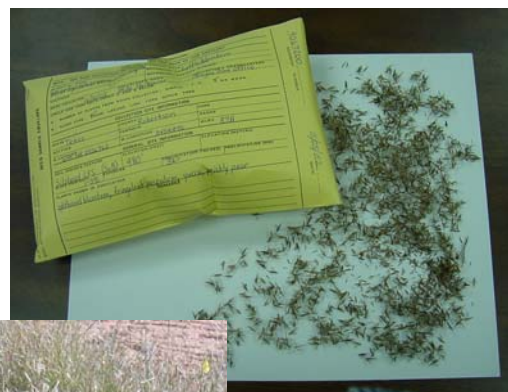


United States Department of Agriculture



# East Texas Plant Materials Center

## 2005 Technical Report



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## Introduction

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 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

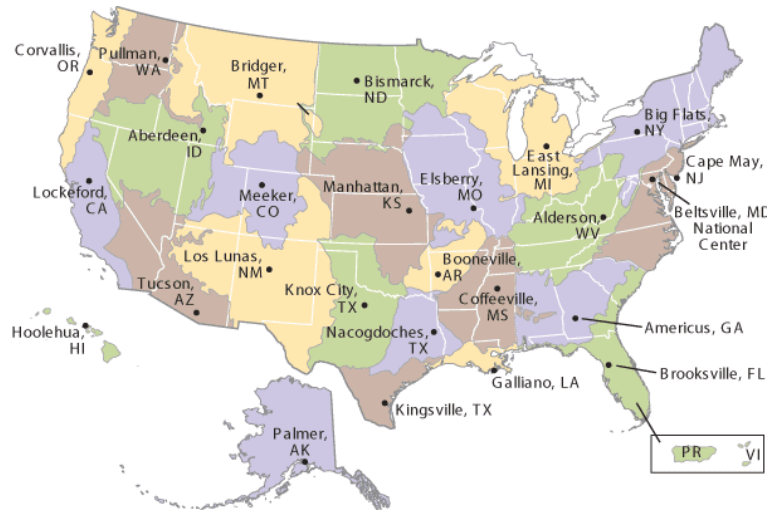
The PMC cooperates with other agencies and organizations to develop plant materials and technology. Cooperators include the US Forest Service, Soil and Water Conservation Districts in east Texas and western Louisiana, entities within NRCS, and the Arthur Temple College of Forestry and Agriculture at Stephen F. Austin State University at Nacogdoches, Texas.

The purpose of this publication is to present information from active studies conducted during 2005. These studies are ongoing and information is preliminary in

nature. Past information about PMC studies is available at <http://Plant-Materials.nrcs.usda.gov>.

## PMC 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.



## PMC Site Information

The PMC is located at the US Forest Service Stephen F. Austin Experimental Forest about ten miles southwest of Nacogdoches, Texas. Presently, 26 acres are utilized for plant evaluation studies and foundation seed production. Soils at the PMC are acidic, but considered productive. The soils are: Attoyac fine sandy loam, Bernaldo fine sandy loam, Woden fine sandy loam, and Bernaldo-Besner complex. These soils are gently sloping (0 to 4 percent) and will develop fragipans.

Rainfall (Table 1) for 2005 was 18.5 inches below average yearly totals. The shortage occurred during the growing season between June and November. The drought conditions adversely affected plant growth and seed production.

Hurricane Rita struck east Texas on September 24<sup>th</sup>. The eye of the storm passed approximately 30 miles east of the PMC. Damage to the PMC was limited to greenhouse panels being blown out, shingle damage to outbuildings, downed trees, and loss of electrical power for a week.

Table 1. Monthly rainfall for 2005 and Average rainfall at Nacogdoches, Texas

Month	2005	Avg.
	-----In. -----	
January	4.6	4.36
February	5.7	3.87
March	3.0	4.16
April	3.0	4.10
May	1.5	4.83
June	4.6	4.11
July	.8	2.90
August	1.2	3.11
September	2.8	3.69
October	.8	4.04
November	.9	4.57
December	1.3	4.62
Total	30.2	48.36

## Pasture/ Hayland Studies

**Title:** Initial Evaluation of Little Bluestem (*Schizachyrium scoparium*)  
**Study No:** ETPMC-0565-P-PA  
**Duration:** 2005 – 2008

### Introduction

Little bluestem is a warm season native perennial grass found throughout the United States. This plant is considered one of the major grasses of the tall grass prairies. It grows on a variety of soils and is distributed throughout most of Texas. The objective of this initial evaluation is to choose the best performing accessions for advanced study and release of an adapted cultivar. Seed of little bluestem accessions were collected by NRCS personnel from 2002 to 2004.

