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TO: ALL OFFICES

The Plant Materials Specialist Report is provided for your information and distribution to field offices and partners. This report was prepared by Donald Surrency, Plant Materials Specialist for Georgia, Alabama and South Carolina. The report covers a wide range of conservation concerns, activities and priorities that relates to the plant materials technology development.

For more information contact Donald Surrency, Plant Materials Specialist in Athens, Georgia.

EARL **COSBY**
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cc: Richard Oliver, ASTC for Technology, Athens, **GA**

USDA NRCS

United States
Department of
Agriculture

Natural Resources
Conservation Service

Athens. Georgia

Plant Materials Specialist Report

Alabama, Georgia, and South Carolina

Plant Materials Specialist Report

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Cover:
Donald Surrency, plant materials specialist in Athens, GA (left) and Glenn Sandifer, biologist, Coastal Wetlands Team from Columbia, SC evaluate wetland plants in a constructed wetland for testing swine waste at the AU-Sand Mountain Research Station in Crossville, AL.

Mission

We develop and transfer plant materials and plant technology for the conservation of natural resources. In working with a broad range of plant species, including grasses, forbs, trees and shrubs, the program seeks to address priority needs of the field offices and land managers in both the public and private sector. Emphasis is focused on using plants as a healthy way to solve conservation problems and protect ecosystems.

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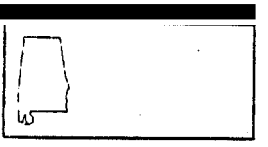

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Introduction

Responsibility for plant science activities in the Natural Resource Conservation Service (NRCS) is a primary function of the Plant Materials Program. The program has a network of Plant Material Centers to help it meet this responsibility. The basic mission of the Plant Materials (PM) Program is to develop and transfer technology on plant species. The program functions in this capacity to meet customer needs by providing effective vegetative solutions for natural resource problems. The primary customer of the program is regarded as the Field Office (FO) professional who then uses information to make resource management recommendations to NRCS clientele. A major strength of the program has been its ability to develop plant technology that uses vegetation to solve conservation problems.

To date, about 400 cultivars of improved plants have been released. Many have been placed into the commercial seed and plant production industry with great success, and the impact of the program in this regard has been at least $100 million per year. Species that are typically under study are those that: a) are below the threshold of commercial interest with respect to market size and/or are to costly to warrant initial start-up, b) have great potential for meeting complex resource problems, c) have little, if anything, known about them beyond taxonomic and geographic distribution information, and/or d) have received little or no attention from public or private research sectors.

The products produced by the agency's plant science efforts include plant materials (e.g., cultivars) and services (e.g., databases) as technological information about plant species. The program has been very successful in this effort as measured by material contained in NRCS Field Office Technical Guides (FOTG). Almost 75 percent of the grass cultivars presented in the FOTG, for example, are derived from Plant Materials Center (PMC) work.

The PM Program is unique in the breadth of plants it has developed. No other technology development effort in the US has focused as strongly on both native and introduced plants, or has the infrastructure to undertake comparable work. Today, PMC's are conducting nearly 500 plant studies that address complex natural resource problems with direct conservation applications. A few examples include: constructed wetlands, riparian buffers, restoration of wetlands and other critical habitats, filter/buffer strips, and bioengineering More than 80 percent of this effort involves native plant species.

The combination of available and emerging technology from PMC's allows public and private sectors to respond quickly to plant related needs of programs mandated by Congress. The Conservation Reserve Program (CRP) and the Wildlife Habitat Incentives Program (WHIP) are examples. Plants offer a powerful and effective tool to improve and protect the environment, and the PM program represents, therefore, a key element of NRCS's work in this area.

Principal customers that benefit from plant material activities are the NRCS field offices, as they integrate new plants and related technology into the agency's activities. The foundation of the work is based on the problems, needs and priorities identified by the District Conservationist at the field office level. Historically, the state plant materials committees have reviewed the needs and problems, and have included these into the states' long range plans. The objectives reflect the customer needs that were identified by the field offices.

As NRCS undergoes reorganization and change, it is appropriate to examine plant science activities in relation to what would make the program operate more effectively. In considering the question of how to improve, the

Quality Improvement Team examined: a) program elements that would benefit from new approaches, b) new and emerging trends in NRCS in reference to resource management.

