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Technical Report 0-6792-1
Cooperative Research Program

**CAESAR KLEBERG WILDLIFE RESEARCH INSTITUTE
TEXAS A&M UNIVERSITY-KINGSVILLE
KINGSVILLE, TEXAS 78363**

in cooperation with the
Federal Highway Administration and the
Texas Department of Transportation
<http://tti.tamu.edu/documents/0-6792-1.pdf>

APPENDIX C

RELEASE BROCHURES FOR SPECIES FORMALLY RELEASED

Introduction

La Salle Germplasm Arizona cottontop (*Digitaria californica* (Benth.) Henr.) is a blend of 12 collections from the Rio Grande Plains of Texas. This release is a cooperative effort of *South Texas Natives*, the USDA-NRCS E. “Kika” de la Garza Plant Materials Center, and the Texas Agricultural Experiment Station in Beeville. Collections comprising this release were selected for seed quality and production, plant vigor, forage production, and adaptability throughout the South Texas area.



Description

La Salle Germplasm Arizona cottontop is a warm season perennial bunchgrass native to south Texas. The seed head measures 2 to 5 inches and bears a number of fluffy white seeds. Plants are 3 to 5 feet in height and can produce the cotton-like seedheads throughout the year. La Salle Germplasm will readily reseed itself, and individual plants are long lived.

Uses & Adaptation

La Salle Germplasm was developed for use in native rangeland restoration and wildlife plantings in the Rio Grande Plains of Texas. La Salle Germplasm provides good forage for livestock and cover and food for many species of native wildlife. It performs well on most soil types, including sandy loam, clay, and clay loam soil types, with the exception of very sandy soils. This germplasm is compatible in plantings with other native species. The good seedling vigor and rapid germination make La Salle Germplasm an excellent choice for planting after brush control or other disturbance. La Salle Germplasm also shows promise for use in adding diversity to stands of exotic grasses, since establishment into existing stands of bufflegum has been observed.

La Salle Germplasm has shown good performance in the South Texas Plains, Gulf Prairie and Marshes, and Coastal Sand Plains regions of South Texas. Although testing in adjacent ecoregions is lacking, adaptability



in eco-regions such as the southern Edwards Plateau and eastern Trans Pecos Mountains is possible but may be limited.



Seed Quality Traits

Seed quality ranges from 40-80% pure live seed. Active seed germination of La Salle Germplasm is excellent when compared to other native grasses, averaging 63%. Up to 93% of active germination takes place 3-5 days from the onset of favorable conditions. Seed dormancy ranges from 10-15%. La Salle Germplasm contains approximately 677,000 seeds per pound.

Planting Methods

Recommended rangeland seeding rate for pure stands is 1½ to 2 pounds pure live seed per acre. Excellent results are achieved when La Salle Germplasm is seeded in the spring to late summer. When La Salle Germplasm is used in a mixture, seeding rate should be adjusted according to the percentage

of Arizona cottontop desired on the site. Application of a seed coating is recommended to facilitate planting. Coated seed can be drilled or broadcasted. Seed should not be planted deeper than ¼ inch. Best results are possible in clean, well prepared seedbeds; however, La Salle Germplasm will establish over time in existing vegetation. Plantings of La Salle Germplasm should be deferred from grazing or disturbance for 1 year after planting.



Management

Stands of La Salle Germplasm should be monitored closely to prevent overgrazing. La Salle Germplasm will perform best under rotational grazing systems. Plants should be allowed to set seed yearly to ensure vigorous stands. Mowing or burning old growth while dormant helps to stimulate seed and forage production. Plants can be mowed to 3 inches yearly with no adverse effects.

Availability

Breeder seed of La Salle Germplasm Arizona cottontop is maintained by *South Texas Natives* in conjunction with the Texas Foundation Seed Service. Breeder seed can be obtained by contacting *South Texas Natives*.

For More Information

South Texas Natives
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La Salle

Germplasm Arizona Cottontop
Digitaria californica (Benth.) Henr.



Introduction

Dilley Germplasm slender grama (*Bouteloua repens* (Kunth) Scribn. & Merr.) is a blend of 4 collections from the Rio Grande Plains of Texas. This release is a cooperative effort of *South Texas Natives*, the USDA-NRCS E. “Kika” de la Garza Plant Materials Center, and the Texas Agricultural Experiment Station in Beeville. Collections comprising Dilley Germplasm were selected for long term survival, seed production and quality, and adaptation across the South Texas area.



Description

Dilley Germplasm slender grama is a warm season perennial grass native to southern Texas. It is low-growing, 1-2½ feet in height. The grass produces multiple heads that bear 5-9 seed spikes, each bearing 5-8 seeds. Dilley Germplasm will flower and produce seed throughout the year. Individual plants are long lived, and Dilley Germplasm frequently reseeds itself.

