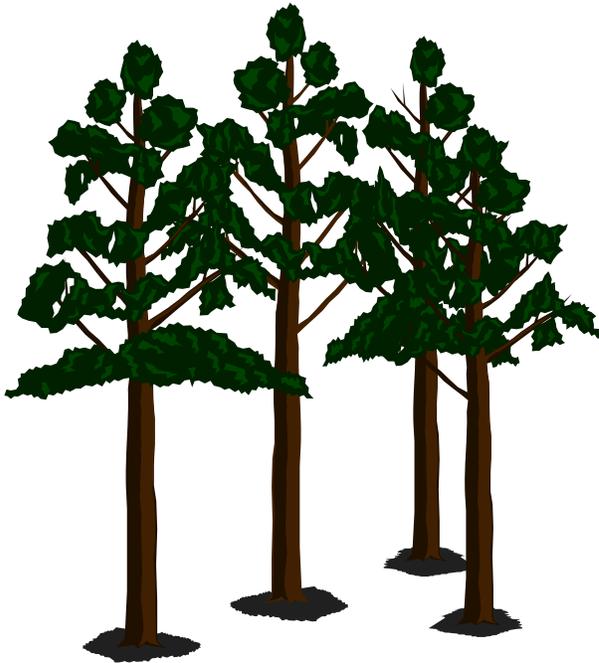


United States
Department of
Agriculture

Natural Resources
Conservation Service

East Texas Plant Materials Center

Nacogdoches, Texas



Activity Report



Cooperating With:

Texas and Louisiana Soil and Water Conservation Districts
Associations of Soil and Water Conservation Districts
Stephen F. Austin State University Agriculture Department
Stephen F. Austin State University College of Forestry
USDA-Forest Service, Southern Research Station
Resource Conservation and Development Councils

The objective of the **East Texas Plant Materials Center**: to assemble, evaluate, and release new or improved plants to address soil and water conservation problems, develop cultural and management techniques for their application, provide for their commercial production and promote their acceptance in resource conservation and environmental programs.

Board of Directors

Function: Provides overall guidance and direction toward PMC objectives.

Angus Mims	Chairman	Deep East Texas Assoc. of SWCD's
Albert Evans		Texas State SWCD Board
Roweland Patrick		Sabine SWCD, Many, La.
Dr. Leon Young		Chairman, Agriculture Dept. SFASU
Dr. Scott Beasley		Dean, College of Forestry SFASU
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Jake Schrum		North East Texas Assoc. of SWCD's
Dr. Ron Thill		U.S. Forest Service
Joe Daniel		NRCS Asst. State Conserv. for Fld. Oper.
George Wilkins		Emeritus Member

Staff

F. Melvin Adams	Manager
Melinda Brakie	Soil Conservationist
Samuel W. Chancellor	Biological Technician
Clint Howle	Biological Aide
Chris Lambert	Biological Aide
Courtney Hitchens	Secretary (1/96-8/96)
Amy Cardin	Secretary
Tim Coats	Summer employee
Adam Cain	Summer employee

Plant Materials Technical Committee

Function: Provides technical guidance for plant materials projects, collections, selections, and releases. The Plant Materials Technical Committee is comprised of technical specialists, representatives of industry, agencies, universities, SWCD's, and other applicable organizations.

Supported and Assisted By:

Richard White	National Plant Materials Specialist
Wes Oneth	Texas State Conservationist - Temple
Don Gohmert	Louisiana State Conservationist - Alexandria
O'Gene Barkemeyer	Asst. State Conservationist - Temple, Texas
James Alderson	Plant Materials Specialist - Temple, Texas
Mike Materne	Plant Materials Specialist - Baton Rouge, La.
Bruce Letho	Resource Conservationist - Alexandria, La.

Soil and Water Conservation Districts which contributed funds for support of the ETPMC during the 1996 fiscal year. (Districts are listed in alphabetical order.)

Funds from these Districts were used for part time secretarial assistance and supplies.

