TEXAS A&M UNIVERSITY
KINGSVILLE, TEXAS

and

TEXAS AGRICULTURAL EXPERIMENT STATION
BEEVILLE, TEXAS

and the

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
PLANT MATERIALS CENTER
KINGSVILLE, TEXAS

NOTICE OF RELEASE OF DILLEY GERMPLASM SLENDER GRAMA SELECTED CLASS OF NATURAL GERMPLASM

Texas A&M University-Kingsville (South Texas Natives Project), and Texas Agricultural Experiment Station at Beeville, Texas and the Natural Resources Conservation Service (NRCS), U.S. Department of Agriculture (USDA), announce the release of a selected ecotype of slender grama (*Bouteloua repens* (H.B.K.) Scribn. & Merr.) for the south Texas ecoregion. Dilley Germplasm, accession number 9093399, is a composite of 5 collections that were tested under the following accession numbers: 9088905, 9088914, 9089049, 9089135, and 9088897.

As a selected release, this plant will be referred to as Dilley Germplasm slender grama. Dilley Germplasm is released as a selected class of certified seed (natural track).

This alternative release procedure is justified because there are no existing Texas commercial sources of tested and adapted slender grama. The potential for immediate use is high especially for highway right-of ways and in range seeding mixes for restoration and wildlife habitat.

Collection Site Information: Table 1 shows the origin and collection information of each accession. Figure 1 shows the field location of each collection. Each accession is made up of seed obtained from a single wild population of slender grama. Seed was collected from the wild, cleaned and stored at the E. Kika De La Garza Plant Materials Center (PMC), in Kingsville, TX. No breeding or genetic manipulation was conducted on the accessions.

Description: Slender grama is a cross, wind pollinated species. All Selected accessions exhibit similar characteristics in respect to phenology and morphology. The general botanical description of *Bouteloua repens* is: Tufted perennial (flowering first year and

Figure 1. Location of evaluation and collection sites of Selected Plant Material of slender grama.

