

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

EAST TEXAS PLANT MATERIALS CENTER
NACOGDOCHES, TEXAS

AND

GOLDEN MEADOW PLANT MATERIALS CENTER
GALLIANO, LOUISIANA

NOTICE OF RELEASE OF
COASTAL PLAINS GERMPLOSM SELECTED CLASS OF NATURAL GERMPLOSM

The Natural Resources Conservation Service (NRCS), U.S. Department of Agriculture announces the release of a selected class little bluestem [*Schizachyrium scoparium* (Michx.) Nash var. *scoparium*] for conservation use in the western coastal plains of Texas and Louisiana.

This release will be referred to as Coastal Plains Germplasm little bluestem. It is a selected plant material class of certified seed (natural track) and was tested under NRCS accession number 9094826.

This alternate release procedure is justified because there are no commercial sources of little bluestem from the eco-region of the western coastal plains. The environmental conditions and soils of this eco-region are significantly different than those of the tall grass prairie regions of the United States where most commercial seed sources of little bluestem originate. Louisiana and Texas NRCS have requested the development of a little bluestem adapted to the western coastal plains for resource conservation and environmental programs, especially in the southern part of the state where current commercial cultivars either fail to establish or persist long-term after establishment.

Collection Site Information: Coastal Plains Germplasm little bluestem was developed from seed collected from native stands of little bluestem from Texas counties and Louisiana parishes (fig. 1). A list of accession numbers and collection locations are found in Table 1. This region consist of Major Land Resource Area (MLRA) 133B, but also comprises MLRAs 85, 86A, B, 87A, 131A, B, C, D, 134, 150A, B, and 152B (USDA 2006). The zone of collections are within USDA Hardiness Zones 8a – 9a (USDA 2012).

Description: Coastal Plains Germplasm little bluestem is a native, long lived, perennial bunch grass. Culms reach up to 150 cm in height and may be green or glaucous. They are freely branched producing numerous floriferous branches. Sheaths may be up to 10 mm wide, are laterally flattened with strong keels, and may be glabrous to villous-pubescent. Ligules are firm and 1 to 3 mm in length. Blades are linear-acuminate with basal blades ranging from 1.5 to 6 mm in width and 25 cm or more in length. They may be glabrous or sparsely hispid to villous. Racemes range from 2.5 to 5 cm in length. Rachis joints and pedicels are ciliate with long, silver hairs on at least the upper two-thirds. Sessile spikelets range from 6 to 8 mm in length with the first glume glabrous or scabrous and the lemma 8 to 15 mm long. Pedicled spikelets, staminated or neutered, may be no longer than the sessile spikelets, and are awnless or with a short, straight awn (Gould, 1975). Random specimens were collected from the Coastal Plains Germplasm

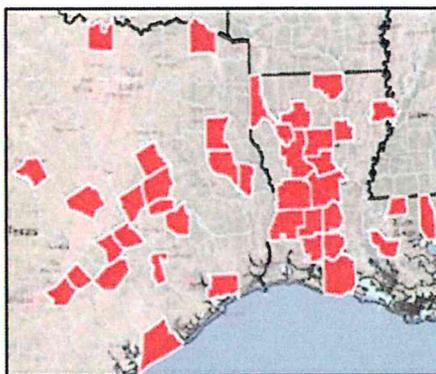


Figure 1. Little bluestem seed collection locations in Texas and Louisiana.

breeder block for formal identification by the S. M. Tracy Herbarium, Texas A&M University, College Station, Texas.

Table 1. Collection sites and accession numbers of 77 little bluestem collections. USDA- NRCS East Texas Plant Materials Center, Nacogdoches, TX 2016.

