



**Rose Lake
Plant Materials Center**

***Winter Newsletter
2008***

East Lansing, Michigan

Tall wheatgrass from Hungary evaluated for energy production.

The Rose Lake Plant Materials Center is evaluating a tall wheatgrass [*Thinopyrum ponticum* (Podp.) Z.-W. Liu & R.-C. Wang] cultivar from Hungary for its potential as an energy crop. The study is part of a multi-center project comparing this cultivar, 'Szarvasi-1' against several commercial varieties of tall wheatgrass and a cultivar of reed canarygrass. The Big Flats PMC (New York) and the National PMC (Maryland) are also conducting this study. Other PMC's across the country are conducting similar studies tailored for their environmental conditions.

The study at the Rose Lake Plant Materials Center was established on September 12, 2007. Mr. Brian Graff, manager of the Michigan State University Agronomy Farm, supplied a plot seeder and operated the planter during establishment of the study. Seed was pre-weighed and organized according to the randomization plan for the trial. The plot seeder uniformly planted the seed in each plot, ensuring planting consistency across the study.

Plots were evaluated in 2007 for initial stand establishment and photographs were taken of each treatment. Evaluations in 2008 – 2010 will include stand counts and biomass production.



Planting the plots



Photo taken three weeks after planting

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.

Bio-energy research efforts:

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

Emerald Ash Borer and Ash Seed Collection Initiative:

The Emerald Ash Borer, an invasive insect pest, has destroyed millions of ash trees in Michigan, Ontario, and other Great Lakes States. Forest entomologist Dr. Deb McCullough is doing research on the pest to determine how the insect works in the tree and how to manage the pest. The Rose Lake PMC established an ash tree plantation in the 1980's. Dr. McCullough and her graduate students are using that plantation to conduct research on the behavior of the Emerald Ash Borer and its response to tree stress and other factors. Dr. McCullough is also working with Dave Burgdorf, NRCS Plant Materials Specialist, to provide educational materials on the Emerald Ash Borer and the Ash Seed Collection Initiative to the Native American tribes in the PMC service area.



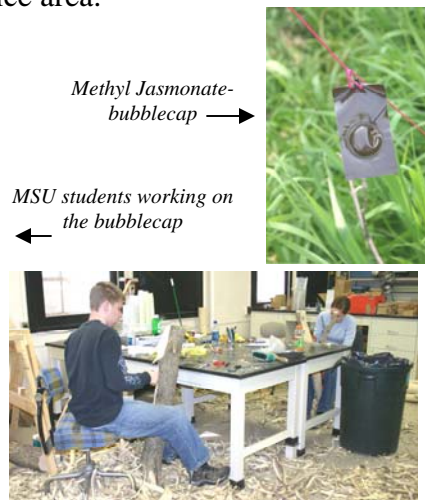
Ash tree, which has been girdled



MSU students working on the ash tree project



MSU students debarking wood from the ash trees



Methyl Jasmonate-bubblecap →

← MSU students working on the bubblecap

Cooperative Research Plots:

The Rose Lake PMC, with the cooperation of researchers at MSU, has established several research or demonstration plots on Michigan State University research stations. In 2001 a vegetative barrier project using *Miscanthus sinensis* sod was established in a field at the Kellogg Biological Station near Kalamazoo, MI. Mr. Jim Bronson, farm manager, has worked with the PMC to manage the plots and plant crops in the field to demonstrate the effectiveness of vegetative barrier technology.

Mr. Ben Darling, MSU land management, contacted the Rose Lake PMC in 2005 to plan and establish a series of windbreaks in the muck soils fields at the MSU Muck Soils Research Station. In 2006 the PMC provided seedlings and rooted vegetative cuttings of plant species that have been tested and released through the Plant Materials Program. Plants are now established and observations will be taken over the next three years.



Miscanthus vegetative barrier at Kellogg Biological Station



Michigan PM Committee members taking a closer look at the vegetative barrier

Training Opportunities:

The Rose Lake PMC worked with several MSU faculty to provide training for undergraduate students. Dr. Rich Leep, MSU forage production specialist, and Dr. Gerald Schultink, professor in Natural Sciences, brought their undergraduate classes to the PMC for a tour and discussions on the use of plants for natural resources conservation, forage production, and wildlife habitat enhancement.

Jane Herbert, MSU Extension agent, worked with Plant Materials Specialist Dave Burgdorf to establish a demonstration of several lake shoreline stabilization techniques on Gull Lake at the Kellogg Biological Station near Kalamazoo, MI. Ms. Herbert hosted a tour and discussion of those techniques during a meeting of the Michigan NRCS Plant Materials Committee in August.



*Michigan PM
Committee Members
inspecting the shore-
line stabilization
project at Gull Lake*



Rose Lake Plant Materials Center
7472 Stoll Road
East Lansing, MI 48823
Phone: 517-641-6300
Fax: 517-641-4421

Email:
PMC Manager john.leif@mi.usda.gov
PM Specialist dave.burgdorf@mi.usda



"Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (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 to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer."