

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 websites, [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.

Happy New Year and welcome once again to Plant Materials Today. We took a little break from publication, but have returned with a new format, varied topics, and concise delivery that will hopefully allow for easy and valuable reading.

Important Reminders

*Field Offices - don't forget to send in 2011 seed collections – thank you!

Feature Topic

Understanding Seed Dormancy

“Dormant” seeds are seeds that will not germinate within a specified amount of time without pretreatment – a very important cultural consideration. This evolutionary mechanism prevents germination when seedling mortality might be high, such as in the fall. The implication for conservationists is that untreated, dormant seeds should be sown at a time of year when the environment provides the needed pretreatment naturally. Although dormancy breaking of many species occurs over winter, some plants require additional or different conditions. The seeds of many northern temperate trees, shrubs, and wildflowers have dormancy mechanisms, whereas most grass species germinate without

pretreatment. Ah, but there are exceptions! Indian ricegrass, beardless wildrye, manystem wildrye, and some green needlegrass seed sources are grasses requiring fall planting to break dormancy. In contrast, silver buffaloberry, winterfat, big sagebrush, rubber rabbitbrush, several cottonwood and willows, and bur oak are woody plants that will germinate without pretreatment.



Indian ricegrass seeds

It is important to know the seed dormancy status of each species in a seeding prescription. This information influences the optimum season to plant, when the stand is likely to establish, and if multiple seedings are necessary. For instance, if you spring plant seeds needing a winter pretreatment to break dormancy, they will not germinate until the second spring; that is, if they are not lost to

rodents and negative environmental conditions over the summer, fall, and winter.

It is important to note you can fall sow non-dormant seeds across most of Montana and Wyoming after mid-October with good germination the following spring.

Look for a new BPMC Technical Note on this subject in 2012. For now, reference Technical Note MT-46, release brochures, the PLANTS database, Plant Guides, Plant Fact Sheets, and the NativePlants propagation protocol database (<http://www.nativeplantnetwork.org/>) for dormancy information.

Joe Scianna - PMC Manager/Horticulturist

From the Field

Miles City Area and Field Office Partner with BPMC and ARS at Fort Keogh

Staff from the Miles City Area and Field Offices was busy in 2011 supporting a variety of Plant Materials activities in our service area including field plantings, seed collections, participating in the Plant Materials Committee meeting, and collaborating on two studies at the ARS station at Fort Keogh. The first study, installed this summer, compares several plant growth parameters of plains cottonwood grown in 10-, 24-, and 36-inch deep pots. The theory is deep rooted container plants might access sub-surface soil moisture not available to shallow rooted plants. Miles City and ARS staff helped prepare the test site, install a wildlife exclusion fence, plant the seedlings, and evaluate the study. Preliminary results are promising; with 24- and 36-inch plant survival and growth better in 2011 than the 10-inch plants.



Plains cottonwood depth of rooting study

In a second study at Fort Keogh, the Miles City crew helped install two large wildlife exclusion fences on 4 acres of test plots. The goal of this second study is to determine the best approach to revegetation after Russian olive removal. ARS has already cleared the test area of 2,500 Russian olive plants, and seeding and planting by the BPMC is planned in 2012.



Cottonwood gallery after Russian olive removal

Robert Kilian – Miles City Area Rangeland Specialist

(The PMC staff thanks Robert Kilian, Holger Jensen, Mark Henning, Jenny Woodward, Pat Hagemester, Scott Brady, Robert Mitchell, Kristi Nile, Pat Rohling, and Fort Keogh for their hard work and support of Plant Materials in 2011).

