This report highlights the major accomplishments performed and achieved at the United States Department of Agriculture – Natural Resources Conservation Service (USDA-NRCS) Golden Meadow Plant Materials Center (LAPMC), Galliano, LA during calendar year 2020. For more detailed information, please contact the PMC Manager at 985.475.5280.

**Release of West Bay Germplasm Gulf Cordgrass**

The USDA-NRCS LAPMC announces the naming release of a vegetative propagated selected class of gulf cordgrass [*Spartina spartinae* (Trin.) Merr. ex A.S. Hitchc.]. This selected class release was given the name West Bay Germplasm gulf cordgrass.

West Bay Germplasm gulf cordgrass is a native, perennial, hardy grass that generally grows in dense clumps originating from Brazoria County, Texas. It was chosen from an assembly of 65 gulf cordgrass accessions collected from several counties in the east coast of Texas and coastal parishes of Louisiana. It was released as a vegetative propagated selected class pre-varietal germplasm. The release was justified because there are no current commercial sources of gulf cordgrass for the Gulf Coast Marsh, Gulf Coast Prairies or Gulf Coast Saline Prairies. West Bay Germplasm is an excellent plant for coastal stabilization and restoration projects in the Gulf areas.

The 65 accessions were evaluated for environmental, biological and physiological plant criteria. Evaluation factors included plant vigor, basal spread, stem height, maturity and seed production. Thirty accessions were then selected from the 65 observed and individually grown out for further field evaluations for comparative seed germination trials. Percent germination of West Bay Germplasm was significantly higher ($P<0.05$) than the average germination of the other 29
accessions. It averaged 22 percent compared to the average germination of the others which was 7 percent (See Figure 1.). Active germination was an important factor for choosing West Bay Germplasm for release because of its potential for seedling recruitment in coastal ecosystems.

West Bay Germplasm material is maintained by the USDA-NRCS LAPMC. To ensure the availability and genetic integrity, the LAPMC will provide Breeder or Foundation vegetative material through the USDA-NRCS Seed and Plant Transfer Agreement to commercial growers for the establishment of production fields for large-scale increase.

For further details about West Bay Germplasm gulf cordgrass please see the Release Brochure, Plant Guide and Release Notice.

Coastal Studies and Evaluations

The effects of coastal land loss results in decreased flood protection during hurricanes and tropical storm systems, and threats to the state’s commercial fishing, oil and gas industries. Wetlands are areas where the water level hovers around the surface of the soil. They are among the most diverse and productive ecosystems in the world. They provide food for a host of different animals, from insects to mammals, even humans.

In Louisiana, wetlands make up roughly 11 percent of the state and 75 percent of commercial fish and shellfish species depend on the state’s wetlands for breeding and survival, says the Coastal Protection and Restoration Authority (CPRA, 2017). As a result, when wetlands are lost, the habitats that sustain the fishing industry are lost as well.

Wetlands protect against floods by absorbing and slowing flood waters and tidal surges. One acre of wetland can store roughly one million gallons of water, according to the Environmental Protection Agency (EPA, 2006). The existence of our wetlands and coast relies heavily on research, studies and evaluations. Hardy, salt tolerant grasses make up huge percentages of the vegetation in Louisiana’s coastal marshes, beaches and wetlands. The thick entangled roots of coastal grasses act as a guard between the ocean and the shore protecting the land from pollutants and other chemicals associated with runoff water. The LAPMC currently has 2 projects under
evaluation to identify native grass species that will help protect our coast from erosion, provide food and cover for wildlife and fisheries, and preserve the natural resources of coastal ecosystems.

**Evaluation of Distichlis spicata for Coastal Restoration**

The USDA-NRCS Golden Meadow Plant Material’s Center conducted an initial study with *Distichlis spicata*, also known as Inland saltgrass. This grass is adapted to saline areas, brackish marshes, and salt flats along the coasts of the Atlantic and Pacific Oceans, the Gulf of Mexico and along the coast of South America. Twenty-five collections were made throughout the coastal zones of Louisiana and were planted in an observational pond at the LAPMC. After several years of data collection, 5 of the 25 have expressed superior performance for survival, height, canopy cover and overall plant vigor. The 5 collections are scheduled to be taken to 2 different coastal locations in the spring of 2021 and the same growth characteristics will be evaluated. After the field trials are completed, it is the LAPMC’s intentions to have a vegetative plant release of *Distichlis spicata*.

