

# Ethanol and Livestock: Synergies or Competition?

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*Growing the Bioeconomy:*

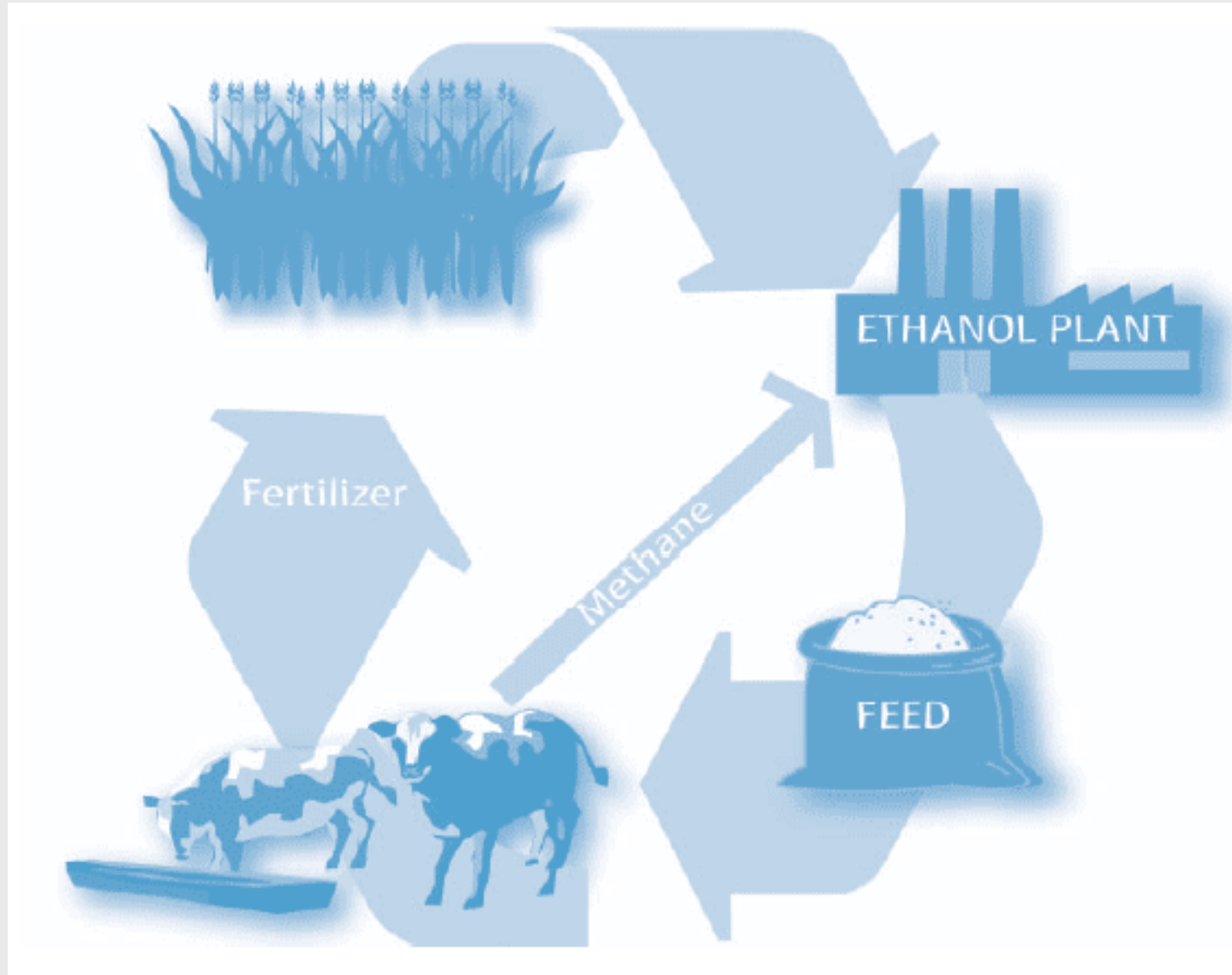
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# Ethanol-Livestock Synergies



