

# ***The Impact of Liquid Biofuels***

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# ***Background:***

Viewing the larger scope- liquid fuels concerns

- 1970 versus 2005
- Supply Driven
- Demand Driven

# ***Supply Driven:***

- Ethanol (grain and cellulosic)
- Liquids from Coal
- Hydrogen
- Middle East & USSR
- Price

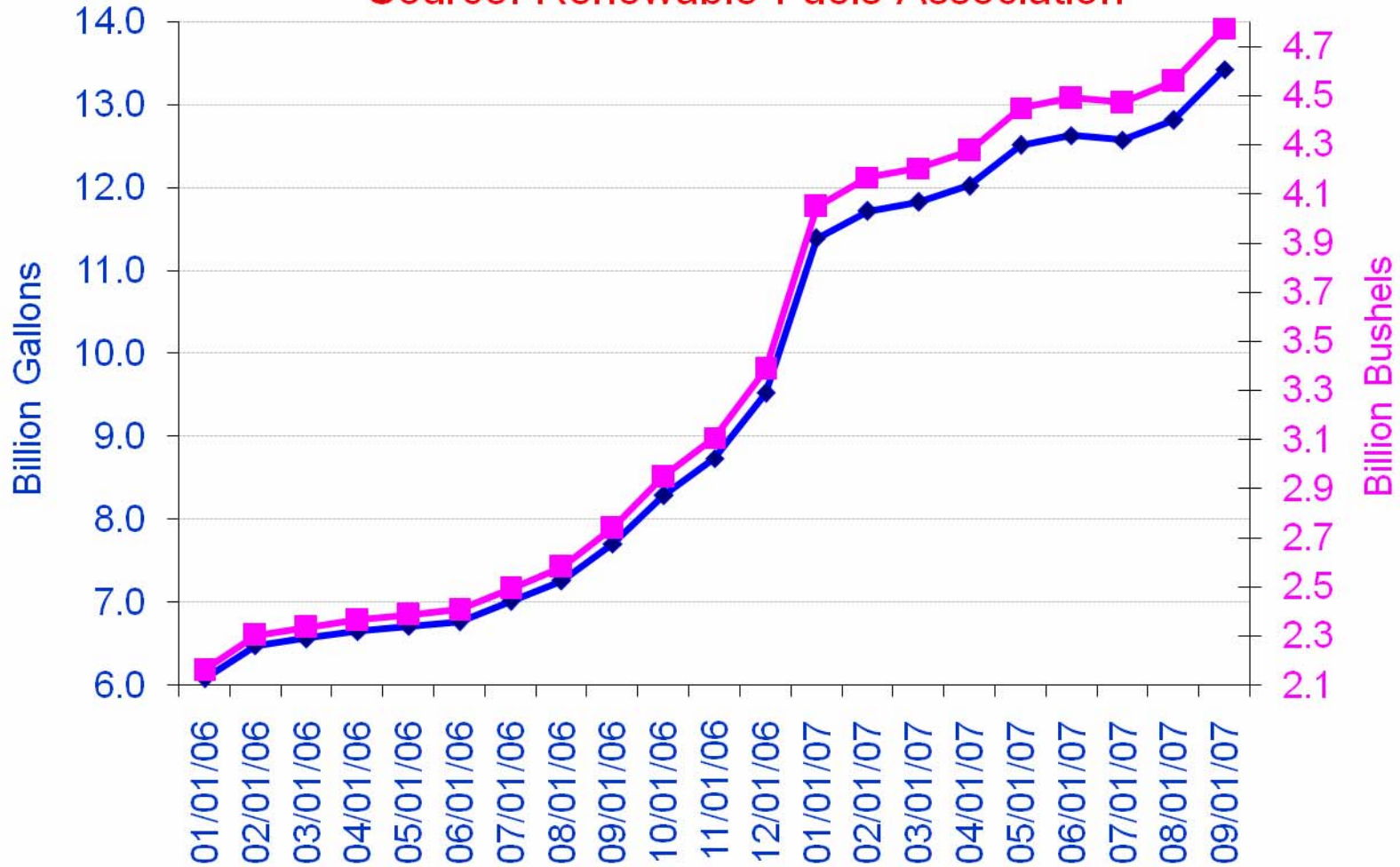
# ***Demand Driven:***

- Price
- Rationing
- Regulation
  - New Technology/Conservation
- Transportation Infrastructure

