

Strategic Initiatives

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Is the Food Industry Ready for the Ripple Effects of Biofuels?

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The food industry is entering a new era. Historically, most farmers thought of themselves as being a vital part of the food industry. Now, most corn and soybean farmers think of themselves as being in the food and fuel industries.

This “new world order” requires food company executives to be alert in ways that were not expected of them in the past. Be prepared for greater price volatility. Learn to monitor energy as well as food trends. The future will be different from the past.

For extra copies of this article or to discuss the details behind the analysis or the strategic implications, contact Bob or Michael at rludwig@halegroup.com or mprichard@halegroup.com, or 978-777-9077.

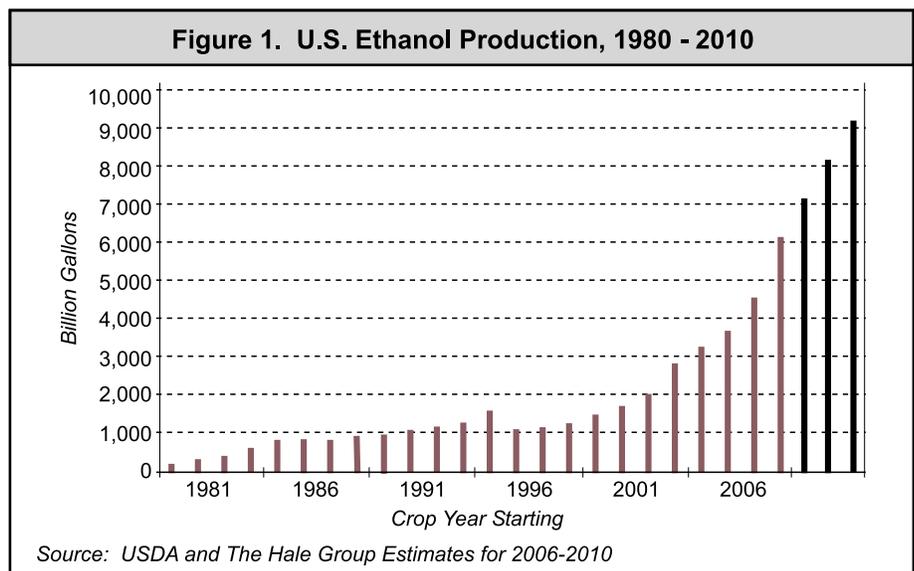
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MPR

Energy prices are the talk of the town. Nearly every conversation, touches on the negative impact higher energy prices are having on most aspects of the economy. The push is on to develop alternative sources, such as ethanol and biodiesel which are produced in this country primarily from corn and soybean oil. The rise in oil prices has resulted in a dramatic expansion of the domestic ethanol industry as shown in Figure 1. To date, production of ethanol and biodiesel has not significantly impacted pricing or availability of corn or soybeans. Will this remain true?

The Hale Group has been actively involved in assessing the impact of this emerging biofuels industry and believes that, assuming a high cost energy market and continued growth in biofuels, **food and feed industry participants can expect increased volatility in pricing as well as a narrower margin of error in projecting price and supply.**

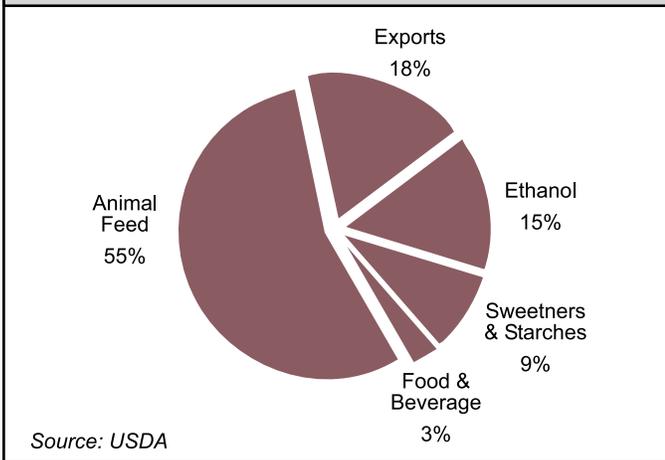
Rapid Emergence of the Biofuels Industry

Government mandates for renewable fuels and high oil prices have driven the expansion of the ethanol industry. →



As of April 2006, the U.S. ethanol industry had the capacity to produce nearly 4.5 billion gallons per year (which requires about 1.6 billion bushels of corn). Current construction activity to build new plants and expand existing plants will increase capacity nearly 50% by adding an additional capacity of 2.2 billion gallons per year.

Figure 2. Utilization of U.S. Corn Crop, 2004 - 05



In addition to current construction, plans have been announced to add an additional capacity of 5.7 billion gallons using corn or other grains (such as milo or barley) as a feedstock. Some of these plants will likely not be built; but, the rush to expansion is probably not going to abate anytime soon. Additionally, industry observers believe biodiesel production could reach 1.0 billion gallons by 2012 — including all types of feedstocks

Why is the ethanol industry expanding so rapidly? It's simple. With crude oil prices above \$70 per barrel and the Federal subsidy for ethanol production, plant owners are enjoying very high returns. Rumors throughout the country suggest that some plants that came on-line at the right time and are well located have had a payback of two years.