# A 50-Million Gallon Ethanol Plant ...

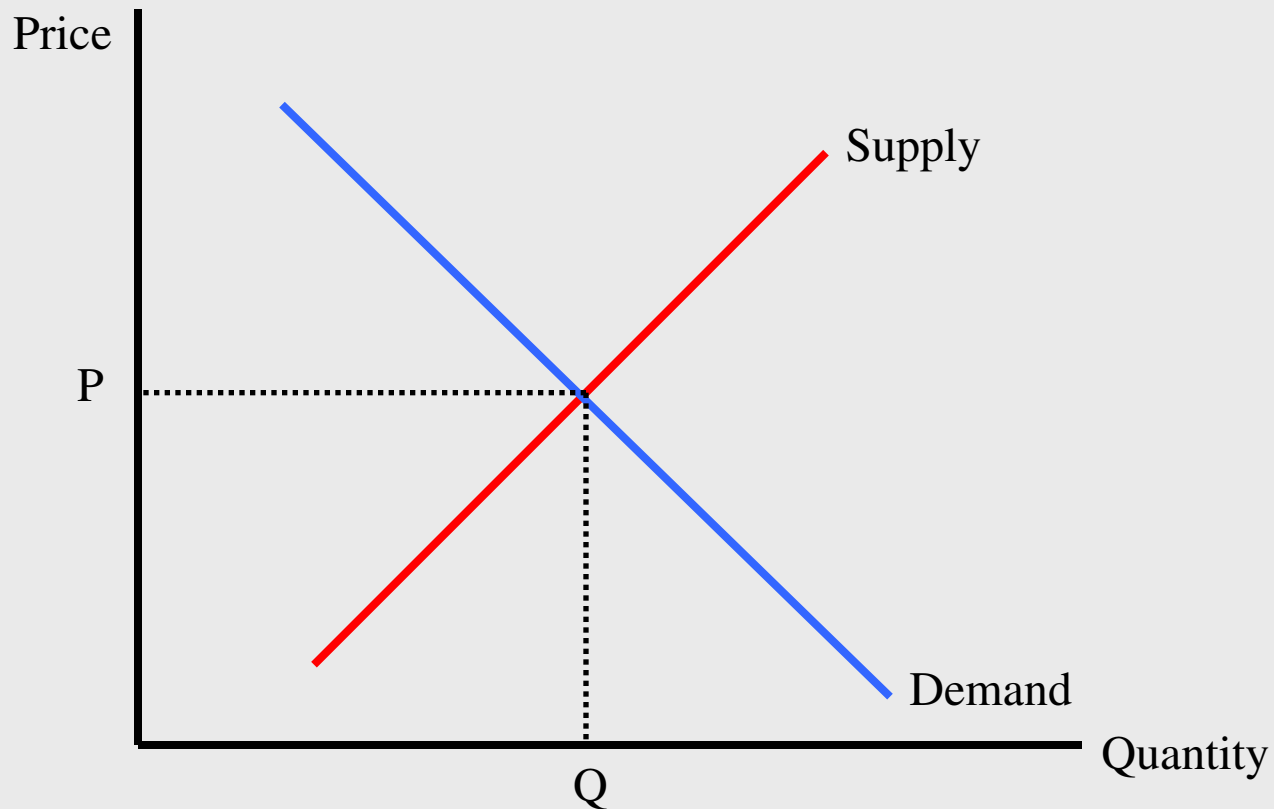
- Uses roughly 18.5 million bushels of corn
  - In Iowa, corn from 116,000 acres
- Produces 315 million pounds of distillers grains
  - This could feed approx. 60,000 dairy cattle
- Utilizes natural gas in plant operations
  - Manure from 60,000 dairy cattle could produce enough methane to meet 25 percent of the ethanol plant's needs

