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RUNNING ON EMPTY FOOD VS. FUEL

The recent boom in the ethanol industry has resulted in a greater demand for corn, which, in turn, has led to a strain on the supply, triggering higher prices.

BY MIMI ABEBE

PHOTOGRAPH BY AARON E. PRICE

A pile of corn sits at the Cargill storage plant in Ord, Neb., about two miles from the US BioEnergy ethanol plant. Some of the corn will be moved to US BioEnergy where it will be processed into ethanol. The size of the pile varies each season but can average 1 million bushels. With corn prices in constant fluctuation, worth is difficult to determine, but a pile of corn this size could be worth more than \$5 million.

On a Sunday evening, Anabel Ostiguin bustled about her small kitchen making dinner for her hungry family.

The 37-year-old mother of six, who moved from Chicago to Lincoln in 1993, carefully placed a stack of chicken-and-cheese quesadillas on a serving plate. With the sticker shock that greets her on each trip to the grocery store, Ostiguin struggles to provide even basic food for her family of eight.

So every few months, the Ostiguins make a nine-hour drive from Lincoln to Chicago in their copper-colored '98 Chevy Suburban to stock up on tortillas, bought directly from El Milagro, a tortilla manufacturer that offers prices lower than the family can find in Lincoln. At \$15 for a pack of 36 tortillas, they buy a box with 16 packs — enough to last the Ostiguins three or four months.

“We can save more if we buy in bulk,” Anabel said. “With higher prices in everything, we have to limit ourselves.”

Like many other families, the Ostiguins struggle to live on an increasingly tight budget. Cutting corners can go only so far, however, when the price of one of the most basic needs, food, continues to shoot up.

According to the U.S. Department of Agriculture, in 2007, the price of meat, poultry and fish went up by 3.9 percent, dairy products by 7.4 percent and eggs skyrocketed 28 percent. In the first quarter of 2008, the price of eggs was up 40 percent from a year earlier.

The dramatic rise in food prices is a trend that won't level off anytime soon. According to the USDA, all food prices are expected to increase another 4 percent in 2008.

This increase in price has been attributed to several factors, but one has become somewhat of a lightning rod: ethanol. Specifically, corn-based ethanol.

The recent boom in the ethanol industry has resulted in a far greater demand for corn, which, in turn, has led to a strain on the supply, triggering higher prices. In spring 2008, the price of corn hovered around \$6 a bushel. And as the price increases, consumers feel its aftershocks on their wallets.

A 2007 Iowa State study on the long-term effects of biofuels in the U.S. was clear in its conclusion: "In response to increased demand for corn by the ethanol sector, feed prices increase and stay high for several years."

In 2008, ethanol plants were projected to gobble up one-fourth of the nation's corn supply, leaving less to feed poultry and livestock — and less for the many foods that contain corn. Forced to pay steeper and steeper corn prices, many middlemen are inclined to pass those costs on to consumers.

As much as Americans feel the pain of higher food prices, the global impact is even greater. The world's poor, who spend most of their income on food, have no means to ease the financial burden of higher food prices. Consequently, food riots have occurred in several countries.

"The prices of basic staple foods are likely to increase, threatening economic access to sufficient food, particularly for the poorest who already spend a high proportion of their incomes on food," said Jean Zeigler, the U.N. Special Rapporteur on the right to food. "The sudden, ill-conceived rush to convert food, such as maize, wheat, sugar and palm oil, into fuels is a recipe for disaster."

In the increasingly contentious food vs. fuel debate, a close look at numerous studies, interviews and government documents reveals a number of key issues.

"As oil prices go up, that creates more incentive

for producing biofuels which puts pressure on food prices," said Richard Heinberg, a senior fellow at Post Carbon Institute, a think tank devoted to environmental and energy issues. Using corn for fuel and other products, he said, inevitably puts pressure on food prices.

Still, not everyone is convinced that ethanol is the source of higher food prices.

"The 'rest of the story' is that energy prices are a far larger culprit in higher food prices," Keith Olsen, president of the Nebraska Farm Bureau Federation, wrote in a July 2007 editorial in the Lincoln Journal Star. "The use of energy adds significant costs to foods as they move through growing, processing, packaging and shipping.

