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 at http://www.mt.nrcs.usda.gov or National Plant Materials Program 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 2013 seed collections! The list can be accessed at **http://www.mt.nrcs.usda.gov/technical/ecs/plants/collections/index.html**.

Feature Topic

Seeding Rates for Conservation Species

Probably the most accessed Montana Plant Materials Technical Note is MT-46, now titled, *Seeding Rates and Recommended Cultivars*. Many vegetative conservation practice reference this document for seeding rate determination and calculations. The current version was last updated in 2010.

The Montana-Wyoming Plant Materials staff have discussed for some time the need to update the table and to include descriptive narrative to help users understand the nuances of seeding rate calculations.

With the leadership of Mark Majerus, Manager Emeritus, and the Plant Materials staff, updates are nearly complete on this extensively revised Technical Note. We don't often "sell" a product until it is posted, but this information is so helpful in seeding rate development, we thought a "heads-up" might be worthwhile.

The latest revision of MT-46 incorporates four significant changes:

1) The seeding rate table has been reorganized by life form and whether the species is native or introduced.
2) The seeding rate table has been standardized to ensure compatibility of rates based on seeds per unit area (which is a reflection of seeds per pound). The recommendations are based on seed size ranges as follows:

Seed Size Class	Number of PLS Seeds Per Pound	Target Number of PLS Seeds Per Foot
small	>800,000	30 to 50
medium	80,000 to 800,000	20 to 25
large	<80,000	15 to 20

Note that the smaller the seeds, the more that are recommended per foot. Small seeds are easily buried and lack the endosperm and energy to emerge from deep or heavy soils. In a few cases, pecularities in emergence and establishment have prompted minor rate adjustments of select species as well.

3) The table has been updated to include corrections, additional species, and to exclude seeding rates for many woody species since planting of seedlings is the preferred method of establishing trees and shrubs.
4) Narrative has been added to explain the table and how it was developed. To clarify its use, sample calculations are even provided and explained!

It is well worth a few minutes of your time to become familiar with this updated information before developing your next conservation mix or making a seeding rate recommendation. Look for an updated MT-46 on the Montana and Plant Materials websites within 30 days. Hope it helps!

Joe Scianna - BPMC Manager/Horticulturist

From the Field

New Thesis Projects at Bridger

Two graduate students began work on their thesis projects at the BPMC this year. Rosemary Keating, a Montana State University Masters candidate, is working with Dr. Tracy Dougher on silverleaf phacelia *Phacelia hastata*. The goal of her study is to determine if growth regulators are effective at increasing the seedhead height

Figure 1. Silverleaf phacelia test plot at BPMC.

of this valuable conservation species. Silverleaf phacelia is an excellent pollinator plant, very drought tolerant, winter hardy, and has even proven itself tolerant of the acid and heavy metal contaminated soils associated with the Anaconda-Butte area. A potential drawback to commercial acceptance may be its low stature, which can limit mechanical harvesting of seed. Rosemary is testing various products to determine if seedhead height can be extended, and if so, how do these treatments effect seed production and viability.

Dylan Bergman is a Masters candidate with the University of Wyoming working with Dr. Lyle King on restoration of bentonite soils. Dylan is testing several native species, including some annuals, at Bridger in a control plot setting, a

Figure 2. Dylan Bergman, Darren Zentner, and Ross Oyler installing test plot in early 2013.

site where environmental conditions are relatively good. The results can be compared to more severe bentonite test sites. Dylan has already identified several species with superior emergence, and will be evaluating survival and establishment over the summer.

Outreach Activities

Working with underserved and non-traditional customers has always been part of the BPMC

program. In 2013, the Center was approached by Marty Flannigan, a man with a passion for champion trees, to propagate the largest scoring narrowleaf cottonwood *Populus angustifolia* known in the U.S., and native to Joliet, Montana. Marty wanted to preserve the genetics of this special tree, and possibly establish a clonal planting to preserve its genetics. The Center agreed to help with initiation of adventitious rooting, and has partnered with the Special K Ranch, a facility for special needs adults, to finish the process by producing containerized stock.

On April 12, Marty, with the help of Fred Bicha and crew from Billings Parks, Recreation and Public Lands, took cuttings from the champion tree and delivered them to the BPMC. The following week, Center staff prepared the cuttings and placed them in a mist bed for rooting. Within 6 weeks, approximately 91% had rooted, which were later transferred to containers and moved outside to acclimate.

Figure 3. Darren Zentner and Susan Winslow prepare narrowleaf cottonwood cuttings of champion tree.

Special K staff picked up the potted plants in June and will transplant them into larger pots and over-winter them in their greenhouses at the ranch west of Columbus, Montana.

Technician Tip

Improving the Efficiency of Cleaning Combines

Thoroughly cleaning harvesting equipment after each crop is essential to avoiding contamination between fields and crops. Air compressors are typically used to clean most equipment, and although they do a pretty good job, the process is still slow with conventional compressors.

Figure 4. High volume air compressor.

To improve efficiency, the Center bought an industrial grade, high air volume compressor in 2011. Although it was a significant investment, cleaning time has been reduced by half, and the quality of the job increased as well. The unit has many other uses as well, such as cleaning shop floors prior to spreading out seed, cleaning the seed processing facility, winterizing our sprinkler system, cleaning equipment and buildings of debris prior to maintenance, and more.

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

Seasonal Suggestion

Tree and Shrub Planning

Strategize now for spring 2014 and 2015 tree and shrub plantings. Site preparation should begin at least one year in advance of planting, especially if weeds or rhizomatous grasses need to be controlled. Consider placing seedling orders early in order to obtain the best selection of species and seed sources.

Picture This!

A few images of Bridger Plant Materials Center 2013 summer activities:

Bridger Plant Materials Center rain garden

Stacking hay barley bales.

Enthusiastic summer workers weeding Great Northern yarrow.

'Pryor' slender wheatgrass drying in seedbarn.