# The 2 Keys to the Food-Fuel Debate

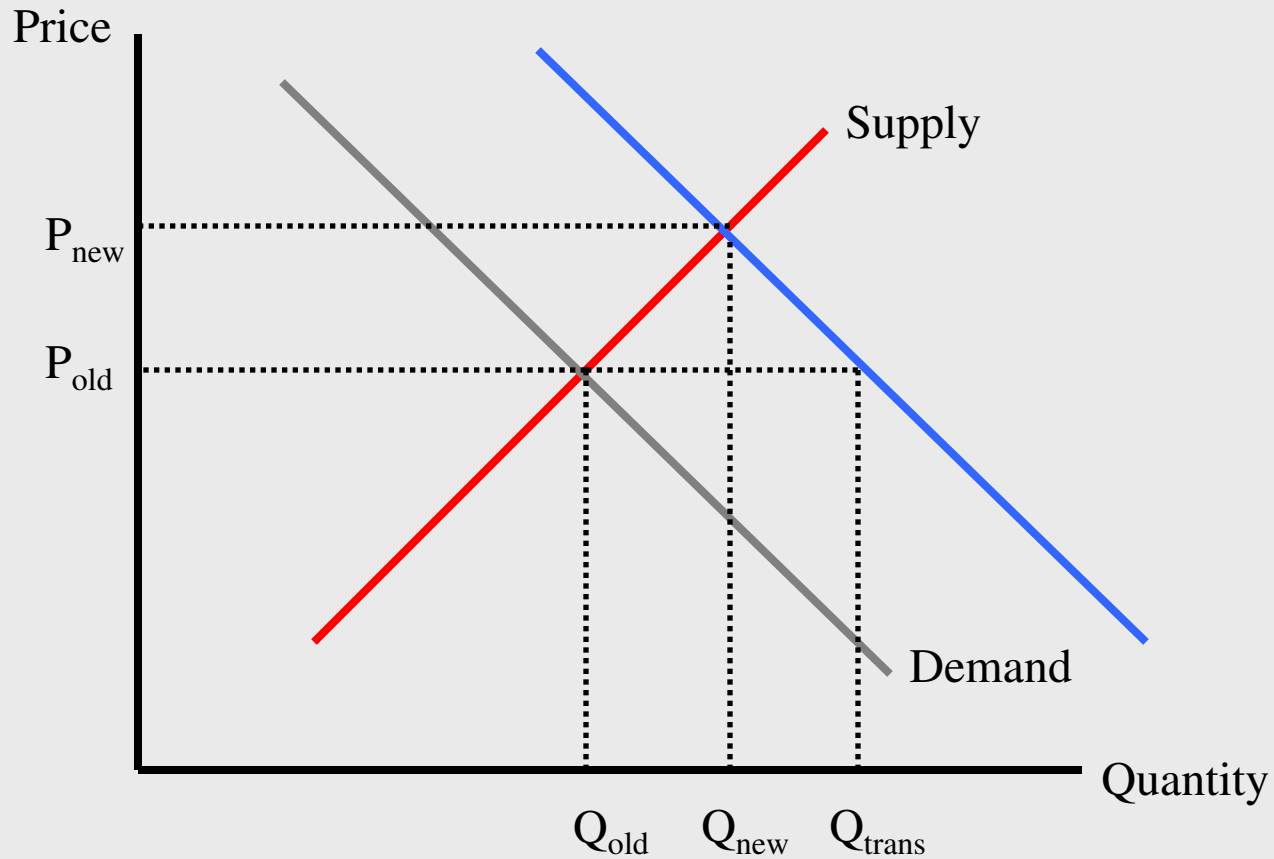
- The ability of U.S. corn production to match demands from ethanol, livestock, and exports
- The ability of U.S. livestock to utilize ethanol co-products as a partial substitute for corn in feed rations

