



Year 2002 Progress Report of Activities

Conservation Buffer Initiative

The Buffer Initiative has generated increased activity in the planting of trees and shrubs to address various resource concerns. Typically, these woody species are established through the planting of seedlings. Although this method is currently the most widely used, other cost efficient and effective methods such as direct seeding need to be explored.

Direct seeding is an alternative establishment method compared to the conventional method of planting seedlings. However, little information is available regarding the proper seeding rate for some of the more commonly planted woody species. A study was initiated at the PMC in 2001 to evaluate the effects of excessive, moderate, and light seeding rates on the establishment and growth of pecan, northern red oak, bur oak, walnut, sycamore, and green ash.

Initial results were very poor due to unfavorable growing conditions during 2002. Only a small amount of the green ash seed germinated and developed into seedlings. These results indicate that even excessively high seeding rates cannot overcome the effects of poor growing conditions. Adequate soil moisture is critical for seed germination. Further evaluations will be performed during 2003 to determine if any subsequent germination has occurred across the different rates.



Selections of golden currant are being evaluated for use in windbreak, wildlife, and landscape plantings.

Nurseries of golden currant were established from seed collections made by field offices from across Oklahoma, Kansas, and Nebraska. Within the established nurseries, plants that exhibited superior plant vigor, plant height, basal width, fruit production, and disease resistance were identified. During 2002, seedlings produced from these superior plants were planted at select locations in Oklahoma, Kansas, and Nebraska. These plantings will serve as the final evaluation test conducted under actual field conditions. From this final test, plants with superior growth traits will be selected and ultimately will serve as a commercial source of improved material for use in windbreak, wildlife habitat, and landscape plantings.

Plants for Wildlife

Golden currant is a small, native shrub found growing on dry, open, wooded hillsides, edges of thickets, and along streambanks throughout the Great Plains Region. The need was identified in the PMCs' Long Range Plan to produce an adapted, disease resistant selection of golden currant for use in wildlife, windbreak, and ornamental plantings.

The Plant Materials Program also maintains a Web site, <http://Plant-Materials.nrcs.usda.gov>, which contains useful plant information such as:

- Plant fact sheets on over 130 different species
- Listing of commercial plant vendors who provide plants for use in conservation applications including wetland species
- Listing of current plant-related technical articles developed by the PMC
- Links to other web sites with additional or supporting plant information

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Manhattan, Kansas Plant Materials Center

3800 South 20th Street, Manhattan, KS 66502 Tel: 785-539-8761, FAX: 785-539-6928, Web site Plant-Materials.nrcs.usda.gov



THE MISSION OF THE PLANT MATERIALS PROGRAM IS SEEKING VEGETATIVE SOLUTIONS TO CONSERVATION PROBLEMS.

Who We Are

The Manhattan Plant Materials Center (PMC) is one of 26 Centers nationwide that use plants to solve natural resource problems. The Center is owned and operated by the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS). The PMC serves a diverse region of the heartland including Kansas, Nebraska, northern Oklahoma, and northeastern Colorado. It is located on 169 acres in the Kansas River Valley south of Manhattan, Kansas.



The Plant Materials Center is located in Manhattan, Kansas.

What We Do

The mission of the Plant Materials Program is to develop and transfer effective state-of-the-art plant science technology to meet customer and resource needs. The primary products produced by the Program include 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

Program Highlights for 2002

Critical Area Treatment

Critical area treatments are applied to sites that have a high potential for excessive erosion and/or that cannot be revegetated by ordinary conservation measures. Innovative stabilization and seeding techniques as well as adapted plants are often necessary for successful revegetation.

To develop best management practices for critical area treatment, the PMC has established several conservation field trials within its service area. Specific areas of activity include:

- > evaluating plant materials and bioengineering techniques for shoreline stabilization.
- > evaluating plant materials for revegetation and stabilization of sand dunes and blowouts.



Mulch application on a grass variety trial for sand dune revegetation and stabilization.

- > evaluating plant materials for revegetation and stabilization of acidic shale areas.



Acidic shale site before initialization of revegetation trial.



Acidic shale site two years after initialization of revegetation trial.

- > evaluating plant materials and various soil amendments for revegetation of saline areas.



Establishment of a grass variety trial for saline area revegetation.

Information generated from the field trials will be eventually incorporated into the Field Office Technical Guide (FOTG) for future guidance in reclamation efforts.

Economic Impact - Seed and Plant Production - What is it Worth?

During 2002, commercial growers produced over 274 tons of seed from plant materials previously provided to them by the PMC. The value of this commercially-produced material totaled more than 5.4 million dollars.

Cool Season Perennial Forage Species

Many livestock producers in western Oklahoma, Kansas, and Nebraska have expressed interest in using cool-season perennial forage grasses in their livestock production systems. The recent interest has stemmed from the producers' desire to reduce costs typically associated with the establishment of annual forages, such as wheat. Relatively little information is available regarding the establishment, productivity, or persistence of cool-season forage species in these western areas.

To answer questions concerning adaptability and performance, the PMC, along with local NRCS field offices, local Conservation Districts, and Kansas State University Research and Extension, established evaluation field trials at three locations in Kansas. The following plant varieties were planted at each location: 'Hycrest' crested wheatgrass, VNS smooth bromegrass, 'Jose' tall wheatgrass, 'Rush' intermediate wheatgrass, 'Reliant' intermediate wheatgrass, 'Slate' intermediate wheatgrass, 'Barton' western wheatgrass, 'Mankota' Russian wildrye, 'Bozoski-Select' Russian wildrye, 'Manska' pubescent wheatgrass, and 'Luna' pubescent wheatgrass.



"Mankota" Russian wildrye is one of the cool season grass forage varieties being evaluated for adaptability and performance.

The grass varieties will be evaluated for forage quality, quantity, and persistence over a five year period. Initial results were very favorable with excellent establishment and production levels being recorded for the majority of the varieties. However, with unfavorable growing conditions during 2002, productivity levels were significantly reduced. As drought is common to the Great Plains Region, it is important to ascertain how the varieties will perform under favorable as well as unfavorable growing conditions.