

Facets of the Bioeconomy Affecting the Small Towns of Iowa

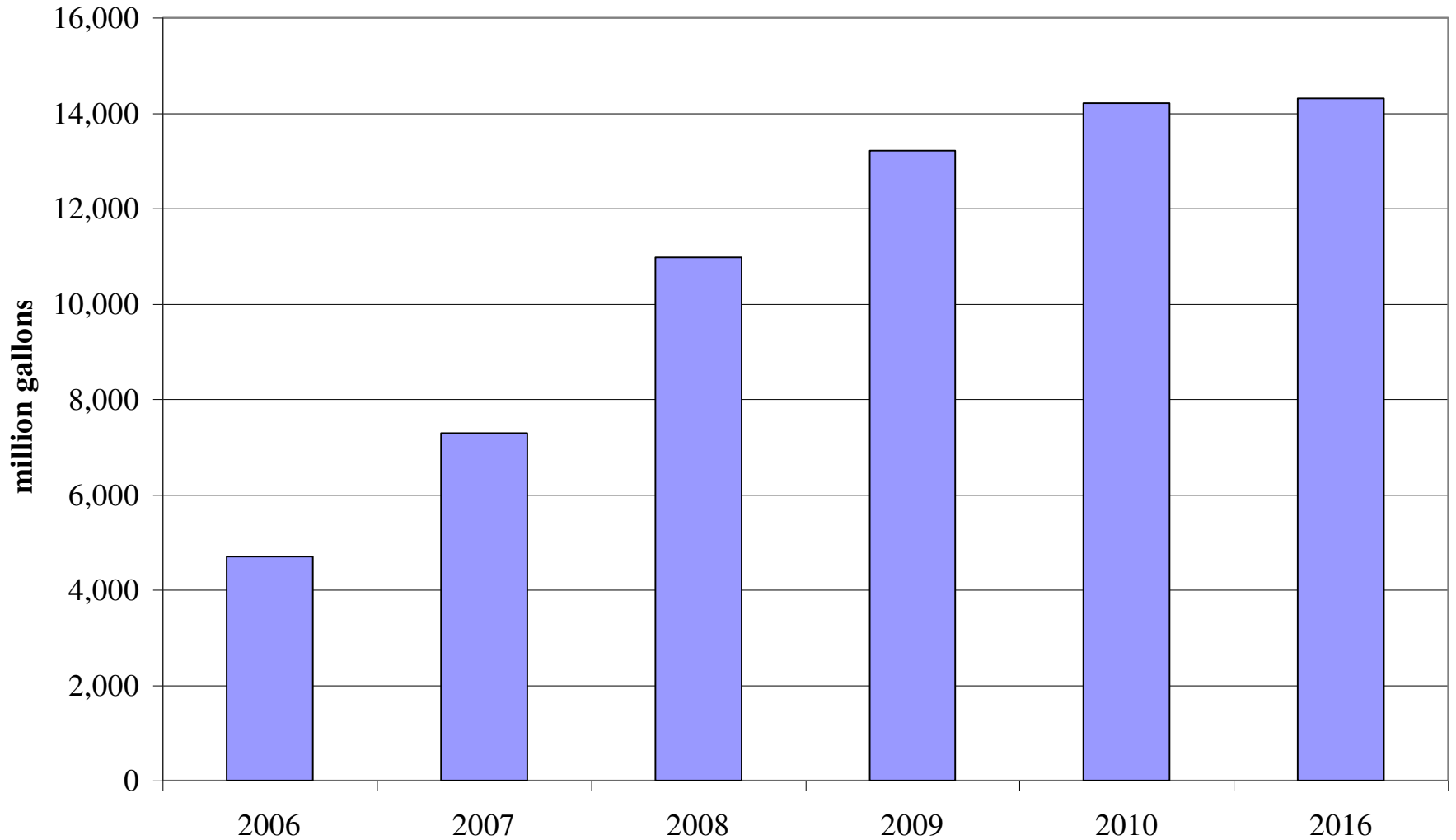
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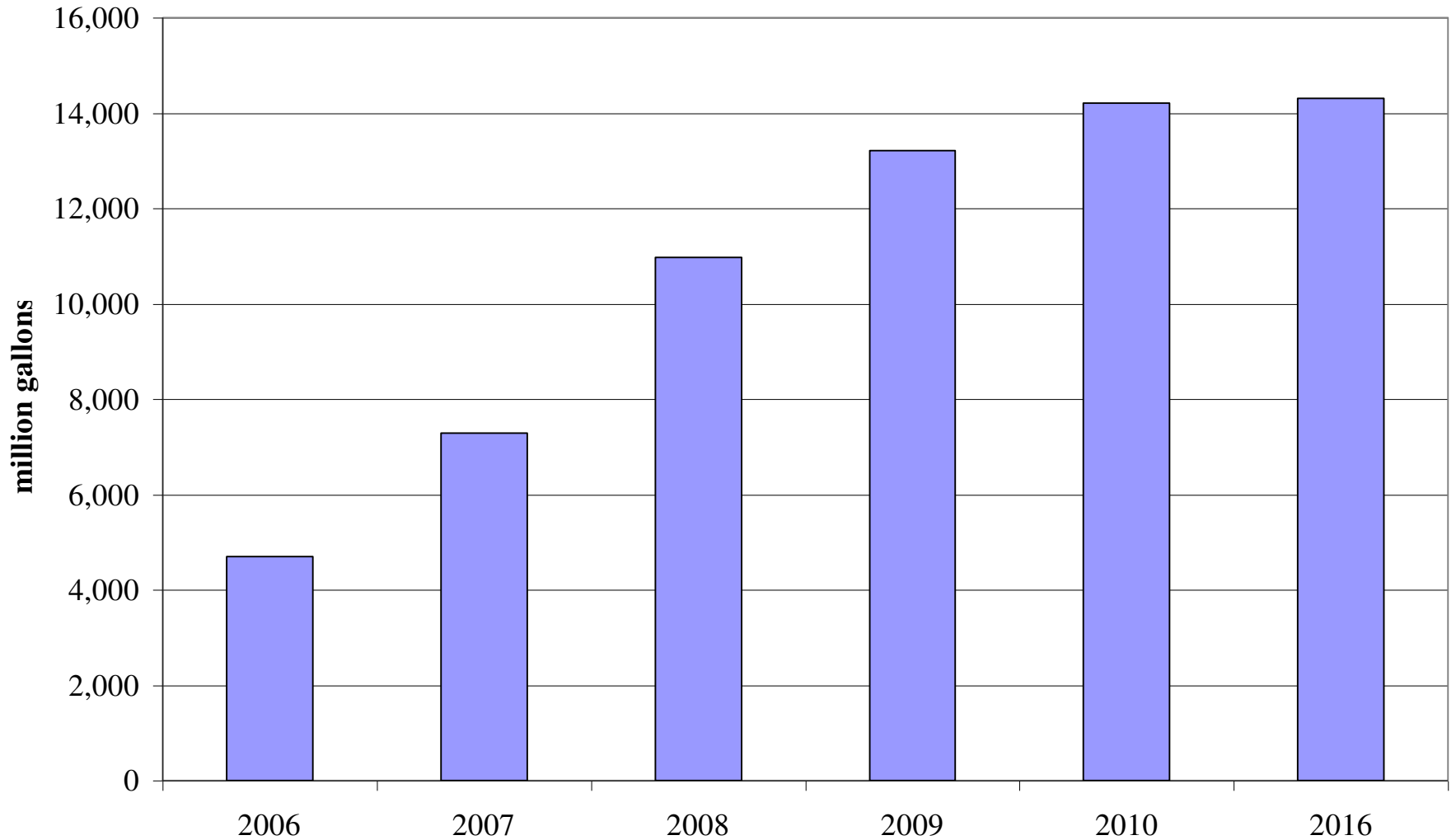
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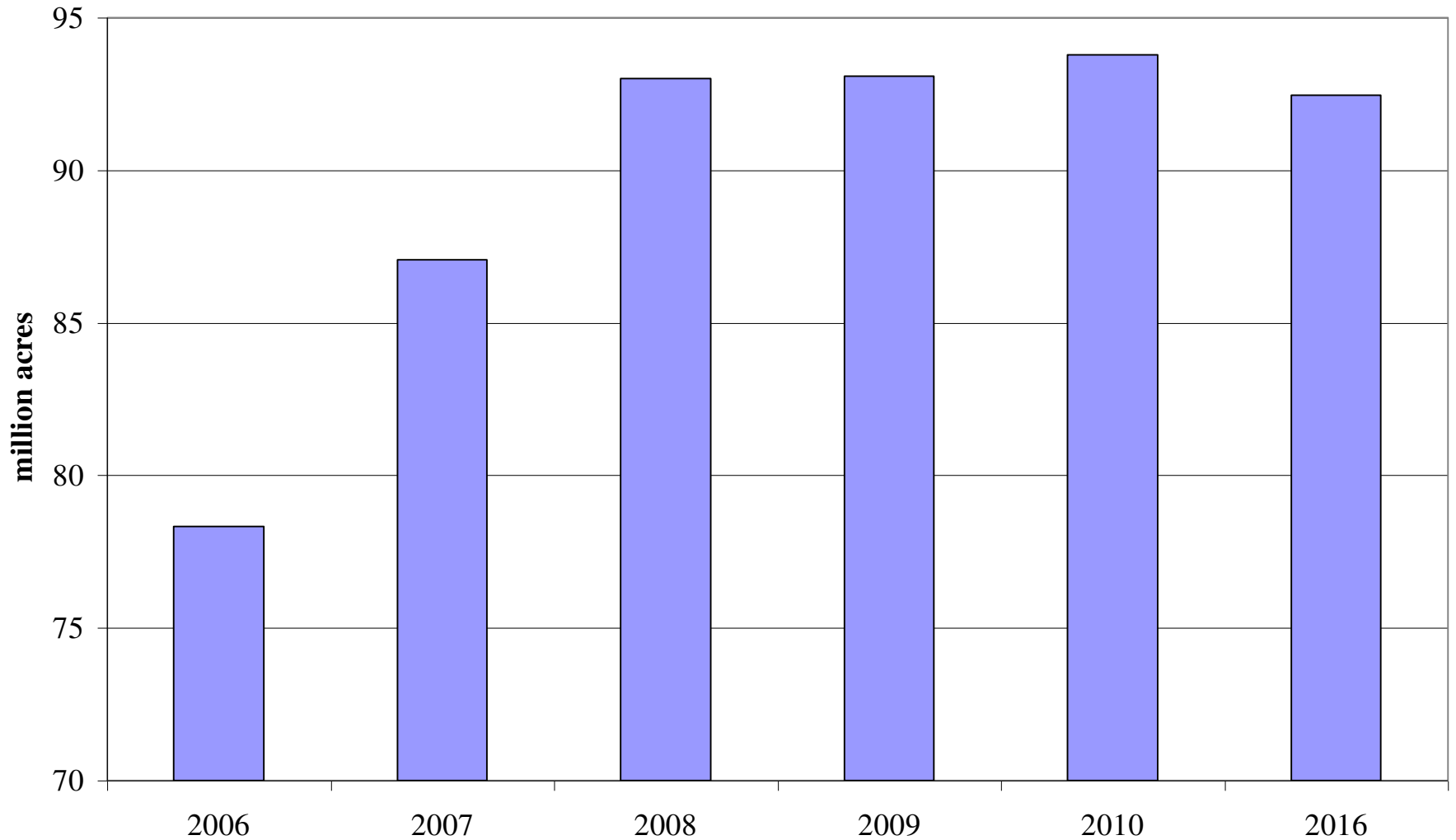
Projected U.S. Ethanol Production from Corn



