

**UNITED STATES DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE  
GALLIANO, LOUISIANA**

**NOTICE OF RELEASE  
'Gulf Coast' Marshhay Cordgrass**

The U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) announces the naming and release of 'Gulf Coast' marshhay cordgrass [*Spartina patens* (Ait.) Muhl]. Gulf Coast was assigned and tested using NRCS accession number 9067787.

**ORIGIN AND SITE DESCRIPTION**

Gulf Coast marshhay cordgrass was originally collected in 1991 by Mike Materne in Cameron Parish, Louisiana (MLRA 151). Cameron Parish is located in the southwest corner of the state with an average annual precipitation of 132 cm. Vegetative plant material was collected from a levee located within a rice field.

**DESCRIPTION**

Marshhay cordgrass is a native, warm season, strongly rhizomatous, perennial grass that grows to 122 cm in height. The slender stems are erect and stiff (wire like) with narrow linear leaves that average 4-mm in width, are involute (rolled inward) and sometimes flat. Leaf blades are shiny, dark green on the upper surface and rough with prominent veins on the lower surface. Leaf tips are tapered to a sharp point. Long slender rhizomes extend in straight lines often forming aboveground mats of stems. The inflorescence is an open panicle with 2-6 spikes with short or sessile pedicels that open from the central axis (Godfrey and Wooten, 1979).

Marshhay cordgrass is an important coastal grass species distributed along the Atlantic and Gulf coasts of North America from Quebec and Maine southward into Florida and westward into Texas. Marshhay cordgrass comprises one-fourth of the vegetative composition in Louisiana's coastal marshes (Chabreck, 1972). Marshhay cordgrass is a facultative halophyte that grows in elevated irregularly flooded salt, brackish, and intertidal marshes, coastal beaches, and barrier islands (Gosselink, 1970). Plant detritus from this species is important for soil building, and it is important to aquatic food chains. Other commonly used names include saltmeadow cordgrass and wiregrass (Allen, 1992). Other known cultivar releases include 'Avalon' (Origin - Cape May, New Jersey), 'Flageo' (Origin - Manteo, North Carolina), and 'Sharp' (Origin - Abbeville, Louisiana).

**METHOD OF SELECTION**

*Initial Evaluation:* Gulf Coast was initially evaluated at the USDA-NRCS Golden Meadow Plant Materials Center, Galliano, Louisiana, from 1991 through 1999. Forty-

three marshhay cordgrass accessions were collected vegetatively from coastal areas of Louisiana and Texas in 1991. The initial evaluation also included commercially available marshhay cordgrass releases Flageo, Sharp and Avalon.

The initial evaluation plots were severely damaged in late 1992 because of flooding caused by Hurricane Andrew. All accessions were inundated for 50 days. Initial regrowth was observed by new tiller growth (Table 1).

Table 1. New vegetative tillers after 50 d of flooding in 1992 for marshhay cordgrass at Galliano, LA.

	10-Nov-92	25-Nov-92	11-Dec-92	21-Dec-92	10-May-93
	-----ave. tillers/plant*-----				
Gulf Coast	0	4.6	7.5	13.3	105
Sharp	0	1	1.6	5	27.6
Flageo	0	0	0.33	0.66	0.5

\*n = 6 plants

Material from all accessions had been transplanted in the greenhouse for future field evaluation trials. In 1993, this containerized material was used to establish replicated plots of 36 accessions that exhibited superior vigor and regrowth after prolonged flooding.

In Louisiana field evaluation plantings, Gulf Coast has proven superior in comparison to all other ecotypes assembled including commercially available plant releases Flageo and Sharp (Table 2). Avalon did not persist during the initial evaluation and was not included in advanced evaluations.

Table 2. Plant height and vigor from 1993-1998 for marshhay cordgrass at Galliano, LA.

Year	Gulf Coast		Sharp		Flageo	
	Height cm	Vigor*	Height cm	Vigor	Height cm	Vigor
1993	124	1.3	139	1.7	93	3
1994	149	1	136	1	108	1.7
1995	153	1	142	1.7	94	3
1996	132	1	125	2	72	3
1997	N/A	2	N/A	2	N/A	3
1998	128	1	121	1.3	71	3
<b>Mean</b>	<b>137</b>	<b>1.2</b>	<b>133</b>	<b>1.6</b>	<b>88</b>	<b>2.8</b>

\*Vigor = Visual rating 1=excellent, 2=fair, 3=poor

**Advanced Evaluations:** Field evaluation plantings were conducted at seven locations across Louisiana in replicated plots (Table 3). Survival and persistence was observed at all sites (data not shown). Detailed plant performance evaluations were documented from a brackish marsh site in Cameron Parish (Table 4) and dedicated dredge sediment site, Grand Terre Island (Table 5).