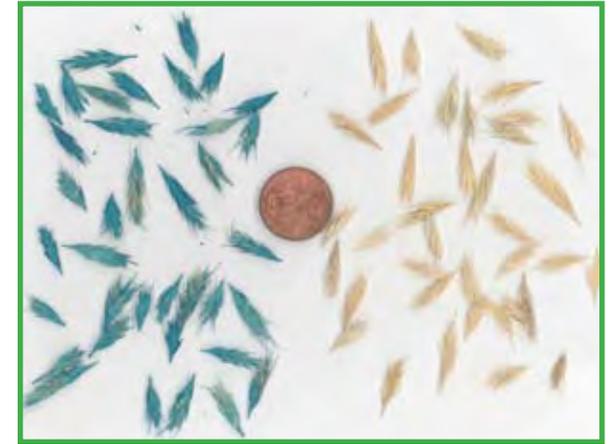
Uses & Adaptation

Dilley Germplasm was developed for use in highway right-of-way seeding, native rangeland restoration, and wildlife plantings in the Rio Grande Plains of Texas. Dilley Germplasm will persist on sand, sandy loam, clay, and clay loam soil types, and it is compatible in plantings with other native species. Slender grama is considered an early invader or increaser plant on most range sites, and it competes well with introduced species. Dilley Germplasm’s fast seed production, establishment, and spreading habit make it an excellent planting choice for highly disturbed sites like highway rights of way or areas susceptible to erosion. The poor forage value of Dilley Germplasm increases its utility in erosion control and in disturbed areas in which grazing animals cannot be excluded.

Dilley Germplasm has shown good performance in the South Texas Plains, Gulf Prairie and Marshes, and Coastal Sand Plains regions of South Texas. Although testing in



adjacent ecoregions is lacking, adaptability in eco-regions such as the southern Edwards Plateau and eastern Trans Pecos Mountains and Basins is possible but may be limited.



Seed Quality Traits

Seed quality averages 35% pure live seed. Fifteen to 30% of Dilley Germplasm spikes bear actively germinating seeds. Dormant seed averages 60-85%. Dilley Germplasm contains approximately 116,300 seeds per pound.

Planting Methods

Recommended rangeland seeding rate for pure stands is 20 pounds pure live seed per acre. When Dilley Germplasm is used in a mixture, seeding rate should be adjusted according to the percent of slender grama desired on the site. A seed coating should be applied to facilitate planting. Although uncoated seed can be broadcast seeded, the relatively light seed weight makes proper distribution difficult. Coated seed can be drilled or broadcasted,

and seed should not be planted deeper than ¼ inch. Best results are possible in clean, well prepared seedbeds; however, Dilley Germplasm will establish over time in existing vegetation. Plantings should be deferred from grazing or disturbance for 1 year after planting.

Management

Plants should be allowed to set seed yearly to ensure vigorous stands. Mowing or burning old growth while dormant helps to stimulate seed and forage production. Plants can be mowed to 3 inches yearly with no adverse effects.



Availability

Breeder seed of Dilley Germplasm slender grama is maintained by *South Texas Natives* in conjunction with the Texas Foundation Seed Service. Breeder seed can be obtained by contacting *South Texas Natives*.

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Dilley

Germplasm Slender Grama

Bouteloua repens (Kunth) Scribn. & Merr.



Introduction

Chaparral Germplasm hairy grama (*Bouteloua hirsuta* Lag. var. *hirsuta*) is a blend of 4 collections from the Rio Grande Plains of Texas. This release is a cooperative effort of *South Texas Natives*, the USDA-NRCS E. “Kika” de la Garza Plant Materials Center, and the Texas Agricultural Experiment Station in Beeville. Collections comprising Chaparral Germplasm were selected for long term survival, seed production and quality, and adaptation across the South Texas area.



Description

Chaparral Germplasm hairy grama is a warm season perennial grass native to southern Texas. The low-growing dense bunchgrass grows 1-2½ feet tall. The plants produce multiple seed heads, each bearing a spike containing 18-70 seeds. Chaparral Germplasm will flower and produce seed throughout the year. Individual plants are long lived.

Uses & Adaptation

Hairy grama is an important component of many range sites throughout South Texas. Chaparral Germplasm was developed for use in highway rights-of-way seeding, native rangeland restoration, and wildlife plantings in the Rio Grande Plains of Texas. Chaparral Germplasm will persist on sand, sandy loam, clay, and clay loam soil types. This germplasm is compatible in plantings with other native species. Chaparral Germplasm’s fast seed production, establishment, and spreading habit make it an excellent planting choice for highly disturbed sites like highway rights of way or areas susceptible to erosion.

Chaparral Germplasm has shown good performance in the South Texas Plains, Gulf Prairie and Marshes, and Coastal Sand Plains regions of South Texas. Although testing in adjacent ecoregions is lacking, adaptability in eco-regions such as the southern Edwards Plateau and eastern Trans Pecos Mountains and Basins is possible but may be limited.



Seed Quality Traits

Seed quality averages 10% pure live seed. Active seed germination of Chaparral Germplasm is low, ranging from 2-12%; however, the tremendous number of seeds produced offsets its active seed germination rate. Chaparral Germplasm contains approximately 800,000 seeds per pound.



Planting Methods

Recommended rangeland seeding rate for pure stands is 1-2 pounds pure live seed per acre. Optimum planting time is from spring to early fall. When Chaparral Germplasm is used in a mixture, seeding rate should be adjusted according to the percentage of hairy grama desired on the site. Application of a seed coating is recommended to facilitate planting. Uncoated seed of Chaparral Germplasm tends to clump, making uniform planting distribution difficult. Coated seed can be drilled or broadcasted. Seed should not be planted deeper than ¼ inch. Best results are possible in clean, well prepared seedbeds; however, Chaparral Germplasm will establish over time in existing vegetation. Plantings should be deferred from grazing or disturbance for 1 year after planting.

