economics – biomass vs. fossil fuels**
- **CO<sub>2</sub> balance**
- **Federal, State, and Local incentives**
- **Value-added opportunities**
- **Bulk, moisture, handling, storage, harvest and transportation are primarily limiting issues**



# Logistical Challenges

- Densification

- *Pelletizing*
- *Briquetting*
- *Pyrolysis*



- Collection and storage

- *Corn Cob Collection Demonstration*

- *Chippewa Valley Ethanol Coop, WCROC, ARS-Lab Morris, Department of Commerce, MN Corn Growers and AURI*



TOPTANK  
U.S. Patent 6,108,911 B1

CASE IH

2500

CASE IH

2500

Commander



2588

APS

CASE IH

AXIAL-FLOW

CASE IH

CLEAN OIL



**TOPTANK**  
Private Property



4555



TOPTANK



AULICK

6-715



7010

CASE IH

AXIAL-FLOW

CASE IH

Vermeer  
CC870





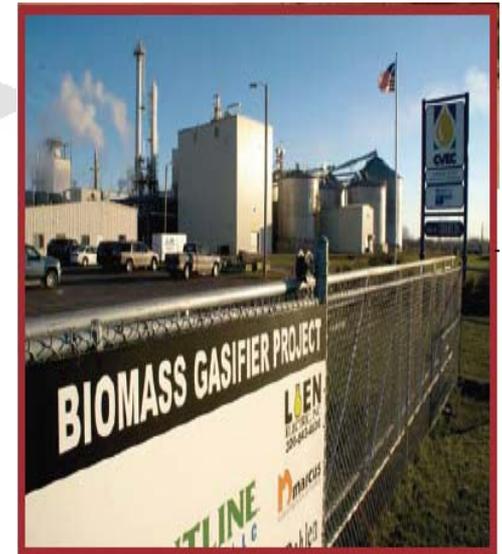






# MN Biomass Activities

- *Renewable Energy Assessment Template*
- *Central Minnesota Ethanol Cooperative*
- *Northern Excellence Growers, grass screening gasification*
- *Roseau Gasification-natural gas and nitrogen*
- *Chippewa Valley Ethanol Cooperative*





# MN Biomass Activities

- *Hill Wood Products*
- *Sunrise Agra Fuel*
- *Alternative Energy Solutions*
- *Kota Energy*
- *Fibrominn*





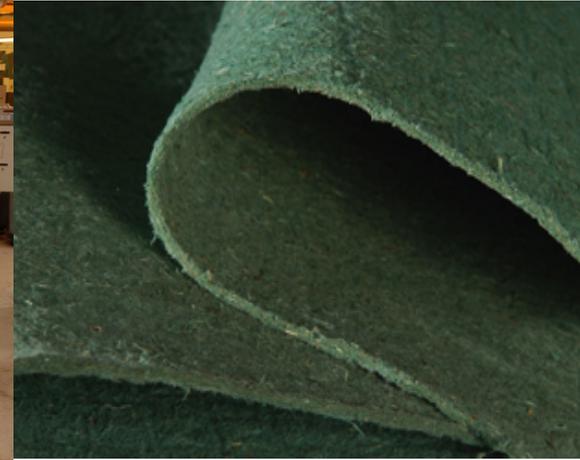
# Co-products Opportunities

- **Ash**
  - *Fertilizer*
- **Stabilized manure**
  - *Bedding/fuel/fertilizer*



# Biomass Bio- Products

- **Compost-A-Mat**
- **Limpert Brothers**
- **American Crystal Sugar**
- **Environ**
- **Pet Care Systems**



# The Opportunities Are Here! Questions?