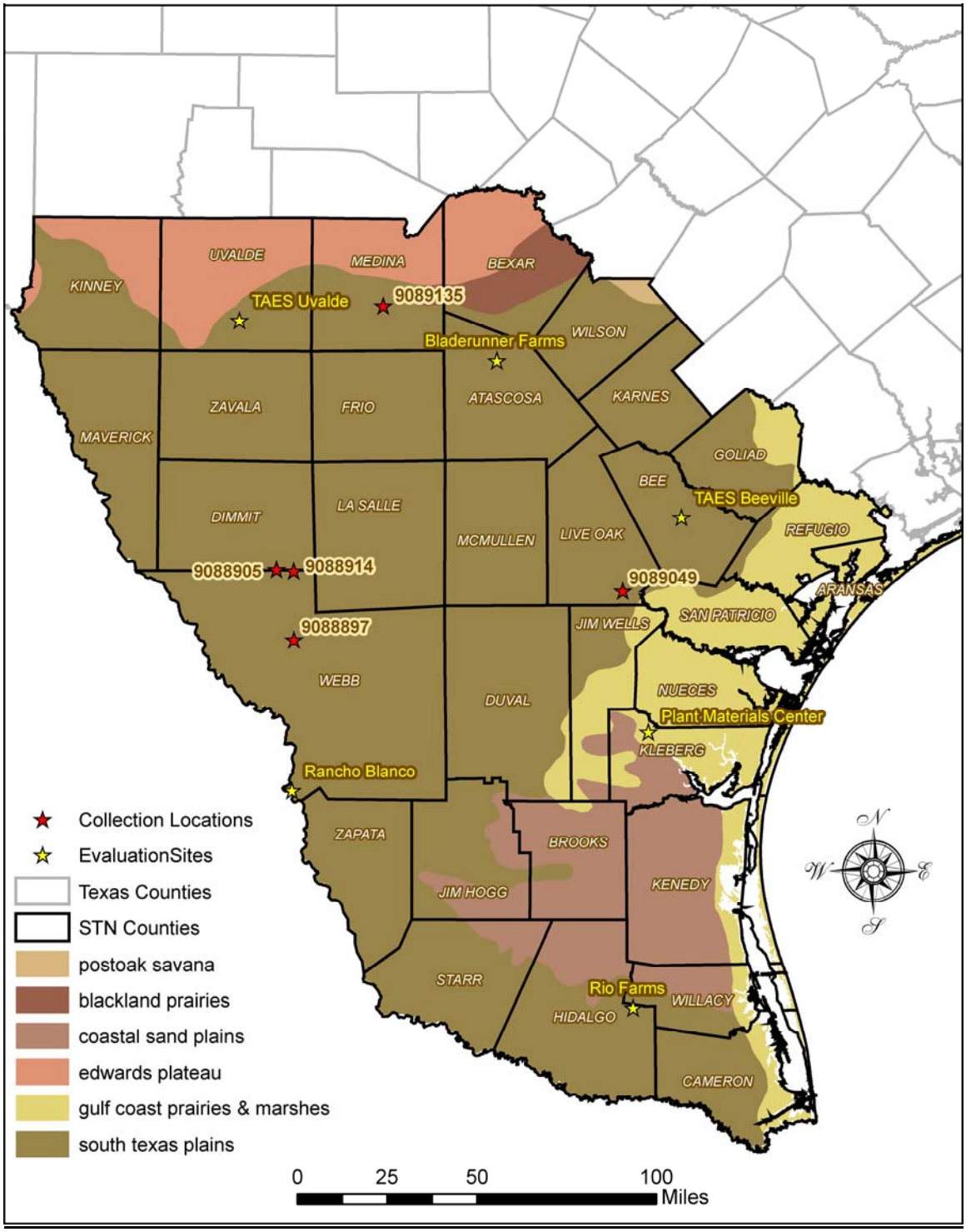

Table 1. Origin and collection information for Selected Plant Material of slender grama.

Accession	Date	County	Location	Soil type	Collector
9088905 & 9088914*	8/14/2002	Dimmit & Webb	Piloncillo Ranch	Sandy loam	F. Smith & C. Lawson
9089049	9/6/2002	Live Oak	Richard Lucas Ranch	Sandy loam	F. Smith & C. Lawson
9089135	9/21/2002	Medina	US HWY 90	Loam	F. Smith & C. Lawson
9088897	8/11/2002	Webb	Cerrito Prieto Ranch	Sandy loam	F. Smith & C. Lawson

*** Accessions 9088905 &9088914 were evaluated as separate accessions, but were combined for Foundation Seed Production because of similar collection site, originating soil type and morphology and phenology.**
(USDA-SCS, 1972, 1981a, 1981b)

often behaving as an annual); culms 15-40 cm long, 0.4-1 mm thick, mostly erect, very slightly geniculate and sparingly branched at the lower nodes; ligule a scale, sometimes fringed, about 0.2 mm long; blades 3-18 cm long, 1-3 mm broad, mostly flat, marginally sparsely papillose-pilose; spikes 5 to 9, 9-16 (-20) mm long, distributed over a panicle axis 3-8 cm long, at length each deciduous as a unit, the rachis smooth, prolonged beyond the most distal fertile spikelet as a needle; glumes essentially smooth and glabrous; spikelets 5 to 8 per spike, at maturity the longest of them about as long as the rachis (Correll & Johnston, 1996). Slender grama is noted as having a stoloniferous habit by Morrow et al. (1954). All accessions comprising this release exhibit stoloniferous growth habits. None of the four accessions selected for release exhibit the noted characteristic of "flowering the first year, and often behaving as an annual". Plants do flower and produce seed the first year, but survive and continue to produce seed for 3 years or longer. Plots have been maintained at Bladerunner Farms, near Poteet, TX since April 2003. Plots of all four selections remain alive, with little or no mortality observed. Plots have been in existence at the E. Kika de la Garza PMC in Kingsville, TX since 2003 as well. Plots at Rancho Blanco near Laredo, TX, TAES at Beeville, and the Caesar Kleberg Wildlife Research Institute (CKWRI) Wildlife Complex at Texas A&M University-Kingsville (TAMUK), and an experimental landscape planting on the campus of TAMUK have persisted and produced seed beyond one year of growth. Forage value of slender grama in South Texas is relatively poor. On red sandy loam range sites it is known to make up 0-15 % of the herbaceous vegetation available to cattle. The average composition of slender grama in cattle diets on these range sites was found to be 6.3 %. Relative preference value given for slender grama was highest in the summer months. (Everitt et al., 1981). It had the second lowest digestible energy (DE) value of the common range grasses studied from September 1976 to November 1977 in Hidalgo County, TX (Gonzalez and Everitt, 1992). Slender grama contains approximately 125,000 seeds per pound.

