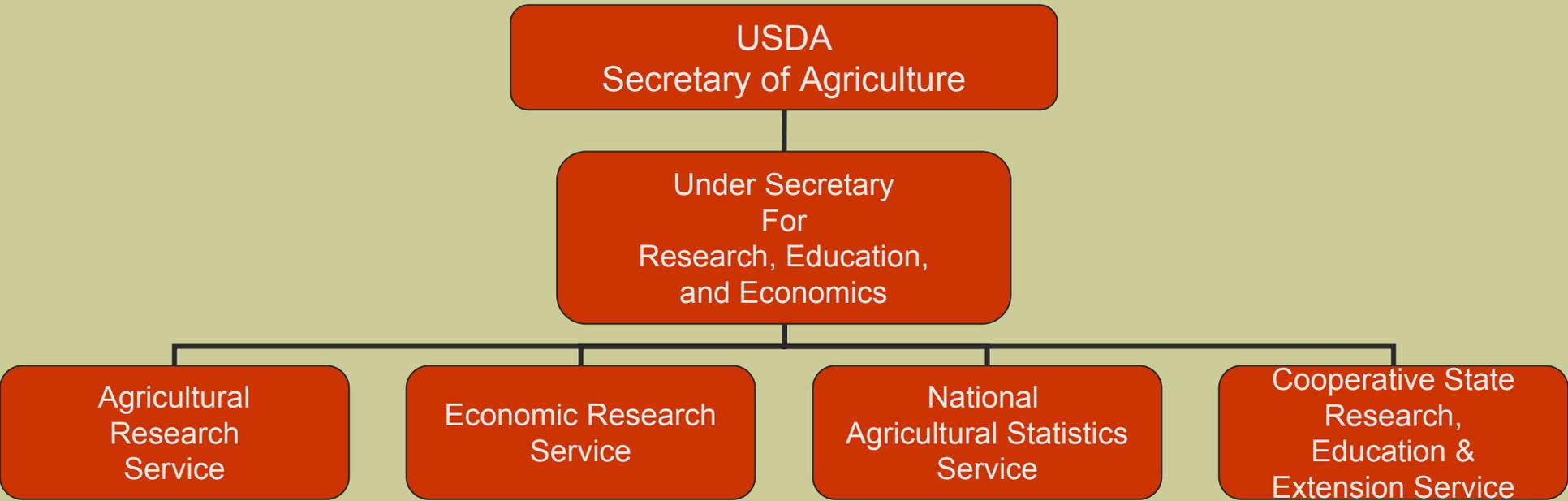




Water and Agriculture: A 21st Century Challenge

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Economics

Research, Education, and Economics



[Agricultural Research Service]

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



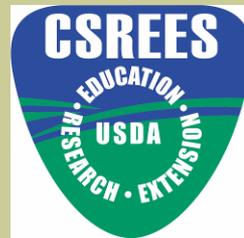
Cooperative State Research Education and Extension Service

- 57 land grant universities
- 18 historically black colleges and universities
- 33 Native American land-grant institutions

- Extramural research, education, and extension for USDA
- \$1B annual budget

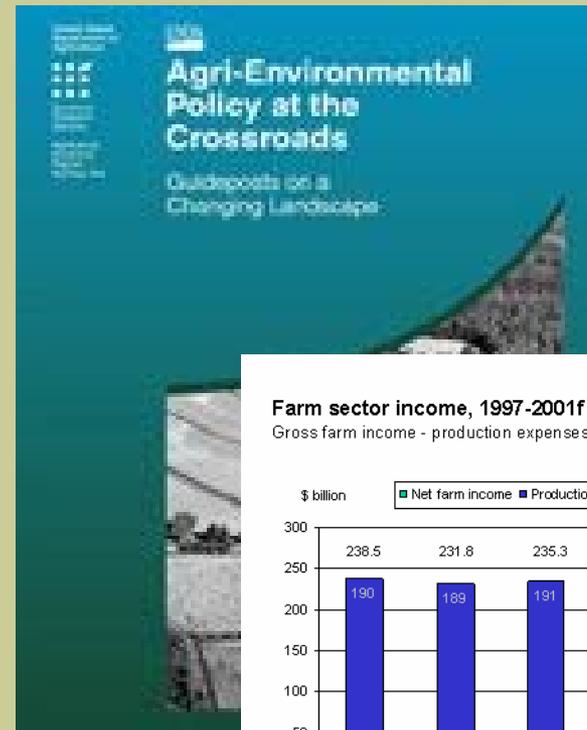


<http://www.csrees.usda.gov>



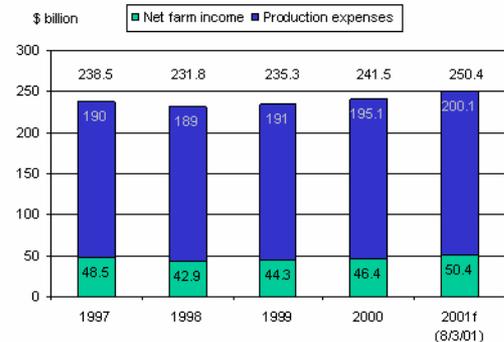
Economic Research Service

- 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



<http://www.usda.gov/nass/>

[USDA Water Quality Programs]

