

2005 Aberdeen Plant Materials Center Progress Report of Activities

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Aberdeen Plant Materials Center office and greenhouse

Who We Are

The mission of the NRCS Plant Materials Program is to develop and transfer effective state-of-the-art plant science technology to meet customer and resource needs. The Aberdeen Plant Materials Center (PMC) was established in 1939 to develop plant materials and techniques for establishment and management of plants for use in resource conservation activities in the Western United States.

There are 27 PMCs nationwide, each serving a particular geographic area. The Aberdeen PMC serves portions of the Intermountain West including southern Idaho, western Utah, northern Nevada, western Wyoming and eastern Oregon.

Program Emphasis

The activities of the Aberdeen PMC are guided by a long-range plan. The priority work areas are:

- Plant releases, seed and plant production
- Range and forestland in poor ecological condition
- Riparian and wetland degradation
- Windbreak demonstration
- Technology transfer and education

This report highlights some of the major activities at the PMC during 2005. For detailed information, contact us at the PMC or the Idaho-Utah Plant Materials Specialist.

International Visitor at Plant Materials Center

Dr. Tumenjargal Dagvanamdal, a Professor of Agronomy at the Mongolian State University of Agriculture spent 8 weeks at the PMC to gain experience in forage seed production. Tumey, (her American nickname) participated in a 6 month exchange to the United States visiting USDA plant testing facilities in the western U.S. Her training in the U.S. provided her information and experience to help her country provide plant materials to Mongolian herders; develop alternative forage resources for subsistence operations, and to help stabilize rangelands in Mongolia.

Tumey inspecting Anatone bluebunch wheatgrass



Tumey was in Aberdeen from May 16 to June 15 and again from July 20 to August 10. While here, she assisted in planting test plots, collecting field data, harvesting grass seed and cleaning seed. She took many photographs and we provided information that she used to develop presentations and information for her people. Other USDA facilities she visited included the ARS Forage and Range Laboratory, Bridger, MT PMC, ARS Regional Plant Introduction Station and Forest Service Shrub Sciences Laboratory.

Native Plant Testing

During the summer of 2003, the PMC began a cooperative project with the USDA Forest Service, Region 1 to evaluate six native species for potential use in restoration on Forest Service land in Idaho and Montana. The PMC provided technical assistance to the Forest Service in seed collection procedures. Forest Service personnel collected a total of 52 accessions of bluebunch wheatgrass, Idaho fescue, blue wildrye, tufted hairgrass, Sandberg bluegrass and western yarrow. Replicated field trials were established at the PMC in 2004 to evaluate the collections and compare them with known industry releases. Evaluations are being conducted and data presented to cooperators in the Forest Service.



Harvesting forage and seed samples

A similar project was initiated in 2004 with Caribou-Targhee National Forest to evaluate accessions of mountain brome and slender wheatgrass for use in eastern Idaho and Western Wyoming. With the assistance and guidance of the PMC, Forest Service personnel collected ten accessions of each species. Replicated field trials were established at the PMC this spring and evaluations are underway.

The PMC is also working with Craters of the Moon National Monument to produce locally collected native grasses, forbs, shrubs and trees for use in revegetation projects. PMC staff aided CNM with technical support and guidance in the collection of seed from 26 plant taxa from the monument. These accessions are being grown in the PMC greenhouse this winter for future use in CNM revegetation ventures.

In cooperation with the Great Basin Native Plant Selection and Increase Project, the PMC is evaluating propagation techniques and attempting to increase seed of native forbs that have been identified as high priority species. The species include: sulphurflower buckwheat, fernleaf biscuitroot, Gray's biscuitroot, nineleaf biscuitroot, sand penstemon, hotrock penstemon and sagebrush penstemon.

Off-Center Testing

The PMC is continuing its cooperation with the University of Nevada Reno, Oregon State University, Utah State University, Rocky Mountain Research Station, USGS, ARS, FS and BLM to plant and evaluate common studies across the Great Basin to test management strategies for controlling cheatgrass and other annual weeds. A major goal of the project is to improve our understanding of why restoration techniques succeed or fail.

The PMC in cooperation with the Great Basin Native Plant Selection and Increase Project seeded a display nursery of 82 accessions of native and introduced grasses, forbs and shrubs in November 2004 and is evaluating establishment and performance of the display nursery. The PMC is also assisting this project in evaluating methods to reintroduce native species into stable crested wheatgrass communities, looking at various methods to control competition while establishing native species.



Seeding Orchard Display Nursery

The PMC also evaluated the Coffee Point off-center test site that was seeded in 1994 to evaluate long term survival and performance of the accessions planted.

Breeder and Foundation Seed Production

The PMC is responsible for Breeder and Foundation seed production of 19 plant releases. During 2005, Foundation seed fields of 'Goldar' bluebunch wheatgrass, Anatone bluebunch wheatgrass, 'Paiute' orchardgrass, 'Bannock' thickspike wheatgrass, Regar meadow brome, Ephraim crested wheatgrass, Richfield Selection firecracker penstemon, Clearwater Selection Venus penstemon, Northern Cold Desert Selection winterfat and Snake River Plains Selection fourwing saltbush were in production. New fields of Maple Grove Selection Lewis flax, Bannock thickspike wheatgrass and Anatone bluebunch wheatgrass were also established.

Interagency Riparian/Wetland Plant Development Project

The Interagency Riparian/Wetland Plant Development Project was established in 1991. NRCS and several federal, state, local, and private organizations decided more information was needed on how to propagate and plant riparian and wetland plants, how to establish and maintain wetland and riparian vegetation in artificial situations, and other uses related to water quality improvement.

Streambank Soil Bioengineering Technical Training



Workshop participants install brush revetment on the Lemhi River

As part of our technology transfer program, a three-day Streambank Soil Bioengineering Technical Training Workshop was developed. This workshop was formally a two day workshop, but based on popular demand, has been expanded to a three day course. The first day and a half of the workshop is devoted to the classroom where basic riparian dynamics, riparian zone vegetation, plant acquisition, bioengineering techniques, woody plant propagation, case studies, and project planning are discussed. The afternoon of the second day is held in the field discussing a proposed restoration site. The participants utilize the knowledge gained in the classroom to develop restoration plan alternatives. The plan alternatives are then discussed and the selected plan for the project site is discussed with the group. The third day is spent at the project site where participants install a series of bioengineering treatments on an eroding section of streambank based on the selected project plan.

This year, Streambank Soil Bioengineering Technical Training workshops were held in Grand Forks, ND on the Turtle River, Laguna Beach, CA on Aliso Creek, Stevenson, WA at the River Restoration NW conference as a technical workshop, Parker, AZ on 12 mile Lake located

on the CRIT Reservation, and at Moose, WY in Grand Teton National Park on the Snake River. A total of 470 people were trained in 2005 on design and construction of Streambank Soil Bioengineering treatments.

Technical Assistance to Afghanistan

In June 2005, Chris Hoag went to Kabul, Afghanistan to provide training to employees of the Ministry of Agriculture, Animal Husbandry, and Forestry. Chris and Jon Fripp, NRCS National Design, Construction and Soil Mechanics Center developed a 5 day class in Watershed Assessment, Management, and Rehabilitation and presented it to 43 Ministry employees who have positions similar to Cooperative Extension Agents in the US. The Watershed training included classroom presentations and field trips to demonstrate watershed assessment techniques.



Watershed Assessment, Management, and Rehabilitation class in Kabul, Afghanistan. Class in the field discussing a riverbed with security in the background.

Wetland/Riparian Research

This year the PMC conducted a field trial to evaluate different pre-soaking techniques on the survival of willow cuttings. 350 willow and cottonwood cuttings were planted along the banks of Bannock Creek in Arbon Valley, ID after being subjected to one of several pre-soaking treatments. Preliminary results indicate that pre-soaking can improve survival rates, but other factors such as proper cutting placement and soil contact are equally important.



Hardwood cuttings soaking in aerated water prior to planting

Four seeding methods were tested using Nebraska sedge and Baltic rush in a greenhouse trial conducted at the PMC. Methods tested were broadcast seeding followed by imprinting, drilling, using a tackifier and using seed-incorporated pellets (Submerseed™). We achieved good stands using all but the drilling method. Our results showed Submerseed has the best ability to keep seeds in place and provide adequate germination with a small number of seeds. However, good stands can be achieved using large amounts of seed and by applying tackifier as in a hydroseeding situation, or by surface pressing the seeds into the soil with a roller or imprinter.



Nebraska sedge seedlings growing in greenhouse seeding trial

New publication - *Simple Identification Key to Common Willows, Cottonwoods, Alder, Birch, and Dogwood of the Intermountain West*

A new publication was completed this year called: *Simple Identification Key to Common Willows, Cottonwoods, Alder, Birch, and Dogwood of the Intermountain West*. This guide is not a taxonomic key but rather a collection of common field traits that help the user identify several different woody riparian plants in the summer and in the winter when there are no leaves or flowering parts. Each species has 3 to 4 different full color pictures of the leaves, stems, overall plant shape and special identifying characteristics.

New publication - *Streambank Soil Bioengineering Considerations for Semi-Arid Climates*.

This publication is a detailed description of different considerations that one should think about before deciding on using, designing, or installing soil bioengineering treatments in arid to semi-arid areas of the US. This document details the consideration of problems associated with the use of soil bioengineering treatments in the arid and semi-arid West, benefits and limitations to using soil bioengineering treatments, the need for monitoring and maintenance, the affects of stream current on velocity and shear stress, risks, selecting plant materials, and riparian planting zones. This is a good general introduction to soil bioengineering in arid to semi-arid climates.

Aberdeen Plant Materials Center Website

For information specifically about the Aberdeen Plant Materials Center and our publications, go to <http://www.id.nrcs.usda.gov/programs/plant.html> or <http://www.plant-materials.nrcs.usda.gov/idpmc/>.

The Interagency Riparian/Wetland Plant Development Project has produced a large number of publications on wetland plant species, transplanting techniques, propagation protocols, and management techniques. It has also produced a number of publications on riparian plants, harvesting techniques, planting techniques, and how to use riparian plants in Soil Bioengineering treatments. These publications can be downloaded from <http://www.plant-materials.nrcs.usda.gov/idpmc/riparian.html>

Technical Assistance

Technical assistance was provided to 46 NRCS field offices in 13 states, 12 NRCS State Offices, the National Design, Construction, and Soil Mechanics Center in Ft. Worth, TX, the National PLANTS Data Center, the National Employee Development Center, the NRCS International Programs Division, the USDA Foreign Agriculture Service, 74 different NRCS Partners, and over 40 private individuals.