# An Exploratory Look at the Food-Fuel Debate

The Corn Market before the Introduction of a new Ethanol Plant



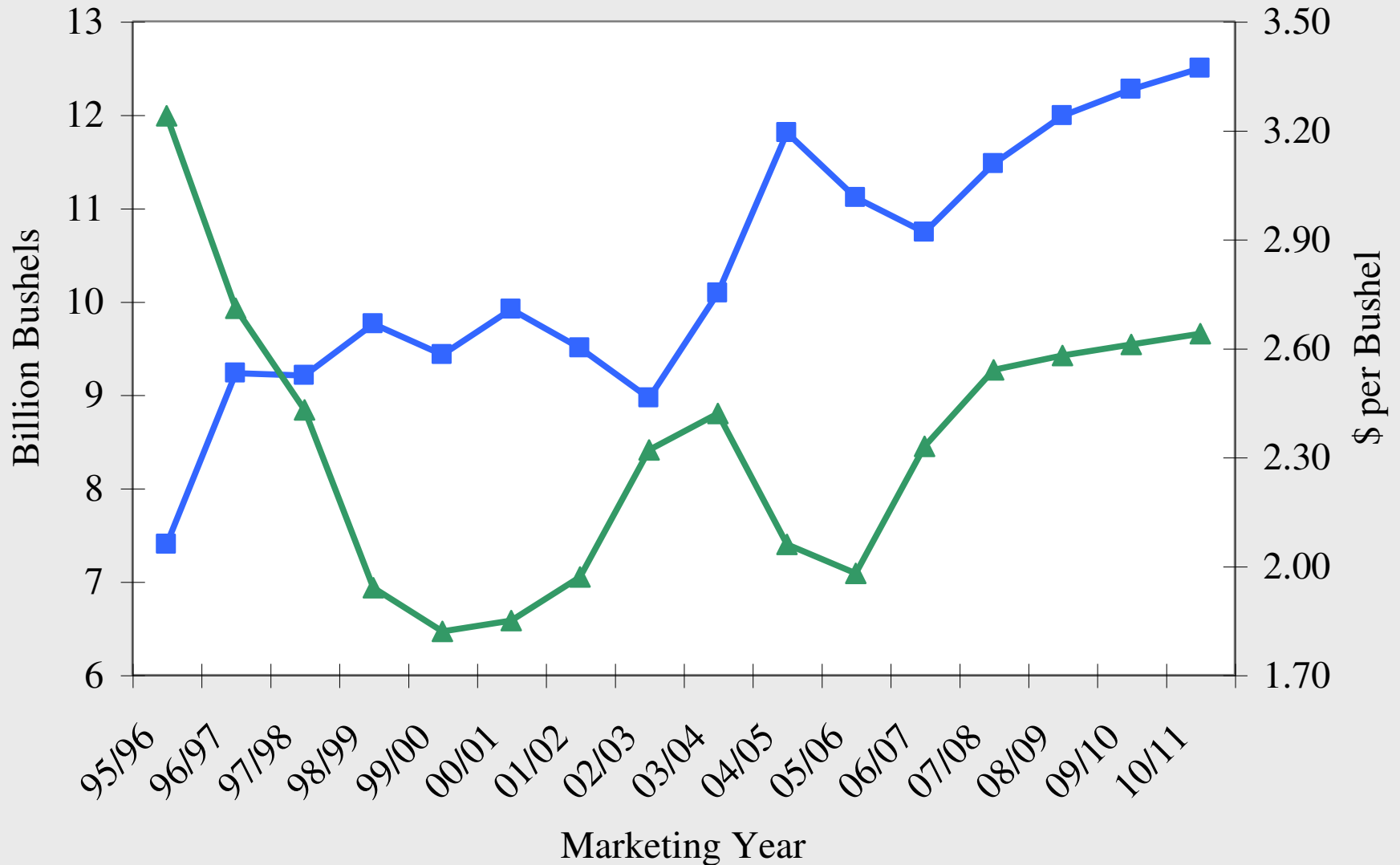
# The New Plant Shifts Corn Demand



# Projection Scenario

- Look at possible effects from a doubling of U.S. ethanol production from 2005 to 2009
  - Source: FAPRI July 2006 Baseline Update
- Impacts both crop and livestock markets
- Higher corn prices may not make the U.S. livestock industry less competitive in world markets

