

Issues Behind Farm Legislation:

Farm Income & Energy

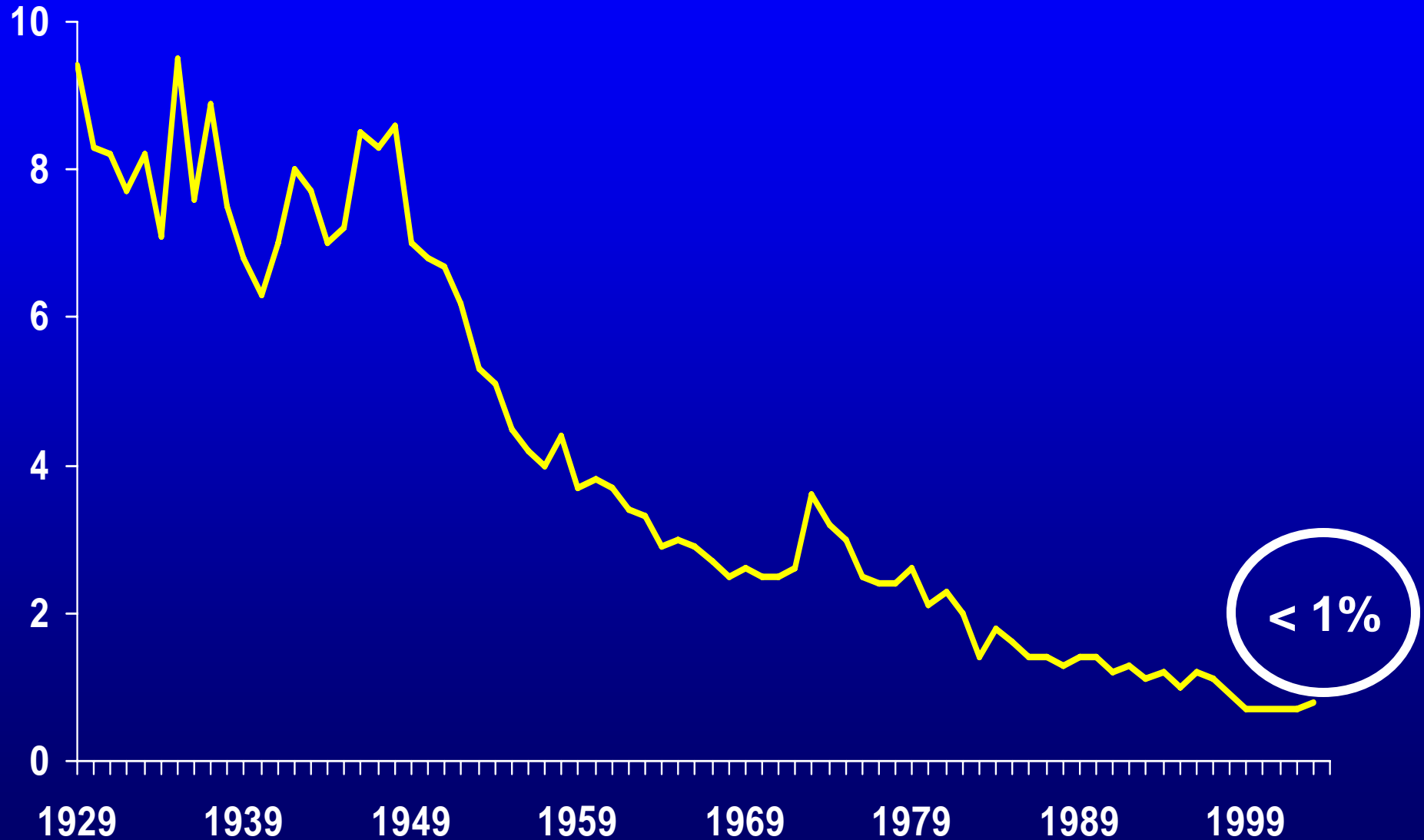
National Public Policy Education Conference

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Production Agriculture's Share of U.S. National GDP

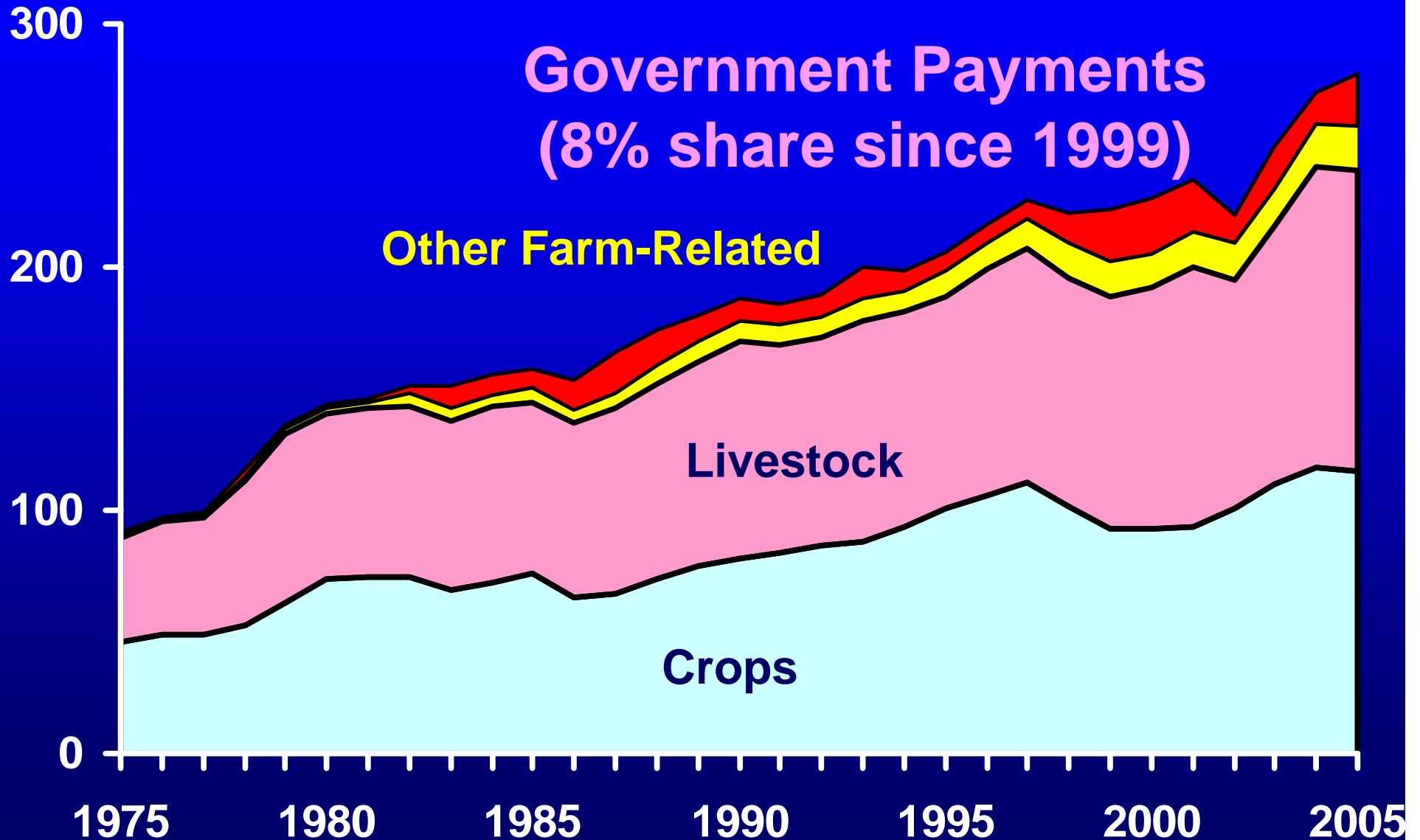
Percent



Source: Dept of Commerce, Bureau of Economic Analysis

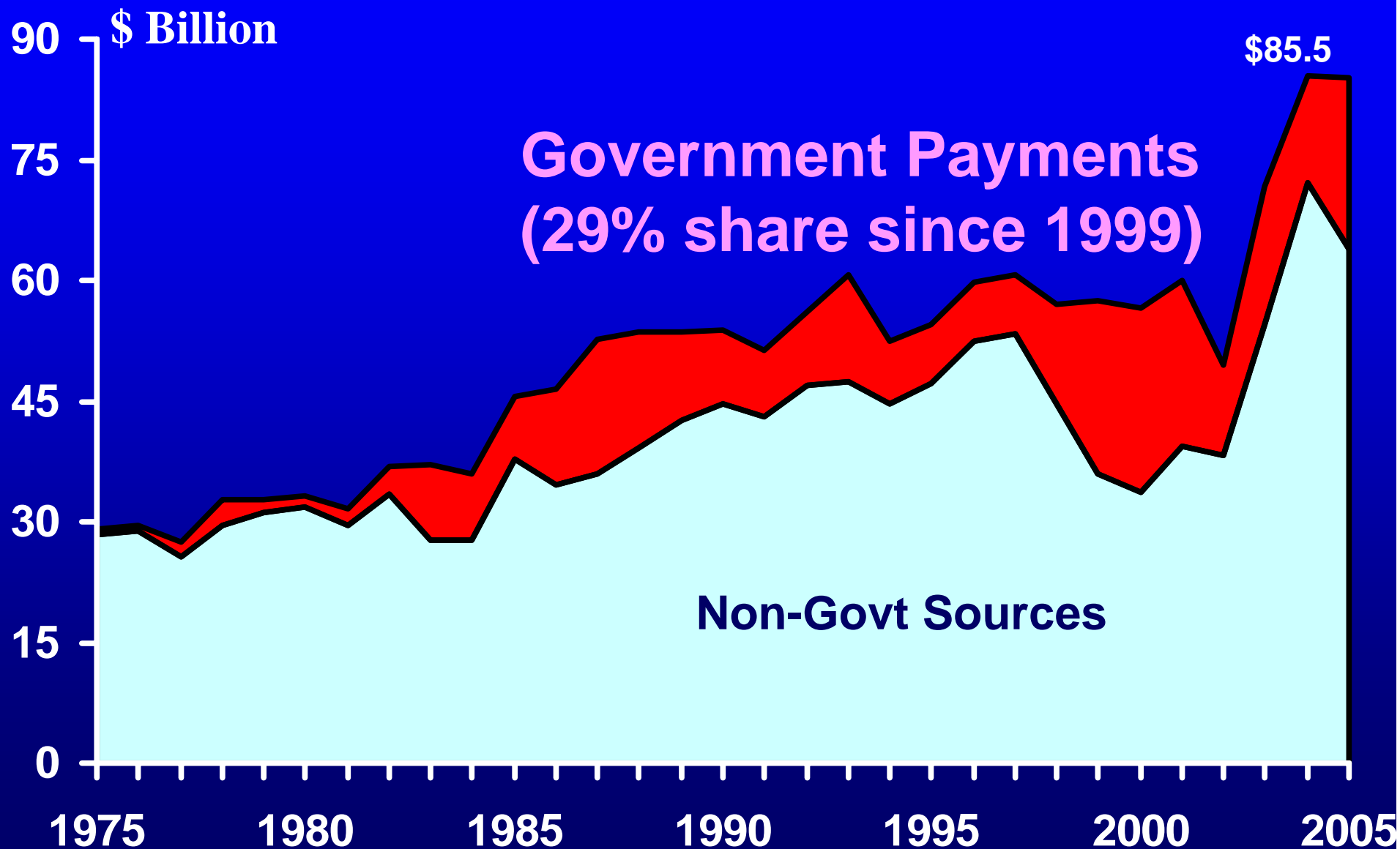
Sources of Farm Gross Cash Income...