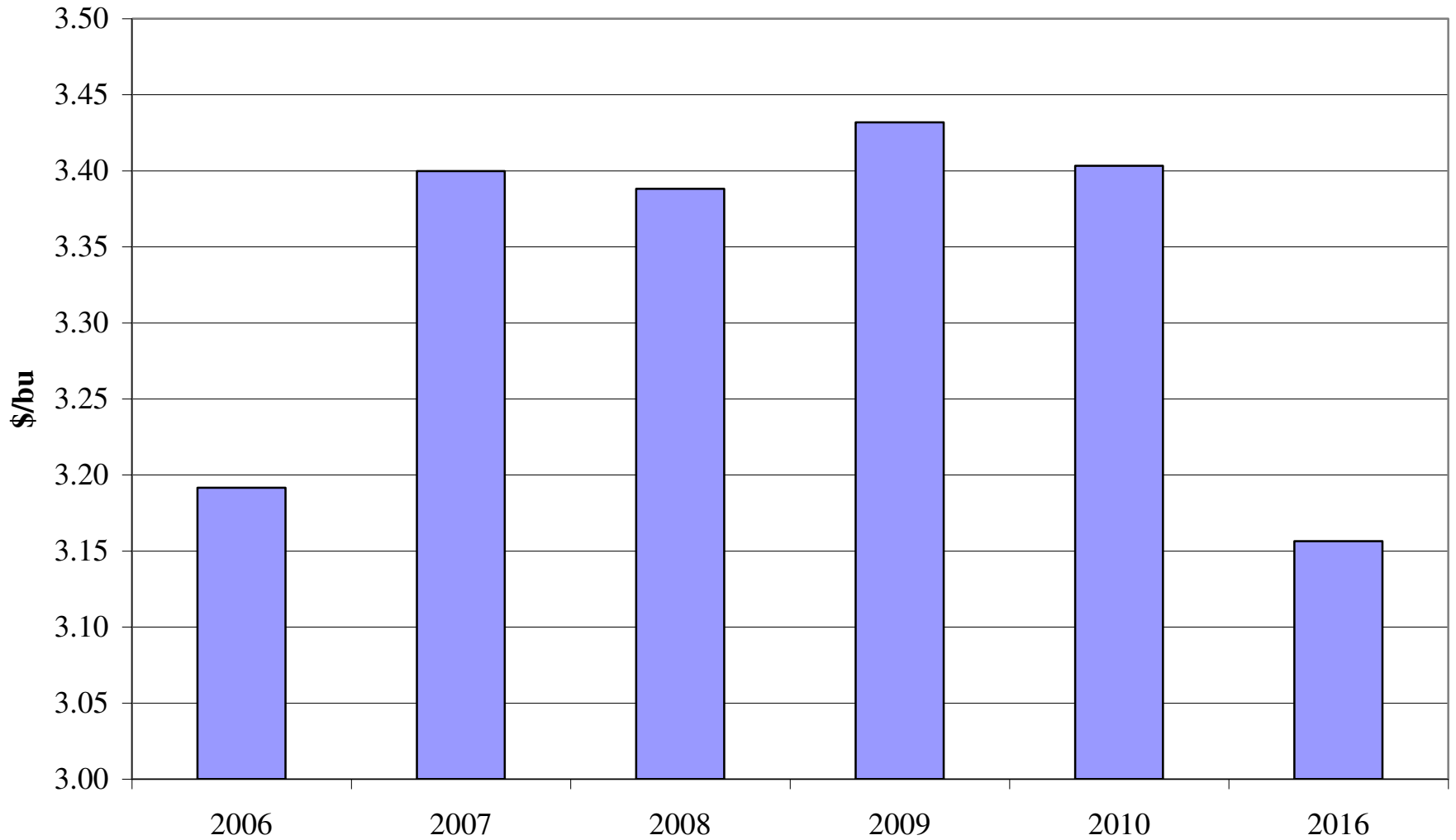
Projected U.S. Ethanol Production from Corn



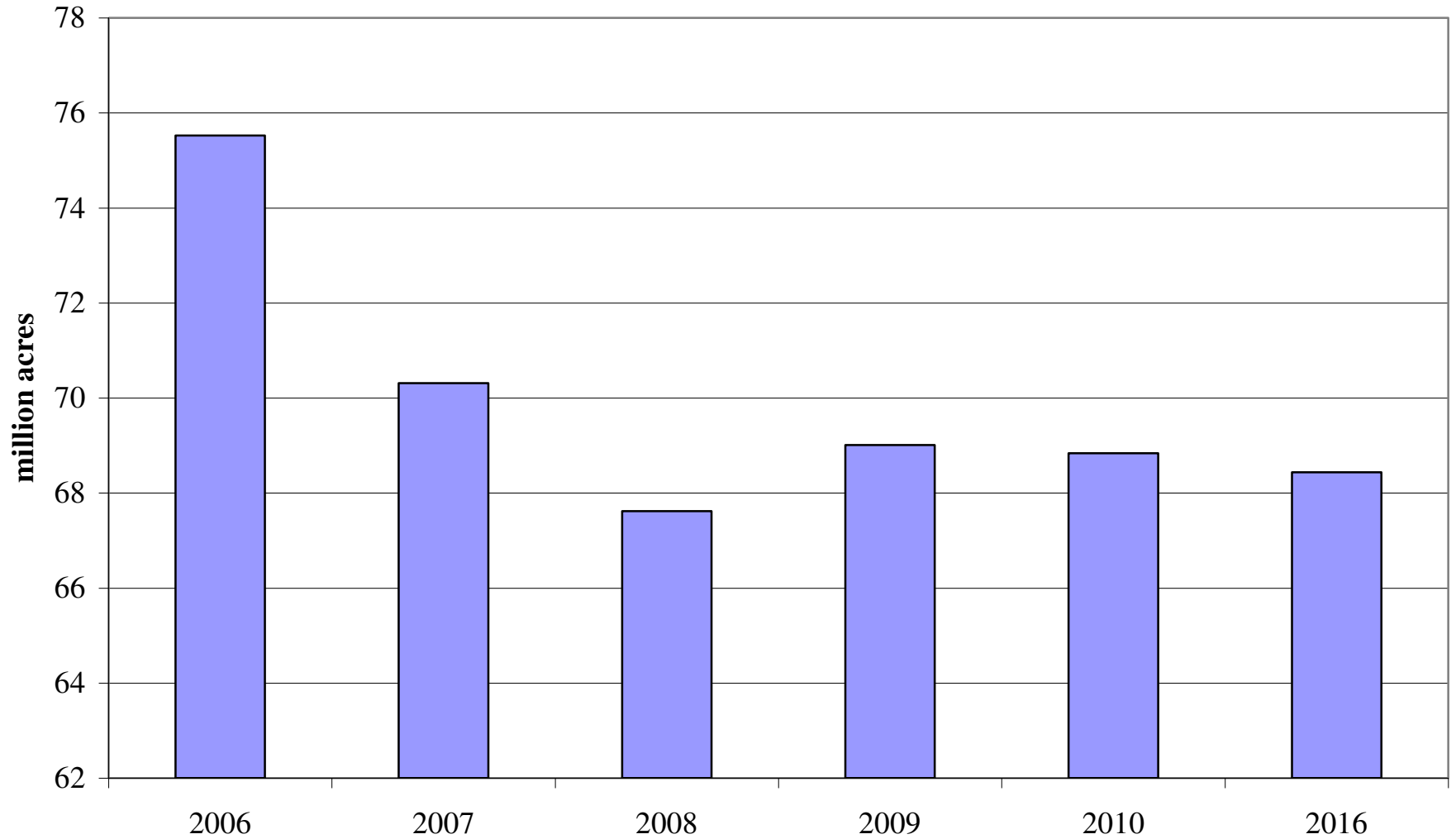
Projected U.S. Corn Planted Acreage



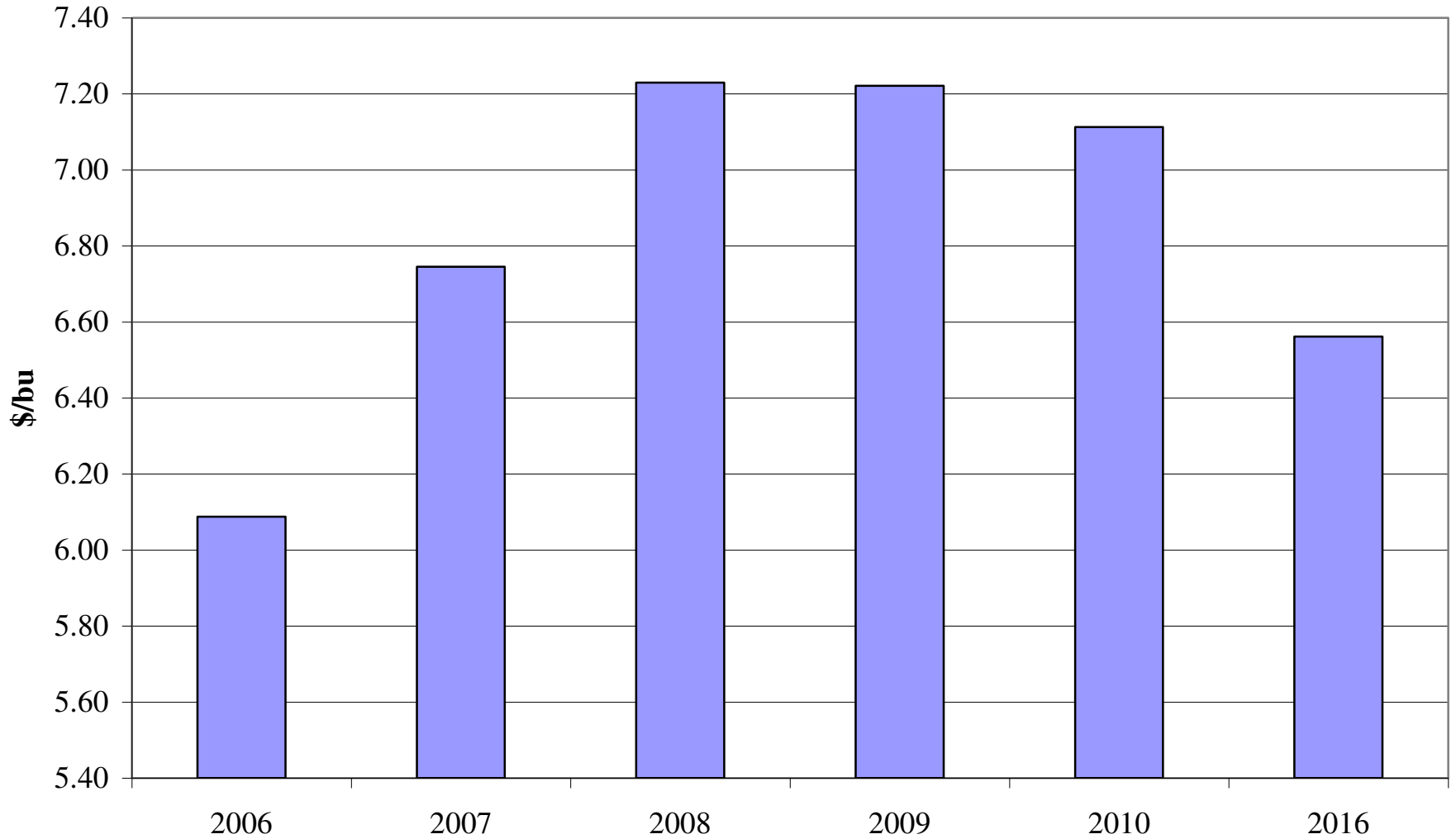
Projected Corn Prices



Projected Soybean Planted Acreage



Projected Soybean Prices



Community Impacts

- Farm operators
- Land owners
- Ethanol investors
- Infrastructure
- Environment
- Livestock industry
- Economic activity

Land Rent Determination

- Rent = Maximum willingness to pay for an additional crop ground
 - Higher crop prices have increased market returns over costs by about \$155 per acre
 - Government payments reduced by about \$35 per acre
- Land rents should jump by about \$120 per acre

