Year 2001 Progress Report of Activities

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Jimmy Carter Plant Materials Center

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Who We Are

The Jimmy Carter Plant Materials Center (PMC) is a branch of the United States Department of Agriculture, Natural Resources Conservation Service. It is one of 26 plant materials centers located throughout the United States. The Center is located on the Northwest corner of Americus in Southwestern Georgia and is approximately 40 miles North of Albany. Areas served include Georgia, Alabama, South Carolina, North Carolina and parts of Tennessee and Florida.

What We Do

It is our mission to use plant materials and state-of-the-art plant science technology to solve natural resource problems and meet the objectives of environmental programs. Our program emphasizes using native plants. We develop, test and release superior adapted plants to commercial growers along with production and management technology. Our mission addresses three major objectives:

- Native Grasses for grazing lands that support sustainable agriculture
- Native plants for water quality (riparian forests, conservation buffers, filter strips, constructed wetlands, and streambanks)
- Conservation tillage (green manure, organic gardening, carbon sequestration, and winter cover)

A brief summary of year 2001 accomplishments follows. For a complete account of all activities, Request the 2001 Technical Report of Activities at the above address.

New Indiangrass for the Southeast

Since 1989, the Jimmy Carter PMC and the University of Georgia have worked toward the release of a new Indiangrass to be adapted to the southeastern climate and soils. This new release has been tested in North and South Georgia for forage production, forage quality, as well as grazing tolerance. The new material with the proposed name of '*Americus*' was produced from germplasm collected in Alabama and Georgia by plant material and field office staff. Since this new release is native to the Southeast. It has potential use as forage for livestock, a native for erosion control, urban conservation, landscaping, wildlife habitat improvement, and restoration of distrubed areas. The PMC and the University of Georgia will release this material sometime in 2002.

PMC Indiangrass Production Field in September 2001

Rotational Grazing Paddock of Eastern Gamagrass

Eastern Gamagrass Provides High Production and Good Forage Quality for District Stocker Cattle

The Lamar County Soil and Water Conservation District in Georgia has provided stocker cattle to the PMC since 1999.They are used to demonstrate management techniques in frequency and severity of defoliation of '*Pete'* eastern gamagrass (a native warm-season perennial grass) in a four acre grazing environment. The cattle were rotated through ten uniform paddocks on a 3 1/2-day grazing cycle maintaining a minimum stubble height of 8-10 inches. Paddocks were separated by a single strand of electric wire three feet high. A portable 60-gallon trough provided water. One hundred fifty pounds of ammonium nitrate were applied to each paddock after each grazing period. Manure samples were taken periodically to determine crude protein and digestible organic matter in forage consumed. Between1999- 2001, the average forage crude protein was 10-14 %, digestible organic matter ranged from 62-67 % and average daily gain (ADG) of animals was 1 1/2 pounds.

Cattle were Weighed to Determine ADG

Native Grass Field Day Held at PMC

On June 20 2001, the Jimmy Carter PMC, in cooperation with Lamar County Soil and Water Conservation District, Lower Chattahoochee Soil and Water Conservation District, Fort Valley State University, Auburn University, Tuskeegee University, USDA-Agricutural Research Service, Georgia Department of Natural Resources and the Georgia Soil and Water Conservation Commission presented the annual Native Grass Field Day at the PMC. Approximately 100 people from Georgia, Alabama, Florida and South Carolina toured the Center. Presentations on various studies involving native warm season grass, wildlife and other timely topics were given. Fields of Indiangrass (a proposed new release), *'Alamo'* switchgrass, *'Pete'* eastern gamagrass, native mixed (big bluestem, little bluestem, indiangrass & switchgrass) were observed and discussed by plant and wildlife science specialists. Forestry and cattle experts also discussed a newly established silvo-pasture study of longleaf pine, '*Pensacola*' bahia and '*Coastal*' bermuda. PMC staff explained the proper techniques to establish native grasses for pasture and conservation uses. These techniques involved use of fertilizer spreaders, cultipackers, and in the case of eastern gamagrass corn planters. Calibration of a truax drill was demonstrated for planting single and multiple native grass species. The effects of burn regimes on native and introduced forage plants were discussed by forage plant ecologists. Results of this work will be presented in future technical reports.

Cattle Grazing Indiangrass Field

Truax Drill used to Plant Native Grass

Burn Regime Study

New Study to Lock-Up Carbon

Concerns over global warming have increased interest in carbon and carbon sequestration. Plants remove carbon dioxide from the atmosphere and store it in plant parts as carbon. When plants die and decompose, some carbon is released back to the atmosphere. Other carbon is captured as soil carbon. In an effort to determine which crops in this area could capture or sequester most carbon. A new study called carbon sequestration last May. This study compares the crops ability to sequester carbon. A random block design, with four replications was planted to '*Earl'* big bluestem, '*Tropic*' Sun hemp, '*Iuka*' eastern gamagrass, and '*Alamo*' switchgrass. Soil carbon content from each plot was determined from two sampling depths (0-2,2-6 inches) each year. In future years we should have a better idea of the potential carbon storage under different cropping systems.

'Tropic' Sun hemp in Carbon Sequestration Study

New Cool-Season Legume Video

Clemson University in cooperation with the USDA-NRCS has produced a video called 'New Legumes for Cover Crops.' The new video documents the release and use of new cool-season annual legumes for use as cover crops and conservation tillage plants in the Southeast. The video highlights cooperative releases between the Jimmy Carter PMC, Auburn University, and the University of Georgia. Four new legumes are highlighted in the video. An early blooming hairy vetch called *'AU EarlyCover*' provides early growth and maturity. Another hairy vetch called '*Americus*' develops much later and provides more dry matter production and coverage for soil and water protection. *'AU Sunrise*' crimson clover was developed to be the earliest developing crimson clover on the market. This material blooms earlier than other crimson clovers including '*AU Robin*'. Along with '*AU EarlyCover*' this clover can expand the flexibility of conservation tillage and cover crop systems. The last new legume is called '*AU GroundCover*' caley pea. This legume is used as forage in heavy calcareous clay soils as well as providing good cover for conservation tillage. All of these legumes can also be used in green manure and organic gardening systems.

' AU Sunrise' Crimson Clover

'AU EarlyCover' Hairy Vetch

Small Farm Expo Held in Georgia

The Small Farm Expo was held at the Handy Kennedy farm in Cobbtown, Georgia on November 16, 2001. The special plant material outreach initiative sponsored by USDA-NRCS, Fort Valley State University, Alabama A&M, Coastal Georgia RC&D, Central Savannah RC&D, Ogeechee River Soil &Water Conservation District, Georgia Soil and Water Conservation Commission, Georgia Forestry Commission and Georgia Department of Natural Resources. Approximately 300 Expo visitors observed presentations covering, native grass, silvo-pasture, beef cattle production, farming with mules, goat judging, cover crops, horse breeding, aquaculture, irrigation, and wildlife management. The PMC staff made additional talks during presented a nature walk through the sandhills of the Ohoopee dunes.

Bush Goldenrod on Ohoopee Nature Walk

Outdoor Classroom in Arlington Georgia

In April 2001, staff members from Jimmy Carter PMC and NRCS participated in the annual outdoor classroom held in Arlington, Georgia. Specialists from State and Federal agencies explained principles concerning animal and plant ecology, forestry, botany, soils and water quality. Approximately 200 students from Southwest Georgia schools participated.

Plant Ecology Session at Outdoor Classroom

To learn more about these or other PMC activities request the 2001 Annual Technical Report or visit our website: Plant-Materials.nrcs.usda.gov