



2019 Progress Report of Activities

Golden Meadow Plant Materials Center

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<http://plant-materials.nrcs.usda.gov/lapmc>

This report highlights the major activities at the USDA-NRCS Golden Meadow Plant Materials Center (PMC), Galliano, LA during calendar year 2019. For more detailed information, contact the PMC Manager at 985.475.5280.

Sunn Hemp and Red Hemp for Cover Crops in Southern Louisiana

There has been an increased interest in both sunn hemp and red hemp as a cover crop for use in sugarcane and other farm production operations in southern Louisiana. Both hemp species provide organic matter, nitrogen, rapid establishment for weed suppression and erosion control, grow in a range of soil types and conditions, and is resistant to root-knot nematodes (*Meloidogyne* spp). (Rotar and Joy 1983). However, information on the adaptation and productivity of these species in southern Louisiana is limited. The PMC evaluated commercially available sunn hemp (*Crotalaria juncea*) cultivars ‘Tropic Sun’, ‘AU Golden’ and a variety not specified (VNS) sunn hemp from Hancock Seed Company. Red hemp (*Crotalaria ochroleuca*), was also included in the study.

The study was conducted from April to October 2015 through 2018. Sunn hemp plant emergence was 100% within seven days after planting (DAP). It took red hemp greater than 30 days to reach 100% emergence. ‘AU Golden’ remained shorter and bloomed nearly two months earlier than the other sources. Both species bloomed and produced seed in 2015. Abundant rainfall in 2016 and 2017 resulted in saturated soils and ponding water in the study. All sunn hemp plots performed poorly in 2016 and 2017 due to water logged conditions and produced an average of 3.2 tons of biomass/acre. Red hemp plots tolerated these saturated conditions very well and produced greater than five tons of biomass/acre.



Sunn hemp and red hemp study



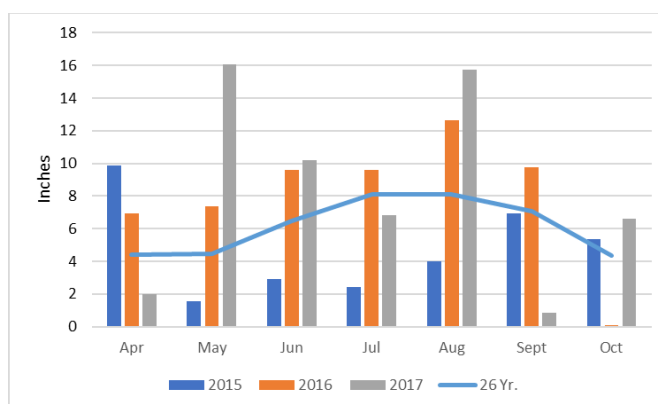
Red hemp (green plot) compared to sunn hemp in water logged conditions

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Sunn hemp and red hemp both show promise for use as a cover crop in sugarcane production. Both exhibited different growth characteristics, such as height and bloom period, and phenotypic appearance when grown in southern Louisiana. Sunn hemp establishes quicker than red hemp, but both produce similar biomass under typical weather conditions. Red hemp performed better than sunn hemp and produced two tons more biomass in water logged conditions. Both species expressed adaptation potential and may be good for use as cover crops in southern Louisiana. Both species flowered and should be terminated before blooming occurs to prevent seed spread. Red hemp has shown potential as a good cover crop choice in low, poorly drained areas. For more details on this study please visit our website at

https://www.nrcs.usda.gov/Internet/FSE_PLANTMATERIALS/publications/lapmcsr13500.pdf



Monthly rainfall totals for April-October in 2015-2017 and 26 year normal, Galliano, LA

Development of *Spartina* *Spartinae* Lines for Improved Seed Production and Viability for Restoration Along the Gulf Coast

Gulf cordgrass (*Spartina spartinae*) (Trin.) Merr. ex Hitch. is a native, perennial grass that grows in coastal marshes above the intertidal zone in dense clumps along the Gulf Coast from Texas to Florida. More rarely, it can be found growing in saline soils associated with inland marshes and moist prairies.

Factors limiting the widespread acceptance of growing gulf cordgrass commercially as a conservation plant include poor seed production and having to rely on asexual production methods that are both labor intensive and expensive. Having a dependable seed source would greatly increase the ability to establish more acreage at a lower cost.