Table 3. Field evaluation plantings for marshhay cordgrass from 1993 to 2001 at seven locations in Louisiana.

Location	Parish	Year	Description
Trinity Island	Terrebonne	1993	Beach Planting
3-Bayou Bay	Jefferson	1993	Levee planting in brackish marsh
Timbalier Island	Terrebonne	1995	Sand fencing demonstration
Lake Charles	Cameron	1997	Dedicated dredge sediment site
Fourchon Beach	Lafourche	1997	Sand fencing demonstration
Brown Lake	Cameron	2000	Brackish marsh
Grand Terre Island	Jefferson	2001	Dedicated dredge sediment site

Table 4. Survival, plant width, height and vigor in 2000 for marshhay cordgrass at Brown Lake, Cameron Parish, LA.

	Survival %	Width -----cm-----	Height	Vigor*
Gulf Coast	100	310	135	1
Sharp	100	250	120	5
Flageo	20	N/A	N/A	9

\*Vigor = Visual rating 1=excellent, 5=fair, 9=poor

Table 5. Survival, plant width, height and vigor in 2002 for marshhay cordgrass at Grand Terre Island, Jefferson Parish, LA

	Survival %	Width -----cm-----	Height	Vigor*
Gulf Coast	100	43	100	2
Sharp	100	31	80	3.5
Flageo	100	13	34	7.5

\*Vigor = Visual rating 1=excellent, 5=fair, 9=poor

## **RELEASE JUSTIFICATION**

Gulf Coast marshhay cordgrass is a performance proven plant material that is needed for use in Louisiana's coastal restoration program. Gulf Coast has proven superiority to other Louisiana and Texas ecotypes assembled and tested. It has also demonstrated early response and vigorous re-growth after 50 d of inundation from floodwaters caused by Hurricane Andrew. This plant material has also proven superior in field evaluation plantings to the commercially available cultivars Flageo and Sharp marshhay cordgrass.

## **USE AND ADAPTATION**

Gulf Coast is recommended for conservation planting in coastal areas of the north central Gulf of Mexico basin. Gulf Coast can be successfully planted in brackish and salt marshes, marsh ridges, coastal beaches, barrier islands, and restored marsh where dedicated sediments are used. Gulf Coast has proven effective for marsh restoration, shoreline and levee stabilization, and coastal beach and barrier island sand dune enhancement and stabilization.

## **ENVIRONMENTAL IMPACT ASSESSMENT**

Gulf Coast marshhay cordgrass was originally collected and increased vegetatively by plant division from naturally occurring native germplasm. Plant materials selected for this release are vegetatively propagated and have not been altered from the original collection. Gulf Coast does not meet the criteria of a plant which could become invasive based on guidelines adopted by the NRCS Plant Materials Program.

## **AVAILABILITY OF PLANT MATERIAL**

Gulf Coast marshhay cordgrass is a clonal release and must be propagated by vegetative means. Seeds of Gulf Coast are not available and seeds are not to be used for plant increase or establishment of this cultivar.

Foundation plant materials to be used for commercial nursery production are available from the USDA, Natural Resources Conservation Service, Golden Meadow Plant Materials Center. The Center is located at 438 Airport Road, Galliano, Louisiana. Call 985-475-5280 for information.

## **REFERENCES**

Allen, C.M. 1992. Grasses of Louisiana, Second Edition. Cajun Prairie Habitat Preservation Society, Eunice, Louisiana.

Chabreck, R.H. 1972. Vegetation, Water and Soil Characteristics of the Louisiana Coastal Region. LSU Ag. Exp. Sta. Bulletin No. 664.

Godfrey, R.K. and Wooten, J.W. 1979. Aquatic and Wetland Plants of the United States, Monocotyledons. The University of Georgia Press. Athens, Georgia.

Gosselink, J.G. 1970. Growth of *Spartinapatens* and *Spartina alterniflora* as Influenced by salinity and Source of Nitrogen. Coastal Studies Bulletin No. 5, Sea Grant Issue.

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