

May 8, 2008 Thursday

## What's Right with Biofuels; Recent hand-wringing about the costs associated with ethanol and other biofuels overlooks the urgency of finding alternatives to petroleum

**BYLINE:** John Plaza

**SECTION:** TECHNOLOGY

Only a year ago, biofuels were considered the silver-bullet solution to all of America's energy woes. Today, that same bullet is being blamed for a rise in global food prices, leading to greater poverty and social unrest.

The fact is neither assertion is true.

While energy, agriculture, food security, and the environment are all extremely complex topics, the media coverage of these issues is often simplistic. Let me share several facts from a recent Washington Post article by Anthony Faiola that succeeded in capturing a number of the forces behind those rising food prices:

-- Fuel prices: Oil, which powers the machinery to grow and transport crops, has skyrocketed. It now costs nearly twice as much as a year ago to ship commodities to Europe from the Gulf Coast of the U.S.

-- Trade restrictions: Major exporting countries are applying export taxes and/or bans on exports to control local prices, in effect reducing global supply.

-- Increased food demand in developing countries: Diets are changing in countries like China and India, moving from starchy foods to meat and poultry. Since nearly all livestock are grain-fed, this diet change is driving up demand for grain.

-- Climate change: Severe weather events [drought, heat, rain] in farming regions around the world have reduced harvests of cereal crops.

At the same time, speculators have flocked onto commodity exchanges, pushing futures prices for grains above those that actual supply and demand would probably dictate.

Giant Strides

While it's true that biofuels have also played some role in increasing food prices, I have yet to see a definitive study that examines that impact relative to the factors discussed above. Although I have an obvious bias as the CEO of Imperium Renewables, today's simplistic criticisms of biofuels threaten to undo the success this industry has made in developing an alternative fuel with multiple benefits.

For starters, biofuels have been shown to help control the cost of petroleum. A recent report by [Merrill Lynch \(MER\)](#) Enhanced Coverage Linking



) found that "oil and gasoline prices would be about 15% higher if biofuel producers weren't increasing their output." That means a barrel of oil today would cost more than \$130, instead of about \$115, and gasoline would be going for \$4.50 at the pump instead of nearly \$4. Indeed, the price of petroleum has risen nearly twice as fast as that of corn and soy in the past five years.

In addition, greenhouse gas analyses of burning soy- and canola-based **biodiesel** are quite favorable. A definitive study conducted by the U.S. Energy Dept. shows that **biodiesel** cuts carbon emissions by 78% compared with petroleum diesel. And for every unit of energy that goes into making **biodiesel**, we get 3.5 units of energy in return.

**Biodiesel** also improves air quality: It cuts particle emissions by about 50% as compared with petroleum diesel. This is a huge benefit for human health and the environment. Asthma, strongly linked to diesel particulate emissions, is a serious public-health problem. **Biodiesel** has the potential to improve global health, saving lives and billions of dollars in health-care costs by improving air quality.

Thirstier and Thirstier

But perhaps the greatest weakness in the recent critiques of biofuel sustainability is a failure to address the many shortcomings of sticking with petroleum. Quenching the world population's growing thirst for fuel requires oil companies to use more invasive production methods, more energy to extract it, and more land -- including pristine ecosystems.

The tar sands in Canada, for example, are supplying a growing share of the world's petroleum. The process is energy intensive and dirty, leaching dangerous toxins into the soil and ground water. And the greenhouse-gas emissions from extracting fuel from tar sands are estimated to be as much as 70% greater than traditional drilling.

Meanwhile, a key omission in the anti-biofuel chorus is the very real promise of next-generation feedstocks to produce this alternative energy source. In the coming years, the feedstocks used to produce biofuels will be very different from the feedstocks of today. Imperium is committed to developing algae, which yields around 100 times more oil per acre than traditional feedstocks and can be produced on contaminated "brownfields" that wouldn't otherwise be used for farming. We are also pursuing alternative crops like jatropha, which can be planted on marginal land unsuitable for growing food, and halophytes, which grow in brackish water.

But critics seem to want to roll back this progress toward developing renewable fuels that won't compete with food production. Advancing these technologies to take advantage of more sustainable feedstocks, as well as biomass and waste materials, are the future. We need to focus on ensuring that this second generation of biofuels is even better than the first.

