



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.

HODGES RETIRES

Jean Hodges, PMC Secretary since 1966, retired effective January 3, 1995. Jean is the only secretary the Bridger PMC has ever had. Jean is already missed for all the duties she did, as well as the knowledge she had about the operation of the Bridger PMC office.

FIELD PLANTING REQUESTS

Just a reminder! Field planting requests are due to Larry Holzworth, Plant Materials Specialist, by February 1, 1995. I have received a few requests for plantings of the woody and grass plants we are currently testing. The grass seeds will only be available through 1997, so we must try to accomplish the state-wide performance and adaptation evaluations. Please refer to the Long Range Plans for Field Plantings, National Plant Materials Manual, Appendix, sent out in December 1993.

The Montana field planting requests will be reviewed by the state plant materials (PM) committee March 21-22, 1995. The make-up of the PM committee is the MRST technology staff and whatever NRT individual each team selects to represent them.

The Wyoming field planting requests will be reviewed by the state plant materials (PM) committee February 28 and March 1, 1995. The make-up of the PM committee is the

state office technology staff and whatever individual each team selects to represent them.

Larry K. Holzworth

TISSUE CULTURE LAB DEVELOPMENT

The Bridger Plant Materials Center is one of five centers selected nationwide as a site for a national plant materials laboratory. Our lab, as well as those at Corvallis, OR and Corning, NY, will be conducting primarily plant tissue culture research. The phrase, "plant tissue culture" refers to a broad range of techniques or procedures involving the manipulation of small pieces of plant tissue or groups of cells under sterile laboratory conditions. One aspect of this work, micro-propagation, will be a large part of the research being conducted at Bridger. The goal of this procedure is to clonally replicate a given plant in a shorter period of time than is possible with conventional propagation methods. This technique is particularly useful for difficult-to-propagate species and success often translates into improved research efficiency and the early release of new cultivars.

In 1993, construction was completed on a 20' x 40' annex on our greenhouse:headhouse complex. Lab development continued in 1994 with additional design modifications and equipment procurement. The media preparation area, a sort of high tech kitchen, was designed and cabinetry specifications released for bid. The contract was awarded and we anticipate cabinet delivery in January 1995. Approximately one half of the equipment and supplies needed for startup have been funded and procured to date. Although no funding is anticipated for 1995, the PMC staff plans to continue some lab development and to use equipment for general program support.

Joe D. Scianna

CULTURALLY SIGNIFICANT PLANTS

In 1993, the Bridger Plant Materials Center Long-Range Plan identified as a resource problem the limited availability and knowledge of culturally significant plant species. In order to properly address this high-priority issue, the Center contacted each Natural Resource Conservation Service tribal liaison in Montana and Wyoming. The NRCS employees provided thoughtful and enthusiastic suggestions for this project, including the following topics: workshops on plant identification, seed collection, and plant propagation; seed and plant production on-and off-Center; greenhouse design and management; and inter-tribal species lists and reference lists. Continuing the second phase in 1995, a tour of the PMC was requested by the tribal representatives and is scheduled for March 29 - 30, 1995

The PMC staff encourages comments and input from all NRCS employees and other interested groups and individuals. Lastly, the plant materials program fully supports conservation planning designed to satisfy social, cultural, and economic interests.

Susan R. Winslow

ROW SPACING TRIAL

Many forage plantings are seeded with grain drills having 7 in., 10., or 12 in. row spacing. Although these narrow row spacings provided good ground cover, they do not necessarily maximize forage production. Under arid and/or low nutrient conditions, there is a limited amount of soil moisture and nutrients available to sustain plant life. Wider row spacing and lower plant densities can greatly increase forage production.

Studies were established at the Bridger PMC and the Sheridan, WY., Agricultural Experiment Station to compare forage production of 4 forage grasses at varying row spacing. Rows were planted in a wagon wheel spoke configuration with row spacing from 4 inches to 4 feet.

At Bridger 'Hycrest' crested wheatgrass had maximum production with 2 foot spacing in 1992 and 1993, and with 3 foot spacing in 1994. 'Bozoisky-Select' Russian wildrye had best production at 4 foot spacing during all years. 'Luna'

pubescent wheatgrass and 'Oahe' intermediate wheatgrass had maximum production with 1 foot spacing in 1992, with 2 foot spacing in 1993 and 1994. As the stand grew older the widest row spacing produced the most forage for all species.

At the Sheridan, WY. site, which gets 16 - 18 inches precipitation (compared to 11 at Bridger), Hycrest, Luna, and Oahe did not need row spacing wider than 1 foot, but Bozoisky-Select needed at least 3 foot spacing to maximize production.

On highly erodable soils some production may have to be sacrificed to maximize soil protection, by using narrower row spacing

Mark E. Majerus

NEW ZEALAND GRASSES -- USE WITH CAUTION

Several forage grasses developed in New Zealand have found their way to the Pacific Northwest. These high-yielding grasses have performed well in the coastal states, but as they are brought to the foothills and plains of Montana the harsh winters begin to take their toll.

'Matua' prairiegrass (*Bromus willenowii*), 'Gala' grazing brome (*Bromus stamineus*), and 'Zero Nui', 'Greenstone', 'Dairymaster', and 'PG-65' perennial ryegrass (*Lolium perenne*), were planted at Montana Research Centers at Bozeman, Moccasin, and Kalispell and at the Bridger PMC. First year production at Kalispell was 6.8 T/A for Matua and an average of 6.6 T/A for the perennial ryegrasses. Based on previous plantings they are expected to stay productive for up to 3 years. At the Bridger PMC Matua produced 2.7 T/A in 1993 but following severe winter injury only produced 0.4 T/A in 1994. The perennial ryegrasses went from 2.9 T/A to 0.25 T/A. Gala brome only produced 1.0 T/A during its first year at the Bridger PMC. These grasses have good first - season yields and quality, however, they should be utilized as annual crops throughout most of Montana and the northern Great Plains.

Mark E. Majerus

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