Perhaps former President Jimmy Carter summed up the plant materials program best when he said, "There is no way the outside world can comprehend the importance, to all our lives, of the research that has been done in agriculture in the last 50 or 60 years." During the dedication ceremony of the Jimmy Carter PMC in Georgia, President Carter said he was impressed with the wide range of accomplishments in plant development and other related activities conducted at the PMC. These include plant technology development for erosion control, coastal dune stabilization, wildlife habitat, urban conservation, and native plants for the 1996 Olympic games.

"I'm very serious in my gratitude, not just for this name, but for the continuing work that has transformed the lives of the people in the southern region and throughout the country," said President Carter.

Evaluation of Vetiver Grass for Grass Hedges (Summary Report)

Background:

Vegetative barriers, sometimes called grass hedges, are narrow strips of tall growing, stiff perennial plants that are planted parallel and near the contour in erodible cropland fields at spacings comparable to parallel terraces. Due to their narrow width (1-5th), little loss of cropland is required. From 1992-95, a field planting study was initiated in Alabama, Georgia and Puerto Rico to compare vetiver grass to terraces and buffer strips.

Objective:

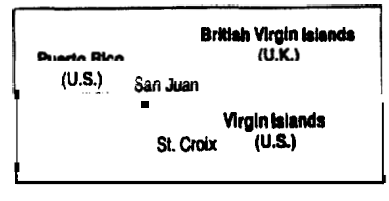
To evaluate three vetiver grass accessions for grass hedges in actual field situations. In Alabama, actual field situations consisted of terraces and buffer strips as standards of comparisons.

In 1991, two accessions of vetiver grass were planted along a terrace interval to evaluate erosion control on cropland at Alabama A&M University's Research Farm in Huntsville, Alabama. This planting will provide the first opportunity to observe and evaluate vetiver grass in a real cropland field/farm situation. Vetiver grass accessions IP - 302300 and IP-196257 were planted with 1,500 plants each a 12-inch spacing.

The field was surveyed for terraces in 1989 and vetiver grass plantings were originally planned for 1990. However, the planting was delayed because of cold damage at most PMC's in 1989. The accessions at Americus were thought to be all winter killed in 1989, however, most recovered in 1990.

The planting at Alabama A&M University will provide the opportunity to compare vetiver grass with terrace and fescue buffer strips. The observation of the vetiver grass planting at Alabama A&M resulted in a good stand for both accessions. We hope that we can begin to observe some benefits of vetiver grass as a vegetative hedge/bioterrace for erosion control on cropland.

A trip to Puerto Rico in October, 1991, provided the opportunity to observe a vetiver grass planting for erosion control on cropland/pigeon peas. The vetiver grass was collected locally. The planting looked very good and appeared to start building a terrace along the slope. Guineargrass was also observed in several plantings as a grass hedge/ bioterrace.



In Puerto Rico an assembly of vetiver grass from the Caribbean Islands was made from native stands in Puerto Rico, St. Thomas and St. Croix.

The plant accessions evaluated:

- PI - 302300
  PI - 196257
  PI - 271633

In the spring of 1992, a suitable site to establish plant materials to evaluate for vegetative barriers was located on the Southern Piedmont Research Station (USDA-ARS) in Watkinsville, Georgia. The cropland field was typical of the piedmont consisting of Cecil soils on 8 percent slopes. Vetiver grass was planted on two terrace intervals approximately 75 feet apart. Vetivar grass was planted bare root at 18" spacing.

In 1992, a plant materials water quality initiative was initiated in the Caribbean Area to evaluate plants for erosion control on agricultural lands. A thorough evaluation of vegetative materials and planting methodologies of such systems is needed in the Caribbean Area, where crop production on steep slopes is common and mechanical terrace building is impractical. Vegetative row barriers are an alterative to conventional hillside ditch systems that are being applied in Puerto Rico.

A project plan was prepared to evaluate plant material for vegetative barriers at the Lajas Plant Materials Water Quality (WQ) Facility. The sources of the plant materials will be local collections from native stands, plant materials centers, and plant introduction. Seven (7) accessions of vetiver grass have been assembled in Puerto Rico. Four accessions came from plant materials centers and three were collected in Puerto Rico. Additional vetiver grass accessions are currently being collected in Puerto Rico and assembled at the Lajas WQ Facility.

1. Vetivar grass survival was about 20 percent or less. Bare root plantings have not been very successful at two locations.

2. The vetiver grass stand was about 80 percent for both accessions, PI- 302300 and PI- 196257. In 1992, they became well established and tillers were observed for both accessions.

