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Department of
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Natural Resources
Conservation Service

Americus, Georgia

1994 Annual Report

Americus Plant Materials Center

AMERICUS PLANT MATERIALS CENTER
AMERICUS, GEORGIA

INTRODUCTION:

The Americus Plant Materials Center (PMC) located at Americus, Georgia, is operated by the United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). The center consists of 327 acres and serves the states of Alabama, Georgia, South Carolina, North Carolina, and parts of Tennessee and Florida.

The purpose of the plant materials program is to provide cost-effective vegetative solutions for soil and water conservation. This involves identifying plants for conservation use, releasing new plant materials, developing techniques for their successful use, providing for their commercial increase, and promoting their acceptance in resource conservation and other environmental programs.

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

1. Evaluation of plants for conservation tillage.

2. Evaluation of plants for water quality.

3. Evaluation of plants for marginal cropland and grazing lands that support sustainable agriculture.

PLANT MATERIALS TESTING PROCESS

The PMC has established a systematic testing process to provide plants to solve conservation problems. The process involves plant performance determination, plant adaptiveness, and release of plants for conservation use. Following is a description of each step involved in the testing process:

STEP 1 - ASSEMBLY

Once a conservation problem has been targeted and a plant species selected, the search for a superior plant is initiated. Plant collections are made from native or naturalized plant stands throughout the PMC service area.

Collections may also originate from foreign sources and coordinated through the plant introduction stations. Seed and/or vegetative materials of grasses, forbs, legumes and woody species are collected in order to provide adequate numbers for initial evaluation plantings.

STEP 2 - INITIAL EVALUATIONS

Individual collections are either direct seeded in the initial evaluation plot or established in the greenhouse and later transplanted to the initial evaluation plot. Visual comparisons of plant characteristics such as vigor, seed production, percent stand, disease and insect resistance are recorded. Plants are measured and dates of flowering and maturity recorded. At the end of this phase, superior accessions are selected for increase and advanced testing. The following plantings are under initial evaluation:

Big Bluestem - Andropogon gerardi

A native perennial warm-season grass. Collections of vegetative material of 750 different accessions were assembled from southeastern states in the winter of 1988/89 and transplanted in the spring of 1989/90.

In 1992, Dr. Edzard van Santen (Auburn University) began a cooperative effort with the PMC to develop a new big bluestem cultivar.

In May 1994 a crossing block of selected material was planted. This material will be used for future advanced studies.

Switchgrass - Panicum virgatum

A native perennial, warm season grass. Collections of vegetative material of 1098 different accessions were assembled from the Southeastern United States and transplanted in the spring of 1991/92.

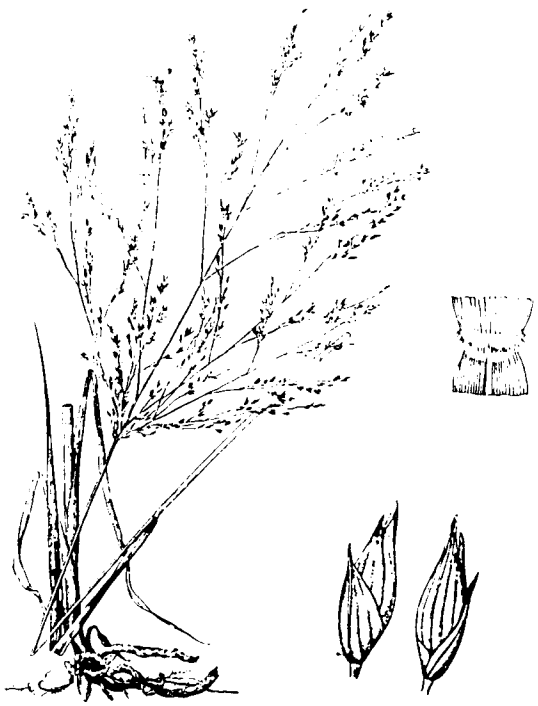
Preliminary data was collected in 1993 and 1994. Also in 1994 a switchgrass accession compatibility test was conducted with cooperation from Dr. Jorge Mosjidis of Auburn University.

