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Tuesday, September 13, 2005

High gas prices brighten prospects for the beans

[Kurt Gutknecht](#)

Fitchburg Star Editor

FITCHBURG --

Hartmann is CEO of Great Lakes Biofuels, a firm that's encouraging growth of the state's biodiesel production using Wisconsin-grown soybeans, among other sources.

Even though many people are supportive of the concept, biodiesel currently captures an insignificant portion of the 850 million gallons of diesel fuel used in Wisconsin annually. Higher gas prices make the endeavor more feasible, but there are still some formidable obstacles.

Of course, it would help if Wisconsin emulated Minnesota and enacted similar legislation that requires that 2 percent of the state's diesel fuel be produced from crops grown in the state.

Although Minnesota experienced some delays in ramping up production, Hartmann said the program has met expectations and garnered widespread political support. There are also detractors, who oppose any mandates, said Jamie Derr, a corn and soybean grower from Marshall, who is also COO of Great Lakes.

"My new favorite number is 3 - \$3 a gallon for gas," Derr said.

The state lacks both a facility to manufacture biodiesel and a plant to crush soybeans to extract the oil. As a result, much of the state's soybean production of about 55 million bushels annually is processed out of state and then shipped back after processing. (U.S. soybean production last year was about 2.8 billion bushels).

And although many people are supportive of efforts to wean ourselves from petroleum, misconceptions about diesel engines as smoke-spewing, noisy and recalcitrant engines are still common.

Contemporary high-pressure diesel engines have solved those problems and can use fuel containing a substantial portion of biodiesel - up to 20 percent, in some cases - without voiding the warranty. Most new diesel engines run on 100 percent biodiesel.



Biodiesel is an extremely effective lubricant and prolongs engine life, although it can loosen deposits and clog valves in some older engines.

Although there are claims of increased mileage from biodiesel, Hartmann said mileage is about the same as with petroleum-based diesel fuel. Any gain in mileage associated with biodiesel's lubricating ability is offset by its lower energy content.

Diesel has about a 10 percent advantage in miles per gallon over gasoline, however.

"The general public here will probably never use diesel engines," Hartmann said. Only 3 percent of the cars in the U.S. are diesels, compared with 40 percent in Europe.

If Wisconsin followed Minnesota's lead, there would be a market for 17 million gallons of biodiesel in the state annually, which is currently about the entire demand for biodiesel fuel in the United States.

Hartmann hopes to emulate the success of ethanol production in the state. Last year, 3 billion gallons of ethanol were produced in the United States, about one-third of which was consumed in Iowa.

The tax credits for ethanol of 50 cents to \$1 a gallon have been extended to biodiesel, which also improves the economic feasibility of production.

A bushel of soybeans yields about a gallon of biodiesel. Other products, such as soy cake, are worth as much or more than the biodiesel.

"There's nothing terribly high-tech about biodiesel production," Hartmann said. He described the process, known as transesterification as mixing 10 parts vegetable oil with one part alcohol, usually methanol, and a pinch of catalyst. It requires much less energy than ethanol production.

It's more difficult to meet the quality standards for commercial distribution, however. This quality is easier to achieve in a larger facility where soybeans are processed continuously.

Hartmann calls biodiesel the "ultimate in solar power" since the amount of carbon released when it's burned is used by soybean plants the following year.

Another factor in biodiesel's favor: Starting next year, the sulfur content of all diesel fuel must meet standards for "ultralow" sulfur content of 15 parts per million or less. The current standard is 500 p.p.m.

More than 100 years ago in Germany, Rudolph Diesel, inventor of the engine that bears his name, ran engines on peanut oil and predicted that other oils would eventually replace petroleum products.

Diesel's prediction may come to pass, albeit slowly.

As a “green fuel consultant”, Hartmann imports biodiesel from other states and “helps make fleets green.” The firm has a small batch processor capable of producing 50,000 to 100,000 gallons of biodiesel. He’s working with a couple of clients to install small turnkey plants but a reliable supply of consistent quality requires a much larger facility, probably next to the not-yet-built crushing facility.

One of the biggest roadblocks is the lack of investment capital necessary to obtain \$35 million to \$40 million for a milling plant the size of the ethanol plant in Monroe. Derr said interest among the 12,000 soybean growers in the state and others has skyrocketed in recent years. Aided by grants from the state and federal government, Derr now thinks it should be possible to construct a plant within three years.

So far, however, it’s been tough putting together a system of producing and distributing biodiesel. Many distributors won’t even return his calls, Hartmann said, in part because Great Lakes doesn’t distribute enough fuel to give it much leverage. Then, too, relatively low oil prices haven’t provided much of an incentive for distributors to switch over. There’s not much demand for biodiesel if it costs 10 percent more than conventional diesel fuel.

So far, those using biodiesel are the early adopters, Hartmann said, but most people support measures that reduce reliance on petroleum.

Biodiesel won’t replace petroleum, but it “can make a contribution to the country’s energy pie,” Derr said. And incentives for production are warranted, considering that the production of biodiesel doesn’t incur many of the “external costs” associated with petroleum, ranging from pollution to military intervention in oil-producing nations.

Soybeans aren’t the only source of biodiesel. Used frying oil from restaurants can be used (although engines must be modified), as can other crops and biomass.

Another promising source is corn oil, which may become another by-product of ethanol production. Ethanol plants in the state could produce nine million gallons of corn oil annually.

The oil is now part of distillers grains, a by product of ethanol production, and is fed to livestock. The removal of the oil would make distillers’ grains even more useful in livestock rations, Derr said.

Hartmann said there’s a grassroots movement in support of biodiesel, in part because biodiesel is about as flammable as vegetable oil and doesn’t create anything worse than a grease stain if it spills. Biodiesel can be purchased directly from Great Lakes in totes as large as 250-330 gallons.

The eventual goal is a distribution system that provides motorists with the fuel of their choice, including various blends of biodiesel and ethanol.

“None of the obstacles we face are insurmountable,” Hartmann said.

“The potential market is huge.”

Hartmann has used biodiesel in his Volkswagen Pasat for several months. It doesn't produce the torque of petroleum- based diesel. Hartmann compares it to the South Beach diet, which limits the intake of refined carbohydrates and sugar, thereby “smoothing out” metabolism.

Hartmann runs his VW Pasat on 80 percent biodiesel.

“My car really purrs,” said Hartmann.

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