\$ Billion



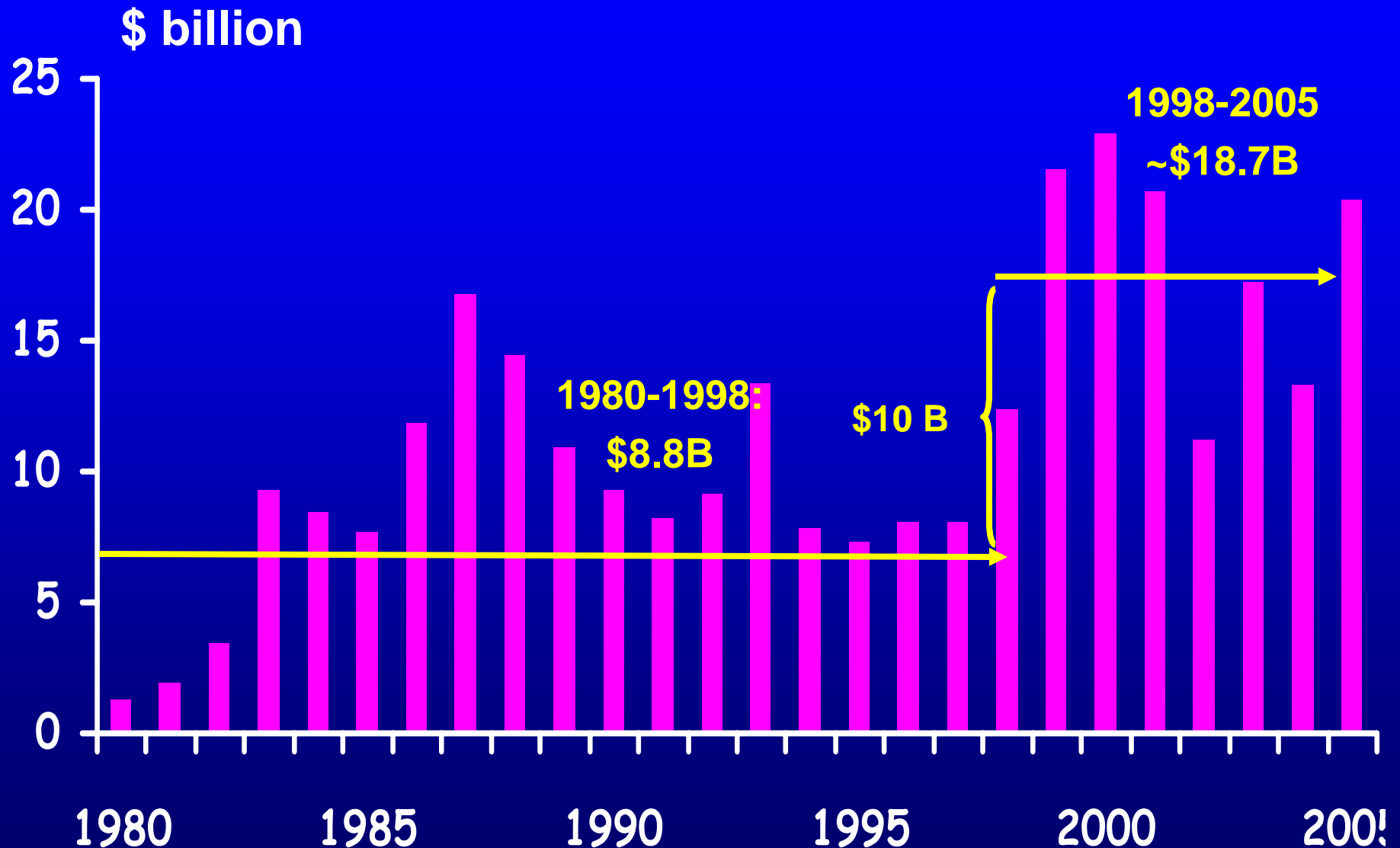
Source: USDA's Agricultural Resource Management Study and other data.

Net Cash Income: Government Payments Are a Larger Share



Source: USDA's Agricultural Resource Management Study and other data.

Govt Farm Payments since 1980

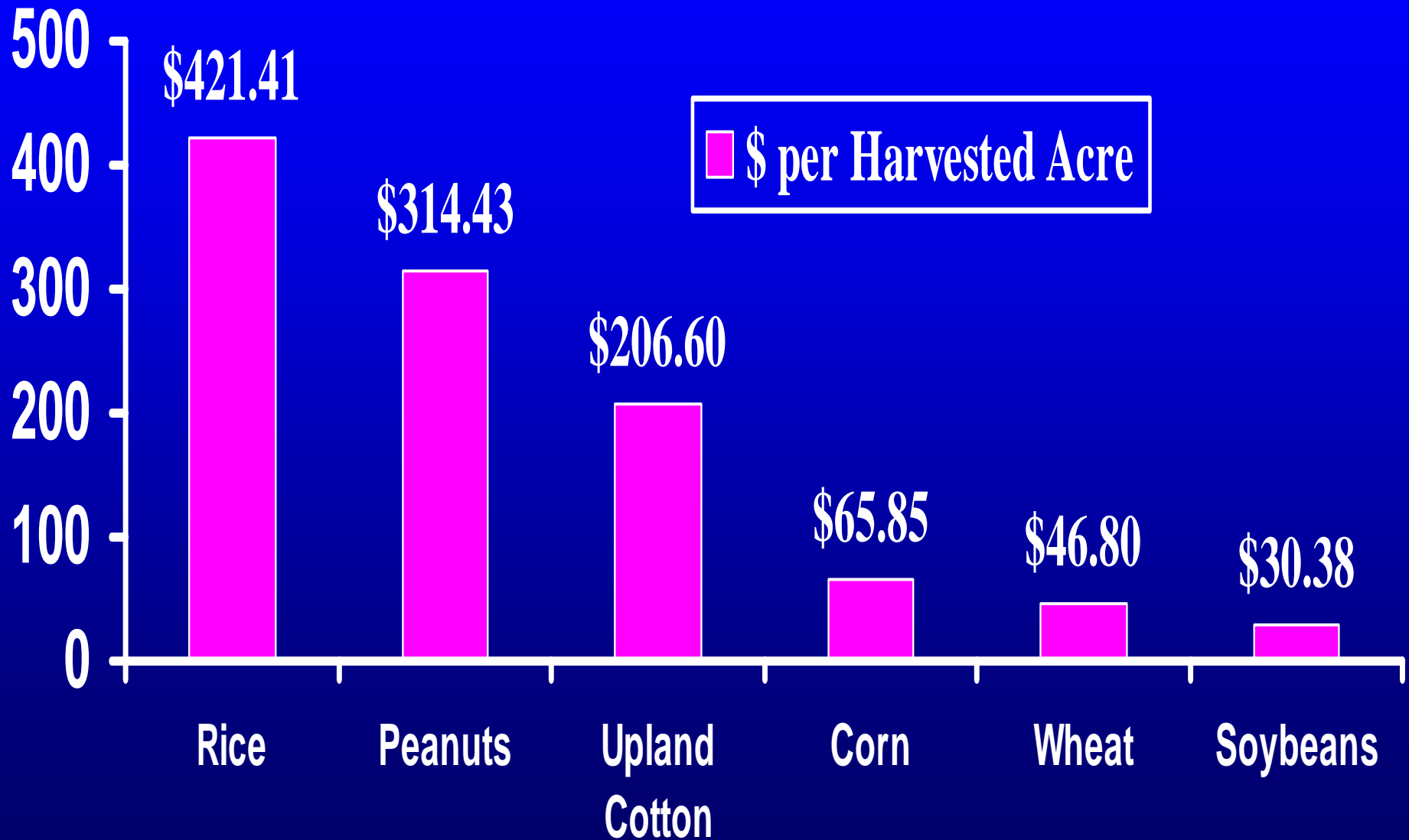


*Includes only CCC spending-- largely commodity and conservation programs.
Source: CBO Estimate of Budget Authority, May 1, 2002.