Management

Chaparral Germplasm has a good to fair grazing value, depending on the range site and soil type. Plants should be allowed to set seed yearly to ensure vigorous stands. Mowing or burning old growth while dormant helps to stimulate seed and forage production. Chaparral Germplasm can be mowed to 4 inches with no adverse effects.

Availability

Breeder seed of Chaparral Germplasm hairy grama is maintained by *South Texas Natives* in conjunction with the Texas Foundation Seed Service. Breeder seed can be obtained by contacting *South Texas Natives*.



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Chaparral

Germplasm Hairy Grama
Bouteloua hirsuta Lag. var. *hirsuta*



Introduction

Atascosa Germplasm Texas grama (*Bouteloua rigidisetata* Steud.) is a blend of 4 collections from the Rio Grande Plains of Texas. This release is a cooperative effort of *South Texas Natives*, the USDA NRCS E. “Kika” de la Garza Plant Materials Center, and the Texas Agricultural Experiment Station in Beeville. Collections comprising Atascosa Germplasm were selected for long term survival, seed production and quality, and adaptation across the South Texas area.



Description

Atascosa Germplasm Texas grama is a warm season perennial grass native to southern Texas. The low-growing, dense bunchgrass grows 1-2½ feet in height and produces multiple heads, each bearing a spike containing 5-14 seed spikes with 3-5 seeds per spike. Atascosa Germplasm will flower and produce seed throughout the year and frequently reseeds itself.

Uses & Adaptation

Texas grama is an important component of many range sites throughout South Texas. Atascosa Germplasm was developed for use in highway right-of-way seeding, native rangeland restoration, and wildlife plantings in the Rio Grande Plains of Texas. Atascosa Germplasm will persist on sand, sandy loam, clay, and clay loam soil types, and it is compatible in plantings with other native species. Atascosa Germplasm’s fast seed production, establishment and spreading habit make it an excellent planting choice for highly disturbed sites like highway right of ways or areas susceptible to erosion.

Atascosa Germplasm has shown good performance in the South Texas Plains, Gulf Prairies and Marshes, and Coastal Sand Plains regions of South Texas. Although testing in adjacent ecoregions is lacking, adaptability in the southern Edwards Plateau and eastern Trans Pecos Mountains and Basins is possible.



Seed Quality Traits

Seed quality averages 55% pure live seed. Active seed germination averages 35%, and dormant seed averages 27%. Atascosa Germplasm contains approximately 104,000 seeds per pound.

Planting Methods

Recommended rangeland seeding rate for pure stands is 15 pounds pure live seed per acre. Optimum planting time is late summer to early fall. When Atascosa Germplasm is used in a mixture, seeding rate should be adjusted according to the percentage of Texas grama desired on the site. Application of a seed coating has no adverse affects on seed germination. Uncoated seed tends to clump, making uniform planting distribution difficult. Coated seed can be drilled or broadcasted. Seed should not be planted deeper than ¼ inch. Best results are possible in clean, well prepared seedbed; however, Atascosa Germplasm will establish over time when seeding into existing vegetation. Grazing should be deferred for one year after planting.

Management

Atascosa Germplasm plants should be allowed to set seed yearly to ensure vigorous stands. Mowing or burning old growth while dormant helps to stimulate seed and forage production. It can be mowed to 4 to 6 inches without adverse effects. Atascosa Germplasm has poor grazing value.

Availability

Breeder seed of Atascosa Germplasm Texas grama is maintained by *South Texas Natives* in conjunction with the Texas Foundation Seed Service. Breeder seed can be obtained by contacting *South Texas Natives*.



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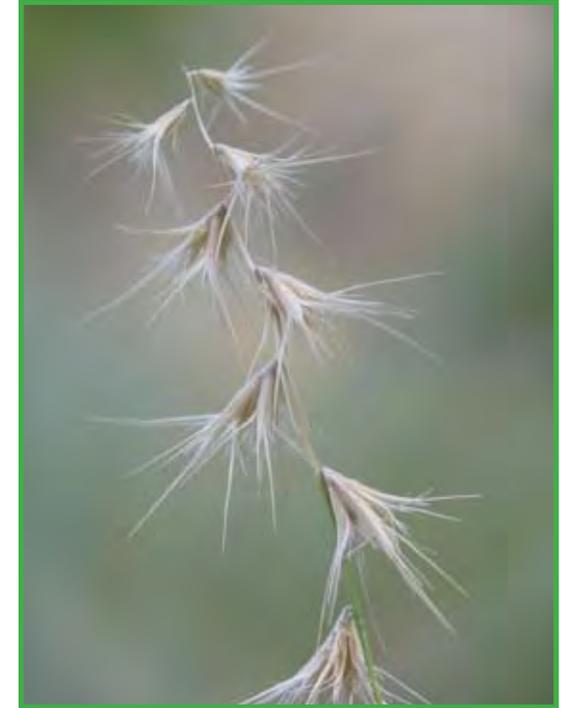
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Atascosa

Germplasm Texas Grama
Bouteloua rigidiseta Steud.



