2006 Activities Report
East Texas Plant Materials Center

March 2007

6598 FM 2782 Nacogdoches, Texas Phone: 936.564.4873

Who We Are

The East Texas Plant Materials Center (ETPMC) is part of the Natural Resources Conservation Service (NRCS), United States Department of Agriculture. The ETPMC is a joint venture between Soil and Water Conservation Districts in east Texas and northwestern Louisiana, NRCS, Stephen F. Austin State University, and US Forest Service. The ETPMC is located at the Stephen F. Austin Experimental Forest near Nacogdoches, Texas. The Center has use of 75 acres. Currently 26 acres are being used for evaluation plots and seed production fields. The Center is currently working with the US Forest Service to obtain special use permits and open additional acreage for production fields and evaluation plots.

What We Do

The mission of the NRCS Plant Materials Program is to develop and transfer plant materials and 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 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.

Priorities of the East Texas Plant Materials Center:

PMC activities are directed to develop plant materials and corresponding technology for the following seven high priorities:

- Erosion control and improvement of water quality and quantity
- Domestic livestock and wildlife food and cover
- Revegetation, water quality improvement and erosion control following timber harvests.
- Revegetation and stabilization of surface mined areas
- Stream bank stabilization and frequently inundated bottomlands
- Saline areas and high water table soils
- Wetland environments using adapted herbaceous and woody aquatic species

Service Area

The Plant Materials Center serves 48.2 million acres in east Texas and northwestern Louisiana. The topography is diverse ranging from level floodplains to strongly sloping forestlands and prairies. Soils in the service area range from deep, coarse textured sands to heavy clay bottomlands. Average yearly rainfall amounts vary from 32 inches to 56 inches near the Gulf coast. Humidity and temperature are usually high during the growing season. The average growing season ranges from 228 days to 260 days from north to south. The Center is one of 27 USDA, Natural Resources Conservation Service, Plant Materials Centers strategically located across the nation. Centers are located to serve areas with similar soils, plants, and climate.

Initial Evaluations

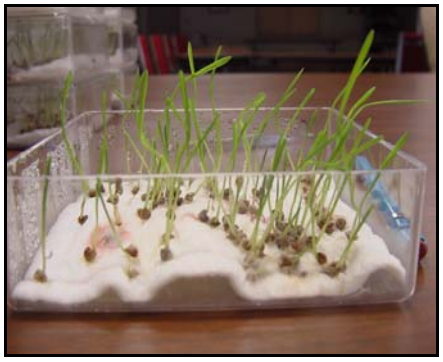
During 2002-2004, NRCS personnel in Texas and Louisiana collected seed of four native species, little bluestem, pinehill bluestem, splitbeard bluestem and gayfeather. 2006 was the first year for the accessions to be evaluated. The objective of each of these studies is to choose the best collections for conservation cover, wildlife habitat, and range planting. Following is a listing of the initial evaluation studies:

- **Initial Evaluation of little bluestem (*Schizachyrium scoparium*) accessions**
- **Initial Evaluation of pinehill bluestem (*Schizachyrium scoparium var. divergens*)**
- **Initial Evaluation of Splitbeard bluestem (*Andropogon ternarius*)**
- **Initial Evaluation of Gayfeather (*Liatris spp*.)**

Splitbeard bluestem collection

Seed Germination Study

Florida paspalum, a perennial native warm season grass, is adapted throughout the eastern United States and utilized by wildlife for food and cover. (Grelen and Hughes, 1984) Seed dormancy is found in Harrison Florida paspalum germplasm. Seed age and prechilling have been shown to reduce dormancy in other warm season grass species. Therefore, a seed germination test using seed age and prechilling was conducted on this release. In this study, seed age greatly influenced germination percent. This suggests seed dormancy can be reduced with at least three years of storage in a controlled environment (50^0 F and 50% relative humidity) resulting in improved stands. This information would be helpful to commercial seed growers and NRCS personnel who provide seeding recommendations to landowners.



Florida paspalum seedlings

Two New Studies Begun This Year

Eastern gamagrass seed study plot

This spring a three year eastern gamagrass seed production study and an 'Alamo' switchgrass study were begun at the PMC. The eastern gamagrass seed production study compares the effect of N fertilizer on the seed production and seed fill of 'Medina', 'Jackson', and accession #9067629 from Nacogdoches County. The study plot was planted in May.

The second study will examine management and fertility responses of 'Alamo' for east Texas. 'Alamo' is a tall, robust bottomland switchgrass variety that produces large thick stems which is a desirable trait for biofuel production. The stems contain cellulose which can be converted directly into ethanol. To maximize the number of mature stems, they will be harvested in late fall after the plants are dormant.