Will ethanol production remain profitable for the foreseeable future? The Hale Group's analysis indicates that under most reasonable scenarios for the future, the answer is, "Yes." However, if crude oil prices drop back to \$40 - \$45 per barrel and corn prices rise to \$3.00 per bushel (because of bad weather and a small

crop), smaller ethanol plants could dip below break-even. But, as long as crude prices remain well above \$50 per barrel and corn prices remain well below \$3 per bushel, there is money to be made in ethanol, and more ethanol plants will be built.

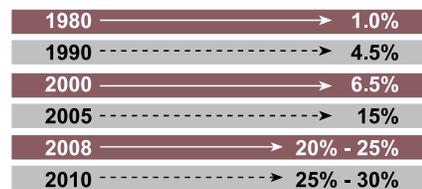
**“The U.S. is addicted to oil.”
Our goal is “to replace 75 percent of our oil imports from the Middle East by 2025.”— President George W. Bush, in his 2006 State of the Union Address**

Will U.S. corn farmers produce enough corn to supply the burgeoning ethanol industry as well as their traditional customers – livestock and poultry producers, the corn starch and sweetener industries, and foreign customers?

Figure 2 shows the utilization of the U.S. corn crop for 2004-05 marketing year by major market.

Figure 3 shows the rapid growth in the percentage of corn production used to produce ethanol in recent years along with a range of estimates for the next several years if the ethanol industry continues to grow rapidly.

Figure 3. Percentage of U.S. Corn Crop Used to Produce Ethanol



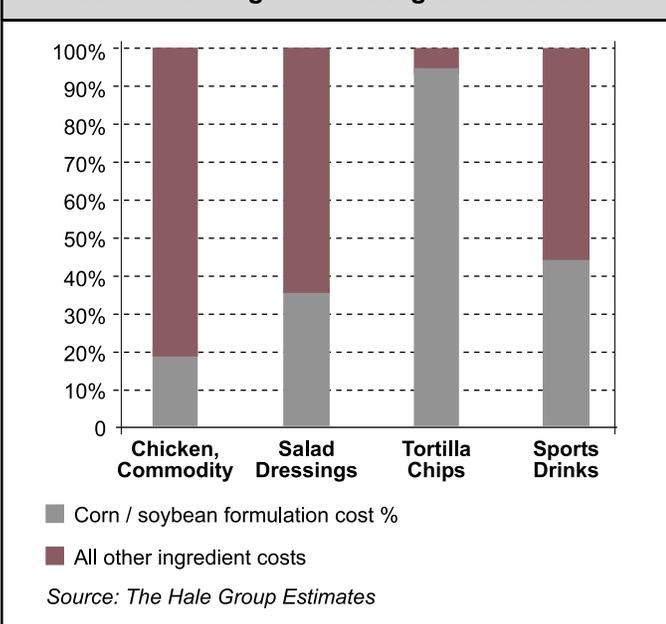
Source: USDA and The Hale Group Estimates

The potential impact on shifts in corn and soybean utilization will vary widely in any given food and feed sector. Figure 4 illustrates the percentage of total product formulation represented by corn or soybean products for select items.

Supply & Demand Analysis

Over the last two decades or so, most markets for corn have grown slowly. In contrast, trends in corn

Figure 4. Importance of Corn / Soybean Ingredients as a Percentage of Total Ingredient Costs



yields have steadily increased. It is not surprising farmers have welcomed and actively participated in the emergence of the ethanol industry with great enthusiasm. Corn yields have been growing more rapidly than growth in demand.

In contrast, corn acreage has fluctuated between 65 and 75 million acres most years during the last several decades. So, what are the prospects for more land being devoted to corn production? The major issues are:

- Some idle land could be taken out of the Conservation Reserve Program (CRP), to produce more corn.
- Some industry observers have predicted that soybean acreage in the U.S. will decline as Brazil rapidly expands soybean production; however, the growth of a U.S. biodiesel industry that uses soy oil as a feedstock may prevent that.

The inherent variability of agriculture has historically caused price fluctuations. Figure 5 shows the fluctuations in corn prices received by farmers as a percent increase or decrease from the price received the preceding year.

In looking at the future, three primary questions from the food industry’s perspective arise.

