

Ethanol and Livestock: Synergies or Competition?

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2006 Biobased Industry Outlook Conference

Growing the Bioeconomy:

Reimagining Agriculture for National Energy Security

Iowa State University

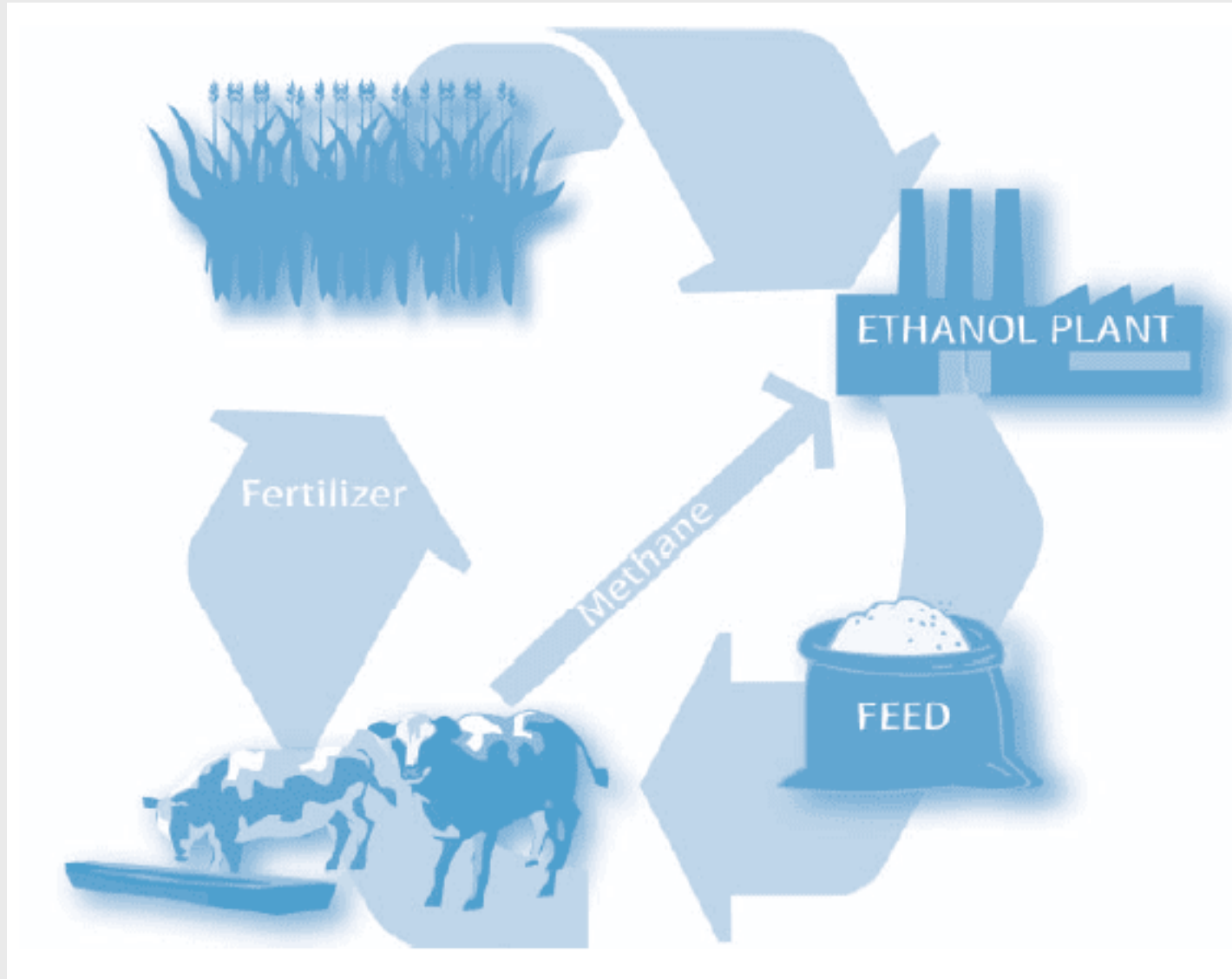
Ames, Iowa



E-mail: chart@iastate.edu

IOWA STATE
UNIVERSITY

Ethanol-Livestock Synergies



A 50-Million Gallon Ethanol Plant ...

