



# Biomass Program

## Feedstock Supply System Logistics

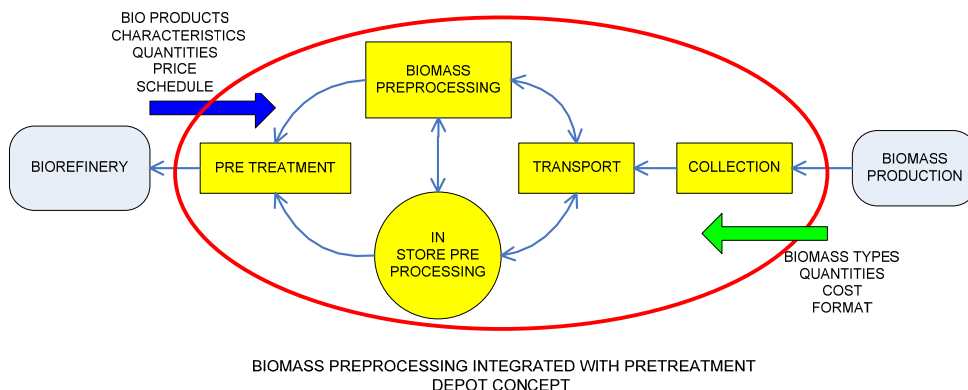
Feedstock supply is a significant cost component in the production of biobased fuels, products, and power. The uncertainty of the biomass feedstock supply chain and associated risks are major barriers to procuring capital funding for start-up biorefineries. To facilitate the establishment of a reliable feedstock infrastructure, researchers are: 1) developing innovative supply options to meet the 2012 feedstock target of \$35 per dry ton biomass delivered; 2) quantifying resources and capital for the timely delivery of biomass to biorefineries; and 3) integrating biomass supply and conversion operations to make the final price of biofuels competitive with fossil fuel products.

Supply and preprocessing operations are simulated using logistics models which optimize every operation along the biomass supply chain with respect to cost, quality, and quantity. This model, the Integrated Biomass Supply

Analysis & Logistics (IBSAL) model, accounts for agricultural risks and integrates the supply chain with the conversion process to achieve a minimum cost biofuel and/or bioproduct. Extensive analyses to date indicate the need for the development of one-step harvest, densification, and bulk flow infrastructure.

### R&D Pathway

Researchers are validating other low cost biomass options including wet storage. A peer reviewed paper on wet storage systems for corn stover outlines opportunities to store large quantities of biomass for extended periods. Other activities include developing a model for simulating wet storage to optimize storage parameters (particle size, moisture content, compaction, biochemical reactions); updating the web-based cost data and costing methods; and developing a validated dry feedstock supply design on integration of biomass and preprocessing operations for regional biomass centers.



## Feedstock R&D

### Benefits

- Develop models for assessment of feedstock supply chain options, including costs
- Provide optimized parameters for wet and dry feedstock quality and quantity in support of biofuel production

### Applications

Knowledge of efficient feedstock handling and storage will lead to competitively-priced ethanol made from a mix of biomass sources.

### Project Participants

Oak Ridge National Laboratory  
Idaho National Laboratory  
National Renewable Energy Laboratory  
Iowa State University  
Chariton Valley Resource Conservation & Development  
University of British Columbia  
University of Tennessee  
Virginia Tech University  
U.S. Department of Agriculture

### Project Period

FY 2000 – FY 2010

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