Accession	County/Parish	State	Accession	County/Parish	State	Accession	County/Parish	State
9067216	Chambers	TX	9067345	Robertson	TX	9067717	Red River	LA
9067226	Madison	TX	9067352	Matagorda	TX	9067719	Grant	LA
9067251	Matagorda	TX	9067354	Burleson	TX	9067721	Acadia	LA
9067257	Robertson	TX	9067200	Robertson	TX	9067723	Evangeline	LA
9067259	Robertson	TX	9067206	Nacogdoches	TX	9067727	Tangipahoa	LA
9067266	Nacogdoches	TX	9067208	Freestone	TX	9067680	Winn	LA
9067271	Bell	TX	9067249	Rusk	TX	9067682	Lasalle	LA
9067283	Lee	TX	9067222	Nacogdoches	TX	9067686	East Feliciana	LA
9067292	Guadalupe	TX	9067228	Walker	TX	9067726	Jefferson Davis	LA
9067318	Nacogdoches	TX	9067267	Nacogdoches	TX	9067694	Bienville	LA
9067324	San Augustine	TX	9067687	East Feliciana	LA	9067696	Winn	LA
9067336	Freestone	TX	9067691	Caldwell	LA	9067700	Rapides	LA
9067346	Robertson	TX	9067693	Bienville	LA	9067702	Vernon	LA
9067353	Burleson	TX	9067695	Winn	LA	9067704	Vernon	LA
9067355	Burleson	TX	9067697	Rapides	LA	9067706	Beauregard	LA
9067237	Leon	TX	9067699	Rapides	LA	9067710	Rapides	LA
9067252	Matagorda	TX	9067701	Vernon	LA	9067714	Natchitoches	LA
9067258	Robertson	TX	9067703	Vernon	LA	9067716	Caddo	LA
9067263	Freestone	TX	9067705	Beauregard	LA	9067718	Rapides	LA
9067268	Fayette	TX	9067707	Iberville	LA	9067720	Vermilion	LA
9067279	Burleson	TX	9067709	Allen	LA	9067722	Acadia	LA
9067288	Mills	TX	9067711	Rapides	LA	9067724	Rapides	LA
9067297	Waller	TX	9067713	Natchitoches	LA	9067728	Vermilion	LA
9067322	Nacogdoches	TX	9067715	Desoto	LA	9067688	Rapides	LA
9067325	San Augustine	TX	9067690	Caldwell	LA	9067692	Union	LA
9067330	Cooke	TX	9067725	Vermilion	LA			

Conservation Use: Coastal Plains Germplasm is recommended in the Western Coastal Plains for conservation practices such as field border (386), upland wildlife habitat management (645), conservation cover (327), critical area planting (342), restoration and management of declining habitat (643), and range plantings (550). It also has application for longleaf pine understory restoration and silvopasture in its area of adaptation.

Method of Breeding and Selection: The original assembly of little bluestem consisted of 87 seed collections from native stands throughout the Western Coastal Plains of eastern Texas and Louisiana. Seed from each accession was planted into RLC3 “cone-tainers”™ (Stuwe and Sons, Tangent, OR) and monitored in the greenhouse for growth and seedling vigor. Accessions with poor seedling vigor or insufficient germination were removed from the assembly. The remaining 77 accessions were transplanted into non replicated rod rows on a Woden fine sandy loam soil at the USDA-NRCS, East Texas Plant Materials Center (ETPMC) and evaluated for foliage characteristics, environmental stresses and seed production in 2006-2007 (Table 2).

Seed was bulked harvested with a Woodward Flail Vac Seed Harvester FV-212 (AG-Renewal, INC Woodward, OK), cleaned, debarbed, and planted in a half acre breeder block at the ETPMC in 2007. This population was designated as Coastal Plains Germplasm (accession 9094826). The Coastal Plains Germplasm breeder block has been in production since 2007 and shown excellent plant vigor and seed production with minimal foliar disease.

Table 2. Evaluation criteria ratings of 77 little bluestem collections in 2006-2007. USDA-NRCS East Texas Plant Materials Center, Nacogdoches, Texas.

Accession Number	Foliage Abund*	Dis Res*	Stem Lodge*	Seed Amt*	Foliage Height (cm.) ¹	Plant Width (cm.) ²	Mature Height (cm.) ³	Boot Date ⁴	Bloom Date ⁴
9067200	5	5	6	5	64	73	157	5-Jul	Aug-14
9067206	5	5	5	5	49	73	149	4-Jul	10-Aug
9067208	5	6	5	5	57	71	162	5-Jul	1-Aug
9067222	4	5	6	5	69	75	130	3-Jul	26-Sep
9067228	5	5	5	5	60	66	166	5-Jul	21-Aug
9067237	5	5	6	5	58	70	151	5-Jul	21-Aug
9067251	4	6	7	5	60	74	150	20-Oct	**
9067252	4	6	6	5	51	69	149	3-Aug	20-Sep
9067257	5	5	6	5	58	68	159	5-Jul	19-Aug
9067258	5	5	6	5	60	64	157	15-Jul	16-Aug
9067259	5	5	6	5	61	72	165	30-Jun	29-Jul
9067263	5	6	7	5	52	70	160	5-Jul	14-Aug
9067266	6	6	5	5	40	55	141	3-Jul	25-Aug
9067267	5	5	6	5	27	43	110	5-Aug	9-Sep
9067271	5	5	7	5	48	62	142	8-Jul	21-Aug
9067279	5	5	5	5	63	71	160	8-Jul	8-Sep
9067283	5	6	6	5	52	60	159	5-Jul	21-Aug
9067288	7	6	5	6	42	56	121	5-Jul	29-Jul
9067292	4	5	6	5	69	76	152	12-Jul	25-Sep
9067322	5	6	5	6	28	45	90	23-Aug	19-Sep
9067324	5	5	5	5	43	68	116	23-Aug	23-Sep
9067325	5	6	5	5	33	50	102	27-Jul	22-Sep
9067345	5	5	5	5	57	71	165	5-Jul	14-Aug
9067346	5	5	5	5	52	70	147	8-Jul	12-Aug
9067690	5	5	5	5	34	58	131	19-Jul	19-Aug
9067705	5	6	5	6	36	59	133	24-Jul	12-Sep
9067726	5	7	5	7	33	60	120	24-Jul	6-Oct
9067727	5	7	5	6	34	67	121	6-Jul	10-Sep
9067728	5	6	5	6	41	67	100	20-Sep	**
9067716	5	6	5	5	45	64	145	12-Jul	27-Aug
9067710	5	6	5	5	27	54	107	27-Jul	24-Sep
9067719	5	6	5	5	49	73	152	19-Jul	8-Sep
9067720	5	6	5	5	36	64	133	20-Aug	29-Sep