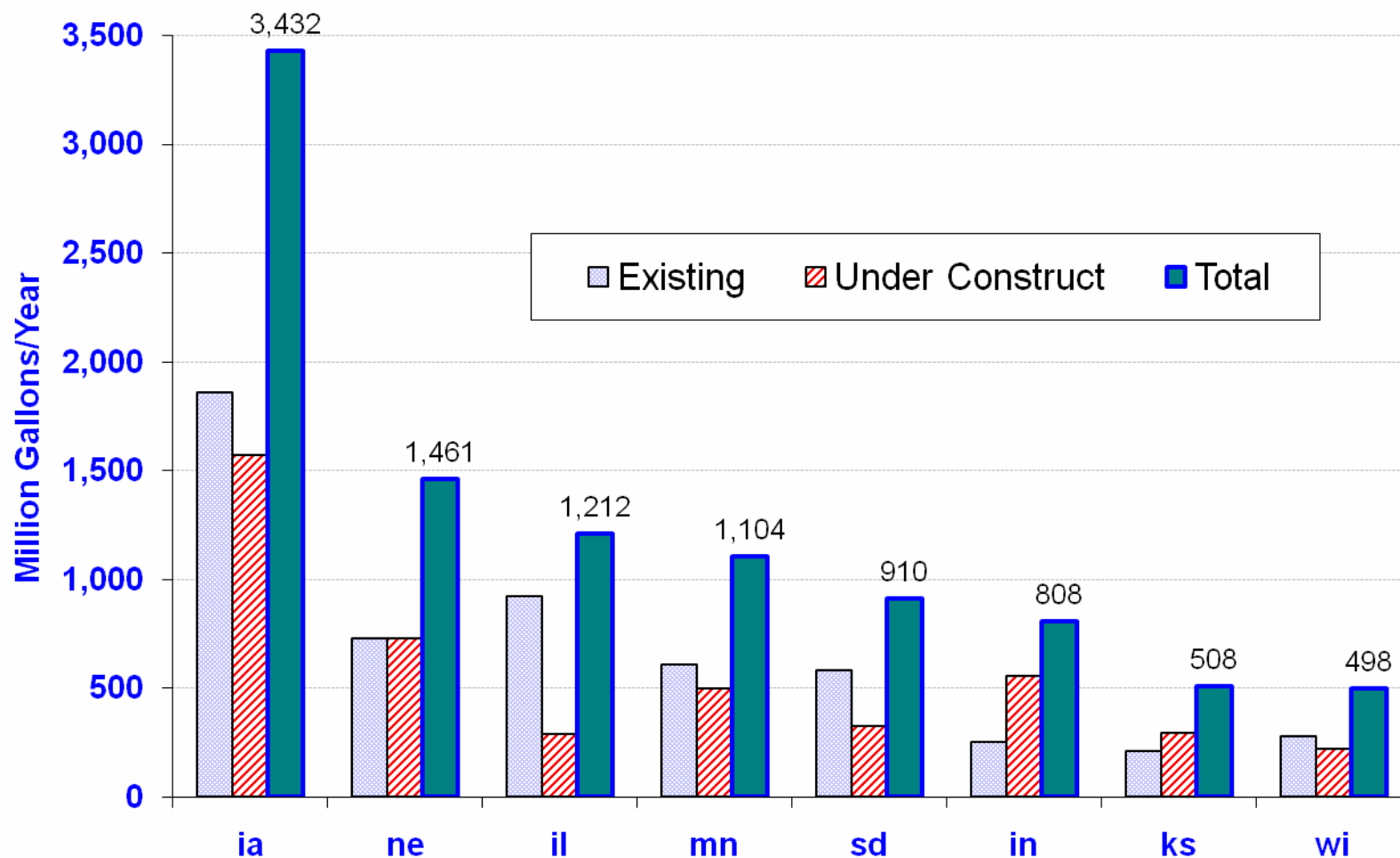
# ***Viewing ethanol in it's limited context***

Ethanol → higher corn prices → higher ethanol costs → more subsidy

Ethanol Capacity: Existing + Under Construction:  
Source: Renewable Fuels Association