**URL:** [http://www.businessweek.com/technology/content/may2008/tc2008057\\_822792.htm](http://www.businessweek.com/technology/content/may2008/tc2008057_822792.htm)

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Regional Edition

## **Biodiesel** vs. Ethanol

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The May 3 editorial "The Greening of Montgomery" expressed a common misconception by saying: "One measure would switch the county's fleet of diesel cars to biofuels. Considering the impact ethanol has had on the environment and food prices, we urge Montgomery County to explore alternatives." **Biodiesel** is not ethanol. To make wise environmental decisions, we must be better educated about our choices.

**Biodiesel** is a renewable fuel produced from vegetable oils. According to Brian Fitzgerald, a green consultant in Chevy Chase, **biodiesel** has a significantly better ratio of energy input to energy output. The ratio of energy input to energy output in corn-based ethanol, he says, is 1:1.3; for virgin soy oil **biodiesel**, it is 1:3.5, giving **biodiesel** about a three times better return on energy investment than ethanol delivers. With the food vs. fuel debate helping to send commodity prices skyward, we must focus on the most efficient alternative energy sources available, Mr. Fitzgerald says, and **biodiesel** can provide immediate positive action within our community and be part of a long-term domestic solution .

My car runs on 100 percent **biodiesel** that is made locally from recycled waste restaurant oil. I applaud Montgomery's plan to run the county's fleet of diesel vehicles on this environmentally friendly fuel.

LYNNE TUCKER

Bethesda

## Biotech execs say biofuels no threat to food supply

Mon Apr 28, 2008 5:05pm EDT

<http://www.reuters.com/article/rbssConsumerGoodsAndRetailNews/idUSN2815629620080428>

By Mark Weinraub

CHICAGO (Reuters) - New technologies can boost production of environment-friendly biofuels without threatening the world's food supplies, industry leaders said at a trade conference on Monday.

The biofuels industry has been demonized by higher food prices, the biotech industry executives said in interviews on the sidelines of the fifth annual World Congress on Industrial Biotechnology and Bioprocessing.

"You have to look at what all the factors are that go into rising food prices," said Steve Fabijanski, president and chief executive of Agrisoma Biosciences Inc, a Canadian company that engineers oilseeds with oil content that is tailored for biodiesel manufacturers.

Commodity costs are only one component of higher prices at the grocery store. Other factors, such as soaring crude oil prices and fertilizer costs that cut into farmers' profits, also contribute.

Additionally, growing worldwide demand for meat could cause some food shortages if higher percentages of corn, wheat and soy are used to feed livestock.

Agrisoma's crops, which are specifically tailored for biodiesel refiners, also produce an oil byproduct that can be used as animal feed, Fabijanski said.

## GROWING BACKLASH

There has been growing criticism against government mandates on the use of corn to make ethanol because of the resultant rise in food prices. [Continued...](#)

The U.S. government has projected that nearly 25 percent of the U.S. corn crop will be used for ethanol this year, up from 20 percent last year and roughly up 14 percent two years ago.

Texas Gov. Rick Perry last week asked the U.S. government to cut "skyrocketing" food prices by waiving half of the renewable fuel standard for ethanol made from grain.

In the Midwest -- the so-called Corn Belt of the United States -- Missouri is considering rolling back a mandate supporting ethanol production amid growing outrage over rising prices for food and livestock feed.

"They missed the fact that it has been biotechnology that has expanded the productivity of farmers by 30 percent," said James Greenwood, president and chief of executive of the Biotechnology Industry Organization.

Developments in cellulose technology, which produces ethanol from non-food sources, are ready to be used in refining plants now, said Tjerk de Ruiter, chief executive officer of Genencor.

Genencor, a unit of Denmark's Danisco A/S (DCO.CO: [Quote](#), [Profile](#), [Research](#)), is developing a system that uses enzymes to break down cellulosic materials in the production of biofuels. But Genencor's process, which can be used on leftovers of agricultural products such as corn, still needs to be tested on a large scale to see if it is profitable.

"It needs to be produced in plants (that can process) up to 1 million gallons, de Ruiter said. "That will truly tell us what the efficiencies are."

(Reporting by Mark Weinraub; Editing by Marguerita Choy)