

BLDG. 509 BARC-East, East Beaver Dam Road, Beltsville, MD 20705, Tel. 301-504-8175, Fax. 301-504-8741

2001 Progress Report of Activities

PAGE 1

What We Do
Plant Materials Website
Plant Fact Sheets

PAGE 2

Plant Fact Sheets
Native Grass Selections for Conservation Use

PAGE 3

Native Cool Season Grass Studies
Native Plants for National Parks
Submerged Aquatic Vegetation Propagation
Plant Materials Education

PAGE 4

Native Meadow Establishment Study
Native Wildflower Evaluated for Potential Conservation Use
2001 Highlights

APRIL 2002

What We Do

The National Plant Materials Center, located in Beltsville, Maryland, is one of 26 Plant Materials Centers (PMC) in the Plant Materials (PM) Program of USDA's Natural Resources Conservation Service. The mission and activities of the NPMC are twofold: 1) to provide assistance to and coordination for the National PM Program, and 2) to assist with high-priority conservation issues in the Mid-Atlantic region of the US. Regional work is closely coordinated with surrounding PMCs.

On the national side, the NPMC provides assistance to the National Program Leader for Plant Materials, the Plant Materials Information Coordinator, Plant Materials Specialists, and Plant Materials Centers. Overall objectives of national activities are to coordinate the collection, archiving, and transfer of technical information on a national scope, provide assistance and coordination with conservation plant releases information, provide assistance with developing and implementing PM Program procedures, and assist other Plant Materials Centers and Specialists whenever possible.

High priority plant materials work conducted for the region includes assembly and selection of ecotypes of mid-Atlantic native species for use in NRCS Conservation Programs, development of technology relating to mid-Atlantic native species, maintenance of demonstration plantings for educational purposes, providing technical training to Field Offices and partners, and direct assistance to Field Offices in our region. In conducting this work, the NPMC maintains a balanced field program of plant selection, technology development, and demonstrations to give visitors to the NPMC a feel for what a typical PMC does.

Plant Materials Web Site

The NPMC is responsible for maintaining and expanding the National PM Program web site. In August 2001 the entire web site was redesigned and moved to the NRCS Web Farm. The redesign gave our site a fresh look and greatly improved users' access to information. We have been adding new information to the site almost weekly. There are now over 580 publications available for viewing or downloading from the site, and all plant release information and each PMC web site has been updated. These changes have been positive, as indicated by use of the site and comments from users. Site use increased about 20% from September 2001 to December 2001. Approximately 7,000 publications are accessed each month during 5,000 visitor sessions. The web site can be visited at: <http://Plant-Materials.nrcs.usda.gov>



Plant Fact Sheets

Production of Plant Fact Sheets and Plant Guides is a joint effort between the Plant Materials Program and the National Plant Data Center (NPDC), with input from other cooperating organizations. Primary coordination of assembling and maintaining Fact Sheets and Guides is a responsibility of the NPMC. These sheets cover a variety of native and introduced species, in such categories as conservation, culturally significant, noxious and/or invasive plants. Plant Fact Sheets are two-page quick reference sheets, while Plant Guides are generally longer documents and contain similar categories with more detailed information.

(continued on page 2)



The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202.720.2600 (voice and TDD). To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326W, Whitten Building, 1400 Independence Avenue, SW, Washington, DC 20250-9410, or call 202.720.5964 (voice and TDD). USDA is an equal opportunity provider and employer.

Plant Fact Sheets continued

In 2001, 134 Plant Fact Sheets and 295 Plant Guides were posted to the Internet. All Guides and Fact Sheets passed through the NPMC for final quality control checking, entry into a master database, and archiving. Templates, instructions for authors, and a list of high priority species needing a Guide or Fact Sheet were posted on the Plant Materials Program web site. The NPMC also updated template headers for Fact Sheets and Guides to reflect the new NRCS logo. From March through December 2001, an average of 8,167 Fact Sheets or Guides were accessed per month on the PLANTS web site.