Potential Uses: Slender grama was targeted for collection by *South Texas Natives* because of the potential for use on highway right of ways, reclamation sites, and in rangeland plantings.

Method of Breeding and Selection:

Collection: As part of an overall effort to collect, evaluate, and release a number of plants native to South Texas, personnel from *South Texas Natives* collected seed of slender grama from 9 separate field locations in South Texas during 2002-2003 (Table 2).

Initial Field Evaluations: Seed from these accessions was used to grow transplants for initial field evaluations at Bladerunner Farms near Poteet, TX (soil type Miguel fine sandy loam (USDA-SCS, 1977)) in 2003. Two 10' x 20' plots of each accession were established, with 25 plants from each accession per plot.

Table 2. Collection information for 9 accessions of slender grama obtained by *South Texas Natives* from 2002-2003.

Accession	County	Location	Soil type
9088897	Webb	Cerrito Prieto Ranch	Sandy loam
9088905	Dimmit	Piloncillo Ranch	Sandy loam
9088914	Dimmit	Piloncillo Ranch	Sandy loam
9089049	Live Oak	Richard Lucas Ranch	Sandy loam
9089135	Medina	US HWY 90	Loam
9090624	Maverick	Faith Ranch	Loam
9090668	Maverick	San Pedro Ranch	Sandy loam
9090670	Dimmit	San Pedro Ranch	Sandy loam
9090710	Jim Hogg	Jones Ranch	Sandy loam

Germination Tests: From June-August 2003 seed was collected when ripe from each field plot. Table 3 shows the amount of seed collected from each accession. Seed from the 2003 harvest was tested for active seed germination in January 2004. In germination tests each spike was counted as a single unit, even though 5-8 spikelets are contained in each spike. Cleaning and processing individual spikelets from spikes is impractical, and would likely result in damage to the individual caryopsis. The Association of Official Seed Analysts (AOSA) does not give specific guidelines for germination of slender grama, but similar species such as sideoats grama are tested for germination by this method (AOSA, 2003). Germination was tested for 30 days in controlled environment germination chamber (12 hrs. light @ 85º F, 12 hrs dark @ 65º F). Germinated seedlings were counted daily. Spikes that had more than one germinated caryopsis were counted as one, regardless of the number of spikelets germinating. Three repetitions of 50 seeds for each accession were tested. Seed from each accession was also tested using potting soil in a controlled climate greenhouse (day 88º F, night 65º F). Seventy two seeds of each accession were planted in flats, watered as needed and counted weekly. In germination chamber tests more than 50 % of germinating spikelets germinated 4-5 days after the onset of favorable conditions. Table 4 summarizes the germination tests of the 2003 seed harvest. Following the germination tests, 3 accessions were randomly picked for tetrazolium tests (TZ) to determine percent dormant seed. The TZ tests were conducted on 400 seeds by Hulsey Seed Laboratory, Inc., in February 2004. Table 5 shows the

results of the TZ tests, and percent dormancy of three accessions. The germination results shown in Table 5 are the same as those given in Table 4. Insufficient rainfall in 2004 at the evaluation site resulted in poor seed production in 2004. Seed was not harvested due to the limited yield. However, survival of established plants was excellent, and newly sprouted seedlings were noted near all plots.

Table 3. Seed production record of the 5 surviving slender grama accessions at Bladerunner Farms. Total seed production is for the period from June-August 2003.

Accession	Lbs seed produced from June-August 2003	Plots size (ft^2)	Seed production bulk lbs/acre
9088914	2.17	400	236
9088897	1.62	400	176
9088905	2.53	400	275
9089049	3.09	400	336
9089135*	0.30	200*	65

* One 10' x 20' plot, limited by availability of transplants

Table 4. Active germination of slender grama seed harvested at Bladerunner Farms during the summer of 2003.

Accession	Germination chamber (% germ)	Greenhouse (% germ)
9088914	21.00	30.55
9088897	14.66	22.22
9088905	22.66	50.00
9089049	30.66	25.00
9089135	11.33	27.77

Table 5. Seed dormancy of three accessions of slender grama. Dormancy is calculated as the difference between tetrazolium test values and the percent active germination values taken on the same seedlot.