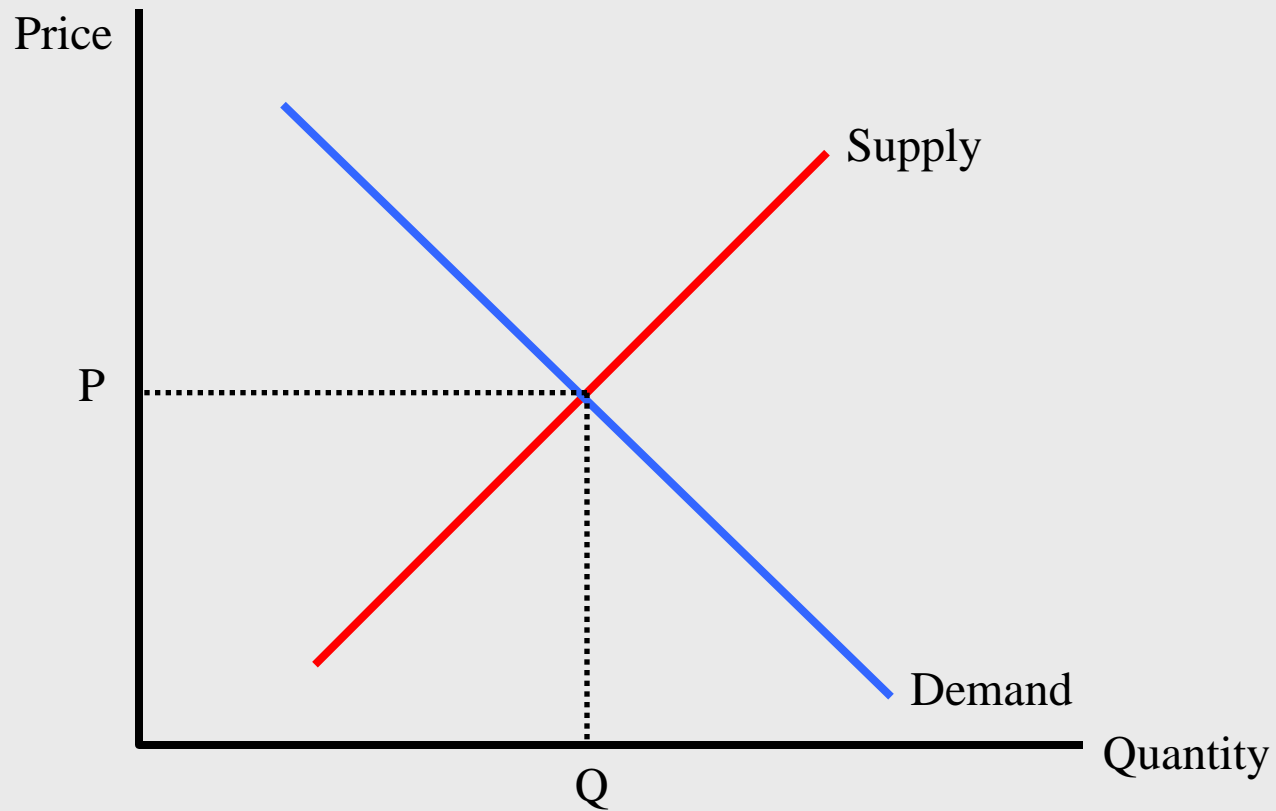
- Uses roughly 18.5 million bushels of corn
 - In Iowa, corn from 116,000 acres
- Produces 315 million pounds of distillers grains
 - This could feed approx. 60,000 dairy cattle
- Utilizes natural gas in plant operations
 - Manure from 60,000 dairy cattle could produce enough methane to meet 25 percent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