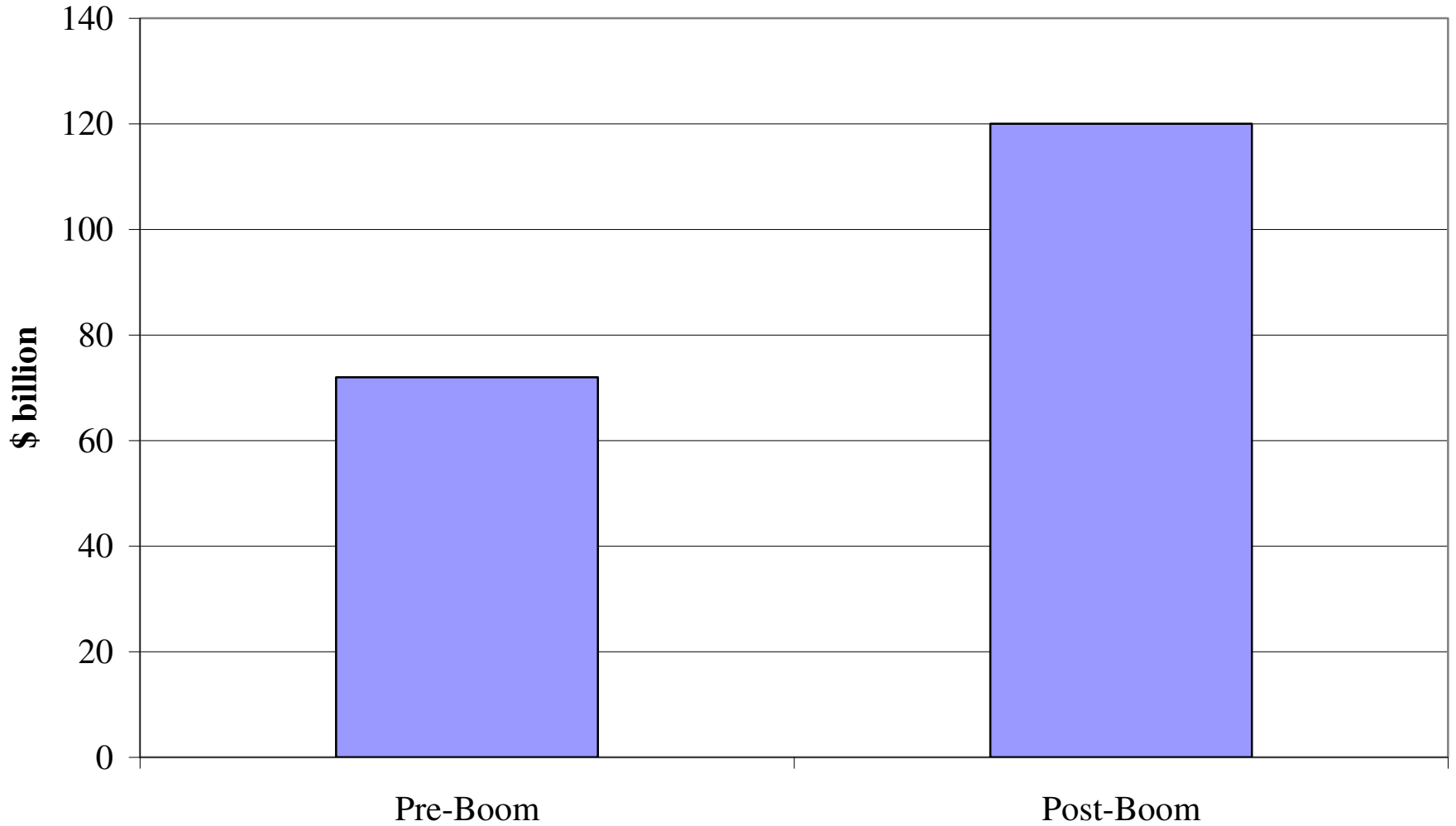
Agricultural Land Price Determination

- Change in land price =
change in land rent * capitalization factor

$$\$120 * 16.67 = \$2,000$$

- \$3,000/ac pre-boom (2005) land prices
- 67% increase in value of Iowa cropland

Total Value of Iowa Cropland



Impact on Farm Operator Returns

- Money in
 - Crop revenue plus government payments
- Money out
 - Production costs, machinery payments, land rent
- If changes in land rent fully reflect changes in revenue and costs, then farm operators are unaffected

