

Policy Pennings by Dr. Daryll E. Ray

## Driven by ethanol at break-neck speed

In this series of columns we examine the impact of the rapid run-up and subsequent decline of crop prices on various groups, including crop farmers; livestock, dairy and poultry producers; importing countries; and consumers, and whether or not a properly managed grain reserve program could have mitigated the problems faced by each of these groups. Here we look at the ethanol industry as an important cause and casualty of the price bubble.

To some extent the increased use of corn in the production of ethanol can be attributed to changes in agricultural policy in 1996 and growing scientific consensus on the role of human activity on global warming. The 1996 Farm Bill effectively eliminated the floor on crop prices and, when the universally anticipated structural increases in corn exports did not materialize, allowed grain prices to fall well below the cost of production.

The explanation for the low prices was "overproduction" even though the year-ending stock-to-use ratio for the crop years from 1998 through 2005 was well below historic levels. With significant fixed costs, crop farmers continued to plant their fields to minimize their losses, hoping that a random crop failure somewhere would boost prices to profitable levels.

Since neither the random crop failure nor the promised structural increase in export demand showed up, crop farmers became increasingly dependent on the government through direct payments, the marketing loan program, and emergency payments. Though the federal government worked to backfill farm income with these various payments, farmers and their organizational representatives sought ways to use up the "excess" grain that was said to be the cause of low crop prices.

They were driven to seek ways to earn a livelihood from the marketplace instead of the mailbox—a metaphor for government payments. As a result, farmers and their commodity organizations made investments in a variety of ways to expand the use of their grains and oilseeds, including making clothing fibers from corn and printer ink from soybean oil.

In addition to farmers' supplying their products to non-traditional manufacturers who would convert the farm-based raw material into consumer products, farmers sought out products that would allow them to directly engage in the further-processing of their own raw products, adding value to their crops.

The traditional value-added enterprise for individual farmers was feeding the grain to livestock, dairy cows, and poultry. But, by the late 1990s, the poultry

and swine markets were vertically integrated, leaving little room for the small, independent operator. The dairy industry was also becoming increasingly concentrated and the beef market had little room for additional producers.

In this context, ethanol was identified as the ideal value-added product. The technology of converting corn mash into grain alcohol-ethanol was well known. Its production led to the Whiskey Rebellion of 1794 and stories of revenueurs and moonshine stills during prohibition.

While there were few opportunities in the liquor industry for increased production, the use of ethanol as a transportation fuel seemed unlimited. Ethanol was a fuel oxygenate that could play a role in reducing pollution. Additionally it was a home-grown fuel and could be marketed on the basis of reducing the dependence of the US on crude oil coming from a politically unstable area of the world.

The result was a remarkable farmer-led effort to financially lift themselves up by their proverbial bootstraps. They did this by developing a number of farmer-owned ethanol cooperatives and by lobbying state and federal legislatures to provide tax incentives and mandates for the use of ethanol as a fuel additive.

The support for ethanol really took off during a perfect storm of a) increasing crude oil prices and the desire for decreased dependence of foreign sources of oil, b) a growing concern about global warming and the belief that biofuels would recycle atmospheric carbon dioxide rather than add fossil-based carbon dioxide, and c) the banning of MTBE as a fuel oxygenate, leaving the field to ethanol.

With rising oil prices, the price of ethanol increased as well, enabling many of the farmers who invested in the early ethanol cooperatives to recoup their investment well ahead of schedule.

From there it got wild. Money follows money, and soon all sorts of non-farmer enterprises were investing in, designing, and building larger and larger ethanol plants.

By the late summer of 2006, it became apparent that the demand for corn by existing, under-construction, and on-the-planning-board ethanol plants would significantly increase. With stocks noticeably below historic levels, local corn price began to move up from near \$2.00 at the end of August 2006 to the \$4.00 level at the end of February 2007, providing a financial incentive for farmers to increase their corn plantings.

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Farmers responded by planting a record 93.5 million acres, and prices fell to near \$3.00 by the end of August 2007. As ethanol demand for corn was ramping upward, production short-falls beset farmers in other parts of the world-most notably wheat crop failures in both Eastern Europe and Australia. Because wheat also doubles as a feed grain in other parts of the world, corn prices had another fundamental reason to resume their upward trek.

Looking to the immediate future, the consensus at the time was that corn prices were going to remain high, prompting ethanol plants in the early summer of 2008 to contract for the future delivery of corn at what turned out to be elevated prices. Shortly thereafter, commodity prices began to fall-crude oil, ethanol, and the grains including corn.

Suddenly ethanol plants were using previously-purchased, high-priced corn to produce low-priced ethanol-a recipe for financial disaster.

Those who were highly leveraged were in crisis, and some went bankrupt. The bankruptcies were costly to both the ethanol plants and the farmers who had contracted the corn at near record prices.

Could this disaster have been avoided? Certainly, an adequate level of government-held reserves could have cushioned the double-shock, one on the demand side (the increased need for corn as a feedstock for ethanol plants) and another on the supply side (crop failures in several major exporting countries in the same year).

Reserve stocks probably should not have pre-

vented the doubling of prices, but they should have been in place to keep them from quadrupling in a matter of a couple of years. The purpose of reserve stocks is to allow sufficient time for markets to respond to increases in demand, decreases in supply, and, most of all, a combination of the two.

There is another important element to consider as well.

Clearly, the extremely low prices following passage of the 1996 Farm Bill drove the intensity of the interest to develop alternative uses for grains. Had corn prices been lifted by the filling of a grain reserve during that period-while there would have still been compelling reasons to develop the ethanol industry-the rate of expansion of the ethanol industry may have been moderated, thus tempering what otherwise became an explosive and extremely disruptive increase in the demand for corn.

Reserve stocks would have provided a more stable environment for corn ethanol plants and given them time to respond to changes in the price of their major input. The economic disruptions incurred by ethanol plants alone would more than cover the cost of maintaining a reserve stock.

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