3. In 1994, new seedlings were found growing vigorously at the Jimmy Carter PMC, and at a location in Alabama by Gil Lovell at the Georgia Experiment Station in Griffin, Georgia.

   The major concern at this point was the strong possibility of the seedlings spreading and ultimately becoming a weed. The decision was made to destroy all accessions that exhibited this undesirable characteristic.

4. Potted plants established quicker on critical sites and had the best overall seedling vigor. Bare root planting had poor survival.

5. In 1994-95, vetiver stands exhibited very poor vigor and many native stems were dead after the 1994 winter. The winter hardiness of vetiver grass continues to be a serious question.

6. In South Carolina, a vetiver grass planting to control soil erosion at a local nursery resulted in poor survival. It was believed to be caused by herbicide damage.

7. Future grass hedge planting consisted of Alamo switchgrass. Alamo switchgrass has a stronger root system, is well adapted, winter hardy, and has potential for wildlife benefits.

8. The vetiver grass accession PI collected in Puerto Rico, evaluated in Puerto Rico and at Jimmy Carter Plant Materials Center, and scheduled for release for grass hedge use in the Caribbean did not flower in 1995, 96, and 97. This accession will be evaluated for one more year to determine if the non-flowering characteristic persists and to study it for winter hardiness.

'Tropic Sunn' sunn hemp — A Potential Cover Crop

Introduction:

Crop residue management is one of the first practices that should be used to develop conservation plans to achieve environmentally and economically sustainable agricultural production systems. (Schertz and Bushnel, 1993; Hargrove and Frye, 1987). Cover crops play an integral role in residue management systems. Tillage management and Nitrogen (N) contribution to subsequent crops have been the focus for most research on winter legume cover crops.

One tropical legume that may be adapted to residue management systems in the Southeast is sunn hemp (Crotalariajuncea L.). This legume is nontoxic and can be used as a cover crop. Although not winter hardy, sunn hemp may produce sufficient biomass during the fall (until freeze kills the plants) to provide ground cover and N to a following summer cash crop.

The sunn hemp cultivar 'Tropic Sun' was jointly released by the USDA-Natural Resources Conservation Service (NRCS), the University of Hawaii, the Hawaii Institute of Tropical Agricultural and Human Resources, and the Department of Agronomy and Soil Science (Rotar and Joy, 1983). Rotar and Joy (1983) described sunn hemp as an erect, branching, annual legume. It grows rapidly, achieving a height of over 1.2 m in 60 days when grown under favorable conditions. It can attain a height of over 1.8 m in approximately 90 days.

There are about 15,000 seeds lb-1 (30,000) to 35,000 seeds kg-1. Rotar and Joy (1983) showed that above ground N- accumulation of sunn hemp was 150-165 kg N ha-1 for hairy vetch and crimson clover in Alabama (Brown et al., 1985); cover crop for reducing soil erosion, conserving water, recycling nutrients, adding nitrogen (N) and improving soil physical characteristics, in the southeast, and as a forage for dairy cattle. This study was conducted by Dr. Wayne Reeves of Auburn University to determine the biomass production and chemical composition of sunn hemp grown from August to December and to determine the potential availability of N from the overwintered residue (left on the soil surface from December until April) to a following summer crop grown in both no-tillage and conventional tillage systems. In 1991, at E.V. Smith Research Center (EVS) and in 1992 at both EVS and the Monroeville Experimental Field (MEF), sunn hemp was drilled at 56 kg-1 seed ha following conventional tillage. An alternative to winter annual legume cover crops may be an adapted tropical legume that quickly produces biomass to provide soil cover and accumulate N. The legume might also be used as forage for cattle.

Objectives:

This study was conducted to: (i) determine total biomass production, N and C accumulation and chemical composition of sunn hemp during a period extending from corn harvest until the first killing freeze and; (ii) determine N release from over-wintered (December through March) sunn hemp residue to a potential summer crop grown with no-tillage and conventional tillage residue management systems.

Conclusions;

1. As an alternative winter cover crop, sunn hemp produced a high quantity of dry-matter during the fall season, covered the soil surface rapidly to protect it from erosion, and produced residue contained approximately 120 kg N ha-1.

2. Sunn hemp leaves may be suitable for dairy cattle forage but NDF and ADF values in stems were too high to be used as forage, especially after 6 WAP.
3. Nitrogen release from over-wintered residue would not provide appreciable N for a succeeding summer crop. However, approximately 75 kg N ha-1 was released from residue to the soil during the winter.