Impact on Land Owners

- Increased asset values increases wealth levels of many Iowans
- A significant portion of this increased wealth accrues to Iowa farmers and other rural residents
- Increased wealth is associated with increased investment and consumption.

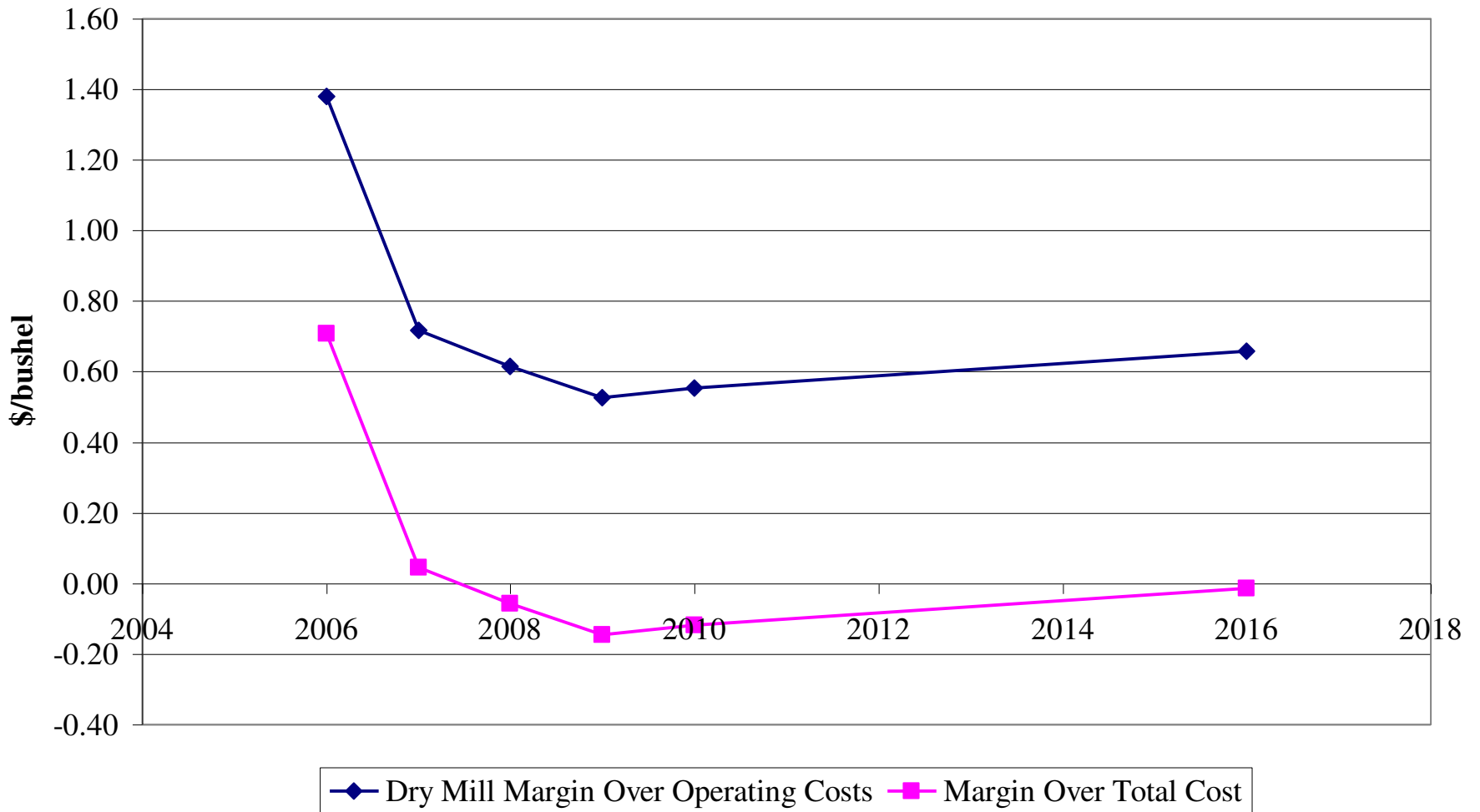
Impact on Ethanol Plant Owners

- Economics of commodities
 - High prices lead to high profits
 - High profits leads to expansion of supply
 - Expansion of supply leads to lower prices
 - Lower prices reduce profits
 - Contraction of supply increases prices