"The bottom line is that the corn-food price link is grossly overstated. The reality is that higher corn prices have had very little impact on food prices. Food prices in general do not rise as much as the media portray."

Rick Tolman, president of the National Corn Growers Association, put it even more bluntly, speaking to the National Press Club in April, 2008.

"While we do have some role in higher corn prices, we're closer to Little Bo Peep than an ax murderer," Tolman said.



PHOTOGRAPH BY AARON E. PRICE

The Ostiguin family drives to Chicago, Ill., every few months to buy tortillas in bulk directly from a manufacturer that offers lower prices than Lincoln stores.



PHOTOGRAPHS BY KATE VEIK

ABOVE: Corn and corn derivatives have nearly 600 uses. Corn is found in obvious places like cereal, potato chips and tortillas and in some less obvious places like glue, deodorizers and peanut butter. **ABOVE RIGHT:** Mexican consumers get 60 percent of their daily calories from tortillas, so tortillas have huge nutritional importance.

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This sentiment doesn't resonate with the Ostiguin family, who now spends more than \$800 each month on basic food.

"As the kids get older, we consume more and more," Anabel Ostiguin said. "We have to plan ahead."

Corn has long been a key staple in the U.S. food supply. It is consumed not only by people, but also by cows, hogs and chickens. Beef, milk and eggs are among the most vital items in U.S. meals. The dramatic increase in prices for these and other foods has put pressure squarely on the budgets of American consumers.

Some researchers link those price increases to a number of causes, including weather and energy costs. Others have looked at a broad range of possible impacts.

In November 2007, Stanford University pub-

The Ostiguin family spends more than \$800 each month on basic food.

lished a study titled "The Ripple Effect: Biofuels, Food Security, and the Environment." Among other things, the study's seven authors considered the impact on food availability and cost if a large percentage of five key food crops, including maize, cassava, sugar cane, soy and palm oil, were redirected to produce biofuels.

According to the study, the use of these commodities to create fuel rather than food could trigger a strain on the supply that leads to higher food prices throughout the world.

Urging more careful analysis of the causes and effects of this trend, the authors wrote, "... biofuels are causing an abrupt increase in demand for agricultural commodities traditionally used for fuel and feed, which is placing upward pressure on crop

prices. Whether future price increases and subsequent adjustments in demand and supply occur at local, regional, or global scales has yet to be determined.”

Ken Cassman, University of Nebraska–Lincoln professor of agronomy and agriculture and a co-author of “The Ripple Effect,” echoed the cautious analysis of the Stanford study. Cassman is highly critical of studies linking corn-based ethanol to higher food prices. He said those studies create a false relationship between the inflation of food prices and rising corn prices.

“There is going to be a higher impact on food prices than these backwards studies suggest,” Cassman said.

Much of that impact may come from scarcity. A March 2008 article in the Lincoln (Neb.) Journal Star said ethanol is having a significant impact on wheat prices because the demand for ethanol is causing farmers to plant corn instead of wheat.

“Our grain stocks are at a 30-year low,” Heinberg said, adding that, in the next 50 years, population growth and increases in per capita consumption mean people will have to produce as much food as has been produced in the last 10,000 years. With skyrocketing wheat and corn prices, that task will be a considerable challenge.

“This is why I think that we’re facing what could be the greatest agricultural crisis in the history of our species,” Heinberg said.

Ethanol Across America, an education campaign of the Clean Fuels Foundation, said higher energy, transportation and labor costs may be to blame for higher food costs. The industry group said weather can also be involved. Blizzards and ice storms, for example, can cause ranchers to lose cattle and farmers to lose grain, fruit and vegetable crops.

“Weather didn’t have any effect during the last few years, so that can’t explain what’s going on right now,” said Richard Perrin, a UNL agricultural economics professor.

He said current food prices are partially due to higher corn prices, but energy and transportation costs also play a critical role.

“Meat, poultry, eggs and dairy products — the

foods where corn is a major input and are most affected by rising corn prices — accounted for about 0.2 percent of the 1.2 percent acceleration in food price inflation between September 2006 and April 2007. Rising energy prices had a more significant impact on food prices than did corn,” Perrin said.

