Rose Lake Plant Materials Program

2005 Progress Report Of Activities

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Who We Are

The mission of the NRCS Plant Materials Program is to develop and transfer effective state-of-the-art plant science technology to meet customer and resource needs. The Rose Lake Plant Materials Center (PMC) was established in 1958 to develop plant materials and techniques for use in natural resource conservation activities.

There are 27 Plant Materials Centers nationwide, each serving a particular geographic area. The Rose Lake Program serves Indiana, Michigan, Ohio, and Wisconsin. It also serves portions of Illinois, Minnesota, New York, and Pennsylvania.

Program Emphasis

The activities of the Rose Lake PMC are guided by a long-range plan. Priority work areas include:

- Plant releases, seed and plant production
- Plant technology development
- Grazing lands enhancement
- Assistance to under-represented groups

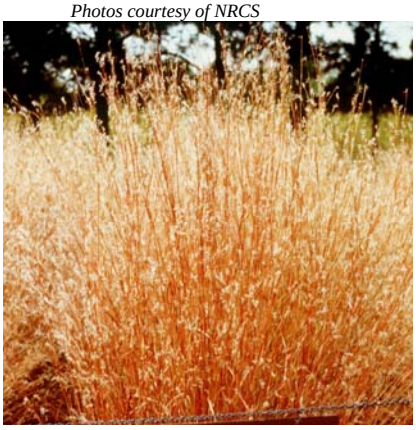
This document highlights some of the major activities at the Rose Lake Program during 2005. For detailed information, contact the Rose Lake PMC or the Michigan NRCS Plant Materials Specialist.

New Plant Releases – Prairie View Indiana germplasm warm season grasses

In 2004 the Rose Lake PMC entered into a new partnership agreement with the Indiana Department of Natural Resources, Fish and Wildlife Division. A 'selected class' of three Indiana native warm season grasses, named Prairie View Indiana germplasm, became available to commercial growers in 2005. In 1993 the INDNR Fish and Wildlife Division, and its partners, collected seed from native stands of big bluestem, little bluestem, and indiangrass. The seeds of each species were planted into seed production fields at the Jasper Pulaski Fish and Wildlife Area near Medaryville, IN. The Rose Lake PMC, through the partnership agreement provided expertise along with seed harvesting, drying, and cleaning equipment.

Photos courtesy of NRCS

Big bluestem



Little bluestem

Indiangrass

Native Plant Testing

The Rose Lake PMC has been evaluating Virginia wildrye, riverbank wildrye, and bottlebrush grass accessions for selection and potential release. Virginia wildrye and bottlebrush accessions were evaluated in accession comparison trials both at the PMC and in research trials in Indiana, Ohio, and Wisconsin. Plants were evaluated for vigor, lodging, susceptibility to insects and disease, and for seed production. Riverbank wildrye was evaluated in field plantings in Michigan and Wisconsin. Releases from those trials would be used as components of conservation plantings, wildlife habitat enhancement plantings, and critical area treatments.

Study plans have been approved for the selection and release of wild plum, button bush, broomsedge bluestem, and prairie crabapple. Collection notices will be distributed in 2006. The prairie crabapple project is being conducted in cooperation with the Vallonia State Tree Nursery in Indiana. The nursery is providing technical support with grafting procedures, development of evaluation criteria, and establishing field trials.

Plant Technology Development

Eastern Gamagrass

Eastern gamagrass was evaluated for forage production and quality. Experiments at the Rose Lake PMC were conducted to determine the effects of row spacing and harvest height on forage production and quality. Forage quality analysis tests were sponsored by the Michigan Grazing Lands Conservation Initiative.

A significant yield difference was observed in 2004 between 15-inch and 30-inch row spacings with the narrow rows yielding approximately 50% more than the wide. Cutting height had no effect on percent crude protein but did have a significant effect on ADF (acid detergent fiber) and NDF (neutral detergent fiber). ADF and NDF were higher (quality lower) with the 6-inch cutting height than with the 12-inch cutting height. Results from the 2005 growing season are pending.

A series of experiments was established in 2005 to evaluate the effect of fall and spring planting dates on the establishment of non-stratified eastern gamagrass. Field trials were established at four locations in Michigan, including two at Michigan State University research facilities during October and November of 2005. Additional planting dates in spring 2006 are also planned for this project. The objective of the project is to determine if eastern gamagrass dormancy can be overcome by fall or early spring planting, thereby eliminating the need for cold, moist stratification.

Herbicide Seed Protectants

A chemical seed coating used to prevent germinating grass plants from preemergence herbicide injury was evaluated for warm season grasses. Several preemergence herbicides are available to control annual grass and some broadleaf weeds. However, most of those herbicides cause severe injury to warm season grasses during the seeding year. Rose Lake PMC entered into a testing agreement with Syngenta Crop Protection Chemicals to evaluate the effectiveness of Concep® III seed protectant to prevent acetanilide herbicide injury to switchgrass and big bluestem. Syngenta applied the protectant to the grass seed and the PMC conducted field evaluations during 2005. The seed protectant treatment had no effect on switchgrass or big bluestem emergence when no herbicide was used. The effectiveness of the seed treatment as a herbicide antidote was not able to be determined, possibly because abundant irrigation water percolated the preemergence herbicides down below the germination zone of the warm season grasses.

