
USDA NRCS

Natural Resources Conservation Service
Americus, Georgia

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JIMMY CARTER PLANT MATERIALS CENTER

ANNUAL ACTIVITY REPORT

1999



New Office Building and Conference Center at Jimmy Carter Plant Materials Center

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STATE CONSERVATIONISTS ADVISORY COMMITTEE

Purpose: To provide leadership to the Plant Materials Program

Earl Cosby – Chairman

Walter Douglas

Robert Jones

Mary Kollstedt

James Ford

Athens, GA

Columbia, SC

Auburn, AL

Raleigh, NC

Nashville, TN

PLANT MATERIALS TECHNICAL COMMITTEE

The Plant Materials Technical Committee provides input to the PM Advisory process. The PM Technical Committee may be on a state, multi-state or other regional/local level for a single PMC or for multiple Plant Materials Centers. Responsibilities include:

- Provides overall technical leadership in the identification, integration, and prioritization of plant technology needs.
- Develops recommendations for addressing needs and submits information to the State Conservationist's Plant Materials Advisory Committee for review and approval.
- Promotes the transfer of developed applied science technology.

Members include:

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Rick White, NPL-NRCS

Jim Dial, SRC-NRCS

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INTRODUCTION

The Jimmy Carter Plant Materials Center (PMC) is part of a national plant materials program operated by the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), formerly recognized as the Soil Conservation Service (SCS). The purpose of the PMC is: to assemble, evaluate, and release new plant materials for conservation use; to determine techniques for their successful use; to provide for their commercial increase; and to promote the use of plant materials needed to meet the objectives of the National Conservation Program.

The PMC serves NRCS field offices, public agencies, commercial seed and plant producers, and the general public in Georgia, Alabama, South Carolina, North Carolina, and parts of Florida and Tennessee. These states present a wide range of climatic and soil conditions and include a total of 13 major land resource areas (MLRAs) representing 120,377,913 acres across the Southeastern United States.

PMC activities are guided by a five-year program which focuses on the development of the following high-priority items:

- I. Evaluation of native grasses for grazing lands that support sustainable agriculture.
Conservation buffers – grazing land – erosion control – wildlife – urban landscapes
- II. Evaluation of native plants for water quality (riparian forest areas, conservation buffers, filter strips, constructed wetlands, and streambank stabilization).
- III. Evaluation of plants for conservation tillage.

LOCATION AND FACILITIES

The PMC is located on the northwest corner of Americus, Georgia approximately 40 miles north of Albany, Georgia. The facility consists of 327 acres of land with 19 buildings, including a new office building (conference room), greenhouse, seed cleaning /seed storage facilities, pesticide storage, and an underground irrigation system that covers approximately 85 acres. The center's land includes seven soil types, with Orangeburg predominating. Approximately two-thirds of the acreage is open for cultivation, and Muckalee Creek runs through the southwest corner, furnishing water for irrigation.

HISTORY

The PMC was established in 1936 to produce planting material, mainly pine seedlings for use by the Civilian Conservation Corps (CCC) and for former SCS demonstration projects. The site was originally rented, but was purchased by the federal government in 1942. The center was operated on contract by the University of Georgia Experiment Station from 1954 to 1975, was SCS-operated from 1976 to 1994, and is currently NRCS-operated. Historically, the PMC's objective has been to find erosion-minimizing plants. Today the center seeks to solve problems confronting soil, water, air, plants, and animals.

PARTNERSHIPS

The PMC has conducted cooperative programs with the following organizations:

