

Rose Lake Plant Materials Program

2007 Progress Report of Activities



East Lansing, Michigan

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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 plant technology 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 of the Rose Lake Plant Materials Program during 2007. For detailed information, contact the Rose Lake PMC or the Michigan NRCS Plant Materials Specialist.



Plant Materials Center partners with Michigan State University in 2007

The Rose Lake Plant Materials Center worked with several Michigan State University faculty and staff during 2007. Cooperation included equipment sharing, cooperative research plots, training, and germplasm sharing.

Michigan State University researchers are working on several aspects of plant production for bio-energy. Dr. Suleiman Bughrara, Michigan State University turf grass geneticist, contacted the Rose Lake PMC to acquire several accessions of switchgrass, prairie sandreed and miscanthus grass for inclusion in a biofuels project at Michigan State University agronomy farm. The Rose Lake PMC, through Plant Materials Specialist Dave Burgdorf, provided switchgrass accessions, prairie sandreed accessions, and one *Miscanthus sinensis* accession for inclusion in the trial. Dr. Bughrara included those entries in a larger study that evaluated germplasm from across the world for biofuel potential.

Discussions on the project led to an opportunity for the PMC to provide a plug transplanter for the project. Dr. Bughrara's trial required the planting of over 4000 greenhouse grown plugs into a replicated field test. Rose Lake PMC staff provided a mechanical transplanter and staff to assist Dr. Bughrara's team in establishing the trial. Data will be collected and selections made from that trial over the next three years.

Dr. Bughrara's lab collected pollen and flowers from a *Miscanthus sinensis* selection growing at the PMC and is evaluating them for viability. This work will help answer questions about this selection's ability to produce viable seed.

In addition to Dr. Bughrara's work on biofuels, Dr. Doug Landis and Dr. Doug Schemske are evaluating the ecological effects of biofuel production. Dr. Landis is looking at insect population diversity in monoculture stands of warm season prairie grasses compared to mixed prairie stands. Dr. Landis conducted biomass evaluations of the Southlow Michigan Germplasm switchgrass, big bluestem, little bluestem, and indiagrass fields in 2007. They will be monitoring insect populations in those fields, and mixed prairie stands, over the next few years.

Both Dr. Bughrara and Dr. Landis have expressed an interest in evaluating a big bluestem germplasm collection located at the PMC. Originally assembled as a big bluestem forage evaluation, there is renewed interest in the collection for biomass production.



Michigan State University (MSU) students and staff helped the PMC staff with the planting of the bio-fuels project at MSU research farm.



L-R Brian Graff, Agronomy Farm Manager at MSU. Dr. Bughrara, assistant professor of Crop & Soil Sciences at MSU

Koch Germplasm Prairie Sandreed New Release

The Rose Lake Plant Materials Center, in cooperation with the Michigan Association of Conservation Districts, released a selected class prairie sandreed (*Calamovilfa longifolia*) for use as a conservation plant. Koch Germplasm prairie sandreed, named in honor of former PMC Manager Phil Koch, is a tall, upright grass that will be used in sand dune and sandy soil stabilization.



Koch Germplasm prairie sandreed was developed through three cycles of phenotypic recurrent selection. Four parent lines were selected from a large collection of prairie sandreed and allowed to cross pollinate. Seeds from that pollination cycle were planted and individual plants were selected that demonstrated the characteristics desired, including early vigor, upright growth habit, and no incidence of insect or disease damage. That cycle was completed two additional times and the final result was the G1 production field of Koch Germplasm prairie sandreed. A G2 seed production field was established at the Rose Lake Plant Materials Center in 2004.

Limited quantities of Koch Germplasm prairie sandreed seed will be available to commercial seed producers starting in 2008. Interested commercial seed producers can contact Plant Materials Specialist Dave Burgdorf at 517-641-7831 or by email at dave.burgdorf@mi.usda.gov for additional information.

Dedication Ceremony Honored Contributors to Prairie Sandreed Release

A ceremony to recognize the contribution of past Plant Materials Program personnel to the development and release of Koch Germplasm prairie sandreed was held on September 5, 2007. Koch Germplasm prairie sandreed was released through the NRCS Plant Materials Program in August. It was named in honor of Philip Koch (deceased) who was the agronomist and manager at the Rose Lake PMC in the 1990's.

Phil's widow and children received certificates of appreciation from Bob Escheman, Plant Materials National Program Leader, recognizing the important role that Phil had in developing this plant release. Also recognized during the ceremony were Dorian Carroll, retired Plant Materials Specialist, Ellis "Bill" Humphrey, retired PMC Manager, and Brian MacMaster, former Biological Science Technician and Agronomist at the Rose Lake PMC. Dorian and Bill collected several of the original parent materials that were used in developing the release and Brian was on staff at the PMC when the initial field development trials were conducted.



Robert Escheman, Plant Materials National Program Leader presenting Jan Koch, widow of Phil Koch with a certificate of appreciation.

L-R: Brian Mac Master, Dorian Carroll and Ellis (Bill) Humphrey were also presented with certificates of appreciation.