Anderson-Houston

Bedias

Bowie

Cherokee

Coastal

Davy-Crockett Trinity

Desoto

Freestone

Grant, La.

Harris

Harrison

Lamar

Long Leaf

Lower Neches

Marion Cass

Nacogdoches

Navasota

Robertson

Rusk

Sabine, La.

Smith

Upper Neches

Upper Sabine

Upshur-Gregg

Walker

PMC Activities

Visitors

During 1996, 1568 visitors utilized the Plant Materials Center and facilities. This represents a 41% increase from 1995. Educational contests were sponsored by Soil and Water Conservation Districts. Federal and state agencies held personnel training sessions. PMC tours were given for individuals and groups.

Latexo High School Ag. Class

State Woodland Contest

PMC Evaluation Plot Sign

A new sign was erected by the evaluation plots.

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Initial Evaluation

Project #59I040L - Initial Evaluation of Beaked panicum Summary for 1996 growing season

Beaked panicum is a native warm season perennial grass which grows to a height of 2-4 ft. Primary uses for this species include revegetation of surface - mined land, logging sites, timber roads, and other disturbed areas.

This was the first year notes were taken for this evaluation of 24 accessions. Greenup of the plants began the last week of March. Vigor ratings were taken June 19. Foliage characteristics were recorded on May 13, at which time two distinct ecotypes were evident, one being var. rhizomatum. The first type had wide, coarser leaves. The growth habit was tall and erect. The second ecotype had fine, slender leaves. Growth habit was semi-erect with dense foliage on the better accessions.

Booting began in late June and continued to mid-August. Because of the extremely dry weather, drought tolerance was recorded. Generally, the larger, medium textured accessions tolerated the weather better than the fine leaved accessions. The trend of two distinct ecotypes continued throughout the season into seed maturity. The medium textured accessions produced heavier, larger seed. In contrast, the fine textured accessions produced smaller, lighter seed. There was also a division among the medium textured accessions in regard to panicle size. Some of the plants had an open, lanky panicle while others exhibited a tighter, shorter panicle. The shorter panicles produced more seed than the open panicked accessions. Seed maturity dates began in early August and continued until early October.

Dormancy of the accessions occurred about 3 - 4 weeks after seed maturity. By mid October all accessions in the evaluation were dormant.

Using the criteria of vigor, seed amount, and maturity, one accession, #67094 (origin Walker Co.) stood out this year by exhibiting above average vigor and seed production.

Initial Seed and Plant Increase

The following plant is currently being increased for further testing:

Scientific name	Access. #	Study #	Origin
Veiny peavine <i>Lathyrus venosus</i>	9044064	59S018J	San Augustine, TX

Advanced Evaluations

Project # 59A033G - Effects of Clipping Height on Stand Persistence, Yield, and Quality of Virginia wildrye, *Elymus virginicus*, L.

Study Summary for 1994-1996

Virginia wildrye is a native, cool season perennial. The anticipated use is as a cool season forage for domestic livestock and wildlife. Three accessions, PI-436946 Oklahoma Co., OK, PI-436957 Payne Co., OK, and PI-436971 Anderson Co., Tx. are in this study .

The study plot was planted in March 1993. For ease of clipping, the accessions were planted in 38" rows. The plants were allowed to establish with the first clipping completed in February 1994.

