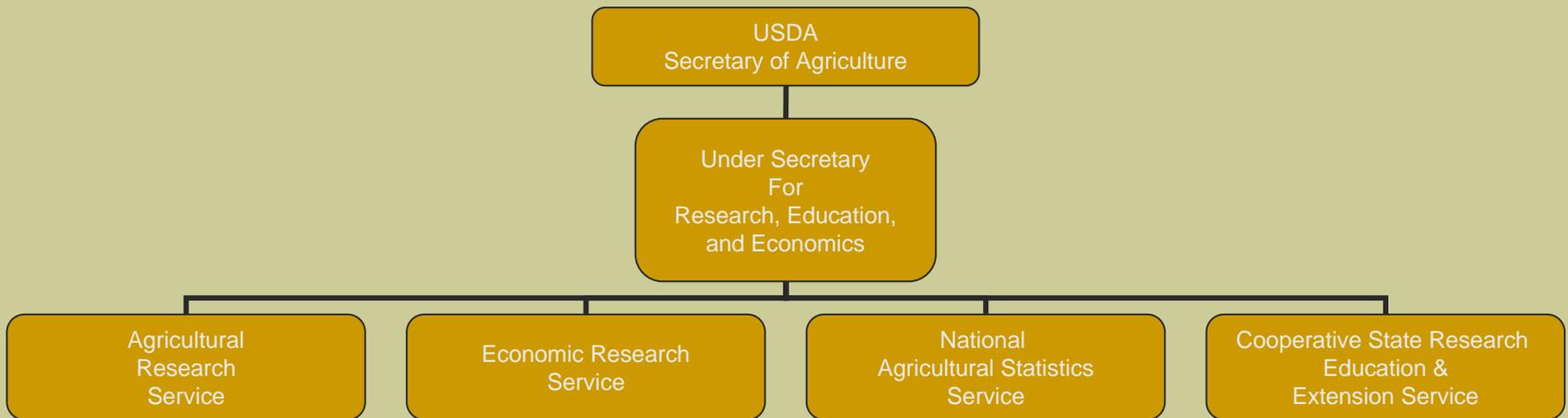




[The Changing Face of Agriculture]

Dr. Merle Pierson
Deputy Under Secretary for
Research, Education, and
Economics

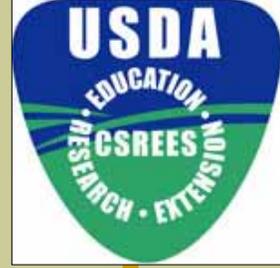
Research, Education, and Economics



[Agricultural Research Service]

- In-house research arm
- 100+ laboratory locations
- 2,500+ scientists
- \$1B annual budget
- Farm-to-table research scope





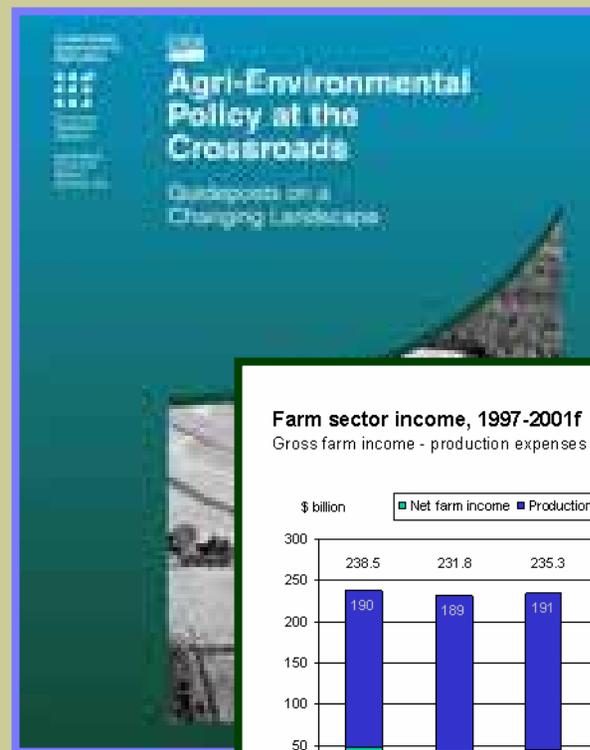
Cooperative State Research Education and Extension Service

- 57 land Grant Universities
- 18 historically black colleges and universities
- 33 Native American land-grant institutions
- 59 agricultural experiment stations
- 57 cooperative extension services