The 2 Keys to the Food-Fuel Debate

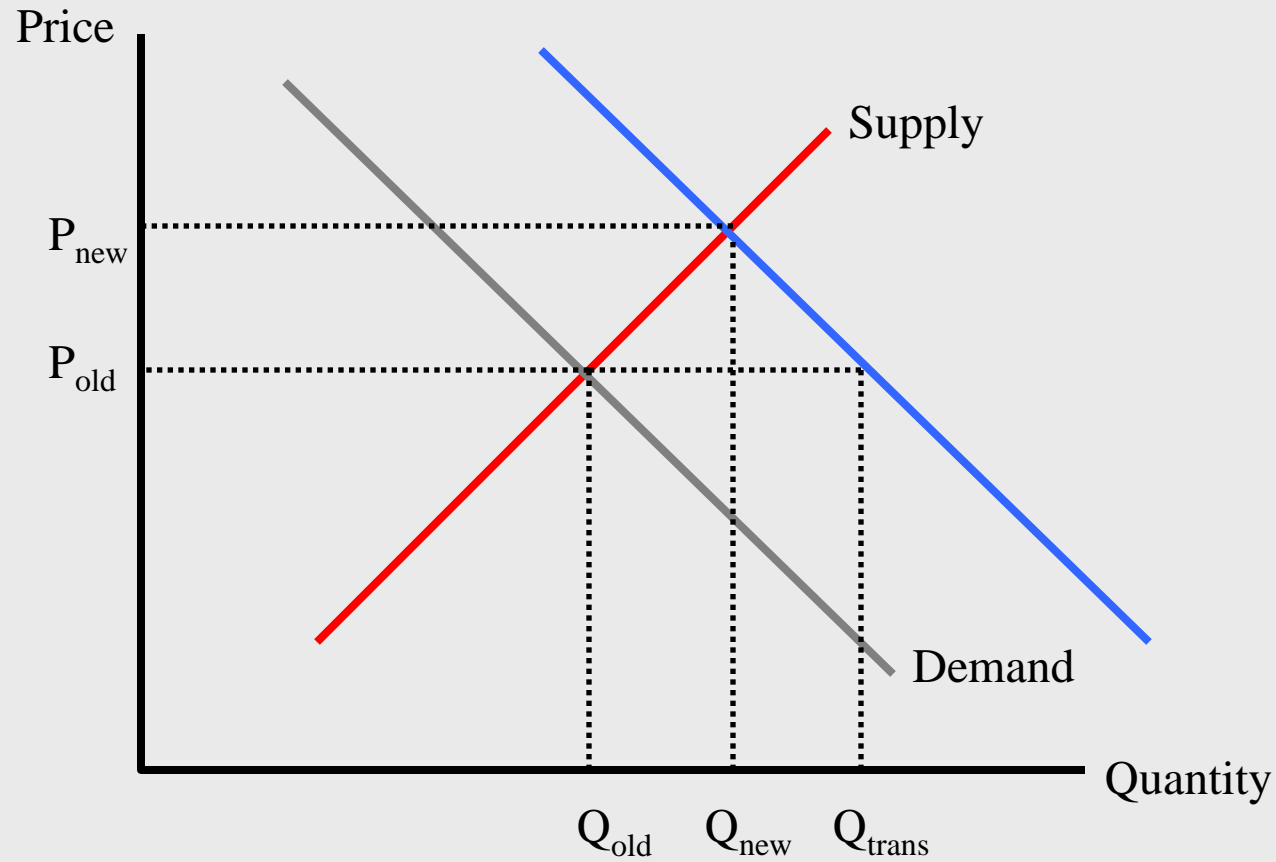
- The ability of U.S. corn production to match demands from ethanol, livestock, and exports
- The ability of U.S. livestock to utilize ethanol co-products as a partial substitute for corn in feed rations