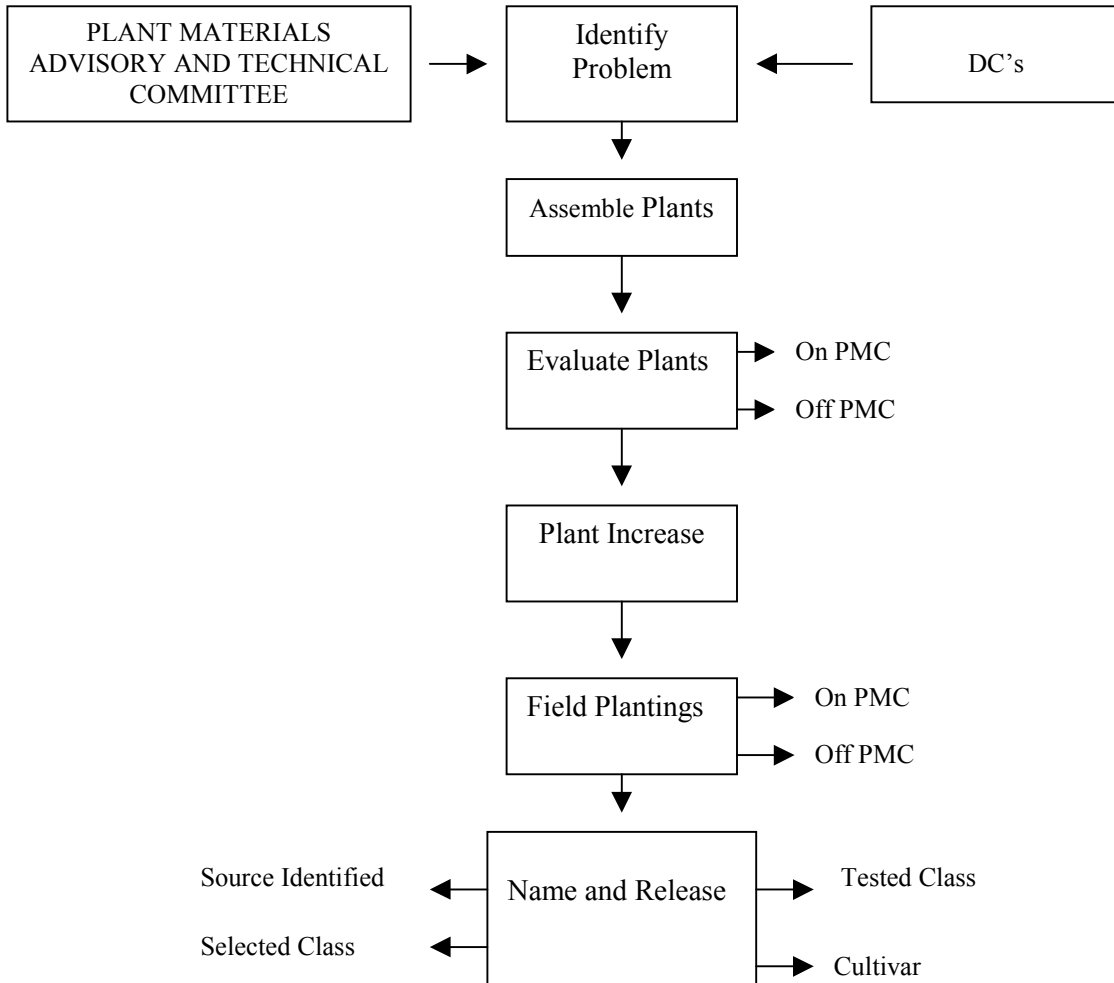
Alabama Agricultural Experiment Stations	Alabama A&M University
Alabama Crop Improvement Association	Auburn University
Fort Valley State University	Georgia Forestry Commission
Georgia Crop Improvement Association	Georgia Department of Transportation
Alabama S&W Conservation Commission	RC & D Councils

PARTNERSHIPS (CONTINUED)

Georgia Seed Development Commission	Georgia Agricultural Experiment Stations
Jekyll Island Authority	Georgia Department of Natural Resources
The University of Georgia	Tuskegee University
United States Environmental Protection Agency	United States Army Corps of Engineers
United States Department of Energy	United States Forest Service
United States Fish & Wildlife Service	Georgia Soil & Water Conservation Comm.
United States Department of Defense	Lamar Co. S&WCD
United States Department of Agriculture (ARS)	Flint River S&WCD
Lower Chattahoochee S&WCD	Alabama Forest Commission

