



# SOY NEWS

## *Biodiesel in the Delta region: can it work?*

By David Bennett, Farm Press Editorial Staff

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So, you could be driving your pick-up or tractor around all day, making your normal rounds, checking your soybean fields, everything the same with one small difference: on this day, the engine you goad with every poke of your right toe is actually helping eat through a glutted soybean market. Because fellow citizens across the country are doing the same, the air is cleaner, the country's reliance on foreign oil is less and your billfold has a bit more heft. At least that's what some are saying could happen.

Everyone wants to know if biodiesel is really a winner for soybean farmers. Michael Popp, Agricultural Economist with the University of Arkansas, has crunched the numbers and he says it can be. Biodiesel is generated from cooking oils, animal fat or vegetable oils. One of the best vegetable oils for making the diesel is soybean. Anyone can take biodiesel, blend it with conventional diesel and burn it without modifying an engine. Typically, biodiesel is blended with regular diesel at percentages ranging from 1 percent to 20 percent. But how much does it cost? Is it being produced in Arkansas? If not, should it be produced here? "The production costs of biodiesel depend a lot on the capacity and intensity of use of the production facility. It also obviously depends a lot on the cost of feed stock or soybean oil. If soybean prices go up, the cost of soybean oil goes up. We must look at the potential cost fluctuations," says Popp, who spoke at the Arkansas Soybean Research Conference in Brinkley on December 17. For a facility that produces less than 3 million gallons, Popp says investment cost per gallon is something around \$2 or \$3. As you raise the facility's production to 30 million gallons, the investment cost for production capacity can dip to as little as 50 cents per gallon.

"If you use a feed price of 15 cents per pound for soybean oil combined with a 3 million-gallon plant, you're looking at about \$1.90 per gallon. If you use a larger plant, the price drops to \$1.50 per gallon. What this shows is, that it would make sense to build a bigger rather than smaller plant, as long as biodiesel will sell," says Popp. When looking at prices per gallon for conventional diesel and

a subsidy for \$1, "you can essentially build the plant for free." So why aren't people building more soybean processing facilities? What if soybean prices go up or there's insufficient demand for biodiesel?

The United States doesn't have the capacity to replace all conventional diesel with biodiesel. And it isn't cheaper than conventional fuel. In fact, biodiesel – depending on the percentage blended – generally costs 5 to 20 cents per gallon more than conventional diesel. The rule of thumb is that for each percentage of biodiesel you add to the blend you pay another cent/gallon. "Biodiesel can be used where it's mandated (where air quality standards must be improved) but also could be used by soybean growers. After all, if you grow it and can use it, push the market and make money all at the same time, why not?"

Popp says studies indicate that if biodiesel use were increased in the country by 2 billion pounds of soybean oil, it would increase soybean prices about 3 percent. For \$5 soybeans, that means a price increase of 15 cents per bushel. Using a second set of assumptions, another study shows soybean prices rising to the tune of 35 cents per bushel if all U.S. on-road diesel was blended at 1 percent biodiesel.

What if farmers were to go ahead and start using biodiesel at 6 cents per gallon more than conventional diesel? And what if, as a result, the soybean price rose a conservative 5 cents per bushel – which is less than the estimates in the earlier studies? "If you have a 30 bushel per acre soybean yield, you'll use an average of about 12.5 gallons per acre in growing and harvesting it. To determine if money can be made, we multiply 30 bushels by an extra nickel. We then subtract out the extra cost – 12.5 gallons times 6 cents extra. That leaves us a benefit of about 75 cents per acre." If all Arkansas soybean acres were grown using biodiesel under the above assumptions, it would mean a direct benefit to Arkansas farmers of \$2.1 million annually, says Popp. If all crops in Arkansas were grown using B5, a five percent blend, roughly 6.8 million gallons of biodiesel would be demanded. And if Arkansans don't build these plants in their home state, they will likely be built elsewhere. If that happens, "we'd lose part of the economic impact that would result from biodiesel processing facilities. For those interested in investing in biodiesel, you need to get busy planning right now."

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## Questions and Answers with Dr. Michael Popp, Agricultural Economist, UofA

The above article has spurred some interest in biodiesel which has led to more questions. Here are answers to some of these questions:

For general information on biodiesel, visit the National Biodiesel Board's website at <http://www.nbb.org/>. Also, an Iowa State webpage provides a video on biodiesel production at <http://www.me.iastate.edu/biodiesel/>.

**Question:** What kind of values should you use for by-product production such as glycerol?

**Answer:** The answer is likely a function of the amount of biodiesel/glycerol production (i.e. expect lower than current prices if production for the by-product is expected to

For engineering information, the Transactions of the ASAE has at least a few papers. There are also consultants that can aid in the design of a plant.