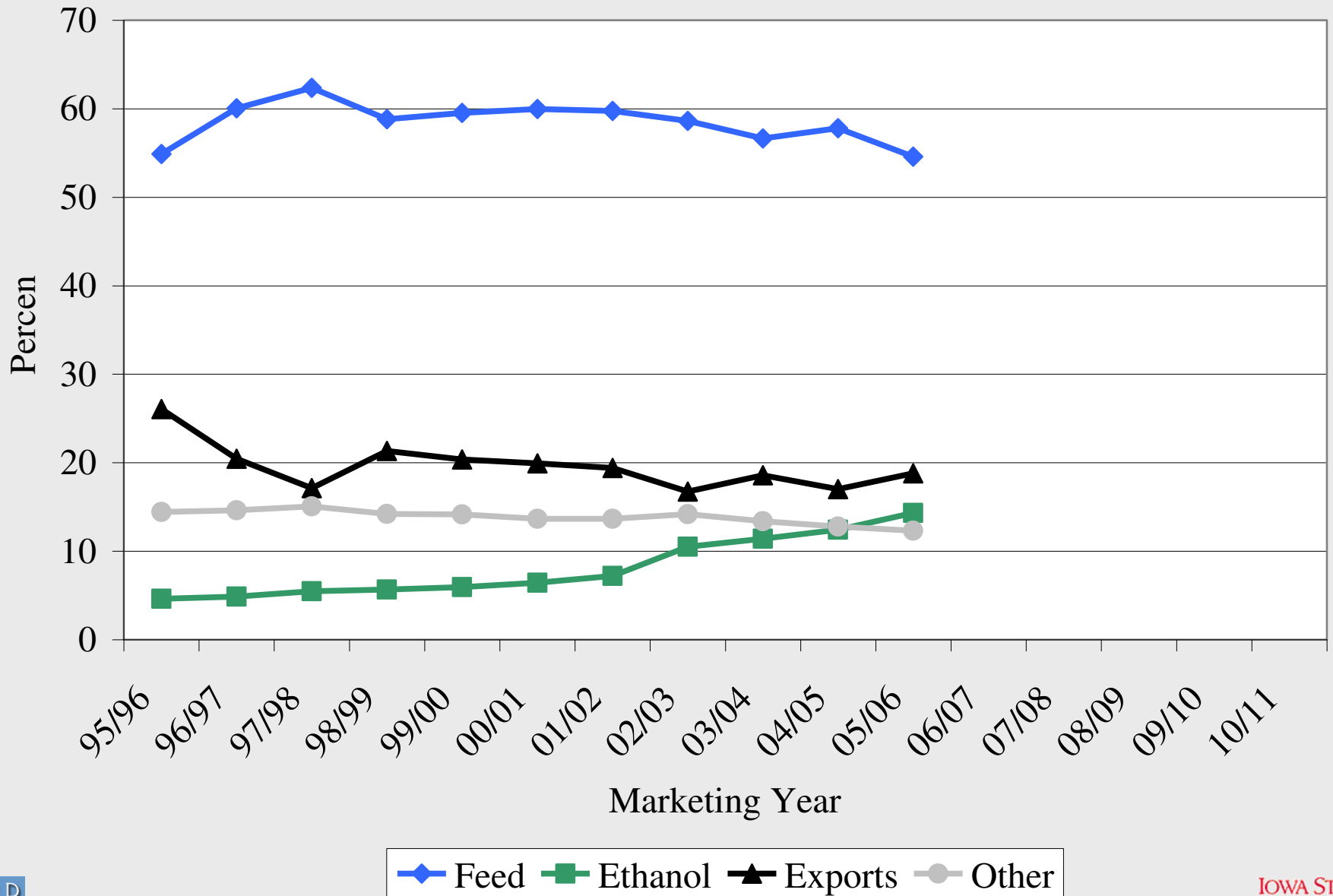
# Corn Production and Prices



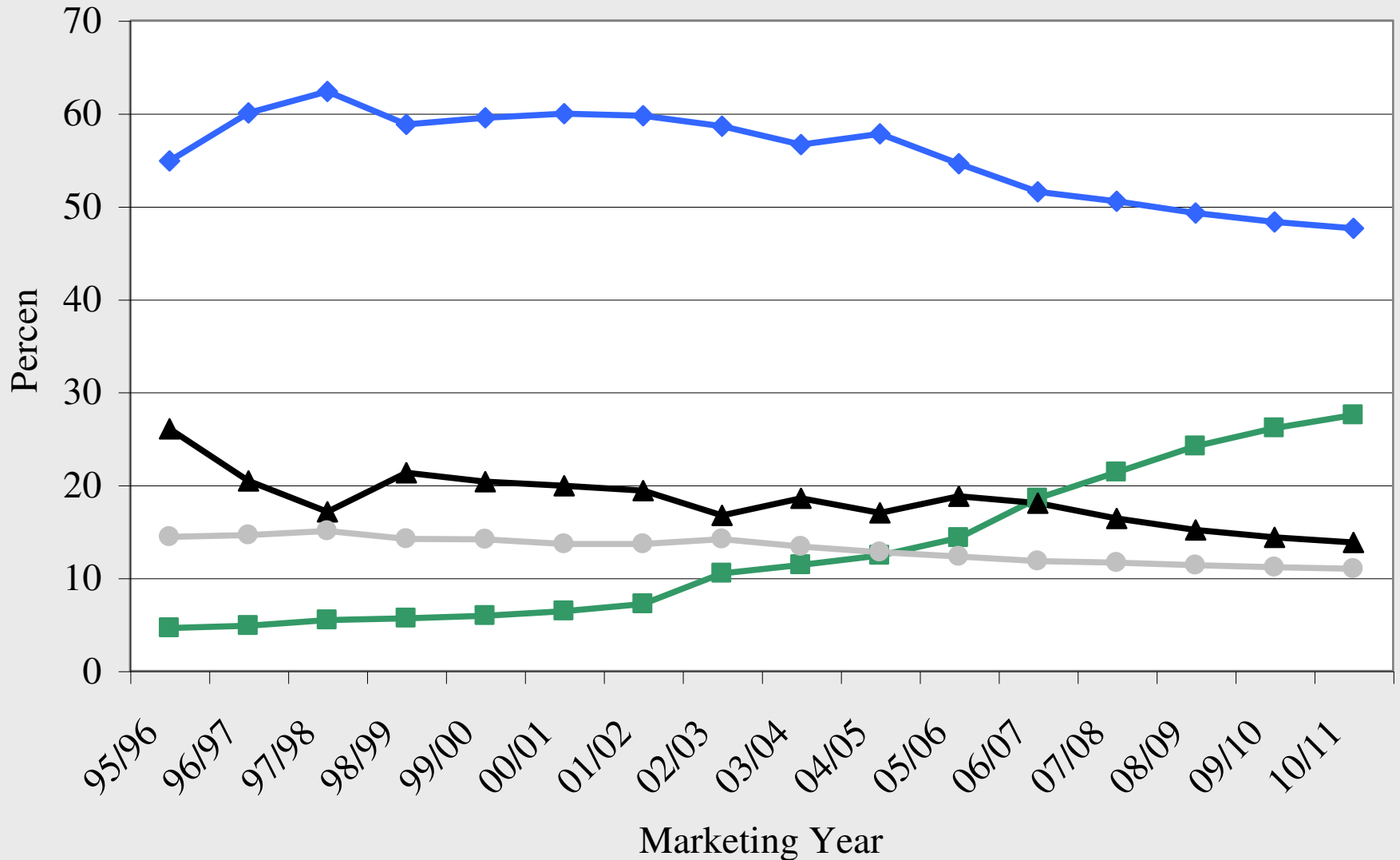
■ Production ▲ Farm Price



# Historical Corn Utilization

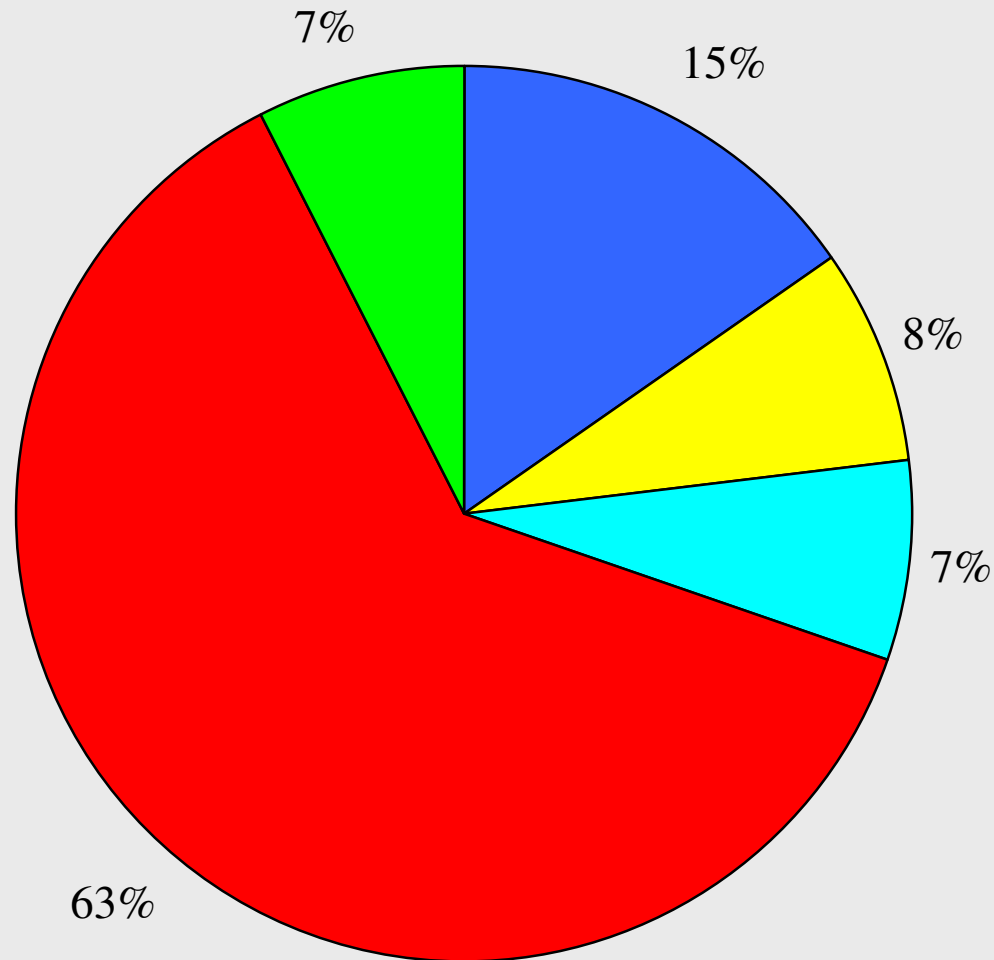


# Projected Corn Utilization



◆ Feed ■ Ethanol ▲ Exports ● Other

# World Corn Exports in 2005/2006

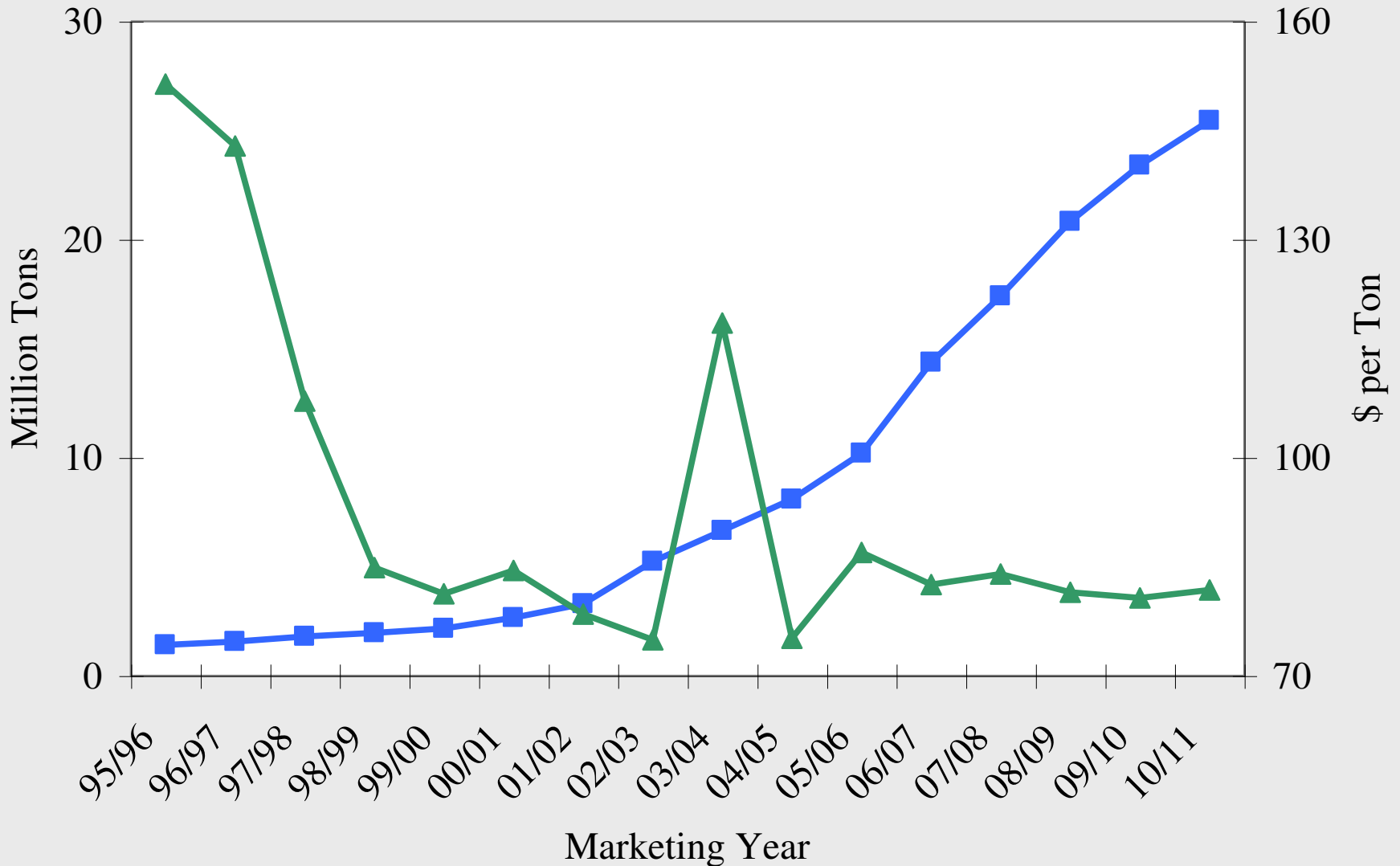


■ Argentina ■ China ■ EU New Member States ■ United States ■ Rest of World

