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**USDA NRCS**

Natural Resources Conservation Service  
Americus, Georgia

**March 2001**

**JIMMY CARTER PLANT MATERIALS CENTER**

**ANNUAL ACTIVITY REPORT**

**2000**



**AU EARLYCOVER HAIRY VETCH-RELEASED BY JIMMY CARTER PMC AND AUBURN UNIVERSITY**

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Purpose: To provide leadership to the Plant Materials Program

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## 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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Dennis Law, United States Forest Service	Columbia, SC
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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, forage, 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 (green manure, organic gardening, carbon sequestration and winter cover)

## 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:

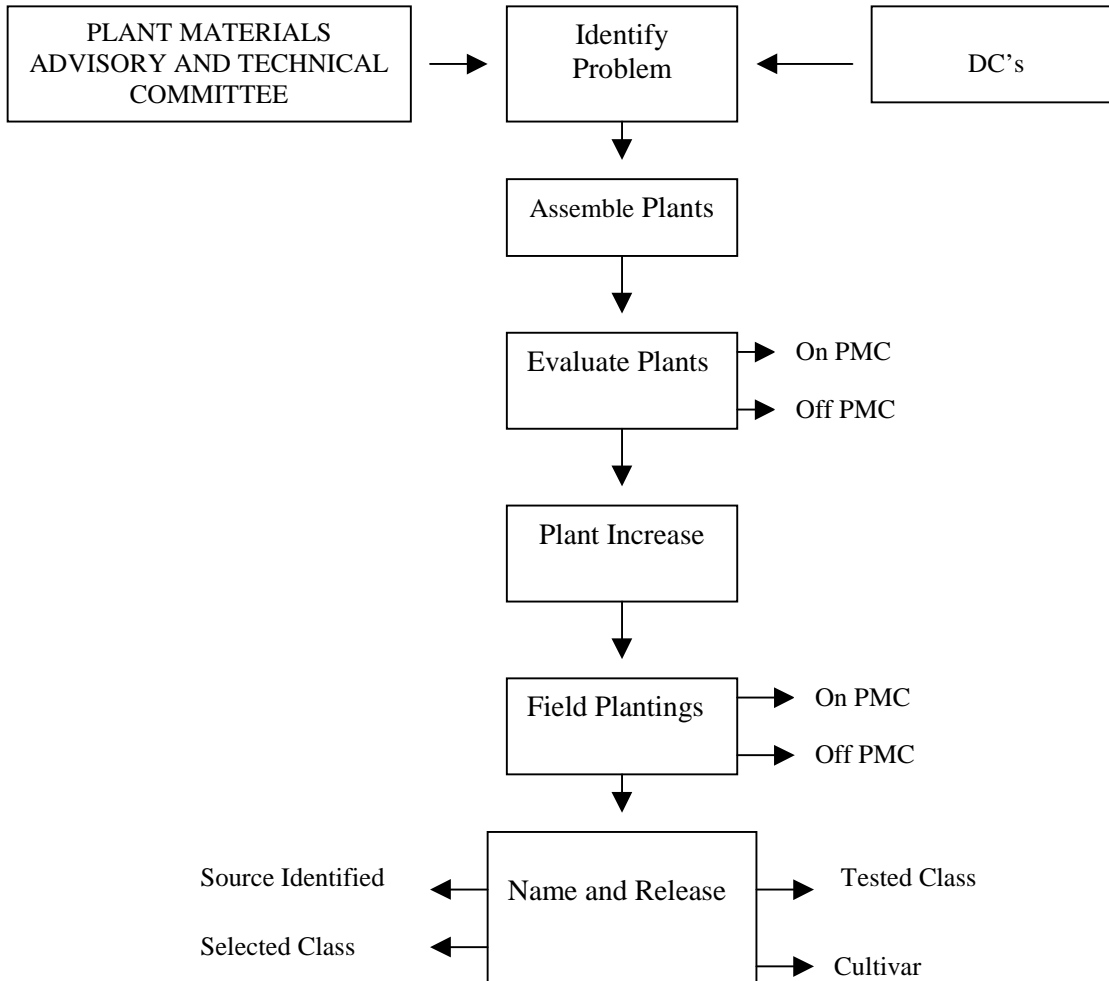
Alabama Agricultural Experiment Stations	Alabama A&M University
Alabama Crop Improvement Association	Auburn University
Fort Valley State University	Georgia Forestry Commission
Georgia Crop Improvement Association	Georgia Department of Transportation
Alabama S&W Conservation Commission	RC & D Councils

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

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 to a PMC nursery. The PMC and Auburn University are 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. Six big bluestem crossing blocks, created from the nursery, have been established to provide a seed source for cultivar development and testing.

A new release called 'Earl' big bluestem from Texas is being evaluated for fire response at the PMC. Species percent composition and frequency data under two fire regimes over two years has been collected on big bluestem, switchgrass and indiangrass. This data is being analyzed at Auburn University.

25 lines of big bluestem are being compared for urban landscape use in the Atlanta area. The PMC and Marietta FO are collecting vigor, stem color and inflorescence data. One or more lines will be selected as a new urban landscape plant.



Big bluestem nursery and evaluation plot

## Switchgrass

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.