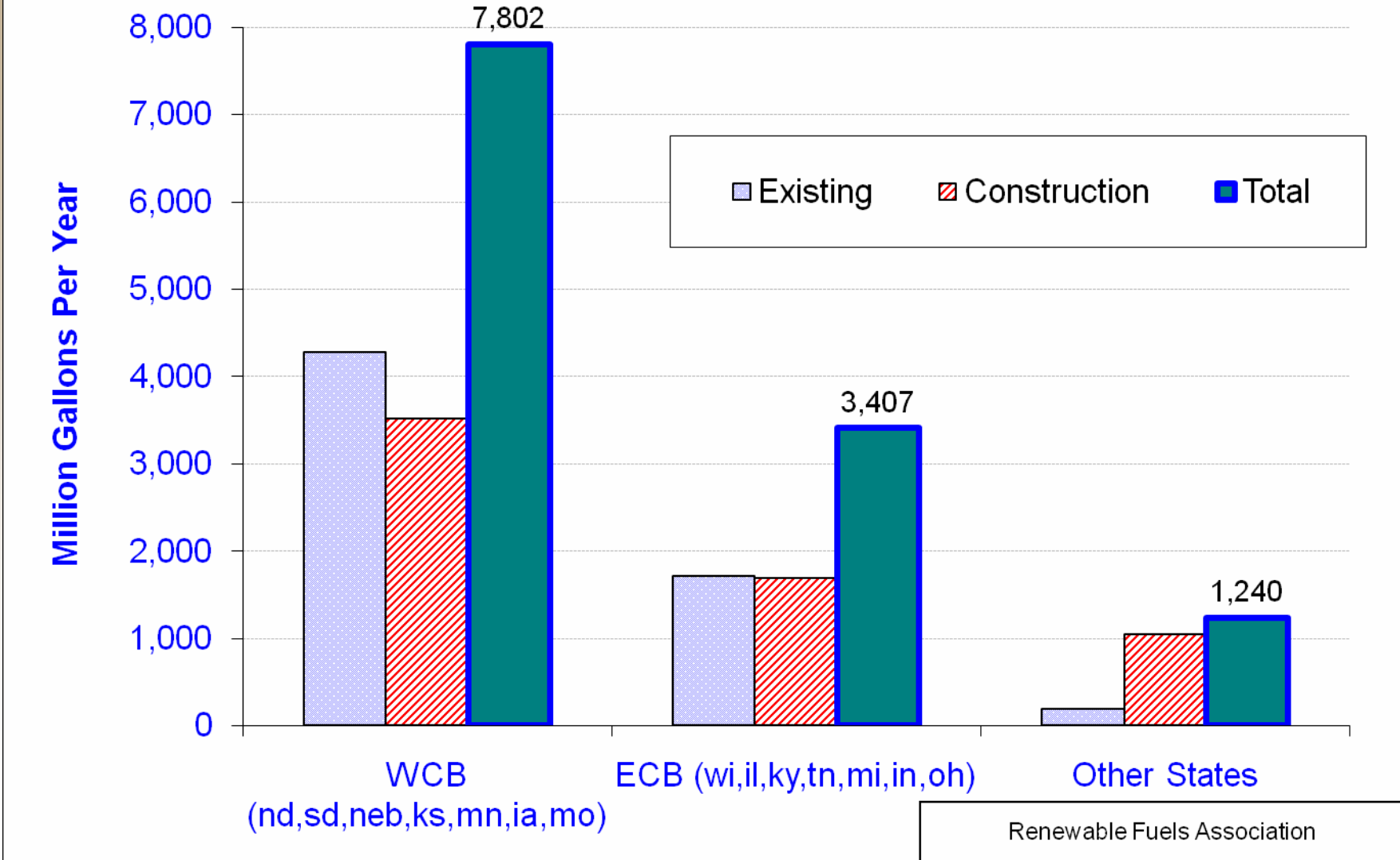


### Ethanol Capacity Existing and Under Construction: June 2007



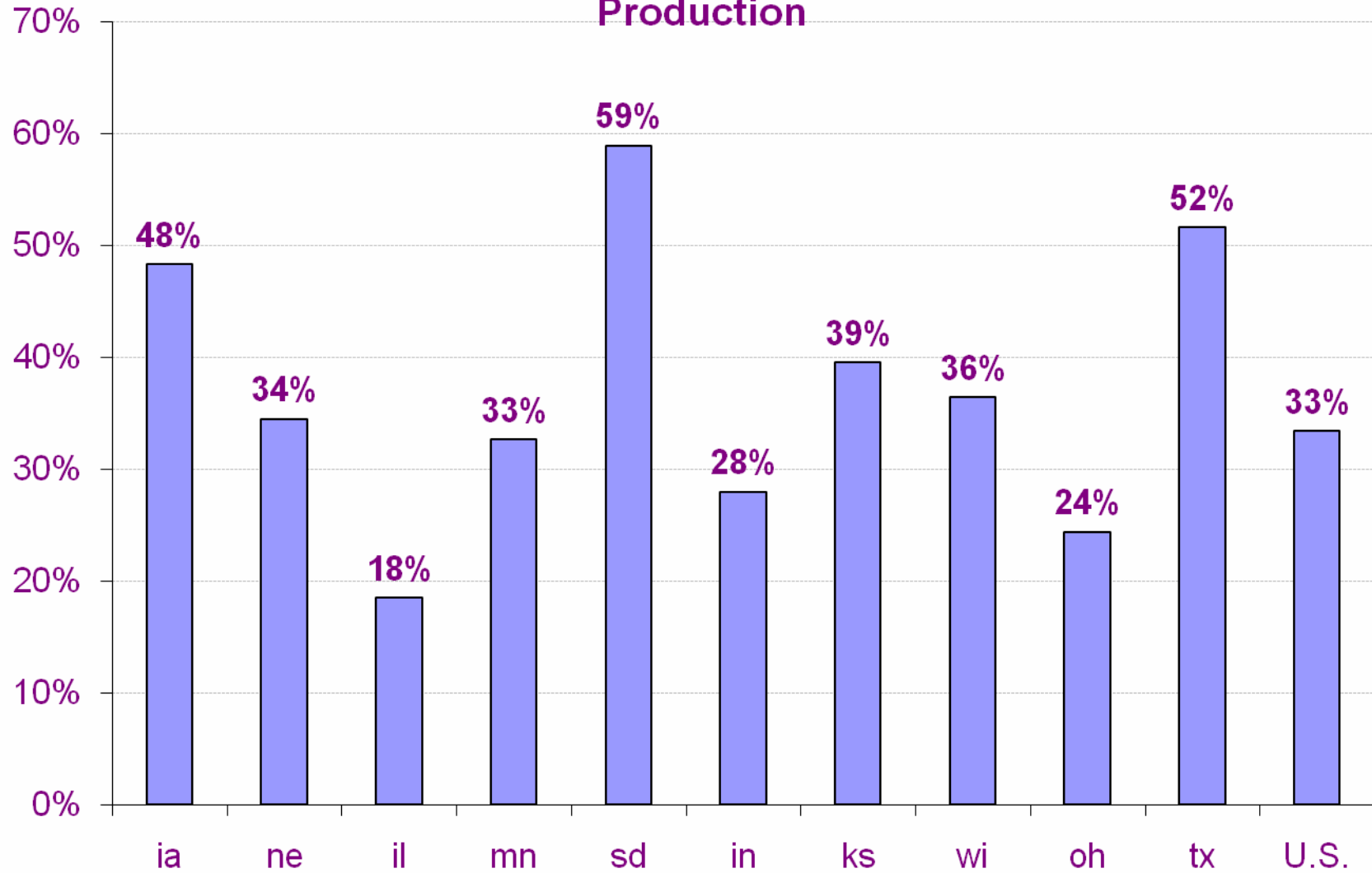
Renewable Fuels Association

