

FEEDSTOCK DEVELOPMENT IN SWITCHGRASS

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Twenty-five years ago, switchgrass was a little-known, seldom-studied plant grown mostly on marginal land. It received more attention in the 1990s when the Department of Energy chose it as one of two crops to study intensely for its potential as a biofuel feedstock. Then it catapulted to prominence when bioenergy research funding hit the jackpot in 2006.

So what do we really know about switchgrass? What do we need to know and do before it can become a feedstock for cellulosic ethanol production? The U.S. Dairy Forage Research Center is one of a handful of research institutions currently studying switchgrass. Areas of research, and some research findings, include:

- Harvest management and timing – A one-cut system will probably work best, and switchgrass can be cut and harvested anywhere between mid-August and midwinter.
- Agronomy – Switchgrass is a multi-functional crop that can also be used for hay and grazing; and it has been widely used in prairie restoration and soil conservation; future research will investigate different ways of providing nutrients to switchgrass, including manure and legumes.
- Fertilization – The optimal rate of nitrogen fertilizer application is 100 pounds per acre.
- Genetic diversity – Native switchgrass varieties can be found from hardiness Zone 2 in Minnesota and North Dakota to hardiness Zone 8 in central Texas; varieties can be grown about one hardiness zone away from where they originated; all switchgrass is not the same, with latitude being the most important factor in terms of genetic diversity.
- Boosting yields – This is the key to turning switchgrass into a feedstock for biofuels; Ken Vogel, also with the USDA-ARS (Lincoln, NE), has developed hybrid varieties that produce 32 percent more dry matter per acre; more work is being done in this area.

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