Fiscal year

5

Govt Payments Vary by Crop: 2000-04 average



Source: USDA, FSA for payment data; USDA, NASS for acreage data.

What are the Comparative Advantages of the U.S. Agr Sector Relative to its Major Competitors?

1. Abundant, fertile land

2. Cutting-edge technology

- Plant and animal genetics
- Pesticides and Fertilizers
- Farm machinery
- Management techniques

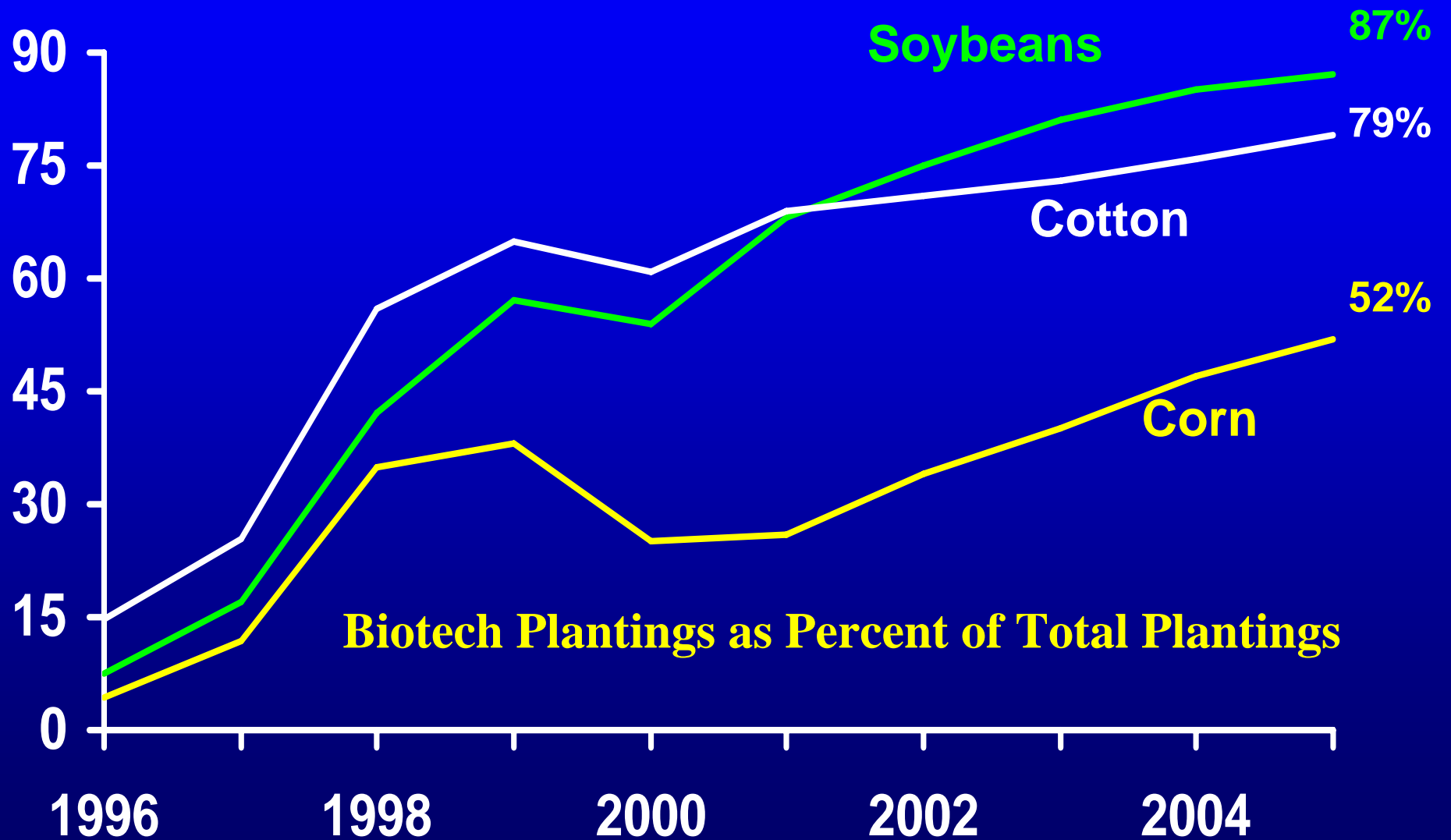
Perhaps the
Most dynamic

3. Highly skilled agr managers

4. Marketing Infrastructure

Adoption of Bt /Herbicide-Resistant Technology Has Been Rapid

Percent

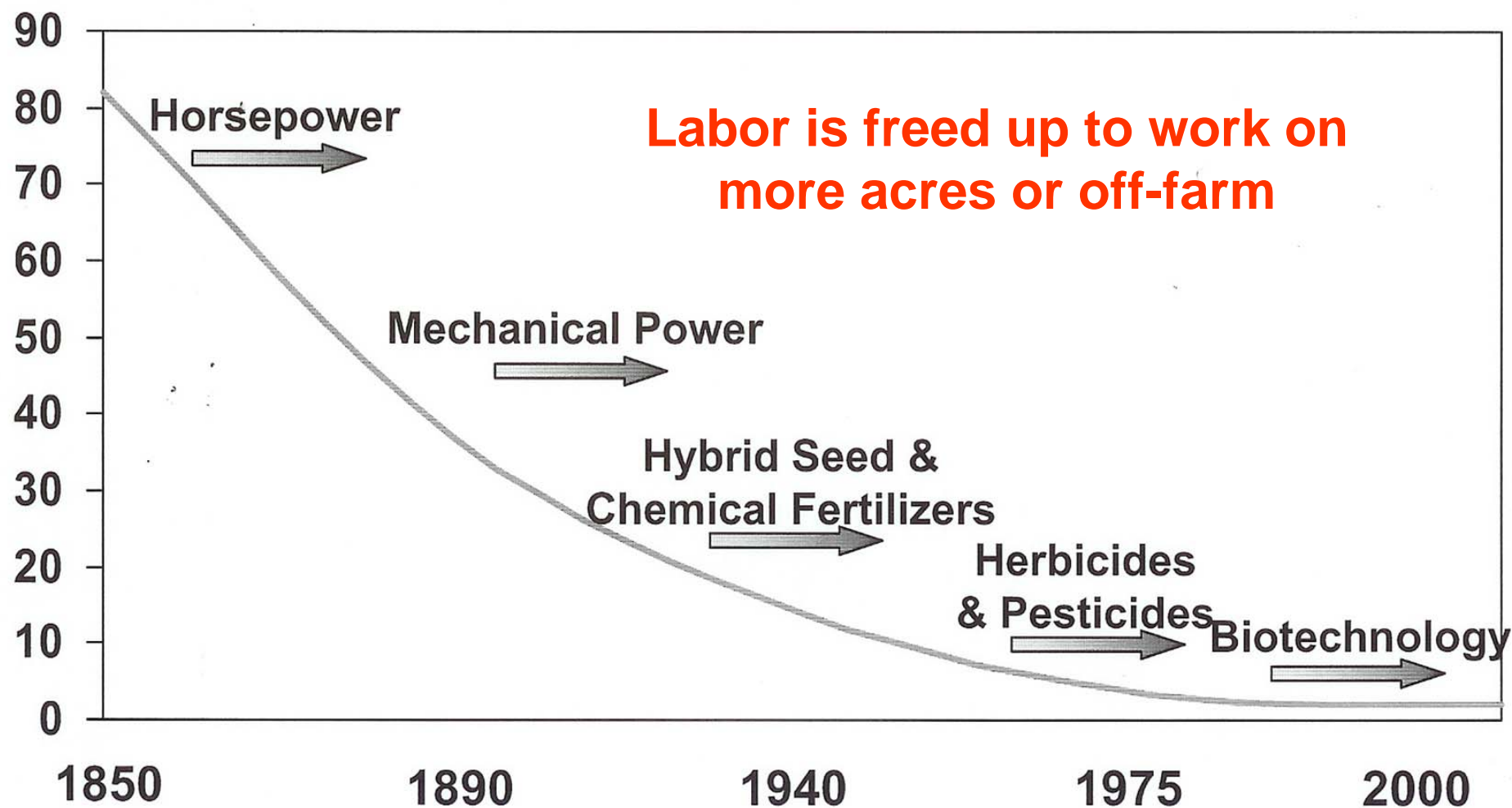


Biotech Plantings as Percent of Total Plantings

Source: USDA, National Agricultural Statistical Service, Acreage.

