

# 2011 East Texas Plant Materials Center Progress Report of Activities



East Texas Plant Materials Center  
6598 FM 2782  
Nacogdoches, TX 75964  
936-564-4873  
936-552-7924



## 2011 Field Day

The East Texas Plant Materials Center (ETPMC) held a Field Day on May 24, 2011 to showcase emerging technology studies and improvements to infrastructure made in recent years. Texas State Conservationist, Salvador Salinas welcomed attendees and Texas Plant Materials Specialist, Rob Ziehr, delivered a brief overview of the Plant Materials Program. Tours highlighted studies and the new seed lab and greenhouse. Salvador Salinas delivered the keynote address following the tours, during lunch.



**Shelly Maher giving a tour stop presentation at the wildflower mix study plots during the ETPMC Field Day**

Afterward, training sessions covering pesticide applicator rules and regulations, sprayer calibration, and integrated pest management were offered in which participants could earn CEUs toward maintaining their pesticide applicators licenses.

## Current Studies

### Cooperatives

The ETPMC is currently conducting three cooperative studies. Dr. Jim Kiniry of the Agricultural Research Service, ARS, is using the ETPMC as one location to evaluate warm season, perennial, grasses for biomass production and use in the cellulosic ethanol industry. This study will provide necessary information on which species and (or) varieties of grasses are adapted best to specific eco-regions allowing growers to choose the species/variety that will work best for their geographic location.



**Deborah Spanel and Leah Crosby collect measurements on the ARS study**

Dr. Jim Muir of Texas AgriLife is also making use of the ETPMC facilities to evaluate native, warm season, legumes in a multiple location study. There is a need to include more species of native herbaceous legumes in seed mixes in the southern Great Plains. These seed mixes are used for rangeland restoration, native prairie reconstruction, and wildlife habitat restoration. Three selections of prairie acacia from Knox City, Texas Plant Materials Center, Texas Agrilife Research, and Kingsville, Texas Plant Materials Center are being tested along with panicked tickclover and Crockett germplasm herbaceous mimosa from the East Texas Plant Materials Center.

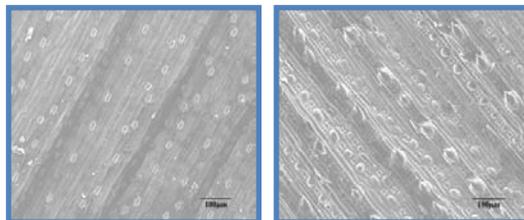
The ETPMC is also working with the Kiki de la Garza plant Materials Center, STPMC, in Kingsville, Texas to evaluate cold tolerance and adaption of silver bluestem, four flower trichloris, Indian blanket flower, brownseed paspalum, and Florida paspalum. These evaluations will provide information for the release of these species, planting guides, and seed fill.

### Technology Development

In an effort to provide current and useful information to the conservation industry and NRCS field offices, the ETPMC has been developing an increasing number of technology based studies. Current studies encompass plant improvement, biofuel and forages, habitat improvement, and sustainable practices.

#### Rust Resistance Screening of Indian Grass

Five selections exhibiting resistance to the fungal pathogen that causes rust were made and transplanted into a breeding block to generate a first generation of crosses for evaluation and seed increase fields. 2011 marked the first year these plants had significant seed production. Selected material



**Differences in leaf morphology, resistant (left) and susceptible (right)**



**Rust spreading control seen right and resistant selection seen left, picture take on same day**

exhibited little to no infection from the rust pathogen throughout the 2011 growing season. Stephen F Austin State University graduate student Paul Gray completed his graduate work using electron microscopy to identify morphological features on the leaf surface that contribute to rust infection or resistance. There were strong correlations among the five selections to

the morphological features Paul isolated as contributing to disease resistance. It is hoped this work will correlate to other species for use as a quick tool for screening collected material. Disease resistant/tolerant varieties contribute to stand longevity, vigor, and biomass production.

### Screening of Switchgrass Collection for Forage and Biofuel Potential

2011 will mark the final year of data collection from this study. Selections will be made after all data is compiled and analyzed in 2012. The study fared well this summer and was not irrigated. All plots survived the worst drought in recorded history in this area. Information from this study will lead to potential releases for a locally adapted switchgrass ecotype for biofuel production and an ecotype with improved forage characteristics compared to other major switchgrass releases from the Plant Materials Program. Controls within the study consisted of ‘Alamo’, ‘Kanlow’, ‘Blackwell’, and ‘Cave-in-Rock’.

