

## Producers hope to trim cost of biodiesel by using animal fat

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If the world is grumpy about using food products such as corn and soybean products to make fuel then try this: how about using animal fat as a biodiesel feedstock?

Animal fats, primarily those triglycerides your doctor warns you about, are looking better and better to biodiesel producers who have seen their soy oil feedstock almost double in price in the last year.

Renewable Energy Group (REG) of Ames now runs animal fats in at least four of its seven biodiesel plants in the state, according to Gary Haer, vice president of sales and marketing.

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He says the animal fat fuel works well in the diesel market, whether it's blended at 5 percent, 10 percent or 20 percent with regular diesel.

"Biodiesel made from animal fats is a very good product, and we are using it as one of our alternatives to soybean oil," Haer said.

Another biodiesel group, Benefuel, which uses an India-developed technology to process the animal fat, is scouting the state for investors and plant sites.

Bill Summers, Benefuel's engineer and business consultant, says Iowa is the logical place to concentrate an animal fat-based biodiesel industry because of the large supply of animal fats from rendering plants. Besides, he says, a fuel doesn't need a pure product such as soy oil.

"Iowa didn't start growing soybeans to make soy oil for a fuel," says the 63-year-old Summers, an Indiana native who has worked as an engineer for a Texas seed company and, for the last two decades, as a consultant for Iowa venture capital firms.

Animal fats aren't immune from rising prices. The U.S. Department of Agriculture says animal fats, mostly sold by animal rendering firms, are expected to increase in price 8 percent to 9 percent this year.

That's still better than soybean oil prices, which have nearly doubled in the last 12 months to about 60 cents a pound. Producers need 7.5 pounds of soybean oil to make one gallon of biodiesel, according to one industry estimate.

Benefuel's process uses dry catalysts, which are mixed with animal fats to turn methanol - the basic heat source for biodiesel - into a pure biodiesel product. As with soy processes, Benefuel's catalysts break down triglycerides and leave behind a fuel.

Like soy oil-based biodiesel, the animal fat process separates out a pure glycerin, which can be sold to the pharmaceutical, food and cleaning industries.

The idea of substituting animal fats or tallow for soy oil isn't new. REG began testing animal fat biodiesel in February 2007.

"You have to be careful with animal fat biodiesel because it tends to gel quicker in colder weather, and that's why we ran the test in February," Haer said. "But that can be managed."

Haer said the early 2007 tests were encouraging enough for REG to begin adding animal fats to its feedstock mix. He said REG plants can switch back and forth between soy oil and animal fats.

Summers describes the Benefuel process as "second generation" biodiesel. The problem, of course, is that the first generation of biodiesel is having more than its share of problems.

Biodiesel has enjoyed nothing like the boom that its fuel cousin, ethanol, experienced in the last two years.

While ethanol production is expected to top 7 billion gallons in the United States this year, biodiesel will likely be fortunate to achieve the 450 million gallons made last year.

The Iowa biodiesel industry has been shaken by two events this year. REG withdrew its planned initial public stock in late March. At the same time, the East Fork Biodiesel plant in Algona, which opened to much fanfare last year, closed. Operators say they would lose money at today's prices if the plant began production.

"We're an industry coming out of our infancy into adolescence," REG's Haer said. "We're learning that the quality of the product is important. We can use different feedstocks for biodiesel and the market will accept it, but the product must be of good quality."



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Dr. Bill Summers holds a vial of extruded catalyst used for biodiesel production. Summers is part of a group trying to launch a new production process that mixes these dry ingredients with animal fats to turn methanol into a pure biodiesel product.



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A sample of Bill Summers' extruded catalyst. He says Iowa is the logical place for an animal fat-based biodiesel industry because of the large supply of animal fats from rendering plants.