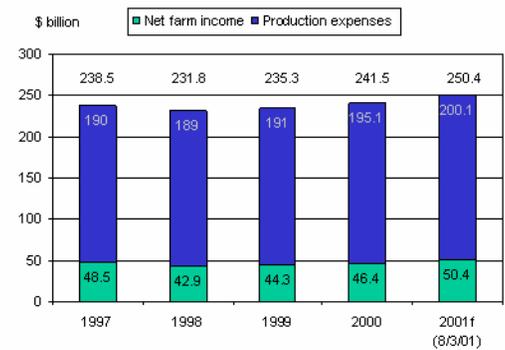
Economic Research Service

- Develops and distributes economic and social science information and analyses



Farm sector income, 1997-2001f

Gross farm income - production expenses = net farm income

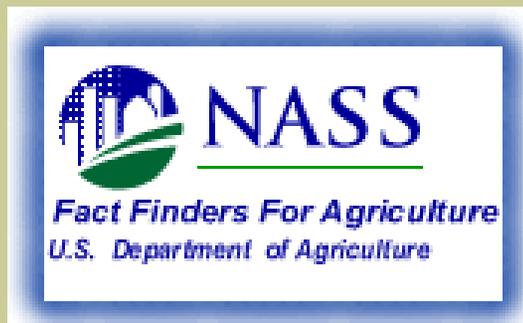


f = forecast

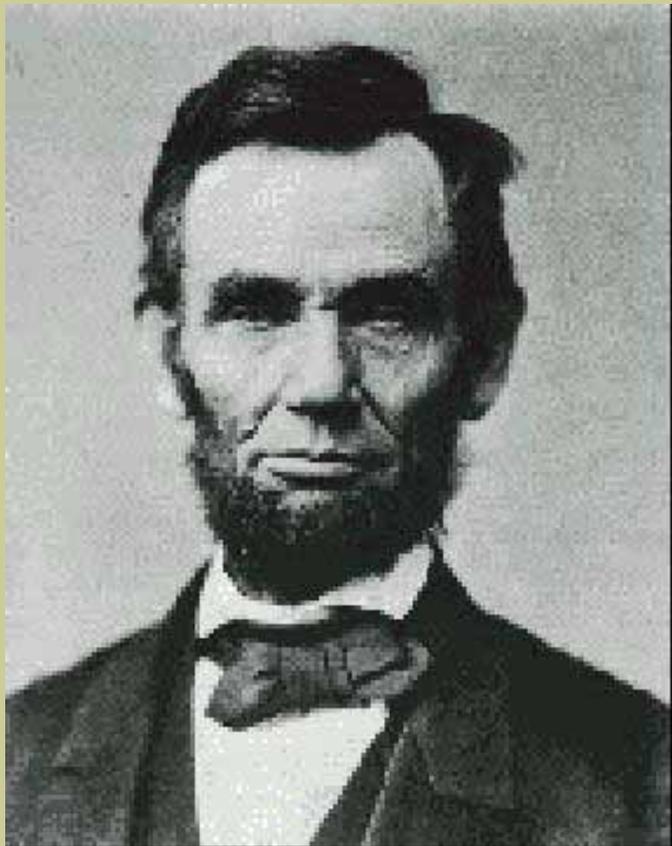
Source: ERS analysis

National Agricultural Statistics Service

- Crop, livestock, economic, and environmental data
- Census of Agriculture



1862-2006: 144 Years of Agricultural Research and Education

