TRADEOFFS IN PRODUCTION, PRICING, AND CROPPING PATTERNS

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Presented Thursday, March 1, 2007
Background

- Current US production capacities:
  - Ethanol: 5.6 billion gallons
  - Biodiesel: 0.864 billion gallons
- New capacity under construction:
  - Ethanol: 6.2 billion gallons
  - Biodiesel: 1.7 billion gallons
- Fossil energy situation highly uncertain
Policy Situation

- Current Renewable Fuel Standard unlikely to bind
- Current ethanol subsidy rapidly getting expensive, even as market incentives for ethanol production are high
- Proposal for higher RFS (S.2817)
- Proposal for variable ethanol subsidy (S.4000)
Current and S.2817 Renewable Fuel Standards

Million Gallons

2007 2008 2009 2010 2011 2012 2013

Current S.2817
S.4000 Variable Ethanol Subsidy

Crude Oil Price ($/bbl.)

Dollars per Gallon

- $0.00
- $0.10
- $0.20
- $0.30
- $0.40
- $0.50
- $0.60
- $0.70
- $0.80

- $30
- $35
- $40
- $45
- $50
- $55
- $60
- $65
- $70
- $75
- $80
Four Policy Scenarios

- Current situation continues
- Higher RFS is set (and current subsidy remains)
- Variable ethanol subsidy replaces the fixed subsidy (and RFS is unchanged)
- Higher RFS and variable ethanol subsidy
Agricultural and Energy Market Interaction (AEMI) Model Overview

- Fossil Energy Markets (exogenous)
- Ag Markets (Econometric + Equilibrium Displacement Approach)
- Renewable Fuels Markets (Optimization Approach)
Ethanol Demand

Price ($/84KBTU)

Max (RFS - 1.5 x $\text{Q}_{\text{biodiesel, min.}}$, oxygenate use)

$P_{\text{unleaded}}$

Quantity (gallons)
Light Sweet Crude Oil Price
Cushing, OK

Dollars per Barrel

Forecast  75% Confidence Interval  History
Ethanol Price
U.S. Average

Dollars per Gallon


Current  Higher RFS  Higher RFS & Variable Subsidy  Variable Subsidy  History
Biodiesel Price
U.S. Average

Dollars per Gallon


Current  Higher RFS  Higher RFS & Variable Subsidy  Variable Subsidy  History
Corn Planted Acres
United States

Million Acres

00/01 01/02 02/03 03/04 04/05 05/06 06/07 07/08 08/09 09/10 10/11 11/12

Current ▲ Higher RFS ▲ Higher RFS & Variable Subsidy ▲ Variable Subsidy ▲ History
Soybean Planted Acres
United States

00/01 01/02 02/03 03/04 04/05 05/06 06/07 07/08 08/09 09/10 10/11 11/12

Million Acres

Current  Higher RFS  Higher RFS & Variable Subsidy  Variable Subsidy  History
Corn Price
U.S. Average Farm Price, 2011/2012

Cumulative Probability

Dollars per Bushel

- Current
- Higher RFS
- Variable Subsidy
- Higher RFS & Variable Subsidy
## Effects of Alternative Policy Configurations on Expected 2011/12 Crop Prices (relative to the current configuration)

<table>
<thead>
<tr>
<th>Crop</th>
<th>Current</th>
<th>Higher RFS</th>
<th>Variable Subsidy</th>
<th>Higher RFS + Variable Subsidy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn</td>
<td>4.14</td>
<td>4.37</td>
<td>4.11</td>
<td>4.35</td>
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<tr>
<td>Soybeans</td>
<td>7.63</td>
<td>7.66</td>
<td>7.59</td>
<td>7.65</td>
</tr>
<tr>
<td>Wheat</td>
<td>4.21</td>
<td>4.22</td>
<td>4.20</td>
<td>4.21</td>
</tr>
<tr>
<td>Cotton</td>
<td>0.579</td>
<td>0.580</td>
<td>0.578</td>
<td>0.580</td>
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</tbody>
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## Effects of Alternative Policy Configurations on Uncertainty Regarding 2011/12 Crop Prices (relative to the current configuration)

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### Effects of Alternative Policy Configurations on Uncertainty Regarding 2011/12 Planted Acres (relative to the current configuration)

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Conclusions

- We are likely to produce a lot more ethanol in coming years, and somewhat more biodiesel
- Biodiesel capacity glut possible
- Prices for crops are likely to continue to rise
- More acres in corn, fewer acres in other crops
Conclusions

- Effects on ag economy of different policy scenarios are minimal over the next 5 years.
- However, relative to the current policy configuration:
  - The higher RFS leads to higher prices for major crops.
  - The higher RFS would reduce uncertainty regarding the trajectories of acres and prices.
  - The variable ethanol subsidy would reduce price uncertainty for corn.