4. Initially, N immobilization occurred in over-wintered residue, followed by slow mineralization after 2 to 4 weeks. However, rapid mineralization in mowed residue occurred during the winter, due to release of N from leases.

5. Over-wintered residue decomposition was greater in conventional tillage than in no-tillage.

N remaining in over-wintered residue was only 30 percent of that after fall mowing (approximately 45 kg N ha-1). The N release from over-wintered residue during the subsequent corn growing season was 13 percent in no-tillage and 43 percent in conventional tillage. Sunn hemp residue provided 100 percent soil surface coverage after fall mowing. Sixty percent of the soil surface remained covered at corn planting the following spring. Sunn hemp produced sufficient dry-matter to cover and protect the soil from erosion, and provided sufficient N to benefit a succeeding summer crop. Sunn hemp has potential to be managed as an alternative to winter legume cover crops.

Native Plants that Support Sustainable Agriculture, Marginal Cropland and Grazing Lands

(Alabama)

To integrate Plant Materials Program with the grazing lands initiative, several native grass demonstrations are being established this year. In a typical dairy operation in Alabama, Eastern gamagrass plantings will be planted for forage, silage, and for the application of animal waste lagoon effluent. The plant technology related to planting, establishment and management (pounds of seed per acre) was developed at the Jimmy Carter PMC as a plant technology transfer objective.

In addition, Alamo switchgrass and the Americus experimental indiangrass accession is included in the native grass/grazing lands demonstration initiative. Dr. Jorge Mosjidis, Professor of forage crops and breeding at Auburn University is assisting with the evaluation of the switchgrass project at the Jimmy Carter PMC in Americus, Georgia.

Dr. Edzard van Santen, Associate Professor at Auburn University, forage crop breeding, is continuing his work with big bluestem to develop a variety for the southeast.

Dr. Mary Miller, Assistant Professor at Auburn University, is interested in native grasses and will be visiting plantings in the field to assist with recommendations and evaluations. She recently received technical assistance on the selection of plants for a riparian forest buffer study at Auburn University.

The Georgia Association of Landscape Architects is interested in native plants for use in urban landscapes. Members from the association are assisting the PMC with the evaluation and selection of native grasses, (big bluestem, switchgrass, indiangrass and eastern

gamagrass) for urban areas from the assembles at the PMC. Selections from this assembly are being used for single-specimen plants in urban areas.

Dr. Mary Miller, will be providing technical assistance on native warm-season grasses for forage. She is providing technical assistance to the Jimmy Carter PMC and coordinating grazing land studies in Alabama. She also has a keen interest in the Americus indiangrass, an experimental native warm-season grass accession at the PMC. This accession is well adapted to the southeast. During the extreme drought and heat during the Summer of 1995 and 96 the indiangrass accession performed better at the Jimmy Carter PMC than Pensacola bahia grass. Pensacola bahia grass has been considered to be one of the most drought resistant warm season grasses that is now used for forage in the Southeast.

Native Grass/Grazing Lands Rotational Grazing Demonstration PMC

To develop the technology needed to promote the use of native grasses for grazing, three fields at the Jimmy Carter PMC have been planted to native grasses. Five acres each of Alamo switchgrass, "Pete" eastern gamagrass, and Americus indiangrass performed better than the commercial indiangrass varieties adapted to the Southeast. Grazing trials will begin this year with eastern gamagrass. The electric fencing, paddocks and watering troughs have been installed.

Stockers for the project will be provided by the University of Georgia. We hope to develop data on forage quality, production. and persistence under actual rotational grazing conditions. This information will be used to build the data bases for GLA. The performance data will be used to complete the databases for GLA.

(Georgia)

In 1995, **12** sites were strategically selected (based on soils, MLRA, Special Project Area, etc.) to test native grasses for forage. The species selected were eastern gamagrass, Alamo switchgrass and Americus Indiangrass, **an** experimental accession. Most were conventionally planted, however, a few sites were no-tilled.

Sites ranged in size from 2 to **5** acres. The native grass sites were located from the Florida line north, to the Tennessee line located in the northern portion of the state.

Objectives:

1. Develop the plant technology for native grass establishment and management in the Southeast.
2. Develop the information to build the data bases for GLA.
3. Use data for FOTG.
4. Obtain performance data such as forage quality and quantity adaption.
5. Use sites for training **NRCS** personnel on native grasses and for demonstration sites for farmers, partners and other customers.

