Year 2001 Progress Report of Activities

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Brooksville, Florida Plant Materials Center

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A Legacy of Conserving Natural Resources Using Plant Materials

In the mid 1930's, plant materials useful for controlling the horrendous erosion of the dust bowl era were often not commercially available. Therefore, plant nurseries were an important component of the newly founded United States Department of Agriculture, Soil Conservation Service (SCS). From this simple beginning, the Plant Materials program evolved into the technical, conservation plant development branch of the SCS. Twenty-six plant materials centers are now strategically located throughout the U.S. In 1994, it was recognized that the SCS does far more than conserve soil. Thus the name of the agency was changed to the Natural Resources Conservation Service (NRCS). The mission of the Plant Materials program has also expanded over the past 6 decades, but continues to address natural resource problems and environmental program needs with plant materials and state-of-the-art plant science technology. Emphasis has shifted towards using native plants. We develop, test and release superior adapted plants to commercial growers along with establishment, production and management technology.

Our mission addresses four major objectives: Water quality maintenance and improvement, erosion control, forage and pasture improvement, and wildlife habitat improvement

The Brooksville Plant Materials Center (PMC) is located 7 miles north of Brooksville on U.S. Highway 41, 15 miles inland from the Gulf of Mexico. Areas served include Florida, Puerto Rico, and coastal areas of South Carolina, Georgia, and Alabama.

In This Issue:

District Conservationist, Tim Eckert and PMC Agronomist, Sharon Pfaff evaluate perennial peanut plots in Charlotte Co. grove

Native Seed Sources for Mine Reclamation - the Home Stretch

Phosphorous is an essential element for plant and animal growth. Florida is one of the few places in the world where phosphorous can be mined, supplying 75 percent of the U.S. and 25 percent of the world demand. Phosphate mine companies in north and south central Florida reclaim between 5000 and 6000 acres of land every year, and would like to replant a portion of these lands to native upland vegetation. Until recently, they had been hindered by the lack of Florida native commercial seed sources. Early attempts to seed native species gathered from wild stands often failed, because seed quality was poor and establishment technology was deficient.

The Brooksville PMC has been working to develop Florida native upland seed sources under an agreement sponsored by the Florida Institute of Phosphate Research (FIPR). During the 5-year agreement, which concludes in early 2002, over 25 grasses and forbs were tested to determine adaptability and performance on reclaimed minedlands. Study results were summarized in a technical document, "Development of Seed Sources and Establish Methods For Upland Native Species", scheduled to be published by FIPR in early 2002. Seed sources of 3 grasses (lopsided indiangrass, chalky bluestem and pinewoods bluestem) and a wildflower (handsome blazing star) have been developed, and are being increased for release and distribution to commercial growers. Improved varieties of 4 other grasses (eastern gamagrass, blue maidencane, hairawn muhly, and switchgrass) are also undergoing development.


Handsome Blazing Star

Seed sources developed under this agreement will benefit mine reclamationists, as well as private landowners who enroll in farm bill programs or who receive technical assistance from NRCS, and desire to restore native plant communities on their lands. Hunting clubs and conservation groups who wish to enhance wildlife populations by planting Florida native species, and county, state and federal agencies who manage public lands and wish to restore impacted lands to native habitat, will all benefit from the availability of Florida varieties.


Chalky Bluestem Seed Increase Field

Native Seed Production - A New Frontier

Even though the Brooksville PMC is developing seed sources of native species, these varieties will still not be available commercially if there are no producers to grow them. Unlike other regions in the U.S., Florida currently has no large-scale native seed production industry. The reasons are varied and complex; suffice to say, if it were easy and highly profitable, someone would already being doing it. Unfortunately, native seed production in Florida is filled with challenges. Seed production of most Florida natives requires specialized harvesting, planting and seed cleaning equipment, making start-up costs high. Many natives require specialized (but poorly understood) management techniques, such as burning, for seed production and stand maintenance. Native species tend to have poor viable seed production compared to introduced species, and a seed crop cannot always be harvested every year.

In order to encourage the development of a native seed production industry in Florida, the Brooksville PMC is compiling a "Florida Native Seed Production Manual". It includes general guidelines for native seed production, gathered from decades of production research in other regions. Seed production, harvest and cleaning guidelines developed during the PMC's recent agreement with FIPR, are included for specific Florida species. The manual is designed to be frequently updated as new technology becomes available. Publication is scheduled for early 2002.