An Exploratory Look at the Food-Fuel Debate

The Corn Market before the Introduction of a new Ethanol Plant



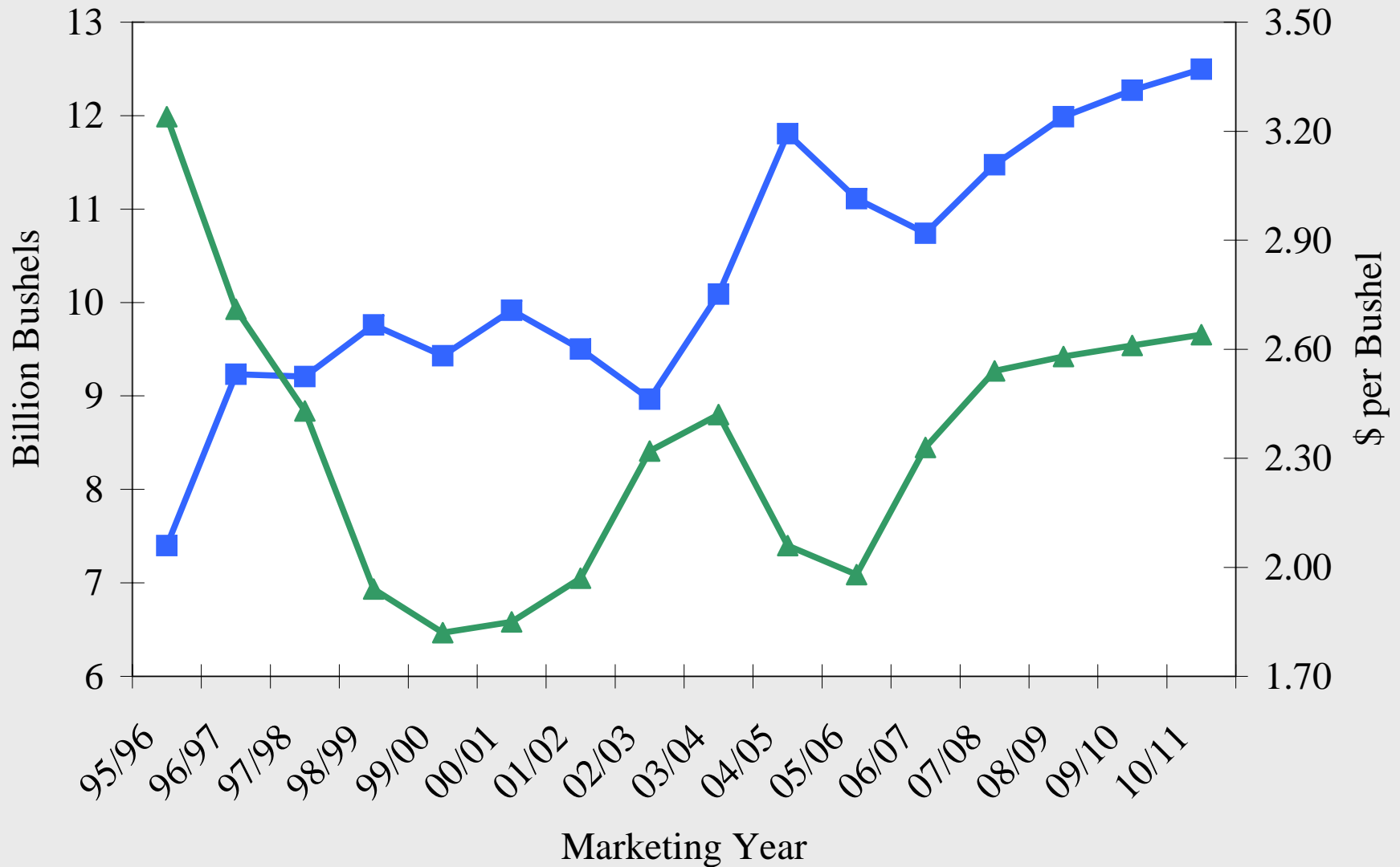
The New Plant Shifts Corn Demand