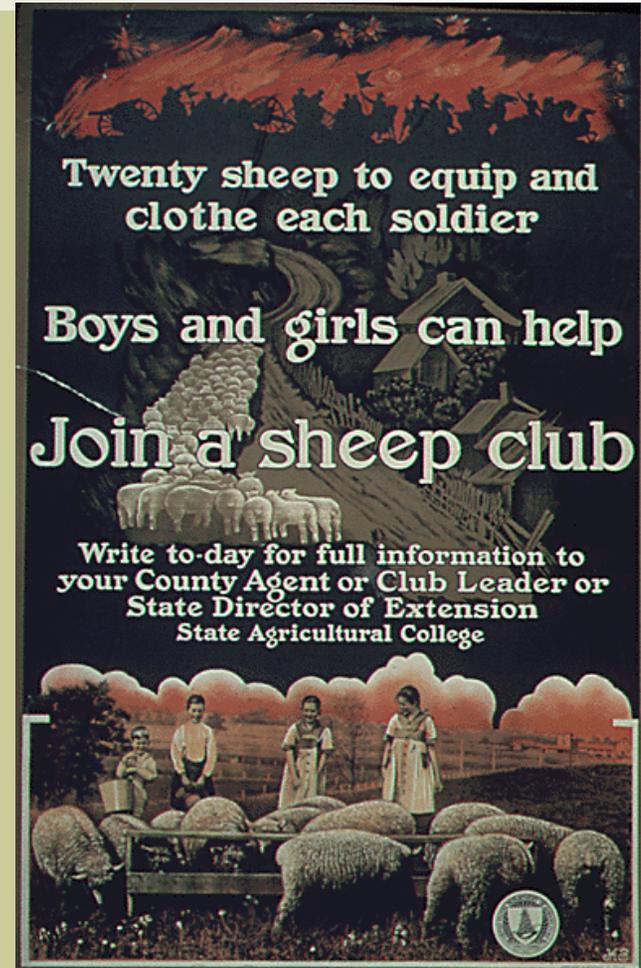


- Organic Act: May 1862; USDA
- Morrill Act: July 1862; Land Grant Universities



Historic Partnership: Research, Education, and Extension

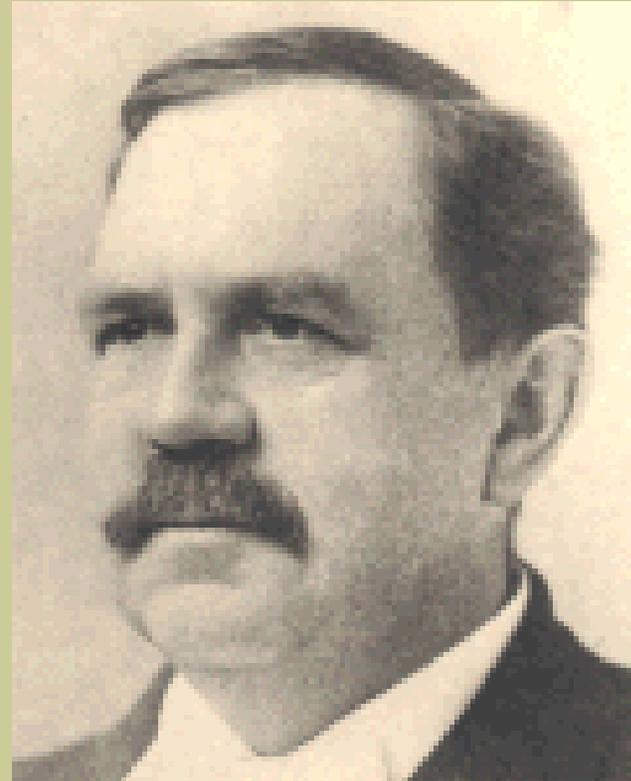
- Hatch Act: March 1887; State Agricultural Experiment Stations
- Smith Lever Act: May 1914; Cooperative Extension Service



Historic Contributions of Public Agricultural Research

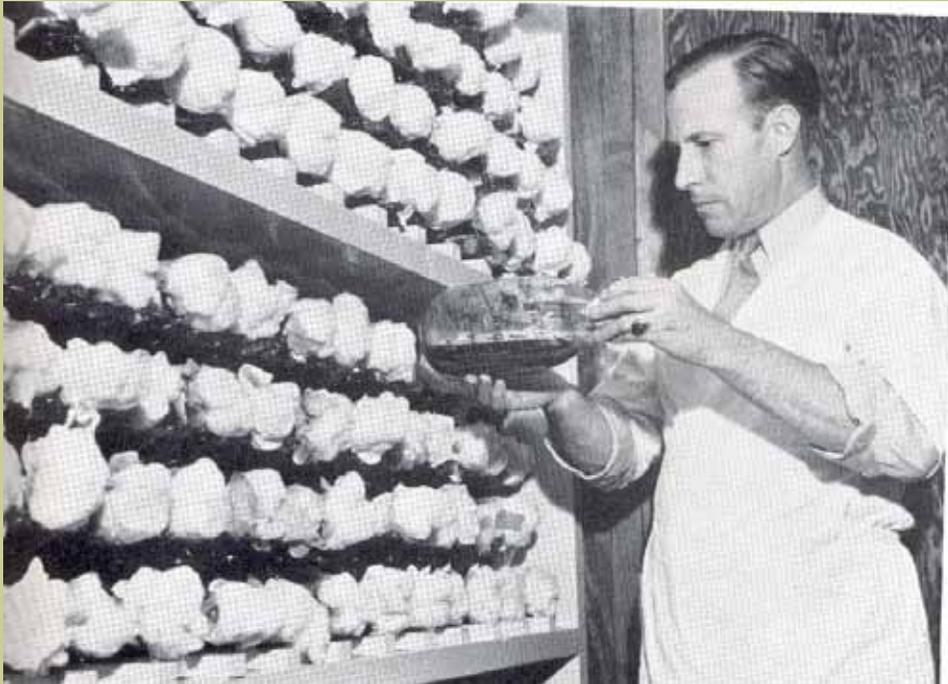


Theobald Smith, microbiology pioneer.