Description

The Catarina blend of bristlegrass is a commercial blend of four bristlegrass collections from South Texas. One component is a plains bristlegrass [*Setaria vulpiseta* (Lam.) Roemer & J.A. Schultes] collected in Webb County, Texas. The other three components are streambed bristlegrass [*Setaria leucopila* (Scribn. & Merr.) K. Schum.] collected in Karnes, Bexar, and Willacy Counties, Texas.

The releases forming Catarina blend of bristlegrass were a cooperative release between the USDA-NRCS Plant Materials Program, *South Texas Natives*, and the Texas Agricultural Experiment Station at Beeville. Both of these species of bristlegrass are native, perennial bunchgrasses. They produce seed from May to November. Their mature foliage height ranges from 1 to 4 feet tall.



Uses and Adaptation

› Catarina blend of bristlegrass is recommended for use in upland wildlife



plantings and in rangeland seed mixes. It can be used in many types of conservation plantings, such as riparian buffers and filter strips.

It has performed well at locations in the Rio Grande Plain, Gulf Coast Prairies and Marshes, and Rolling Plains regions of Texas. Plains and streambed bristlegrass also occur naturally in the High Plains, Edwards Plateau, and Trans Pecos regions. The Catarina blend of bristlegrass may be adapted to these regions as well, but this has not been verified through field testing.

Planting Methods

Seedbed preparation should begin well in advance of planting. Establish a clean, weed-free seedbed by either tillage or non-residual herbicides. Prior to planting, the site should be firm and have accumulated soil moisture. Seeding should occur in early spring, or

where there are few cool-season weeds, bristlegrass can be seeded in the fall.

Bristlegrass can be seeded using a grass drill with a small seed box. Broadcast seeding may be used in areas not easily planted with a drill, but additional practices to encourage good seed to soil contact, such as cultipacking, harrowing, etc., may be necessary. There are approximately 368,100 to 567,500 seeds per pound of bristlegrass.

Seed should be planted 1/8 to 1/4 inch deep. A seeding rate of 2 pounds of pure live seed (PLS) per acre is recommended. This corresponds to planting 20 live seeds per square foot. When planting a mixture, the rate of bristlegrass should be reduced according to the total percentage desired in the mixture. It should be noted that some of the collections that make up the Catarina blend have high seed dormancy.



Management

Catarina blend bristlegrass should not be grazed the first year. Once the stand is established, rotational grazing can be used. It is recommended that a 4-10 inch stubble height be maintained.



Availability

The four germplasms that make up the Catarina blend (Kika648 Germplasm, Kika677 Germplasm, Kika819 Germplasm and Kika820 Germplasm) were released in 2006. Breeder and foundation seed will be maintained by the E. Kika de la Garza Plant Materials Center in conjunction with Texas Foundation Seed Service. Breeder seed may be obtained by contacting the PMC.

For More Information

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Catarina Blend Bristlegrass

Setaria leucopila
(Scribn. & Merr.) K. Schum.

and

Setaria vulpiseta
(Lam.) Roemer & J.A. Schultes



E. "Kika" de la Garza Plant Materials Center Kingsville, Texas



Management

Welder Germplasm shortspike windmillgrass can be grazed the first year once the stand is established. Contact your local NRCS office to develop a grazing management plan. It is recommended that it be mowed or grazed to a 2 to 3 inch stubble height at least once per year. Welder Germplasm should not be burned.



Availability

Welder Germplasm was released in 2006. Breeder and foundation seed will be maintained by the E. Kika de la Garza Plant Materials Center in conjunction with Texas Foundation Seed Service. Breeder seed may be obtained by contacting the PMC.

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Welder Germplasm

Shortspike Windmillgrass

Chloris × subdolichostachya Muell.
(pro sp.) [*cucullata* × *verticillata*]



E. "Kika" de la Garza Plant Materials Center Kingsville, Texas



Description

Mariah Germplasm hooded windmillgrass (*Chloris cucullata* Bisch.) was collected in Kenedy County, Texas. Mariah Germplasm is a cooperative release between the USDA-NRCS Plant Materials Program, *South Texas Natives*, and the Texas Agricultural Experiment Station at Beeville. Hooded windmillgrass is a native, perennial bunchgrass with a mature foliage height ranging from 0.5 to 1 foot. It produces seed heads from May through October. However, unlike most hooded windmillgrass populations, Mariah Germplasm also spreads vegetatively by stolons.

Uses and Adaptation

Mariah Germplasm is recommended for use in roadside plantings, critical site revegetation, and rangeland seed mixes. It can be used in many types of



conservation plantings, such as grassed waterways, riparian buffers, filter strips, and pond embankments.

Mariah Germplasm has performed well at locations in the Rio Grande Plain, Gulf Coast Prairies and Marshes, Rolling Plains, and Pineywoods regions of Texas. Hooded windmillgrass also occurs naturally in the Edwards Plateau and Trans Pecos regions. Mariah Germplasm may be adapted to these regions as well, but this has not been verified through field testing.

