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From grasses into ethanol

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Another piece of the renewable fuel pie?

Scott McLeod, with the North Dakota chapter of Ducks Unlimited, stands in a small patch of switchgrass located in front of the Bismarck office last week. Switchgrass is a crop that could be used in the making of the biofuel ethanol. McLeod recently spoke at the 2007 annual North Dakota chapter of the Wildlife Society about biofuels and the impact on wildlife. (MIKE McCLEARY / Tribune)



North Dakota has coal, oil and, more recently, ethanol from its corn.

Its landscape is dotted with corn, wheat, canola, soybeans and pulse crops. In between sit conservation lands, open prairie with native grasses.

Grasses that some say are ripe for the next biofuels picking.

Biologists, farmers, conservationists, even anglers and hunters, are looking at the North Dakotan landscape a little differently, wondering if they can all work together to meet their needs—food, native grasses, cover for wildlife, energy - while addressing the ever prevalent burden of finding new sources of fuel.

They're looking at those prairie grasses, which grow so well in eastern North Dakota, as a piece of the overall renewable fuels pie.

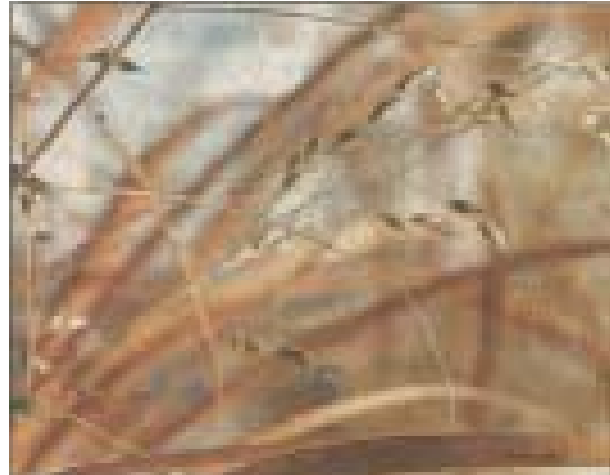
Researchers have been testing the idea of breaking down prairie grasses for ethanol, as an alternative to corn, and now at least two companies are eyeing North Dakota's prairie lands and marginal lands for switchgrass to biofuels production.

Corn and grass

According to Jon Hanson, director of the Northern Great Plains Research Laboratory, in Mandan, corn yields a conversion rate of 2.7 gallons a bushel, or 300 gallons of ethanol an acre in North Dakota.

Prairie grass, assuming 80 to 120 gallons a ton with a yield of 1.5 to 3 tons an acre, would produce about 120 to 360 gallons an acre in North Dakota.

"Switchgrass grows almost everywhere," Hanson said. "We all had switchgrass as a native grass, so (scientists) started these experiments, and switchgrass became the plant of choice."



Biofuel proponents believe switchgrass will be a visible crop for the production of ethanol as an alternative fuel.

In 2005, the nation's nearly 100 ethanol plants produced 3.9 billion gallons of ethanol. In his State of the Union address, President Bush set a goal of producing 35 billion gallons a year by 2017.

In North Dakota, two new plants have added a potential capacity of about 100 million gallons a year to the current capacity of about 25.5 million gallons a year.

All of that puts a strain on corn, researchers say.

With such a focus on renewable fuels, and corn being the nation's only sustainable ethanol feed, skyrocketing prices for corn also are pumping up prices of beef and other food products.

Food and energy would eventually be competing with each other, Hanson said.

So scientists began looking at the cellulosic energy possibilities in high yield grasses: prairie grasses, switchgrass, wheat grass, among others. Not only can it be grown on marginal land, but it needs less physical input -fertilizing, planting -a year than corn crops, and provides habitat for the state's wildlife.

Hunters intrigued

Which has conservationists and wildlife enthusiasts tuning in.

"Having grass on the landscape is not a bad thing," said Karen Kreil, biologist for North Dakota Natural Resources Trust. "It means great things for wildlife."

Prairie grasses grow tall and have a lot of yield, said Scott McLeod with Ducks Unlimited, which is interested in the crop as a way to keep and attract wildlife.

"Anytime you put grass on the landscape in large quantities, you're going to have ducks," McLeod said.

McLeod gave a presentation at the N.D. Wildlife Society about biofuels and their effect on the wildlife landscape, noting that the increasing "corn craze" would result in accelerated grassland and wetland losses.

McLeod has been working with Ceres Inc., a California-based developer of dedicated energy crops for cellulosic biofuels, to identify the wildlife implications of planting prairie grasses for a biofuels plant.

Watching North Dakota

A plant could be in the cellulosic ethanol production phases as soon as 2009, according to some reports. And North Dakota would be primed for it, with some reports suggesting the state is one of the top five states in the nation for acreage potential.

In fact, Iogen, based in Canada, has been producing cellulosic ethanol for about three years and wants to bring the technology to the United States soon, said Maurice Hladik, director of marketing.

They're working with the federal government on putting up a plant in Idaho, he said.

The company does have an eye on North Dakota, though, citing its potential to be a national leader in the production of prairie grasses.

"Why we're interested in North Dakota, is (the state has) a lot of ag residue that has no market," Hladik said. "(North Dakota) has a lot of land that grows excellent grass. It could be CRP land, it could be other land. Nonenvironmentally sensitive CRP land is a potential interest. And then there's marginal land."

"We consider your feedstock base to be excellent," he said.

The company is interested in partnering with investors, using its technology to put up a cellulosic plant in the state.

Too soon to jump aboard

Hanson warned about putting so much stock into one crop, saying a biofuels program that uses different types of feedstock would be the most comprehensive approach.

Plus, the market has to be set, he said. Convincing farmers to switch from a lucrative corn crop to a grass crop that has little to no market right now would be nearly impossible.

"I'm enthusiastic about it on a smaller scale," Hanson said. "People want to jump into it like it's

going to save the universe. We have to make sure we don't try to solve the whole problem with one crop."

Kreil, with the Natural Resources Trust, agrees.

"Hopefully, what we would do is target those marginal croplands," Kreil said. "We want to avoid competing with other crops."

There are other obstacles, too, Hanson said.

Transporting grass is much more cumbersome than corn. According to Hladik, plants typically would have all of their necessary crop within 60 miles, to ease the transportation strain.

Kreil said transportation could be a problem, but he added that several researchers are working on compacting the grass, or suggesting smaller processing facilities near the fields to prepare the product for transportation.

And with its short growing season, feeding a plant year-round would be difficult, too, Hanson said.

"There's a lot of things we don't know yet," Hanson said. "We just need to be reasonable, and not knock the whole problem off with just one solution."

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