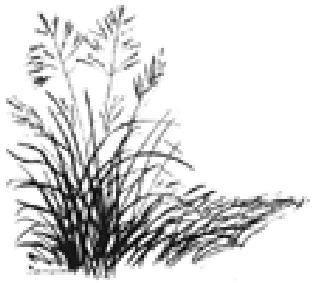
Developing the Fuel Supply

2009 Cellulosic Ethanol Summit
Almas Temple Club
Washington, DC
November 16-19, 2009

Prairie Lands
Bio-Products, Inc.



Introduction

- Locally lead Chariton Valley Biomass Project, cofiring project at Alliant Energies Ottumwa Generating Station…
- Collaborative Effort between USDA and DOE
- 1996 won by competitive bid under Biomass Power for Rural Development
- Chariton Valley RC&D is completing close out documentation for DOE and evaluating assets for disposition

- Project Partners and Team Members Included:
  - **Chariton Valley RC&D** - Cooperative Agreement Holder
  - **Alliant Energy** – Power Plant Operations, principle provider of cost share
  - **Prairie Lands Bio-Products, Inc**.-Producer group fuel supplier
  - **John Deere Works, Vermeer, Kelderman Mfg.,**
  - **IDALS, IDNR, USDA FSA/NRCS Soil & Water Districts, Iowa Energy Center, Leopold Center of Sustainable Agriculture, Iowa State University/ISU Extension, University of Iowa, Center of Global & Regional Environmental Research Center, and Iowa Farm Bureau Federation**
  - **Antares Group, Bradford Conrad & Crow Engineering, Danish Oil & Natural Gas, and TR Miles Technical Consulting**
  - **NREL and ORNL**

Farmer Involvement-Developing Industry

- Prairie Lands Bio-Products, Inc. objectives:
  - Developed fuel supply for 3 test burn campaigns over a 7 year period
  - Evaluated production systems to grow switchgrass feedstock on marginal producing farmland
  - Assisted agriculture and boiler research activities for the Biomass Project
  - Harvested and stored feedstock for project duration
  - Delivered feedstock for each burn campaign
  - Provided staffing for the test campaigns

Conservation Benefits Goals

- Reduce soil erosion
- Improve soil tilth
- Improve water quality
- Enhance wildlife benefits
- Produce clean burning energy crop

Agronomic Goals

- Create non competing use of fragile lands in region
- Create new industry from agriculture production
- Promote sustainable ag production on highly erodible lands
- Promote system with positive carbon benefit to producers
- Develop an energy cropping system

Is It Sustainable?

Multi-stakeholder group involving academia, industry, NGOs and government, focused on biomass and second generation biofuels

www.csbp.org

Sustainability of Biomass Production

- ***"meeting the needs of the present without compromising the ability of future generations to meet their own needs by adopting practices that are environmentally, socially and economically sound"***
  - 1987 United Nations Brundtland Report

- Opportunities before us:

OR

- Challenges that we must face:

PL ID'd additional needs for biomass production

- Biomass production agriculture works in a space with no **infrastructure**
  - No system parallel to grain elevators to carry shrink and expansion in markets
  - No pricing mechanisms or exchanges, such as CBOT, for establishing value or pricing parameters
  - No universal mechanized handling system, such as 8 inch auger or hopper bottom truck for standardized delivery system
  - No high volume standardized processing system to provide BMP to harvesters and producers
  - No consistent laws handling interstate transport or financial transaction requirements
  - No risk management tools covering production risks

Assumptions in Biomass Space

- Everyone has a plan/great idea to propel biomass forward; but does it work for agriculture and farmers!
- Everyone promotes system design for processing biomass; but can it be supplied today efficiently and economically!
- OEM farm machinery seek to adapt current harvesting equipment for biomass; but do these packages work efficiently in a system!
- Everyone wants biomass **CHEAP!**
- And; everyone wants sustainability, but on their own standards!

THE TIME IS RIGHT

- Carbon Legislation
- Reduction in acres under CRP Contracts
- BCAP (Biomass Crop Assistance Program)
- Renewable Energy Interest from Consumers
- Energy Independence
- Sustainable energy and agriculture production
- Rural Economic Development

What Needs to Be Done

- Move Technology, Economics, End User and Producer onto same page…….
- Educate consumers on building sustainability into the biomass arena……
- Get message out that companies and farmers are make responsible decisions in the biomass arena…
- Not let ***"perfect stand in the way of good"*** as we make progress with this national security and environmental opportunity…….

Elements Missing!

- Agriculture in United States is **not** prepared
- Key incentives lacking to foster farmer/landowner decisions
- Farmers/landowners lack capital to build both infrastructure and feedstock to support biomass industry
- Farmers/landowners not used to long term contractual multi-year commitments
- Farmers/landowners fairly risk intolerant.
- Biorefineries or power companies require moving quickly towards a supply agreement
- Little to no capitol investment available for ventures

- If we think “build it (cellulosic ethanol) and they (farmers) will come” – We will all be sadly disappointed

There is a bright future for Agriculture

- Prairie Lands is participating in a DOE Logistic and Handling Award
- Prairie Lands is putting a package together to purchase the Chariton Valley Biomass Facility
- Prairie Lands is modeling a biomass fuel supply business
- Prairie Lands is pursuing risk management tools which will underpin production and capital risks

Harvesting Technology

Mowing Technologies

Feedstock Storage Technology

Investigated storage options to maintain feedstock quality
Fully enclosed buildings ensure low moisture, high BTU value

Grapple Handling Systems

GOAL: Grapple system to reduce motion and increase handling ease for operator

Quality Control in Baling Packaging

GOAL: Achieve uniformly dense package of consistent size and shape for handling and storage efficiencies

Biomass might look like!


Miscanthus Giganteus


Corn stover


Sorghum stover


Switchgrass bale

Closing Thoughts

- There is a real need for USDA to assist farmers, ranchers and rural landowners with programs to manage our risk!
- There is a need for American Agriculture to get financial support to build the supply and infrastructure to support the biomass space!
- There is a need to do it **now!**

Contact Information

- Bill Belden, Prairie Lands Bio-Products, Inc.

  6123 270th Place

  Moravia, IA 52571

  641-895-9907

  bbeldenjr@gmail.com