Siphoning Off Corn to Fuel Our Cars

As farmers feed ethanol plants, a costly link is forged between food and oil.

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Erwin Johnson picks up a clump of the dark, rich soil that he has farmed for 35 years, like his father and grandfather before him. In a few months, this flat expanse of northern Iowa will be crowded with corn ready to be trucked to market.

A year ago, that market got a little closer -- and a lot better. Instead of sending his corn to a barge company to be shipped down the Mississippi River for export, Johnson now loads it into an open truck and sends it two miles up the gravel road to a hulking new ethanol distillery that he can see from his field. The plant is paying him $5.50 or more a bushel, more than twice as much as Johnson could get just a couple of years ago.

"This is a fantastic time to be farming," Johnson says. "I'm 65, but I can't quit now."

Across the country, ethanol plants are swallowing more and more of the nation's corn crop. This year, about a quarter of U.S. corn will go to feeding ethanol plants instead of poultry or livestock. That has helped farmers like Johnson, but it has boosted demand -- and prices -- for corn at the same time global grain demand is growing.

And it has linked food and fuel prices just as oil is rising to new records, pulling up the price of anything that can be poured into a gasoline tank. "The price of grain is now directly tied to the price of oil," says Lester Brown, president of Earth Policy Institute, a Washington research group. "We used to have a grain economy and a fuel economy. But now they're beginning to fuse."

Not everyone thinks it's fantastic. People who use corn to feed cattle, hogs and chickens are being squeezed by high corn prices. On Monday, Tyson Foods reported its first loss in six quarters and said that its corn and soybean costs would increase by $600 million this year. Those who are able, such as egg producers, are passing those high corn costs along to consumers. The wholesale price of eggs in the first quarter soared 40 percent from a year earlier, according to the Agriculture Department. Meanwhile, retail prices of countless food items, from cereal to sodas to salad dressing, are being nudged upward by more expensive ingredients such as corn syrup and cornstarch.

Rising food prices have given Congress and the White House a sudden case of legislative indigestion. In 2005, the Republican-led Congress and President Bush backed a bill that required widespread ethanol use in motor fuels. Just four

months ago, the Democratic-led Congress passed and Bush signed energy legislation that boosted the mandate for minimum corn-based ethanol use to 15 billion gallons, about 10 percent of motor fuel, by 2015. It was one of the most popular parts of the bill, appealing to farm-state lawmakers and to those worried about energy security and eager to substitute a home-grown energy source for a portion of U.S. petroleum imports. To help things along, motor-fuel blenders receive a 51 cent subsidy for every gallon of corn-based ethanol used through the end of 2010; this year, production could reach 8 billion gallons.

Now, however, the legislation is being criticized for making food more expensive while gasoline prices continue to climb. Rick Perry, a Republican who succeeded Bush as Texas governor, has asked the Environmental Protection Agency to waive half of the "misguided" ethanol requirements because of rising food costs; every penny increase in per-bushel corn prices costs his state's livestock industry $6 million a year, he said.

Although ethanol was once promoted as a way to slow climate change, a study published in Science magazine Feb. 29 concluded that greenhouse-gas emissions from corn and even cellulosic ethanol "exceed or match those from fossil fuels and therefore produce no greenhouse benefits." By encouraging an expansion of acreage, the study added, the use of U.S. cropland for ethanol could make climate conditions dramatically worse. And the runoff from increased use of fertilizers on expanded acreage would compound damage to waterways all the way to the Gulf of Mexico.

Development specialists have also joined the fray. "While many are worrying about filling their gas tanks, many others around the world are struggling to fill their stomachs, and it is getting more and more difficult every day," World Bank President Robert B. Zoellick said in a recent speech.

No place demonstrates the competing demands on corn better than Iowa, one of the two biggest corn-exporting states. Iowa is home to 28 ethanol plants, which consume more than a quarter of its corn crop; two dozen others are under construction or in planning stages.

Two leading oil pipeline companies are exploring the feasibility of building a $3 billion ethanol pipeline, the first of its kind, to link Iowa and other parts of the Midwest with motor-fuel markets in the East. It would carry 3.65 billion gallons a year and give another industry a vested interest in maintaining high ethanol output. Because of this domestic demand, Iowa's exports of corn are expected to shrink to less than half of current levels in the next couple of years. Nationwide, corn stockpiles are dwindling.

