

Year 2006 Progress Report of Activities

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Elsberry, Missouri Plant Materials Center

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Elsberry Plant Materials Center

Who We Are

The Elsberry Plant Materials Center (PMC) is a program within the Natural Resources Conservation Service (NRCS), a branch of the United States Department of Agriculture. The Elsberry PMC is one of 27 plant materials centers located throughout the United States. Areas served include Missouri, Iowa, and Illinois. The Center is located approximately 60 miles north and west of St. Louis, Missouri on Highway 79.

Program Emphasis

It is our mission to develop and transfer effective state-of-the-art plant sciences technology to meet customer and resource needs. NRCS Plant Materials activities are consistent with the objectives of the U.S. Department of Agriculture and NRCS Strategic Plans, namely to provide timely and effective vegetative solutions for resource needs. Superior adapted plants are developed,

tested, and released to commercial growers along with production and management technology. Emphasis is on using native plants.

Four Major Objectives Addressed:

- 1. Reduce Excessive Soil Erosion and Improve Water Quality through Biodiversity of Plant Species for Wildlife, Wetlands, and Restoration**
- 2. Increase Forage Quality and Quantity through Low Input Sustainable Agriculture**
- 3. Improve Water Quality by Controlling Run-Off, Utilizing Nutrients, and Stabilizing Shorelines**
- 4. Meet Additional Conservation Needs of Missouri, Iowa, and Illinois**

New Plant Releases for 2006:

The PMC had three new plant releases in 2006. Refuge Germplasm Big Bluestem and Midwest Premium Germplasm American Plum are selected class releases. Seed and plants are available in limited supply from the PMC. Central Iowa Germplasm Pale Purple Coneflower is a source identified class release available through the Tallgrass Prairie Center in Iowa.



Refuge Germplasm Big Bluestem

Refuge Germplasm Big Bluestem was selected for its shorter height when compared to cultivars and selections used in the Midwest. It is also stiff stemmed and is remarkably resistant to lodging during the growing season and throughout the winter. Refuge Germplasm Big Bluestem is a very favorable warm season grass for wildlife plantings and field buffers.



Midwest Premium Germplasm American Plum

Midwest Premium Germplasm American Plum (*Prunus americana*) is another selected class release from the Elsberry PMC. Selected for its fruit production, height,

spread, and resistance to disease, Midwest Premium Germplasm would be a great choice to add to a windbreak or wildlife planting. Midwest Premium Germplasm American Plum has the capability to form a thicket. Many suckers form from the root system filling in a planting and providing superb habitat for an abundance of wildlife. The plums produced are also edible to animals as well as humans.



Central Iowa Germplasm Pale Purple Coneflower

Central Iowa Germplasm Pale Purple Coneflower is another source-identified release that has come out of the Iowa Ecotype Program. It was collected from several naturally occurring prairie remnants. This release is comprised of collections from the middle tier counties in Iowa. Pale purple coneflower is one of the most recognizable species in prairie mixes with its robust, reddish-orange seedhead and drooping pinkish-purple petals. Seed for Central Iowa Germplasm Pale Purple Coneflower is available through the Roadside Management Program at the Tallgrass Prairie Center in Cedar Falls, Iowa.

PMC Provides Plant Material for University of Missouri Shade Tolerant Big Bluestem Study



Shade Tolerant Big Bluestem Study at University of Missouri Horticulture and Agroforestry Research Center (HARC)

The PMC has a history of working with warm season grasses for forage production, wildlife, and conservation programs. Prairie species are typically thought of as sun loving plants but the HARC farm wants to expand their use to savannahs. Research has shown that warm season grasses had reductions in dry matter yields under shade. It also indicated that yields of big bluestem, Indiangrass, and switchgrass, when compared to common Midwest cool season forage species, such as Kentucky bluegrass, orchard grass, and tall fescue, were equal or higher in absolute yields.

The PMC has an assembly of big bluestem with 370 collections from the Ozark region of Southern Missouri, Northern Arkansas, Eastern Oklahoma, and Southern Illinois. This assembly resulted in the big bluestem releases of OH-370, OZ-70, and Refuge.

From the PMC assembly of 370 collections of big bluestem Doug Wallace, Missouri NRCS State Forester and Jerry Kaiser, PMS, made selections based on soil type, vegetative cover, and phenotype characteristics of selected accessions. Twenty-one accessions were selected and used in the shade study. These selections were grown in pots and

placed in a randomized block design with three replications and five shade levels (0, 30, 55, 78, and 80% shade).



Shade Structure for Big Bluestem Evaluation

Plants were evaluated for shade tolerance and forage quality by clipping and analyzing for dry weight, crude protein, acid detergent fiber, and neutral detergent fiber. Total digestible nutrients and relative feed value were also used in reviewing responses to different shade levels.

Each accession has been studied for two years (2005 and 2006). Analysis of the data has started and should be completed by the fall of 2007. Early review of the data indicates that there is a wide variation in ability to perform under the different shade levels among the 21 accessions.



Plants to be Clipped for Analysis

PMC Provides Calibration Training at Area 4, Missouri and Areas 1 and 5, Illinois

The PMC staff and Plant Materials Specialist conducted hands on training exercises for field office personnel. The training targeted native plant identification and the planting of native grasses, legumes and forbs. Field office employees were given an opportunity to calibrate drills and other seeders. They also learned how to calibrate chemical sprayers and determine the amount of chemical needed to do a particular job from the IPM Specialist. Several of the employees had limited experience with this type of equipment, so the training was appreciated by all participants.



June 2005 – Field Office Workshop

2006 PMC Publications

1) Central Iowa Germplasm Pale Purple Coneflower Release Notice, 2) Midwest Premium Germplasm American Plum, Selected Class Release Notice, 3) Refuge Germplasm Big Bluestem, Selected Class Release Notice, 4) 2005 ATR, 5) Illinois Covey Germplasm False Indigo Brochure, 6) American Plum Planting Guide, 7) Iowa Covey Germplasm False Indigo Brochure, 8) Midwest Premium Germplasm American Plum Brochure, 9) Missouri Covey Germplasm False Indigo Brochure, 10) Elsberry PMC Brochure, 11) 2005 Progress Report, 12) Forage Quality Testing

of Warm Season Grass Species Used for Pasture and Hay.

Presentations

1) Technology and Advanced Plant Evaluation 2) Initial Evaluation Plantings as Missouri PMC, 3) PMC Selected Study Update, 4) Plant Materials Study Progress for Missouri PMC Committee, 5) PMC Overview at Intro to Soils Training, 6) Bradley Group Tour, 7) USDA PMC and Native Plant, University of Missouri, 8) Field Office Training on Drill and Sprayer Calibration, Seedbed Preparation, Plant ID (7/14/06), 9) Field Office Training on Drill and Sprayer Calibration, Seedbed Preparation Plant ID (7/15/06), 10) Field Office Training on Drill and Sprayer Calibration, Seedbed Preparation Plant ID (8/31/06), 11) PMC Annual Field Day.

Elsberry PMC Annual Field Day

The PMC Field Day was held September 20, 2006. Fifty-two individuals from Illinois, Iowa, Indiana and Missouri attended. These individuals represented NRCS employees, Missouri Department of Conservation, SWCD, and the public. The field day introduced the group to the use of plant materials for the conservation planning process.

The tour portion of this session involved viewing and discussion of many studies the PMC is conducting along with seed harvesting and cleaning demonstrations.

To learn more about these and other Elsberry PMC activities visit our website:

<http://www.Plant-Materials.nrcs.usda.gov>

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