

**Soil and Water Conservation Project Proposal**

**A Sustainable Agriculture Approach to Pasture Management**

**Submitted to:**

**C. Allan Jones**

**Director**

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**Submitted by**

**Gonzales, Caldwell, Guadalupe  
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**Project Narrative**

Name of the Project: Sustainable Agriculture Approaches to Pasture Management

Is This a New Project or Request for Continuation?: New

Geographic Area of the Project: South Central Texas

Name of Principal Investigator(s): Dwight Sexton, Lytle Arche, Travis Franke

County(s) and/or University Department(s), TAEX, or Unit: Gonzales, Caldwell, Guadalupe

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Amount of Funding Requested: \$6,500

### **Project Need, Description and Expected Outcomes**

Agriculture production is vital to the South Central Texas region. Nine hundred forty-one thousand beef cows, or 17% of the state's cow herd lies within this area, with three of the five largest cow-calf production counties located here. Additionally, poultry production is another large agriculture industry in the area. Broilers, laying hens, and turkey production make up the poultry industry in the region. The large quantity of litter from these production units is a nutrient resource that must be managed properly so as not to harm the environment through nutrient run-off, erosion, or possible plant toxicity due to high levels of nutrient buildup.

Landowners and managers have four options in their nutrient management programs.

- One is to have no soil fertility program, and continue to mine the soil of its nutrients over time.
- The second is to purchase commercial fertilizers, and apply them to their land. This option's benefits include only the necessary amount of nutrients are applied in the fertilizer, so that the soil nutrient levels are properly maintained. However, this option requires an annual capitol outay at the time of application by the land owner/manager.
- The third option for landowners is to utilize poultry litter as a source of soil nutrients. Using poultry litter as a fertilizer source adds organic matter to the soil, which improves soil aeration and water holding capacity. Additionally, poultry litter is considered a waste product of poultry production, and its disposal must be properly managed so that environmental pollution does not occur, either by entering the watershed, or by excessive phosphorous buildup in soils.
- Fourth, the use of legumes may be utilized to naturally fix nitrogen in the air and convert it to a form that can be used by plants, thereby reducing the amount of fertilizer that must be purchased and applied.

Long-term sustainability of production units is necessary to maintain the same level of agriculture production over generations of landowners. Landowners must address soil fertility and nutrient management to achieve efficient forage production in their agriculture systems.

This study proposes to develop an educational program to demonstrate and compare the use of best

management practices in a sustainable forage production system. Needs include:

- Using established coastal bermuda grass plots at the Luling Foundation Farm along with best management practices to fertilize with commercial fertilizer, poultry litter, and legumes. A fourth plot will look at the combination of fertilizing with poultry litter and legumes and its impact on phosphorous levels. A control plot without fertilization will also be included. Soil nutrient profiles, forage production, and the economic results of each method will be identified.
- Develop web sites, proceeding of major educational events, newsletters, brochures, and result demonstration handbooks with local information pertinent to sustainable forage production systems.

This trial is expected to show land owners/managers the benefits of fertilization programs in forage production. Costs involved and forage yields are expected to vary, with insight given towards which practices lead to sustainable fertilization methods for coastal bermuda grass production.

### **Specific Soil and Water Conservation Issues Addressed**

Land management related to Soil and Water Conservation	Soil Quality/Soil Health
Conservation Practices Economics	Soil Management
Tillage Practices	Water Management and Conservation
Resource Management	Cropping Systems and Rotations
”Green” Program Concepts and Policies management	Brush control for soil, water, and wildlife

### **Collaboration**

Texas Agricultural Extension Service – County Extension Agents in Gonzales, Caldwell, and Guadalupe Counties are co-principal investigators

Texas Agricultural Extension Service – Specialists from Soil and Crop Science will provide technical expertise and guidance

Texas Agricultural Experiment Station – Research specialists from Soil and Crop Science will provide technical expertise and guidance

Luling Foundation Farm and managers will provide on site demonstrations, host field days, tours and activities

Gonzales County Soil and Water Conservation District – provide technical assistance and guidance

Natural Resources Conservation Service – Assist with planning and technical assistance

County Commissioners Court – provide monetary assistance and guidance

Local Chamber of Commerce – provide assistance in reaching targeted audiences