## Existing and New Ethanol Capacity: June 2007

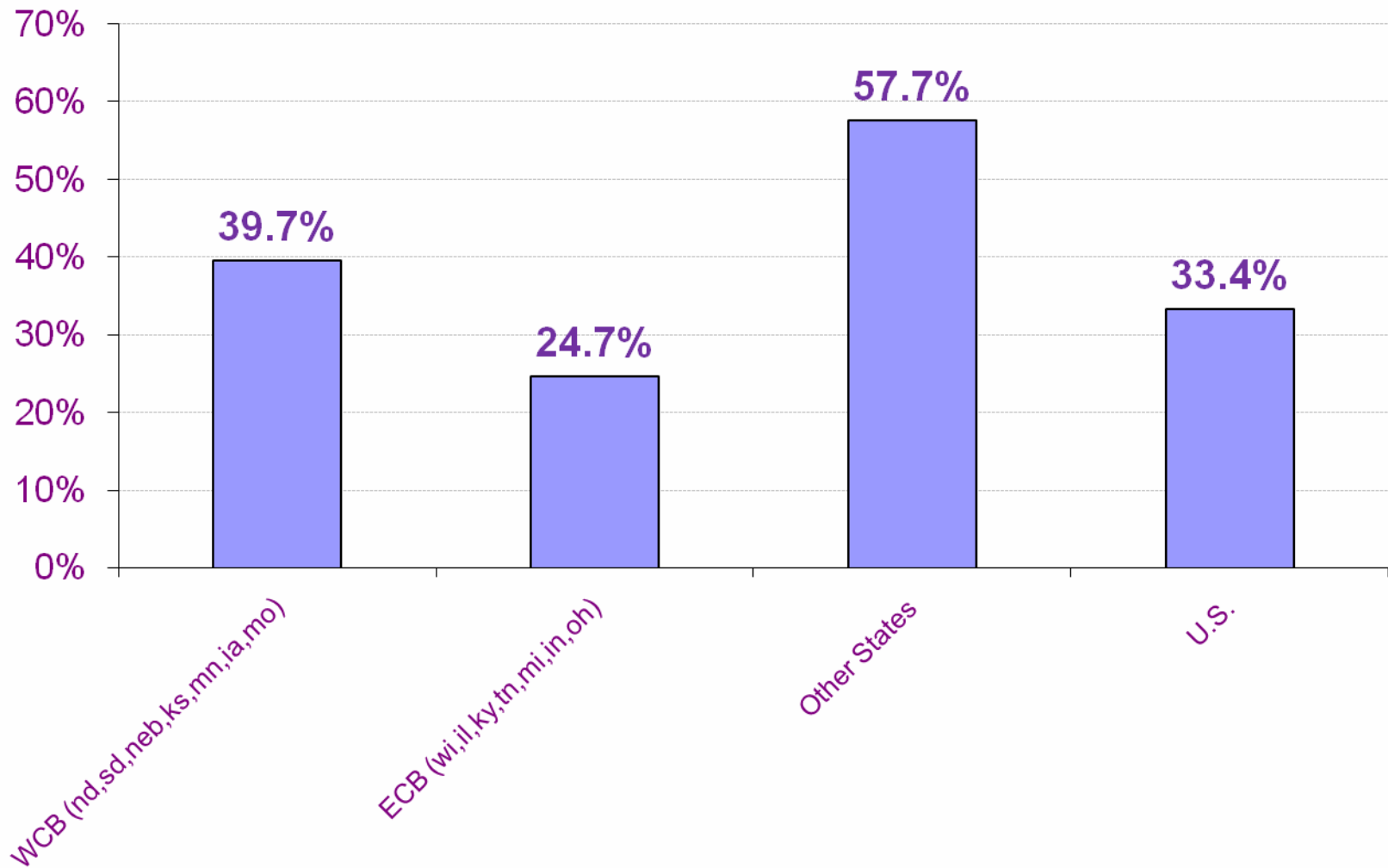




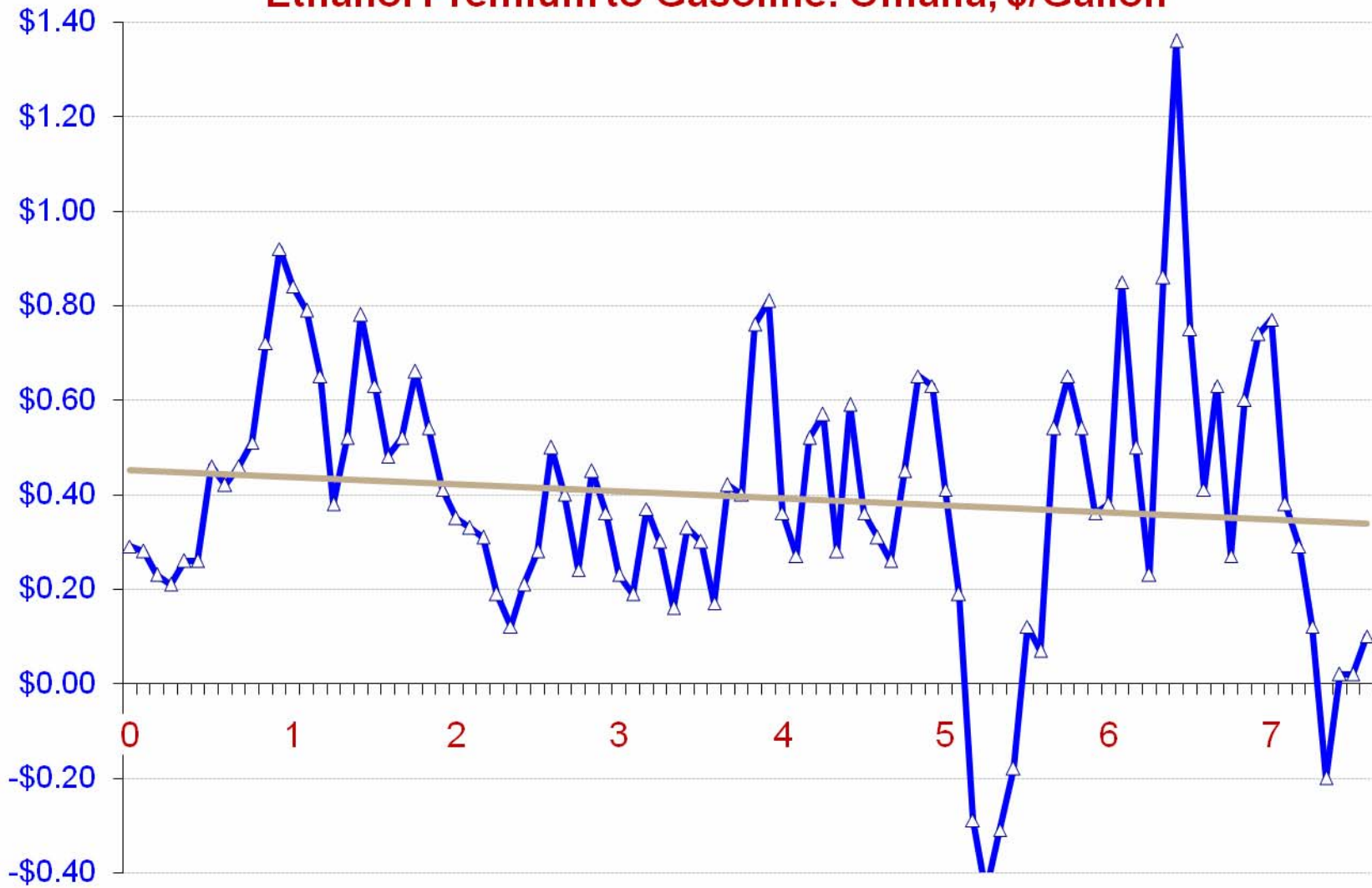
## Total Ethanol Corn Capacity by Mid-2008 Relative to 2007 Production



