



Rose Lake Plant Materials Center *Report of Activities for 2011*

Who We Are

The Rose Lake Plant Materials Center is one of national network of 27 plant center dedicated to providing vegetative solutions to conservations problems. The Rose Lake Plant Materials Center services the Great Lakes States of Michigan, Indiana, Ohio, Wisconsin and portions of New York and Pennsylvania. The center consists of 40 acres owned by Michigan Department of Natural Resources and operated by the U.S. Department of Agriculture under a partnership agreement with the Natural Resources Conservation Service (NRCS).

conduct Plant Materials projects. Using the Committee to coordinate Plant Materials projects will not only benefit the local Field Office, but make the information gathered from those projects available to other Offices in the State or PMC service area.

The students toured the herbarium at Michigan State University. They also participated in a tour of the Plant Materials Center and had discussions about plant materials research.

The second day of the training included a field trip to a streambank stabilization project that NRCS provided training and technical assistance with in Dearborn, MI. Various soil bioengineering techniques were discussed as was the process for working with other government agencies on natural resource concerns.

Rose Lake PMC Hosts Plant Materials Program Implementation

The Rose Lake Plant Materials Center hosted a two day training class on the NRCS Plant Materials Program. The students included NRCS District Conservationists, soil conservationists, natural resources specialists, and program specialists. The focus of the training was to provide an overview of the Plant Materials Program and specific ways in which the students could use the Program in their roles within NRCS.

Dave Burgdorf, NRCS-MI Plant Materials Specialist, led the discussion on the role of the Plant Materials Committee, emphasizing the need for NRCS field staff to work with the committee to



Eroding streambank in park at Dearborn, MI before streambank stabilization project



Revitalized streambank after the streambank stabilization project

Rose Lake PMC hosts Michigan State University Classes

Two classes from Michigan State University used the Rose Lake Plant Materials Center as part of their classroom and field laboratory experiences. A forage production class, taught by Dr. Rich Leep, toured the facility in early October. The tour emphasized plants used for forages and pasture. Students were also able to use plant specimens collected at the Center for their forage plant collections. The class returned in late October to attend a lecture given by Dr. Dean Baas on the use of cover crops. Students toured the cover crop research project that was conducted at the PMC.

A natural resources class, taught by Dr. Ger Schultink, toured the PMC in mid-October. The emphasis of that tour was the use of native plants for addressing natural resource issues such as wildlife habitat enhancement, soil erosion protection, and pollinator habitat.



Michigan State University forage class at Rose Lake PMC

Rose Lake PMC Partners with Michigan State University for New Plant Release

Dr. Richard Leep, Michigan State University forage specialist, approached NRCS in 2009 to produce seed and co-release an improved variety of yellow-flowered alfalfa (*Medicago sativa* spp. *falcata*). Yellow alfalfa is a perennial legume growing up to 30 inches high with multiple erect stems. It has

alternate sets of three oval-shaped, hairy leaflets with yellow flowers. Yellow alfalfa has growth requirements (pH, nutrients and moisture) similar to purple flowered alfalfa. It blooms for a longer duration in the growing season than does purple flowered alfalfa and has been shown in Michigan to produce as much forage in a two cut system as purple flowered alfalfa produces in a three cut system.

Researchers at South Dakota State University (SDSU) evaluated several populations of yellow alfalfa for forage production, resistance to potato leaf hopper damage, resistance to alfalfa weevil damage and resistance to phytophthora root rot. From those trials a population was selected for further evaluation as a forage crop. Research at SDSU and Michigan State University demonstrated that this selection of yellow alfalfa produces as well as, or better than purple flowered alfalfa or birdsfoot trefoil. Yellow alfalfa is a perennial legume that fixes atmospheric nitrogen.

In addition to livestock forage yellow alfalfa is consumed by game animals and birds. Small mammals also graze on alfalfa. Yellow alfalfa can be a source of nectar and pollen for insects and is particularly attractive to solitary bees such as leaf cutter bees. The Rose Lake PMC received seed from the yellow alfalfa selection and propagated seedlings in the greenhouse during April, 2010. Those seedlings were transplanted into a seed production field in June, 2010.