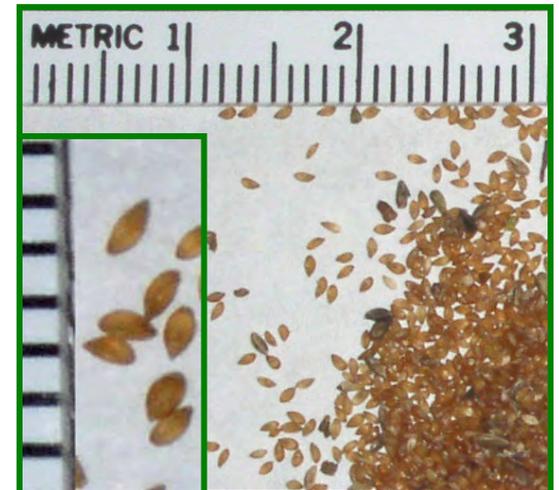
Planting Methods

Seedbed preparation should begin well in advance of planting. Establish a clean, weed-free seedbed by either tillage or non-residual herbicides. Prior to planting, the site should be firm and have accumulated soil moisture. Seeding should occur in early spring, or

where there are few cool-season weeds, windmillgrass can be seeded in the fall.

Mariah Germplasm can be seeded using a grass drill with a small seed box. Broadcast seeding may be used in areas not easily planted with a drill, but additional practices to encourage good seed to soil contact, such as cultipacking, harrowing, etc., may be necessary. Sand can be mixed with seed to aid in distribution. There are approximately 2,500,000 seeds per pound of hooded windmillgrass.

Seed should be planted 1/8 to 1/4 inch deep. It is better to plant too shallow than too deep. A seeding rate of 1/3 to 2/3 pound of pure live seed (PLS) per acre is recommended. This corresponds to planting 20 to 40 live seeds per square foot. When planting a mixture, the rate of windmillgrass should be reduced according to the total percentage desired in the mixture.



Management

Mariah Germplasm hooded windmillgrass can be grazed the first year once the stand is established. Contact your local NRCS office to develop a grazing management plan. It is recommended that it be mowed or grazed to a 2 to 3 inch stubble height at least once per year. Mariah Germplasm should not be burned.



Availability

Mariah Germplasm was released in 2006. Breeder and foundation seed will be maintained by the E. Kika de la Garza Plant Materials Center in conjunction with Texas Foundation Seed Service. Breeder seed may be obtained by contacting the PMC.

For More Information

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Mariah Germplasm

Hooded Windmillgrass

Chloris cucullata Bisch.



E. "Kika" de la Garza
Plant Materials Center
Kingsville, Texas



Description

Maverick Germplasm is a blend of 7 populations of pink pappusgrass (*Pappophorum bicolor* E. Fourn.) from the South Texas Plains. Pink pappusgrass is a co-dominant bunchgrass found on a variety of soils in the region. Maverick Germplasm is a cooperative release of the *South Texas Natives* Program of the Caesar Kleberg Wildlife Research Institute at Texas A&M University-Kingsville, the USDA NRCS E. “Kika” de la Garza Plant Materials Center, and Texas AgriLife Research Station-



Beeville. This grass grows 2-5' tall and produces seed and foliage from March through November. Selections included in Maverick Germplasm were chosen by evaluations of 70 collections of pappusgrass from South Texas at 4 locations for multiple years. Selected accessions have superior active seed germination, greater overall seed production, and higher plant vigor ratings than other collections evaluated.

Use & Adaptation

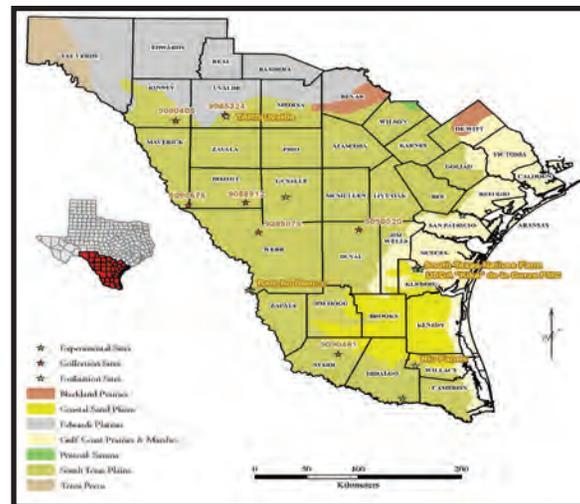
Maverick Germplasm is recommended for use in rangeland seed mixes, highway right of way plantings, retired cropland restoration plantings, and for use in efforts to diversify

invasive grass monocultures. Maverick Germplasm provides good forage for livestock, and is an excellent bunchgrass that provides good cover for wildlife. It may also be useful in urban wildscaping and ornamental plantings. The foliage provides deep green color and seedheads are an attractive pink coloration.

This release is adapted to a variety of soils. Components originate from gravelly loam, clay loam, and sandy loam soils. Maverick Germplasm is also adapted to saline soils common throughout South Texas. This release will perform best in the South Texas Plains, Coastal Sand Plains, and Gulf Coast Prairies and Marshes eco-regions of Texas. Good performance is expected in the southern Edwards Plateau, eastern Trans Pecos, and throughout northern Mexico, however it has not been tested in these areas.

