Effect of Ethanol Production on Northeastern Colorado Corn Prices

By Jonathan Huss
Overview

- Introduction & Methods
- Ethanol Background
- Study Site Background
- County Production and Use
- Corn Prices
- Transportation Costs
- Conclusion
Introduction and Methods

- Ag major part of U.S. history and economy

- Many new technological advances
  - Ethanol production
  - New crop varieties

- Prices and Production
  - Vary from year to year: supply vs. demand, weather, etc.
Method

- Gathered background information on ethanol production process
- Looked at Northeastern Colorado corn production, uses, and prices
- Used this information to determine effect of ethanol production on corn prices
Introduction and Methods cont.

Risks

– Hard to determine exact effects in local area

  National market for corn and ethanol

  No distinct line of where markets start and end

  No way to figure exact use

– Production

– Price
Ethanol Background

What is Ethanol
- Alcohol that can be used as fuel or fuel additive

History
- Been around since prehistoric times
- Used to power vehicles since late 1800’s/early 1900’s
  - Quadricycle
  - Ford Model T
Ethanol Background cont.

How produced

- Break down glucose and starch found in corn kernels
- Field corn (not sweet corn used)
- Can also be produced by other crops
  - Sugar cane
  - Potatoes
  - Some trees and grasses
  - Algae (newer concept)
What is produced

– One bushel of corn produces roughly 2.8 gallons of ethanol and 17 pounds of distillers grains.
– Energy balance: amount of energy produced divided by amount of energy needed for production
  - Corn has energy balance of 1.3
  - Sugar cane has energy balance of 8
Ethanol Background cont.

Laws

- Energy Policy Act of 2005
  - 6.1 billion gallons by 2009
  - 7.5 billion gallons by 2012

  - 36 billion gallons by 2022
Study Site Background

Northeastern Colorado
- Logan, Sedgwick, Phillips, Washington, Yuma
- Known as major ag production area in state

Crops
- Corn, wheat, beans, sugar beets, sunflowers, peas, popcorn, potatoes, alfalfa, sorghum, and oats

Livestock
- Many feedlots and some hog facilities
Study Site Background cont.

Two ethanol plants in place
- Sterling Ethanol, LLC (opened Fall 2005)
- Yuma Ethanol, LLC (opened Fall 2007)
County Production and Use

- Constructing ethanol plant in an area increases demand for corn
- Production figured before plant is constructed
  - Make sure there is available supply to produce ethanol
  - Costs figured in
County Production and Use cont.

Logan County Corn Production

Bushels Required at Sterling Ethanol per year (15,330,000)

Year

Bushels

County Production and Use cont.

Yuma County Corn Production

Bushels Required at Yuma Ethanol per year (17,520,000)
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Corn Prices

Average local historical price
- $2.86
- Standard deviation of 0.75

Average national historical price
- $2.71
- Standard deviation of 0.79
Corn Prices cont.

Since ethanol plants opened prices have been above average prices

– Sterling Ethanol, LLC
  - Opened when price was about $1.84
  - Since opening price has increased
    - Starting to drop a little right now

– Yuma Ethanol, LLC
  - Opened when price was about $3.22
  - Price since opening same as Sterling Ethanol
Corn Prices Cont.

Logan County Corn Prices

<table>
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<th>Date</th>
<th>Price (Inflation Adjusted)</th>
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<td>Mar-09</td>
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<td>Jul-09</td>
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<td>Nov-09</td>
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<td>Dec-09</td>
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- Sterling Ethanol
- Peetz
- Grainland
Corn Prices cont.

Yuma County Corn Prices

<table>
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<tr>
<th>Date</th>
<th>Price (Inflation Adjusted)</th>
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</thead>
<tbody>
<tr>
<td>Feb-09</td>
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<td>3.70</td>
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<td>Dec-09</td>
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- Yuma Ethanol
- M&M
- Yuma County Grain
Northeastern Colorado Corn Prices Compared to Omaha, Nebraska Corn Prices
Transportation Costs

Vary depending on distance (Trucking)

- Local
  - .10 - .20 (Logan County)
  - .15 - .25 (Yuma County)

- Non-local
  - Sterling to Fort Collins
    - $1.50/ running mile
    - $3.00/ loaded mile
  - .26 - .31 less for commodity
Transportation Costs cont.

Cheaper to truck grain to ethanol plants than to pay railroad freight
– Didn’t get exact figures
Transportation Costs cont.
Conclusion

Corn displaced from feedlots
- Distillers grains taking place of corn in rations
  - More energy
  - Greater gains
  - Cheaper??

Prices have seemed to increase since ethanol plants opened
- Local market still following national market
Conclusion cont.

Further research

– Continue to look at corn prices
  Will give a better understanding of how they act
– Get more data relevant to ethanol
  Distillers grains prices
  Production changes
    – Commodities
    – Ethanol
"My great uncle produced a lot of ethanol but he couldn’t sell it legally."
Bibliography

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Questions