Technological Advances Have Spurred Productivity Growth

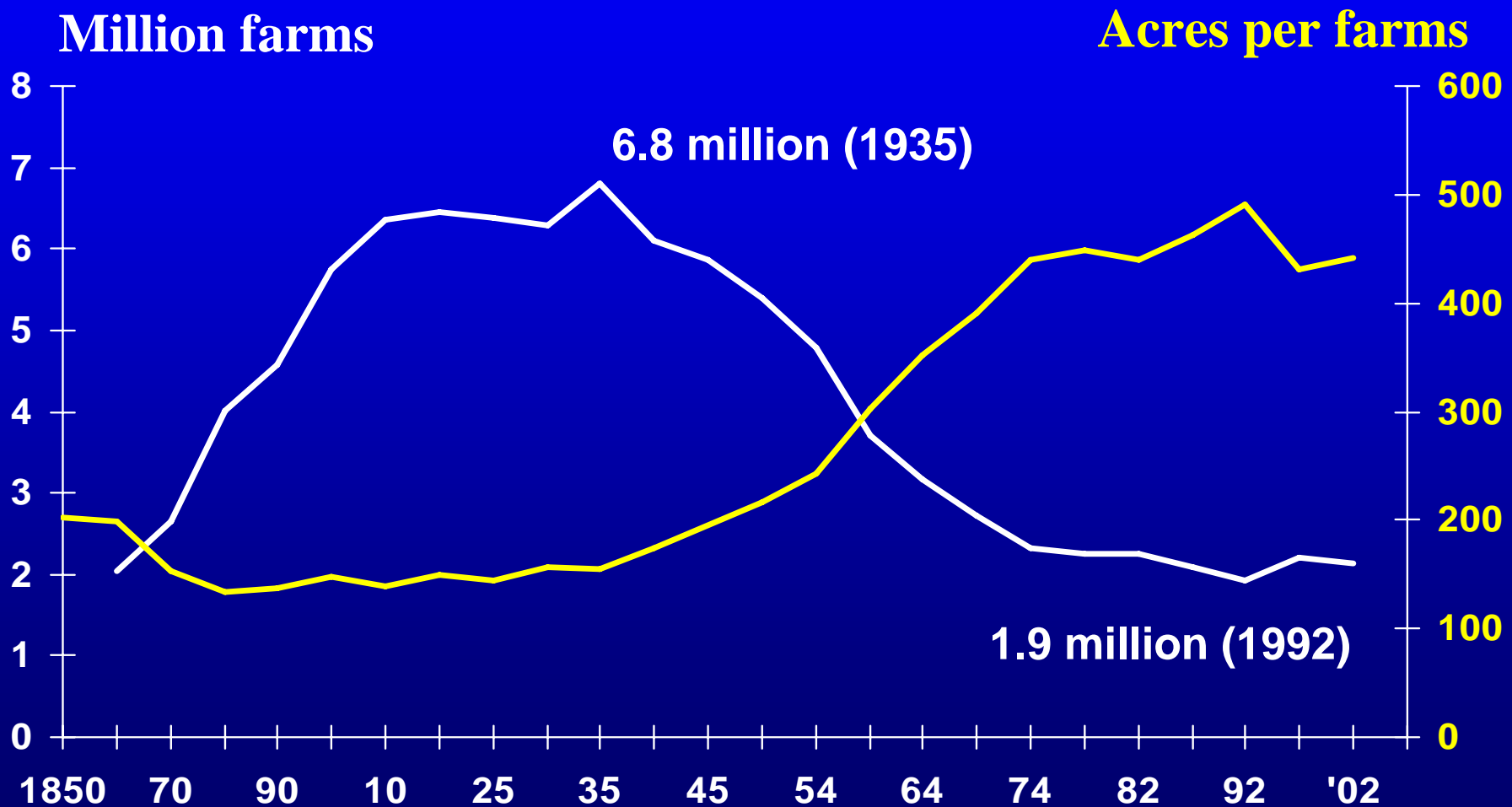
Hours to produce 100 bushels of corn



What is the Result of This Productivity Growth?

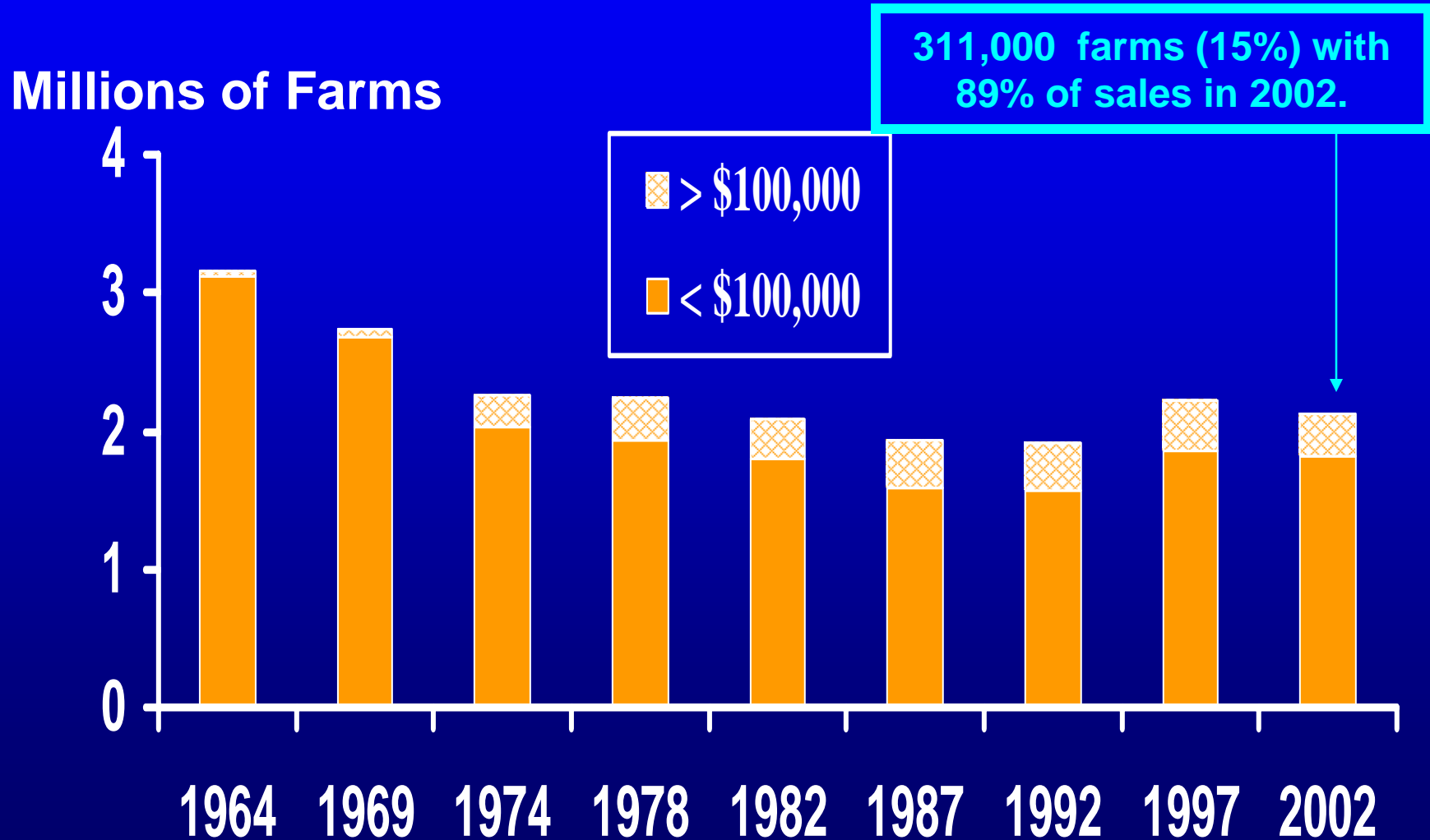
- Greater concentration as more efficient (read larger) farms acquire less efficient farms.
- Those more efficient farms can....
 - ▶ Gain easier access to financial resources.
 - ▶ Spread fixed costs over a larger number of acres.
 - ▶ More readily adopt new technologies.
 - ▶ Focus more intently on marketing and financial strategies.

Farm Numbers Are Declining, While Acreage per Farm is Rising



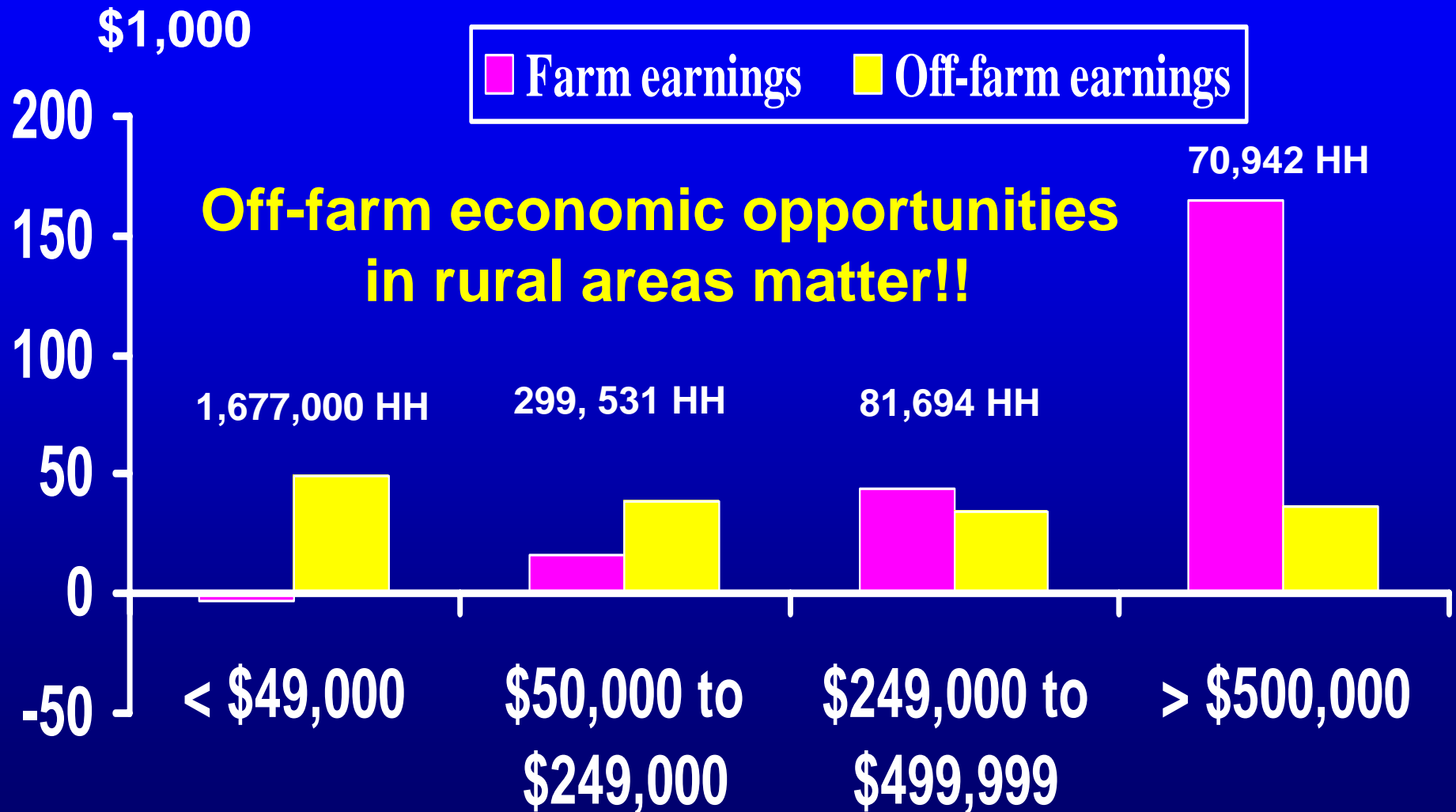
Source: USDA, Census of Agriculture.