Planting Methods

Best stands of Maverick Germplasm are obtained by drilling coated seed into a firm, well-prepared seedbed in late August-early



October in South Texas. Plantings done at other times of the year typically have no emergence until late summer/early autumn, regardless of moisture availability. Coated or uncoated seed can also be planted by broadcasting, but culti-packing or light dragging is recommended to prevent seed loss to animals or wind. Seed should be planted no deeper than ¼” below the soil surface. For calibration purposes, Maverick Germplasm contains approximately 322,000 uncoated seeds per bulk pound. Maverick Germplasm should be planted at a rate of 3 pounds pure live seed per acre for solid stands. The seeding rate in mixed species plantings should be adjusted according to the desired amount of pink pappusgrass for the planting site. Increasing the seeding rate above recommended rates does not result in better stands of Maverick Germplasm.

Maverick Germplasm can also be established with vegetative transplants. Transplants should be planted when adequate soil moisture is present. Rapid spread and recruitment has been observed in transplant established stands. On most sites, a mixture of Maverick Germplasm pink pappusgrass and Webb Germplasm whiplash pappusgrass will provide the best results.

Management

Newly planted stands of Maverick Germplasm should not be grazed for 1 year after planting to allow establishment and development of adequate rootstock. Plants can be grazed to 4" stubble height with no adverse affects. Pink pappusgrass plants should be allowed to produce seed annually to insure stand health. Pink pappusgrass is a long-lived perennial that is extremely drought and fire tolerant once established.

Availability

Maverick Germplasm pink pappusgrass was released in 2010. Breeder and foundation seed are maintained by *South Texas Natives* in conjunction with the Texas Foundation Seed Service. Breeder seed can be obtained by contacting *South Texas Natives*.



For More Information

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or

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Maverick

Germplasm Pink
Pappusgrass
Pappophorum bicolor
E. Fourn.



Description

Webb Germplasm is a blend of 3 populations of whiplash pappusgrass (*Pappophorum vaginatum* Buckley) from the South Texas Plains. Whiplash pappusgrass grows on coastal, saline, and alkaline sites in low areas, and on calcareous soils. Whiplash pappusgrass is also found in upland range sites in mixed stands with pink pappusgrass (*Pappophorum bicolor* E. Fourn.). Webb Germplasm is a cooperative release between the South Texas Natives Program of the Caesar Kleberg



Wildlife Research Institute at Texas A&M University-Kingsville, the USDA NRCS E. “Kika” de la Garza Plant Materials Center, and Texas AgriLife Research Station-Beeville. This grass grows 3-5’ tall, and produces seed and foliage from March through November. Selected accessions have superior active seed germination, greater seed production, and higher plant vigor, forage yield, and height ratings than other collections evaluated.

Uses & Adaptation

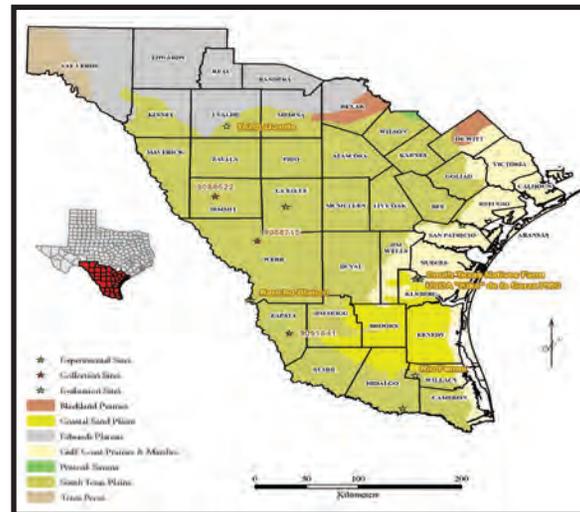
Webb Germplasm is recommended for use in rangeland seed mixes, for saline and alkaline site restoration, highway right of way plantings,

retired cropland restoration plantings, and for use in efforts to diversify invasive grass monocultures. Webb Germplasm provides good forage for livestock, and is an excellent bunchgrass that provides good cover for wildlife.

This release has performed well in a variety of soils. Components of the release originated from clay and sandy loam soils. Webb Germplasm is also adapted to saline and alkaline soils common throughout South Texas. Webb Germplasm will perform best in the South Texas Plains, Coastal Sand Plains, and Gulf Coast Prairies and Marshes ecoregions of Texas. Good performance can be expected in the southern Edwards Plateau, eastern Trans Pecos, and throughout northern Mexico, however use in these areas has not been tested.

Planting Methods

Best stands of Webb Germplasm are obtained by drilling coated seed into a firm, well-prepared seedbed in late August-early October



in South Texas. Plantings done at other times of the year typically have no emergence until late summer or early autumn, regardless of moisture availability. Coated and uncoated seed can also be planted by broadcasting, but culti-packing or light dragging is recommended to prevent seed loss to animals or wind. Seed should be planted no deeper than ¼” below the soil surface. For calibration purposes, Webb Germplasm contains approximately 436,000 uncoated seeds per bulk pound. Webb Germplasm should be planted at a rate of 3 pounds pure live seed per acre for solid stands. The seeding rate in mixed species plantings should be adjusted according to the desired amount of whiplash pappusgrass for the planting site. Increasing the seeding rate above the recommended rate does not result in better stands of Webb Germplasm.

