PLANT MATERIALS TODAY

A Quarterly Newsletter of the Montana-Wyoming Plant Materials Program

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This is a quarterly field office newsletter to transfer plant materials technology, services, and needs. The plant materials personnel will be featuring short articles on project results, new cultivar releases and establishment techniques, seed collection, and field planting needs, etc. All offices are encouraged to submit articles about plant material-related activities relative to plant performance, adaptation, cultural and management techniques, etc.

**This edition of the newsletter highlights cooperative projects at the PMC and other 'cutting-edge' plant materials activities. Thanks to the authors for their efforts! SRW

Quarterly Preview of Upcoming PM Activities

April 7-10 - Weed mgmt symposium @ Denver
10 - 'Exotics' symposium @ Bozeman
13-14 - WY Tech staff mtg @ Casper
15 - Annual YNP mtg @ Livingston
17 - Ft. Belknap tour @ PMC
21 - Career Fair @ Bridger Schools
22 - Job-Shadowing with Bridger High School
23 - Northwest Community College tour @ PMC
24 - Arbor Day activities
27 - Restoration presentation @ Butte Tech.
27-28 - PAM application session @ PMC
29-5/1 - Tentative annual mtg @ PMC with Glacier NP

May 11-12 - Community Forestry mtg @ Glendive
14 - Land Remediation trng @ Deer Lodge
18-22 - Conserv. Planning trng @ Choteau
20-22 - Riparian PFC workshop @ Townsend
20-22 - USFS tree-planting activities @ PMC
26 - WY Coop, Julie Burger, arrives for summer @ PMC
27-28 - Inner Mongolia ICST mtg @ PMC

June 9-11 - NRCS WY PM training @ PMC
15-17 - MT Range Days @ Columbus
15-18 - Chinese delegation in MT
16-18 - NRCS MT PM training @ PMC (cancelled)
23 - Blake Nursery demo evaluation @ Big Timber
24-26 - WRCC-21 - Annual mtg @ Bend, OR

New PMC Brochure Available

In 1997, with major assistance from the Public Information Staff at Bozeman, a brochure was developed of the Bridger PMC and the Plant Materials program in Montana and Wyoming. The brochure provides a brief description of the Center's location and summarizes the plant evaluation process, program development according to conservation land use, and plant species released from the PMC. All field offices, state technical support staff, and other partners were mailed copies. Additional brochures are available by contacting the Bridger PMC.

Filter Strip Study

In 1997, a two-year study of Non-point Source Pollution Control Using Dryland Vegetative Filter Strips was begun at the Bridger PMC. With the onset of the NRCS Chief's Buffer Strip Initiative, it was discovered that most of the design criteria that Montana uses for buffer strips was taken from the Midwestern and Eastern states where climatic conditions are significantly different from Montana. To properly develop filter strips and buffer strips standards in Montana, it was decided that some research would be needed prior to the development of effective design criteria in the control of non-point source pollution, primarily sediment from overland flow.

A randomized complete block design (3 replications) was utilized to compare nine vegetative treatments (individual plots 40' X 20'). Species included winter wheat, spring wheat, 'Luna" pubescent wheatgrass, 'Manchar' smooth bromegrass, 'Hycrest' crested wheatgrass, 'Rush' intermediate wheatgrass, 'Rosana' western wheatgrass, and 'Critana' thickspike wheatgrass. A clean tilled summer fallow plot was used as the check strip.

After the grass species were established for a year (wheat was planted in spring the same year of data collection), the plots and a sediment generation area above the plots were irrigated to the point of profile saturation. Sediment was then generated above each plot and run over its length. Data collected included the time it took the sediment laden water to flow over the entire length of each plot, and, the amount of sediment suspended in the water at the end of the plot was measured.

The grass plots were well established with plants ranging in height from 6 inches (winter wheat) to 4 feet (intermediate wheatgrass). Smooth bromegrass and intermediate wheatgrass recorded the most vegetation by weight. However, the results were very interesting and somewhat surprising. Plots that slowed the water flow down the most

resulting in the least sediment at the end of the plots were winter wheat and crested wheatgrass. Observations showed that the higher germination rates of winter wheat and crested wheatgrass allowed for a more consistent orientation that slowed the flow of water more effectively than those plots where more inconsistent germination occurred. Even though there was more mass vegetation with other species, preliminary results showed that the most consistent germinating species might do the best job initially in reducing non-point source pollution .