All Guides and Fact Sheets are currently undergoing conversion to the new headers, and the NPMC is converting previously written planting guides and release brochures into Guides and Fact Sheets. Submission of new Guides and Fact Sheets are welcomed from any NRCS staff or cooperators, and the NPMC should be contacted for further details.

Fact Sheets and Guides can be downloaded for printing and distribution to landowners from the PLANTS web site at http://plants.usda.gov/cgi_bin/topics.cgi?earl=fact_sheet.cgi



Native Grass Selections For Conservation Uses

The emphasis on native seed mixtures for Farm Bill Programs, wildlife habitat, and ecological restoration has highlighted the lack of native grasses available in the Northeast and mid-Atlantic regions for large-scale plantings. Native cool season grass species are largely absent in the commercial market while native warm season grass species available are often ecotypes native to the Midwest and Great Plains. A combined collection effort by NRCS and partners was initiated in 1995 to address these needs. Collected materials will be evaluated, selected, and released to meet the need for native eastern ecotypes.

One cool season grass, bottlebrush grass (*Elymus hystrix*), is close to release. The species is a perennial native to eastern North America. It is useful in wildlife and wetland planting mixes, for several reasons. The seeds germinate readily. The plant tolerates a range of soils, from moist, heavy-textured soil with high organic matter to dry, sandy, and infertile soil. It also tolerates exposure from full sun to moderate shade. Bottlebrush grass is not an aggressive species and when placed in a mix will not prevent warm season species from establishing. The plant's seedheads are particularly ornamental and make bottlebrush a marketable species for native plant landscaping.



In 1997 and 1998, the University of Maryland and NPMC collected seed. Initial germination rates were determined, plugs were produced in the greenhouse, and seedlings were field planted into evaluation rows. In October 2001, 10 accessions were selected from a larger group of 13 collections based on percent survival over a 2-year period in an observation rod row planting; inclusion

of accessions from Maryland, Virginia, West Virginia, and the District of Columbia; and some consideration of (but less emphasis on, because of timing of seed collections) initial seed germination.

Seed was collected from selected accessions in 2001 and reserved for starting a seed increase field in 2002, in preparation for a composite release. Germination testing of the selected accessions' seed has been completed and increase field plugs are currently being grown in the greenhouse.

Additional collections and initial evaluation of another cool season species, Virginia wildrye (*Elymus virginicus*) are planned for the coming year. The NPMC is very interested in receiving any collections made by NRCS staff and partners.



Work at the NPMC continued in 2001 with the establishment of a breeder block of 7 mid-Atlantic Indiangrass (*Sorghastrum nutans*) accessions. When released, this composite will be suitable for restoration, wildlife, and general conservation plantings. In 2002, seed will be harvested and plugs started for a seed increase field.

Collections and initial evaluation of the warm season species Florida paspalum (*Paspalum floridanum*) are planned for the coming year. Florida paspalum has potential use in grazing systems and in conservation practices in moist areas. As with Virginia wildrye, the NPMC is very interested in receiving any seed collections made by NRCS staff and partners.

Native Cool Season

Grass Forage Study

Almost all cool season forage grasses used in the northeastern United States are introduced species. As interest and pressure to use native plants increase, a study was initiated to evaluate northeast and mid-Atlantic collections of the native cool-season grasses Virginia wildrye (*Elymus virginicus*) and bottlebrush grass (*Elymus hystrix*) for yield, persistence, and forage quality. The study, a cooperative effort between the NPMC, the Agricultural Research Service (ARS) Pasture Lab (Rock Springs, PA) and the Big Flats, NY PMC, consists of field research plots designed to investigate the forage potential of the 2 species as compared to orchardgrass (*Dactylis glomerata*).