Seed production is under way in 2011. Flowering was extensive across the production block and weather has been favorable for seed production. Dr. Tim Dietz, Michigan State University forage researcher, secured a gallon of leaf cutter bee larvae and incubated them until they hatched. The bees were brought to the PMC and placed in a habitat next to the alfalfa field where they have been foraging since mid-June. Leaf cutter bees are known to forage alfalfa flowers and enhance pollination. Seed harvest took place in early August.

The Rose Lake Plant Materials Center, in cooperation with Michigan State University and South Dakota State University, plan to release this plant through the Plant Materials Program in 2012.



Field of Yellow Alfalfa



Close-up of Yellow Alfalfa

The Rose Lake Plant Materials Center in cooperation with the Michigan State University and the University of Minnesota, have been conducting research on oil seed radish, mustards, and forage turnips for use as cover crops.

Ms. Victoria Ackroyd, Michigan State University graduate student, presented results from the 2010 trials at the American Society of Agronomy (ASA) meetings in San Antonio, TX in October. Data showed that there are growth differences among species types, with oilseed radish having the highest root mass and root to shoot ratio. Mustards had the tallest above ground growth pattern but a lower root to shoot ratio than did the radishes. Differences between oil seed radishes were variable and were not consistent across location.

The presentation was co-authored by NRCS Plant Materials Program staff, NRCS technical specialist, Michigan State University faculty, and faculty and students at the University of Minnesota.

The experiment was repeated in 2011. Results will be made available to the Central NTSC to be included in data sets used in conservation planning tools such as RUSLE 2 and WEPS.

Cover Crop Research Presented at American Society of Agronomy Meeting.



Victoria Ackroyd working with PMC Agronomist, John Durling, collecting data.



Field of cover crop radishes and mustards



Daikon radish growing up out of the ground



Field of Cover Crops

Rose Lake PMC Installs New Seed Storage Room

Construction started in July on a refrigerated seed storage facility at the Rose Lake PMC. The new 14'x 20'x 10'high unit is a modular insulated walk-in cooler with a dehumidifier unit installed. PMC staff did the site preparation work, framing and finishing of the building.

The new storage area increased seed storage capacity by over 50% compared to the previous seed storage room. Wide steel racks and good lighting provide nice improvement in the usability of the facility. The previous storage room is now being used to store over-winter vegetative materials.



Inside view of new seed storage room



Exterior view of new seed storage room

Wisconsin Plant Materials Committee Conducts Plant Materials Research Field Trials

In 2009 the Wisconsin Plant Materials Committee worked with the Rose Lake PMC to develop a study plan to evaluate how prairie cordgrass could be used to reduce the encroachment of reed canarygrass in wetland restoration sites. Committee members worked with the PMC to acquire plant materials from the Bismarck, ND PMC as well as a variety from a commercial nursery in Minnesota.

Committee members used several committee meetings to evaluate the plantings in 2010 and 2011. Observations in 2011 show that both prairie cordgrass populations are growing well, producing seed, and starting to spread vegetatively from where

they were planted. Reed canarygrass has not yet spread into the cordgrass planting area.

The committee added Canada bluejoint to the trial in 2010. Data from 2011 show that Canada bluejoint is growing well and starting to spread vegetatively. The planting will be maintained for several more years to determine how well prairie cordgrass and Canada bluejoint can compete with reed canarygrass.

The Wisconsin NRCS field staff has been evaluating new releases and potential releases over the past few years. Icy Blue Germplasm Canada Wildrye, Koch Germplasm Prairie Sandreed and a Riverbend Wildrye accession were planted in conservation field trials.

Planting were evaluated for their effectiveness in addressing resource conservation concerns in those locations.



Koch Germplasm
Prairie Sandreed



Icy Blue Germplasm
Canada Wildrye



Prairie Cordgrass



Bluejoint



Riverbank Wildrye



Prairie Sandreed



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National Ash Seed Collection Initiative Being Handled through U.S. Forest Service Now

The National Ash Seed Collection Initiative, started at USSA_NRCS Rose Lake Plant Materials Center in 2005, is now being handled by U.S. Forest Service National Seed Laboratory. Seed samples can be sent directly to the National Seed Laboratory in West Lafayette, IN. For more information on collecting and sending ash seed to the National Seed Laboratory, visit the USDA Forest Service Web at:

http://www/nsl.fs.fed.us/geneticconservation_ash.html

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