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.

Quarterly Preview of Upcoming PM Activities

January 12-14 - CCA training in Bozeman
13-14 - MT Highway Department meeting in Bozeman
15/22 - EEO & CR training in Billings
27-28 - MSU Planning Conference in Bozeman

February 1 - First call for MT/WY Field Planting Requests
8-13 - SRM Annual Mtg in Guadalajara, Mexico
11 - Pesticide Recertification training in Bozeman
15 - **Final Deadline for MT Field Planting Requests**

March 2-6 - High Altitude Workshop in Ft. Collins
5 - MT PM State Committee Mtg in Bozeman
9-13 - Statistical Analysis Course in Tucson
10 - MT Community Forestry program in Glendive
15 - **Final Deadline for WY Field Planting Requests**
17-18 - WY PM State Committee Mtg in Casper
26 - MT Community Forestry Annual Business Mtg @PMC

1997 Miscellaneous IEP Successfully Installed

On November 7, an assortment of seed collections dating from 1990-1997 were seeded into an initial evaluation planting at the Center. Thirty-five grasses, 118 forbs, and 28 legume accessions, primarily collected by Montana and Wyoming field office personnel, were drilled into a prepared site east of the main office building.

In addition to testing the plant materials over the next 4 years, an evaluation will be conducted on the performance of two types of weed barrier that were placed between and within the planting rows. Weed control is extremely important, especially during the establishment year, and herbicides labeled for selective use on broadleaf herbaceous species are very limited. A continued decline in the availability of financial and human resources made justifying the cost of using weed barrier very easy: Work smarter, not harder!

Anyway, the black strips have already garnered lots of attention from passing motorists (which is good for business), reduced aeolian erosion, and lowered evaporative water loss. Many thanks to co-worker Joe Scianna for planting assistance and to all the original seed collectors. May the best performers win the plant selection award! Susan R. Winslow

Dormant Season Care Of Woody Seedlings

As the hectic field season winds down in the fall, it's natural to assume that there isn't much need for additional care of woody seedlings and that these plants are pretty much on their own until spring. There are, however, some things that cooperators can do to improve the chances of plant survival and vigor the following spring. Keep in mind that dormant season care is more critical for young plants than for established material, although a little additional care of mature plants never hurts.

The first thing that can be done to improve over-wintering success is late fall to early winter watering. The current recommendation is to terminate watering in mid August, allow new growth to "harden-off" prior to winter, and then turn the water back on once the plants are fully dormant but before the ground freezes. This extra moisture helps saturate the soil profile at a time when evaporative losses are low thus providing a reservoir of water over the winter. Keep in mind that, although plants are dormant over the winter, they continue to transpire moisture, especially during warm, windy periods. Watering after the ground has frozen hard is risky because of the possibility of frost and ice damage to the root system and a potential reduction in available oxygen.

Another method of reducing winter desiccation is through the application of anti-transpirants. These products are sprayed on the plants and provide a layer of protection against evaporative and transpirational losses. There are several products on the market that work well, although it may be necessary to periodically reapply this material. It is also possible to reduce winter seedling desiccation by installing shingles or shades on the south, or windward, side of each seedling. These provide partial shade as well as wind protection. At the PMC, we have used commercially available, black woven, poly squares installed over a wire support with good results.

Animal predation of woody plants, particularly during the winter months, is another problem in the

northern plains. Deer mice, gophers, rabbits, elk, and other animals all contribute. Control techniques are as wide and varied as the results. Young plants are the most likely to be seriously damaged.

Exclusion is the most dependable method of keeping deer off your woody plants. A combination of physical and electrical barriers works best. The number of fence designs is fairly extensive, and some work better than others. At the PMC, we protect our woody production beds with a vertical, 14-wire, 8 foot high, 10,000 volt, high tensile behemoth. The fence has alternating hot and ground wires to assure a good "connection" when touched, with closer spacing of the wires at ground level in order to exclude rabbits. To date, the fence has proved 100% effective! For relatively small areas of high value crops, this system works great, although fencing materials alone in 1993 ran about $3.00 per linear foot. Less expensive versions based on vertical or angled designs with wider wire spacing have also proven effective in reducing damage.

