

PLANT MATERIALS TODAY

A newsletter from the USDA-NRCS Montana-Wyoming Plant Materials Program for those Interested in Plants and Conservation



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For more information on Plant Materials or for electronic access to this and other documents, access our web sites, [Montana NRCS](http://www.mt.nrcs.usda.gov) at <http://www.mt.nrcs.usda.gov> or [National Plant Materials Program](http://plant-materials.nrcs.usda.gov/mtpmc/) <http://plant-materials.nrcs.usda.gov/mtpmc/>. Direct inquiries to USDA-NRCS, Plant Materials Center, 98 South River Road, Bridger, MT 59014, phone: 406-662-3579, FAX: 406-662-3428.

🌿 Important Reminders 🌿

*Field Offices – don't forget to make 2012 seed collections – thank you!

🌿 Feature Topic 🌿

Revegetating After Fire

Phone calls are already coming in to the Center from private landowners seeking advice on revegetating after fire. The questions mostly relate to species selection, where to buy seeds and plants, and how to properly sow and plant. Although there are species and selections that lend themselves to revegetation after fire, many of these plants are the same ones used for other critical area applications.



The Montana and Idaho NRCS web sites have numerous Technical Notes to help landowners and Field Office staff with post-fire revegetation, even though they do not all specifically address fire. For a good overview, reference “*Wildfire-Recovery Tips for Idaho*” at [http://plant-](http://plant-materials.nrcs.usda.gov/pubs/idpmspu6988.pdf)

[materials.nrcs.usda.gov/pubs/idpmspu6988.pdf](http://plant-materials.nrcs.usda.gov/pubs/idpmspu6988.pdf) Although the *Recommended Grasses, Forbs* section may not be ideal for Montana and Wyoming (see below for recommendations for our states), the document is an excellent, concise overview of reducing soil erosion and establishing plant cover after a burn.

There are lots of great publications on the Montana NRCS web site (<http://www.mt.nrcs.usda.gov>) to assist landowners with developing a revegetation plan after a fire. Some helpful documents include the following [Plant Materials Technical Notes](#):

MT-69 – *Standard and Preferred Forage and Reclamation Plants for Use in Montana and Wyoming*

MT-67 – *Seed Source Selection, Use of Certified Seed, and Appropriate Seed Release Class Improve Conservation Planting Success*

MT-58 - *Seedbed Preparation and Seeding*

MT-57 - *Plant and Seed Vendors for Idaho, Montana, Nevada, Eastern Oregon, Utah, Eastern Washington, and Wyoming*

MT-51 - *Temporary Storage and Handling of Container, Bareroot, and Cutting Stock*

MT-46 (Revision 3) – *Seeding Rates and Recommended Cultivars*

MT-38 – *Reading Seed Packaging Labels and Calculating Seed Mixtures*

So exactly what plant species do we recommend for fire recovery in Montana and Wyoming? That answer varies widely with location, site conditions, land use, and seed availability. In developing a seed mix, use some fast-establishing native species like slender wheatgrass ('Pryor') or mountain brome ('Garnet'), or where appropriate, non-natives



Nevada bluegrass

like pubescent ('Luna') or intermediate wheatgrass ('Rush'). For long-term site stabilization, include rhizomatous species like western wheatgrass ('Rosana'), thickspike wheatgrass ('Critana'), and streambank

wheatgrass ('Sodar'). Also include slower establishing but more persistent species like bluebunch wheatgrass ('Goldar', 'Anatone'), basin wildrye ('Trailhead', 'Magnar'), Sandberg (High Plains Germplasm), Nevada (Opportunity Germplasm), and big bluegrass ('Sherman'), needle-and-thread, and green needlegrass ('Lodorm'). Possible forb species include western yarrow (Great Northern Germplasm), prairie coneflower (Stillwater Germplasm), and white prairie clover (Antelope). Although a few woody plants like winterfat and four-wing saltbush establish well from seed in a mix, woody plants establish best when planted as dormant bareroot or container plants in the spring. Consider species like Rocky mountain juniper (Bridger-Select), ponderosa pine (Hunter Germplasm), western snowberry (Trapper Germplasm), silver buffaloberry ('Sakakawea', Mill Creek Germplasm), skunkbush sumac ('Big Horn'), chokecherry, and Woods' rose.