PLANT MATERIALS PROGRAM

The Plant Materials Program has established a **systematic process to evaluate and release plants** to address the conservation problems outlined in the long-range program. The intensity and time of evaluation will vary according to the class of release. A cultivar will require many years of intense evaluation whereas a source identified plant can be released in 1-2 years with little evaluation. The following flow chart illustrates the steps involved in this process:



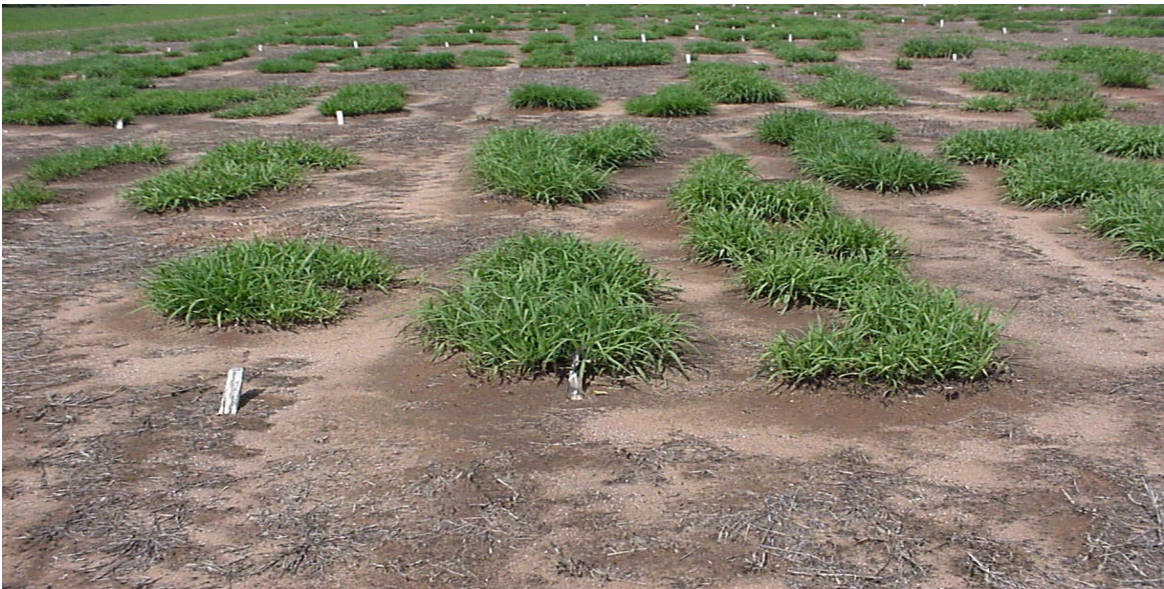
In addition to the release of new plants, the **PMC develops new technology to better utilize plant materials for our high priority concerns.**

I. Native Grasses for grazing lands that support sustainable agriculture

Big Bluestem – *Andropogon gerardi*

Big bluestem is a tall perennial warm season forage grass native to much of the Eastern United States. Collections of vegetative material of 750 different ecotypes were assembled from the southeastern states and transplanted on the PMC. The PMC and Auburn University is working with this material to develop and release a big bluestem cultivar adapted to the southeast for use as forage, erosion control, biomass production, wildlife food and cover, field borders and field buffers.

A new release called ‘Earl’ from Texas is being evaluated for forage productivity and fire response at the PMC. Also, selected lines of big bluestem are being evaluated for urban landscape use in the Atlanta Metro area.



Big bluestem nursery and evaluation plot

Switchgrass – *Panicum virgatum*

Switchgrass is a common native perennial warm season forage grass, which grows vigorously in clearing and open wooded areas. It is found in native stands throughout the southeastern U.S. Switchgrass can vary in height from 3 to 6 feet tall and displays many patterns of foliage growth and color.

Vegetative material of several selected switchgrass accessions is being evaluated in the Atlanta area for urban landscape use.

Cultivars such as ‘Cave-N-Rock’ are being evaluated at the PMC for forage productivity and fire response. In cooperation with Ft. Valley State University, ‘Alamo’ switchgrass is being used for cattle forage in a rotational grazing demonstration on the PMC.



