

2011



Progress Report of Activities

Issued December 2011 **Manhattan, Kansas, Plant Materials Center**

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2011 Field Day

The Manhattan Plant Materials Center (PMC) celebrated its 75th Anniversary June 7 and 8, with a two-day field day. The first day was tailored to the general public, and the second, geared toward Natural Resources Conservation Service (NRCS) employees and our partners. Approximately 150 people attended the two-day event.

PMC staff led guided tours of the PMC's buildings and grounds. Each day participants broke into groups for the afternoon sessions.



Eric Banks, Kansas State Conservationist, welcomes participants.



Jennifer Hopwood, Midwest Pollinator Outreach Coordinator, Xerces Society, talks about the importance of pollinators.



Richard Wynia, Manager, PMC, explains seed lab functions.



Tour group listens to a discussion of plants in the lathe house.



Jim McDowell, Soil Scientist, shares soil information.



Christine Taliga, Colorado Plant Materials Specialist, discusses plant collections.



Robert Atchison, Rural Forestry Coordinator, Kansas Forest Service, discusses trees and shrubs.



Rhonda Janke, Associate Professor, Kansas State University, talks about medicinal uses of plants.

Shale Site Study

Evaluation of the shale site study planted in 2010 continues. Initial seed collections were made in 2009 consisting of switchgrass, big bluestem and little bluestem. Containers of each were grown at the PMC and reintroduced into a study planting at the site. Evaluations of the 2010 planting resulted in the loss of three of the original 263 plants. The 2011 evaluations resulted in the loss of 29 additional plants from the original planting. However, many surviving plants are showing severe stress and a decline in vigor. A soil sample taken during evaluations and tested in the soils lab indicated a 2.8-3.0 soil pH at the study site. This would explain why we are beginning to observe a decline in plant health. Despite the low pH, there are a few plants in the study that remain healthy and are producing seed. The goal is to identify plants adapted to this low pH, highly eroded site.



Shale site study planting

‘Eureka’ Thickspike Gayfeather

The PMC established a field of ‘Eureka’ thickspike gayfeather (*Liatris pycnostachya*) for seed increase. Eureka, a hardy, native perennial forb, can be used for prairie restoration, landscaping, roadside plantings, and wildlife habitat. It is adapted to a wide range of soil and moisture conditions and produces purple blooms in mid-summer.



Eureka thickspike gayfeather

Jerry Longren, Biological Science Technician, developed a tractor-mounted tool that punches a hole into the ground for insertion of a single cell Ray Leach Cone-tainer© grown plant. Each hole has a uniform spacing and depth. This tool was used in the planting of the Eureka thickspike gayfeather field.



Planting Eureka thickspike gayfeather



Hole punching tool

Sandy Study

After the third growing season, there are beginning to be a few successes in the Kearney County, Kansas, sandy site study planting. The study contains 15 species in a replicated planting. A wheat-straw mat was placed over the seeding to serve as cover and to protect the seeding from soil erosion. Species showing some success include sand bluestem, black blue grama, prairie sandreed, and sand lovegrass. An interesting side note to this study is a dune area adjacent to the study planting. Seeds from extra seed packets were hand broadcasted in the dune area. A wheat-straw mat was placed over the seeded area. Much of the seed under the mat germinated. Casual observations indicated that broadcast seed outside of the mat did not establish. It looks like we might have something for another study. This study originated from seeding failures under the Conservation Reserve Enhancement Program (CREP) in Kansas. Several plant materials centers contributed seed for this study.



Broadcast seeding in dune area

'Laramie' Tifton Burclover

'Laramie' Tifton burclover (*Medicago rigidula*) is an annual legume that has potential both as a cover crop and companion crop with many grain and forage crops. Laramie germinates in the fall providing winter cover and nitrogen fixation until it reaches maturity in late May or early June. Laramie was broadcast seeded in 2006 into a Western Kansas cool-season grass planting study that was no longer being evaluated. Since Laramie is an annual, the plant must reseed itself each year.