Still need more help developing a good seed mix? Call your Plant Materials Specialist, local NRCS Field Office, Area Office, or county Extension Agent for assistance and guidance.

Joe Scianna - BPMC Manager/Horticulturist

From the Field

Roundup Field Office - Tree and Shrub Survival Observations

In 2011, Pete Husby and I had the opportunity to tour WHIP projects that had been completed in south-eastern Montana. The overall message of the tour was that, without protection from wildlife and livestock, tree and shrub plantings were ineffective. We looked at seven tree plantings, five of which had either no fence or only fencing from livestock. All five of these

plantings were declining and were not going to be successful, and three of them had almost no surviving trees or shrubs. These were not the first failed tree and shrub plantings either of us had come across, but when you look at one after another after another, it becomes obvious there is a problem.

There are no easy solutions. Electric double deer fence requires regular maintenance – something that can be a problem for busy landowners. A 7-foot deer exclusionary fence is ideal, but is relatively expensive and often difficult to convince landowners to install.



Heavily browsed planting with excessive herbaceous competition

Unfortunately, there are very limited instances where some form of animal protection is not required in order to establish woody plants. If a landowner wants trees and shrubs, they need to understand protection will be necessary. Weed barrier is also typically necessary and access to supplemental water is extremely helpful during the establishment year, as well as in dry years.

Herbaceous plantings designed to provide cover and foraging opportunities may be an alternative to woody plantings. Choose species that physically stand upright in the winter, such as basin wildrye and tall wheatgrass, thereby providing important cover. Basin wildrye seed is also a good winter food source. Forbs such as small burnet, Maximilian sunflower, annual sunflower, and prairieclover also provide foraging opportunities. Annual food plots should also be considered, especially when there is limited acreage of cropland close by. Always provide as much diversity in plant species as possible.

Jennifer Woodward - Roundup Field Office

The Specialists' Corner

Seasonal Forage Quality of Five Tame Pasture Grasses on Dryland Pastures in Montana

Seasonal forage quality is an important consideration when planning pasture development or renovation, and information on season-long forage and quality is an identified need in the Bridger PMC 2012-2017 Long Range Plan. For any number of reasons, most pastures are planted to non-native grasses and legumes. This article reports the re-analysis of the results of a forage quality study of five tame pasture grasses, grown over three years, on three dryland sites in Montana. The study was completed in 2001 by Curtis Blunt in partial fulfillment of his Masters Degree at Montana State University. The five grasses are crested wheatgrass, Altai wildrye, Russian wildrye, pubescent wheatgrass, and intermediate wheatgrass. For each of the grasses, three cultivars were tested: 'Douglas', 'Hycrest', and 'CD-II' for crested wheatgrass ('Hycrest' and 'CD-II' are hybrids of *Agropyron cristatum* and *A. desertorum*); 'Pearl', 'Prairieland', and 'Eejay'

for Altai wildrye; 'Bozoisky-Select', 'Mankota', and 'Swift' for Russian wildrye; 'Greenleaf', 'Luna', and 'Manska' for pubescent wheatgrass; and 'Oahe', 'Reliant', and 'Rush' for intermediate wheatgrass. These grass species and their varieties are described in Plant Guides found on the PLANTS Database: <http://plants.usda.gov/java/>

Livestock performance is the ultimate determination of forage quality but estimates of forage quality constituents, including crude protein (CP), acid detergent fiber (ADF), and *in vitro* digestible dry matter (IVDDM), can be used to predict animal performance. Crude protein is the amount of nitrogen from both protein and non-protein sources in the forage and is predictive of available protein. Acid detergent fiber concentration measures cellulose and lignin in cell wall portions of the forage and relates to an animal's ability to digest forage; as ADF increases digestibility decreases. *In vitro* digestible dry matter estimates the amount forage that is potentially digestible. Blunt used near infrared reflectance spectroscopy to measure CP, ADF, and IVDDM.