Webb Germplasm can also be established with vegetative transplants. Transplants should be planted when adequate soil moisture is present. Rapid spread and recruitment has been observed in transplant established stands. On most sites, a mixture of Webb Germplasm whiplash pappusgrass and Maverick Germplasm pink pappusgrass will provide the best results.

Management

Newly planted stands of Webb Germplasm should not be grazed for 1 year after planting to allow establishment and development of adequate rootstock. Later, it can be periodically grazed to 4" stubble height with no adverse affects. Plants should be allowed to produce seed annually to insure stand health. Whiplash pappusgrass is a long-lived perennial that is extremely drought and fire tolerant once established.

Availability

Webb Germplasm whiplash pappusgrass was released in 2010. Breeder and foundation seed are maintained by *South Texas Natives* in conjunction with the Texas Foundation Seed Service. Breeder seed can be obtained by contacting *South Texas Natives*.



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Webb

Germplasm Whiplash Pappusgrass

Pappophorum vaginatum
Buckley



Management

Divot tallow weed blend establishes very quickly with adequate soil moisture and good growing conditions. Tallow weeds commonly form a winter rosette following emergence, and primary forage production occurs from early February through May. Areas planted with tallow weed should be deferred from grazing for a minimum of 30 days after planting to minimize trampling by livestock. Seed stalks typically emerge from March-May and plants may produce seed through June under favorable moisture conditions. Once established, Divot tallow weed blend readily re-seeds itself with moderate soil disturbance prior to the growing season, or significant rainfall.

Availability

Breeder seed of Divot tallow weed blend is maintained by *South Texas Natives* in conjunction with the Texas Foundation Seed Service. Breeder seed can be obtained by contacting *South Texas Natives*.



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Divot

Tallow Weed Blend

Plantago hookeriana Fisch & Mey
Plantago rhodosperma Dcne.



Introduction

Zapata Germplasm Rio Grande clammyweed [*Polanisia dodecandra* (L.) DC. ssp. *riograndensis*], is a composite of two collections from Dimmit and Zapata Counties, Texas. Zapata Germplasm is a cooperative release between South Texas Natives and the USDA-NRCS E. “Kika” de la Garza Plant Materials Center.



Description

Rio Grande clammyweed is a native, annual forb with a mature foliage height ranging from 24 to 60 inches. It produces pink flowers and seed from March through November.

Uses & Adaptation

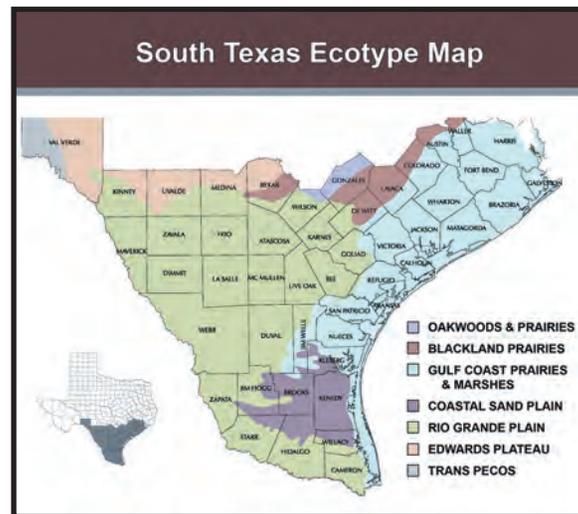
Rio Grande clammyweed produces seed eaten by a variety of game birds and wildlife. It is a good nectar source and outstanding attractant for a number of butterflies and pollinators, and harbors large insect populations beneficial to wildlife. Rio Grande clammyweed foliage is

not grazed by livestock or wildlife. Zapata Germplasm is recommended for use in upland wildlife plantings, food plots for game birds, native landscaping, and in range seeding mixes.

Rio Grande clammyweed is naturally found in sandy, gravelly or alluvial silty soils on both sides of the lower Rio Grande River and adjacent areas of south Texas. Zapata Germplasm has performed best at locations in MLRAs 83 (Rio Grande Plains) and 150 (Gulf Coast Prairies). As a component of a seed mix of native species, Rio Grande clammyweed is one of the first plants to germinate, establish and produce seed. Clammyweed is an excellent nurse plant for many slow growing, native perennial grasses.

Planting Methods

Rio Grande clammyweed should generally be planted as part of a native seed mixture or as a food plot species for game birds.



A seeding rate of 8 pounds of pure live seed (PLS) per acre is recommended for a solid stand. This corresponds to planting 20 pure live seeds/sq. ft. When planting a mixture, the rate of Rio Grande clammyweed should be reduced according to the total percentage desired in the mixture. There are approximately 154,500 seeds per pound of clammyweed.

To plant, establish a clean, weed-free seedbed by either tillage or non-residual herbicides. Prior to seeding, the site should be firm and have accumulated soil moisture. Seeding should occur in early spring or late summer-early fall, with consideration given to allow seed production and maturity before the onset of freezing temperatures. Rio Grande clammyweed typically requires 45-60 days from planting for seed to mature under ideal growing conditions.

Zapata Germplasm can be seeded using a seed drill, or broadcasted in areas not easily planted with a drill, but additional practices to encourage good seed to soil contact may be necessary. Seed should be planted 1/8 to 1/4 inch deep. It is better to plant too shallow than too deep.