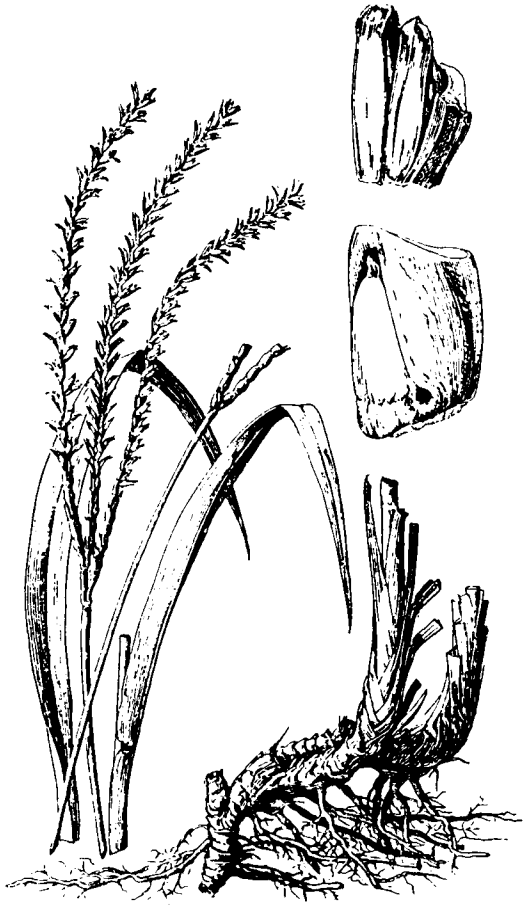
Eastern Gamagrass - Tripsacum dactyloides

A native perennial, warm season bunchgrass. Collections of vegetative material of 91 different accessions were assembled from sites in Georgia and transplanted during the spring of 1994. Preliminary data was collected in 1994.

Andropogon gerardi, big bluestem

Panicum virgatum, switchgrass





Tripsacum dactyloides

All three native grasses belong under Priority #3.

STEP 3: INITIAL SEED/PLANT INCREASE

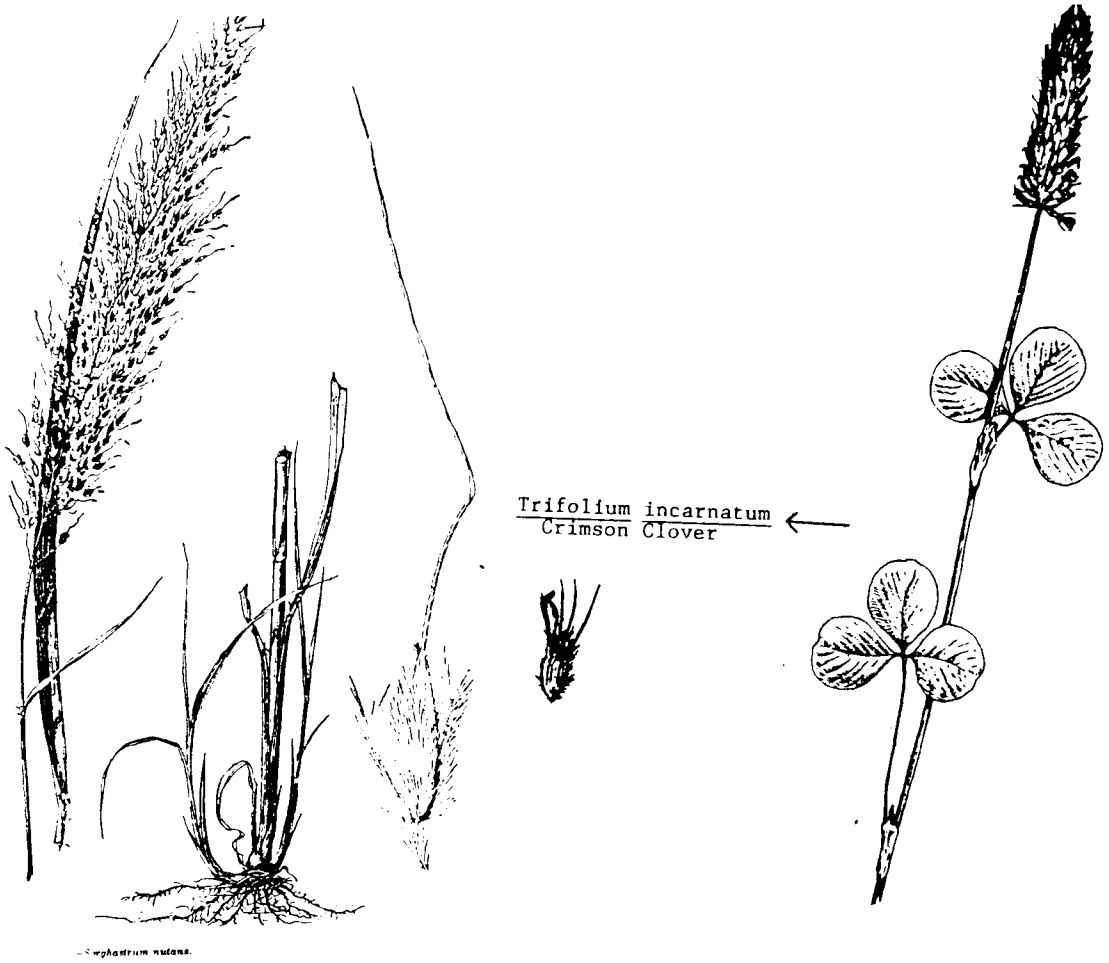
Before advanced evaluations are conducted and/or large scale increase fields established, initial seed increase blocks of superior accessions are established. After a sufficient amount of seed or vegetative material is available, advance evaluation plantings are made. The following plants are being increased for future study:

Indiangrass - Sorghastrum nutans

A native perennial warm-season grass being increased for use under priority #3.