	% active germination	TZ test (%)	% dormant seed
9088897	14.66	93.00	78.34
9089049	30.66	94.00	63.34
9089135	11.33	95.00	83.67

Advanced Evaluations: Four accessions experienced 100% mortality by November 11, 2004, and were subsequently removed from the experiment. Surviving accessions were evaluated against one another. Table 6 shows the results of the November 2004 evaluation at Bladerunner Farms. Field evaluations were used to define and rank the performance of each accession according to commercially important traits. Accessions

were compared to one another by visual estimation, and scored on a scale of 1 to 9. A score of 1 represents superior performance, and a score of 9 represents poor performance.

Table 6. Evaluation scores of the 5 surviving accessions of slender grama at Bladerunner Farms, Nov. 11, 2004. 1=best, 9= worst, 2 reps x 25 plants/accession.

Accession	9088905	9088897	90889049	9089135	9088914	Mean
Plant vigor	3	3.5	2.0	4.0	2.0	2.9
Foliage density	2.5	2.0	2.67	3.5	2.67	2.67
Uniformity	1.0	3.0	2.67	2.0	3.0	2.3
Development stage	1.0	1.0	1.0	1.0	1.0	1.0
Seed production	2.0	4.5	2.0	4.0	2.67	3.03
Forage production	2.5	3.0	1.67	3.0	2.0	2.43
Plant height	2.0	2.5	2.0	2.5	1.33	2.07

* Plant vigor: overall health and performance, including evidence of tillering, vegetative production, seed production, size

Foliage density: determination of the cover value of each accession, leaf density and growth habit are major considerations

Uniformity: an index of similarity of the individual plants within an accession

Development stage: a numerical value defining the morphologic and phenologic stage of the accession. A value of 1 is given to accessions with ripe seed, a value of 9 to the seedling stage of the plant.

Seed production: estimate of the amount of seed produced by the accession, number and size of seed stalks and spikelets, and spikes/spikelet are taken into account

Forage production: amount of herbaceous matter produced that could be consumed by grazing animals

Plant height: height of the above ground portion of the plant

In February 2005, based on field evaluations and germination tests, all 5 surviving accessions of slender grama from the initial planting at Bladerunner Farms were chosen for advanced evaluation at 3 locations in the Rio Grande Plains. Transplants were grown from original seed and planted at the CKWRI Wildlife Complex in Kingsville, TX (soil type Victoria clay), TAES Beeville (soil type Clareville sandy clay loam & Parrita sandy clay loam (USDA-SCS, 1979)), Rancho Blanco, near Laredo, TX (soil type Lagloria silt loam(USDA-SCS, 1981)), and the PMC in Kingsville, TX (soil type Victoria clay)

(Figure 1). Germination tests of the original field collected seed of each of the 5 accessions were conducted at the PMC in December 2004 (Table 7). Germination tests were conducted in the greenhouse using potting soil in 2" x 2" x 4" plant bands. Field plots were established at Rancho Blanco (March 2005), TAES Beeville (May 2005), the PMC (May 2005) and CKWRI Wildlife Complex (June 2005). Plots at Rancho Blanco and CKWRI Wildlife Complex were planted in a split plot design (2 replications x 10 plants of each accession), and at the PMC in single repetitions of 50 plants per accession. Plots at TAES Beeville were planted in isolated blocks, 900 ft. apart to facilitate use of the site as a seed increase site. All plots were irrigated to ensure establishment and weeded as needed. Plots at TAES Beeville were irrigated year-round to facilitate seed production. Plots were evaluated monthly (Rancho Blanco), or whenever significant growth occurred (Beeville, PMC, CKWRI Wildlife Complex) for important traits, and seed was collected when ripe. Tables 8, 9, 10, and 11 summarize the performance of each accession at Rancho Blanco, TAES Beeville, CKWRI Wildlife Complex, and the PMC, respectively. Seed collected from the evaluation sites was tested for active seed germination in December 2005. Results of the germination tests are given in Table 12.

Table 7. Greenhouse germination of the 5 accessions of slender grama selected for advanced evaluation. Seed used for this evaluation was collected from the wild in 2002, and had been stored in cold storage until germination tests were initiated in 2004.