### 2005 Activity

Seed of eighty-four accessions collected from Texas and Louisiana were planted in transplant cones on February 24th, 25th, and March 2<sup>nd</sup>. On June 9<sup>th</sup> and 13<sup>th</sup>, the accessions were transplanted to the initial evaluation block. On August 11<sup>th</sup>, seed of twenty-six accessions that did not perform well in the spring were planted again in anticipation of a fall planting. (See Table 2 and 3 for collection data.)

### Summary

Some of the accessions failed to emerge, even with two plantings. This failure could be attributed to insufficient seed fill or shattering before the collection was made. This year (2005) was considered an establishment year.

Table 2. Little bluestem Initial Collections (Texas) – 2002 to 2004

Accession #	Species	County	Collector(s)	Date
9067200	Little bluestem	Robertson, Tx.	Mike Stellbauer	10/30/2002
9067206	Little bluestem	Nacogdoches, Tx.	Jim Stevens	11/12/2002
9067208	Little bluestem	Freestone, Tx.	Keith Hardwick	11/21/2002
9067216	Little bluestem	Chambers, Tx.	Laura Yarbrough	12/4/2002
9067222	Little bluestem	Nacogdoches, Tx.	Alvis Schmidt	11/10/2002
9067224	Little bluestem	Henderson, Tx	Julie Moore	11/20/2002
9067226	Little bluestem	Madison, Tx.	Jon Muncreif	11/6/2002
9067228	Little bluestem	Walker, Tx	Jon Muncreif	11/6/2002
9067237	Little bluestem	Leon, Tx.	Kim Wright	11/11/2002
9067249	Little bluestem	Rusk, Tx.	Steven Gelwicks	10/9/2003
9067251	Little bluestem	Matagorda, Tx.	Stephen Deiss	11/6/2003
9067252	Little bluestem	Matagorda, Tx.	Stephen Deiss	11/6/2003
9067257	Little bluestem	Robertson, Tx.	Mike Stellbauer	11/11/2003
9067258	Little bluestem	Robertson, Tx.	Mike Stellbauer	11/11/2003
9067259	Little bluestem	Robertson, Tx.	Mike Stellbauer	11/11/2003
9067263	Little bluestem	Freestone, Tx.	David Polk	11/10/2003
9067266	Little bluestem	Nacogdoches, Tx.	Melvin Adams	11/5/2003
9067267	Little bluestem	Nacogdoches, Tx.	Melvin Adams	11/5/2003
9067268	Little bluestem	Fayette, Tx.	Chad Kacir	11/26/2003
9067271	Little bluestem	Bell, Tx.	Dalton Merz	11/14/2003
9067279	Little bluestem	Burleson, Tx.	Preston Irwin	10/24/2003
9067283	Little bluestem	Lee, Tx.	P. Irwin / R. Pope	10/31/2003
9067288	Little bluestem	Mills, Tx.	James Dixon	11/17/2003
9067292	Little bluestem	Guadalupe, Tx	George Clendenin C. Pate/M.	11/3/2003
9067297	Little bluestem	Waller, Tx.	Stellbauer	10/22/2004
9067318	Little bluestem	Nacogdoches, Tx.	Jim Stevens	11/5/2004
9067322	Little bluestem	Nacogdoches, Tx.	Jim Stevens	11/5/2004
9067324	Little bluestem	San Augustine, Tx.	Ray Stoner	11/10/2004
9067325	Little bluestem	San Augustine, Tx.	Ray Stoner	11/10/2004
9067328	Little bluestem	Henderson, Tx	Darren Manthei	11/10/2004
9067330	Little bluestem	Cooke, Tx.	Trina J. Mattox K. Hardwick/ D.	11/16/2004
9067336	Little bluestem	Freestone, Tx.	Polk	11/8/2004
9067345	Little bluestem	Robertson, Tx.	Mike Stellbauer	10/22/2004
9067346	Little bluestem	Robertson, Tx.	Mike Stellbauer	10/22/2004
9067352	Little bluestem	Matagorda, Tx.	Stephen Deiss	12/3/2004