All that could make this cycle of corn prices different from previous ones, when prices eventually fell back. "As long as you keep that ethanol industry running, grain prices will be high," says Bruce Babcock, professor of economics and the

director of the Center for Agricultural and Rural Development at Iowa State University. "If you didn't have this large growth in ethanol corn, prices would be nowhere near where they are today."

Corn as Fuel

As consumer prices climb, more and more people are pointing fingers at ethanol plants, like the one VeraSun Energy built here just outside Charles City. VeraSun is riding the crest of the ethanol boom. Thanks to internal expansion and the purchase of a rival, VeraSun will become the nation's biggest producer of ethanol by the end of the year, with about four times as much capacity as it had in 2005.

The plant is hard to miss. Its two massive concrete silos reach 150 feet into the air; each one holds half a million bushels of corn, delivered by an average of 110 brimming trucks every day. The silos are connected to a distillery with giant shiny steel vats for milling the corn, then fermenting and distilling it into 200-proof, fuel-grade ethanol. The ethanol is shipped out by train, 84 black tanker cars at a time.

The VeraSun facility is buying up almost all the corn produced in Floyd County and much of the corn produced in the four surrounding counties. While that might seem anathema to East Coast grocery shoppers, around here it makes VeraSun pretty popular.

"From Washington where Lester Brown is sitting, agriculture can't do enough to satisfy the nation's energy needs and meet all the demands put on it for food and feed," says Matt Liebman, an agronomist at Iowa State University. "But from agriculture's point of view, [ethanol] enhances market opportunities. So it really depends on your perspective."

Some folks around here get defensive when talking about corn prices. Johnson, the corn farmer, points out that the share of household income that goes to buying food has dropped steadily over the past 50 years; U.S. government statistics say that the portion is half of what it was in the 1950s. And of that portion, farmers get about a fifth; the rest goes to middlemen, food manufacturers, transportation, packaging and advertising. Indeed, farm groups say that energy costs in transportation and packaging have boosted food prices more than the price of corn has.

"There's no doubt that food prices are going to increase, but I suggest to you that food is still reasonable," Johnson says.

Don Endres, the chief executive of VeraSun and owner of 20 percent of its shares, grew up on a farm in Watertown, S.D., where his father and grandfather raised corn. His brothers are still farmers.

Endres says ethanol plants aren't to blame for high corn or food prices. He notes that the corn used to make ethanol isn't the kind that people eat anyway. Moreover, he says, ethanol plants like VeraSun's extract the starch in corn for fermentation while producing a dry feed that contains protein and nutrients. Piles of it are collected from industrial dryers at the plant. VeraSun then sells that feed, known as dried distillers grain, back to farmers who raise animals. Much of it goes to Texas, Mexico and China; it accounts for about 15 percent of VeraSun's revenue. When the grain is mixed with inexpensive starch, such as alfalfa, farmers can save money, Endres says.

Finally, he says, yields on corn will continue to increase so that the current acreage will be able to meet both food and fuel demands. His grandfather got 40 bushels to an acre, his father got 80, and his brothers get 160. Someday, Endres says, farms will get 300 bushels an acre.

"I think we'll see this thing come back into balance," he says. "There's an ability to produce so much more at these price levels."

The Feed Price Shock

About 20 minutes' drive from Johnson's farm and the VeraSun plant, two neighbors, Bill Huebsch and Ray Avila, are raising about 15 percent of the nation's capons, castrated roosters that are popular fare on Easter, Thanksgiving and Christmas. In a shed longer than a football field, 13,000 of the birds scurry about, nibbling at a corn mixture fed through automated pipes. In a matter of weeks, each tiny bird will eat about 40 pounds of feed.

The cost of that feed, three-quarters of which is corn, has risen sharply, and as a result, Huebsch and Avila are asking to be paid more for their capons -- a premium of 10 cents a pound last year and maybe another 15 or 20 cents this year -- to cover the added cost.

"Ultimately, you know where that price has to go," Huebsch says. "Ultimately, it's the consumer that's got to take the brunt of it."

He doesn't buy Endres's argument. He says that capons, like egg-producing chickens, can digest only limited quantities of the dried distillers grain. And the price of that protein-rich feed is also rising. (Cattle, which have four-chambered stomachs, can digest the distillers' grain more easily.) Some studies have also linked dried distillers grains with the bacterium *E. coli* in feedlot cattle.

