

Ethanol: Fueling Farm-Sector Adjustments

Text of audio slideshow

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Introduction

- The need for renewable sources of energy has become a national priority, brought on by high fuel prices, environmental concerns, and goals of reducing our dependence on foreign oil.
- Renewable energy derived from biological sources like plants is referred to as bioenergy. Bioenergy can be used for heat, electricity, or as a fuel in vehicles. Its production for fuel has implications for agriculture.
- Paul Westcott is one of the analysts at USDA's Economic Research Service evaluating the economic impacts of bioenergy production on the agricultural and food sector.

Presentation by ERS Analyst Paul Westcott

- In the United States, ethanol is the primary renewable fuel used in gasoline blends. And most ethanol produced in this country is made from corn.
- The current expansion in the use of corn for ethanol is unprecedented in its speed and magnitude, as well as its impacts on the U.S. feed grain market.
- Ethanol production in the United States totaled almost 5 billion gallons in 2006, up about 1 billion gallons from the previous year.
- And expansion in the industry is continuing as new ethanol plants are springing up across the country.
- Ethanol production is expected to more than double in just a few years, exceeding 10 billion gallons by 2009 and topping 12 billion gallons by the middle of the next decade.
- Events fueling ethanol's expansion include the surge in oil prices over the past few years, a federal mandate for the use of renewable fuel in gasoline, and tax incentives for biofuels.
- To put this expansion into perspective, ethanol's importance in the overall gasoline market is still relatively small, but for the corn sector it's big news. Within a few years, over 30 percent of the corn crop is projected to be used for ethanol. Yet even by the middle of the next decade, ethanol's share in the gasoline market is projected to remain under 8 percent.

How does the agricultural sector adjust to this expansion?

- USDA's 10-year projections illustrate some of the changes, where we see that impacts of the ethanol "boom" extend well beyond the corn sector, to other crops, the livestock sector, farm income, and to prices consumers pay at the grocery store.

Let's start with corn...

... for the most direct effects, particularly in the next few years when ethanol production climbs rapidly.

- Heavy demand for ethanol translates into higher prices for corn, providing an economic incentive for farmers to increase corn acreage.
- As a result, corn production rises, mirroring the rise in ethanol production.
- Higher prices also lead to a reduction in corn used for livestock feed over the next few years, the largest use of corn.
- In addition, higher corn prices result in a decrease in the amount of corn exported for several years—important for global markets since the United States is the world's largest corn exporter.
- The net effect of these adjustments is lower carryover stocks of corn from the high levels of the past 2 years, making the market more sensitive to production shortfalls.

Turning to implications for other crops...

- Soybeans compete most directly with corn for acreage, and on the largest amount of land.
- As higher corn prices pull land into corn production, this shift in acreage comes largely at the expense of soybean plantings.
- Lower soybean production triggers higher prices and, as with corn, exports decline.
- Plantings for other crops that compete with corn or soybeans for acreage, such as cotton, also decline.

Looking beyond crops, we also see reverberations in the livestock sector

- Higher prices for corn affect the livestock sector because of the importance of corn as an animal feed.
- There is a partial offset to higher feed costs for livestock producers. Distillers grains, a coproduct of dry mill ethanol production, can replace some corn, and soybean meal, in animal rations.
- Nevertheless, as feed costs rise, red meat production declines and poultry production slows over the next several years.

How will all this affect consumers?

- Retail food prices are projected to increase.
- Lower livestock production means consumers will see higher prices for red meats, poultry, and eggs.
- As a result, overall retail prices for food rise faster than the general inflation rate over the next several years.
- And total per capita red meat and poultry consumption is lower.

Market impacts of the ethanol expansion...

... also extend to farm income and to Federal farm program expenditures.

- Farm income is above earlier projections and remains strong over the next decade, mainly reflecting higher commodity prices.
- Higher production expenses in the farm sector for inputs such as seed and livestock feed partly offset the gains in cash receipts for commodities.
- Government commodity payments will be smaller as ethanol production expands. In particular, higher prices for corn and other crops reduce Government expenditures for price-sensitive marketing loan benefits and counter-cyclical payments.

Conclusion

- As we look to the future, new technologies may make various feedstocks economically viable as contributors to the Nation's bioenergy supply in the longer run.
- For now, corn is expected to continue to be the primary feedstock for ethanol production in the United States, with consequent impacts on the agricultural and food sector.

Related Information from ERS

For more information related to ethanol, see the ERS outlook report:

[Ethanol Expansion in the United States: How Will the Agricultural Sector Adjust?](#)

Further information on bioenergy is available at the:

[ERS Bioenergy Briefing Room](#)