Windbreaks for muck soils

A cooperative project with the Ohio Agricultural Research and Development Center (OARDC) and the Ohio Department of Natural Resources was established to evaluate tree and shrub species for windbreaks in muck soils. The Rose Lake Plant Materials Center provided several species of trees and shrubs for the project that was established in the spring of 2004. Plots are being evaluated by OARDC staff for survival, growth, and effectiveness as windbreak materials.

The Rose Lake Plant Materials Center is working with the Michigan State University (MSU) Muck Soils Research Farm in Laingsburg, Michigan to evaluate several tree and shrub species as windbreak materials. A similar project was conducted in the 1980's at the MSU Muck Soils Research Farm. Most of the plant material used for this project is NRCS releases from the Rose Lake PMC. The Big Flats, NY PMC will provide red-osier dogwood for the project. The plantings will be established in the spring of 2006 and monitored for five years.

Partnerships

Ash Seed Collection Project

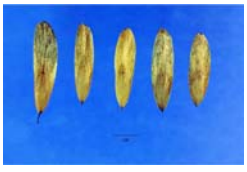
Due to the devastating invasion of the introduced insect pest Emerald Ash Borer, Ash Trees (*Fraxinus spp*.) in the Great Lakes Region of the United States and Canada are disappearing in record numbers. Ash wood is used in furniture production, flooring, and baseball bat production. Black Ash is also used by Native American for basket making. Because of the potential devastating effect the Emerald Ash Borer may have on Ash trees, a non-funded Cooperative Agreement between the USDA Agricultural Research Service and the USDA Natural Resources Conservation Service has been established. Through this agreement, Ash seed collected from across the Great Lakes Region and Canada will be stored at the National Genetic Resource Preservation Center (NGRPC) in Ft. Collins, CO. Seed stored at the NGRPC will remain viable for up to 50 years and will be made available to scientists interested in using the genetic material. In addition to the partnership with ARS, the US Forest Service is providing X-Ray analysis of the seed samples to estimate viability prior to storage at the NGRPC.

Meetings were held across Michigan to train NRCS Field Staff, Conservation District Staff, Great Lakes Native American Tribal members, and other potential volunteers on identification and collection of ash seed. Twenty samples were received at the Rose Lake Plant Materials Center in 2005. The project will continue for at least five more years with the goal of collecting Ash seed from a wide geographical area across the Great Lakes Region. Native American Tribes are also encouraged to collect Ash seed for this project. Seed collected from Tribal lands will remain the property of the Tribe and will not be distributed outside the Tribe without expressed, written permission by the Tribe.

Additional information on the Ash Seed Collection Project is available at:

www.mi.nrcs.usda.gov/programs/pmc.html.

Blue Ash Seed



Black Ash Seed

Green Ash Seed

White ash seed

National Park Service

The Rose Lake Plant Materials Center has partnered with the National Parks Service since the mid-1990's. In 2005, the PMC provided over 9000 plants for restoration projects on the Apostle Islands National Lakeshore in Wisconsin. In addition to plant production, the Plant Materials Specialist provided technical assistance for slope stabilization on Outer and Raspberry Islands involving several soil bioengineering techniques.

Below is a vegetative log crib wall on Raspberry Island



Fort Custer Military Training Center

The Rose Lake Plant Materials Center entered into a partnership agreement with Fort Custer Military Training Center in Augusta, MI to provide technical and plant propagation assistance for a prairie renovation project. The PMC collected and processed seed or vegetative material for five grass species and one forb species. That material was propagated in the greenhouse in April and May, and was transplanted into seed production fields at the Training Center in June. Additional seed was collected by PMC and Training Center staff in 2005 for propagation or direct field planting in 2006.

In addition to the prairie restoration project the PMC is working with the Fort Custer Military Training Center to evaluate plant species and establishment techniques to re-vegetate ammunition bunkers at the Training Center. The objective of the project is to identify low growing, low maintenance plants that will grow on the steep slopes of the ammunition bunker and tolerate dry growing conditions. Species being tested included sedum, Bermuda grass, creeping red fescue, and buffalo grass. Several planting techniques are also being evaluated, including direct seeding and cocoa fiber blankets as vegetative mats.

Below are photos of plot establishment on Bunkers






Conferences and Symposia

The NRCS Plant Materials Specialist and PMC staff represented NRCS at the following conferences and symposia:

- Central Region Plant Materials Workshop, Manhattan, KS.
- Michigan Grazing Lands Conservation Initiative Conference, East Lansing, MI
- Great Lakes Fruit and Vegetable Conference, Grand Rapids, MI
- Michigan Association of Conservation Districts, Big Rapids, MI
- State Conservationist Advisory Committee, East Lansing, MI
- NRCS Statewide Employee Picnic and Field Day, East Lansing, MI
- Ash Seed Collection Meeting for Saginaw Chippewa Tribe, Mt. Pleasant, MI
- Ash Seed Collection and Identification Conference, Roscommon, MI
- Greenhouse Training for Huron Potawatomi Tribe, East Lansing, MI
- Indiana DNR Warm Season Grass Project Meeting, Indiana
- Poster Presentation, Lexington, KY
- Eastern Gamagrass Forage Quality Project, East Lansing, MI
- Michigan State University Native Plants Field Day, East Lansing, MI
- Michigan Wildflower Conference, East Lansing, MI

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