Table 3. Little bluestem Initial Collections (Louisiana) – 2002 to 2004

Accession #	Parish	Accession #	Parish
9067680	Winn	9067705	Beauregard
9067681	Winn	9067706	Beauregard
9067682	Lasalle	9067707	Iberville
9067683	Lasalle	9067708	Allen
9067684	Lasalle	9067709	Allen
9067685	Grant	9067710	Rapides
9067686	East Feliciana	9067711	Rapides
9067687	East Feliciana	9067712	Calcasieu
9067688	Rapides	9067713	Natchitoches
9067689	Caldwell	9067714	Natchitoches
9067690	Caldwell	9067715	Desoto
9067691	Caldwell	9067716	Caddo
9067692	Union	9067717	Red River
9067693	Bienville	9067718	Rapides
9067694	Bienville	9067719	Grant
9067695	Winn	9067720	Vermilion
9067696	Winn	9067721	Acadia
9067697	Rapides	9067722	Acadia
9067698	Rapides	9067723	Evangeline
9067699	Rapides	9067724	Rapides
9067700	Rapides	9067725	Vermilion
9067701	Vernon	9067726	Jefferson Davis
9067702	Vernon	9067727	Tangipahoa
9067703	Vernon	9067728	Vermilion
9067704	Vernon		



**Title:** Initial Evaluation of Splitbeard Bluestem (*Andropogon ternarius*)  
**Study No:** ETPMC-P-0567-PA  
**Duration:** 2005-2008

**Introduction**

Splitbeard bluestem is a native perennial grass which grows 80 to 120 cm. tall. This species has a light fluffy colored seed and flowers from August to November. Splitbeard bluestem is adapted in Texas and the southeastern United States.

The objective of this study is to choose the best accessions for further evaluations. The intended uses of this plant are pasture/hay planting and wildlife habitat.

**2005 Activity**

Twenty-three collections were submitted to the PMC for evaluation. Seed of these collections were planted in transplant cones on February 15<sup>th</sup>. These accessions grew well and were planted to an initial evaluation block on June 2<sup>nd</sup>. Due to the dry growing conditions, the evaluation plot was periodically watered to aid in plant establishment.

**Summary**

2005 was considered an establishment year for these accessions. (See Table 4 for collection data.)

Table 4. Splitbeard bluestem Initial Collections -2002 to 2004

Accession #	Species	County	Collector(s)	Date
9067199	Splitbeard bluestem	Robertson, Tx.	Mike Stellbauer	10/30/2002
9067203	Splitbeard bluestem	Nacogdoches, Tx.	Jim Stevens	10/31/2002
9067204	Splitbeard bluestem	Nacogdoches, Tx.	Jim Stevens	10/31/2002
9067210	Splitbeard bluestem	Anderson, Tx.	David Polk	10/31/2002
9067230	Splitbeard bluestem	Harrison, Tx.	Allen Smith	11/18/2002
9067248	Splitbeard bluestem	Rusk, Tx.	Steven Gelwicks	10/9/2003
9067260	Splitbeard bluestem	Robertson, Tx.	Mike Stellbauer	11/11/2003
9067261	Splitbeard bluestem	Robertson, Tx.	Mike Stellbauer	11/11/2003
9067262	Splitbeard bluestem	Robertson, Tx.	Mike Stellbauer	11/11/2003
9067265	Splitbeard bluestem	Freestone, Tx.	David Polk	11/10/2003
9067280	Splitbeard bluestem	Lee Co.	Preston Irwin C. Pate/M.	11/14/2003
9067298	Splitbeard bluestem	Waller, Tx.	Stellbauer	10/22/2004
9067302	Splitbeard bluestem	Nacogdoches, Tx.	Jim Stevens	10/30/2004
9067319	Splitbeard bluestem	Nacogdoches, Tx.	Jim Stevens	11/5/2004
9067320	Splitbeard bluestem	Nacogdoches, Tx.	Jim Stevens	11/5/2004
9067326	Splitbeard bluestem	San Augustine, Tx.	Ray Stoner	11/10/2004
9067327	Splitbeard bluestem	Henderson, Tx	Julie Moore K. Hardwick/ D.	11/10/2004
9067338	Splitbeard bluestem	Freestone, Tx.	Polk	11/8/2004
9067340	Splitbeard bluestem	Navarro, Tx.	David Polk	11/16/2004
9067341	Splitbeard bluestem	Anderson, Tx.	David Polk	10/18/2004
9067342	Splitbeard bluestem	Robertson, Tx.	Mike Stellbauer	10/22/2004
9067343	Splitbeard bluestem	Robertson, Tx.	Mike Stellbauer	10/30/2004
9067344	Splitbeard bluestem	Robertson, Tx.	Mike Stellbauer	10/22/2004

**Title:** Initial Evaluation of Pinehill Bluestem (*Schizachyrium scoparium* var. *divergens*)  
**Study No:** ETPMC-P-0566-PA  
**Duration:** 2005-2008

**Introduction**

Pinehill bluestem, also known as eastern little bluestem is adapted to the pine forests of Texas, Arkansas, and Mississippi.