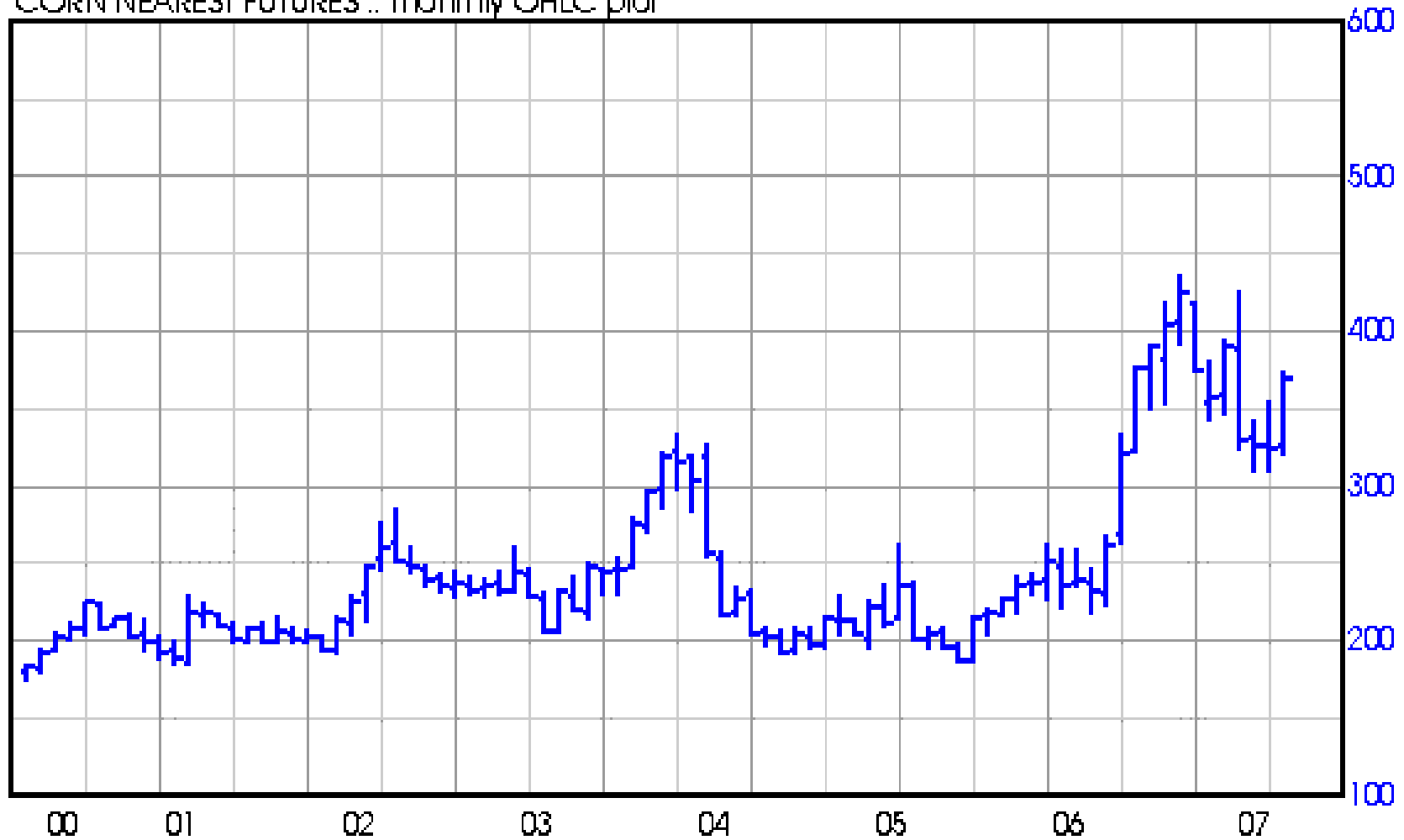
### Total Capacity by mid-2008 In Relation to 2007 Corn Production (Sept 2007 USDA Estimate)