Management

Zapata Germplasm Rio Grande clammyweed establishes very quickly with adequate soil moisture and good growing conditions. Areas planted with Rio Grande clammyweed should be deferred from grazing for a minimum of 30 days after planting to minimize trampling by livestock. Once established, clammyweed will re-seed itself with moderate soil disturbance prior to the growing season. Once perennial plant species establish on the planting site, clammyweed declines in abundance without additional soil disturbance.

Availability

Breeder seed of Zapata Germplasm Rio Grande clammyweed is maintained by *South Texas Natives* in conjunction with the Texas Foundation Seed Service. Breeder seed can be obtained by contacting *South Texas Natives*.



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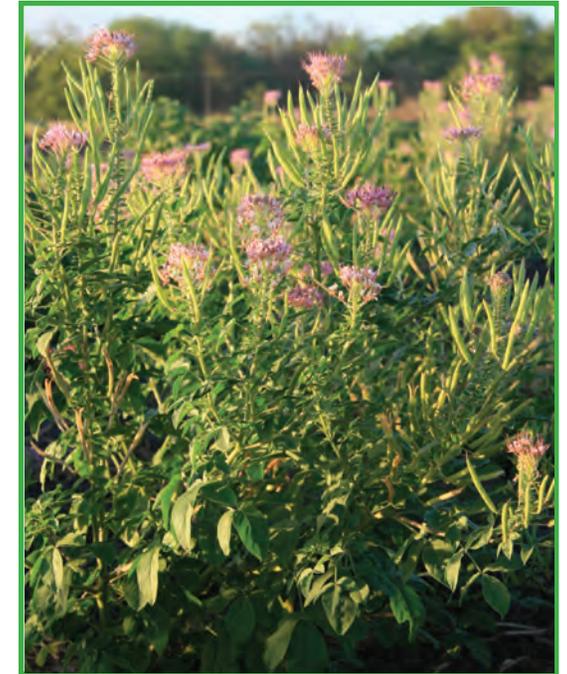
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Zapata

Germplasm Rio Grande Clammyweed

Polanisia dodecandra (L.) DC.
ssp. riograndensis



Description

Goliad Germplasm orange zexmenia [*Wedelia texana* (A. Gray) B.L. Turner] is a composite of seven collections from Val Verde, Starr, Goliad, Webb, Duval, Jim Hogg, and Bexar Counties, Texas. Goliad Germplasm is a cooperative release between the USDA-NRCS Plant Materials Program and *South Texas Natives*. Orange zexmenia is a native, perennial sub-shrub with a mature foliage height ranging from 20 to 40 inches. It produces yellow to yellow-orange flowers from March through December.

Uses and Adaptation

Orange zexmenia is browsed by white-tailed deer, cattle, sheep, and goats. Bob white quail have been observed eating the seeds. It is also an adult nectar source for butterflies. Goliad Germplasm is recommended for use in upland wildlife plantings, native landscaping, and in range seeding mixes. It also can be used in many types of conservation plantings, such as stream-side buffers and filter strips.

Orange zexmenia is naturally found on varied soil types, brushy sites, and in



open spaces. It is frequent on various soils in openings and partially shaded brushy sites in the Edwards Plateau and Rio Grande Plains. It is less frequent in the Trans Pecos and southeast and north central Texas. It can also be found in northeastern Mexico, southeast to Veracruz and Hidalgo.

Goliad Germplasm has performed well at locations in MLRA 81 (Edwards Plateau), MLRA 83 (Rio Grande Plains), and in MLRA 42 (Trans Pecos). Current testing has not completely substantiated the northern and western limits of its range of adaptation.

Planting Methods

Orange zexmenia will generally be planted as part of a forb mixture. A seeding rate of 1/3 to 2/3 pound of pure live seed (PLS) per acre is recommended. This corresponds to planting 20 to 40 live seeds per square foot. When planting a mixture, the rate

of orange zexmenia should be reduced according to the total percentage desired in the mixture. There are approximately 140,520 seeds per pound of orange zexmenia.

Seedbed preparation should begin well in advance of planting. Establish a clean, weed-free seedbed by either tillage or non-residual herbicides. Prior to planting, the site should be firm and have accumulated soil moisture. Seeding should occur in early spring, or where there are few cool-season weeds, orange zexmenia can be seeded in the fall.

Goliad Germplasm can be seeded using a grass drill with a small seed box. Broadcast seeding may be used in areas not easily planted with a drill, but additional practices to encourage good seed to soil contact, such as cultipacking, harrowing, etc., may be necessary. Seed should be planted 1/8 to 1/4 inch deep. It is better to plant too shallow than too deep.



Management

Goliad Germplasm orange zexmenia can be grazed the first year once the stand is established. Contact you local NRCS office to develop a grazing management plan.



Availability

Goliad Germplasm was released in 2008. Breeder and foundation seed will be maintained by the E. Kika de la Garza Plant Materials Center in conjunction with Texas Foundation Seed Service. Breeder seed may be obtained by contacting the PMC.



For More Information

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Revised August 2008



Goliad Germplasm

Orange Zexmenia

Wedelia texana (A. Gray)
B.L. Turner



E. "Kika" de la Garza
Plant Materials Center
Kingsville, Texas