At each test site, single-row field plots were planted in late summer 2000 with 16 accessions and 2 commercial sources of wildrye, 13 accessions and 1 commercial source of bottlebrush, and 2 orchardgrass cultivars. PMC and ARS staff collected yield and morphology (leaf width, length, mass; tiller density; plant height) data during 2001. Early results indicate that the native species have only limited potential as productive forage grasses without undergoing extensive selection.

Native Plants for National Parks

Since the early 1990s the NPMC has been involved in several cooperative agreements with the National Park Service (NPS). Production of native ecotype plants for National Parks has enabled us to gather a tremendous amount of information and technology related to native plant materials. In 2001, the NPMC compiled 79 native plant propagation protocols, which were posted on the Native Plants Network web site at <http://www.nativeplantnetwork.org/network/>. The web site is a cooperative effort between the NPS, NRCS, Forest Service, and other partners. Native seed harvest technology developed at the NPMC was also written up, and published in the Native Plants Journal in 2001 (Kujawski, J., J. Englert, R.J. Ugiansky, and D. Dusty. 2001. Equipment modifications for harvesting fluffy seeds. Native Plants Journal 2(2):114-115).

Agreements completed in 2001 include New River Gorge (WV) and George Washington Memorial Parkway (VA). Current agreements include Cumberland Gap National Historical Park (KY, TN, VA), Great Smoky Mountains National Park (TN, NC), and a smaller contract with George Washington Memorial Parkway (VA).

Submerged Aquatic Vegetation Propagation



Native submerged aquatic vegetation (SAV) species are critical to improving water quality and wildlife habitat in the Chesapeake Bay. Over the past 5 years, the NPMC has developed and refined propagation techniques for several SAV species, including American wild celery (*Vallisneria americana*) and redhead grass (*Potamogeton perfoliatus*).

In 2001, the NPMC successfully propagated another Bay species, Southern naiad (*Najas guadeloupensis*). Working from stem cuttings, the NPMC was able to generate multiple container transplants. The NPMC also supported the Chesapeake Bay Foundation "Grasses for the Masses" program in 2001 by supplying stock plants for redhead grass cuttings. The program allows Maryland and Virginia citizens to grow SAV transplants in home growing systems; the plants are then used for organized Bay restoration plantings.

Currently, the NPMC and an Earth Team volunteer are finishing data collection and drafting a poster on propagation methods for 6 SAV species. The poster will be presented at the Eastern Region International Plant Propagators Society meeting in fall 2002. For more details on SAV propagation, interested individuals may contact the NPMC.

Plant Materials Education

Because of its central location in Maryland and the mid-Atlantic region, the National Plant Materials Center is convenient for regional tours and training opportunities. In August 2001, the NPMC provided its first Plant Materials training for Field Office staff and partners. The two-day session taught by PMC staff and invited speakers covered topics such as warm-season grass establishment, wildlife plantings, grazing, bioengineering, plant identification, and Plant Materials resources. The rehabilitated Crider Memorial Garden of Conservation Plants was used during the training to demonstrate numerous Plant Materials releases, cultivars, and local ecotypes of species important to conservation programs in the eastern US.

The Crider Garden was also one of the focal points of the NPMC Field Day, held in July 2001. About 65 attendees listened as keynote speaker Maryland State Conservationist David Doss spoke about the importance of Plant Materials and paid tribute to Franklin Crider, the garden's namesake and a pioneer in the Plant Materials Program.

Special educational tours given in 2001 to the American Society of Landscape Architects, Cooperative Extension Master Gardeners, and a group of visiting researchers from China and Mongolia utilized the Crider Garden and additional warm-season/cool-season conservation cover demonstration plots.

Plans for 2002 include a second Plant Materials training session as well as new conservation training and tour offerings. The Crider Garden and other demonstration areas are open to the public during regular business hours. Contact the NPMC in advance to receive an informal tour of these areas.

