

USDA-NRCS PLANT MATERIALS PROGRAM

SELECTING AND EVALUATING PLANTS FOR SUCCESSFUL PERFORMANCE IN COASTAL AND LIVING SHORELINE SYSTEMS

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The USDA NRCS Plant Materials Program was created in 1935 to provide effective methods to use plants for the protection of the nation's natural resources. The Program holds fast to the philosophy of Dr. Franklin J. Crider (first Plant Materials director) that: *"In most cases nature has evolved a plant for almost every growing condition."* Using this philosophy, the Program has selected and developed commercial releases and many plant-based solutions to natural resource concerns. This occurs through an integrated, multidisciplinary approach, involving all NRCS staff levels, other government agencies, academic institutions, and NGO's. To date the Plant Materials Program has selected approximately 50 grass, forbs, shrubs and trees species for coastal conservation planting. In addition to the Cape May, NJ Plant Materials Center, additional Centers in Maryland, Florida, Georgia, Mississippi, Texas, and Louisiana continue to provide plant releases and develop plant technology to protect and preserve the coastal resources of the East and Gulf Coast Region.

Program Objectives

The major objectives of the NRCS Plant Materials Program are to select and distribute proven performing plant materials and to develop innovative planting/seeding techniques.

Plant Release Development

Plants are selected to:

- Control streambank and shoreline erosion
- Improve fish and wildlife habitat
- Improve water quality and soil resources

Plant Technology

- Developed direct seeding techniques for smooth cordgrass (*Spartina alterniflora*), Jamaica Bay, NY
- Enhanced plant species diversity of maritime ridges and levees in LA.
- Tested various coastal bioengineering systems on the TX Gulf Coast.

Plant Release Process

Targeted Plant Collection

- Plant species intended to address natural resource concerns are collected from a wide geographic area.

Initial Evaluation

- Collected "accessions" are evaluated relative to one another in at the Plant Center.

Advanced Evaluation

- Accessions with higher criteria ratings are advanced to more specialized testing.

Field/Final Evaluation

- Further testing of outstanding performers on "problem" sites in cooperation with partners.

Commercial Release

- Proven germplasm is made available to commercial seed and nursery producers

Criteria for Selecting and Testing Shoreline Plants

1. Quick establishment and transplant success
2. Faster growth rate and spread
3. Higher stem densities and foliage abundance
4. Ability to tolerate higher wave energies
5. Adaptability to widely fluctuating salinity levels

Coastal and Shoreline Species Selection

Sampling of Prominent Releases

'Cape'

American Beachgrass (*Ammophila breviligulata*)
Adaptation: southern Maine to the Carolinas
Attributes: leaf width, increased stems per hill, heavy culm

Vermillion

Smooth cordgrass (*Spartina alterniflora*)
Adaptation: Southeast Gulf Coast
Attributes: Quick establishment to dissipate wave energy.

High Tide Germplasm

Switchgrass (*Panicum virgatum*)
Adaptation: Mid-Atlantic Area. Collected in upper Chesapeake Bay.
Attributes: tolerant of streambank and brackish shoreline conditions

'Atlantic'

Coastal Panicgrass (*Panicum amarulum*)
Adaptation: Mid-Atlantic Area
Attributes: saline and drought tolerance

'Avalon', 'Flageo' and 'Sharp'

Marshhay Cordgrass (*Spartina patens*)
Adaptation: Mid-Atlantic, Southeastern and Gulf Coastal
Attributes: rapid growth on dunes and shorelines

Brazoria

Seashore Paspalum (*Paspalum vaginatum*)
Adaptation: Southeastern Gulf Coastal
Attributes: rapid spread on low elevation shorelines