A site located in Brooks County has native grass plantings for goats. James Smith, a local farmers, owns about 500 goats. There is very little information available on the selection and management of forages for goat production. Plantings were established with eastern gamagrass, American joint vetch, maidencane, and switchgrass for evaluation purposes.

A study to compare native grasses (switchgrass, indiangrass, big bluestem, and eastern gamagrass) with non-natives in replicated plots was established at the Blairsville Agricultural Experiment Station. This study will be used to collect performance data for FOTG and GLA.

(South Carolina)

New native grass plantings were established in South Carolina for forage, wildlife and erosion control. The plantings included eastern gamagrass, Alamo switchgrass, indiangrass and big bluestem.

A two-acre planting of eastern gamagrass was established in Abbeville, South Carolina, for forage and silage. The effluent from the animal waste lagoon will be used to irrigate the field. Plant establishment information was developed at the Jimmy Carter PMC.

Native Plants for Riparian Forest Buffers

The evaluation of native plants for riparian forest buffers is continuing at the PMC. In addition, switchgrass, Virginia wildrye and Georgia 5 tall fescue is being evaluated for erosion control and herbaceous understory vegetation in buffer areas.

Conservation Tillage

An early blooming crimson clover was released in 1997 for conservation tillage in the Southeast. The plant was selected from the cool season legume study that was initiated in 1983. The plant breeding work to develop this early blooming cultivar was done by Mike Owsley, Jimmy Carter PMC, and Dr. Jorge Mosjidis, Auburn University.

The following plant releases that support conservation tillage are being produced by commercial sources.

- Americus hairy vetch
- AU-Early Cover hairy vetch
- AU-Ground Cover caley pea

Constructed Wetlands

(Alabama)

Dr. Ken Tilt, Associate Professor of Horticulture, is continuing a project to study the use of constructed wetlands for treating irrigation water for three commercial nurseries in Alabama. The wetland plants were provided by the NRCS PM Program. Donald Surrency is providing plant technology assistance on the selection and evaluation of wetland plants for the study.

The plants selected for the project include; Halifax maidencane, Restorer giant bulrush and Wetlander giant cutgrass. Halifax maidencane performed best after one year of evaluation. An additional 5,000 Halifax maidencane plants were planted in 1997.

A municipal constructed wetland system was planned for Epps, Alabama, to treat the wastewater from a training facility for the Federation of Southern Cooperatives. The system will treat the wastewater for a summer Youth Camp dormitory.

Swine Operation

(Alabama)

The Sand Mountain constructed wetland is still performing at an acceptable level. According to Dr. Tom McCaskey, Auburn University, in his recent summary of research for the water quality project entitled, "Evaluation of constructed wetlands with recycling as an environmentally acceptable technology for treatment of service lagoon effluent," the system is functioning very effectively. The treatment efficiency of the wetlands monitored over a 22 month period shows substantial reductions of wastewater nutrients.

Catfish Operation

(Alabama)

A graduate student at Auburn University completed a thesis on, "Constructed Wetlands for treatment of effluent from Channel Catfish Ponds." The study was conducted by Michael F. Schwartz and Claude E. Boyd, Department of Fisheries and Allied Aquacultures at Auburn University. Water from a channel catfish production pond in Hale County, Alabama, passed through a constructed wetland consisting of two cells, one planted with giant bulrush (Restorer) Scirpus californius, giant cutgrass (Wetlander) Zizaniopsis miliacea and (Halifax) maidencane Panicum hemitomon. The constructed wetland was very effective in the removal of potential pollutants total nitrogen, 81 percent: total phosphorus, 84 percent; biochemical oxygen demand, 67 percent; suspended solids, 87 percent; and volatile suspended solids, 91 percent.

Three graduate students at Alabama A&M University are conducting studies on constructed wetlands. The study areas are:

1. Stormwater management
2. Residential systems for treating failed septic systems
3. Strip-mine reclamation

Approximate number of constructed wetlands in Alabama:

Type	No.
Animal waste	4
Catfish	1
Residential (rock-reed) systems	30
Stormwater	
Mobile, Alabama	2
Hartselle, Alabama	1

*A new constructed wetland system (rock reed) was installed at Camp Meadowbrook in Cullman, Alabama, to treat the wastewater from three dorms and a dining hall. The Jimmy Carter PMC donated the plants for the system and an aquascape plan was prepared for the wetland plants.