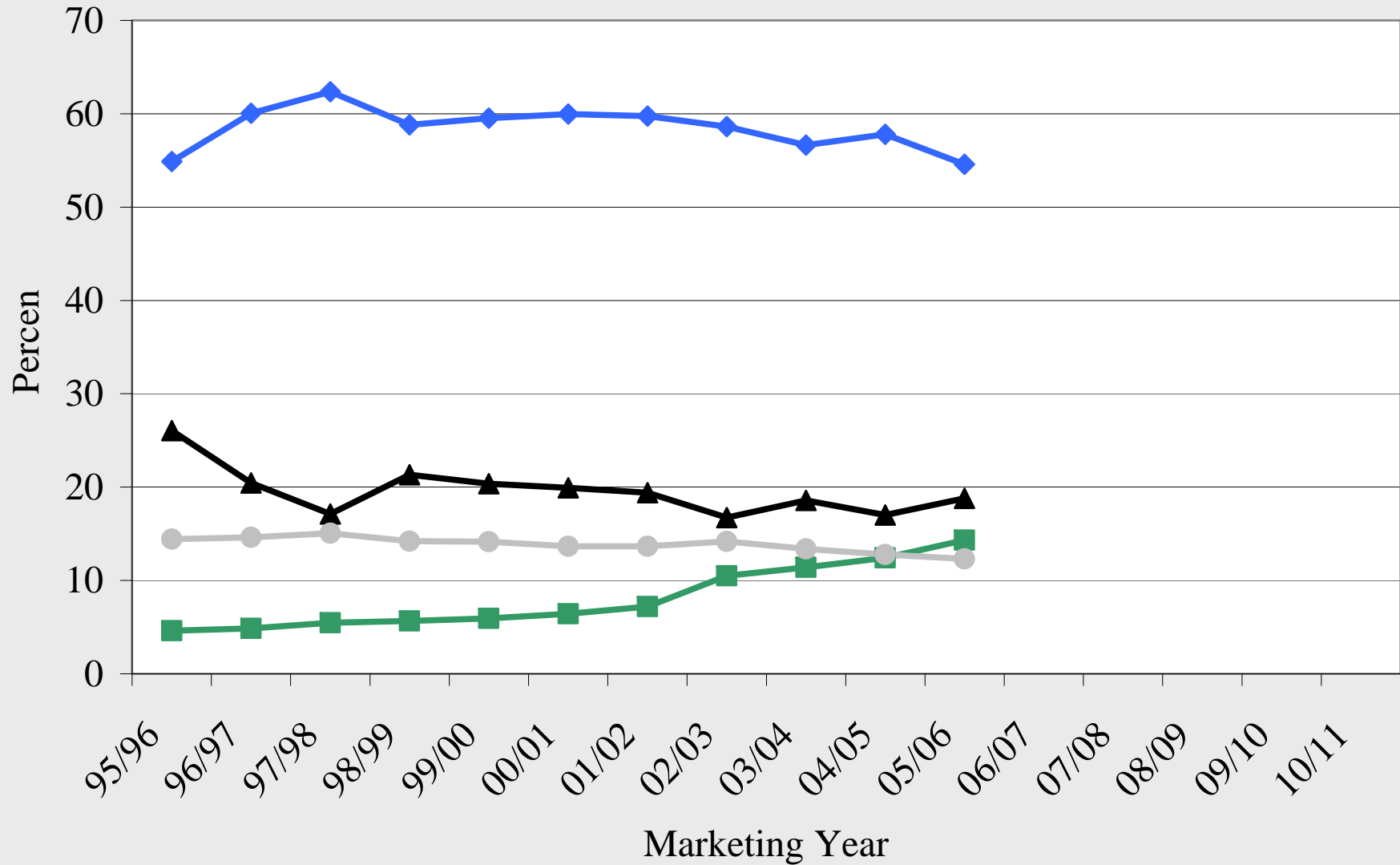
Projection Scenario

- 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

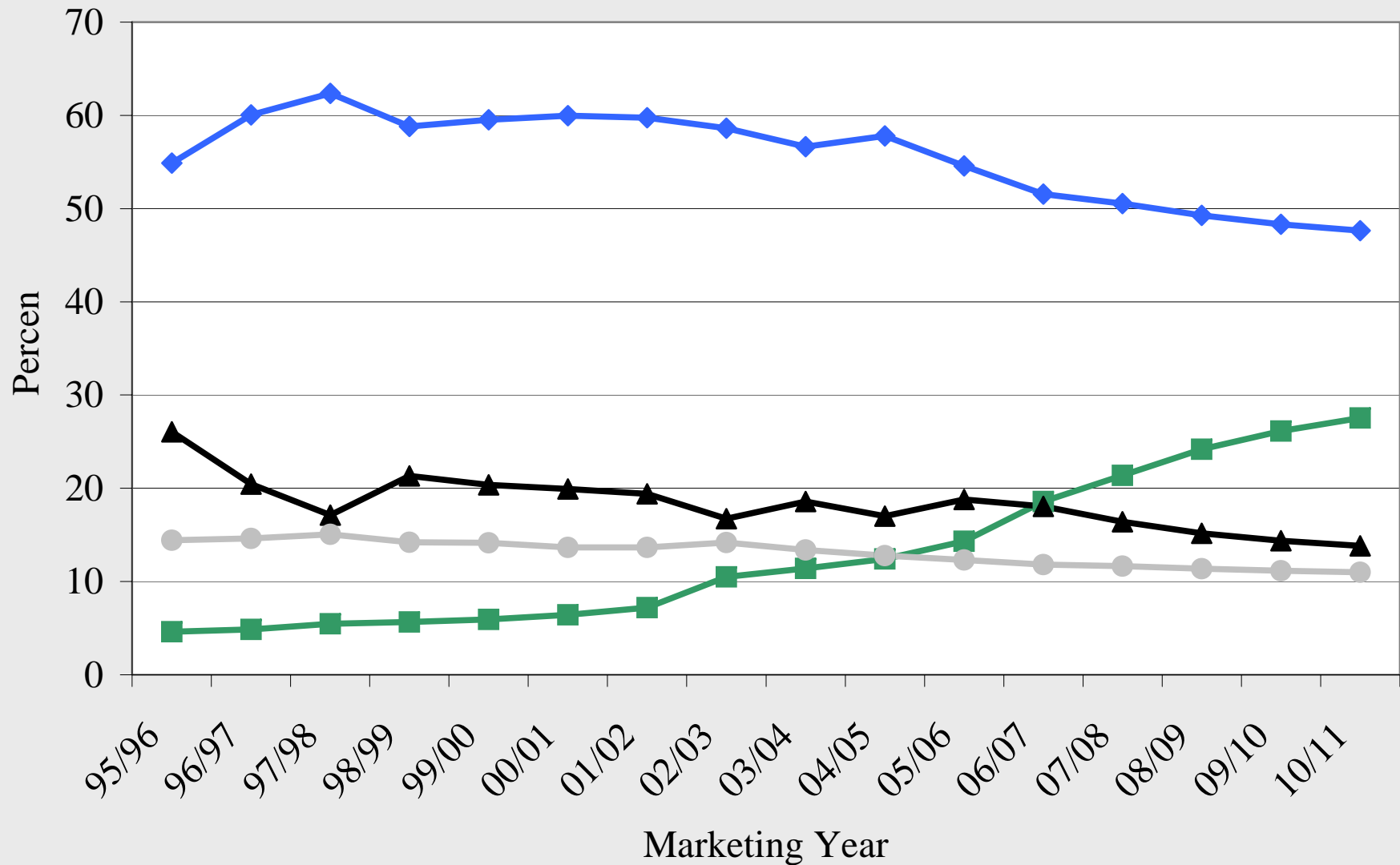