Difference with Biofuels

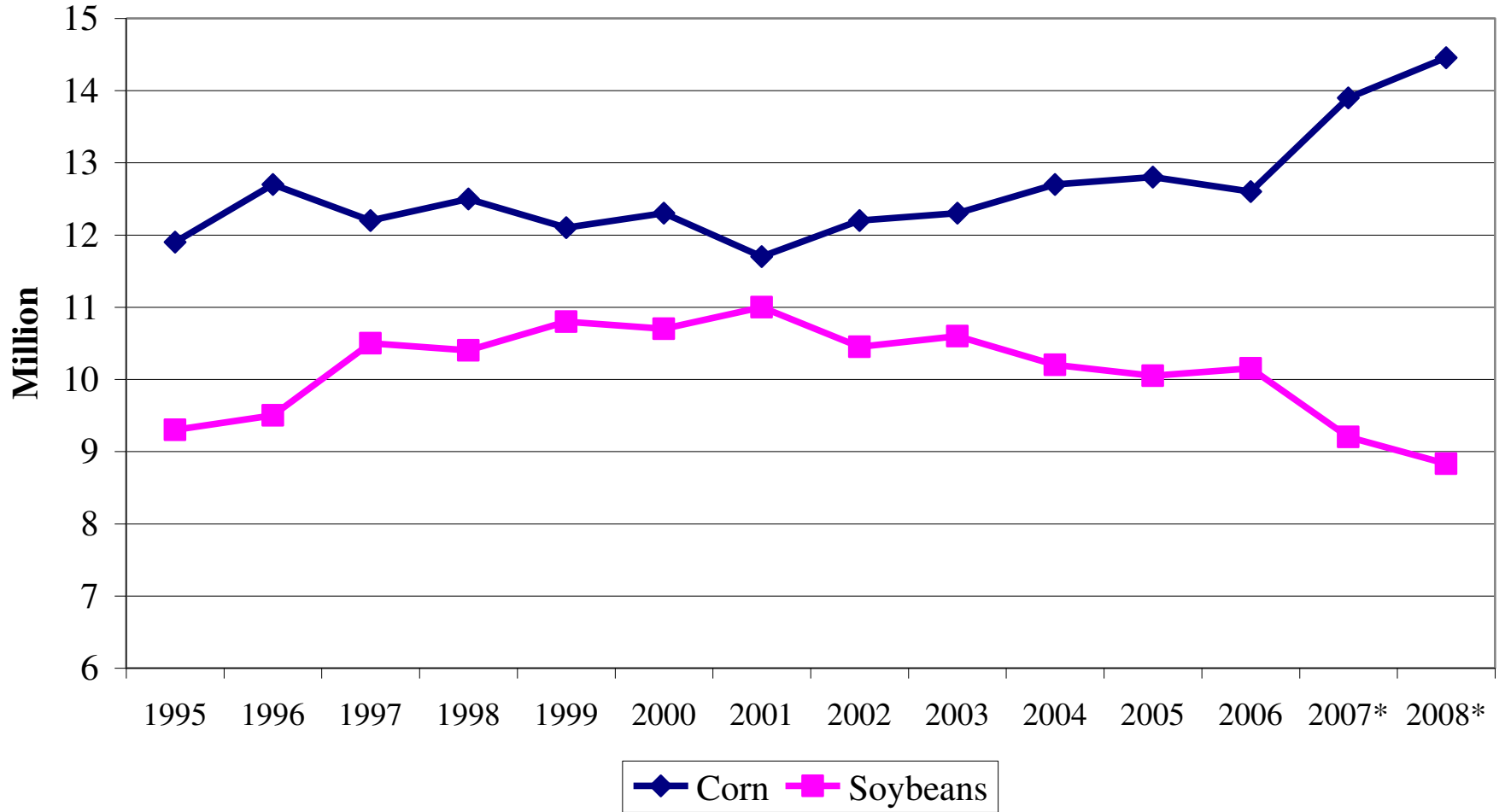
- Economics of ethanol
 - High prices lead to high profits
 - High profits lead to expansion of supply
 - Expansion of supply lead to higher feedstock (corn) prices
 - Higher costs reduce profits, until...
 - No more incentive to invest in more ethanol plants