Alamo switchgrass in rotational grazing pasture prior to cattle introduction

Indiangrass – *Sorghastrum nutans*

Indiangrass is another tall warm season forage grass native to the Eastern United States. It occurs in natural mixtures with big bluestem, switchgrass and little bluestem. Indiangrass produces forage utilized by many wildlife species as well as cattle.

In cooperation with the University of Georgia the PMC has conducted plant assemblies and experimental tests on indiangrass for several years. Information on a new cultivar called ‘Americus’ indiangrass will be processed in 2000 for release purposes. This should provide a new indiangrass adapted to the southeast for forage and conservation use.



Early spring growth of Indiangrass

Eastern Gamagrass – *Tripsacum dactyloides*

Eastern gamagrass is a highly productive native grass related to corn. The plant materials program in the Southeast Region plans to release a new Eastern gamagrass for our section of the country. This grass could fit into several agricultural systems including cattle forage, filter strips, and field borders.

In addition to this work, the PMC in cooperation with Ft. Valley State University, and the Lamar County Soil and Water Conservation District is conducting a demonstration and evaluation of ‘Pete’ Eastern gamagrass in an intensive rotational grazing system. Results seem to indicate this grass can be utilized as forage for stocker cattle.



'PETE' Eastern Gamagrass



Carmen Westerfield of the Lamar Co. NRCS office with Lamar S&WCD cattle

Native Grasses for the United States Forest Service

The PMC is also conducting a special project with the US Forest Service concerning native grasses. The PMC is cleaning and processing several native grass seed collections for the USFS. These grasses include little bluestem, big bluestem, switchgrass, indiagrass, toothache grass, purple top grass, and others.

After the seed are cleaned and processed they will be increased for use on disturbed USFS land in South Carolina.

II. Native plants for water quality

Riparian forest buffer – loblolly pine, yellow poplar, sycamore, blackgum, cherry bark oak, sweetgum, white oak, bald cypress, green ash, red maple, ogeche lime and water oak are being grown at the center for evaluation as forest buffer trees.

The PMC is cooperatively working with the ARS in Tifton, Georgia to determine which tree species has the highest potential for fertilizer uptake in a riparian buffer system. This technology will provide key information for implementing effective buffers for water quality.

The Jimmy Carter PMC has plant and seed increase areas of ‘Wetlander’ giant cutgrass and ‘Restorer’ giant bulrush for use in constructed wetlands. These constructed wetlands help purify water in several disposal situations (municipal, farm, storm-water, etc.).



Don Surrency, Plant Material Specialist, inspects a new constructed wetland in Augusta, Ga.

III. Plants for conservation tillage

The Jimmy Carter PMC has recently released several cool-season annual legumes for conservation tillage, winter cover, and green manure use.

‘Americus’ hairy vetch is late maturing, and produces large amounts of dry matter. ‘AU Early Cover’, another hairy vetch, produces a cover very early in the winter. ‘AU Ground Cover’ caley pea was developed for use on heavy calcareous clay soils. ‘AU Sunrise’ is the earliest developing crimson clover available.

Special Activities of 1999

The PMC helped conduct demonstrations and lectures at the Flint River Soil and Water Conservation District “outdoor classroom” in Early County, Georgia.

Plant identification and plant ecology principles relating to wetland plant communities was presented to approximately 200 students from seven school systems.



Pond cypress plant community at "outdoor classroom" in Early Co. Ga.

Several field offices in Southwest Georgia were assisted with wetland plant identification for wetland delineation purposes.

The PMC helped conduct a vegetative survey of wetlands in Clayton County, Georgia. This project was in cooperation with the Jonesboro Field Office and the Clayton County Water Authority.

The PMC assisted the Kennedy farm in Tattnall County Georgia use new farm equipment and new plant material in a NRCS 'outreach' demonstration. This outreach effort also partnerships with Ft. Valley St. Univ., RC&D, local NRCS, state NRCS, and regional NRCS offices.