Intercenter Strain Trials

The Plant Materials Center is conducting an Intercenter Strain Trial for brownseed paspalum and shortspike windmillgrass collections from the Kika de la Garza PMC at Kingsville, Texas. The objective of this trial is to determine the best adapted collection of each species for this area. Evaluations of plant survival, vigor, and seed production are completed each summer.

Brownseed paspalum plants

Cooperative Studies at the ETPMC

The Center cooperates with Stephen F. Austin State University. We are fortunate to have access to their professors, graduate students and facilities in developing and carrying out research projects. Graduate students from Stephen F. Austin State University are carrying out part of their graduate course work at the Center.

Allan Pringle completed his study of phosphorus removal and biomass production of eight different short rotation woody crop species. He was working with Dr. Ken Farrish, Arthur Temple College of Forestry and Agriculture.

This summer, Kara Walker completed her requirements for a Master's Degree in environmental science from Stephen F. Austin State University. Her Masters thesis was about the best method for mechanical and/or chemical scarification of Crockett germplasm herbaceous mimosa. Kara determined that mechanical scarification of the seed resulted in the best germination percentage.

Courtney Charba and Dr. Jo Taylor, Biology Department, are working on the physiological and growth effects of rust in indiangrass.

PMC Releases

'Medina' eastern gamagrass, *Tripsacum dactyloides*, is a native warm season perennial grass. Medina is recommended for livestock forage, conservation buffers, and restoration of natural areas. Medina is best adapted to central Texas, eastward to Louisiana, Mississippi and Georgia. The plant is adapted to fine, medium, or coarse soils. Deep sandy soils are not recommended.

'Jackson' eastern gamagrass is a native warm season perennial grass. This cultivar is recommended for livestock forage, conservation buffers, and restoration of natural areas.

Crockett herbaceous mimosa select germplasm release. Herbaceous mimosa, *Mimosa strigillosa*, is a native warm season perennial legume found throughout the southeastern United States. 'Crockett' is recommended for revegetation of disturbed areas, road cuts, construction sites, and surface mine reclamation.

Harrison Florida paspalum select germplasm release. Florida paspalum, *Paspalum floridanum*, is a native warm season perennial grass. Florida paspalum seed is eaten by quail, doves, and turkey. The grass is palatable in the leafy stage, but becomes less palatable as it matures. Harrison is recommended for wildlife food/cover, mine reclamation, prairie restoration, and as a component of native grass forage mixes.

Tours and Presentations

Date	Audience	Location	Presenter(s)
11/15/2005	NRCS PMC Personnel	Manhattan, KS	J. Stevens
11/30/2005	SFASU Forestry Class	East Tx. PMC	J. Stevens
02/22/2006	PMC Advisory Committee	East Tx. PMC	J. Stevens, M. Brakie, T. Allen
05/31/2006	Field Day participants	East Tx. PMC	J. Stevens, M. Brakie
05/31/2006	Field Day Participants (Tour)	East Tx. PMC	M. Brakie
06/01/2006	Regional State Conservationists	East Tx. PMC	J. Stevens

2006 Plant Materials Field Day

On May 31, 2006 the East Texas Plant Materials Center hosted a Field Day for the public to come and tour the Plant Materials Center. Approximately 220 people participated in the Field Day. Representative Louie Gohmert delivered the keynote address. Dr. Larry Butler, NRCS Texas State Conservationist (retired) and Robert Eschemann, NRCS National Plant Materials Program Leader also addressed the crowd.

From left: Dr. Larry Butler, Robert Eschemann, and Representative Louie Gohmert

Publications

Plant Collection Guides

Plant Collection Guide for *Rudbeckia hirta* – Rob Ziehr / Jim Stevens
Plant Collection Guide for *Echinacea* sp. – Jim Stevens

Technical Notes

Nitrogen Use of 'Jackson' eastern gamagrass – Melinda Brakie
Nitrogen Use of 'Medina' eastern gamagrass – Melinda Brakie

2006 East Texas PMC Technical Report – Melinda Brakie / Jim Stevens
2005 East Texas PMC Progress Report – Jim Stevens / Melinda Brakie

Proceedings of Central Plant Materials Meeting - Initial Evaluations and Projects of the East Texas PMC – Jim Stevens

East Texas PMC Field Day/ Lufkin Daily News and Nacogdoches Daily Sentinel – Christine Diamond / Jim Stevens

2006 East Texas PMC Field Day – Jim Stevens

East Texas PMC News (fall/ winter) – Jim Stevens

The East Texas Plant Materials Center hosted several Natural Resources Conservation Service, US Forest Service, Texas Forest Service, and Texas Soil and Water Conservation District training and educational functions.

Plant Materials Center Staff

Jim Stevens – PMC Manager

Melinda Brakie – Assistant Manager

Tim Allen – Biological Technician (Plants)
