

Water Resilience



Overview:

Reliable access to safe water is fundamental to agriculture, public health, and environmental sustainability, serving as a cornerstone for food and national security. Land-grant Universities must lead efforts to build water resilience through research, education, and Extension initiatives that boost productivity, enhance water efficiency, protect water quality, and promote conservation practices. As floods and droughts intensify, advancing innovative technologies and ensuring equitable access to water resources are critical. Land-grant Universities are uniquely positioned to drive focused efforts that address these pressing challenges, securing water resources for diverse landscapes and generations to come.

Outcome Goals and Impacts:

- Increase water use efficiency by 50% across food and agricultural systems, including production and processing.
- Reduce water quality impairments—such as elevated nutrients, pathogens, bacteria, sediment, and pesticides—by 40% within agricultural watersheds to protect domestic water supplies and public health.
- Strengthen agricultural system resilience by reducing production losses from waterlogging, flooding, and drought by 50%.

Opportunities:

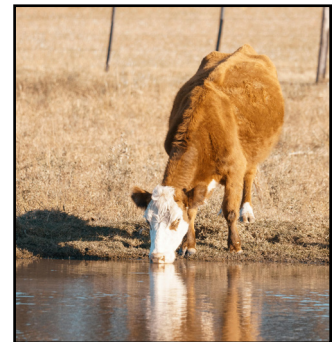
- **Create a multi-year strategy** that integrates innovative practices, Extension programs, and water monitoring to inform policy interventions aimed at improving agricultural water use efficiency and utilization of nontraditional water sources, resilience to floods and droughts, water quality, accessibility, and ecosystem services.
- **Promote water-efficient, flood- and drought-resilient agricultural systems** by advancing best practices, tools, and Extension programs for improving crop and livestock productivity and water conservation, reuse, and quality.
- **Collaborate with communities and public officials** to develop strategies addressing water accessibility challenges.

Risks of Inaction:

Reduced water availability will impact drinking water supplies and household use in both rural and urban communities, while also constraining agricultural production. Declining river water levels will reduce navigable waterways, disrupt transportation, increase shipping costs, and weaken farmers' competitiveness in global markets. Furthermore, lower water levels in streams and lakes will harm wildlife, recreation, and tourism, placing additional strain on local economies and ecosystems. Increased groundwater withdrawal will worsen land subsidence, damaging infrastructure such as roads, bridges, levees, and water wells, which imposes significant financial burdens, reduces flood protection, and diminishes aquifers' capacity to store water. Simultaneously, the degradation of water quality for drinking, irrigation, and recreation will pose serious risks to public health.

Crosscutting Education Outcome Goal:

Workforce Development: Annually train an additional XX college students and XX 4-H members in food, agriculture, and renewable natural resources to meet the increasing demand for a skilled workforce. Recruitment efforts will focus on engaging youth and adult learners from diverse backgrounds and experiences.



Funding Requirement:

America's future prosperity relies on Land-grant Universities delivering groundbreaking discoveries for a resilient, sustainable tomorrow. Achieving this requires bold investments in USDA capacity and competitive funding and aligned federal programs.