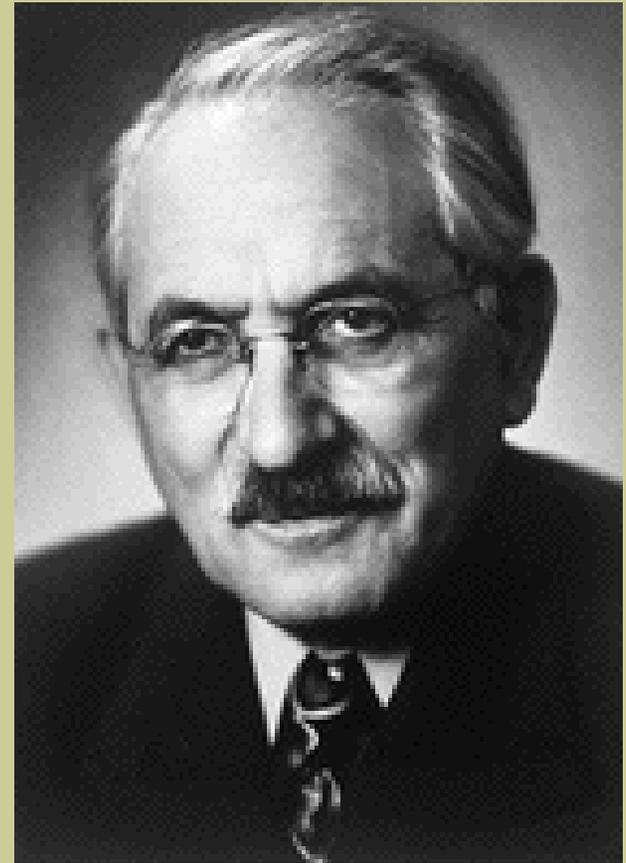


Wilbur O. Atwater from the Connecticut AES first head of the Office of Experiment Stations.