**Evaluation of Sporobolus virginicus for Coastal Restoration**

*Sporobolus virginicus*, also known as Seashore dropseed, is a low growing perennial grass that spreads by rhizomes. It is a low maintenance conservation plant and is very drought tolerant. It is adapted to low fertility soils and has very low water requirements. The LAPMC has initiated a study to evaluate Louisiana and Texas ecotypes for selection and use in coastal salt marshes of the north central coast of the Gulf of Mexico because there are no commercially known sources and no existing plant release of this salt tolerant grass.

The evaluation consists of 24 *Sporobolus virginicus* collections, which were vegetatively sampled across coastal areas of Louisiana. Five collections were included in the study from southeast Texas for comparative analysis. The collections were planted in an observational pond that has the capabilities to be flooded and drained to mimic tidal fluctuations. Characteristics such as survival, plant height, percent canopy cover, overall plant vigor, seed production and
water level depths and durations will be measured and recorded at least twice a year. Intentions are to identify a superior plant that will perform very well in coastal environments, resulting in a vegetative plant release to add to plant diversity for coastal and critical area planting restoration projects.

**Plant and Seed Distribution**

The LAPMC provides seed and vegetative material to more than 40 licensed commercial nursery growers. In 2020, the LAPMC provided approximately 3,400 bare root stems and vegetative plugs to eligible growers across the nation. The vegetative distribution consisted of ‘Vermilion’ smooth cordgrass, ‘Gulf Coast’ marshhay cordgrass, Timbalier Germplasm gulf bluestem, Brazoria Germplasm seashore paspalum, Fourchon Germplasm bitter panicum, Caminada Germplasm sea oats and Bayou Lafourche Germplasm California bulrush. The growers receive the plant material, propagate it in large numbers and provide it for coastal and critical area planting restoration projects.
Plant Materials National Program Review

Earlier in the year, before the global pandemic, the LAPMC underwent a national program review. The National Program Leader – Plant Materials, Ecological Sciences Division and Central Regional Plant Materials Specialist visited the LAPMC to review business plans, plant studies in progress, overlook new study plans, assess building and facility grounds, and all other agenda associated with reviews. The review provided a great opportunity for Louisiana’s NRCS State Conservationist, Chad Kacir, to take part in the review and meet the LAPMC staff.

THE GOLDEN MEADOW PMC: WHO WE ARE....

The LAPMC selects conservation plants and develops innovative planting technology to solve the nation’s most important resource concerns. Plant Materials is a national program consisting of 25 PMCs across the United States. The Plant Materials mission is to assemble and test plant species for use in conservation programs to solve natural resource concerns and its vision is to act as a Plant Materials Program functioning as the plant experts for NRCS, fully integrated and coordinated with technical and field office staff, developing and delivering vegetative solutions and conservation technology for NRCS customers. All work conducted here reflects the current plant materials needs identified by our state and field offices, and our Technical Advisory Committee.

The LAPMC was founded in the early 1990’s on approximately 85 acres of land and established to provide a solution to aid in the incessant battle of coastal restoration. The LAPMC conducts numerous technical research strategies to better understand how different plant species are capable to thrive and reproduce in the coastal marshes. The PMC also provides pertinent information on coastal marsh plants to the community in the promotion of taking a stand towards coastal restoration.

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…AND WHAT WE DO

The activities of the PMC are guided by a long-range plan. The priority work areas consist of:

- Plant Materials for Marsh Re-Vegetation
- Plant Establishment Techniques
- Critical Area Plantings to Address Soil Erosion
- Seed Technology for Selected Wetland Species
- Technology Development and Transfer

Electronic Documentation and Information

All Golden Meadow PMC publications can be downloaded from the following website: https://www.nrcs.usda.gov/wps/portal/nrcs/main/plantmaterials/pmc/southeast/lapmc/

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Visit our website with your smartphone….

References


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