Projected U.S. Dry Mill Margins Over Operating Costs and Over Total Costs



Infrastructure

Acres Planted to Corn and Soybeans in Iowa since 1995



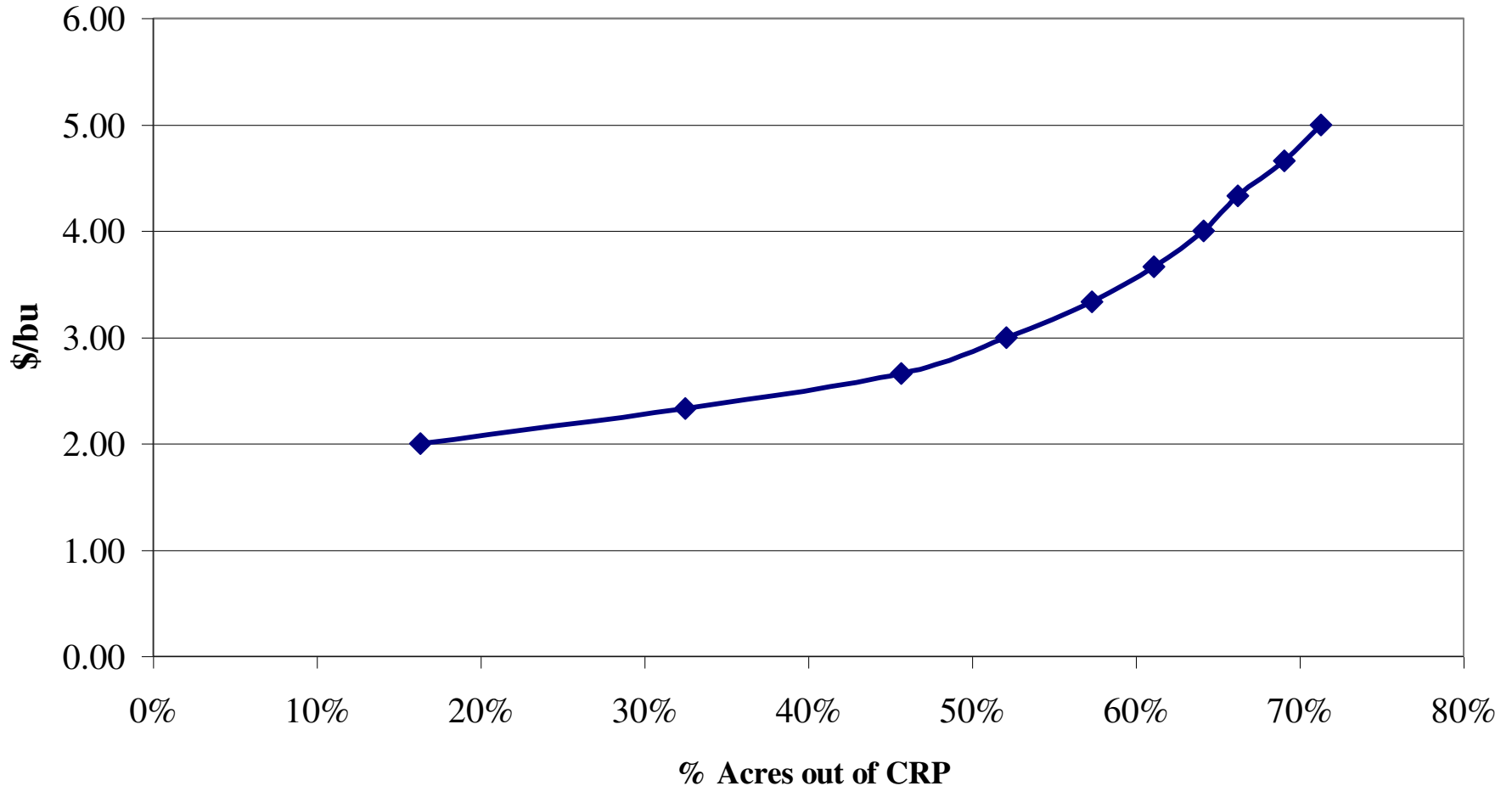
Infrastructure

- Greater investment in
 - storage
 - tillage equipment
 - fertilizer import, handling, manufacture
 - biorefineries (at least until 2009)
 - in-state grain transportation
- Less investment in
 - grain export facilities

Environmental Impacts

- Less CRP land

Percentage of Iowa CRP Acres to be Cropped at Different Corn Prices, from a Total of 1.9 Million Acres



Environmental Impacts

- Less CRP land
 - increased soil loss
 - increased nutrient runoff
 - loss of wildlife habitat
- Less conservation tillage as corn on corn acreage increases

Livestock Industry

- Higher feed costs reduce livestock feeder profits
 - Lower profits leads to supply contraction
 - Supply contraction leads to higher poultry, egg, hog, milk, and cattle prices
- Does this mean hard times for a large Iowa industry?

Impact of the Move from Cheap to Expensive Corn on Beef

- Nebraska steer prices increase by 8.8%
- Retail beef prices increase by 4%
- Beef exports fall by 8%
- Beef Production falls by 1.6%

Impact of the Move from Cheap to Expensive Corn on Pork

- Hog cost of production increases 18%
- Pork production falls 4.6%
- Retail price of pork rises 4.2%
- Exports fall by 17% from baseline levels

Impact of the Move from Cheap to Expensive Corn on Broilers

- Wholesale broiler prices increase by 15%
- Retail prices go up by 5%
- Exports fall by 16%
- Domestic consumption falls by 4%
- Production falls by 6%

Health of the Livestock Industry

- Livestock will be marginally smaller
- Iowa impacted more by regulatory environment than by economic environment
- Future health could be enhanced by co-locating dairies and beef cattle operations with ethanol plants

Economic Activity

- On the positive side
 - New investments in physical plant and processing capacity
 - High crop prices and expanded crop production
 - More value added
- On the negative side
 - Marginally smaller livestock industry
 - Some negative feedback from environment?