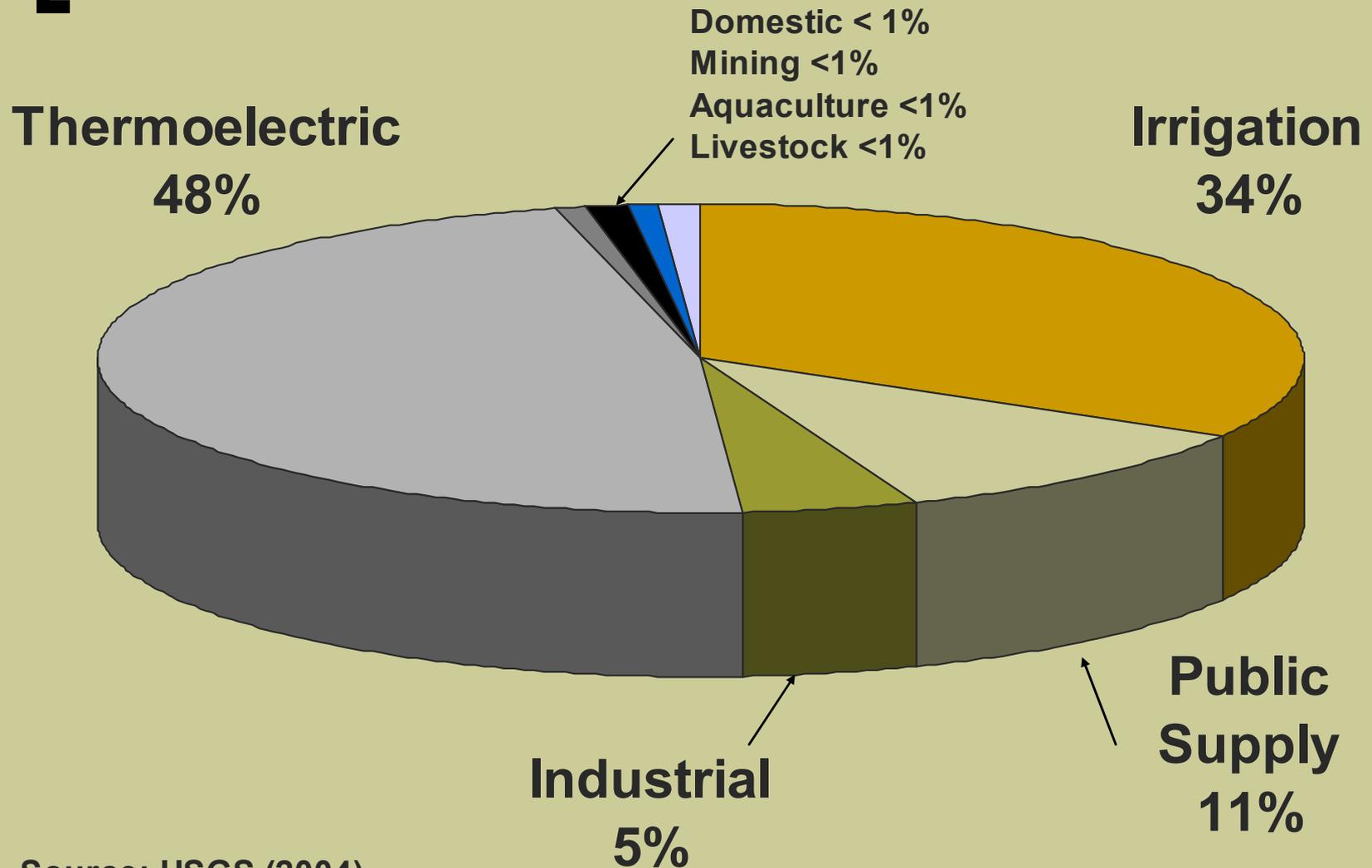
- Excellent history of water quality research and extension projects from across the nation
 - HUA, DEMO, MSEA



- Focused efforts to protect and improve critical water bodies
 - Gulf of Mexico, Chesapeake Bay, Colorado River, Great Lakes



Total Water Withdrawals in the United States in 2000



Source: USGS (2004)

[Competition for Water]

- Water consumption by agriculture is estimated at 80-90% of all water use
- Urban and suburban growth in the Southeast and across the West are increasing competition for scarce water resources



Water Use in Agriculture



- As competition increases, agriculture is viewed as the principle source of available water for domestic or municipal uses.
- Agriculture also represents a critical source for providing environmental services and instream flows.

Options for Expanding Available Water in Agriculture

- Increase conservation
- Improve irrigation efficiencies
- Plant biotechnology
- Water reuse



Water Reuse in Agriculture



- Implications for research, education, and economics
- Opportunities for partnerships
- Upcoming activities

Water Reuse: Research Challenges

- How far can we extend water uses through reuse of wastewater?
- What human health concerns must be considered when reuse water is applied to vegetable crops?
- What are the economic, social, and policy implications of water reuse?



Water Reuse: Extension and Outreach Opportunities

- Exploring opportunities to match available water quality with appropriate water uses
- Educating the public regarding safety and potential hazards of water reuse
- Engaging stakeholders from multiple communities to seek water management solutions



Water Reuse: Role of Education

- “Growing” scientific expertise for future research and education programs
- Bringing new water management and food safety technologies into the classroom
- Potential for new emphasis areas in traditional disciplines

[Partnership Opportunities]

- Intersection of food safety and water resources management
 - Well-established CSREES programs
- Federal Partnerships
 - Water management, food safety, human health, and crop production issues cross multiple Departments and agencies
- Private Sector Partnerships
 - Nurseries, commodity groups, and others
- International Partnerships
 - Opportunities to “import” and “export” water reuse knowledge (Middle East, Africa, Asia)

Workshop: Water Reuse in Agriculture

- Tentatively scheduled for Fall 2006
- Joint effort between USDA, WateReuse Foundation, and Bureau of Reclamation
- Focus on identifying the state of current knowledge and information gaps

Thank You!

- Dr. Merle Pierson
Deputy Under Secretary USDA REE

