



# Biofuels: a win-win for ag producers and the planet

By Kevin M. Folta

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**T**here is a lot of discussion about how to power the planet in the future. No matter where you land on the climate-change issue, there is no question that atmospheric carbon dioxide levels are increasing. This happens as carbon-based compounds are pulled out of the earth and burned on the surface. Conservative thinking suggests that this connection at least be considered, and perhaps take steps that limit placing more carbon dioxide into the atmosphere.

Such concepts are the core of many spirited discussions. However, could those contentious reflexes be de-escalated if a new part of carbon economy was a win-win situation, with agriculture being a major victor? What if there were methods to recapture

atmospheric carbon and fix it back into a profitable fuel? These possibilities become especially attractive when the farmer profits from the process. Are there opportunities to raise food, raise fuel, generate on-farm profits and help mitigate the effects of atmospheric carbon — all at the same time?

Such strategies are alive and well in Nebraska, a Saudi Arabia of soy oil. As reported by Greg Anderson of the Nebraska Soybean Board, Nebraska generates significant amounts of soy that are converted to soybean meal, the high-protein solid used in animal feed. In this sense, the soybean oil is a somewhat unfortunate byproduct, and its availability by far outpaces the demand for soybean oil for food ingredients or cooking. Soybeans are about 80 percent solids and 20 percent oil.

## SOY AS BIODIESEL SOURCE

Soybeans came to North America not as food, but as ship ballast. The value of the seeds for food needs was realized in the late 1800s, when cultivation began to intensify throughout the Corn Belt. Later, it was shown that the oils could be easily converted to fuel. In fact, original diesel engines were made to run on biodiesel, but petroleum-based fuels were cheaper. Any diesel engine can use biodiesel as fuel without much conversion, and production capacity is about 2 billion gallons per year as a greener alternative to fossil fuels.

The availability of this renewable resource has spawned efforts to divert it to new uses after some basic refining. Moreover, it has been shown that

1 to 2 percent biodiesel added to conventional fuels actually makes them perform better, with fewer residues. Today, more than half of the biodiesel produced comes from soy, with the rest coming from canola, rendered animal fat or recycled vegetable oil.

The biodiesel borne of Nebraska soybeans is now being transported 1,300 miles to New York City. New York has passed initiatives to incorporate plant-based biodiesel into its infrastructure. Buses run on fuels synthesized from soybean oil. In the northeastern United States, homes are kept warm in winter by burning home heating oil.

Prices fluctuate wildly for this commodity, and in times of scarcity, it can be expensive to maintain a home at a comfortable ambient temperature. Starting this year, new rules stipulate that 2 percent of home heating oil must come from a renewable source, and in this case, it is sold as the B2 Bioheat Blend. In New York City, the biodiesel is 5 percent of the fuel

volume, and by 2050, this amount is expected to reach 50 percent.

Critics are concerned that increased switches to biodiesel may inflame the “food as fuel” controversy. They claim that as biodiesel becomes more fashionable, there will be a greater tendency for deforestation in the developing world to generate resource-intensive palm oil. However, the same argument builds the case for American soybean oil, which is abundant and renewable.

### POTENTIAL EXPANSION IN THE SOUTHEAST

The growing market for biodiesel offers another profit center for soybean growers, and an expansion of soybean acreage to the southeastern United States. Soybeans may represent a profitable energy crop, especially if the biodiesel conversion plants expand into the region. The Southeast can produce when other regions can't, and may offer new production capacity to fuel a nation.

As more soybean meal is exported to feed animals in emerging economies, more soybean oil and conversion to biodiesel could help farmers and the planet, with other side benefits. These are the kinds of agricultural win-wins we should continue to identify. 🌱

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