



2017 Progress Report of Activities

Golden Meadow Plant Materials Center

438 Airport Road • Galliano, LA 70354 • Telephone: 985.475.5280 • Fax: 844.325.6941 •

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

This report highlights the major activities at the Golden Meadow Plant Materials Center (PMC) during calendar year 2017. For more detailed information, contact the PMC Manager at 985.475.5280.

Inland Saltgrass for Critical Area Concerns

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 for this study is to select elite inland saltgrass germplasm and make it available for licensed grower distribution.

Initial evaluations have revealed that there are phenotypical differences across accessions. Some accessions' rhizomes are spreading more rapidly while others have increased plant vigor. Overall vegetative density/canopy cover are showing variances across replications. Timing and duration of when the plant goes to seed have been quite different as well. Seed maturity varied during the 2017 growing season and random germination tests were taken to reveal little to no viable seed. Seed viability is another important data factor to be monitored and accessions with this trait could potentially produce viable seed.



Photo of Inland Saltgrass initial evaluation plot

Crotalaria juncea & *Crotalaria ochroleuca* Cover Crop Adaptability Trial

Three varieties of *Crotalaria juncea* (Tropic Sunn (HIPMC), AU Golden, Hancock) and 1 variety of *Crotalaria ochroleuca* (Red Mini) were planted in a randomized complete block design consisting of 4 replications. Excessive amount of rainfall during the 2017 growing season hindered the study due to standing water. However, it was observed that one particular variety, Red Mini, as in 2016, tolerated water saturating conditions very well. Table 1 depicts an average range of heights in inches across 4 replications and reveals numerical differences between varieties.



Photo of *Crotalaria* sp. Adaptability Trial

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Table 1. 4 Varieties of *Crotalaria sp.* and Height in Inches 0 to 91 + Days

VARIETY	0-30 DAYS	31-60 DAYS	61-90 DAYS	91 + DAYS
Tropic Sunn (HIPMC)	8"	47"	65"	Terminated
AU Golden	9"	38"	54"	Terminated
Hancock	9"	45"	86"	Terminated
Red Mini	5"	31"	69"	79"

***Crotalaria juncea* & *Crotalaria ochroleuca* Cover Crop Timing Trial**

Two varieties of *Crotalaria juncea* (Tropic Sunn (HIPMC) and AU Golden) and 1 variety of *Crotalaria ochroleuca* (Red Mini) were used for the timing trial. Planting began in September and was performed every 2 weeks thereafter, ending in late November. The objective of the trial is to identify which variety and which planting date provides optimal soil coverage to avoid the plant from developing woody stems and allowing winter frost to terminate the crop. This information will be helpful to sugarcane growers and provide answers on best time to plant *Crotalaria* as a cover crop to reduce soil erosion, provide maximum health to soil and minimize or eliminate the need for mechanical or chemical termination.



Photo of *Crotalaria sp.* Timing Trial

Tropic Sunn (HIPMC) and AU Golden germinated uniformly for the mid-September and early October plantings, largely due to adequate weather conditions. The first frost was received in early December which terminated these two varieties naturally at a height of 36 to 40 inches. Red Mini did not perform well for the 2017 timing trial. Initial evaluations revealed planting *Crotalaria* mid to late October, and any later dates through November, resulted in poor seed germination largely due to low temperatures and soil moisture. The PMC will continue to work with NRCS's Louisiana State Agronomist in order to recommend best planting dates for *Crotalaria* as an alternative cover crop for sugarcane operations.

Vegetative Planting Projects

The PMC assisted Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) vegetative planting projects by serving as a vegetative inspector for 2 projects in 2017. The project sites were distinctly different, one on a highly saline barrier island off of the coast of Louisiana and the other in a fresh water interior marsh. Every vegetative planting project has varying constituents that have to be closely observed. Since the majority of planting projects require cultivars and/or germplasm released by the PMC, it has been beneficial for PMC staff to be onsite when some of these plantings take place. As a result of several factors potentially affecting plant growth, such as soil conditions, fertilization, depth of planting and spacing, PMC staff have been there to make recommendations to address problems rather quickly and advise the best methods to keep the restoration plantings successful.



Photo of 2014 on left and 2017 California bulrush planting on West Little Lake

Infrastructural and Equipment Upgrades

In 2017, the PMC received upgrades on two of the greenhouses to improve functionality and correct structural and mechanical issues. Two major equipment purchases, a new flexi-wing bush hog and a compact track loader with backhoe attachment, were acquired to replace aged equipment to maintain facility grounds. A seed cleaner was acquired to better clean fleshy fruit during seed processing. A single row cone planter was also purchased to provide accurate and precise seed placement in small study plots. This equipment is vital to the PMC for the maintenance and repairs of fields and to produce consistent technical information.

Technical Training and Outreach

The Louisiana Association of Conservation Districts' (LACD) Coastal Resources Committee Meeting for 2017 took place in Lafourche Parish, Louisiana. The meeting consisted of NRCS employees and Soil & Water Conservation District members. The PMC provided a tour and presentation of the Plant Materials Program for employees. A soil health rainfall simulator was on display and PMC staff conducted a technical training demonstration on how vegetative cover reduces erosion, soil run off and increases water infiltration.



Photo of soil health rainfall simulator demonstration

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2017 Publications, Presentations and Outreach

- Progress Report of Activities
- Release Brochure Pelican Germplasm black mangrove
- Louisiana State University Ocean Commotion Exhibit
- LACD Coastal Resources Committee Presentation
- LACD Coastal Resources Committee Tour
- Larose Lower Elementary Career Day Presentation

NRCS Earth Team Volunteer

Lacy Bellanger, NRCS Earth Team volunteer, assisted the PMC with numerous activities in her spare time. She volunteered in early 2017 until she accepted a permanent position with the Lafourche-Terrebonne Soil and Water Conservation District. For her many hours of hard work, Lacy was nominated and awarded the 2017 Louisiana Earth Team Individual Volunteer Award. In addition, she was awarded the 2017 Earth Team Southeast Region Individual Volunteer Award. She received both awards at an awards banquet held during the 72nd Annual Louisiana Association of Conservation Districts Convention on January 11, 2018.



Photo from left to right: Kevin D. Norton, State Conservationist for Louisiana; Lacy Bellanger, Earth Team Volunteer Award Recipient; and David Daigle, Vice President LACD

Student Intern

Kristen Chatelain selected the PMC as a place for her graduate internship because of her interest in soils, plants and coastal restoration. She is now attending Nicholls State University in Thibodaux, Louisiana, to pursue a M.S. degree in marine and environmental biology. The completion of her internship at the PMC moved her one step closer to obtaining her degree. Her work at the PMC increased her understanding of plant and soil properties in the field. Kristen's research interests are in wetland and coastal soils, and wetland restoration. The title of her thesis is, Soil Characteristics of Recently Restored Coastal Ridge Habitats. This will help predict the amount of time required for ridge soils to support the growth of woody vegetation.



Photo of Student Intern Kristen Chatelain (left) and Curt Riche' measuring stem height in *Crotalaria* timing trial

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Plant and Seed Distribution

The PMC provides seed and vegetative material to more than 40 licensed commercial nursery growers. In 2017, the PMC provided more than 5,400 bare root stems and vegetative plugs, and approximately 175 pounds of seed to eligible growers across the nation. The nurseries propagate and increase the PMC's release material year after year in order for the material to be available in needed quantities 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

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

Garret Thomassie – Manager
Curt J. Riche' – Assistant Manager
Alexis Luke – Program Assistant
Daniel Pingel – Biological Science Technician
Dylan Adams – Seasonal Hire

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