Stormwater Constructed Wetlands

Mobile Bay, Alabama

A stormwater constructed wetland demonstartion project was constructed on the Whispering Pines Golf Course near Mobile Bay in Mobile, Alabama. The demonstartion project was funded by the Alabama Department of Environmental Management and the Gulf of Mexico Program.

The stormwater wetland is designed to treat a 1.5 acres watershed of Whispering Pines Golf Course. This wetland removes pollutants by temporarily storing stormwater to create ideal growing conditions for wetland plants. The plants and associated microbiology act to filter sediments, up take nutrients and biograde carbonaceous materials. The wetland plants consist of soft stem bulrush, cattail, and canna lily. Additional species such as Restorer giant bulrush, Sumter Orange daylily, and Halifax maidencane will be planted this year.

Hartselle, Alabama

An entirely new system will be constructed this year to collect stormwater runoff from nasty creek and circulate through the wetland to resource pollutants.

County Stormwater Treatment Wetland, Mobile, Alabama

A stormwater wetland system was constructed near the Mobile Agricultural Service Center for

a parking lot, horse wash area, and a livestock show pavilion.

The stormwater wetland landscape planting plan includes several released plants from NRCS plant centers and commercial nurseries.

Wetland Restoration

(Alabama)

Wetland plant technology information was provided to the U.S. Fish and Wildlife Service for the Mobile Bay Wetland Restoration Project. PMC releases such as Wetlander giant cutgrass and Restorer giant bulrush are included in the vegetative plan.

Commercial Demand for Wetland Plants

Two wetland plants were released in 1993 for constructed wetlands. Wetlander giant cutgrass and Restorer giant bulrush plant materials are being provided to commercial nurseries. The Jimmy Carter PMC constructed two ponds to produce wetland plant materials for commercial nurseries. A nursery located in Alabama has both of the new varieties. They recently sold all of their available commercial supply to consulting firms in Georgia that are constructing new wetlands for municipal wastewater treatment.

A new nursery in Neese, South Carolina (Aqua-Tech), was established in 1995. Propagation stock was provided by NRCS Plant Materials Centers. They have already produced 80,000 Cape American Beach grass plants for the Myrtle Beach Renourishment project.

Norm Bozard started a wetland nursery in Orangeburg, South Carolina. Stock plants were also provided for propagation purposes.

Plants for Erosion Control on Forestland

Doncorae brunswickgrass and Georgia 5 tall fescue are being used successfully by Scott Paper Company to control erosion on forestland. Several new sites were planted to include more cool season legumes with the warm season grasses and Georgia 5 tall fescue in the test.

Pennington Seed Company donated the Georgia 5 tall fescue seed for the test and is assisting with the plot evaluations.

A color brochure was developed that contains information on suitable vegetation for erosion control on forestland. This brochure will be distributed to NRCS field offices in April 1998.

Plants for Bio-Engineering and Streambank Stabilization

A bio-engineering project in Alabama was established in February 1995 as a demo for the Choccolocco Creek Riparian Area Restoration Study.

Plant Materials Established:

Ruby redosier dogwood
Ellagood automnolive
Silky dogwood
Prairie willow
Bankers dwarf willow
Black willow
Panbowl alder
Switch cane
Black sea alder
Alamo switchgrass
cottonwood

The plant survival rate after the first growing season is good. Beaver damage was recorded on the cottonwood, dogwood and willow plots.

The overseeding of Alamo switchgrass along the streambanks and outer banks resulted in stabilization and protection during periods of high rainfall when the channel overtopped the banks.

Carolina Country Club Streambank Stabilization Project

In October 1995, a streambank stabilization project plan was developed for Carolina Country Club. The plant materials center recommended a blend of native species that are already growing on the site and some non-native plant materiais that should enhance the aesthetics and provided beauty to the landscape.

Carolina Country Club is located along Fair Forest Creek. The club has already stabilized several areas along Fair Forest Creek with riprap. In August 1995, Tropical Storm Jerry damaged a segment immediately south of Carolina Country Club Road. This area will be stabilized through the NRCS emergency watershed protection program. The new plan included areas that would not be covered under emergency watershed protection.

The streambank stabilization plan included the following plant materials:

Alamo switchgrass
giant cane
Halifax maidencane
wax myrtle
American holly
black willow
swamp hibiscus
privet
button bush
elderberry
Sumter Orange daylily
alder
Canna lily

Native Plants for Comer Fairgrounds — Georgia

- Comer, Georgia, is a small rural town located about 17 miles from Athens, Georgia. It was anticipated that the town would be impacted by the 1996 Atlanta Olympics. An overflow of visitors was expected as a result of the Soccer event in Athens.