The Largest Sales Class is growing, while other classes decline...



Source: USDA Agricultural Census.

And, Off-Farm Income Is Important to Many Types of Farms



Source: USDA Agricultural Resource Management Study, 2002; and Ag Census 2002.

Energy & the Agr Sector

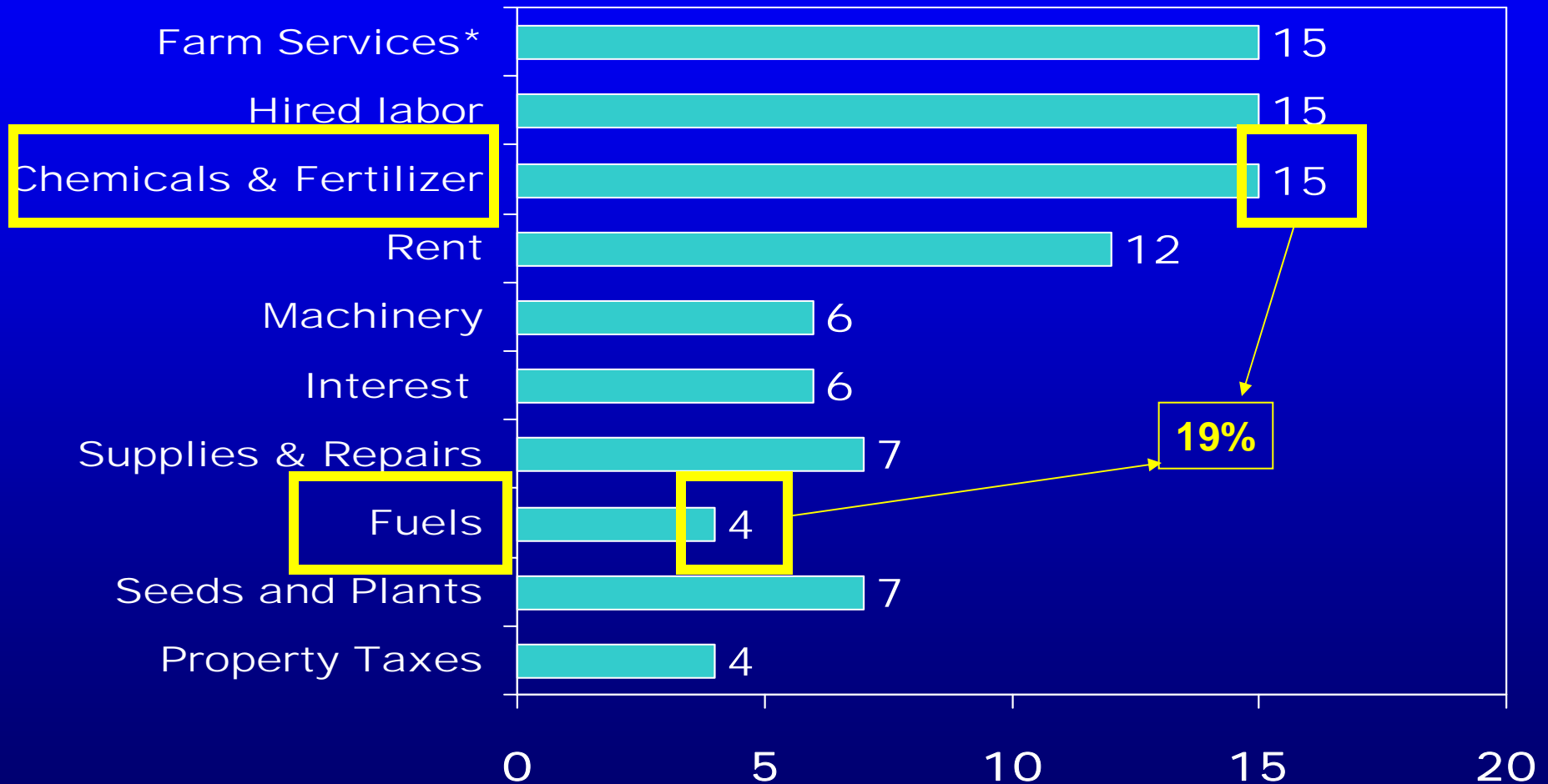
Direct Energy Costs: Fuel & Power Generation

- Operating farm machinery
 - **Mostly diesel**
- Operating farm/family vehicles
 - **Mostly gasoline**
- Operating smaller equipment
 - ➔ Power generation
 - ➔ Grain & fruit drying, tobacco curing
 - ➔ Irrigation pumps
 - ➔ Heating/Cooling: pig & poultry brooders, greenhouses
 - ➔ Waste treatment; crop flammers, etc.
 - **Varies: natural gas, LPG, propane, electricity**

Indirect Energy Costs: Fertilizers, Chemicals, & Marketing Costs

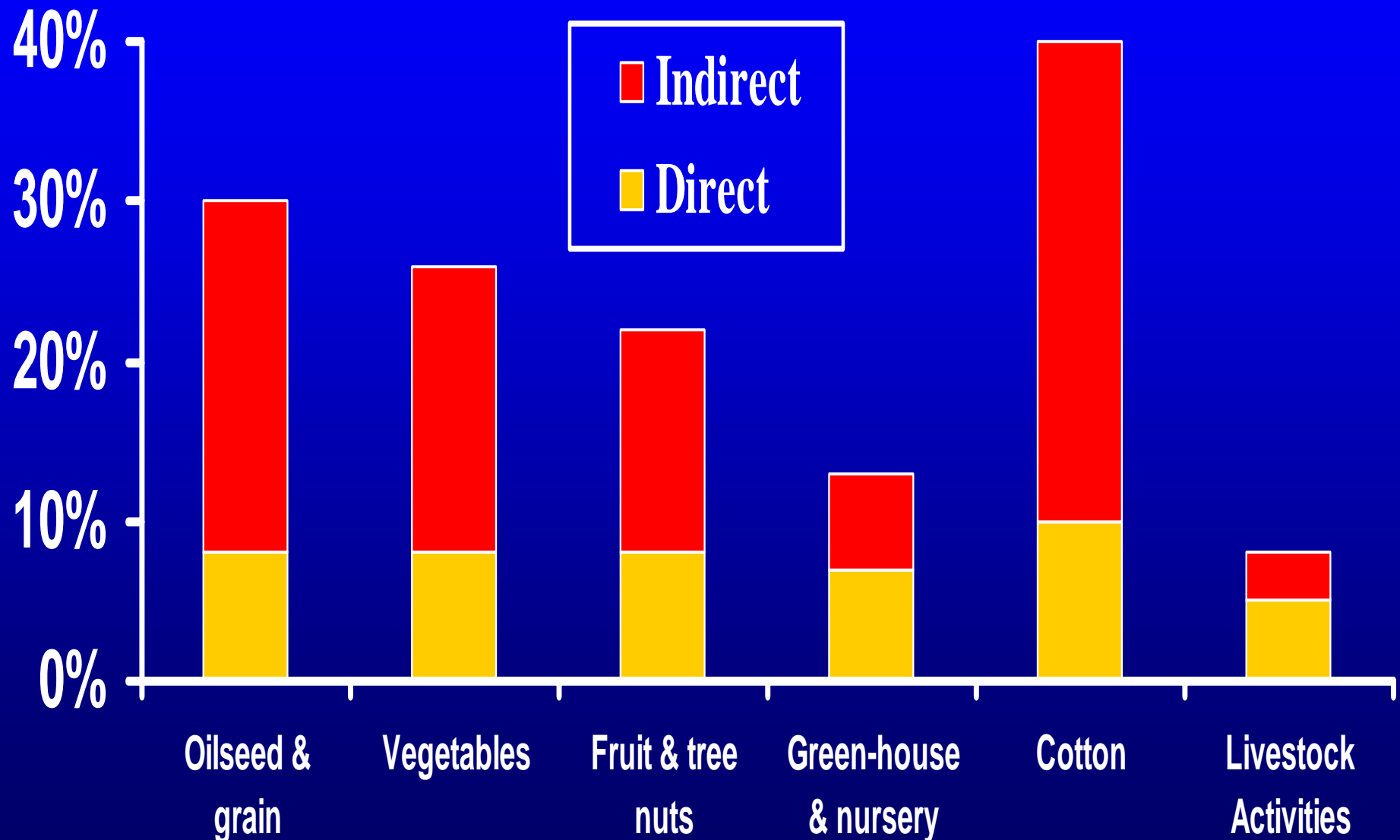
- Natural Gas accounts for 75 to 90% of total cash cost of ammonia production
 - ➔ Ammonia is building block for nitrogenous fertilizers:
 - Urea
 - Ammonium nitrate
 - Ammonium phosphate
- Farm chemicals often have petro-chemical base
- Marketing costs increase with fuel prices (usually passed back to producers)
 - ➔ Transportation from farm to end user
 - ➔ Elevators
 - ➔ Processors

Chemicals/Fertilizers are Important Farm Costs, Fuels less so..



