WSU center at Prosser researches possible biofuels(2)

ROSS COURTNEYAssociated Press

If you didn't know you were at a university laboratory, you would think Building No. 117C was a barn.

The smell of dry hay fills the air. Machinery whirs. Dust coats the floor. There is a reason research assistants wear masks.

"You get down to it, it's dirty work," said Steve Fransen, a research agronomist at the Washington State University Irrigated Agriculture Research and Extension Center.

He means research, not farming, but farming is what WSU Prosser researches. And farming is the first step for the biofuels industry that Fransen and others swear is about to burst.

Fransen, a product of a cattle ranching family, is wrapping up his eighth year investigating growing techniques, climates, varieties, irrigation, rotation and all things farming for feedstock, the plant material that engineers and biochemists turn into fuel.

Among the crops are mustard, soybeans, rapeseed, wheat residue and a grass native to the Midwest called switchgrass.

Lately, the Northwest biofuels scene has been abuzz with activity and developments that hint at a full-fledged industry in the making. Proponents say it will create jobs, give farmers a new market and wean the United States off foreign oil imports.

The U.S. Department of Agriculture this fall made its largest grant ever -- $80 million for five years -- to the University of Washington and WSU to develop alternatives to petroleum-based fuel and chemicals.

Construction of a new commercial production facility is scheduled to start in Boardman, Ore., in three years. The WSU Tri-Cities campus is building a test plant that aims to turn any organic matter -- from tree limbs to crop residue -- into fuel. Alaska Airlines and the U.S. military are using jet fuel made from the oilseed crop camelina.

In fact, the Navy's first 5,000 gallons of test fuel came from seeds pressed at Sunnyside's Natural Selection Farms more than a year ago. The facility, owned by Ted Durfey, has been growing and crushing biodiesel crops for several years.

Meanwhile, U.S. Sen. Maria Cantwell, D-Seattle, has encouraged Washington

farmers to apply for a USDA program that would pay them to grow camelina at 1.5 times what they receive for keeping land in the conservation reserve program.

To join the fun, WSU Prosser is converting its greenhouse boilers to run on biodiesel. "We're going to put our money where our mouth has been the last few years," Fransen said.

The biggest stumbling block, proponents of biofuels development say, is a lack of production facilities.

Durfey sells oil to a biodeisel plant in Moses Lake owned by Gen-X Energy Group, an energy firm based in Pasco.

A Colorado company, ZeaChem, plans to start construction in 2015 on a biorefinery in Boardman that will produce up to 250,000 gallons per year of ethanol, using a process that breaks down the actual mass of plants, not just the sugars.

Much of the research in recent years has been aimed at disarming those who criticize the production of fuel instead of food. Midwest growers, subsidized by the federal government, grow corn for fuel, driving up the corn prices, then wheat prices that consumers pay.

To combat that, researchers have been studying non-food crops, such as camelina. Some plants grow on marginal ground, require little water and can be used as rotations for potatoes or wheat.

At WSU Tri-Cities, researchers envision an industry that can change any organic matter into fuel, even waste.

"Feedstock agnostic" is how Birgitte Ahring, director of the university's Center for Bioproducts and Bioenergy, describes a new pilot facility under construction at WSU Tri-Cities.

The facility would use a process that would break down anything from wood waste to crop residue and oilseeds to grass and turn it into "drop-in fuel," ready for your fuel tank as it exists now. No blending with traditional gasoline or vehicle adaptations required, Ahring said.

She foresees within five years a commercial production facility and transportation network employing thousands in both the Tri-Cities and rural communities within 100 miles of it.

Still, whatever goes into such a plant must be grown.

That's where WSU Prosser's Fransen and his federal counterpart come in.

"The diversity of cropping is only limited to your imagination," said Hal Collins, a soil microbiologist for the U.S. Department of Agriculture.

Lately, Fransen and Collins are high on switchgrass, a haylike plant native to the Midwest.

They know switchgrass grows in sunny and irrigated Central Washington two to three times as well as in the Midwest. At maturity, it stands taller than a man and produces two cuttings a year.

It also can be fed to cattle, though it's toxic to horses, sheep or goats. Fransen is in Las Vegas this week discussing switchgrass at the Western Alfalfa and Forage Conference.

Fransen and Collins are now experimenting with rotating switchgrass with other crops and planting it between the rows of poplars at a plantation in northeastern Oregon. They harvested their first sizable batch this year.

That's where dusty building No. 117C comes in.

Inside, mask-clad research assistants grind switchgrass -- and other biofuel feedstocks -- into 40-gram bags of powder, labeled by variety, date of harvest and plot number.

Between each bag they painstakingly clean the countertop grinders, encased in plastic to mitigate dust in the room, to avoid contamination. They spend more time cleaning than grinding.

"It just takes patience because the machines, they're not very quick," said Griselda Gondinez, 38.

The researchers then will study in a laboratory how different levels of sun, shade and water affect cellulose and protein levels, all things that affect how much bang of combustion you get from a gallon of fuel.

One thing nice about switchgrass: It puts out 4.5 units of energy for every one that it takes to make it. Corn is more like 1.2 units.

"The potential is there," Fransen said. "We can do this."

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