

Impacts of Bio-fuels Expansion on Land Use and Conservation, 2006 Agricultural Outlook Forum.

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Introduction

- Substantial production expansion in all forms of bio-fuels since 1998.
- However, ethanol produced from corn is king!
- Corn demand for processing has surpassed exports.
- Ethanol production capacity predicted to increase 75% by 2008.

Objectives of the Presentation

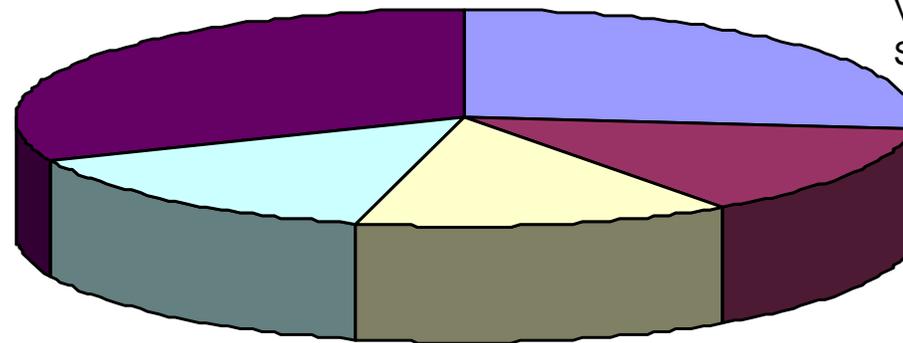
- A look at current and predicted ethanol production:
 - Nationally
 - Regionally
- Will the increased ethanol production require more corn acreage?
- Agronomic and environmental implications.
- Is there economic incentive for corn producers?

Current Ethanol Production

- 2005 ethanol production capacity approximately 3.99 billion gallons
- Ethanol plants are located in 20 states

2005 Ethanol Production Distribution by Top States

Source: ACE and
Various News
Sources



■ Iowa ■ Illinois ■ Minnesota ■ Nebraska ■ Other States

Future Production Potential through 2008:

State	Ethanol Production (MGY)		
	Current	Planned	Total
Iowa	1,053	1,490	2,543
Illinois	554	50	604
Minnesota	546	99	645
Nebraska	580	302	882
Nationwide	3,990	3,003	6,993

Source: ACE and Various News Sources

- Potential ethanol demand.
 - 2.6 billion bushels of corn (24.2%)
 - 18 million acres of land

Predicted Future Corn Demand

Predicted Future Corn Demand (Bill./Bu)

Feed*	5.9
Ethanol Processing	2.59
Other Processing	1.1
Export	2
Total	11.59

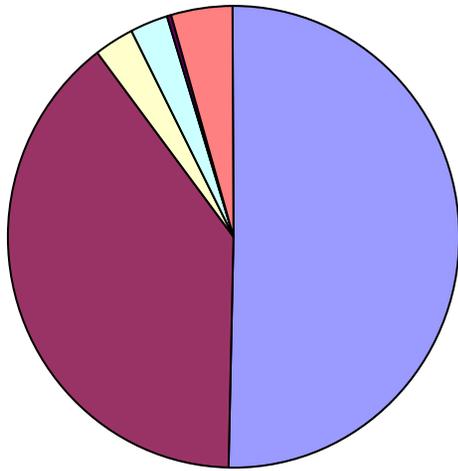
*Adjusted for DDGS usage

- Given 2005 US corn production and yield, an additional 3.38 million acres (4.5%) of corn would be required.
- US corn production reached this level in 2004.

Land Sources?

- Given the trended increase in US corn yields, it is doubtful that agronomic technology can meet this demand.
- Due to current oil prices, shipping corn a considerable distance is not feasible.
- Feasible solution?
 - Shifting additional acres to corn where the plants are located?

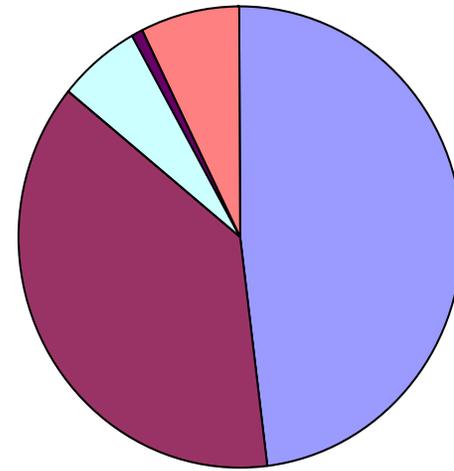
Illinois, Distribution of Top 5 Crops and CRP, 2005



Source:
USDA



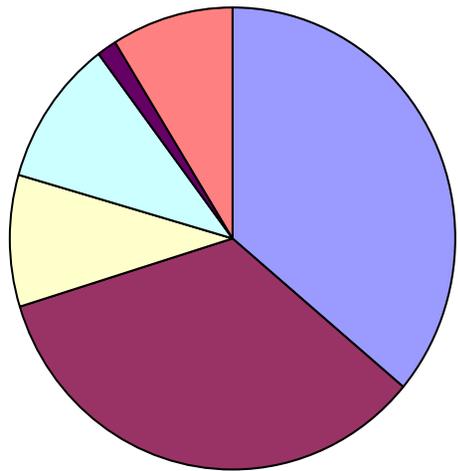
Iowa, Distribution of Top 5 Crops and CRP, 2005



Source:
USDA



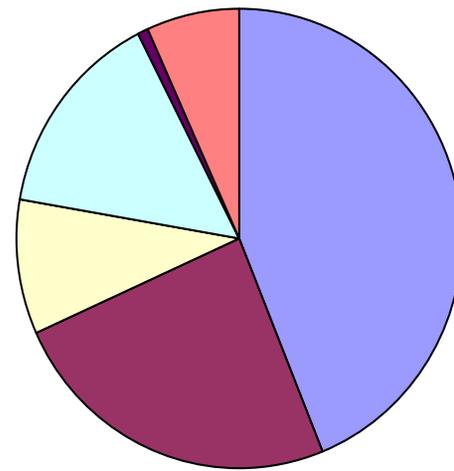
Minnesota, Distribution of Top 5 Crops and CRP, 2005



Source:
USDA



Nebraska, Distribution of Top 5 Crops and CRP, 2005



Source:
USDA



Agronomic and Environmental Impacts

- Increased nitrogen introduction
 - Environmental policy changes?
- Increased diseases
- Minimum tillage adoption?
 - Environmental implications
- Decreased continuous corn yields.

Farm-level Impacts

- Due to current energy, corn, and soybean prices: soybean production is currently more profitable.
- Holding soybean and energy prices constant and adjusting for extra inputs for corn, an equating corn price can be calculated.
- Corn Price Needed: \$2.91

Wildcards that affect future ethanol production.

- Changes in:
 - government programs
 - US trade policy
 - biomass conversion technology
 - corn degerming and/or oil extraction technology
- Fuel cell research breakthroughs
- Future US energy policy

Conclusions

- 2008 predicted ethanol production: 6.99 billion gallons.
- Predicted US future corn demand will require additional corn acres.
- Main source of additional corn acres: current soybean acres.
- Additional corn production may cause changes in US Environmental Policy.
- Current corn prices too low to entice additional corn production at the farm level.