## So With a Doubling of Ethanol Production...

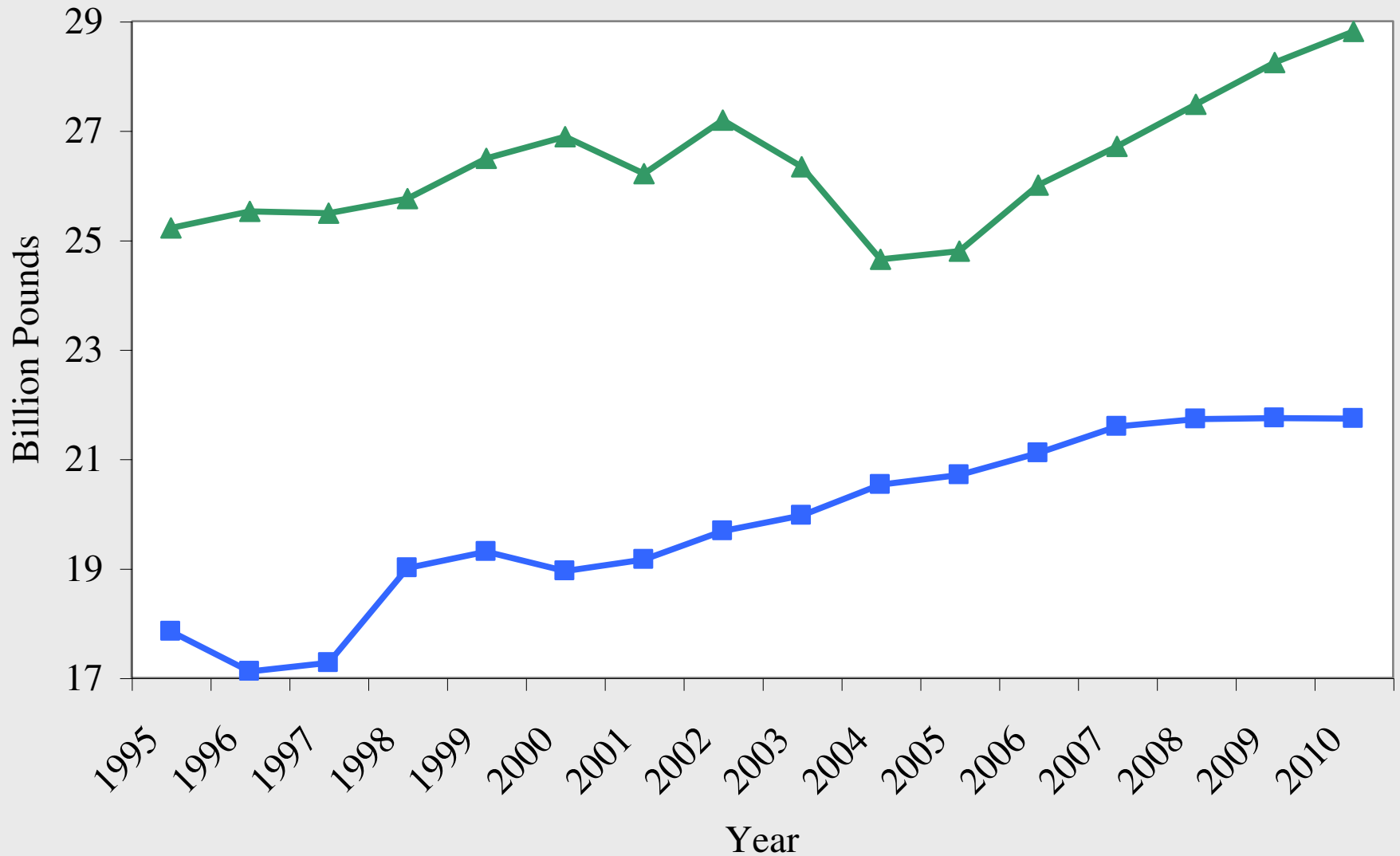
- Corn prices rise
- U.S. corn feed and export demand falls on a percentage basis
- But the U.S. is still the largest exporter of corn and the U.S. corn price is the benchmark world corn price
- Livestock producers throughout the world feel the impact of higher U.S. corn prices

# Distillers Grains



■ Production (Dry Equivalent) ▲ Price

# U.S. Meat Production



■ Pork ▲ Beef

# Some Summary Thoughts

- The doubling of U.S. ethanol production by 2009 is likely a conservative scenario given the current pace of investment in the industry
  - In Iowa, announced expansions and new construction of ethanol plants will more than double capacity
- Livestock impacts will depend on the ability of species to adapt to ethanol co-products
  - Cattle have an advantage over hogs and poultry?

# Some Summary Thoughts

- Corn production shortfalls will pressure both the ethanol and livestock industries
  - Could squeeze the corn export market and affect the competitiveness of the U.S. pork and poultry exports
- Ethanol's corn demand is linked with energy prices and government policy; Livestock's corn demand is linked with meat prices
  - Currently, corn is worth more as ethanol than as feed



# Some Summary Thoughts

- CARD researchers are continuing to explore the connection among the crop, livestock, and ethanol markets