The first question addressed by the re-analysis was; do the five tame pasture grasses differ in forage quality among spring, summer and fall seasons? For crude protein concentration the answer is, "yes". Early season CP concentrations were not different among species and were 23 percent for pubescent and intermediate wheatgrasses, Russian wildrye, and Altai wildryes, and 21 percent (%) for crested wheatgrass, suggesting any of these species would provide equally nutritious spring forage. Crude protein concentrations differed at mid-season when Altai wildrye crude protein concentration was 16%, which was greater than pubescent, intermediate, and crested

wheatgrasses (14%), but not Russian wildrye (16%). CP in Russian wildrye was significantly greater than intermediate and crested wheatgrasses but not pubescent wheatgrass. By late season, Altai (11%) and Russian (10%) wildryes had more CP than intermediate (9%) and crested (9%) wheatgrasses, but not pubescent wheatgrass (10%). The crude protein in pubescent wheatgrass was not significantly different than intermediate and crested wheatgrasses.

For ADF and IVDDM the answer is, "no". There were no significant differences in ADF among species at any season and ranged from 261 to 241 g/kg in spring, 335 to 314 g/kg in the summer, and 392 to 367 g/kg in the fall. Similarly, there were no significant differences in IVDDM among species at any season and ranged from 629 to 584 g/kg in spring, 478 to 461 g/kg in the summer, and 373 to 337 g/kg in the fall. The results show that all of the five tame grasses are equally nutritious early in the growing season and the CP results support recommending either Altai or Russian wildrye over the wheatgrasses for mid- and late season pasture.

Blunt found forage quality was variable across locations and years. During hot dry summers like this year, forage quality will decrease earlier in the season than cool wet summers. More information on seasonal forage quality of tame pasture grasses and their varieties grown across Montana will be published in a Technical Note available this fall on the Montana NRCS and Plant Materials web sites.

Jim Jacobs, Montana-Wyoming Plant Materials Specialist

🌿 Technician Tip 🌿

Turbulent Fountains Save Bridger Plant Materials Center Staff Hours of Work

Although they have been available for many years, turbulent fountains (also known as “bubblers” and “screen filters”), are still not a common installation in many areas on Montana and Wyoming using flood irrigation. The Bridger PMC installed two fountains at the head of each irrigation line on the Center back in 2006, costing then about \$5,000 each for materials and installation. Water from our open irrigation



ditch bubbles upward under pressure from the elevation drop from the ditch to the unit, and then runs over a fine screen mesh and back into the irrigation lines that feed the Center. Debris stays on the screen and is removed periodically by hand. A built-in float reduces overflow when there is no demand for water.



The payback, in terms of person/hours saved, has been significant. It is virtually no longer necessary to clean out sprinkler heads and gated pipe. An unexpected benefit has been that honeybees shuttle water back to their hives from the surface of the screen, presumably to cool the hive when temperatures rise. We strongly encourage landowners and PMCs to investigate this option for improving water cleanliness.

**Darren Zentner, Ross Oyler, and Robert Fisher -
BPMC Biological Technicians**

🌿 Seasonal Suggestions 🌿

Here are several conservation plant suggestions appropriate for this time of year (mid- to late summer):

- 1) Water your trees and shrubs until mid-August and then gradually reduce watering in the late summer. If stressed however, do not discontinue watering woody plants. Resume watering after fall dormancy and until the ground freezes.
- 2) In agronomic fields, consider walking fields to identify herbicide resistant weeds and remove them by hand and destroy.

Picture This!

A few images of Bridger Plant Materials Center summer activities:



Harvesting Rimrock Indian ricegrass



Installing cottonwood deep pot study



Soil health workshop at Bridger Plant Materials Center



Xerces Society pollinator training session at Bridger Plant Materials Center

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