**2005 Activity**

Seed of twelve accessions was planted in transplant cones on February 15<sup>th</sup>. Emergence of the accessions was slow, most of them taking four to seven weeks. On June 2<sup>nd</sup>, four accessions were transplanted to an initial evaluation block.

On August 12<sup>th</sup>, seed from eight accessions were replanted in anticipation of a fall transplanting. Only one accession was transplanted to the initial evaluation block on October 31<sup>st</sup>. (See Table 5 for collection data.)

**Summary**

Performance of these accessions was disappointing. Emergence was slow, as compared to the other initial evaluation species. Emergence failure could be attributed to insufficient seed fill or collecting material after the seed had already shattered.

Table 5. Pinehill bluestem Initial Collections – 2002 to 2004

Accession #	Species	County	Collector(s)	Date
9067209	Pinehill bluestem	Anderson, Tx.	David Polk	10/31/2002
9067231	Pinehill bluestem	Harrison, Tx.	Allen Smith	11/18/2002
9067264	Pinehill bluestem	Anderson, Tx.	David Polk	11/13/2003
9067308	Pinehill bluestem	Angelina, Tx.	Jim Stevens	11/4/2004
9067310	Pinehill bluestem	San Augustine, Tx.	Jim Stevens	11/4/2004
9067311	Pinehill bluestem	San Augustine, Tx.	Jim Stevens	11/4/2004
9067312	Pinehill bluestem	Jasper, Tx	Jim Stevens	11/4/2004
9067313	Pinehill bluestem	Jasper, Tx	Jim Stevens	11/4/2004
9067314	Pinehill bluestem	San Augustine, Tx.	Jim Stevens	11/4/2004
9067315	Pinehill bluestem	San Augustine, Tx.	Jim Stevens	11/4/2004
9067317	Pinehill bluestem	San Augustine, Tx.	Jim Stevens	11/4/2004
9067339	Pinehill bluestem	Freestone, Tx.	David Polk	11/4/2004

## Wildlife Studies

**Title:** Advanced Evaluation of Beaked panicum (*Panicum anceps*) Accessions  
**Study No:** ETPMC-P-0054-WL  
**Duration:** 2001-2006

### Introduction

Beaked panicgrass (*Panicum anceps*) is a warm season native perennial. The plant varies in height from 2 to 4 feet. This grass reproduces by seeds, tillers, or short rhizomes. The seed resembles the curved beak of a bird, hence its common name.

Beaked panicgrass is adapted from New York to Kansas and southeastern US. The grass is adapted to moist sandy sites and grows in poorly drained flats, depressions and bottomlands. Conservation uses for beaked panicgrass include revegetation of surface mined lands, timber roads, and other critical erosion sites. Beaked panicgrass is utilized by wildlife. Cattle also graze on this grass.

### 2005 Activity

In April, five hundred and eighty plants of #9067102 (Harrison Co.) were transplanted to expand the initial seed production block. By expanding, seed production was increased from 0.3 lb. in 2004 to 2.8 lbs. in 2005.

There are noticeable differences between the accessions regarding inflorescence structure and leaf width. Therefore, in September specimens of the advanced evaluation accessions were sent to the S.M. Tracy Herbarium at Texas A&M for positive identification. All the accessions were identified as *Panicum anceps*.

Seed harvests to compare seed production between accessions were completed in October and November. (See Table 6) There was a significant difference in seed yields among five accessions. Seed yield of accession # 9067071 (Grimes) was higher than #9067094 (Walker) but the difference was not significant. Grimes and Walker produced more seed than #9067121 (Rapides), #9067079 (Smith), and #28510 (MS PMC).