**Question:** Are vegetable oils substitutable and what is the cheapest source?

**Answer:** A significant amount of testing has been done on biodiesel derived from rapeseed and soybeans. Most people seem to think that other vegetable oils are perfect (or near-perfect) substitutes as feed stocks, however, to our knowledge, few performance tests have been conducted with biodiesel derived from other vegetable oils. Currently, soybean oil is

# Soy Biodiesel: Ask for it, Buy it, Use it

Arkansas farmers have a golden opportunity to help the biodiesel industry on its journey to widespread use nationwide. All it takes is three simple steps: Ask for it, buy it, use it.

"Hundreds of petroleum distributors now

## Arkansas Soybean Promotion Board Joins National Biodiesel Board

In December, the Arkansas Soybean Promotion Board (ARSPB) allocated \$10,000 for membership on the National Biodiesel Board (NBB). The NBB is the national trade association representing the biodiesel industry as the coordinating body for research and development in the U.S. It was founded in 1992 by state soybean commodity groups, who were funding biodiesel research and development programs. Since that time, the NBB has developed into a comprehensive industry association, which coordinates and interacts with a broad range of cooperators including industry, government, and academia. NBB's membership is comprised of state, national, and international feedstock and feedstock processor organizations, biodiesel suppliers, fuel marketers and distributors, and technology providers. Robert Stobaugh, a soybean farmer from Conway County and ARSPB member, will represent Arkansas on the NBB.

make biodiesel available to farmers throughout the Midwest," said Bob Metz, a soybean farmer from South Dakota and president of the National Biodiesel Board (NBB). "And it all started with just a handful of farmers asking their fuel distributor to carry it. If they wouldn't get it, the farmers switched to someone who could, and a chain reaction started that is very beneficial to the biodiesel industry."

With about 300 major fleets currently using the fuel and production doubling between 2001 and 2002, biodiesel is considered the fastest growing alternative fuel. But farmer use is critical to the success of the fuel.

"If we won't use our own product, then why should anyone else?" said Metz. "Sure, it may cost a couple more cents a gallon, but that is going to come back to you in the long run in the form of higher soybean prices."

## Incentives Packages Discussed

### Federal:

Several U.S. Members of Congress have introduced important legislative measures designed to encourage increased use of biodiesel. These bills include:

- Biodiesel Tax Incentive (S. 355)- Introduced by U.S. Senators Blanche Lincoln (D-AR) and Chuck Grassley (R-IA), would provide a one-cent reduction in the diesel fuel excise tax for each percentage of biodiesel blended with petroleum diesel up to 20 percent.

Earlier this year, checkoff farmer-directors launched a major initiative encouraging U.S. soybean farmers to request and use at least a two percent blend of soy biodiesel (B2). The biodiesel promotion efforts are a part of a larger checkoff-funded Biobased Products Initiative (BPI) created to promote the use of soy-based products and soy biodiesel.

"This checkoff-funded initiative not only creates efficiencies of our groups' resources, it promotes products that can improve engine performance, benefit the environment and reduce our dependence on foreign energy sources," said Durham. "We're encouraging soybean farmers to use soy biodiesel and put their soybeans to work."

For a map of petroleum distributors carrying biodiesel or to learn more about biodiesel, visit <http://www.biodiesel.org>.

- EPACT Reform (S. 356, H.R. 316)- Introduced by U.S. Senators Lincoln, Kit Bond (R-MO), and Jim Talent (R-MO), would remove the 50 percent limit on alternative fuel credits earned with biodiesel under the Energy Policy Act (EPACT) of 1992. This applies to federal, state and public utility fleets. U.S. Representative John Shimkus (R-IL) introduced the House version of the bill.

- CMAQ (H.R. 318)- Introduced by Representatives Shimkus and Karen McCarthy (D-MO), would allow biodiesel use under the congestion mitigation and air quality (CMAQ) improvement program.

- Renewable Fuel Standard (S. 385)- Introduced by Senators Tom Daschle (D-SD) and Dick Lugar (R-IN) would create a nationwide standard that would more than double the use of renewable fuels over the next 10 years. Biodiesel is an eligible fuel to meet the goal.

### State:

A coalition of organizations, including the Arkansas Soybean Association and Arkansas Farm Bureau Federation, are working together to draft legislation on the state level that would provide incentives for the production of biodiesel in Arkansas.

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Note: \* denotes a representative to the United Soybean Board

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For questions about any information in this newsletter or for more information on board-funded programs, please contact any of the above board members, call 501-228-1238, or write Arkansas Soybean Promotion Board, P. O. Box 31, Little Rock, AR 72203.

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