## Ethanol Premium to Gasoline: Omaha, \$/Gallon



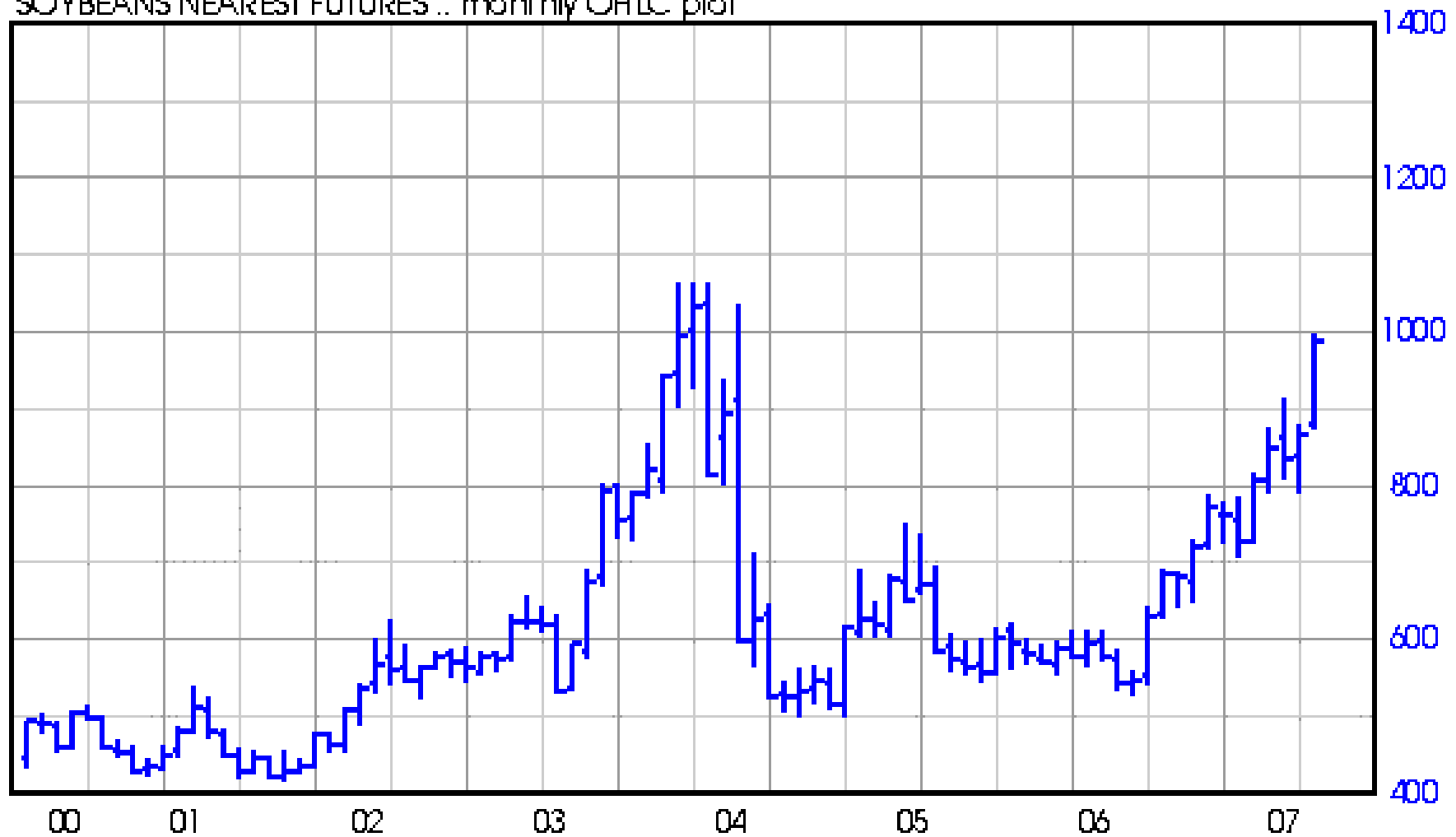
CORN NEAREST FUTURES .. monthly OHLC plot