Accession	% germination *
9088914	77.50
9088897	57.50
9088905	50.25
9089049	38.00
9089135	5.00

*each spike was considered a single unit, 2 spikes planted per cell

Table 8. Evaluation data collected during the 2005 growing season on the 5 accessions of slender grama planted at Rancho Blanco (Laredo) (1=best, 9= worst).

Accession	9089049	9089135	9088914	9088905	9088897	Mean
Plant vigor	1.63	1.38	1.75	1.50	1.88	1.63
Foliage density	1.75	1.88	1.88	1.75	2.00	1.85
Uniformity	1.38	1.50	1.63	1.50	1.63	1.53
Development stage	1.25	1.25	1.25	1.25	1.25	1.25
Seed production	2.00	2.13	1.75	1.63	2.13	1.93
Forage production	1.88	2.00	1.63	1.88	2.38	1.95
Plant height	2.00	1.63	1.75	1.75	2.00	1.83
Drought tolerance	4.00	4.00	4.00	4.00	4.00	4.00

Table 9. Evaluation data collected during the 2005 growing season on the 5 accessions of slender grama planted at TAES Beeville (1=best, 9=worst).

Accession	9089049	9089135	9088914	9088905	9088897	Mean
Plant vigor	2	2	1	2	2	1.8
Foliage density	2	3	2	2	2	2.2
Uniformity	2	2	1	1	1	1.4
Development stage	1	1	1	1	1	1.0
Seed production	1	1	1	2	1	1.2
Forage production	2	2	1	2	2	1.8
Plant height	1	1	1	1	1	1
Seed production (lbs./plant /year)	0.00871	0.00929	0.00838	0.00754	0.00851	0.00849

Table 10. Evaluation data collected during the 2005 growing season on the 5 accessions of slender grama planted at CKWRI Wildlife Complex (Kingsville) (1=best, 9=worst).

Accession	9089049	9089135	9088914	9088905	9088897	Mean
Plant vigor	2	3	2	2	3	2.4
Foliage density	2	2	2	2	2	2
Uniformity	3	2	2	2	2	2.2
Development stage	1	1	1	1	1	1
Seed production	2	2	1	3	2	2
Forage production	2	3	2	2	3	2.4
Plant height	1	2	2	1	2	1.6

Table 11. Evaluation data collected during the 2005 growing season on the 5 accessions of slender grama planted at E. Kika De La Garza PMC (Kingsville) (1=best, 9=worst).

Accession	9089049	9089135	9088914	9088905	9088897	Mean
Plant vigor	5	5	5	5	5	5
Foliage density	5	5	4	5	4	4.6
Uniformity	5	5	5	5	5	5
Development stage	1	1	1	1	1	1
Seed production	5	5	5	5	5	5

Table 12. Active germination of seed from 5 accessions of slender grama harvested in 2005.

Accession	% active germ. (Rancho Blanco)	% active germ. (TAES Beeville)	% active germ. (CKWRI WLC)	Mean % active germ/acc
9089049	38.00	77.33	60.00	58.44
9089135	33.33	55.33	38.00	42.22
9088914	28.00	15.33	9.33	17.56
9088905	24.00	10.00	9.33	14.44
9088897	29.33	24.67	16.00	23.33
Mean % active germ/site	30.53	36.53	26.53	31.20

Seeding trials: Two seeding trials were initiated in the fall of 2005. Seed of accession 9089049 was used in both trials. The first seeding trial was in conjunction with a herbicide tolerance study at the Welder Wildlife Refuge near Sinton, TX. Four 10' x 10' plots were seeded at 6.96 lbs PLS/acre. Three of the four plots were treated with one of the following pre-emergent herbicides (Plateau (Imazapic) @ 3 oz/acre, Plateau @ 6 oz/acre, or Stalker (Imazapyr) @ 12 oz/acre). One plot was a control. Plots were seeded in October 2005. Plots will be monitored in 2006 for stand establishment and resistance to each herbicide. The second planting was the TXDOT US HWY 77 planting near Kingsville. Slender grama was seeded as part of a native grass mixture at a rate of 2.5 lbs PLS/acre in the highway medians. Medians were seeded in November 2005. This planting will be monitored for stand establishment and percent cover/species throughout 2006. Additional rangeland seeding trials are planned for 2006 at various locations (Uvalde, Webb, Frio, Duval, and Hidalgo counties) throughout South Texas.