Historic Contributions of Public Agricultural Research

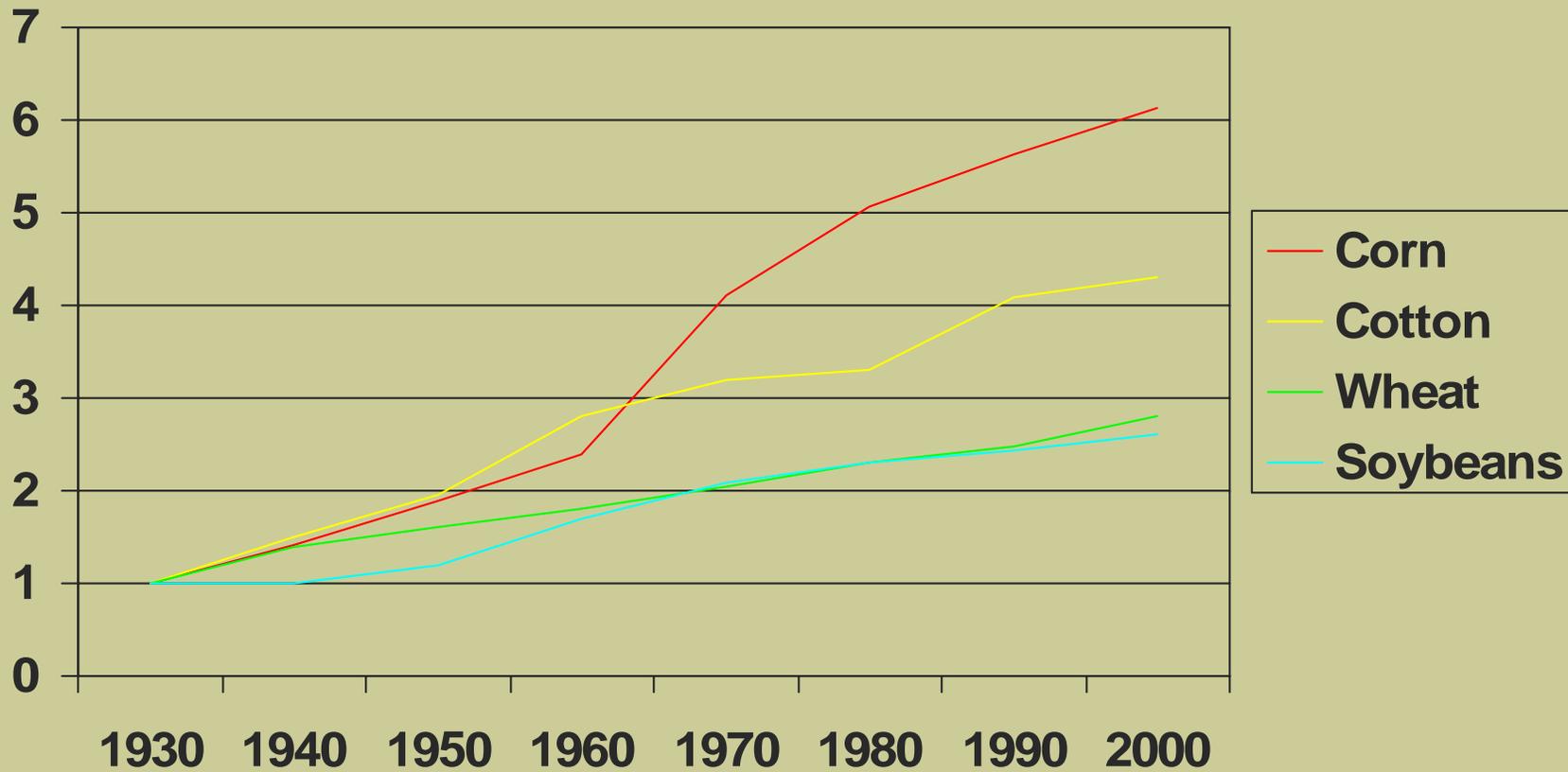


USDA chemist Andrew J. Moyer developed an industrial process for making penicillin and other antibiotics, vitamins, drugs, and chemicals.

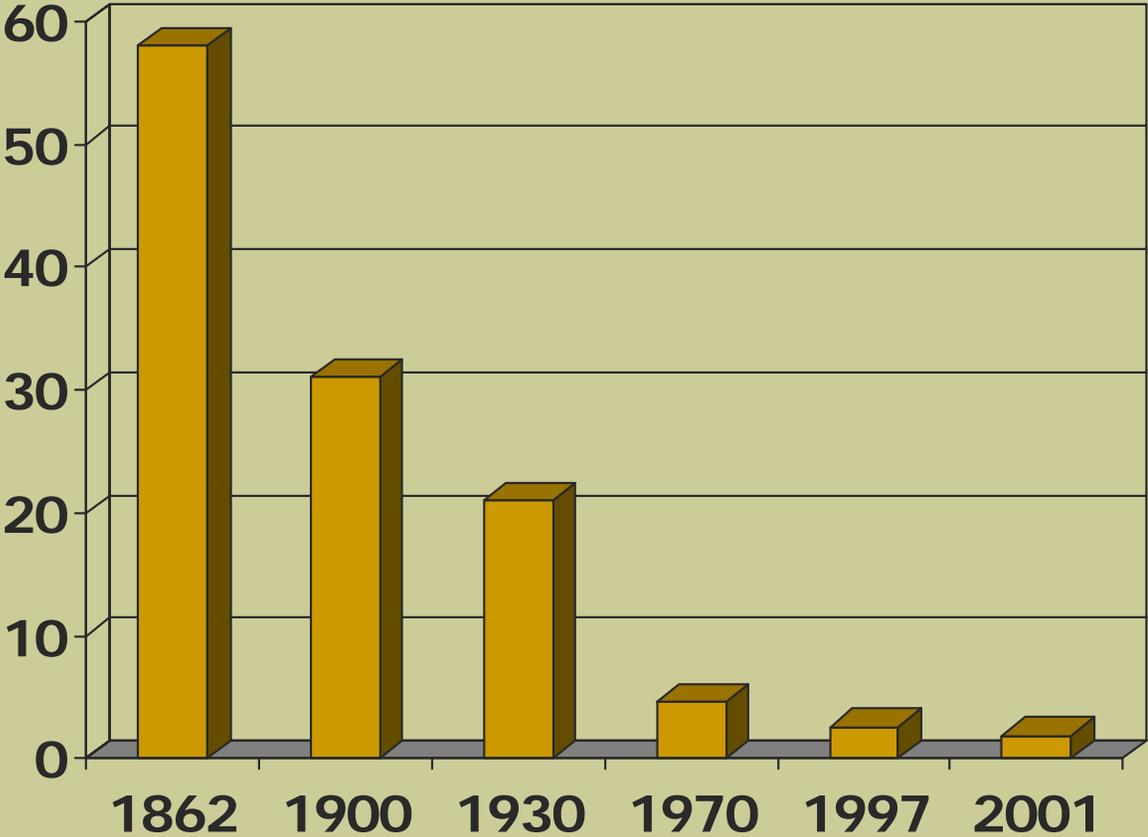


Soil microbiologist and Nobel Laureate, Selman Waksman.¹⁰

Yields for Major Crops 1930-2000



Percentage of Farmers to Total U.S Population 1862-Present



Benefits of Agricultural Research

- Increased productivity
- Lower food prices
- Increased trade
- Improved quality of life