Table 2. (con't) Evaluation criteria ratings of 77 little bluestem collections in 2006-2007. USDA-NRCS East Texas Plant Materials Center, Nacogdoches, Texas.

Accession Number	Foliage Abund*	Dis Res*	Stem Lodge*	Seed Amt*	Foliage Height (cm.) ¹	Plant Width (cm.) ²	Mature Height (cm.) ³	Boot Date ⁴	Bloom Date ⁴
9067721	4	6	5	5	49	65	138	20-Jul	19-Sep
9067722	5	5	5	6	37	52	122	18-Jul	4-Sep
9067723	5	6	5	6	34	58	120	24-Aug	24-Sep
9067725	5	7	6	7	46	60	131	**	**
9067216	6	7	5	8	40	72	101	**	**
9067226	5	7	5	6	33	61	121	5-Jul	29-Jul
9067249	5	6	5	5	45	67	135	27-Jul	24-Aug
9067268	5	6	6	6	48	63	131	15-Sep	**
9067297	5	5	7	5	45	61	129	5-Jul	19-Sep
9067318	7	6	5	6	25	40	101	6-Jul	20-Aug
9067330	6	6	5	6	44	57	135	5-Jul	1-Sep
9067336	5	6	6	5	53	73	165	5-Jul	14-Aug
9067352	4	5	5	5	35	43	124	6-Oct	**
9067680	7	7	6	6	20	24	96	18-Jul	23-Aug
9067682	5	7	5	5	34	43	126	5-Jul	16-Aug
9067686	7	7	7	5	43	36	120	6-Jul	11-Sep
9067687	5	5	6	6	16	20	92	29-Jul	11-Sep
9067688	5	6	5	6	49	41	140	29-Jul	4-Sep
9067691	5	5	5	5	28	34	141	29-Jul	21-Aug
9067692	5	5	5	5	41	47	143	5-Jul	17-Aug
9067693	5	6	5	5	35	40	126	17-Jul	26-Aug
9067694	6	6	5	7	34	38	116	5-Jul	1-Sep
9067695	5	5	5	5	50	45	146	9-Jul	14-Aug
9067696	5	5	5	5	37	43	138	10-Jul	19-Aug
9067697	5	5	5	5	32	42	118	12-Aug	17-Sep
9067699	5	6	5	6	44	41	125	20-Aug	15-Sep
9067700	5	6	5	5	18	22	92	24-Jul	25-Sep
9067701	5	5	5	5	55	43	143	27-Jul	1-Sep
9067702	5	5	5	6	22	27	116	20-Aug	17-Sep
9067703	5	5	5	5	45	51	137	27-Jul	19-Sep
9067704	5	6	5	6	44	38	115	16-Aug	26-Sep
9067706	5	6	6	6	44	39	132	4-Aug	11-Sep
9067711	5	6	5	6	40	45	133	8-Jul	23-Aug
9067713	5	6	7	6	40	42	125	10-Jul	3-Sep
9067714	5	5	5	5	28	34	112	6-Jul	11-Sep
9067715	7	7	5	6	27	30	105	5-Jul	1-Sep
9067717	5	7	5	5	38	34	122	27-Jul	17-Aug

Table 2. (con't) Evaluation criteria ratings of 77 little bluestem collections in 2006-2007. USDA-NRCS East Texas Plant Materials Center, Nacogdoches, Texas.

