Impacts of Biofuels on the South

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Background

- High Oil Prices
- Rising Output & Demand for Ethanol
- Trends in production of crops & animals
- Southern States: Grain deficit region, but major producer of animals
- Energy Policy
Ethanol: Production, Demand, and Growth
(Billion Gallons & Percent)

Left Axis: Ethanol Production & Demand; Right Axis: Growth in Ethanol Production (%)

Ethanol % Change in Production
Area Planted in Main Crops: South

-Million Acres-

- Corn
- Cotton
- Soybeans
- Wheat

<table>
<thead>
<tr>
<th>Year</th>
<th>Corn</th>
<th>Cotton</th>
<th>Soybeans</th>
<th>Wheat</th>
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<td>10.1</td>
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</tbody>
</table>
Corn Production: South

SP = Southern Plains; DL = Delta; SE = South East; AP = Appalachian;

- Million Bushels -

<table>
<thead>
<tr>
<th>Year</th>
<th>SP</th>
<th>DL</th>
<th>SE</th>
<th>AP</th>
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<td>2007</td>
<td>1116.5</td>
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<td>347</td>
<td>306</td>
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South’s Share of US Animals Units

- **Dairy Cattle**
- **Cattle on feed**
- **Hogs**
- **Broilers**
- **Turkeys**

<table>
<thead>
<tr>
<th>Year</th>
<th>Dairy Cattle</th>
<th>Cattle on feed</th>
<th>Hogs</th>
<th>Broilers</th>
<th>Turkeys</th>
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</tbody>
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Energy Policy

Energy Policy Act of 2005

Established Renewable Fuel Standard

Requires use of 7.5 billion gallons of biofuels (including ethanol and biodiesel) by 2012


Increases supply of alternative fuels by increasing mandatory Renewable Fuel Standard

36 billion gallons of biofuels by 2022
Objectives

1. Project ethanol production in US and South
2. Project future corn supply and utilization, focus on Feed Use & Exports resulting from 2007 Act
3. Discuss Implications for Agriculture, focusing on Animal Industries
Methodology

- Project Ethanol Production-used 12% growth rate (actual), 1990-2007 for US
  - South based on current & expected capacity expansion (RFA)

- Projected Corn Production- used harvested area (exponential growth function with dummy) & yield (geometric average), 1987-2006

- Consumption based on GCAU by animal type, then allocated by animal shares in each state (dairy, cattle, hogs, chickens, turkeys)
Regions & Data

Southern States Include:

- Southern Plains: Texas and Oklahoma
- Delta: Arkansas, Louisiana, and Mississippi
- South East: Georgia, Alabama, Florida, and South Carolina
- Appalachian: Tennessee, Kentucky, North Carolina, and Virginia

Data Sources:

- Ethanol production: Renewable Fuels Association (RFA)
- Acreage planted, Prices, Animal Units, and other Related Data are mostly obtained from USDA publications
Projections

Ethanol Production and Corn Supply and Utilization
Corn Production and Use, Ethanol Output, United States: Projections

Corn in Million Bushels

Ethanol in Billion Gallons

- Corn Production
- Ethanol Production
- Feed Stock
- Corn Exports
- Corn Exports
Corn Production and Use, Ethanol Output: Projected for Southern States

Billion Bu

Million Gallons

Supply  Feed and Residual  Fuel  Net


-1.2 -1.2 -1.3 -1.3 -1.4 -1.4 -1.4 -1.4 -1.3 -1.3 -1.3 -1.3 -1.2 -1.2 -1.1

0.1 0.2 0.3 0.4 0.5 0.5 0.5 0.5 0.5 0.5 0.6 0.6 0.6 0.6 0.6 0.6

2.0 2.0 2.0 2.0 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.2 2.2 2.2 2.2 2.2

-1.0 -2.0

-2.0
Projected US Corn Exports and Regional Disposition in South

Deficit to Surplus for Delta Region

S Plains Surplus to Deficit

Net Export to Net Import for US

South
SPlains
Delta
SouthEast
Appalachian
US Exports


Million Bu-South
Billion Bu-US

0 500

-500

-1000

-1500

-2000


2 4

0 2

0 4

Deficit to Surplus for Delta Region

S Plains Surplus to Deficit

Net Export to Net Import for US

South
SPlains
Delta
SouthEast
Appalachian
US Exports
Key Points

- US corn meets domestic demand for ethanol and feed until 2018
  - After then, US becomes a Net Importer of Corn, Up to 3.7 Billion Bu in early years
    - Assumes all ethanol needs met with corn
- Delta increases corn output, but S Plains becomes deficit, forcing South’s deficit to increase
  - Supplies from other US regions & imports increase
- Impacts of ethanol production on animal industries reflect higher prices, but corn remains available in near term
  - Longer term, may strain infrastructure
Key Points (cont.)

- **Acreage Shifts** difficult to predict with any degree of confidence
  - A work in progress

- **Specialized Infrastructure** likely a major constraint

- **Objectives of 2007 Energy Independence Act** Difficult to Achieve
  - Technical Feasibility Positive

- **Economics Pose Difficulties**
  - Energy & Commodity Price Uncertainty
  - Import Tariff Changes & Tax Credit Expiration
  - Requirements for Specialized Infrastructure