

## **Texas Gulf Research Partnership LTAR, Riesel, Texas**

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The Texas Gulf Research Partnership is a collaborative effort between the USDA-ARS Grassland, Soil and Water Research Laboratory; USDA-ARS Riesel Watersheds; Baylor University, Department of Geology; Texas A&M University, Department of Soil and Crop Sciences; Texas A&M AgriLife Blackland Research and Extension Center; Texas A&M Spatial Sciences Laboratory; USDA-ARS Southern Regional Biofuel Center; Baylor University, Department of Geology and Department of Environmental Science; and University of Texas at Austin, Department of Geological Sciences. The Partnership is led by the USDA-ARS Grassland, Soil and Water Research Laboratory. The Lab's mission is to develop technology and solutions that increase efficient use of soil and water resources, enhance forage and crop production, and support sustainable agricultural production in healthy ecosystems. This mission is accomplished by research that: enhances decision support tools for crop and forage production and watershed management; improves soil, water, and crop management; develops biofuel production systems; increases rangeland productivity and quality; and mitigates global change effects on agriculture.

The Texas Gulf Research Partnership has at its disposal world-class scientific infrastructure highlighted by the: USDA-ARS Grassland, Soil and Water Research Laboratory and its unique Lysimeter CO<sub>2</sub> Gradient (LYCOG) and affiliation with the Long-Term Biomass Experiment (LTBE), Greenhouse gas Reduction through Agricultural Carbon Enhancement network (GRACEnet), and Nutrient Network (NutNet); the Texas A&M AgriLife Blackland Research and Extension Center and the Texas A&M Spatial Sciences Laboratory; the USDA-ARS Riesel Watersheds, which are a Conservation Effects Assessment Project (CEAP) Benchmark Watershed site, a ASABE Historic Landmark of Agricultural and Biological Engineering, a USDA Soil Climate Analysis Network (SCAN) site, and an EPA Speciation Trends Network (STN) site; and the USDA-ARS Southern Regional Biofuel Center. The Partnership also relies on a massive legacy data set with more than 3600 site-years of precipitation, surface runoff, lateral subsurface flow, and soil loss data in addition to 75 years of land management data for the Riesel Watersheds.

Much of the current and previous research by Partnership scientists is conducted in response to requests from stakeholders that include state agencies [e.g., Texas State Soil and Water Conservation Board, Texas Commission on Environmental Quality, Texas Water Resources Institute], federal agencies [e.g., EPA, USGS, USDA-NRCS, Office of Naval Research], agricultural interests [Texas Pork Producers, Texas Poultry Federation, Farm Bureau, International Plant Nutrition Institute], and industry [Brillion, Woods End Lab, Ward Labs]. An integral component in our vision is maintaining research capacity to provide science, technology, and data necessary to resolve competing demands and needs of stakeholders and universities, government, and industry that rely on sound strategies to manage, conserve, protect, and allocate the nation's natural resources in agro-ecosystems. This responsive component of our overall research program is possible through USDA-ARS institutional commitment to maintain and support existing base research funding, research infrastructure, and scientific expertise, which allows research needs to be met expediently and cost-effectively.

Principal research emphases of the Texas Gulf Research Partnership LTAR are anticipated to be:

1. Agricultural Management Alternatives
2. Applied Hydrology and Water Quality
3. Watershed/Agro-Ecosystem Modeling
4. Carbon Dynamics and Global Change Impacts
5. Agro-Ecosystem Impacts of Bioenergy Production