As of 09/01/07

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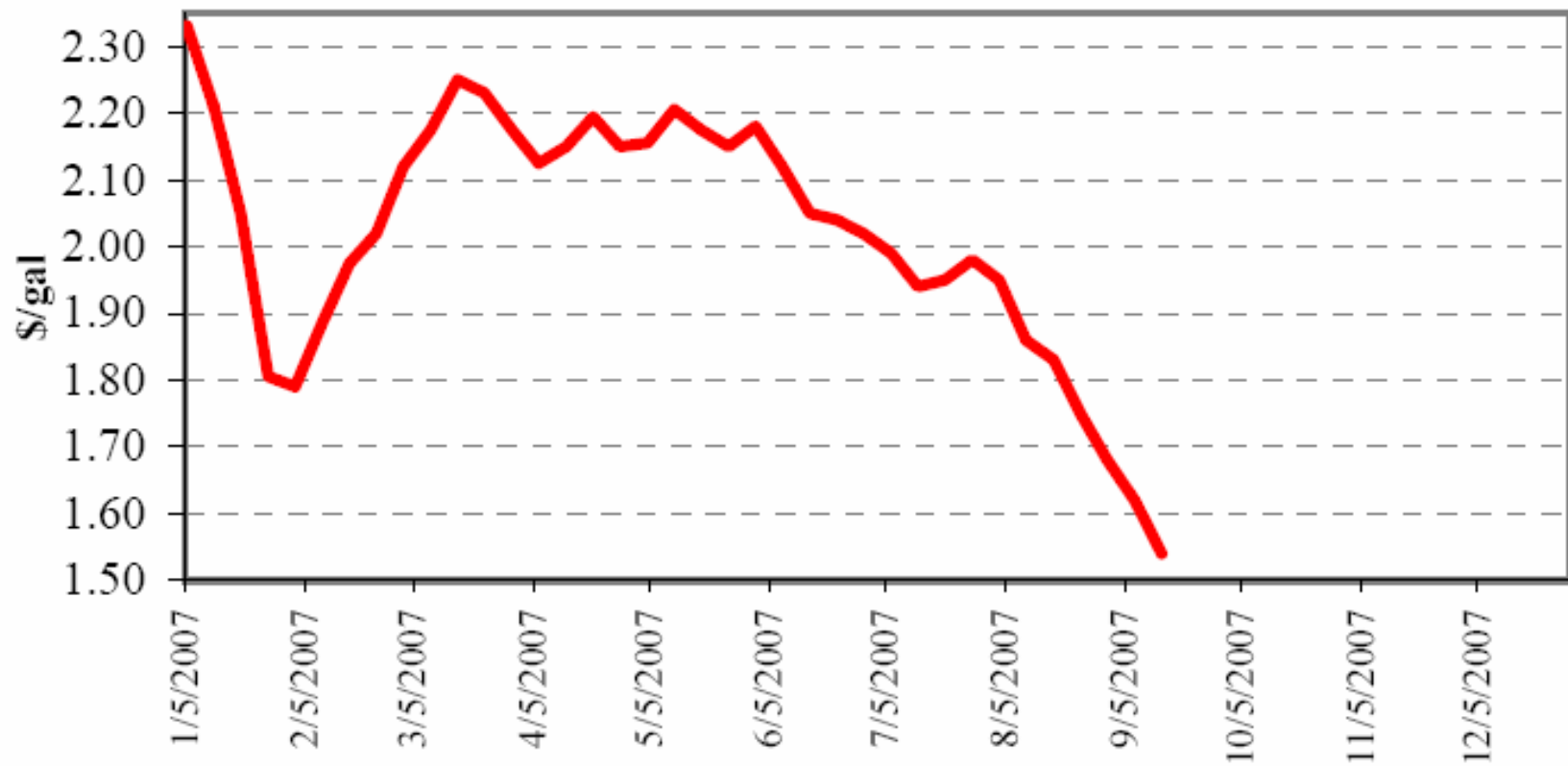
SOYBEANS NEAREST FUTURES .. monthly OHLC plot



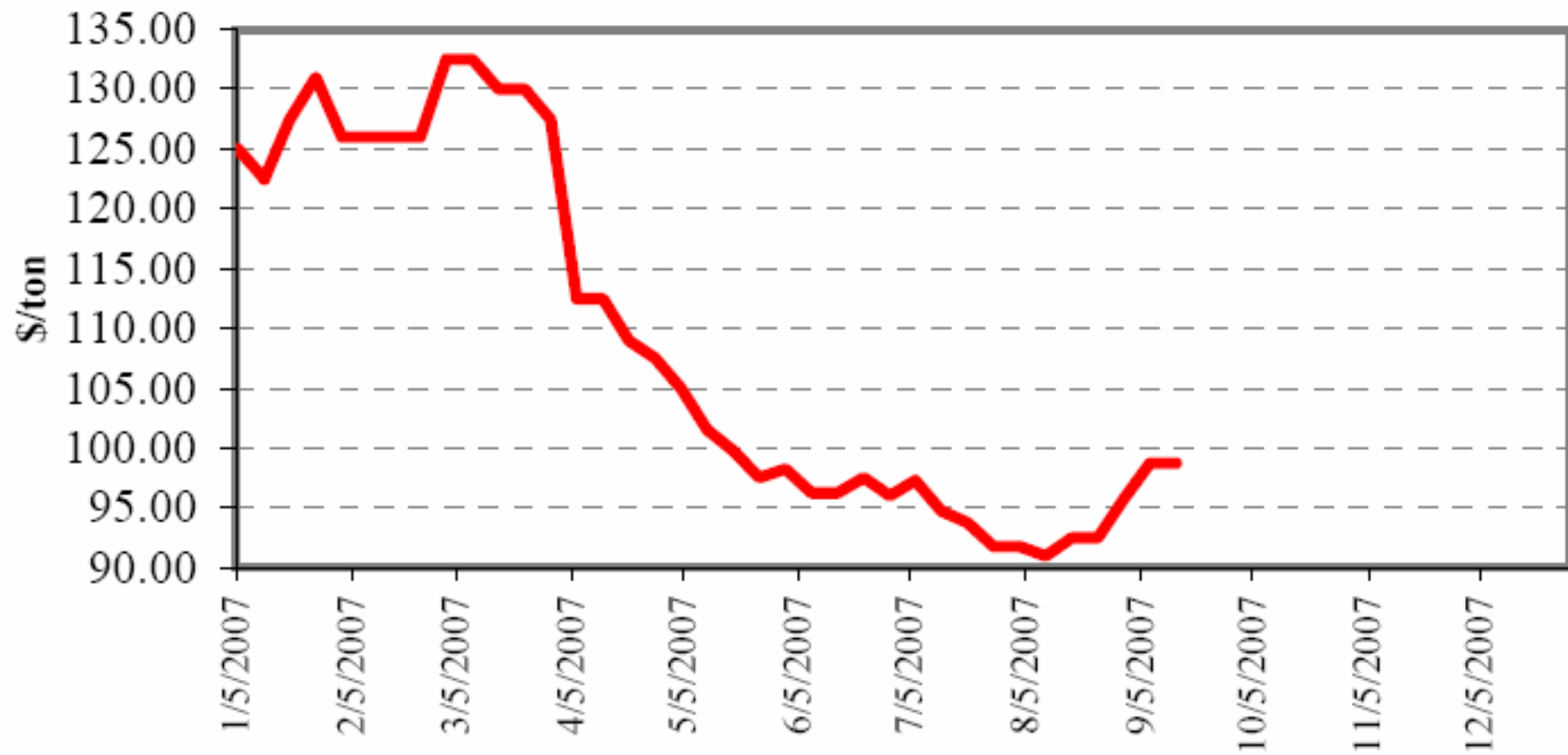
As of 09/01/07

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## 2007 Iowa Weekly Average Ethanol Prices

