Switch turned on for switchgrass energy potential

BY ART HOVEY / Lincoln Journal Star
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A University of Nebraska researcher thinks the state has a good chance of being one of the host sites for three small-scale plants the Department of Energy wants to nudge into construction next year to make ethanol from switchgrass, cornstalks and other plant material.

“Switchgrass is one of the things we’ve worked on here since 1930,” research geneticist Ken Vogel said Tuesday.

The 1930s focus for switchgrass research in Nebraska and other Great Plains states was on holding erosion-prone soil in place during the Dust Bowl.

But the more recent Department of Energy goal is to make energy from biomass.

President Bush specifically mentioned switchgrass as one of the best options in his recent State of the Union speech.

David DiMartino, spokesman for Nebraska Sen. Ben Nelson, said a BioRefinery Initiative in Bush’s 2007 budget proposal would route $150 million to the energy sector for biomass development.

Much of the surge in federal interest comes from prices for crude oil that have surged past $60 a barrel. “There’s interest all over the place now for switchgrass,” Vogel said. “It’s amazing.“

Assisted by molecular biologist Gautam Sarath and rangeland scientist Rob Mitchell, Vogel offered a primer on the past and future of switchgrass Tuesday in an East Campus conference room.

The three researchers are all based at UNL with the U.S. Department of Agriculture’s Agricultural Research Service.

They pointed to a past for a warm-season native of the prairie that goes to the turn of the 20th century and to providing some of the get up and go for the nation’s 27 million mules and horses.

“In the early part of the 20th century,” Vogel said, “it was still used for energy and it looks like we might be going back to that now.”

One way to visualize the biomass potential of grass that grows as tall as 8 feet is with a 1,200-pound bale of hay that farmers typically haul to hungry cattle. “Each of these bales is equivalent to a 50-gallon drum of ethanol,” he said.

A key to progress, Sarath said, has been in developing chemical and enzyme “cocktails” that can be used to break down the cellulose in switchgrass and convert it to sugar.

Corn and other grains have been the dominant fuel source so far because they are more easily converted.

Sarath does not expect competition to develop between ethanol plants that use corn as their energy source and those that use plant mass.

“There’s more than enough room for everything,” Sarath said.

Despite heightened interest in the fuel realm, the logical place for switchgrass in the agricultural production picture in Nebraska hasn’t changed much.

It remains more marginal, unirrigated land that might be enrolled right now

in the federal government's Conservation Reserve Program, Vogel said.

Past research shows greater energy potential from switchgrass than from unirrigated corn. With switchgrass, a 10-year stand can be established with a single planting and the leftovers from ethanol production could be burned to provide energy for the ethanol plant.

Range scientist Mitchell said switchgrass is a way for farmers to diversify their operations and a way for more rural areas to capitalize on opportunity.

"One of the bright spots to me is the hope that this provides to rural Nebraska," Mitchell said.

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What is switchgrass?

It is a native prairie grass that has evolved through plant-breeding work at the University of Nebraska-Lincoln into a more productive agricultural option.

Switchgrass has been identified by the U.S. Department of Energy and President Bush as a potential biomass crop.

What's next?

A proposed 2007 federal budget under consideration this week in the U.S. Senate sets aside $150 million for projects that would produce ethanol from biomass

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Print Page