Corn Production and Prices



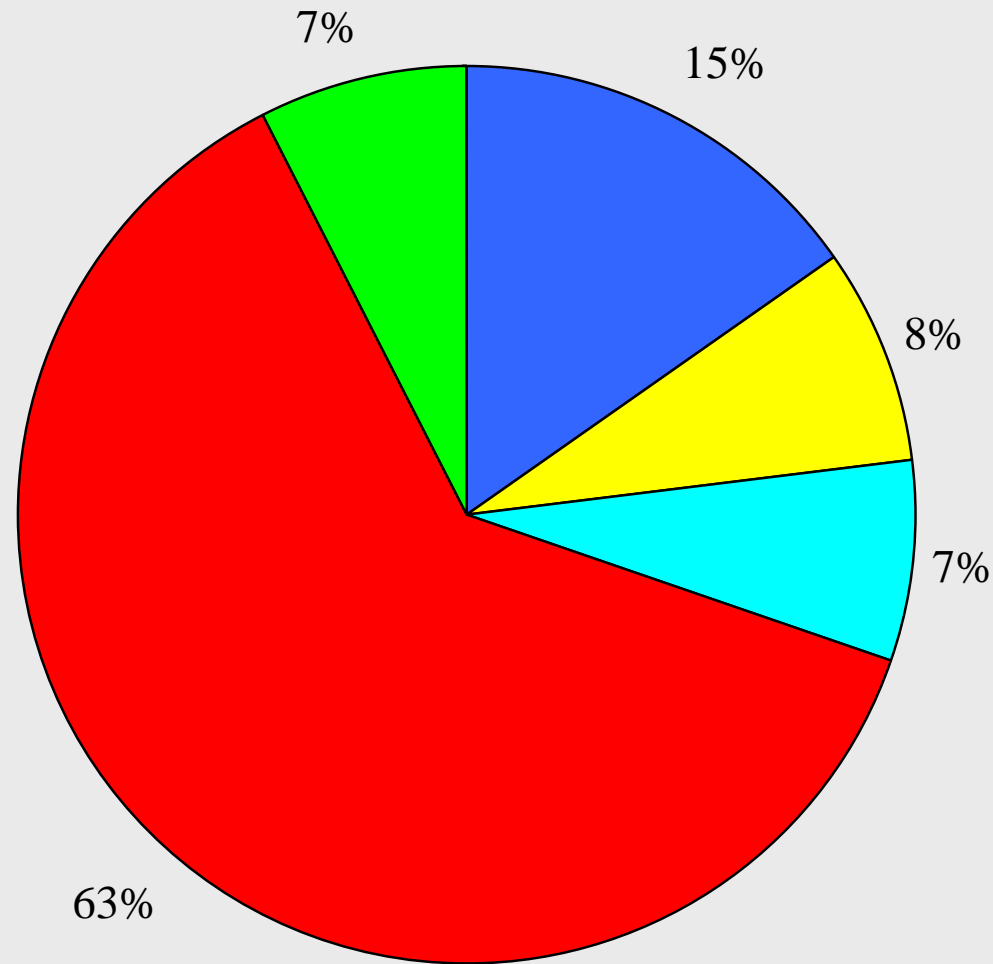
Historical Corn Utilization



Projected Corn Utilization



World Corn Exports in 2005/2006

