

# PLANT MATERIALS TODAY

A Quarterly Newsletter of the Montana-Wyoming Plant Materials Program

Volume 3 Number 1

April 1996

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.

## Chemicals for Grassy-Weed Control in Grass Seed Production Fields

Annual grassy weeds such as downy brome and hairy chess can be serious problems in grass seed production fields. These weed seeds are difficult, if not impossible, to clean from seeds of most wheatgrasses and wildryes. There are no chemicals that are specifically labeled for use on grassy weeds in grass seed production fields. Studies were established at the Bridger PMC and the Powell, WY Research and Extension Center in cooperation with Dr. Tom Whitson, Extension Weed Specialist, with the University of Wyoming. These studies were designed to evaluate 12 chemical treatments for downy brome control and amount of crop damage (six species of wheatgrass and wildrye). Each test plot consisted of two rows of downy brome and four rows of the perennial grass crop. Each year, for 3 consecutive years, the plots were evaluated for downy brome control; and seed production and seed viability were a measure of crop tolerance.

Based on the result of these trials conducted in Montana and Wyoming, 24 (C) State labeling was granted for the use of Sencor 75 DF (Metribuzin) at 1/2 lb/acre on any perennial grass grown for seed. This provides the commercial seed growers of Montana and Wyoming with another weed control option.

Mark E. Majerus

## Development of Acid/Heavy-Metal Tolerant Cultivars (DATC)

Activities in the winter of 1995/1996 include pH and EC soils testing; a germination study and a dormancy study were implemented. Nine more soil samples were tested from Anaconda for pH and EC monitoring.

Fifteen species were selected for the performance of a germination test, with two replications of each species (*Lotus corniculatus* 'Cascade', *Elymus trachycaulus* ssp. *trachycaulus* 'Pryor', *Medicago sativa* 'Spredor-3', *Deschampsia cespitosa*, *Agrostis* ssp., *Agrostis gigantea*, *Elymus glaucus* 'Arlington', *Atriplex X aptera* 'Wytana', *Pascopyrum smithii* 'Rosana', *Poa compressa*, *Elymus trachycaulus* ssp. *trachycaulus* 'San Luis', *Leymus cinereus* 'Trailhead', *Pascopyrum smithii* 'Rodan', *Phacelia hastata*, and *Psathyrostachys juncea* 'Bozoisky-Select'). This test ran for 30 days (somewhat longer for the forb species) in December and January. Results for this study will be available in the fall of 1996 on a request basis.

Most woody plant seeds require a specific type of treatment to break the dormancy of the woody seed. The dormancy study consisted of cold storage, a combination of warm and cold storage, or an acid bath on 18 different woody plant species selected from the summer of 1995 DATC plant collections (*Caragana* sp., *Vaccinium* sp., *Pinus flexilis*, *Ribes* sp., *Amelanchier alnifolia*, *Shepherdia canadensis*, *Rhus trilobata*, *Mahonia repens*, *Prunus* sp. (plums), *Lonicera* sp., *Rosa woodsii*, *Shepherdia argentea*, *Symphoricarpos albus*, *Prunus virginiana*, *Rubus* sp., *Chrysothamnus nauseosus*, *Atriplex* sp., *Tetradymia canescens*, *Pseudotsuga menziesii*, *Pinus ponderosa*, and *Juniperus horizontalis*). This study will continue through July of 1996, and the results will be published and available by request sometime in the fall or winter of 1996.

Other activities included grant application reviews and writing, greenhouse plant propagation work, and paper presentations at the Seventh Billings Reclamation Symposium.

Matthew L. Marsh  
Project Manager

## WARM-SEASON GRASSES--WHAT IS HAPPENING?

There is an increased interest in the northern Great Plains in warm-season grasses that help extend the normal grazing season. The Bridger Plant Materials Center (PMC), in cooperation with the Bismarck, ND PMC, established the "Wayne Berry Field Evaluation Study" in 1994 to address this issue. The goals of this study are to: 1) determine if certain warm-season species can be grazed during the hot summer months after the cool-season species go dormant, 2) determine the quality of these species as forage, 3) study species adaptation, and 4) examine livestock performance and utilization under an intensive grazing system.

The Wayne Berry Field Evaluation and Adaptation Trial is a 47.7-acre dryland site located northwest of Sidney, Montana. The planting consists of 56 accessions or cultivars of cool-season grasses and forbs (replicated four times) and 22 accessions representing seven species, plus three different mixes (not replicated). It was planted on May 1, 1994. Sainfoin, milkvetch, alfalfa, small burnet, and fourwing saltbush were cross-seeded in approximately 2-acre blocks on the east half of the grass plots.

Each of the 56 accessions in the replicated plots was evaluated on September 13, 1994, for percent stand, vigor, and height during the initial planting year. The plots were evaluated on August 16, 1995, for the previously mentioned parameters plus percent production. Forage production in 1995 ranged from 2,754 kg/ha for 'Reliant' intermediate wheatgrass to five kg/ha for 'Paloma' Indian ricegrass. The ten best-performing grasses were:

- 'Reliant', 'Oahe', 'Rush' intermediate wheatgrasses
- 'Greenleaf', 'Mandan-759', 'Manska', 'Luna' pubescent wheatgrasses
- 'Hycrest', 'Hycrest II' crested wheatgrasses

- 'NewHy' hybrid wheatgrass
- 'Revenue', 'Pryor' slender wheatgrasses
- 'Rosana', 'Rodan' western wheatgrasses
- 'Critana', 9021076 thickspike wheatgrasses
- 'Lodorm' green needlegrass
- 'Trailhead' basin wildrye
- 'Bozoisky-Select' Russian wildrye.

Forbs and legumes with good stands and productive plants were 'Appar' Lewis flax, 9157946 Chinese milkvetch, 9006032 and 478834 white prairieclover, and 'Delar' small burnet.

The results of the warm-season adaptation trial indicated that the most vigorous species were 'Dacotah', 'Forestburg', and 'Sunburst' switchgrasses with maximum stand development at 50 percent. 'Sunburst' rated the best vigor ranging good to excellent. 'Jackson Creek', a North Dakota blue grama collection, produced a 40 percent stand with good vigor. 'Pierre' side-oats grama, ND-4115 little bluestem, and 'Sunnyview' big bluestem produced 30 percent stands. 'Spredor III' alfalfa produced the best stands (50 percent) of the cross-seeded entries, followed by 'Lutana' cicer milkvetch (25 percent) and 'Delar' small burnet (20 percent).

This study will continue to be evaluated for 8 more years. The data collected from this study will provide necessary performance, adaptation, potential value, and use information for recommending species throughout Montana and the northern Great Plains.

Katrina A. Rusley

---

The United States Department of Agriculture (USDA) prohibits discrimination in its programs on the basis of race, color, national origin, sex, religion, age, disability, political beliefs and marital or familial status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (braille, large print, audiotape, etc.) should contact the USDA Office of Communications at (202) 720-5881 (voice) or (202) 720-7808 (TDD).

To file a complaint, write the Secretary of Agriculture, U.S. Department of Agriculture, Washington, D.C. 20250, or call (202) 720-7327 (voice) or (202) 720-1127 (TDD). USDA is an equal employment opportunity employer.