Ft. Custer Military Training Center Field Planting

The week of June 18-22, 2007 proved to be a busy week for the Rose Lake PMC, planting 16,000 Indiangrass and 16,000 Big Bluestem at the Ft. Custer Military Training Center.

The Rose Lake Plant Materials Program has been working with the Ft. Custer Military Training Center since 2004 to develop plants and technology for revegetating lands on the Fort. In 2006 the decision was made to propagate big bluestem and indiangrass seeds that were collected at the Fort in the PMC greenhouse. Those plants were transplanted into isolated field sites on the Fort for the purpose of supplying seed for prairie renovation and establishment projects at the Training Center.

Our thanks go out to all who helped in the planting process including: Carla Gregory, Kim Weiber, Ben Schmidt, Bruce Green, Amalia Gomez, Lawrence Donahue, Rebekah DeWind, Matt Soehnel, Greg Thoen, Stacy Kimble and Earth Team Volunteer Taylor Durling, who is a new cadet at West Point.

Carla Gregory and Kim Weiber prepared plants for planting.



Taylor Durling positions plants into the planter as John Leif operates the tractor.

Match-E-Be-Nash-She-Wish Indian Tribe

The Rose Lake Plant Materials Center (PMC) provided propagation training and establishment assistance of sweetgrass through Bruce Van Den Bosch, Tribal Contact/District Conservationist for NRCS in Allegan County, to the Match-E-Be-Nash-She-Wish Band of Pottawatomis Indians (tribe). The tribe located and collected sweetgrass plants from traditional areas of harvest and brought these to the PMC. Through a Memorandum of Agreement and Task Agreement the PMC agreed to propagate 50 plants, teach tribal members propagation techniques and assist with planting the sweetgrass plugs.

On May 21, 2007, 99 sweetgrass plugs were planted by the tribal members and NRCS staff at the Luella Collins Tribal Community Center in Wayland Township/Allegan County.

Participation from the tribe included:

D.K. Sprague, Tribal Chairman
Ed Pigeon, Language/Cultural Coordinator
Robert Oilvarri, Tribal Head Veteran
Frank Sprague, Luella Collins Community Center Operational Manager
Liz Binoniemi, Environmental Coordinator
Monte Davis, Environmental Specialist

Participation from NRCS included:

Bruce Van Den Bosh, District Conservationist
John Leif, Manager-Rose Lake Plant Materials Center
Gail Bishchoff, Greenhouse Manager
Dave Burgdorf, Plant Materials Specialist
Other PMC staff



Root Photography at Rose Lake PMC

The greenhouse at Rose Lake PMC morphed into a photo studio once a week. Plants and roots were photographed by Michigan NRCS Public Affairs Specialist Brian Buehler as part of a new plant technology study initiated this spring.

Shrub Rooting Study MIPMC-T-0702-RI was established to demonstrate and compare the growth and rooting ability of dormant woody plant materials. Sixty-nine tree and shrub entries were evaluated. They were assembled from among releases by Rose Lake and a eleven other PMCs, native plants of the Great Lakes Region, and other sources.

Two-foot long dormant cuttings were placed horizontally below the soil media surface in optimum-growth, greenhouse conditions. Shoot emergence and growth data were recorded. Whole plants, including root systems, were harvested, washed, and photographed. Photos and data will be compiled in a technical document on bio- or soft engineering. A similar process was used with vertically positioned cuttings.

Soil bio- or soft engineers commonly use dormant cuttings of tree and shrub species (e.g. willow and buttonbush) for stream corridor and shoreline stabilization. Dormant plants are placed in the ground as fascines (horizontal bundles of sticks) or live stakes. Rose Lake PMC's study quantitatively and photographically documents the potential suitability of various species for these applications. With the development of a NRCS Plant Materials Technical Note from this study, the Rose Lake PMC will transfer state-of-the-art applied science technology in stream corridor and shoreline stabilization.



A special thanks to the following organization for contributing material to this project:

New York PMC
Oregon PMC
New Mexico PMC
Washington PMC
Kingsville, TX PMC
Colorado PMC
Mississippi PMC

Florida PMC
Suny College, Syracuse, NY
West Virginia PMC
Idaho PMC
Kansas PMC

Conferences and Symposia

- 5-Keys to Successful Grass Seeding in Michigan, Lansing, MI
- Ash Seed Collection Initiative Update, Mason, MI
- Construction of Hoop Houses, Bangor, MI
- Dr. Schultink's MSU Environmental Science Group, East Lansing, MI
- Farm Service Outreach Presentation, East Lansing, MI
- Hispanic Awareness Day, East Lansing, MI
- Invrnadero Solar Pasiado Disenoy Costrucion, East Lansing, MI
- Michigan Food & Farming Conference, Battle Creek, MI
- Production of Vegetables (presented in Spanish) Conference, East Lansing, MI
- Soil Quality & Organic Matter Cover Crops in Spanish, Bangor, MI
- National PM Meeting, East Lansing, MI
- Tree & Shrub ID Conference, Marshall, MI
- Wetland Habitat Conference, East Lansing, MI
- Wetland Plant Identification Class, East Lansing, MI
- MSU Natural Resource Class, East Lansing, MI

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