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NRCS Natural Resources Conservation Service

2012
Aberdeen Plant Materials Center
Progress Report of Activities
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Aberdeen Plant Materials Center Home Farm

Who We Are

The mission of the USDA 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 evaluate and select 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 specific geographic and ecological 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 (2011-2020). The priority work areas are:

- Range and forest lands in poor ecological condition
- Wildlife habitat in poor ecological condition
- Riparian and wetland degradation
- Plant releases, seed and plant production
- Technology transfer and education

This report highlights many of the major activities at the PMC during 2012. For more detailed information, contact the PMC.

Breeder, Foundation, and Cooperative Seed/Plant Production

The Aberdeen PMC produces the highest quality conservation seed available, and is responsible for the Breeder and Foundation seed production of 20 plant releases. In 2012 the PMC had seed production fields of 'Recovery' western wheatgrass, Maple Grove Germplasm Lewis flax, 'Appar' blue flax and 'Goldar' and Anatone Germplasm bluebunch wheatgrass. Approximately 2,400 pounds were produced in 2012 and the PMC shipped 3,310 pounds to commercial seed growers. Seed growers should contact the University of Idaho Foundation Seed program or the Utah Crop Improvement Association to request Foundation or early generation Certified seed.

Last year the PMC entered into an agreement with the Idaho Army National Guard to produce globemallow seed for revegetating army training grounds in southern Idaho. Five hundred feet of weed barrier fabric was seeded last fall and this spring. Seed was harvested this summer and will be harvested again next year.

A globemallow seedling emerges through the weed barrier fabric. Photo by Loren St. John, Aberdeen PMC

The PMC has been working with Yellowstone National Park since 2009 to produce seed for restoration in the Park. In 2012 we produced seed of Sandberg bluegrass (*Poa secunda*), bluebunch wheatgrass and needleandthread (*Hesperostipa comata*). The grasses are being used to restore lands within the Park that had previously been in production agriculture many years ago.

The PMC is also working with Grand Teton National Park. In 2006, the PMC began a cooperative effort with Grand Teton National Park to increase seed of source collections from the Park to be used for restoration projects. The PMC is currently growing mountain brome (*Bromus marginatus*) and Idaho fescue (*Festuca idahoensis*) for the Park for restoring lands that were previously in production agriculture.

Native Plant Testing

The PMC is increasing seed of three native forb species; hoary tansyaster (*Machaeranthera canescens*), Douglas' dustymaiden (*Chaenactis douglasii*) and Wyeth buckwheat (*Eriogonum heracleoides*). Once enough seed is produced, these accessions will be named and officially released for commercial seed production.

Hoary tansyaster, being harvested with a plot combine. Photo by: Loren St. John, Aberdeen PMC

A fourth forb species, Searls' prairie clover (*Dalea searlsiae*), is being produced and prepared for release in cooperation with the ARS Forage and Range Laboratory in Logan, Utah. Searls' prairie clover is a native legume chosen from collections made in eastern Nevada.

All of these forbs will be useful in future sage grouse and pollinator plantings as well as rangeland restoration plantings.

In the spring of 2010, the PMC installed a common garden study of Nevada bluegrass (*Poa secunda* var. *nevadensis*) with an assembly of 34 accessions from Idaho, Utah, Montana and Nevada. Also included in the trial were collections of big bluegrass (*Poa ampla*). The study resulted in two promising accessions which compare favorably to 'Opportunity' Nevada bluegrass and 'Sherman' big bluegrass. In 2013, both of these accessions will be planted in an advanced evaluation planting with Sherman and Opportunity to gather additional detailed information on seed and production attributes.

In November 2012, we planted an initial evaluation of a wide range of native forbs. The goal of this trial is to find species which might have promise for further evaluation and eventual release. Some of the species planted include one-flower sunflower (*Helianthella uniflora*), showy goldeneye (*Heliomeris multiflora*), tapertip hawksbeard (*Crepis acuminata*), cinquefoil (*Potentilla* sp.) and horsemint (*Agastache urticifolia*).

For more information on these and many other species, check out the Plant Guides available on our web-site at: http://www.id.nrcs.usda.gov/programs/plant.html.

Horsement (*Agastache urticifolia*) growing in a mountain meadow plant community near Soda Springs, Idaho. Photo by Derek Tilley, Aberdeen PMC

The PMC recently initiated a cooperative project with the USDA-ARS Forage and Range Lab, the USDA Rocky Mountain Research Station Shrub Science Lab and the Utah Division of Wildlife Resources, with the goal of identifying an accession of Lewis flax (*Linum lewisii*) with improved seedling vigor and seed production capabilities that may perform better than Maple Grove Selected Class Germplasm. Thirty-seven accessions were collected and propagated in the PMC greenhouse and transplanted to common garden plantings at Logan and Fountain Green, Utah for evaluation. Establishment was excellent and initial evaluations are underway.

Maple Grove Lewis flax. 37 accessions of Lewis flax are being evaluated to identify populations with better vigor and seed production traits. Photo by: Derek Tilley, Aberdeen PMC

Off-Center Testing

In November, 2010 the PMC planted a new off-center trial on the Curlew National Grassland in Southeastern Idaho in cooperation with the USDA Forest Service. The trial includes 63 accessions of native and introduced grasses, forbs, and shrubs adapted to the 12 to 16 inch precipitation zone in Southern Idaho and Northern Utah. Above average precipitation in 2011 resulted in excellent initial establishment of most species in the planting, but the dry 2012 growing season was a struggle for some plants. This site is a valuable resource for Conservation District cooperators, NRCS field staff, Forest Service, BLM and other land managers to get a firsthand look at the plant releases available for conservation seedings on the eastern Idaho Plateaus. Contact the PMC for further information.

