**How does ethanol affect our food supply?**

**Experts say it is a difficult question with many answers**

Written by

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Pumping that golden elixir — corn-ethanol — into the gas tank can do a world of good, or so goes the argument.

It relieves the U.S. from dependency on foreign oil, some reports say, and it reduces the pollution spewed out the tailpipe. But those benefits may a take high human toll.

More than 80 percent of the world’s supply of corn comes from five countries, with the U.S. leading the pack by supplying more than half the world’s exports, according to a study released Oct. 13 at the World Food Prize summit in Des Moines.

Three years ago, the world went through a food crisis generated, in part, by high prices, and experts still debate the extent to which ethanol production should be blamed.

There was enough food on the market, but high prices reduced many of the world’s poor to hunger, said Josette Sheeran, the director of the United Nation’s World Food Program. Contributing to the crisis were countries that cut exports of in-demand crops.

Hunger is not limited to these periods of extreme global crisis. Every 10 seconds a child dies of hunger, Sheeran said in a speech in July. By 2050, the world’s population will reach about 9 billion people. Already, one in seven people suffer from chronic hunger.

“We are living in a post-surplus world,” Sheeran said. “The world has to be a lot smarter about how we are using our supplies.”

The food market is increasingly volatile, the International Food Policy Research Center says. The use of biofuels ties food prices to the volatile oil market and contributes to low supplies.

During the 2008 food crisis, the average price of food increased 43 percent, according to the U.S. Agency for International Development. Experts worry that low food stocks, high demand and food price volatility could lead to future food crises.

While people in many nations struggle to find money for food, most people in the U.S. don’t. They pay an average of 6.9 percent of their budgets for it, according to the U.S. Department of Agriculture’s Economic Research Service and Euromonitor, a consumer research company. But in Pakistan, Kenya and other countries, people spend about 45 percent of their budgets on food.

The Food and Agriculture Association says using agricultural land to produce biofuels “substantially affects food production.” As the production of biofuels doubles to meet policy requirements, the impact “would probably be intolerably high … for the next few years until the production of food has increased to meet the growing demand,” the association said in a report released after the 2008 food crisis.

Such numbers provide the backdrop for a contentious food vs. fuel debate among politicians, farmers and humanitarian aid groups.

**U.S. ethanol policy impacts supply**

Government subsidies for ethanol production in the U.S. have become part of the controversy.

A federal subsidy and a protective tariff on foreign imports, which are set to disappear at the end of the year, have buttressed the corn ethanol industry in the U.S. for years.

The subsidy commands $5 billion from the federal budget, which translates to 45 cents per gallon given to blenders who use ethanol. The tariff, a 54-cent tax on imported ethanol, helps keep U.S. ethanol competitive with ethanol from Brazilian sugarcane and other sources.

To help the industry even more, a federally mandated Renewable Fuels standard requires the production of 12.6 billion gallons of ethanol this year and 15 billion by 2015.

But those measures soon may change. Opposition to the subsidy has emerged in the Republican Party’s presidential nomination campaign. And a bill introduced Oct. 5 would make the mandate dependent upon the supply of corn. If in effect today, the proposal would lower the Renewable Fuels Standard by 25 percent because of recent low corn stocks, said Rep. Bob Goodlatte, R-Va., a sponsor of the bill.

Dermot Hayes, a professor of economics and finance at Iowa State University, said subsidies won’t have a major impact on ethanol production because they were mainly used to get the plants built.

However, Hayes, who holds the Pioneer Hi-Bred International Chair in Agribusiness, said if the government shut off all its support for ethanol and the industry got stuck purchasing expensive corn without aid, it would “go broke.”

Lucy Norton, managing director of the Iowa Renewable Fuels Association, said one-third of the corn used for ethanol returns to the market as distiller’s grain, a production by-product used as livestock feed. The price of grain, including corn, has increased because of the end of a period of artificially low prices, when the price of corn was below the cost of production, she added.

Jason Hill, an assistant professor in bioproducts and biosystems engineering at the University of Minnesota, disagreed. Hill said the large amount of corn devoted to ethanol not only affects the price of corn, but also soybeans and cotton.

“Acres of cotton are shifted out to make room for soy as soy is shifted out to make room for more corn,” Hill said. “It’s simple economics. Using corn for ethanol rather than feed does have a global effect.”

Hill questioned whether distillers’ grain sufficiently replaces corn devoted to ethanol.