Crimson Clover - Trifolium incarnatum

A cool season annual legume. This clover can be used as a green manure or cover crop. This increase will be used under Priority #1.



STEP 4: ADVANCED EVALUATIONS

Selected superior accessions undergo more intense testing. These accessions are compared to commercial materials, when available. Advanced evaluations may include comparative clipping trials to evaluate yield and quality of grasses and legumes. Usually in advanced evaluation, plants are placed in replicated blocks and tested for forage production, ground covering ability, nitrogen fixing potential, etc. This data provides a basis for further selection of superior plants. The following plantings are under advanced evaluation:

Crimson Clover - *Trifolium incarnatum*

A cool season annual legume being evaluated for Priority #1.

Tests are being conducted to determine dry matter/% N content of three cycles of early blooming populations, along with standards.

Indiangrass - *Sorghastrum nutans*

A tall native perennial warm-season grass being evaluated for Priority #3. Tests were begun in 1994 to determine the proper date to seed Americus PMC cultivar and survivability of Americus PMC cultivar under grazing conditions. Also in 1994 a three acre field of indiangrass was established as a cultural management and demonstration area.

Eastern Gamagrass - *Tripsacum dactyloides*

A native perennial warm-season bunchgrass being evaluated for Priority #3. A five acre field was established as a cultural management tool and demonstration area. A test is scheduled to establish rotational grazing on the gammagrass to evaluate cattle utilization.

Woody Species - loblolly pine, yellow poplar, sycamore, blackgum, cherry bark oak, sweetgum, white oak, bald cypress, green ash, red maple, ogeche and water oak.

These native trees will be evaluated under Priority #2 as forest buffers. In the winters of 1993/94, 160 trees of each species listed above were planted in a forest buffer environment. Preliminary growth and survival data was collected.

STEP 5: LARGE SCALE INCREASE

During or following advanced evaluation, an accession with potential is established in a production field at the center. Seed or vegetative materials are harvested for field planting use. The following plantings are under increase at the center:

Virginia wildrye - Elymus virginicus

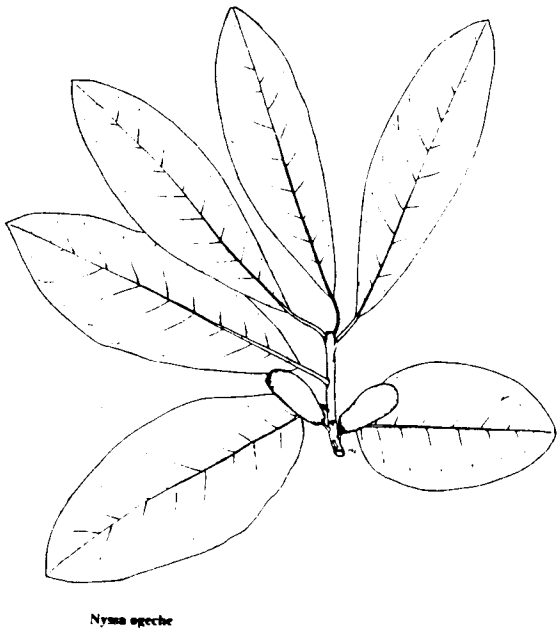
A native cool-season perennial bunchgrass. It grows mainly on moist soils in woodlands and along drainageways, and has the ability to grow in partial shade of overstory trees.

It is being increased for Priority #2.

Ogeechee lime - Nyssa ogeche

A native small tree that grows along certain drains and creeks of the Southeastern United States is being grown at the center for Priority #2.

Elymus virginicus



Nyssa ogeche

STEP 6: FIELD PLANTINGS

Field plantings are the final step in the testing process. Various sites are selected by the plant materials specialist to test the potential new cultivar under actual field conditions.

STEP 7: NAME AND RELEASE

Plants that prove themselves are then cooperatively named and released for commercial production and use. The PMC does not supply seed directly to the general public. We maintain a small "foundation" block to provide genetically pure stock to qualified growers who supply the public.

The following formal releases were made in 1994:

'AU Early Cover' Hairy Vetch - Vicia villosa
(Cooperative effort with Auburn University)

'AU Ground Cover' Caley Pea - Lathyrus hirsutus
(Cooperative effort with Auburn University)

Primary use of hairy vetch and caley pea is conservation tillage.

For more information concerning the plant materials center and its conservation efforts, contact the center's manager at 295 Morris Drive, Americus, Georgia 31709. Phone: (912) 924-4499 or 924-7003.