Laramie seed production in late June

Buttonbush Planting

Common buttonbush, (*Cephalanthus occidentalis*) a potential release from the PMC, is being field tested in plantings. This buttonbush derived from a polycross composed of accessions from Kansas and Oklahoma. It is a large, multi-stemmed shrub suitable for wetland restoration and riparian zone plantings. It offers many wildlife benefits both in seed and twigs. Buttonbush blooms from June to September forming dense, round, 1-inch diameter seed clusters.



Common buttonbush

Cimarron National Grasslands

Last spring, over 19,000 acres of the 108,000 acres that make up the Cimarron National Grasslands located in Morton County, Kansas, burned. High summer temperatures and little rainfall in 2011 hindered the sandsage prairies recovery. To assist in the recovery, giant dropseed (*Sporobolus giganteus*) seed was collected from unburned areas and will be reintroduced into the most sensitive dune areas as part of a dune stabilization study. Other adapted species such as giant sandreed, sand lovegrass, and sand bluestem will also be included in the mix.



Giant Dropseed

Butterfly Count

The PMC hosted the 2nd Annual Manhattan Butterfly Count, on July 13 for the North American Butterfly Association (NABA). Volunteers conduct a one-day census of all butterflies observed within a count circle 15 miles in diameter. The program is intended to promote interest in butterflies and provide results useful for scientific monitoring of this insect group.



Participants in the butterfly count

Who We Are

The PMC is one of 27 centers nationwide that uses plants to solve natural resource problems. It is owned and operated by the NRCS. The PMC offers services to a diverse region of the Heartland including Kansas, Nebraska, northern Oklahoma, and north eastern Colorado (see map at right). It is located on 169 acres of sandy loam soil in the Kansas River Valley, south of Manhattan, Kansas.



What We Do

The mission of the Plant Materials Program (PMP) is to develop and deliver plant science technology to meet the nation's natural resource conservation needs. The PMP vision is "Productive Lands–Healthy Environment." The PMP is recognized as the nation's leading technical source of plant solutions and plant technology to meet natural resource conservation needs. This includes the production of improved varieties of plants for commercial use and the development of plant science technology for incorporation into the Field Office Technical Guide (FOTG).

Plant and technology development objectives of the PMC include:

- Water quality improvement
- Erosion control
- Range and pasture improvement
- Native American outreach
- Plant variety selection and production

Seeking Vegetative Solutions to Conservation Problems

Contact Information

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Left to Right: Erma Leuthold, Office Automation Clerk retired from the PMC after 34 years. Edie Hadle, retired Biological Science Technician, and Mary Shaffer, NRCS Public Affairs Specialist

Plant Materials Program Web site:

<http://www.plant-materials.nrcs.usda.gov>

PMC Seed Production

The PMC maintains a variety of native grass and forb fields for foundation seed production. Native grass varieties include:

- Kaw big bluestem
- Pete eastern gamagrass
- Osage Indiangrass
- Cheyenne Indiangrass
- Aldous little bluestem
- Cimarron little bluestem
- Garden sand bluestem
- Bend sand lovegrass
- El Reno sideoats grama
- Blackwell switchgrass
- Kanlow switchgrass
- Barton western wheatgrass
- Pronghorn prairie sandreed



Switchgrass harvest with stripper head



Black Sampson echinacea

Native forb varieties include:

- Midas false sunflower
- Sunglow grayhead prairie coneflower
- Prairie Gold maximilian sunflower
- Nekan pitcher sage
- Kaneb purple prairie clover
- Kanoka round-head lespedeza
- Eureka thickspike gayfeather
- Reno Germplasm Illinois bundleflower
- Riley showy partridge pea

PMC Tours

Tours of the PMC are available Monday through Friday during regular business hours. Advance reservations are recommended for group tours.

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