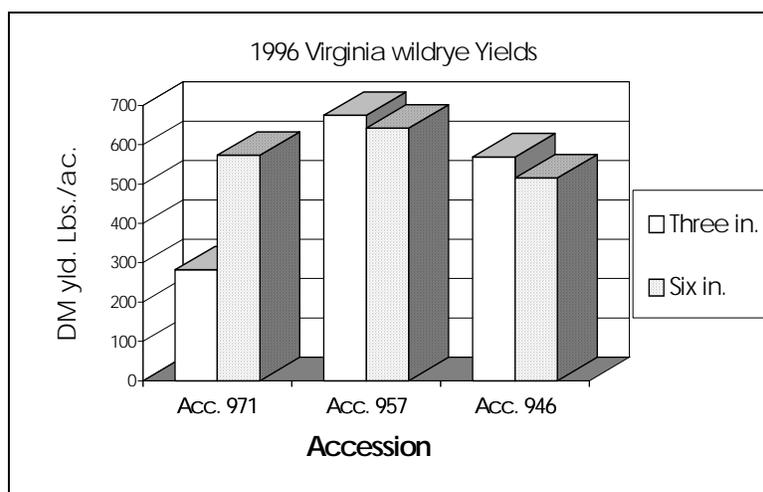
Clipping heights of three and six inches were used. Each clipping height was replicated three times. Data from this study will be used to select a superior accession and management technology including proper clipping heights.

1996 was to be the final year for this study. However, based upon observations from this study, a supplement has been added. The same accessions will be used. This study supplement will be extended two to three years to obtain clipping data based upon close spaced plots instead of rows. This would provide dry matter yields for close spaced plantings. Increased yields per acre are expected.

Results for 1996:

Only one clipping was completed for the 1995-96 growing season. This was due in part to the very dry conditions from mid-December 1995 to clipping in April 1996. Also, stand health was declining, as will be

discussed later. Following is a chart showing the results of the April 1996 clipping.



Crude protein ranged from 13-17% for the three inch clipping and 14-19% for the six inch clipping.

Observations for the entire study:

1. Statistically, the 3" clipping height produced significantly more forage. However, by the end of the second year of clipping, the three inch clipping height was not as vigorous or healthy as the plants clipped at 6 inches.

PI# 436946 (Oklahoma Co., OK) had the highest average dry matter yield of 1066 lbs./ac. for the three inch clipping height.

PI# 436957 (Payne Co., OK) produced the most forage for the six inch clipping height. The average dry matter yield was 864 lbs./ac.

2. Whether at a 3" or 6" clipping height, Virginia wildrye seems to have a definite span of vigorous forage production. The plants in this study produced greater amounts of forage in the first two years when a total of five clippings were completed. By the third year, only one clipping was completed. Forage yield dropped dramatically (60-70%) for each accession and clip height.

Recommendations:

1. To maintain vigor, clip or graze the stand at six inches,. Following the second year's grazing , allow the plants to seed. Mow the plants after seed maturity to shatter seed.

2. Given the limited amount of DM forage yield based on row spaced plantings (38"), Virginia wildrye would be best suited to pasture use.

3. Literature reviews do not recommend burning of Virginia wildrye because of resulting stand decline.

1996 Summary of the Eastern gamagrass Intercenter Strain Trial

1996 marked the initial year of clipping for the Eastern gamagrass Intercenter Strain Trial. This study will continue until the fall of 1998. The objective of this study is to release a superior accession(s) which can be grown throughout the southeast U.S.

The PMCs listed below (except Los Lunas) are each testing these thirteen accessions. The Jimmy Carter Plant Materials Center in Americus, Georgia is participating although no accessions from the Center are in the study. Listed below are participating PMCs and accession numbers:

Acc. number	PMC
PI434493	James "E." Bud Smith, Knox City, Tx.
9066165	Los Lunas, New Mexico
9043762	East Texas, Nacogdoches, Tx.
9043629	"same"
9043740	"same"
9062680	Jamie L. Whitten, Coffeetown, MS.
9062708	"same"
9055975	Brooksville, Florida
9059213	"same"
9059215	"same"
9058465	Booneville, Arkansas
9058495	"same"
9058569	"same"

Four clippings (45 day intervals) were taken throughout the spring and summer. The plots were harvested, weighed for wet weight, and then dried to calculate moisture and dry matter yield. Plots were fertilized with a season total of 200 lbs. actual N. Nitrogen (ammonium nitrate) was applied in split applications after each cutting except the final clipping. Subsamples were sent to the forage lab in Coffeetown, MS. for analysis.