Table 6. Mean Seed Production of Beaked panicum Accessions

<u>Accession</u>	<u>County/Parish</u>	<u>Yield (gr.)</u>
#9067071	Grimes	198 a
#9067094	Walker	172 a
#9067121	Rapides	115 b
#9067079	Smith	82 b c
#28510	MS PMC	69 c
<u>Mean</u>		<u>127</u>

\*Means within the column followed by the same letter are not significantly different as determined by least significant difference test at  $P < 0.05$

### Summary

The accessions were adversely effected by the dry growing season. However, #9067094 (Walker) and #9067071 (Grimes) fared better than the other accessions. Grimes and Walker produced the highest seed yields for 2005.

**Title:** Seeding Rate of Harrison germplasm Florida paspalum Select Release  
**Study No:** ETPMC – 0359 – WL  
**Duration:** 2004 - 2007

### **Introduction**

Florida paspalum (*Paspalum floridanum*) is a native warm season perennial grass that grows five to six feet tall. This grass provides cover and food for wildlife. The seed is eaten by turkey and gamebirds. This species is adapted to the eastern part of the United States.

In 2003, the East Texas Plant Materials Center released Harrison germplasm Florida paspalum selected release to the commercial market. The objective of this study is to determine the optimum seeding rate for this release.

### **2005 Activities**

The experimental design was three randomized complete replications with five seeding rates of 4, 6, 8, 10, and 12 pls lbs. /acre. Plot size was 2' x 6' with three rows spaced eight inches apart to simulate drill planting. The soil for the plots is an Attoyac fine sandy loam. No chemical or mechanical weed control was applied to the plots. The plots were hand planted on April 28, 2005. In November, a transect to determine percent ground cover was conducted.

### **Summary**

Results from the 2005 seeding were disappointing. Dry soil conditions and weed pressure adversely affected seed emergence and growth. There was not enough data generated from the plots for proper analysis.

**Title:** Seed Increase of Virginia wildrye (*Elymus virginicus*)  
**Study No:** 59S032G  
**Duration:** 2004 – 2007

### **Introduction**

Virginia wildrye (*Elymus virginicus*) is a native cool season grass found growing throughout the United States. This species grows along streams and moist areas. Stalks grow 2 to 3 feet tall with erect seed heads. The plants reproduce by seeds or tillering.

Several PMCs have studied Virginia wildrye for use as cool season forage. Earlier studies at the East Texas PMC indicated this species would be suitable as a component of a forage mixture instead of a monoculture.

In 2001, striped leaf smut was found in the seed increase stand of accession #436971. The disease was identified by Dr. George Philley at the Texas Extension Research Station at Overton, Texas. The stand was subsequently destroyed to prevent contamination of other evaluation fields. Three years later, in 2004, the study was revived to determine if some superior plants would exhibit resistance to striped leaf smut and to grow enough seed for a seed increase block.

### **2005 Activities**

Seed of accession #436971 was planted to transplant cones on October 1, 2004. Seedlings began to emerge two weeks after planting. On March 6 and April 26-27, the plants were transplanted to an initial seed increase block.

### **Summary**

2005 was considered an establishment year for the transplants. Seed increase and evaluation activities will continue in 2006.

## Critical Area Studies

**Title:** Seeding Rate of Crockett germplasm herbaceous mimosa select release  
**Study No:** ETPMC-T-0462-CR  
**Duration:** 2004-2007

### Introduction

Herbaceous mimosa (*Mimosa strigillosa*) is a warm season perennial legume native to the southeastern United States. The plant grows to a height of 6-8". This legume is also a good seed producer. It spreads by stems which root at the nodes and form new plants. Stems can grow up to four feet in length during the growing season. Herbaceous mimosa resembles catclaw sensitive briar (*Schrankia nuttallii*) but does not have thorns. One of the most notable characteristics of the plant is its bright pink bloom, hence another common name of powder puff. The plant prefers full sun and once established is drought tolerant. Herbaceous mimosa is tolerant of lower pH conditions. Germination can occur at pH of 4.1. The optimum pH appears to be between 6.2 and 7.1.

In 2003, Crockett germplasm herbaceous mimosa selected release was made available to the commercial market. The objective of this study is to determine a pure live seeding rate for this release.

The experimental design was three randomized complete replications with five seeding rates of 4, 7, 10, 13, and 16 pls lbs. /acre. Plot size was 2' x 6' with three rows spaced eight inches apart to simulate drill planting. The soil for the plots is an Attoyac fine sandy loam. No chemical or mechanical weed control was applied to the plots.