Native Meadow Establishment Study

Establishment of meadows along highways has the potential to increase species diversity, improve wildlife habitat, and reduce maintenance costs. A cooperative project between the NPMC and the Maryland State Highway Administration was initiated in 1999 to study the establishment and maintenance of roadside meadows comprised of diverse grasses and wildflowers native to Maryland.

The study objectives are to (1) develop practical methods of establishing mixes of native wildflowers and grasses, taking into consideration time of year, seedbed preparation, equipment needed, and post-planting treatments, (2) develop mixes using appropriate species of wildflowers and grasses to provide a primary matrix for cover and provide a sustainable wildflower display, as well as assess the suitability of currently underutilized but commercially available species of native wildflowers for use along highway roadsides, (3) assess the maintenance that might be required to keep the meadow sustainable, and (4) develop standards and guidelines that may be used by Maryland State Highway Administration and others for seeding roadside wildflower mixes.

Thirty-six establishment trial plots were seeded in June 2000, May 2001, and November 2001. The nine establishment treatments combined timing of seeding, planting method, and mulching. Twenty-four maintenance trial plots were seeded in May 2001 with plugs planted in July 2001. The four maintenance treatments included mowing, 4 oz/acre Plateau pre-emergent, 4 oz/acre Plateau post-emergent, and a control. Evaluations began in August 2001 and will continue into 2003. The majority of plots appeared to be very successful, with very few weeds. Seedling vigor and weed prevalence varied more with the site conditions and the timing of seeding than with the seeding method. Species prevalence did vary with the timing of seeding and the seeding method. As expected, some species were found to be intolerant of 4 oz/acre pre-emergent Plateau, with many experiencing delayed germination and decreased rate of growth.

Additional experimental plots and planting under actual roadside conditions are being undertaken in 2002.



Native Wildflower Evaluated for Potential Conservation Use

Grass-leaved golden aster (*Pityopsis graminifolia*) is a drought-tolerant native perennial forb that grows in dry, sandy soils and full sun in the Southeastern United States. It is a fibrous-rooted, rhizomatous, perennial with 1-3 ft flowering stalks that grow from a crown of silvery, strap like basal leaves. Grass-leaved golden aster has yellow ray and disc flowers which attract a variety of insects.

The NPMC has used greenhouse-grown plugs for revegetating sites in National Parks and in landscape plantings but there is no indication that the species has been evaluated elsewhere for germination and vigor for conservation use. The plant's ability to spread by rhizomes to form a vegetative cover under cultivation, its drought tolerance and its attractive silvery foliage and yellow flowers give it potential for conservation use in both urban and natural settings.

In spring 2001, the NPMC assessed winter survival of 50 accessions planted into an evaluation block (4 replications per accession). Later in the year, plants were evaluated for appearance of basal foliage, color, bloom, and quality of establishment. Plants will be evaluated again in 2002, and promising accessions will be examined for good seed germination and seedling vigor.

2001 Highlights

Technology transfer is a critical part of the National Plant Materials Center's work; it enables NRCS field staff and others to use the plant science technology we develop for maintaining a productive natural resource base and a healthy environment.

Written Technology Transfer

Type of Publication	Number
Technical and Progress Reports	8
Informational Brochures	6
Stand-alone Publications	2
Popular articles	8
Newsletters	1
Total Publications	25

Oral Technology Transfer

Type of Presentation	Number
Tours	4
Regional and Local Presentations	6
Training	4
Total Presentations	14

2001 Publications

Maryland Conservation Gardening

This full-color brochure provides a list of native plants for various conservation needs.

Plant Materials Program brochure

A revised edition of the brochure that gives an overview of the entire NRCS Plant Materials Program.

Plants: A Growing Alternative. Vol. 8, Fall 2001

This issue of the National Plant Materials Program periodical focuses on Plant Materials Program wildfire-related activities.

To obtain a copy of these issues or to add your name to the mailing list for Plants: A Growing Alternative, contact the NPMC at 301-504-8175.