*Includes all crop custom work, transportation and marketing costs, insurance, Leasing of machinery and equipment, miscellaneous business expenses, utilities.
Source: USDA, National Agricultural Statistics Service, July 2003.

Energy Costs as a Share of COP Vary by Crop

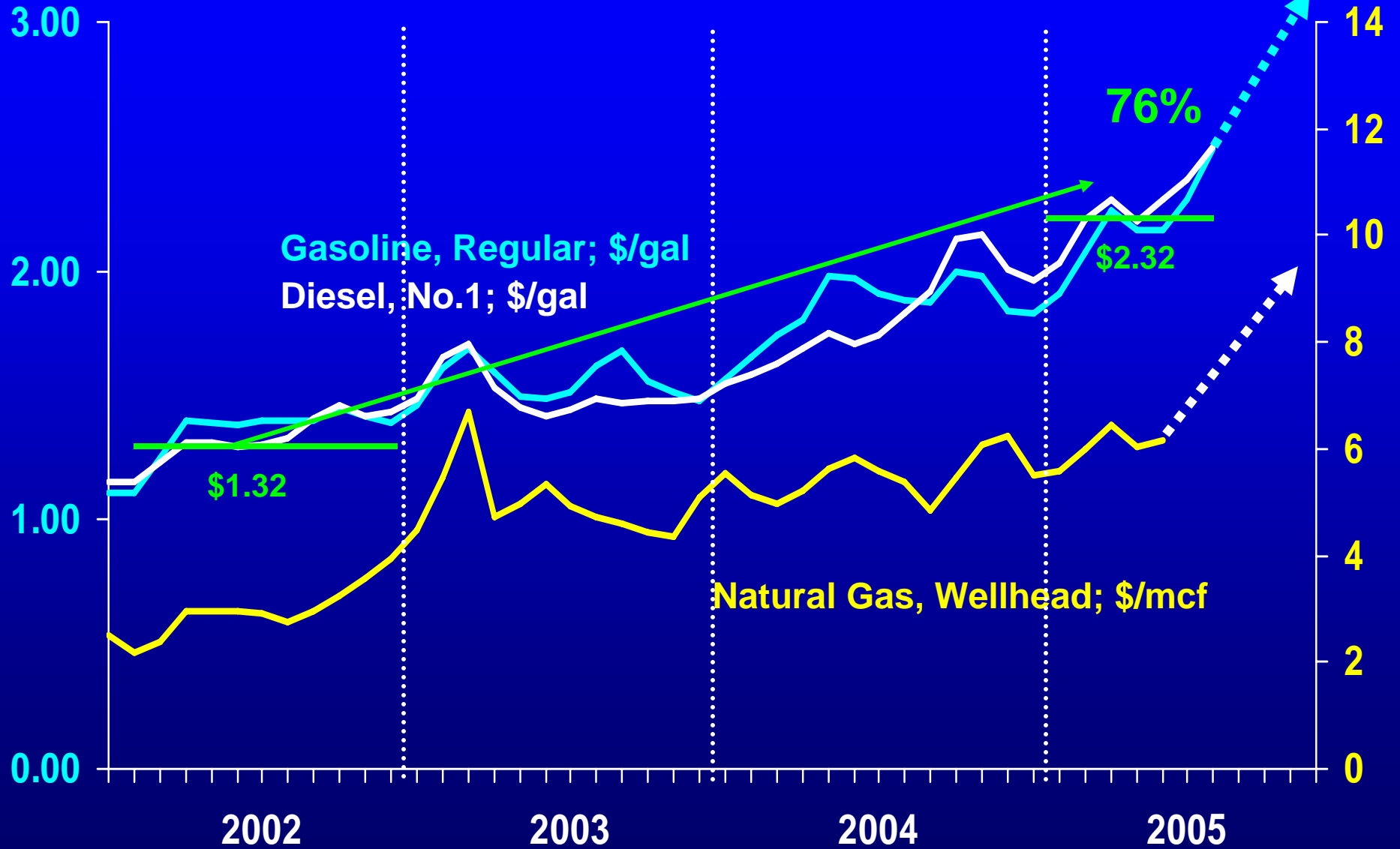


Source: Ag Census, 2002.

Major Fuel Prices

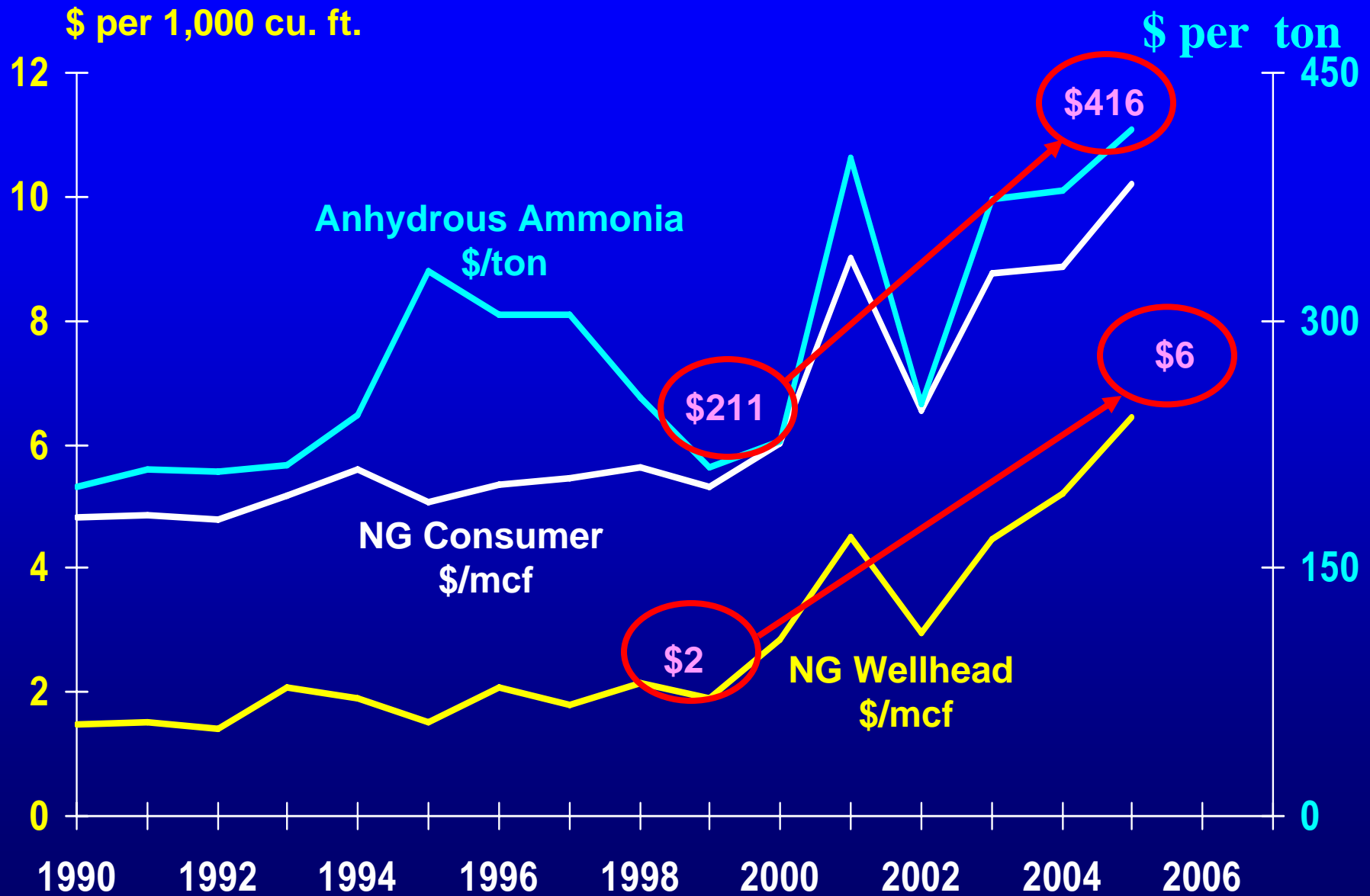
\$ per gallon

\$ per 1,000 cu. ft.



Source: U.S. Dept of Energy, EIA; and USDA, NASS.