### 2005 Activities

The plots were hand planted on April 29, 2005. A transect of the plots was conducted on November 17<sup>th</sup>, 2005.

### Summary

Transect results were inconclusive. The dry conditions may have adversely affected plant growth.

**Title:** Initial Seed Increase of Velvet rosettegrass (*Dichanthelium scoparium*)  
**Study No:** ETPMC-S-9947-CR

**Duration:** 1999-2007

### Introduction

Velvet rosettegrass is a warm season native grass. It grows to four feet in height with gray green foliage. This species is adapted to coarse and medium textured soils of medium fertility. Velvet rosettegrass occurs as scattered plants in new forest plantations, forest edges, floodplains, and is adapted to moist areas. *Dichanthelium* seeds provide food for ground feeding birds, small mammals, and gamebirds.

### 2005 Activities

The initial seed increase block was expanded in April. A comparison between emergence of flail vac (chasmogamous) and combine (cleistogamous) harvested seed (2004 harvest year) was conducted in February and March. Three replications of 100 seeds each of flail vac and combine harvested seed were planted in transplant cones on February 11<sup>th</sup>. The seed was planted in a commercial potting mix at a depth of 1/8". Seedling emergence was recorded on a regular basis during March and the first part of April. April 12<sup>th</sup> was the final seedling count.

### Summary

There was a noticeable difference in seedling emergence between chasmogamous and cleistogamous seed. Approximately three times more chasmogamous than cleistogamous seedlings emerged. (See Table 7 below.)

Table 7. Percent of Emerged Velvet rosettegrass seedlings on April 12<sup>th</sup>

Harvest method	Rep. 1	Rep. 2	Rep. 3	Average %
Flail vac	55	59	54	56
Combine	16	11	22	16

**Title:** Agroforestry Project with Arthur Temple College of Forestry – Stephen F. Austin State University  
**Study No:** ETPMC-T-0356-NU  
**Duration:** 2003-2006

**Introduction**

The East Texas Plant Materials Center is cooperating with the Arthur Temple College of Forestry-Stephen F. Austin State University in an agroforestry project. Using fast growing trees in riparian areas provides a filter area to take up phosphorus and other nutrients before they reach water bodies and streams. This project addresses adaptation of six species to high phosphorus levels. The trees will be annually measured for growth and compared with a control plot to measure response to phosphorus.

Six species of commercially available tree cultivars were purchased from nurseries in Texas, Louisiana, and Oklahoma. These species were cottonwood (*Populus deltoids*), black locust (*Robinia pseudoacacia*), loblolly pine (*Pinus taeda*), sweetgum (*Liquidambar styraciflua*), green ash (*Fraxinus pennsylvanica*), and sycamore (*Platanus occidentalis*).

**2005 Activities**

On March 23-24 and 28-29, PMC staff measured the basal diameter and heights of trees in the control and high phosphorus plots.

Table 8. Mean Diameter of the Trees in the Control and High Phosphorus Plots

Species	Treatment	Mean Diameter (in.)
Cottonwood (Louisiana)	HP	5.3 a
Cottonwood (Texas)	C	4.5 ab
Cottonwood (Louisiana)	C	4.3 ab
Cottonwood (Texas)	HP	4.1 ab
Black locust	HP	3.7 bc
Black locust	C	3.6 bcd
Sycamore	HP	3.6 bcd
Sycamore	C	3.0 bcde
Pine (bare root)	C	2.4 cdef
Pine (container)	C	2.3 def
Green ash	HP	2.3 def
Green ash	C	2.2 def
Pine (bare root)	HP	2.1 ef
Pine (container)	HP	1.9 ef
Sweet gum	HP	1.3 f
Sweet gum	C	0.9 f

\* Means within the column followed by the same letter are not significantly different as determined by Tukeys test at P<0.05. HP = high phosphorus C = control



There was a significant difference in height between the control and high phosphorus plots. The mean height of the high phosphorus plots (13.9 ft.) was 1.5 feet taller than the control plots (12.4 ft.) thereby suggesting a height response to the high levels of phosphorus in the soil.