Agriculture in the U.S. Economy

- 12% of the \$12 Trillion U.S. gross domestic product
- 17% of employed
- 8% of U.S. exports
- 2% U.S. workforce on farms



[Agriculture is BIG in Texas]

- 228,926 farms
- 129,877,666 acres
- Average farm is 567 acres
- Market value of production \$18 Billion
- Ag exports of \$3.63 Billion (2004)



Shift from Production to Consumer-Driven Agriculture

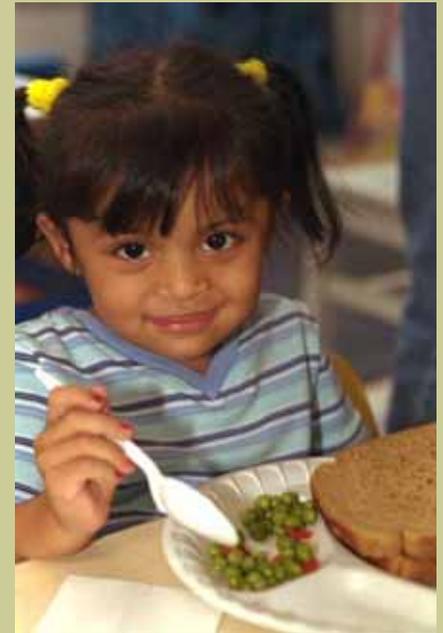
- 12,000 new food products introduced annually
- Food marketing changing
- Americans eating out more
- Convenience foods
- Niche markets



Demographic Changes Affect Food System

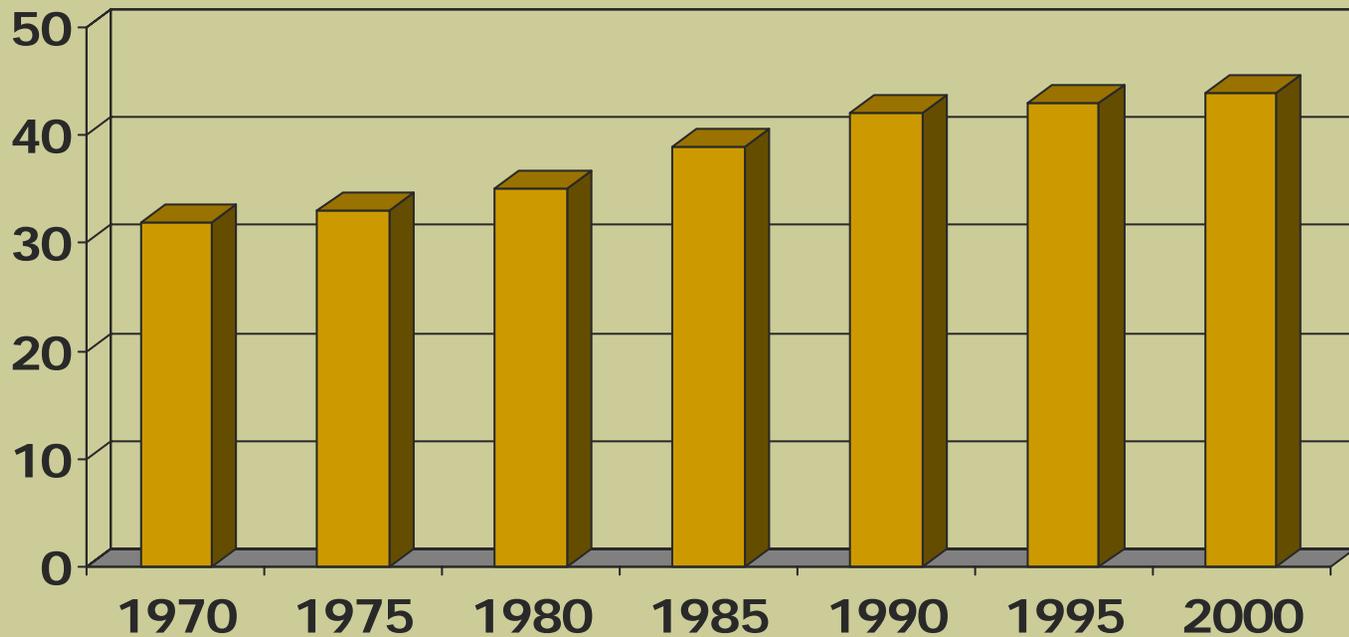


- Older population
 - More fruits & vegetables
- Higher incomes
 - Quality over quantity
- Growing ethnic diversity
 - Increased variety
- Better educated population
 - More health conscious