PMC Team Leader, Loren St. John, evaluates a grass plot at the Curlew Off-Center Test site. Photo by Derek Tilley, Aberdeen PMC

A new off-center planting is being prepared for Skull Valley, Utah west of Tooele. The site was sprayed this season for weed control. We will spray again next spring and summer and hope to plant the site in the fall of 2013.

Technology Development

Soil Health

The PMC is working closely with Marlon Winger, Idaho State Agronomist, to evaluate cover crop species suitable for use in Idaho farming systems. Cover crops can prevent wind erosion and help improve soil health. In 2012 the PMC planted and evaluated single and multiple species cover crops to measure above and below ground biomass production. Additional studies are being developed for future trials.

Seed for a "cocktail" (multi-species) cover crop mixture. Photo by Marlon Winter, NRCS Idaho State Office

Pollinator Plantings

Pollinator friendly plantings are becoming increasingly important in the Intermountain West. Some populations of native and introduced bees are declining across North America due to colony collapse and degradation of suitable habitat. Many of the plants currently under evaluation at the PMC are geared towards pollinators; however we are still learning how to establish and manage these plantings. Establishment of grass-dominant plantings including forbs and shrubs are common and largely successful; however, pollinator plantings consisting predominantly of forbs pose problems not typically encountered with grass plantings. Forbs, especially native species , are in many cases not competitive against weeds,, and weed control options in pollinator plantings are limited.

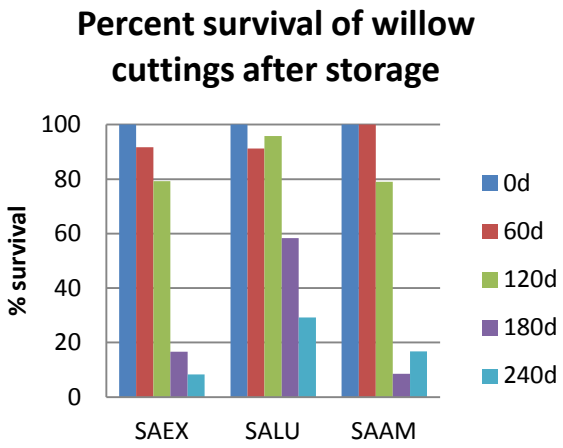
In 2011, the PMC established 5 acres of pollinator habitat at the Fish and Game farm for display and to research management requirements involved in pollinator friendly plantings. We observed fair establishment of most of the forb species planted, but there was also significant weed pressure. Weeds were managed during the establishment year with multiple mowing operations to prevent annuals from producing seed. In 2012 the field provided excellent pollinator forage with all planted species present. The

planting will be evaluated again next season to determine how well the planted forbs perform.

Blue flax, sainfoin, yarrow and small burnet can be seen in this photo of the PMC pollinator planting. Photo by Derek Tilley, Aberdeen PMC

The PMC also assisted the South Bingham Soil Conservation District with the design and implementation of a pollinator planting in a raised bed on the east side of the District office. Seed was planted in the fall of 2011 and a few plants started to flower this past summer. The pollinators are sure to follow. Some of the species planted include firecracker penstemon, Venus penstemon, sulphurflower buckwheat, and Lewis flax.

Willow Cutting Storage



The PMC conducted a study in 2012 evaluating storage longevity of three native willow species: peachleaf willow (SAAM), coyote willow (SAEX), and yellow willow (SALU) to determine the maximum length of storage time before cutting survival and growth start to decline. Dormant willow cuttings were kept in refrigerated storage for varying lengths of time and then propagated in the PMC growth chamber. All three species showed good to excellent survival up to 3 months of storage, after which survival began to decrease. Plant vigor and other growth related characters began to decrease after 2 months of storage. In 2013 we are evaluating ways to extend cutting viability by decreasing moisture loss in the cuttings during storage.

Technology Transfer - New Publications

A number of new or revised publications were completed during the past year – a few are mentioned below:

Technical Notes

- Technical Note 7. Mixing Seed with Rice Hulls
- Technical Note 32. Native Shrubs and Trees for Riparian Areas in the Intermountain West
- Technical Note 56. Phragmites field guide: distinguishing native and exotic forms of common reed (*Phragmites australis*) in the United States
- Technical Note 57. Effects of long-term refrigerated storage on hardwood willow cuttings
- Technical Note 58. Great Basin Pollinator Plants: Native Milkweeds
- Technical Note 59. Ecology and Management of Canadian Horseweed (*Conyza canadensis*)

Plant Guides

New or revised Plant Guides were completed in 2012 for the following: forage kochia, gooseberryleaf globemallow, blue penstemon, arrowleaf balsamroot, whitebark pine, yellow rabbitbrush, tapertip hawksbeard, yellow beeplant, barestem biscuitroot, black sagebrush, lambstongue groundsel, low sagebrush, tall blacktip ragwort, wooly groundsel, cosmopolitan bulrush, hardstem bulrush, common threesquare, mountain rush, Canada bluegrass, James' galleta, Hooker's balsamroot, purple onion grass, red fescue, cutleaf balsamroot, annual agoseris, shortspine horsebrush, silky lupine, spineless horsebrush, Nebraska sedge, common reed, Canadian horseweed, Frisco buckwheat, Frisco Clover, oneflower sunflower, Ostler's pepperweed, meadow brome, orchardgrass, Russian wildrye, basin wildrye, common spikerush, and winterfat.

Website

All Aberdeen PMC publications can be downloaded from the following web-sites:

http://www.id.nrcs.usda.gov/programs/plant.html

http://www.plant-materials.nrcs.usda.gov/idpmc/