When the density and value of plant material does not warrant the cost of an electric fence, physical barriers such as plastic tubes, chicken wire, hardware cloth (wire screen), and even snow fence may do. There are several designs of plastic tubes including unventilated solid tubes, ventilated solid tubes, and plastic mesh tubes. The reviews are mixed on the unventilated tubes, with some evidence that they act as a greenhouse, keeping certain species actively growing when they should be hardening-off. For some species, however, the greenhouse effect appears to be advantageous, allowing the seedling to put on extra growth by essentially extending the growing season. We've used the plastic mesh tubes at the PMC on our bur oak study with good results. The only potential problem involves the leader getting caught occasionally on the mesh opening and curling back. Periodic inspection easily corrects this problem. Deer still browse the plants, but leader and overall plant damage is maintained at a tolerable level. The mesh tubes are suppose to photo-degrade over time, although there is evidence that deterioration may be quite slow under certain environmental conditions.

Rodent protection usually involves protecting the lower bark or cambium of the seedling up to a high snow level. Welded hardware cloth with very small holes, wrapped around the trunk, is best. Be sure to check the cloth periodically over the years to make sure that the wire isn't girdling the trunk. The cloth can be removed once a woody bark develops.

There are a host of other animal control strategies including various cultural treatments, planting resistant species, habitat modification, frightening, live capture, shooting, and repellents. Keep in mind that your control strategy will vary depending on the level of control required, the amount of economic resources available, and the value of the crop. Joe Scianna

Field Planting Reminder

It's time to get out of your comfort zone and explore the possibilities of new plant materials. Yes, you and your customers can get involved in "cutting edge" technology by helping the plant materials program evaluate the performance and adaptation of new plants. Long Range Plans for Field Plantings were sent out in 1993 on ' Goldar' bluebunch wheatgrass, 'Bannock' thickspike wheatgrass, 'Rush' intermediate wheatgrass, and 'Newhy' quackgrass X bluebunch hybrid wheatgrass. Long Range Plans for Field Plantings for Sandberg bluegrass, mountain bromegrass, and switchgrass were forwarded to the field in January 1997. Please review these plans, filed in your National Plant Materials Manual, and try some of these new plants in your area. Larry Holzworth

PLANT PROFILE: Sandberg bluegrass

Sandberg bluegrass is found on a wide variety of range and forest sites, being listed as an increaser (5-15% composition) in about every range type throughout Montana and Wyoming. It can be found in small tufts with one or two seed culms, or in large tussocks up to one foot across. It is one of the first grasses to green up in the spring, utilizing early spring moisture to quickly produce forage and set seed. Both wildlife and livestock relish this early spring growth. Plant maturity comes early (late June-early July), rendering this grass less palatable during the rest of the growing season. Its excellent drought tolerance can be attributed to an extensive, deep, fibrous root system and plant dormancy during the drier part of the growing season. Sandberg bluegrass is often a pioneer species on disturbances and readily invades or increases on droughty range sites that have been pitted, gouged, or imprinted. This species is commonly included in seed mixtures for reclamation of drastically disturbed lands and for rangeland renovation. There are no released varieties of this species, so all available seed is from native harvests.

Initial seed collections of Sandberg bluegrass were made throughout the Red Desert, Big Horn Basin, and other arid range sites in Wyoming. After testing on a coal mine near Rock Springs, WY, a bentonite mine near Greybull, WY, and at the Montana Conservation Seedling Nursery in Missoula, MT, three accessions were identified as having superior seedling vigor, drought tolerance, and longevity. The collections from Natrona County (near Casper), Uinta County (west of Granger), and Campbell County (south of Buffalo) have been combined and are being increased as accession '9078408'. Seed of this accession is available for field testing as per the *Planting Guide*. It is anticipated that a 'Tested', pre-varietal release will be made from the Bridger PMC by the spring of 1999. Mark E. Majerus