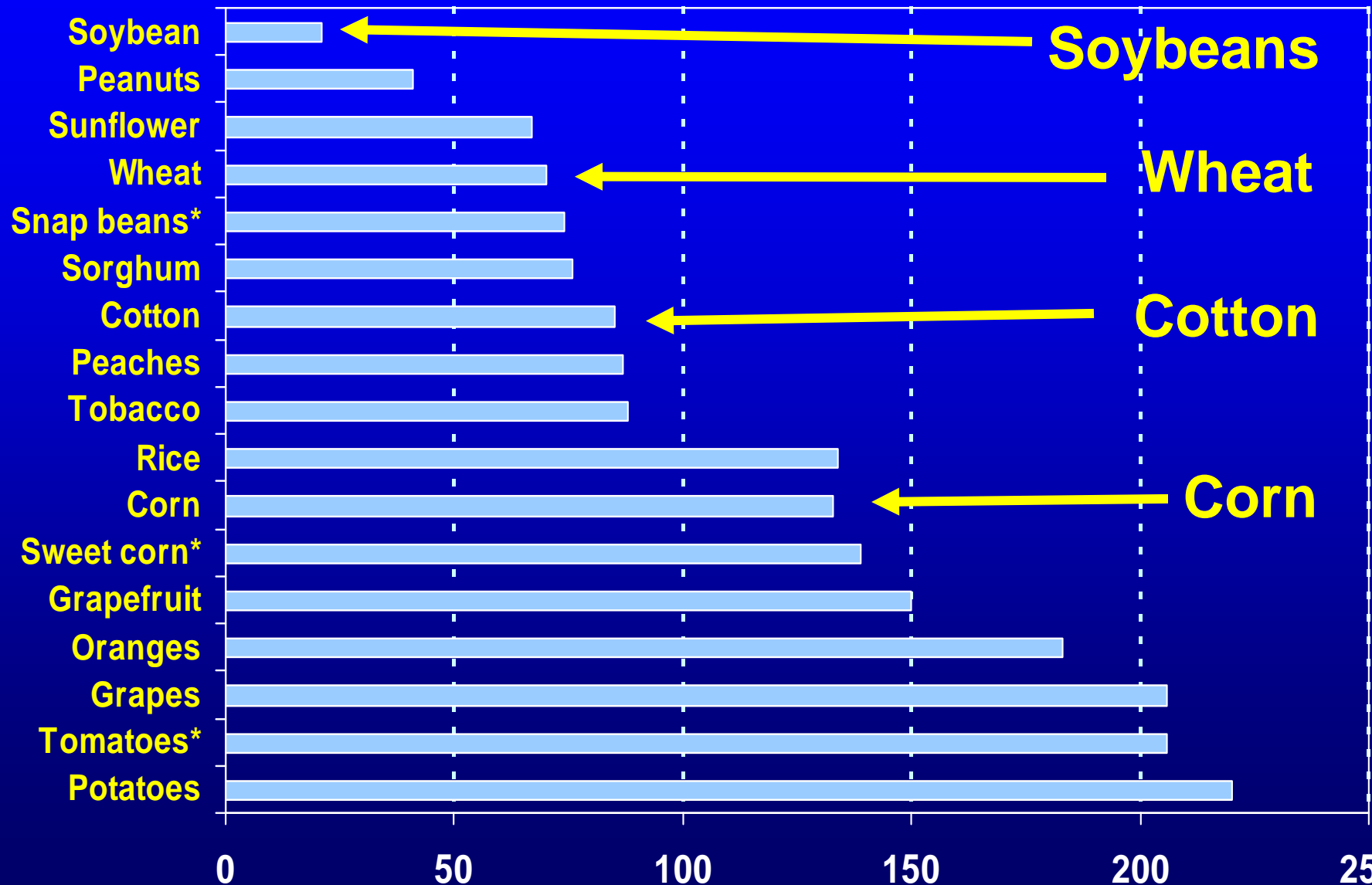
Natural Gas & Anhydrous Ammonia Prices



Source: U.S. Dept of Energy, EIA; and USDA, NASS.

Nitrogen Fertilizer Application Rates, 1998/99

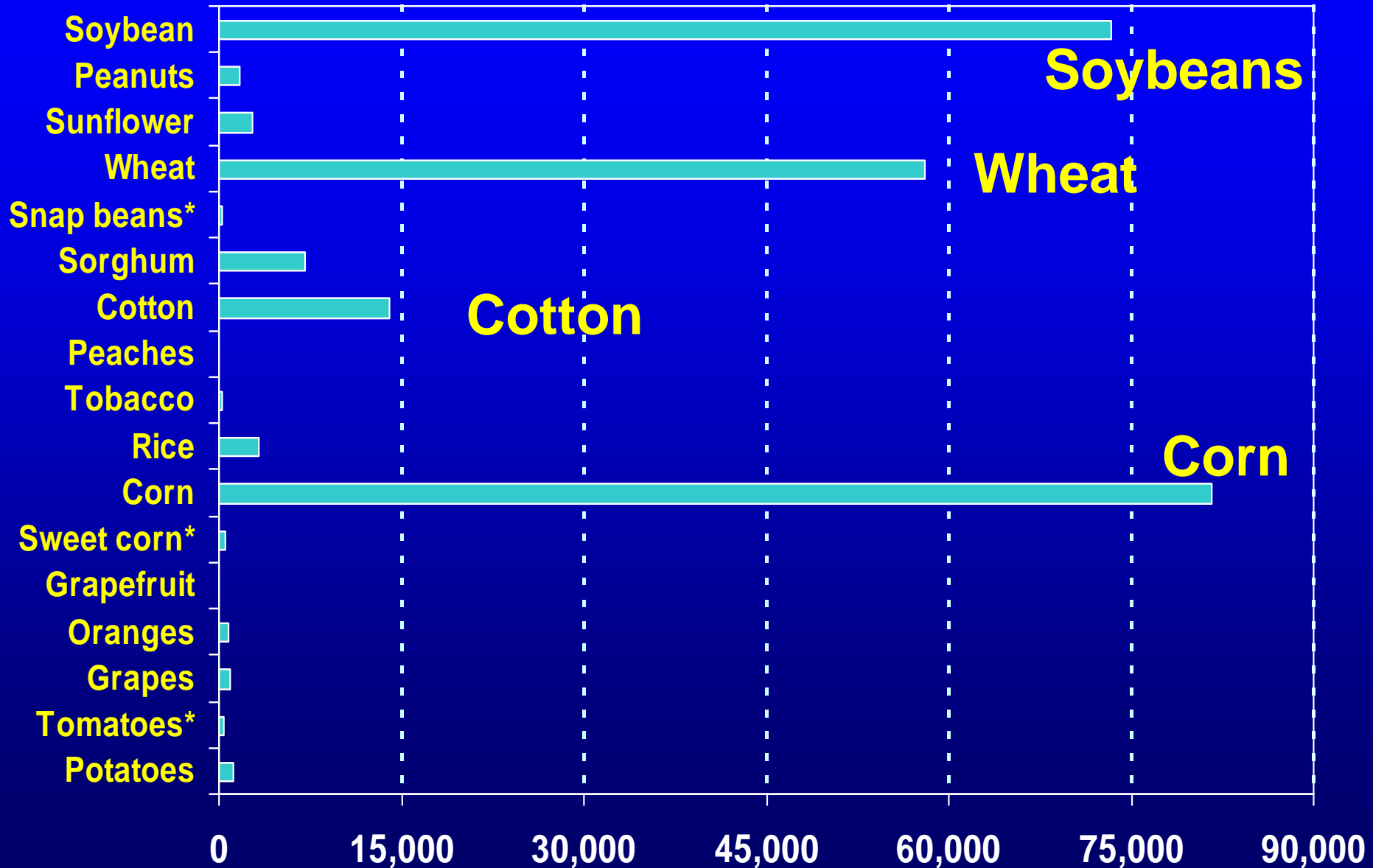
Lbs per acre



*For processing. Source: The Fertilizer Inst.; and NASS, USDA; latest data for all crops is from 1998 or 1999.