The Specialists' Corner

Basin Wildrye Field Planting Summary

In order to test the performance and range of adaptation of conservation plants, the Montana and Wyoming field planting databases were

developed, containing records of field planting evaluations dating back to 1990 for plantings established as far back as 1981. As an example, over the last 30 years there were 59 basin



Basin wildrye stand

wildrye *Leymus cinereus* field plantings, 32 and 27 across Montana and Wyoming, respectively. Basin wildrye is a valuable native bunchgrass used in a variety of conservation applications such as wildlife cover, mined land reclamation, Xeriscaping®, and calving pastures. Most plantings compared 'Trailhead' (Bridger PMC release) with 'Magnar' (Idaho PMC release). Eight plantings resulted in failed stands in each state (25% and 29% in Montana and Wyoming, respectively) and in all cases both cultivars failed to establish. In Wyoming, two plantings rated as failures were subsequently rated as "Fair" or better (basin is slow to establish).

On average, Trailhead stands ("Fair") were slightly better than Magnar stands ("Poor" to "Fair", $p=0.03$) (see CHART 1). There was no statistical difference between the vigor ratings of the cultivars, and they averaged a "Fair" rating across all plantings (see CHART 2). Regression analysis showed there was no relationship between state, major land resource area, and evaluation year on stand establishment or vigor, suggesting both cultivars are equally adapted to climate and soil conditions in both states. There was a negative relationship between the evaluated weed severity of the site and stand establishment. Of the four weed severity ratings ("None", "Light", "Medium", or "Severe") Analysis of Variance showed moderate and severe weed

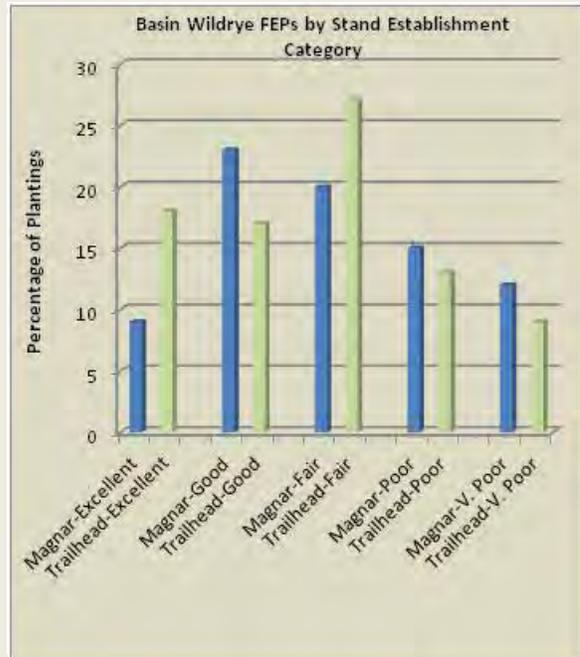


CHART 1. Stand establishment ratings of basin wildrye cultivars

ratings at the time of evaluation reduced basin wildrye stands from a average rating of fair to poor. This is further emphasis of the importance

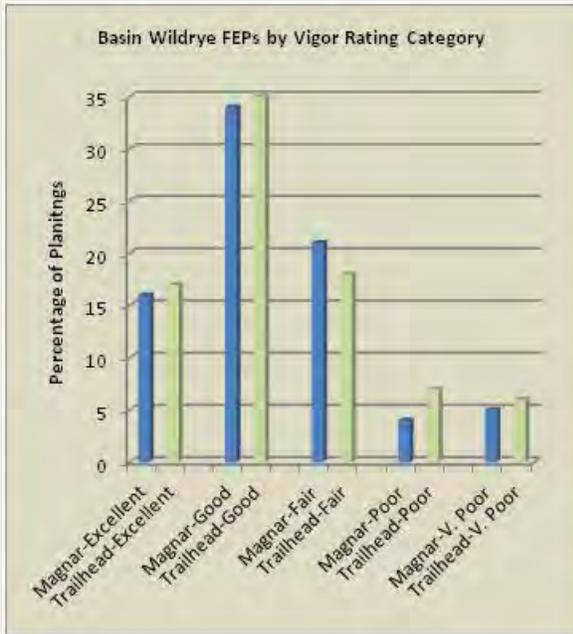


CHART 2. Vigor rating categories of basin wildrye cultivars

of starting with a weed-free seed bed and managing weeds. To learn more about basin wildrye, visit the PLANTS, Montana and Wyoming NRCS, or Plant-Materials websites.