A native plant landscape plan was prepared for the Comer Fairgrounds to enhance the location site and reduce soil erosion.

Railroad and Moore Street Neighborhood — Enoree, South Carolina

This community park is located in the Piedmont area of South Carolina in the Southern most section of Spartanburg County. The community is comprised of African-American residents that live on Moore and Railroad Street. Enoree is an old small southern textile mill town that today would be classified as having a depressed economy.

The community is comprised of 33 houses and a total population of 66 African Americans.

The problems and concerns include the following:

1. Failure and or inefficient function of septic tank and drain fields.
2. Inadequate or lack of drainage systems.
3. Aesthetics and the need for beautification.

PM Involvement:

- A slide presentation on the use of constructed wetlands for treating failed septic systems was made to the Enoree

Neighborhood Association.
- Assisted with the selection of suitable sites for constructed wetland systems.
- Recommendation on the use of plant materials for landscape and beautification of the neighborhood.
- Provided plant materials (Sumter Orange daylilies) for beautification and erosion control.

Plants for Wildlife

Demonstration and special plantings of 'Gobbler' sawtooth *oak,* 'Golden' Chinkapin and 'Ellagood' automnolive were established in **12** counties.

The emphasis on wildlife by the new farm bill will require state technical committees to review their long rang program and adjust priorities. Wildlife plantings that are perennial and deep rooted provide erosion control and the reclamation of nutrients from adjacent cropland fields.

Atlanta Pilot Plant Materials Center

The USDA-Natural Resources Conservation Service (NRCS) Plant Materials Program consists of ***26*** Plant Material Centers (PMC) strategically located throughout the United States. Eight plant materials centers assisted with the Atlanta Olympic Native Plant Project **by** providing plants and/or seeds. The names of the plant materials centers that have provided assistance follows:

- Big Flats New York PMC
- Brooksville Florida PMC
- Cape May New Jersey PMC
- Elsberry Missouri PMC
- Jamie L. Whitten PMC
- Jimmy Carter **PMC** (Americus, GA)
- **Knox** City Texas PMC
- Louisiana PMC
- Rose Lake Michigan PMC
- Quicksand Kentucky PMC

On May 4,1996, USDA Deputy Secretary Richard Rominger launched the ceremonial planting event at the Olympic Wolf Creek shooting venue in south Atlanta. NRCS and the Fulton County Soil and Water Conservation District in cooperation with the Atlanta Committee for the Olympic Games, Americorps, Earth Team, City Personnel, Scouts and other volunteers planted the native plant materials.

NRCS provided 200,000 native plants 'and2,000 native trees from the Plant Materials Program for the Olympic plantings. NRCS provided advice and technical assistance regarding species and planting locations. NRCS also oversaw the planting process. These plantings benefit water quality and will allow native plants to be tested in an urban environment.

NHQ approved a proposal to setup a pilot plant materials center in Atlanta, Georgia, to propagate native plants for the Olympic games. **This** center focuses only on urban natural resource concerns. The technology developed and transferred from this center will impact urban needs throughout the southeast.

In 1993, an Urban Conservation Initiative in Metropolitan Atlanta, Georgia was implemented to enhance and demonstrate the use of native plant species in maintaining a viable Urban Ecosystem. NRCS, via its plant material initiative, worked with the City of Atlanta in stabilizing and enhancing the aesthetics at more than **29** city parks that were impacted by the 1996 Olympic games. The Atlanta committee for the Olympic games was also provided technical assistance by NRCS on soil erosion control for four **(4)** Olympic Venue Sites and the Centennial Park. The use of native plant species for this project was provided and developed by the USDA-NRCS Plant Materials Program. Additionally, a satellite **of the** Jimmy Carter Plant Material Center of Americus,

Georgia, located in Atlanta on the campus of **North** Metro Technical Institute, is focusing on growing native plants and educating the public on how native plants can be used for urban conservation.

Dune Stabilization

(South Carolina)

Plant technology information was provided to the **U.S.** Army **Corps** of Engineers for the Myrtle Beach Renourishment Project. The project includes **25** miles of renourishment, plants materials, and sand fences for dune building and erosion control. The vegetative plan includes most of the NRCS Plant Materials Releases for dune stabilization. One (1) million plants will be required to vegetate the area. The contract has been awarded to Ironhorse Landscape Company, located in St. Simons Island. GA.

