Practices and Policies for Resilient Agriculture
An Overview of USDA Activities

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Presentation Outline

- Background
- Science and Monitoring for Risk Management
- Environmental Markets
- Conservation Incentives
- Insurance and Disasters
- Training and Partnerships
Agriculture and Climate

- Agriculture (crop and animal) have been, and will continue to be, significantly affected by changes in climate.

- Adaptation can help offset many – but not all – effects over the next 20-30 years. Effects are very likely to worsen significantly beyond then, especially if GHG emissions remain high.

- Improving agricultural resilience requires a healthy natural resource base (water & soil) and the development of new strategies, tools, and practices.
Figure 1. Change in Corn Acres by County from 2006 to 2012.
Figure 3. Change in Wheat Acres by County from 2006 to 2012.
Scientific Research Priorities, Planning, and Deployment

- Global Food Supply and Security
- Climate and Energy Needs
- Sustainable Use of Natural Resources
- Nutrition and Childhood Obesity
- Food Safety
- Education and Science Literacy
- Rural Prosperity
Agricultural Risk Management

Financial
- Off-farm employment
- Yield and revenue insurance
- Crop futures and options
- Forward contracting
- Income diversification
- Debt management
- Credit availability

Agronomic
- Adjusting acreage
- Adjusting crop mix
- Changing inputs
- Investing in water-efficiency
- Storing water
- Accessing additional water
Inventories, Surveys, Mapping and Evaluation

- Agricultural Resource Management Survey (ARMS)
- National Resources Inventory (NRI)
- Greenhouse Gas Inventory of U.S. Agriculture and Forests
- Conservation Effects Assessment Project (CEAP)

Percent employed in agriculture and other resource-based industries, 2011-15
Hydrologic Monitoring

- Soil Climate Analysis Network (SCAN)
- SNOpack TELemetry (SNOTEL)
- U.S. Drought Monitor
Farmer Response

County-level Change in Irrigated Acres 2007 to 2012

Significant Reduction

Significant Increase
CITIES, FARMS, AND THE ENVIRONMENT ACQUIRE WATER THROUGH THE MARKET

1982 – 1986
1987 – 1994
1995 – 2002
2003 – 2011
2012 – 2014

Average annual purchases (thousands of acre-feet)


https://www.usda.gov/oce/environmental_markets/
USDA is one of 13 USG Members of the U.S. Global Change Research Program

National Climate Assessment required every 4 years

Agriculture, Forests, and Water are mandatory sectors

Goal is to “enhance the ability of the U.S. to anticipate, mitigate, and adapt to changes in the global environment.”
Incentives

- Environmental Quality Incentives
  - Conservation Innovation Grants
- Conservation Stewardship Program
- Conservation Reserve Program
- Conservation Technical Assistance
- Wildlife Habitat, Wetlands, Grasslands
Insurance and Disaster Relief

- Federal Crop Insurance
- Disaster Assistance
  - Conservation
  - Forests
  - Animal Agriculture
  - Emergency Loans
  - Noninsured Crop Disaster Assistance
Land Grant Universities
Focus on Agriculture and Science
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Vision: Agricultural production and natural resources maintained and strengthened under increasing climate variability and environmental change

Mission: Develop and deliver science-based, region-specific information and technologies to agricultural and natural resource managers; to enable climate-informed decision-making, with USDA partners (internal and external to USDA)
Hub Purpose and Activities

- Regional convening forums around which USDA staff and stakeholders can meet to discuss climate change, resilience, and mitigation/adaptation opportunities.

- Help USDA agencies accomplish their missions as they look to become more climate-informed and resilient.

- Assist producers with identifying opportunities to access USDA agency program funding to help them manage risk.

- The Hubs educate USDA staff and partners on the climate vulnerabilities in their region, and offer strategies to adapt to risks. (e.g., tools, regional vulnerability analyses)
2012 U.S. Drought
Side-by-Side fields in Greenfield, Indiana
July 2012

11 years of Continuous No-Till + 5 years of Cover Crops

Vertical (Conventional) Tillage
Agriculture
Conservation
Science Hubs
Partners
Assistance
Relief
Mapping
Natural
Water
Crop
Insurance
Resources
Program
Education
Planning
Opportunities
Development
Inventories
Regional
Food
Global
Support
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