The study will continue for one more year. This summer, data will be collected where the area will be saturated prior to sediment generation. Another data collection will be completed without saturating the area prior to sediment generation. If you have any questions concerning the plots, contact *Rick Fasching* at 587-6837 or by e-mail rich@mt.nrcs.usda.gov.

Forage Quality Study

The Bridger Plant Materials Center is involved in a cooperative research project with Montana State University Extension Agronomist, Dr. Dennis Cash, which evaluates forage quality at different phenological stages for 29 accessions of grasses. The study will examine crude protein and digestible nutrients at early plant growth, boot, heading, seed maturity, and during dormancy using near infared spectrometry (NIRS). This process is faster and less expensive than analyzing samples in a laboratory.
The following is the list of grasses that will be analyzed;

crested wheatgrass:
- 9070861
- 'Douglas'
- 'Nordan'

pubescent wheatgrass:
- 'Greenleaf'
- 'Manska'
- 'Luna'

intermediate wheatgrass:
- 'Reliant'
- 'Rush'
- 'Oahe'

bluebunch wheatgrass:
- 'Goldar'
- 'Secar'

western wheatgrass:
- 'Rosana'

crested wheatgrass hybrid:
- 'Hycrest'

Russian wildrye:
- 'Bozoisky-Select'
- 'Mankota'
- 'Swift'

altai wildrye:
- 'Prairieland'
- 'Pearle'
- 'Eejay'

basin wildrye:
- 'Trailhead'
- 'Magnar'

slender wheatgrass:
- 'Revenue'
- 'Pryor'

siberian wheatgrass:
- 'Vavilov
- 'P-27'

green needlegrass:
- 'Lodorm'

The Center's role in this study is to collect data on forage production and provide forage samples for the analysis. In 1996, replicated plots were seeded so sampling could begin the following year. In 1997 plots were sampled from May through November: bi-weekly in May and June, and monthly thereafter. At each scheduled clipping, the stage of growth was recorded and above-ground biomass was sampled for production (lbs/acre). From here, the samples go to MSU Plant & Soils Department to be processed and analyzed.

The Forage Quality Study has other players as well. Along with the plots at Bridger, the Central Agricultural Research Center near Moccasin, Montana State University Research Center at Bozeman, Western Triangle Agricultural Research Center at Conrad, and a private landowner near Baker have all established plots for the study. Plots in three additional locations are planned to be seeded in 1998: Harlem, Dillon, and Lame Deer.
Connie Reynolds

Bridger PMC on the Internet

The USDA-NRCS Plant Materials Program has an Internet site at:

http://Plant-Materials.nrcs.usda.gov.

From the Plant Materials Program Page you can find information on the 26 Plant Materials Centers by clicking on Plant Materials Center Locations. A map of the United States will appear with PMC locations and service areas indicated. Click on the one for Bridger, Montana. From here you can find information about the Bridger PMC and the research that is currently being conducted. Information is provided on the PMC's high priority issues, staff members, general information about the land and facilities, list of current publications, and the releases the PMC has made over the years. As is true of many Internet pages it is still being developed and updated. In the future you will be able to download (print) copies of the most recent publications the staff has written.

From the Plant Materials Program Page you can also print *Plant Fact Sheets* of over 100 Conservation Plant Species; look at limited conservation Plant Materials Vendors information and; find out more about the National Plant Materials Program.

Another valuable web site is: **http://plants.usda.gov**.

This database can be a valuable source of information on plants. PLANTS is the recognized source for plant taxonomy and contains currently accepted names for more then 45,000 plant species. You can find the currently accepted name for a plant by entering the old name, the database will be searched and the accepted name will be displayed. It also contains lists of threatened and endangered species, wetland plants, and noxious weeds. You can also search for plants by states.
John Scheetz