Gulf cordgrass improved seed production and viability field plot study

The objective of the study was to identify a vigorous, healthy, dependable seed producing vegetative line that originated from collections from Texas and Louisiana. Seed was harvested from the most vigorous and productive plants and a germination test was performed. One accession from Brazoria County Texas showed higher seed viability than others after a year-long germination study was completed. Due to the phenotypical appearance and seed germination potential it is being considered for a vegetative release from the PMC.

Initial Evaluation of *Distichlis spicata* for Coastal Restoration

Inland saltgrass (*Distichlis spicata*) is being evaluated for commercial vegetative release. It is another species that has captured the interest for federal, state, local and public restoration projects. Inland saltgrass performs well in brackish to saline coastal marshes and barrier islands. The objective of this study is to select elite inland saltgrass germplasm and make it available for commercial production. The study is being conducted in a field at the PMC that has the capability to control water levels. Twenty-five accessions (collections) were planted in a randomized complete block design consisting of three replications. Mean plant height, percent canopy cover and plant vigor were the plant characteristics observed to identify overall performance of each accession for the study. To summarize, five of the 25 accessions out-performed others when these plant factors were analyzed. Final data was taken in the fall of 2019 and the study will enter the advanced phase in 2020 using the top five performing accessions. These top five accessions will then be planted in a coastal marsh environment similar to where it persists naturally, and observed for performance. For more details on this study please visit our website at

https://www.nrcs.usda.gov/Internet/FSE_PLANTMATERIALS/publications/lapmcpo13375.pdf



Inland saltgrass observational study

Outreach

This year the PMC took part in Ocean Commotion held in Baton Rouge, LA. The Louisiana Sea Grant College Program was proud to host the 22nd Annual Ocean Commotion at the Louisiana State University (LSU) Pete Maravich Assembly Center in the fall of 2019. Annually, Ocean Commotion attracts approximately 2,500 area students, teachers and chaperones to LSU to learn about our coast, wetlands and oceans. The PMC was one of 70 exhibitors to take part in this event. PMC staff displayed coastal plant species released from the Center so students and teachers could be educated on the importance these plants play in protecting our coast and marshes. Plant brochures, fact sheets, cross word puzzles and coloring books were provided to the students and teachers for take home and educational purposes.



USDA-NRCS display at Ocean Commotion 2019

New Employee

Kristen Chatelain is our newest employee and serves as the Biological Science Technician at the PMC. She is a native of Natchitoches, LA and has earned a Bachelor of Science in Environmental Science from Louisiana Tech University, LA and Master of Science in Marine and Environmental Biology from Nicholls State University, LA. Outside of work, Kristen enjoys reading novels, camping and hiking. We would like to welcome Kristen to south Louisiana and for joining our Plant Material's team.



Kristen could not wait to get her hands dirty her first day on duty

Plant and Seed Distribution

The PMC provides seed and vegetative material to more than 40 licensed commercial nursery growers. In 2019, the PMC provided approximately 2,500 bare root stems and vegetative plugs, and approximately 60 pounds of seed to eligible growers across the nation. The nurseries propagate and increase this material to be used for restoration projects.

THE GOLDEN MEADOW PMC: WHO WE ARE

The PMC selects conservation plants and develops innovative planting technology to solve the nation's most important resource concerns. Our mission is to develop, test, and transfer effective state-of-the art plant science technology to meet customer and resource needs.

The USDA - Natural Resource Conservation Service Golden Meadow PMC was founded in the early 90's on 85 acres of land, which was established to provide a solution to aid in the incessant battle of coastal restoration. The PMC conducts numerous technical research strategies to better understand how different plant species are able 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.

....AND WHAT WE DO

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

- Plant Materials for Marsh Re-Vegetation
- Plant Establishment Techniques
- Seed Technology for Selected Wetland Species
- Technology Development and Transfer

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Electronic Documentation and Information

All Golden Meadow PMC publications can be downloaded from the following website:

<http://www.nrcs.usda.gov/wps/portal/nrcs/publications/plantmaterials/pmc/southeast/lapmc/pub/>

Golden Meadow Plant Materials Center Staff

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Visit our website with your smartphone...



References

Rotar, P. P., and R.J. Joy 1983. ‘Tropic Sun’ sunn hemp, *Crotalaria juncea* L. Research Extension Service 036. College of Tropical Agriculture and Human Resources, University of Hawaii.