

rio grande basin initiative

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The federally funded **Efficient Irrigation for Water Conservation in the Rio Grande Basin** or Rio Grande Basin Initiative project focuses on increasing available water, meeting present and future water demands, and creating new sources of water.

Rio Grande Basin agriculture is highly productive with irrigation claiming more than 85 percent of its water. In addition, population growth and urban water demands in the basin have already increased and are expected to double in the next 50 years. Persistent drought in the region also limits the amount of water available for agriculture and urban uses.

The basin's agricultural crop industry, comprised principally of cotton, grain sorghum, grapefruit, chilies, pecans, citrus, sugarcane and vegetables, has an economic impact of more than \$1 billion annually. By investing in improvements in irrigation conveyance systems and efficiently using water on-farms and in-homes, both urban and agricultural interests can benefit from increased water availability and resulting economic enhancements.

The project team is comprised of Texas AgriLife Research and New Mexico Agricultural Experiment Station researchers and Texas AgriLife Extension Service and New Mexico Cooperative Extension Service specialists and agents. The team is working with local irrigation districts, agricultural producers, homeowners and other agencies to address water issues.

Objectives

- Meet present and future water demands through efficient irrigation and water conservation measures
- Expand efficient use of available water resources by

improving water conveyance canals and implementing more efficient irrigation systems

- Broaden outreach and teaching programs on how to efficiently use water resources and apply water-conserving practices for agricultural producers and urban water users

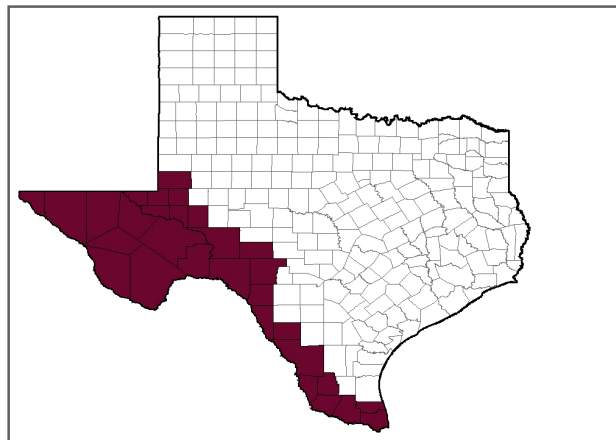
Components

- **Irrigation District Studies:** Conduct economic and engineering evaluations of irrigation district infrastructure needs and develop cost-benefit data and strategies for more efficiently delivering water to users
- **Irrigation Education and Training:** Conduct irrigation system and component research, and develop and deliver on-farm demonstrations, trainings and public meetings for growers, county agents and basin citizens
- **Institutional Incentives for Efficient Water Use:** Identify legal and institutional barriers that keep irrigation districts and growers from investing in or creating incentives for water conservation, evaluate impacts of alternative water management practices and provide scientific input to policymakers
- **On-Farm Irrigation System Management:** Research and demonstrate tools that improve on-farm irrigation scheduling and management, maximize efficient water use and identify the most effective irrigation systems



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- **Urban Water Conservation:** Develop strategies for increased landscape water conservation and reuse of municipal effluent and provide education for improved in-home water usage
- **Environment, Ecology and Water Quality Protection:** Evaluate and deliver various methods for riparian and aquatic weed and invasive species control and screen water for purity
- **Saline and Wastewater Management and Water Reuse:** Support the appropriate use of saline and reclaimed water resources to irrigate urban landscapes and agricultural crops and train homeowners and professionals on proper installation of these systems
- **Basinwide Hydrology, Salinity Modeling and Technology:** Continue limited modeling efforts in support of on-farm systems and enhance tools for managing groundwater-surface water interactions



Accomplishments

- Initial annual savings from economic studies of biologically controlling *Arundo donax* are estimated at 60 acre-feet. Water savings are projected to increase annually to an estimated 59,000 acre-feet per year by 2058.
- Evaluation of alternative irrigation practices over traditional flood irrigation in citrus was completed. The average annual water savings in acre-feet over the past five years was 1.61 with drip irrigation, 1.28 with microjet spray irrigation, and 0.84 with narrow border flood irrigation over conventional flood irrigation for citrus growers using alternative irrigation practices throughout the Lower Rio Grande Valley.
- In artichoke cultivars grown as an annual system, plastic mulch saved 15 percent of water application and increased yields by 16 percent compared to bare soil.
- Automation and telemetry demonstrations by AgriLife Extension engineers at various Texas Rio Grande Basin irrigation districts have improved efficiency, reduced operation costs by approximately \$9,000 and reduced water issues by more than 8,500 acre-feet.

Collaborators

- Texas Water Resources Institute
- Texas AgriLife Research
- Texas AgriLife Extension Service
- New Mexico Cooperative Extension Service
- New Mexico Agricultural Experiment Station
- New Mexico State University Water Task Force
- USDA Natural Resources Conservation Service
- U.S. Bureau of Reclamation
- U.S. Geological Survey
- Texas Department of Agriculture
- Texas Water Development Board
- North American Development Bank
- Border Environmental Conservation Commission
- International Boundary and Water Commission
- Lower Rio Grande Development Council
- Irrigation Districts
- Regional Water Planning Groups

Funding Agency

- USDA National Institute of Food and Agriculture



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