

**Strategic Plan**  
**Texas AgriLife Research**  
**Amarillo**  
**FY 2008-2011**



**Vision:**

The Texas AgriLife Research-Amarillo unit will enhance capability and recognition for research pre-eminence in ruminant nutrition and health, environmental and natural resource management for animal feeding systems and irrigated grain production, wheat breeding and genetics, pest management, agronomy and crop physiology. The expected outcomes will be measurable advancements in agriculture production and environmental quality and an improved understanding of biological and natural resource systems.

**Mission:**

The mission of the AgriLife Research-Amarillo unit is to improve agricultural production of cattle, crops and integrated systems, while protecting the environment, by generating scientific knowledge through basic and applied research designed to: develop and evaluate strategies for advanced animal nutritional health and management; protect or enhance air, water and bioenergy resources; develop regionally adapted and improved hard winter wheat varieties; reduce biotic and abiotic crop stress; and establish alternative and bioenergy crops. The unit's primary research focus will be the Texas Panhandle and neighboring states of the Southern Great Plains; moreover, nationally and internationally recognized programs of excellence will be enhanced through directed research with appropriate partnerships.

**AgriLife Research Strategic Goals:** The AgriLife Research-Amarillo unit will conduct research under five (5) program objectives that support two major Texas AgriLife Research Science Roadmap statewide goals, as follows:

**State Goal 1:** Research: Enhance competitiveness and prosperity of urban and rural agricultural industries.

**State Goal 2:** Research: Sustain healthy ecosystems and conserve our natural resources.

**Unit Strategic Plan:** The 5 unit program objectives and strategies that will guide the research efforts are:

**Program Objective 1. Ruminant Nutrition and Health:** Develop nutritional and management strategies to maintain or improve production efficiencies, animal health and carcass quality while reducing nutrient losses to the environment and conserving natural resources

Strategy 1.1 – Distiller's Grain in Livestock Rations

Strategy 1.2 – Forage-Based Ruminant Rations

**Program Objective 2. Environmental Quality and Natural Resource Management:**

Develop strategies to manage, protect and/or enhance air, water, wastes, biomass and bioenergy resources of intensive livestock operations (beef, dairy and swine) and crop production systems in the Texas Panhandle and neighboring states.

- Strategy 2.1 – Water Resources: conservation technologies, quality, recycling/re-use
- Strategy 2.2 – Air Resources: contaminant emissions processes, impacts, abatement, carbon emissions
- Strategy 2.3 – Energy Resources: consumption, animal/crop-derived biofuels, carbon/bioenergy relationships
- Strategy 2.4 – Wastes and By-Products: waste reduction, value-added products
- Strategy 2.5 – Environmental Systems: modeling, stresses and ecosystem responses

**Program Objective 3. Wheat Improvement:** Develop hard winter wheat varieties through breeding, genetic and genomic research for specific adaptation areas and management programs to increase profitability for Texas and Southern Great Plains producers.

- Strategy 3.1 – Cultivar Development: selection, management systems, end-use quality
- Strategy 3.2 – Genetics and Genomics: stress resistance, molecular mechanisms and markers
- Strategy 3.3 – Germplasm Enhancement: identify germplasm and introgress target traits

**Program Objective 4. Pest Management and Plant Stress:** Improve agricultural production through nationally and internationally recognized research on biotic stresses (plant diseases, insects, weeds) and abiotic stresses (drought, temperature extremes, nutrient deficiencies) of agriculturally important crops.

- Strategy 4.1 – Plant Pathology: disease management, detection and quantification, water conservation
- Strategy 4.2 – Entomology: pest management models, integrated pest management, biological weed/brush control
- Strategy 4.3 – Weed Control: chemical strategies
- Strategy 4.4 – Crop Stress Physiology: new/improved crops, plant physiology, international agriculture

**Program Objective 5. Bioenergy and Alternative Crops/Forages:** Develop alternative crops, plants and cropping systems for the High Plains to meet new and existing needs in the areas of food, feed, fiber and environmental remediation. Potential alternative plants and crops may include, but are not restricted to, perennial wheat, forage sorghum, cowpeas, native grasses, oil crops and native ornamentals.

- Strategy 5.1 – Bioenergy Crops, Range and Pastures
- Strategy 5.2 – Oilseed Crops for Biodiesel
- Strategy 5.3 – Alternative Crops/Forages