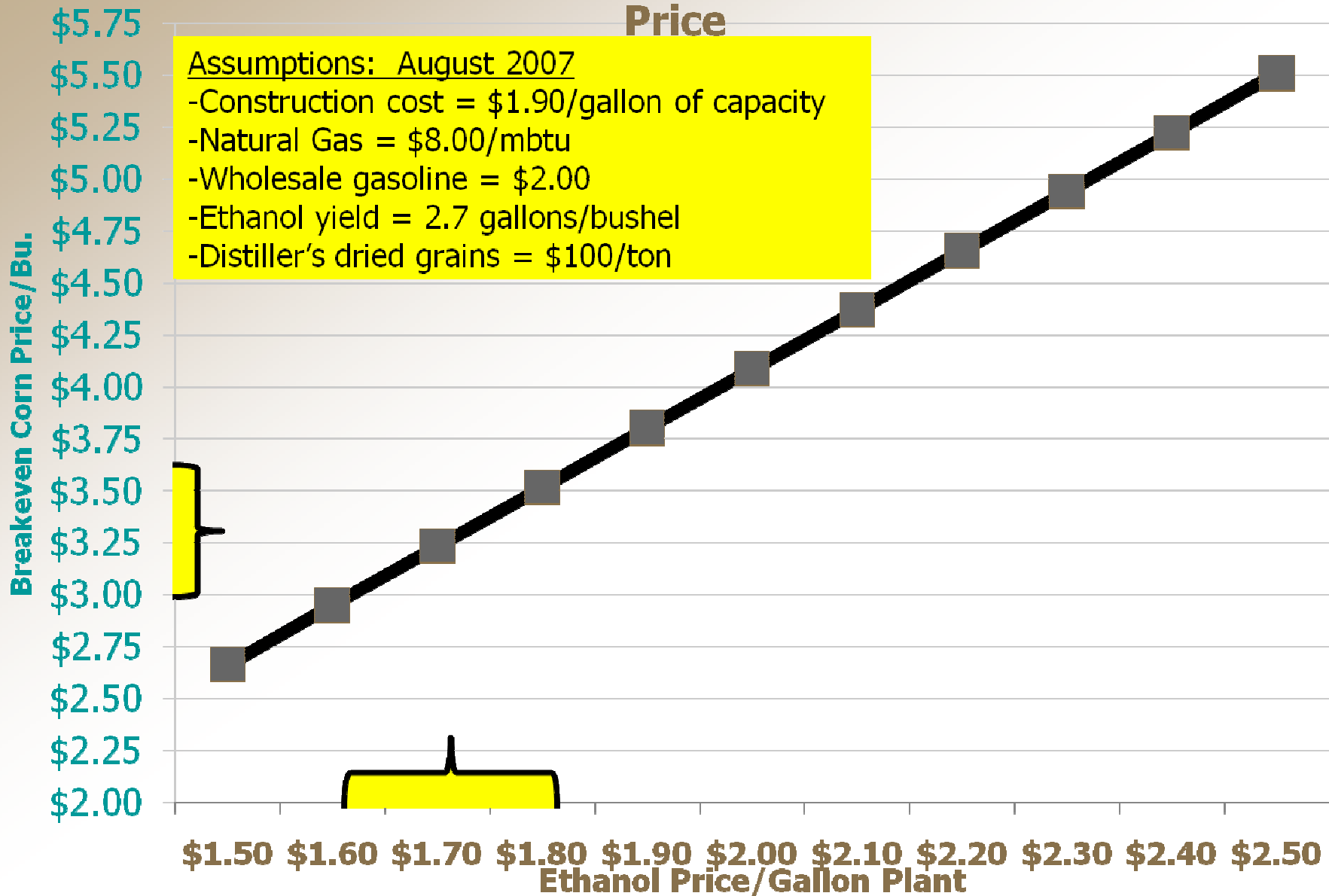


## 2007 Iowa Weekly Average Distiller Grains - 10% Moisture



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## Estimated Ethanol Plant Breakeven Corn Purchase Price





# *Ethanol value/price margin – additive or other*

| Date    | Gasoline<br>Oct RBOB | Ethanol<br>Oct RBOB | Gas/Ethanol<br>Equivalent + \$0.51 | Differential |
|---------|----------------------|---------------------|------------------------------------|--------------|
| 5/1/07  | \$1.96               | \$1.95              | \$1.82                             | +0.13        |
| 7/5/07  | \$2.07               | \$1.87              | \$1.89                             | -0.02        |
| 9/21/07 | \$2.11               | \$1.57              | \$1.92                             | -0.34        |

# ***Key areas of environmental impact:***

Water Quality:

- Production Plants
- Crops – grain or cellulosic!
- Land use – land quality & intensity
- Carbon Ratio
- Energy Ratio

# ***Policy Considerations***

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# *Trajectory of Current Ethanol Policy*

- Crop Prices & Cropping Impacts
- Subsidy/Renewable Fuel Standards Costs

# ***Role of Transition Policy***

- Improved Energy output per water/energy input
- Long term sustainability life cycle based
- Reduced loadings of nutrients, pesticides & sediments
- Lower net Carbon emissions

# *Where Might We Go?*

- Link to demand and consider cost effectiveness
- Consider Biofuels in the context of liquid fuels overall
- Consider a Transition Policy with performance standards