Seed production: Accession 9089049 was chosen for a large scale seed increase for use in a demonstration planting for TXDOT on US HWY 77. In August 2004, 2,000 transplants were started from seed collected at Bladerunner Farms in 2003. Seedlings were transplanted at the CKWRI Wildlife Complex (Victoria clay soil) in October 2004. Transplants were planted at a rate 1 per 3 ft^2 (plot size = 6000 ft^2). Plants were watered and fertilized, and seed was harvested when ripe throughout 2005. Table 13 shows the amount of seed produced and seed quality from this increase. Seed production of 50.16 lbs pure live seed (PLS)/acre was achieved. Seed was harvested by use of a Flail-vac Seed Stripper at 1000 rpm. Table 14 shows the seed production of each accession from the seed increase at TAES Beeville in 2005. Seed was harvested by hand, from May through October at Beeville.

Table 13. Seed production of slender grama accession 9089049, in 2005 at CKWRI Wildlife Complex.

Bulk seed produced (lbs.)	16.6
Purity (%)	60
Active germination (%)	69.33
Pure live seed (PLS) (%)	41.6
Lbs. PLS produced	6.91
Seed production (bulk lbs/acre)	116.16
Seed production lbs PLS/acre	50.16

Table 14. Seed production of 5 slender grama accessions from May through October of 2005 at TAES Beeville.

Accession	Bulk seed produced (lbs)	Seed production (bulk lbs/acre)
9088905	0.1885*	283
9089135	0.0278	403
9089049	0.1219	379
9088897	0.2127	370
9088914	0.2094	364

*Seed production was limited by number of plants available from original seed

Insect damage: The rice stink bug (*Oebalus pugnax*) has been observed on plants of slender grama from flowering until seed maturity. Rice stink bugs are known to destroy the endosperm of developing grass seeds (Drees and Jackman, 1999). The seed production plot at the CKWRI Wildlife Complex showed severe infestations of rice stink bugs (5-20 bugs/plant) in August and September 2005. The field was treated with Sevin XLR at 3 quarts/acre; rice stink bugs were effectively controlled. Production fields of slender grama should be monitored closely to detect and control rice stink bugs before severe infestations occur. No other insects or pests have been documented as being detrimental to seed production of slender grama.

Criteria for inclusion in release: All 5 accessions chosen in 2005 from the initial planting at Bladerunner Farms have shown excellent adaptability, seed production, and performance at all planting locations. The distribution of the original collections mirrors that of the native range of the species. All 5 accessions have exhibited similar flowering and seed maturity times, and seed quality and quantity among all accessions is good. Accessions 9088905 and 9088914 will be combined for Foundation Seed production because of the close proximity of collection sites and the similarity of collection attributes (range site, soil type). Plots of each accession will be monitored for long term survival, and seeding trials will be conducted from 2006-2008. Seed production data will also be collected from Foundation Seed Fields, as well as insect and pest identification and control information.

Current/projected seed availability: Amounts of seed currently available for increase are given in Table 15. This seed was harvested from plots at TAES Beeville, from plants grown from the original field seed collections. Seed was harvested throughout 2005, cleaned and is in cold storage at the PMC. Small quantities of the original field collections are also in storage at the PMC. Table 15 estimates the number of plants possible for planting in foundation seed fields in 2006 for each accession, and projected seed production assuming 80% of production goal is met.

Table 15. Current/projected seed availability of accessions of Slender grama selections. Seed is currently in cold storage at the PMC, and will be used to grow transplants for Foundation Seed Fields in 2006.

Accession	lbs seed (from 2005 Beeville seed increase)	Projected # of plants possible to produce*	lbs seed (half of original field collection)	Projected # of plants possible to produce	Projected Total number of plants possible	2006 Projected Foundation seed production (bulk lbs)**
9088905	0.1885	11,781	0.0108	678	12,459	74
9089135	0.0278	1,737	0.0036	22	1,759	12
9089049	0.1219	7,618	0.0051	242	7,860	54
9088897	0.2127	13,293	0.0163	1,171	14,464	98
9088914	0.2094	13,087	0.0203	1,966	15,053	100

* Projected number of plants is calculated using active germination of each seedlot

** Projected seed production (using seed production amounts calculated from TAES Beeville in 2005) assuming 80 % of production goals are met