In cooperation with Fort Valley State University, 'Alamo' switchgrass is being used as cattle forage in a rotational grazing demonstration on the PMC. This demonstration will provide information concerning the practical management of switchgrass for grazing. In 1999 FVSU Brangus heifers produced 1 pound average daily gain (ADG). In 2000, during a severe drought, they produced .7 pounds ADG. Crude protein of switchgrass has ranged from 9 to 13 % in a 10-paddock rotation.



Alamo switchgrass in rotational grazing pasture



## Indiangrass

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 forage is utilized by livestock and its seed and cover are used by various types of wildlife.

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 is being processed for release purposes. This should provide a new indiangrass adapted to the southeast for forage, wildlife and conservation use.



Cattle strip grazing indiangrass pasture at JCPMC

## Eastern Gamagrass

Eastern gamagrass is a highly productive native grass related to corn. In the near future, 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. Lamar Co S&WCD steers were rotated through 10 paddocks of 'Pete'. They produced 1.74 pounds ADG in 1999 and 1.5 pounds ADG during the drought year of 2000. Crude protein of Pete ranged from 8 to 13 %.



Lamar Co. S&WCD cattle on rotational cycle of Pete eastern gamagrass

### Native Grasses for the United States Forest Service

The PMC is 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 at USFS nurseries and used on eroded 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. Nitrogen and phosphorus uptake data of tree tissue and soil profiles has been collected and is being processed by the Southeast Watershed Research Lab. This will provide key information for implementing effective buffers for water quality.

The Jimmy Carter PMC has plant increase areas of ‘Wetlander’ giant cutgrass and ‘Restorer’ giant bulrush for use in constructed wetlands. Before release both wetlander and restorer were evaluated in actual constructed wetland disposal systems. These constructed wetlands help purify water in several waste disposal situations (municipal, farm, storm-water, etc.).



Donald Surrency, Plant Materials Specialist, inspects a municipal constructed wetland in Savannah

### **III. Plants for conservation tillage**

The Jimmy Carter PMC has released several cool-season annual legumes for conservation tillage, winter cover, green manure, organic gardening, and carbon sequestration.

'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. Clemson University highlights these plants in a recent video called [New legumes for cover crops](#).

The PMC established a new initial evaluation block of 22 little barley accessions. Little barley is a native cool season grass, which has potential as a winter cover for conservation tillage, organic gardening, and carbon sequestration.

### **Special Activities of 2000**

Plant identification and plant ecology principles relating to wetland plant communities was presented to Southwest Ga. school systems at the Flint River S&WCD "outdoor " classroom in Early Co. Ga.

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

The PMC helped conduct a vegetative survey of wetlands in Clayton Co. Ga. This project was in cooperation with the Jonesboro field office and the Clayton Co. water authority.

The PMC assisted the Kennedy farm in Tattnall Co. Ga. use new farm equipment in a NRCS outreach demonstration. This effort partners with FVSU, RC&D, local NRCS, state NRCS, and regional NRCS offices.



Wetland plant community at outdoor classroom in Early Co. Ga.

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 offices.

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

In cooperation with the American Indian special emphasis program of Georgia, the PMC started producing localized Yaupon hollies for Native American Indian use.

A delegation from the Republic of Georgia visited the center to learn more about the NRCS and the plant materials program.

The Georgia plant materials team, Lamar Co. S&WCD , and the Lower Chatt S&WCD hosted a native grass field day, which emphasized rotational grazing of native grasses.

Southwest Georgia field office and county employees were trained in wetland identification during a Area 3, JCPMC and Army Corps of Engineers training course.

The PMC assisted the Camilla field office and the Mitchell Co. elementary schools establish a nature trail on local school grounds.

The Barnesville field office requested and received help marking a nature trail for the Lamar Co. Expo.

The principal of the Martin Luther King Jr. elementary and the Albany DC received assistance in developing a new school landscape plan.

The PM team conducted a native grass course at the Ga. NRCS all employees training session in Athens.



Forage Field Day at 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)	<i>Spartina patens</i>	Beach Stabilization
(The 'Sharp' Marshhay Cordgrass release involved a cooperative effort with NRCS PMC in Brooksville, Florida)		
'AU Sunrise' Crimson Clover ('97)	<i>Trifolium incarnatum</i>	Winter Cover Crop and Conservation Tillage
(The 'AU Sunrise' Crimson Clover release involved a cooperative effort with Auburn University)		

\*Native plants

### **Jimmy Carter PMC Publications in 2000**

Outreach to schools by Jimmy Carter PMC-Plants: A growing Alternative Vol. 6 Spring 2000

Plant Materials for Small Farms-NRCS, Athens, Ga.

The District Stocker Program- Lamar Co. S&WCD Newsletter Winter 2000

Forages: Gains on Gamagrass- Progressive Farmer September 2000

Cover Crops for the Southeast- NRCS, Athens, Georgia

Review of Big bluestem- NRCS, Americus, Georgia

Grazing Management of Eastern Gamagrass in Southwest Georgia- NRCS, Americus, Georgia

Increase of Native plants for USFS- Plant Materials Briefs Jan 2000 NRCS, Athens, Georgia

1999 Annual Activity Report- NRCS, Americus, Georgia

1999 Annual Technical Report- NRCS, Americus, Georgia

Ellagood Autumn Olive for Wildlife Habitat Improvement in the Southeast-Quail Unlimited, May 2000

Grazing Management of Eastern Gamagrass in Southwest Georgia- 17<sup>th</sup> NA Prairie Conf. July 2000

Registration of AU Sunrise Crimson Clover- Crop Science Jan 2000

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