Jim Jacobs, Montana-Wyoming Plant Materials Specialist

Plant Profile

Finding Conservation Plant Information

Plant Materials Today has used this column to feature conservation plant species for many years. So where do you get information on the great Plant Materials conservation releases? Lots of places! Start with the release brochure, nearly every release has a brochure, and several are currently being updated to reflect new research findings. Hard copies are available in most Field Offices, whereas electronic versions are available on the Montana NRCS and national Plant Materials websites. Also use Plant Fact Sheets and Plant Guides in the [PLANTS database](http://plants.usda.gov/) at <http://plants.usda.gov/>, and numerous Plant Materials Technical Notes

containing release-specific information. Can't find what you need, call the BPMC.

Web World

Electronic PM Resources and Where to Find Them

This is a reminder that Montana-Wyoming Plant Materials information is readily available on multiple websites. A new addition to our electronic information is Bridger PMC TV, short YouTube clips of plants releases, research studies, farming equipment, and more.

- 1) [Montana NRCS](http://www.mt.nrcs.usda.gov) at <http://www.mt.nrcs.usda.gov>. All things specific to the Montana-Wyoming PM Program including Technical Notes, Bridger PMC TV (YouTube videos), Field Evaluation Plantings, seed collections, forms, publications, the National Plant Materials manual and the Montana Supplement, links to other important sites, and more.
- 2) [Wyoming NRCS](http://www.wy.nrcs.usda.gov) at <http://www.wy.nrcs.usda.gov>. Much of the same information found on the Montana NRCS site with Wyoming-specific information on weeds, seed laws, etc.
- 3) The [PLANTS database](http://plants.usda.gov/) at <http://plants.usda.gov/>. Invaluable information on thousands of native and introduced plant species including Plant Guides, Plant Fact Sheets, species characteristics, current nomenclature, invasive status, and more.
- 4) [National Plant Materials Program](http://plant-materials.nrcs.usda.gov) at <http://plant-materials.nrcs.usda.gov> - Information on the entire Plant Materials Program on a service area by service area basis.

🌿 Technician Tip 🌿

New High Tech Seed Cleaner Acquired at Bridger PMC

Seed cleaning at the BPMC is a 3 to 4 month effort requiring extensive skill, patience, and persistence. With record seed production at the BPMC in 2011, the acquisition of a new color-texture seed sorter came just in time. This amazing piece of ARS developed technology



Color-texture seed sorter developed by ARS

allows separation of weed seeds from desirable seeds even when the size, shape, and weight of the seeds are similar. A computer program distinguishes between desirable and undesirable seeds and then small micro-bursts of air make the separation. This small scale model is ideal for Breeder and Foundation size lots needed at the BPMC. Our thanks to the Montana NRCS state office for acquiring this needed piece of cutting edge technology!

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

🌿 Seasonal Suggestions 🌿

Here are several conservation plant suggestions appropriate for this time of year (early to late winter):

- 1) Water your trees and shrubs if the ground is not frozen.
- 2) Clean out dead limbs in your trees and shrubs in late winter.
- 3) Plan to apply pre-emergent herbicides in late winter so they are activated by early spring rains. Read product labels!
- 4) Do not wait too long before ordering shrubs.

🌿 Plant Materials Calendar 🌿

January 19, 2012 - Wyoming Plant Materials Committee Meeting in Casper, Wyoming

January 23, 2012 - Horticulture, Foundation Seed, and Plant Materials meetings at Montana State University, Bozeman, Montana

February 2, 2012 - Wyoming Crop Improvement Association Annual Meeting, Powell, Wyoming

February 25, 2012 - Common Sense Conservation, UW Extension, Holiday Inn, Cody, Wyoming

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