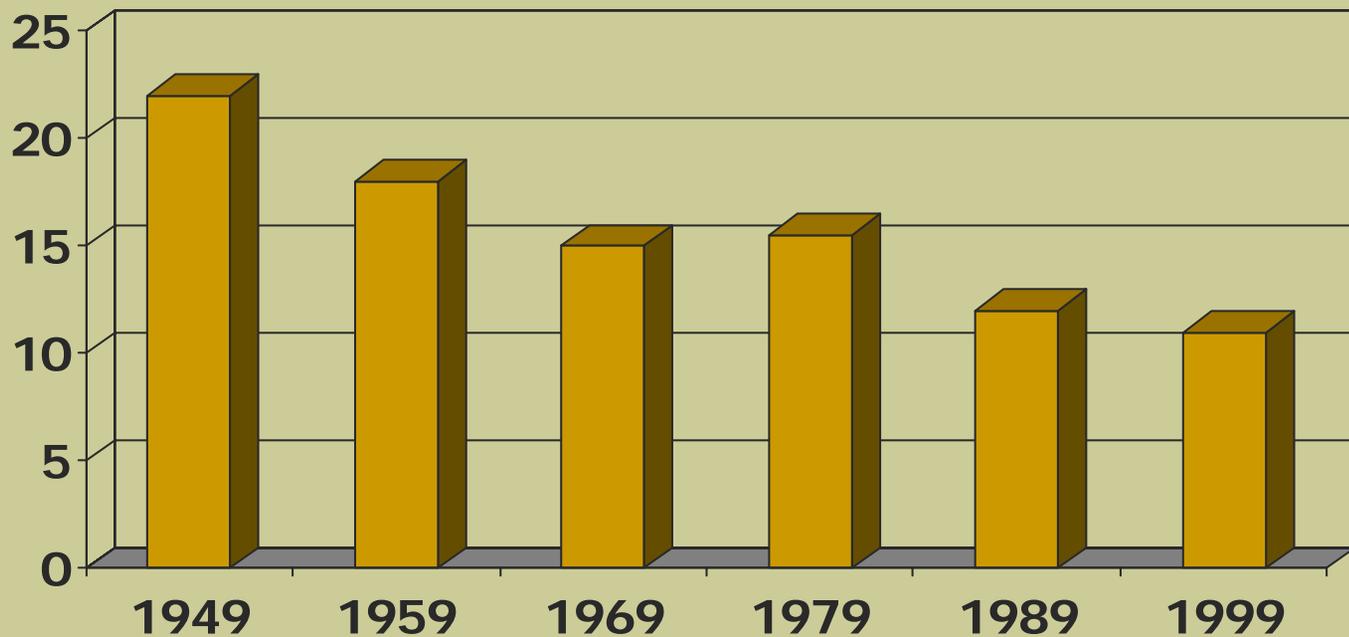
Away-From-Home as a Share of Total Food Spending