Table 9. Mean Height of Trees in the Control and High Phosphorus Plots

Species	Treatment	Mean Height (ft.)
Cottonwood (Louisiana)	HP	23.4 a
Black locust	HP	21.4 ab
Cottonwood (Louisiana)	C	20.2 bc
Cottonwood (Texas)	HP	19.8 bc
Black locust	C	19.7 bc
Cottonwood (Texas)	C	17.4 cd
Sycamore	HP	16.3 d
Sycamore	C	13.4 e
Green ash	HP	12.0 e
Green ash	C	11.5 e
Pine (container)	C	6.9 f
Pine (bare root)	HP	6.8 f
Pine (bare root)	C	6.7 f
Pine (container)	HP	6.4 f
Sweet gum	HP	4.7 fg
Sweet gum	C	3.5 g

\* Means within the column followed by the same letter are not significantly different as determined by least significant difference test at  $P < 0.05$ . HP = high phosphorus C = control

### Summary

The cottonwood from Louisiana in the high phosphorus plot had the largest mean diameter and height of all the tree species.

## Intercenter Strain Trials

**Title:** Evaluation of Brownseed paspalum (*Paspalum plicatum*) and Evaluation of Hooded windmillgrass (*Chloris cucullata*) and Shortspike windmillgrass (*Chloris x subdolichostachya* Muell.)

**Duration:** 2005-2007

### Introduction

These two species are being evaluated at the PMC as part of an adaptation study for the Kika de la Garza Plant Materials Center in Kingsville, Texas.

Brownseed paspalum grows in forest openings, along roadways, and firebreaks. This grass prefers wet meadows, ditches, and disturbed areas. The seed is 1/8" long, medium brown color, and shiny coat. Foliage color is gray green or blue green.

Hooded windmillgrass is found in the plains and sandy areas of Texas, Oklahoma, and New Mexico. This grass spreads by rhizomes or seed.

### 2005 Activities

On July 12<sup>th</sup>, the evaluation plots of brownseed paspalum and hooded windmillgrass were transplanted at the PMC. The evaluation plots were watered to aid in plant establishment. In November the plants were evaluated for survival, vigor, and seed production. Evaluations were scored using visual observations.

Table 10. Average Ratings for Brownseed paspalum Transplants

Accession	9064466	9088647	9088651	9088681	9089219
% survival	83	98	89	79	88
Vigor	2	3	3	3	3
Seed prod.	3	4	5	5	5
Visual scoring	1=excellent	3=good	5=fair	7=poor	9=very poor

Table 11. Average Ratings for Hooded windmillgrass and Shortspike Transplants

Accession	313	301	260	283	
% survival	100	98	100	100	
Vigor	4.5	4.5	3	2.5	
Seed prod.	5	5	3	2.5	
% cover	18	15	38	42	
Visual scoring	1=excellent	3=good	5=fair	7=poor	9=very poor

### Summary

Ergot was prevalent in the brownseed accessions. The amount of disease would adversely effect seed production and quality. The hooded windmillgrass and shortspike accessions did not exhibit ergot. Both plant species will be evaluated in 2006 and 2007.

## Presentations and PMC Tours

<b>Date</b>	<b>Audience</b>	<b>Information</b>	<b>Presenter(s)</b>
10/07/2004	Texas Parks & Wildlife	2004 fall collections	M. Brakie
10/13/2004	NRCS Field Office personnel	plant collections	M. Brakie
10/14/2004	Limited Resource Producers	vetivergrass information	M. Brakie
11/18/2004	Community Based Organizations	tree planting	J. Stevens
02/02/2005	Society of Range Management	restoring native grasses	J. Stevens M. Brakie
04/18/2005	SFASU Forestry Students	PMC Studies	J. Stevens M. Brakie
04/20/2005	SFASU Forestry Students	PMC Studies	J. Stevens M. Brakie
05/26/2005	East Texas PMC Board of Directors	PMC Studies	J. Stevens M. Brakie
06/28/2005	SFASU Students	importance of soils	J. Stevens
06/29/ 2005	Teachers	soils and plant materials	J. Stevens

## Publications

2004 PMC Activity Report – Melinda Brakie

2004 PMC Technical Report – Melinda Brakie and Jim Stevens

ETPMC Newsletter / April 2005 – Melinda Brakie and Jim Stevens

Dry Matter Yields of Eastern gamagrass Accessions from 1992 to 1994 at the East Texas Plant Materials Center – Melinda Brakie

Seeding Rate and Establishment of Crockett germplasm herbaceous mimosa select release (first year) – Melinda Brakie

Plant Attributes for Eight Grass Species for Use in Vegetative Barriers for East Texas and Western Louisiana – Jim Stevens

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