# Biomass Program

## Collection, Commercial Processing, and Utilization of Corn Stover

The energy potential of corn stover – a crop residue that comprises the cob, leaves, and stalk of the corn plant – has been largely underutilized. Researchers are working on ways to take advantage of corn stover resources by developing new technologies that assist in the harvesting, transport, storage, and separation of these residues. Such technologies would make it possible to consistently supply clean, raw, stover-derived materials to downstream processors for production of valuable chemicals and materials from biomass.

A second goal is to engineer a fermentation system that will meet performance targets for the commercial manufacture of lactic acid and ethanol from corn stover.

Investigators hope to:

- Improve the consistency and quality of raw materials for downstream processing
- Neutralize the impact of weather conditions on raw materials
- Eliminate the potential fire hazards associated with stored biomass
- Encourage wide-spread adoption of sustainable stover harvest

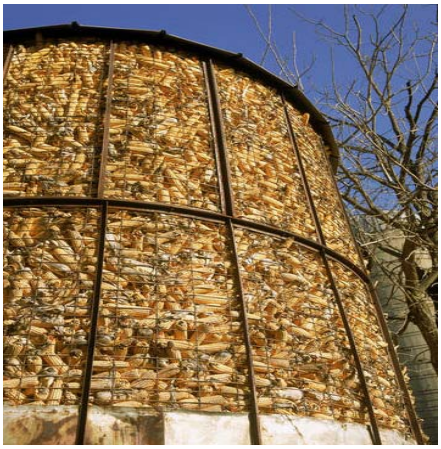

**Photo: NREL**

## R&D Pathway

The objective is to develop improved harvesting, collection, and storage technology to supply biomass at a cost of less than $30 per ton of delivered stover. Researchers will design, build, and evaluate corn separation systems that are capable of removing contaminants such as dirt and stones. They will also evaluate storage systems and preservation techniques, and investigate potential collection center locations for one pass harvest and 'wet storage." Later activities will focus on fermentation processes for corn stover conversion, and developing an industrial bio-based supply chain.

## Integrated Biorefineries R&D

### Benefits

- **Efficient, sustainable processes for utilization of crop residues to produce valuable products**
- **New technology for the biomass feedstock infrastructure**

### Applications

**New stover harvesting, transport, storage, and separation processes will help provide a high-quality raw material supply for biobased manufacturers.**

### Project Participants

**Cargill Dow LLC**
**Iowa State University**
**Iron Horse Farms**
**Deere & Company**
**Mat, Inc.**
**Midwest Laboratories, Inc.**
**Wallace Foundation**

### Project Period

**FY 2003 – FY 2006**

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**April 2006**