“Let’s assume one-third does go into distillers’ grain,” Hill said. “That still leaves two-thirds.”

He rejected arguments that corn used for ethanol doesn’t come from a food source. Any corn not used for ethanol or eaten as a vegetable or high-fructose corn syrup is used for food, because it is fed to the livestock that we eat, Hill said.

“What is a chicken?” former Agricultural Minister for Brazil Roberto Rodrigues asked when discussing his country’s increased production of poultry. “It is an egg full of corn and soybeans that flies?”

**The politics of ethanol**

The ethanol industry has boomed in the U.S. largely because of politics, Hill said. There is no credible study proving ethanol decreased greenhouse gases and that it has only a negligible effect on reducing U.S. dependence on foreign oil, he added.

The Energy Independence and Security Act of 2007 expanded the Renewable Fuel Standard to the production of 36 billion gallons of renewable fuel, some of which can come from non-food sources.

Biofuel from corn is capped at 15 billion gallons, so the corn ethanol industry is not expected to expand much once the cap is reached in 2015.

The production of corn ethanol is notably inefficient, but the government continues to subsidize its production. Meanwhile, Brazil produces far more efficient biofuel from sugarcane, but representatives from the Brazilian biofuels industry say the U.S. use of tariffs prevents ethanol development.

The gap in energy yield between corn and sugar cane is stark. One unit of fossil fuel energy is required to produce 1.5 units of corn ethanol, according to a study on bioenergy development published by the World Bank. In sharp contrast, the same amount of fossil fuels will produce eight units of sugar cane ethanol.

Cellulosic biofuel, or fuel made from non-food sources like switchgrass, corn stover or forest residues, was supposed to reach 16 billion gallons by 2022 in accordance with the fuel standard. However, a study released by the National Research Council, said meeting this mandate is unlikely as production is not yet possible on the commercial scale.

**Lack of land seen as the problem**

Hayes argued that whichever way you plant it, land is the scarce resource, not corn.

“Here in Iowa, you can grow switchgrass, corn, soybeans,” Hayes said, but planting switchgrass still would take that corn out of production.

A July report commissioned by the Renewable Fuels Foundation concluded that no single factor causes food price increases.

Crystal Carpenter, a senior consultant for Informa Economics, said the report does not argue that biofuels haven’t had an impact, but rather that ethanol is one of many factors, including energy costs, weather and the economic exchange rate, many of which cannot be controlled.

“But producing biofuels could be a balancing force to help mitigate volatility in energy prices, and it is one thing we do have control over,” Carpenter said.

**Corn stocks**

U.S. markets are linked to foreign markets, even in remote regions of Africa, Sheeran said during a press conference at the World Food Prize. Sheeran described a 2008 visit to Addis Ababa, Ethiopia, where “everything was moving on donkeys.” But, even there, the Internet permeated, she said.

Sheeran said she spoke with a man selling teff, a type of small grain.

“When I asked him how he set his prices, he said, ‘I go on the Internet every morning and check the prices on the Chicago board of trade. I use those prices, but discount them 10 percent since we are a poor nation.’”

Low stocks and high prices in the U.S. spell bad news for foreign consumers.

The devotion of more than 35 percent of corn to biofuels contributes to price volatility because the mandates are too rigid to respond to fluctuating supplies, according a report at the World Food Prize by the International Food Policy Research Institute.

**Abandoning ethanol called unrealistic**

The biofuels industry has become a significant presence in Iowa’s economy. With 41 ethanol plants and 14 biodiesel refineries, the industry supplies roughly 577,000 jobs and provides an income source for farmers, according to the Iowa Renewable Fuels Association.

Ethanol production reduced gas prices by roughly 25 cents a gallon from 2000 to 2010, a study conducted by the Center for Agricultural and Rural Development at Iowa State University says.

“Five years ago, gas was more expensive than diesel prices,” Hayes, a co-author of the study, noted. He said the biggest gas price declines were in areas with higher ethanol use.

Ethanol provides about 10 percent of the gas moving American vehicles, Hayes said. Stopping ethanol production would require more imports in an already tight oil market, which would raise gas prices by 41 percent to 92 percent, the study estimates. But Hayes said the increase would be short-lived.

Hill said the present fuel solution lies more in the field of efficiency and conservation than in biofuels. A one-mile increase in gas mileage would do more for energy independence than the annual production of 14 billion gallons of ethanol would, Hill said.

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