Sunn Hemp - A New Alternative for South Florida Producers

Sunn hemp (a member of the *Crotalaria* family) is an annual legume that can produce over 5000 pounds of biomass and 100 pounds of nitrogen per acre in just a few months. It also suppresses some types of nematodes. With the impending withdrawal of methyl bromide and other critical pesticides from the market, farmers and scientists are scrambling to find alternative cropping and pest management systems for row crops. Sustainable biological sources of nitrogen from legumes such as sunn hemp could reduce the use of mineral nitrogen fertilizer, reducing the potential for harmful nitrates to enter surface and groundwater sources. Sunn hemp is one of the most promising species for use as a cover crop in rotation with vegetables. Unfortunately the high cost of seed has discouraged many agricultural producers from using sunn hemp. Most seed on the commercial market is imported from Hawaii. Seed production is limited in the U.S. because it occurs during the winter months and therefore requires a tropical climate.

In 2000, the Brooksville PMC initiated a study to determine the zones in Florida where sunn hemp seed can be economically produced. Seed was distributed to 15 growers throughout Florida. Not surprisingly, many locations lost their crop to frost before seed had a chance to mature. Despite frost damage, sunn hemp stands in coastal counties below the 27th parallel were consistently able to mature and produce up to 370 pounds of seed per acre. Growers in more southern areas such as Homestead have been able to obtain even higher yields. This study clearly showed that sunn hemp seed can indeed be produced in Florida, providing an alternative cash crop for southern Florida producers, and an environmentally friendly cover crop for growers throughout the Southeastern U.S.

Perennial Peanuts - Alternative Low Growing Ground Covers

Perennial peanut, dubbed, "the alfalfa of the south", is a legume that produces very high quality forage. The Brooksville PMC helped release 2 of the most common forage varieties presently on the commercial market. Back in the 1960's, PMC researchers also selected 2 other types, which were too low growing to be useful for forage. Yet these types had aesthetically pleasing leaves (see photos below) and formed a dense sod that made them an attractive ground cover. Only recently have citrus growers and others begun to appreciate this low maintenance, nitrogen-producing perennial cover crop, which has good drought and disease resistance, and minimal irrigation and pesticide requirements.

Over the years, the Brooksville PMC has planted plots of these low-growing perennial peanuts in several locations in Florida, to determine their adaptation and performance under a variety of conditions. In 2001, final evaluations were conducted at locations ranging from Naples to the Panhandle. (On the front page of this report, District Conservationist, Tim Eckert, of Ft. Meyers, Florida, and PMC Agronomist, Sharon Pfaff are shown evaluating a test planting in a Charlotte Co. citrus grove.) The data is being used to prepare documents for the commercial release of these 2 types in early 2002. What PMC personnel recognized back in the 1960's is finally occurring. Many citrus grove owners are planting perennial peanut to reduce maintenance costs and pesticide use in alleyways. Low-growing perennial peanuts are becoming popular in median strips and lawns for the same reason. Grove owners are also pleased with how well deer, turkey and other wildlife thrive on perennial peanut. Sometimes foresight can be 20/20 too.

PMC staff teach students about conservation plant materials

Teaching At-Risk Students about Conservation Plant Materials

Teacher, Royce Green, had a greenhouse at Springstead High School in Hernando County that he wanted to put to good use. He drove by the PMC every day on his way to work, and one day decided to stop and see what the Center had to offer. Mr. Green is the co-program coordinator of TOPPS (Technology Oriented Performance Program), a "last chance" program designed to help at-risk students earn a high school diploma.

The PMC, as it turned out, had much to share with Mr. Green's kids. Fifteen students toured the Center to learn about the role of conservation plants in the environment. PMC Biological Technician, Mary Anne Gonter, also put on a workshop at Springstead High to show students how to propagate 'Southpa' bitter panicum in their greenhouse. Southpa is a PMC release of a native grass adapted to coastal dunes. It has proven to be very effective in controlling erosion on coastal and inland areas.

Later in the fall, personnel from Hernando County asked the PM staff for assistance revegetating 2 areas with eroding shorelines. It was a project tailor-made for the Springstead High students. Arrangements were made for them to assist with the planting in the spring of 2002. Opportunities for influencing our world for good abound, and the PMC is looking forward to accomplishing small and great things with Mr. Green and his students.

Students plant 'Southpa' bitter panicum cuttings at Springstead High School

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