Ethanol and Livestock: Synergies or Competition?

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Ethanol-Livestock Synergies
A 50-Million Gallon Ethanol Plant …

- Uses roughly 18.5 million bushels of corn
  - In Iowa, corn from 116,000 acres
- Produces 315 million pounds of distillers grains
  - This could feed approx. 60,000 dairy cattle
- Utilizes natural gas in plant operations
  - Manure from 60,000 dairy cattle could produce enough methane to meet 25 percent of the ethanol plant’s needs
The 2 Keys to the Food-Fuel Debate

• The ability of U.S. corn production to match demands from ethanol, livestock, and exports

• The ability of U.S. livestock to utilize ethanol co-products as a partial substitute for corn in feed rations
An Exploratory Look at the Food-Fuel Debate

The Corn Market before the Introduction of a new Ethanol Plant
The New Plant Shifts Corn Demand

<table>
<thead>
<tr>
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<th>Supply</th>
<th>Demand</th>
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<tbody>
<tr>
<td>Price</td>
<td>( P_{\text{new}} )</td>
<td>( P_{\text{old}} )</td>
</tr>
<tr>
<td>Quantity</td>
<td>( Q_{\text{old}} )</td>
<td>( Q_{\text{new}} )</td>
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Projection Scenario

- Look at possible effects from a doubling of U.S. ethanol production from 2005 to 2009
  - Source: FAPRI July 2006 Baseline Update

- Impacts both crop and livestock markets

- Higher corn prices may not make the U.S. livestock industry less competitive in world markets
Corn Production and Prices

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<th>Marketing Year</th>
<th>Billion Bushels</th>
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**Legend:**
- Blue: Production
- Green: Farm Price
World Corn Exports in 2005/2006

- Argentina: 63%
- China: 15%
- EU New Member States: 7%
- United States: 8%
- Rest of World: 7%
So With a Doubling of Ethanol Production…

- Corn prices rise
- U.S. corn feed and export demand falls on a percentage basis
- But the U.S. is still the largest exporter of corn and the U.S. corn price is the benchmark world corn price
- Livestock producers throughout the world feel the impact of higher U.S. corn prices
Distillers Grains

Marketing Year

Million Tons

$ per Ton

Production (Dry Equivalent)

Price

CARD

IOWA STATE UNIVERSITY
Some Summary Thoughts

• The doubling of U.S. ethanol production by 2009 is likely a conservative scenario given the current pace of investment in the industry
  – In Iowa, announced expansions and new construction of ethanol plants will more than double capacity

• Livestock impacts will depend on the ability of species to adapt to ethanol co-products
  – Cattle have an advantage over hogs and poultry?
Some Summary Thoughts

• Corn production shortfalls will pressure both the ethanol and livestock industries
  – Could squeeze the corn export market and affect the competitiveness of the U.S. pork and poultry exports

• Ethanol’s corn demand is linked with energy prices and government policy; Livestock’s corn demand is linked with meat prices
  – Currently, corn is worth more as ethanol than as feed
Some Summary Thoughts

• CARD researchers are continuing to explore the connection among the crop, livestock, and ethanol markets