Higher corn prices will likely affect the prices of more items than food. Add it all up, and there are nearly 600 uses for corn and corn derivatives.

Corn is found in obvious places like cereals, potato chips and tortillas. According to the Kentucky Corn Growers Association, it is also a primary ingredient in Johnson & Johnson baby powders, Duracell Procell Batteries, Febreze Deodorizing Spray, Kingsford Charcoal and Vagisil Feminine Powder.

And, more and more, corn is being used to make ethanol.

A study published in February 2008 by the Economic Research Service Department of the U.S. Department of Agriculture concluded that the price increase per bushel of corn from \$2 in 2005 to \$3.40 in 2007 was due partly to extra demands from ethanol.

The study reported that, by the end of the 2006-2007 crop year, more than two billion bushels of corn, or 19 percent of the harvested crop, was used to produce ethanol, a 30 percent increase from the previous year.

Less than 10 percent of the U.S. corn crop is used for domestic human consumption; the rest goes for things like animal feed and ethanol production, the study said, adding, “Ethanol’s impact on retail food prices depends on how long the increased demand for corn drives up farm corn prices and the extent to which higher corn prices are passed through to retail.”

Increased costs for corn could be passed on to the consumer.

For example, an 18-ounce box of corn flakes contains about 12.9 ounces of milled corn. The average price of corn for the past 20 years has been \$2.28 per bushel, which makes the value of corn in a box of corn flakes about 3.3 cents. The rest of the

cost comes from packaging, processing, advertising, transportation and other things. But when the price of corn hits \$3.40 per bushel — the average in 2007 — the value of the corn in that same box is 4.9 cents.

“The 49-percent increase in corn prices would be expected to raise the price of a box of corn flakes by about 1.6 cents ... assuming no other cost increases,” the USDA study said.

While consumers are concerned about rising food costs, corn farmers are pleased with the trend.

In November 2007, the Lincoln Journal Star ran a pro-ethanol advertisement titled “Food & Fuel Facts.”

“It’s great that Nebraska corn farmers are finally getting a good price for their product,” the ad said. “If we spend a few cents more at the grocery store, that’s a small price for having the safest, most abundant and most affordable food supply in the world.

“Ethanol is helping solve our nation’s energy challenges. And it’s helping today. The money we spend on ethanol stays right here in America. In Nebraska. And that’s worth every penny. Even a couple of cents extra for our box of corn flakes.”

FACTS CORN

☞ Baby powder, contact lens solution, toothpaste and corn flakes are among more than 600 products containing corn used in daily life. — *Kentucky Corn Growers Association*

☞ A February 2008 study concluded that the price increase of corn from \$2 a bushel in 2005 to \$3.40 a bushel in 2007 was partly because of extra demands from ethanol. — *U.S. Department of Agriculture*

☞ A November 2007 Stanford University study says the United States and Brazil account for more than 90 percent of global bioethanol production. — *“The Ripple Effect”*

☞ The price of meat, poultry and fish all increased 3.9 percent, dairy products by 7.4 percent and eggs by 28 percent in 2007. — *U.S. Department of Agriculture*

☞ The five key commodities in ethanol production are maize, cassava, sugar cane, soy and palm oil.

— *“The Ripple Effect”*

☞ The overall effect of food-price increases is much more detrimental to the world’s poor than to Americans.



WHAT'S IN A BUSHEL?

1.6 pounds of corn oil

In addition to foods such as cooking oil, salad dressing, mayonnaise, margarine and shortening, corn oil is also an ingredient in soaps, inks and leather-tanning supplies.

13.5 pounds of 21 percent gluten feed

High gluten feed is used to raise both livestock and poultry, and it's also an ingredient in pet foods.

2.6 pounds of 60 percent gluten meal

Gluten meal is an ingredient in some poultry feeds and is also used in fur cleaners.

2.7 gallons of ethanol at a wet-milling plant

or 32 pounds of starch
Not simply a food ingredient, corn starch is used in adhesives, batteries, cardboard, crayons, dyes, plywood, paper, antibiotics and eco-friendly plastics.

or 33 pounds of sweetener
Corn syrup and high fructose corn syrup are used in lots of foods, particularly in the U.S. where corn syrup can be a cheaper alternative to sugar. One bushel of corn yields enough corn syrup to make nearly 370 cans of Coca-Cola Classic.