Dry matter yields ranged from an average of 16,354 DM yield lbs./ac. for Jackson to 3114 DM yield lbs./ac. for #9055975 (Florida). As expected, the East Texas accessions performed well in the study in dry matter yield. Of the four top places, East Texas accessions held three. Montgomery (#9062680), from Coffeetown, placed second. The Florida accessions did not perform well here. They were not as vigorous or productive as some of the other accessions. One explanation may be they are at the edge of their area of adaptation and therefore not able to readily compete with accessions from this region.

Study of Deertongue, *Dicanthelium clandestinum*

Deertongue is a perennial native bunchgrass. This grass is considered a 'pioneer' plant due to its ability to grow on low fertility soils. Therefore, among the possible conservation uses for this species are revegetation of surface mined lands and other disturbed areas including post timber logged areas.

Six accessions were chosen for the advanced evaluation (9057369-Henderson Co., Tx., 9057335-Shelby Co., Tx., 9057329-Rusk Co., Tx, 9057375-Anderson Co., Tx., 9057334-Camp Co., Tx., and 9057333-Walker Co., Tx.).

The plants from the initial evaluation were transplanted. Also, seed was taken from the accession seed packets and grown in the greenhouse to increase the number of plants and parent material for these accessions.

For 1996, the accession from Camp Co. (9057334) exhibited better vigor and health than the other five accessions.

Seed and Plant Increase

During or following advanced evaluations, those accessions with superior characteristics are established in various size blocks at the PMC. The following plant materials are currently being increased for field plantings:

Scientific name	Access. #	Cultivar / Origin	Size
Herbaceous mimosa <i>Mimosa strigillosa</i>	548994		1.0 ac.
Limpograss <i>Hemarthria altissima</i>	299993	'Red Alta'	.2 ac.
Virginia wildrye <i>Elymus virginicus</i>	436946 436957 436971	Oklahoma Co.,OK Payne Co.,OK Anderson Co.,OK	.05 ac. .12 ac. .08 ac.
Eastern gamagrass <i>Tripsacum dactyloides</i>	9043740 9043762 9043629		1.2 ac.
Florida paspalum <i>Paspalum floridanum</i>	9043874		.10 ac.
Vetivergrass <i>Vetiveria zizanioides</i>		Sunshine	.05 ac.

Project 59C0360 - Increase Nurseries/Wetland Cultural Study

For 1996, the ETPMC published a technical note concerning spacing of Juncus and Scirpus wetland species. Following is the text from that note.

Spacing of Softstem bulrush (*Scirpus validus*) and Soft rush (*Juncus effusus*) in Constructed Wetlands

Interest in aquatic plants has increased in recent years. This interest is due in part to the increased awareness and beneficial uses of aquatic plants.

However, basic information about the growth and management of aquatic plants is still limited for some species. The East Texas Plant Materials Center has begun studies on certain aquatic plants including Softstem bulrush and soft rush.

One such study was initiated in 1994. Softstem bulrush (*Scirpus validus*) and soft rush (*Juncus effusus*) were planted on June 8, 1994. The planting site (a constructed wetland) was maintained at a 3 - 5 inch depth using fresh water. No nutrients were added. The plants were then monitored for stem growth, height, and canopy closure throughout the summer with notes being taken on 6/29/94 and 9/20/94.

Species	Spacing	# of new stems grown 6/08-6/29	# of new stems grown 6/29-9/20	Avg. ht. cms. 9/20	% Surv.
Juncus **	2'	19.5	29	64	100
Juncus	3'	15.4	15	57	92
Juncus	4'	18.6	23	35	84
Scirpus **	2'	2.8	40	99	77
Scirpus	3'	2.8	22	92	90
Scirpus	4'	2.5	33.5	86.7	80

***Notes: Juncus plants were 4" potted materials. Scirpus plants were single bare rooted plants.*

Results:

1. In all three spacings, the softstem bulrush grew the fewest number of stems for the first three weeks, then consistently grew more stems than the soft rush plants.
2. The percent survival levels of the 4" potted soft rushes was 84% - 100% while the bare rooted softstem bulrush ranged from 77% - 90%.
3. Both species are vigorous rhizome producers.