A dune stabilization plan was prepared for Hunting Island State Park, located an Hunting Island, South Carolina. As a result, storm tides have created severe erosion that destroyed most of the dune system. The plan includes vegetation, sand fences and suitable access points that will stabilize and enhance the dunes. Implementation of the plan will begin in 1997.

Tybee Island

(Georgia)

A section of Tybee Island's south beach was renourished in 1996 and the vegetation was established in 1997. Sea Oats, bitter panicum and Atlantic Coastal panicgrass were used for vegetating the dunes. The north beach was planted in 1987. The vegetation is well established and the dune system has returned. Some dunes now reach **8-** 10 feet high.

Plant Material Small Farm Demonstration

A plant materials small farm demonstration in Tattnall County, Georgia, was approved by the State Conservationist. The demonstarion included plant material and best management practices that are recommended for erosion control, grazing land, water quality, and other natural resource concerns.

The demonstration took place on a 1000-acre, African-American owned farm located in southeast Georgia. This year, emphasis was placed on establishing perennial native warm season grasses for forage and cool season grasses and legumes for forage improvement and sustainability.

The tour of the **farm** included grazing land practices, aquaculture production, buffer strips, and alley cropping. Emphasis was placed on providing small farmers with plant materials and using technology, GIS and remoted sensing, as a tool for resource planning.

QIT Update

Donald Surrency was selected to serve on the National Plant Materials Quality Improvement Team (QIT). Since the first meeting in early August, the team met monthly **(2-3** days per session) to discuss plant science activities using a Total Quality Management **(TQM)** approach.

The primary purpose of the QIT was to evaluate plant science activities in **NRCS** and make pertinent recommendations to improve program operations and quality. Specifically, it examined: a) how the program functions and should function; b) it's importance and future contributions; c) critical issues, problems, and challenges; d) structural operations; and e) budget and staffing considerations. Since **NRCS** is currently undergoing significant operational change with respect to

reorganization efforts, it seemed appropriate to examine plant science activities in reference to changes that may be desirable.

Plant Technology Development and Transfer

Brochure

Five thousand ***(5,000) Flageo Marshhay Cordgrass*** release brochures were published in partnership with Fort Valley State University. Flageo was jointly released in 1990 by Fort Valley State University, Brooksville PMC and Jimmy Carter PMC.

Publications

Guidelines for Establishing Aquatic Plants in Constructed Wetlands was printed in color by the Fort Valley State University. The **USDA** NRCS Plant Material publication was adopted by Georgia Environmental Protection Division as the vegetative standard for constructed wetlands in Georgia. Copies will be distributed to all states in the Atlanta Region, including Wetland Teams, Institutes and IRTT's.

Erosion Control & Wildlife Plantings for Forestry Operations was published to provide information on the vegetation to use to stabilize logging roads, log decks, skid trails, fire breaks, and other eroded areas.

Plant Materials for WHIP is a technical document for NRCS field offices with the latest information on plants for wildlife in the the southeast region. It contains descriptions of plants, planting dates, plant hardiness zones, wildlife use chart, and seed cost. It was developed by the plant materials secialists and PMC managers at the Jimmy Carter PMC, Brooksfield Florida PMC, and Jamie C. Whitten PMC in Mssissippi.

Planting Guides

Planting guide information was provided to NRCS field offices that are participating in field, special and demonstration plantings.

Others customers, such ***as,*** federal and state agencies (U.S. Fish and Wildlife Service) consulting firms, colleges and universities have been provided products relating to plant technology. These products included standards and specifications, pamphlets, tech notes, vegetative plans, and plant sources.

Presentations

1. **Auburn University**
   Native Grasses
2. **Tuskegee University**
   Agronomy Club
3. Ft. **Valley State University**
   School of **Agriculture**
4. **University** of **Georgia**
   School of Landscape Design
5. **North Carolina A&T University**
   Constructed Wetland Seminar
6. **South Carolina Chapter, Charleston, SC**
   Soil and Water Conservation Society
7. **Sandy Creek Nature Center**
   Athens, GA
8. **Alabama A&M University**
   Huntsville, AL
9. **South Carolina State University**
   Orangeburg, SC

Tours

- Tignall, Georgia,
  Constructed Wetland Facility
- **Harrison, Georgia,**
  Constructed Wetland Facility
- **Lakeland, Georgia**
  Constructed Wetland Facility
- **Residential Constructed Wetlands**
  Decatur, Alabama
- Ft. **Stewart Army Base**
  Native Grasses for Erosion Control