



# Biomass Program

## Native Flora Utilization

Collaborators in the Northern Plains are researching the technical and economical feasibility—and environmental implications—of developing a cellulosic fuel ethanol industry in western Minnesota and the Dakotas based on grasses indigenous to the region.

Project partners seek to identify regions best suited to profitable production of native grasses. The research will compare the production potential and feedstock characteristics of switchgrass monocultures with native warm-season mixtures of bluestem, indiagrass, and switchgrass.

Researchers will also evaluate agronomic best practices across a fairly broad environmental gradient. They will collect data to assess the most sustainable methods of production, such as changes in aggregate soil health and carbon sequestration. Project partners will also pay attention to changes that bring additional revenue-generating promise including sales from grass seed and enhanced on-farm recreational opportunity through increased avian density.

The project will include laboratory-scale research to evaluate a fast pyrolysis-based biorefinery concept for the production of fuels and chemicals from the grasses. The pyrolysis process already operates on a wood-based system in commercial applications, but it is

being adapted to accommodate a variety of grasses.

Stakeholders will use the results of this work to build consensus around key policies and projects that would enhance profitable biomass development in the region and, more specifically, an environmentally sound ethanol industry from farm to fuel tank.



Harvested switchgrass.

## R&D Pathway

- Initial work to identify prime regions for feedstock production.
- Applied research on sustainable production and feedstock conversion technologies.
- **Powering the Plains**—a regional, multi-interest policy project run by the Great Plains Institute for Sustainable Development—will incorporate the findings of this research into their on-going economic and policy development efforts.

## Congressionally Directed Feedstock R&D

### Benefits

- **More profitable, sustainable uses of marginal land**
- **New revenue streams and jobs for the Northern Plains region**

### Applications

**This project will help determine the technical and economic feasibility, and environmental implications of developing a cellulosic ethanol industry in the Northern Plains region.**

### Project Participants

**Great Plains Institute for Sustainable Development  
 University of North Dakota's Energy & Environmental Research Center  
 South Dakota State University  
 U.S. Department of Agriculture**

### Project Period

**FY 2002 – FY 2007**

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**Visit the Web site for the Office of the Biomass Program (OBP) at**  
[www.eere.energy.gov/biomass.html](http://www.eere.energy.gov/biomass.html)

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