Ecological Considerations and Evaluation: An Environmental Evaluation of Plant Materials Releases was completed using guidelines established by NRCS (USDA-NRCS, 2000), and the best available information for this species. Results of this evaluation determined that Dilley Germplasm slender grama was suitable for release based on the criterion contained in this document. This conclusion is mainly due to the fact that slender grama is a naturally occurring species in Texas and planting it would therefore not constitute an introduction of an exotic species into local ecosystems. Any negative impacts on other native plant species would likely be minimal to non-existent. Also, release of this species will make available an additional native species for rangeland planting, and may provide unknown benefits by maintaining and contributing habitat that harbors beneficial insects and butterflies

Conservation Use: Slender grama has potential for use on highway right of ways, reclamation sites, and in rangeland plantings. It also can be used in many types of conservation plantings, such as stream-side buffers and filter strips.

Area of adaptation: Accessions 9088905, 9088914, 9089049, 9089135, and 9088897 were originally collected from sandy loam and loam soil types. Table 16 shows the soil types that these accessions have been evaluated on; acceptable performance has been documented on each soil type. Slender grama occurs in the South Texas Plains and Edward Plateau of Texas, in open brush pastures, right of ways, and along stream banks (Gould, 1975). Correll and Johnston (1996) state that slender grama occurs in grasslands and open brush on sandy or gravelly loam soils in the Rio Grande Plains. Additional observations confirm the presence of slender grama in many areas within the Coastal Sand Plains, and Gulf Prairies and Marshes. Everitt et al. (1981) lists slender grama as a major grass component of red sandy loam range sites of the Delmita-Randado soils

complex. Based on evaluation results, distribution information and other observations, this Selected Plant Material of slender grama should be adapted to the South Texas Plains, Coastal Sand Plains, Gulf Prairies and Marshes, and Edwards Plateau (extreme southern portions) of Texas (Figure 1). Slender grama frequently occurs in disturbed areas, and is likely an early successional species. It does however occur in climax communities interspersed with late successional species. Adaptation of this release is unknown outside of the area described.

Table 16. Soil types of known adaptability for selected Slender grama accessions.

Site/location	Year(s)	Soil Type
Bladerunner Farms (Poteet, TX)	2003-2006	Miguel fine sandy loam
TAES Beeville (Beeville, TX)	2005-2006	Clareville sandy clay loam
TAES Beeville (Beeville, TX)	2005-2006	Parrita sandy clay loam
Rancho Blanco (Laredo, TX)	2005-2006	Lagloria silt loam
CKWRI WLC, PMC (Kingsville, TX)	2005-2006	Victoria clay

Availability of Plant Materials: Foundation seed will be produced and maintained by *South Texas Natives* in conjunction with Texas Foundation Seed Service. Seed will be produced from transplants grown from original seed or from seed grown at isolated increase plots at TAES Beeville. Each of the accessions must be separated from existing plots of slender grama, and each other by 900 ft. Seed harvested from Foundation Seed Fields will be cleaned and stored at the PMC in Kingsville, TX. All seed will be tested by outside laboratories for germination, purity, and dormancy.

All commercial seed production must take place in Texas. All certified seed fields must be isolated from native or other cultivated stands of slender grama by 900 ft. Foundation and certified seed fields will be limited to 7 production years.

REFERENCES

AOSA. 2003. Rules for testing seeds. Association of Official Seed Analysts.

Drees, B.M., and J. Jackman. 1999. Field Guide to Texas Insects. Gulf Publishing Company. Houston, Texas.

Correll, D.V., and M.S. Johnston. 1996. Manual of the Vascular Plants of Texas. The University of Texas at Dallas. Dallas, Texas. Fourth Printing.

Everitt, J.H., C.L. Gonzalez, G. Scott, and B.I. Dahl. 1981. Seasonal food preferences of cattle on native range in the South Texas Plains. J. Range Management. 34:384-388.

Gonzalez C.L. and J.H. Everitt. 1982. Nutrient contents of major food plants eaten by cattle in the South Texas Plains. J. Range Management. 35(6):733-736.

Gould, F.W. 1975. The Grasses of Texas. Texas A&M University Press. College Station, Texas.

Morrow, J., E.C. Nord, and V.A. Young. 1954. Stoloniferous ecotypes of hairy grama (*Bouteloua hirsuta*). J. Range Management. 7:226-227.

USDA-SCS. 1972. Soil Survey of Medina County, Texas. United States Department of Agriculture, Washington, D.C.