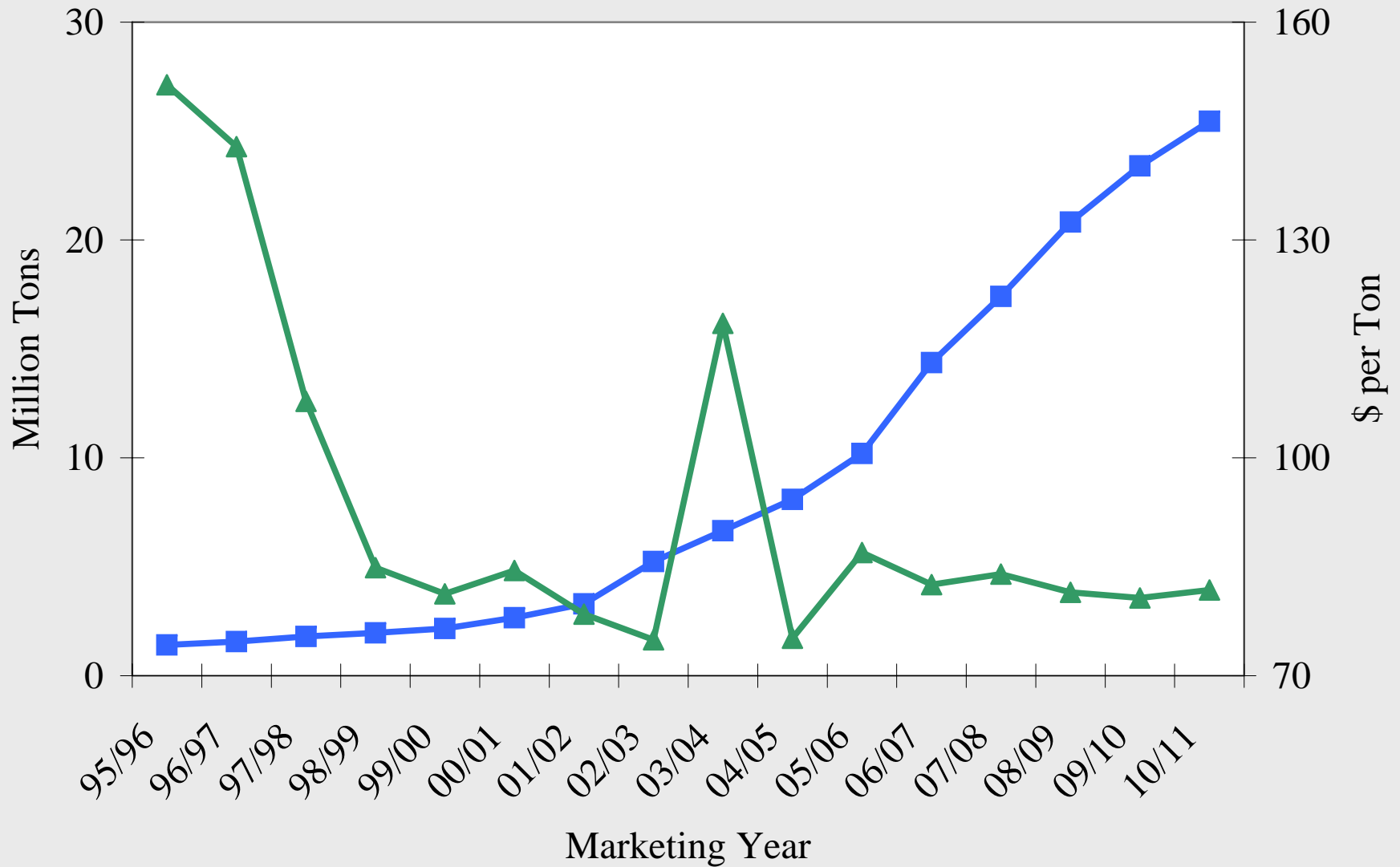


■ Argentina ■ China ■ EU New Member States ■ United States ■ Rest of World

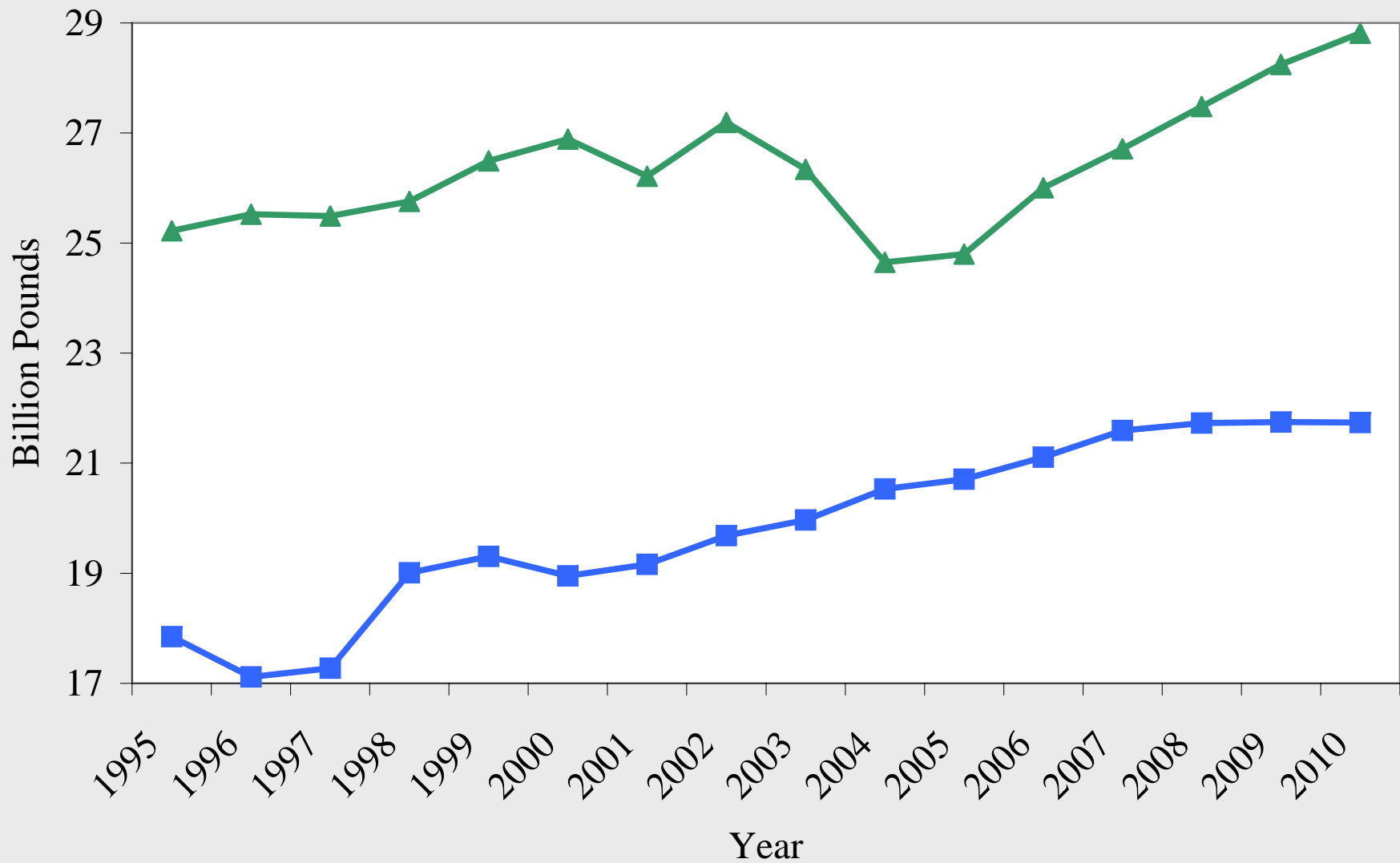
So With a Doubling of Ethanol Production...

- 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



U.S. Meat Production



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