Accession Number	Foliage Abund*	Dis Res*	Stem Lodge*	Seed Amt*	Foliage Height (cm.) ¹	Plant Width (cm.) ²	Mature Height (cm.) ³	Boot Date ⁴	Bloom Date ⁴
9067718	6	6	5	6	47	42	101	15-Aug	18-Aug
9067724	5	5	5	6	45	48	115	14-Jul	17-Sep
9067353	5	6	6	5	23	26	137	7-Aug	7-Sep
9067354	5	6	6	5	28	22	110	7-Aug	1-Sep
9067355	6	5	6	5	30	29	136	7-Aug	10-Sep
9067707	7	6	6	6	23	33	98	3-Jul	14-Sep
9067709	5	5	5	7	23	23	93	16-Aug	14-Sep

*Visual ratings for foliage abundance (foliage abund); disease resistance (dis res); stem lodge and seed amount (seed amt) were based upon a scale of 1=excellent, 3=good, 5=average/fair, 7=poor, 9=very poor/dead; **Denotes no boot or bloom date recorded.

- 1/ Foliage Height was determined by measuring three plants/plot from ground level to the top of the abundance of foliage.
- 2/ Plant Width was determined by measuring three plants/plot at the widest part of the foliage.
- 3/ Mature Plant Height was determined by measuring three plants/plot. Plant measurements taken at seed maturity from ground level to the top of the tallest reproductive stem of each plant.
- 4/ Boot and Bloom. The boot and bloom dates were recorded when 50% of the plants reached boot and bloom seed development stages.

Ecological Considerations and Evaluation: An Environmental Evaluation of Plant Materials Releases was completed using guidelines established by the NRCS (USDA-NRCS, 2010), and the best available information for this species. Results from this evaluation determined that Coastal Plains Germplasm was suitable for release based on the criterion contained in this document. Little bluestem is a naturally occurring species throughout North America and the release of Coastal Plains Germplasm for public use would not constitute the introduction of a foreign species to local ecosystems. Coastal Plains Germplasm was selected from a native stand of little bluestem and has had no genetic modification. It is believed that any negative impact to other native species would be minimal to non-existent.

Area of Adaptation: Coastal Plains Germplasm little bluestem is adapted to the area of original seed collection in eastern Texas and Louisiana. Its full range of adaptation is anticipated to extend across the southeastern United States within USDA Hardiness Zones 8a, 8b, and 9a (USDA 2012). Further testing is needed to confirm this adaptation range.

Availability of Plant Materials: Breeder seed (G0) will be maintained by the USDA NRCS East Texas Plant Materials Center, Nacogdoches, Texas.

References:

- Gould, Frank, W. 1975. The Grasses of Texas. Texas A&M University Press. College Station, Texas
- Grelen, H.E. and R.H. Hughes. 1984. Common herbaceous plants of southern forest range. US Forest Service Research Paper SO-210. Southern Forest Experiment Station. New Orleans, LA.

USDA-NRCS. 2006. Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin. Agriculture Handbook 296, U.S. Gov. Print. Office, Washington, D.C.

USDA-Natural Resource Conservation Service. 2010. National Plant Materials Manual, Title 190 (Washington, D.C., U.S. Government Printing Office, July 2010).

USDA Plant Hardiness Zone Map, 2012. Agricultural Research Service, U.S. Department of Agriculture. Accessed from <http://planthardiness.ars.usda.gov>.

Prepared by:

Alan Shadow, PMC Manager
USDA - Natural Resources Conservation Service
East Texas Plant Materials Center
6598 FM 2782
Nacogdoches, Texas 75964

Signatures for the release of:

Coastal Plains Germplasm little bluestem

**SALVADOR
SALINAS**

Digitally signed by SALVADOR SALINAS
DN: c=US, o=U.S. Government, ou=Department
of Agriculture, cn=SALVADOR SALINAS,
0.9.2342.19200300.100.1.1=12001000351770
Date: 2016.08.03 14:51:58 -05'00'

08/03/2016

Salvador Salinas
State Conservationist
United States Department of Agriculture
Natural Resources Conservation Service
Temple, Texas

Date

KEVIN NORTON

Digitally signed by KEVIN
NORTON
Date: 2016.08.03 18:52:57 -05'00'

Kevin Norton
State Conservationist
United States Department of Agriculture
Natural Resources Conservation Service
Alexandria, Louisiana

Date

Terrell Erickson
Director, Ecological Sciences Division
United States Department of Agriculture
Natural Resources Conservation Service
Washington, D.C.

Date