### Cover Crop Study

Working in conjunction with Willie Durham, State Agronomist for Texas, the ETPMC is comparing the use of conventional tillage, winter cover crops, and year round cover crops. Soil samples are taken to note changes in the soils between the different treatments over time. Cover crops are a reemerging technology whose benefit are being realized again with the increasing costs of fertilizer. Soil health plays an important role in nutrient cycling and nutrient availability. Other benefits include reduced weed competition, increased moisture retention, and biologic control of some pest species such as nematodes.

### Commercial Wildflower Mix Evaluation

Nine commercially available wildflower mixes from five companies are currently being evaluated at the ETPMC for use in pollinator habitat improvement and to provide a diverse forb component for conservation plantings. Species persistence will be monitored and recoded each year. The study will increase efficiency of the ETPMC by testing seed sources that are readily available to determine which are best adapted to



**Wildflower mix study plots in full bloom**

our service area; providing valuable information for technical guides and seeding tables used by NRCS field offices.

### Center Improvements

The ETPMC has been fortunate to make major improvements to equipment and infrastructure in the last 2 years. These improvements have been focused on providing increased efficiency, higher levels of precision in data collection, and protection of center equipment. These improvements include the construction of a new greenhouse and seed lab facility with adjacent shade house, an implement shed to cover valuable equipment, laboratory grade seed cleaners and data collection instruments, and new cab tractors to replaced aged equipment and provide increased worker safety.



### Seed Increases

The ETPMC is currently increasing the following species:

- *Tripsacum dactyloides* accession 9043629 for release in 2012
- *Liatris pycnostachya* for release
- *Tridens strictus* for release
- *Helianthus mollis* cooperative release with Louisiana Native Plant Initiative
- *Schizachyrium scoparium* for the Louisiana Native Plant Initiative

### Collections

The ETPMC is currently requesting collections of please see the web link for details:

[http://www.tx.nrcs.usda.gov/technical/pmc/plant\\_collection\\_11.html](http://www.tx.nrcs.usda.gov/technical/pmc/plant_collection_11.html)

*Andropogon gerardii*                      *Desmodium sp.*                      *Ratibida columnifera*  
*Polygonum pensylvanicum*      *Helianthus angustifolia*              *Echinochloa walteri*

### Publications

The ETPMC produced 16 new technical documents and newsletters for 2011. For a complete list of publications, past and present, please see:

<http://www.plant-materials.nrcs.usda.gov/etpmc/publications.html>

### **Plant Materials Staff**

Alan Shadow – Center Manager  
Melinda Brakie – Soil Conservationist

Michael Woody – Biological Technician  
Max McCormack – Biological Aide

### **Who We Are**

The East Texas Plant Materials Center (ETPMC) is one of 27 centers operated by the Natural Resources Conservation Service (NRCS), United States Department of Agriculture. The ETPMC services 42 million acres and covers portions of Texas, Louisiana, Arkansas, and Oklahoma. The center was established in 1982 and is a joint venture between Soil and Water Conservation Districts in east Texas and northwestern Louisiana, NRCS, Stephen F. Austin State University (SFASU), and US Forest Service. The ETPMC encompasses 75 acres of research and production fields, and is located at the Stephen F. Austin Experimental Forest, south of Nacogdoches, Texas.

### **What We Do**

The mission of the NRCS Plant Materials Program is to develop and transfer effective plant technology for the conservation of natural resources. In working with a broad range of plant species, including grasses, forbs, trees, and shrubs, the program seeks to address priority needs of NRCS field offices and land managers in both public and private sectors. Emphasis is focused on using native plants as a healthy way to solve conservation problems and protect ecosystems. Center personnel also develop research projects and technical reports for use in developing technical guides for agency personnel and landowners on the use of plant materials in various conservation practices.

### **Contact Information**

Address: 6598 FM 2782, Nacogdoches, Texas 75964  
Phone: (936) 564-4873      Fax: (936) 552-7924  
Web Address: <http://plant-materials.nrcs.usda.gov/ETPMC>

---

### **Discrimination statement**

The U.S. Department of Agriculture (USDA) prohibits discrimination in all of its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, political beliefs, genetic information, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Assistant Secretary for Civil Rights, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, S.W., Stop 9410, Washington, DC 20250-9410, or call toll-free at (866) 632-9992 (English) or (800) 877-8339 (TDD) or (866) 377-8642 (English Federal-relay) or (800) 845-6136 (Spanish Federal-relay). USDA is an equal opportunity provider and employer.