"I think the ethanol is hurting us," Huebsch says. "It hasn't lowered our fuel prices at all, and it has increased feed costs."

The sharp rise in corn prices has confounded Avila's buying plans. Ordinarily in the fall, he buys all the corn he needs for the next season. But with prices around

$4 a bushel last fall, he decided to wait. Now they're even higher, and he's buying only four days' supply, hoping that the price will go down.

"I'm just going day to day," Avila says. He says that a corn farmer friend of his bought a boat, and Avila asked whether he would name it Four Dollar Corn. Now, Avila jokes wryly, his friend would have to name it Six Dollar Corn.

Capons are a niche product, but high corn-feed prices are also giving poultry and egg producers a lot to cluck about. Iowa produces more eggs, 13.5 billion, than any other state. And chickens, like capons, mostly eat corn feed. The Charles City ethanol plant alone consumes three-quarters as much corn as the entire Iowa egg industry.

"Corn has gone up dramatically since the ethanol plants went in," says Deb Wolf, a small egg producer in Osage. "They're buying millions of bushels. That's got to come from somewhere." She and her husband, Keith, have a sign reading "Eggs 4 Sale" outside their home on Route 9, and customers often get the eggs while they're still warm. The Wolfs have tripled the price they charge for a dozen.

"We don't have to make fuel out of corn and soybeans, but we do have to feed animals," says Kevin Vinchattle, executive director of the Iowa Egg Council. "We're going to be right there bidding for feedstocks and making sure that we have the highest-quality feed available. We just don't have an alternative."

'Maxed Out'

Back in Charles City, farmer Johnson is reaping the benefits of high corn prices. He knows what the other extreme is like. His grandparents arrived from Germany in 1913 and, dirt poor, worked as farmhands before buying this land. Johnson took it over in the early 1970s, when prices, which hadn't changed much since the end of World War II, doubled and then leveled off again for most of the next three decades.

Two hundred years ago, he says, this was prairie covered with six-foot-high switchgrass. Winnebago Indians lived here, and then white settlers came in the mid-1800s.

But now the ethanol plant and 50 wind turbines that were erected over the winter have brought new energy to a town that Johnson says long lived off "the ground God created with glaciers and laid down here."

VeraSun built its plant in this area to be close to corn farms; Johnson says that he keeps part of the money that once went to trucking his corn to the barge company. "That money stays in my pocket now, and I like that."

Johnson is a one-person summary of how high corn prices are washing through the world of agriculture and climate change. Normally, he plants half of his 900 acres with corn and half with soybeans. He alternates crops on each field because it is better for the soil.

But last year he planted 500 acres of corn and 400 of soybeans, and this year he will do the same. "The market was screaming, 'Farmer Johnson, plant more corn, plant more corn,' " Johnson says.

Farmers across the country joined him. In 2007, U.S. acreage devoted to corn hit a record 93.6 million acres, up 20 percent from the year before. Farmers are expected to plant a little less than that this year.

That market response would ordinarily bring nothing but cheers, but the growing alarm about climate change casts it in a different light. In the United States last year, corn edged out some soybeans, which as a result are being grown in greater numbers on previously unplowed areas in other countries. And that releases carbon dioxide that had previously been stored in the soil as organic matter.

Johnson, along with about two dozen other people in the area, has invested in 25,000 acres of cattle-ranching and savanna land in Roraima state in northern Brazil, where they have planted 750 acres of soybeans and plan to expand. He says U.S. agriculture is a mature market. "We're maxed out," he says.

Meanwhile in Iowa, he is tilling his own soil more often, a farming trend that dismays climate experts. Usually Johnson doesn't till his soil in the fall; he points to short remnants of cornstalks that still stand in rows where soybeans will be inserted. But Johnson plans to till a piece of land where he will plant corn for a second year in a row.

Johnson also owns a small piece of land that is part of the federal government's conservation reserve program, which pays farmers for leaving land vacant. Millions of acres are in the program. The CRP parcels tend to have lower-quality soil, and they attract birds and other wildlife. In the climate-conscious era, they have the added virtue of storing carbon in the soil.

Johnson put a 10-acre parcel aside years ago and signed a 10-year contract with the government to leave it undisturbed. But the contract is running out, and he's thinking about planting corn. The CRP contract pays him $170 an acre. Johnson says, "I'm making a lot more than that now."