Establishment of native warm season grass demonstrations in the southeast for small farm outreach was formulated. This outreach effort will include Alabama, Tennessee, and Georgia.

Outreach efforts to control shoreline erosion in Georgetown County, South Carolina were conducted with the cooperation of local, state and regional NRCS support.

Plants of Land between the Lakes in Henry County Georgia were identified for nature trail construction. The nature trail is part of a large project involving the NRCS and Henry County.

The PMC participated in the Second Annual Ichawaynochaway Watershed Conservation Tour. The management and productivity of native warm-season grasses were discussed.

The biology and use of vetiver grass was presented at the Fort Valley State University Ag Showcase.

The Jimmy Carter PMC assisted the Golden Triangle RC&D with plant identification information for a new nature trail at Miller County high school's Eco-forestry project.

Grasses and forbs of several species were grown for erosion control and construction use on eroded areas of Fort Gordon Georgia.



Plant material planting on Ft. Gordon Army Post. Planting was established by NRCS staff from Thomson and Jimmy Carter PMC

PMC Releases

The PMC has released the following plants for conservation use:

Common Name (Year of Release)	Scientific Name	Primary Use
'Pensacola' Bahiagrass ('44)	<i>Paspalum notatum</i>	Forage Production
'Amclo' Arrowleaf Clover ('63)	<i>Trifolium vesiculosum</i>	Forage Production
'Ambro' Virgata Lespedeza ('71)	<i>Lespedeza virgata</i>	Roadbank stabilization
'Dove' Proso Millet ('72)	<i>Panicum miliaceum</i>	Wildlife Food
'Ellagood' Autumn Olive ('86)	<i>Elaeagnus umbellata</i>	Wildlife Food
'Amquail' Thunberg Lespedeza ('87)	<i>Lespedeza thunbergii</i>	Wildlife Food and Cover
'Flageo' Marshhay Cordgrass* ('90)	<i>Spartina patens</i>	Beach Stabilization
(The 'Flageo' Marshhay Cordgrass release involved a cooperative effort with Fort Valley State Univ.)		
'GA-5' Tall Fescue ('92)	<i>Festuca arundinacea</i>	Forage Production
(The 'GA-5' Tall Fescue release involved a cooperative effort with the University of Georgia)		
'Big O' Crabapple* ('92)	<i>Malus coronaria</i>	Wildlife Food
'Sumter Orange' Daylily ('93)	<i>Hemerocallis fulva</i>	Landscape Beautification
'Doncorae' Brunswickgrass ('93)	<i>Paspalum nicorae</i>	Waterways Stabilization
'Wetlander' Giant Cutgrass* ('93)	<i>Zizaniopsis miliacea</i>	Constructed Wetlands
'Restorer' Giant Bulrush* ('93)	<i>Scirpus californicus</i>	Constructed Wetlands
'Americus' Hairy Vetch ('93)	<i>Vicia villosa</i>	Winter Cover Crop and Conservation Tillage
(The 'Americus' Hairy Vetch release involved a cooperative effort with the University of Georgia)		
'AU Early Cover' Hairy Vetch ('94)	<i>Vicia villosa</i>	Winter Cover Crop and Conservation Tillage
(The 'AU Early Cover' Hairy Vetch release involved a cooperative effort with Auburn University)		
'AU Ground Cover' Caley Pea ('94)	<i>Lathyrus hirsutus</i>	Winter Cover Crop and Conservation Tillage
(The 'AU Ground Cover' Caley Pea release involved a cooperative effort with Auburn University)		

‘Sharp’ Marshhay Cordgrass* (’94) *Spartina patens* Beach Stabilization
(The ‘Sharp’ Marshhay Cordgrass release involved a cooperative effort with NRCS PMC in Brooksville,
Florida)

‘AU Sunrise’ Crimson Clover (’97) *Trifolium incarnatum* Winter Cover Crop and
Conservation Tillage
(The ‘AU Sunrise’ Crimson Clover release involved a cooperative effort with Auburn University)

***Native plants**



AU EarlyCover hairy vetch planted for winter cover crop

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