SOURCE IOWA CORN PROMOTION BOARD



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However, many American families struggle with even moderate price increases.

Big families have to be on a budget, said Anabel Ostiguin. Her family goes through five gallons of milk a week and, at most, consumes meat only three times a week because of higher prices.

Among the pro-ethanol arguments, one of the strongest is that increased corn prices can rejuvenate rural communities by bringing revenue to local farms and farms around the world.

“As a senator from the Cornhusker state, I am acutely aware of the needs of our cattle and pork producers as well as our grain farmers,” wrote Nebraska U.S. Sen. Ben Nelson in the summer 2007 Ethanol Across America Issues Brief. “It is important to remember that the better corn prices received by farmers help revitalize rural communities while, as this brief shows, having very little effect on the prices consumers pay for food.”

According to others, the international reality is not so simple.

For example, 50 percent or more of the population of Africa derives most of its income from agriculture, Cassman said.

Zambia is a prime example.

About 70 percent of Zambians subsist on agriculture, and the number is even higher in rural populations, said Adam Norikane, CCF Zambia Food Security Specialist. Maize (corn) comprises the highest percentage of rural Zambian farmers’ crop lands and yields.

Maize is sold to the Federal Reserve Agency, which is a government organization, said Norikane, under a policy designed to keep prices steady and offer a sellers’ market, regardless of global price fluctuation. This is the government’s attempt at stabilizing staple-crop production.

“But if the government can’t sell it on the world market, then they can’t pay the farmers, and the

PHOTOGRAPH BY KOSUKE KOIWA

According to the Nebraska Corn Board, in 2007 Nebraska farmers produced 1.4 billion bushels of corn. In the 2007-2008 marketing year, nearly 70 percent of Nebraska’s corn production will be used in the state, with 30 percent shipped out of the state, according to ProExporter Network projections.

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farmers have to ask someone they know for money to buy seed for next season,” Norikane said.

Mexican farmers face similar problems.

Poor subsistence farmers don’t usually produce enough to cover all of their household needs, wrote Alder Keleman, Congressional Hunger Fellow and author of “The Mexican ‘Tortilla Crisis’ of 2007,” in which she discusses the future of small-scale, Mexican farmers. They end up purchasing maize or maize substitutes. This situation leads to price increases in other food products.

Some experts say the misconception that higher crop prices help farmers is widespread.

“Although increasing food prices should theoretically benefit millions of people working as peasant farmers in developing countries, this is not always the case,” said Jean Zeigler, the U.N. Special Rapporteur. “Many farming families are net buyers of staple foods, as they do not have enough land to be self-sufficient, and will therefore be affected by rising consumer prices.”

On average, Americans spend about 10 percent of their income on food — less in proportion to their disposable income than do people in any other country in the world, Cassman said.

Globally, the picture is much different.

“The figures I’ve seen suggest that the poorest Mexican consumers get something like 60 percent of their daily calories from tortillas, so they have huge nutritional importance,” Keleman said.

In Mexico, the daily minimum wage around the time food prices spiked in 2007 was about 50 pesos, or about \$5, Keleman said. So a price increase of 10-15 pesos per kilo of tortillas could have a huge impact on the food security of a family living off a minimum-wage-level salary.

Ziegler’s U.N. report summed it up this way: “The consequences of such a rapid increase in food prices would be grave. The International Food Policy Research Institute projects that the number of people suffering from undernourishment would increase by 16 million people for each percentage point increase in the real price of staple food.

“This could mean that 1.2 billion people would be suffering from hunger by 2025.” 🌾





PHOTOGRAPH COURTESY
LINCOLN JOURNAL STAR

E. BEN NELSON

“It is important to remember the better corn prices received by farmers help revitalize rural communities, while ... having very little effect on the prices consumers pay for food.”

U.S. Sen. Ben Nelson

D-Neb.

PHOTOGRAPH BY KOSUKE KOIWAI

Alan Songster of Exeter, Neb., harvests corn. Less than 10 percent of the United States corn crop is used for domestic consumption.

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