4. A 3' x 3' spacing of either species provided stem canopy closure the first growing season.
5. Canopy closure on the 2' x 2' spacing occurred earlier than the 3' x 3' spacing.
6. The softstem bulrush was dormant during the winter months while the soft rush was actively growing.
7. Other aquatic species were able to establish naturally in the wide 4' x 4' spacing.

Conclusions:

1. From observations in this study, potted materials result in higher survival rates.
2. A combination of softstem bulrush and soft rush will provide year round growth and increased biological activities.
3. A 3' x 3' spacing of either species is recommended to obtain stem canopy closure during the first growing season. This spacing would require approximately 4,585 plants per acre.
4. Canopy closure can be attained quickly by regularly applying nutrients to constructed wetlands.

Field Plantings / Off Center Plantings

These plantings are established on SWCD cooperator land or unique problem areas. The plants are evaluated under actual use conditions for three to five years to verify their superiority over commercially available cultivars. Sites for field plantings are chosen in various soil types.

The following counties have Eastern gamagrass field plantings:

Texas - Nacogdoches, Liberty, Falls and Bell counties.

The following counties have 'Red Alta' Limpograss plantings:

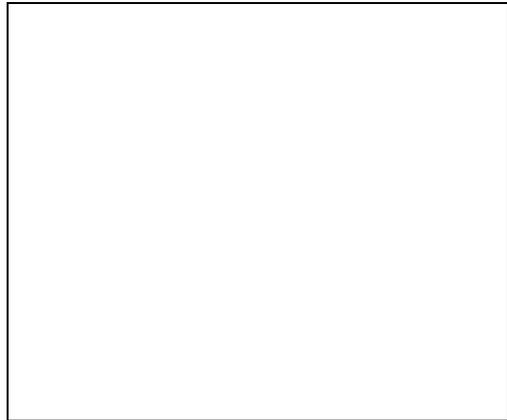
Texas - Hardin, Nacogdoches, Orange, Grimes, Rusk, Walker, Gregg and Waller

Louisiana Parishes - Vernon and Catahoula

'Red Alta' is a released Limpograss cultivar from Florida. The ETPMC is furnishing vegetative materials for the service area until commercial growers are established.

Lanana Creek Project

In May of 1996, the ETPMC provided over 400 Herbaceous mimosa *Mimosa strigillosa* plants and assistance for a project along the Lanana Creek Trail in Nacogdoches. Low growing, low maintenance plant species were desired. Al Schmidt, District Conservationist of Nacogdoches Co., thought of using *H. mimosa* and asked the PMC to be a part of the project. The planting site was an area of fill material overlaid with a concrete block mat system behind a recently constructed retaining wall of timber.



The retaining wall will protect a walking trail along Lanana Creek. The fill material was of low fertility and moisture holding capacity. These two factors limited the plant species capable of growing in such conditions.

Agriculture students from Nacogdoches High School, volunteers from Nacogdoches Proud, John Connor, Director of Parks and Recreation for Nacogdoches; and NRCS personnel from the Nacogdoches Field Office and ETPMC planted the area. Herbaceous mimosa plants were planted into the interlocking concrete block slots on various spacings. Beaked panicum plants were planted near the retaining wall.

The planting's progress was monitored throughout the summer. Notes (8/26/96) were taken three months after planting.

Results

The Herbaceous mimosa grew best when in full sun. The plants had produced runners ranging in length from 32 to 50 inches. By producing such long runners, the plants spread rapidly and covered approx. 70% of the total area of the site. Closer spaced areas exceeded 95% ground coverage.

Name and Release

Plants which prove themselves in field plantings are given a cultivar name and cooperatively released by NRCS and participating state and federal agencies. Breeder and foundation seed/plants are produced by the PMC for distribution to commercial growers through the Texas Foundation Seed Service.

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