USDA-SCS. 1977. Soil Survey of Atascosa County, Texas. United States Department of Agriculture, Washington, D.C.

USDA-SCS. 1979. Soil Survey of Bee County, Texas. United States Department of Agriculture, Washington, D.C.

USDA-SCS. 1981a. Soil Survey of Dimmit and Zavala Counties, Texas. United States Department of Agriculture, Washington, D.C.

USDA-SCS. 1981b. Soil Survey of Webb County, Texas. United States Department of Agriculture, Washington, D.C.

Prepared by:

Paula Maywald
South Texas Natives
MSC 218, Texas A&M-Kingsville
Kingsville, TX 78363-8202

Forrest Smith
South Texas Natives
MSC 218, Texas A&M-Kingsville
Kingsville, TX 78363-8202

TEXAS AGRICULTURE EXPERIMENT STATION
PLANT MATERIAL RELEASE NOTIFICATION
REPORT OF TECHNICAL COMMITTEE ON SEED RELEASE AND INCREASE

The attached proposal for plant release has been examined and reviewed by members of the TAES plant release committee. Based on this review, the following recommendations regarding release are made. Release procedures followed those given in the TAES Policy on the Management & Release of Plant Materials – 1995.

1. Species: **Slender grama (*Bouteloua repens*)**
2. Breeders: **William R. Ocumpaugh (TAES contact) et al.**
3. Type of Release: **Selected Native Germplasm**
4. Recommended for Release: **Yes**
5. Designation to be applied upon release: **numerous, see proposal coversheet**
6. Distribution of Breeder's Seed: **Breeder**
7. Increase and maintenance of Foundation Seed Stocks: **n/a**
8. Responsibility for providing seed to state and federal seed laboratories: **Breeder**
9. Publicity (including Station Seed Leaflet):
10. Other Recommendations:
11. Members of plant review committee considering release: **J. Betran, D. Byrne, J. Starr, G. Peterson, K. Crosby, W. Smith, L. Nelson, and J. Rudd.**

Forwarded by:

W.L. Rooney
Chair, Plant Review Committee

Date: August 21, 2006

Approved as Recommended:

Mark A. Hussey
Associate Director, TAES

Date: 8-21-2006

Changes in Release: none

PLANT MATERIALS RELEASE PROPOSAL

Date: **19 May 2006**

1. Crop: **Slender grama, *Bouteloua repens* (H.B.K.) Scribn. & Merr.**

Type of Release: **Selected Plant Material**

2. Proposed name or identification: **9088905, 9088914, 9089049, 9089135, and 9088897 Slender grama**

3. Designation or name in development stages: **5 accession numbers (9088905, 9088914, 9089049, 9089135, and 9088897).**

4. Primary features or advantages:

- **Native and adapted to the South Texas Plains, Gulf Prairies and Marshes, Coastal Sand Plains and Edwards Plateau ecological regions of Texas**
- **Selected for superior plant persistence.**
- **Selected for superior seed quality, and high active seed germination**

5. Plant Variety Protection: **No**

6. Seed amount available and date: **300 lbs by November 2006**

7. Proposed seed distribution:

Small samples distributed by: **South Texas Natives**

Royalty: **Yes**

8. Provisions: **Seed to be produced in Texas**

9. Suggested fees:

10. Supportive documents attached: **Release Proposal: Yes**

11. Submitted:

Breeders and Scientists – Date

5-26-06

Unit Heads – Date

Bobby R. Eddleman 5-30-06

Signatures for release of:

Dilley Germplasm slender grama
(*Bouteloua repens* (H.B.K.) Scribn. & Merr.)

Fred C. Bryant — 3/12/07

Dr. Fred Bryant, Director
Caesar Kleberg Wildlife Research Institute
Texas A&M
Kingsville, Texas

Date

Mark A. Hussey — 4-6-2007

Texas Agricultural Experiment Station
College Station, Texas

Date

Walter J. Douglas — Acting — 4-12-2007

Walter W. Douglas
Acting State Conservationist
United States Department of Agriculture
Natural Resources Conservation Service
Temple, TX

Date

Robert T. Escheman — 4-23-2007

Robert Escheman
National Plant Materials Program Leader
United States Department of Agriculture
Natural Resources Conservation Service
Washington, D.C.

Date