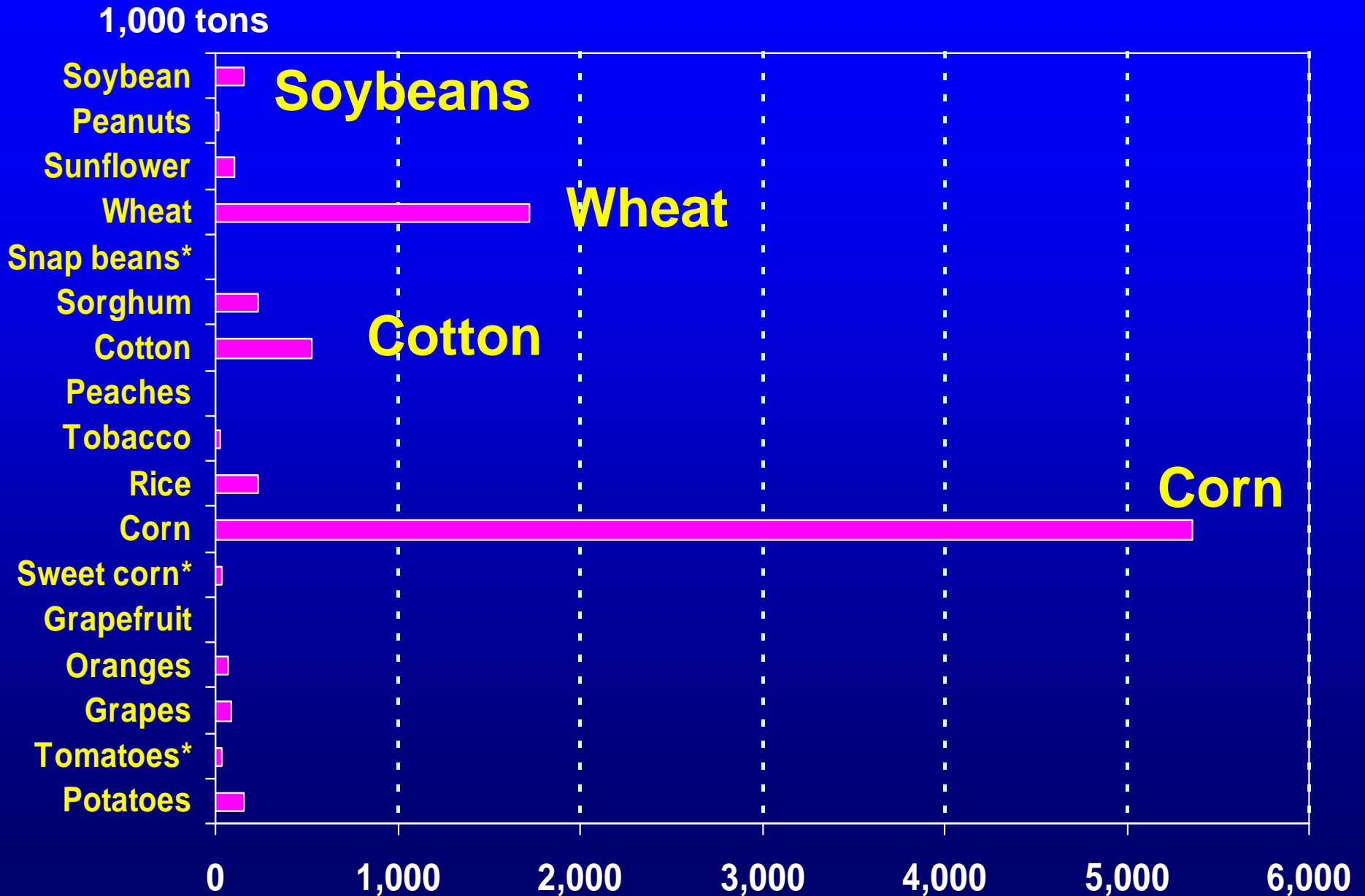
U.S. Area Planted by Crop in 2004

1,000 acres



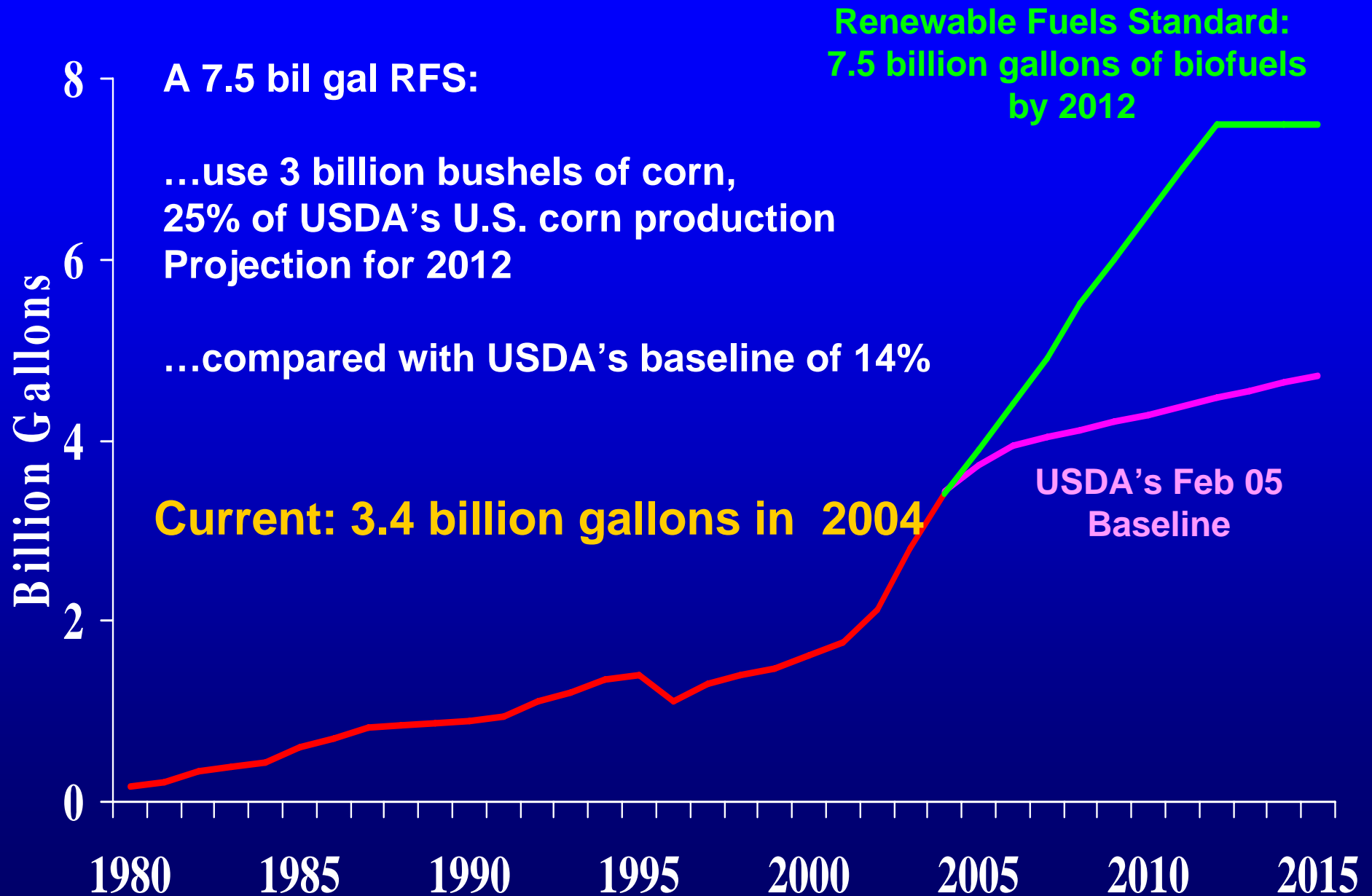
*For processing. Source: USDA, NASS., 2005 for major crops; 1999 for fruits and vegetables.

Total Nitrogen Fertilizer Use by Crop**



*For processing. **Total usage is indicative only; it is constructed from 1998//99 application rate multiplied by 2004 acreage.

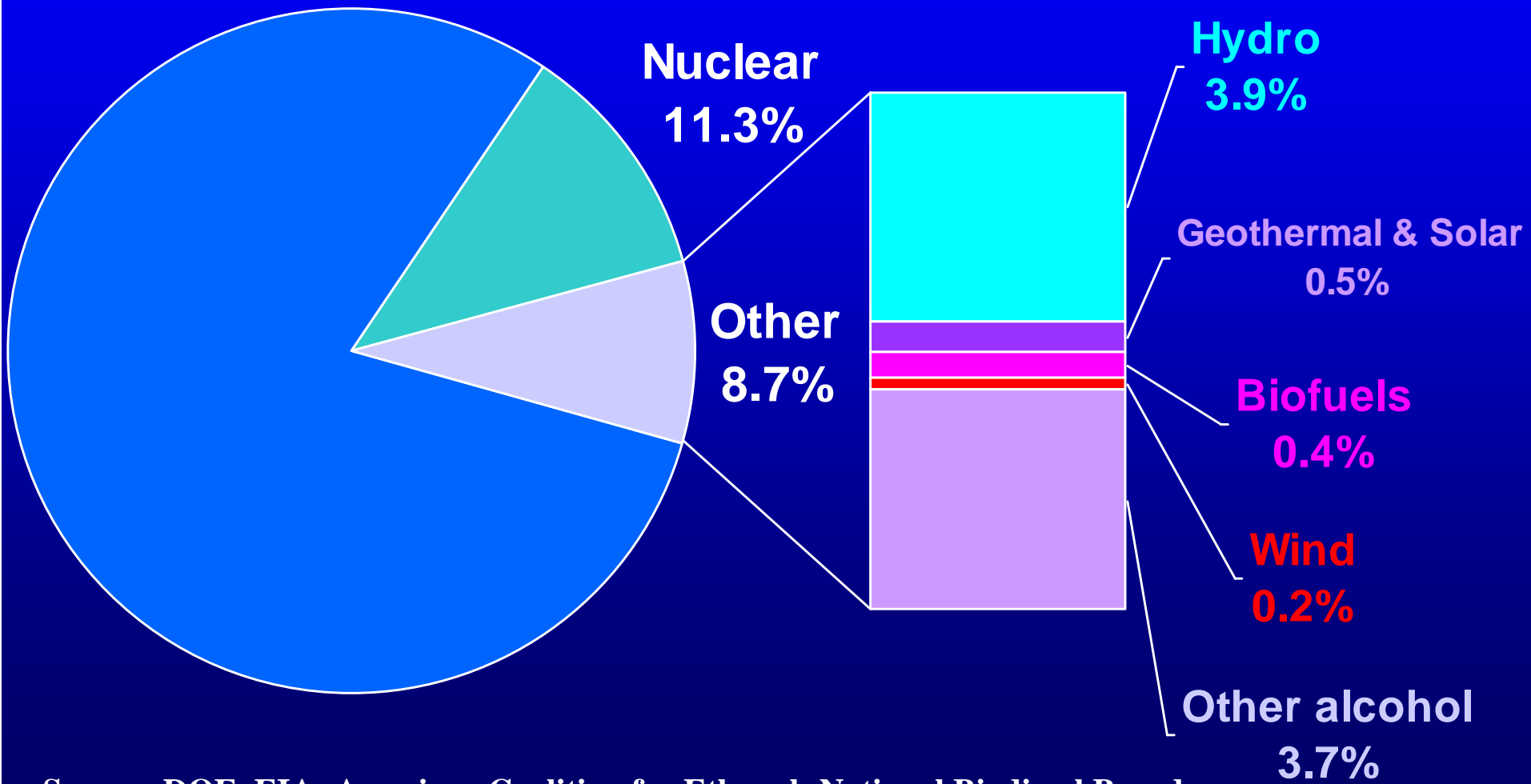
U.S. Ethanol Production



U.S. Energy Production, 2003

Fossil Fuels
80.0%

Renewables



Source: DOE, EIA; American Coalition for Ethanol; National Biodiesel Board.

Policy points

- Keeping populations in rural areas is an issue as technology-driven economies of scale suggest increasing concentration, ...and fewer farms for rural communities.
- Off-farm income opportunities, i.e., rural development, is increasingly important.
- Rising Natural gas costs => energy & fertilizer
 - ▶ Short-term: likely to alter crop & activity mix
 - ▶ Long-term: may drive resources away from inefficient sectors... how will agriculture fare?
- Are there energy opportunities for rural economies?
 - ▶ Biofuels; wind power; anaerobic digesters; others?