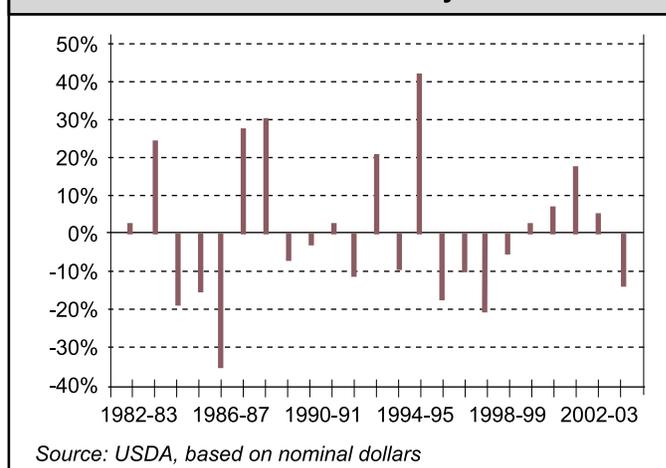
- Will yields keep up with increasing demand for ethanol production, or will ethanol production grow more rapidly than yield improvements?
- Will corn acreage increase if yields are unable to keep up with ethanol production?
- Will energy costs (oil) remain at high levels, thus making ethanol a suitable alternative?

Future Outlook

U.S. agribusiness is currently experiencing a major “sea change.” No one can predict exactly how it will play out. However, The Hale Group has developed several scenarios to determine how tight corn supplies might become over the next five or six years. For all scenarios, we assumed that most markets for corn (with the exception of ethanol) would grow at their recent historical growth rates.

The key variables which we adjusted for the alternative scenarios are corn yields and corn acreage.

Figure 5. Year-to-Year Price Fluctuations in Corn Prices Received by Farmers



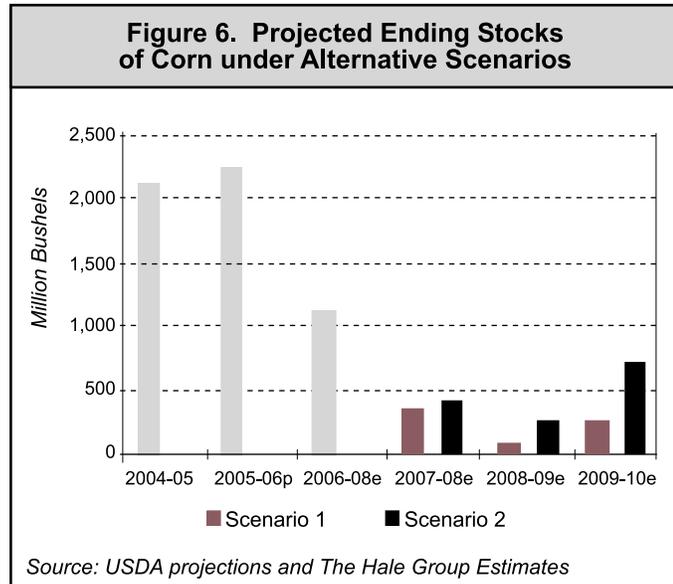
The results of our scenario analysis are summarized in Figure 6.

Major Assumptions: (Note: in all scenarios, THG predicts ethanol output to reach 8.1 bil. gallons by 2010, based on the current capacity, capacity in construction and announced capacity [50% of announced])

Scenario #1 Major Assumptions: Corn yields increase at 3%, acreage increases to 82 mil. acres →

Scenario #2 Major Assumptions: Corn yields increase at 2%, acreage increases to 86 mil. acres

Under both scenarios, the trend line for ending stocks is downward — the margin of error will diminish.



Ultimately, market forces will determine the amount that acreage will expand, technology will determine the pace that yields will continue to rise, and economics will determine whether shifts from one channel to another will occur, e.g., away from export markets; but, history has shown that farmers do, in fact, respond to price signals. The larger question looming over the continued expansion of this sector is the outlook for oil prices. In the case of biodiesel, while we see a greater share of soybean oil going to that market channel, there are other, more competitive feedstocks, e.g., palm oil, that will likely serve that demand, thus minimizing any major impact on soy oil prices or supply.

Potential Implications for the Food System

While we cannot accurately predict the outlook for corn and soybean oil prices, we can say with certainty that:

- Carry-in stocks of corn at the time of harvest will tighten

- Price volatility for corn will increase as domestic and export customers compete more aggressively for supply – beyond historic average variability of 15% to something closer to 20-25% annually
- Occasional spikes in corn prices could greatly exceed historic spikes of 40% over the prior year
- The effects of supply shifts and price increases could be felt most directly by the feed industry, thus increasing animal protein prices
- The margin of error for forecasting supply and prices will become narrower
- The global nature of both food and energy affects all buyers in an extended supply chain with additional risk factors

Players in the food system must become smarter about the conditions around them, to now include energy markets and the potential impact on food ingredient prices. Those companies having an ear to the ground, timely and accurate information, and an awareness that information flows may be more important than product flows will be able to navigate successfully.

In summary, corn supplies will get tighter, and greater price volatility will become common.

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Bob Ludwig serves as a Principal for The Hale Group. He started his consulting career thirty-two years ago. Since then, he has led many assignments for all types of U.S. and international farmer cooperatives, including closed and open co-ops as well as federated and centralized co-ops. Bob's areas of expertise include strategic planning, financial management, cooperative governance, and consensus building.