Percentage



Food Expenditures as a Share of Disposable Income

Percent of income

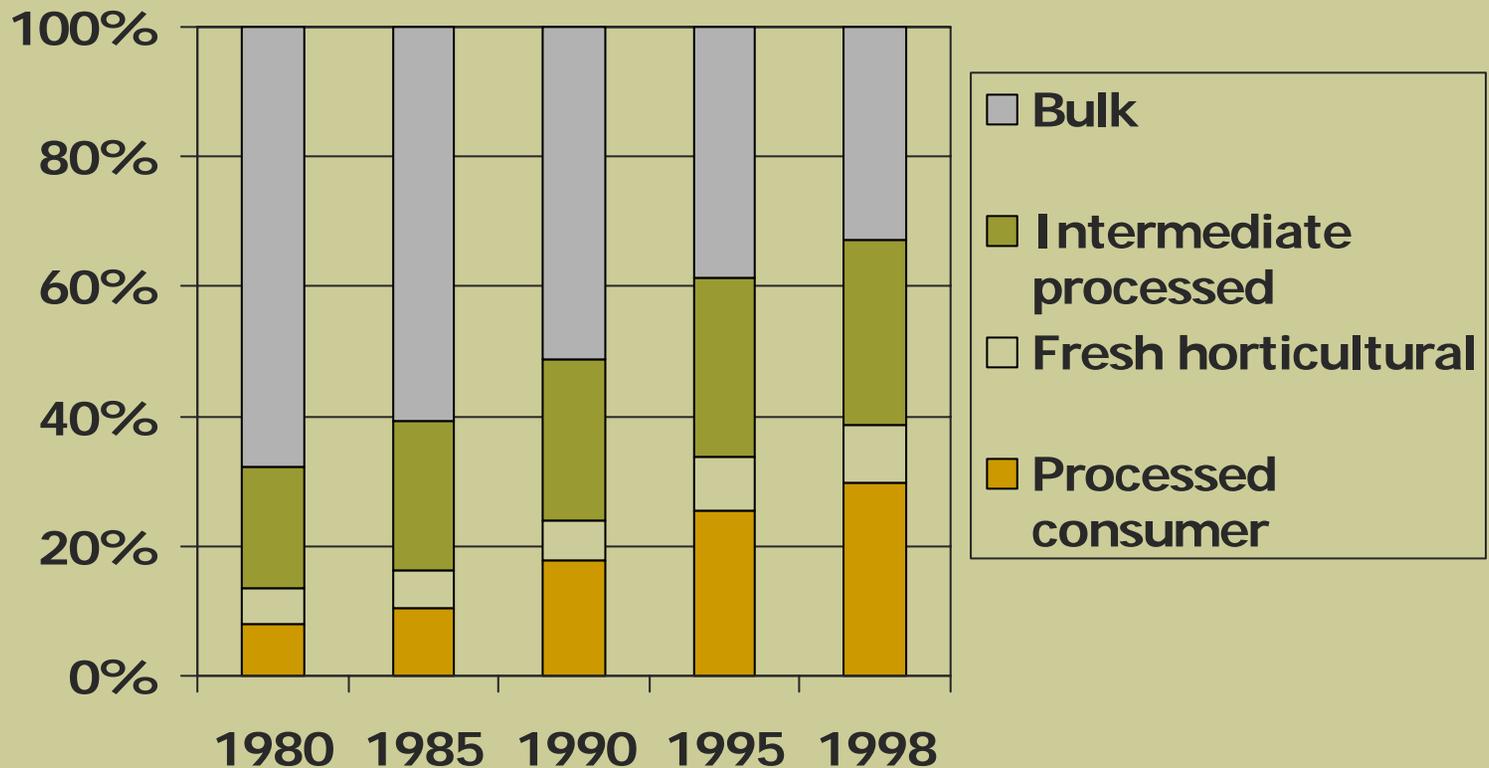


Expanding Agricultural Trade

- Exports worth \$62.4 billion in FY2004
- Exports account for 27 percent of total farm sales
- Texas agricultural exports \$3.4 Billion (2003)



Share of High-Value Products in U.S. Exports Growing Rapidly



[Farms are Changing]

- Bigger, fewer, more diverse types
- Industry consolidation
- Vertical integration
- Specialty crops



Research and Development Opportunities: Specialty Crops



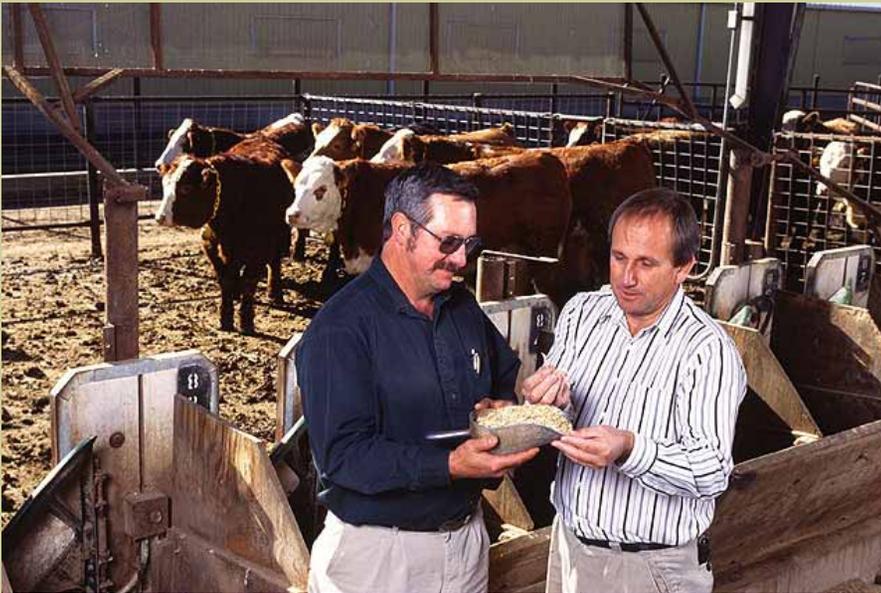
- Automation
- Robotics
- Instrumentation
 - Improve worker safer
 - Support and expand rural economies

Changing Farming Demographics



- Average age of American farmers is 55.3 years
- Women run one in every ten American farms
- Increasing number of Hispanic farmers

Challenges for Research, Education, and Extension



- Emerging diseases
- Invasive species
- Food safety
- Biosecurity
- Improving health (obesity)
- Rural development
- Environmental and natural resources issues



Research, Education, and Extension: the foundation of American agriculture

